

PLUMBING FIXTURE SCHEDULE									
MARK	DESCRIPTION	MFR	MODEL	USE					NOTES
				CW	HW	TEPID	WASTE	VENT	
P1	LAB SINK	FISHERBRAND	06000459	1/2"	1/2"	-	1 1/2"	1 1/2"	INTEGRAL WITH COUNTERTOP
P2	EMERGENCY EYEWASH	GUARDIAN	G1805	-	-	1/2"	-	-	DECK MOUNTED WITH SWING OPERATION

LEGEND

- COLD WATER LINE, CW
- HOT WATER LINE, HW
- SANITARY DRAIN LINE, S
- - - VENT LINE, V
- TEPID WATER LINE, TW
- CONNECTION TO EXISTING
- ⊗ BRANCH ISOLATION BALL VALVE
- CLG CEILING
- DFA DOWN FROM ABOVE
- ∅ DIAMETER

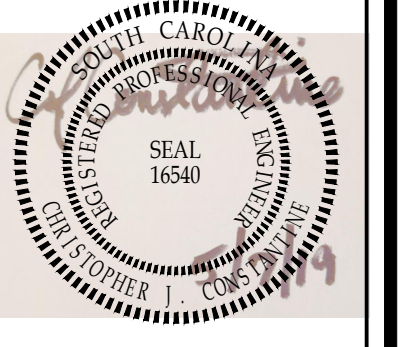
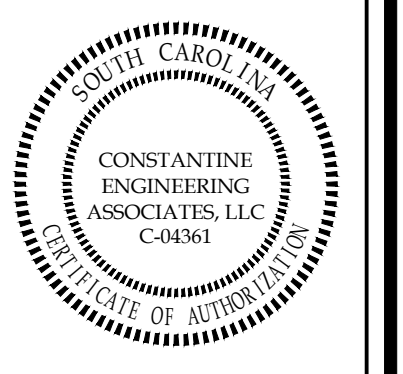
GENERAL NOTES

1. PROVIDE LABOR, EQUIPMENT AND MATERIALS TO COMPLETE THE PLUMBING WORK INDICATED ON THESE DRAWINGS AS REQUIRED BY LOCAL CODE AND ORDINANCES.
2. INCLUDE WASTE, VENT, DOMESTIC COLD & HOT WATER PIPING, AS INDICATED ON THESE DRAWINGS, AS WELL AS HOOKUP OF FIXTURES AND INSULATION OF PIPING.
3. INCLUDE ITEMS, SUCH AS FITTINGS, ETC. NOT MENTIONED BUT UNDERSTOOD TO BE NECESSARY TO COMPLETE THE PLUMBING SYSTEM.
4. SOIL, WASTE, VENT AND WATER PIPING MATERIALS MUST MEET OR EXCEED LOCAL CODES.
5. PROVIDE WATER HAMMER ARRESTERS IN ACCORDANCE WITH THE SOUTH CAROLINA PLUMBING CODE AND LOCAL ORDINANCES.
6. COMPLETE WORK IN ACCORDANCE WITH THE SOUTH CAROLINA PLUMBING CODE AND LOCAL ORDINANCES. SEE SPECIFICATIONS FOR PRODUCT AND INSTALLATION REQUIREMENTS.
7. GUARANTEE WORK UNDER THIS CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP, MATERIALS AND EQUIPMENT FOR ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER. SHOULD SUCH DEFECTS OCCUR DURING THE ONE YEAR PERIOD, REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND DAMAGE RESULTING FROM THE FAILURE OF THESE ITEMS AT NO EXPENSE WHATSOEVER TO THE OWNER.

DRAWING NOTES

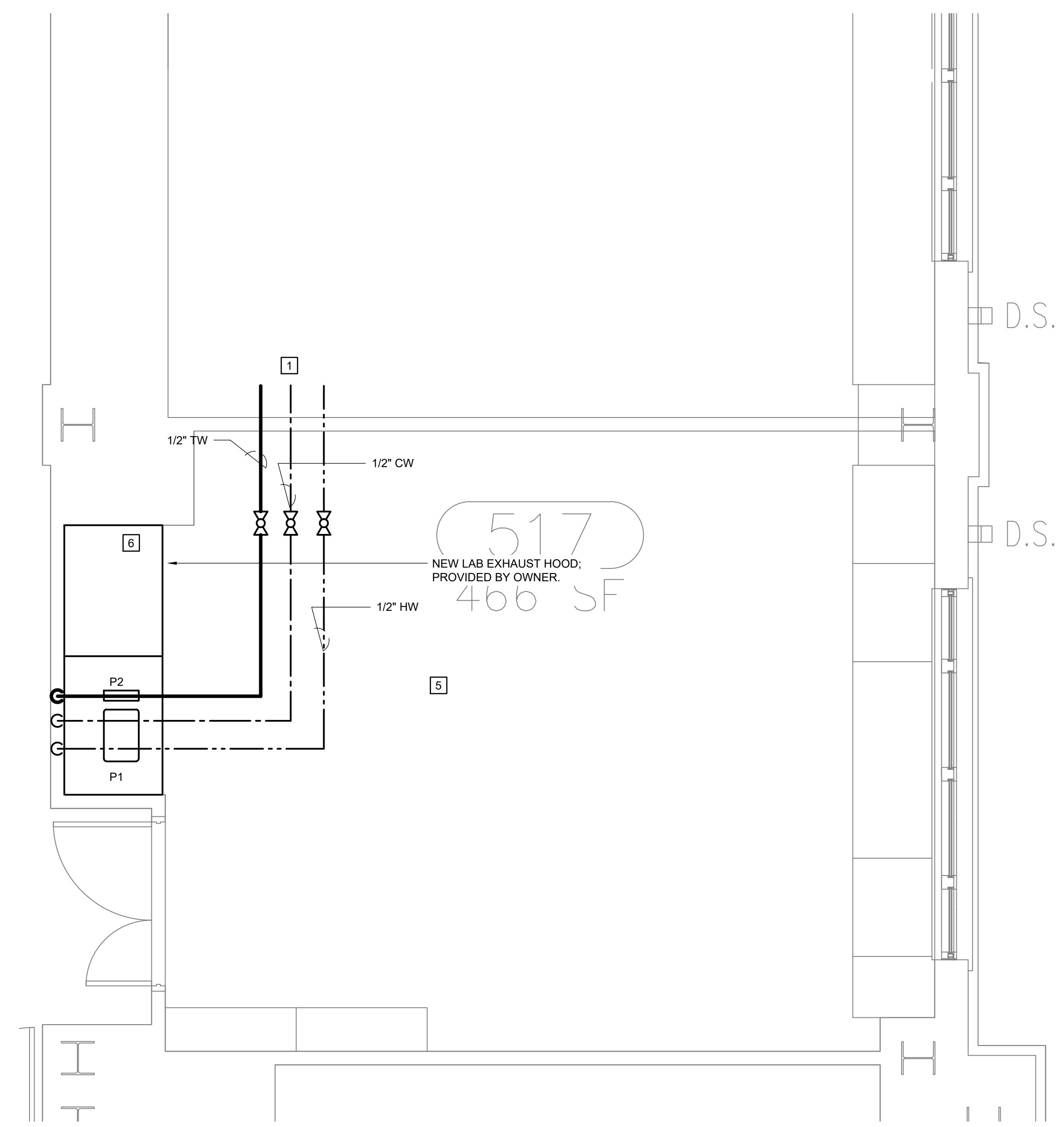
1. CONNECT TO EXISTING CW/HW/TW SUPPLY IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
2. CONNECT TO EXISTING VENT IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
3. CONNECT TO EXISTING SANITARY IN THIS AREA. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
4. INSTALL DRAIN AND VENT RISER INSIDE WALL. PATCH AND FINISH WALL TO MATCH EXISTING.
5. REMOVE LAY-IN CEILING TILES AND GRID AS NECESSARY TO INSTALL PIPING. REINSTALL GRID AND TILES; REPLACE DAMAGED TILES WITH NEW TO MATCH EXISTING.
6. PROVIDE VACUUM AND COMPRESSED AIR CONNECTIONS INSIDE HOOD. INSTALL MANUAL PRESSURE VALVES MOUNTED ON EXTERIOR WALL.
7. PROVIDE AND INSTALL 1.5 GALLON POLYETHYLENE CHEMICAL DILUTION TANK.

CONSTANTINE ENGINEERING ASSOCIATES, LLC
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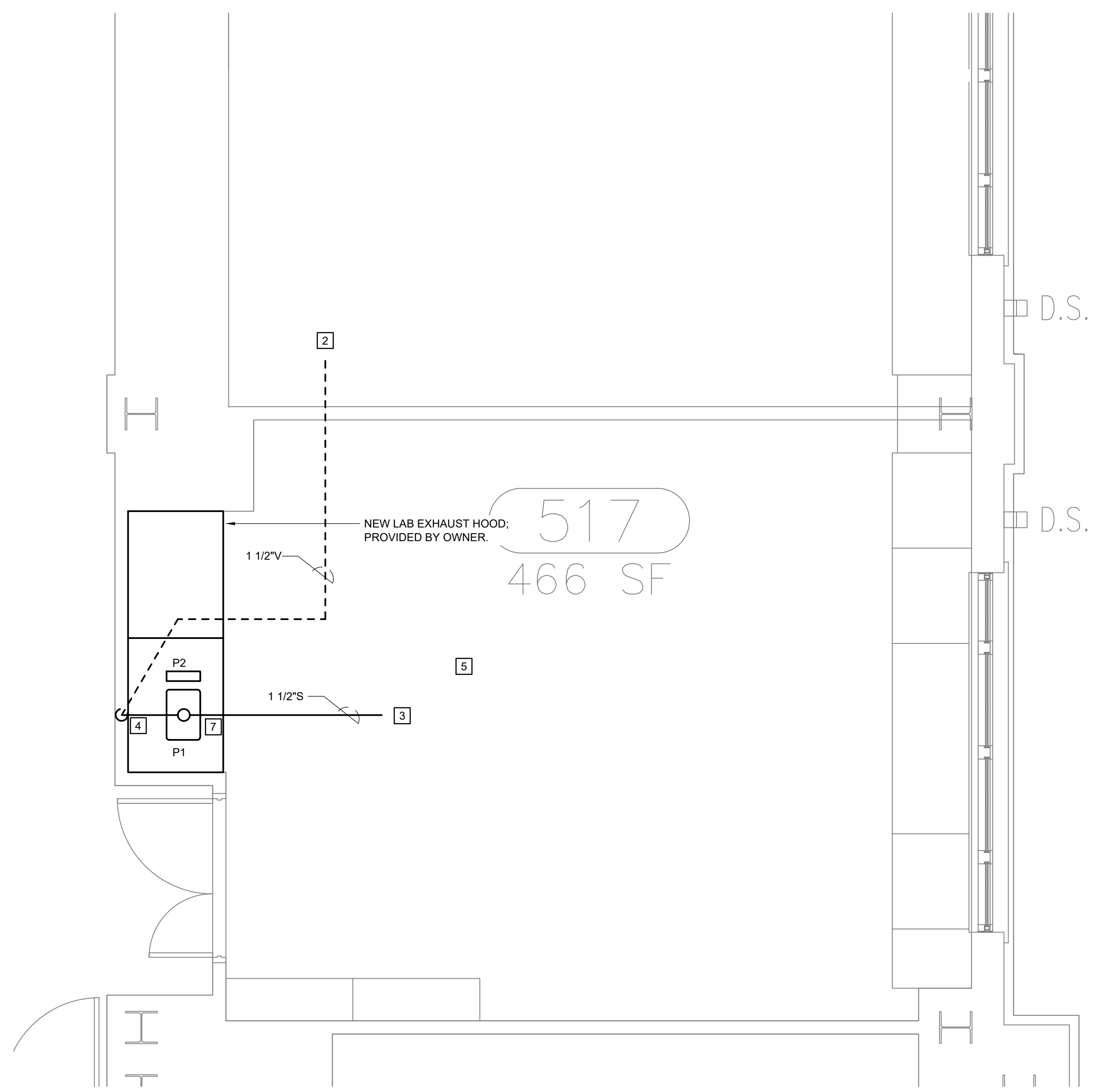


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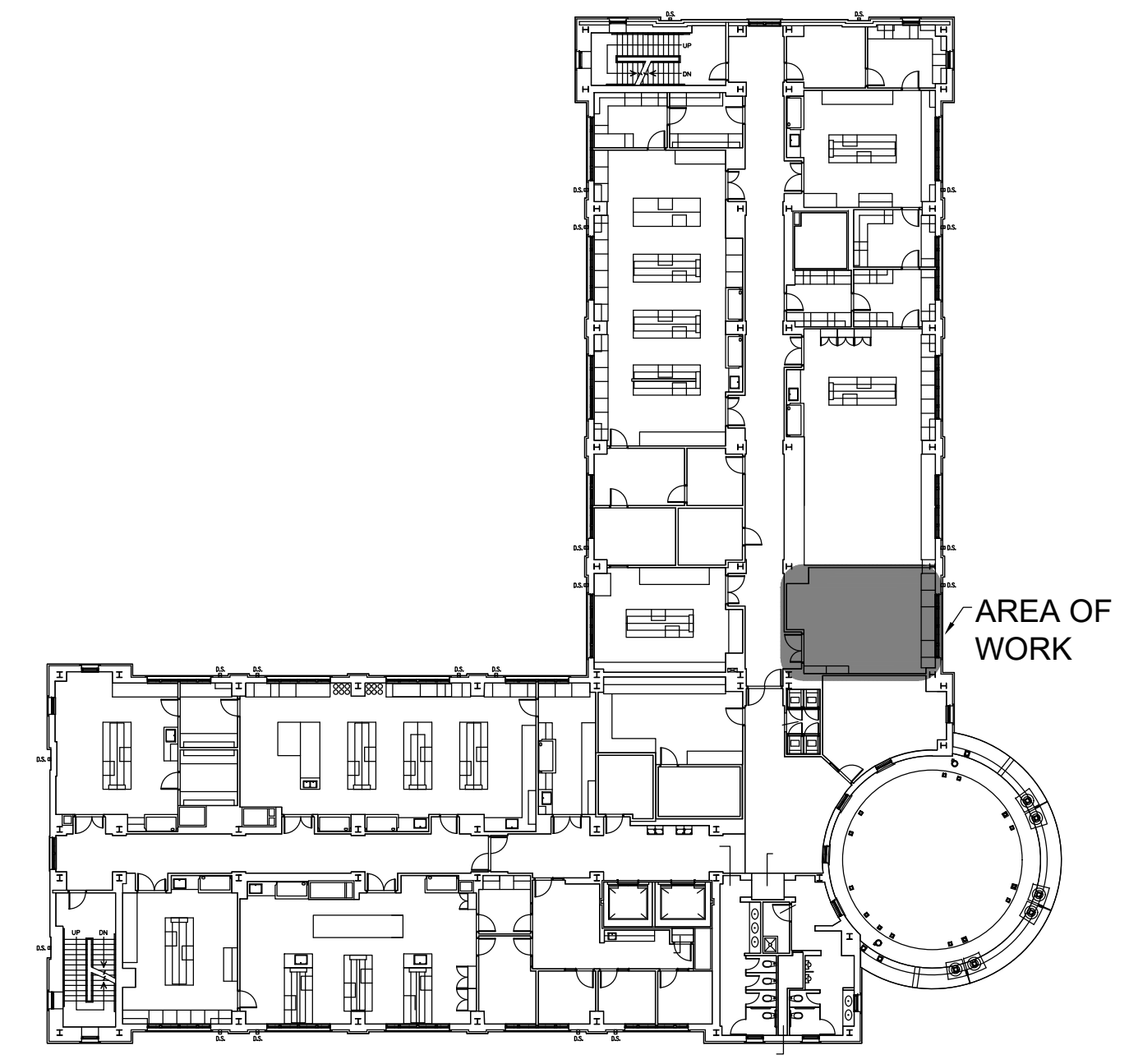
PLUMBING PLANS



A1 SUPPLY PLAN
3/8" = 1'-0"

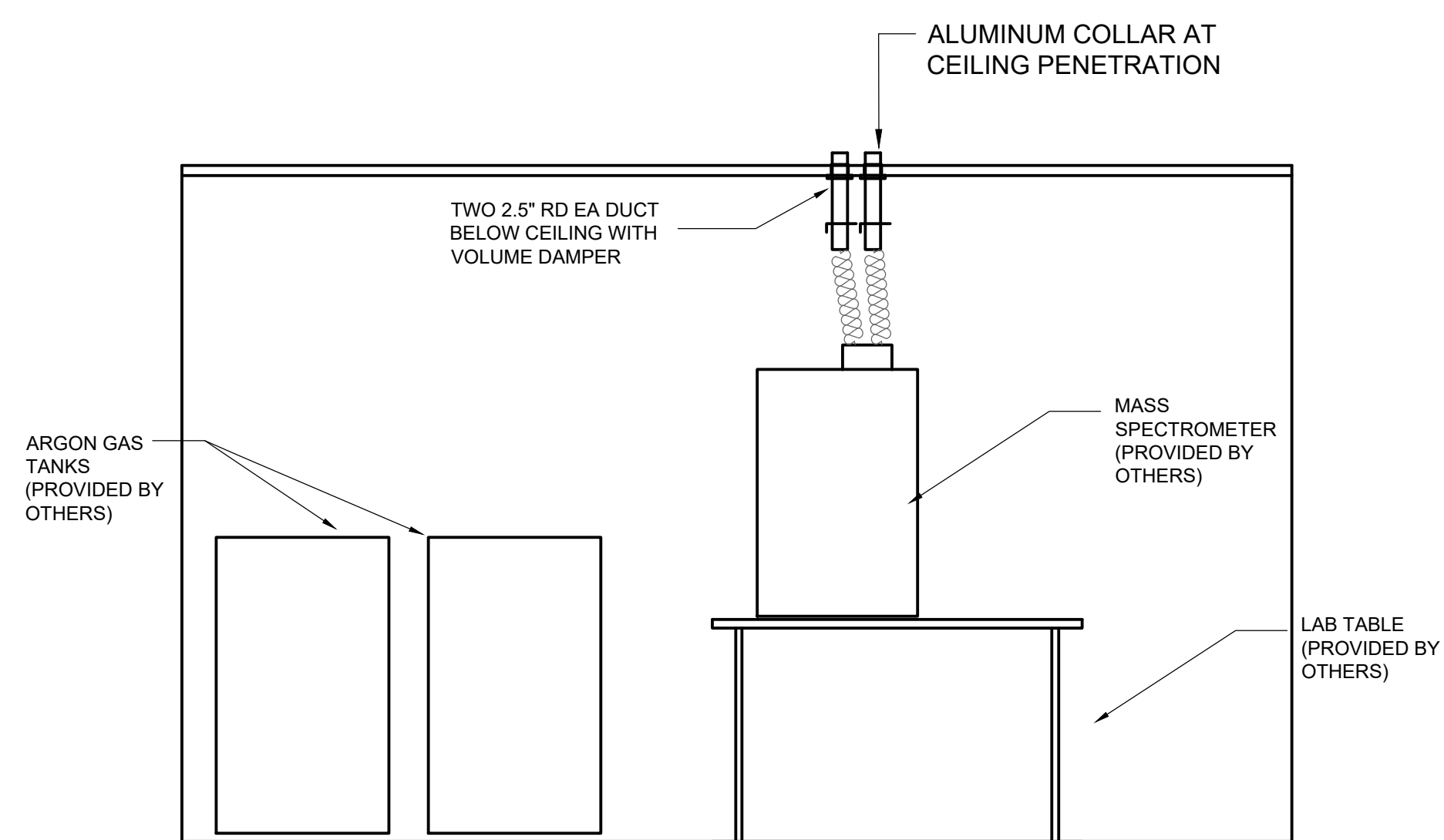


A3 DRAIN, WASTE AND VENT PLAN
3/8" = 1'-0"

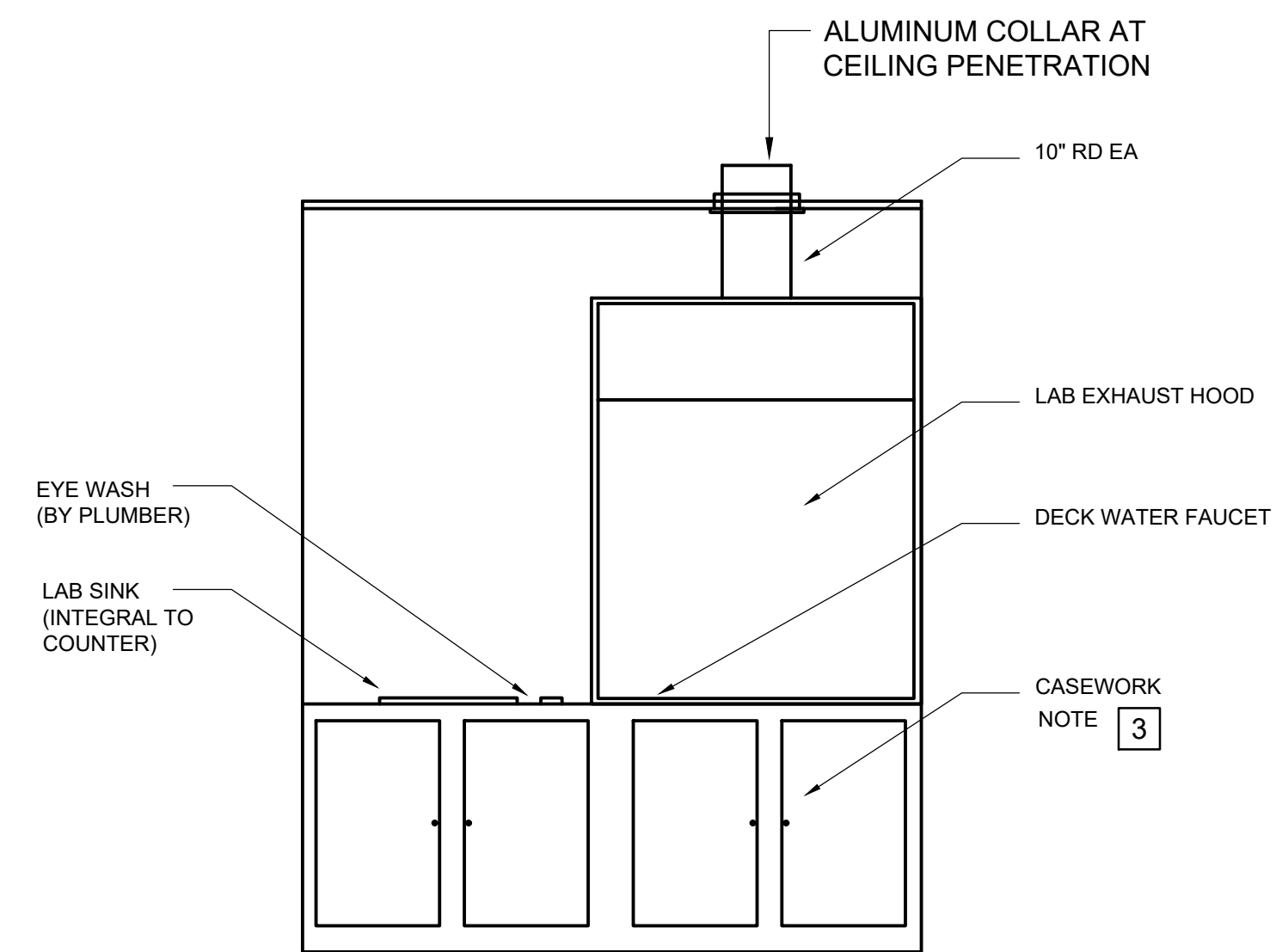


A5 KEY PLAN - 5TH FLOOR
NO SCALE

DRAWN BY:	MDE
CHECKED BY:	CC
DATE:	05/07/19
JOB NUMBER	19-019
SHEET NUMBER	P1.1



D1 ELEVATION - MASS SPECTROMETER
NO SCALE



D4 ELEVATION - LAB HOOD
NO SCALE

LEGEND

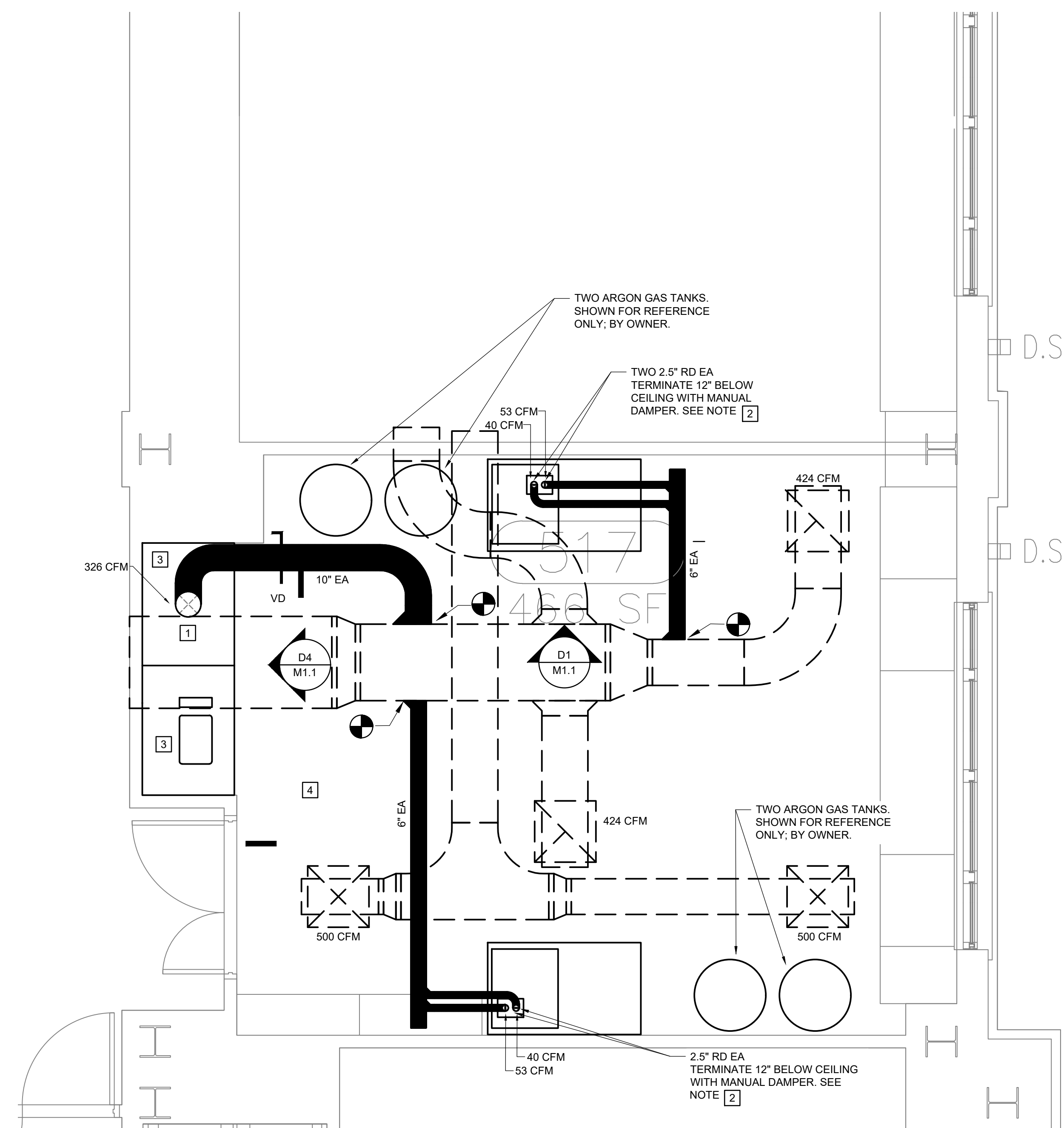
- CEILING SUPPLY DIFFUSER, EXISTING
- CEILING EXHAUST GRILLE, EXISTING
- MANUAL VOLUME DAMPER
- SUPPLY AIR
- EXHAUST AIR
- ROUND
- CONNECTION TO EXISTING

GENERAL NOTES

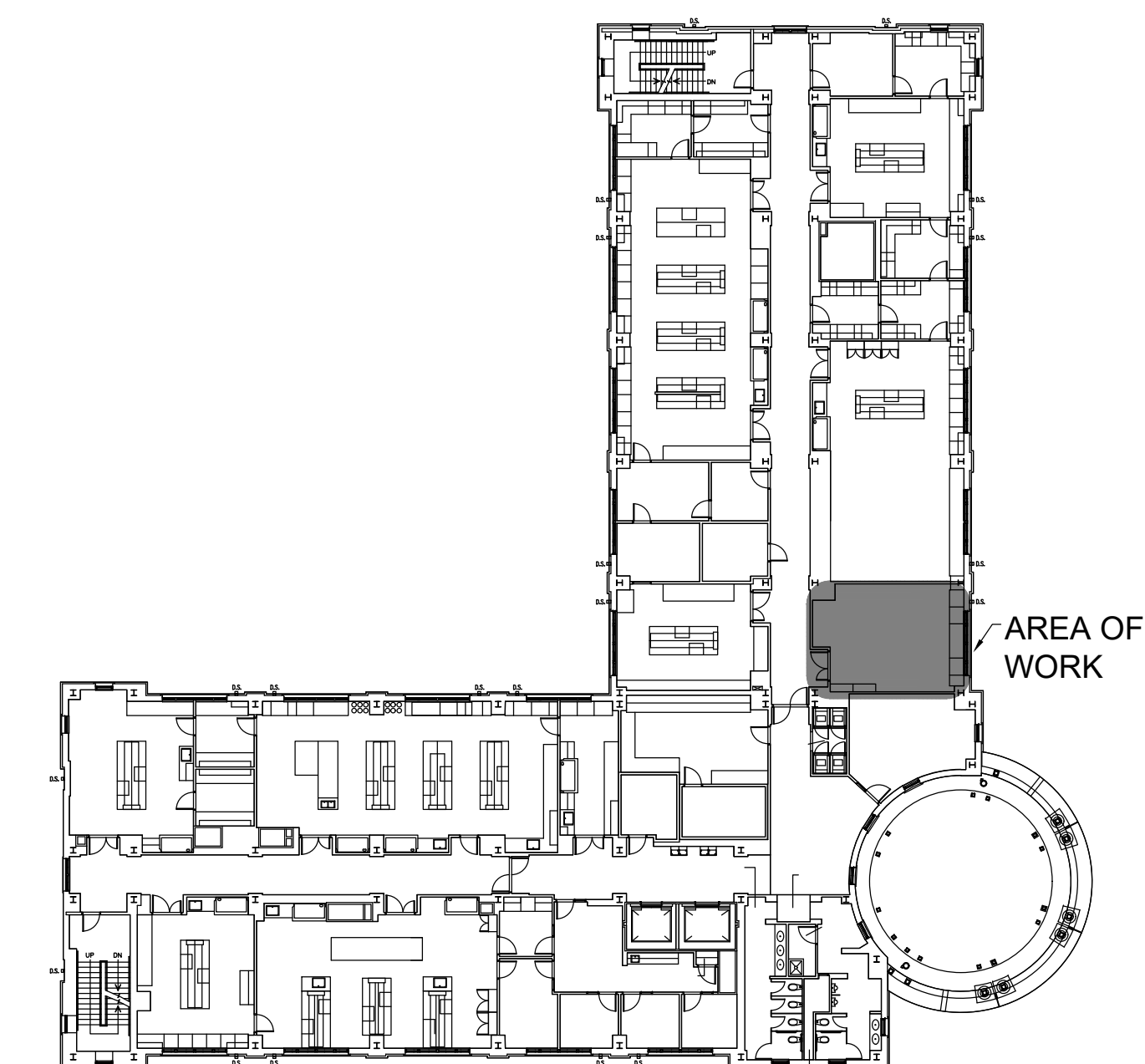
1. PROVIDE LABOR, MATERIALS AND EQUIPMENT TO COMPLETE THE HVAC WORK INDICATED ON THE DRAWINGS AND AS REQUIRED BY LOCAL CODES AND ORDINANCES.
2. FABRICATE AND INSTALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS.
3. INSTALL AND CONNECT THE HVAC SYSTEM IN STRICT ACCORDANCE WITH LOCAL CODES, ORDINANCES AND THE LATEST EDITION OF THE SOUTH CAROLINA BUILDING CODE.
4. ADJUST CONTROLS AND EQUIPMENT FOR PROPER OPERATION. LUBRICATE AND CLEAN EQUIPMENT PRIOR TO ACCEPTANCE OF BUILDING BY OWNER.
5. COORDINATE WORK WITH THE ELECTRICAL INSTALLER.
6. GUARANTEE WORK INSTALLED UNDER THE CONTRACT TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS, USUAL WEAR EXPECTED, SHOULD SUCH DEFECTS DEVELOP WITHIN A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE BUILDING BY THE OWNER. REPAIR AND/OR REPLACE DEFECTIVE ITEMS AND DAMAGE RESULTING FROM FAILURE OF THESE ITEMS, AT NO EXPENSE WHATSOEVER TO THE OWNER.

DRAWING NOTES

1. INSTALL 10" Ø EXHAUST DUCT UP FROM NEW LAB HOOD (FURNISHED BY OTHERS AND INSTALLED BY CONTRACTOR) TO EXISTING 30"x12" EA DUCT ABOVE CEILING. PROVIDE MANUAL BALANCING DAMPER ABOVE CEILING.
2. PROVIDE 2.5" Ø INSTRUMENT EXHAUST DUCT 12" BELOW CEILING. FINAL CONNECTION AND FLEXIBLE HOSE TO EQUIPMENT TO BE PROVIDED BY OTHERS.
3. CONTRACTOR TO PROVIDE CUSTOM LAB HOOD SURFACE AND CASEWORK WITH LOWER CABINETS AND SINK W/ EYEWASH. DIMENSIONS ARE APPROXIMATELY 88" WIDE X 36" DEEP. FIELD VERIFY DIMENSIONS.
4. REMOVE LAY-IN CEILING TILES AND GRID AS NECESSARY TO INSTALL PIPING. REINSTALL GRID AND TILES; REPLACE DAMAGED TILES WITH NEW TO MATCH EXISTING.

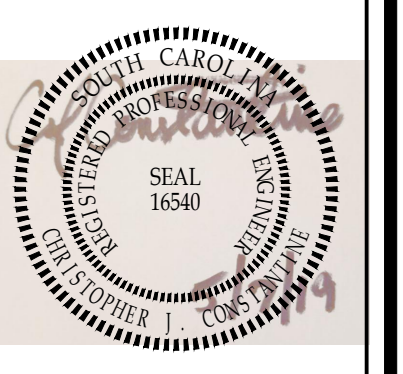
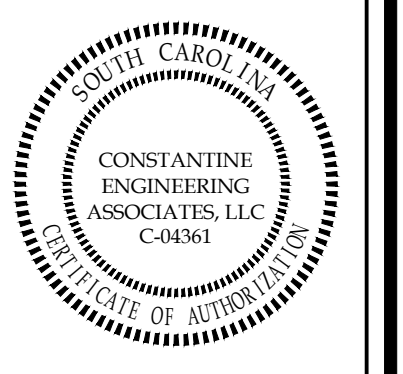


A4 MECHANICAL PLAN
3/8" = 1'-0" NO SCALE



A5 KEY PLAN
NO SCALE

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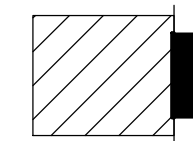


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MECHANICAL PLAN

DRAWN BY:	MDE
CHECKED BY:	CJC
DATE:	05/07/19
JOB NUMBER	19-019
SHEET NUMBER	M1.1

LEGEND

- A-1.3 HOMERUN OF CIRCUIT TO PANEL - CIRCUIT NUMBERS INDICATED.
- ⊕ 125V, 20A DUPLEX RECEPTACLE AT 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED
"C" INDICATES 42" AFF MOUNTING HEIGHT
- ⊕ 125V, 20A QUADRAPLEX RECEPTACLE AT 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED
- ⊕ 250V, 20A SINGLE RECEPTACLE
- ⊕ EXISTING COMMUNICATIONS OUTLET
-  PANELBOARD, EXISTING

GENERAL NOTES

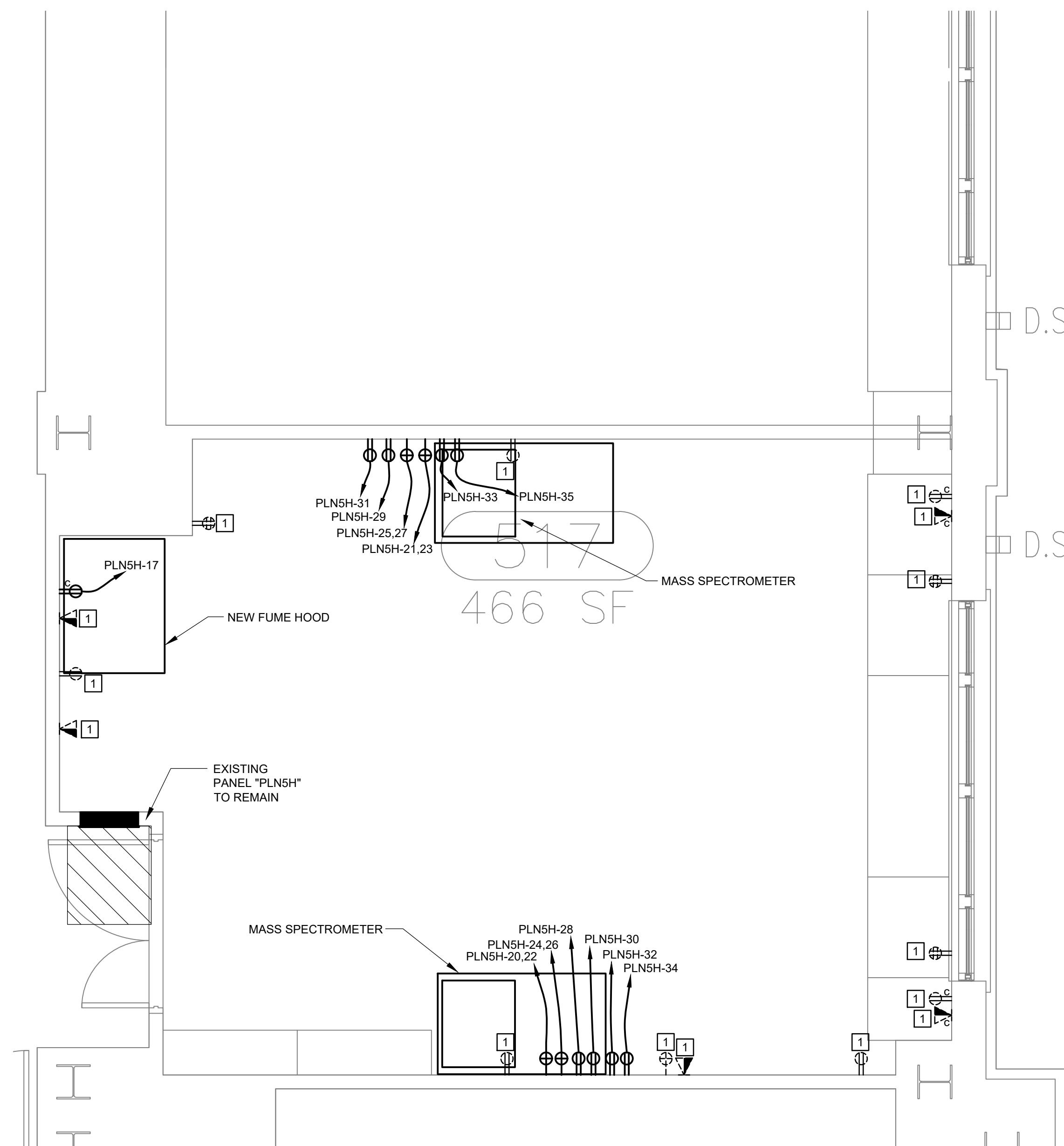
1. FURNISH ALL MATERIALS AND LABOR NECESSARY TO PROVIDE COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEMS. FURNISH ALL MATERIALS AND LABOR NECESSARY TO DEMONSTRATE TO THE OWNER AND TO THE ENGINEER THAT ALL SYSTEMS ARE OPERATING PROPERLY AND AS SPECIFIED. WARRANTY ALL WORK AND ALL MATERIALS, EQUIPMENT AND DEVICES FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE.
2. ENSURE THAT ALL WORK CONFORMS TO THE LATEST EDITION OF:
 - 2.1. ANSINFPFA 70 (NATIONAL ELECTRICAL CODE)
 - 2.2. NECA STANDARD OF INSTALLATION
 - 2.3. SOUTH CAROLINA BUILDING CODE
 - 2.4. NFPA 101 (LIFE SAFETY CODE)
 - 2.5. ALL FEDERAL, STATE AND LOCAL CODES AND ORDINANCES
 - 2.6. LOCAL UTILITY COMPANY REGULATIONS
3. ALL MATERIALS, EQUIPMENT AND DEVICES AS A MINIMUM SHALL MEET THE REQUIREMENTS OF U.L. (WHERE U.L. STANDARDS ARE ESTABLISHED FOR THOSE ITEMS) AND THE REQUIREMENTS OF THE NFPA 70. ALL ITEMS SHALL BE CLASSIFIED BY U.L. AS SUITABLE FOR THE PURPOSE USED.
4. COORDINATE LOCATION OF ELECTRICAL DEVICES AND ELECTRICAL WORK WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. NUMBERS ADJACENT TO DEVICES ARE NOMINAL MOUNTING HEIGHTS.
5. PROVIDE ALL THE INTERCONNECTING POWER WIRING AND CONDUIT, CONTROL WIRING (RATED 120 VOLTS (NOMINAL)) AND CONDUIT, AND THE ELECTRICAL POWER CIRCUITS FOR ALL EQUIPMENT PROVIDED BY OTHER TRADES.
6. PROVIDE MINIMUM SIZE OF #12 CONDUCTOR FOR 20A POWER CIRCUITS LESS THAN 75'-0" IN LENGTH. OTHERWISE, PROVIDE MINIMUM CONDUCTOR SIZE OF #10. INSTALL ALL WIRING IN CONDUIT UNLESS NOTED OTHERWISE.
7. SUPPORT ALL CONDUIT ABOVE CEILING FROM BUILDING STRUCTURAL MEMBERS OR CONCRETE DECKING, NOT FROM CEILING GRID OR GRID HANGER WIRES.
8. WHERE CONDUIT PENETRATES FIRE RATED BARRIERS (WALLS, FLOORS AND CEILINGS), SEAL THE OPENING AROUND THE CONDUIT TO MAINTAIN THE FIRE RATING OF THE BARRIER WITH U.L. LISTED FIRE STOPPING MATERIAL.
9. PROVIDE TYPEWRITTEN DIRECTORY FOR PANEL TO INCLUDE ALL EXISTING AND NEW CIRCUITS. DIRECTORY SHALL IDENTIFY PANELBOARD AND INDICATE EACH CIRCUIT NUMBER, DESCRIPTION AND LOCATION.

DRAWING NOTES

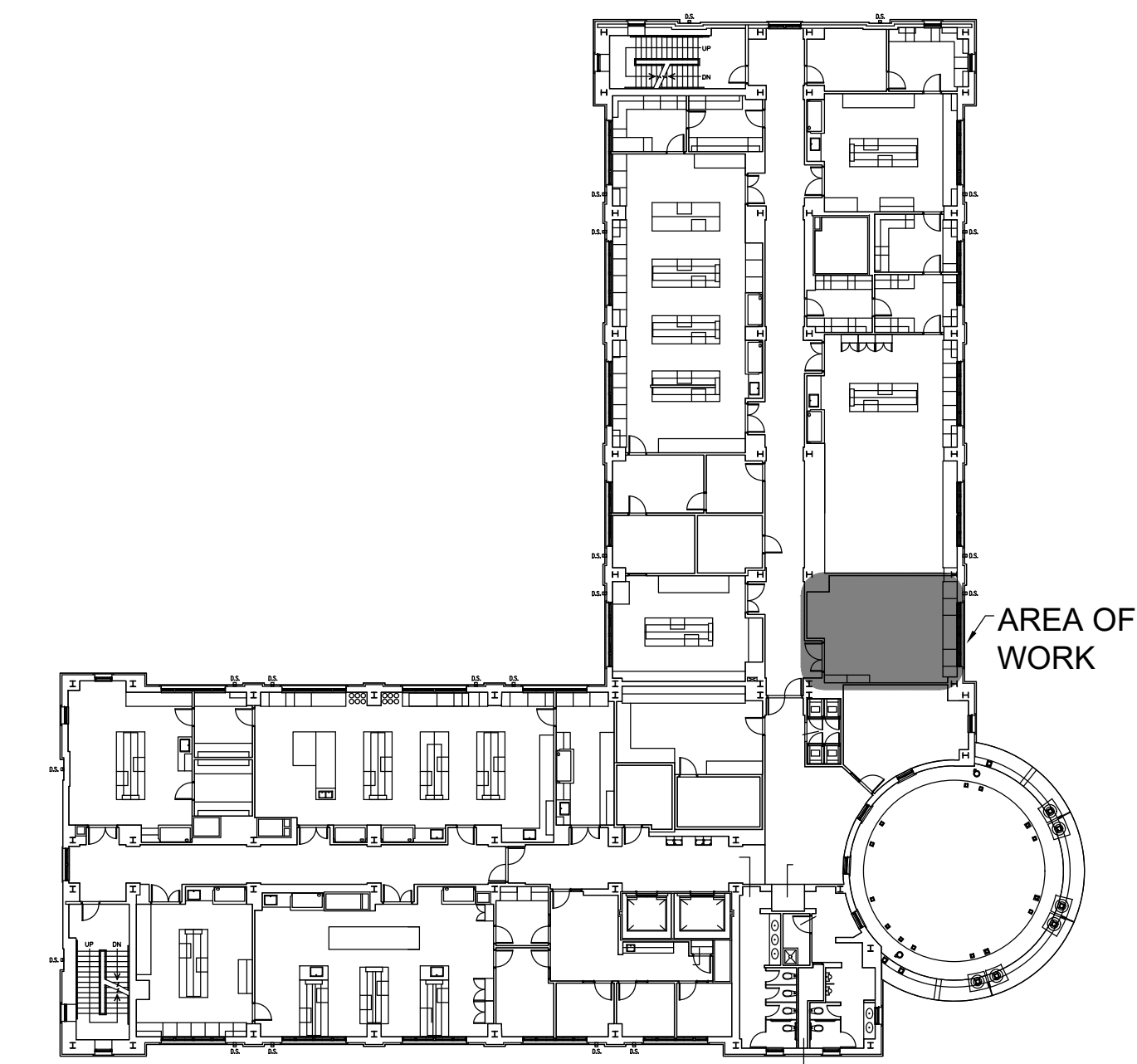
- 1 EXISTING TO REMAIN.

ELECTRICAL PANEL "PLNSH" SCHEDULE (EXISTING)													
VOLTS/PHASE/WIRE:		PANEL SIZE & TYPE:		MAIN SIZE & TYPE:			CABINET:			MIN SCC:	FED FROM:	NOTES:	
120-208/3/4		225A		100A MLO			FLUSH			10 KAIC			
NO	TRIP	AREA SERVED			A	B	C	A	B	C	AREA SERVED	TRIP	NO
1	20	RECEPT - VENT TEACH LAB			200			1000			RECEPT - VENT TEACH LAB	20	2
3	20	RECEPT - VENT TEACH LAB				200			X		SPARE	20	4
5	20	RECEPT - VENT TEACH LAB					200			400	RECEPT - VENT TEACH LAB	20	6
7	20	RECEPT - VENT TEACH LAB			1000			1000			RECEPT - VENT TEACH LAB	20	8
9	20	SPARE				X			X		SPARE	20	10
11	20	RECEPT - VENT TEACH LAB					400			1000	RECEPT - VENT TEACH LAB	20	12
13	20	RECEPT - VENT TEACH LAB			400			1000			SPARE	20	14
15	20	RECEPT - VENT TEACH LAB				1000			200		RECEPT - VENT TEACH LAB	20	16
17	20	FUME HOOD**					70			400	RECEPT - VENT TEACH LAB	20	18
19	20	RECEPT - VENT TEACH LAB			500			1100			MASS SPECTROMETER**	20	20
21	20*	MASS SPECTROMETER**				1100				1100		20	22
23							1100			950	FORE VACUUM PUMP**	15	24
25	15*	FORE VACUUM PUMP**				950			950			15	26
27							950		X		SPECTROMETER COMPUTER**	15	28
29	15*	SPECTROMETER COMPUTER**					X			X	SPECTROMETER MONITOR**	15	30
31	15*	SPECTROMETER MONITOR**			X			100			DATA ACQUISITION UNIT**	15	32
33	15*	DATA ACQUISITION UNIT**				100			100		TOP POWER SUPPLY**	15	34
35	15*	TOP POWER SUPPLY**					100			X	SPARE	20	36
37	20	SPARE			X				X		SPARE	20	38
39	20	SPARE				X			X		SPARE	20	40
41	20	SPARE					X			X	SPARE	20	42
TOTAL CONNECTED LOAD =		17570	VA	TOTAL DEMAND =		17570	VA	TOTAL DEMAND =		49	AMPS		

ALL BREAKERS ARE EXISTING TO REMAIN UNLESS DENOTED OTHERWISE. BREAKERS DENOTED BY * ARE NEW. ALL CIRCUITS ARE EXISTING TO REMAIN UNLESS DENOTED OTHERWISE. CIRCUITS DENOTED BY ** ARE NEW. EXISTING LOADS ARE BASED ON PHRC BUILDING DRAWINGS DATED **11 JUNE 2004**.

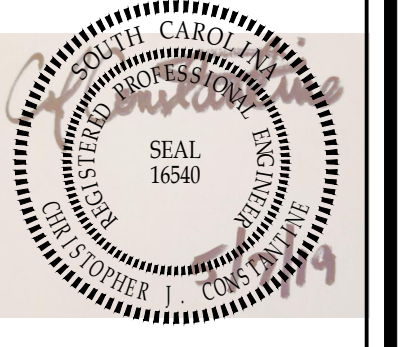
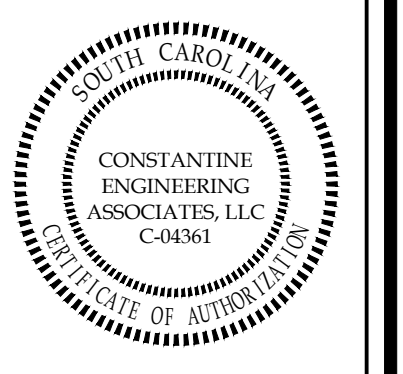


A1 POWER PLAN
3/8" = 1'-0"
0 16' 32' 64'



A5 KEY PLAN
NO SCALE

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ELECTRICAL PLAN - POWER

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CHECKED BY:	CJC
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SHEET NUMBER	E1.1