DIVISION 15A – PLUMBING

1.1 DESCRIPTION OF THE WORK

A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Plumbing fixtures, water heaters, and any other equipment necessary.
2. Cold and hot water piping and insulation.
3. DWV piping.
4. Natural gas piping.
5. Connection of all equipment; drain, vent, water, gas.

B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply.
1. The National Electrical Code.
2. 2018 N.C. Building Code: Plumbing, and all applicable category codes.
3. American Society of Sanitary Engineering Standard 1010.
4. All local codes and ordinances.

C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.

D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.

E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.

1.2 INTENT

A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner. The PC shall determine and coordinate with existing conditions.

1.3 COORDINATION

A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.

B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.

C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bw valve. Notify engineer of backwater valve requirement, any issue prior to bid.

1.4 SHOP DRAWINGS

A. Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

PART 2 – PRODUCTS

2.1 FIXTURES

A. Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.

B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.

C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.

D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator icemaker, exterior hose bibbs and all other plumbing fixtures.

E. Provide trap primers for all floor drains in areas not served by hose bibbs.

2.2 PIPING

A. Drain–Waste–Vent: All DWV piping shall be Schedule 40 PVC–DWV u.o.n., with the following exceptions: Use cast iron piping in all return air plenums, penetrations of rated walls/floors/ceilings, and in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings. ABS or cast iron piping shall be used for drainage/discharge with a temperature greater than 140 deg. F for a minimum distance of 10'–0".

B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM–B88), hard drawn with wrought copper fittings (ANSI B16.22). PEX piping with copper fittings may be used with owner/tenant approval and as allowed per code. Copper piping shall be used in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings.

C. Cold water piping below grade: Type "K" copper (ASTM–B8A) soft drawn.

D. Natural gas piping shall be black steel pipe with screwed or welded joints. Support all piping as required by code. Use commercial style hangers, pipe strapping will not be allowed. Provide dirtleg, union, shut–off valve and flexible connection to all equipment. Pressure test all piping prior to putting into use. Verify size requirements prior to installation. Coordinate requirements with local gas company prior to submitting bid. Provide all components necessary for a complete operation system. Label piping per code. Paint exterior and exposed gas lines per code and building owner.

E. Hangers: Use pipe hangers where required on 8–foot centers with saddles to avoid crushing insulation.

F. Solder: 95/5. Lead free.

G. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.

2.3 CLEANOUTS

A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.

2.4 SHOCK ARRESTERS

A. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for qualify construction. Provide for all quick closing valves.

PART 3 – EXECUTION

3.1 CONNECTIONS

A. This contract includes complete connection of cold water, hot water, drain, vent, and natural gas piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.

B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.

C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.

3.2 SERVICE ACCESS

A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

3.3 ROUTING OF PIPING

A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.

B. Space pipe hangers per NCSBC– Plumbing Sect. 308.5 and Fuel Gas Code Sect. 415.1.

C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.

3.4 INSULATION

A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R–6.5 min.) in unconditioned areas. See NCSBC–Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. C404.4 of the NCSBC 2018 Energy Conservation Code.

B. Provide pre–fabricated insulation kits for all sink and lavatory exposed drain and supply piping.

3.5 INSPECTIONS AND TESTS

A. Before being concealed, all water, soil and vent piping shall be tested to determine if they are water– and air–tight.

B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

3.6 STERILIZATION OF PIPING

A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

3.7 SERVICE PRESSURE

A. Provide approved water–pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSBC–Plumbing Sect. 604.8.

3.8 DRAINDOWN

A. Contractor to provide for complete plumbing system drain down.

3.9 CLEAN UP

A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.

3.10 GUARANTEES

A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.

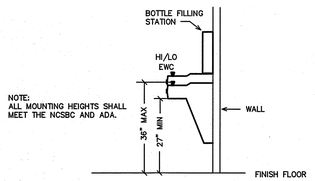
B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

GENERAL NOTES – PLUMBING

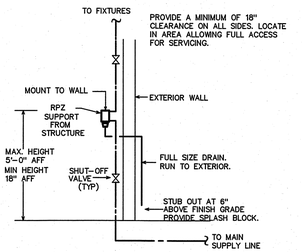
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
2. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
3. THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
4. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
5. THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE LOCATIONS.
6. ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
7. ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR A MINIMUM OF 15 MINUTES AT A MINIMUM OF 100 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
8. PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
9. VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
10. PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
11. PROVIDE/VERIFY HIGH TEMPERATURE HOT WATER (HTHW) AT 120 DEGREES F (MAX).
    PROVIDE/VERIFY MEDIUM TEMPERATURE HOT WATER (MTHW) AT 110 DEGREES F (MAX). PROVIDE MTHW TO ALL LAVATORIES. PROVIDE ASSE 1070 THERMOSTATIC MIXING VALVE (TMV)– WATTS LFUSG–B 'LEAD FREE' GUARDIAN (OR EQUAL) AS REQUIRED FOR EACH LAV UNIT.
    PROVIDE/VERIFY LOW TEMPERATURE HOT WATER (LTHW) AT 85 DEGREES F (MAX) TO EYEWASH (SEE FIXTURE SCHEDULE– THERM. MIXING VALVE INCLUDED IN SPECIFICATION)
    LOCATE ALL MIXING VALVES IN A MAINTENANCE ACCESSIBLE AREA BELOW FIXTURE, ABOVE CEILING, OR AS REQUIRED. VERIFY REQUIRED CERTIFICATIONS FOR ALL MIXING VALVES– PROVIDE/VERIFY ASSE 1070 AND 1071 THERMOSTATIC MIXING VALVES WHERE REQUIRED, AND ASSE 1016 THERMOSTATIC/PRESSURE BALANCING VALVES WHERE REQUIRED (SHOWERS, WITH MAX. SETTING OF 120 DEG. F), AND PER CODE WHETHER OR NOT SHOWN/NOTED ON PLANS.
12. PROVIDE CLEANOUTS AS REQUIRED BY CODE. NOT MORE THAN 100 FEET FOR 4" DRAIN.
13. PROPERLY SEAL ALL PIPING PENETRATIONS PER APPLICABLE PENETRATION SYSTEM DETAIL (THIS SHEET) THROUGH FIRE BARRIER WALLS/FLOORS/CEILINGS.– ALL MAY NOT BE SHOWN, VERIFY RATINGS/BARRIERS W/ARCH. PROVIDE CAST IRON FOR ALL DWV PIPING THROUGH FIRE BARRIERS.

LOAD SUMMARY – PLUMBING

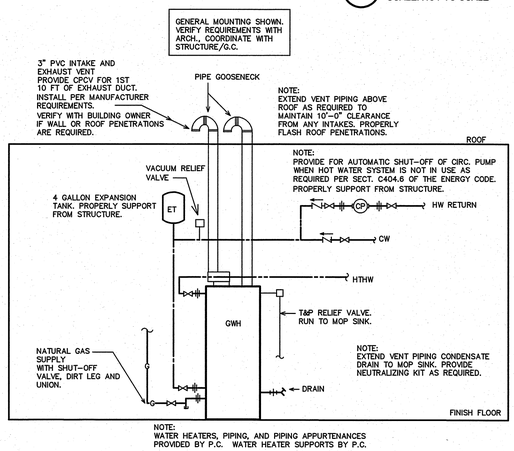
WASTE DEMAND (FU)	WATER DEMAND (FU)	WATER DEMAND (GPM)
55.0	62.5	32.7



1 EWC DETAIL
SCALE: NOT TO SCALE



2 RPZ-WB MOUNTING DETAIL
SCALE: NOT TO SCALE



3 GWH DETAIL
SCALE: NOT TO SCALE

System No. W-L-1001

March 28, 2003

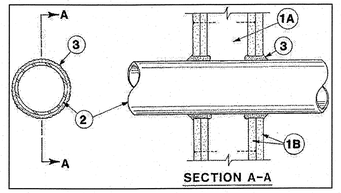
(Formerly System No. 147)

F Ratings -- 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings -- 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient - less than 1 CFM/sq ft

L Rating At 400 F - less than 1 CFM/sq ft



1. Wall Assembly -- The 1,2,3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs -- Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. Gypsum Board* -- Nom 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance DIrectory. Max diam of opening is 26 in.

2. Through-Penetrant-- One metalic pipe, conduit or tubing installed either concentrically or eccentrically with the firestop system. The annular space between pipe, conduit, or tubing and periphery of opening shall be min of 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe -- Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe -- Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit -- Nom 6 in. diam (or smaller) steel conduit or nom 4 in diam (or smaller) steel electrical metallic tubing.

D. Copper Tubing -- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe -- Nom 6 in. diam (or smaller) Regular (or heavier) copper tubing.

F. through Penetrating Product* -- Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

1. Nom 2 in diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

TITLEFLEX CORP

A BUNDY CO

3. Nom 1 in diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG INC

3. Fill, Void or Cavity Material* -- Caulk -- Min 5/8, 1-1/4,1-7/8 and 2-1/2 in. thickness for caulk for 1,2,3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. dia bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In	F RATING Hr	T RATING Hr
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
4	1 or 2	0
6	3 or 4	0
12	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY-- CP 25WB+.

*Bearing the UL Classification Mark

4 PENETRATION DETAIL
SCALE: NOT TO SCALE

SYMBOL LEGEND – PLUMBING

SYMBOL	DESCRIPTION (U.O.N.)
	WASTE PIPING (W)
	VENT PIPING (V)
	COLD WATER PIPING (CW)
	HOT WATER PIPING (HW)
HTHW	HIGH TEMPERATURE HW PIPING (HTHW) 120 DEG. F
MTHW	MEDIUM TEMPERATURE HW PIPING (MTHW) 110 DEG. F
LTHW	LOW TEMPERATURE HW PIPING (LTHW) 85 DEG. F
HWR	HW RETURN PIPING (HWR)
G	NATURAL GAS PIPING (G)
	CHECK VALVE
	BALANCING VALVE
	CIRCULATION PUMP
	SHUT–OFF VALVE
	DIELECTRIC UNION
COFF	CLEANOUT FINISH FLOOR
WCO/HCO	WALL/HORIZONTAL CLEANOUT
COFG	CLEANOUT FINISH GRADE–PROVIDE FLUSH CONCRETE COLLAR AND BRONZE COVER
	VENT THRU ROOF (VTR)
A.A.V.	AIR ADMITTANCE VALVE
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
	2 HOUR FIRE BARRIER
	3 HOUR FIRE BARRIER

FIXTURE SCHEDULE – PLUMBING *

CP* CIRCULATING PUMP
TACO MODEL 110, 115 VOLT, 1/12 HP. SECURELY SUPPORT FROM STRUCTURE. PROVIDE AQUASTAT, TIMER, CHECK VALVES AS REQUIRED.

ET* EXPANSION TANK
AMTROL MODEL ST–5, 2.0 GALLON, STEEL CONSTRUCTION, NON–ASME RATED.

EWC* HIGH/LOW ELECTRIC WATER COOLER WITH BOTTLE FILLER
ELKAY DUAL LEVEL ELECTRIC WATER COOLER WITH FILTERED BOTTLE FILLER LZSTL8WSSK, STAINLESS STEEL, ADA COMPLIANT. PIPE TO SINGLE DRAIN AND SUPPLY LINE. VERIFY INSTALLATION CLEARANCE REQUIREMENTS PRIOR TO ORDERING. VERIFY OPTIONS– HI/LO SIDE (COORDINATE MODEL NUMBER), ETC., WITH OWNER AND ARCHITECT.

EW* EYEWASH (PROVIDE WITH LTHW)
BRADLEY BARRIER–FREE WALL MOUNT HALO EYEWASH S19–224. COORDINATE EXACT MODEL/MOUNTING LOCATION W/OWNER. PROVIDE W/BRADLEY NAVIGATOR EMERGENCY S19–2000 EFX8 MIXING VALVE, INSTALL IN ACCESSIBLE LOCATION. SET OUTFLOW TO SPECIFIED LTHW TEMPERATURE (85 DEG. F).

FD* FLOOR DRAIN
ZURN MODEL Z415 WITH HEEL–PROOF TYPE B STRAINER, CAST IRON W/NICKEL BRONZE TOP, 5" STRAINER WITH 3" CONNECTION. PROVIDE TRAP PRIMER CONNECTION IF REQUIRED.

FPHB* FREEZE PROOF HOSE BIBB
WOODFORD MODEL #19, FREEZE PROOF HOSE BIBB WITH BACKFLOW PREVENTER. COORDINATE MOUNTING W/TENANT. PROVIDE TEE KEY OR LOCK SL–17 IF REQUIRED. VERIFY MOUNTING LOCATION, COORDINATE STEM LENGTH PER WALL THICKNESS.

GWH* NATURAL GAS WATER HEATER
AO SMITH MODEL BTXL–100, DIRECT VENT, 100,000 BTUH, 75 GALLON, 1" INLET AND OUTLET, 145 GPH RECOVERY AT 80 DEGREE RISE. PROVIDE EXHAUST AND INTAKE VENTS PER MANUFACTURERS RECOMMENDATION. VERIFY INSTALLATION CLEARANCES PRIOR TO ORDERING.

HB* WALL HOSE BIBB
WOODFORD MODEL #24 ANTI–SIPHON HOSE BIBB W/TEE KEY. COORDINATE MOUNTING W/TENANT. PROVIDE STEM LOCK SL–24 IF REQUIRED.

L1* LAVATORY (WALL MOUNT)
KOHLER CHESAPEAKE LAVATORY, K–1728, VITREOUS CHINA, 4" CENTERS, ADA COMPLIANT. PROVIDE DELTA MODEL 523LF–HGMHDF FAUCET, 0.5 GPM MAX WITH GRID STRAINER. PROVIDE P–TRAP AND SHUT–OFF VALVES.

MS* MOP SINK BASIN WITH FAUCET
BASIN– FLORESTONE MODEL MSR–3624 MOLDED MOP RECEPTOR, 3" DRAIN SIZE. INTEGRAL DRAIN REQUIRES MINIMUM 6" DIAMETER X 1 1/2" DEEP RECESS IN SUBFLOOR. LEVEL AS NEEDED, USE WEDGE–LOCK SEAL PER MANUFACTURER'S SPECIFICATIONS. USE WATER TO CHECK FOR PROPER DRAINAGE UPON ATTACHING DRAIN PIPE AND PRIOR TO FINISHING WALLS. VERIFY SIZE PRIOR TO ORDERING.
FAUCET– SPEAKMAN MODEL MR–371 FAUCET WITH VACUUM BREAKER. PROVIDE 5' HOSE AND MOP HANGER.

RPZ–WB* 1" REDUCED PRESSURE BACKFLOW PREVENTER FOR WASH BAY
WATTS MODEL #LF009M2QT, 1" REDUCED PRESSURE BACKFLOW PREVENTER, 'LEAD FREE' CONSTRUCTION. VERIFY INSTALLATION LOCATION/CLEARANCES.

S1* BREAK ROOM SINK
ELKAY LR2918 DOUBLE BASIN STAINLESS STEEL SINK (MODEL LRAD2918 IF ADA COMPLIANCE REQUIRED), 18 GA., SELF–RIMMING, FURNISHED WITH THREE FAUCET HOLES AND CENTER DRAIN. PROVIDE ELKAY COMMERCIAL FAUCET MODEL LKB1DA70BL2 WITH TWO LEVER HANDLES, CHROME PLATED BRASS P–TRAP AND SHUT–OFF VALVES. COORDINATE EXACT UNIT WITH OWNER AND GENERAL CONTRACTOR. COORDINATE SIZE WITH CABINETRY PRIOR TO ORDERING.

SHR* ACCESSIBLE STALL, SHOWER HEAD/FAUCET/ADA ACCESSORIES
AQUATIC BATHWARE 6036BFSC PRE–FABRICATED FIBERGLASS SHOWER STALL. PROVIDE HAND–HELD SHOWER ASSEMBLY W/SLIDE BAR, PRESSURE BALANCING MIXING VALVE AND ALL OTHER COMPONENTS REQUIRED FOR ADA COMPLIANCE, GRAB BAR, SEAT, CURTAIN/ROD, ETC. COORDINATE OPTIONS AND HANDING WITH ARCH. BEFORE ORDERING AND ROUTE ALL PLUMBING AS REQUIRED REGARDLESS OF HOW SHOWN ON PLANS.

US* UTILITY SINK
FLORESTONE MODEL FM–1, FLOOR MOUNTED SINK TO COME WITH 4 HEAVY DUTY MOLDED LEGS, WITH 1 1/2" DRAIN OPENING, 20 GALLON CAPACITY. PROVIDE FAUCET, P–TRAP, AND SHUT–OFF VALVES.

VB* ICE MAKER VALVE BOX
OATEY VALVE BOX WITH 3/8" BRONZE SHUT–OFF VALVE. FLUSH TO WALL.

WC* WATER CLOSET (ADA FLUSH TANK)
KOHLER HIGHLINE WATER CLOSET, K–3979, ADA COMPLIANT 1.6 GPF. PROVIDE PROPER OPEN FRONT ADA SEAT, K–7637 SUPPLY AND STOP, WAX SEAL, CLOSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR.

YH* FREEZE PROOF YARD HYDRANT
WOODFORD MODEL #Y1, FREEZELESS YARD HYDRANT WITH 1" INLET. VERIFY BURY DEPTH REQUIREMENT, COORDINATE LOCATION WITH OWNER/SITE. VERIFY FROST LINE DEPTH FOR DRAIN HOLE DEPTH/INSTALL REQUIREMENT. PROVIDE PROPER 'NONPOTAPLE' SIGNAGE PER NCSBC–PLUMBING SECT. 608.7.

* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING.
ALL OTHER PLUMBING FIXTURES SHOWN ARE PROVIDED BY THE TENANT AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE PLANS FOR NUMBER AND LOCATION. COORDINATE ALL REQUIREMENTS WITH EQUIPMENT SERVED.

WEEKS SUMMER ARCHITECTS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22038 BENJAMIN E. BURKE
10/31/23

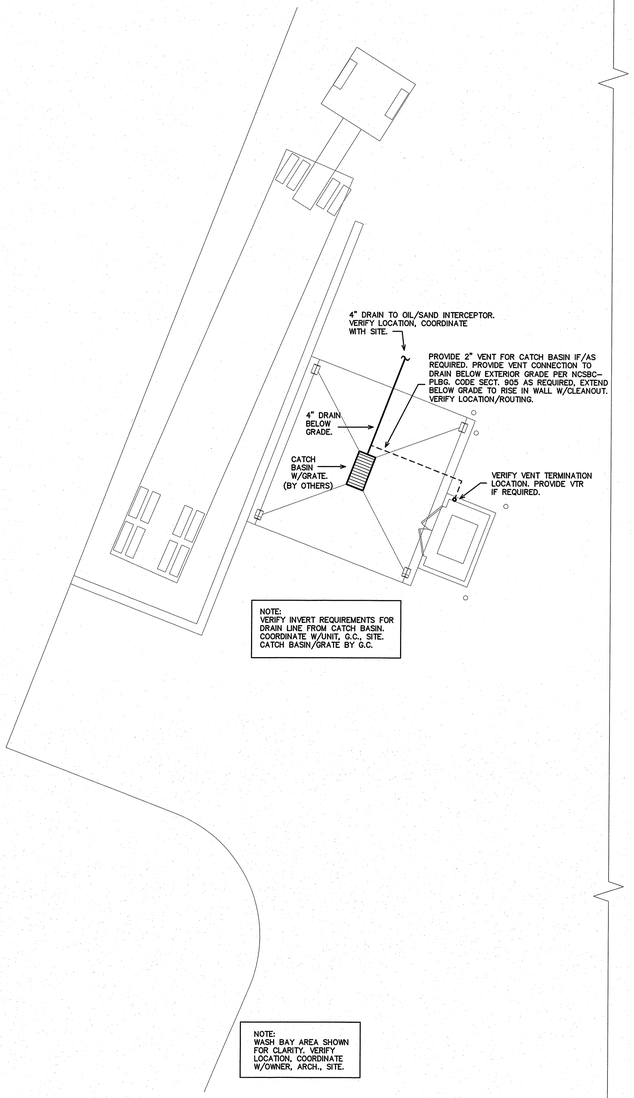
PROJECT TITLE
REVELS TURF & TRACTOR
RAWLS CHURCH ROAD
FUQUAY–VARINA, NORTH CAROLINA

PROJECT NO.
2232

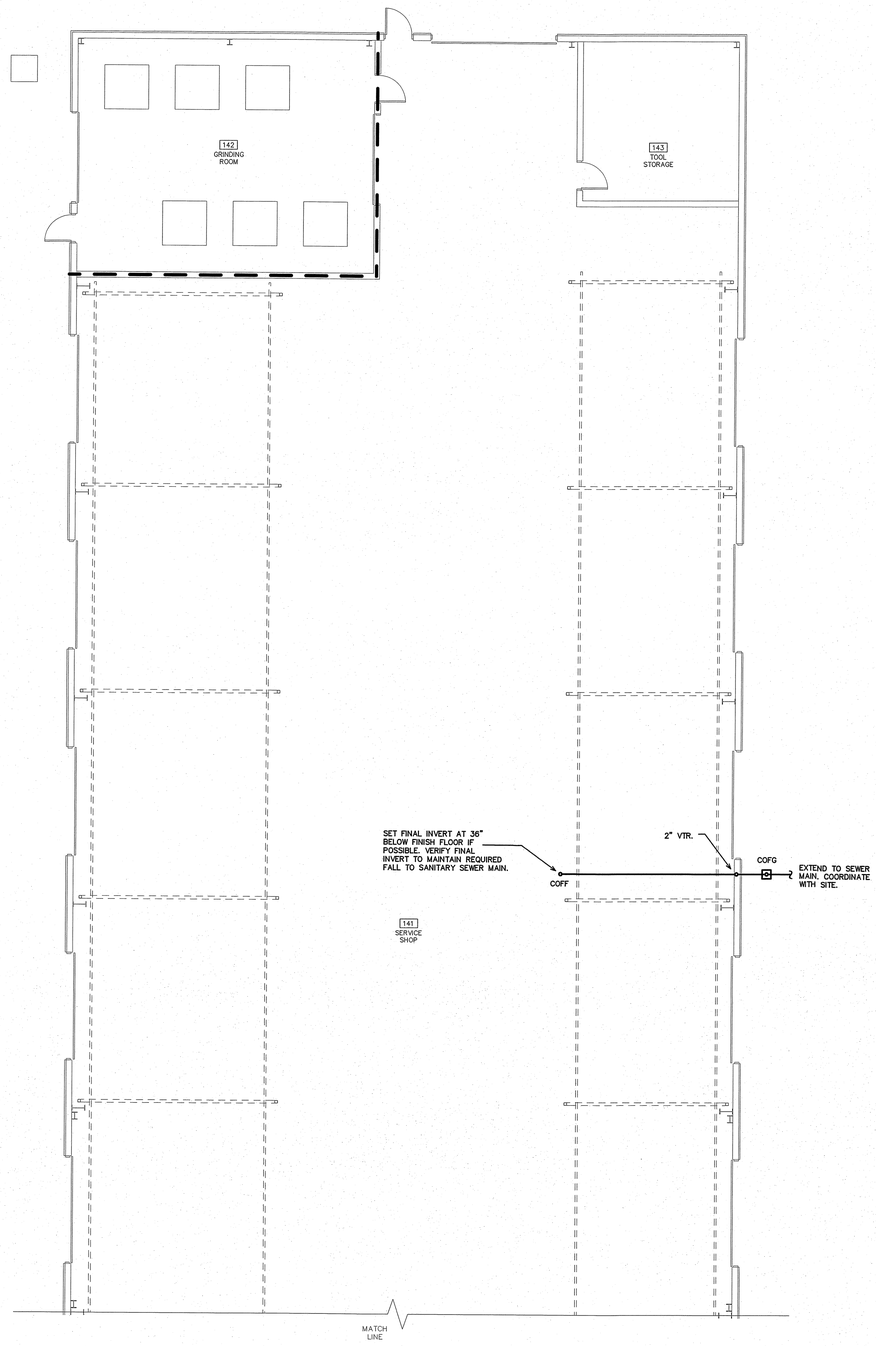
DRAWING TITLE
PLUMBING SPECIFICATIONS

P1

PLOT DATE 10/30/23



2 WASH BAY DWV PLAN
SCALE: 1/8" = 1'-0"



1 NORTH DWV PLAN
SCALE: 1/8" = 1'-0"

WEEKS SUMMER ARCHITECTS

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Corp. License # C-2652

NORTH CAROLINA PROFESSIONAL SEAL 22036 ENGINEER BENJAMIN E. BURKE
10/31/23

PROJECT TITLE
REVELS TURF & TRACTOR
RAWLS CHURCH ROAD
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.
2232

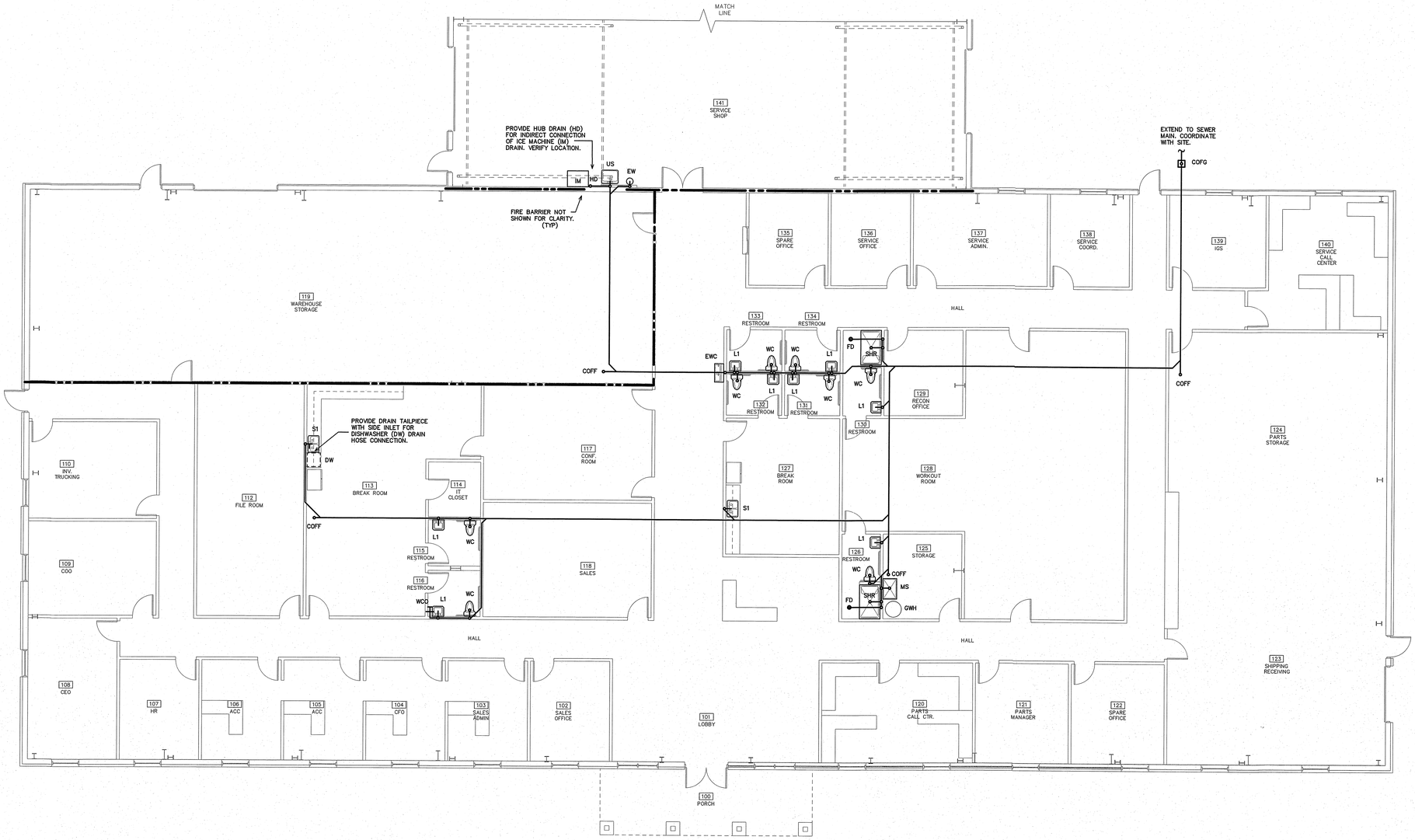
DRAWING TITLE
NORTH DWV PLAN

P2.1

PLOT DATE 10/30/23

This original sheet is 24" x 36", other dimensions indicate it has been altered.

NOTE:
VERIFY QUANTITY AND LOCATION OF ALL FLOOR DRAINS W/OWNER, ARCH. PROVIDE TRAP PRIMERS (NOT SHOWN) FOR ALL FLOOR DRAINS IN AREAS NOT SERVED BY HOSE BIBBS. (TYP)



1 SOUTH DWV PLAN
SCALE: 1/8" = 1'-0"

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NORTH CAROLINA PROFESSIONAL SEAL 22038 ENGINEER BENJAMIN E. BURKE
10/31/23

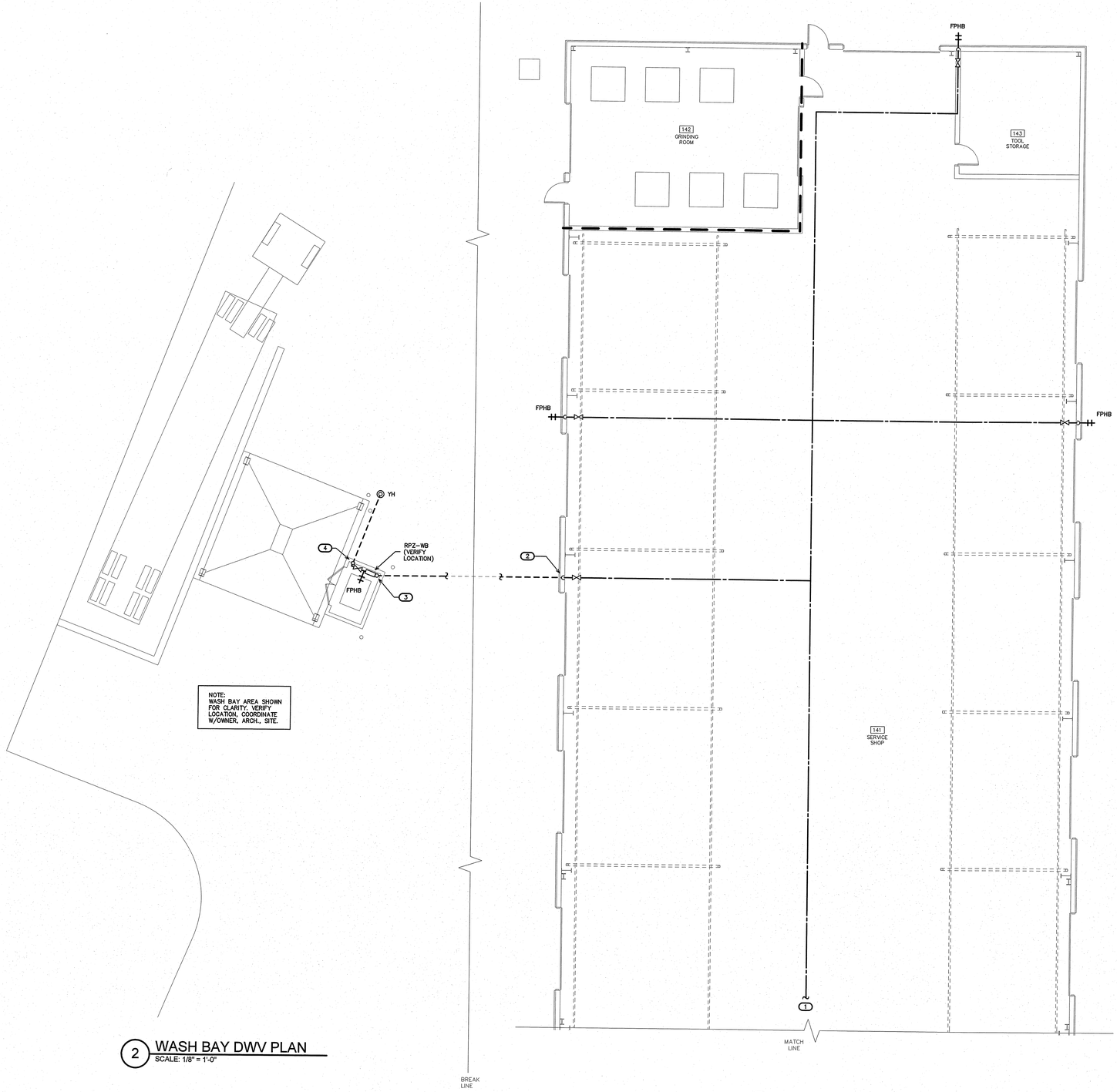
PROJECT TITLE
REVELS TURF & TRACTOR
RAWLS CHURCH ROAD
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.
2232

DRAWING TITLE
SOUTH DWV PLAN

P2.2

PLOT DATE 10/30/23



NOTE:
WASH BAY AREA SHOWN FOR CLARITY. VERIFY LOCATION, COORDINATE W/OWNER, ARCH., SITE.

2 WASH BAY DWV PLAN
SCALE: 1/8" = 1'-0"

1 NORTH WATER PLAN
SCALE: 1/8" = 1'-0"

NOTE:
PROPERLY PROTECT/INSULATE ALL PIPING IN UNCONDITIONED AREAS. VERIFY ROUTING OF WATER LINES W/ARCH. ALL LINES, VALVES, CP, ETC., SHOWN FOR CLARITY- VERIFY LOCATIONS OF ALL COMPONENTS, COORDINATE WITH ALL TRADES. COORDINATE W/DWV PLAN. PROVIDE TRAP PRIMERS (NOT SHOWN) FOR ANY FLOOR DRAINS IN AREAS NOT SERVED BY HOSE BIBBS. VERIFY QUANTITY/MOUNTING LOCATIONS OF ALL HB, FPHB, YH W/ARCH., OWNER. (TYP)

KEY NOTES FOR SHEET P3.1

1. SEE SHEET P3.2 FOR CONTINUATION. VERIFY ROUTING IN SHOP AREA, COORDINATE WITH OWNER, ARCHITECT, G.C. STRUCTURE, ALL TRADES AND ANY OVERHEAD EQUIPMENT.
2. DROP TO RUN 1" CW BELOW GRADE TO WASH BAY. VERIFY LOCATION. EXTEND 1" CW BELOW GRADE TO WASH BAY, VERIFY LOCATION/ROUTING, COORDINATE WITH OWNER, ARCHITECT, G.C., AND SITE.
3. RISE TO MAIN SHUT-OFF VALVE A.F.F., VERIFY LOCATION. CONNECT TO RPZ-WB.
4. DROP TO RUN BELOW GRADE TO YARD HYDRANT (YH). VERIFY LOCATION/ROUTING.

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PROJECT NO.
2232

DRAWING TITLE
NORTH WATER PLAN

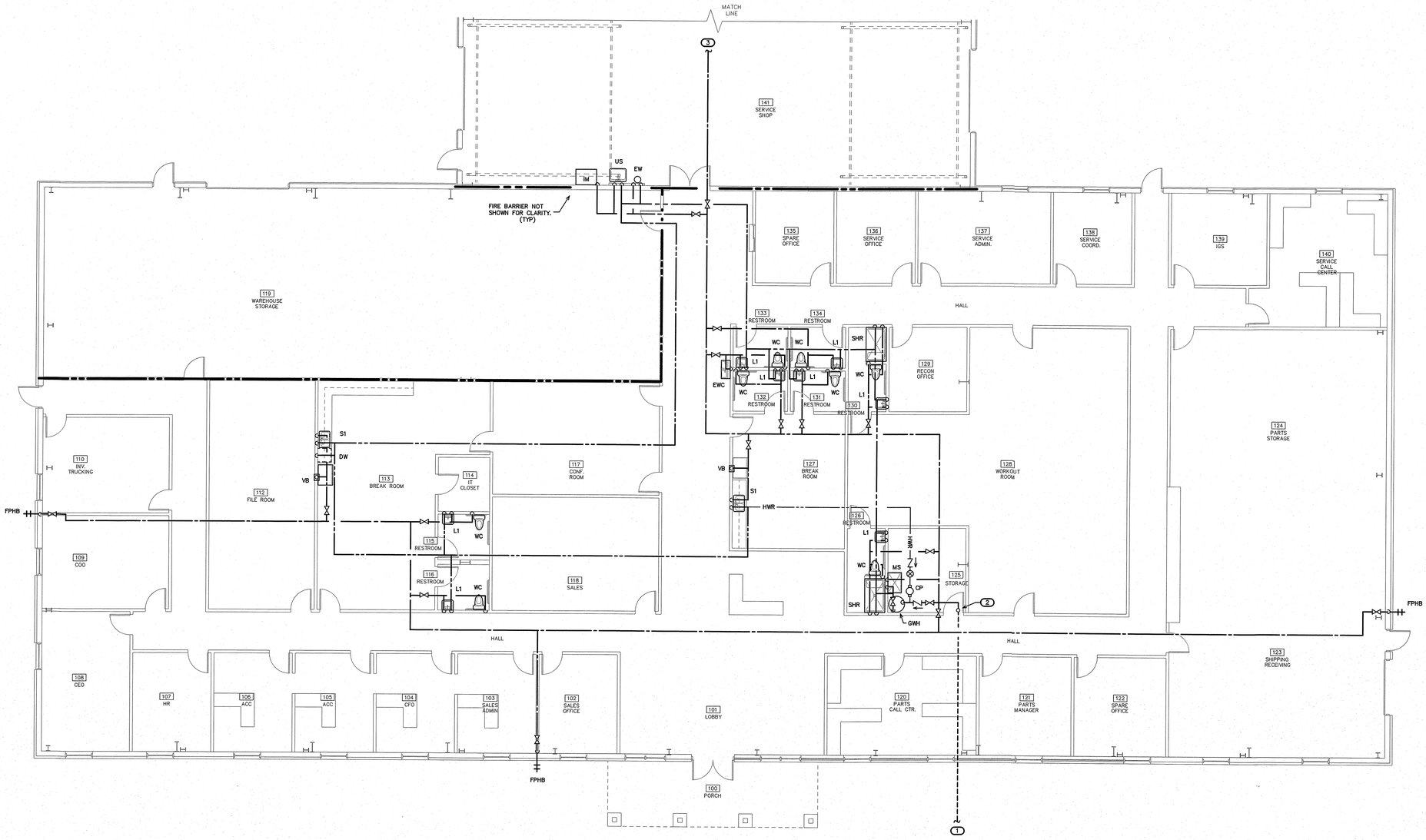
P3.1

PLOT DATE 10/30/23

NOTE:
PROPERLY PROTECT/INSULATE ALL PIPING IN UNCONDITIONED AREAS. VERIFY ROUTING OF WATER LINES W/ARCH. ALL LINES, VALVES, CP, ETC., SHOWN FOR CLARITY-- VERIFY LOCATIONS OF ALL COMPONENTS, COORDINATE WITH ALL TRADES. COORDINATE W/DWV PLAN, PROVIDE TRAP PRIMERS (NOT SHOWN) FOR ANY FLOOR DRAINS IN AREAS NOT SERVED BY HOSE BIBBS. VERIFY QUANTITY/MOUNTING LOCATIONS OF ALL HB, FPHB W/ARCH., OWNER. PROVIDE PROPER ASSE 1070 TMV (NOT SHOWN) AT/FOR EACH LAVATORY FOR MTHW TO FAUCET. (TYP)

KEY NOTES FOR SHEET P3.2

1. 1-1/2" CW BELOW GRADE TO RPZ/METER/ SUPPLY MAIN. COORDINATE WITH SITE.
2. RISE CW FROM BELOW GRADE TO MAIN SHUT-OFF VALVE A.F.F., RISE TO RUN CW MAIN ABOVE CEILING. VERIFY LOCATION, RISE IN WALL W/ACCESS DOOR IF REQUIRED.
3. SEE SHEET P3.1 FOR CONTINUATION. VERIFY ROUTING IN SHOP AREA, COORDINATE WITH OWNER, ARCHITECT, G.C. STRUCTURE, ALL TRADES AND ANY OVERHEAD EQUIPMENT.



1 SOUTH WATER PLAN
SCALE: 1/8" = 1'-0"

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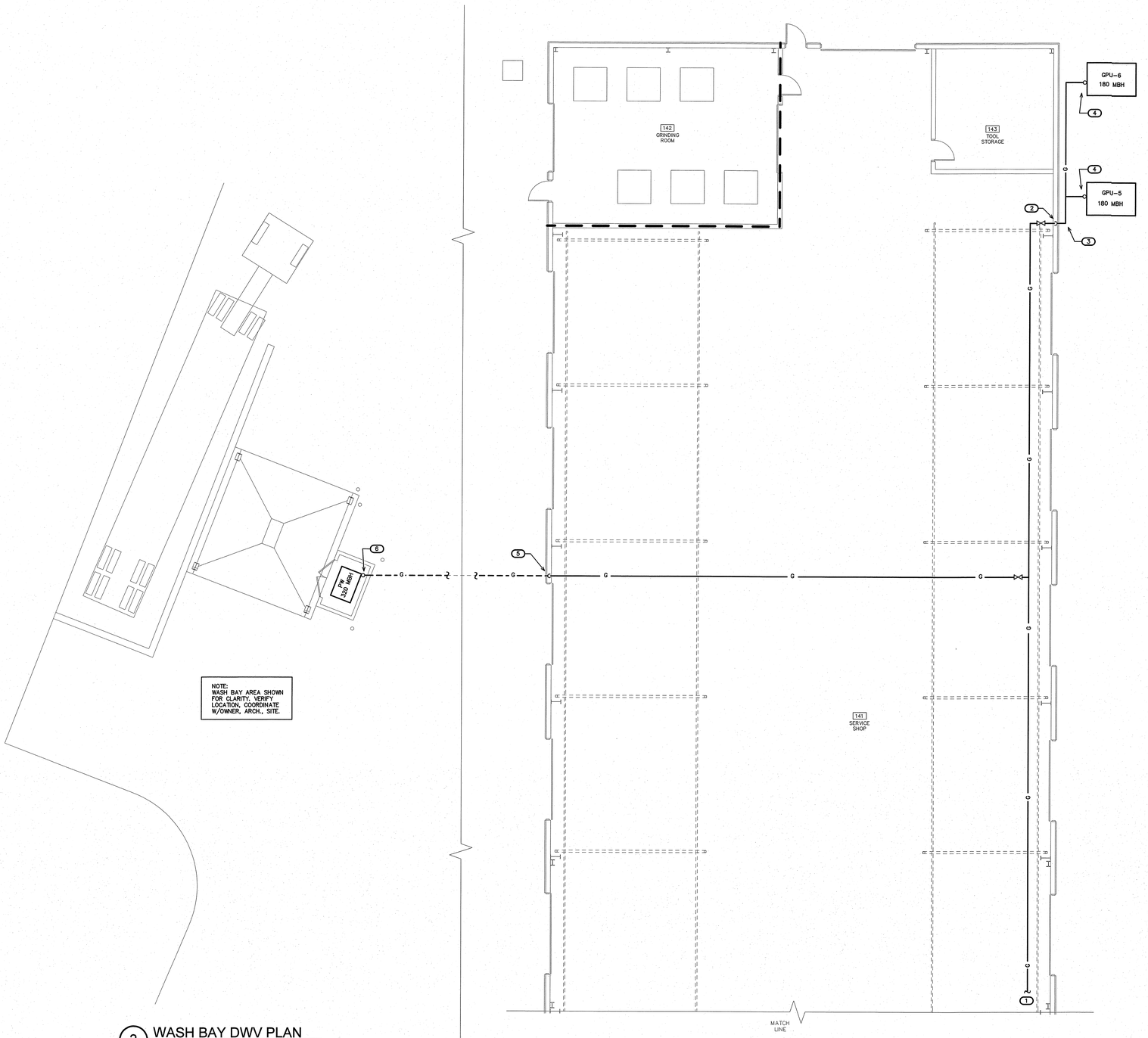
PROJECT NO.
2232

DRAWING TITLE
SOUTH WATER PLAN

P3.2

PLOT DATE 10/30/23

This original sheet is 24" x 36"; other dimensions indicate it has been altered.



2 WASH BAY DWV PLAN
SCALE: 1/8" = 1'-0"

1 NORTH NATURAL GAS PLAN
SCALE: 1/8" = 1'-0"

NOTE:
VERIFY ALL GAS EQUIPMENT LOAD TOTALS, VERIFY GAS METER LOCATION PRIOR TO BID. VERIFY LINE SIZES, TOTAL DEVELOPED LINE LENGTHS (TDL). NOTIFY ENGINEER OF ANY DISCREPANCIES FOR POSSIBLE REVIEW AND/OR RE-SIZING OF GAS LINES.

NOTE:
ANY SHUT-OFF VALVES, HOOD FIRE SUPPRESSION VALVES, AND REGULATORS MUST BE ACCESSSIBLE. VENT REGULATORS TO EXTERIOR IF/AS REQUIRED. PAINT ANY INTERIOR OR EXTERIOR EXPOSED GAS LINES PER CODE AND BUILDING STANDARD. PROVIDE PROPER LABELING FOR ALL 2 PSI PIPING. PROVIDE PROPER STAND-OFFS/SUPPORTS FOR GAS LINES ON ROOF/EXTERIOR WALLS, BELOW ROOF, ETC. PROPERLY SEAL ROOF/EXT. WALL PENETRATIONS SO AS NOT TO VOID ANY EXISTING WARRANTIES. VERIFY ROUTING OF ALL GAS LINES, COORDINATE W/STRUCTURE, ALL TRADES, OWNER, ARCH., G.C.

KEY NOTES FOR SHEET P4.1

1. NATURAL GAS LINE BELOW ROOF STRUCTURE. SEE SHEET P4.2 FOR CONTINUATION. VERIFY ROUTING IN SERVICE SHOP AREA, COORDINATE WITH OWNER, ARCHITECT, G.C. STRUCTURE, ALL TRADES AND ANY OVERHEAD EQUIPMENT.
2. DROP TO RUN ABOVE GRADE TO EQUIPMENT. VERIFY LOCATION.
3. EXTEND BRANCH LINE ABOVE GRADE (ON WALL OR AS REQUIRED) TO EQUIPMENT. VERIFY ROUTING, COORDINATE W/OWNER, ARCH., G.C., ALL TRADES.
4. CONNECT TO HVAC GAS PACKAGE UNIT (GPU). VERIFY LOCATION, COORDINATE W/UNIT, MECH. PLANS. PROVIDE PROPER REGULATOR.
5. DROP TO RUN GAS LINE BELOW GRADE TO WASH BAY PRESSURE WASHER. VERIFY LOCATION. EXTEND GAS LINE GRADE TO PRESSURE WASHER, VERIFY LOCATION/ROUTING, COORDINATE WITH OWNER, ARCHITECT, G.C., AND SITE.
6. RISE TO CONNECT TO PRESSURE WASHER (PW). VERIFY LOCATION, COORDINATE W/EQUIPMENT. PROVIDE PROPER REGULATOR.

UNDERGROUND STEEL GAS PIPING CORROSION PROTECTION:
PIPE SHALL HAVE A FACTORY-APPLIED, ELECTRICALLY-INSULATING COATING. FITTINGS AND JOINTS BETWEEN SECTIONS OF COATED PIPE SHALL BE COATED IN ACCORDANCE WITH THE COATING MFR SPECS. UNDERGROUND PIPING SYSTEMS SHALL BE INSTALLED A MIN. DEPTH OF 12 INCHES BELOW GRADE, AND SHALL BE REPUBLIC STEEL X-TRU-COAT (OR EQUAL), PLASTIC COATED SCHEDULE 40 ASTM A-53 STEEL PIPE W/WELDED JOINTS, USING X-TRU-TAPE AND PRIMER AT EACH JOINT. WRAP JOINTS SPIRALLY WITH A MINIMUM OVERLAP OF 1/2 TAPE WIDTH. EXTEND WRAP NOT LESS THAN 3" ABOVE GRADE. PROVIDE HIGH VOLTAGE HOLIDAY DETECTOR TEST OF COATING TO CHECK FOR HOLIDAYS. PROVIDE CATHODIC PROTECTION TO MEET REQUIREMENTS OF NACE STANDARD RP0169. ALL UNDERGROUND GAS PIPING PROTECTION SHALL COMPLY WITH NCSBC FUEL GAS SECT. 404.

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PROJECT TITLE
REVELS TURF & TRACTOR
RAWLS CHURCH ROAD
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.
2232

DRAWING TITLE
NORTH NATURAL GAS PLAN

P4.1

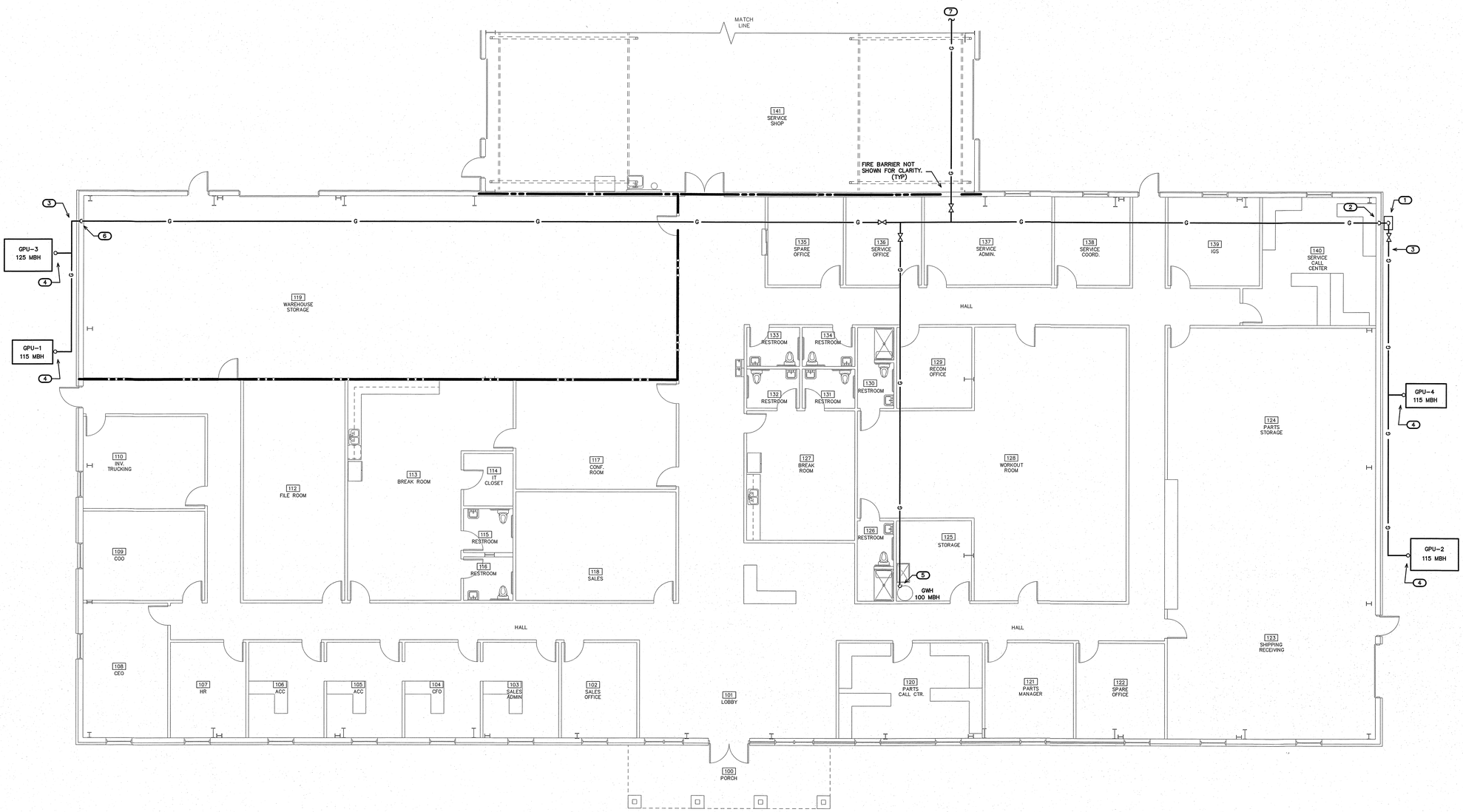
PLOT DATE 10/30/23

NOTE:
VERIFY ALL GAS EQUIPMENT LOAD TOTALS, VERIFY GAS METER LOCATION PRIOR TO BID. VERIFY LINE SIZES, TOTAL DEVELOPED LINE LENGTHS (TDL). NOTIFY ENGINEER OF ANY DISCREPANCIES FOR POSSIBLE REVIEW AND/OR RE-SIZING OF GAS LINES.

NOTE:
ANY SHUT-OFF VALVES, HOOD FIRE SUPPRESSION VALVES, AND REGULATORS MUST BE ACCESSIBLE. VENT REGULATORS TO EXTERIOR IF/AS REQUIRED. PAINT ANY INTERIOR OR EXTERIOR EXPOSED GAS LINES PER CODE AND BUILDING STANDARD. PROVIDE PROPER LABELING FOR ALL 2 PSI PIPING. PROVIDE PROPER STAND-OFFS/SUPPORTS FOR GAS LINES ON ROOF/EXTERIOR WALLS, BELOW ROOF, ETC. PROPERLY SEAL ROOF/EXT. WALL PENETRATIONS SO AS NOT TO VOID ANY EXISTING WARRANTIES. VERIFY ROUTING OF ALL GAS LINES, COORDINATE W/STRUCTURE, ALL TRADES, OWNER, ARCH., G.C.

KEY NOTES FOR SHEET P4.2

1. PROVIDE MEDIUM PRESSURE (2 PSI) NATURAL GAS METER/SERVICE FOR BUILDING MAIN. VERIFY LOCATION, COORDINATE WITH GAS COMPANY.
2. RISE TO RUN ABOVE CEILING/BELOW ROOF STRUCTURE. VERIFY LOCATION/ROUTING.
3. EXTEND BRANCH LINE ABOVE GRADE (ON WALL OR AS REQUIRED) TO EQUIPMENT. VERIFY ROUTING, COORDINATE W/OWNER, ARCH., G.C., ALL TRADES.
4. CONNECT TO HVAC GAS PACKAGE UNIT (GPU). VERIFY LOCATION, COORDINATE W/UNIT, MECH. PLANS. PROVIDE PROPER REGULATOR.
5. DROP/CONNECT TO NATURAL GAS WATER HEATER (GWH). VERIFY LOCATION, PROVIDE REGULATOR.
6. DROP TO RUN ABOVE GRADE TO EQUIPMENT. VERIFY LOCATION.
7. SEE SHEET P4.1 FOR CONTINUATION. VERIFY ROUTING IN SERVICE SHOP AREA, COORDINATE WITH OWNER, ARCHITECT, G.C. STRUCTURE, ALL TRADES AND ANY OVERHEAD EQUIPMENT.



1 SOUTH NATURAL GAS PLAN
SCALE: 1/8" = 1'-0"

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PROJECT TITLE
REVELS TURF & TRACTOR
RAWLS CHURCH ROAD
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.
2232

DRAWING TITLE
SOUTH NATURAL GAS PLAN

P4.2

PLOT DATE 10/30/23

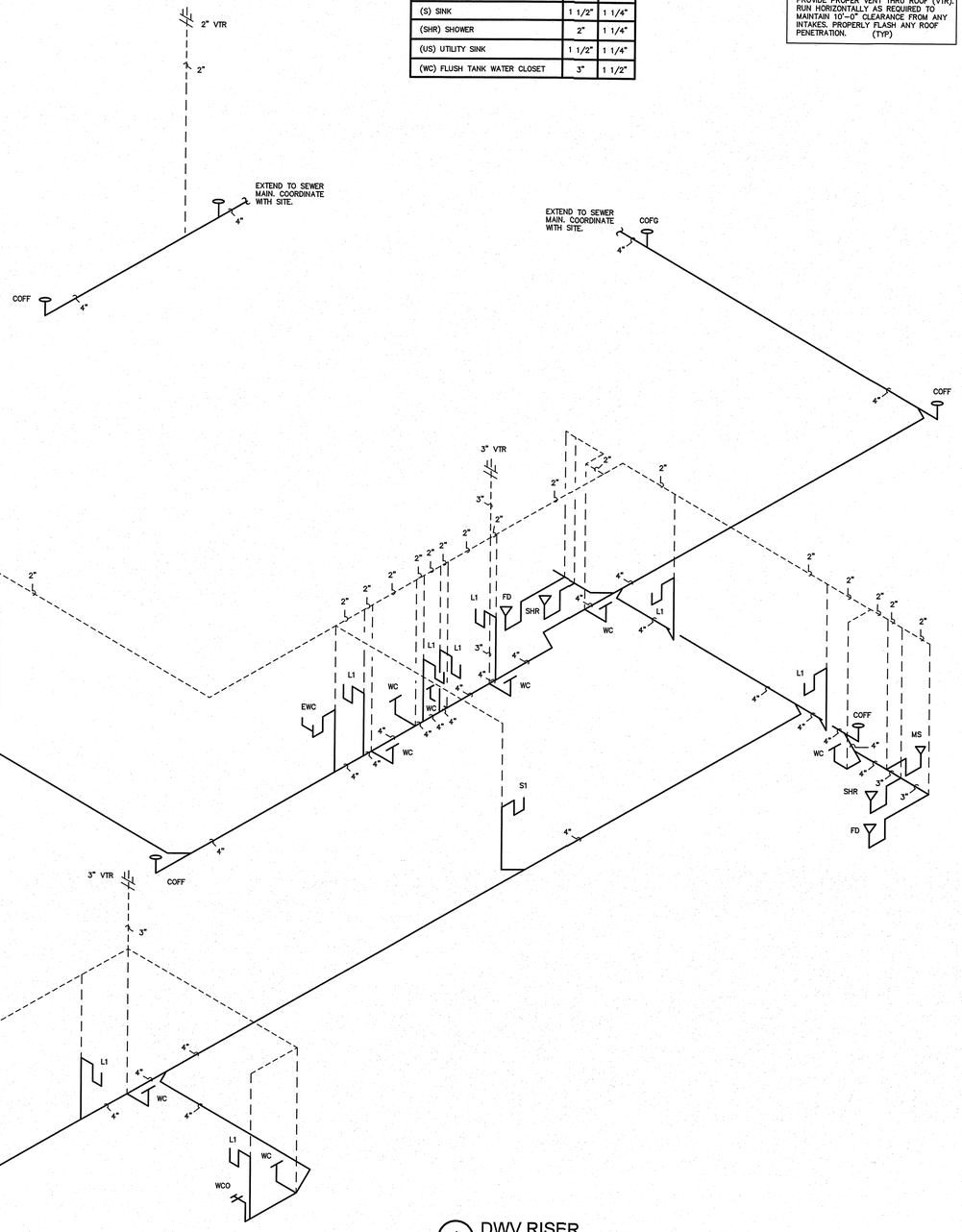
This original sheet is 24" x 36"; other dimensions indicate it has been altered.

(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE		
FIXTURE TYPE	DRAIN	VENT
(DW) DISHWASHER	3/4"	–
(EWC) ELECTRIC WATER COOLER	1 1/4"	1 1/4"
(EW) EYEWASH	1 1/4"	1 1/4"
(FD) FLOOR DRAIN	3"	1 1/2"
(HD) HUB DRAIN	1 1/2"	1 1/4"
(L) LAVATORY	1 1/2"	1 1/4"
(MS) MOP SINK	3"	1 1/2"
(S) SINK	1 1/2"	1 1/4"
(SHR) SHOWER	2"	1 1/4"
(US) UTILITY SINK	1 1/2"	1 1/4"
(WC) FLUSH TANK WATER CLOSET	3"	1 1/2"

RISER NOTES:
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.
MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.
PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

NOTE:
PROVIDE PROPER VENT THRU ROOF (VTR). RUN HORIZONTALLY AS REQUIRED TO MAINTAIN 10'-0" CLEARANCE FROM ANY INTAKES. PROPERLY FLASH ANY ROOF PENETRATION. (TYP)



1 DWV RISER
SCALE: NOT TO SCALE

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RAWLS CHURCH ROAD
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.
2232

DRAWING TITLE
DWV RISER

P5

PLOT DATE 10/30/23

(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE		
FIXTURE TYPE	CW	HW
(DW) DISHWASHER	1/2" *	–
(EWC) ELECTRIC WATER COOLER	1/2" *	–
(EW) EYEWASH	1/2" *	1/2" *
(FPHB) FREEZE PROOF HOSE BIBB	3/4"	–
(HB) HOSE BIBB	3/4"	3/4"
(IM) ICE MACHINE	1/2" *	–
(L) LAVATORY	1/2"	1/2"
(MS) MOP SINK	1/2"	1/2"
(S) SINK	1/2"	1/2"
(SHR) SHOWER	1/2"	1/2"
(uS) UTILITY SINK	1/2"	1/2"
(VB) VALVE BOX	1/2" *	–
(WC) FLUSH TANK WATER CLOSET	1/2"	–

* PROVIDE BACKFLOW PREVENTER PER NCSBC-PLUMBING SECT. 608.3, EX: ASSE 1024 (WATTS SERIES 7 OR EQUAL) ASSE 1022 (WATTS SERIES SD-3 EQUAL) ETC., WHERE REQUIRED IF NOT AN INTEGRAL PART OF THE EQUIPMENT.

RISER NOTES:

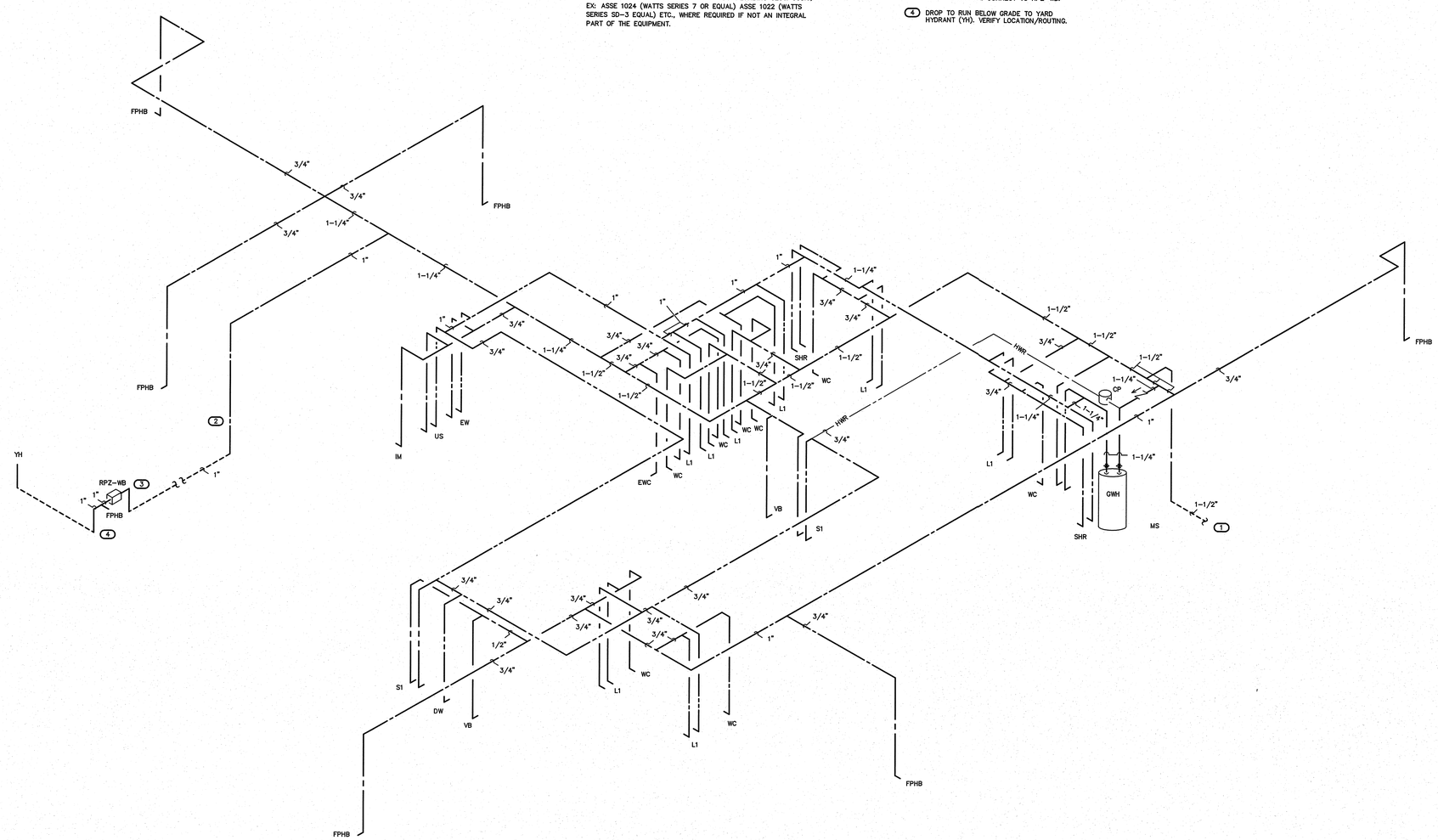
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.

MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED. PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

NOTE:
SEE PLAN FOR SHUT-OFF VALVE LOCATIONS. COORDINATE LOCATION AND NUMBER WITH LOCAL INSPECTIONS DEPARTMENT. PROVIDE ACCESS DOORS IF REQUIRED.

KEY NOTES FOR SHEET P6

1. 1-1/2" CW BELOW GRADE TO RPZ/METER/ SUPPLY MAIN. COORDINATE WITH SITE.
2. DROP TO RUN 1" CW BELOW GRADE TO WASH BAY. VERIFY LOCATION. EXTEND 1" CW BELOW GRADE TO WASH BAY. VERIFY LOCATION/ROUTING, COORDINATE WITH OWNER, ARCHITECT, G.C., AND SITE.
3. RISE TO MAIN SHUT-OFF VALVE A.F.F., VERIFY LOCATION. CONNECT TO RPZ-WB.
4. DROP TO RUN BELOW GRADE TO YARD HYDRANT (YH). VERIFY LOCATION/ROUTING.



1 WATER RISER
SCALE: NOT TO SCALE

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RAWLS CHURCH ROAD
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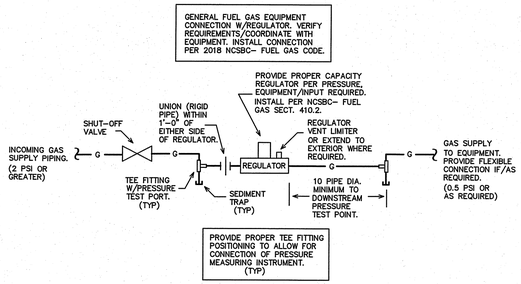
PROJECT NO.
2232

DRAWING TITLE
WATER RISER

P6

PLOT DATE 10/30/23



2 EQUIPMENT CONNECTION DETAIL
SCALE: NOT TO SCALE

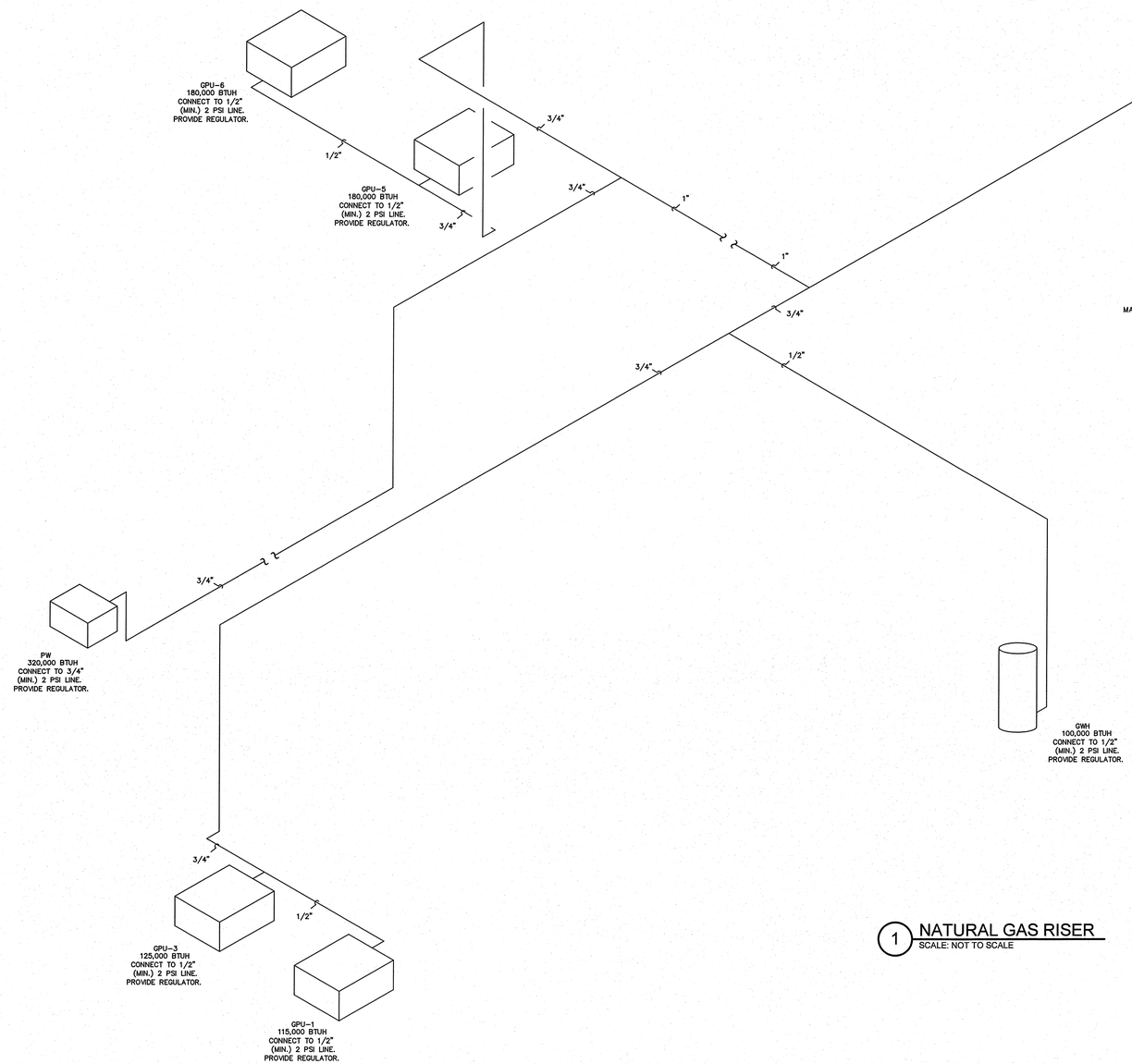
NATURAL GAS PIPING LOAD SUMMARY		
LINE SEGMENT (SEE GAS RISER)	CONNECTED GAS LOAD (BTUH)	MAX. DEVELOPED LENGTH (FT.)
A	230,000	60
B	1,020,000	400

PER 2018 NCSBC, FUEL GAS CODE, TABLE 402.4(5) – PIPE SIZES ARE BASED UPON A INITIAL PRESSURE OF 2 PSI AND A PRESSURE DROP OF 1 PSI. ALL GAS PIPE SIZES SHOWN ON RISER ARE NOMINAL INSIDE DIAMETER.
TOTAL CONNECTED LOAD (OVERALL) = 1,250,000 BTUH

NOTE:
VERIFY ALL GAS EQUIPMENT LOAD TOTALS, VERIFY GAS METER LOCATION PRIOR TO BID. VERIFY LINE SIZES, TOTAL DEVELOPED LINE LENGTHS (TDL). NOTIFY ENGINEER OF ANY DISCREPANCIES FOR POSSIBLE REVIEW AND/OR RE–SIZING OF GAS LINES.

NOTE:
NAT. GAS PRESSURE FOR THE BUILDING MAIN IS TO BE AT 2 PSI. PROVIDE PROPER REGULATORS AT EACH PIECE OF GAS EQUIPMENT. VENT REGULATORS TO EXTERIOR IF REQUIRED. PROVIDE PROPER LABELING ON 2 PSI PIPING. PROVIDE REGULATOR/CONNECTION PER NCSBC– FUEL GAS SECT. 410.2 AND ALL OTHER APPLICABLE SECTIONS. EQUIPMENT CONNECTIONS/REGULATORS NOT SHOWN ON RISER– SEE CONNECTION DETAIL THIS SHEET.

NOTE:
PROVIDE PROPER REGULATOR AT EACH PIECE OF EQUIPMENT. PROVIDE SHUT–OFF VALVE, DIRTLEG, UNION, AND FLEXIBLE CONNECTION OR AS REQUIRED TO EACH PIECE OF EQUIPMENT. VERIFY CONNECTION TYPE/SIZE WITH EACH PIECE OF EQUIPMENT.



1 NATURAL GAS RISER
SCALE: NOT TO SCALE

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2232

DRAWING TITLE
NATURAL GAS RISER

P7

PLOT DATE 10/30/23