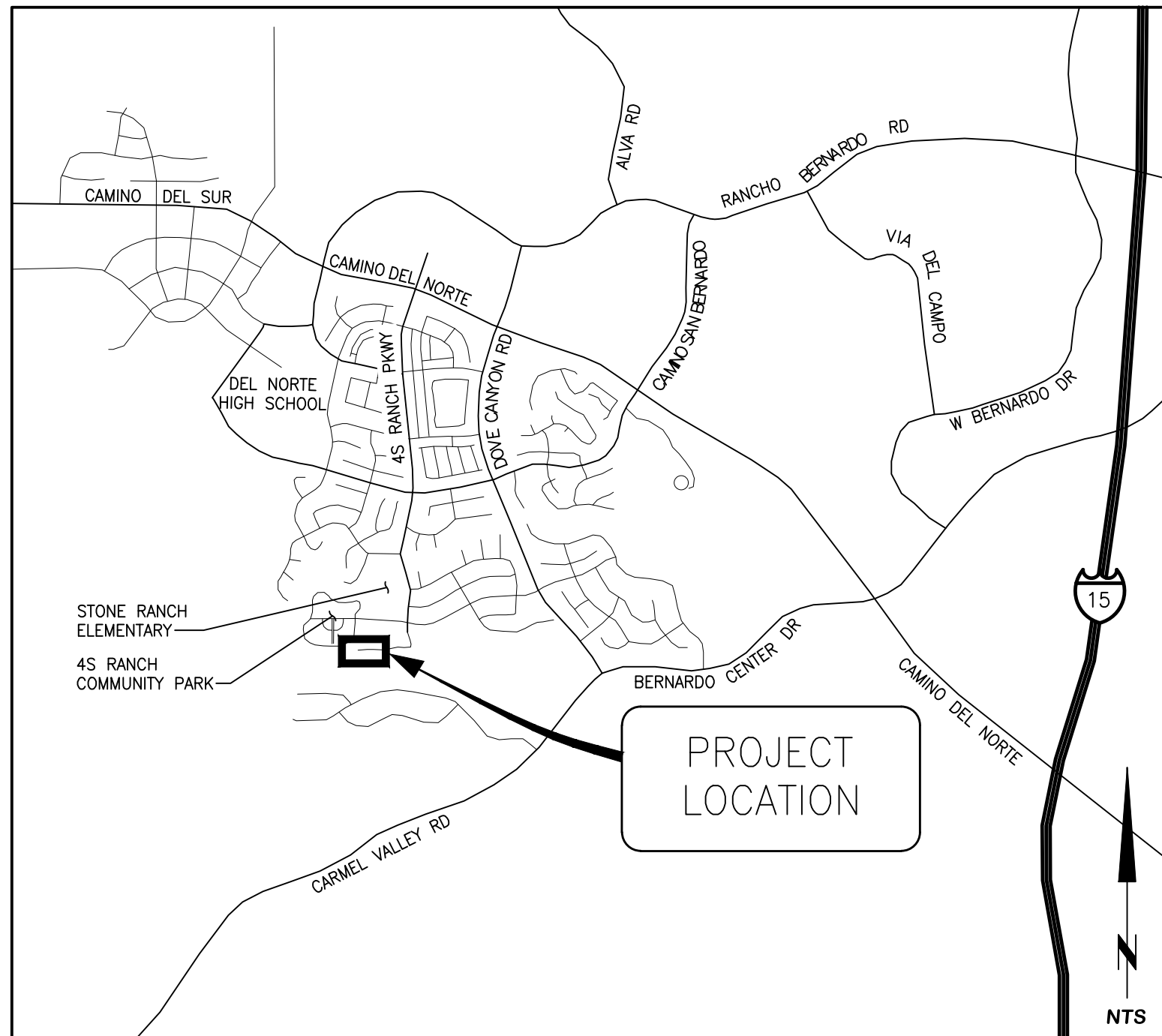


VICINITY MAP
NTS



LOCATION MAP
NTS



Municipal Water District

PLANS FOR THE CONSTRUCTION OF 4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT

NOVEMBER 2021
W.O. NUMBER D700004

OLIVENHAIN MUNICIPAL WATER DISTRICT
1966 Olivenhain Road
Encinitas, CA 92024
(760) 753-6466

BOARD OF DIRECTORS
LAWRENCE A. WATT, PRESIDENT
KRISTIE BRUCE-LANE, VICE PRESIDENT
CHRISTY GUERIN, TREASURER
ROBERT F. TOPOLOVAC, SECRETARY
NEAL MEYERS, DIRECTOR


JASON P. HUBBARD, P.E., R.C.E. C60317
ENGINEERING MANAGER

11-9-2021
DATE

BASIS OF COORDINATES: (NAD83)

THE BASIS OF COORDINATES FOR THIS PROJECT IS THE NORTH AMERICAN DATUM OF 1983 (NAD83) CALIFORNIA STATE PLANE COORDINATE SYSTEM OF 1983 (CCS83) ZONE 6 (EPOCH 1991.35) BASED LOCALLY UPON THE FOLLOWING CONTROL POINTS PER RECORD OF SURVEY MAP NO. 14492.

STATION	NORTHING	EASTING
105	1947303.24	6302893.09
492	1933679.21	6289347.94

GRID BEARING BETWEEN 105 AND 492 = S 44°50'01" W.

VERTICAL CONTROL: (NGVD29)

ELEVATIONS SHOWN HEREON ARE IN TERMS OF THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) BASED LOCALLY UPON THE FOLLOWING BENCHMARK PER THE CITY OF SAN DIEGO SURVEY CONTROL NETWORK AS DETERMINED BY RECORD OF SURVEY MAP NO. 14492.

BENCHMARK	ELEVATION	DESCRIPTION
STATION 105	699.55'	2.25" BRASS DISK IN 2" IRON PIPE, CENTER OF MEDIAN OF CAMINO DEL NORTE 920 FT NW OF BERNARDO CENTER DRIVE.

UNAUTHORIZED CHANGES & USES: The engineer preparing these plans will not be responsible for, or liable for, unauthorized changes to or uses of these plans. All changes to the plans must be in writing and must be approved by the preparer of these plans.



Construction contractor agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and construction contractor further agrees to defend, indemnify and hold design professional harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting liability arising from the sole negligence of design professional.



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

TITLE SHEET

SHEET
1 of 90

DRAWING
G-1

D700004

ORIGINAL SCALE IN INCHES

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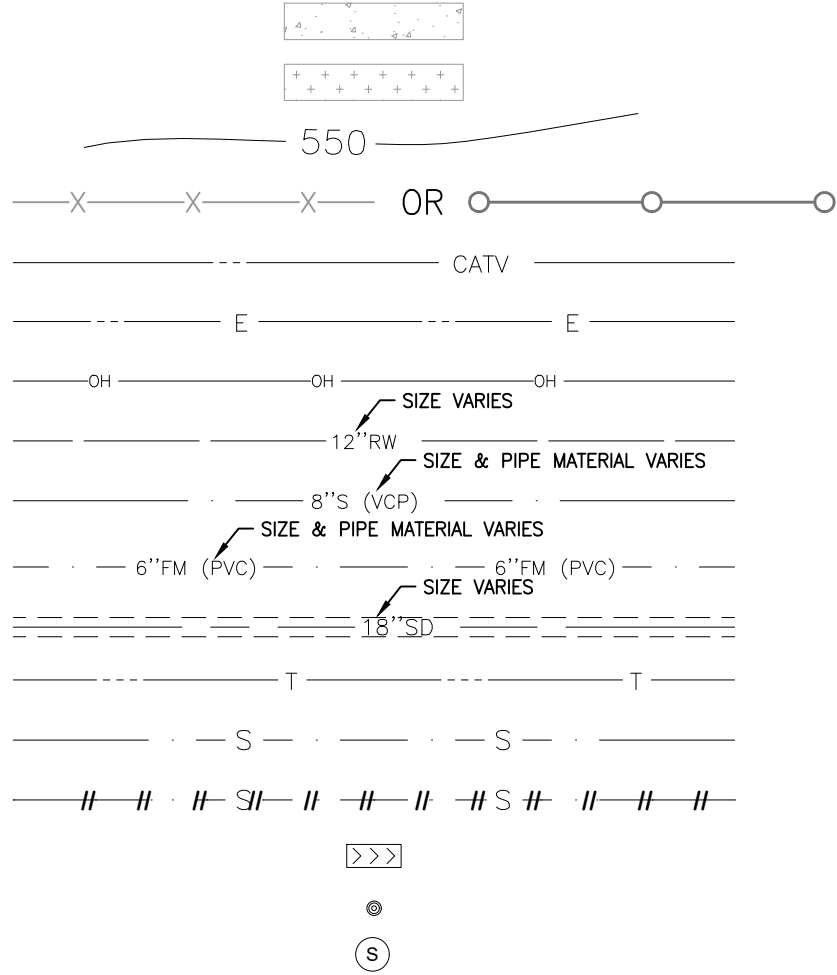
AC	ASPHALT CONCRETE	G	GAS	S	SLOPE OR SOUTH
ACI	AMERICAN CONCRETE INSTITUTE	GA	GAUGE	SCH	SCHEDULE
ANG	ANGLE	GP	GUARD POST	SD	STORM DRAIN
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	H, HORIZ	HORIZONTAL	SDRSD	SAN DIEGO REGIONAL STANDARD DRAWINGS
APPROX	APPROXIMATELY	HGL	HYDRAULIC GRADE LINE	SF	SQUARE FEET
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	HP	HIGH POINT, HIGH PRESSURE, or HORSE POWER	SHT	SHEET
AWWA	AMERICAN WATER WORKS ASSOCIATION	HVAC	HEATING, VENTILATING AND COOLING	SP	STATIC PRESSURE
		HWL	HIGH WATER LEVEL	SPECS	SPECIFICATIONS
				SQ	SQUARE
				SS, SST	STAINLESS STEEL
				SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
				ST	STREET
				STA	STATION
				STD	STANDARD
				STL	STEEL
				STRUCT	STRUCTURAL
				SWPPP	STORM WATER POLLUTION PREVENTION PLAN
				t	THICKNESS
				T	TELEPHONE
				T&B	TOP AND BOTTOM
				TB	THRUST BLOCK
				TBD	TO BE DETERMINED
				TC	TOP OF CURB
				TEMP	TEMPORARY
				TG	TOP OF GRATING
				THK	THICK
				TP	TOP OF PAVEMENT
				TYP	TYPICAL
				UG	UNDERGROUND
				UNK	UNKNOWN
				UNO	UNLESS NOTED OTHERWISE
				V, VERT	VERTICAL
				W	WEST OR WIDTH
				W, WTR	WATER
				W/	WITH
				W/O	WITHOUT
				WM	WATER METER
				WO	WORK ORDER
				WWM	WELDED WIRE MESH
				&	AND
				±	PLUS OR MINUS

LEGEND

EXISTING

- EXIST CONCRETE
- EXIST ASPHALT CEMENT
- EXIST TOPOGRAPHY
- EXIST FENCE
- EXIST CABLE
- EXIST ELECTRIC
- EXIST OVERHEAD UTILITIES
- EXIST RECYCLED WATER
- EXIST SEWER
- EXIST FORCE MAIN
- EXIST STORM DRAIN
- EXIST TELEPHONE
- EXIST SEWER
- EXIST SEWER DEMOLISHED
- EXSIT BACKFLOW PREVENTER
- EXIST BOLLARD
- EXIST SEWER MH

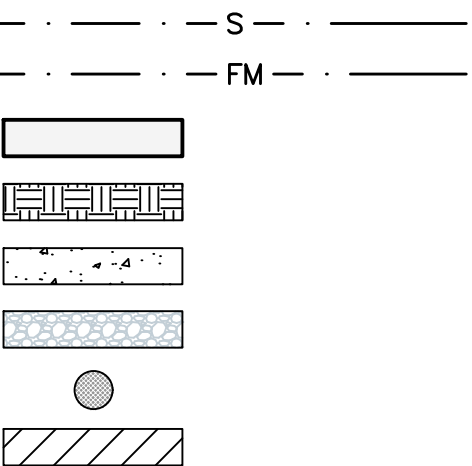
SYMBOL



IMPROVEMENTS

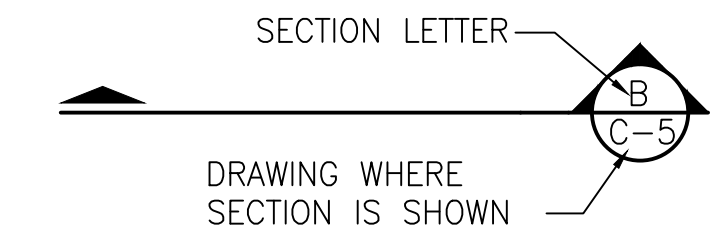
- SEWER
- FORCE MAIN
- ASPHALT CONCRETE
- EARTH
- CONCRETE
- ROCK MULCH
- MANHOLE
- DEMOLISHED

SYMBOL

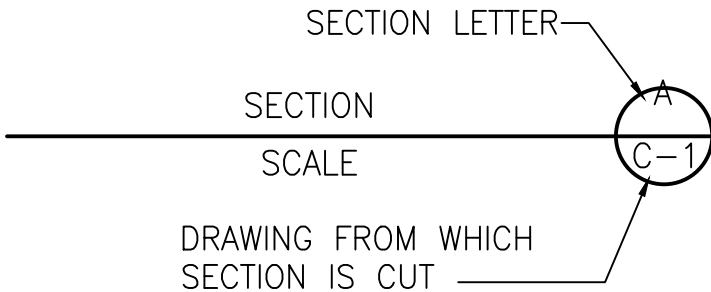


SECTION AND DETAIL IDENTIFICATION SYSTEM

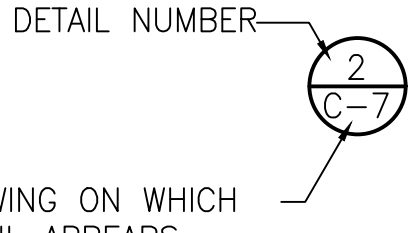
SECTION CALL OUT



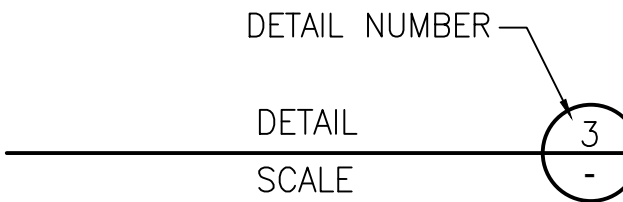
SECTION TITLE



DETAIL CALL OUT



DETAIL TITLE



CALL
811
AT LEAST TWO DAYS
BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

SHEET
2 of 90

DRAWING
G-2

SHEET INDEX, LEGEND,
AND ABBREVIATIONS



Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466



14271 Danielson Street
Poway, California 92064
T 858.413.2400 F 858.413.2440
www.iecorporation.com

DESIGN	PM	DRAWN	MMF	CHECK	RW

MARK	DATE	BY

ORIGINAL SCALE IN INCHES

WORK TO BE DONE

THE WORK INCLUDES BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING:

A NEW BELOW GRADE DRY PIT PUMP ROOM AND ABOVE GRADE ELECTRICAL BUILDING, EQUIPPED WITH PUMPS, PIPING, VALVES, FLOW METER, HVAC, ELECTRICAL, TELEMETRY, AND CONTROLS EQUIPMENT, AND OUTDOOR GENERATOR. WORK ALSO INCLUDES MODIFICATIONS TO EXISTING WET WELL, EXCAVATION, DEMOLITION, SITE PIPING AND MANHOLES, AND CIVIL SITE IMPROVEMENTS.

SITE ADDRESS

16106 4S RANCH PARKWAY
SAN DIEGO, CA 92127

STANDARD SPECIFICATIONS AND DRAWINGS

IN ORDER OF PRECEDENCE:

- OLIVENHAIN MUNICIPAL WATER DISTRICT STANDARD SPECIFICATIONS AND DRAWINGS. REVISIONS THERETO, AS CONTAINED IN THESE PROJECT SPECIFIC DRAWINGS AND SPECIFICATIONS, SHALL TAKE PRECEDENCE OVER THE STANDARD SPECIFICATIONS AND DRAWINGS.
- STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).
- SAN DIEGO REGIONAL STANDARD DRAWINGS (LATEST EDITION).

CONTACTS

AGENCY	CONTACT NAME	PHONE NUMBER
OLIVENHAIN MUNICIPAL WATER DISTRICT 1966 OLIVENHAIN ROAD ENCINITAS, CA 92024	JASON HUBBARD	(760) 632-4640

CELSOC

CONSULTING ENGINEERS AND LAND SURVEYORS OF CALIFORNIA

UNAUTHORIZED CHANGES & USE: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.

DEMOLITION AND REMOVAL NOTES

- WHERE EQUIPMENT, MATERIAL, SOIL, OR DEBRIS IS INDICATED TO BE REMOVED OR REPLACED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY STORAGE, STAGING, LOADING, HAULING, REMOVAL AND DISPOSAL OF THE SAME IN ACCORDANCE WITH ALL APPLICABLE LAWS, ORDINANCES, AND REGULATIONS.
- FOR THE REMOVAL OF ANY MECHANICAL OR ELECTRICAL EQUIPMENT, CONTRACTOR SHALL PROPERLY TERMINATE ALL FEED PIPES OR SUPPLY LINES BY EITHER CAPPING OFF AT A MINIMUM 2 FEET BELOW GRADE, OR, IN THE CASE OF ELECTRIC FEED, CONTRACTOR SHALL TERMINATE AT THE CLOSEST PANELBOARD OR DISCONNECT SWITCH. INTERMEDIATE WIRES SHALL BE PULLED FROM CONDUITS. CONDUITS MAY BE ABANDONED IN PLACE.
- WHERE INDICATED ON PLANS OR DIRECTED IN THE FIELD, THE CONTRACTOR SHALL SALVAGE EQUIPMENT FOR THE DISTRICT AND SHALL STAGE SALVAGED EQUIPMENT AT A SITE LOCATION AS DIRECTED.

GENERAL NOTES

- ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE DRAWINGS, THE PROJECT SPECIFIC SPECIFICATIONS, AND THE OLIVENHAIN MUNICIPAL WATER DISTRICT (OMWD) STANDARD SPECIFICATIONS AND DRAWINGS FOR THE CONSTRUCTION OF WATER MAINS AND FACILITIES, LATEST EDITION. THE CONTRACTOR SHALL BE REQUIRED TO HAVE ONE COMPLETE COPY OF ALL DRAWINGS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.
- THE CONTRACTOR ACKNOWLEDGES RESPONSIBILITY FOR JOBSITE SAFETY AND ACKNOWLEDGES THAT NEITHER THE DISTRICT NOR THE ENGINEER WILL HAVE ANY SUCH RESPONSIBILITY. TO THE FULLEST EXTENT PERMITTED BY LAW THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS DISTRICT, ENGINEER, THEIR PRESENT COMPANIES, SUBSIDIARIES, AGENTS, AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEY FEES AND CLAIM COSTS, ARISING OUT OF OR RESULTING FROM PERFORMANCE OF WORK BY THE CONTRACTOR, ITS SUBCONTRACTORS, OR THEIR AGENTS AND EMPLOYEES, WHICH RESULTS IN DAMAGE TO PERSONS OR PROPERTY INCLUDING WRONGFUL DEATH REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS OR EXPENSE IS CAUSED IN WHOLE OR IN PART BY THE NEGLIGENCE, ACTIVE OR PASSIVE, OF THE DISTRICT, THE ENGINEER, THEIR PARENT AND SUBSIDIARY COMPANIES, AS WELL AS THEIR AGENTS AND EMPLOYEES, EXCEPTING ONLY THE SOLE NEGLIGENCE OF THE DISTRICT, THE ENGINEER, THEIR PARENT OR SUBSIDIARY COMPANIES AND THEIR AGENTS AND EMPLOYEES.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800-227-2600 NOT LESS THAN 48 HOURS PRIOR TO THE INITIAL START OF WORK.
- ALL EXISTING UTILITIES INDICATED ON THE DRAWINGS ARE SHOWN DIAGRAMMATICALLY AND ARE BASED ON AS-BUILT DRAWINGS AND THE ORIGINAL CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL POTHOLE AND VERIFY THE SIZE, MATERIAL, HORIZONTAL & VERTICAL LOCATION, BEARING, AND INCLINATION OF ALL EXISTING UTILITIES PRIOR TO ANY DEMOLITION WORK OR INSTALLATION OF NEW WORK. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING UTILITIES OR STRUCTURES AT THE WORK SITE.
- THE CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW FOR A DESIGN REVISION IF NECESSARY.
- THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING, AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES REQUIRED TO PROTECT ADJACENT PROPERTIES AND IMPROVEMENTS DURING ALL PROJECT OPERATIONS. DAMAGED OR DESTROYED ITEMS SHALL BE REPAIRED OR REPLACED TO THE CONDITION EXISTING PRIOR TO WORK BY THE CONTRACTOR AT NO COST TO THE DISTRICT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENTATION AND/OR BENCHMARKS WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEYOR OR A REGISTERED CIVIL ENGINEER AUTHORIZED TO

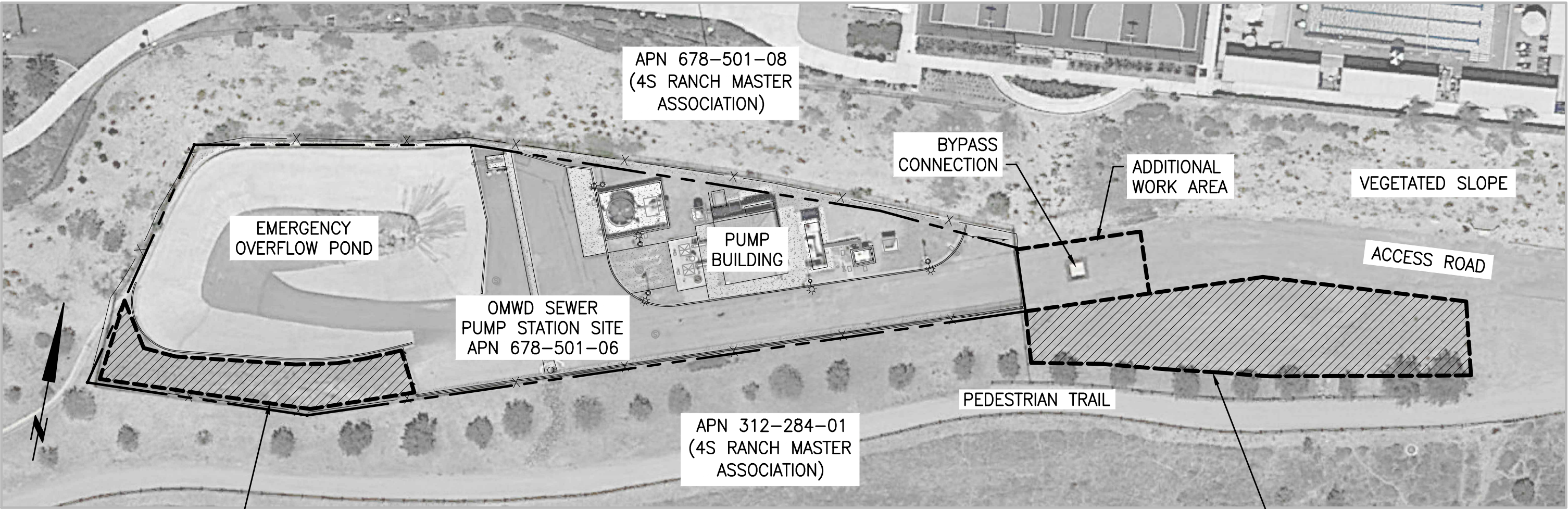
- PRACTICE LAND SURVEYING. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED BY THE LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE LAND SURVEYOR'S ACT. THE CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTS THAT ARE LOCATED WITHIN 10 FEET OF THE CENTERLINE OF CONSTRUCTION BY COVERING THE MONUMENTS WITH 1-INCH THICK STEEL PLATE DURING EXCAVATION AND BACKFILL OPERATIONS OR SHALL EMPLOY ALTERNATIVE PROTECTION MEASURES NECESSARY TO AVOID DISTURBANCE OR DAMAGE TO THE MONUMENTS. ALTERNATIVE PROTECTION MEASURES SHALL BE SUBMITTED FOR DISTRICT REVIEW AND APPROVAL IN ACCORDANCE WITH SECTION 01300. THE CAP OF ANY MONUMENT WITHIN THE WORK AREA SHALL BE RAISED TO MATCH FINISHED GRADE.
- THESE DOCUMENTS HAVE BEEN PREPARED FOR A SPECIFIC PROJECT AND SHALL NEITHER BE ALTERED NOR REUSED FOR ANY OTHER PURPOSE. ALSO, THESE DOCUMENTS DO NOT REPRESENT AS-BUILT CONDITIONS. IF THESE DOCUMENTS ARE ALTERED INTENTIONALLY OR UNINTENTIONALLY, OR REUSED WITHOUT THE DESIGN ENGINEER'S WRITTEN APPROVAL, IT WILL BE AT THE SOLE RISK AND RESPONSIBILITY OF THE USER. THE ACT OF ALTERING OR REUSING IS CONSTRUED AS INDEMNIFYING AND HOLDING THE DESIGN ENGINEERING FIRM AND ITS EMPLOYEES HARMLESS FROM ALL CLAIMS, DAMAGES, AND EXPENSES, INCLUDING ATTORNEY FEES, ARISING OUT OF SUCH ACT.
 - CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION STAGING AREAS WITH THE DISTRICT PRIOR TO MOBILIZATION.
 - WORK HOURS SHALL BE BETWEEN THE HOURS OF 7:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY. NO WORK OF ANY KIND, INCLUDING WARMING UP OR MOVEMENT OF EQUIPMENT IS PERMITTED OUTSIDE THESE HOURS OF OPERATION.
 - THE CONTRACTOR SHALL FURNISH TO THE ENGINEER OF WORK AS-BUILT PLANS FOR ALL NEW IMPROVEMENTS SHOWN ON THESE PLANS.
 - FINISH GRADE OF NEW CONCRETE AND/OR ASPHALT PAVING SHALL CONFORM TO EXISTING SITE GRADES OR AS SHOWN ON THESE DRAWINGS AS DIRECTED BY THE ENGINEER. STRAIGHT GRADES SHALL BE MAINTAINED BETWEEN FINISH ELEVATIONS AS SHOWN.
 - ALL SURPLUS EXCAVATED SOIL AND DEBRIS SHALL BE LEGALLY DISPOSED OFF SITE. ALL COSTS FOR TRANSPORTATION AND DISPOSAL SHALL BE INCLUDED IN THEIR APPURTENANT ITEMS OF WORK. ESTIMATED QUANTITIES FOR EARTHWORK AND IMPORTED MATERIALS ARE APPROXIMATE AND CONTRACTOR SHALL DEVELOP HIS/HER OWN ESTIMATES FOR BIDDING PURPOSES.
 - THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE DISTRICT AND INFRASTRUCTURE ENGINEERING CORPORATION, ITS EMPLOYEES, OFFICERS, OR AGENTS HARMLESS AGAINST ANY AND ALL CLAIMS BY ANY PARTIES ARISING FROM, OR RELATED TO, ANY AND ALL DAMAGES, INCLUDING LEGAL COSTS AND ATTORNEY'S FEES, RESULTING FROM INTERFERENCE WITH, INTERRUPTION OF, DAMAGE TO, OR ANY AND ALL INJURIES WHICH RESULT FROM DAMAGE CAUSED TO SUBSURFACE INSTALLATION, WHICH IS UNFORESEEN AND DESPITE ENGINEER'S EFFORT DURING THE DESIGN PROCESS WAS NOT LOCATED, EXCEPTING ONLY THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE ENGINEER IN PROVIDING ITS SERVICES.

GRADING NOTES

- ALL GRADING AND EARTHWORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- ALL GRADING, SITE PREPARATION, PROCESSING, PLACING AND COMPACTING OF FILL SHALL BE DONE UNDER THE DIRECT SUPERVISION OF THE SOILS ENGINEER. SUBSEQUENT TO COMPLETION OF WORK, THE SOILS ENGINEER SHALL SUBMIT TO THE DISTRICT A REPORT STATING THAT ALL WORK HAS BEEN DONE TO HIS OR HER SATISFACTION. RECOMMENDATIONS OF THE GEOTECHNICAL REPORT SHALL BE STRICTLY ADHERED TO.
- PRIOR TO COMMENCING ANY GRADING ON THE SITE, THE EXTERIOR BOUNDARIES SHALL BE MARKED. BOUNDARY MARKERS SHALL BE MAINTAINED THROUGHOUT THE GRADING OPERATIONS.
- PROTECTIVE FENCING AND/OR BARRIERS SHALL BE PROVIDED WHEN NECESSARY TO PROTECT ADJACENT PROPERTIES DURING GRADING OPERATIONS.
- THE CONTRACTOR'S SOIL ENGINEER'S AREA OF RESPONSIBILITY SHALL INCLUDE THE PROFESSIONAL OBSERVATION AND APPROVAL CONCERNING THE PREPARATION OF GROUND TO RECEIVE FILLS, TESTING FOR REQUIRED COMPACTION, STABILITY OF ALL FINISH SLOPES, DESIGN OF BUTTRESS FILLS, SUBDRAIN INSTALLATION AND INCORPORATION OF DATA SUPPLIED BY THE ENGINEERING GEOLOGIST.
- GRADING OPERATION SHALL ONLY BE ALLOWED BETWEEN THE HOURS OF 7:00 AM TO 5:00 PM, MONDAY THOUGH FRIDAY. NO WORK OF ANY KIND, INCLUDING WARMING UP OR MOVEMENT OF EQUIPMENT IS PERMITTED OUTSIDE THESE HOURS OF OPERATION.
- THE CONTRACTOR SHALL PROPERLY GRADE ALL EXCAVATED SURFACES TO PROVIDE POSITIVE DRAINAGE AND PREVENT PONDING OF WATER. THE CONTRACTOR SHALL CONTROL SURFACE WATER TO AVOID DAMAGE TO ADJOINING PROPERTIES OR TO FINISHED WORK ON THE SITE AND SHALL TAKE REMEDIAL MEASURES TO PREVENT EROSION OF FRESHLY GRADED AREAS.
- ROUND CUT SLOPES TO BLEND IN WITH THE NATURAL GROUND CONTOURS.
- THE SLOPES OF EXCAVATIONS AND EMBANKMENTS SHALL BE SHAPED AND TRIMMED AS DIRECTED BY THE ENGINEER OF WORK, AND LEFT IN A NEAT AND ORDERLY CONDITION. ALL STONES, ROOTS AND OTHER WASTE MATERIALS EXPOSED ON THE EXCAVATION OR EMBANKMENT SLOPES WHICH ARE LIABLE TO BECOME LOOSENEED SHALL BE REMOVED AND DISPOSED OF. THE TOE AND TOP OF ALL SLOPES SHALL BE ROUNDED IN ACCORDANCE WITH THESE PLANS.
- ALL TREES, BRUSH, GRASS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE COLLECTED, PILED OR OTHERWISE DISPOSED OF OFF THE SITE BY THE CONTRACTOR SO AS TO LEAVE THE AREAS THAT HAVE BEEN CLEARED WITH A NEAT AND FINISHED APPEARANCE FREE FROM UNSIGHTLY DEBRIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OFF-SITE TRANSPORTATION OF ALL MATERIALS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AND ALL RELATED FEES THEREOF.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES. LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND SHOWN FOR GENERAL INFORMATION ONLY.
- THE CONTRACTOR SHALL FURNISH TO THE ENGINEER OF WORK AS-BUILT PLANS FOR ALL NEW IMPROVEMENTS AND GRADING SHOWN ON THESE PLANS.

CONTRACTOR WORK AREA NOTES

- THE CONTRACTOR'S WORK AREA IS LIMITED TO THE FENCED PUMP STATION SITE, AND THE ADDITIONAL WORK AREA SHOWN AROUND THE BYPASS VAULT. DURING BYPASSING OPERATIONS, THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AROUND THE BYPASS PIPING AND CONNECTION AND ANY ADDITIONAL SECURITY MEASURES NECESSARY TO ENSURE THE STATION SITE IS SECURE 24 HOURS PER DAY.
- THE CONTRACTOR MAY USE THE AREA SHOWN WITHIN FENCED SITE FOR STAGING AND STORAGE. THE CONTRACTOR MAY ALSO USE THE ALTERNATE STAGING AND STORAGE AREA SHOWN OUTSIDE THE FENCED SITE WITH PRIOR APPROVAL OF PROPERTY OWNER. THE CONTRACTOR IS FULLY RESPONSIBLE FOR PROVIDING FENCING AND SECURITY MEASURES FOR ALL STORAGE AND STAGING AREAS. THE CONTRACTOR SHALL NOT CAUSE DAMAGE TO ANY TREES ADJACENT TO THE ALTERNATE STAGING AREA, NOR SHALL THE CONTRACTOR IMPEDE ACCESS TO THE PEDESTRIAN TRAIL SOUTH OF THE SITE.
- THE CONTRACTOR'S ACTIVITIES SHALL NOT DISRUPT DISTRICT OPERATIONS AT THE SITE. SHOULD THE OWNER NEED TO EMERGENCY ACCESS TO THE STAGING AND STORAGE AREAS, THE CONTRACTOR SHALL MOVE ITS EQUIPMENT AND MATERIALS TO AN ALTERNATE LOCATION FOR THE DURATION OF THE EMERGENCY AT NO ADDITIONAL COST.
- IF THE CONTRACTOR NEEDS SPACE FOR STAGING AND STORAGE IN ADDITION TO THAT SHOWN HEREON, THE CONTRACTOR SHALL OBTAIN SUCH SPACE AND SHALL SUBMIT TO THE DISTRICT WRITTEN PERMISSION FROM THE PROPERTY'S OWNER.



CONTRACTOR WORK AREA MAP

NOT TO SCALE



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

GENERAL NOTES

SHEET
3 of 90

DRAWING
G-3

D700004

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ORIGINAL SCALE IN INCHES

COORDINATE TABLE			
NO	DESCRIPTION	NORTHING	EASTING
1	BLDG CORNER	1945872.58	6295590.64
2	BLDG CORNER	1945867.14	6295563.18
3	BLDG CORNER	1945882.19	6295560.20
4	BLDG CORNER	1945887.62	6295587.67
5	DRY WELL CORNER	1945857.80	6295594.93
6	DRY WELL CORNER	1945851.84	6295564.84
7	DRY WELL CORNER	1945883.24	6295558.63
8	DRY WELL CORNER	1945889.19	6295588.72
9	GENSET	1945891.41	6295555.32
10	GENSET	1945896.32	6295554.35
11	OUTDOOR AC UNIT	1945888.65	6295577.44
12	OUTDOOR AC UNIT	1945892.58	6295576.66
13	SURGE TANK PAD	1945899.49	6295618.05
14	SURGE TANK PAD	1945900.71	6295624.29
15	SURGE TANK PAD	1945894.82	6295625.44
16	SURGE TANK PAD	1945893.60	6295619.21
17	6" CURB	1945914.81	6295547.12
18	12" CURB	1945900.05	6295550.04
19	12" CURB	1945904.02	6295570.07
20	6" CURB	1945855.08	6295605.66

COORDINATE TABLE			
NO	DESCRIPTION	NORTHING	EASTING
21	6" CURB	1945856.02	6295618.70
22	STEP CORNER	1945890.48	6295598.57
23	12" CURB	1945889.70	6295599.75
24	12" CURB	1945896.65	6295598.36
25	6" CURB & GUTTER	1945917.92	6295523.34
26	6" CURB & GUTTER	1945889.85	6295529.32
27	6" CURB & GUTTER	1945883.38	6295529.66
28	6" CURB & GUTTER	1945859.05	6295527.62
29	3' CROSS GUTTER	1945856.06	6295531.99
30	3' CROSS GUTTER	1945836.23	6295547.65
31	3' CROSS GUTTER	1945830.06	6295553.43
32	CONC CORNER - MATCH EXIST	1945896.80	6295625.05
33	CONC CORNER - MATCH EXIST	1945898.01	6295631.24
34	CONC CORNER	1945853.14	6295595.85
35	6" CONC CURB - MATCH EXIST	1945857.10	6295626.08
36	6" CONC CURB	1945892.05	6295611.48
37	6" CONC PAD	1945914.66	6295531.72
38	6" CONC PAD	1945910.75	6295532.58
39	AC PAVING CORNER	1945846.77	6295528.90

CONSTRUCTION NOTES:

- 1 DRY PIT, SEE MECHANICAL AND STRUCTURAL DWGS
- 2 4' SQ ACCESS HATCH
- 3 EMERGENCY GENERATOR ON CONC EQUIPMENT PAD, SEE STRUCTURAL DWG SHEET S-13
- 4 RELOCATED OUTDOOR AC UNIT ON CONC EQUIPMENT PAD, SEE STRUCTURAL DWGS
- 5 AC SYSTEM REFRIGERANT PIPING AND CONTROL WIRING (IN CONDUIT), WALL MOUNTED 12" ABOVE GRADE WITH UNISTRUT SUPPORTS AND PIPE CLAMPS PER DETAILS

1 3
MD-4 MD-4
- 6 RELOCATED 800 GALLON VERTICAL SURGE TANK PER DETAIL

3
MD-5
- 7 FORCE MAIN BYPASS CONNECTION PER M-4
- 8 BOLLARD, TYP OF 2, PER OMWD STD DWG E-1.3
- 9 SEWER MANHOLE, SEE YARD PIPING PLAN ON C-4
- 10 6" CONCRETE CURB PER SDRSD G-01
- 11 CONCRETE STEPS PER DETAIL

5
CD-2
- 12 NEW ROOF SLAB ON EXISTING WET WELL SEE MECHANICAL AND STRUCTURAL DWGS
- 13 PCC PAVING PER DETAIL

4
CD-2
- 14 AC PAVING PER DETAIL

4
CD-2

- 15 EMERGENCY EYEWASH/SHOWER AND CONNECTION PIPING PER DETAIL

6
CD-2
- 16 6" CURB AND GUTTER, W=24", PER SDRSD G-02
- 17 RELOCATED PRV AND DISCHARGE PIPING, CONNECT TO BURIED 4" PVC WATER PER DWG C-4, RECONSTRUCT PIPE SUPPORTS EQUAL TO THE EXISTING CONDITION, CONSTRUCT 4' x 6' CONCRETE HOUSEKEEPING PAD PER STRUCTURAL, PROVIDE TEMPORARY SUPPORT IF NECESSARY
- 18 EXISTING BOLLARD, TYP OF 3, REMOVE AND REPLACE PER OMWD STD DWG E-1.3
- 19 3' CROSS GUTTER PER SDRSD G-13
- 20 TRANSITION FROM CURB & GUTTER TO CROSS GUTTER PER SDRSD G-12
- 21 TRANSITION FROM CROSS GUTTER TO EXISTING STORM DRAIN INLET
- 22 EXISTING HOSE BIBB, PROTECT IN PLACE
- 23 AREA LIGHT PER DETAIL

6
E-13
- 24 ANTENNA MAST, SEE ELEC DWGS
- 25 PASSIVE ODOR CONTROL SYSTEM, EVOQUA VENT-SCRUB 400 ADSORBER, OR OWNER APPROVED EQUAL, MAX FLOW CAPACITY SHALL BE AT LEAST 300 CFM, INSTALL 4" PVC CONNECTION PIPING BETWEEN WET WELL TOP SLAB PENETRATION AND ADSORBER
- 26 BROW DITCH, TYPE B, PER SDRSD D-75, CONNECT TO EXIST BROW DITCH, MATCH INVERT ELEV, SLOPE 1% MIN TOWARDS EXIST BROW DITCH, TOP OF BROW DITCH ON SLOPE SIDE SHALL BE MIN 6" HIGHER THAN OPPOSITE SIDE
- 27 RETAINING CURB ALONG EXIST BROW DITCH, APPROX 200 LF, PER DETAIL

7
CD-2

- 28 INSTALL NEW BMP FILTER INSERT IN STORM DRAIN CATCH BASIN
- 29 INSTALL NEW 2"x6" REDWOOD HEADER AT EDGE OF NEW PAVEMENT, CURB TO CURB
- 30 EXCAVATE AND INSTALL A 4" THICK LAYER OF 3/4" CRUSHED ROCK IN THE AREA BETWEEN NEW PAVEMENT, EXISTING FENCELINE, AND OVERFLOW POND CURB, APPROX 125' L x 20' W, MATCH EXISTING GRADES, INSTALL ROCK AND WEED BARRIER PER

8
CD-2
- 31 24" CIRCULAR PENETRATION WITH MH FRAME AND COVER, INSTALL H2O COMPOSITE LID, MFD BY EJ OR OWNER APPROVED EQUAL PER SPEC SECTION 03461
- 32 INSTALL 4" THICK LAYER OF 3/4" CRUSHED ROCK, APPROX 800 SF, MATCH EXISTING GRADES, INSTALL ROCK AND WEED BARRIER PER

8
CD-2
- 33 CONCRETE STEP PER DETAIL

5
CD-2

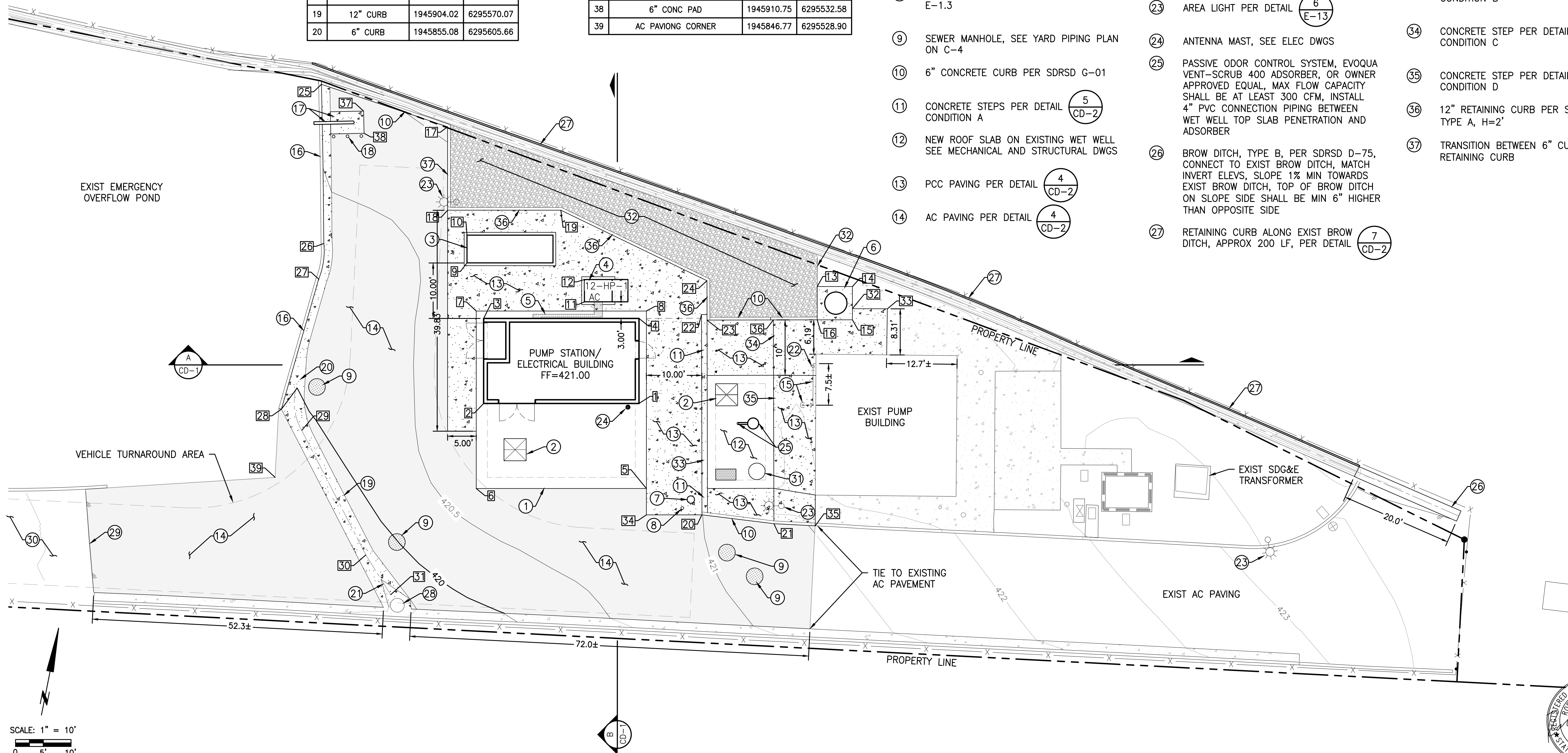
 CONDITION B
- 34 CONCRETE STEP PER DETAIL

5
CD-2

 CONDITION C
- 35 CONCRETE STEP PER DETAIL

5
CD-2

 CONDITION D
- 36 12" RETAINING CURB PER SDRSD C-09, TYPE A, H=2'
- 37 TRANSITION BETWEEN 6" CURB AND 12" RETAINING CURB



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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

SITE PLAN AND
HORIZONTAL CONTROL

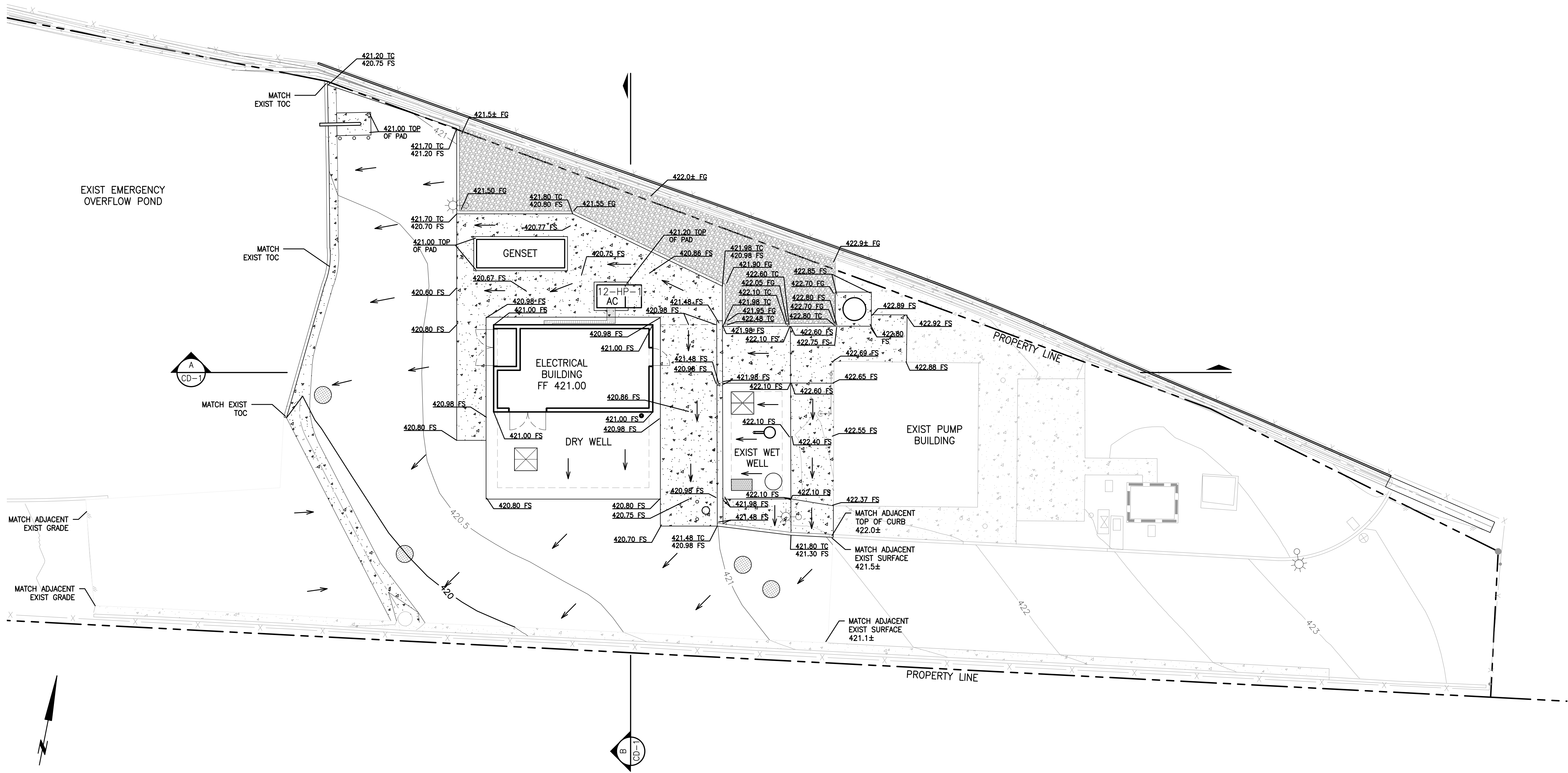
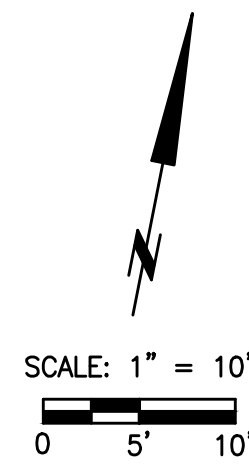
SHEET 5 of 90

DRAWING C-2

D700004

ORIGINAL SCALE IN INCHES

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NOTES:

1. PROVIDE POSITIVE SURFACE DRAINAGE AWAY FROM STRUCTURES AND IN THE FLOW DIRECTIONS SHOWN.
2. NEW PAVING TO MATCH EXISTING GRADES AT CONNECTION POINTS.



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

GRADING AND DRAINAGE PLAN

SHEET
6 of 90

DRAWING
C-3

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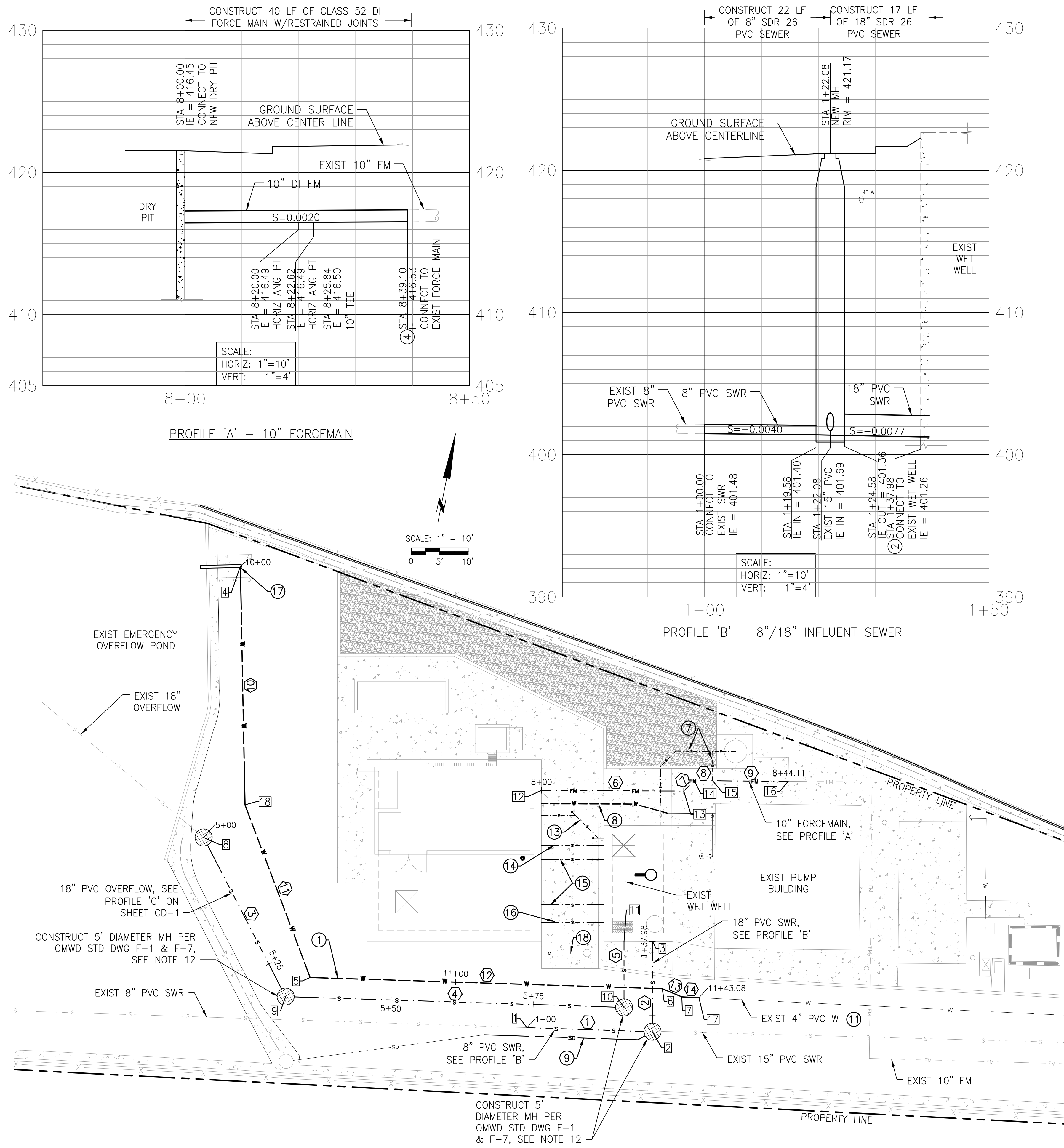
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ORIGINAL SCALE IN INCHES

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COORDINATE TABLE				
NO	STATION	NORTHING	EASTING	DESCRIPTION
1	1+00.00	1945842.45	6295595.35	CONNECT TO EXIST SWR ⑤
2	1+22.08	1945846.02	6295617.14	INSTALL NEW MH ⑫
3	1+37.98	1945861.62	6295614.05	CONNECT TO EXIST WET WELL ②
4	10+00.00	1945912.28	6295530.20	INSTALL 90° VERT BEND ⑩ ⑦
5	10+74.42	1945843.71	6295556.26	INSTALL 67.5° BEND ⑩
6	11+36.35	1945853.78	6295617.37	INSTALL 20.8° BEND ⑩
7	11+40.08	1945853.04	6295621.02	INSTALL 19.7° BEND ⑩
8	5+00.00	1945864.21	6295533.12	INSTALL NEW MH ⑤ ⑫
9	5+31.46	1945839.57	6295552.68	INSTALL NEW MH ⑫
10	5+90.97	1945849.25	6295611.40	INSTALL NEW MH ⑫
11	6+02.56	1945860.62	6295609.15	CONNECT TO EXIST WET WELL ②
12	8+00.00	1945883.85	6295589.77	⑥
13	8+25.00	1945888.59	6295614.32	INSTALL 45° BEND ⑩
14	8+27.62	1945890.75	6295615.79	INSTALL 45° BEND ⑩
15	8+30.84	1945891.36	6295618.96	INSTALL 10" TEE TO SURGE TANK ⑦ ⑩
16	8+44.11	1945893.83	6295631.99	CONNECT TO EXIST FM ④
17	11+43.08	1945853.48	6295623.99	CONNECT TO EXIST WTR ③ ⑬
18	10+41.99	1945871.25	6295539.15	INSTALL 19.6° BEND ⑩

DATA TABLE					
NO	Δ / BEARING	R	L	T	DESCRIPTION
1	N80° 41' 30"E		22.08'		8" PVC SWR
2	N11° 11' 24"W		15.90'		18" PVC SWR
3	S38° 26' 46"E		31.46'		18" PVC SWR OVERFLOW
4	N80° 38' 23"E		59.51'		18" PVC SWR OVERFLOW
5	N11° 11' 24"W		11.60'		18" PVC SWR OVERFLOW
6	N79° 04' 18"E		25.00'		10" FM
7	N34° 13' 25"E		2.61'		10" FM
8	N79° 13' 25"E		3.23'		10" FM
9	N79° 13' 09"E		13.26'		10" FM
10	S12° 18' 16"E		41.99'		4" PVC WTR ①
11	S31° 51' 37"E		32.42'		4" PVC WTR ①
12	N80° 38' 23"E		61.94'		4" PVC WTR ①
13	S78° 34' 08"E		3.73'		4" PVC WTR ①
14	N81° 42' 54"E		3.00'		4" PVC WTR ①

CONSTRUCTION NOTES:

- RELOCATE 4" PVC WATER, POT HOLE CONNECTION TO EXISTING PIPE AND INSTALL AT CONSTANT SLOPE UP TO PRV, ASSUME MINIMUM COVER 3.5 FEET, MATCH EXISTING PIPE CLASS
- CONNECT TO THE EXISTING WET WELL PER DETAIL ⑤ MD-3
- CONNECT TO THE EXISTING WATER LINE PER DETAIL ① CD-2
- CONNECT TO THE EXISTING FORCE MAIN PER DETAIL ② CD-2
- CONNECT TO THE EXISTING SEWER MAIN.
- SEE FORCE MAIN CONTINUATION ON MECHANICAL DRAWINGS.
- SURGE TANK PIPING PER DETAIL ③ MD-5
- 2" SCH80 SOLVENT WELD POTABLE WATER TO LIFT STATION, CONNECT TO EXIST 2" PW LINE, SEE MECHANICAL DWGS FOR CONTINUATION IN LIFT STATION LENGTH APPROX 18 LF.
- CONSTRUCT 30 LF OF 2" PVC TO EXTEND STORM WATER PUMP DISCHARGE PIPE TO NEW MH, SLOPE PIPE 1% DOWN TOWARDS MH
- ADD THRUST BLOCKS PER OMWD STD DWG D-3.2
- EXISTING 4" PVC WTR CAN ONLY BE TAKEN OUT OF SERVICE FOR SHORT DURATIONS, SEE DWG C-1 FOR MORE INFORMATION
- CONSTRUCT 5' DIA. MH PER OMWD STD DWG F-1 AND F-7. PROVIDE COMPOSITE MANHOLE LID. LINE MANHOLES PER SECTION 09801.
- PUMP STATION DRAIN PIPING. SEE M-1 FOR CONTINUATION.
- 2" SCH 80 PVC SUMP PUMP PIPING, SEE M-2 FOR CONTINUATION.
- PUMP SUCTION PIPING, SEE MECHANICAL DWGS
- BYPASS PIPE DRAIN TO WETWELL, SEE MECHANICAL DWGS
- CONNECT TO EXISTING RELOCATED ABOVE GROUND PIPING AND VALVES
- BYPASS CONNECTION, SEE MECHANICAL DWGS



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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

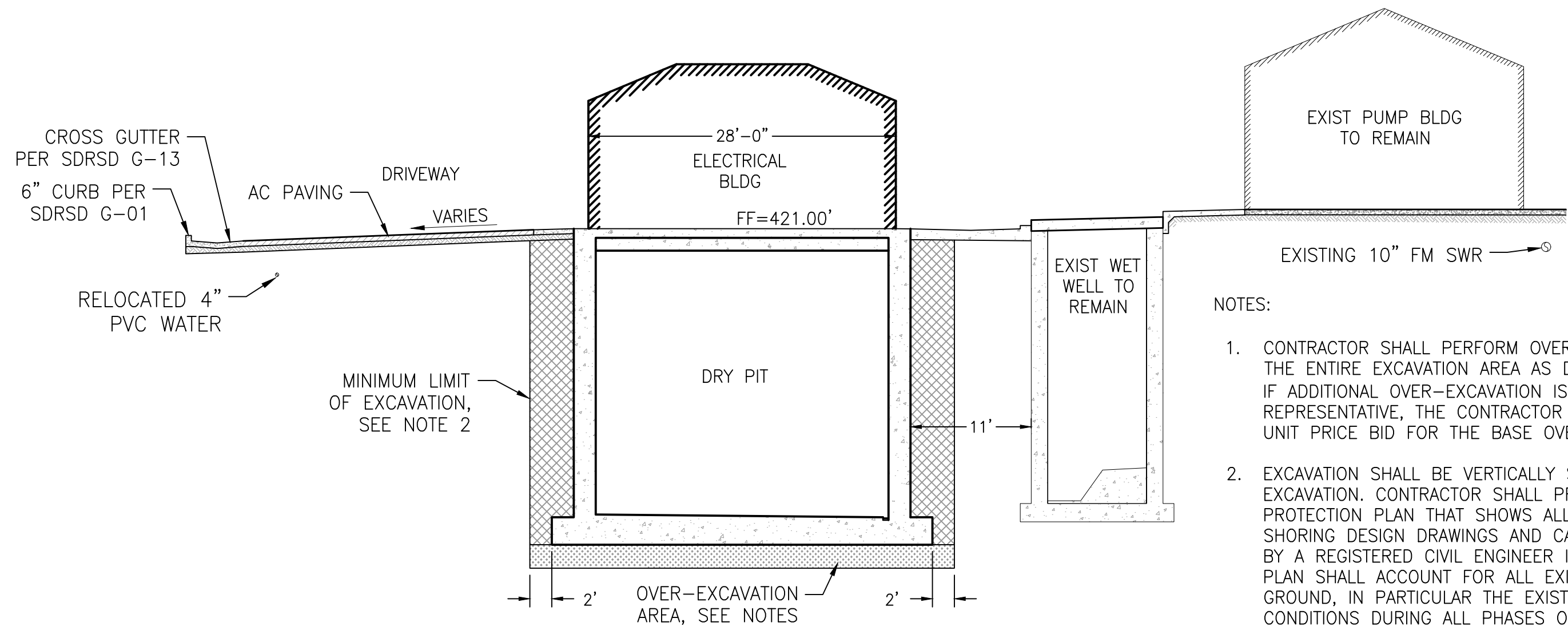
YARD PIPING PLAN AND PROFILES

SHEET 7 of 90 DRAWING C-4

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ORIGINAL SCALE IN INCHES

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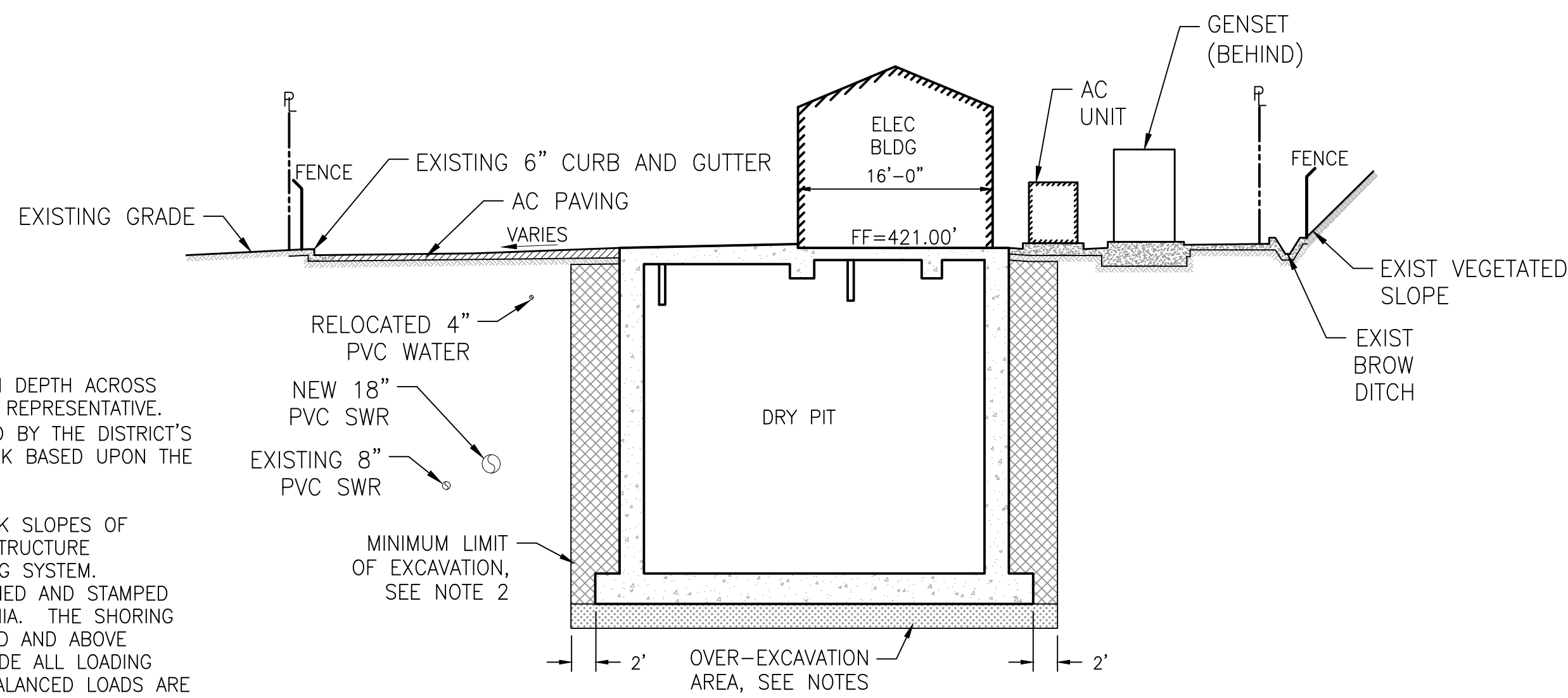
SECTION A

SCALE: 1" = 10'

A
C-2

NOTES:

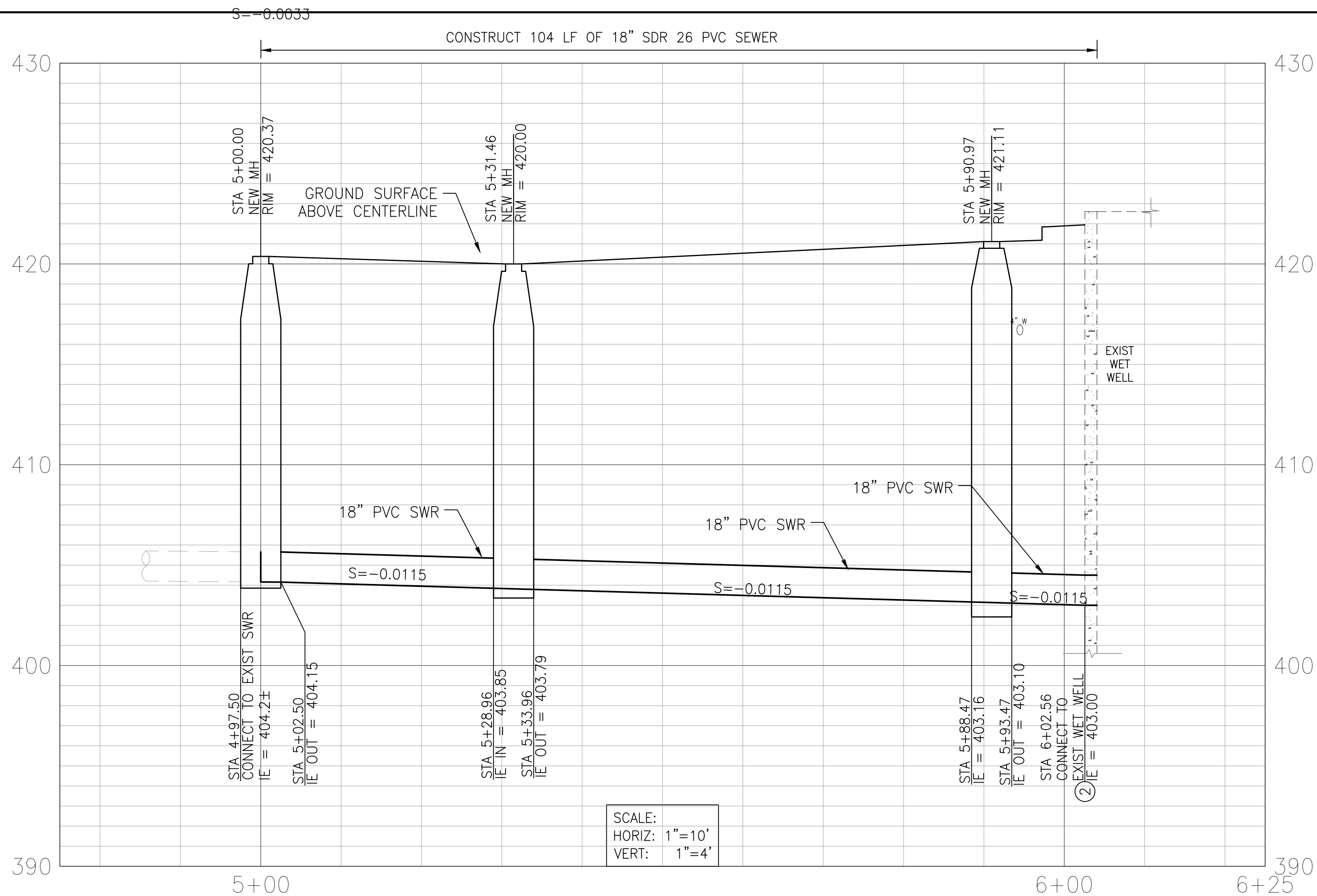
1. CONTRACTOR SHALL PERFORM OVER-EXCAVATION UP TO 2' IN DEPTH ACROSS THE ENTIRE EXCAVATION AREA AS DIRECTED BY THE DISTRICT REPRESENTATIVE. IF ADDITIONAL OVER-EXCAVATION IS REQUIRED AS DETERMINED BY THE DISTRICT'S REPRESENTATIVE, THE CONTRACTOR SHALL PERFORM THE WORK BASED UPON THE UNIT PRICE BID FOR THE BASE OVER-EXCAVATION.
2. EXCAVATION SHALL BE VERTICALLY SHORED. DO NOT LAY BACK SLOPES OF EXCAVATION. CONTRACTOR SHALL PREPARE A SHORING AND STRUCTURE PROTECTION PLAN THAT SHOWS ALL COMPONENTS OF SHORING SYSTEM. SHORING DESIGN DRAWINGS AND CALCULATION SHALL BE SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER IN THE STATE OF CALIFORNIA. THE SHORING PLAN SHALL ACCOUNT FOR ALL EXISTING STRUCTURES, BURIED AND ABOVE GROUND, IN PARTICULAR THE EXISTING WET WELL, AND INCLUDE ALL LOADING CONDITIONS DURING ALL PHASES OF CONSTRUCTION, AS UNBALANCED LOADS ARE EXPECTED. THE SHORING DESIGN SHALL PROVIDE ADEQUATE SUPPORT AND PROTECTION FOR THE EXISTING WET WELL DURING ALL PHASES OF CONSTRUCTION, INCLUDING THE POTENTIAL FOR INTERNAL BRACING WHEN THE EXISTING ROOF IS REMOVED AND PRIOR TO POURING THE NEW ROOF. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR ALL ASPECTS OF THE SHORING DESIGN AND STRUCTURE PROTECTION, INCLUDING ALL SAFETY MEASURES. THE CONTRACTOR SHALL INCLUDE IN ITS SHORING PLAN MEANS FOR MONITORING THE STRUCTURAL INTEGRITY OF THE EXISTING WET WELL.



SECTION B

SCALE: 1" = 10'

B
C-2



SCALE:
HORIZ: 1"=10'
VERT: 1"=4'

PROFILE 'C' - 18" OVERFLOW

C
C-4

CONSTRUCTION NOTES:

- ② CONNECT TO THE EXISTING WET WELL PER DETAIL

5
MD-3



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

CIVIL DETAILS

SHEET 8 of 90
DRAWING CD-1

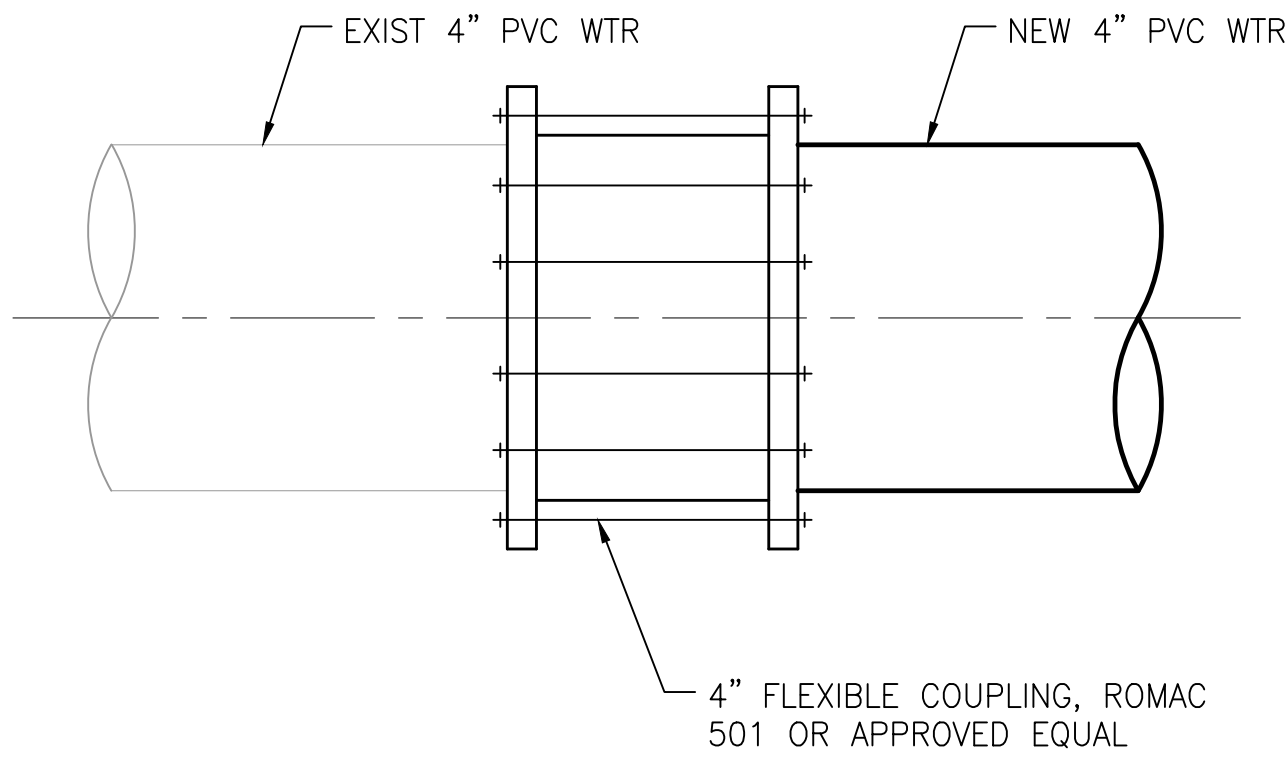
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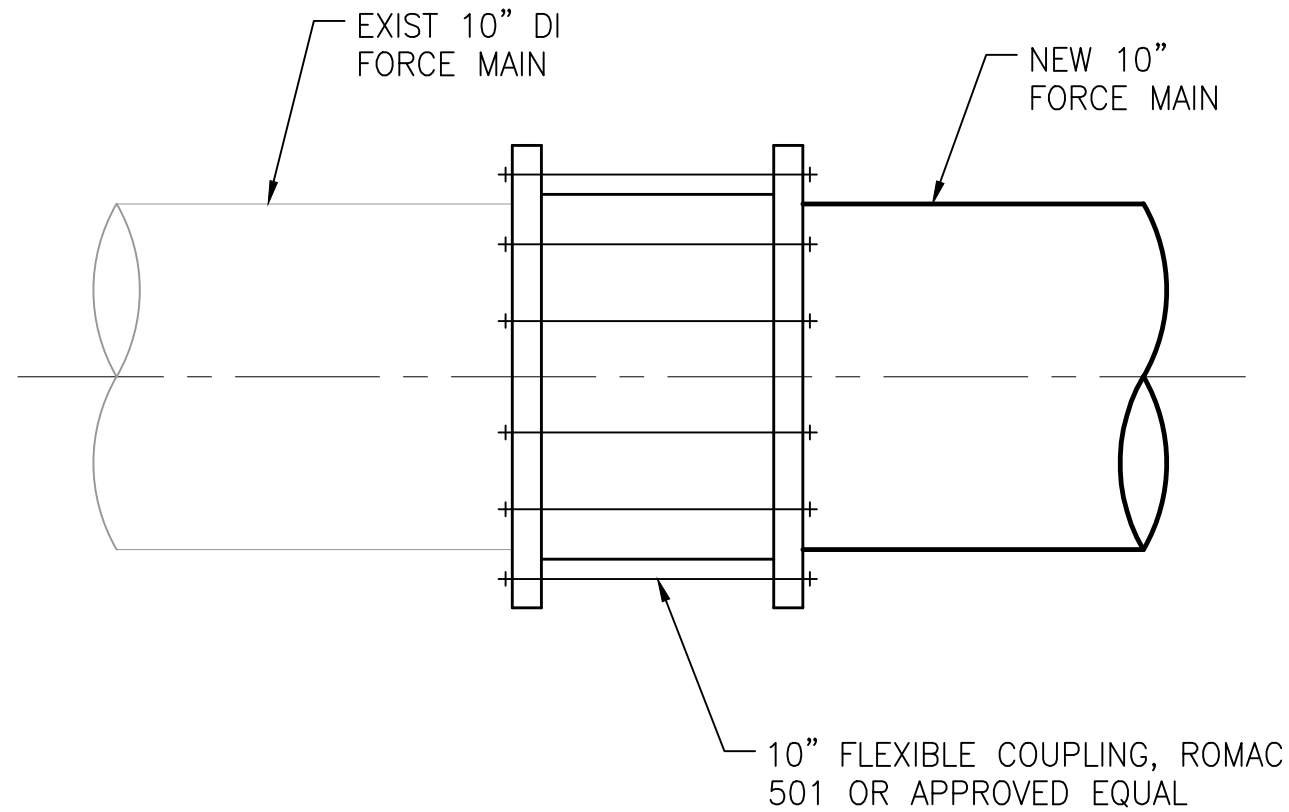
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ORIGINAL SCALE IN INCHES



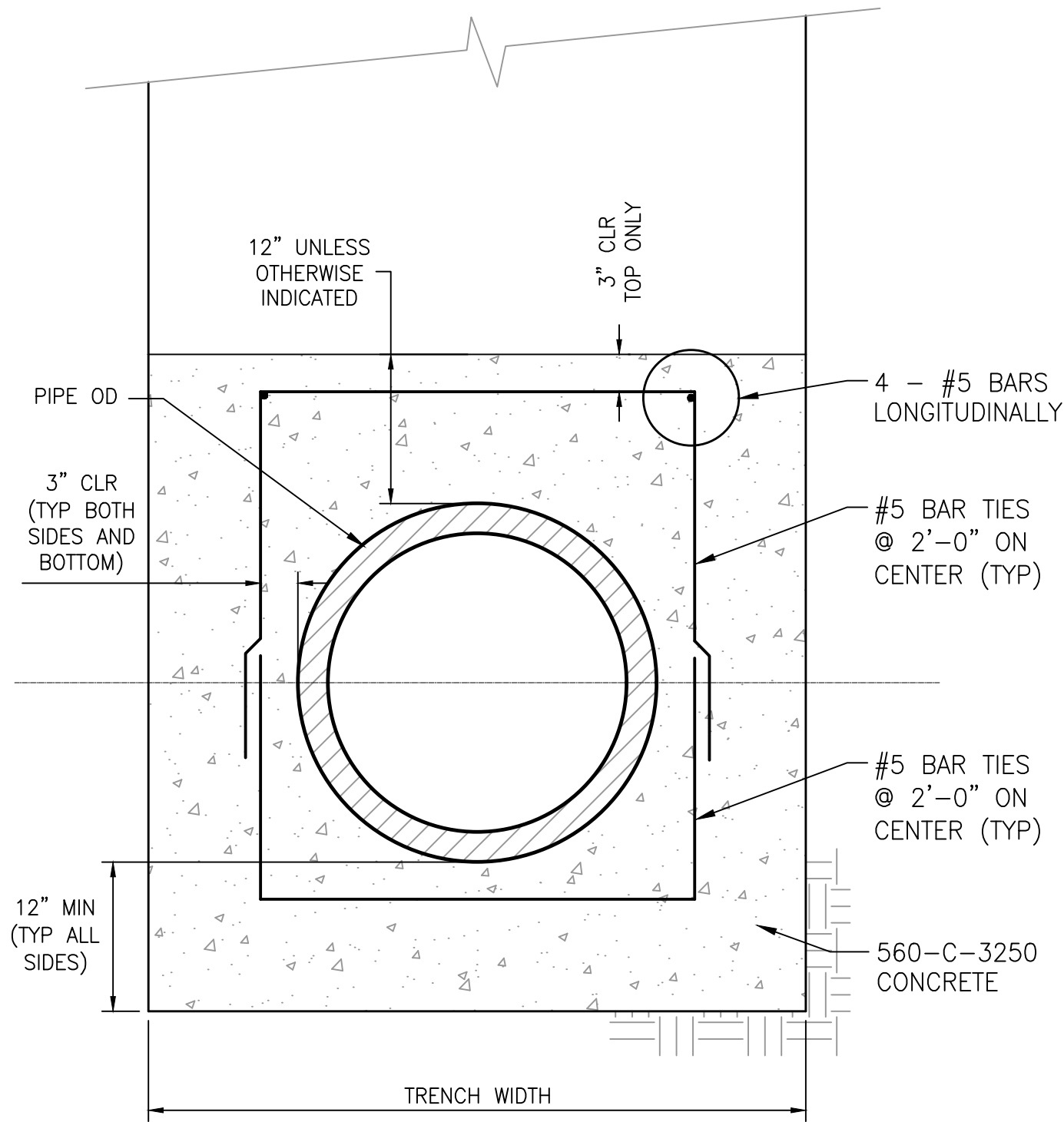
4" WATER CONNECTION
N.T.S.

1
—



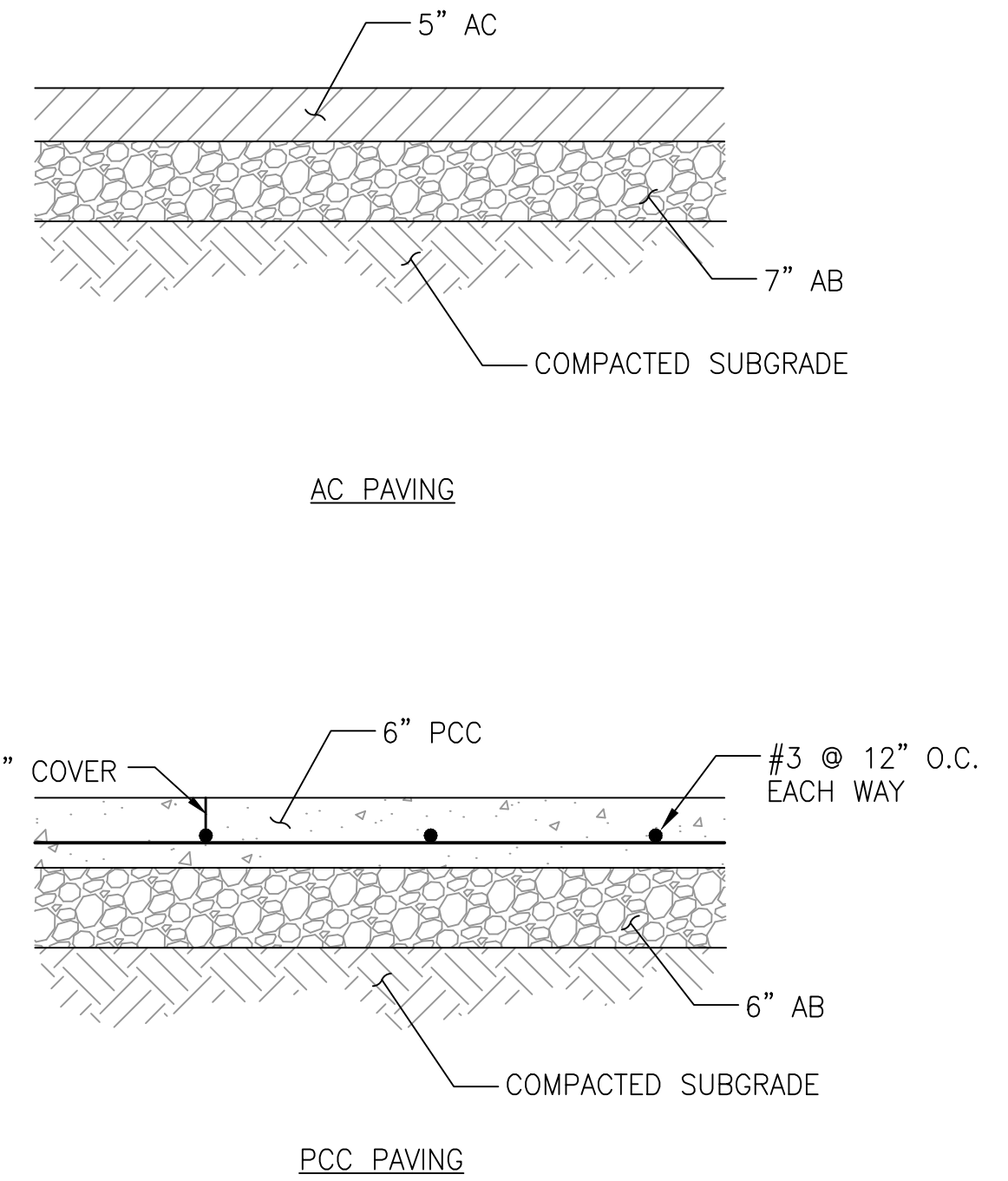
10" FORCE MAIN CONNECTION
N.T.S.

2
—



CONCRETE ENCASEMENT DETAIL
N.T.S.

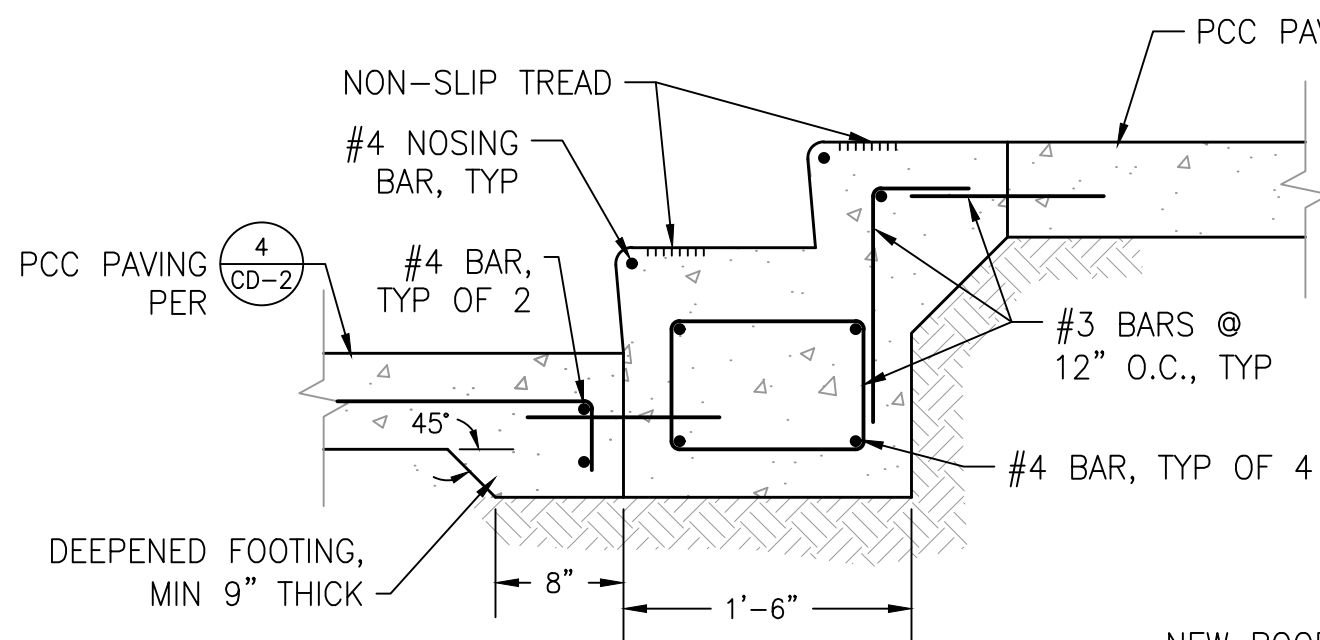
3
—



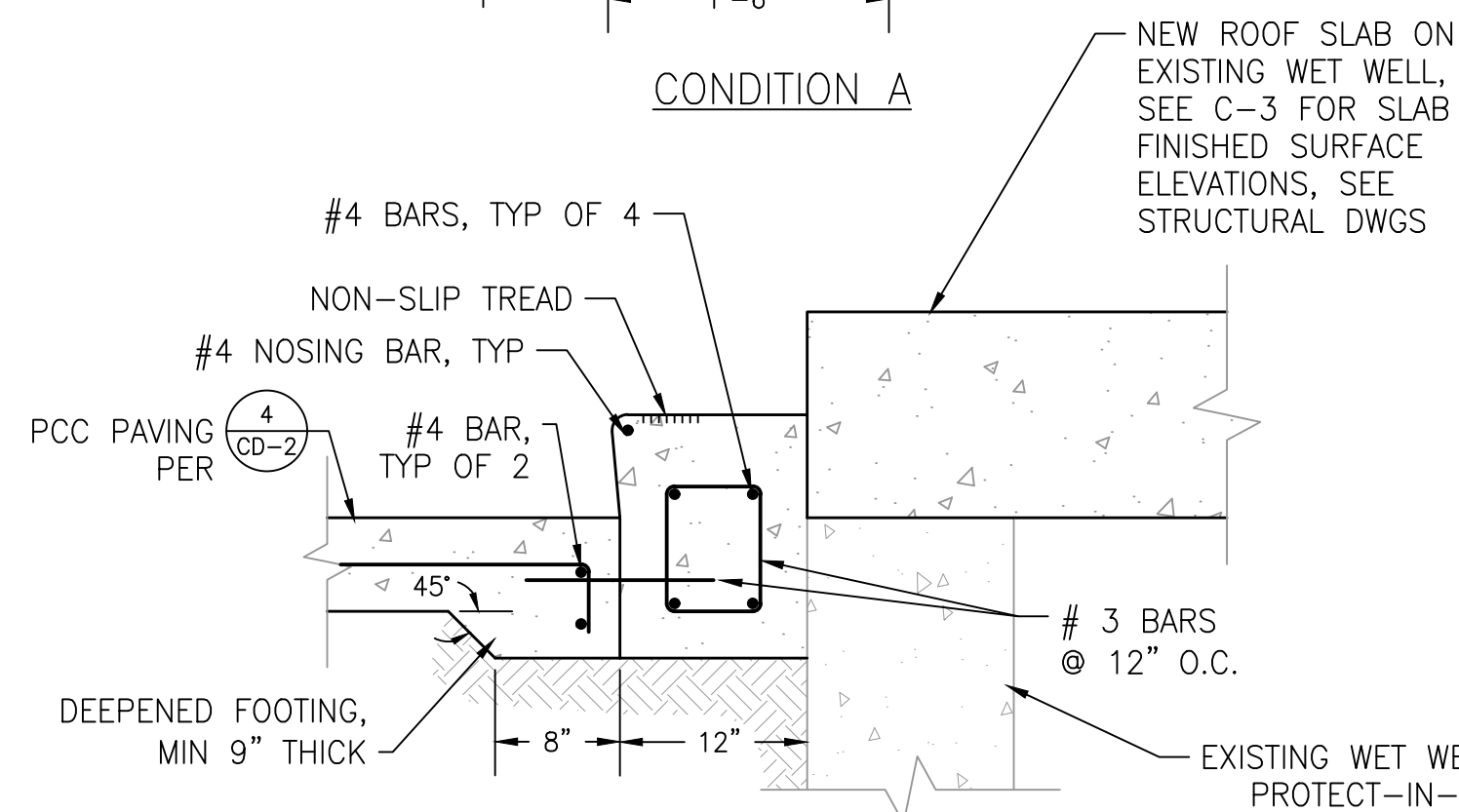
PAVING SECTIONS
N.T.S.

4
C-2

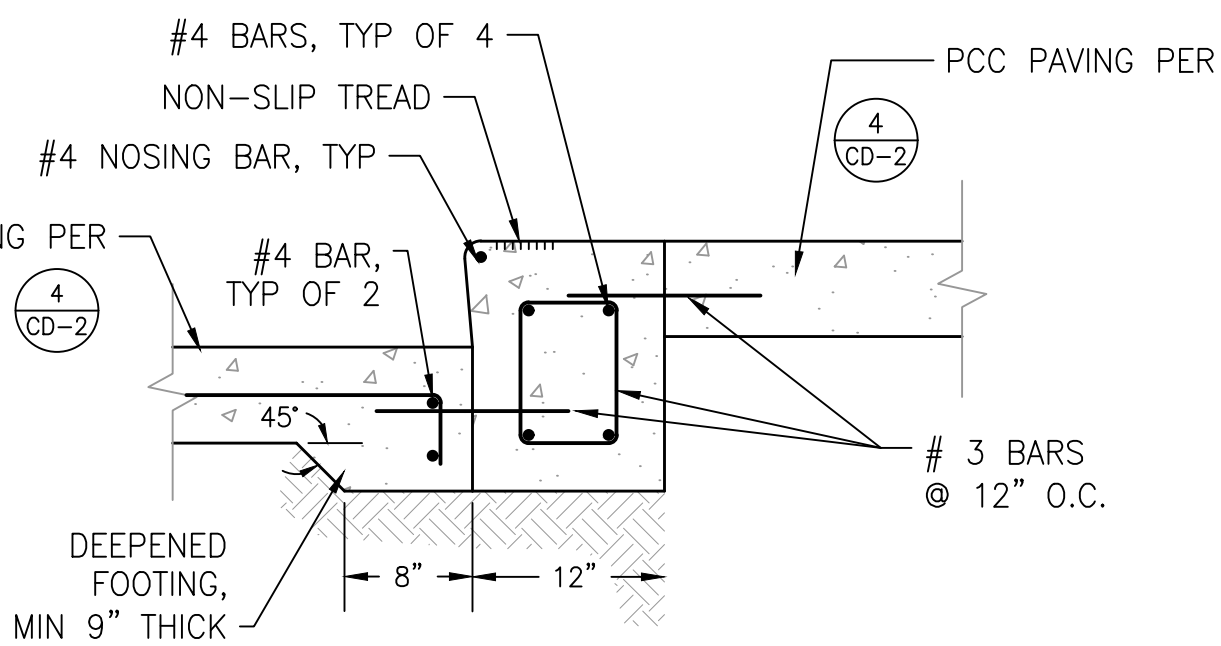
- NOTES:
- WHERE CONDITION A MEETS CONDITION B, THE NOSE OF THE TOP STEP SHALL TRANSITION TO MATCH THE EDGE OF THE NEW WET WELL ROOF.
 - WHERE CONDITION C MEETS CONDITION D, THE NOSE OF THE TOP STEP SHALL TRANSITION TO MATCH THE CONCRETE PAVING ADJACENT TO THE NEW WET WELL ROOF.



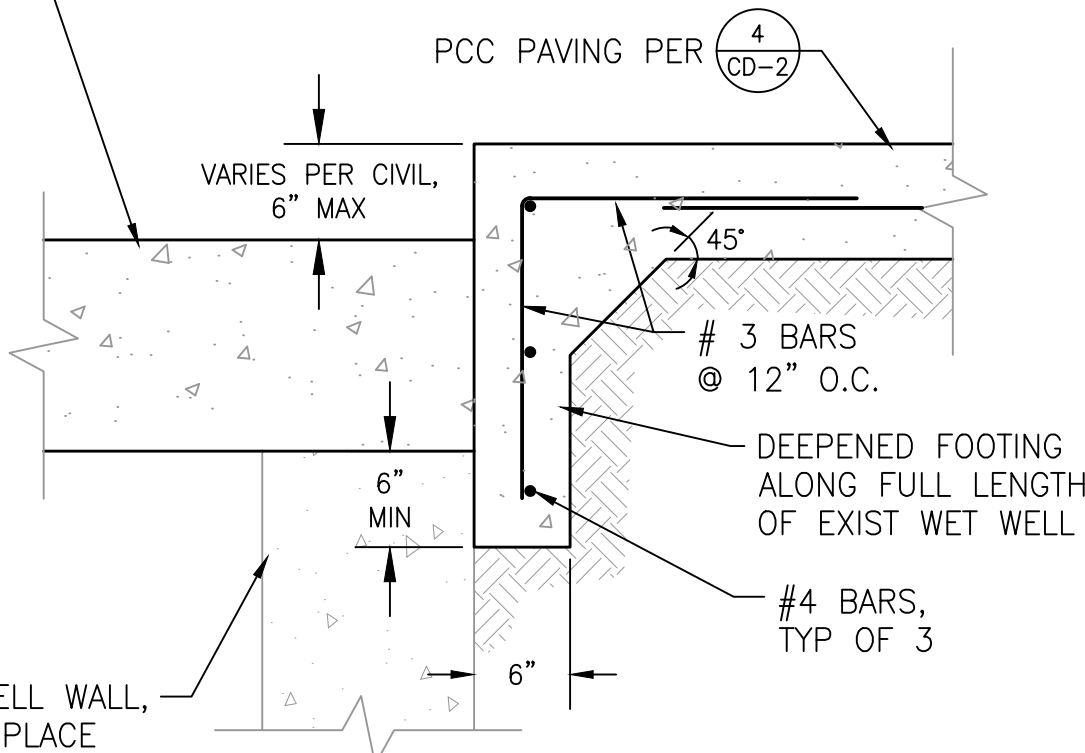
CONDITION A



CONDITION B



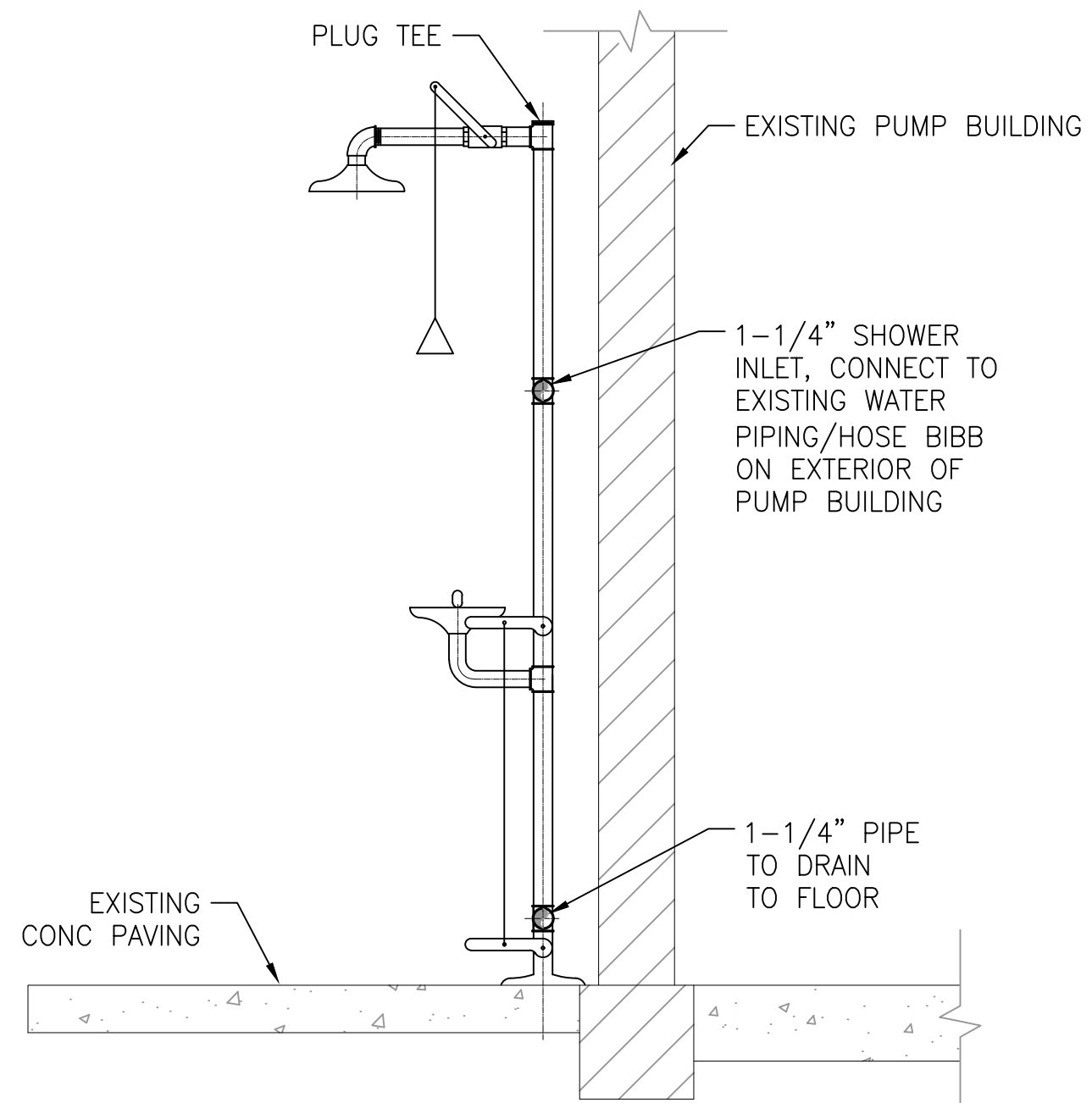
CONDITION C



CONDITION D

CONCRETE STEP DETAILS
N.T.S.

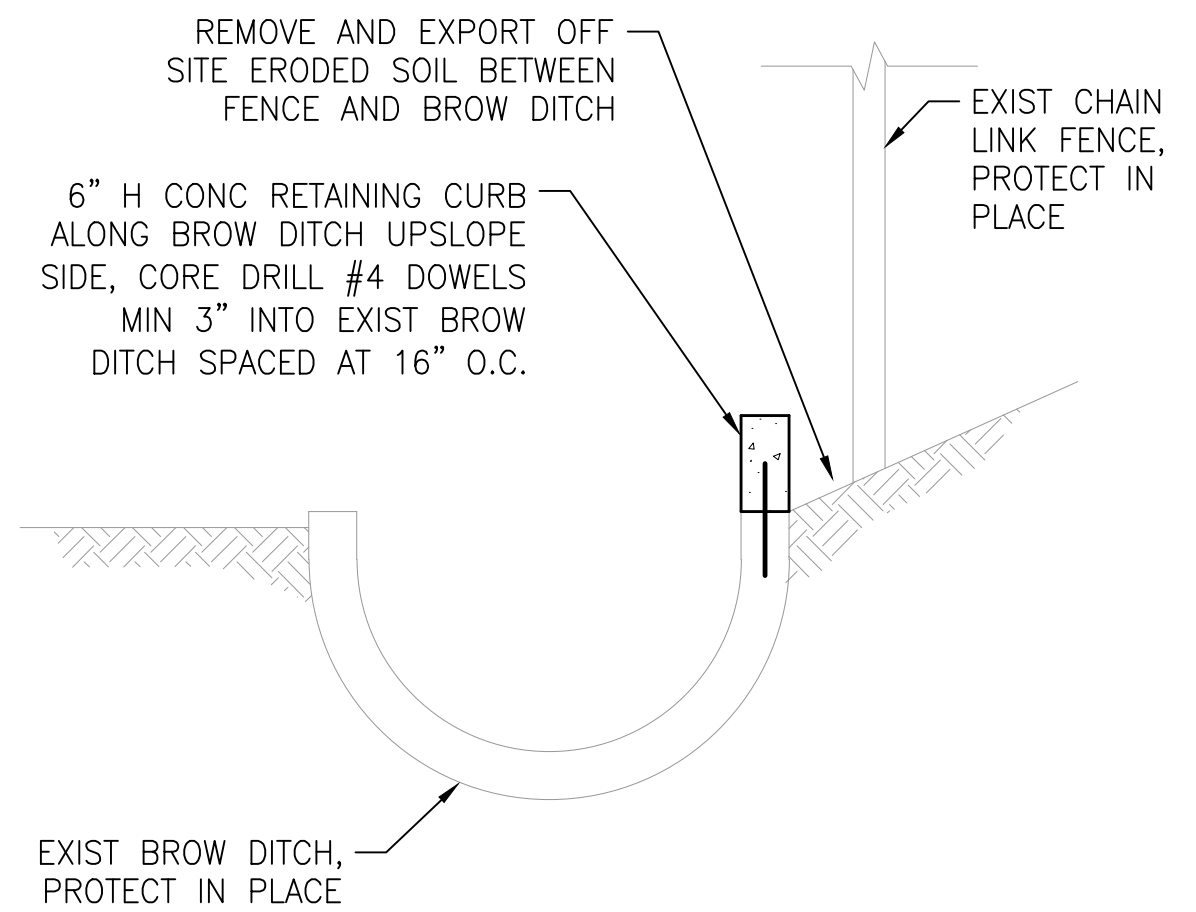
5
C-2



NOTE:
EMERGENCY EYEWASH AND SHOWER STATION IS RELOCATED FROM ONE OF TWO EXISTING PER D-1, NOTE 4.

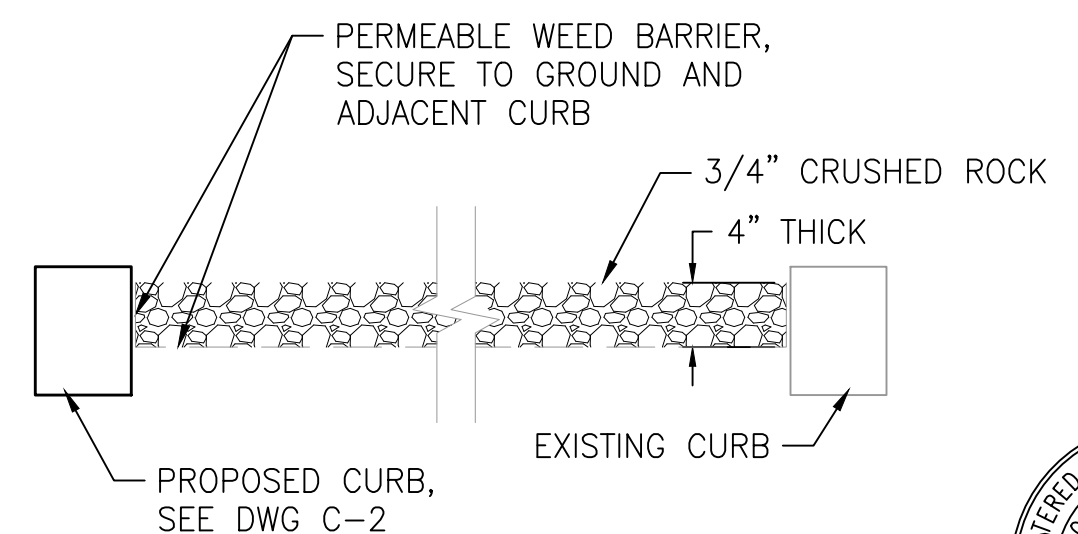
EMERGENCY EYEWASH/SHOWER
N.T.S.

6
C-2



RETAINING CURB
N.T.S.

7
C-2



ROCK MULCH
N.T.S.

8
C-2



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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

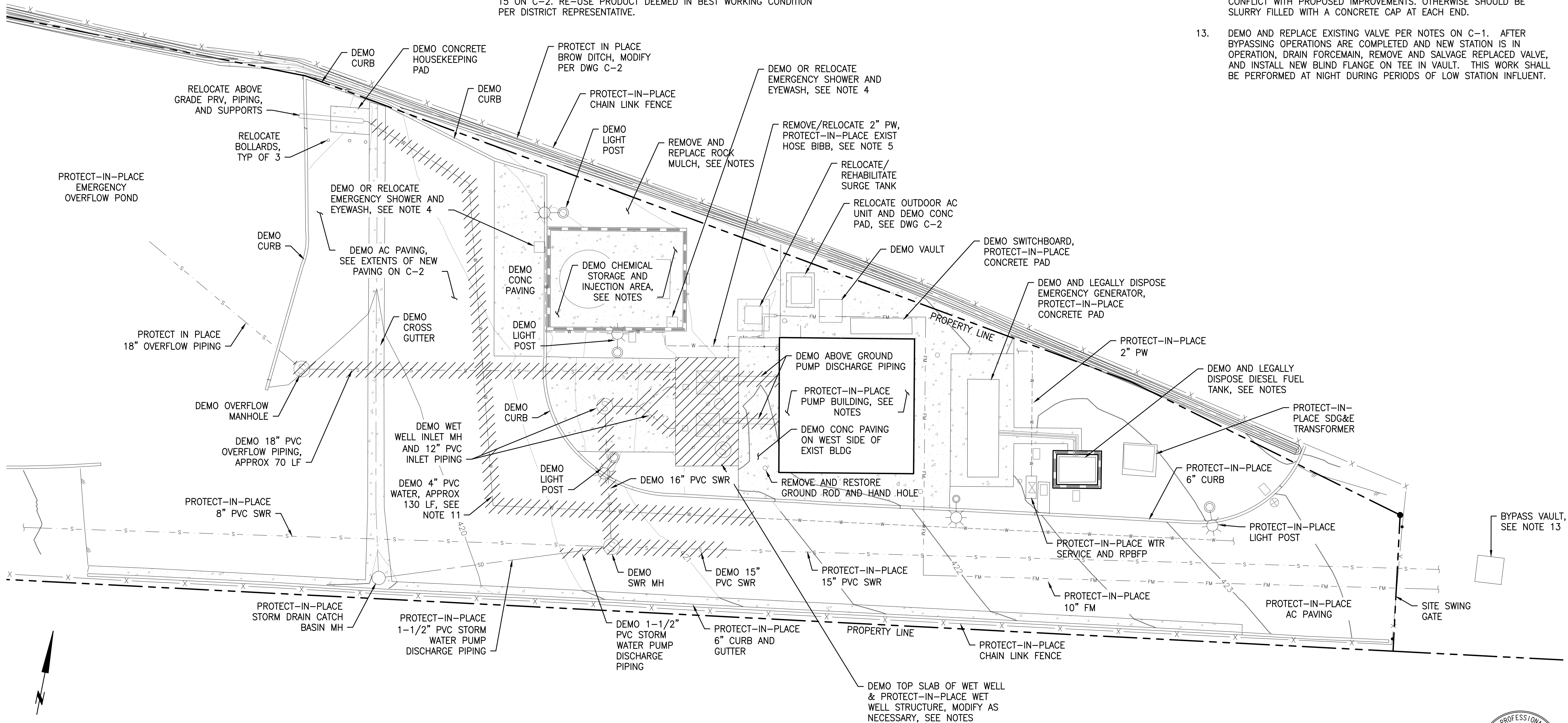
CIVIL DETAILS

SHEET 9 of 90
DRAWING CD-2

D700004

ORIGINAL SCALE IN INCHES

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DEMOLITION NOTES:

- PERFORM DEMOLITION AS SHOWN ON THE DRAWINGS AND DESCRIBED BY THE SPECIFICATIONS.
- PERFORM DEMOLITION AND CONSTRUCTION IN SUCH AN ORDER TO MINIMIZE SHUTDOWN DURATIONS AND BYPASSING OPERATIONS. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE DISTRICT FOR APPROVAL A DETAILED SEQUENCE OF WORK AND SHUTDOWN SCHEDULE IN ACCORDANCE WITH THE SPECIFICATIONS. GENERAL PHASING REQUIREMENTS FOR USE IN DEVELOPING THE SEQUENCE OF WORK ARE SHOWN ON DRAWING D-3.
- PROTECT-IN-PLACE THE EXISTING PUMP STATION BUILDING AND THE EXISTING AIR COMPRESSOR INSIDE THE BUILDING. PROTECT-IN-PLACE THE EXISTING SOLAR POWER SYSTEM ON THE BUILDING'S ROOF. THE CONTRACTOR SHALL DEMOLISH ALL INTERIOR PUMPS, PIPING, VALVES, APPURTENANCES, EQUIPMENT, AND ELECTRICAL PANELS INSIDE THE BUILDING. SEE DRAWING D-2 FOR MORE INFORMATION.
- DEMOLISH THE CHEMICAL STORAGE AND INJECTION AREA INCLUDING THE TANK, PIPING, VALVES, APPURTENANCES, PIPE SUPPORTS, GRATING, CONCRETE WALLS, PADS, AND PAVING, AND ALL OTHER COMPONENTS. OF THE TWO (2) EMERGENCY SHOWERS AND EYEWASH STATIONS, ONE SHALL BE DEMOLISHED, AND ONE SHALL BE RELOCATED PER CALLOUT 15 ON C-2. RE-USE PRODUCT DEEMED IN BEST WORKING CONDITION PER DISTRICT REPRESENTATIVE.
- DEMOLISH ABOVE GRADE PIPING, VALVES, APPURTENANCES, PIPE SUPPORTS, AND CONTROLS ON THE ROOF OF THE WET WELL AND EXTERIOR OF THE PUMP BUILDING. REMOVE AND REPLACE WET WELL LID PER MECHANICAL AND STRUCTURAL DRAWINGS. PROTECT-IN-PLACE EXIST HOSE BIBB AND WATER PIPING ON EXTERIOR OF EXISTING PUMP BUILDING. CONTRACTOR SHALL MAINTAIN IN OPERATION THE EXISTING PASSIVE ODOR CONTROL SYSTEM BUT SHALL TEMPORARILY RELOCATE THE DRUM AS NECESSARY FOR CONSTRUCTION. EXTEND PIPING TO TEMPORARY LOCATION. DEMOLISH AND DISPOSE OF SYSTEM AFTER INSTALLATION OF NEW ODOR CONTROL SYSTEM.
- REMOVE, REHABILITATE, AND REINSTALL SURGE TANK AS SHOWN ON THE CIVIL DRAWINGS. DEMOLISH ALL SURGE CONTROL SYSTEM PIPING, VALVES, APPURTENANCES AND CONCRETE PAD, AND ALL OTHER ACCESSORIES INCLUDING AIR PIPING MOUNTED TO EXTERIOR OF PUMP BUILDING. PROTECT-IN-PLACE THE AIR COMPRESSOR INSIDE THE PUMP STATION.
- DEMO AND REPLACE ROOF SLAB OF EXISTING WET WELL AND PROTECT-IN-PLACE THE REMAINING WET WELL STRUCTURE. MODIFY INTERNAL COMPONENTS AND PIPE PENETRATIONS AS SHOWN AND DESCRIBED ON THE DRAWINGS. SEE PHASING REQUIREMENTS ON DWG D-3. CONTRACTOR IS RESPONSIBLE FOR DESIGN OF SHORING AND SUPPORT OF THE EXISTING STRUCTURE DURING DRY WELL EXCAVATION AND CONSTRUCTION.
- DEMOLISH EXISTING EMERGENCY GENERATOR, DIESEL FUEL TANK, PIPING, AND APPURTENANCES, INCLUDING ANCHORING SYSTEMS. DEMO FUEL TANK, CONCRETE PAD, CONTAINMENT CURB, AND CONCRETE PAD FOR PIPING UP TO THE GENERATOR PAD. REPAIR EXISTING CONCRETE GENERATOR PAD AS NECESSARY TO CREATE A FLUSH, CONCRETE SURFACE WITH NO TRIPPING HAZARDS. ENSURE WATER DRAINS OFF CONCRETE PAD. INSTALL NEW PENETRATIONS IN FUEL TANK CONTAINMENT STRUCTURE FOR DRAINAGE. ENSURE STORM WATER WILL NOT COLLECT IN STRUCTURE.
- REMOVE, STOCKPILE, AND REPLACE EXISTING ROCK MULCH AS NECESSARY FOR CONSTRUCTION OF THE IMPROVEMENTS. PROVIDE ADDITIONAL ROCK AS NECESSARY TO ACHIEVE 4" THICKNESS ACROSS ALL ROCK MULCH AREAS.
- REMOVE AC PAVING WITHIN THE LIMITS OF REPLACEMENT AS SHOWN ON DWG C-2 AND AS NECESSARY FOR CONSTRUCTION. REPLACE ALL AC PAVING DAMAGED DURING CONSTRUCTION TO THE SATISFACTION OF THE DISTRICT.
- 4" PVC PRV WATER PIPING SHALL REMAIN IN SERVICE AT ALL TIMES. CONTRACTOR SHALL INSTALL TEMPORARY BYPASS PIPING AND VALVING DURING RELOCATION OF PRV PIPING.
- BURIED PIPE SHOWN TO BE DEMOLISHED SHOULD BE REMOVED IF IN CONFLICT WITH PROPOSED IMPROVEMENTS. OTHERWISE SHOULD BE SLURRY FILLED WITH A CONCRETE CAP AT EACH END.
- DEMO AND REPLACE EXISTING VALVE PER NOTES ON C-1. AFTER BYPASSING OPERATIONS ARE COMPLETED AND NEW STATION IS IN OPERATION, DRAIN FORCEMAIN, REMOVE AND SALVAGE REPLACED VALVE, AND INSTALL NEW BLIND FLANGE ON TEE IN VAULT. THIS WORK SHALL BE PERFORMED AT NIGHT DURING PERIODS OF LOW STATION INFLUENT.



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

OVERALL DEMOLITION PLAN

SHEET
10 of 90

DRAWING
D-1

D700004

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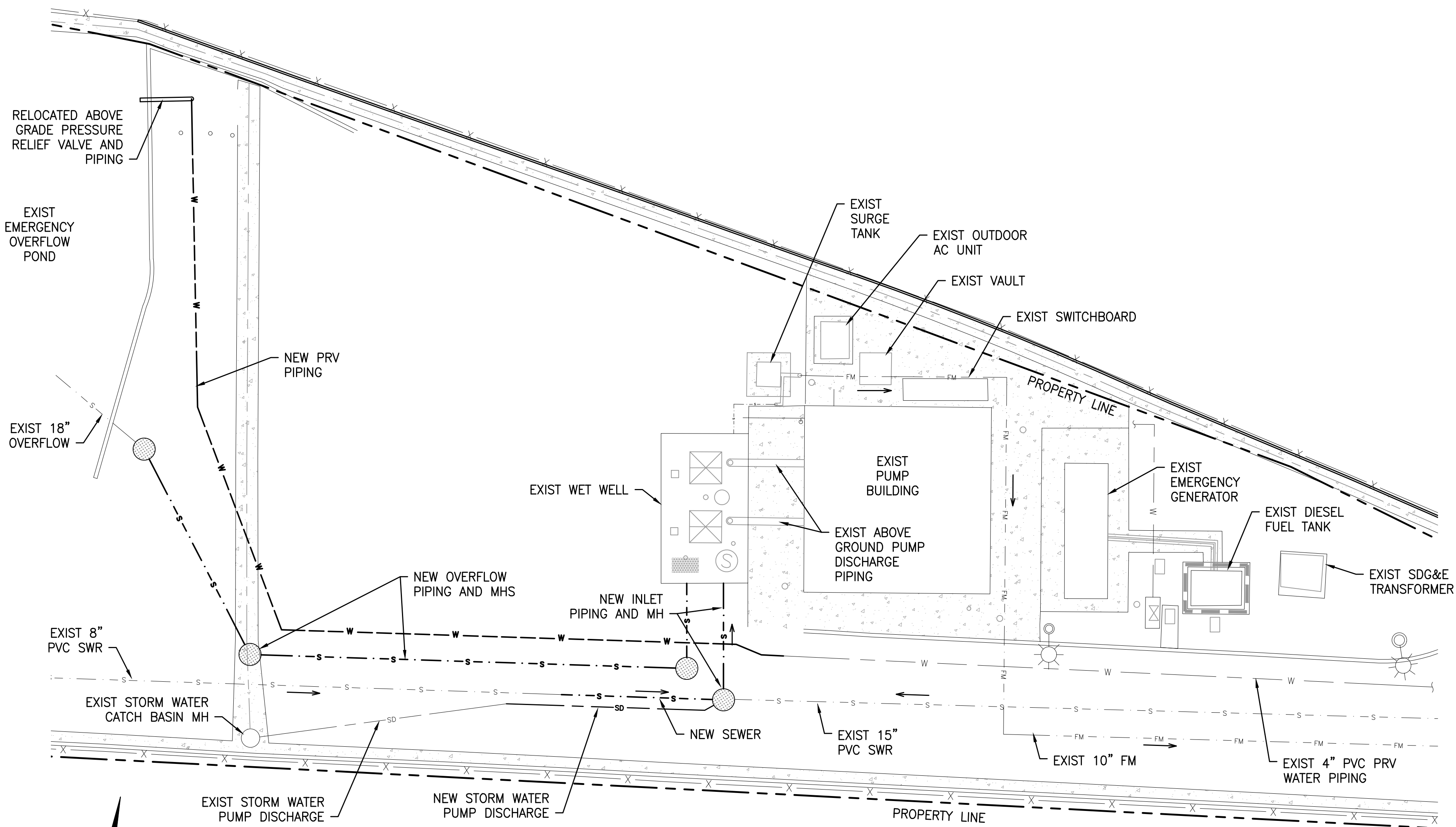
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REVISIONS
DATE BY

ORIGINAL SCALE IN INCHES

GENERAL PHASING REQUIREMENTS:

1. THE GENERAL PHASING SHOWN HEREON WAS DEVELOPED TO IDENTIFY STEPS OF CONSTRUCTION WHICH ARE NECESSARY TO COORDINATE THE SWITCH-OVER FROM THE EXISTING PUMP STATION TO THE NEW PUMP STATION. NOT ALL ITEMS OF WORK ARE LISTED. THE CONTRACTOR SHALL USE THE GENERAL PHASING TO DEVELOP A DETAILED SEQUENCE OF WORK WHICH IDENTIFIES ALL ITEMS OF WORK AND SEEKS TO MINIMIZE THE DURATION OF PUMP STATION SHUTDOWNS, THEREBY MINIMIZING THE DURATION OF SEWER BYPASS PUMPING. THE CONTRACTOR'S SEQUENCE OF WORK SHALL BE SUBMITTED AND APPROVED BY THE DISTRICT PRIOR TO WORK AT THE SITE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE CONTINUOUS SEWER BYPASSING DURING SHUTDOWNS WHEN NEITHER THE EXISTING NOR NEW PUMP STATION ARE OPERATING. BYPASSING SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIFICATIONS.
3. THE NUMBERING SHOWN IN EACH GENERAL PHASE DOES NOT INDICATE THE ORDER IN WHICH THE ITEMS OF WORK ARE TO BE PERFORMED.
4. SEE DRAWING C-1 FOR THE EXISTING SITE CONDITIONS.
5. SEE DRAWING D-1 FOR AN OVERALL SITE DEMOLITION PLAN.
6. SEE DRAWING D-2 FOR DEMOLITION INSIDE THE EXISTING PUMP STATION AND WET WELL.



INTERIM CONDITION PLAN

PHASE 1:

PRIOR TO SHUTTING DOWN THE EXISTING PUMP STATION, THE CONTRACTOR SHALL CONSTRUCT THE IMPROVEMENTS OR PORTIONS OF IMPROVEMENTS WHICH DO NOT AFFECT THE OPERATION OF THE EXISTING PUMP STATION, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- ① CONSTRUCT NEW SEWER INLET TO WET WELL
- ② CONSTRUCT NEW OVERFLOW MH'S AND PIPING TO WET WELL
- ③ RELOCATE PRV WATER PIPING
- ④ REPLACE VALVE ON BYPASS CONNECTION
- ⑤ DEMO CHEMICAL AREA

PHASE 2 – SHUTDOWN 1:

DURING THE FIRST PUMP STATION SHUTDOWN, THE CONTRACTOR SHALL CONSTRUCT THE IMPROVEMENTS NECESSARY TO REINSTATE THE EXISTING PUMP STATION WITH THE NEW PIPING CONFIGURATION AS SHOWN IN THE INTERIM CONDITION PLAN ON THIS SHEET. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

- ① DEMO EXISTING INLET PIPING AND MANHOLE
- ② DEMO EXISTING SEWER MH, REPLACE EXISTING SEWER LINE WITH NEW SEWER FLOWING IN THE OPPOSITE DIRECTION, CONSTRUCT NEW MH UPSTREAM OF WET WELL AND MAKE CONNECTION TO NEW INLET PIPING CONSTRUCTED IN PHASE 1
- ③ DEMO EXISTING OVERFLOW PIPING AND MH AND MAKE CONNECTION TO NEW OVERFLOW PIPING CONSTRUCTED IN PHASE 1
- ④ EXTEND STORM WATER PUMP DISCHARGE PIPING TO NEW MH
- ⑤ COMPLETE MODIFICATIONS TO EXISTING WET WELL INCLUDING MAKING CONNECTIONS TO PIPING CONSTRUCTED IN PHASE 1, REPAIRING OLD PENETRATIONS, REMOVING INTERNAL BAFFLING TO ALLOW FLOW TO BOTH OF THE EXISTING PUMPS FROM THE NEW SEWER INLET CONNECTION, AND REPAIR AND TEMPORARY PROTECTION OF CONCRETE TO ENSURE NO DAMAGE TO THE WET WELL IS CAUSED BY OPERATION DURING PHASE 3.

PHASE 3:

WITH THE EXISTING PUMP STATION IN OPERATION AND PRIOR TO TAKING THE PUMP STATION PERMANENTLY OUT OF SERVICE, THE CONTRACTOR SHALL CONSTRUCT ALL IMPROVEMENTS ASSOCIATED WITH THE NEW PUMP STATION WHICH DO NOT AFFECT THE OPERATION OF THE EXISTING PUMP STATION, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- ① CONSTRUCT DRY PIT, ELECTRICAL BUILDING AND INTERIOR IMPROVEMENTS
- ② CONSTRUCT FORCE MAIN
- ③ CONSTRUCT GENERATOR

PHASE 4 – SHUTDOWN 2:

AFTER TAKING THE EXISTING PUMP STATION PERMANENTLY OUT OF SERVICE, THE CONTRACTOR SHALL COMPLETE ALL ITEMS OF WORK NECESSARY TO TEST AND START-UP THE NEW PUMP STATION, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- ① PERFORM FINAL MODIFICATIONS TO WET WELL AND MAKE CONNECTION TO NEW PUMP SUCTION PIPING
- ② REMOVE EXISTING ABOVE GRADE PIPING, VALVES, AND APPURTENANCES
- ③ RELOCATE EXISTING AC SYSTEM, INDOOR AND OUTDOOR UNITS, AND REFRIGERANT PIPING AND CONTROL WIRING AND DEMO CONC PAD
- ④ CONNECT TO EXIST FORCE MAIN
- ⑤ RELOCATE SURGE TANK AND CONSTRUCT CONNECTION PIPING
- ⑥ PERFORM STATION TESTING AND PLACE PUMP STATION INTO OPERATION

PHASE 5:

WITH THE NEW PUMP STATION IN SERVICE, COMPLETE ALL REMAINING CIVIL SITE WORK AND PUNCH LIST ITEMS.

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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

DEMOLITION / PHASING PLAN

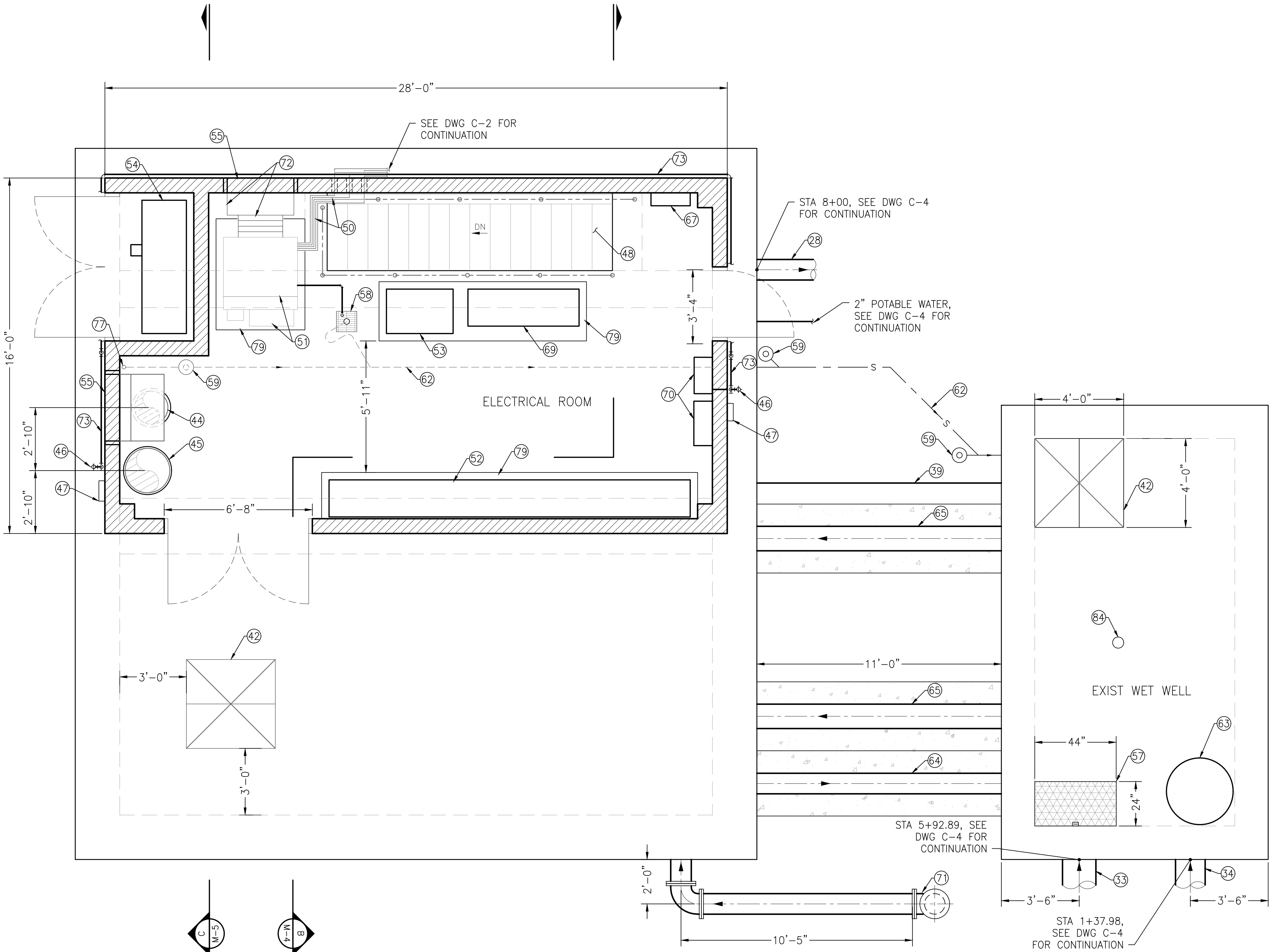
SHEET 12 of 90
DRAWING D-3

D700004



MATERIALS LIST

- 28 10" DI FORCEMAIN
- 33 18" PVC OVERFLOW LINE
- 34 18" PVC INFLUENT SEWER
- 39 2" SCH 80 PVC SUMP PUMP PIPING, SOLVENT WELD
- 42 ACCESS HATCH, H2O RATED, 4' X 4'
- 44 VENTILATION SYSTEM, SUPPLY, SEE DWG M-5
- 45 VENTILATION SYSTEM, EXHAUST, SEE DWG M-5
- 46 HOSE BIBB PER DET 2 / MD-3
- 47 HOSE RACK PER DET 1 / MD-3
- 48 STAIRS AND MEZZANINE, SEE STRUCTURAL DWGS
- 50 AC UNIT REFRIGERANT PIPING & CONTROL WIRING
- 51 RELOCATED AC SYSTEM, INDOOR UNIT
- 52 ELECTRICAL CABINET, SEE ELEC DWGS
- 53 REMOTE TERMINAL UNIT, SEE ELEC DWGS
- 54 ELECTRICAL SWITCHBOARD, SEE ELEC DWGS
- 55 ACOUSTICAL LOUVER, SUPPLY, SEE DET 2 / MD-4
- 57 44"x24" ACCESS HATCH H2O RATED FOR SLUICE GATE PER DET 6 / MD-2
- 58 FLOOR SINK PER DET 4 / MD-5
- 59 CLEAN OUT PER DET 5 / MD-5, SIZE SHALL MATCH CONNECTING PIPE
- 62 3" PVC DRAIN PIPING, INSIDE STATION HANG FROM UNDERSIDE OF FLOOR PER DETAIL 6/MD-4, SLOPE TO WET WELL 1% MIN
- 63 3' DIAMETER PENETRATION IN ROOF SLAB PER STRUCTURAL, INSTALL MH FRAME AND COMPOSITE LID
- 64 10" DI DRAIN TO WET WELL W/ CONCRETE ENCASEMENT PER DET 3 / CD-2
- 65 12" DI PUMP SUCTION W/ CONCRETE ENCASEMENT PER DET 3 / CD-2
- 67 GAS MONITORING SYSTEM, WALL MOUNTED
- 69 MOTOR CONTROL CENTER, SEE ELEC DWGS
- 70 WET WELL LEVEL PANEL, SEE ELEC DWGS
- 71 BYPASS CONNECTION
- 72 FABRICATED EXHAUST/LOUVER CONNECTION FITTING
- 73 2" SCH 80 POTABLE WATER PIPING, SOLVENT WELD
- 77 2" DRAIN PIPE VENT TO ATMOSPHERE, PER DET 5 / A-6
- 79 CONCRETE HOUSEKEEPING PAD PER DET 4 / S-4
- 84 6" PENETRATION IN WET WELL ROOF SLAB PER STRUCTURAL, CONNECT TO ODOR CONTROL SYSTEM PER C-2



PUMP STATION PLAN – UPPER LEVEL

SCALE: 3/8" = 1'-0"



4S RANCH NEIGHBORHOOD 1

SEWER PUMP STATION REPLACEMENT

PUMP STATION PLAN - UPPER LEVEL

SHEET 13 of 90

DRAWING M-1

D700004

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ORIGINAL SCALE IN INCHES

MATERIALS LIST

- 1

DRY-PIT SUBMERSIBLE SEWER PUMP, TYP OF 5
- 2

4" SPOOL, DI, FLG'D
- 5

4" DISMANTLING JOINT
- 6

4" 45° BEND, DI, FLG'D
- 7

8" 45° BEND, DI, FLG'D
- 9

8" 90° BEND, DI, FLG'D
- 10

8" TRUE WYE, DI, FLG'D
- 12

8" X 4" ECCENTRIC REDUCER, DI, FLG'D
- 13

8" 90° BASE ELBOW, DI, FLG'D, BASE ELBOW SUPPORT PER DET 5 / MD-1
- 14

8" SPOOL, DI, FLG'D
- 15

8" SWING CHECK VALVE, DEZURIK, FLG'D
- 16

10" 90° ELBOW, DI, FLG'D
- 17

10" TEE, DI, FLG'D
- 18

10" WYE, DI, FLG'D
- 20

10" SPOOL, DI, FLG'D, GROUND END
- 21

10" SPOOL THROUGH WALL, DI, W/ WALL SLEEVE PER DET 3 / MD-1
- 22

10" X 8" CONCENTRIC REDUCER, DI, FLG'D
- 23

10" SPARLING TIGERMAG MAGNETIC FLOW METER
- 24

10" SPOOL, DI, FLG'D
- 25

10" PLUG VALVE, FLG'D, W/ CHAIN WHEEL OPERATOR
- 26

10" 90° BASE ELBOW, DI, FLG'D, BASE SUPPORT PER DET 5 / MD-1
- 27

10" INSULATING FLG SET PER DETAIL 4 / MD-2
- 28

10" DI FORCEMAIN
- 29

12" PLUG VALVE, FLG'D
- 30

12" DISMANTLING JOINT
- 31

12" X 4" ECCENTRIC REDUCER, DI, FLG'D
- 32

12" SPOOL THROUGH WALL, DI, W/ WALL SLEEVE PER DET 3 / MD-1
- 33

18" PVC OVERFLOW LINE
- 34

18" PVC INFLUENT SEWER
- 35

ADJUSTABLE PIPE SUPPORT PER DET 1 / MD-1
- 36

PIPE ANCHOR AT WALL PER DET 4 / MD-4
- 37

POWER CONTROL STATION PEDESTAL W/ STRAIN RELIEF HOOK PER DET 5 / MD-4
- 38

SEISMIC RESTRAINT PER DET 4 / MD-3
- 39

2" SCH 80 PVC SUMP PUMP DISCHARGE PIPING, SOLVENT WELD
- 41

SUBMERSIBLE CHOPPER CONDITIONING PUMP, VAUGHN, 5 HP
- 44

VENTILATION SYSTEM, SUPPLY, SEE DWG M-5
- 46

HOSE BIBB PER DET 2 / MD-3
- 47

HOSE RACK DET 1 / MD-3
- 48

STAIRS AND MEZZANINE, SEE STRUCTURAL DRAWINGS
- 49

DUPLEX SUMP PUMP PER DET 5 / MD-2
- 56

SLUICE GATE PER DET 3 / MD-3
- 60

MECHANICAL COUPLING
- 64

10" DI DRAIN TO WET WELL W/ CONCRETE ENCASMENT PER DET 3 / CD-2
- 65

12" DI PUMP SUCTION W/ CONCRETE ENCASMENT PER DET 3 / CD-2
- 68

PRESSURE GAUGE AND TRANSMITTER PER DET 1 / MD-2
- 71

BYPASS CONNECTION
- 73

2" SCH 80 PVC POTABLE WATER PIPING, SOLVENT WELD
- 75

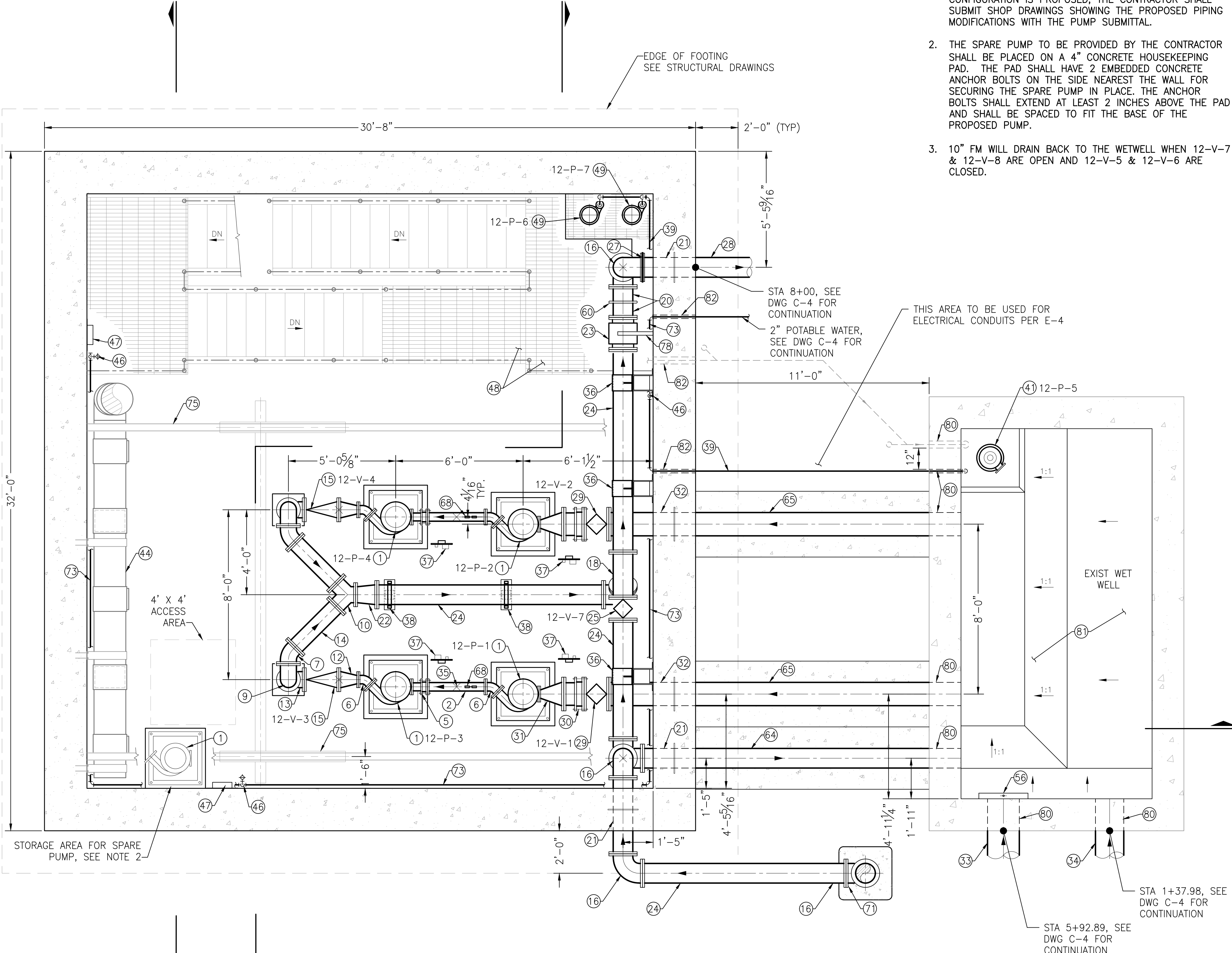
CRANE BEAMS, WALL ATTACHMENT PER DET 4 / S-6
- 78

LIFTING EYE FOR FLOW METER PER DET 3 / MD-2
- 80

CONNECTION TO EXISTING WET WELL PER DET 5 / MD-3
- 81

CONSTRUCT CONC FILLETING IN EXIST WET WELL, SEE STRUCTURAL DWGS
- 82

CONNECTION TO PUMP STATION, PENETRATION PER DET 3 / MD-1



PUMP STATION PLAN – LOWER LEVEL

SCALE: 3/8" = 1'-0"

NOTE:

1. IF A PUMP MANUFACTURER WITH A DIFFERENT OUTLET CONFIGURATION IS PROPOSED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING THE PROPOSED PIPING MODIFICATIONS WITH THE PUMP SUBMITTAL.
2. THE SPARE PUMP TO BE PROVIDED BY THE CONTRACTOR SHALL BE PLACED ON A 4" CONCRETE HOUSEKEEPING PAD. THE PAD SHALL HAVE 2 EMBEDDED CONCRETE ANCHOR BOLTS ON THE SIDE NEAREST THE WALL FOR SECURING THE SPARE PUMP IN PLACE. THE ANCHOR BOLTS SHALL EXTEND AT LEAST 2 INCHES ABOVE THE PAD AND SHALL BE SPACED TO FIT THE BASE OF THE PROPOSED PUMP.
3. 10" FM WILL DRAIN BACK TO THE WETWELL WHEN 12-V-7 & 12-V-8 ARE OPEN AND 12-V-5 & 12-V-6 ARE CLOSED.

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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

PUMP STATION PLAN - LOWER LEVEL

SHEET 14 of 90
DRAWING M-2

D700004



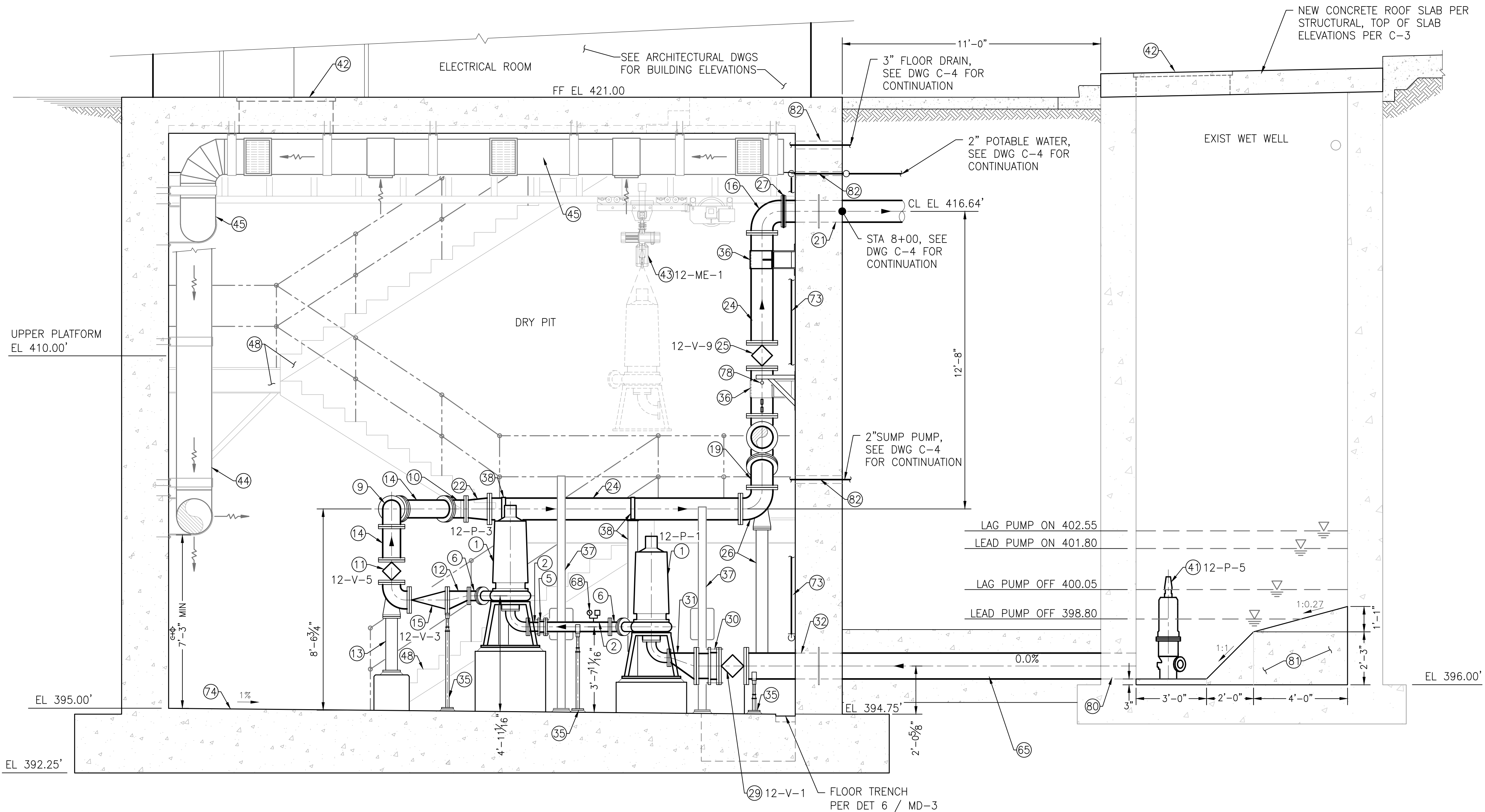
ORIGINAL SCALE IN INCHES

MATERIALS LIST

- ① DRY-PIT SUBMERSIBLE SEWER PUMP, TYP OF 5
- ② 4" SPOOL, DI, FLG'D
- ⑤ 4" DISMANTLING JOINT
- ⑥ 4" 45° BEND, DI, FLG'D
- ⑦ 8" 45° BEND, DI, FLG'D
- ⑨ 8" 90° BEND, DI, FLG'D
- ⑩ 8" TRUE WYE, DI, FLG'D
- ⑪ 8" PLUG VALVE, DEZURIK, FLG'D
- ⑫ 8" X 4" ECCENTRIC REDUCER, DI, FLG'D
- ⑬ 8" 90° BASE ELBOW, DI, FLG'D, BASE ELBOW SUPPORT PER DET 5 / MD-1
- ⑭ 8" SPOOL, DI, FLG'D
- ⑮ 8" SWING CHECK VALVE, DEZURIK, FLG'D
- ⑯ 10" 90° ELBOW, DI, FLG'D
- ⑲ 10" 45° BEND, DI, FLG'D
- ⑳ 10" WALL SPOOL THROUGH WALL, DI, W/ WALL SLEEVE PER DET 3 / MD-1
- ㉑ 10" X 8" CONCENTRIC REDUCER, DI, FLG'D
- ㉒ 10" SPOOL, DI, FLG'D
- ㉓ 10" PLUG VALVE, FLG'D, W/ CHAIN WHEEL OPERATOR
- ㉔ 10" 90° BASE ELBOW, DI, FLG'D, BASE SUPPORT PER DET 5 / MD-1
- ㉕ 10" INSULATING FLG SET PER DET 4 / MD-2
- ㉖ 12" PLUG VALVE, FLG'D
- ㉗ 12" DISMANTLING JOINT
- ㉘ 12" X 4" ECCENTRIC REDUCER, DI, FLG'D
- ㉙ 12" WALL SPOOL, DI, FLG'D W/ WALL SLEEVE PER DET 3 / MD-1
- ㉚ ADJUSTABLE PIPE SUPPORT PER DET 1 / MD-1
- ㉛ PIPE ANCHOR AT WALL PER DET 4 / MD-4
- ㉜ POWER CONTROL STATION PEDESTAL W/ STRAIN RELIEF HOOK PER DET 5 / MD-4
- ㉝ SEISMIC RESTRAINT PER DET 4 / MD-3
- ㉞ SUBMERSIBLE CHOPPER CONDITIONING PUMP, VAUGHN, 5 HP
- ㉟ ACCESS HATCH, H2O RATED, 4' X 4'
- ㊱ MOTORIZED BRIDGE CRANE
- ㊲ VENTILATION SYSTEM, SUPPLY, SEE DWG M-5
- ㊳ VENTILATION SYSTEM, EXHAUST, SEE DWG M-5
- ㊴ STAIRS AND MEZZANINE, SEE STRUCTURAL DRAWINGS
- ㊵ 12" DI PUMP SUCTION W/CONCRETE ENCASEMENT PER DET 3 / CD-2
- ㊶ 2" SCH 80 PVC POTABLE WATER PIPING, SOLVENT WELD
- ㊷ DRY PIT FLOOR COATING, SEE NOTES
- ㊸ LIFTING EYE FOR FLOWMETER PER DET 3 / MD-2
- ㊹ CONNECTION TO EXISTING WET WELL PER DET 5 / MD-3
- ㊺ CONSTRUCT CONC FILLETING IN EXIST WET WELL, SEE STRUCTURAL DWGS
- ㊻ CONNECTION TO PUMP STATION, PENETRATION PER DET 3 / MD-1

NOTES:

1. CONTRACTOR SHALL VERIFY FINISH FLOOR ELEVATION OF EXISTING WET WELL PRIOR TO CONSTRUCTING DRY PIT.
2. CONDITIONING PUMP SHALL BE PROVIDED WITH INTEGRAL STAND. PLACE PUMP IN CENTER OF SUMPED AREA OF WET WELL AND DIRECT DISCHARGE DIAGONALLY ACROSS WET WELL AREA. PUMP SHALL HAVE CHAIN FOR REMOVAL. ATTACH CHAIN TO WET WELL WALL A MAXIMUM OF 12 INCHES BELOW THE PROPOSED CONDITIONING PUMP HATCH.
3. CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL CONNECTIONS TO THE EXISTING WET WELL ARE WATERTIGHT. THE CONTRACTOR SHALL CONDUCT HYDROSTATIC TESTING OF THE EXISTING WET WELL AFTER MODIFYING, REPAIRING, AND MAKING THE NEW CONNECTIONS, AND PRIOR TO PLACING THE WET WELL BACK IN SERVICE. TESTING SHALL OCCUR WITH A MINIMUM WATER DEPTH OF 15 FEET. NO LEAKAGE SHALL OCCUR OVER A 48 HOUR PERIOD. IF ANY LEAKAGE IS MEASURED, THE CONTRACTOR SHALL REPAIR THE LEAK(S) AND START THE TESTING AGAIN. ANY REPAIRS AND RETESTING TO ACHIEVE ZERO LEAKAGE SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE.
4. THE HEIGHT OF THE PUMP PEDESTALS SHALL BE DETERMINED BY THE CONTRACTOR BASED UPON THE DIMENSIONS OF THE PROPOSED PUMPS AND THE PUMP DISCHARGE CENTERLINE HEIGHT SHOWN HEREON.
5. REPAIR THE EXISTING WET WELL LINER WHERE REMOVED OR DAMAGED DUE TO DEMOLITION AND CONSTRUCTION ACTIVITIES. ALL NEW SURFACES IN THE WET WELL SHALL HAVE A NEW LINER IN ACCORDANCE WITH THE SPEC SECTION 09801. ALL LINING INSTALLATION AND REPAIR MUST BE COMPLETED PRIOR TO PLACING THE WET WELL BACK IN SERVICE. JOINTS BETWEEN EXISTING AND NEW LINING SYSTEMS SHALL BE BONDED TO CREATE A CONTINUOUS LINER WHICH PREVENTS SEWAGE FROM COMING INTO CONTACT WITH CONCRETE SURFACES OF THE WET WELL. JOINTS SHALL BE MADE IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL A WET WELL LINING PLAN WHICH DETAILS AREAS OF EXISTING LINING TO REMAIN, LINING TO BE REPAIRED, AND NEW LINING TO BE INSTALLED, INCLUDING JOINING PROCEDURES.
6. A PROTECTIVE COATING SHALL BE APPLIED TO THE FLOOR OF THE DRY-PIT EXTENDING UP THE WALL AT LEAST 6" ABOVE FLOOR LEVEL, AND INCLUDING CONCRETE PUMP AND PIPE SUPPORT PEDESTALS, AND THE DRAIN TRENCH AND SUMP. THE COATING SHALL BE AN INDUSTRIAL COATING FOR USE ON CONCRETE FLOORS WHICH COME INTO CONTACT WITH SEWAGE. THE COATING SHALL BE SLIP RESISTANT. THE FLOOR COATING SHALL BE IN ACCORDANCE WITH SECTION 09900.
7. WHERE THE MEZZANINE HAND RAILING CONFLICTS WITH THE DISCHARGE HEADER (NEAR THE FLOW METER), THE CONTRACTOR SHALL PROPOSE A MODIFIED RAILING OR REPLACEMENT SUCH AS CHAIN. THE CONTRACTOR SHALL ENSURE THERE IS ADEQUATE PROTECTION AGAINST FALLS.
8. 10" FM WILL DRAIN BACK TO WETWELL WHEN 12-V-7 & 12-V-8 ARE OPEN AND 12-V-5 & 12-V-6 ARE CLOSED.



SECTION A

SCALE: 3/8" = 1'-0"

A
M-2



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

PUMP STATION SECTION

SHEET
15 of 90

DRAWING
M-3

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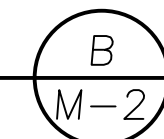
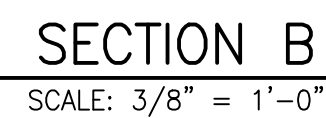
OLIVENHAIN

Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466

ORIGINAL SCALE IN INCHES

- ① DRY-PIT SUBMERSIBLE SEWER PUMP, TYPE OF 5
- ⑦ 8" 45° BEND, DI, FLG'D
- ⑨ 8" 90° BEND, DI, FLG'D
- ⑩ 8" TRUE WYE, DI, FLG'D
- ⑪ 8" PLUG VALVE, DEZURIK, FLG'D
- ⑬ 8" 90° BASE ELBOW, DI, FLG'D, BASE SUPPORT PER DET 5 / MD-1
- ⑭ 8" SPOOL, DI, FLG'D
- ⑯ 10" 90° ELBOW, DI, FLG'D
- ⑰ 10" TEE, DI, FLG'D
- ⑱ 10" WYE, DI, FLG'D
- ⑲ 10" 45° BEND, DI, FLG'D
- ⑳ 10" SPOOL, DI, FLG'D, GROUND END
- ㉑ 10" WALL SPOOL, DI, FLG'D W/ WALL SLEEVE PER DET 3 / MD-1
- ㉒ 10" SPARKING TIGERMAG MAGNETIC FLOW METER
- ㉓ 10" SPOOL, DI, FLG'D
- ㉔ 10" PLUG VALVE, FLG'D, W/ CHAIN WHEEL OPERATOR
- ㉕ 10" 90° BASE ELBOW, DI, FLG'D, BASE SUPPORT PER DET 5 / MD-1
- ㉖ PIPE ANCHOR AT WALL PER DET 4 / MD-4
- ㉗ POWER CONTROL STATION PEDESTAL W/ STRAIN RELIEF HOOK PER DET 5 / MD-4
- ㉘ SEISMIC RESTRAINT PER DET 4 / MD-3
- ㉙ 2" SCH 80 PVC SUMP PUMP PIPING, SOLVENT WELD
- ㉚ ACCESS HATCH, H2O RATED, 4' X 4'
- ㉛ MOTORIZED BRIDGE CRANE
- ㉜ STAIRS AND MEZZANINE, SEE STRUCTURAL DRAWINGS
- ㉝ SUMP PUMP PER DET 5 / MD-2
- ㉞ ELECTRICAL CABINET, SEE ELECTRICAL DRAWINGS
- ㉟ MECHANICAL COUPLING
- ① CONCRETE SUPPORT BLOCK PER OMWD STD DET D-3.5
- ② 3" PVC DRAIN PIPING, INSIDE STATION HANG FROM UNDERSIDE OF FLOOR PER DETAIL 6/MD-4, SLOPE TO WET WELL 1% MIN
- ③ GAS MONITORING SYSTEM, WALL MOUNTED
- ④ PRESSURE GAUGE AND TRANSMITTER PER DET 1 / MD-2
- ⑤ WET WELL LEVEL PANEL, SEE ELECTRICAL DRAWINGS
- ⑥ BYPASS CONNECTION
- ⑦ 2" SCH 80 PVC POTABLE WATER PIPING, SOLVENT WELD
- ⑧ DRY PIT FLOOR COATING, SEE NOTES
- ⑨ CRANE BEAMS, WALL ATTACHMENT PER DET 4 / S-6
- ⑩ 10" PLUG VALVE W/ BLIND FLANGE
- ⑪ LIFTING EYE FOR FLOWMETER PER DET 3 / MD-2

1. CONTRACTOR SHALL VERIFY FINISH FLOOR ELEVATION OF EXISTING WET WELL PRIOR TO CONSTRUCTING DRY PIT.
2. THE HEIGHT OF THE PUMP PEDESTALS SHALL BE DETERMINED BY THE CONTRACTOR BASED UPON THE DIMENSIONS OF THE PROPOSED PUMPS AND THE PUMP DISCHARGE CENTERLINE HEIGHT SHOWN HEREON.
3. A PROTECTIVE COATING SHALL BE APPLIED TO THE FLOOR OF THE DRY-PIT. THE COATING SHALL BE AN INDUSTRIAL COATING FOR USE ON CONCRETE FLOORS WHICH COME INTO CONTACT WITH SEWAGE. COATING SHALL INCLUDE A TEXTURE TO PROVIDE SLIP RESISTANCE. APPLY COATING IN ACCORDANCE WITH SECTION 09900.
4. 10" FM WILL DRAIN BACK TO WETWELL WHEN 12-V-7 & 12-V-8 ARE OPEN AND 12-V-5 & V-12-6 ARE CLOSED.



PUMP STATION SECTION

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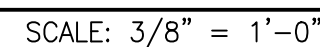
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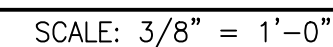
SHEET	DRAWING
16 of 90	M-4

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ORIGINAL SCALE IN INCHES



1. CONTRACTOR SHALL PROVIDE A FLOOR MOUNTED SUPPORT FOR EACH DUCT FAN. CONNECT SUPPORT TO FAN AT LOWER FLANGE. SUPPORT SHALL BE CONSTRUCTED OF UNISTRUT MATERIALS OR APPROVED EQUAL.

D700004

ORIGINAL SCALE IN INCHES

LEGEND AND SYMBOLS				GENERAL NOTES	
SYMBOL	DESCRIPTION	ABBREV.	DESCRIPTION		
	SINGLE LINE DUCTWORK, NEW	AFF	ABOVE FINIHSED FLOOR	<div>1. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO RECONSTRUCT THE BUILDING IN ACCORDANCE WITH CALIFORNIA BUILDING STANDARDS CODE, TITLE 19 & 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE APPROVED PLANS AND SPECIFICATIONS WHERE IN THE FINISHED WORK WILL COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS. A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE CITY BEFORE PROCEEDING WITH THE WORK.</div> <div>2. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH:</div> <div>2019 CALIFORNIA ADMINISTRATIVE CODE (CAC) PART 1, TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)</div> <div>2019 CALIFORNIA BUILDING CODE (CBC) PART 2, TITLE 24, CCR BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC)</div> <div>2019 CALIFORNIA ELECTRICAL CODE (CEC) PART 3, TITLE 24, CCR BASED ON THE 2017 NATIONAL ELECTRICAL CODE (NEC)</div> <div>2019 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24, CCR BASED ON THE 2018 UNIFORM MECHANICAL CODE (UMC)</div> <div>2019 CALIFORNIA PLUMBING CODE (CPC) PART 5, TITLE 24, CCR BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC)</div> <div>2019 CALIFORNIA FIRE CODE (CFC) PART 9, TITLE 24, CCR BASED ON THE 2018 INTERNATIONAL FIRE CODE (IFC)</div> <div>ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE REQUIREMENTS OF THESE CODES AND APPLICABLE LOCAL ORDINANCE WHERE CONTRACT DOCUMENTS EXCEED WITHOUT VIOLATING CODE AND REGULATION REQUIREMENTS, CONTRACT DOCUMENTS TAKE PRECEDENCE. WHERE CODE CONFLICT, THE MORE STRINGENT SHALL APPLY. IT SHALL BE THE CONTRACTOR'S AND HIS EMPLOYEE'S RESPONSIBILITY TO BE FAMILIAR WITH ALL CODES AND ORDINANCES, CITY OR STATE, AS REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT. WHERE ANY CONFLICTS OCCUR BETWEEN FEDERAL, STATE AND LOCAL LAWS, CODES, ORDINANCES, AND REGULATIONS, THE MOST STRINGENT SHALL GOVERN.</div> <div>3. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO STRUCTURE, MECHANICAL, PLUMBING, ELECTRICAL, EQUIPMENT, AND ALL OTHER EXISTING SYSTEMS AND MAKE NECESSARY PROVISIONS TO MAINTAIN THE INTEGRITY OF SAID SYSTEMS PRIOR TO THE COMMENCEMENT OF DEMOLITION, IF ANY. SEE STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND EQUIPMENT DRAWINGS FOR ANY SYSTEMS OR PORTIONS THEREOF TO BE REMOVED, RELOCATED, REVISED OR ABANDONED. ALL POSSIBLE CARE SHALL BE EXERCISED BY THE CONTRACTOR TO INSURE THAT ANY SAID UTILITY WILL NOT BE THE CAUSE OF ENDANGERMENT TO THE LIFE OR HEALTH OF ANY PERSON.</div> <div>4. ALL DRAWINGS AND SPECIFICATIONS ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL. ANY APPARENT DISCREPANCY SHALL BE BROUGHT TO THE CONTRACTING OFFICER PRIOR TO START OF CONSTRUCTION. SO A CLARIFICATION MAY BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.</div> <div>5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK WITH THE CONTRACT DOCUMENTS BEFORE THE INSTALLATION OF ANY MECHANICAL, PLUMBING, ELECTRICAL OR SYSTEMS CONSTRUCTION. ANY DISCREPANCIES WITHIN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR CLARIFICATION BEFORE COMMENCING WITH THE WORK. ANY CONSTRUCTION INSTALLED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE, AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.</div> <div>6. VERIFICATIONS SHALL BE MADE FROM AVAILABLE SOURCES TO THE CONTRACTOR, SUCH AS BUT NOT LIMITED TO, UTILITY COMPANIES, PLANS OF EXISTING BUILDINGS, CONTRACT DOCUMENTS, THE OWNER, SITE INVESTIGATION REPORTS, ETC. IN NO WAY SHALL ANY DOCUMENTATION RECEIVED BY THE CONTRACTOR RELIEVE HIM OF THE RESPONSIBILITY OF PERFORMING HIS OWN FIELD INVESTIGATION.</div> <div>7. DRAWINGS HAVE BEEN DETAILED IN COMPLIANCE WITH U.L. LISTING REQUIREMENTS AND I.C.B.O. REPORTS FOR THE MATERIALS SPECIFIED. IF AN ALTERNATE OR SUBSTITUTED MATERIAL IS ACCEPTED AS AN EQUAL BY THE GENERAL CONTRACTOR, HE WILL ASSUME THE RESPONSIBILITY FOR WHATEVER CONSTRUCTION MODIFICATION AND/OR ADDITIONAL COSTS ARE REQUIRED BY REASON OF THIS ACCEPTANCE.</div>	
	SINGLE LINE DUCTWORK, EXISTING	AHU	AIR HANDLING UNIT		
	DUCTWORK TO BE REMOVED	AMB	AMBIENT		
	DUCTWORK WITH ACOUSTIC LINING	ARCH	ARCHITECTURAL		
	DUCT UNDER POSITIVE PRESSURE (SUPPLY AIR UP AND DOWN)	BHP	BRAKE HORSEPOWER		
	DUCT UNDER NEGATIVE PRESSURE (RETURN AIR UP AND DOWN)	BTU	BRITISH THERMAL UNIT		
	DUCT UNDER NEGATIVE PRESSURE (EXHAUST AIR UP AND DOWN)	BTUH	BTU PER HOUR		
	FLEXIBLE DUCT	CFM	CUBIC FEET PER MINUTE		
	DUCT FLEXIBLE CONNECTION	CLG	CEILING		
	RECTANGULAR VERTICAL DUCT DROP	COND	CONDENSATE		
	RECTANGULAR VERTICAL DUCT RISE	CONN	CONNECTION		
	ROUND VERTICAL DUCT DROP	CONT	CONTINUATION		
	ROUND VERTICAL DUCT RISE	DB	DRY BULB		
	VOLUME DAMPER IN DUCT	DIAM	DIAMETER		
	BACKDRAFT DAMPER IN DUCT	DN	DOWN		
	CEILING DIFFUSER	DWG	DRAWING		
	RETURN REGISTER	EA/EXA	EXHAUST AIR		
	EXHAUST REGISTER	EAT	ENTERING AIR TEMPERATURE		
	SIDEWALL SUPPLY REGISTER	EDB	ENTERING DRY BULB TEMPERATURE		
	SIDEWALL RETURN REGISTER OR EXHAUST REGISTER	EF	EXHAUST FAN		
	THERMOSTAT	ELEC	ELECTRICAL		
	HUMIDISTAT	ENT	ENTERING		
	SWITCH	ESP	EXTERNAL STATIC PRESSURE		
	CEILING DIFFUSER	EWB	ENTERING WET BULB TEMPERATURE		
	NECK SIZE (IN.)	EWT	ENTERING WATER TEMPERATURE		
	AIR QUANTITY (CFM)	(E)	EXISTING		
	EQUIPMENT TAG, DESCRIPTION EF, MARK NUMBER 23	*F	DEGREES FAHRENHEIT		
	CENTER LINE	FCU	FAN COIL UNIT		
	DIAMETER	FD	FIRE DAMPER		
	POINT OF DISCONNECT	FLA	FULL LOAD AMPERES		
	POINT OF CONNECTION	FPM	FEET PER MINUTE		
		FT	FEET		
		GA	GAUGE		
		GAL	GALLON		
		GPM	GALLONS PER MINUTE		
		HC	HEATING COIL		
		HD	HEAD		
		HP	HORSEPOWER		
		HR	HOUR		
		HZ	HERTZ		
		INCH	INCH OR INCHES		
		KW	KILOWATT		
		LAT	LEAVING AIR TEMPERATURE		
		LDB	LEAVING DRY BULB TEMPERATURE		
		LVG	LEAVING		
		LWB	LEAVING WET BULB TEMPERATURE		
		LWT	LEAVING WATER TEMPERATURE		
		MAX	MAXIMUM		
		MBH	THOUSAND BTU PER HOUR		
		NC	NOISE CRITERIA		
		N.C.	NORMALLY CLOSED		
		NG	NATURAL GAS		
		NO.	NUMBER		
		NTS	NOT TO SCALE		
		OA	OUTSIDE AIR		
		PD	PRESSURE DROP		
		POC	POINT OF CONNECTION		
		POD	POINT OF DISCONNECT		
		PSI	POUNDS PER SQUARE INCH		
		RA	RETURN AIR		
		REFRIG	REFRIGERANT		
		RF	RETURN FAN		
		RM	ROOM		
		RPM	REVOLUTIONS PER MINUTE		
		SA	SUPPLY AIR		
		SF	SUPPLY FAN		
		SOV	SHUT-OFF VALVE		
		SP	STATIC PRESSURE		
		SQ. FT.	SQUARE FOOT		
		TEMP	TEMPERATURE		
		TYP	TYPICAL		
		V	VOLTS		
		VD	VOLUME DAMPER		

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PART 3, TITLE 24, CCR
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PART 5, TITLE 24, CCR
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2019 CALIFORNIA FIRE CODE (CFC)
PART 9, TITLE 24, CCR
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8. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR A COMPLETE LIST OF GENERAL CONDITIONS, SPECIAL CONDITIONS, MATERIALS, INSTALLATION METHODOLOGY & NOTES.

9. PRIOR TO DELIVERY OF MATERIALS TO THE CONSTRUCTION ZONE AND REMOVAL OF WASTE FROM THE SITE, THE CONTRACTOR SHALL CHECK WITH THE CHIEF FACILITY ENGINEER FOR AN ACCEPTABLE ACCESS ROUTE AND TIME. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR, SUBCONTRACTOR'S, OR ANY OF THEIR EMPLOYEES USE ANY AREA OUT-SIDE THE CONSTRUCTION ZONE WITHOUT PRIOR APPROVAL FROM THE CHIEF FACILITY ENGINEER. ALL TRASH SHALL BE REMOVED FROM THE BUILDING DAILY. CONSTRUCTION MATERIALS SHALL NOT BE STORED IN THE CORRIDORS AT ANY TIME.

10. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, SERVICES, AND POINTS OF CONNECTION PRIOR TO START OF WORK.

11. DUCTWORK, PIPING AND CONDUIT, AS SHOWN ON DRAWINGS, IS DIAGRAMMATICALLY AND SHALL BE FABRICATED AND INSTALLED BASED ON ACTUAL FIELD MEASUREMENT. COORDINATE WITH OTHER TRADES AS REQUIRED.

12. CONTRACTOR SHALL PROVIDE WRITTEN REQUESTS TO CHIEF FACILITY ENGINEER FOR SHUT-DOWNS AT LEAST 14 DAYS PRIOR TO EVENT. WORK REQUIRING SHUT-DOWNS MAY BE REQUIRED TO BE PERFORMED OUTSIDE NORMAL WORK HOURS.

13. ALL ITEMS TO BE REMOVED AND RELOCATED OR REPLACED SHALL BE HANDLED WITH PROPER CARE AND STORED IN A SAFE PLACE TO PREVENT DAMAGE OR BE REPLACED AT THE CONTRACTOR'S EXPENSE.

14. ABBREVIATIONS THROUGHOUT THE DOCUMENTS ARE THOSE IN COMMON USE. THE ENGINEER WILL DEFINE THE INTENT OF ANY IN QUESTION.

15. ALL DRAWINGS, THOUGH NOTED TO SCALE, ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL NOT SCALE THE DRAWINGS. ITEMS WRONGLY LOCATED BY DRAWING SCALING SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

16. COVERING OF DUCT OPENINGS AND PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION: AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER AND DEBRIS WHICH MAY ENTER THE SYSTEM.

DESIGN

DRAWN

CHECK

MARK

DATE

BY

REVISIONS

Infrastructure

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4S RANCH NEIGHBORHOOD 1

SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING MECHANICAL

GENERAL NOTES, LEGEND & SYMBOLS

SHEET

DRAWING

18 of 90

M-6

D700004

REGISTERED PROFESSIONAL ENGINEER

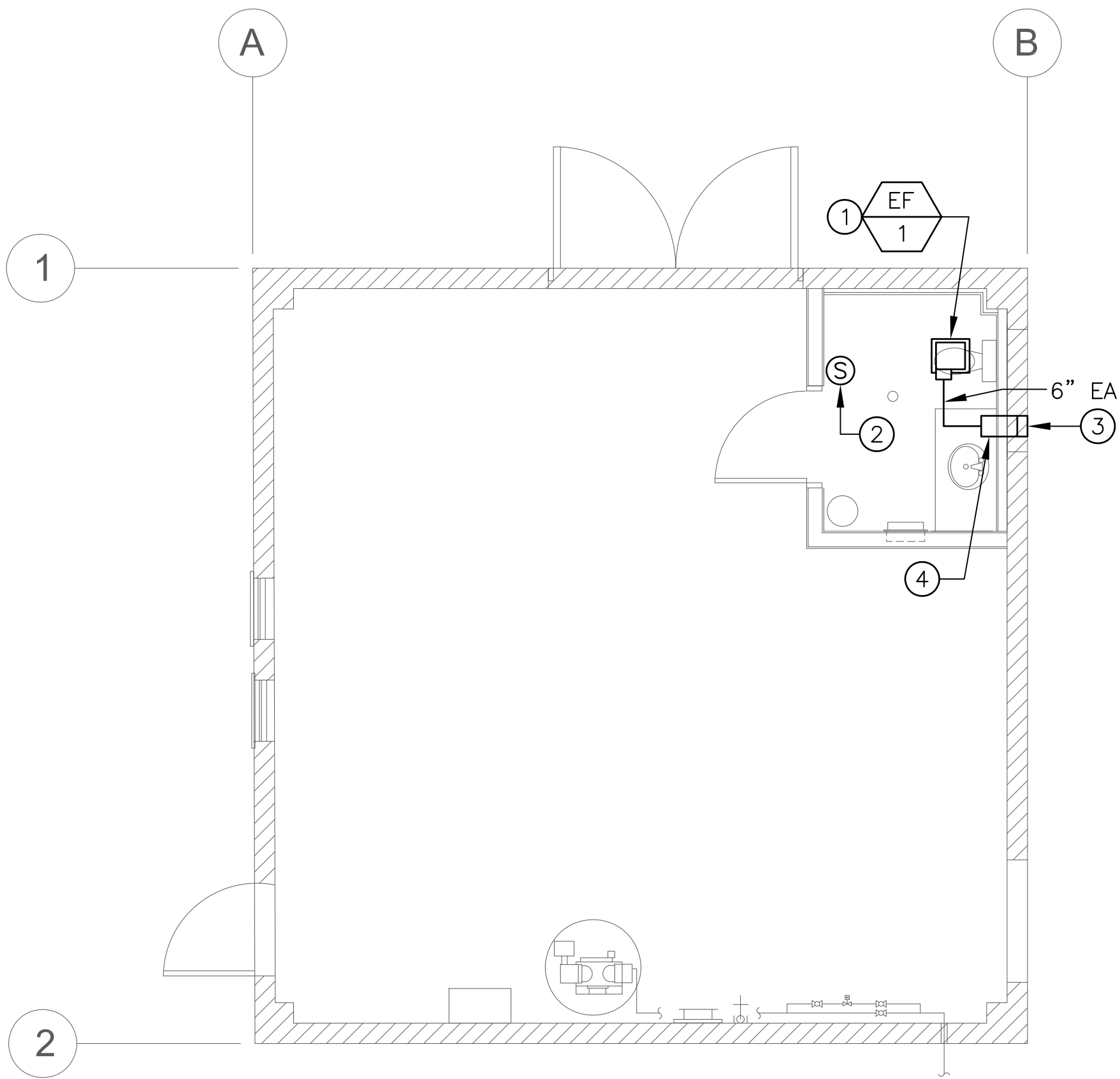
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Exp. 05/30/22

MECHANICAL

STATE OF CALIFORNIA

P:\21-MBN-101 4S Ranch Pump Station New Toilet\MECH\M-7.dwg 06/14/2021 10:38



MECHANICAL FLOOR PLAN

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

KEY NOTES

- ① CEILING EXHAUST FAN. INSTALL AT CEILING. BALANCE AIRFLOW TO 80 CFM.
- ② WALL SWITCH FOR EXHAUST FAN. MOUNT AT 48" AFF.
- ③ EXHAUST AIR DISCHARGE LOUVER. INSTALL AT EXTERIOR WALL.
- ④ TRANSITION 6" DUCT TO PLENUM DUCT AND CONNECT TO DISCHARGE LOUVER. PLENUM TO MATCH LOUVER CONNECTION SIZE.

LEGEND

REFER TO SHEET M-6.

GENERAL NOTES

1. AIR BALANCE CONTRACTOR TO PERFORM AIR BALANCE WORK TO MEET AIRFLOW CFM AS SPECIFIED PER THIS SHEET.



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING
MECHANICAL FLOOR PLAN

SHEET
19 of 90
DRAWING
M-7

D700004

Infrastructure
CONSULTING CORPORATION

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ORIGINAL SCALE IN INCHES

0 1 2 3 4

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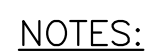
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EXISTING BUILDING MECHANICAL SCHEDULE AND DETAILS

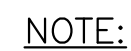
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ORIGINAL SCALE IN INCHES



1. STRAP TO BE 1"x22 GA FOR ROUND DUCT SIZE 24" OR LESS. PROVIDE 1"x20 GA FOR SIZE 25"-36". STRAPS ARE GALVANIZED STEEL. SIZING IS PER SMACNA GUIDELINES.
2. STRAP TO BE 1"x18 GA FOR RECTANGULAR DUCT WITH DUCT PERIMETER (P) LENGTH NOT EXCEEDING 144" OR $P/2=72"$. STRAPS ARE GALVANIZED STEEL. SIZING IS PER SMACNA GUIDELINES
3. MAX SPACING OF STRAP SUPPORT IS 10'-0" (DO NOT EXCEED SMACNA CRITERIA).

SCALE	2
NTS	



1. INSTALL EXHAUST FAN PER MANUFACTURER RECOMMENDATION AND INSTALLATION GUIDELINES.



SCALE	1
NTS	

D700004

P:\21-MBN-101_4S Ranch Pump Station New Toilet\MECH\M-9.dwg 06/14/2021 11:23

SECTION 15815 – METAL DUCTS		SECTION 15838 – POWER VENTILATORS		7. DISABLE AUTOMATIC TEMPERATURE–CONTROL OPERATORS, ENERGIZE MOTOR AND ADJUST FAN TO INDICATED RPM, AND MEASURE AND RECORD MOTOR VOLTAGE AND AMPERAGE. 8. SHUT UNIT DOWN AND RECONNECT AUTOMATIC TEMPERATURE–CONTROL OPERATORS. 9. REMOVE AND REPLACE MALFUNCTIONING UNITS AND RETEST AS SPECIFIED ABOVE. B. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT. 3.4 ADJUSTING A. ADJUST DAMPER LINKAGES FOR PROPER DAMPER OPERATION. B. ADJUST FAN SPEED AS REQUIRED TO ACHIEVE DESIGN AIRFLOW. C. LUBRICATE BEARINGS.	
PART 1 – GENERAL		PART 1 – GENERAL		END OF SECTION	
1.1 RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION. 1.2 SUMMARY A. THIS SECTION INCLUDES METAL DUCTS FOR SUPPLY, RETURN, OUTSIDE, AND EXHAUST AIR–DISTRIBUTION SYSTEMS IN PRESSURE CLASSES FROM MINUS 2– TO PLUS 10–INCH WG (MINUS 500 TO PLUS 2500 PA). METAL DUCTS INCLUDE THE FOLLOWING: 1. RECTANGULAR DUCTS AND FITTINGS. 2. SINGLE–WALL, ROUND SPIRAL–SEAM DUCTS AND FORMED FITTINGS. 1.3 DEFINITIONS A. NUSIG: NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES. 1.4 SYSTEM DESCRIPTION A. DUCT SYSTEM DESIGN, AS INDICATED, HAS BEEN USED TO SELECT SIZE AND TYPE OF AIR–MOVING AND –DISTRIBUTION EQUIPMENT AND OTHER AIR SYSTEM COMPONENTS. CHANGES TO LAYOUT OR CONFIGURATION OF DUCT SYSTEM MUST BE SPECIFICALLY APPROVED IN WRITING BY ARCHITECT. ACCOMPANY REQUESTS FOR LAYOUT MODIFICATIONS WITH CALCULATIONS SHOWING THAT PROPOSED LAYOUT WILL PROVIDE ORIGINAL DESIGN RESULTS WITHOUT INCREASING SYSTEM TOTAL PRESSURE. 1.5 SUBMITTALS A. PRODUCT DATA: FOR THE FOLLOWING. 1. METAL DUCTS AND FITTINGS. B. FIELD QUALITY–CONTROL TEST REPORTS. 1.6 QUALITY ASSURANCE A. NFPA COMPLIANCE: 1. NFPA 90A, "INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS."		1.1 RELATED DOCUMENTS A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION. 1.2 SUMMARY A. THIS SECTION INCLUDES THE FOLLOWING: 1. CEILING–MOUNTING VENTILATORS. 1.3 PERFORMANCE REQUIREMENTS A. PROJECT ALTITUDE: BASE FAN–PERFORMANCE RATINGS ON ACTUAL PROJECT SITE ELEVATIONS. B. OPERATING LIMITS: CLASSIFY ACCORDING TO AMCA 99. 1.4 SUBMITTALS A. PRODUCT DATA: INCLUDE RATED CAPACITIES, FURNISHED SPECIALTIES, AND ACCESSORIES FOR EACH TYPE OF PRODUCT INDICATED AND INCLUDE THE FOLLOWING: 1. CERTIFIED FAN PERFORMANCE CURVES WITH SYSTEM OPERATING CONDITIONS INDICATED. 2. CERTIFIED FAN SOUND–POWER RATINGS. 3. MOTOR RATINGS AND ELECTRICAL CHARACTERISTICS, PLUS MOTOR AND ELECTRICAL ACCESSORIES. 4. MATERIAL THICKNESS AND FINISHES, INCLUDING COLOR CHARTS. 5. DAMPERS, INCLUDING HOUSINGS, LINKAGES, AND OPERATORS. 6. FAN SPEED CONTROLLERS. B. FIELD QUALITY–CONTROL TEST REPORTS. C. OPERATION AND MAINTENANCE DATA: FOR POWER VENTILATORS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS. 1.5 QUALITY ASSURANCE A. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE. B. AMCA COMPLIANCE: PRODUCTS SHALL COMPLY WITH PERFORMANCE REQUIREMENTS AND SHALL BE LICENSED TO USE THE AMCA–CERTIFIED RATINGS SEAL. C. NEMA COMPLIANCE: MOTORS AND ELECTRICAL ACCESSORIES SHALL COMPLY WITH NEMA STANDARDS. D. UL STANDARD: POWER VENTILATORS SHALL COMPLY WITH UL 705. 1.6 DELIVERY, STORAGE, AND HANDLING A. DELIVER FANS AS FACTORY–ASSEMBLED UNIT, TO THE EXTENT ALLOWABLE BY SHIPPING LIMITATIONS, WITH PROTECTIVE CRATING AND COVERING. B. DISASSEMBLE AND REASSEMBLE UNITS, AS REQUIRED FOR MOVING TO FINAL LOCATION, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. C. LIFT AND SUPPORT UNITS WITH MANUFACTURER'S DESIGNATED LIFTING OR SUPPORTING POINTS. 1.7 COORDINATION A. COORDINATE SIZE AND LOCATION OF STRUCTURAL–STEEL SUPPORT MEMBERS.			
PART 2 – PRODUCTS		PART 2 – PRODUCTS			
2.1 MANUFACTURERS A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION: 1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED. 2.2 SHEET METAL MATERIALS A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS, UNLESS OTHERWISE INDICATED. SHEET METAL MATERIALS SHALL BE FREE OF PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS. B. GALVANIZED SHEET STEEL: LOCK–FORMING QUALITY; COMPLYING WITH ASTM A 653/A 653M AND HAVING G90 (Z275) COATING DESIGNATION; DUCTS SHALL HAVE MILL–PHOSPHATIZED FINISH FOR SURFACES EXPOSED TO VIEW. C. REINFORCEMENT SHAPES AND PLATES: GALVANIZED–STEEL REINFORCEMENT WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS. D. TIE RODS: GALVANIZED STEEL, 1/4–INCH (6–MM) MINIMUM DIAMETER FOR LENGTHS 36 INCHES (900 MM) OR LESS; 3/8–INCH (10–MM) MINIMUM DIAMETER FOR LENGTHS LONGER THAN 36 INCHES (900 MM). 2.3 SEALANT MATERIALS A. JOINT AND SEAM SEALANTS, GENERAL: THE TERM "SEALANT" IS NOT LIMITED TO MATERIALS OF ADHESIVE OR MASTIC NATURE BUT INCLUDES TAPES AND COMBINATIONS OF OPEN–WEAVE FABRIC STRIPS AND MASTICS. B. JOINT AND SEAM TAPE: 2 INCHES (50 MM) WIDE; GLASS–FIBER–REINFORCED FABRIC. C. TAPE SEALING SYSTEM: WOVEN–FIBER TAPE IMPREGNATED WITH GYPSUM MINERAL COMPOUND AND MODIFIED ACRYLIC/SILICONE ACTIVATOR TO REACT EXOTHERMICALLY WITH TAPE TO FORM HARD, DURABLE, AIRTIGHT SEAL. D. WATER–BASED JOINT AND SEAM SEALANT: FLEXIBLE, ADHESIVE SEALANT, RESISTANT TO UV LIGHT WHEN CURED, UL 723 LISTED, AND COMPLYING WITH NFPA REQUIREMENTS FOR CLASS 1 DUCTS. E. SOLVENT–BASED JOINT AND SEAM SEALANT: ONE–PART, NONSAG, SOLVENT–RELEASE–CURING, POLYMERIZED BUTYL SEALANT FORMULATED WITH A MINIMUM OF 75 PERCENT SOLIDS. F. FLANGED JOINT MASTIC: ONE–PART, ACID–CURING, SILICONE, ELASTOMERIC JOINT SEALANT COMPLYING WITH ASTM C 920, TYPE S, GRADE NS, CLASS 25, USE 0. G. FLANGE GASKETS: BUTYL RUBBER OR EPDM POLYMER WITH POLYISOBUTYLENE PLASTICIZER. 2.4 HANGERS AND SUPPORTS A. BUILDING ATTACHMENTS: STRUCTURAL–STEEL FASTENERS APPROPRIATE FOR CONSTRUCTION MATERIALS TO WHICH HANGERS ARE BEING ATTACHED. B. HANGER MATERIALS: GALVANIZED SHEET STEEL OR THREADED STEEL ROD. 1. STRAP AND ROD SIZES: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE" FOR STEEL SHEET WIDTH AND THICKNESS AND FOR STEEL ROD DIAMETERS. C. DUCT ATTACHMENTS: SHEET METAL SCREWS, BLIND RIVETS, OR SELF–TAPPING METAL SCREWS; COMPATIBLE WITH DUCT MATERIALS. D. TRAPEZE AND RISER SUPPORTS: STEEL SHAPES COMPLYING WITH ASTM A 36/A 36M. 1. SUPPORTS FOR GALVANIZED–STEEL DUCTS: GALVANIZED–STEEL SHAPES AND PLATES. 2.5 RECTANGULAR DUCT FABRICATION A. FABRICATE DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER CONSTRUCTION ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE" AND COMPLYING WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE–ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS. 1. LENGTHS: FABRICATE RECTANGULAR DUCTS IN LENGTHS APPROPRIATE TO REINFORCEMENT AND RIGIDITY CLASS REQUIRED FOR PRESSURE CLASS. 2. DEFLECTION: DUCT SYSTEMS SHALL NOT EXCEED DEFLECTION LIMITS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE." B. TRANSVERSE JOINTS: PREFABRICATED SLIDE–ON JOINTS AND COMPONENTS CONSTRUCTED USING MANUFACTURER'S GUIDELINES FOR MATERIAL THICKNESS, REINFORCEMENT SIZE AND SPACING, AND JOINT REINFORCEMENT. 1. AVAILABLE MANUFACTURERS: a. DUCTMATE INDUSTRIES, INC. b. NEXUS INC. c. WARD INDUSTRIES, INC. C. FORMED–ON FLANGES: CONSTRUCT ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE," FIGURE 1–4, USING CORNER, BOLT, CLEAT, AND GASKET DETAILS. 1. AVAILABLE MANUFACTURERS: a. DUCTMATE INDUSTRIES, INC. b. LOCKFORMER. 2. DUCT SIZE: MAXIMUM 30 INCHES (750 MM) WIDE AND UP TO 2–INCH WG (500–PA) PRESSURE CLASS. 3. LONGITUDINAL SEAMS: PITTSBURGH LOCK SEALED WITH NONCURING POLYMER SEALANT. D. CROSS BREAKING OR CROSS BEADING: CROSS BREAK OR CROSS BEAD DUCT SIDES 19 INCHES (480 MM) AND LARGER AND 0.0359 INCH (0.9 MM) THICK OR LESS, WITH MORE THAN 10 SQ. FT. (0.93 SQ. M) OF NONBRACED PANEL AREA UNLESS DUCTS ARE LINED. 2.6 ROUND AND FLAT–OVAL DUCT AND FITTING FABRICATION A. DIAMETER AS APPLIED TO FLAT–OVAL DUCTS IN THIS ARTICLE IS THE DIAMETER OF A ROUND DUCT WITH A CIRCUMFERENCE EQUAL TO THE PERIMETER OF A GIVEN SIZE OF FLAT–OVAL DUCT. B. ROUND, LONGITUDINAL– AND SPIRAL LOCK–SEAM DUCTS: FABRICATE SUPPLY DUCTS OF GALVANIZED STEEL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE." C. DUCT JOINTS: 1. DUCTS UP TO 20 INCHES (500 MM) IN DIAMETER: INTERIOR, CENTER–BEADED SLIP COUPLING, SEALED BEFORE AND AFTER FASTENING, ATTACHED WITH SHEET METAL SCREWS.		2.1 CEILING–MOUNTING VENTILATORS A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: B. BASIS–OF–DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED ON DRAWINGS OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING: 1. GREENHECK. 2. CARNES COMPANY HVAC. 3. DAYTON ELECTRIC MANUFACTURING CO.; A DIVISION OF W. W. GRAINGER, INC. 4. LOREN COOK COMPANY. 5. PENN VENTILATION. C. DESCRIPTION: CENTRIFUGAL FANS DESIGNED FOR INSTALLING IN CEILING OR FOR CONCEALED IN–LINE APPLICATIONS. D. HOUSING: STEEL, LINED WITH ACOUSTICAL INSULATION. E. FAN WHEEL: CENTRIFUGAL WHEELS DIRECTLY MOUNTED ON MOTOR SHAFT. FAN SHROUDS, MOTOR, AND FAN WHEEL SHALL BE REMOVABLE FOR SERVICE. F. GRILLE: PLASTIC, LOUVERED GRILLE WITH FLANGE ON INTAKE AND THUMBSCREW ATTACHMENT TO FAN HOUSING. G. ELECTRICAL REQUIREMENTS: JUNCTION BOX FOR ELECTRICAL CONNECTION ON HOUSING AND RECEPTACLE FOR MOTOR PLUG–IN. H. ACCESSORIES: 1. VARIABLE–SPEED CONTROLLER: SOLID–STATE CONTROL TO REDUCE SPEED FROM 100 TO LESS THAN 50 PERCENT. 2. MANUAL STARTER SWITCH: SINGLE–POLE ROCKER SWITCH ASSEMBLY. I. CAPACITIES AND CHARACTERISTICS: 1. REFER TO DRAWINGS FOR CAPACITIES AND CHARACTERISTICS. 2.2 MOTORS A. COMPLY WITH REQUIREMENTS IN DIVISION 15 SECTION "MOTORS." 2.3 SOURCE QUALITY CONTROL A. SOUND–POWER LEVEL RATINGS: COMPLY WITH AMCA 301, "METHODS FOR CALCULATING FAN SOUND RATINGS FROM LABORATORY TEST DATA." FACTORY TEST FANS ACCORDING TO AMCA 300, "REVERBERANT ROOM METHOD FOR SOUND TESTING OF FANS." LABEL FANS WITH THE AMCA–CERTIFIED RATINGS SEAL. B. FAN PERFORMANCE RATINGS: ESTABLISH FLOW RATE, PRESSURE, POWER, AIR DENSITY, SPEED OF ROTATION, AND EFFICIENCY BY FACTORY TESTS AND RATINGS ACCORDING TO AMCA 210, "LABORATORY METHODS OF TESTING FANS FOR RATING."			
PART 3 – EXECUTION		PART 3 – EXECUTION			
3.1 DUCT APPLICATIONS A. STATIC–PRESSURE CLASSES: UNLESS OTHERWISE INDICATED, CONSTRUCT DUCTS ACCORDING TO THE FOLLOWING: 1. EXHAUST DUCTS (NEGATIVE PRESSURE): 2–INCH WG (500 PA). B. ALL DUCTS SHALL BE GALVANIZED STEEL. 3.2 DUCT INSTALLATION A. CONSTRUCT AND INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE," UNLESS OTHERWISE INDICATED. B. INSTALL ROUND DUCTS IN LENGTHS NOT LESS THAN 12 FEET (3.7 M) UNLESS INTERRUPTED BY FITTINGS. C. INSTALL DUCTS WITH FEWEST POSSIBLE JOINTS. D. INSTALL FABRICATED FITTINGS FOR CHANGES IN DIRECTIONS, SIZE, AND SHAPE AND FOR CONNECTIONS. E. INSTALL COUPLINGS TIGHT TO DUCT WALL SURFACE WITH A MINIMUM OF PROJECTIONS INTO DUCT. SECURE COUPLINGS WITH SHEET METAL SCREWS. INSTALL SCREWS AT INTERVALS OF 12 INCHES (300 MM), WITH A MINIMUM OF 3 SCREWS IN EACH COUPLING. F. INSTALL DUCTS, UNLESS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND PARALLEL AND PERPENDICULAR TO BUILDING LINES; AVOID DIAGONAL RUNS. G. INSTALL DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING. H. INSTALL DUCTS WITH A CLEARANCE OF 1 INCH (25 MM), PLUS ALLOWANCE FOR INSULATION THICKNESS. I. CONCEAL DUCTS FROM VIEW IN FINISHED SPACES. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS UNLESS SPECIFICALLY INDICATED. J. COORDINATE LAYOUT WITH SUSPENDED CEILING, LIGHTING LAYOUTS, AND SIMILAR FINISHED WORK. K. SEAL ALL JOINTS AND SEAMS. APPLY SEALANT TO MALE END CONNECTORS BEFORE INSERTION, AND AFTERWARD TO COVER ENTIRE JOINT AND SHEET METAL SCREWS. L. NON–FIRE–RATED PARTITION PENETRATIONS: WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS AND EXTERIOR WALLS AND ARE EXPOSED TO VIEW, CONCEAL SPACES BETWEEN CONSTRUCTION OPENINGS AND DUCTS OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME METAL THICKNESS AS DUCTS. OVERLAP OPENINGS ON 4 SIDES BY AT LEAST 1–1/2 INCHES (38 MM). M. PROTECT DUCT INTERIORS FROM THE ELEMENTS AND FOREIGN MATERIALS UNTIL BUILDING IS ENCLOSED. 3.3 SEAM AND JOINT SEALING A. SEAL DUCT SEAMS AND JOINTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE" FOR DUCT PRESSURE CLASS INDICATED. 1. FOR PRESSURE CLASSES LOWER THAN 2–INCH WG (500 PA), SEAL TRANSVERSE JOINTS. B. SEAL DUCTS BEFORE EXTERNAL INSULATION IS APPLIED. 3.4 HANGING AND SUPPORTING A. SUPPORT HORIZONTAL DUCTS WITHIN 24 INCHES (600 MM) OF EACH ELBOW AND WITHIN 48 INCHES (1200 MM) OF EACH BRANCH INTERSECTION. B. SUPPORT VERTICAL DUCTS AT MAXIMUM INTERVALS OF 16 FEET (5 M) AND AT EACH FLOOR. C. INSTALL UPPER ATTACHMENTS TO STRUCTURES WITH AN ALLOWABLE LOAD NOT EXCEEDING ONE–FOURTH OF FAILURE (PROOF–TEST) LOAD. 3.5 CONNECTIONS A. MAKE CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTORS ACCORDING TO DIVISION 15 SECTION "DUCT ACCESSORIES." B. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE" FOR BRANCH, OUTLET AND INLET, AND TERMINAL UNIT CONNECTIONS. 3.6 FIELD QUALITY CONTROL A. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS ACCORDING TO SMACNA'S "HVAC AIR DUCT LEAKAGE TEST MANUAL" AND PREPARE TEST REPORTS: 1. DISASSEMBLE, REASSEMBLE, AND SEAL SEGMENTS OF SYSTEMS TO ACCOMMODATE LEAKAGE TESTING AND FOR COMPLIANCE WITH TEST REQUIREMENTS. 2. CONDUCT TESTS AT STATIC PRESSURES EQUAL TO MAXIMUM DESIGN PRESSURE OF SYSTEM OR SECTION BEING TESTED. IF PRESSURE CLASSES ARE NOT INDICATED, TEST ENTIRE SYSTEM AT MAXIMUM SYSTEM DESIGN PRESSURE. DO NOT PRESSURIZE SYSTEMS ABOVE MAXIMUM DESIGN OPERATING PRESSURE. GIVE SEVEN DAYS' ADVANCE NOTICE FOR TESTING. 3. MAXIMUM ALLOWABLE LEAKAGE: COMPLY WITH REQUIREMENTS FOR LEAKAGE CLASS 3 FOR ROUND AND FLAT–OVAL DUCTS, LEAKAGE CLASS 12 FOR RECTANGULAR DUCTS IN PRESSURE CLASSES LOWER THAN AND EQUAL TO 2–INCH WG (500 PA) (BOTH POSITIVE AND NEGATIVE PRESSURES), AND LEAKAGE CLASS 6 FOR PRESSURE CLASSES FROM 2– TO 10–INCH WG (500 TO 2500 PA). 4. REMAKE LEAKING JOINTS AND RETEST UNTIL LEAKAGE IS EQUAL TO OR LESS THAN MAXIMUM ALLOWABLE.		3.1 INSTALLATION A. INSTALL POWER VENTILATORS LEVEL AND PLUMB. A. CEILING UNITS: SUSPEND UNITS FROM STRUCTURE; USE STEEL WIRE OR METAL STRAPS. B. INSTALL UNITS WITH CLEARANCES FOR SERVICE AND MAINTENANCE. 3.2 CONNECTIONS A. DUCT INSTALLATION AND CONNECTION REQUIREMENTS ARE SPECIFIED IN OTHER DIVISION 15 SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS AND DUCT ACCESSORIES. MAKE FINAL DUCT CONNECTIONS WITH FLEXIBLE CONNECTORS. INSTALL DUCTS ADJACENT TO POWER VENTILATORS TO ALLOW SERVICE AND MAINTENANCE. B. GROUND EQUIPMENT ACCORDING TO DIVISION 16 SECTION "GROUNDING AND BONDING." C. CONNECT WIRING ACCORDING TO DIVISION 16 SECTION "CONDUCTORS AND CABLES." 3.3 FIELD QUALITY CONTROL A. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS: 1. VERIFY THAT SHIPPING, BLOCKING, AND BRACING ARE REMOVED. 2. VERIFY THAT UNIT IS SECURE ON MOUNTINGS AND SUPPORTING DEVICES AND THAT CONNECTIONS TO DUCTS AND ELECTRICAL COMPONENTS ARE COMPLETE. VERIFY THAT PROPER THERMAL–OVERLOAD PROTECTION IS INSTALLED IN MOTORS, STARTERS, AND DISCONNECT SWITCHES. 3. VERIFY THAT CLEANING AND ADJUSTING ARE COMPLETE. 4. DISCONNECT FAN DRIVE FROM MOTOR, VERIFY PROPER MOTOR ROTATION DIRECTION, AND VERIFY FAN WHEEL FREE ROTATION AND SMOOTH BEARING OPERATION. RECONNECT FAN DRIVE SYSTEM. 5. ADJUST DAMPER LINKAGES FOR PROPER DAMPER OPERATION. 6. VERIFY LUBRICATION FOR BEARINGS AND OTHER MOVING PARTS.			
END OF SECTION		END OF SECTION			

DESIGN		DRAWN		CHECK		REVISIONS	
						BY	
						DATE	



MECHANICAL SPECIFICATIONS

SCALE
NTS

1

D700004

DESIGN

DRAWN

CHECK

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Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466

4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING
MECHANICAL SPECIFICATIONS

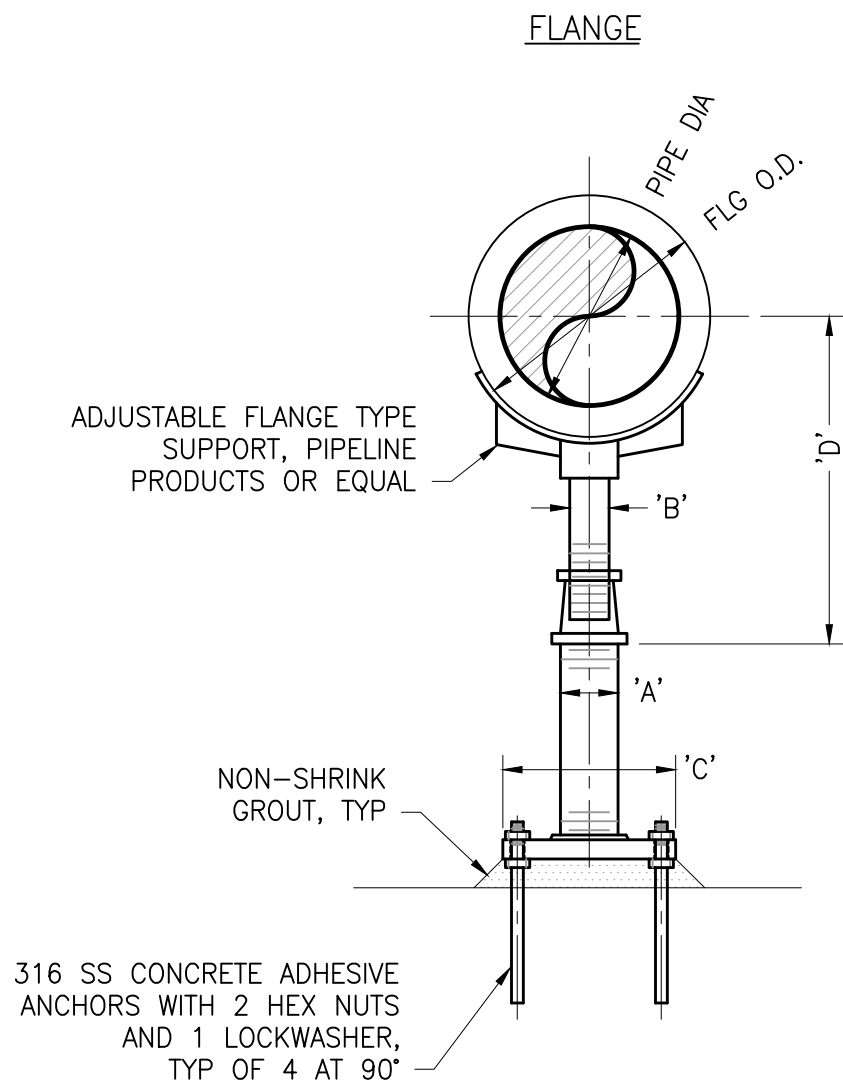
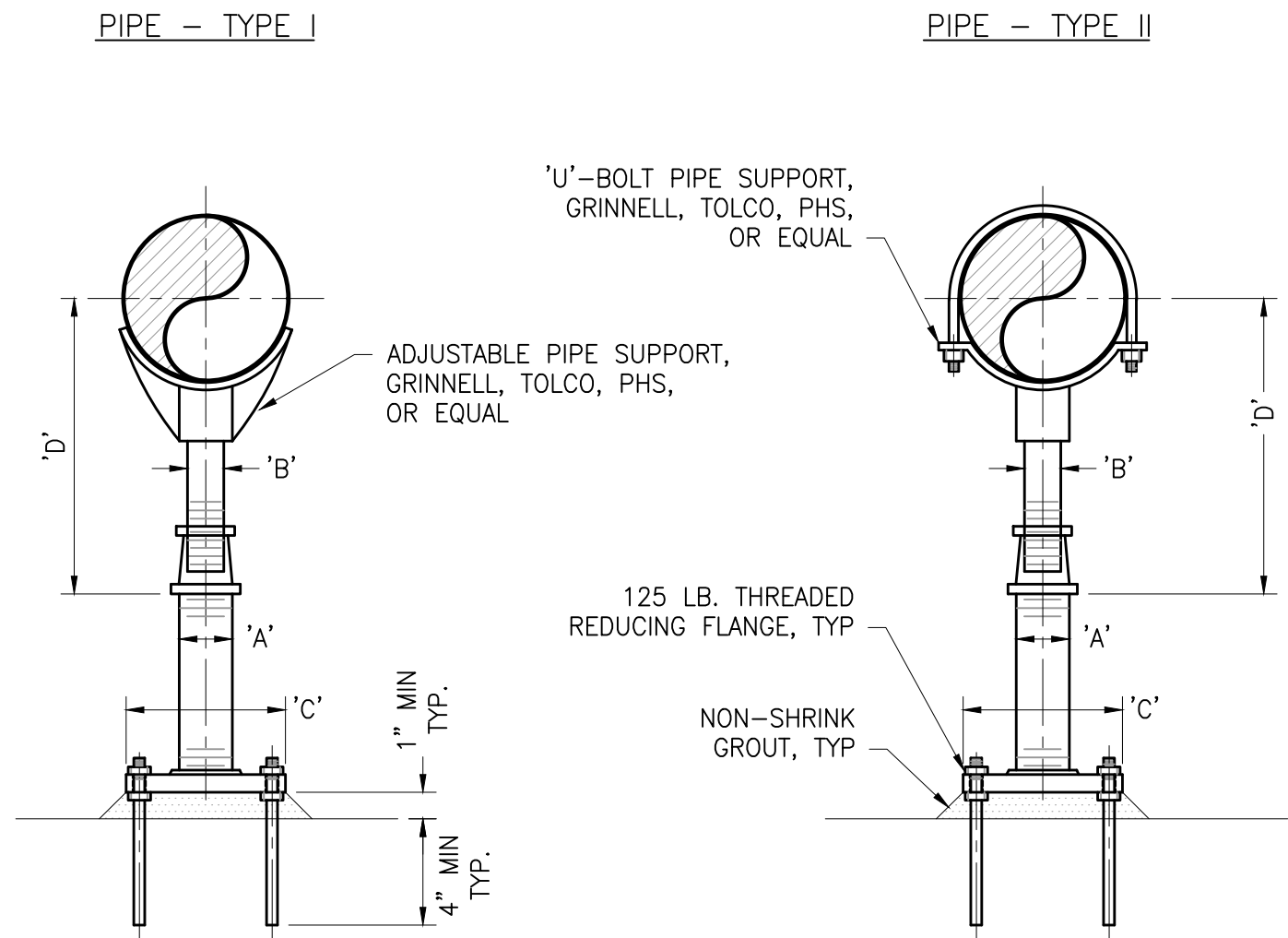
SHEET
21 of 90

DRAWING
M-9

ORIGINAL SCALE IN INCHES

0 1 2 3 4

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ADJUSTABLE PIPE/FLANGE SUPPORT

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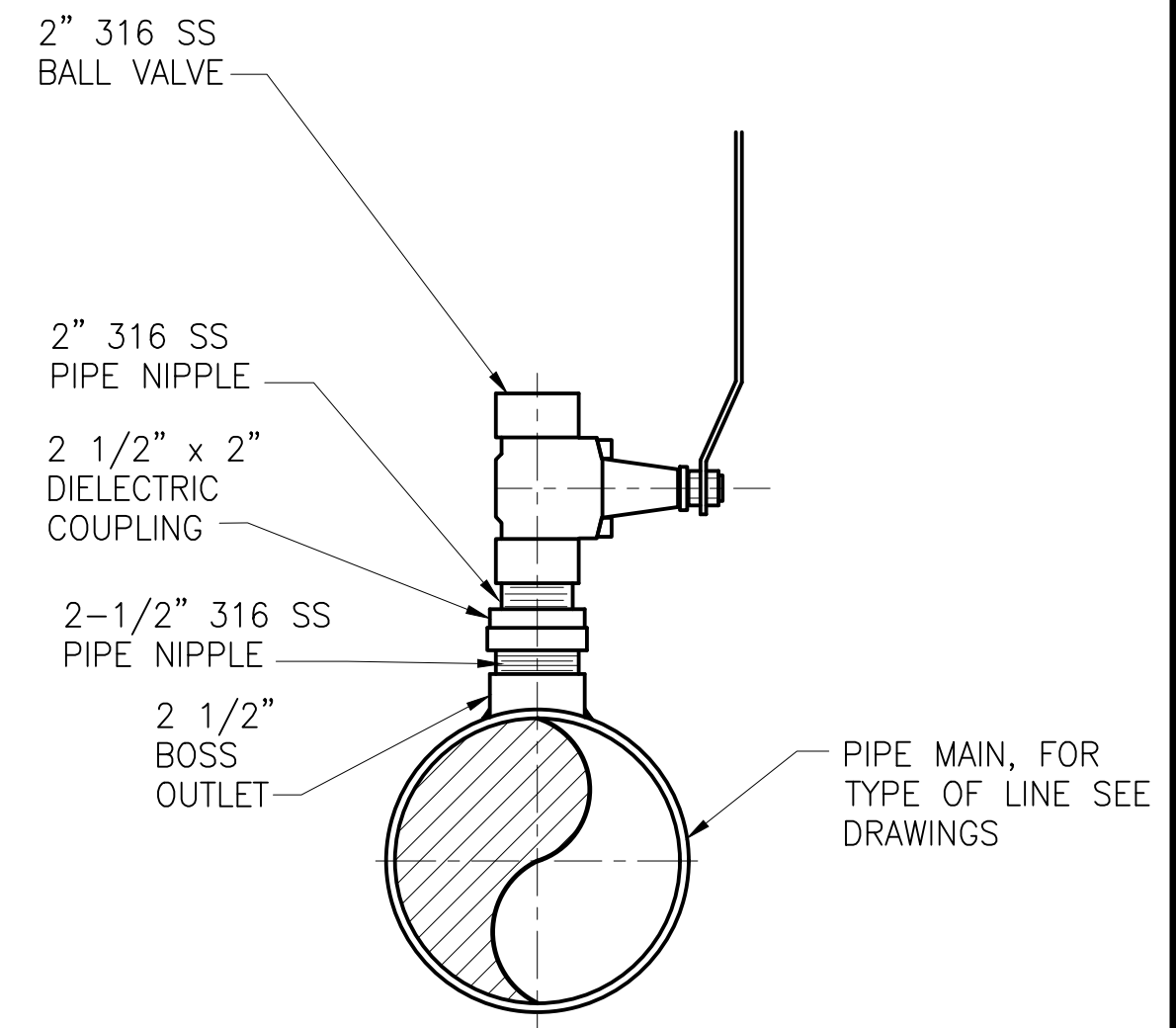
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ADJUSTABLE PIPE SUPPORT APPROXIMATE DIMENSIONS IN INCHES					
PIPE OR FLANGE SIZE	'A'	'B'	'C'	'D' MINIMUM	'D' MAXIMUM
2-1/2	2-1/2	1-1/2	9	8	11-1/2
3	2-1/2	1-1/2	9	8-1/2	11-3/4
3-1/2	2-1/2	1-1/2	9	8-1/2	12
4	3	* 2-1/2	9	10-1/4	14
6	3	* 2-1/2	9	11-5/8	15-1/4
8	3	* 2-1/2	9	13-5/8	16-1/2
10	3	* 2-1/2	9	14-5/8	18-1/4
12	3	* 2-1/2	9	15-5/8	19-3/4
14	4	3	11	18-7/8	20-3/4
16	4	3	11	19-7/8	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24
20	6	3-1/2	13-1/2	23-1/4	25-1/2
24	6	4	13-1/2	26-1/2	28-1/4
30	6	4	13-1/2	29-5/8	31-1/2
32	6	4	13-1/2	30-5/8	32-3/4
36	6	4	13-1/2	32-5/8	34-3/4

* DENOTES REFERENCE TO MANUFACTURER

NOTES:

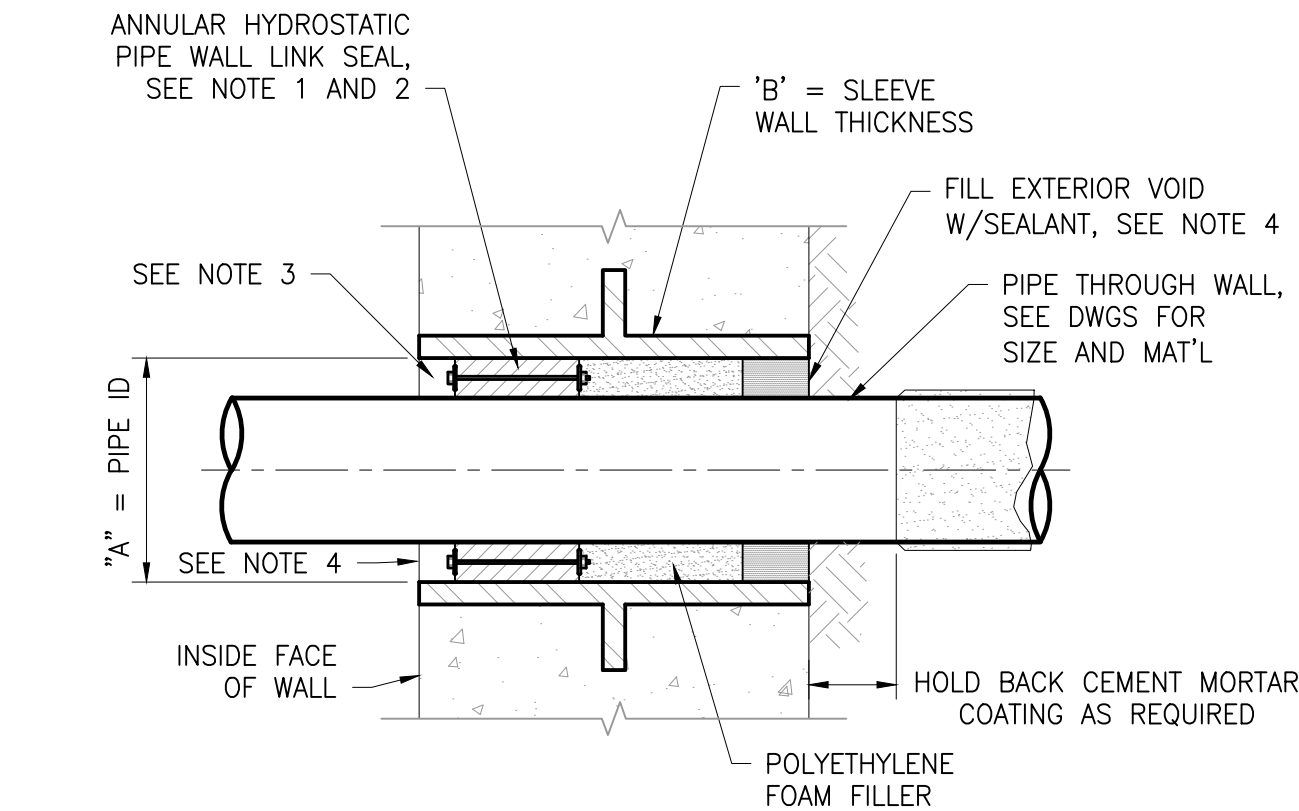
- PIPE SUPPORTS TO BE LOCATED AT POINTS MARKED 'X' ON MECHANICAL PLAN DRAWINGS.
- WHERE DIFFERENTIAL SETTLEMENT IS LIKELY TO OCCUR, OMIT GROUT AS DIRECTED BY THE ENGINEER.
- WHEN USING STRAP SUPPORT (PIPE - TYPE II), PROVIDE STEEL SHIELD AND 2" WIDE 1/2" THICK NEOPRENE GASKET TO PROTECT PIPE.
- WHERE PIPE SUPPORTS ARE SHOWN UNDER FLANGES, SIZE SUPPORT SADDLE FOR PROPER DIAMETER.
- ALL MATERIALS AND HARDWARE SHALL BE TYPE 316 STAINLESS STEEL.



CONNECTION 2" AND SMALLER

N.T.S.

2



DIMENSIONS IN INCHES		
NOMINAL PIPE SIZE	'A' (MIN)	'B' (MIN)
2"	4"	1/4"
3"	5"	1/4"
4"	8"	1/4"
6"	10"	1/4"
8"	12"	1/4"
10"	14"	3/8"
12"	16"	3/8"
14"	18"	3/8"
16"	20"	3/8"
18"	22"	3/8"
20"	24"	3/8"
24"	28"	3/8"

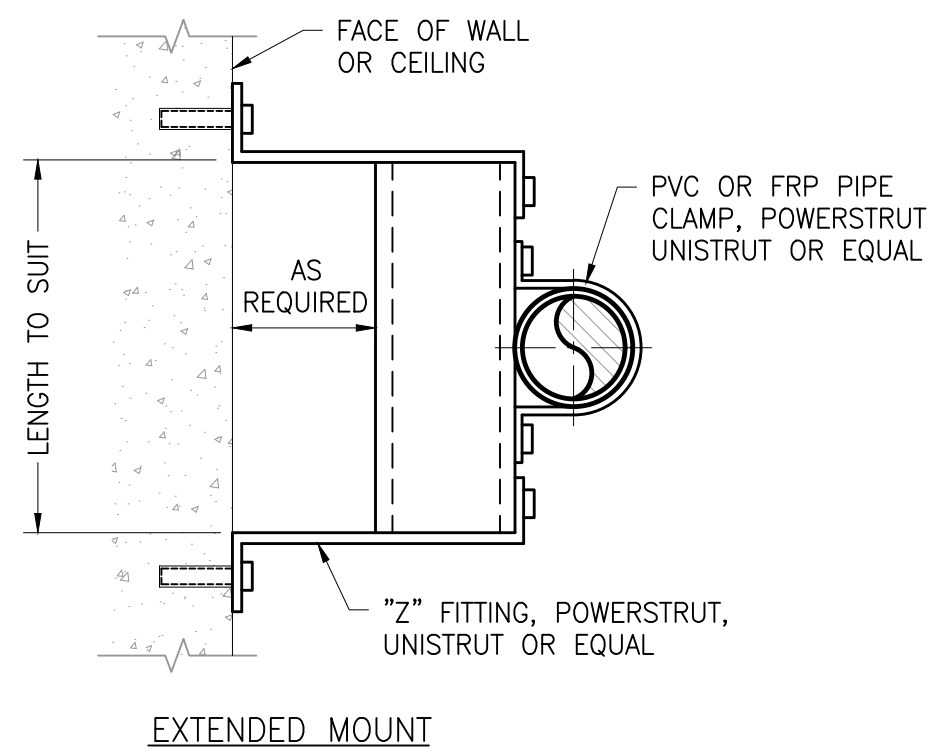
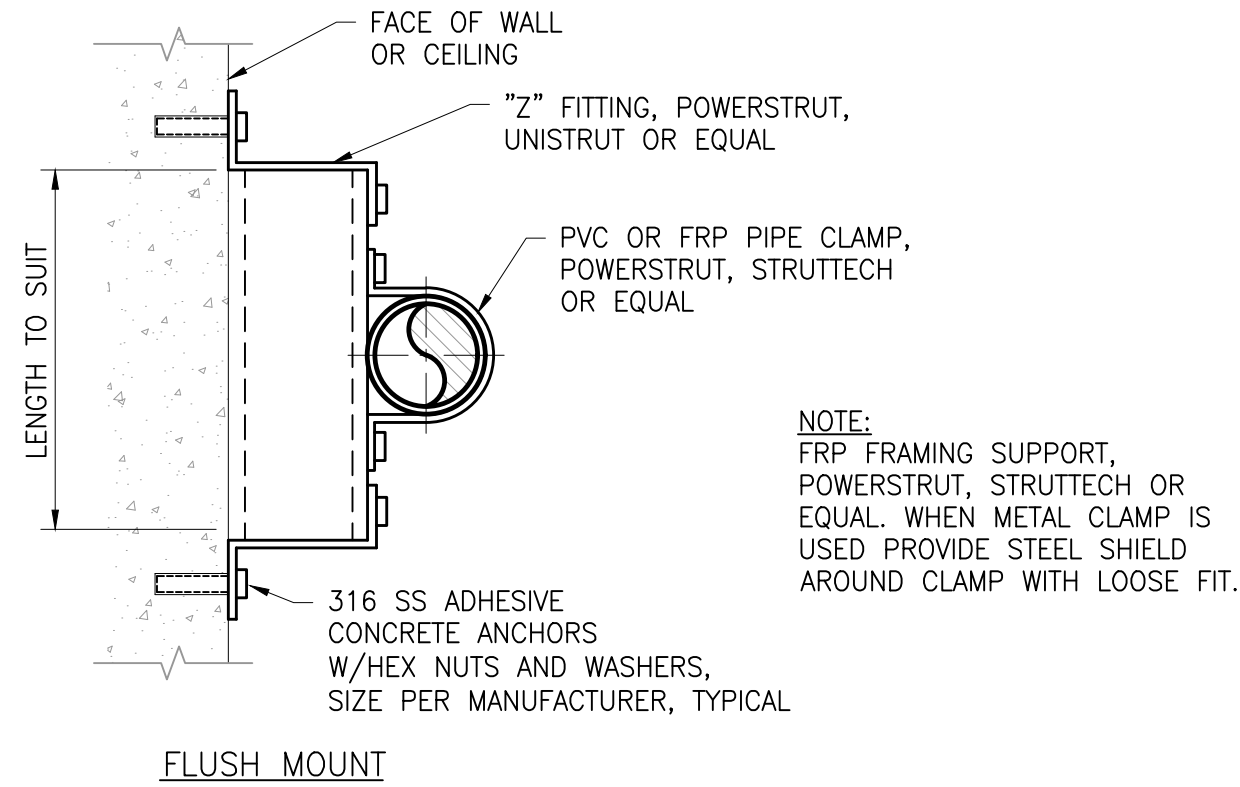
NOTES:

- FOR A WALL THICKNESS GREATER THAN 12", A SECOND LINK SEAL SHALL BE INSTALLED ON THE EXTERIOR SIDE OF THE WALL OPENING.
- ALL BOLT HEADS FOR LINK SEAL SHALL FACE INSIDE OF THE BUILDING OR STRUCTURE.
- FILL ANNUAL SPACE WITH NON-SHRINK GROUT TO WALL FACE. PLACE LAYER OF "BUBBLE WRAP" BETWEEN LINK SEAL AND GROUT.
- SURFACE TREATMENT TO MATCH ADJACENT WALL SURFACE TREATMENT.

WALL SLEEVE

N.T.S.

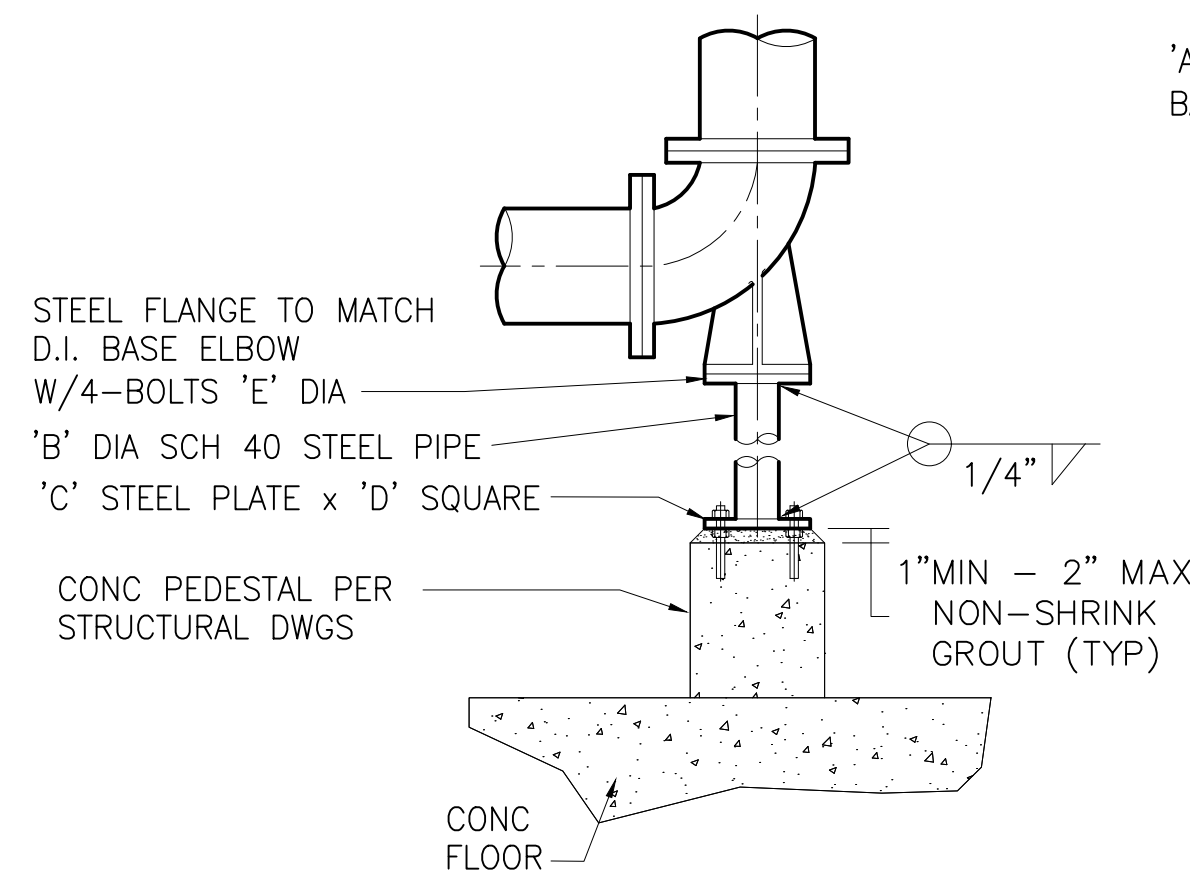
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WALL SUPPORT

4

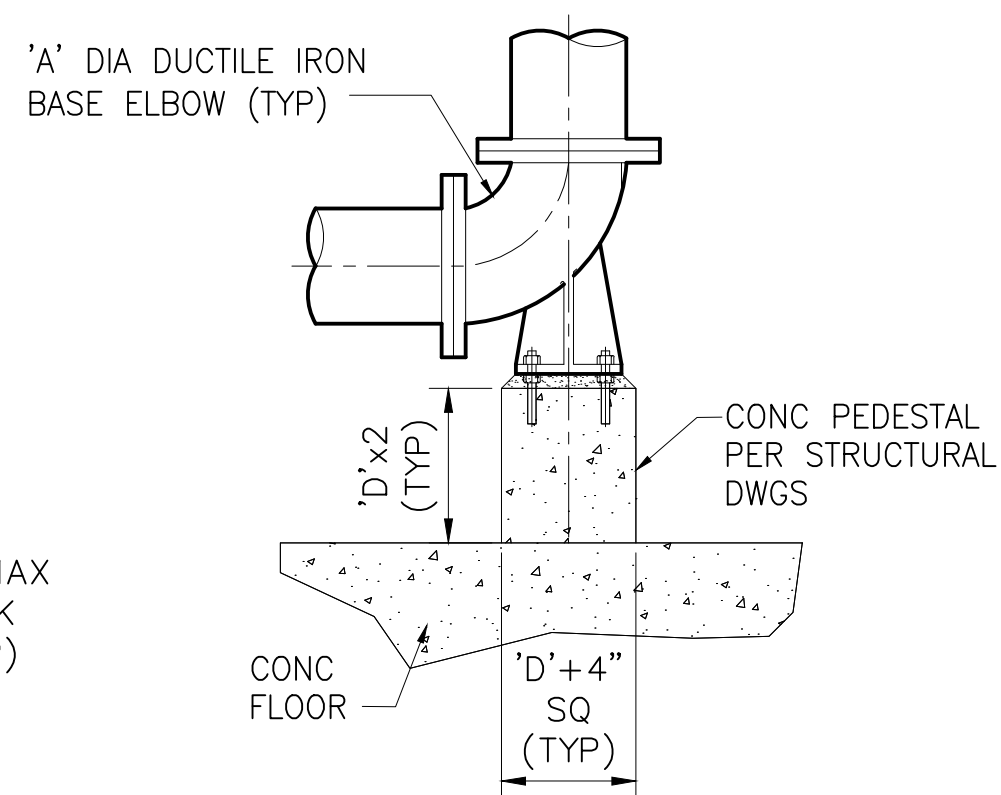
ELBOW DIMENSION IN INCHES				
'A' DIA	'B' DIA	'C' THICK	'D' SQ	'E' DIA
6	2-1/2	3/8	7	5/8
8	4	1/2	9	5/8
10	4	1/2	9	5/8



BASE ELBOW SUPPORT

N.T.S.

5



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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

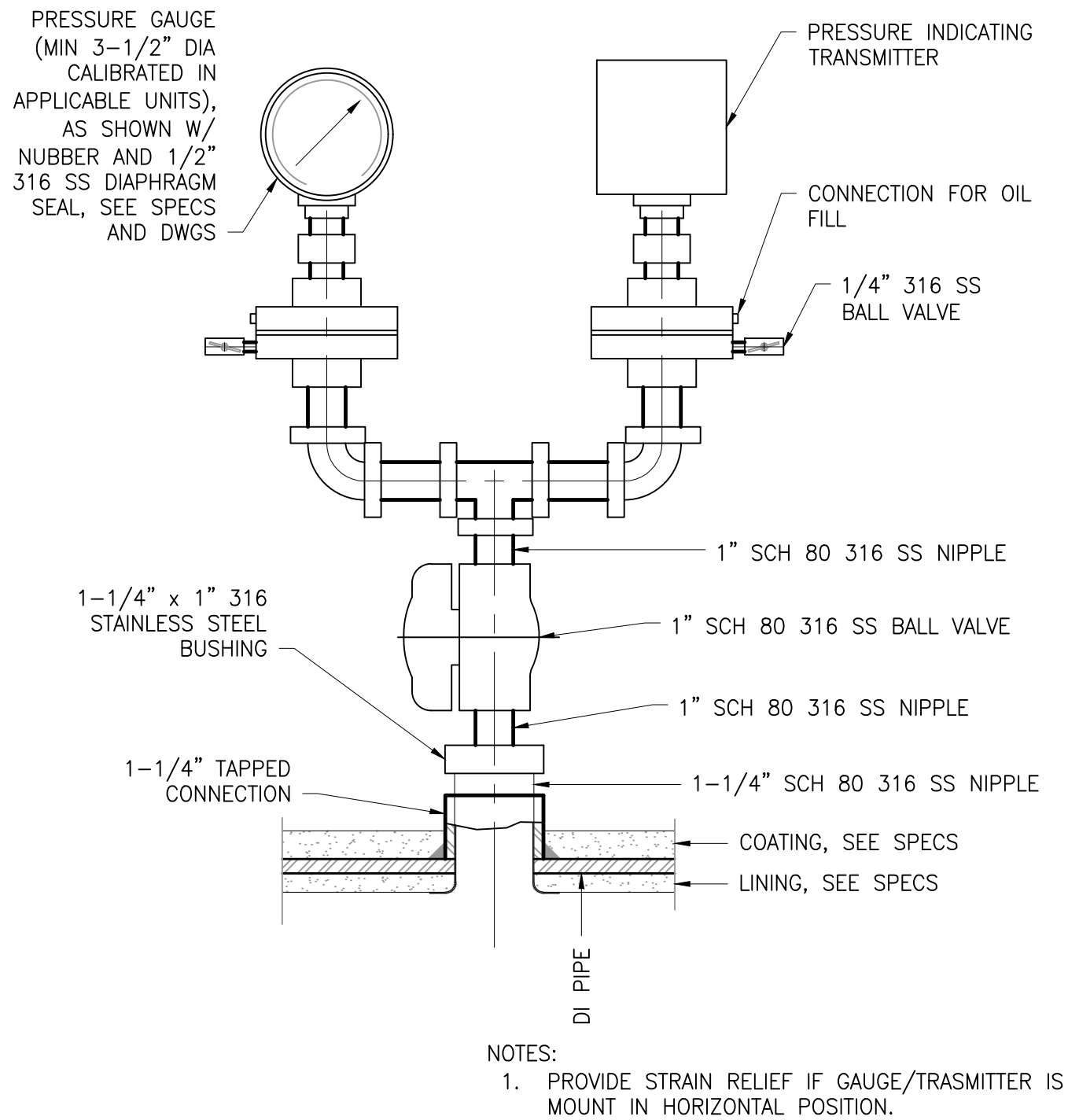
MECHANICAL DETAILS

SHEET 22 of 90
DRAWING MD-1

D700004

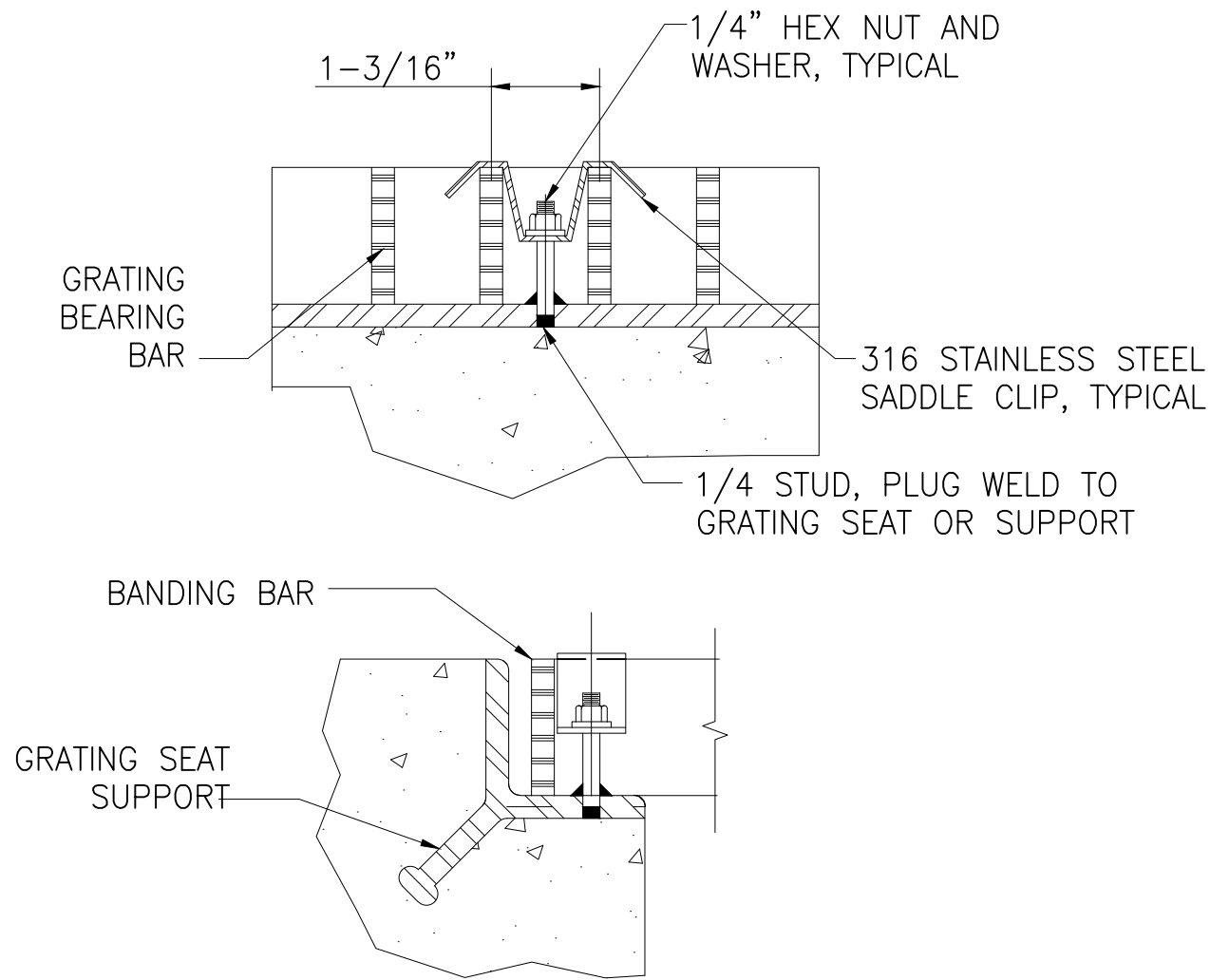
ORIGINAL SCALE IN INCHES

P:\Projects\DWG (0002)\0120 4S Ranch Neigh 1 PS Ranch\CAD\MECHANICAL\MD-2.dwg 11/05/2021 14:12



PRESSURE GAUGE & PIT W/SEAL
N.T.S.

1
-

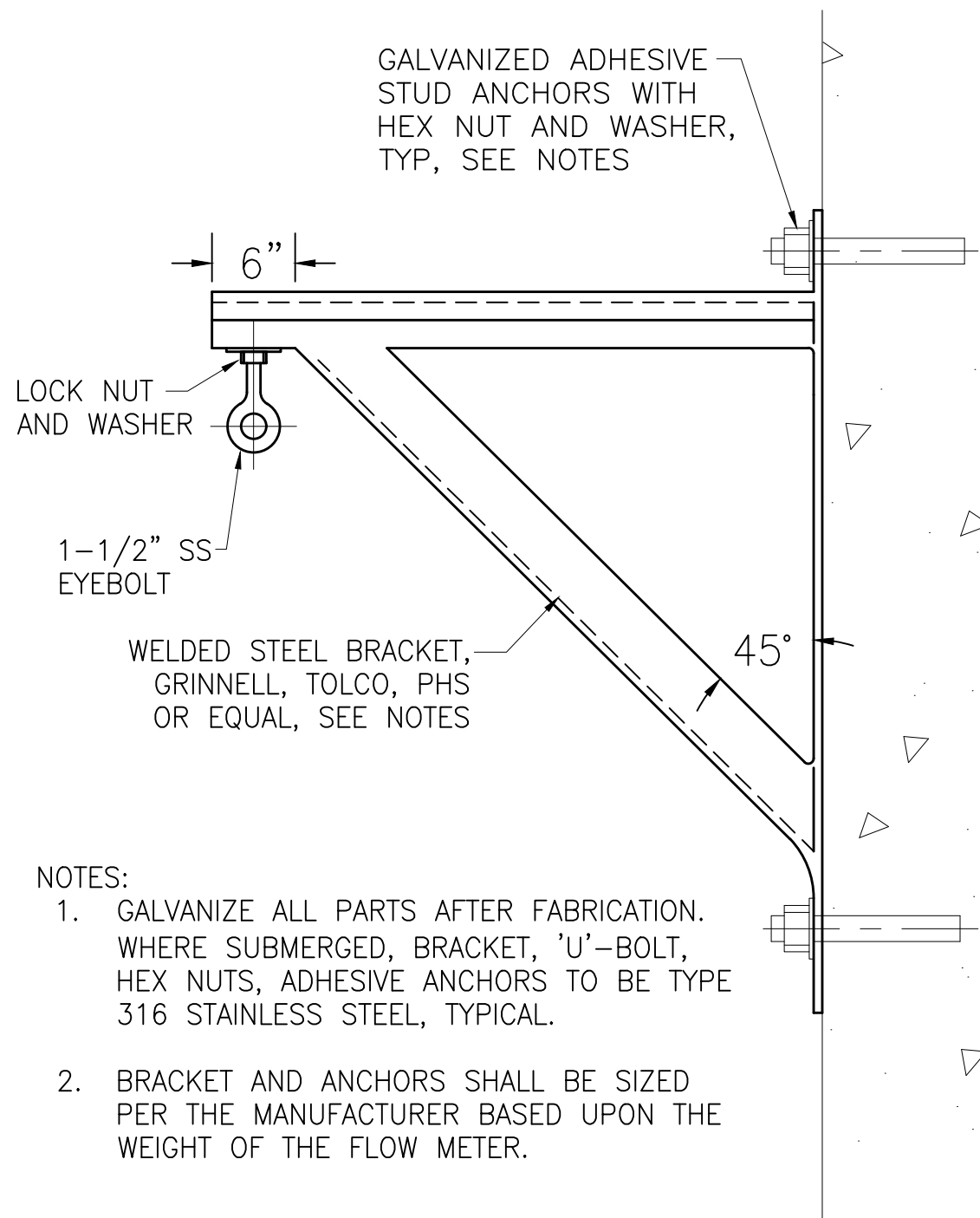


- NOTE:
1. PROVIDE 4 (FOUR) CLIPS PER GRATING PANEL, APPROX. 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" O.C.

MATERIAL SCHEDULE			
GRATING	FRAME ANGLE	ANCHOR STRAPS	ADHESIVE ANCHOR
FIBERGLASS	SS	SS	SS

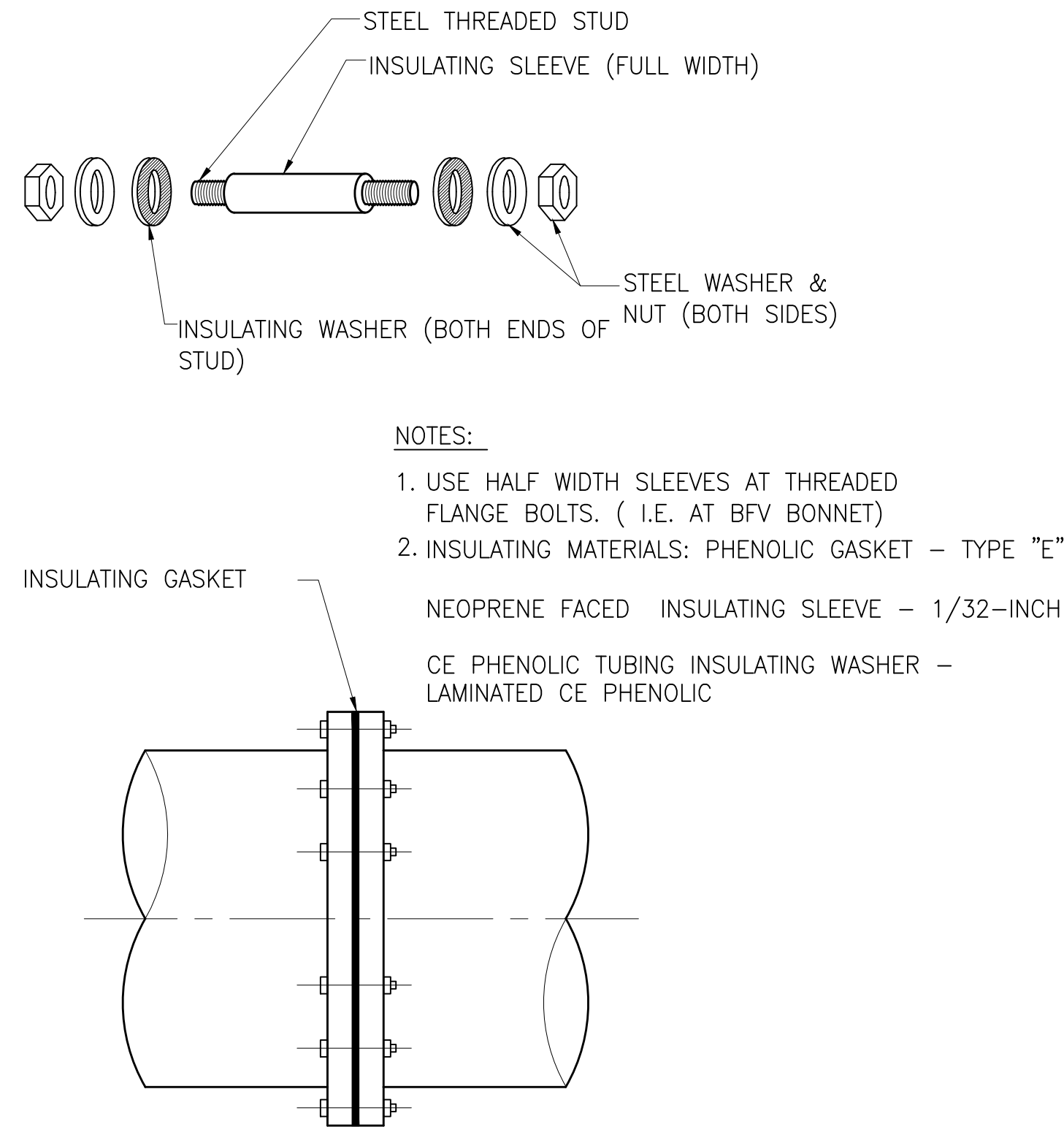
SUMP PUMP GRATING ANCHOR DETAIL
N.T.S.

2
-



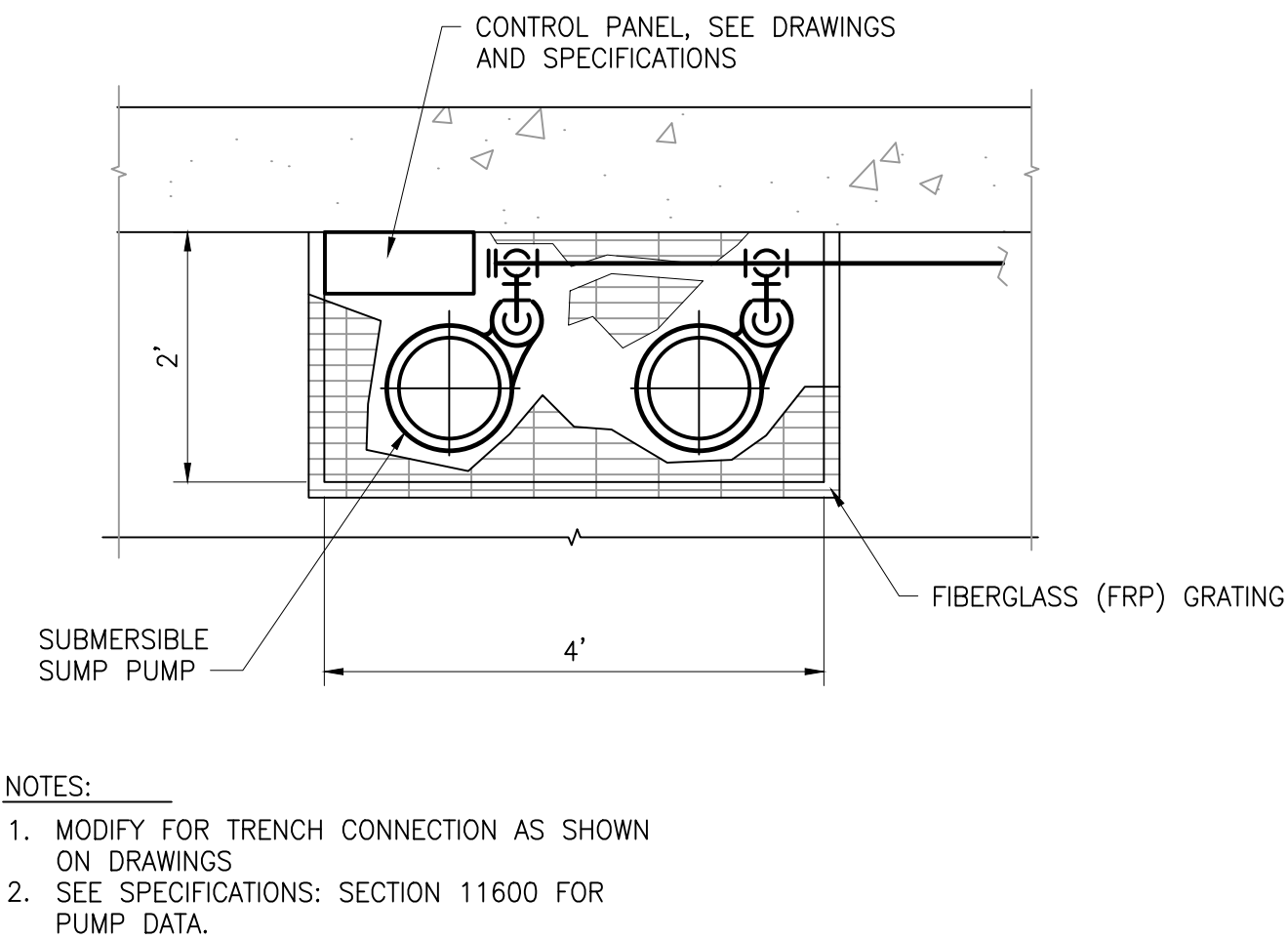
FLOW METER LIFTING EYE DETAIL
N.T.S.

3
-



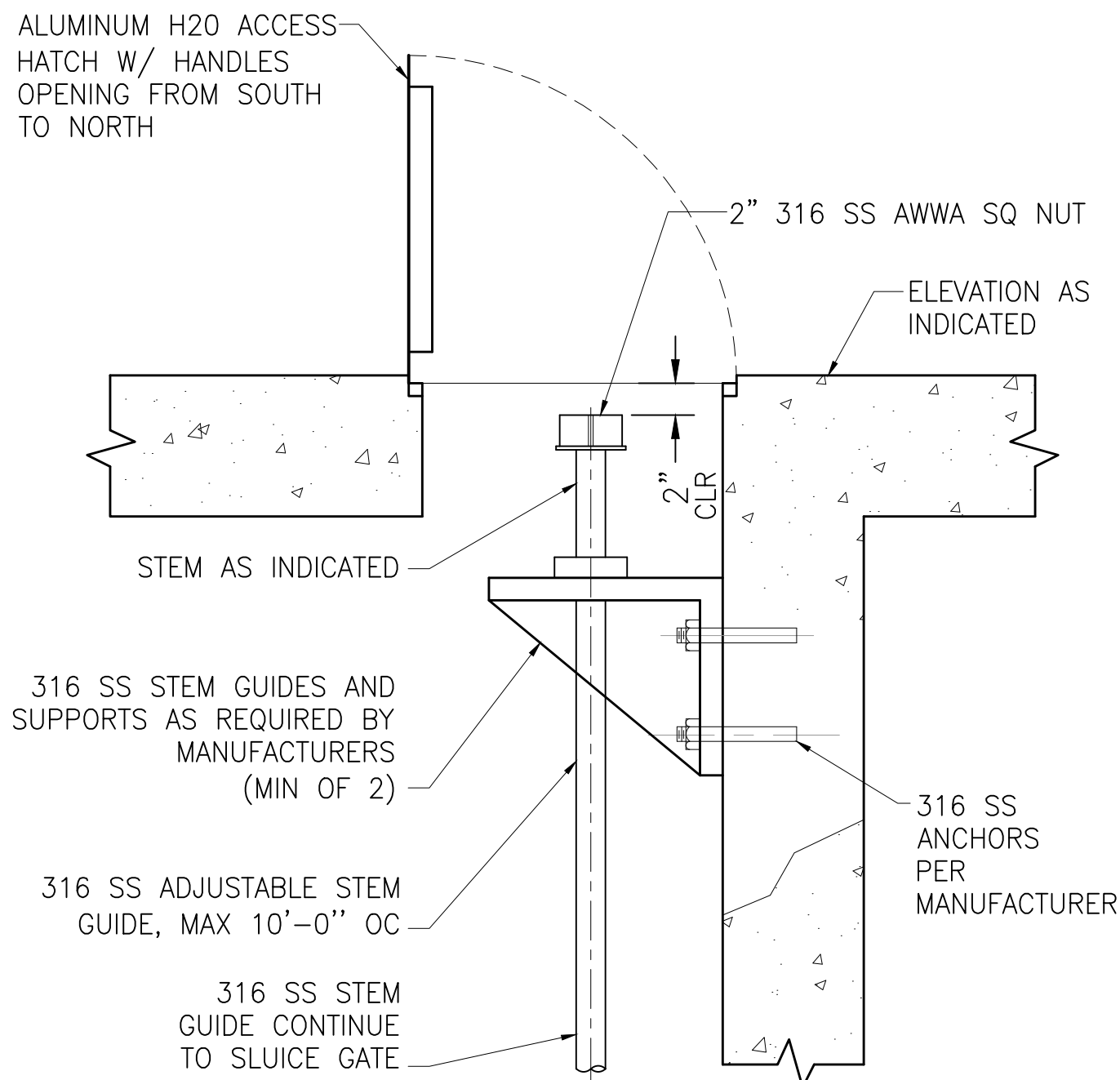
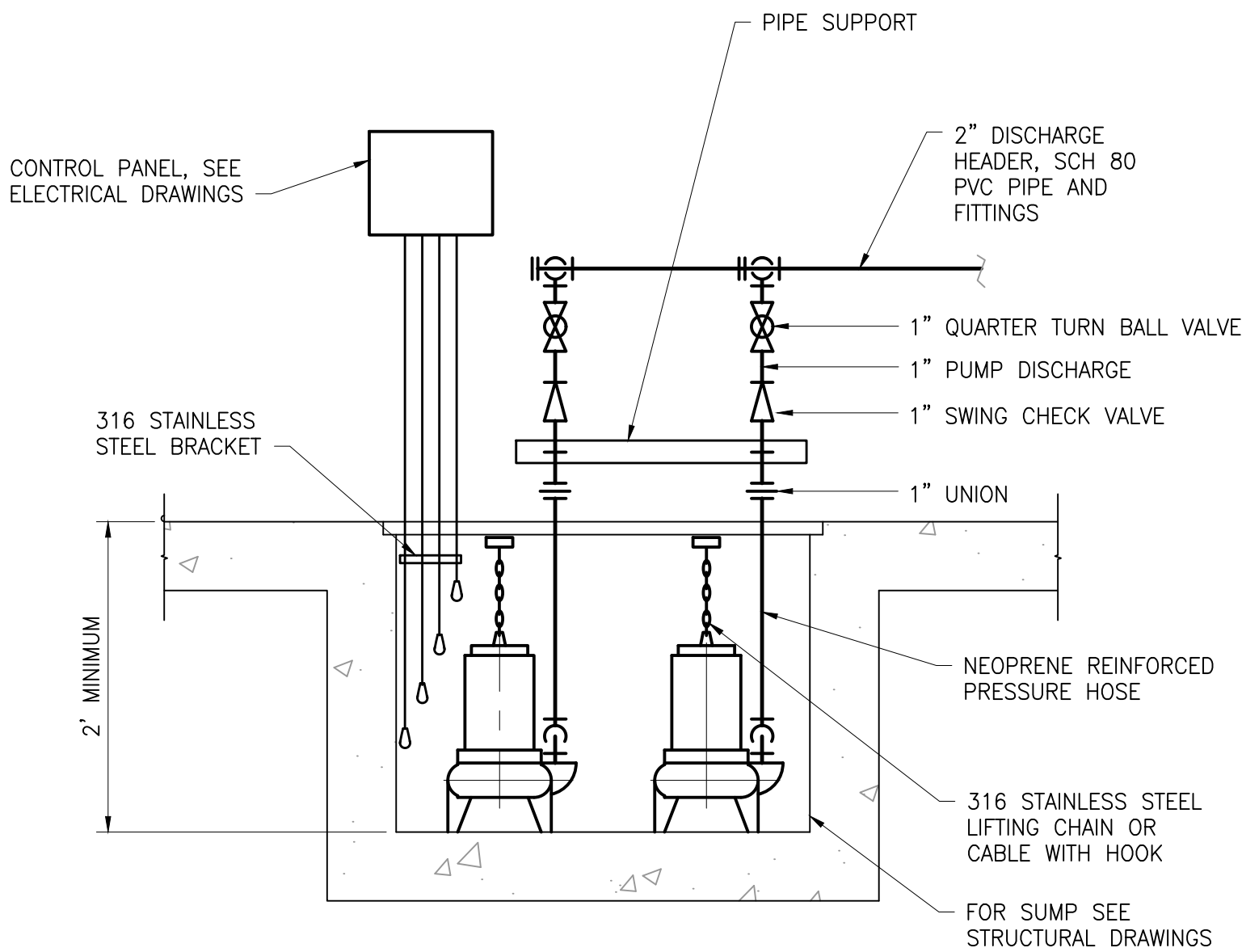
INSULATING FLANGE KIT
N.T.S.

4
-



DUPLEX SUMP PUMP
N.T.S.

5
-



ACCESS HATCH FOR SLUICE GATE
N.T.S.

6
-



4S RANCH NEIGHBORHOOD 1

SEWER PUMP STATION REPLACEMENT

MECHANICAL DETAILS

SHEET

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DRAWING

MD-2

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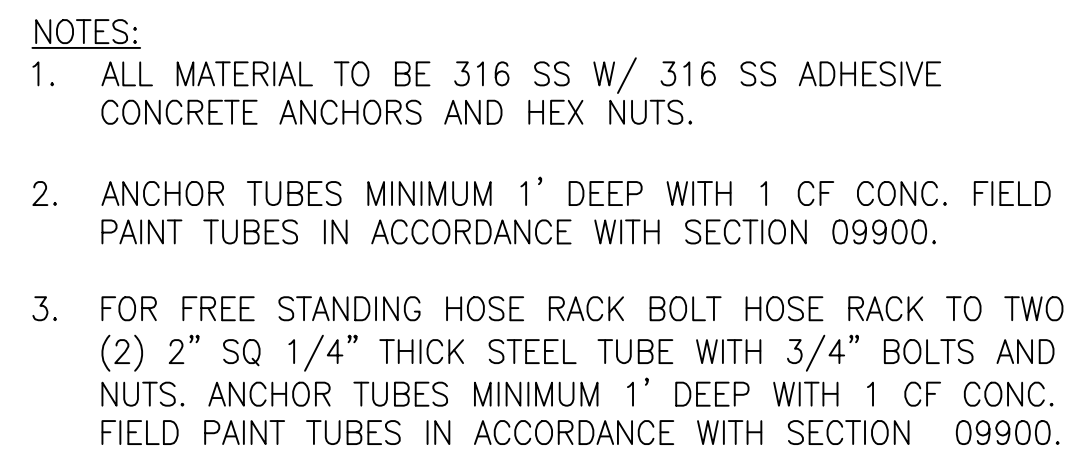
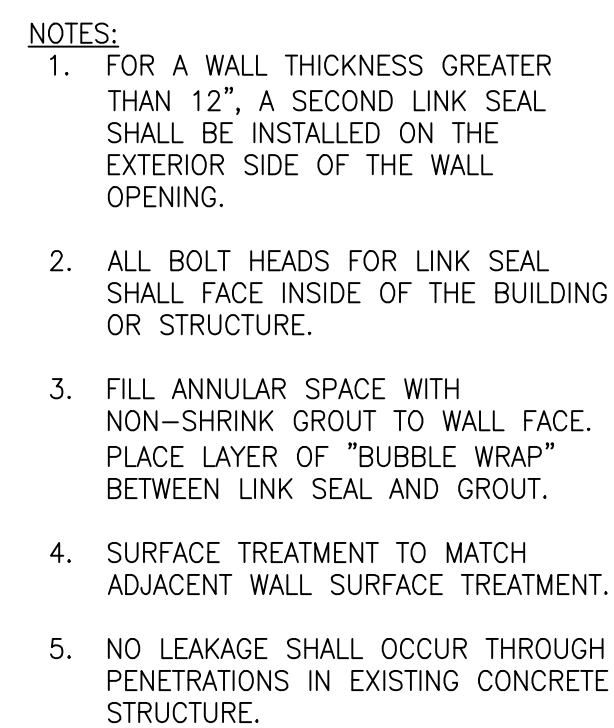
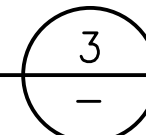
Infrastructure

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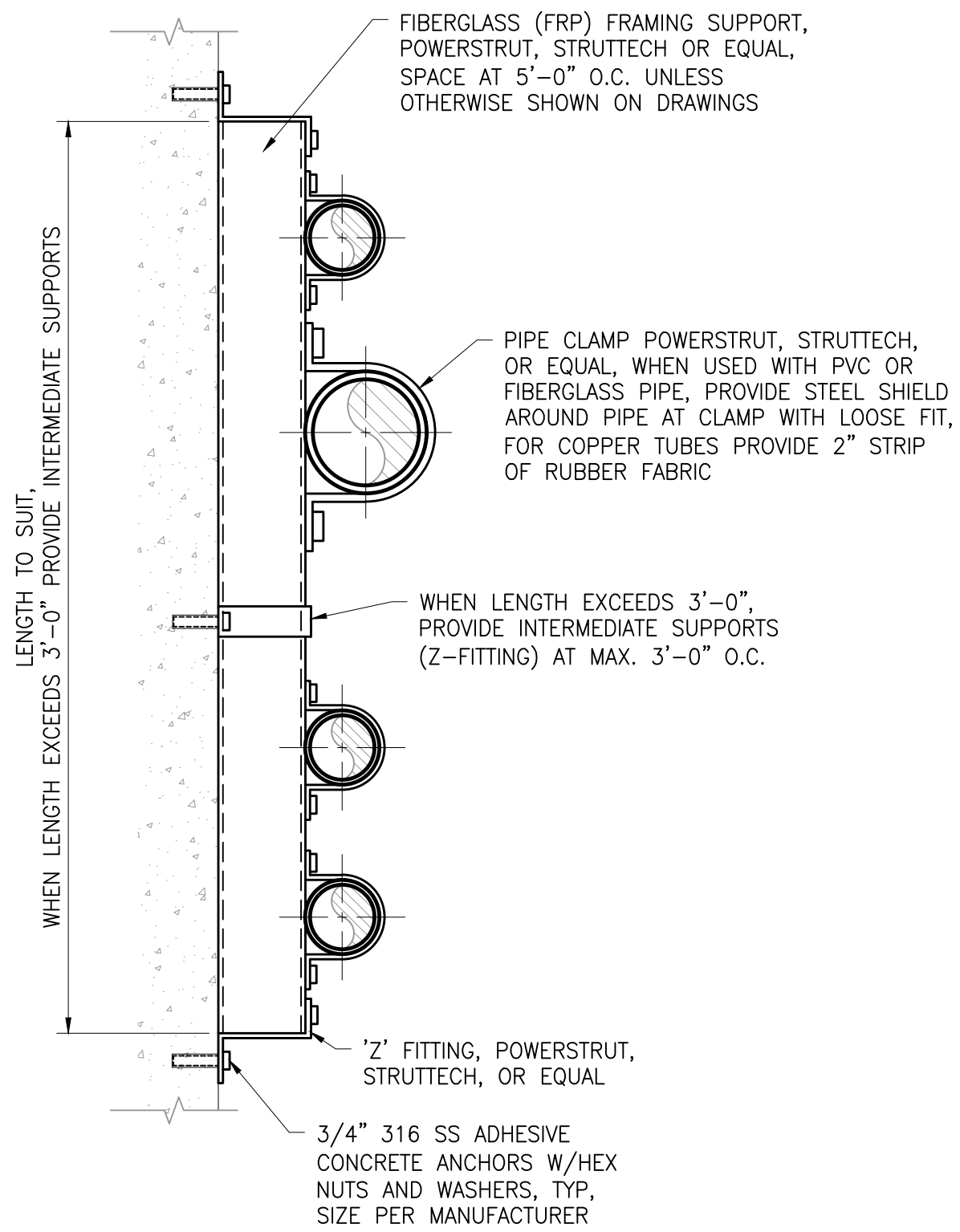
REVISIONS
BY DATE

ORIGINAL SCALE IN INCHES


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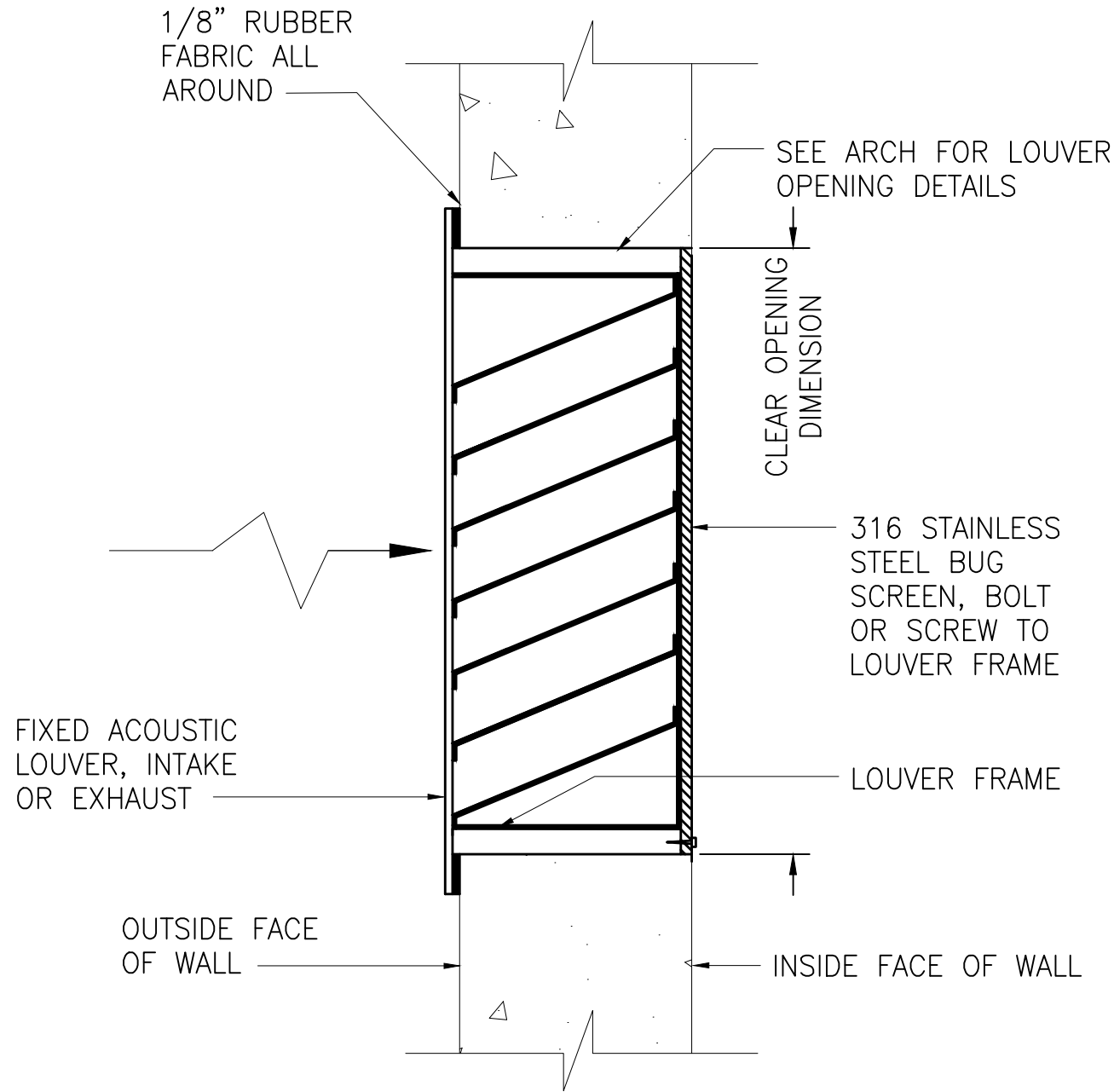
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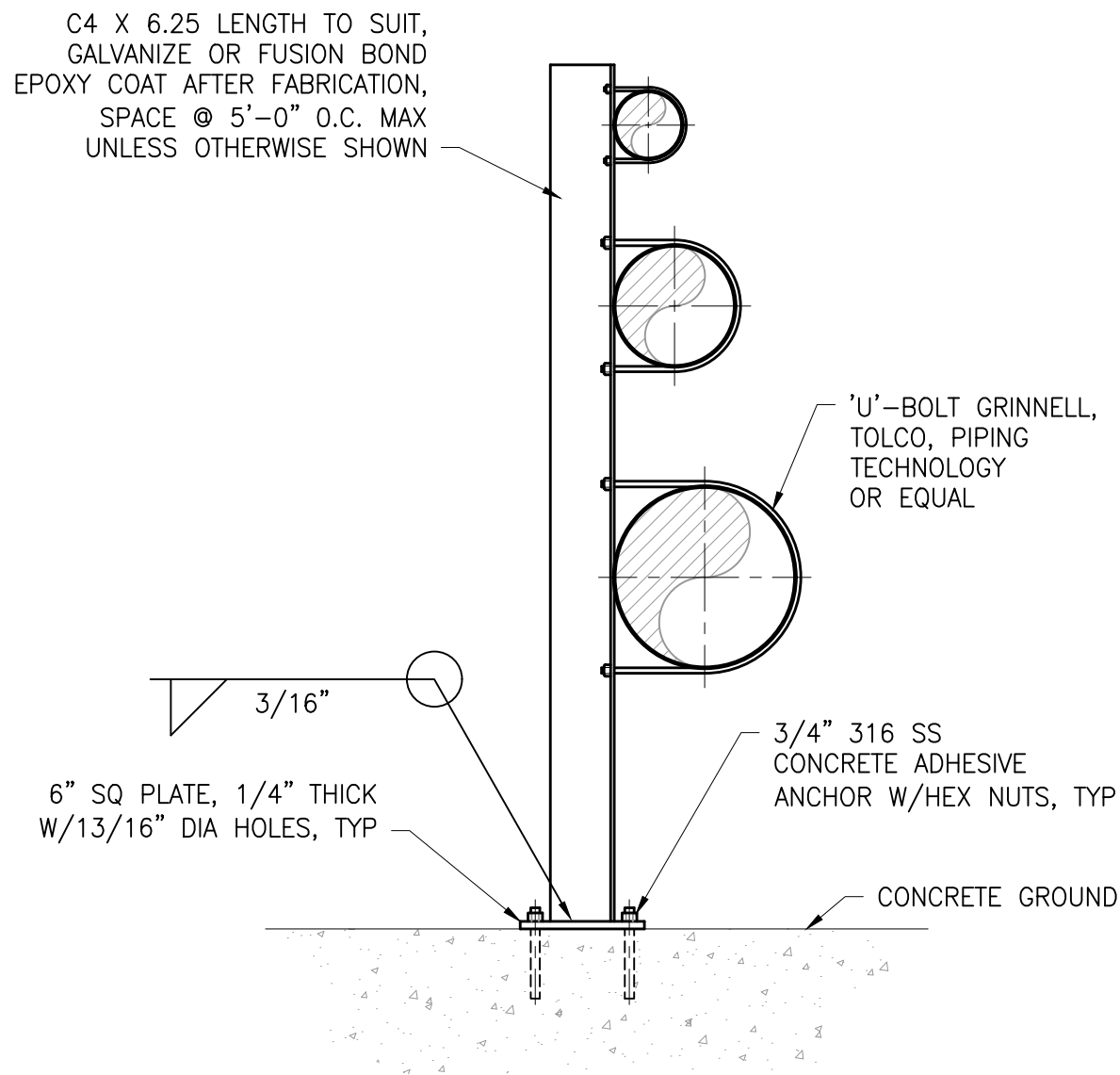
PIPE SUPPORT – MULTIPLE PIPES
N.T.S.

1
—



FIXED ACOUSTIC LOUVER
N.T.S.

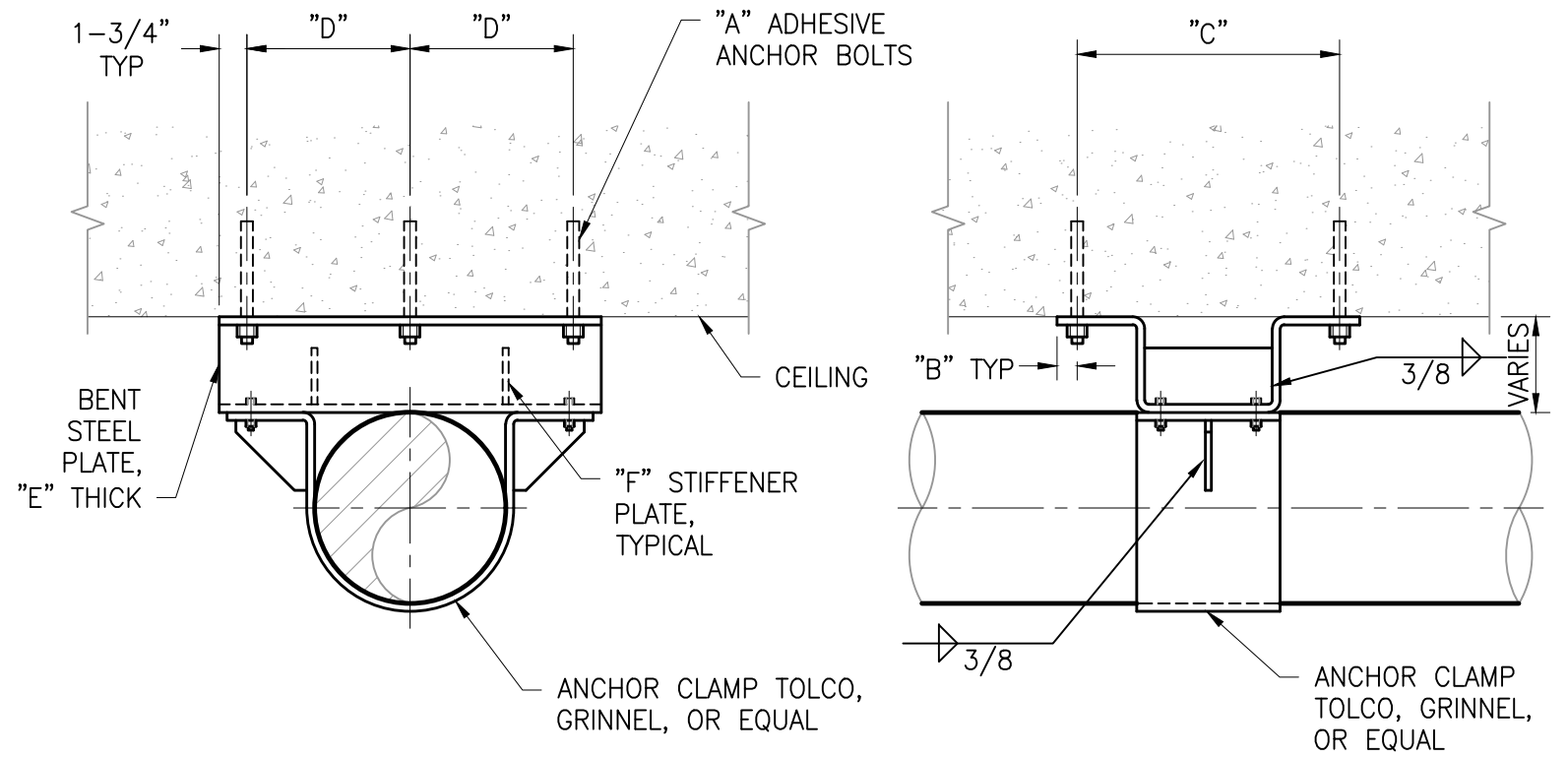
2
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NOTE:
WHEN USED WITH PVC OR FIBERGLASS PIPE, PROVIDE STEEL SHIELD AROUND PIPE AT 'U'-BOLT, WITH LOOSE FIT. WRAP COPPER TUBES WITH 1/4" THICK 2" WIDE STRIP OF RUBBER FABRIC.

FLOOR PIPE SUPPORT
N.T.S.

3
—

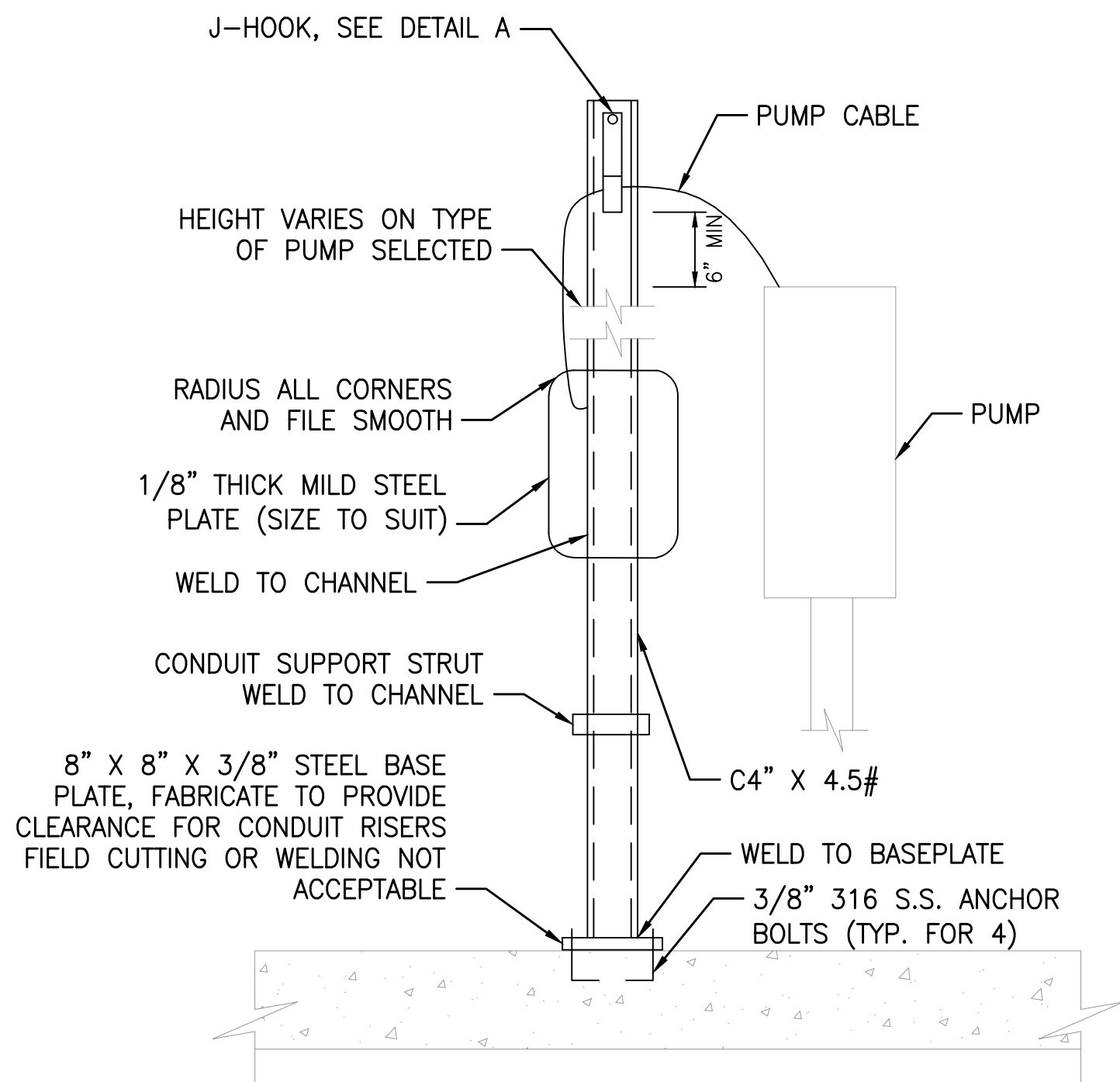


- NOTES:
1. WHEN THICKNESS OF CONCRETE LIMITS THE USE OF ANCHOR BOLTS LENGTHS AS TABULATED, SHORTER ANCHOR BOLTS WELDED TO REINFORCING BARS MAY BE USED.
 2. GALVANIZE ENTIRE ASSEMBLY AFTER FABRICATION.
 3. WRAP PIPE WITH 1/4" THICK STRIP OF RUBBER FABRIC.

DIMENSIONS IN INCHES						
PIPE DIA.	"A"	"B"	"C"	"D" (APPROX)	"E"	"F"
2 TO 4	(4) 5/8x6	1-1/4	5-3/4	8-1/2 (OMIT ONE)	3/8	1/4
6 TO 10	(6) 3/4x7	1-1/2	11	7-5/8	1/2	3/8
12 TO 16	(6) 7/8x8-1/2	1-1/2	13	10-1/4	1/2	3/8
18 TO 30	(6) 1x9	1-1/2	15	17-1/4	5/8	1/2

PIPE ANCHOR AT WALL
N.T.S.

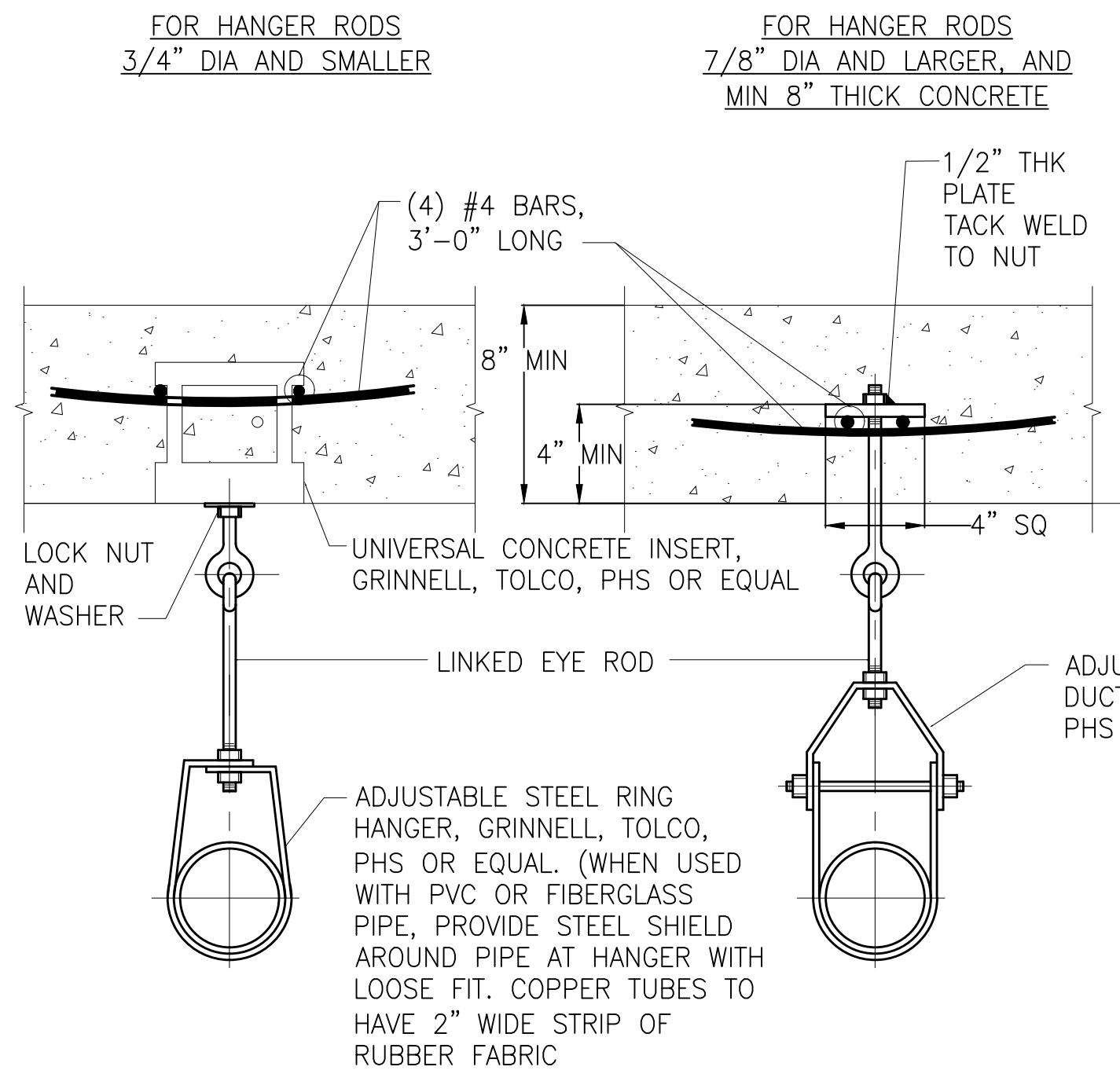
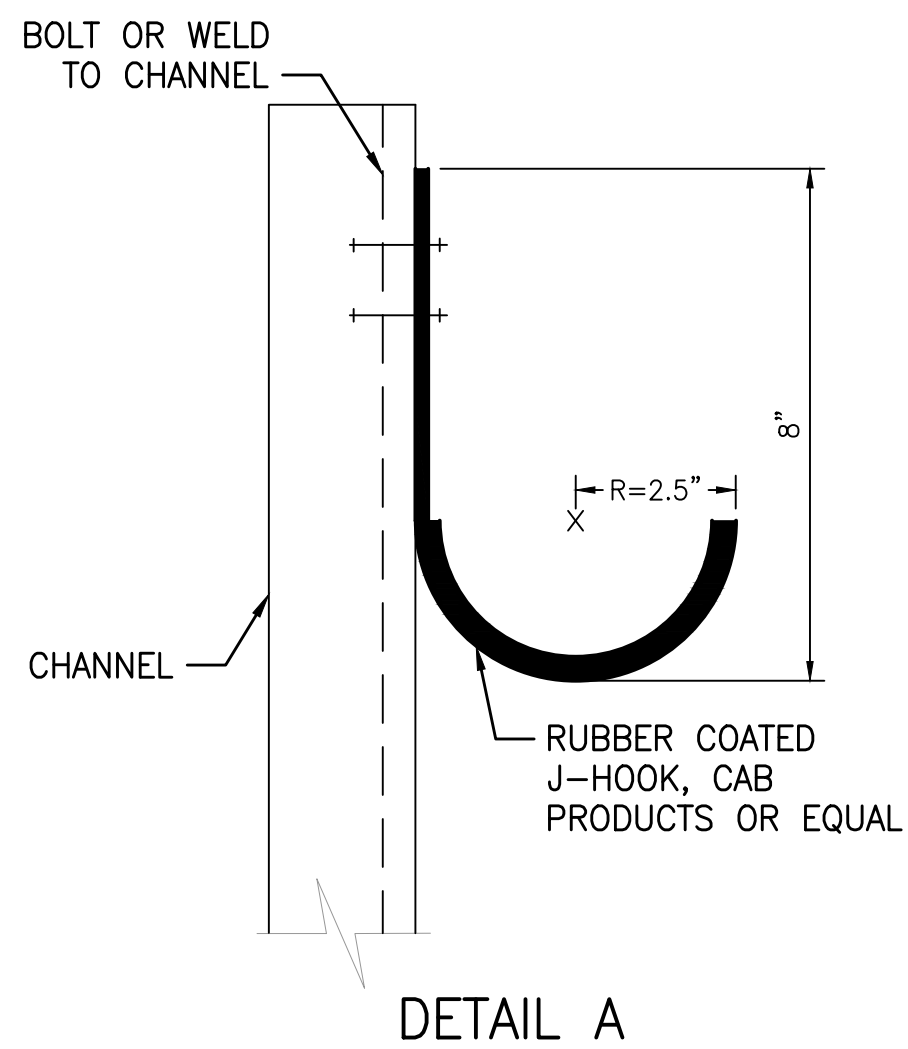
4
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POWER CONTROL STATION PEDESTAL W/ STRAIN RELIEF HOOK
N.T.S.

5
—

- NOTES:
1. PEDESTAL ASSEMBLY SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.



PIPE HANGERS
N.T.S.

6
—

PIPE HANGER RODS AND SUPPORT SPACING APPROXIMATE DIMENSIONS IN INCHES					
PIPE SIZE	ROD DIA.	MAX SUPPORT SPACING (FT)		WEIGHT LIMIT (LBS)	
		STEEL PIPE	D. I. PIPE	TYPE 'A'	TYPE 'B'
1" & UNDER	3/8	6	5	610	1700
1-1/4 TO 2	3/8	9	5	610	1700
2-1/2 TO 3-1/2	1/2	12	5	1130	3200
4 TO 5	5/8	14	5	1430	3800
6 TO 8	3/4	16	5	1430	3800
10 TO 12	7/8	18	—	1430	3800
14 TO 16	1	20	—	1430	3800

NOTE: GALVANIZE ALL PARTS AFTER FABRICATION



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

MECHANICAL DETAILS

SHEET
25 of 90

DRAWING
MD-4

D700004

OLIVENHAIN

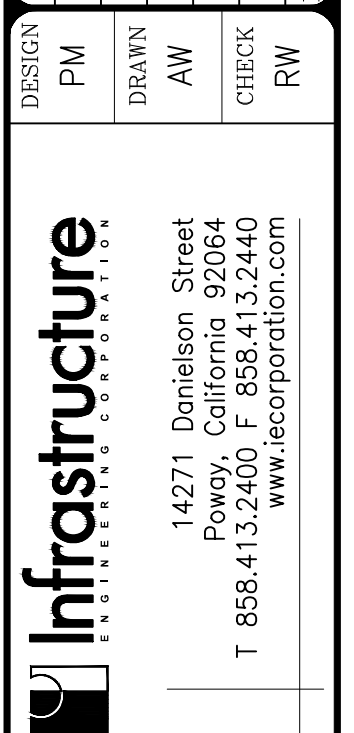
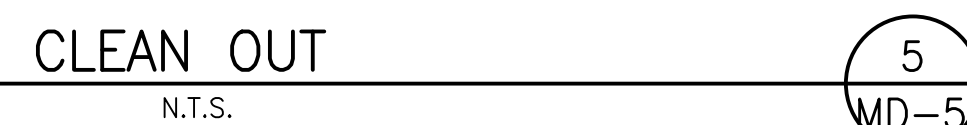
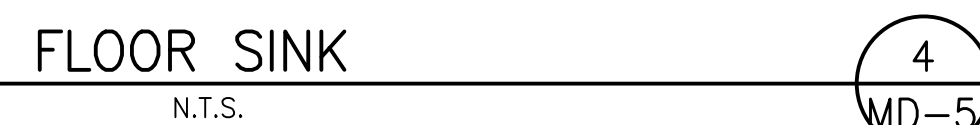
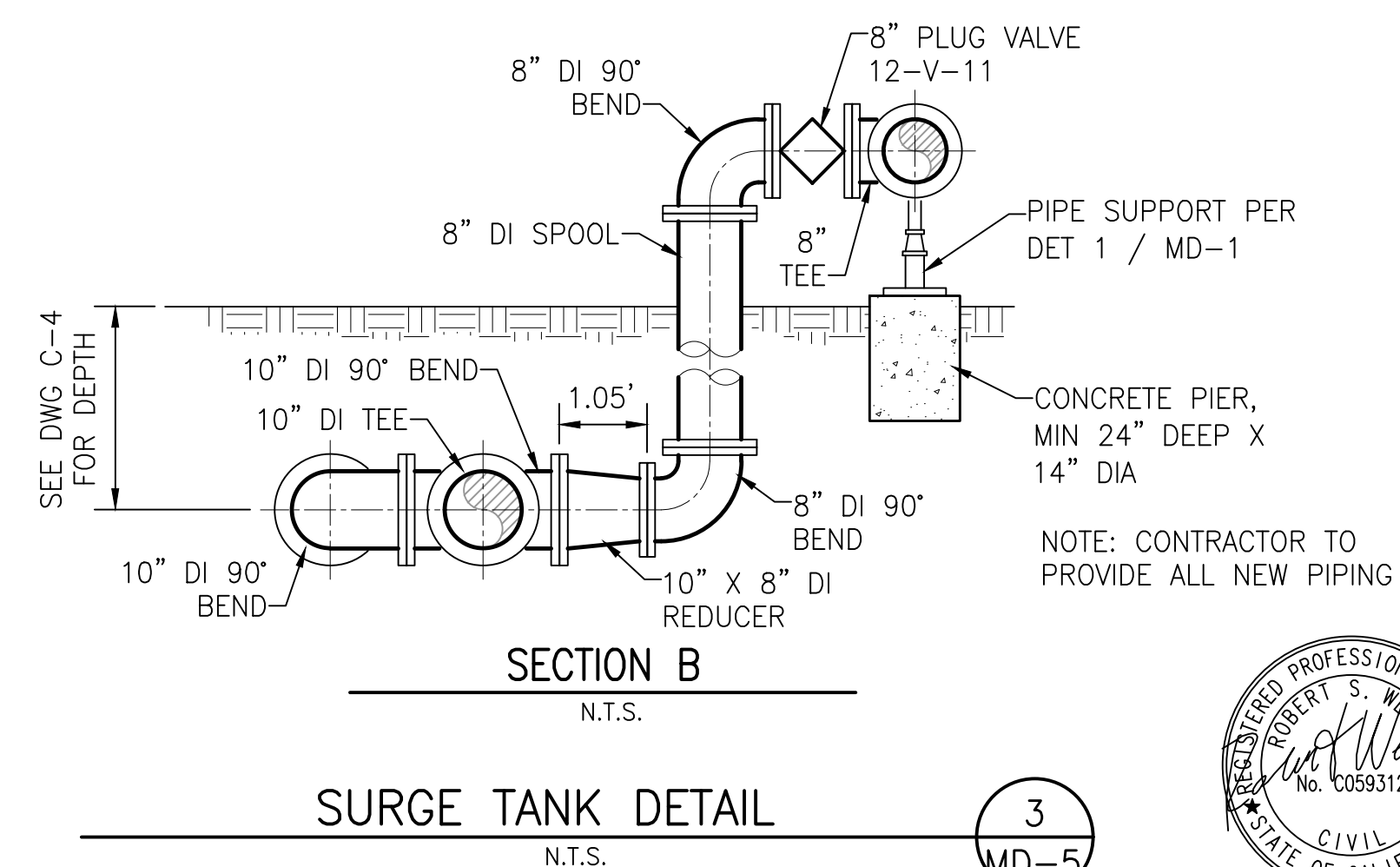
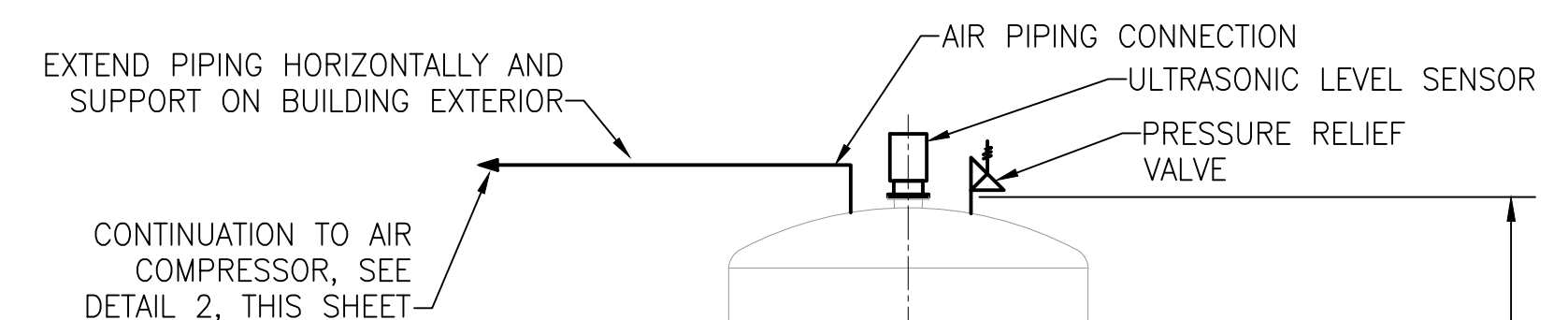
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CHECK RW

ORIGINAL SCALE IN INCHES



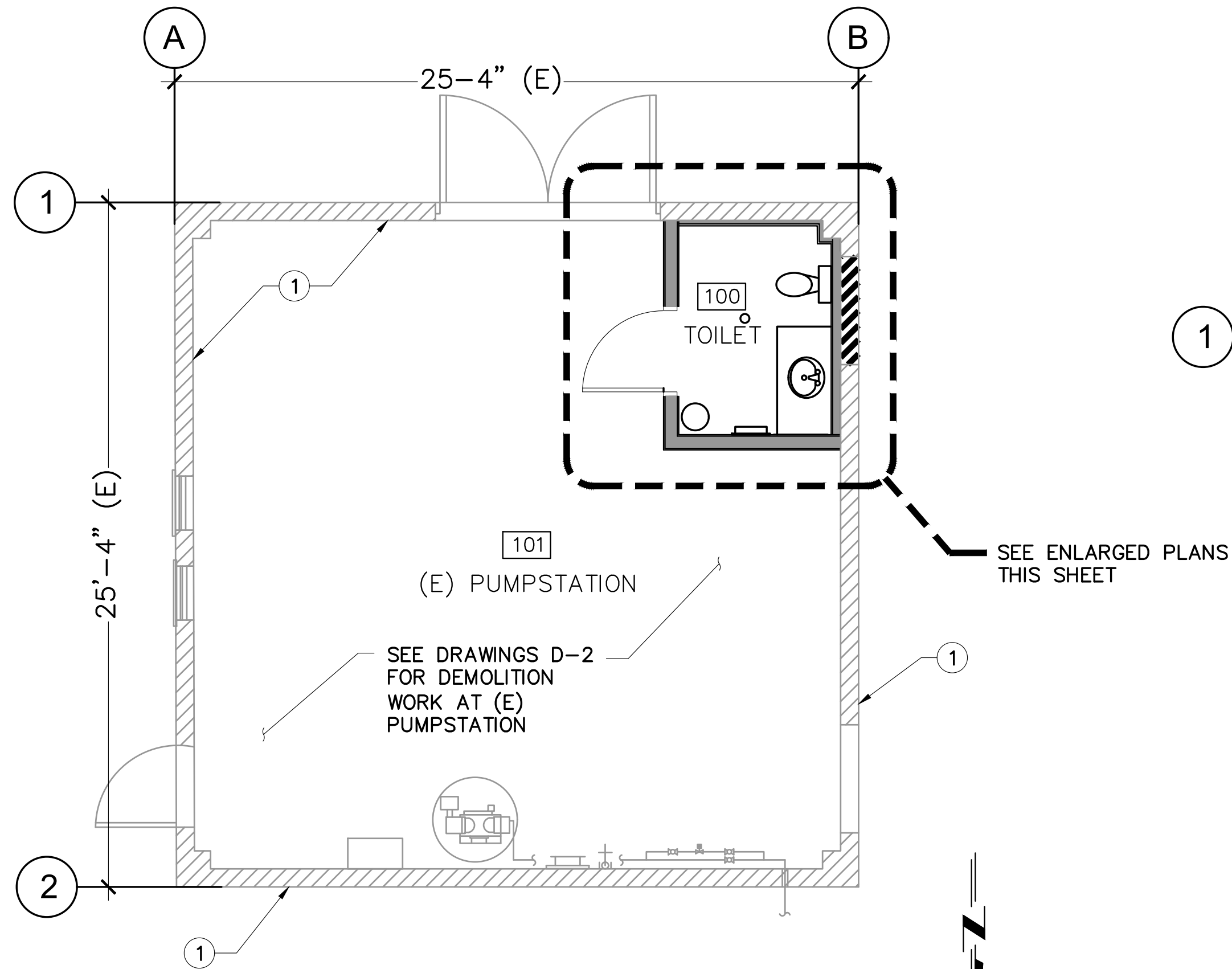
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**4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT**

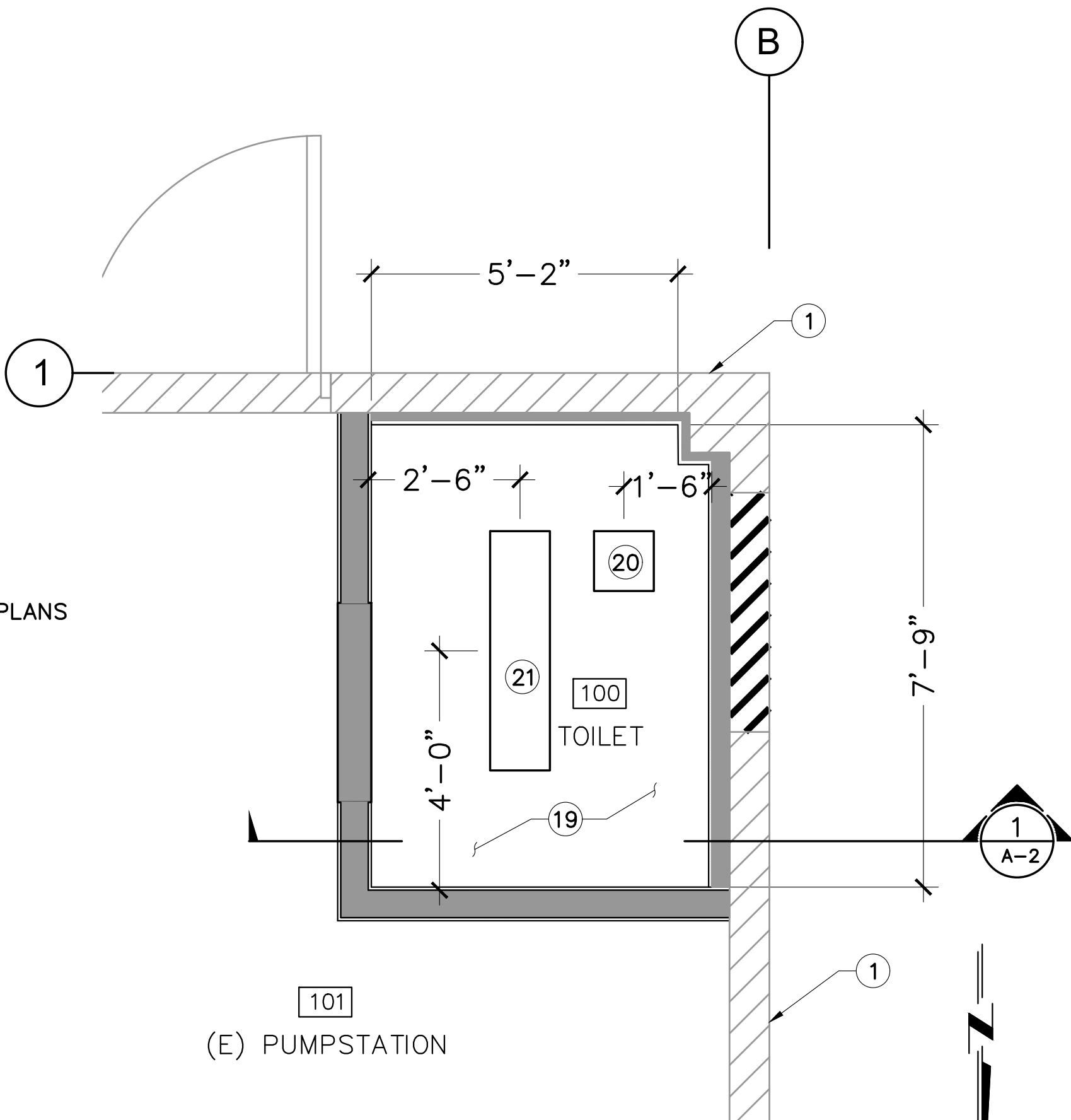
SHEET	DRAWING
26 of 90	MD-5
D700004	

ORIGINAL SCALE IN INCHES

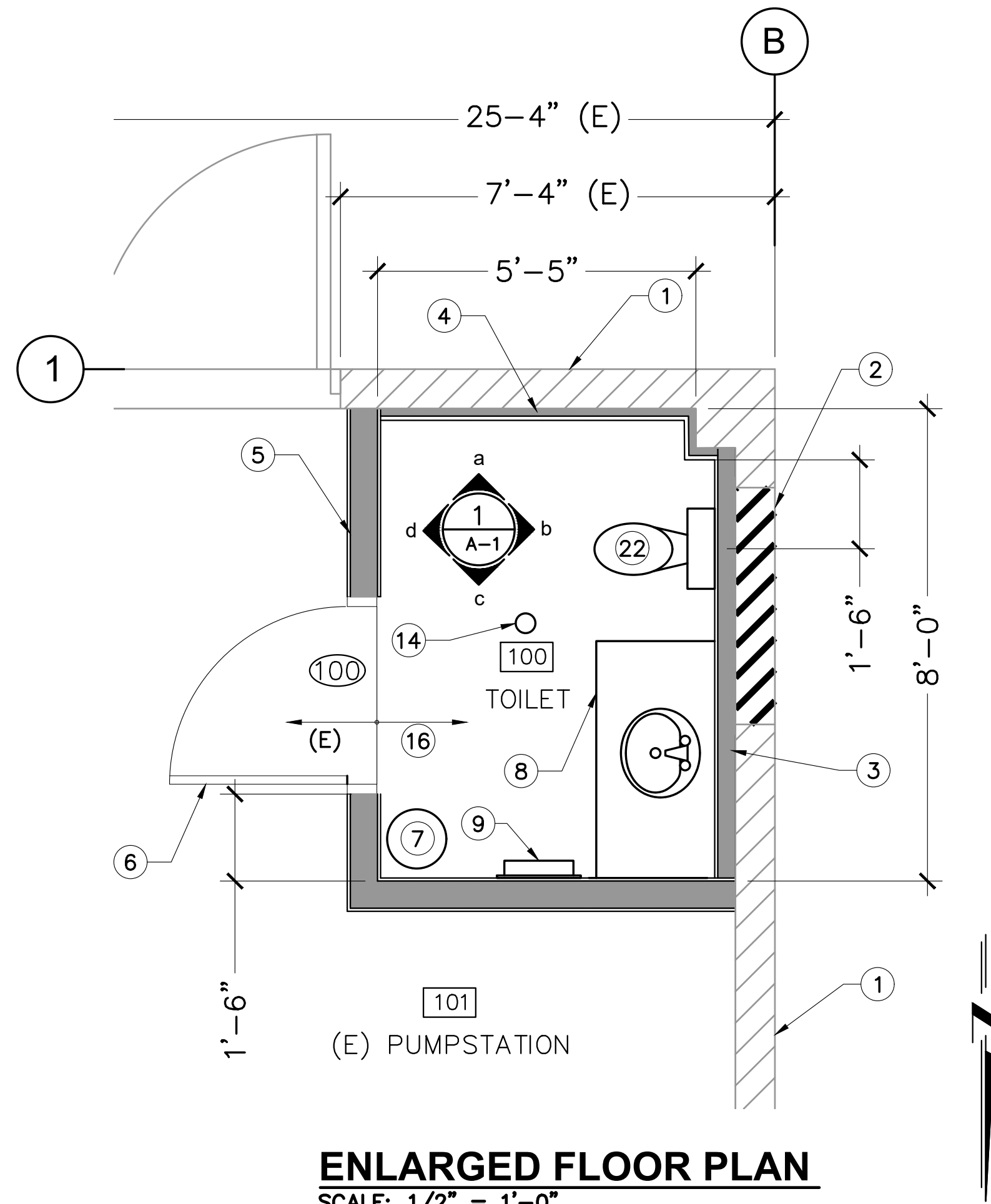
C:\MEN GROUP\PROJECTS\2102- 4S Ranch NHD.1 Sewer PS Restroom\Design\Drawings\4S PS TOILET ROOM- PLAN SET.dwg 06/10/2021 14:21



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



REFLECTED CEILING PLAN
SCALE: 1/2" = 1'-0"



ENLARGED FLOOR PLAN
SCALE: 1/2" = 1'-0"

KEY NOTES:

- ① (E) CMU WALL-TYP.
- ② REMOVE (E) WALL LOUVER AND FRAME ENTIRELY, INFILL OPENING WITH CMU TO MATCH WITH (E) CMU UNIT SIZE AND COLOR
- ③ 3-5/8" METAL FURRING WITH 5/8" WATER RESISTANT GYP.BD. ON TOILET ROOM SIDE
- ④ 1-5/8" METAL FURRING WITH 5/8" WATER RESISTANT GYP.BD. ON TOILET ROOM SIDE
- ⑤ 5-1/2" METAL STUD @ 24" O.C. WITH 5/8" WATER RESISTANT GYP.BD. ON TOILET ROOM SIDE AND 5/8" GYP. BD. (E) PUMPSTATION SIDE
- ⑥ 3'X7' HOLLOW METAL DOOR W/ METAL FRAME, SEE DETAIL 9/A-2 AND 10/A-2
- ⑦ WASTE RECEPTACLE- BOBRICK B-2300
- ⑧ 24" X 48" SOLID SURFACE COUNTER TOP WITH INTEGRAL SINK ON PLASTIC LAMINATED BASE CABINET
- ⑨ PAPER TOWEL DISPENSER- BOBRICK B-4262
- ⑩ SOAP DISPENSER- BOBRICK B-2013 AUTOMATIC SOAP DISPENSER
- ⑪ MIRROR- BOBRICK B-292 30"X38" W/ STAINLESS STEEL SHELF
- ⑫ TOILET TISSUE DISPENSER- BOBRICK B-4288
- ⑬ SEAT COVER DISPENSER- BOBRICK B-301
- ⑭ FLOOR DRAIN, SEE PLUMBING DRAWINGS
- ⑮ CERAMIC TILE WAINSCOT OVER CEMENT TILE BACKER BOARD- TYP.
- ⑯ EPOXY CONCRETE COATING ON (E) CONCRETE FLOOR. PATCH AND REPAIR FLOOR AS REQUIRED PRIOR TO APPLICATION
- ⑰ CERAMIC TILE BASE- TYP.
- ⑱ GYP. BD. WALL, PAINT- TYP.
- ⑲ 1/2" GYP. BD. CEILING @ 8'-6" A.F.F. ON METAL CHANNEL FRAMING, SEE DETAIL 1/A-2
- ⑳ EXHAUST, SEE HVAC PLAN- TYP.
- ㉑ LIGHT, SEE ELECTRICAL DRAWINGS
- ㉒ TOILET, SEE PLUMBING DRAWING

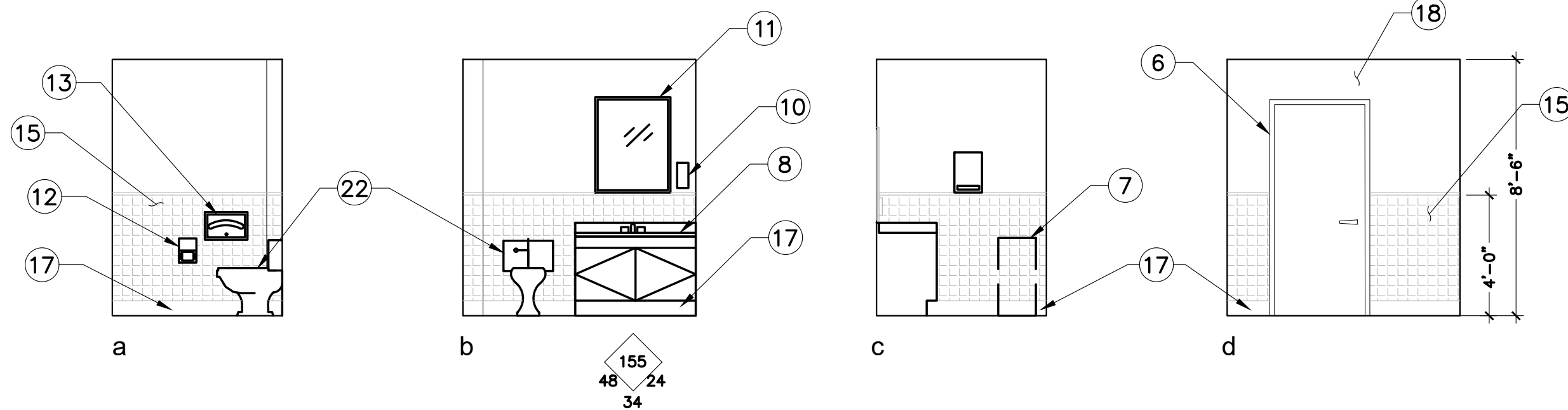
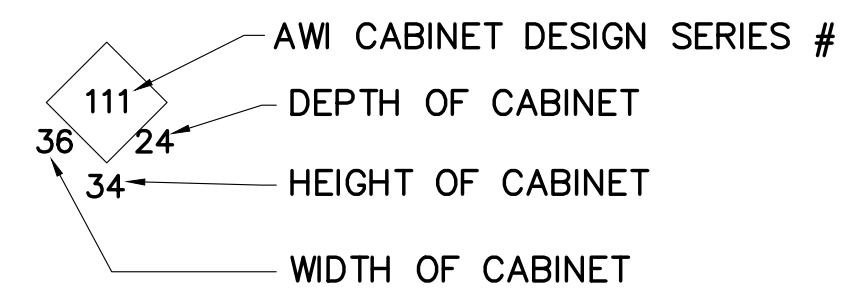
DOOR NO. 100 HARDWARE:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK	T301S DAN	626	FAL
1	EA	SURFACE CLOSER	SC71 SS	689	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	COAT AND HAT HOOK	582	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

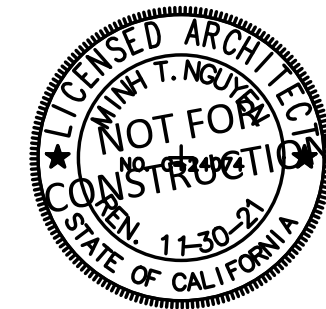
KEYING SYSTEM: SCHLAGE EVEREST D AND EVEREST PRIMUS LEVEL 9 PATENTED KEYWAY, INTERCHANGEABLE CORE. INITIATE AND CONDUCT MEETING(S) WITH OWNER TO DETERMINE SYSTEM KEYWAY(S), KEYBOW STYLE, STRUCTURE, DEGREE OF PHYSICAL SECURITY AND DEGREE OF GEOGRAPHIC EXCLUSIVITY.

CABINET/ COUNTER NOTES:

1. SOLID SURFACE COUNTER SHALL HAVE INTEGRAL SINK AND BACKSLASH.
2. PLASTIC LAMINATE BASE CABINET SHALL COMPLY WITH LATEST ARCHITECTURAL WOODWORK INSTITUTE (AWI) STANDARD FOR PREMIUM LEVEL CABINET. PROVIDE FULL RANGE OF COLOR FOR SELECTION.



INTERIOR ELEVATIONS
SCALE: 1/2" = 1'-0"



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT
FLOOR PLANS, RCP, INTERIOR
ELEVATIONS

SHEET 27 of 90
DRAWING A-1

D700004

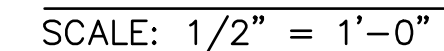
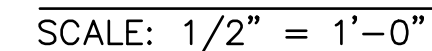
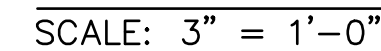
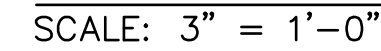
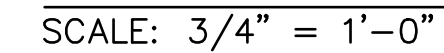
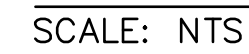
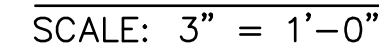


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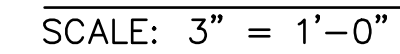
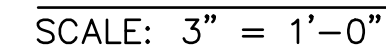


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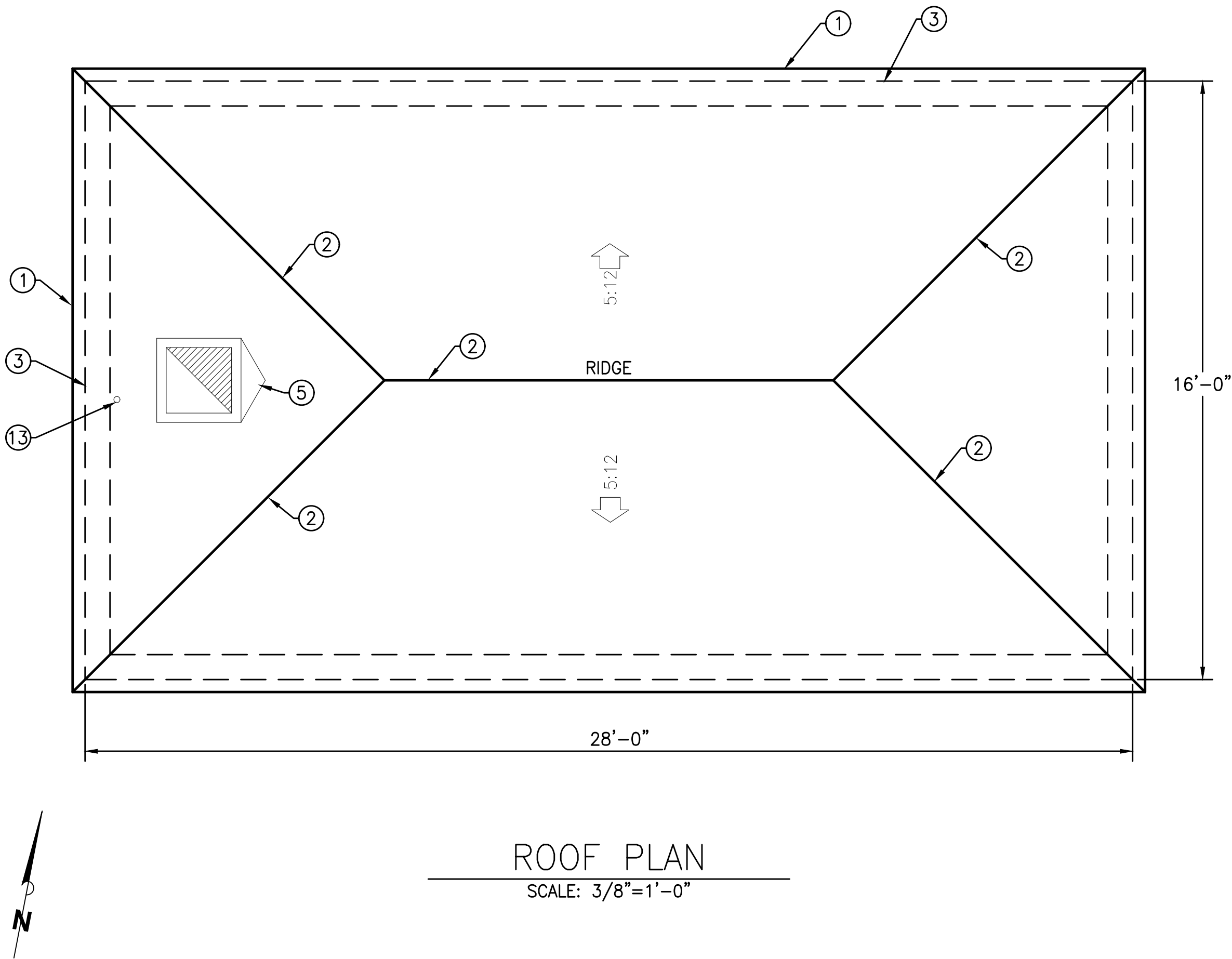
ORIGINAL SCALE IN INCHES



SCALE: 3" = 1'-0"



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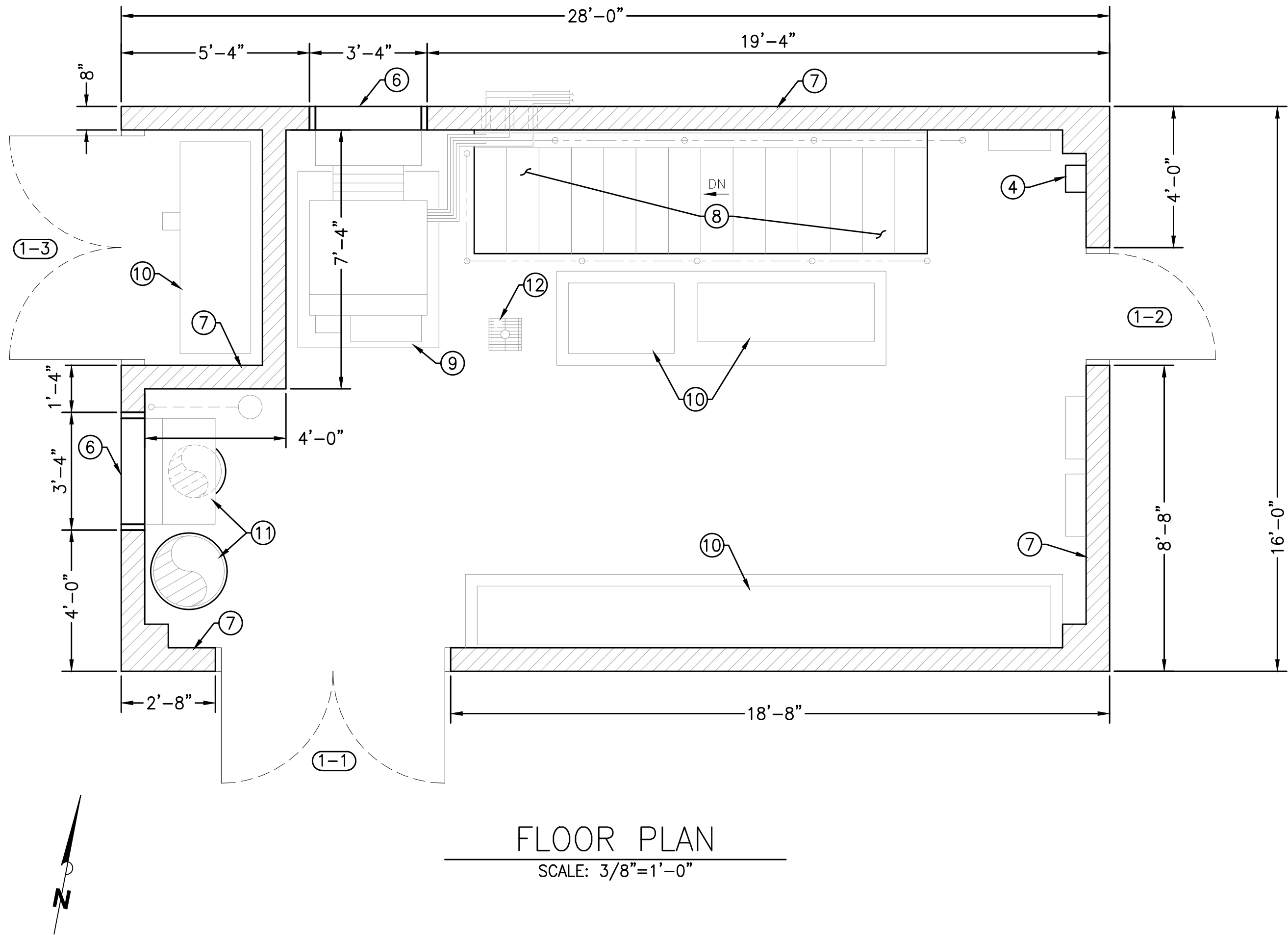


ROOF PLAN
SCALE: 3/8"=1'-0"

NOTES:

SEE DWG A-5 FOR DOOR SCHEDULE.

- CONSTRUCTION NOTES:
- ① ROOF LINE, ADD INSULATION UNDER METAL DECK
 - ② ROOF RIDGE LINE
 - ③ WALL LINE BELOW
 - ④ FIRE EXTINGUISHER
 - ⑤ ROOF EXHAUST VENTILATOR, SEE M DWGS
 - ⑥ LOUVER, SEE M DWGS
 - ⑦ CMU WALL, SEE S DWGS
 - ⑧ STAIRS DOWN TO DRY PIT, SEE S DWGS
 - ⑨ INDOOR AC UNIT, SEE M DWGS
 - ⑩ ELECTRICAL PANELS, SEE E DWGS
 - ⑪ VENTILATION SYSTEM, SEE M DWGS
 - ⑫ FLOOR DRAIN, SEE M DWGS
 - ⑬ VENT THROUGH ROOF W/CAP, PENETRATION PER DET 5 / A-6



FLOOR PLAN
SCALE: 3/8"=1'-0"



4S RANCH NEIGHBORHOOD 1

SEWER PUMP STATION REPLACEMENT

PUMP STATION
ARCHITECTURAL PLANS

OLIVENHAIN

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MARK	DATE	BY	REVISIONS

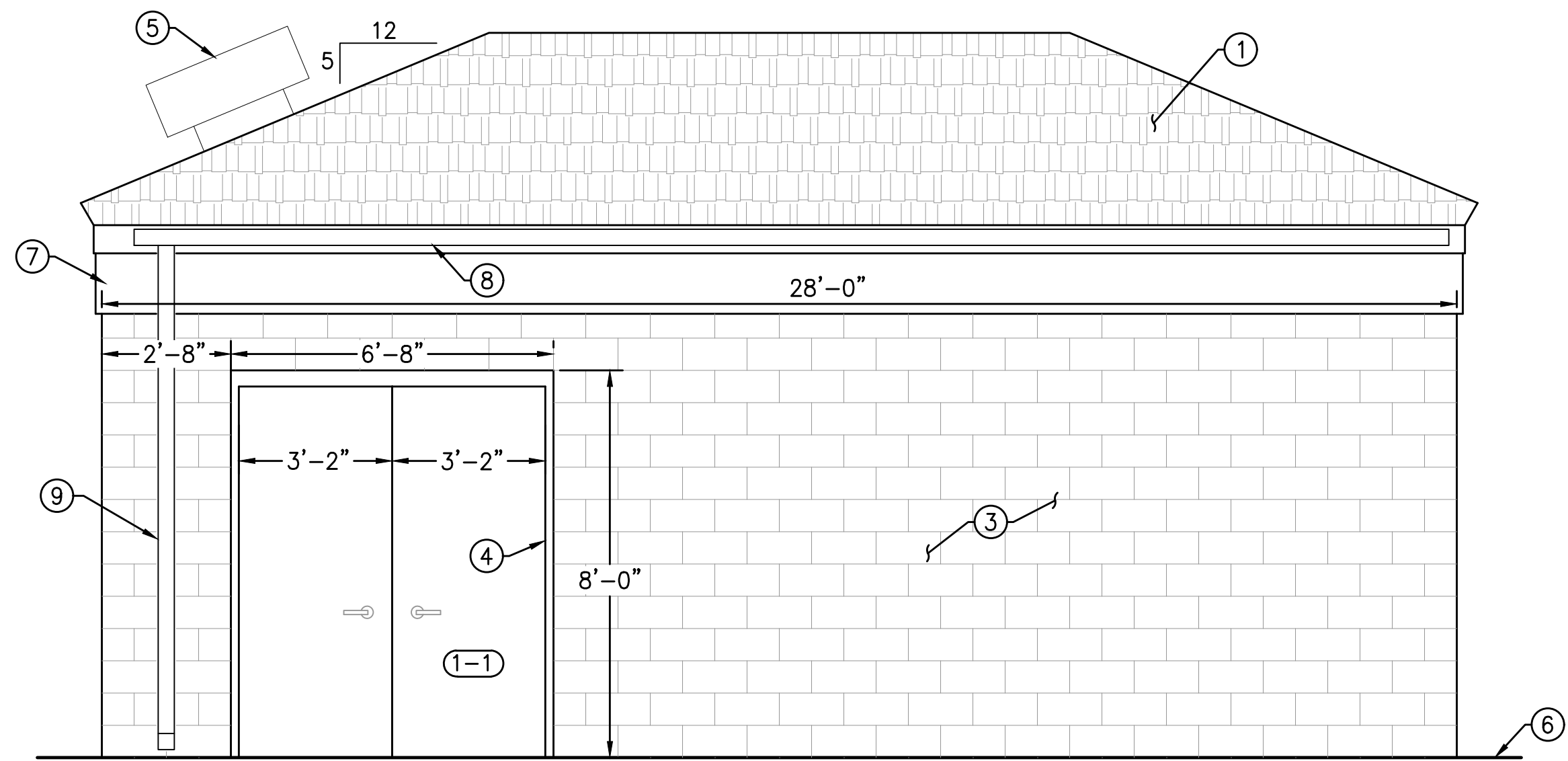
SHEET
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DRAWING
A-3

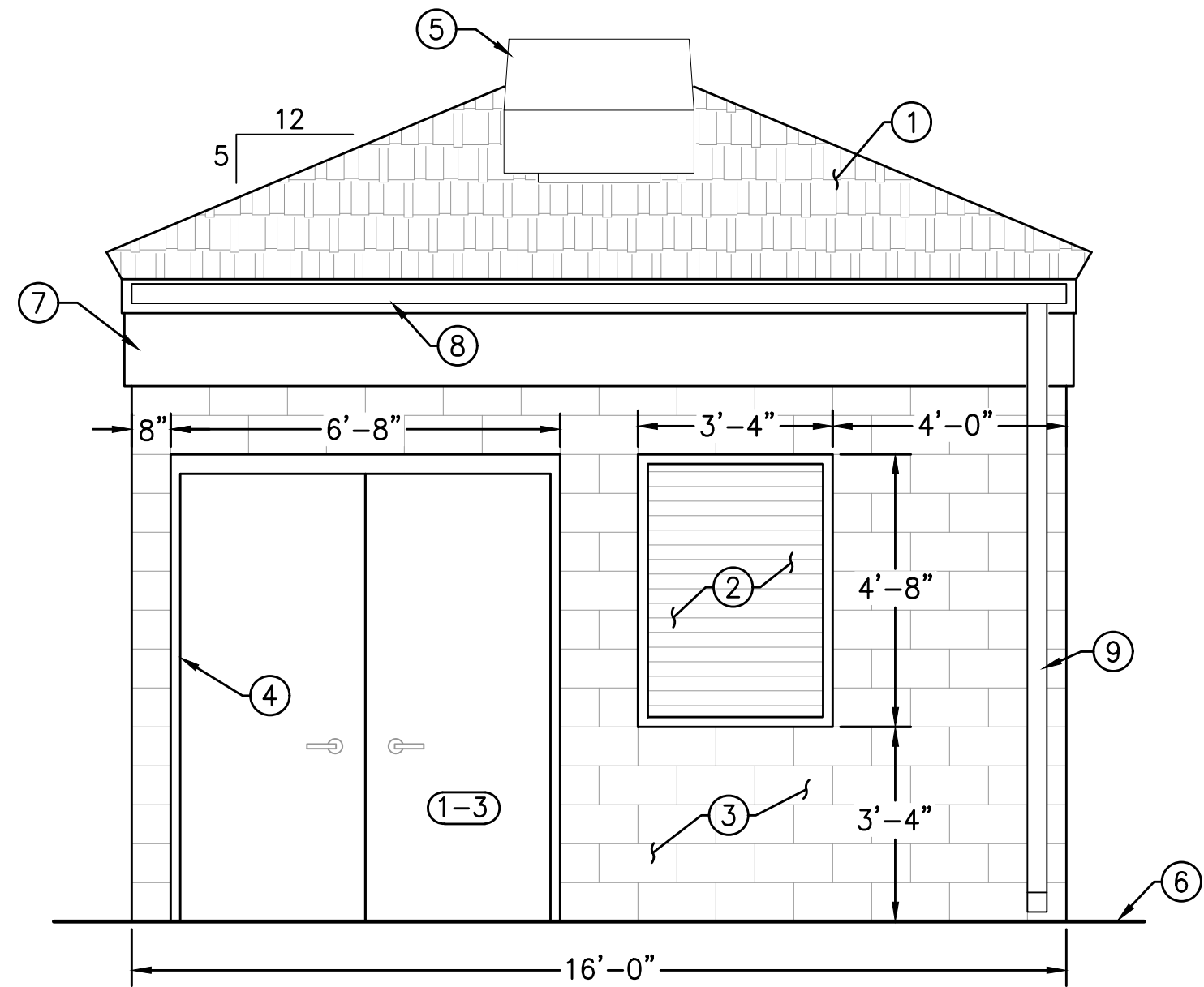
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ORIGINAL SCALE IN INCHES

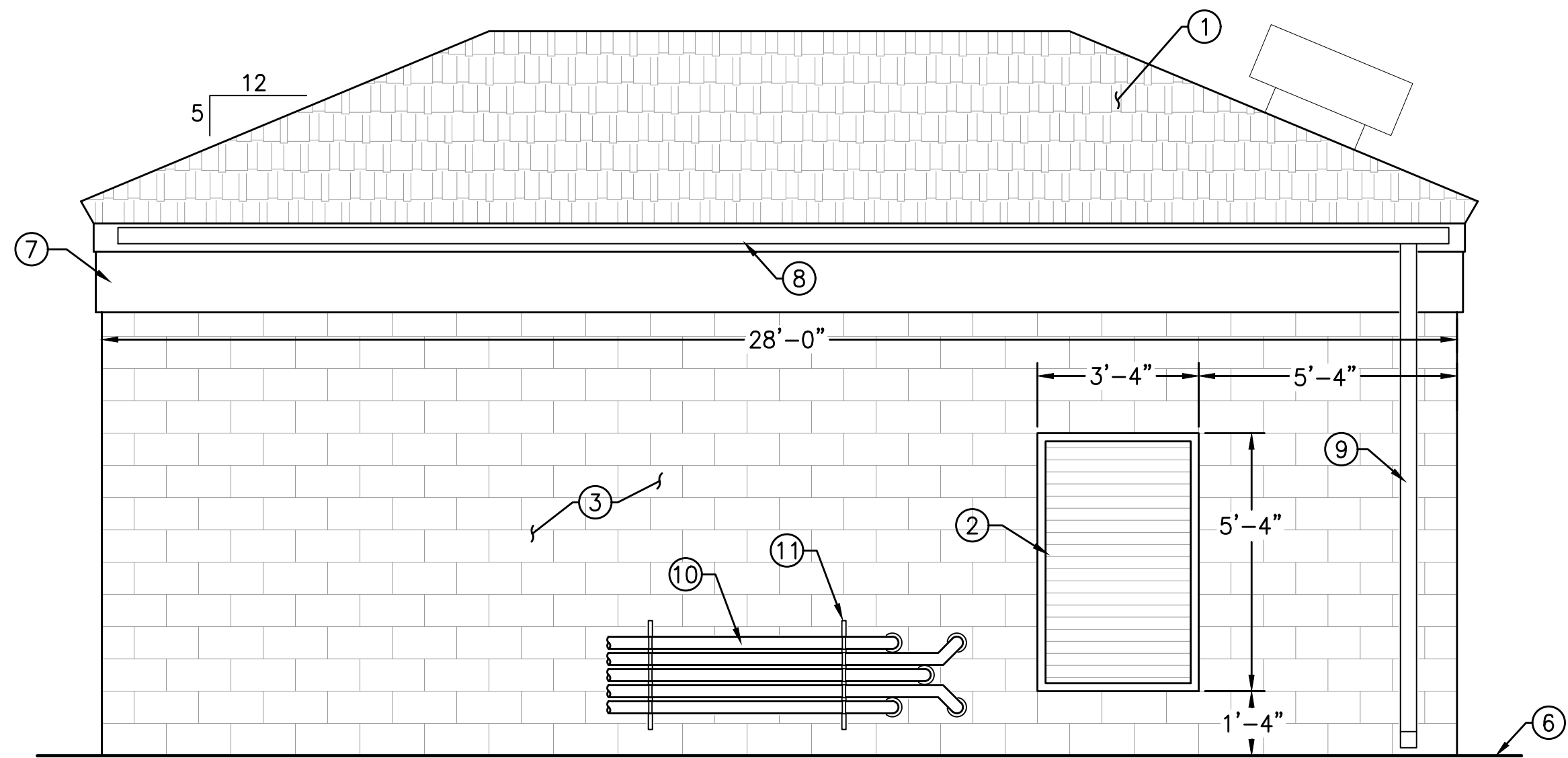
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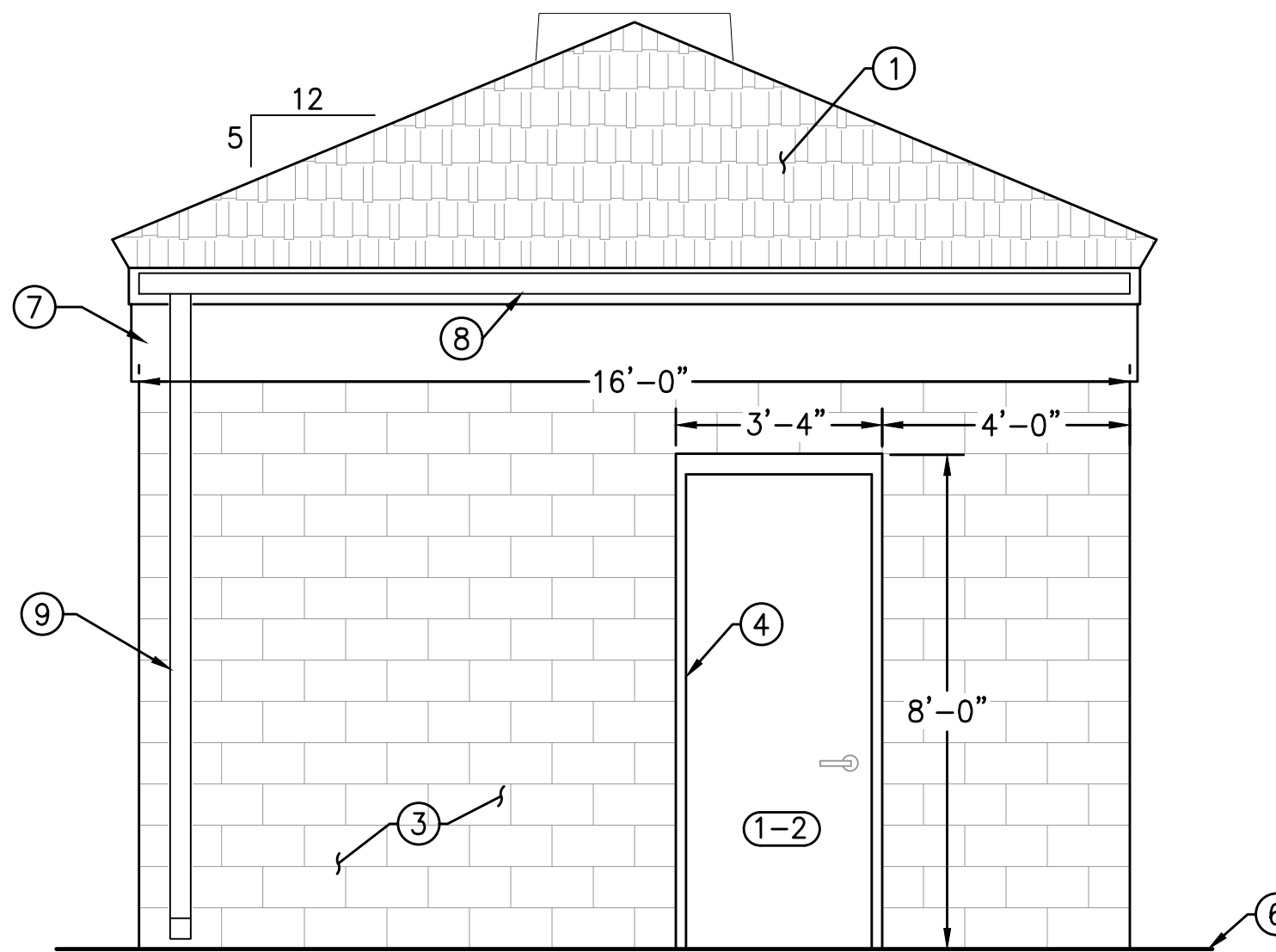
SOUTH ELEVATION
SCALE: 3/8" = 1'-0"



WEST ELEVATION
SCALE: 3/8" = 1'-0"



NORTH ELEVATION
SCALE: 3/8" = 1'-0"



EAST ELEVATION
SCALE: 3/8" = 1'-0"

NOTES:

- 1 CONCRETE TILE ROOF OVER UNDERLAYMENT, SHEATHING, ROOF INSULATION AND METAL DECK
- 2 ACOUSTICAL LOUVER, INTAKE
- 3 PRECISION BLOCK CMU WALL, COLOR TO MATCH EXISTING BUILDING, SEE STRUCTURAL
- 4 DOOR PER SCHEDULE
- 5 ROOF EXHAUST VENTILATOR, PAINT TO MATCH ROOF TILES
- 6 PROPOSED GROUND SURFACE
- 7 ROOF EAVE, REFER TO DETAIL 3/A-6
- 8 STEEL RAIN GUTTER, PAINT TO MATCH EAVE
- 9 STEEL DOWNSPOUT, PAINT UPPER SECTION TO MATCH EAVE, LOWER TO MATCH CMU, INSTALL CONCRETE SPLASH PAD AT OUTLET OF DOWNSPOUT
- 10 AC SYSTEM REFRIGERANT PIPING AND CONTROL WIRING, SEE C-2 AND M-1 FOR CONTINUATION OF PIPING
- 11 WALL MOUNTED PIPE SUPPORT PER DETAIL 1/MD-4



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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

PUMP STATION ELEVATIONS




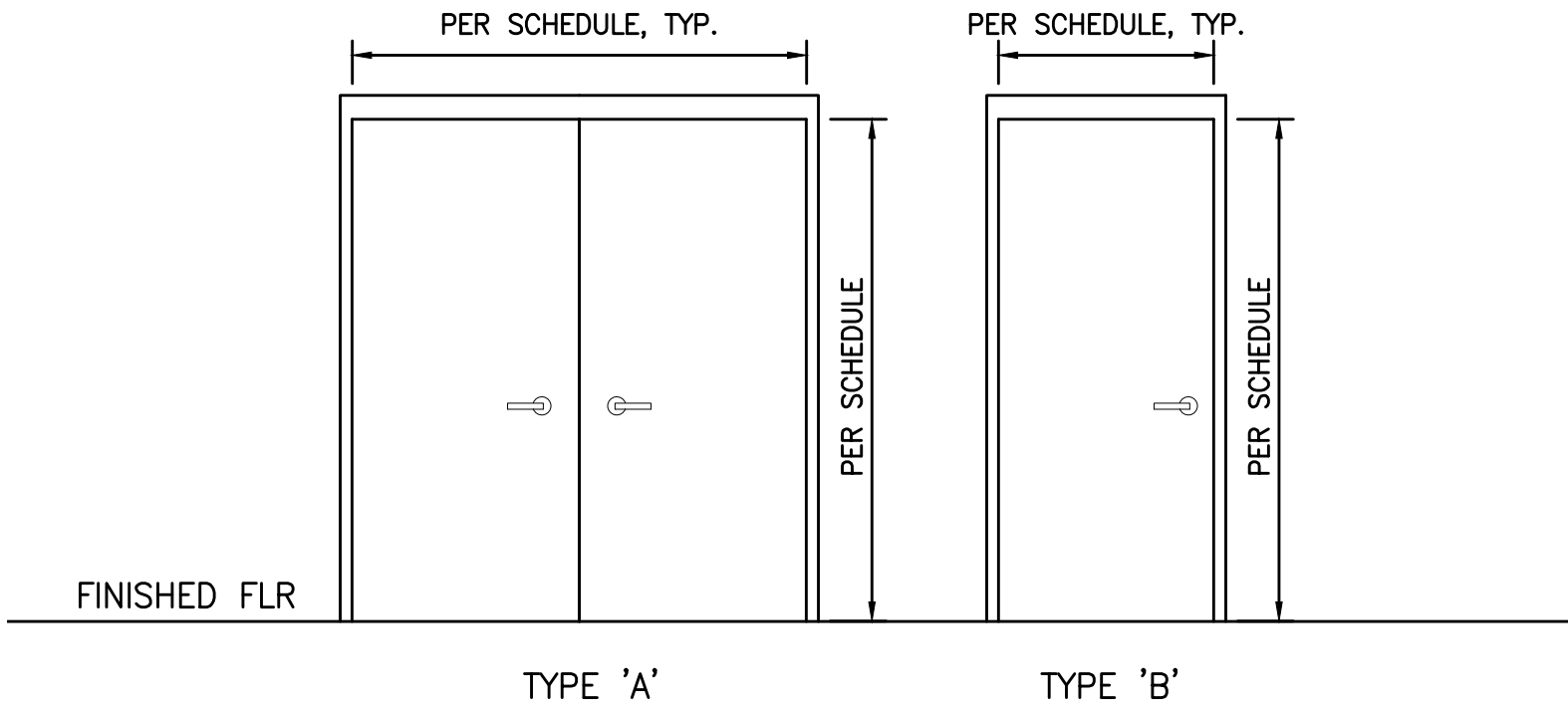
SHEET
30 of 90
DRAWING
A-4

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ORIGINAL SCALE IN INCHES

DOOR SCHEDULE

NO. 	DOOR								FRAME					REMARKS
	SIZE WIDTH	HEIGHT	THICK.	MAT'L	FINISH	TYPE	HDW SET	DETAILS (SEE SHEET A-6)						
								HEAD	JAMB	SILL	MAT'L	FINISH		
EXTERIOR														
1-1	PR	6'-8"	8'-0"	1 3/4"	HM	PS	A	002	1	2	1	HM	PG	INCLUDE INTRUSION SWITCH, TIE TO SCADA SYSTEM
1-2		3'-4"	8'-0"	1 3/4"	HM	PS	B	001	1	2	1	HM	PG	INCLUDE INTRUSION SWITCH, TIE TO SCADA SYSTEM
1-3	PR	6'-8"	8'-0"	1 3/4"	HM	PS	A	002	1	2	1	HM	PG	INCLUDE INTRUSION SWITCH, TIE TO SCADA SYSTEM



DOOR TYPES

SCALE: 3/8"=1'-0"

MATERIALS LEGEND

AL ALUMINUM
AN ANODIZED
CMU CONCRETE MASONRY BLOCK
CN CONCRETE
GL GLASS
HM HOLLOW METAL
PR PAIR
STL STEEL
T TEMPERED

FINISH LEGEND

FA FACTORY
PE PAINT - EGGSHELL
PF PAINT - FLAT
PS PAINT - SEMI-GLOSS
PG PAINT - GLOSS
SL SEALER

NOTE:

1. KEY AND LOCKSET SHALL BE VON DUPRIN 99 MORTIS LOCKSET WITH YALE 8 KEYWAY THAT IS KEYED TO THE DISTRICTS MASTER KEY.



4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

PUMP STATION SCHEDULE
AND DETAILS

SHEET
31 of 90

DRAWING
A-5

D700004

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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

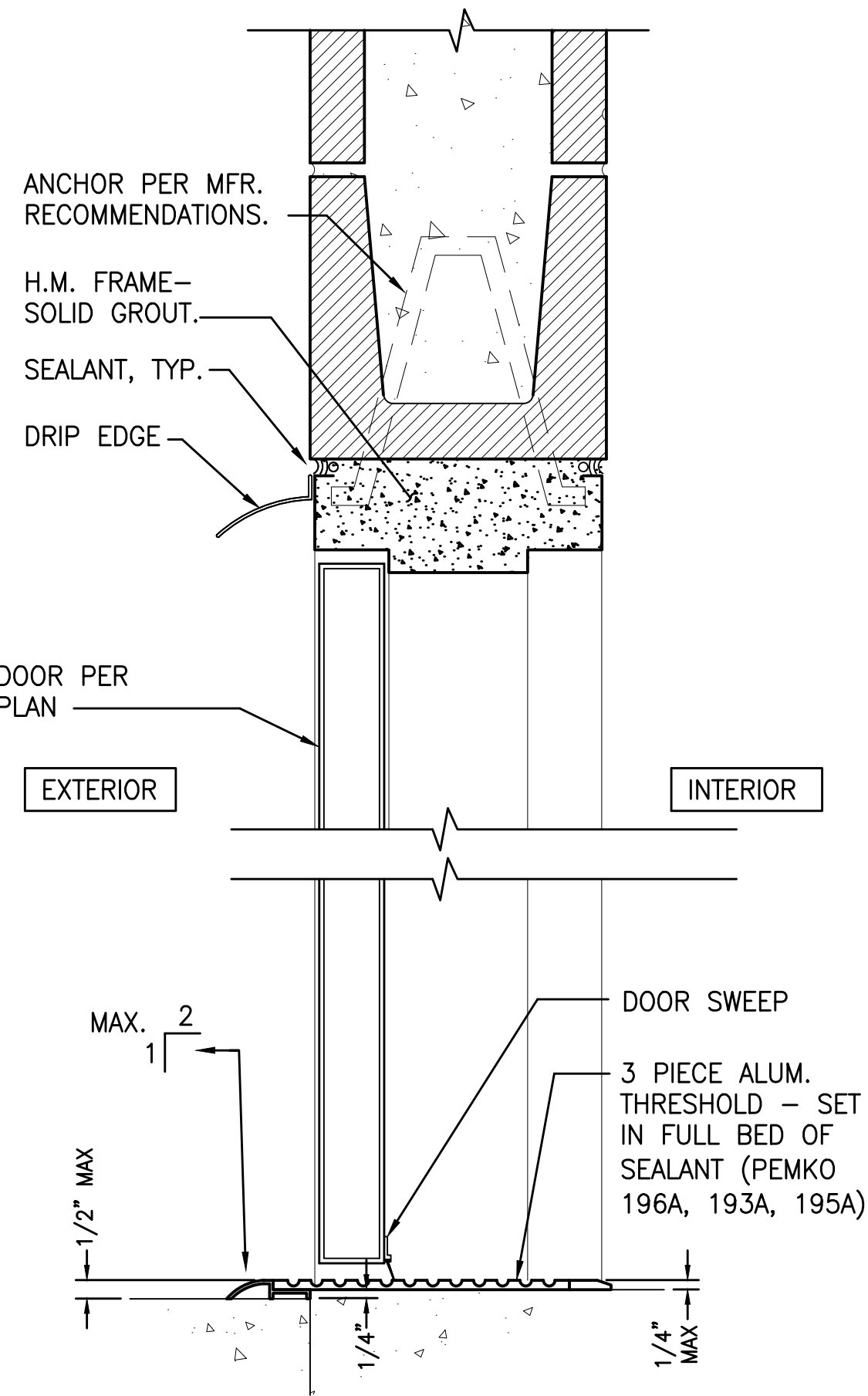
PUMP STATION SCHEDULE
AND DETAILS

SHEET
31 of 90

DRAWING
A-5

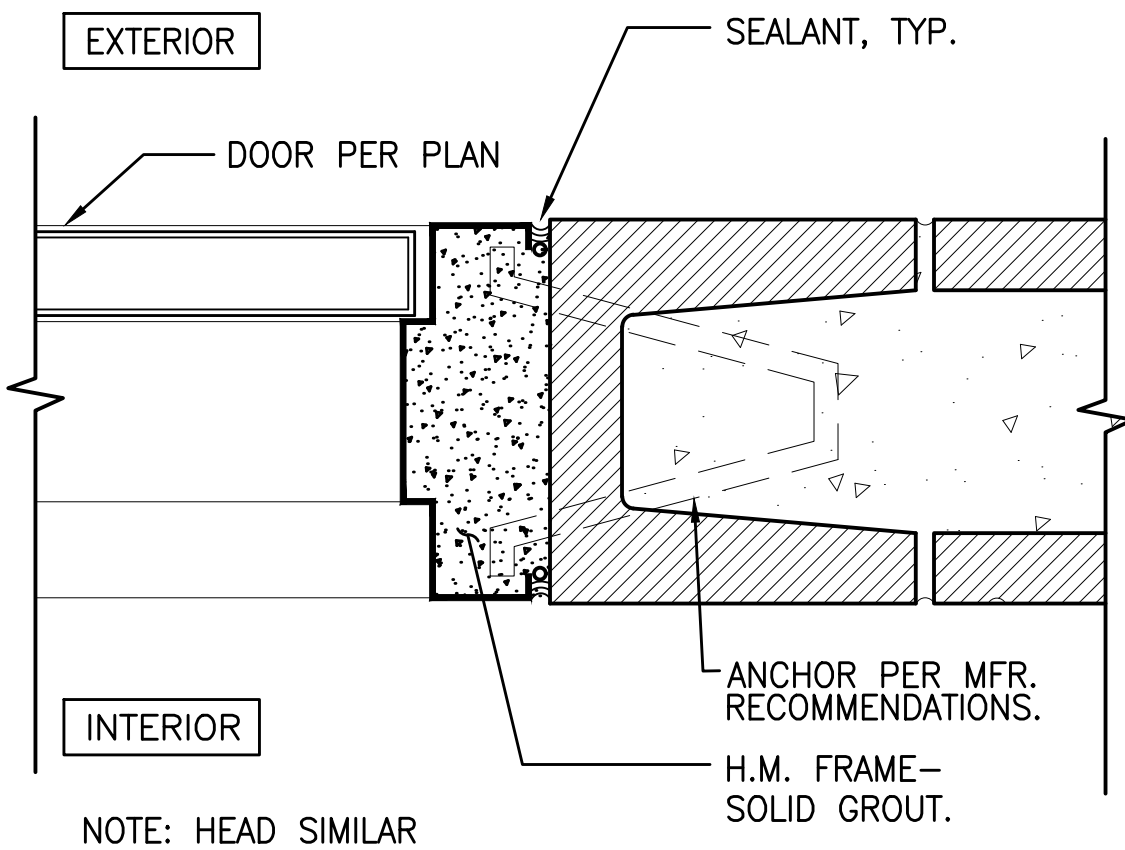
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ORIGINAL SCALE IN INCHES



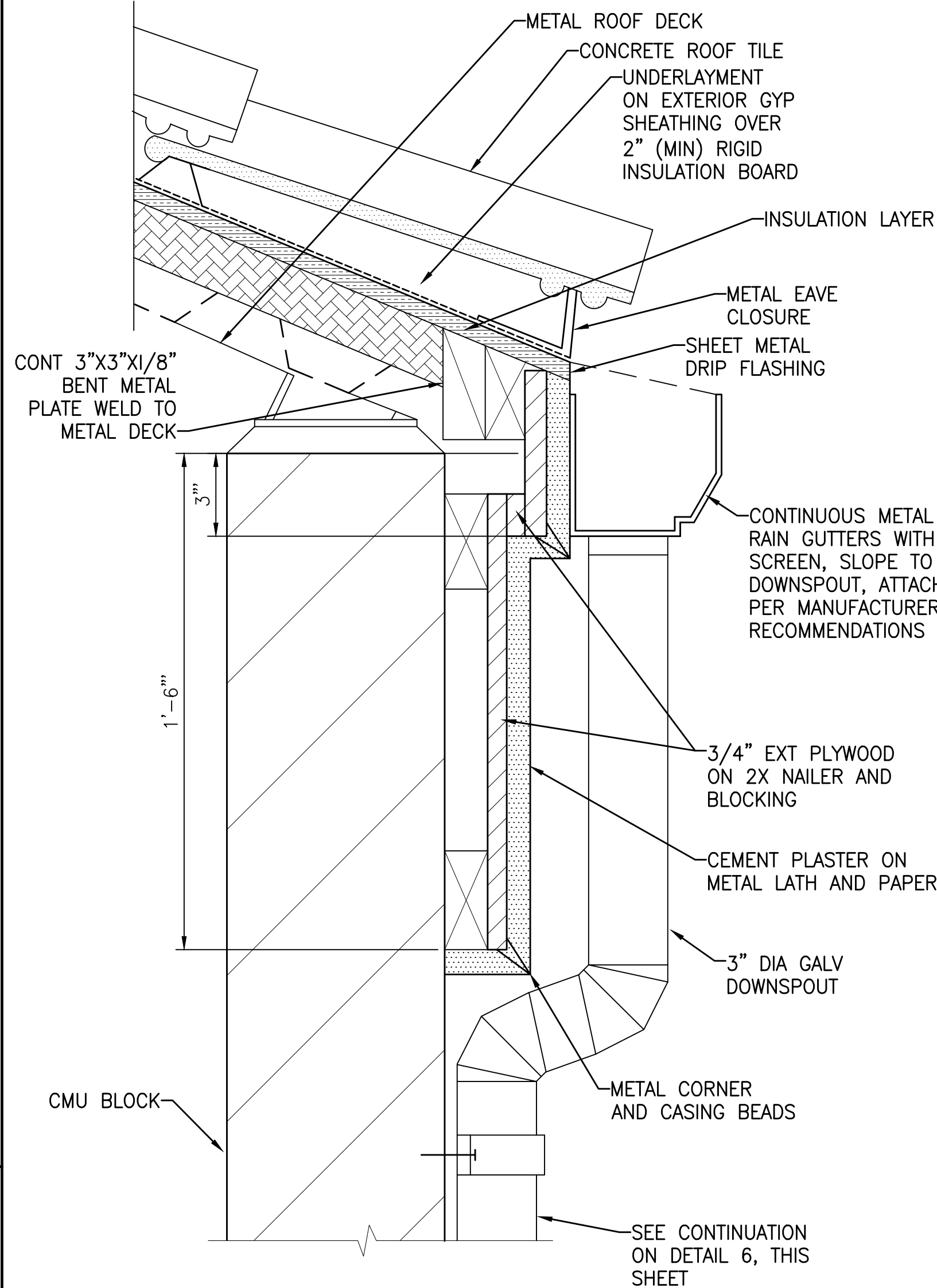
DOOR HEAD/SILL AT CMU
3" = 1'-0"

1
—



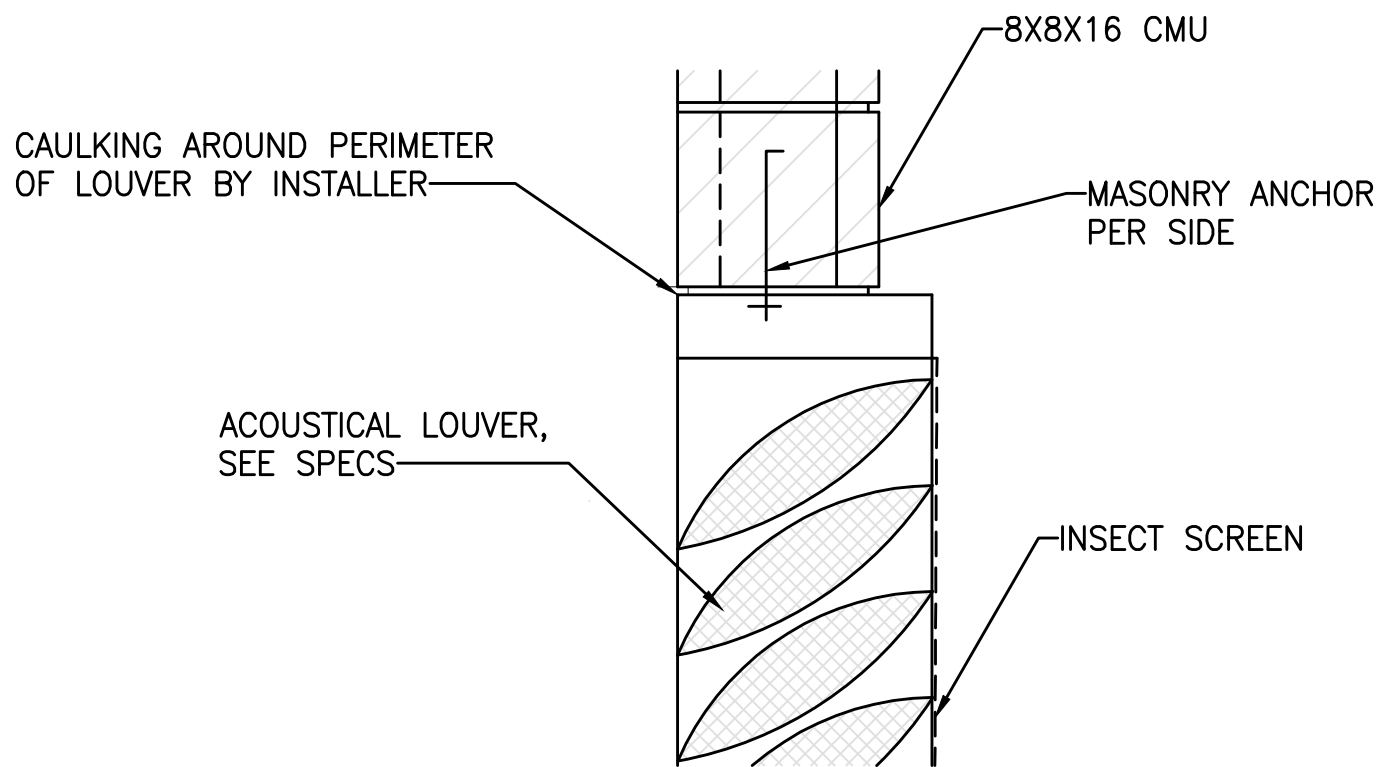
DOOR JAMB @ CMU
3" = 1'-0"

2
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ROOF EAVE DETAIL
3" = 1'-0"

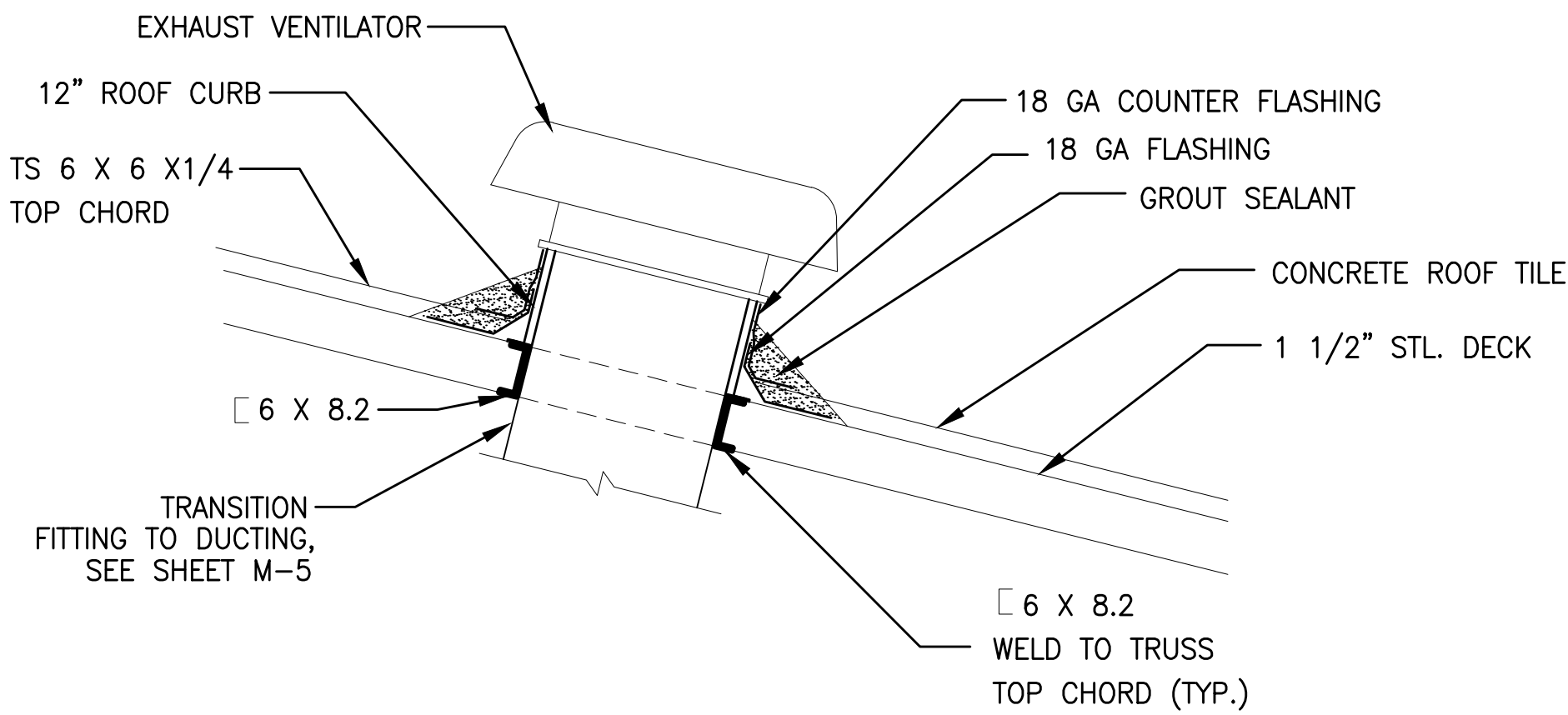
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NOTE: LOUVER INSTALLATION TO COMPLY WITH MANUFACTURER'S SPECS

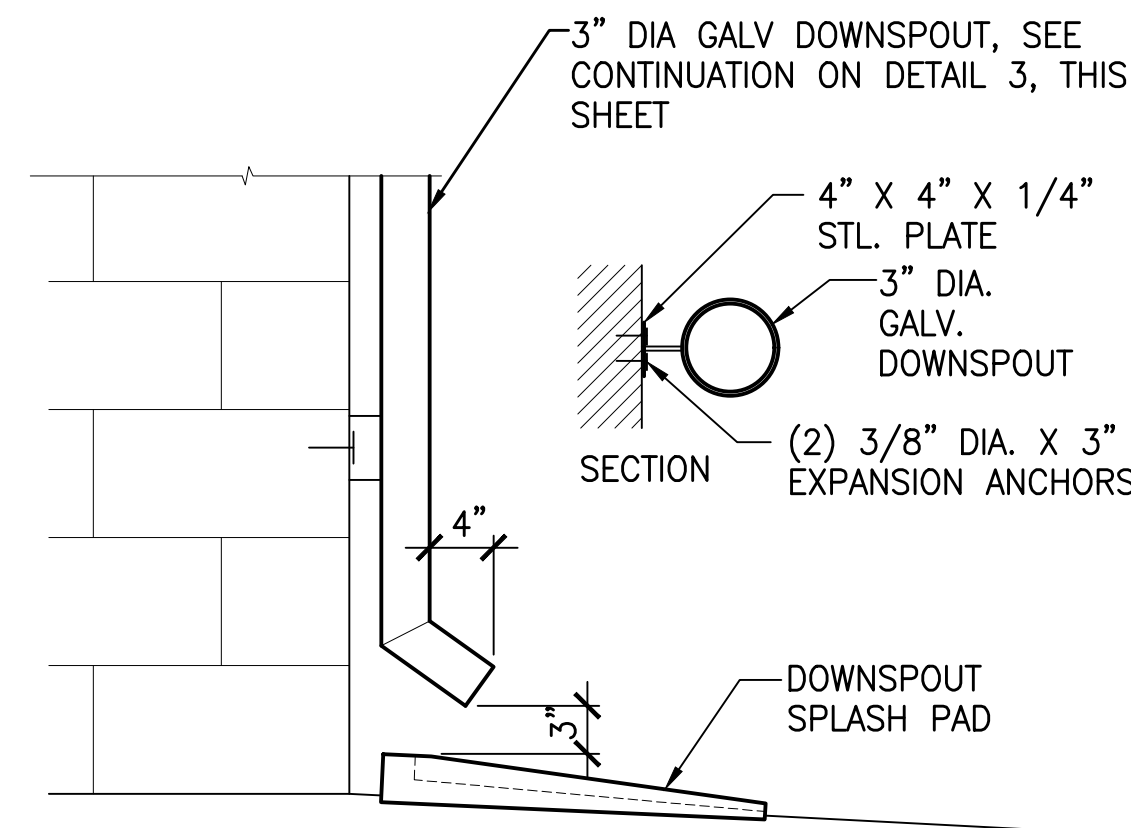
LOUVER JAB @ WALL DETAIL
NTS

4
—



ROOF PENETRATION DETAIL
NTS

5
—



DOWNSPOUT DETAIL
NTS

6
—



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**4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT**

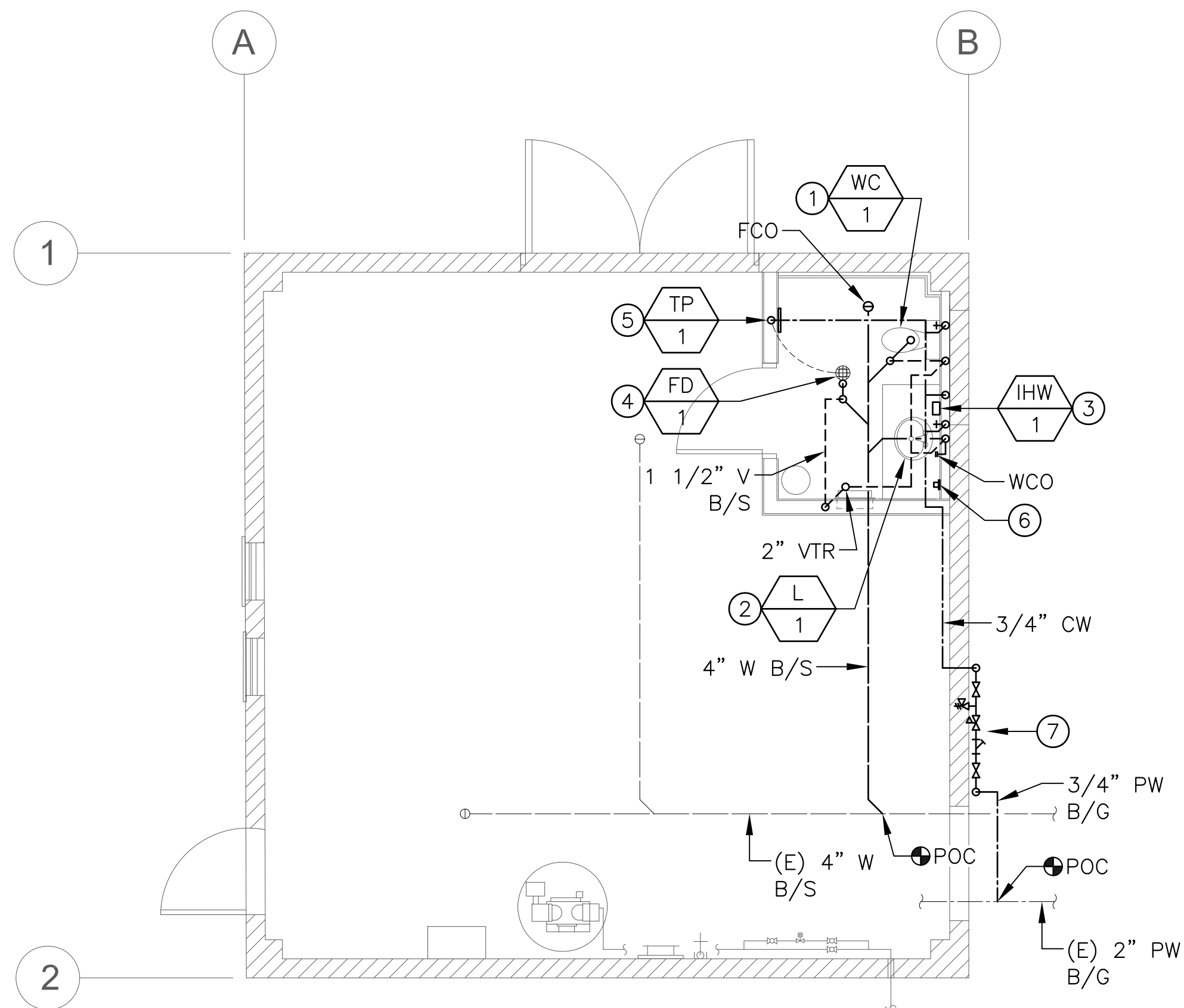
PUMP STATION DETAILS

SHEET	DRAWING
32 of 90	A-6

D700004

ORIGINAL SCALE IN INCHES

CODE COMPLIANCE NOTES		LEGEND AND SYMBOLS		ABBREVIATIONS		GENERAL NOTES			
1. BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH SECTIONS 701.0 AND 903.0 OF THE CALIFORNIA PLUMBING CODE.		SYMBOL		DESCRIPTION		ABBREV.		DESCRIPTION	
2. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.		—————		SANITARY OR WASTE ABOVE GRADE (W)		ABV		ABOVE	
3. EACH VENT SHALL RISE VERTICALLY TO A POINT NOT LESS THAN SIX (6) INCHES ABOVE THE FLOOD-LEVEL RIM OF THE FIXTURE SERVED BEFORE OFFSETTING HORIZONTALLY OR BEFORE BEING CONNECTED TO ANY OTHER VENT.		-----		SANITARY OR WASTE VENT (V)		ADA		AMERICAN DISABILITY ACT	
4. INSTANT HOT WATER HEATERS, PER PLUMBING SCHEDULE IS A LISTED, NON-STORAGE, INSTANTANEOUS HEATER HAVING AN INSIDE DIAMETER OF NOT MORE THAN 3 INCHES.		--		DOMESTIC COLD WATER (CW)		AFF		ABOVE FINISHED FLOOR	
		---		DOMESTIC HOT WATER (HW)		AFG		ABOVE FINISHED GRADE	
		----		DOMESTIC HOT WATER RETURN (HWR)		AP		ACCESS PANEL	
		-----		SHUT-OFF VALVE (SOV)		B/G		BELOW GRADE	
		-----		PRESSURE REGULATING VALVE (PRV)		B/S		BELOW SLAB	
		-----		STRAINER		BEL		BELOW	
		-----		BACKFLOW PREVENTER		BFF		BELOW FINISHED FLOOR	
		-----		POINT OF CONNECTION (POC)		CA		COMPRESSED AIR	
		-----		POINT OF DISCONNECTION (POD)		CD		CONDENSATE DRAIN	
		-----		REMOVE EXISTING PIPING OR EQUIPMENT		CONN		CONNECT, CONNECTION	
		-----		PIPE-UP UNLESS OTHERWISE NOTED		CONT		CONTINUE	
		-----		PIPE DROP UNLESS OTHERWISE NOTED		CR		CONDENSATE RETURN	
		-----		DROP OR RISE		CW		COLD WATER (POTABLE)	
		-----		TOP CONNECTION		DI		DEIONIZED WATER	
		-----		BOTTOM CONNECTION		DN		DOWN	
		-----		FLOOR CLEANOUT (FCO)		DR		DRAIN	
		-----		VALVE AND CAPPED OUTLET		DSP		DRY STANDPIPE	
		-----		UNION		DWG		DRAWING	
		-----		CLEANOUT WALL (WCO)		EL		ELEVATION	
		-----		P-TRAP		(E)		EXISTING	
		-----		PIPE RISER W/ SHUT-OFF VALVE		FCO		FLOOR CLEANOUT	
		-----		STOP VALVE		FD		FLOOR DRAIN	
		-----		CHECK VALVE (CV)		FFE		FINISHED FLOOR ELEVATION	
		-----		PRESSURE RELIEF VALVE (PRV)		FM		FACTORY MUTUAL	
		-----		GAS COCK (GC)		FT		FOOT, FEET	
		-----		VENT THROUGH ROOF (VTR)		FU		FIXTURE UNIT	
		-----		UNION		GAL		GALLON	
		-----		THERMOMETER		GPM		GALLONS PER MINUTE	
		-----		WATER HAMMER ARRESTOR (WHA)		GPF		GALLONS PER FLUSH	
		-----		PRESSURE GAUGE W/ SHUT-OFF VALVE		HB		HOSE BIBB	
		-----		FLOOR DRAIN (FD)		HDR		HEADER	
		-----		HOSE BIBB (HB)		HP		HORSEPOWER	
		-----		EQUIPMENT DESIGNATION		HW		HOT WATER	
		-----		EQUIPMENT NUMBER		HWR		HOT WATER RETURN	
		-----				HZ		HERTZ	
		-----				ICW		INDUSTRIAL COLD WATER	
		-----				IHW		INDUSTRIAL HOT WATER	
		-----				IE		INVERT ELEVATION	
		-----				IN		INCH	
		-----				INT		INTEGRAL	
		-----				KW		KILOWATT	
		-----				LAV		LAVATORY	
		-----				MAX		MAXIMUM	
		-----				MIN		MINIMUM	
		-----				MPG		MEDIUM PRESSURE GAS	
		-----				N		NEW	
		-----				NC		NORMALLY CLOSED	
		-----				NG		NATURAL GAS, LOW PRESSURE	
		-----				NO		NORMALLY OPEN	
		-----				NPT		NATIONAL PIPE THREAD	
		-----				NTS		NOT TO SCALE	
		-----				POC		POINT OF CONNECTION	
		-----				POD		POINT OF DISCONNECT	
		-----				PSI		POUNDS PER SQUARE INCH	
		-----				PW		POTABLE WATER	
		-----				SD		STORM DRAIN	
		-----				SF		SQUARE FEET	
		-----				SH		SHOWER	
		-----				SOW		SCOPE OF WORK	
		-----				SOV		SHUT-OFF VALVE	
		-----				TEMP		TEMPERATURE	
		-----				TP		TRAP PRIMER	
		-----				TYP		TYPICAL	
		-----				UTR		UP THRU ROOF	
		-----				UW		UNTREATED WATER	
		-----				V		VENT	
		-----				VTR		VENT THRU ROOF	
		-----				W		WASTE	
		-----				WC		WATER CLOSET	
		-----				WCO		WALL CLEANOUT	
		-----				WHA		WATER HAMMER ARRESTOR	
		-----				WTR		WATER	



PLUMBING FLOOR PLAN

SCALE
1/4" = 1'-0"

KEY NOTES

- ① WATER CLOSET, WC-1. PROVIDE WITH 1/2" CW, 2" V AND 4" W.
- ② LAVATORY, L-1. LAVATORY IS INTEGRAL TO COUNTER. PROVIDE WITH 1/2" CW, 1/2" HW, 1 1/2" V AND 2" W.
- ③ INSTANT HOT WATER HEATER. PROVIDE WITH 1/2" CW. INSTALL BELOW SINK COUNTER.
- ④ FLOOR DRAIN. PROVIDE WITH 1 1/2" V AND 2" W.
- ⑤ TRAP PRIMER. PROVIDE WITH 1/2" CW. INSTALL AT WALL WITH 8"x8" ACCESS PANEL. PRIME FLOOR DRAIN.
- ⑥ HARD-WIRE TRANSFORMER FOR LAVATORY FAUCET. LOCATE AND INSTALL ABOVE CEILING.
- ⑦ PRESSURE REDUCING VALVE ASSEMBLY. REFER TO DETAIL-1, SHEET P-3. PROVIDE SHUT-OFF VALVES, STRAINER, PRESSURE REDUCING VALVE AND PRESSURE RELIEF VALVE. SET PRESSURE TO 60 PSI. DISCHARGE RELIEF VALVE TO DAYLIGHT.

LEGEND

REFER TO SHEET P-1.

GENERAL NOTES

1. DOMESTIC COLD WATER, HOT WATER, VENT AND WASTE PIPING SHOWN ON DRAWING IS ABOVE FLOOR UNLESS SPECIFIED OTHERWISE. WASTE PIPING IS BELOW SLAB (B/S) OR BELOW GRADE (B/G) AS NOTED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF WALLS, ROOFS, FOOTING AND FLOORS INCLUDING SAW CUTTING AND CORE DRILLING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCHING AND EXCAVATING TO PROVIDE NEW BELOW GROUND PIPING AND BACKFILL.



4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING PLUMBING FLOOR PLAN

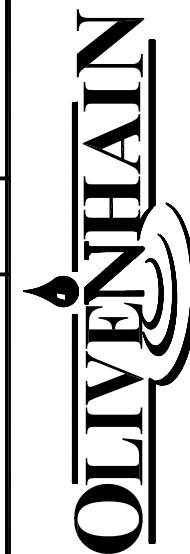
SHEET	DRAWING
<u>34</u> of <u>90</u>	P-2

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ORIGINAL SCALE IN INCHES

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P:\21-MBN-101 4S Ranch Pump Station New Toilet\MECH\P-3.dwg 06/14/2021 10:57

PLUMBING MATERIAL SCHEDULE

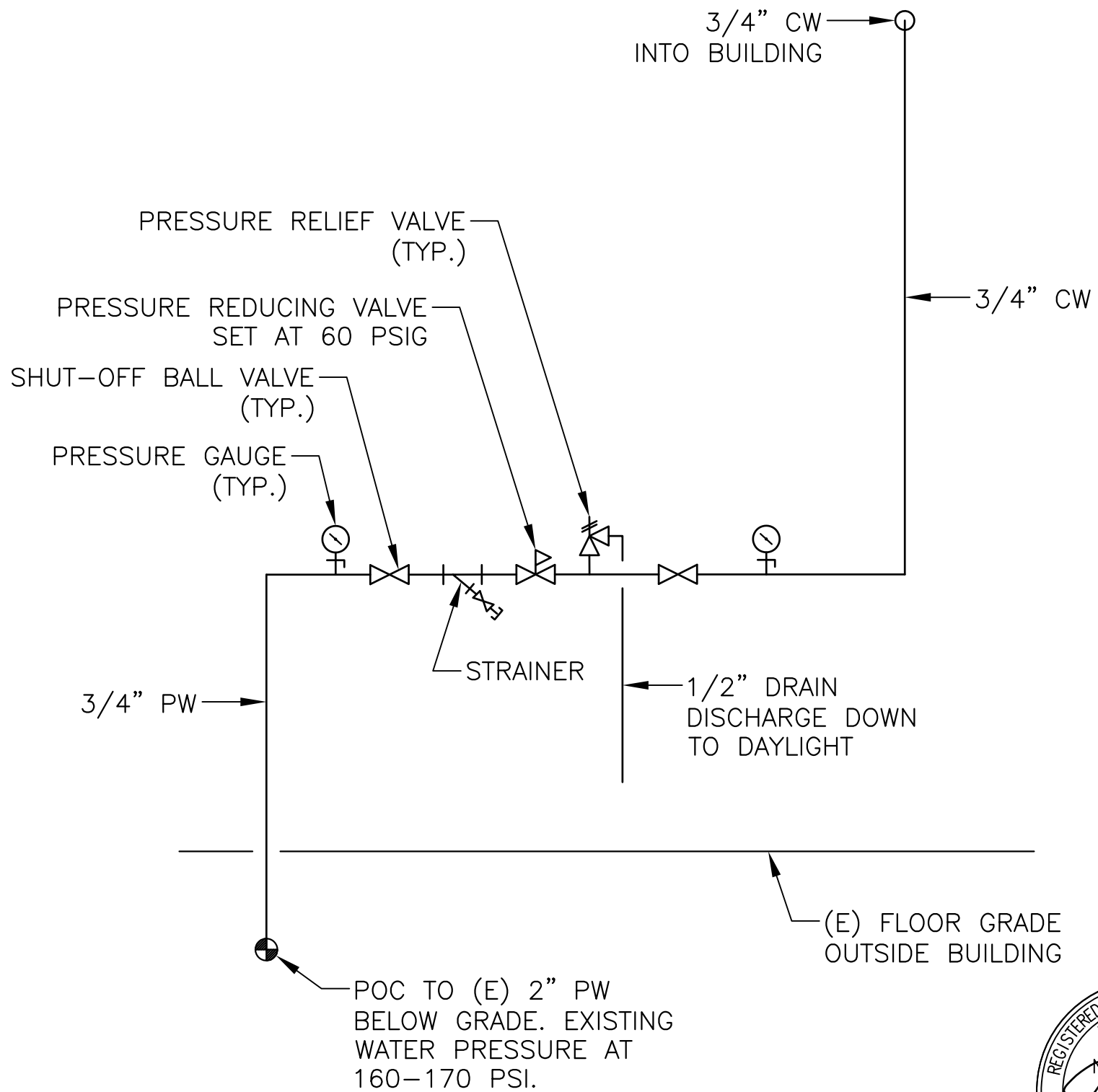
- A. WATER PIPE – BELOW GRADE AND DOWNSTREAM OF BUILDING S.O.V. TYPE "K" COPPER WITH WROUGHT COPPER FITTINGS AND "NO-LEAD" SOLDER. ABOVE GRADE, TYPE "L" COPPER WITH WROUGHT COPPER FITTINGS AND "NO-LEAD" SOLDER.
- B. SEWER AND VENT PIPE – BELOW AND ABOVE BUILDING SLAB, SERVICE WEIGHT (HUB LESS) CAST IRON SOIL PIPE AND STAINLESS STEEL STRAP FITTINGS. BELOW GRADE 5 FEET OUTSIDE OF BUILDING SCHEDULE 40 PVC PIPE AND FITTINGS.
- C. CLEVIS TYPE PIPE HANGERS.

VALVE SCHEDULE

SIZE (IN)	DESCRIPTION/REMARKS
1/2	NIBCO BRONZE BALL VALVE, MODEL S-585-70, LEAD FREE, TWO-PIECE BODY, FULL PORT, BLOWOUT-PROOF STEM, SOLDER ENDS, 600 PSI COLD WORKING PRESSURE.
3/4	
1	

PLUMBING FIXTURES SCHEDULE

MARK	FIXTURE	ROUGH-IN-SIZE				DESCRIPTION/REMARKS
		S/W	V	CW	HW	
WC 1	WATER CLOSET (ADA)	4"	2"	1/2"	–	AMERICAN STANDARD CADET TOUCHLESS WATER CLOSET, MODEL 215AA.709, TWO-PIECE TOILET BOWL AND TANK, TOUCHLESS FLUSH, BATTERY POWERED WITH MANUAL OVERRIDE, VITREOUS CHINA, FLOOR MOUNTED, ELONGATED BOWL. 1.28 GPF AND ADA COMPLIANT. PROVIDE WITH PROFLO TOILET SEAT, MODEL PFTSCOF2000WH, OPEN FRONT LESS COVER, ELONGATED.
L 1	LAVATORY (ADA)	2"	1 1/2"	1/2"	1/2"	LAVATORY SHALL BE INTEGRAL SINK WITH COUNTER PER ARCHITECTURAL PLANS. PROVIDE WITH CHICAGO FAUCET E-TRONIC 40 TOUCH-FREE FAUCET, MODEL 116.706.AB.1, SENSOR ACTIVATED, SINGLE HOLE, SINGLE SUPPLY, DECK MOUNT, 4" CENTER, 0.5 GPM AND ADA COMPLIANT. PROVIDE WITH CHICAGO FAUCETS THERMOSTATIC MIXING VALVE, MODEL 131-ABNF. PROVIDE WITH STOP VALVES, SUPPLIES, DRAIN FITTING AND P-TRAP. ADA COMPLIANT. PROVIDE 12VAC POWER TO FAUCET FROM CHICAGO FAUCETS HARD-WIRE TRANSFORMER, MODEL 243.260.00.1. PROVIDE 120 V, 60 HZ POWER TO TRANSFORMER.
IHW 1	INSTANT HOT WATER HEATER	–	–	1/2"	–	EeMAX LAVADVANTAGE ELECTRIC TANKLESS WATER HEATER MODEL #SPEX48T. ELECTRICAL POWER: 240/1/60, 4.8KW AT 20 AMPS., 0.2 GPM TURN ON ACTIVATION, ADJUSTABLE SET POINT, COMPRESSION FITTINGS, 150 PSI MAX. 0.5 GPM AT 66°F RISE.
FD 1	FLOOR DRAIN	2"	1 1/2"	–	–	ZURN FLOOR DRAIN, MODEL Z415B, CAST IRON BODY WITH TYPE B FLAT STRAINER.
TP 1	TRAP PRIMER	–	–	1/2"	–	PRECISION PLUMBING PRODUCTS (PPP) TRAP PRIMER, MODEL PR-500, PRIME-RITE SERIES, AUTOMATIC PRIMER.



PRESSURE REDUCING VALVE ASSEMBLY DETAIL

SCALE NTS 1

4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING PLUMBING
SCHEDULES AND DETAILS

SHEET 35 of 90

DRAWING P-3

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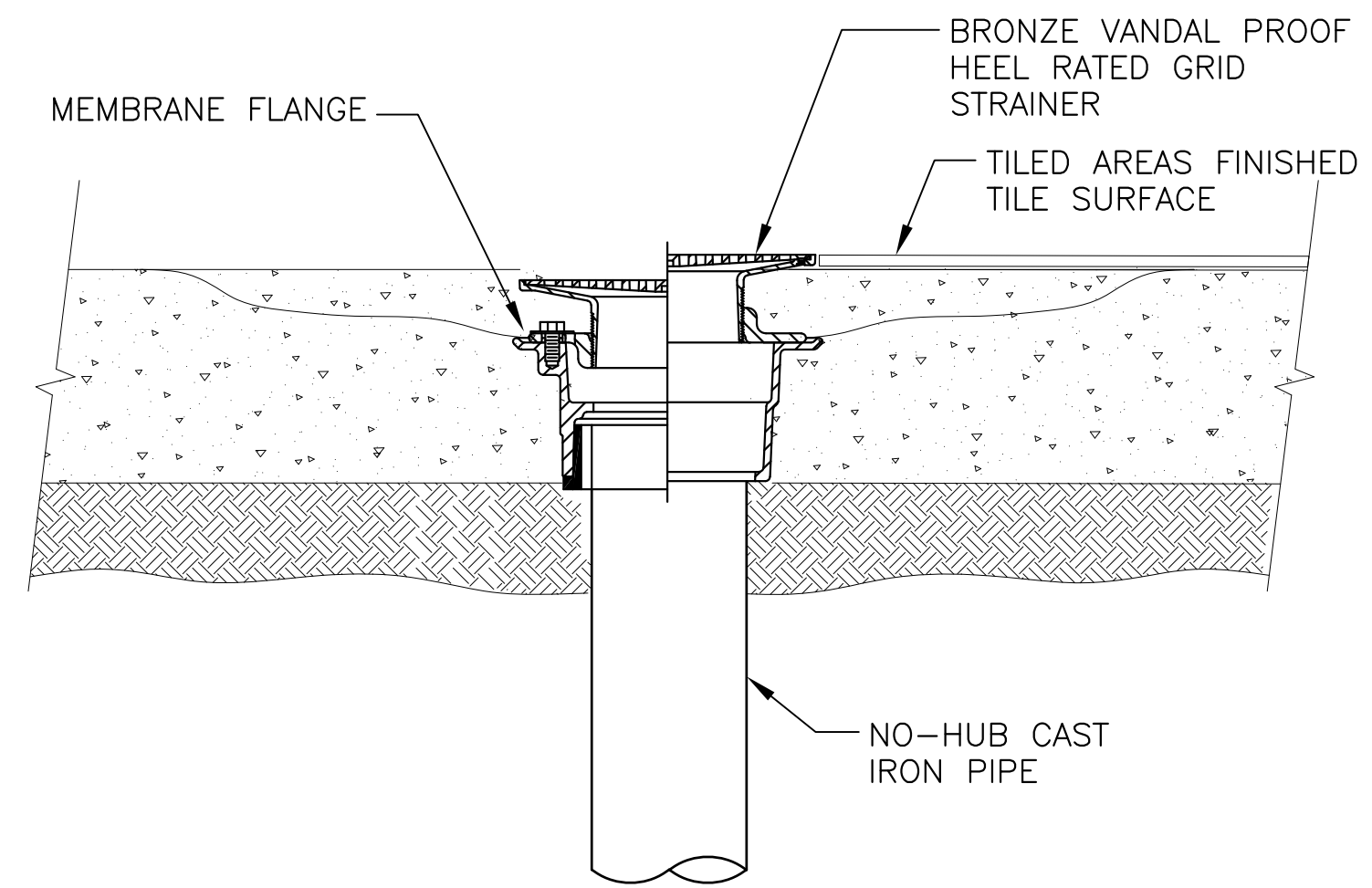
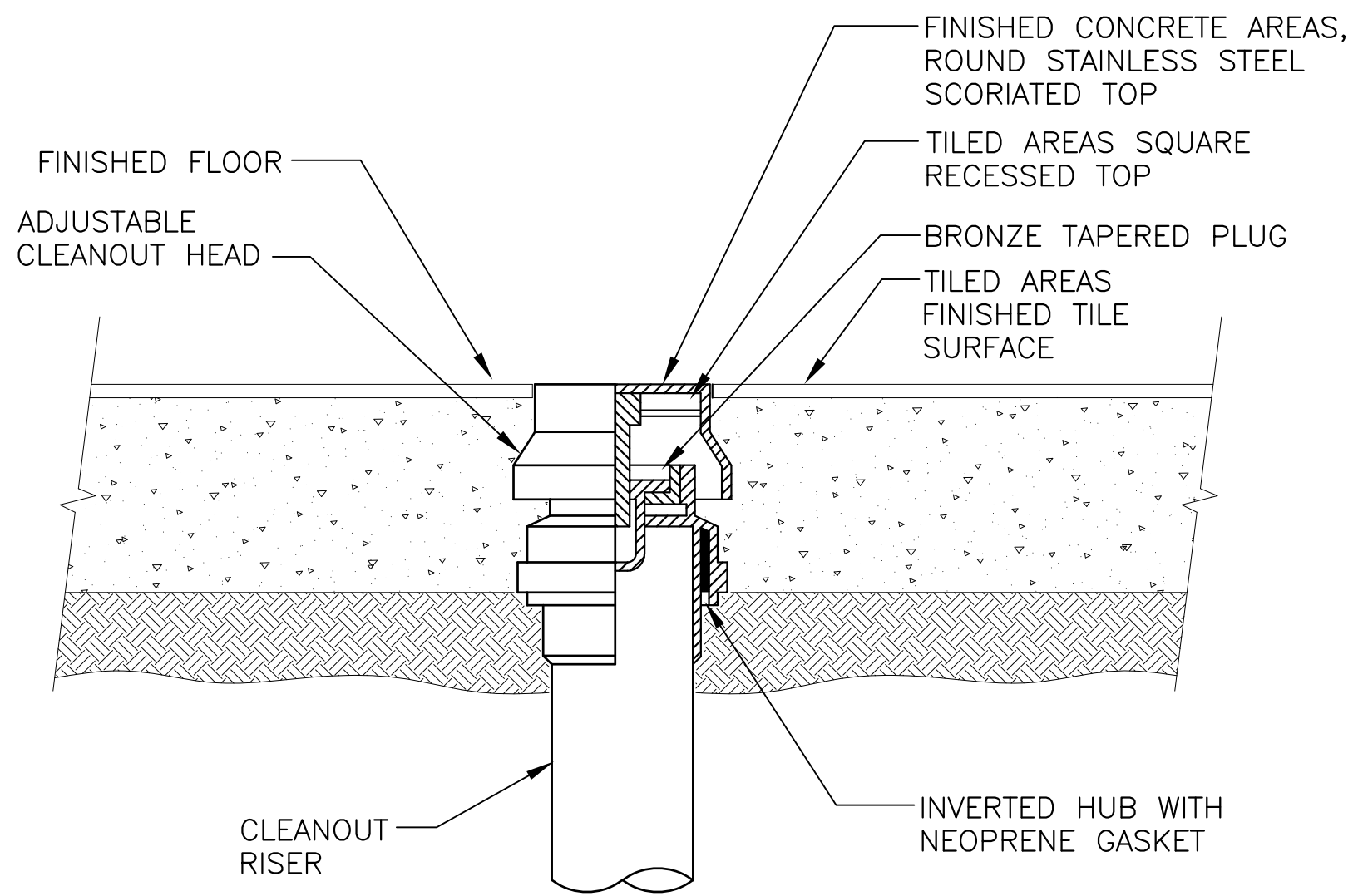
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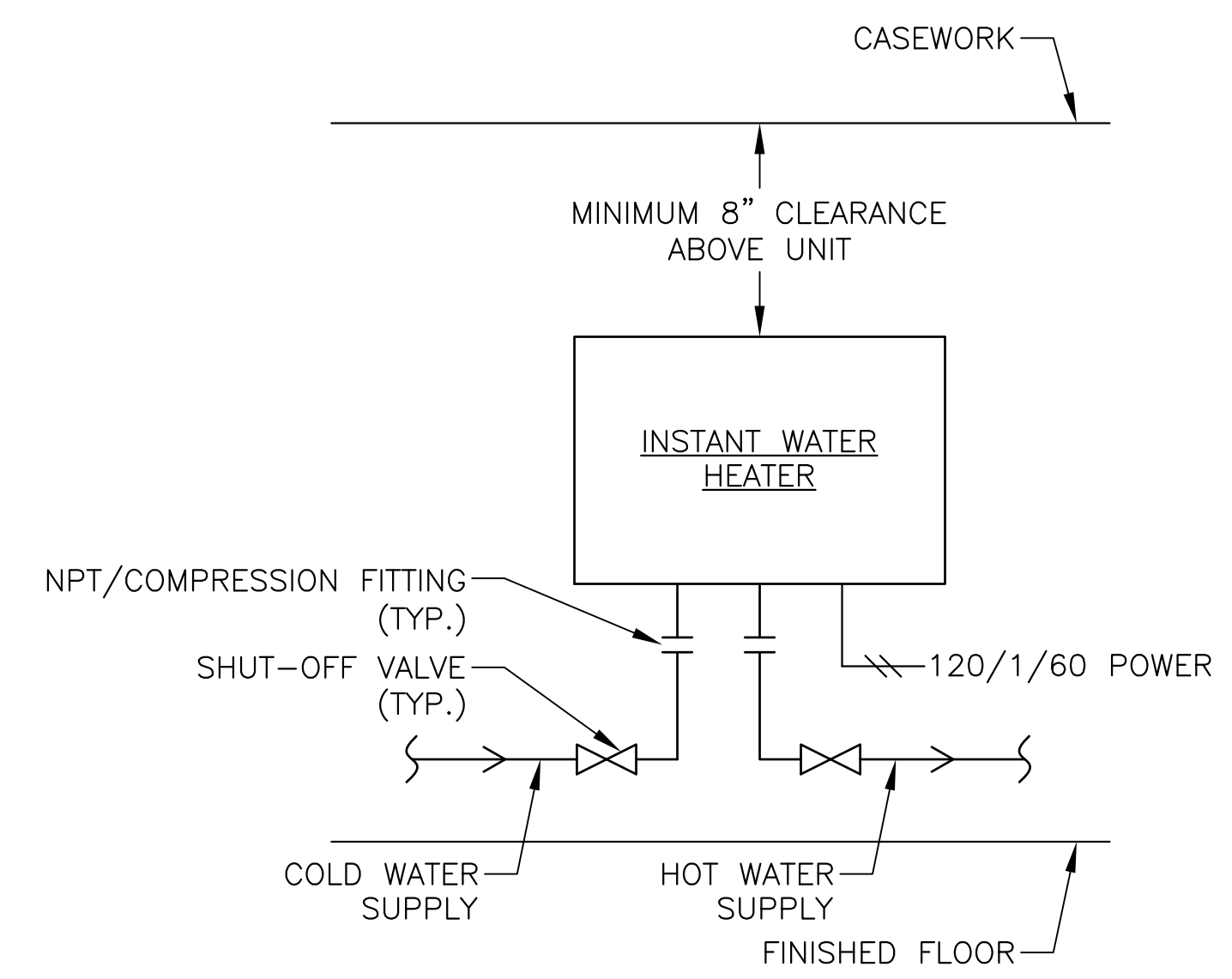
NOTES:

SET FLOOR DRAINS BELOW ELEVATION OF FINISHED FLOOR DRAINAGE. SET WITH GRATES DEPRESSED ACCORDING TO THE FOLLOWING DRAINAGE AREA RADII:

RADIUS, 30" OR LESS: EQUIVALENT TO 1% SLOPE, BUT NOT LESS THAN 1/4" TOTAL DEPRESSION.

RADIUS, 30" TO 60": EQUIVALENT TO 1% SLOPE.

RADIUS, 60" OR LARGER: EQUIVALENT TO 1% SLOPE, BUT NOT GREATER THAN 1" TOTAL DEPRESSION.



TYPICAL FLOOR CLEANOUT DETAIL

SCALE
NTS

5

TYPICAL FLOOR DRAIN DETAIL

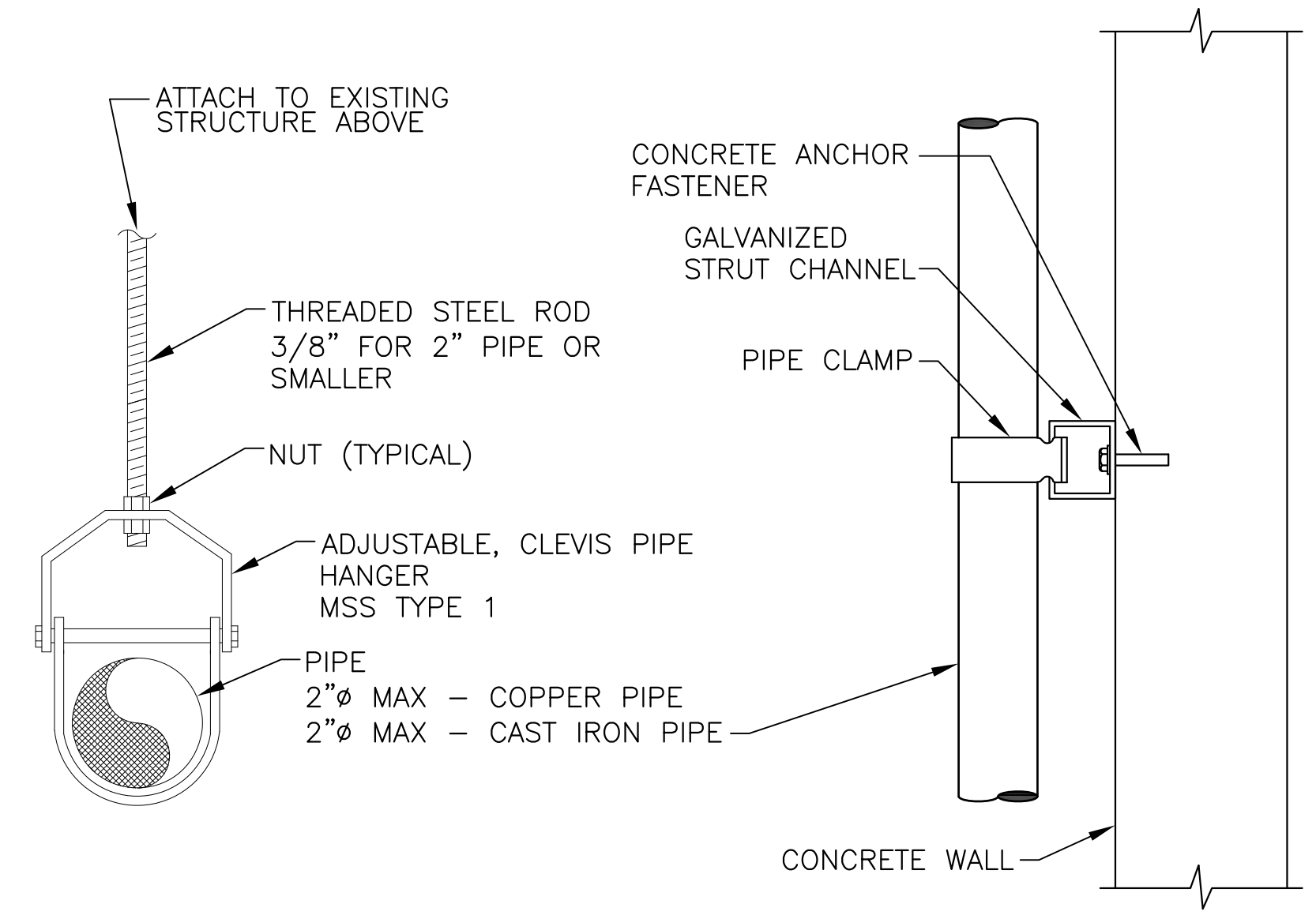
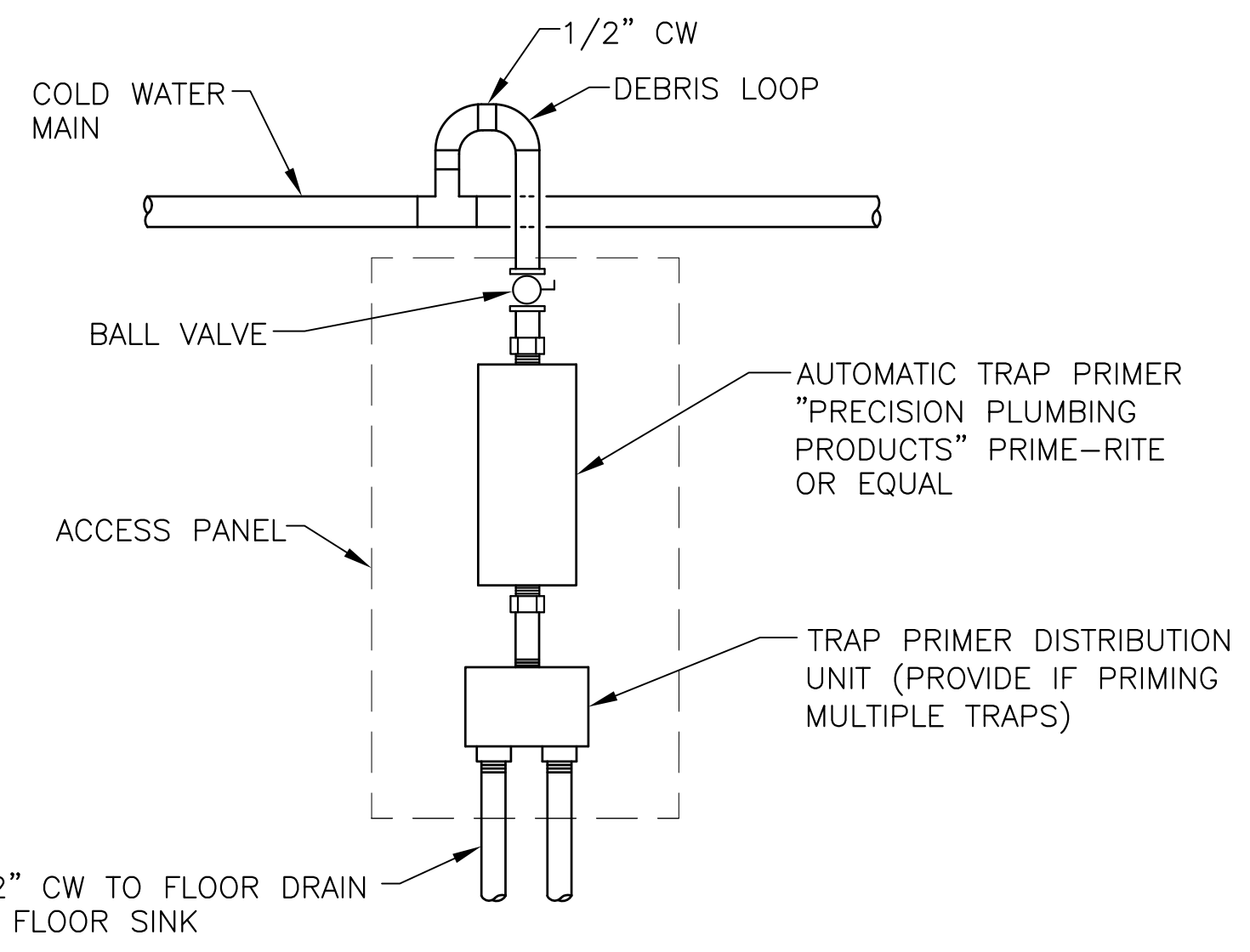
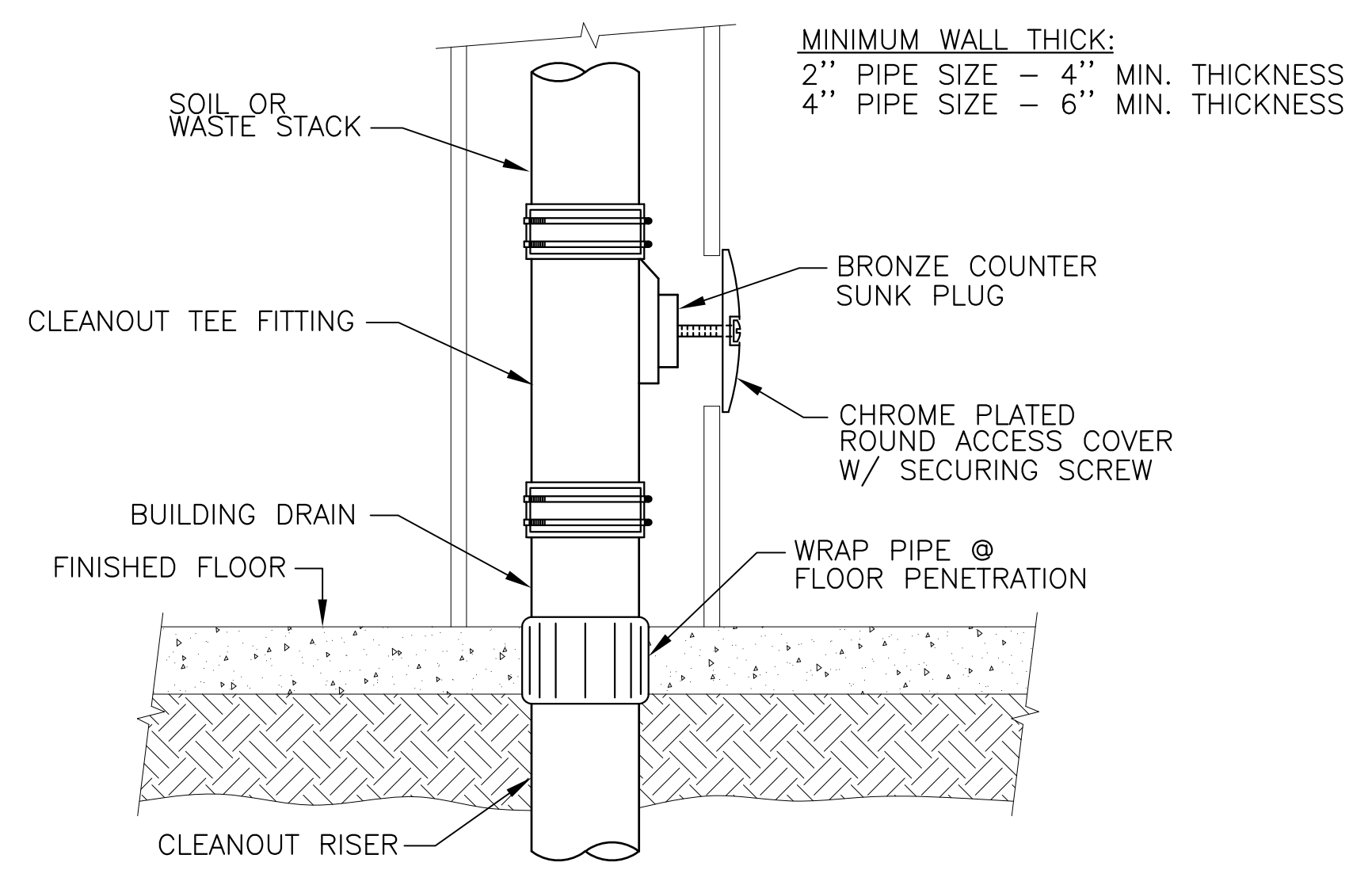
SCALE
NTS

3

INSTANTANEOUS WATER HEATER DETAIL

SCALE
NTS

1



NOTES:

1. MAX SPACING OF HANGER SHALL BE AS FOLLOWS FOR DOMESTIC COLD AND HOT WATER COPPER PIPING:

A. 5'-0" FOR 3/4" PIPE AND SMALLER

B. 6'-0" FOR 1" AND 1 1/4" PIPE

C. 8'-0" FOR 1 1/2" AND 2" PIPE

3. MAX SPACING OF HANGER SHALL BE AS FOLLOWS FOR WASTE AND VENT CAST IRON PIPING:

A. 5'-0" FOR 4" PIPE AND SMALLER



TYPICAL WALL CLEANOUT DETAIL

SCALE
NTS

6

TRAP PRIMER DETAIL

SCALE
NTS

4

PIPE SUPPORT DETAIL

SCALE
NTS

2

4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING
PLUMBING DETAILS

SHEET
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SECTION 15110 – PLUMBING VALVES

PART 1 – GENERAL

- 1.1 RELATED DOCUMENTS
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2 SUMMARY
A. THIS SECTION INCLUDES THE FOLLOWING GENERAL–DUTY VALVES:
1. COPPER–ALLOY BALL VALVES.
B. RELATED SECTIONS INCLUDE THE FOLLOWING:
1. DIVISION 15 PIPING SECTIONS FOR SPECIALTY VALVES APPLICABLE TO THOSE SECTIONS ONLY.
- 1.3 DEFINITIONS
A. THE FOLLOWING ARE STANDARD ABBREVIATIONS FOR VALVES:
1. CWP: COLD WORKING PRESSURE.
2. PTFE: POLYTETRAFLUOROETHYLENE PLASTIC.
3. SWP: STEAM WORKING PRESSURE.
4. TFE: TETRAFLUOROETHYLENE PLASTIC.
- 1.4 SUBMITTALS
A. PRODUCT DATA: FOR EACH TYPE OF VALVE INDICATED. INCLUDE BODY, SEATING, AND TRIM MATERIALS; VALVE DESIGN; PRESSURE AND TEMPERATURE CLASSIFICATIONS; END CONNECTIONS; ARRANGEMENT; DIMENSIONS; AND REQUIRED CLEARANCES. INCLUDE LIST INDICATING VALVE AND ITS APPLICATION. INCLUDE RATED CAPACITIES; SHIPPING, INSTALLED, AND OPERATING WEIGHTS; FURNISHED SPECIALTIES; AND ACCESSORIES.
- 1.5 QUALITY ASSURANCE
A. ASME COMPLIANCE: ASME B31.9 FOR BUILDING SERVICES PIPING VALVES.
1. EXCEPTIONS: DOMESTIC HOT– AND COLD–WATER PIPING VALVES UNLESS REFERENCED.
B. ASME COMPLIANCE FOR FERROUS VALVES: ASME B16.10 AND ASME B16.34 FOR DIMENSION AND DESIGN CRITERIA.
C. NSF COMPLIANCE: NSF 61 FOR VALVE MATERIALS FOR POTABLE–WATER SERVICE.
- 1.6 DELIVERY, STORAGE, AND HANDLING
A. PREPARE VALVES FOR SHIPPING AS FOLLOWS:
1. PROTECT INTERNAL PARTS AGAINST RUST AND CORROSION.
2. PROTECT THREADS.
3. SET BALL VALVES OPEN TO MINIMIZE EXPOSURE OF FUNCTIONAL SURFACES.
B. USE THE FOLLOWING PRECAUTIONS DURING STORAGE:
1. MAINTAIN VALVE END PROTECTION.
2. STORE VALVES INDOORS AND MAINTAIN AT HIGHER THAN AMBIENT DEW–POINT TEMPERATURE. IF OUTDOOR STORAGE IS NECESSARY, STORE VALVES OFF THE GROUND IN WATERTIGHT ENCLOSURES.

PART 2 – PRODUCTS

- 2.1 MANUFACTURERS
A. IN OTHER PART 2 ARTICLES WHERE SUBPARAGRAPH TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY FOR PRODUCT SELECTION:
1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE MANUFACTURERS SPECIFIED.
- 2.2 VALVES, GENERAL
A. REFER TO PART 3 “VALVE APPLICATIONS” ARTICLE FOR APPLICATIONS OF VALVES.
B. BRONZE VALVES: NPS 2 AND SMALLER WITH THREADED ENDS, UNLESS OTHERWISE INDICATED.
C. VALVE PRESSURE AND TEMPERATURE RATINGS: NOT LESS THAN INDICATED AND AS REQUIRED FOR SYSTEM PRESSURES AND TEMPERATURES.
D. VALVE SIZES:
1. MAINTAIN VALVE END PROTECTION.
2. STORE VALVES INDOORS AND MAINTAIN AT HIGHER THAN AMBIENT DEW–POINT TEMPERATURE. IF OUTDOOR STORAGE IS NECESSARY, STORE VALVES OFF THE GROUND IN WATERTIGHT ENCLOSURES.
- 2.3 COPPER–ALLOY BALL VALVES
A. AVAILABLE MANUFACTURERS:
1. TWO–PIECE, COPPER–ALLOY BALL VALVES:
a. CONBRACO INDUSTRIES, INC.; APOLLO DIV.
b. MILWAUKEE VALVE COMPANY.
c. NEXUS VALVE SPECIALTIES.
d. NIBCO INC.
e. RED–WHITE VALVE CORP.
f. WATTS INDUSTRIES, INC.; WATER PRODUCTS DIV.
B. COPPER–ALLOY BALL VALVES, GENERAL: MSS SP–110.
C. TWO–PIECE, COPPER–ALLOY BALL VALVES: BRASS OR BRONZE BODY WITH FULL–PORT, CHROME–PLATED BRONZE BALL; PTFE OR TFE SEATS; AND 600–PSIG MINIMUM CWP RATING AND BLOWOUT–PROOF STEM.

PART 3 – EXECUTION

- 3.1 EXAMINATION
A. EXAMINE PIPING SYSTEM FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE.
1. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- B. EXAMINE VALVE INTERIOR FOR CLEANLINESS, FREEDOM FROM FOREIGN MATTER, AND CORROSION. REMOVE SPECIAL PACKING MATERIALS, SUCH AS BLOCKS, USED TO PREVENT DISC MOVEMENT DURING SHIPPING AND HANDLING.
- C. OPERATE VALVES IN POSITIONS FROM FULLY OPEN TO FULLY CLOSED. EXAMINE GUIDES AND SEATS MADE ACCESSIBLE BY SUCH OPERATIONS.
- D. EXAMINE THREADS ON VALVE AND MATING PIPE FOR FORM AND CLEANLINESS.
- E. EXAMINE MATING FLANGE FACES FOR CONDITIONS THAT MIGHT CAUSE LEAKAGE. CHECK BOLTING FOR PROPER SIZE, LENGTH, AND MATERIAL. VERIFY THAT GASKET IS OF PROPER SIZE, THAT ITS MATERIAL COMPOSITION IS SUITABLE FOR SERVICE, AND THAT IT IS FREE FROM DEFECTS AND DAMAGE.
- F. DO NOT ATTEMPT TO REPAIR DEFECTIVE VALVES; REPLACE WITH NEW VALVES.
- 3.2 VALVE APPLICATIONS
A. REFER TO PIPING SECTIONS FOR SPECIFIC VALVE APPLICATIONS. IF VALVE APPLICATIONS ARE NOT INDICATED, USE THE FOLLOWING:
1. SHUTOFF SERVICE: BALL VALVES.
B. IF VALVES WITH SPECIFIED SWP CLASSES OR CWP RATINGS ARE NOT AVAILABLE, THE SAME TYPES OF VALVES WITH HIGHER SWP CLASS OR CWP RATINGS MAY BE SUBSTITUTED.
- C. DOMESTIC WATER PIPING: USE THE FOLLOWING TYPES OF VALVES:
1. BALL VALVES, NPS 2 AND SMALLER: TWO–PIECE, 400–PSIG CWP RATING, COPPER ALLOY.
- D. SELECT VALVES, EXCEPT WAFER AND FLANGELESS TYPES, WITH THE FOLLOWING END CONNECTIONS:
1. FOR COPPER TUBING, NPS 2 AND SMALLER: SOLDER–JOINT OR THREADED ENDS.
- 3.3 VALVE INSTALLATION
A. PIPING INSTALLATION REQUIREMENTS ARE SPECIFIED IN OTHER DIVISION 15 SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.
- B. INSTALL VALVES WITH UNIONS AT EACH PIECE OF EQUIPMENT ARRANGED TO ALLOW SERVICE, MAINTENANCE, AND EQUIPMENT REMOVAL WITHOUT SYSTEM SHUTDOWN.
- C. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.
- D. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.
- E. INSTALL VALVES IN POSITION TO ALLOW FULL STEM MOVEMENT.
- 3.4 JOINT CONSTRUCTION
A. SOLDERED JOINTS: USE ASTM B 813, WATER–FLUSHABLE, LEAD–FREE FLUX; ASTM B 32, LEAD–FREE–ALLOY SOLDER; AND ASTM B 828 PROCEDURE, UNLESS OTHERWISE INDICATED.
- 3.5 ADJUSTING
A. ADJUST OR REPLACE VALVE PACKING AFTER PIPING SYSTEMS HAVE BEEN TESTED AND PUT INTO SERVICE BUT BEFORE FINAL ADJUSTING AND BALANCING. REPLACE VALVES IF PERSISTENT LEAKING OCCURS.

END OF SECTION

SECTION 15140 – DOMESTIC WATER PIPING

PART 1 – GENERAL

- 1.1 RELATED DOCUMENTS
A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2 SUMMARY
A. THIS SECTION INCLUDES DOMESTIC WATER PIPING INSIDE THE BUILDING.
- 1.3 PERFORMANCE REQUIREMENTS
A. PROVIDE COMPONENTS AND INSTALLATION CAPABLE OF PRODUCING DOMESTIC WATER PIPING SYSTEMS WITH 60 PSIG AND 170 PSIG, UNLESS OTHERWISE INDICATED.
- 1.4 SUBMITTALS
A. PRODUCT DATA: FOR PIPE, TUBE, FITTINGS, AND COUPLINGS.
B. WATER SAMPLES: SPECIFIED IN PART 3 “CLEANING” ARTICLE.
C. FIELD QUALITY–CONTROL TEST REPORTS.
- 1.5 QUALITY ASSURANCE
A. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.
B. COMPLY WITH NSF 61, “DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS; SECTIONS 1 THROUGH 9,” FOR POTABLE DOMESTIC WATER PIPING AND COMPONENTS.

PART 2 – PRODUCTS

- 2.1 MANUFACTURERS
A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:
1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED.
- 2.2 PIPING MATERIALS
A. REFER TO PART 3 “PIPE AND FITTING APPLICATIONS” ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTING, AND JOINING MATERIALS.
B. TRANSITION COUPLINGS FOR ABOVEGROUND PRESSURE PIPING: COUPLING OR OTHER MANUFACTURED FITTING THE SAME SIZE AS, WITH PRESSURE RATING AT LEAST EQUAL TO AND ENDS COMPATIBLE WITH, PIPING TO BE JOINED.
- 2.3 COPPER TUBE AND FITTINGS
A. SOFT COPPER TUBE: ASTM B 88, TYPES K AND L, WATER TUBE, ANNEALED TEMPER.
1. COPPER PRESSURE FITTINGS: ASME B16.18, CAST–COPPER–ALLOY OR ASME B16.22, WROUGHT–COPPER, SOLDER–JOINT FITTINGS. FURNISH WROUGHT–COPPER FITTINGS IF INDICATED.
2. COPPER UNIONS: MSS SP–123, CAST–COPPER–ALLOY, HEXAGONAL–STOCK BODY, WITH BALL–AND–SOCKET, METAL–TO–METAL SEATING SURFACES, AND SOLDER–JOINT OR THREADED ENDS.
B. HARD COPPER TUBE: ASTM B 88, TYPES L AND M, WATER TUBE, DRAWN TEMPER.
1. COPPER PRESSURE FITTINGS: ASME B16.18, CAST–COPPER–ALLOY OR ASME B16.22, WROUGHT–COPPER, SOLDER–JOINT FITTINGS. FURNISH WROUGHT–COPPER FITTINGS IF INDICATED.
2. COPPER UNIONS: MSS SP–123, CAST–COPPER–ALLOY, HEXAGONAL–STOCK BODY, WITH BALL–AND–SOCKET, METAL–TO–METAL SEATING SURFACES, AND SOLDER–JOINT OR THREADED ENDS.
- 2.4 VALVES
A. BRONZE GENERAL–DUTY VALVES ARE SPECIFIED IN DIVISION 15 SECTION “PLUMBING VALVES.”

PART 3 – EXECUTION

- 3.1 EXCAVATION
A. EXCAVATING, TRENCHING, AND BACKFILLING ARE SPECIFIED IN DIVISION 2 SECTION “EARTHWORK.”
- 3.2 PIPE AND FITTING APPLICATIONS
A. TRANSITION AND SPECIAL FITTINGS WITH PRESSURE RATINGS AT LEAST EQUAL TO PIPING RATING MAY BE USED IN APPLICATIONS BELOW, UNLESS OTHERWISE INDICATED.
B. UNDER–BUILDING–SLAB, DOMESTIC WATER PIPING ON HOUSE SIDE OF WATER METER, NPS 4 AND SMALLER: SOFT OR HARD COPPER TUBE, TYPE L; COPPER PRESSURE FITTINGS; AND SOLDERED JOINTS.
C. ABOVEGROUND DOMESTIC WATER PIPING: USE THE FOLLOWING PIPING MATERIALS FOR EACH SIZE RANGE:
1. NPS 1 AND SMALLER: HARD COPPER TUBE, TYPE L; COPPER PRESSURE FITTINGS; AND SOLDERED JOINTS.
- 3.3 VALVE APPLICATIONS
A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:
1. SHUTOFF DUTY: USE BRONZE BALL FOR PIPING NPS 2 AND SMALLER.
B. INSTALL SHUTOFF VALVE CLOSE TO WATER MAIN ON EACH BRANCH AND RISER SERVING PLUMBING FIXTURES OR EQUIPMENT, ON EACH WATER SUPPLY TO EQUIPMENT, AND ON EACH WATER SUPPLY TO PLUMBING FIXTURES THAT DO NOT HAVE SUPPLY STOPS. USE BALL VALVES FOR PIPING NPS 2 AND SMALLER.
- 3.4 PIPING INSTALLATION
A. INSTALL UNDER–BUILDING–SLAB COPPER TUBING ACCORDING TO CDA’S “COPPER TUBE HANDBOOK.”
B. INSTALL WALL PENETRATION SYSTEM AT EACH SERVICE PIPE PENETRATION THROUGH FOUNDATION WALL. MAKE INSTALLATION WATERTIGHT. WALL PENETRATION SYSTEMS ARE SPECIFIED IN DIVISION 15 SECTION “BASIC MECHANICAL MATERIALS AND METHODS.”
C. INSTALL WATER–PRESSURE REGULATORS DOWNSTREAM FROM SHUTOFF VALVES.
D. INSTALL DOMESTIC WATER PIPING AND PLUMB.
- 3.5 JOINT CONSTRUCTION
A. SOLDERED JOINTS: USE ASTM B 813, WATER–FLUSHABLE, LEAD–FREE FLUX; ASTM B 32, LEAD–FREE–ALLOY SOLDER; AND ASTM B 828 PROCEDURE, UNLESS OTHERWISE INDICATED.
- 3.6 HANGER AND SUPPORT INSTALLATION
A. INSTALL THE FOLLOWING:
1. VERTICAL PIPING: MSS TYPE 8 OR TYPE 42, CLAMPS.
2. INDIVIDUAL, STRAIGHT, HORIZONTAL PIPING RUNS: ACCORDING TO THE FOLLOWING:
a. 100 FEET AND LESS: MSS TYPE 1, ADJUSTABLE, STEEL CLEVIS HANGERS.
B. INSTALL SUPPORTS ACCORDING TO DIVISION 15 SECTION “HANGERS AND SUPPORTS.”
C. INSTALL HANGERS FOR COPPER TUBING WITH THE FOLLOWING MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS:
1. NPS 3/4 AND SMALLER: 60 INCHES WITH 3/8–INCH ROD.
2. NPS 1 AND NPS 1–1/4: 72 INCHES WITH 3/8–INCH ROD.
D. INSTALL SUPPORTS FOR VERTICAL COPPER TUBING EVERY 10 FEET.
E. SUPPORT PIPING AND TUBING NOT LISTED ABOVE ACCORDING TO MSS SP–69 AND MANUFACTURER’S WRITTEN INSTRUCTIONS.
- 3.7 CONNECTIONS
A. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.
B. INSTALL PIPING ADJACENT TO EQUIPMENT AND MACHINES TO ALLOW SERVICE AND MAINTENANCE.
C. CONNECT DOMESTIC WATER PIPING TO EXTERIOR WATER–SERVICE PIPING. USE TRANSITION FITTING TO JOIN DISSIMILAR PIPING MATERIALS.
D. CONNECT DOMESTIC WATER PIPING TO WATER–SERVICE PIPING WITH SHUTOFF VALVE, AND EXTEND AND CONNECT TO THE FOLLOWING:
1. PLUMBING FIXTURES: COLD– AND HOT–WATER SUPPLY PIPING IN SIZES INDICATED, BUT NOT SMALLER THAN REQUIRED BY PLUMBING CODE. REFER TO DIVISION 15 SECTION “PLUMBING FIXTURES.”
2. EQUIPMENT: COLD– AND HOT–WATER SUPPLY PIPING AS INDICATED, BUT NOT SMALLER THAN EQUIPMENT CONNECTIONS. PROVIDE SHUTOFF VALVE AND UNION FOR EACH CONNECTION.

- 3.8 FIELD QUALITY CONTROL
A. INSPECT DOMESTIC WATER PIPING AS FOLLOWS:
1. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.
2. DURING INSTALLATION, NOTIFY AUTHORITIES HAVING JURISDICTION AT LEAST 24 HOURS BEFORE INSPECTION MUST BE MADE. PERFORM TESTS SPECIFIED BELOW IN PRESENCE OF AUTHORITIES HAVING JURISDICTION:
a. ROUGHING–IN INSPECTION: ARRANGE FOR INSPECTION OF PIPING BEFORE CONCEALING OR CLOSING–IN AFTER ROUGHING–IN AND BEFORE SETTING FIXTURES.
b. FINAL INSPECTION: ARRANGE FINAL INSPECTION FOR AUTHORITIES HAVING JURISDICTION TO OBSERVE TESTS SPECIFIED BELOW AND TO ENSURE COMPLIANCE WITH REQUIREMENTS.
3. REINSPECTION: IF AUTHORITIES HAVING JURISDICTION FIND THAT PIPING WILL NOT PASS TEST OR INSPECTION, MAKE REQUIRED CORRECTIONS AND ARRANGE FOR REINSPECTION.
4. REPORTS: PREPARE INSPECTION REPORTS AND HAVE THEM SIGNED BY AUTHORITIES HAVING JURISDICTION.
- B. TEST DOMESTIC WATER PIPING AS FOLLOWS:
1. FILL DOMESTIC WATER PIPING. CHECK COMPONENTS TO DETERMINE THAT THEY ARE NOT AIR BOUND AND THAT PIPING IS FULL OF WATER.
2. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF PIPING TESTED.
3. LEAVE NEW, ALTERED, EXTENDED, OR REPLACED DOMESTIC WATER PIPING UNCOVERED AND UNCONCEALED UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT WAS COVERED OR CONCEALED BEFORE IT WAS TESTED.
4. CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
5. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
6. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.
- 3.9 ADJUSTING
A. PERFORM THE FOLLOWING ADJUSTMENTS BEFORE OPERATION:
1. OPEN SHUTOFF VALVES TO FULLY OPEN POSITION.
2. REMOVE PLUGS USED DURING TESTING OF PIPING AND PLUGS USED FOR TEMPORARY SEALING OF PIPING DURING INSTALLATION.
3. REMOVE AND CLEAN STRAINER SCREENS. CLOSE DRAIN VALVES AND REPLACE DRAIN PLUGS.
4. CHECK PLUMBING SPECIALTIES AND VERIFY PROPER SETTINGS, ADJUSTMENTS, AND OPERATION.
- 3.10 CLEANING
A. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING AS FOLLOWS:
1. PURGE NEW PIPING AND PARTS OF EXISTING DOMESTIC WATER PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING.
2. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IF METHODS ARE NOT PRESCRIBED, PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW:
a. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.
b. FILL AND ISOLATE SYSTEM ACCORDING TO EITHER OF THE FOLLOWING:
1) FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST 50 PPM OF CHLORINE. ISOLATE WITH VALVES AND ALLOW TO STAND FOR 24 HOURS.
2) FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST 200 PPM OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR THREE HOURS.
c. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME.
d. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION.
B. PREPARE AND SUBMIT REPORTS OF PURGING AND DISINFECTING ACTIVITIES.
- C. CLEAN INTERIOR OF DOMESTIC WATER PIPING SYSTEM. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES.

END OF SECTION



PLUMBING SPECIFICATIONS

SCALE
NTS

1

D700004

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4S RANCH NEIGHBORHOOD 1
SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING
PLUMBING SPECIFICATIONS

SHEET
37 of 90

DRAWING
P-5

ORIGINAL SCALE IN INCHES

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SECTION 15150 – SANITARY WASTE AND VENT PIPING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING FOR SOIL, WASTE, AND VENT PIPING INSIDE THE BUILDING:

1. PIPE, TUBE, AND FITTINGS.

1.3 PERFORMANCE REQUIREMENTS

A. COMPONENTS AND INSTALLATION SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING MINIMUM WORKING PRESSURE, UNLESS OTHERWISE INDICATED:

1. SOIL, WASTE, AND VENT PIPING: 10–FOOT HEAD OF WATER.

1.4 SUBMITTALS

A. PRODUCT DATA: FOR PIPE, TUBE, FITTINGS, AND COUPLINGS.

B. FIELD QUALITY–CONTROL INSPECTION AND TEST REPORTS.

1.5 QUALITY ASSURANCE

A. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY. CAST IRON PIPING MATERIALS SHALL BEAR THE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:

1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED.

2.2 PIPING MATERIALS

A. REFER TO PART 3 "PIPING APPLICATIONS" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTING, AND JOINING MATERIALS.

2.3 HUBLESS CAST–IRON SOIL PIPE AND FITTINGS

A. PIPE AND FITTINGS: ASTM A 888 OR CISPI 301.

B. SHIELDED COUPLINGS: ASTM C 1277 ASSEMBLY OF METAL SHIELD OR HOUSING, CORROSION–RESISTANT FASTENERS, AND RUBBER SLEEVE WITH INTEGRAL, CENTER PIPE STOP.

1. STANDARD, SHIELDED, STAINLESS–STEEL COUPLINGS: CISPI 310, WITH STAINLESS–STEEL CORRUGATED SHIELD; STAINLESS–STEEL BANDS AND TIGHTENING DEVICES; AND ASTM C 564, RUBBER SLEEVE.

a. AVAILABLE MANUFACTURERS:

1) ANACO.

2) FERNCO, INC.

3) MISSION RUBBER CO.

4) TYLER PIPE; SOIL PIPE DIV.

2.4 COPPER TUBE AND FITTINGS

A. COPPER DWV TUBE: ASTM B 306, DRAINAGE TUBE, DRAWN TEMPER.

1. COPPER DRAINAGE FITTINGS: ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER–JOINT FITTINGS.

2.05 SPECIAL PIPE FITTINGS

A. FLEXIBLE, NONPRESSURE PIPE COUPLINGS: COMPLY WITH ASTM C 1173, ELASTOMERIC, SLEEVE–TYPE, REDUCING OR TRANSITION PATTERN. INCLUDE SHEAR RING, ENDS OF SAME SIZES AS PIPING TO BE JOINED, AND CORROSION–RESISTANT–METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.

1. AVAILABLE MANUFACTURERS:

a. FERNCO, INC.

b. MISSION RUBBER CO.

c. NDS, INC.

d. PLASTIC ODITIES, INC.

2. SLEEVE MATERIALS:

a. FOR CAST–IRON SOIL PIPES: ASTM C 564, RUBBER.

b. FOR DISSIMILAR PIPES: ASTM D 5926, PVC OR OTHER MATERIAL COMPATIBLE WITH PIPE MATERIALS BEING JOINED.

PART 3 – EXECUTION

3.1 EXCAVATION

A. REFER TO DIVISION 2 SECTION "EARTHWORK" FOR EXCAVATING, TRENCHING, AND BACKFILLING.

3.2 PIPING APPLICATIONS

A. FLANGES AND UNIONS MAY BE USED ON ABOVEGROUND PRESSURE PIPING, UNLESS OTHERWISE INDICATED.

B. ABOVEGROUND, SOIL AND WASTE PIPING NPS 4 AND SMALLER SHALL BE THE FOLLOWING:

1. HUBLESS CAST–IRON SOIL PIPE AND FITTINGS; STANDARD, SHIELDED, STAINLESS–STEEL COUPLINGS; AND HUBLESS–COUPLING JOINTS.

2. COPPER DWV TUBE, COPPER DRAINAGE FITTINGS, AND SOLDERED JOINTS.

C. ABOVEGROUND, VENT PIPING NPS 4 AND SMALLER SHALL BE THE FOLLOWING:

1. HUBLESS CAST–IRON SOIL PIPE AND FITTINGS; STANDARD, SHIELDED, STAINLESS–STEEL COUPLINGS; AND HUBLESS–COUPLING JOINTS.

D. UNDERGROUND, SOIL, WASTE, AND VENT PIPING NPS 4 AND SMALLER SHALL BE THE FOLLOWING:

1. HUBLESS CAST–IRON SOIL PIPE AND FITTINGS; STANDARD, SHIELDED, STAINLESS–STEEL COUPLINGS; AND HUBLESS–COUPLING JOINTS.

2. DISSIMILAR PIPE–MATERIAL COUPLINGS: FLEXIBLE, NONPRESSURE PIPE COUPLINGS FOR JOINING DISSIMILAR PIPE MATERIALS WITH SMALL DIFFERENCE IN OD.

E. ABOVEGROUND, EQUIPMENT DRAIN PIPING NPS 4 AND SMALLER SHALL BE THE FOLLOWING:

1. COPPER DWV TUBE, COPPER DRAINAGE FITTINGS, AND SOLDERED JOINTS.

3.3 PIPING INSTALLATION

A. INSTALL CLEANOUTS WHERE INDICATED ON PLANS.

B. INSTALL CAST–IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK," CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS."

C. MAKE CHANGES IN DIRECTION FOR SOIL AND WASTE DRAINAGE AND VENT PIPING USING APPROPRIATE BRANCHES, BENDS, AND LONG–SWEEP BENDS. SANITARY TEES AND SHORT–SWEEP 1/4 BENDS MAY BE USED ON VERTICAL STACKS IF CHANGE IN DIRECTION OF FLOW IS FROM HORIZONTAL TO VERTICAL. USE LONG–TURN, DOUBLE Y–BRANCH AND 1/8–BEND FITTINGS IF 2 FIXTURES ARE INSTALLED BACK TO BACK OR SIDE BY SIDE WITH COMMON DRAIN PIPE. STRAIGHT TEES, ELBOWS, AND CROSSES MAY BE USED ON VENT LINES. DO NOT CHANGE DIRECTION OF FLOW MORE THAN 90 DEGREES. USE PROPER SIZE OF STANDARD INCREASERS AND REDUCERS IF PIPES OF DIFFERENT SIZES ARE CONNECTED. REDUCING SIZE OF DRAINAGE PIPING IN DIRECTION OF FLOW IS PROHIBITED.

D. LAY BURIED BUILDING DRAINAGE PIPING BEGINNING AT LOW POINT OF EACH SYSTEM. INSTALL TRUE TO GRADES AND ALIGNMENT INDICATED, WITH UNBROKEN CONTINUITY OF INVERT. PLACE HUB ENDS OF PIPING UPSTREAM. INSTALL REQUIRED GASKETS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR USE OF LUBRICANTS, CEMENTS, AND OTHER INSTALLATION REQUIREMENTS. MAINTAIN SWAB IN PIPING AND PULL PAST EACH JOINT AS COMPLETED.

E. INSTALL SOIL AND WASTE DRAINAGE AND VENT PIPING AT THE FOLLOWING MINIMUM SLOPES, UNLESS OTHERWISE INDICATED:

1. BUILDING SANITARY DRAIN: 2 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 3 AND SMALLER; 1 PERCENT DOWNWARD IN DIRECTION OF FLOW FOR PIPING NPS 4 AND LARGER.

2. HORIZONTAL SANITARY DRAINAGE PIPING: 2 PERCENT DOWNWARD IN DIRECTION OF FLOW.

3. VENT PIPING: 2 PERCENT DOWN TOWARD VERTICAL FIXTURE VENT OR TOWARD VENT STACK.

G. SLEEVES ARE NOT REQUIRED FOR CAST–IRON SOIL PIPING PASSING THROUGH CONCRETE SLABS–ON–GRADE IF SLAB IS WITHOUT MEMBRANE WATERPROOFING.

H. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT IS INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION.

3.4 JOINT CONSTRUCTION

A. JOIN HUBLESS CAST–IRON SOIL PIPING ACCORDING TO CISPI 310 AND CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK" FOR HUBLESS–COUPLING JOINTS.

SECTION 15410 – PLUMBING FIXTURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING CONVENTIONAL PLUMBING FIXTURES AND RELATED COMPONENTS:

1. FAUCETS FOR LAVATORIES.

2. TOILET SEATS.

3. WATER CLOSETS.

1.3 DEFINITIONS

A. ACCESSIBLE FIXTURE: PLUMBING FIXTURE THAT CAN BE APPROACHED, ENTERED, AND USED BY PEOPLE WITH DISABILITIES.

B. FITTING: DEVICE THAT CONTROLS THE FLOW OF WATER INTO OR OUT OF THE PLUMBING FIXTURE. FITTINGS SPECIFIED IN THIS SECTION INCLUDE SUPPLIES AND STOPS, FAUCETS AND SPOUTS, SHOWER HEADS AND TUB SPOUTS, DRAINS AND TAILPIECES, AND TRAPS AND WASTE PIPES. PIPING AND GENERAL–DUTY VALVES ARE INCLUDED WHERE INDICATED.

1.4 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PLUMBING FIXTURE INDICATED. INCLUDE SELECTED FIXTURE AND TRIM, FITTINGS, ACCESSORIES, APPLIANCES, APPURTENANCES, EQUIPMENT, AND SUPPORTS. INDICATE MATERIALS AND FINISHES, DIMENSIONS, CONSTRUCTION DETAILS, AND FLOW–CONTROL RATES.

B. OPERATION AND MAINTENANCE DATA: FOR PLUMBING FIXTURES TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

C. WARRANTY: SPECIAL WARRANTY SPECIFIED IN THIS SECTION.

1.5 QUALITY ASSURANCE

A. SOURCE LIMITATIONS: OBTAIN PLUMBING FIXTURES, FAUCETS, AND OTHER COMPONENTS OF EACH CATEGORY THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.

4. EXCEPTION: IF FIXTURES, FAUCETS, OR OTHER COMPONENTS ARE NOT AVAILABLE FROM A SINGLE MANUFACTURER, OBTAIN SIMILAR PRODUCTS FROM OTHER MANUFACTURERS SPECIFIED FOR THAT CATEGORY.

B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

C. REGULATORY REQUIREMENTS: COMPLY WITH REQUIREMENTS IN ICC A117.1, "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES"; PUBLIC LAW 90–480, "ARCHITECTURAL BARRIERS ACT"; AND PUBLIC LAW 101–336, "AMERICANS WITH DISABILITIES ACT"; FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES.

D. REGULATORY REQUIREMENTS: COMPLY WITH REQUIREMENTS IN PUBLIC LAW 102–486, "ENERGY POLICY ACT," ABOUT WATER FLOW AND CONSUMPTION RATES FOR PLUMBING FIXTURES.

E. NSF STANDARD: COMPLY WITH NSF 61, "DRINKING WATER SYSTEM COMPONENTS—HEALTH EFFECTS," FOR FIXTURE MATERIALS THAT WILL BE IN CONTACT WITH POTABLE WATER.

F. SELECT COMBINATIONS OF FIXTURES AND TRIM, FAUCETS, FITTINGS, AND OTHER COMPONENTS THAT ARE COMPATIBLE.

1.6 WARRANTY

A. SPECIAL WARRANTIES: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF WHIRLPOOLS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.

1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. STRUCTURAL FAILURES OF UNIT SHELL.

b. FAULTY OPERATION OF CONTROLS, BLOWERS, PUMPS, HEATERS, AND TIMERS.

SECTION 15485 – ELECTRIC WATER HEATERS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. THIS SECTION INCLUDES THE FOLLOWING ELECTRIC WATER HEATERS:

1. THERMOSTAT–CONTROL, INSTANTANEOUS ELECTRIC WATER HEATERS.

1.3 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE AND SIZE OF WATER HEATER INDICATED. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, FURNISHED SPECIALTIES, AND ACCESSORIES.

B. SOURCE QUALITY–CONTROL TEST REPORTS.

C. FIELD QUALITY–CONTROL TEST REPORTS.

D. OPERATION AND MAINTENANCE DATA: FOR ELECTRIC WATER HEATERS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.

E. WARRANTY: SPECIAL WARRANTY SPECIFIED IN THIS SECTION.

1.4 QUALITY ASSURANCE

A. SOURCE LIMITATIONS: OBTAIN SAME TYPE OF ELECTRIC WATER HEATERS THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.

B. PRODUCT OPTIONS: DRAWINGS INDICATE SIZE, PROFILES, AND DIMENSIONAL REQUIREMENTS OF ELECTRIC WATER HEATERS AND ARE BASED ON THE SPECIFIC SYSTEM INDICATED. REFER TO DIVISION 1 SECTION "PRODUCT REQUIREMENTS."

C. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

D. ASME COMPLIANCE: WHERE INDICATED, FABRICATE AND LABEL COMMERCIAL WATER HEATER STORAGE TANKS TO COMPLY WITH ASME BOILER AND PRESSURE VESSEL CODE: SECTION VIII, DIVISION 1.

E. COMPLY WITH NSF 61, "DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS; SECTIONS 1 THROUGH 9," FOR ALL COMPONENTS THAT WILL BE IN CONTACT WITH POTABLE WATER.

1.5 COORDINATION

A. COORDINATE SIZE AND LOCATION OF CONCRETE BASES WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

1.6 WARRANTY

A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF ELECTRIC WATER HEATERS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.

1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. STRUCTURAL FAILURES INCLUDING STORAGE TANK AND SUPPORTS.

b. FAULTY OPERATION OF CONTROLS.

c. DETERIORATION OF METALS, METAL FINISHES, AND OTHER MATERIALS BEYOND NORMAL USE.

2. WARRANTY PERIOD(S): FROM DATE OF SUBSTANTIAL COMPLETION:

a. INSTANTANEOUS ELECTRIC WATER HEATERS: ONE YEAR(S).

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. IN OTHER PART 2 ARTICLES WHERE TITLES BELOW INTRODUCE LISTS, THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:

1. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, MANUFACTURERS SPECIFIED.

2.2 INSTANTANEOUS ELECTRIC WATER HEATERS

A. THERMOSTAT–CONTROL, INSTANTANEOUS ELECTRIC WATER HEATERS: COMPLY WITH UL 499 FOR TANKLESS ELECTRIC (WATER HEATER) HEATING APPLIANCE.

B. BASIS–OF–DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED ON DRAWINGS OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:

1. AVAILABLE MANUFACTURERS:

a. EEMAX.

b. CHRONOMITE LABORATORIES, INC.

c. IMI WATERHEATING, LTD.

d. KELTECH, INC.

e. NIAGARA INDUSTRIES, INC.

2. REFER TO DRAWINGS FOR DESCRIPTION, CAPACITY AND CHARACTERISTICS.

2.3 SOURCE QUALITY CONTROL

A. PREPARE TEST REPORTS.

PART 3 – EXECUTION

3.1 WATER HEATER INSTALLATION

A. INSTALL WATER HEATERS LEVEL AND PLUMB, ACCORDING TO LAYOUT DRAWINGS, ORIGINAL DESIGN, AND REFERENCED STANDARDS. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. ARRANGE UNITS SO CONTROLS AND DEVICES NEEDING SERVICE ARE ACCESSIBLE.

3.2 CONNECTIONS

A. PIPING INSTALLATION REQUIREMENTS ARE SPECIFIED IN OTHER DIVISION 15 SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENT OF PIPING, FITTINGS, AND SPECIALTIES.

B. INSTALL PIPING ADJACENT TO WATER HEATERS TO ALLOW SERVICE AND MAINTENANCE. ARRANGE PIPING FOR EASY REMOVAL OF WATER HEATERS.

C. GROUND EQUIPMENT ACCORDING TO DIVISION 16 SECTION "GROUNDING AND BONDING."

D. CONNECT WIRING ACCORDING TO DIVISION 16 SECTION "CONDUCTORS AND CABLES."

3.3 FIELD QUALITY CONTROL

A. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:

1. LEAK TEST: AFTER INSTALLATION, TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.

2. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, CONFIRM PROPER OPERATION.

3. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.

B. REMOVE AND REPLACE WATER HEATERS THAT DO NOT PASS TESTS AND INSPECTIONS AND RETEST AS SPECIFIED ABOVE.

END OF SECTION

4S RANCH NEIGHBORHOOD 1

SEWER PUMP STATION REPLACEMENT

EXISTING BUILDING

PLUMBING SPECIFICATIONS

REVISIONS

BY

DATE

MARK

DESIGN

DRAWING

CHECK

14271 Danelson Street

Poway, California 92064

T 858.413.2400 F 858.413.2440

www.icecorporation.com

ICE CORPORATION

OLIVENHAIN

Municipal Water District

1966 Olivenhain Road

Encinitas, CA 92024 (760)753–6466

SHEET

DRAWING

38 of 90

P–6

SCALE

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TABLE 1705.6 (CBC 2019)

VERIFICATION AND INSPECTION	CONTINUOUS INSPECTION	PERIODIC INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	—	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	—	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	—	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	—
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	—	X

SCHEDULE OF SPECIAL INSPECTIONS:

(APPLIES TO ALL TABLES)

- THE CONTRACTOR SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED. FOR ADDITIONAL INFORMATION, PLEASE SEE SPECIFICATION SECTION 0145.3, "CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES." THE SPECIAL INSPECTOR OF RECORD (SIOR) SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE DISTRICT AND ENGINEER OF RECORD, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- WHERE REQUIRED BY THE PROVISIONS OF CBC SECTION 1704.6.1 OR 1704.6.2, THE SERVICES OF A SPECIAL INSPECTOR OF RECORD (SIOR) SHALL BE RETAINED BY THE CONTRACTOR AS A THIRD PARTY QUALITY ASSURANCE AGENT. THE SIOR SHALL BE A LICENSED PROFESSIONAL ENGINEER IN A STATE ACCEPTABLE TO THE DISTRICT AND ENGINEER OF RECORD. THE SIOR SHALL SUBMIT QUALIFICATIONS ACCEPTABLE TO THE DISTRICT AND ENGINEER OF RECORD.
- SITE VISITS BY THE STRUCTURAL ENGINEER DO NOT CONSTITUTE SPECIAL INSPECTIONS.
- MATERIAL STRENGTHS VERIFICATION, INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH CHAPTER 17 OF THE CBC.
- ALL CODE REFERENCES & TABLES ARE FOUND IN 2019 CBC.

ADHESIVE ANCHORS AND DOWELS:

- ADHESIVE ANCHORS AND DOWELS INSTALLED INTO CONCRETE SHALL BE AS INDICATED BELOW, UNLESS OTHERWISE NOTED. INSTALLATION SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL CODE COUNCIL (ICC) REPORT AND MANUFACTURER'S RECOMMENDATIONS.

CONCRETE:	HILTI HIT HY 200 SIMPSON SET-XP OR APPROVED EQUAL	(ICC ESR-3187) (ICC ESR-2508)
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- ANCHOR ROD SHALL BE ASTM F1554 GRADE 55, UON. NUTS AND WASHERS SHALL COMPLY WITH ASTM A563 AND F436.
- ANCHOR BOLTS EXPOSED TO WEATHER SHALL BE GALVANIZED. ANCHOR BOLTS IN LIQUID CONTAINING STRUCTURES SHALL BE TYPE 316 STAINLESS STEEL CONFORMING TO ASTM A193. REINFORCING STEEL (REBAR) AND DOWELS FOR CAST-IN-PLACE CONCRETE SHALL NOT BE GALVANIZED.
- ANCHOR INSTALLERS SHALL BE TRAINED BY A QUALIFIED REPRESENTATIVE OF THE ADHESIVE MANUFACTURER ON THE PROPER PROCEDURES AND TECHNIQUES FOR INSTALLATION.
- PROVIDE ANCHORS WITH THE TYPE, DIAMETER, AND MINIMUM EMBEDMENT DEPTH AS NOTED ON THE DRAWINGS. SUBSTITUTIONS ARE NOT ALLOWED WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER.
- THE DIAMETER AND DRILLING METHOD OF THE HOLES ARE PER THE MANUFACTURER'S RECOMMENDATIONS. PRIOR TO INSTALLING ANCHORS OR DOWELS, WIRE BRUSH HOLES TO REMOVE RESIDUE, BLOW OUT WITH OIL-FREE COMPRESSED AIR, AND ALLOW HOLE TO DRY.LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.
- REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.
- WHEN INSTALLING ANCHORS IN EXISTING REINFORCED CONCRETE OR MASONRY, AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.
- HOLES DRILLED FOR ANCHORS THAT DO NOT SET PROPERLY OR IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT.

SECTION 1705.2 (CBC 2019)

VERIFICATION AND INSPECTION	QC	QA
1. PRIOR TO BOLTING (TABLE N5.6-1, AISC 360-16):		
a. CERTIFICATIONS OF FASTENERS	O	P
b. FASTENERS MARKED IN ACCORDANCE WITH ASTM	O	O
c. PROPER FASTENERS SELECTED FOR THE JOINT DETAIL	O	O
d. PROPER BOLTING PROCEDURE SELECTION FOR JOINT DETAIL	O	O
e. CONNECTING ELEMENTS	O	O
f. PRE-INSTALLATION VERIFICATION TESTING	O	O
g. PROPER STORAGE	O	O
2. DURING BOLTING (TABLE N5.6-2, AISC 360-16):		
a. FASTENER ASSEMBLIES OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O
b. SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING	O	O
c. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
d. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION	O	O
3. AFTER BOLTING (TABLE N5.6-3, AISC 360-16):		
a. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P
4. PRIOR TO WELDING (TABLE N5.4-1, AISC 360-16):		
a. WELDING PROCEDURE SPECIFICATIONS (WPS)	P	P
b. MANUFACTURER'S CERTIFICATES FOR WELDING CONSUMABLES	P	P
c. MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
d. WELDER IDENTIFICATION	O	O
e. FIT-UP GROOVE WELDS	O	O
f. ACCESS HOLES	O	O
g. FIT-UP OF FILLET WELDS	O	O
h. CHECK WELDING EQUIPMENT	O	—
5. DURING WELDING (TABLE N5.4-2, AISC 360-16):		
a. USE OF QUALIFIED WELDERS	O	O
b. CONTROL AND HANDLING OF WELDING CONSUMABLES	O	O
c. CRACKED TACK WELDS	O	O
d. ENVIRONMENTAL CONDITIONS	O	O
e. WPS FOLLOWED	O	O
f. WELDING TECHNIQUES	O	O
6. AFTER WELDING (TABLE N5.4-3, AISC 360-16):		
a. WELDS CLEANED	O	O
b. SIZE, LENGTH AND LOCATION OF WELDS	P	P
c. WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P
d. ARC STRIKES	P	P
e. k-AREA	P	P
f. BACKING AND WELD TABS REMOVED (IF REQUIRED)	P	P
g. REPAIR ACTIVITIES	P	P
h. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	P	P

NOTES:

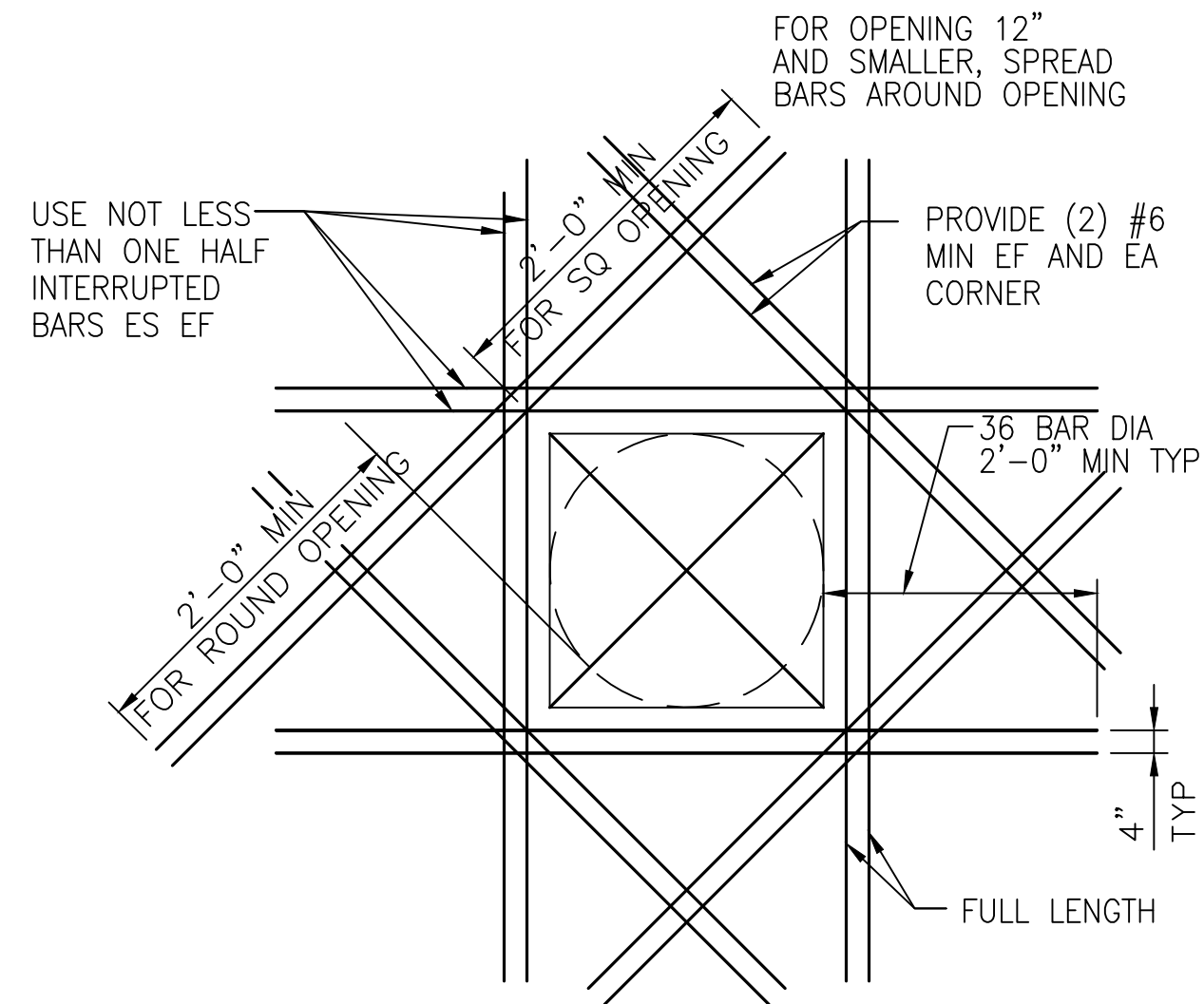
- QA — QUALITY ASSURANCE.
- QC — QUALITY CONTROL.
- P — PERFORM THESE TASKS FOR EACH ITEM OR ELEMENT.
- O — OBSERVE THESE ITEMS ON A RANDOM BASIS.

TABLE 1705.3 (CBC 2019)

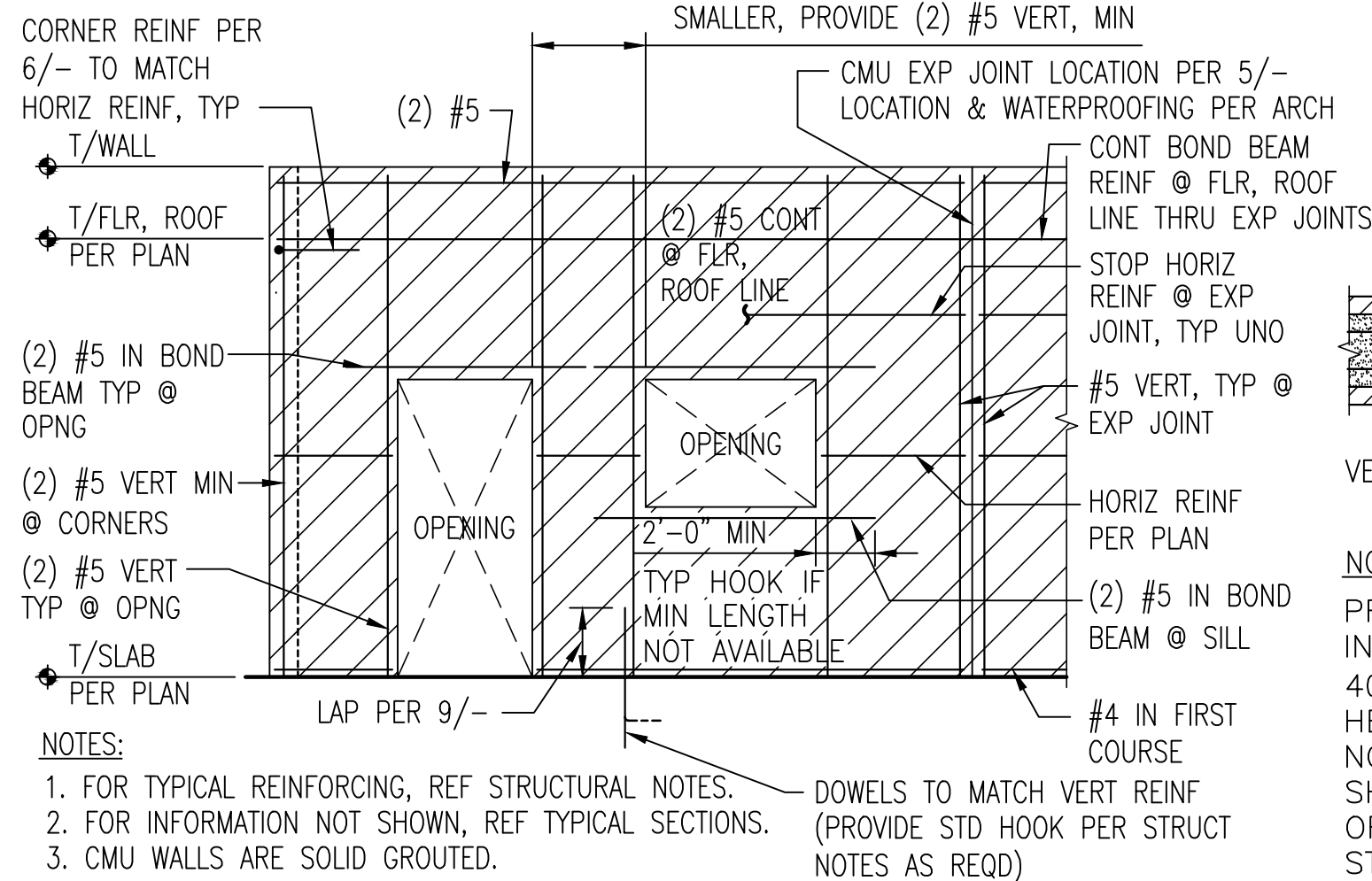
	VERIFICATION AND INSPECTION	CONTINUOUS INSPECTION	PERIODIC INSPECTION
1.	REINFORCING STEEL AND PLACEMENT.	—	X
2.	REINFORCING BAR WELDING		
a.	VERIFY WELDABILITY OF BARS OTHER THAN ASTM A706	—	X
b.	SINGLE PASS FILLET WELDS, MAXIMUM 5/16 INCH	—	X
c.	OTHER WELDS	X	—
3.	CAST-IN PLACE BOLTS AND EMBEDS	—	X
4.	POST-INSTALLED ANCHORS OR DOWELS INSTALLED IN HARDENED CONCRETE MEMBERS		
a.	ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	—
b.	MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a	—	X
5.	USE OF REQUIRED DESIGN MIX.	—	X
6.	CONCRETE SAMPLING FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF THE CONCRETE PRIOR TO PLACEMENT.	X	—
7.	CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—
8.	CURING TEMPERATURE AND TECHNIQUES.	—	X
9.	VERIFY IN-SITU CONCRETE STRENGHT, PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	—	X
10.	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONC. MEMBER BEING FORMED.	—	X
11.	REINFORCEMENT COMPLYING WITH ASTM A615	—	X

TABLE 1.19.2 (TMS 402/602-16)

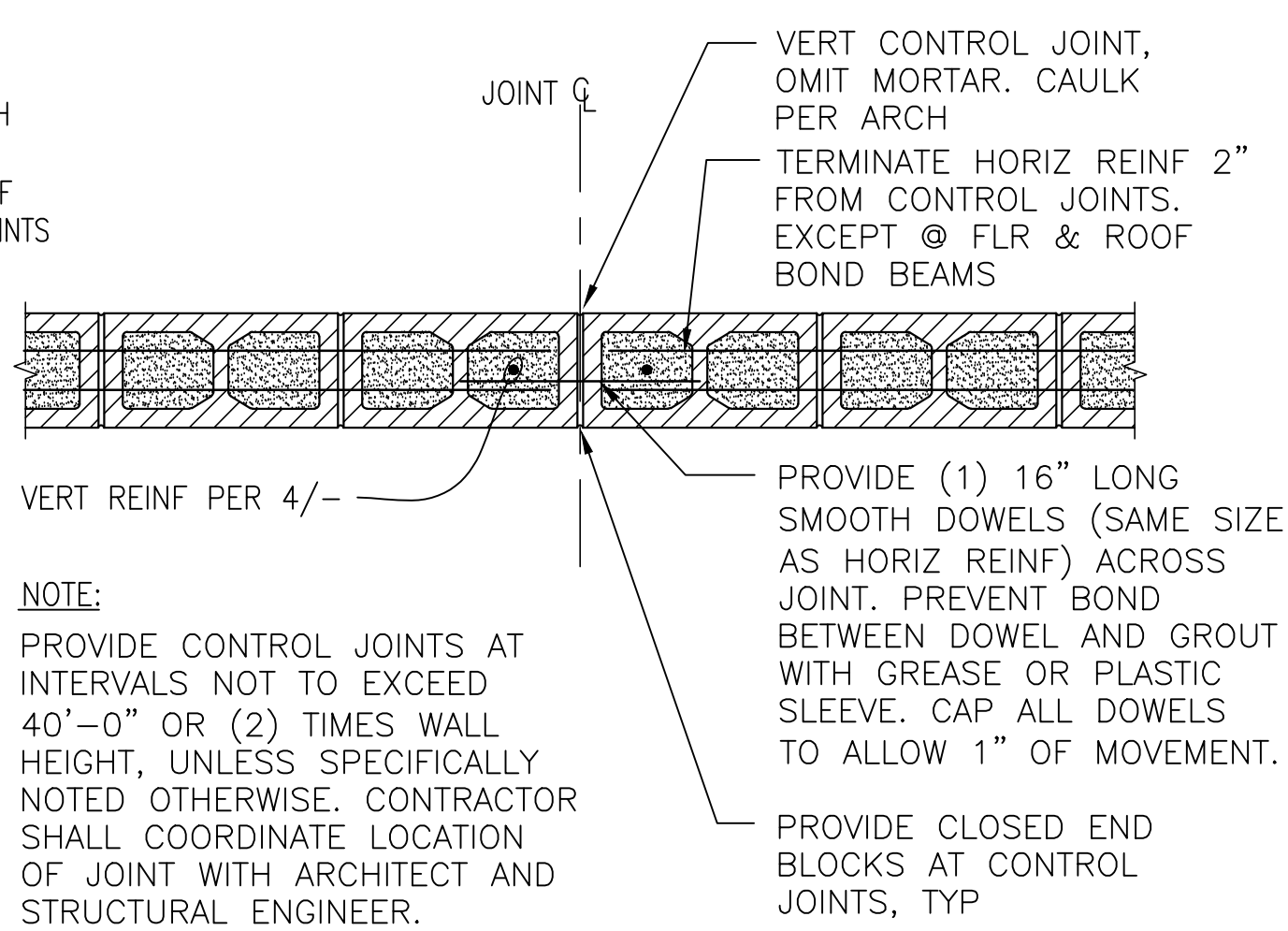
LEVEL C SPECIAL INSPECTION OF MASONRY		
VERIFICATION AND INSPECTION	CONTINUOUS INSPECTION	PERIODIC INSPECTION
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	—	X
2. VERIFY THAT THE FOLLOWING ARC IN COMPLIANCE:		
a. PROPORTIONS OF SITE-MIXED MORTAR, GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	—	X
b. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	—	X
c. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS	—	X
d. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES	X	—
e. GROUT SPACE PRIOR TO GROUTING	X	—
f. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	X	—
g. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	—	X
h. TYPE, SIZE, AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	X	—
i. WELDING OF REINFORCEMENT	X	—
j. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F (32.2°C))	—	X
k. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	—
l. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	—
m. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	—
3. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	X	—



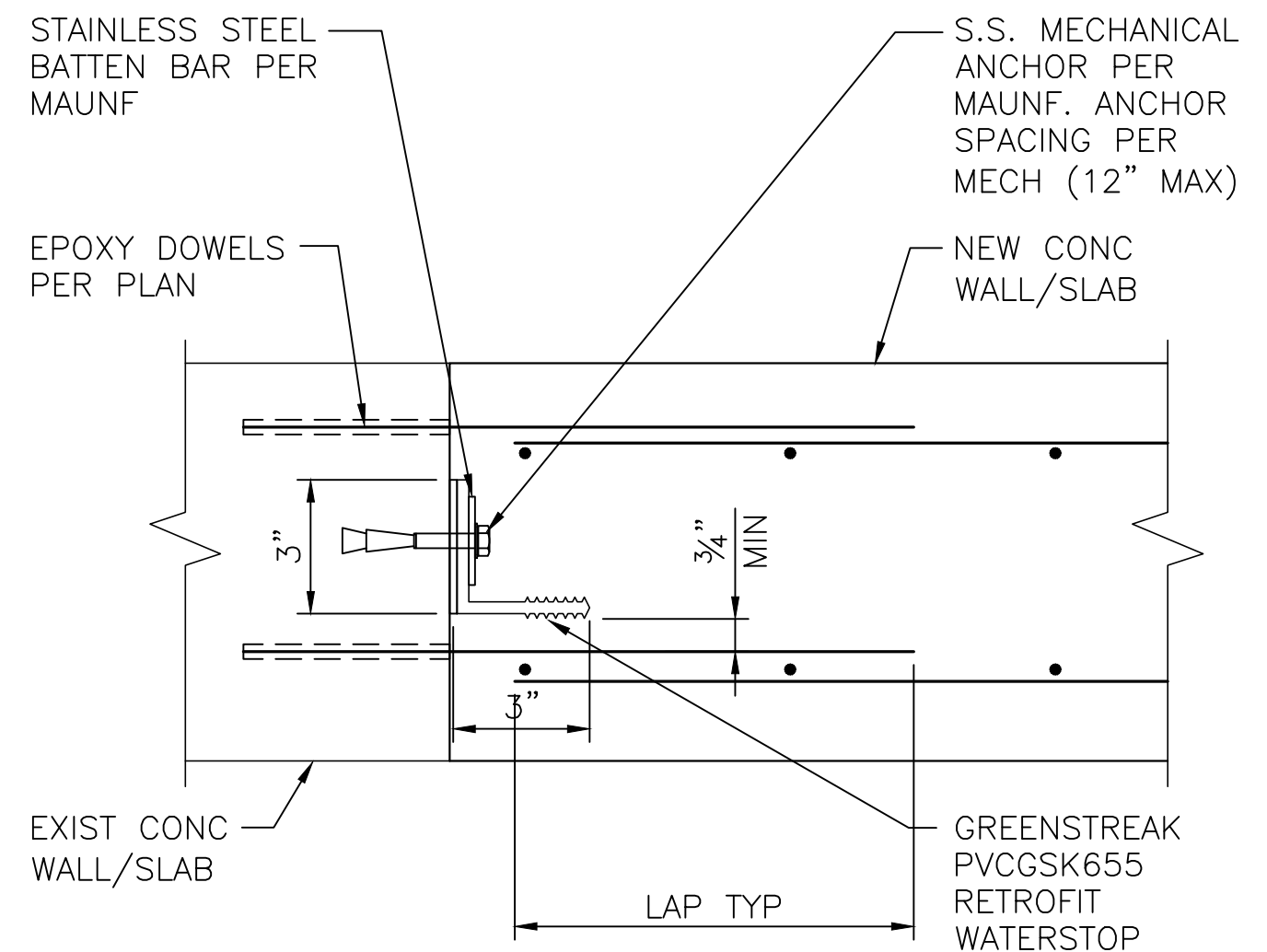
1 TYPICAL REINF AT LARGE OPNG
NO SCALE



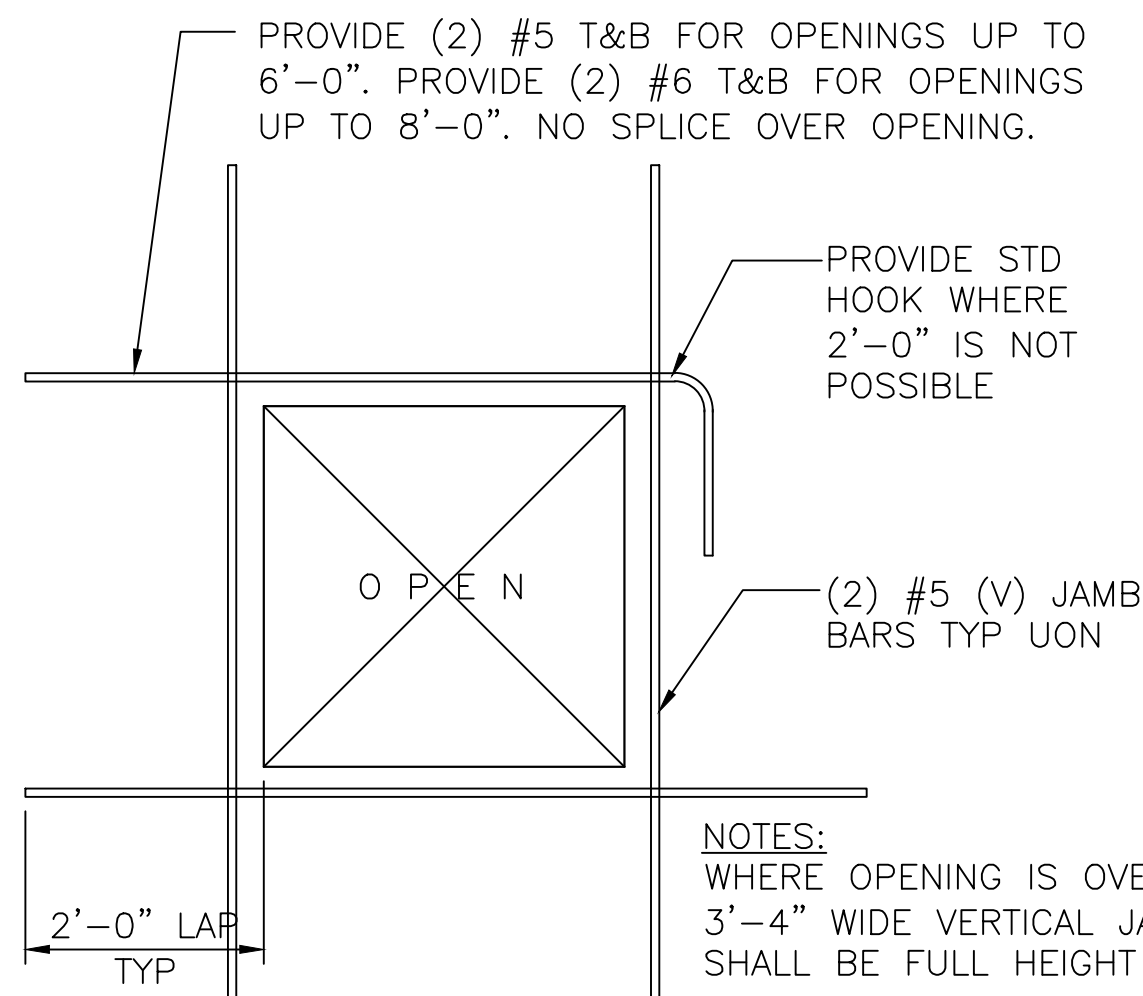
2 TYPICAL SLAB JOINTS
NO SCALE



3 DETAIL
NO SCALE



4 TYPICAL REINFORCING IN CMU WALL
NO SCALE

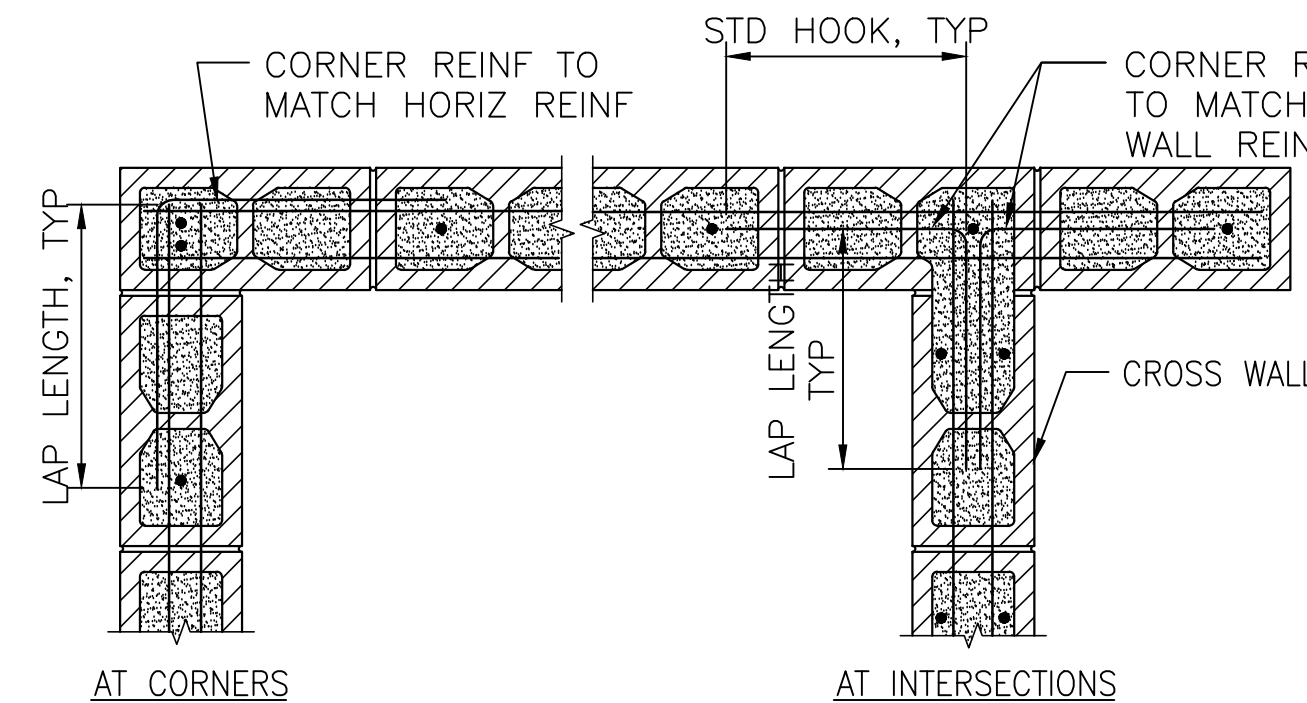


5 PLAN - CMU CONTROL JOINT
NO SCALE

LAP SPLICE AND LENGTH SCHEDULE		
REINF SIZE	GRADE 40	GRADE 60
#4	20"	32"
#5	25"	40"
#6	30"	48"
#7	35"	56"
#8	40"	64"
#9	45"	72"

- NOTES:
1. DEVELOPMENT AND LAP SPLICE LENGTHS INDICATED SHALL BE USED UNLESS SPECIFICALLY NOTED ON DRAWINGS.
 2. REINFORCING MAY BE CONSIDERED TO BE SPLICED WHEN PLACED IN ADJACENT GROUTED CELLS AND IF THE BARS ARE SPACED NO FARTHER APART THAN 1/5 THE REQUIRED LENGTH INDICATED OR 8".
 3. WHERE TENSILE STRESSES ARE GREATER THAN 80% OF THE ALLOWABLE STRESS TABLE VALUES SHALL BE INCREASED BY 50%.
 4. WHERE EPOXY COATED BARS ARE USED, LAP LENGTH SHALL BE INCREASED BY 50%.

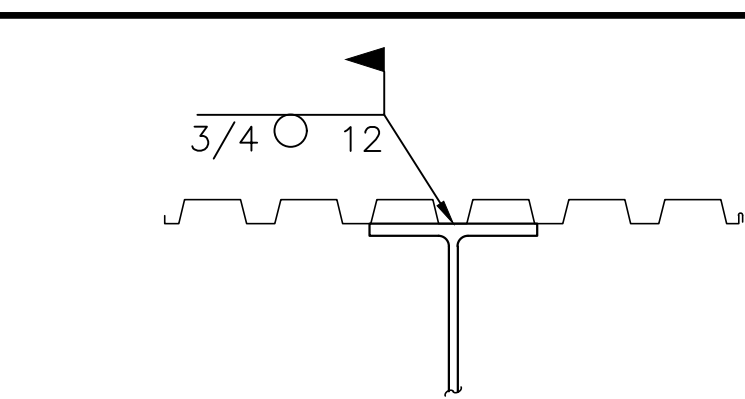
6 PLAN - TYPICAL CORNER REINFORCING AT CMU WALLS
NO SCALE



7 CMU LINTELS, SILLS & BOND BEAMS
NO SCALE

8 TYP CMU JAMB REINF AT OPENING
NO SCALE

9 TYPICAL LAP SPICE LENGTH FOR STRUCTURAL MASONRY
NO SCALE



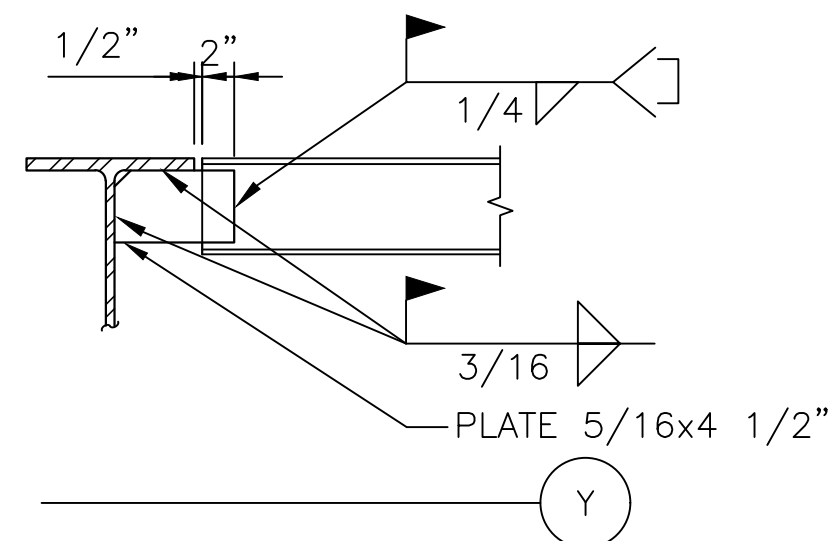
NOTES:

1. DECK SHALL BE PLACED OVER A MIN OF (3) SPAN LENGTHS WHERE POSSIBLE
2. TOP SEAM WELD-CLINCH FIRST TO GET CONTACT OF LIPS BEFORE WELDING 1 1/2" LONG WELD MUCH ENGAGE TOP OF INNER LEG
3. ALL DECKING SHALL BE GALV & VENTED
4. ALL PERPENDICULAR DECK PENETRATIONS GREATER THAN 8" SHALL BE REINF PER (3)

N.T.S.

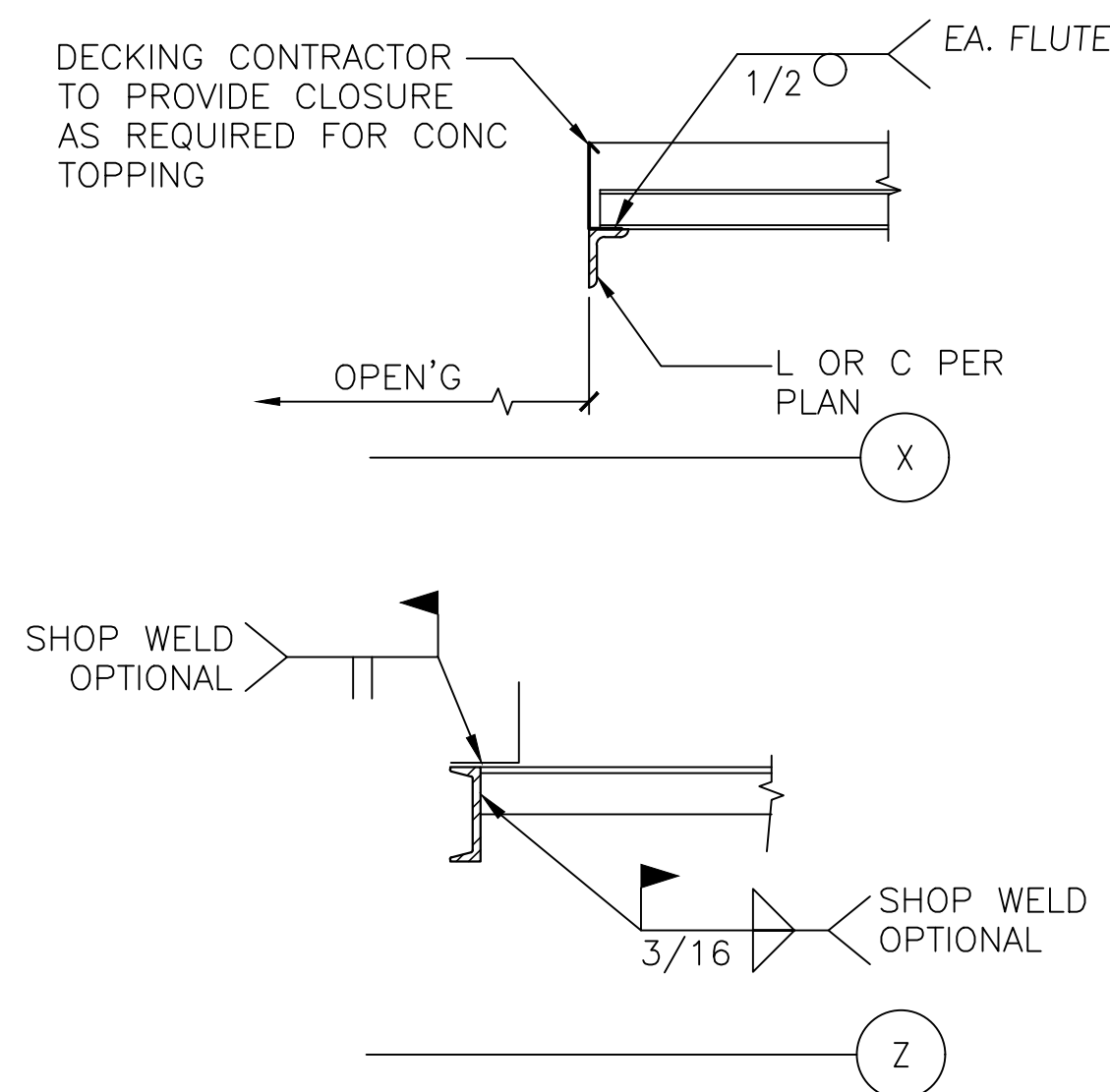


1. PLACE ANGLES-OR TUBES ON TOP OF DECK.
2. HOLES CUTTING-NO MORE THAN 3 ADJACENT WEBS FOR 'B' TYPE DECK.
3. ANGLES MUST EXTEND (3) WEBS PAST THE OPENING.
4. WHERE DIM 'A' IS GREATER THAN 4'D1', 4'D2' OR 32" WHICHEVER IS LARGER, THEN THERE IS NO RESTRICTION ON DIM 'B'
5. WHERE DIM 'B' IS GREATER THAN 4'D1', 4'D2' OR 32" WHICHEVER IS LARGER, THEN THERE IS NO RESTRICTION ON DIM 'A'
6. WHERE DIM 'A' AND 'B' ARE LESS THAN 4'D1', 4'D2' OR 32" WHICHEVER IS LARGER, THE OPENING GROUP WILL BE CONSIDERED AS A SINGLE HOLE, AND MUST BE REINFORCED AS REQUIRED FOR THE LARGER OPENING.
7. PRIOR TO CONC POUR, SMALL OPENINGS SHOULD BE BLOCKED OUT AND FORMLOCK LEFT INTACT. HOLES LESS THAN 6" IN DIAMETER AND CUTTING NO MORE THAN 1 WEB NEED NO REINF. AFTER THE CONC HAS CURED, THE BLOCKOUT CAN BE REMOVED AND THE FORMLOCK IN THE AREA OF THE HOLE REMOVED.
8. HOLES CUTTING NO MORE THAN:
 - 0.3 ADJACENT WEBS FOR 6" AND 8" MODULE DECK
 - 0.2 ADJACENT WEBS FOR 12" MODULE DECK.



NOTES:

1. FRAME OPENING IN DECK AS SHOWN WHERE SLEEVE OR GROUP OF SLEEVES CUTS MORE THAN ONE DECK FLUTE WITHIN 18" WIDTH.
2. LOCATE OPENINGS IN CONCRETE SLABS, LARGER THAN 24" ONLY AS SHOWN ON THE STRUCTURAL PLANS. ALL OPENINGS SHALL BE SEPARATED 48" CLR MIN
3. WELD DECK PER ①



N.T.S.

REIN PER PLAN

BEAM PER PLAN

CONC WALL PER PLAN

PLATE PER SO
T/PLA
T/STL

BOLTED CONN
PER

(5
—
1)

ELEVATION

EDGE OF WHERE OCCURS

PER PLAN

HALF STUD LENGTH

WALL REIN NOT SHOWN
FOR CLARITY W/ HORIZ
SLOTTED HOLES

10"

2" 6" 2"

6" MIN

4"

2" "N" SPACES @ 6" OC

2"

ELEVATION

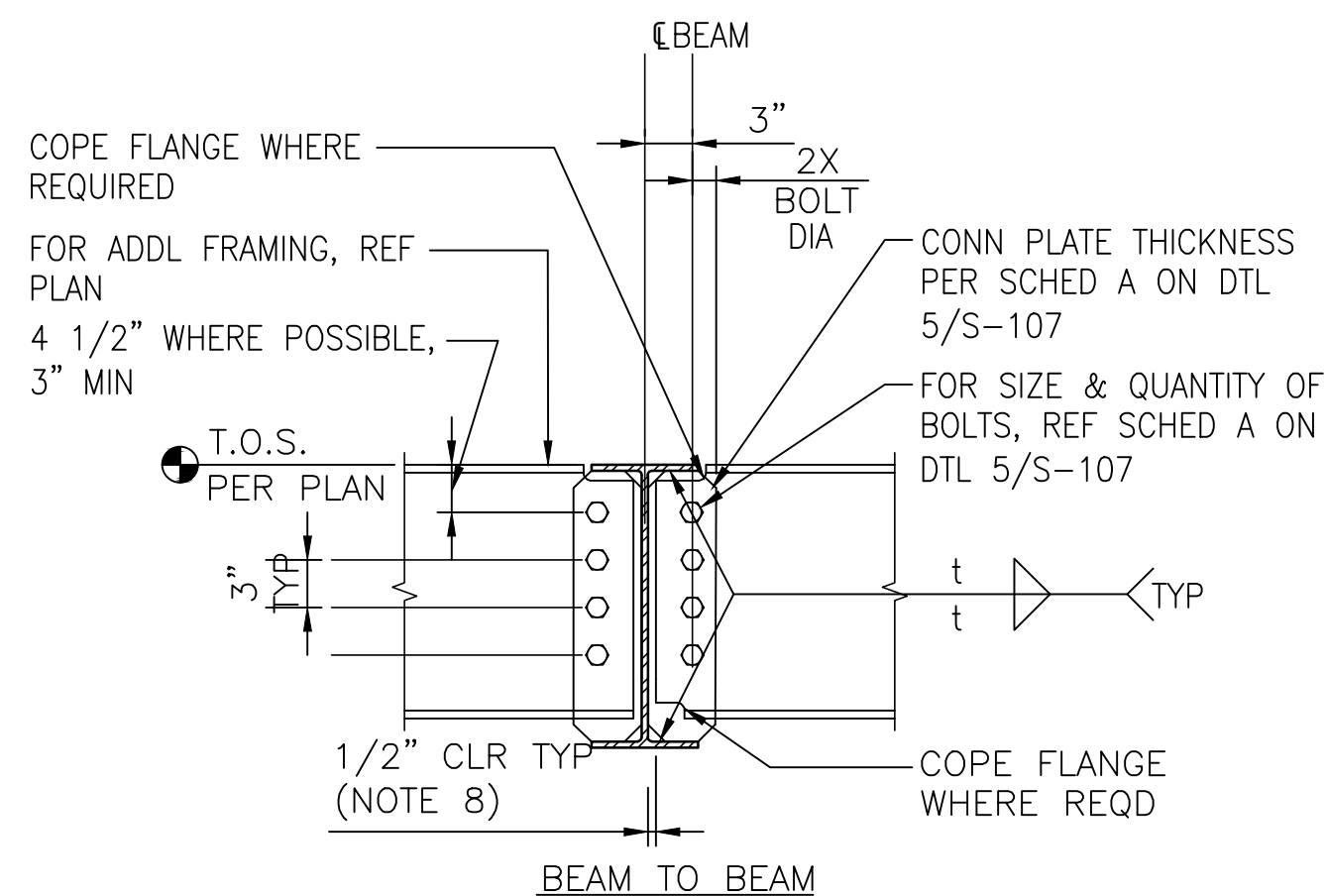
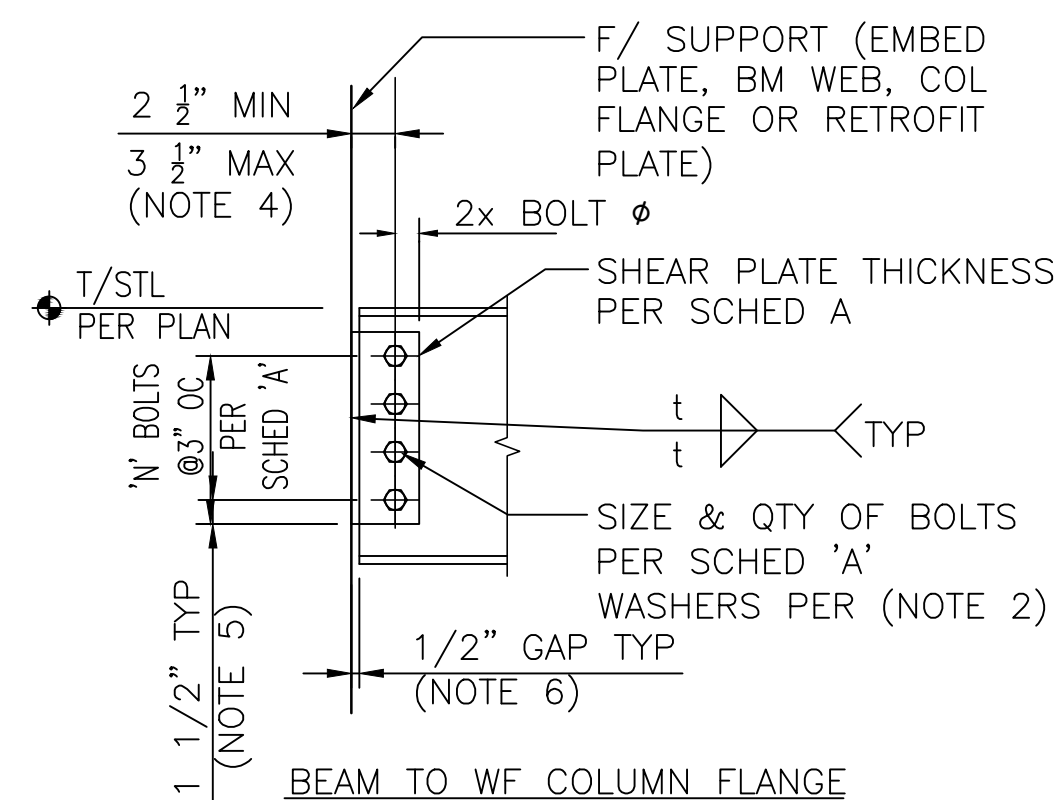
FOR 8" WALL
USE 6" EMBED
FOR ≥ 12" WALL
USE 8" EMBED

N.T.S.

NOTES:

1. BEAM, GIRDER AND COLUMN SIZES ARE PER PLAN.
2. USE THE BOLT SIZE AND NUMBER OF BOLTS SHOWN IN SCHEDULE "A".
3. PROVIDE STANDARD AISC BOLT HOLES IN BEAMS.
4. PROVIDE HORIZONTAL SHORT-SLOTTED HOLES (SSL) IN SHEAR TAB PLATES, WT'S OR CONNECTION ANGLES AS APPLICABLE.
5. CAPACITIES BASED ON AISC 14TH EDITION- ASD AND ASTM A325-N BOLTS.
6. HORIZONTAL DISTANCE FROM SUPPORT FACE TO CENTERLINE OF BOLT GROUP SHALL BE AS SHOWN IN THE DETAILS, BUT SHALL NOT EXCEED 3" IN THE AS-BUILT CONDITION.
7. VERTICAL EDGE DISTANCE FROM THE BOLT CENTERLINE TO EDGE OF STEEL SHALL BE 1 1/2 TIMES THE BOLT DIAMETER.
8. GAP BETWEEN BEAM END AND SUPPORT FACE SHALL BE 1/2" EXCEPT FOR "WT" CONNECTORS USED WITH HSS COLUMNS. WHERE "WT" ARE USED AS SHEAR TAB ELEMENTS, THE GAP BETWEEN FACE OF COLUMN AND END OF BEAM SHALL NOT EXCEED THE "k" DISTANCE OF THE "WT" PLUS 1/4".
9. WELD SIZES SHALL BE THE LARGER OF THE SIZE (t), TABULATED IN SCHEDULE "A" OR MINIMUM SHOWN IN TABLE 1.
10. FIELD WELDS SHALL BE SIZED TO BE AT LEAST 1/8" LARGER THAN THE WELD SIZE SHOWN IN SCHEDULE "A".
11. COPE DEPTHS SHALL NOT EXCEED THE SUPPORTING BEAM'S AISC TABULATED "k" DIMENSION PLUS 1/8".

N.T.S.



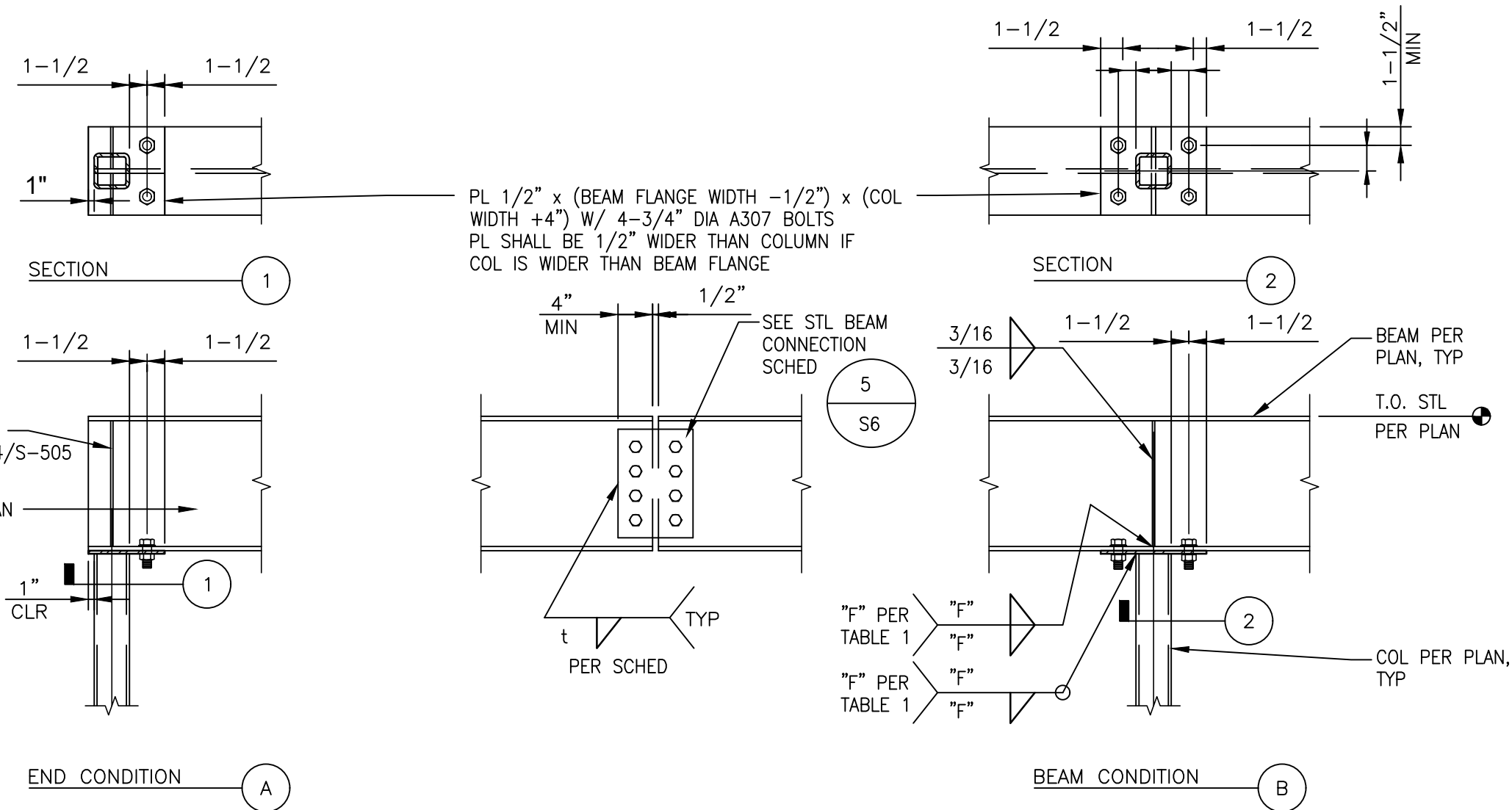
NOTE:

SEE DETAIL 5/- FOR INFO NOT NOTED

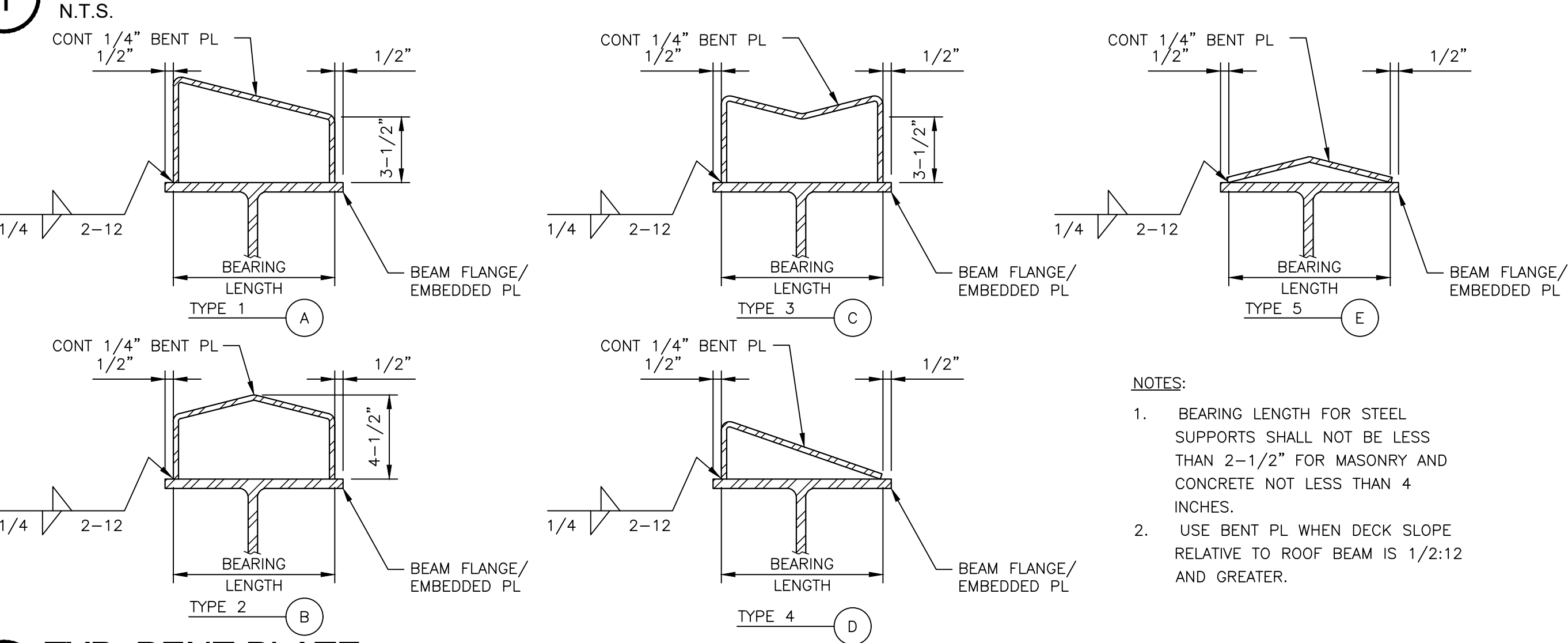
N.T.S.

TABLE 1	"F"
BASE PLATE OR FLANGE THICKNESS *	FILLET SIZE
3/8", 1/2"	3/16"
5/8", 3/4"	1/4"
> = 7/8"	5/16"

* MINIMUM WELD SIZE TO BE BASED ON THICKER OF BASE PL OR COLUMN THICKNESS

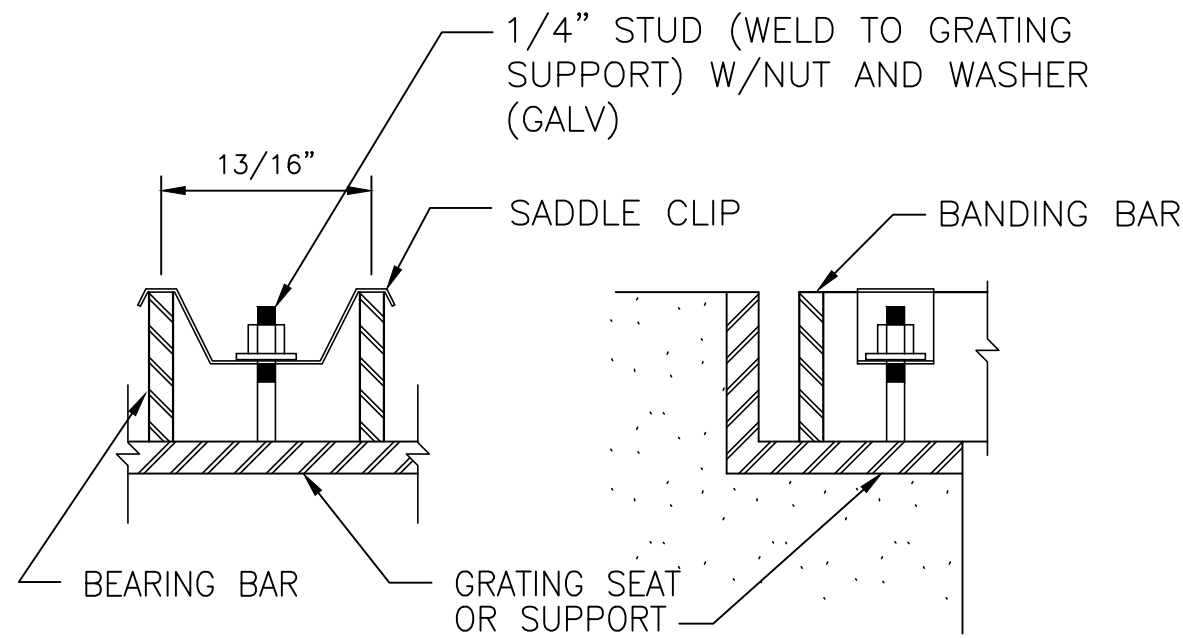


1 TYPICAL BEARNG PLATE BEAM COLUMN CONNECTION



4 TYP. BENT PLATE

NO SCALE



- NOTES:
1. PROVIDE A MINIMUM OF 4 CLIPS PER GRATING PANEL. APPROX 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" OC.
 2. STUD, NUT, WASHER AND CLIP TO BE OF SAME MATERIAL AS GRATING SEAT OR SUPPORT.

6 GRATING ANCHOR

NO SCALE

7 CONCRETE REPAIR AT CUT REINF/ ANCHOR

NO SCALE

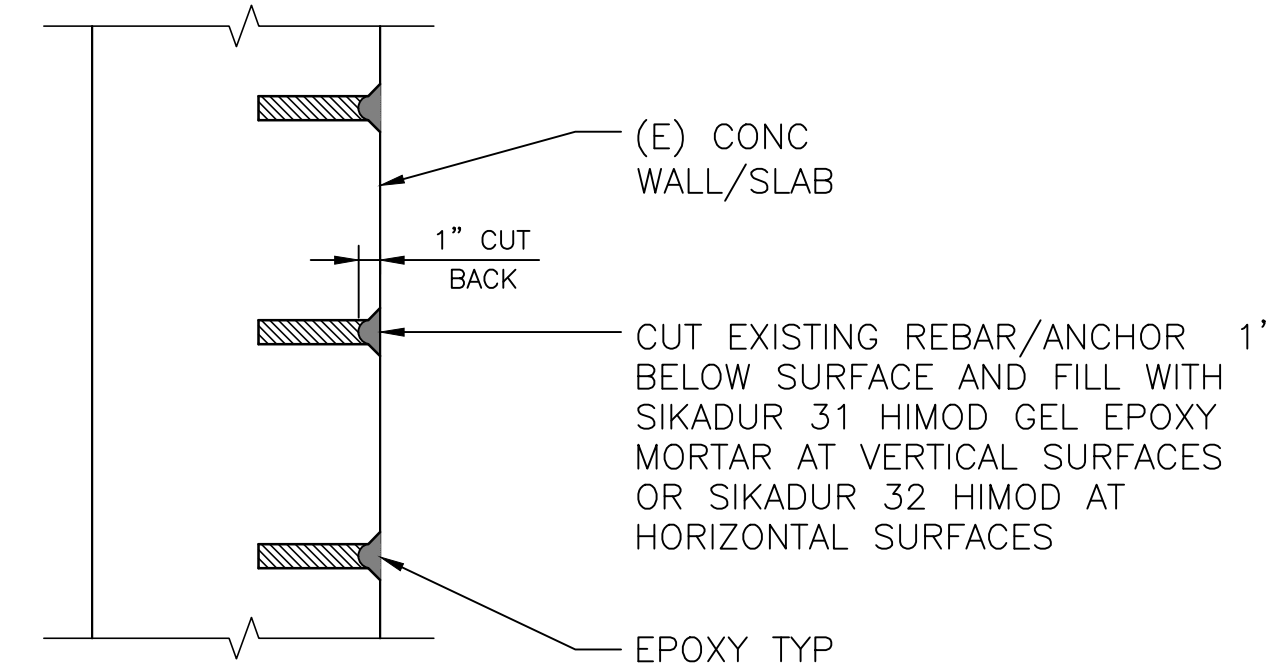
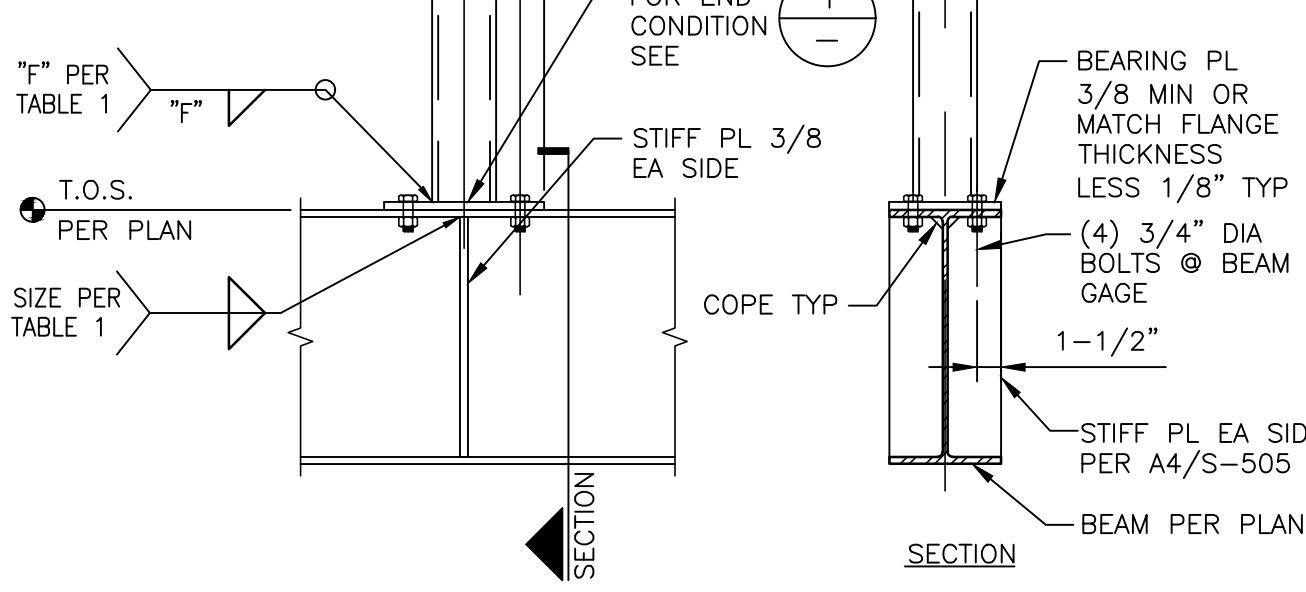


TABLE 1	"F"
BASE PLATE OR FLANGE THICKNESS *	FILLET SIZE
3/8", 1/2"	3/16"
5/8", 3/4"	1/4"
> = 7/8"	5/16"

* MINIMUM WELD SIZE TO BE BASED ON THICKER OF BASE PL OR COLUMN THICKNESS



NOTE:
BEARING PL THICKNESS SHALL BE 3/4" WHERE HSS COLUMN IS GREATER THAN 6x6.

2 HSS COL TO TRANSFER BM CONN

N.T.S.

GRATING NOTES

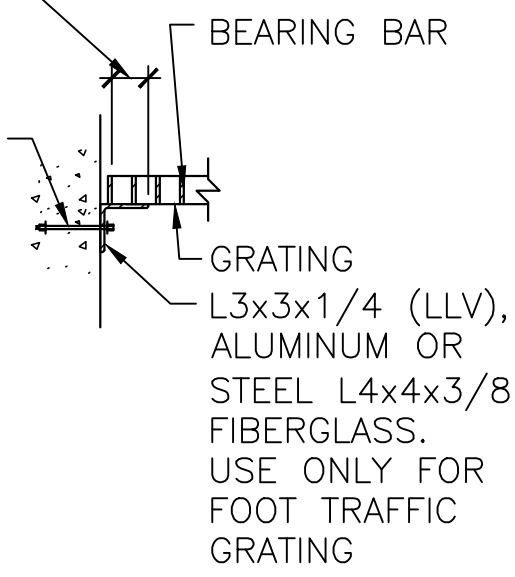
1. EXTEND GRATING CONTINUOUSLY OVER GATE GUIDES AND GATES.
2. NOTCH GRATING SUPPORTS AT GATES AS REQUIRED.
3. GRATING SPAN SEE PLAN.
4. WIDTH OF GRATING SECTIONS SHALL NOT EXCEED 3'-0".
5. SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE CONSTRUCTION MANAGER PRIOR TO FABRICATION.
6. MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING. EXCEPT METAL SUPPORTS THAT ARE TO BE EMBEDDED IN CONCRETE SHALL BE TYPE 316 STAINLESS STEEL.
7. UNLESS NOTED OTHERWISE ON PLANS. GRATING THICKNESS SHALL BE AS 'TABULATED IN GRATING THICKNESS TABLE' FOR APPLICABLE TRAFFIC.
8. BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM.
9. BAND ALL EDGES WITH 3/16 x DEPTH OF BEARING BAR.
10. PROVIDE MISCELLANEOUS GRATING FASTENERS AS REQUIRED.
11. TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 3 TYPES. ALTHOUGH ALL 3 MAY NOT BE INCLUDED IN PROJECT.
12. THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 1/4" NOR GREATER THAN 1/2" AND AS SPECIFIED.
13. ALL GRATING SECTIONS. WHEN IN PLACE SHALL ALWAYS BE FIRMLY ANCHORED TO THEIR SUPPORTS AS SPECIFIED AND AS IN DET

5 GRATING SUPPORT DETAIL

NO SCALE

MINIMUM BEARING DIMENSION SEE NOTE ABOVE

5/8"x6" STAINLESS STEEL ANCHOR BOLTS @ 1'-6" CTRS, 1'-0" CTRS FOR FIBERGLASS ANGLES OR IN LIEU OF ANCHOR BOLTS, USE 3/4" CONCRETE ANCHORS @ 1'-0" OC

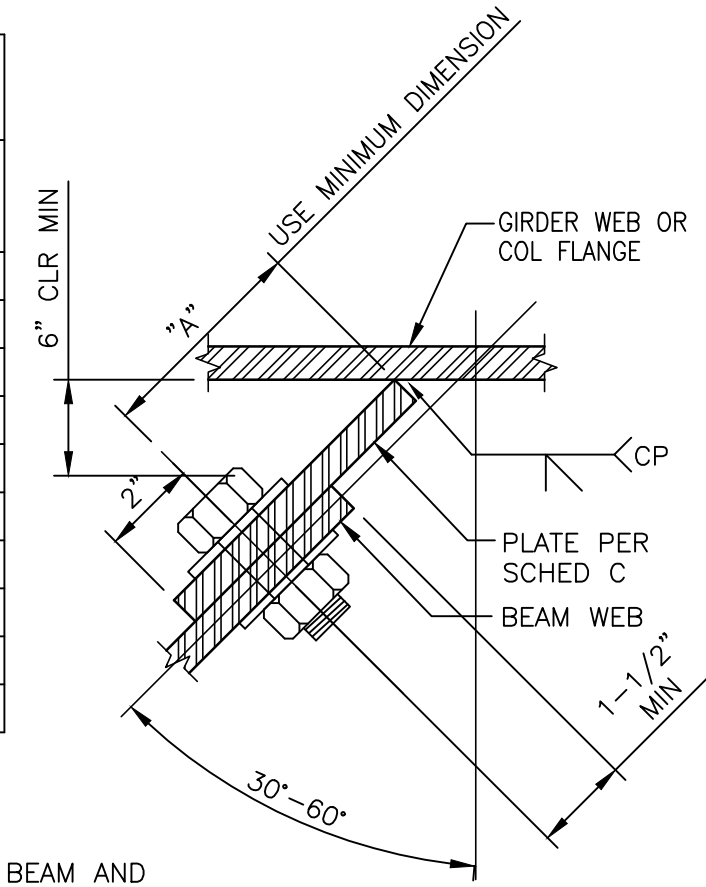


1/4" BAR WELD TO SUPPORT BEAM (BOND FIBERGLASS BAR TO SUPPORT BEAM). OMIT WHERE GRATING IS CONT OVER SUPPORT BEAM
MINIMUM BEARING DIMENSION SEE NOTE ABOVE

BEAM SIZE	BOLTS REQUIRED	MIN PLATE THICKNESS	CONNECTION CAPACITY (SINGLE SHEAR)
W8	(2) 3/4" DIA.	3/8	8.2k
W10	(2) 3/4" DIA.	3/8	8.2k
W12	(3) 3/4" DIA.	3/8	16.3k
W14	(3) 3/4" DIA.	3/8	16.3k
W16	(4) 3/4" DIA.	3/8	26.1k
W18	(5) 3/4" DIA.	3/8	36.3k
W21	(6) 3/4" DIA.	7/16	46.3k
W24	(7) 3/4" DIA.	7/16	56.4k
W27	(8) 3/4" DIA.	1/2	66.3k
W30	(8) 3/4" DIA.	1/2	66.3k

NOTES:

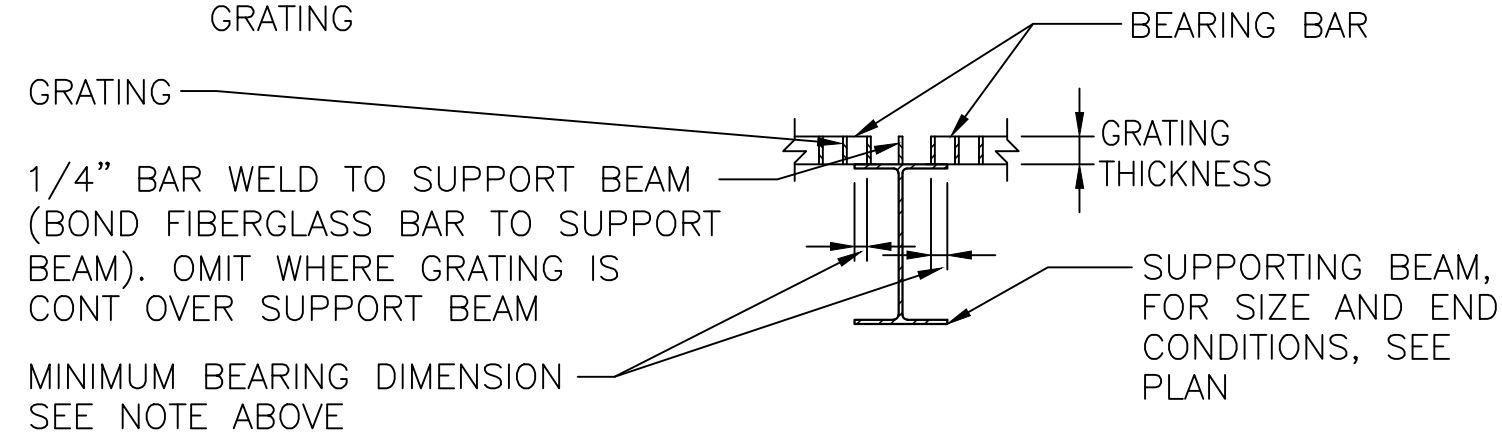
1. FOR BEAM AND COLUMN SIZE, REFERENCE PLAN.
2. PROVIDE STANDARD BOLT HOLES PER AISC, IN BEAM AND HORIZONTAL SHORT SLOTTED HOLE (SSL) IN CONNECTION PLATE.
3. CAPACITIES BASED ON AISC-14TH EDITION-A325N BOLTS TABLES XA THRU XF.
4. FOR CONNECTIONS WITH SKEWED ANGLES LESS THAN 30° OR IF DIMENSION "A" IS 3" OR LESS, USE STANDARD BOLTED CONNECTION SCHEDULE C.



3 SKEWED BOLTED BEAM CONNECTION

N.T.S.

MAXIMUM SPAN	ALUMINUM (IN)	STEEL (IN)	FIBERGLASS (IN)
3'-6"	1 1/4 "	1"	1 1/2 "
4'-0"	1 1/2 "	1"	1 1/2 "
4'-6"	1 3/4 "	1"	1 1/2 "
5'-0"	1 3/4 "	1 1/4 "	MAXIMUM ALLOWABLE SPAN IS 4'-6" LIMIT DEFLECTION TO 1/4" MAX
5'-6"	2"	1 1/4 "	
6'-0"	2 1/4 "	1 1/2 "	
6'-6"	2 1/4 "	1 1/2 "	
7'-0"	2 1/2 "	1 3/4 "	





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**45S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT**

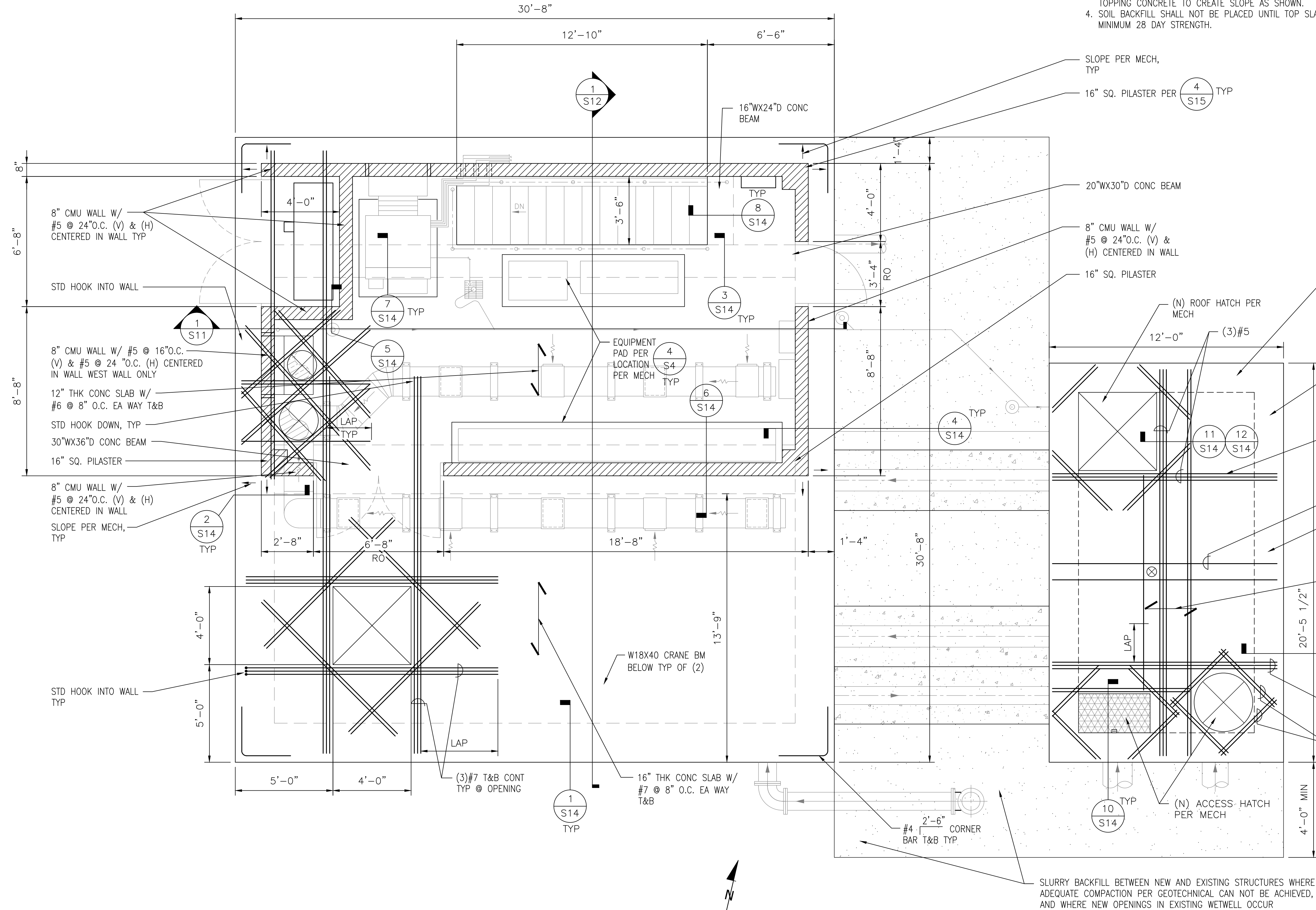
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FINAL SUBMITTAL



ORIGINAL SCALE IN INCHES

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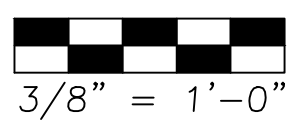


- NOTES:
1. COORDINATE WITH MECH DRAWINGS FOR ALL SLAB OPENING LOCATIONS & SLOPES.
 2. REFER TO 1/S5 FOR TYP ADDITIONAL REINF AT OPENINGS NOT SHOWN ON PLAN.
 3. ALL BEAMS / SLABS SHALL HAVE A MINIMUM CONCRETE COVER OF 2". USE EXTRA TOPPING CONCRETE TO CREATE SLOPE AS SHOWN.
 4. SOIL BACKFILL SHALL NOT BE PLACED UNTIL TOP SLAB HAS BEEN POURED AND REACHED MINIMUM 28 DAY STRENGTH.

LEGEND:

INDICATES ORIENTATION OF OUTER LAYER OF REINF

1 UPPER LEVEL FRAMING PLAN
SCALE: 3/8" = 1'-0"



FINAL SUBMITTAL



4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

UPPER LEVEL FRAMING PLAN

SHEET 47 of 90
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4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT

ROOF FRAMING PLAN

ORIGINAL SCALE IN INCHES

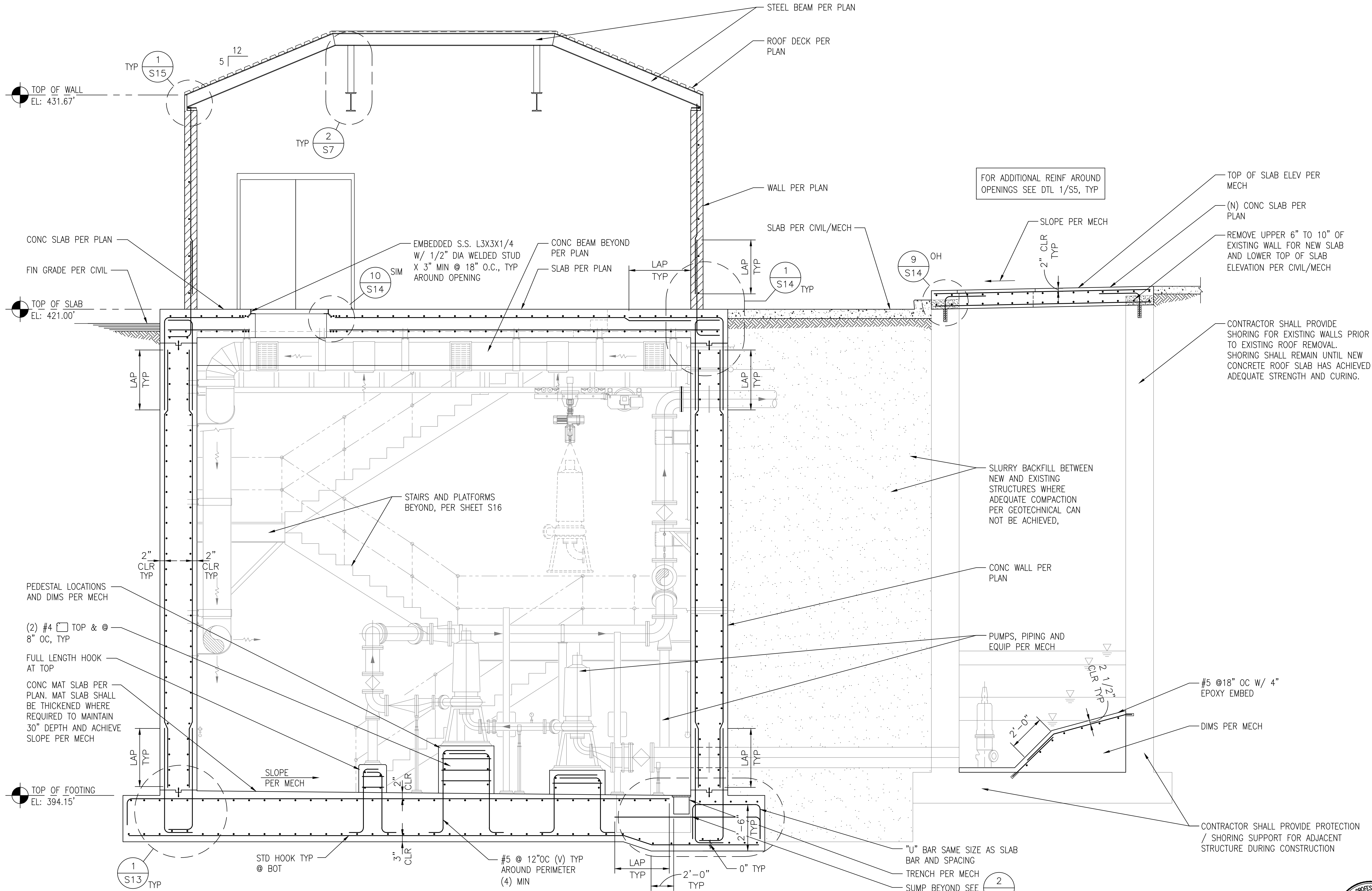


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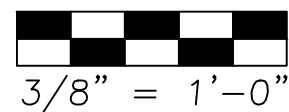
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1 BUILDING SECTION

SCALE: 3/8" = 1'-0"



FINAL SUBMITTAL



4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

BUILDING SECTION

SHEET 49 of 90
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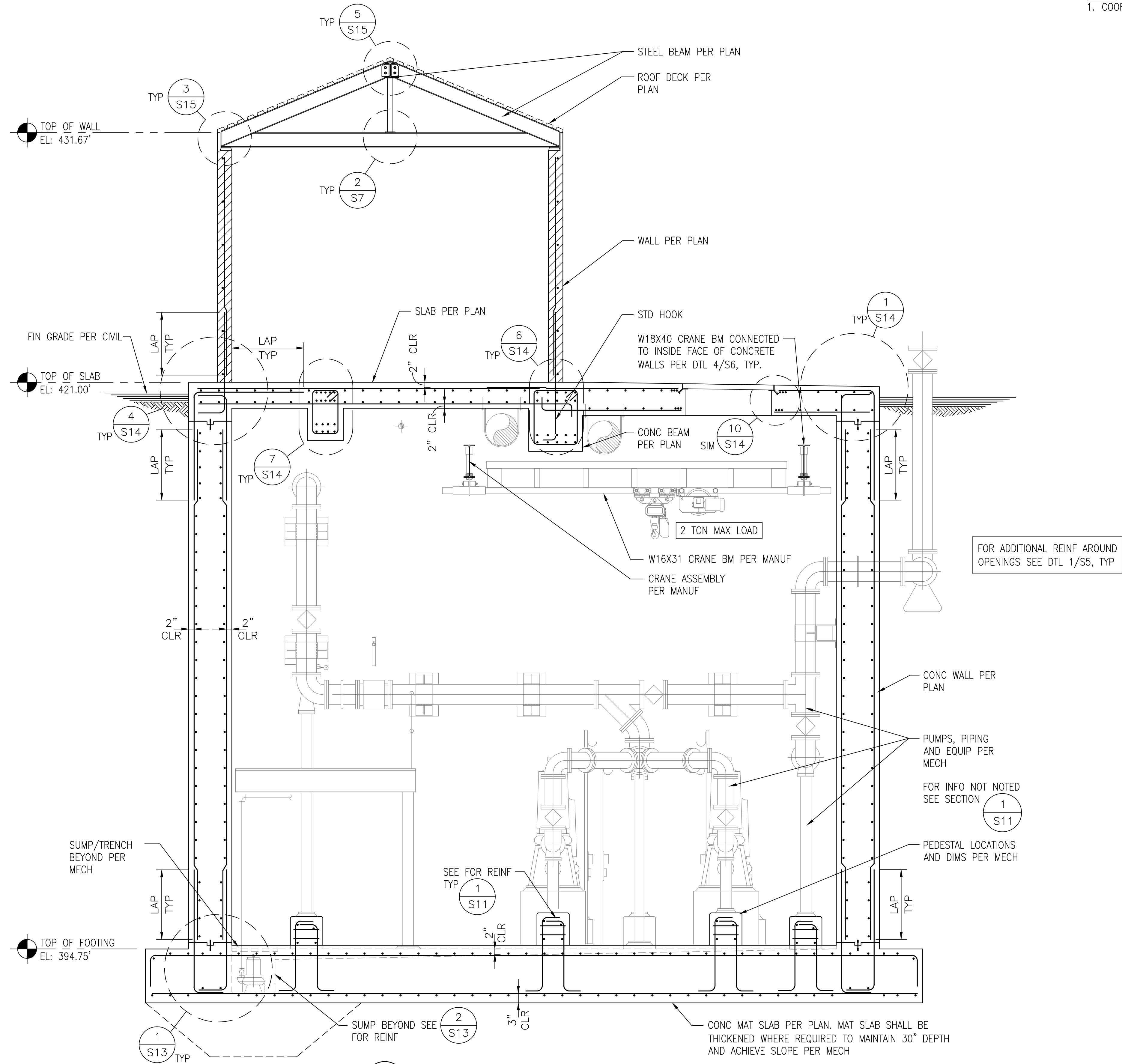
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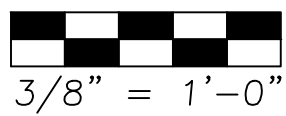
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NOTES:
1. COORDINATE WITH MECH DRAWINGS FOR ALL DIMENSIONS, ELEVATIONS & SLOPES.

1 BUILDING SECTION

SCALE: 3/8" = 1'-0"



FINAL SUBMITTAL



4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

BUILDING SECTION

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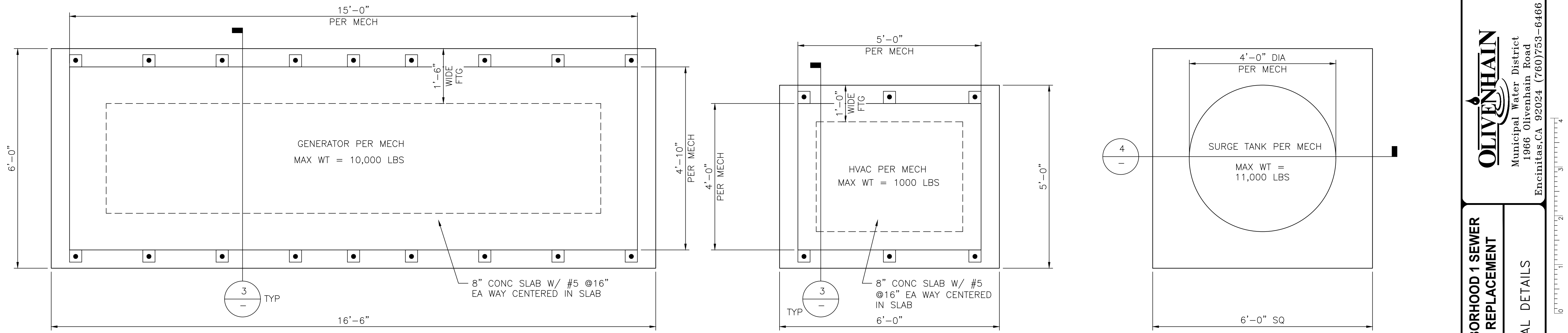
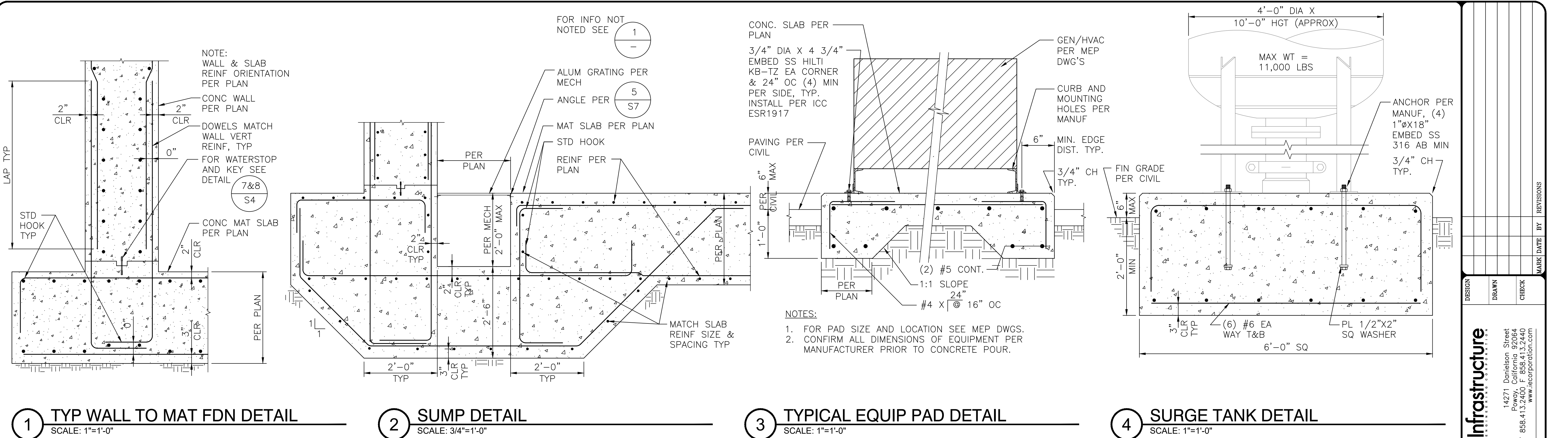
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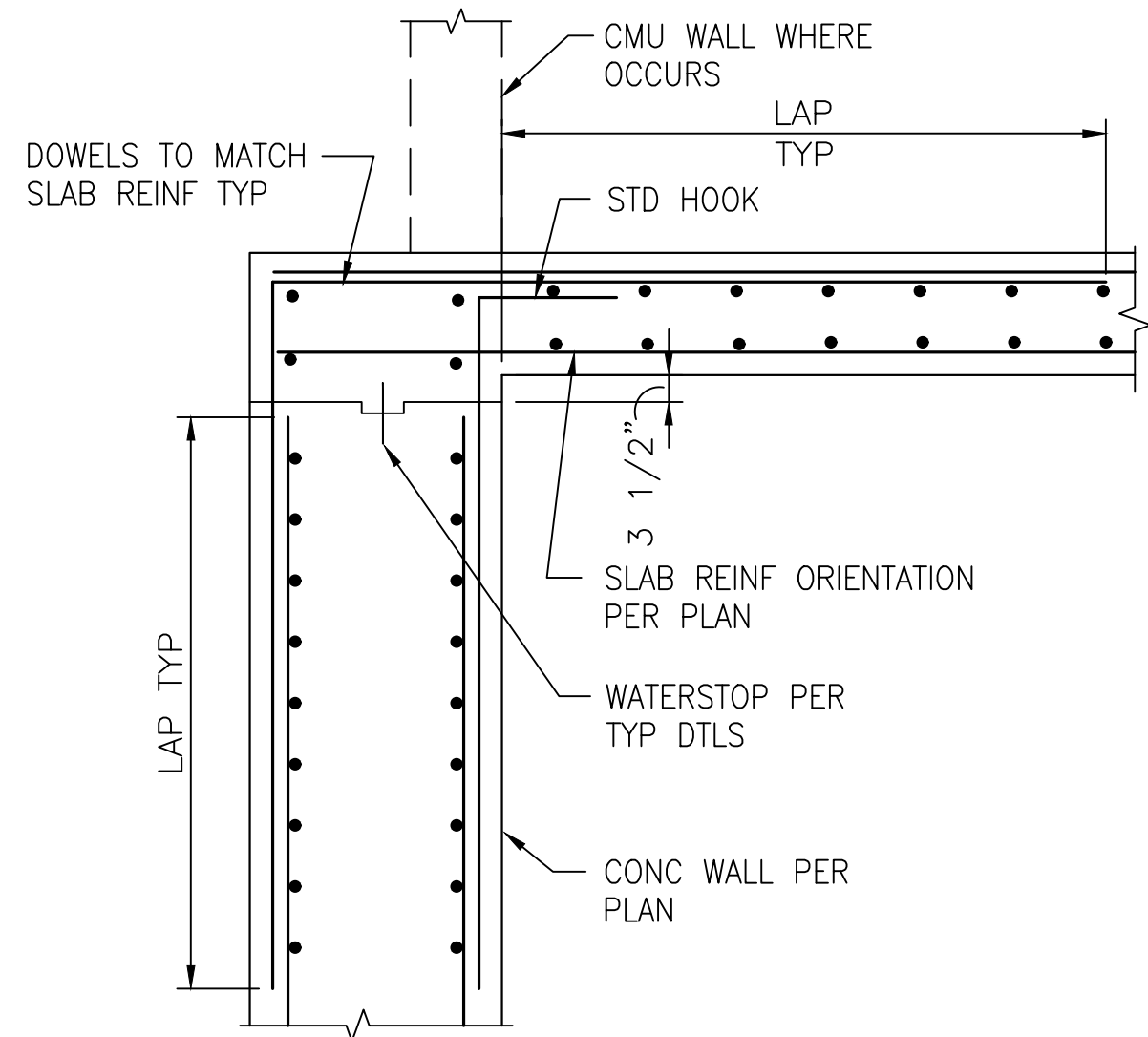
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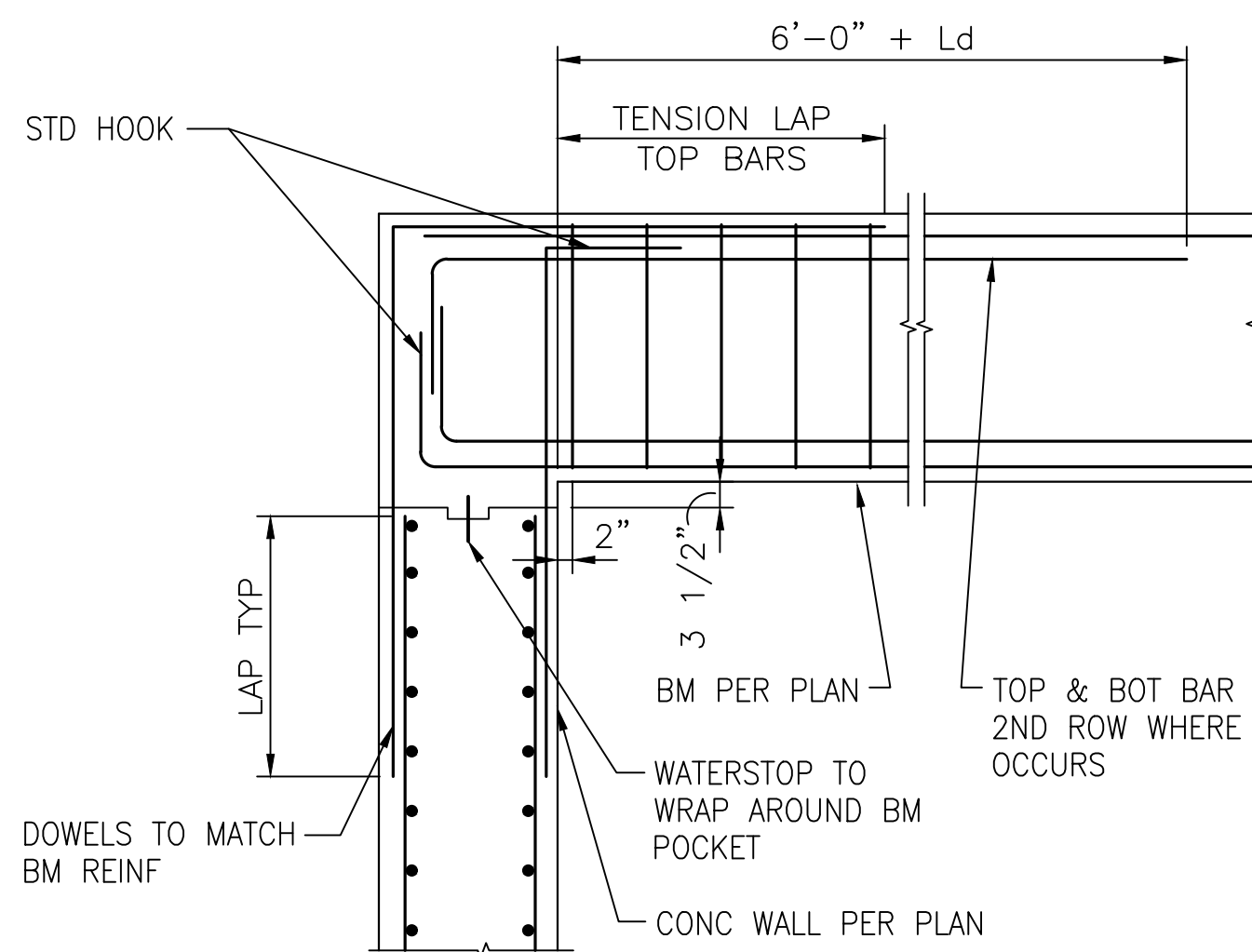
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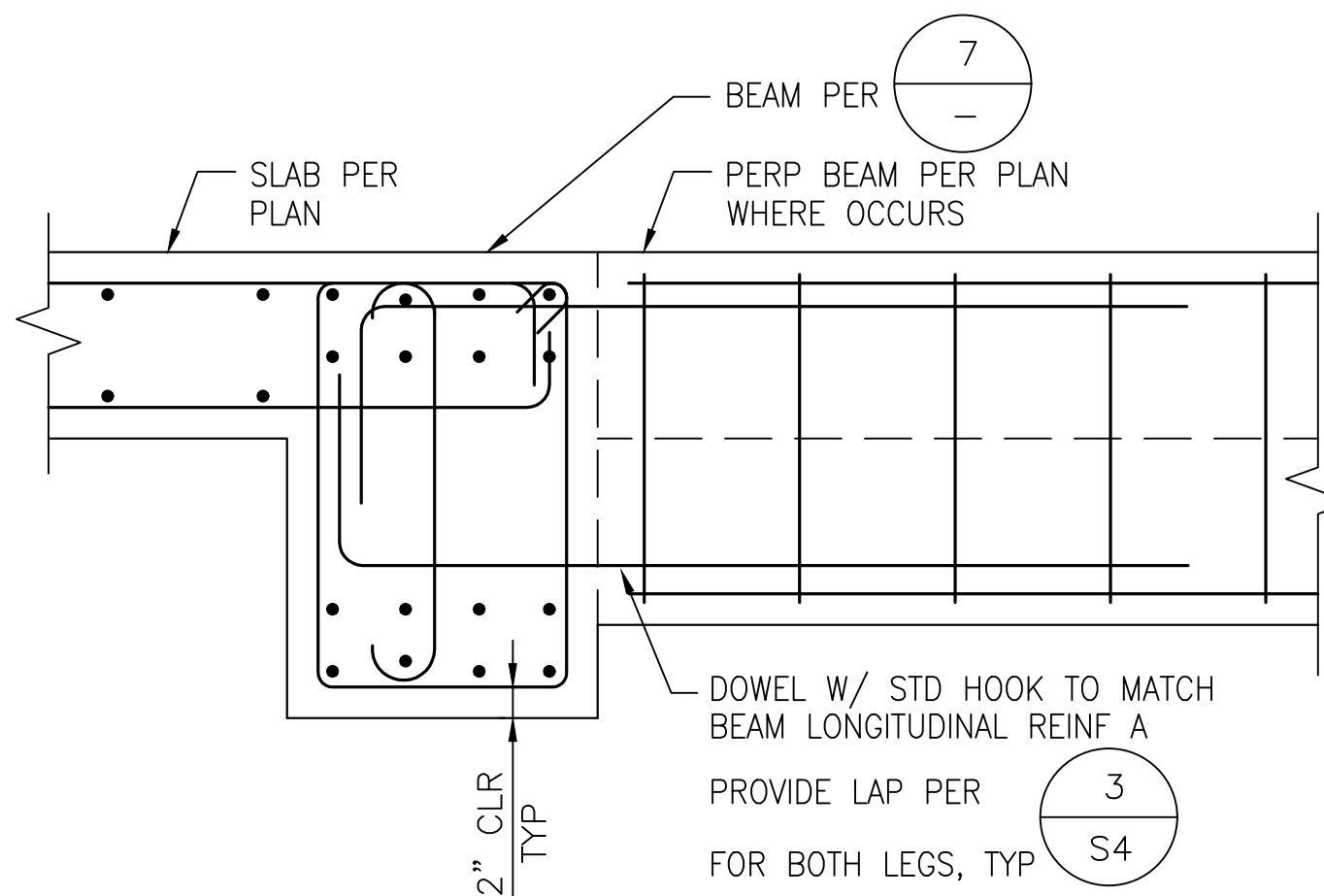
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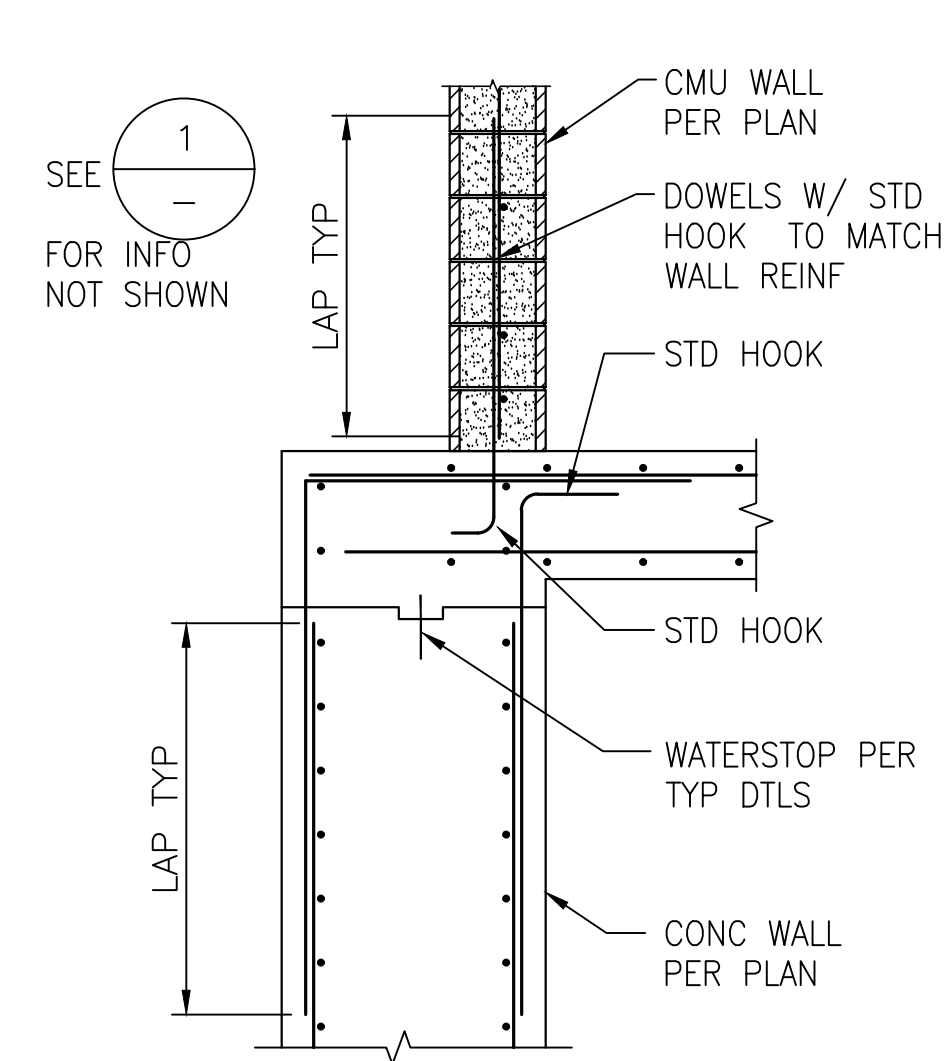
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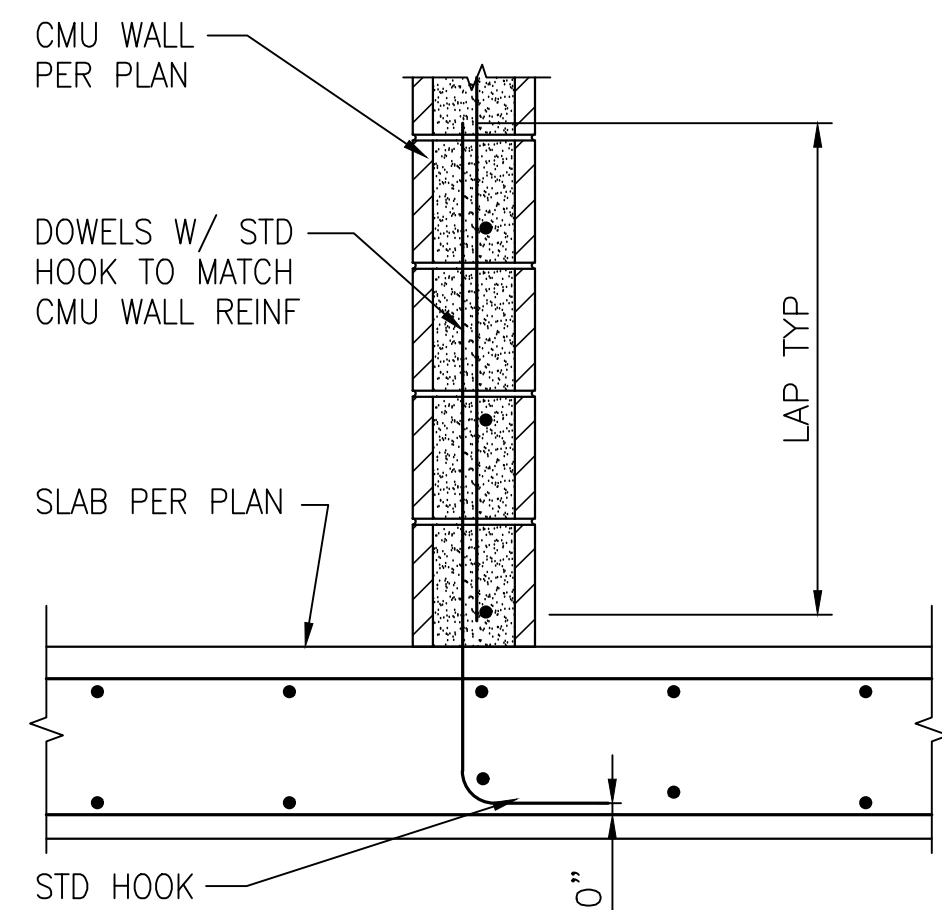
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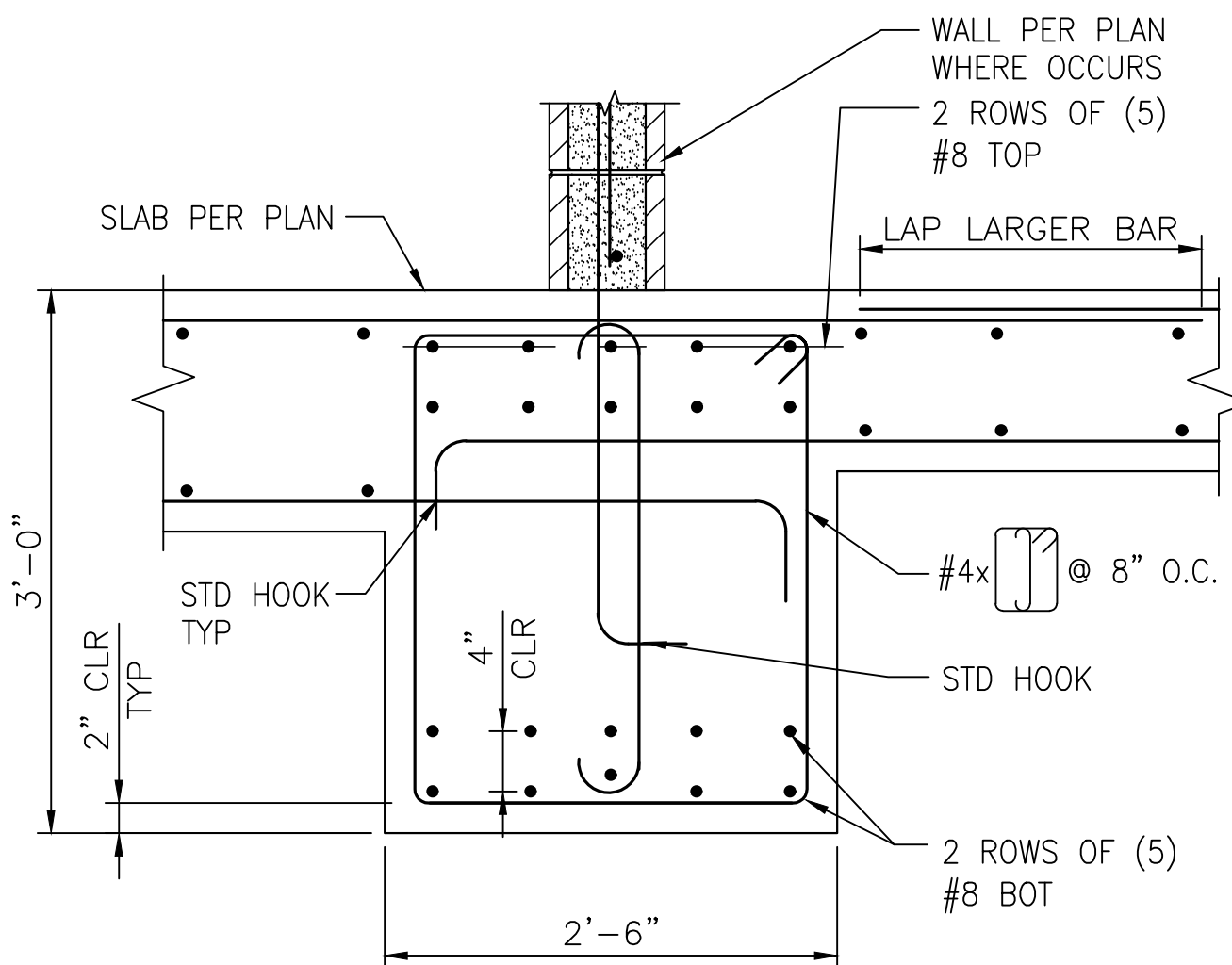
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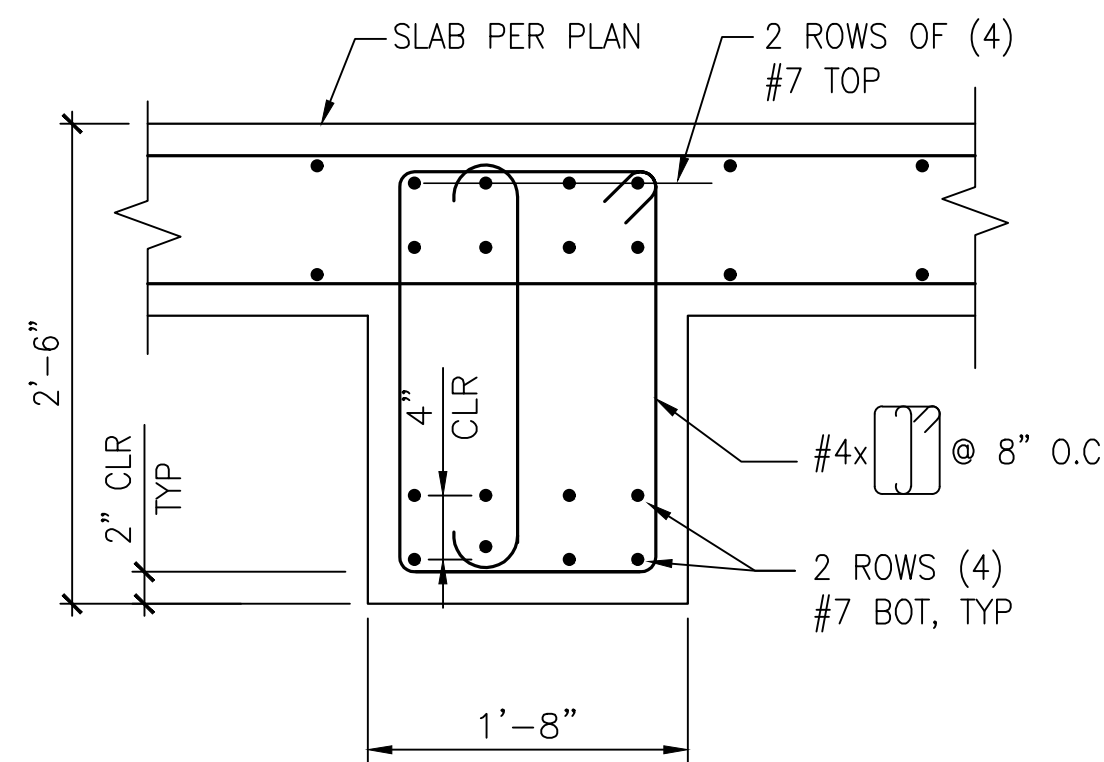
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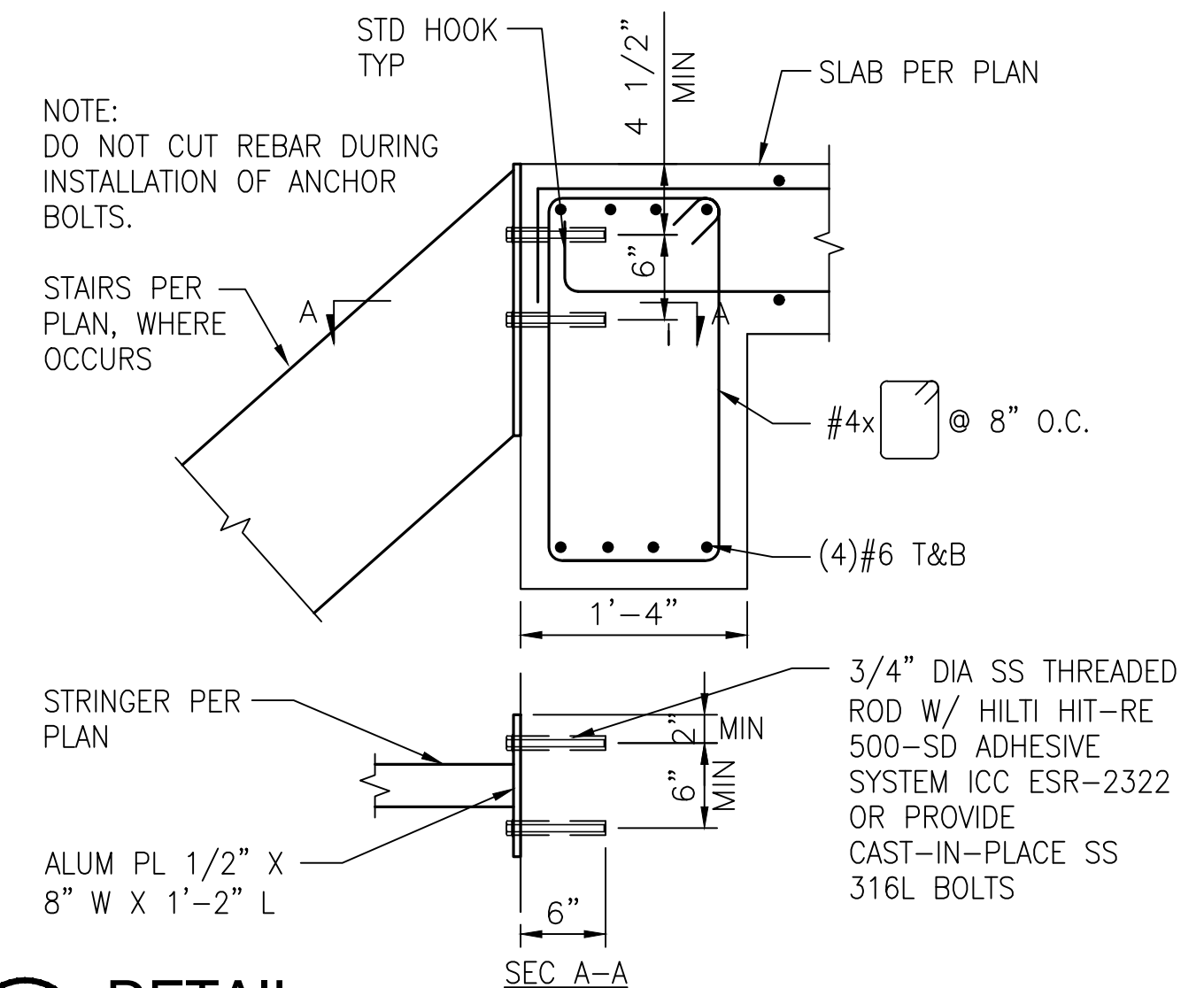
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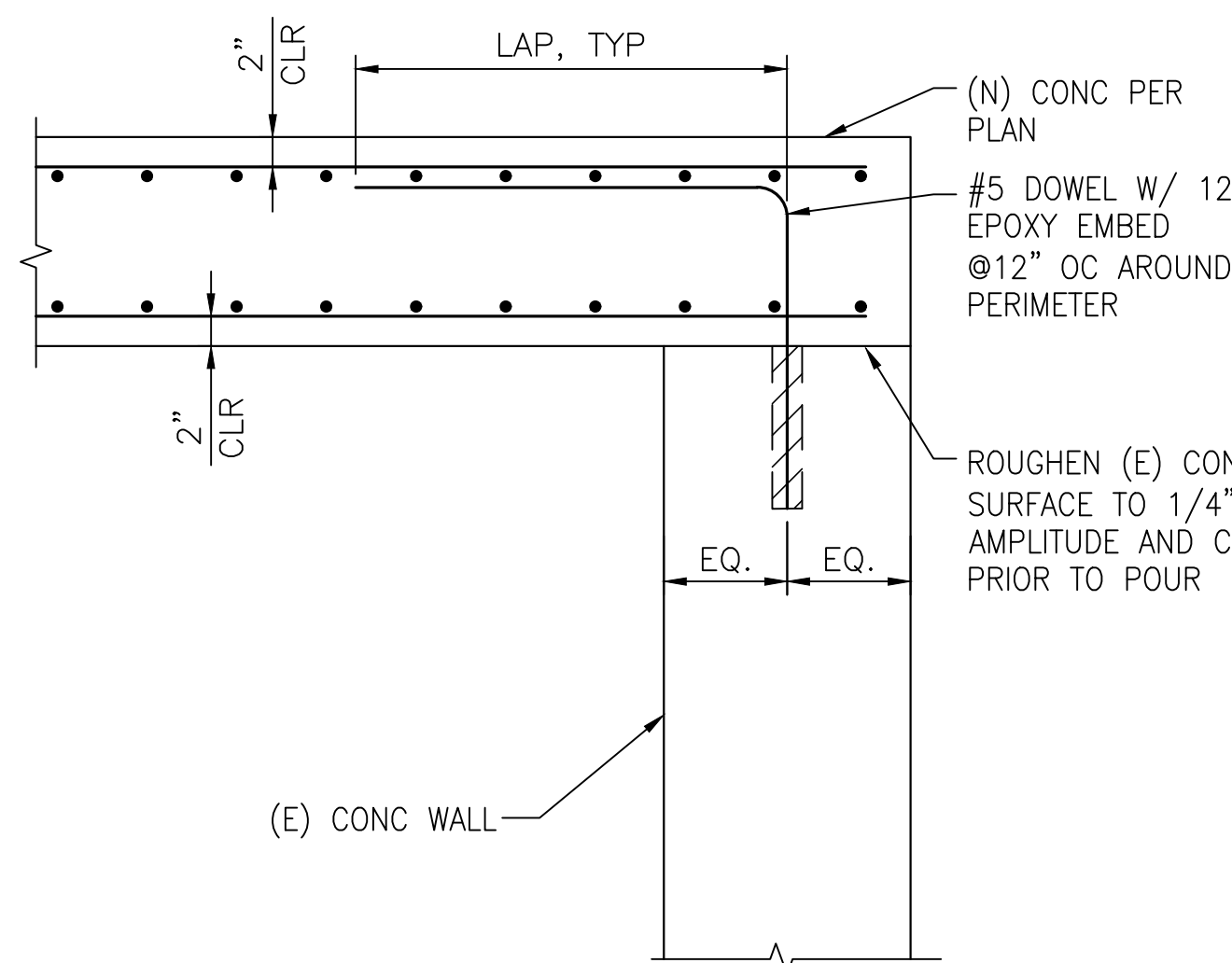
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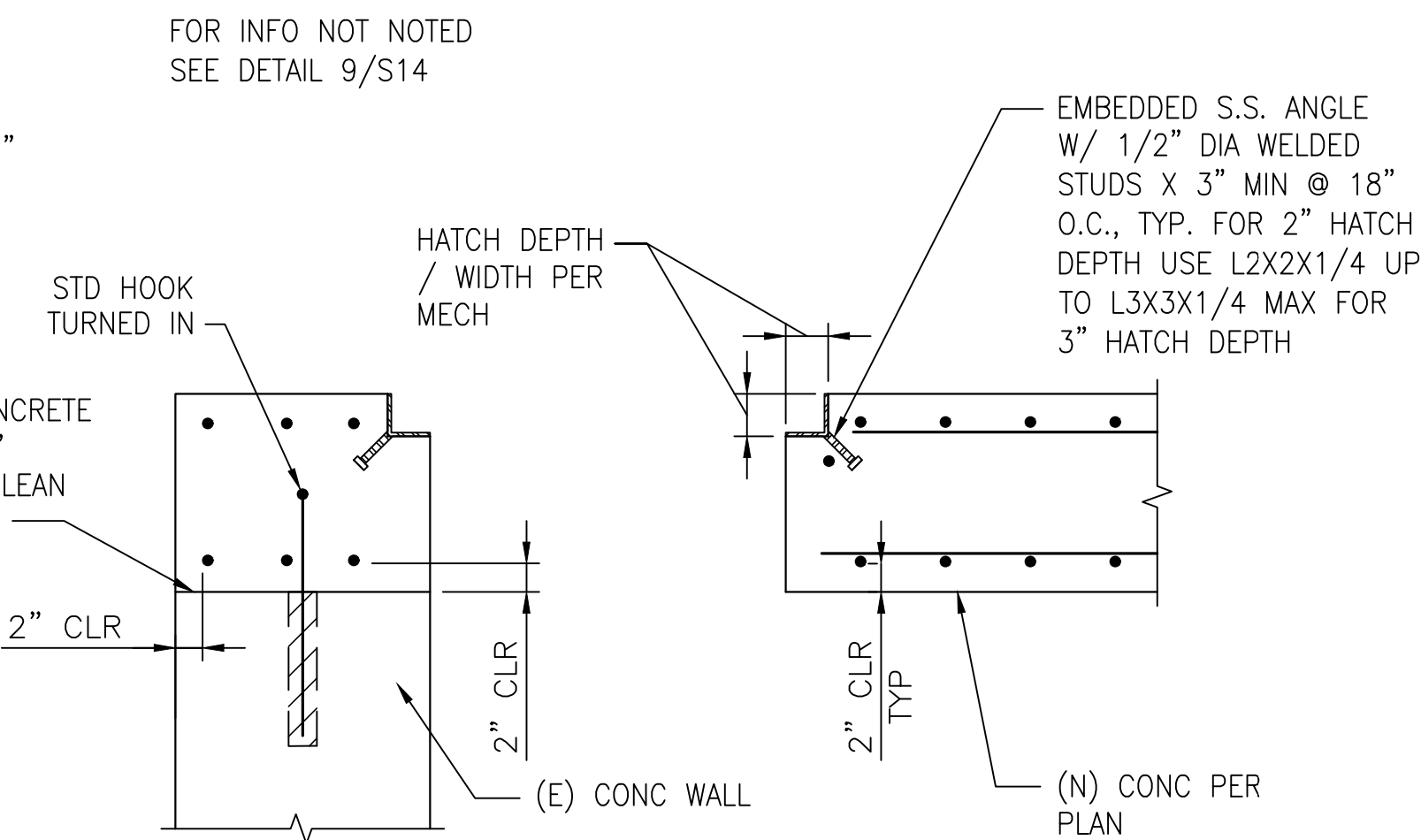
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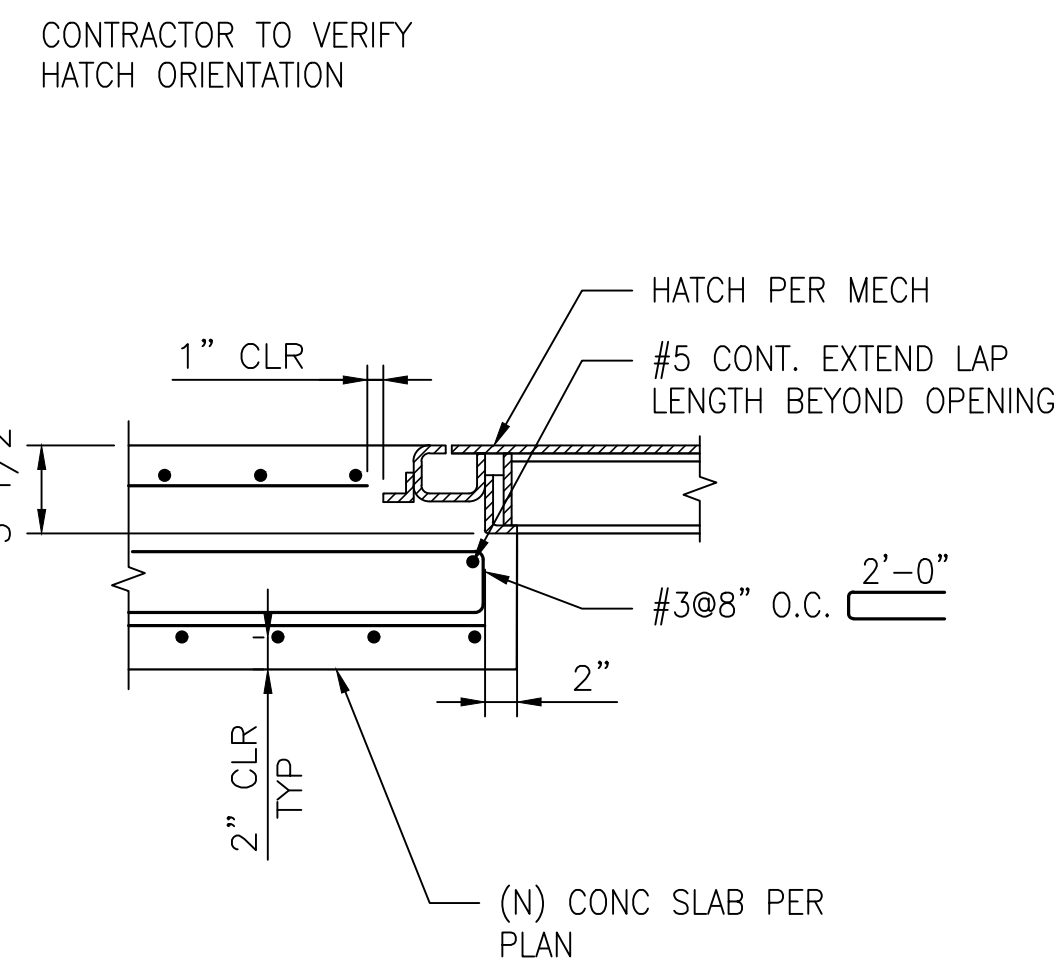
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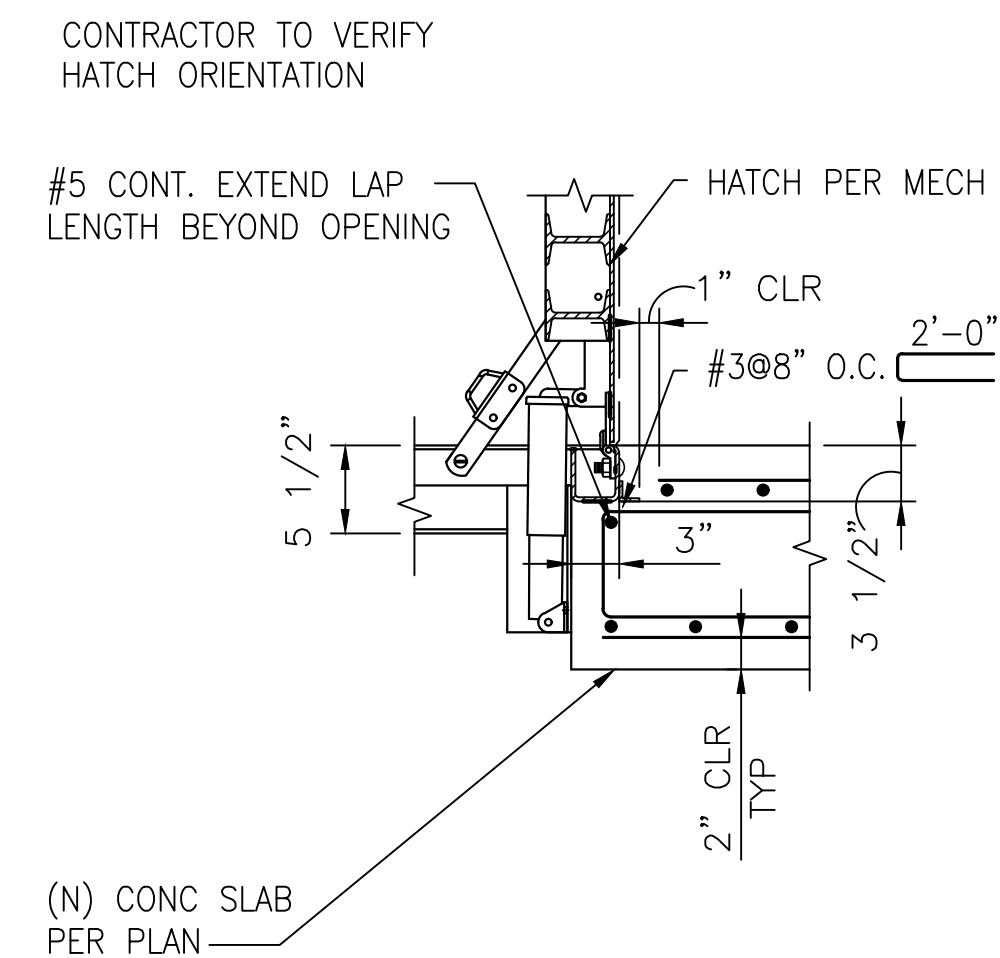
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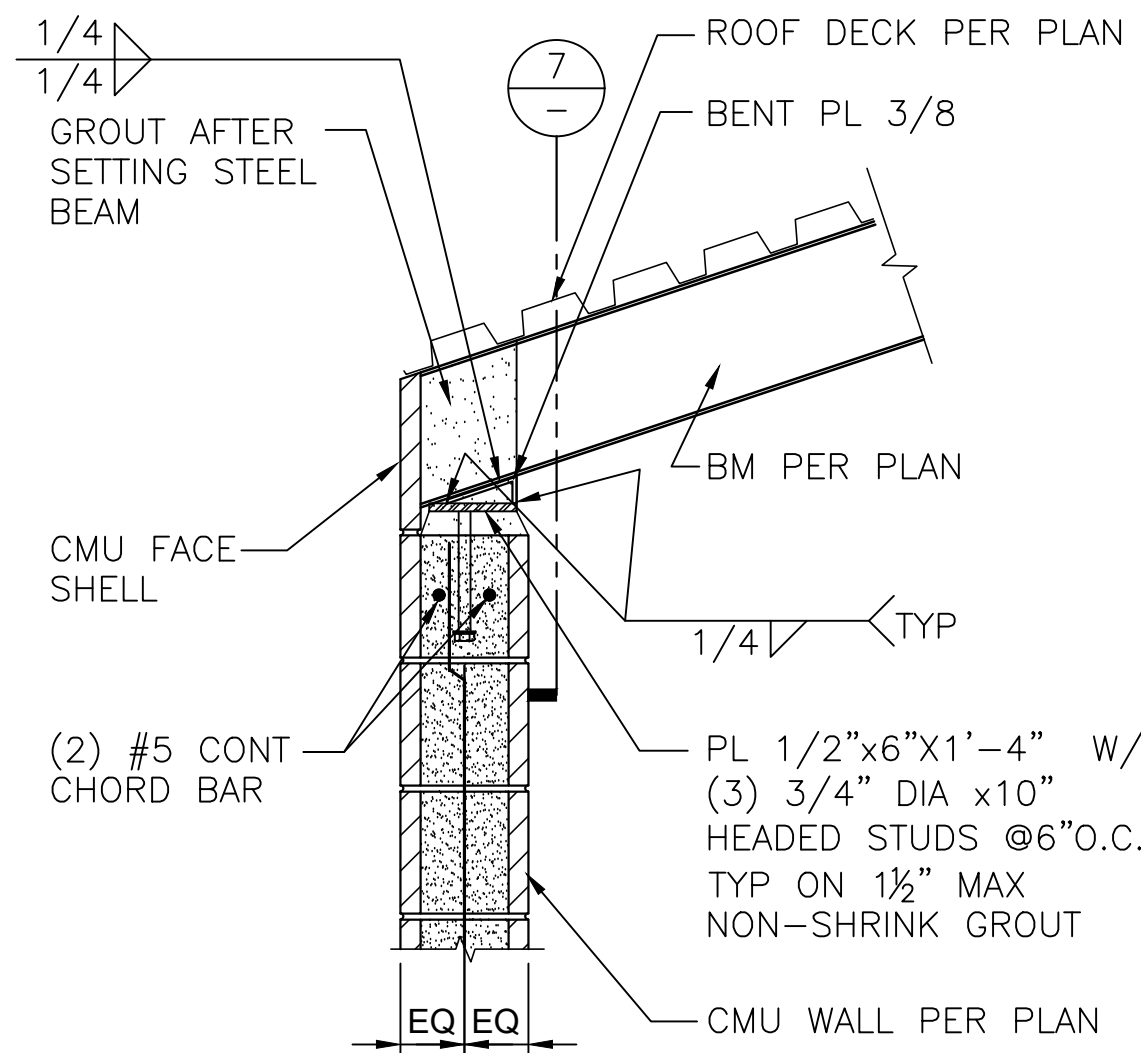


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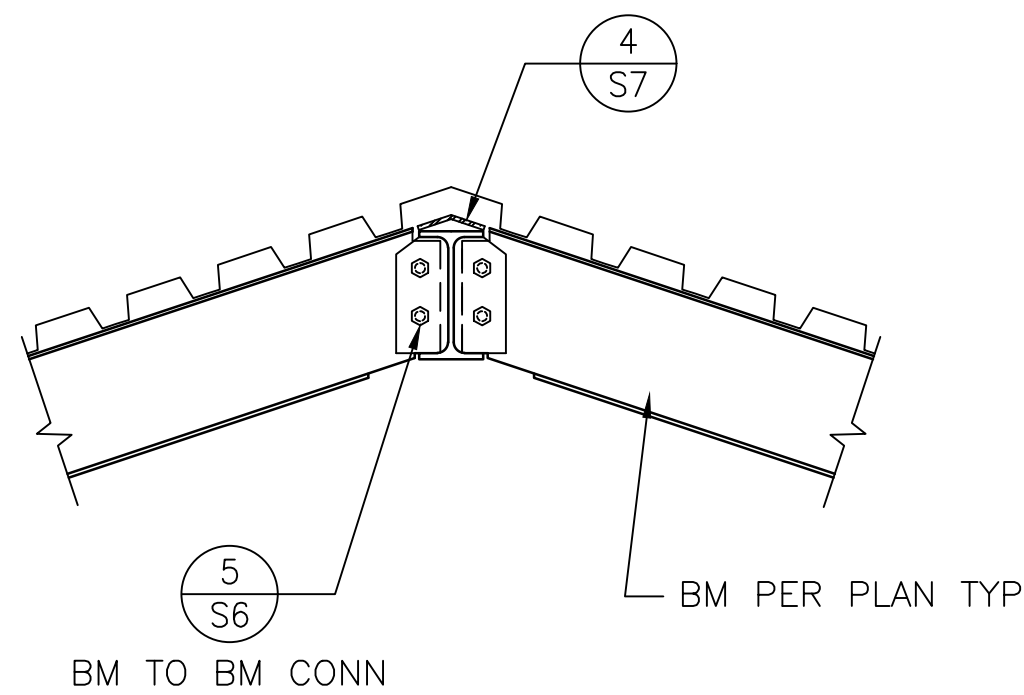


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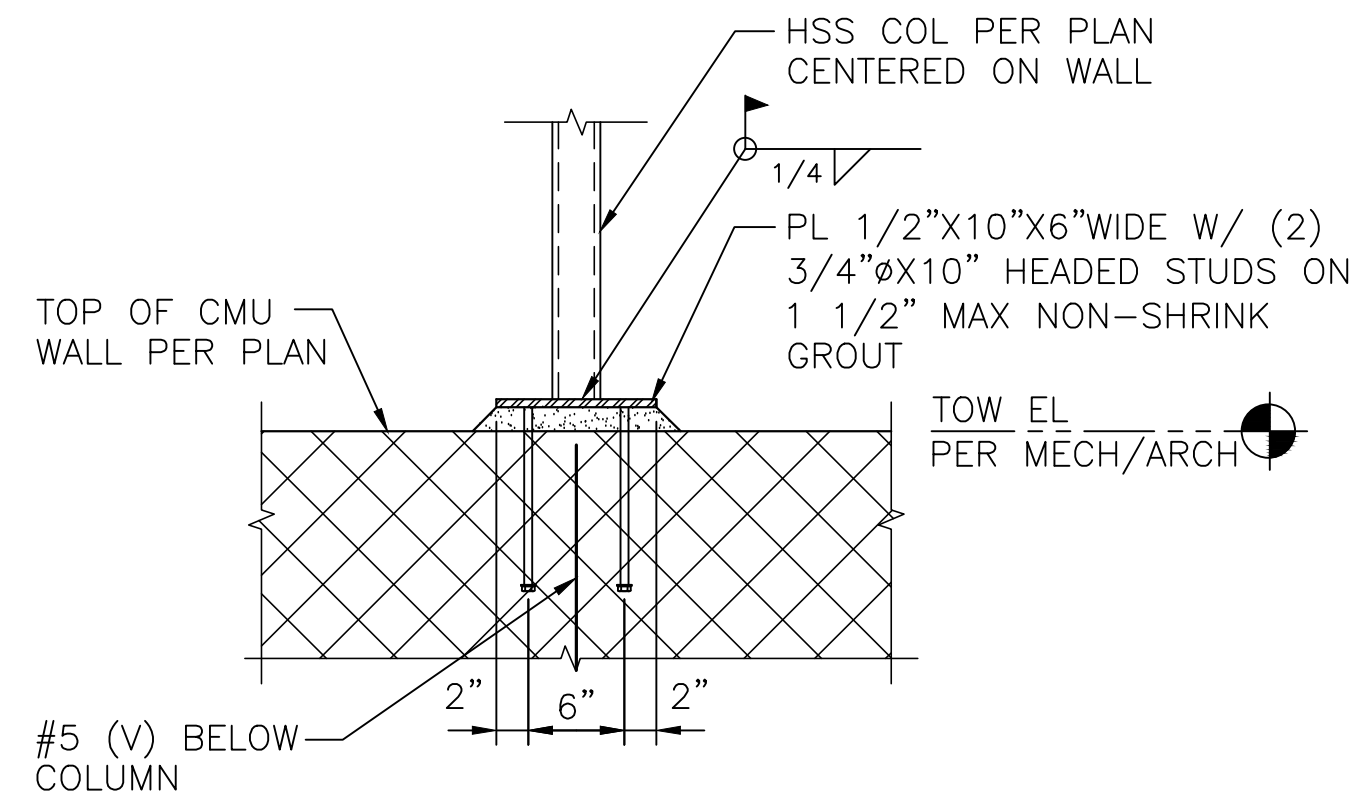
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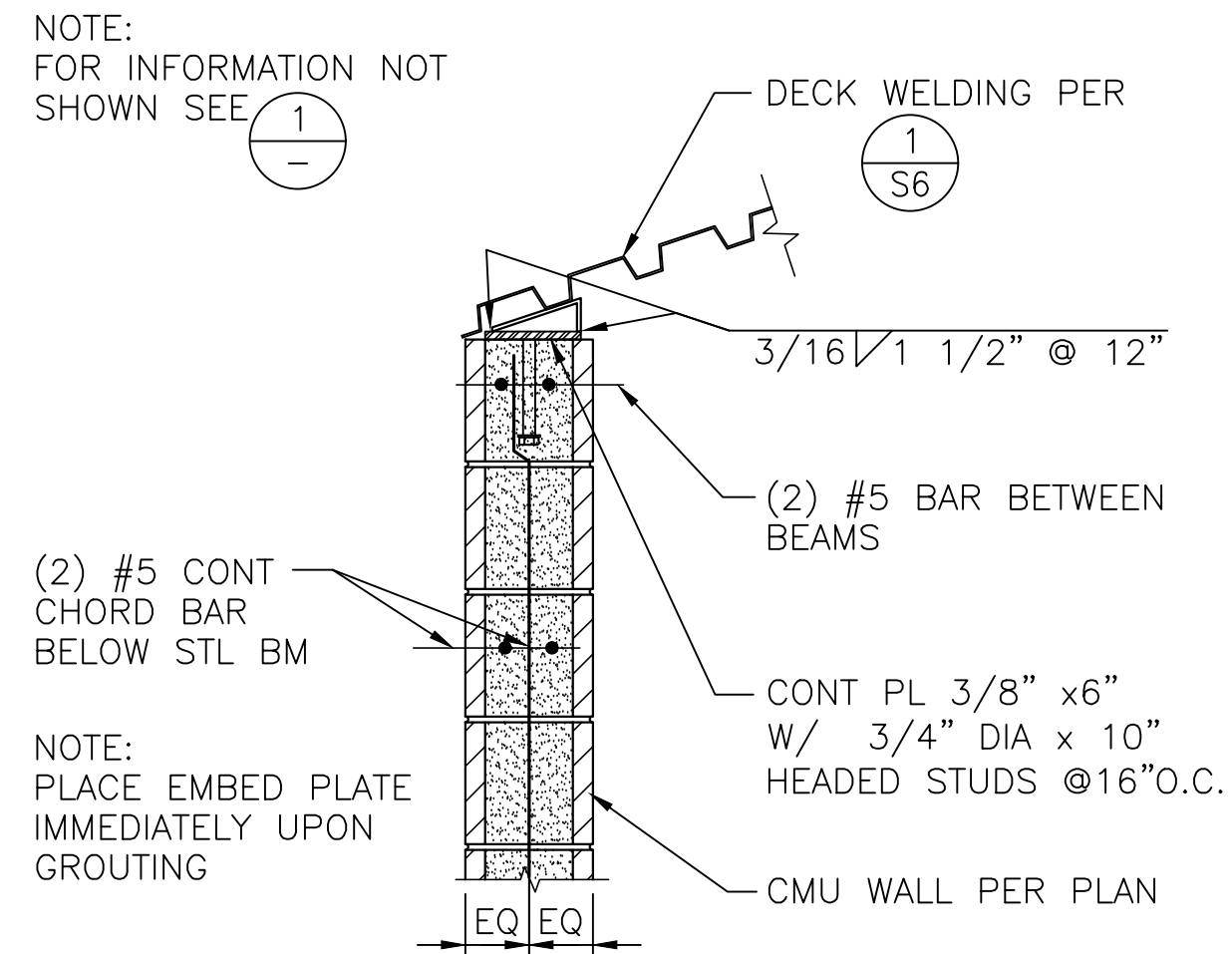
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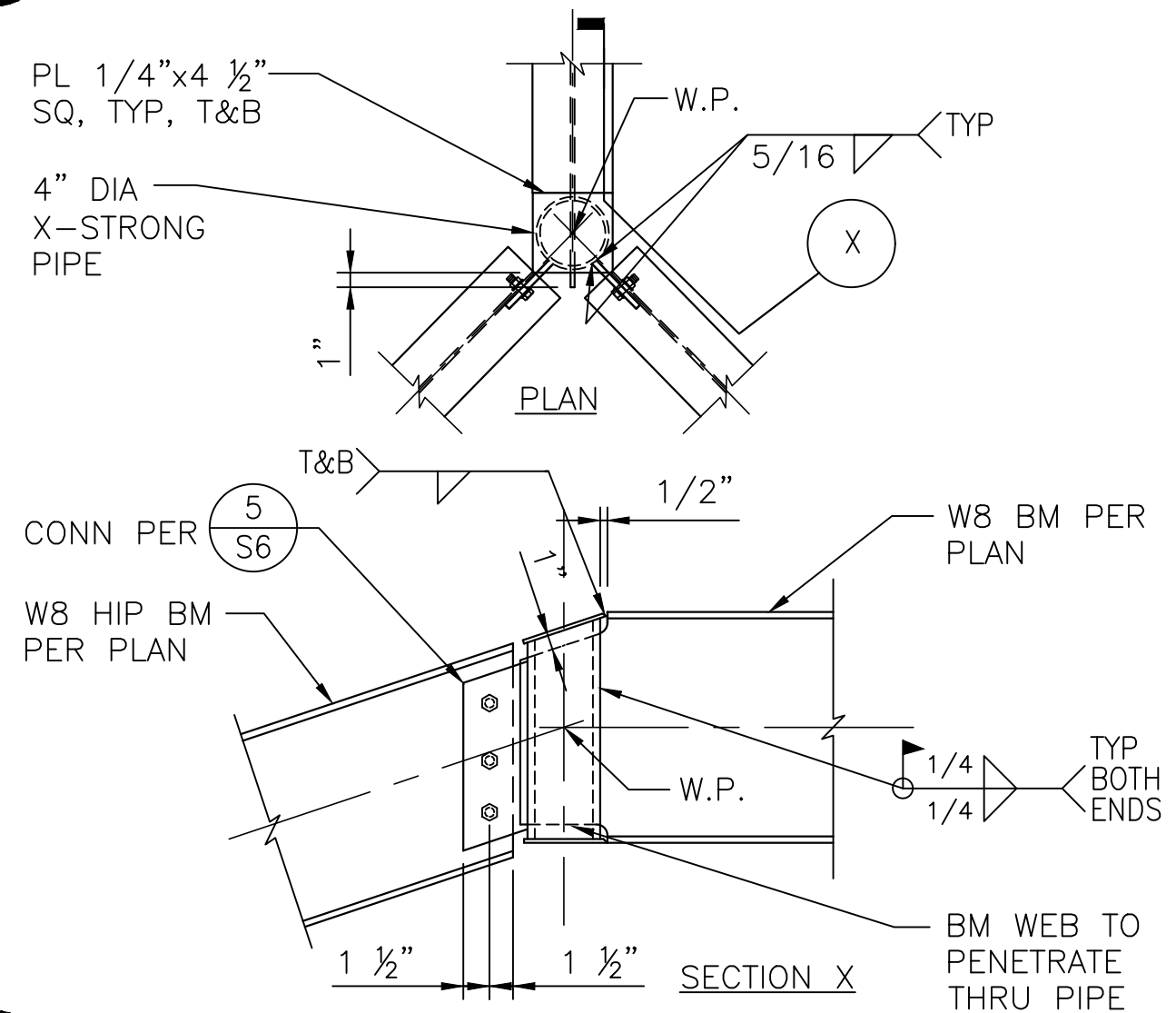
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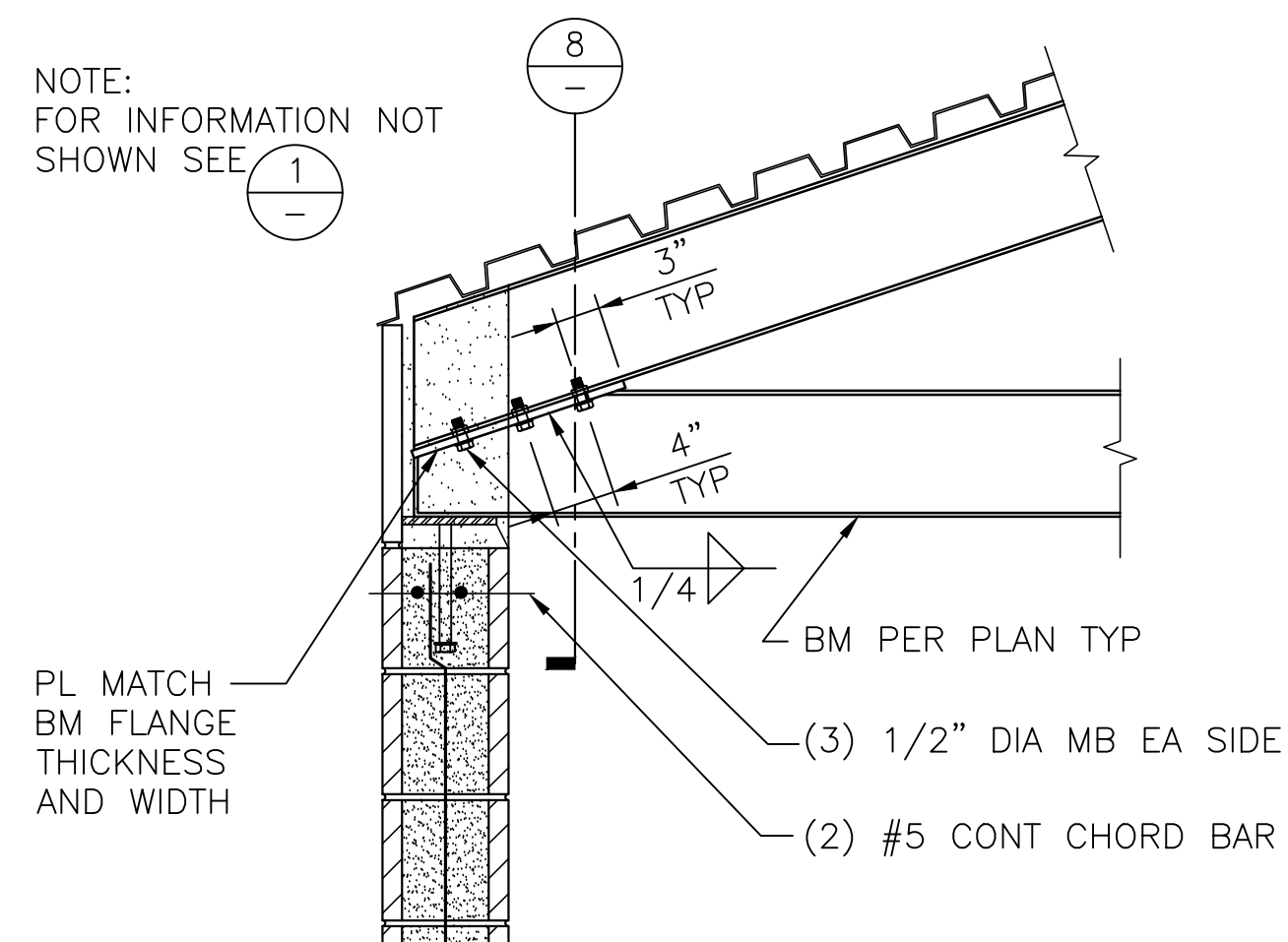
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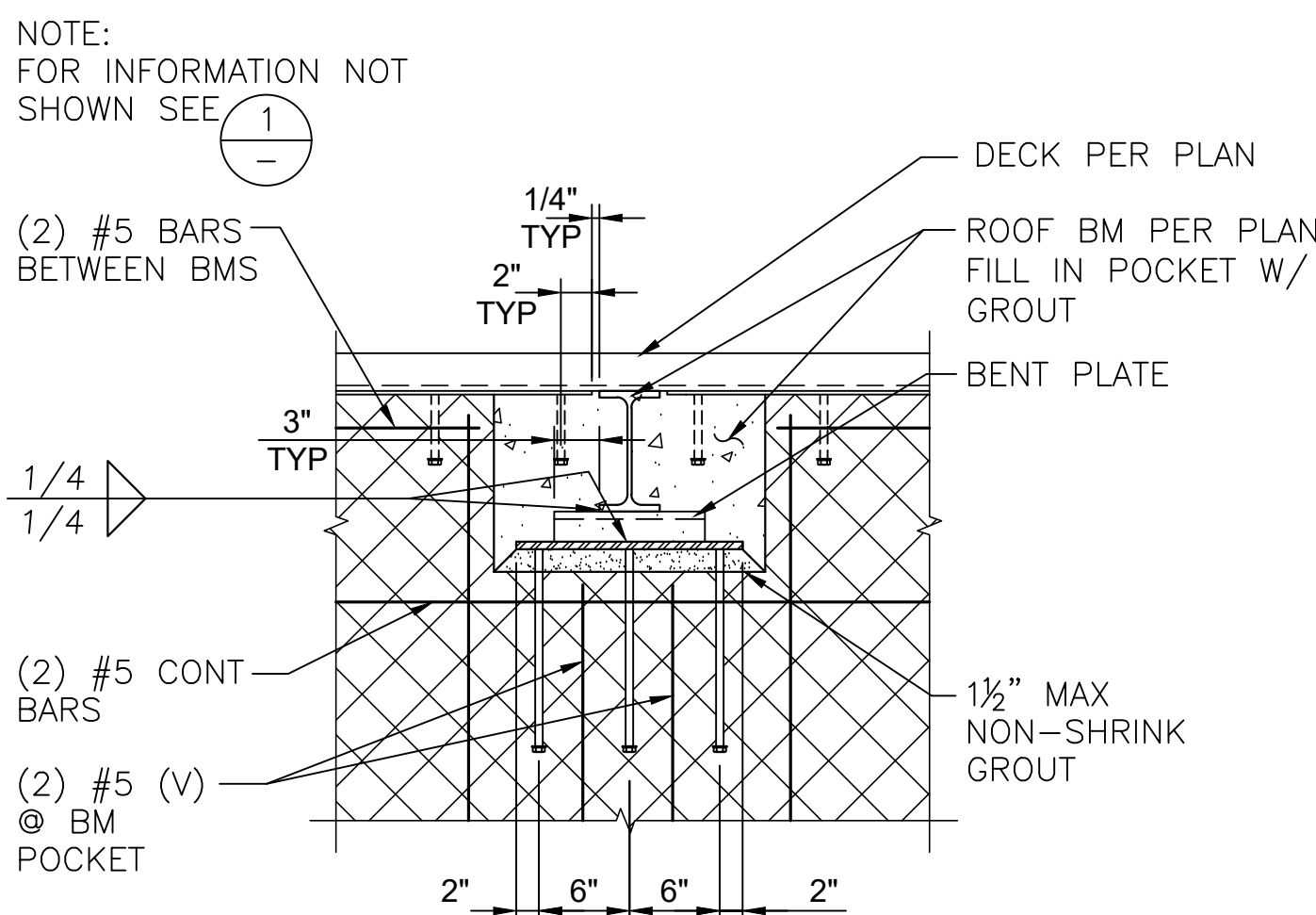
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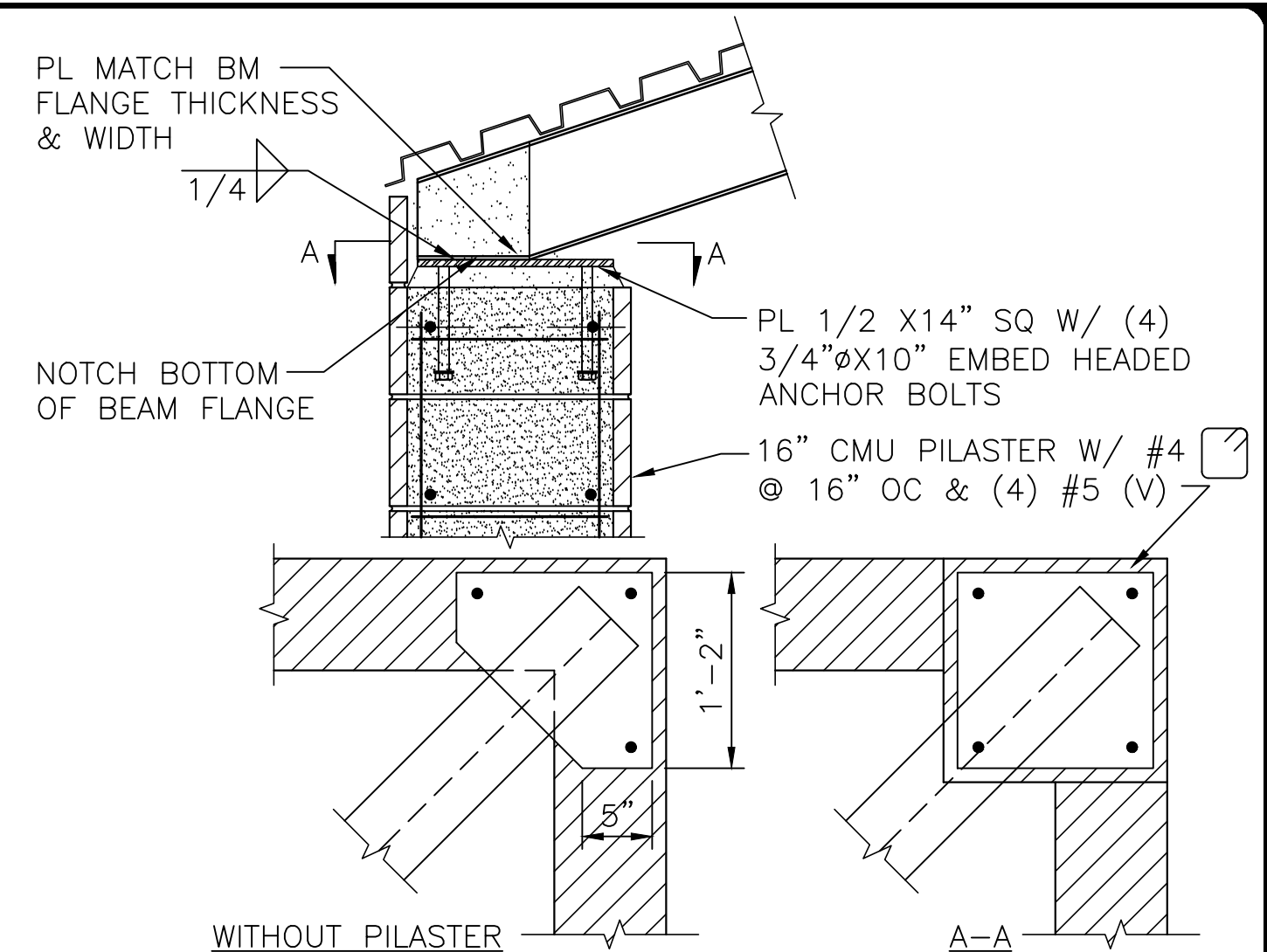
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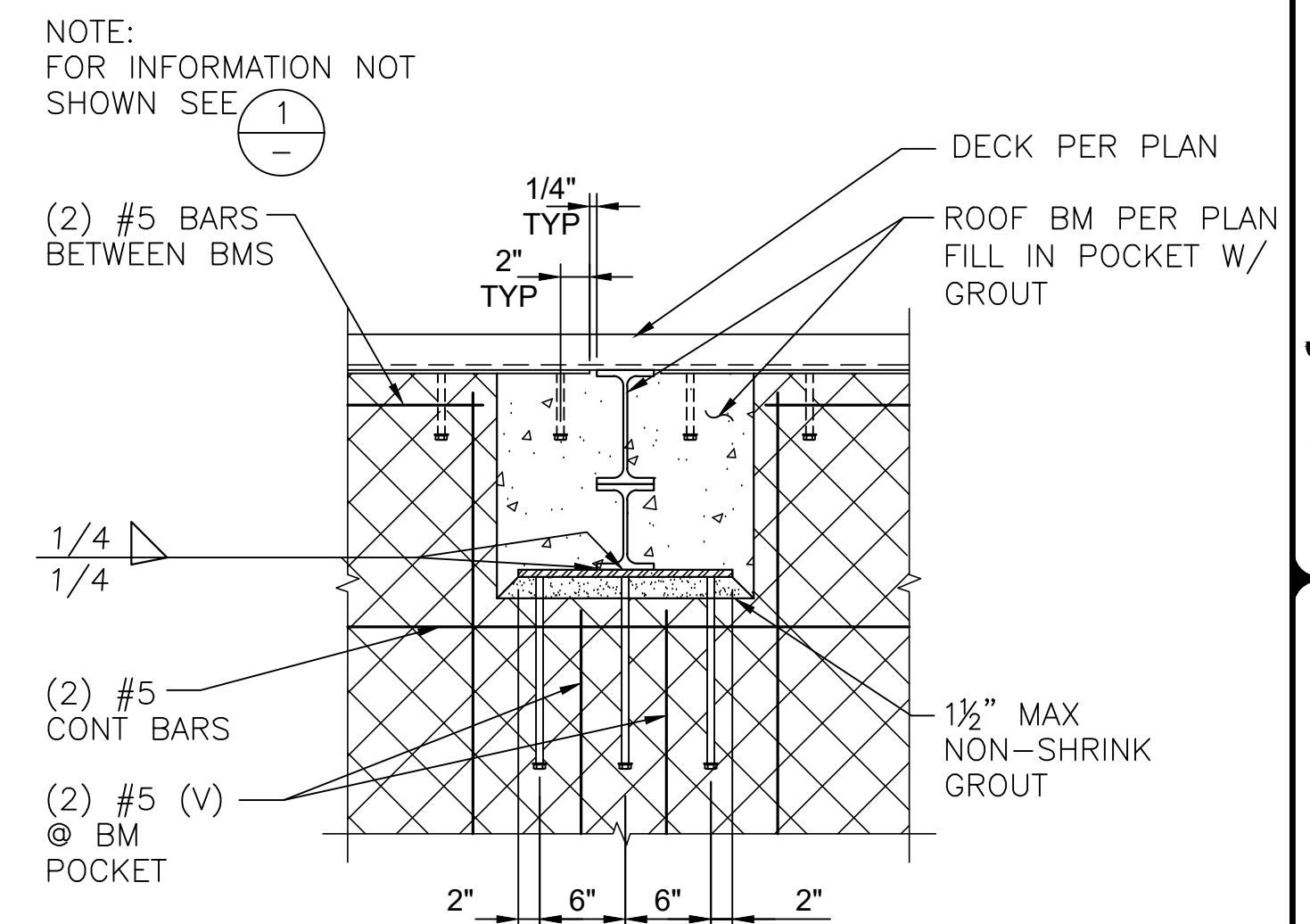
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8 DETAIL
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SCALE: $3/8" = 1'-0"$



SCALE: 3/8" = 1'-0"



NTS



NTS

NOTES:
COAT ALL AL SURFACES IN CONTACT WITH CONC
PER SPECIFICATIONS

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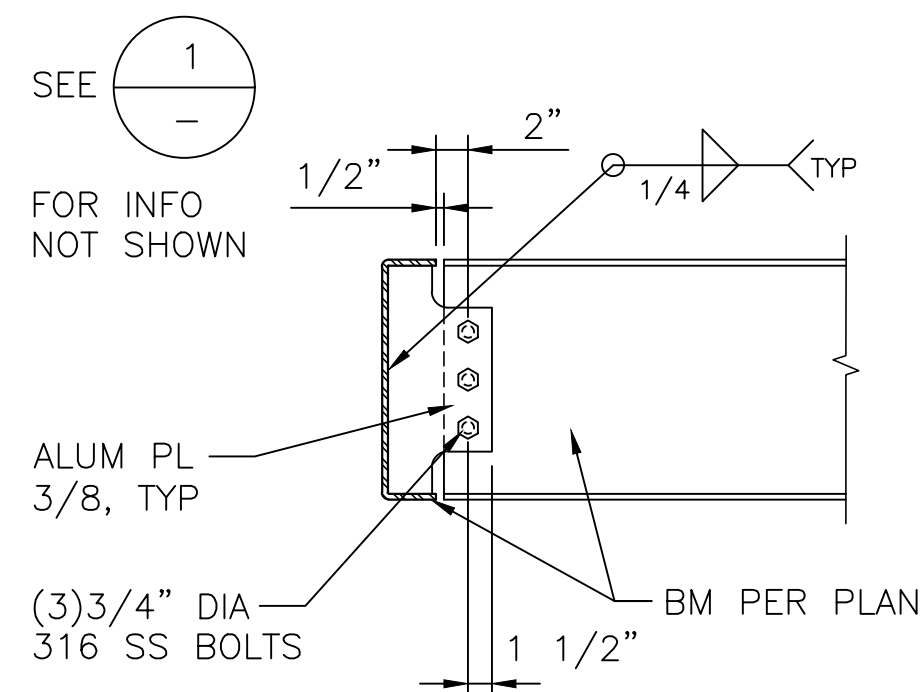
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STAIR PLAN AND SECTION

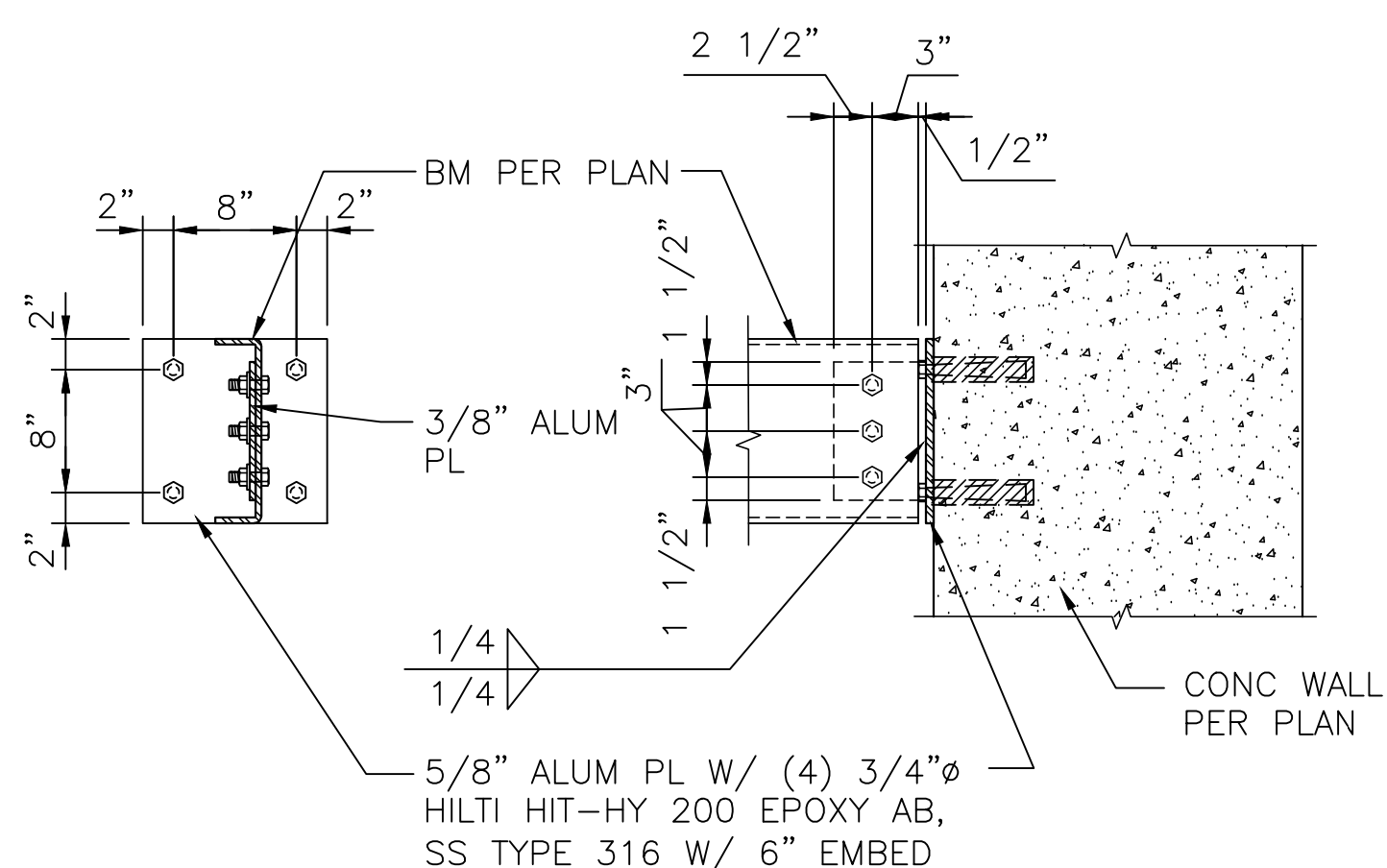
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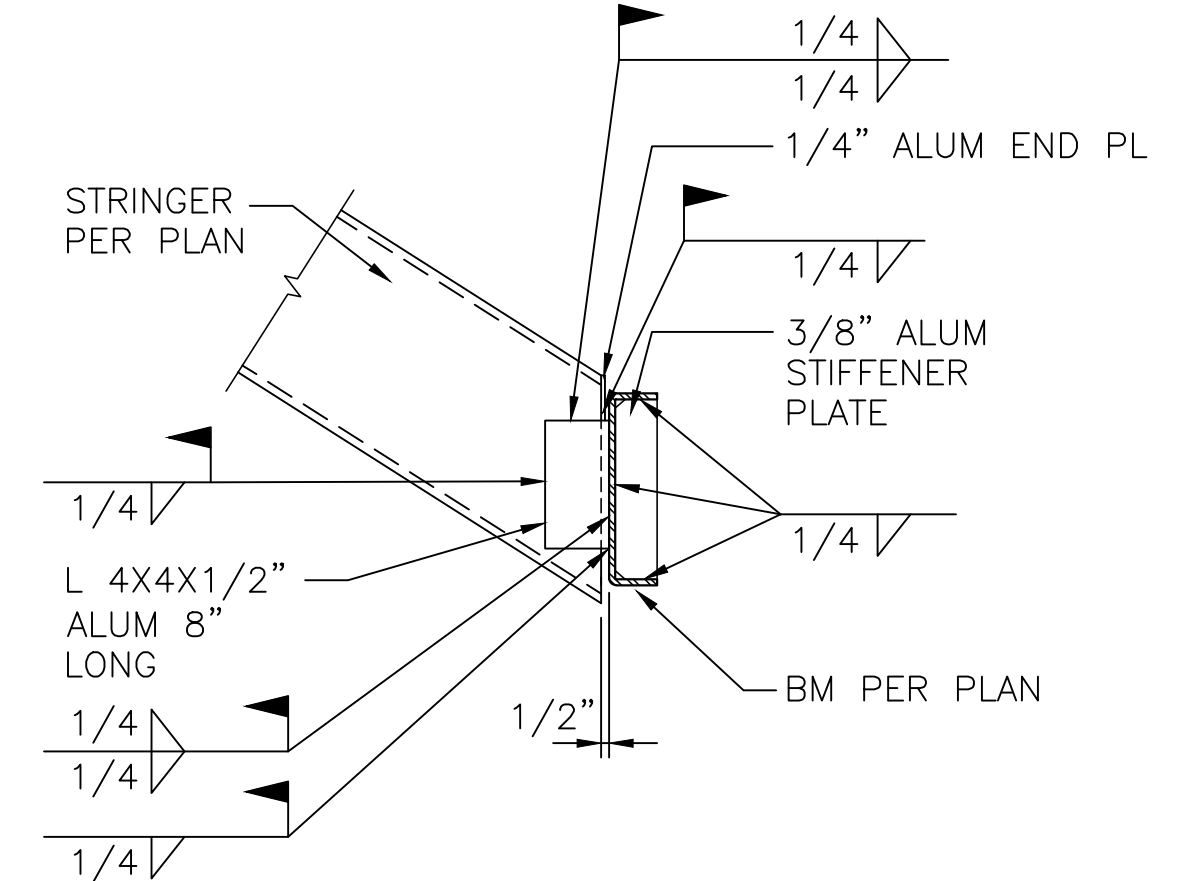


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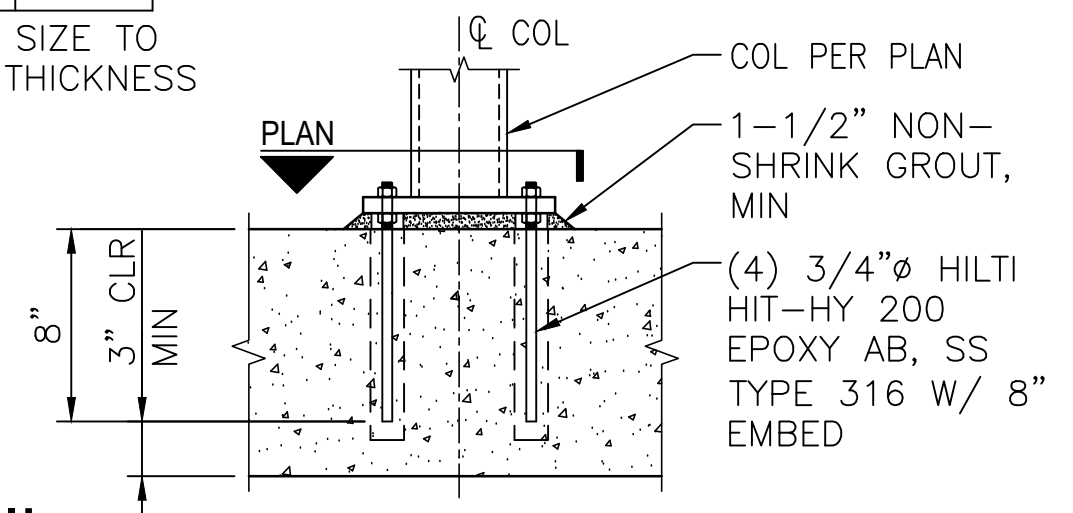
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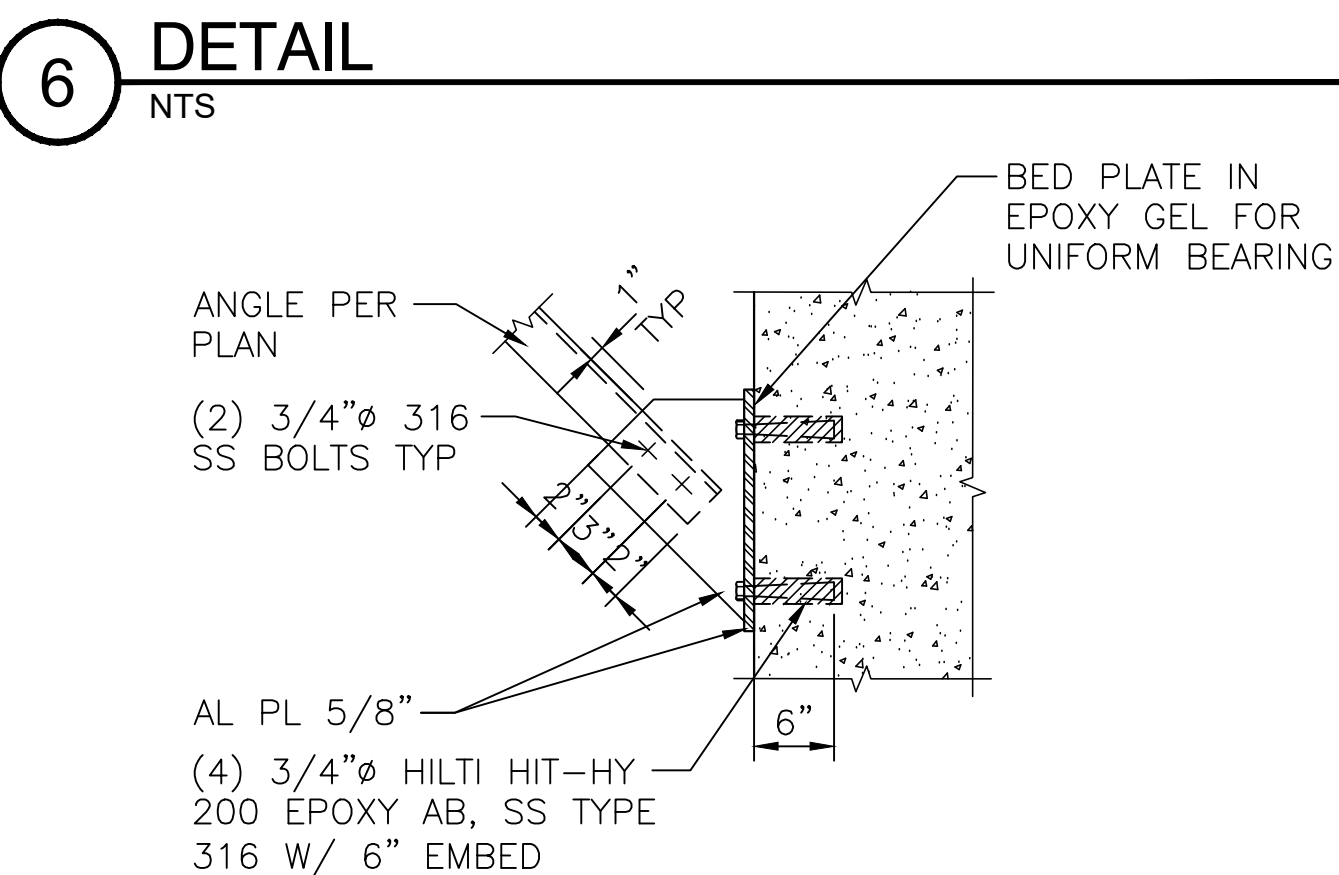
Diagram illustrating the Plan - Interior Column. The diagram shows a square column with side length L and width W . The column is centered on a grid with dimensions $1\frac{1}{2}"$ TYP. The column is labeled "COL PER PLAN". The column is surrounded by an "ALUM BASE PL" (Aluminum Base Plate) with dimensions $T \times W \times L$ PER PLAN. The base plate is labeled "1"Ø GROUT HOLE (OPTIONAL)". The column is labeled "PLAN - INTERIOR COLUMN".

T.O. FTG
 PER PLAN



DETAIL

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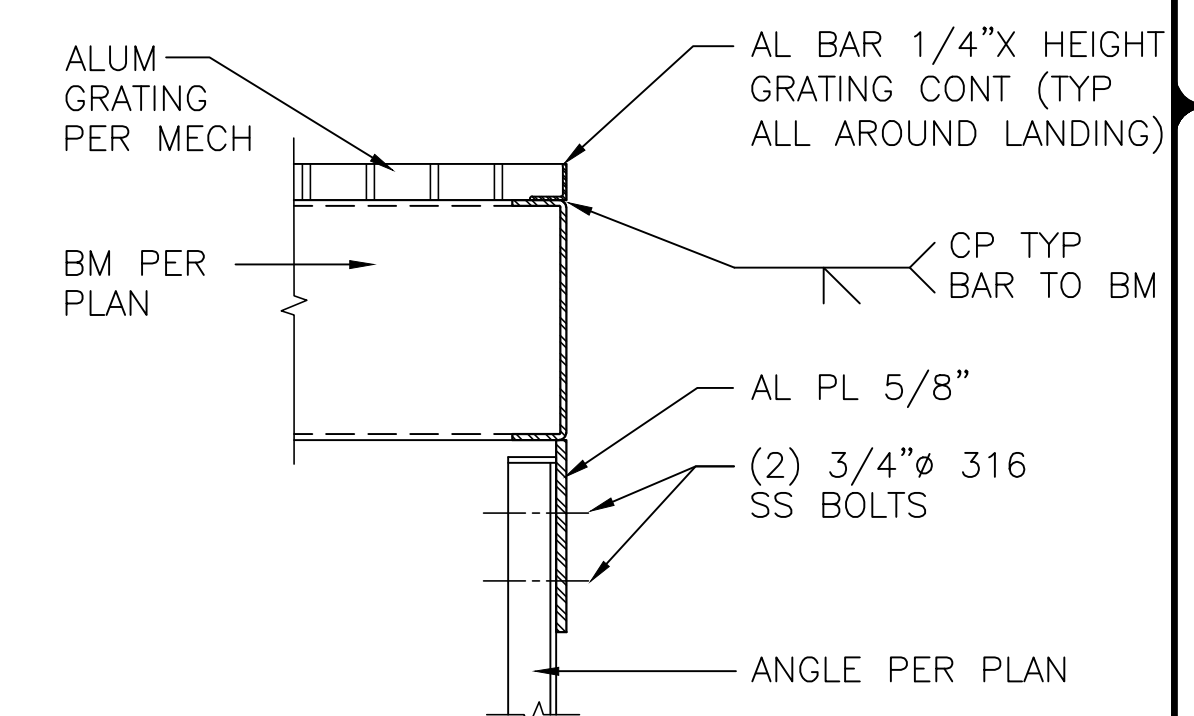


DETAIL
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NOTE:
1. BEFORE DRILLING CONCRETE FOR ANCHORS, LAYOUT ALL ANCHOR
PLATE HOLES & FIELD LOCATE REINF WITHIN 6" OF EA HOLE. ADJUST
BOLT LOCATIONS AS REQUIRED TO CLEAR EXIST WALL REINF BAR
2. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE AND
INSTALL ISOLATION SLEEVES AND WASHERS AT DISSIMILAR METALS AS
SPECIFIED. TYP @ STAIRS

DETAIL

NTS



DETAIL

NTS

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			CIRCUIT BREAKER. UPPER NUMBER IS TRIP RATING. LOWER NUMBER IS NUMBER OF POLES
			THREE POSITION SWITCH. MAINTAINED CONTACT FUNCTION MAY VARY AS NOTED ON DIAGRAMS. CENTER POSITION IS OFF
			TWO POSITION SWITCH. MAINTAINED CONTACT FUNCTION MAY VARY AS NOTED ON DIAGRAMS
			MOMENTARY CONTACT PUSHBUTTON. FUNCTION MAY VARY AS NOTED ON DIAGRAMS
			MOMENTARY CONTACT PUSHBUTTON WITH PROVISION FOR LOCKOUT.
			LOCKABLE DISCONNECT SWITCH. RATING AND DETAILS AS NOTED ON DRAWINGS.
			LIMIT SWITCH. NORMALLY OPEN
			LIMIT SWITCH. NORMALLY CLOSED
			TIME DELAY RELAY CONTACT. OFF DELAY, NORMALLY OPEN, TIME OPEN
			TIME DELAY RELAY CONTACT. OFF DELAY, NORMALLY CLOSED, TIME CLOSED
			TIME DELAY RELAY CONTACT. ON DELAY, NORMALLY OPEN, TIME CLOSED
			TIME DELAY RELAY CONTACT. ON DELAY, NORMALLY CLOSED, TIME OPEN
			SOLENOID OPERATED VALVE
			MOTOR STARTER WITH THERMAL OVERLOADS. NUMBER INDICATES NEMA SIZE
			MOTOR OVERLOAD CONTACT
			MOTOR, NUMBER INDICATES HORSEPOWER
			INDICATING LIGHT, PUSH-TO-TEST. LETTER INDICATES COLOR. R=RED B=BLUE G=GREEN A=AMBER W=WHITE
			CONTACTOR OR RELAY COIL. LETTER OR NUMBER IS DESIGNATION
			NORMALLY CLOSED CONTACT. LETTER OR NUMBER IS DESIGNATION
			NORMALLY OPEN CONTACT. LETTER OR NUMBER IS DESIGNATION
			RUNNING TIME METER, NON-RESETTABLE
			FUSE, NUMBER INDICATES RATING
			CONTROL TRANSFORMER. RATING AS NOTED ON DRAWINGS OR AS REQUIRED BASED ON LOAD SERVED.
			KILOWATT METER
			PRESSURE SWITCH. CONTACT ACTION AS NOTED ON DRAWINGS

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			POWER TRANSFORMER. RATINGS AS NOTED ON DRAWINGS
			DUPLEX RECEPTACLE. 20A, SPEC GRADE GROUNDING TYPE. UNLESS OTHERWISE NOTED ON DRAWINGS.
			TELEPHONE OUTLET
			JUNCTION BOX OR CONDUIT FITTING AS NOTED OR REQUIRED. (SHOWN WITH CONDUIT TURNING UP)
			LEVEL SWITCH, CONTACT ACTION AS NOTED ON DRAWINGS
			CONTROL PANEL OR EQUIPMENT AS NOTED
			FLOW SWITCH, CONTACT ACTION AS NOTED ON DRAWINGS
			FLUSH TOGGLE SWITCH, SINGLE POLE, SINGLE THROW SWITCHES CIRCUIT a
			FLUSH TOGGLE SWITCH, THREE WAY
			LED FIXTURE. SEE LIGHTING SCHEDULE.
			LIGHTING FIXTURE, WALL MOUNTED SEE LIGHTING SCHEDULE
			MH-MANHOLE PB-PULLBOX HH-HANDHOLE OR AS NOTED ON DRAWINGS
			TELEPHONE CONDUIT. SIZE AS NOTED
			GROUNDING GRID OR GROUNDING CONDUCTOR SIZE AS REQUIRED OR AS NOTED ON DRAWINGS
			GROUND PIGTAIL. SIZE AS NOTED ON DRAWINGS
			EXOTHERMIC GROUND CONNECTION
			BOLTED GROUND CONNECTION
			CONDUIT BENDING UP
			CONDUIT BENDING DOWN
			UNDERGROUND OR CONCEALED CONDUIT, 1" MINIMUM
			EXPOSED CONDUIT, 3/4" MINIMUM.
			HOMERUN CONDUIT WITH 3 CONDUCTORS, NEUTRAL AND GROUND, CIRCUITS 1,3,5 PANEL PB1, NO HASHMARKS INDICATE 2 CONDUCTORS AND GROUND
			DRIVEN GROUND ROD/TEST WELL 3/4" X 10' Cu CLAD STEEL
			PANELBOARD OR AS NOTED ON DRAWING
			LIQUIDTIGHT FLEXIBLE CONDUIT
			CONDUIT NUMBER 'XXX', REFER TO CONDUIT SCHEDULE FOR DESCRIPTION

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			MANUAL MOTOR STARTER
			GROUND
			HEATER, RATING AS NOTED ON DRAWING
			HORN OR AUDIBLE SIGNAL
			PHASE
			TERMINAL, INTERNAL WIRING
			TERMINAL, FIELD WIRING
			DOOR SWITCH
			CONDUIT STUB OUT
			DISCONNECT SWITCH, F = FUSED NF = NON-FUSED XX = AMP RATING
			PORTABLE GENERATOR CONNECTION

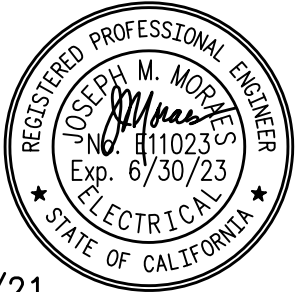
SDG&E INFORMATION

PLANNER: JAIME GARCIA
760-739-7414

PROJECT NO: 3-229671

STANDARD ABBREVIATIONS

A AC AF AFC AFF AFG AT ATS AUX AUTO AWG BC BD BKR C CAB CB CKT CLG C.O. COMPT COND CONT CONTD CPT CP CT CU CR DC DISC DISC SW DPDT DPST DWG DS E ELEV EMT EO EXIST FBO FDR FIN FLA FLEX FM FS FT OR FT FUT FVNR GALV GD GFI GFP GND OR HH HOA HTR IC IN OR IND INST INSTR INTLK JB OR	AMPERES ALTERNATING CURRENT AMPERE FRAME ABOVE FINISHED CONCRETE ABOVE FINISHED FLOOR ABOVE FINISHED GRADE AMPERE TRIP AUTOMATIC TRANSFER SWITCH AUXILIARY AUTOMATIC AMERICAN WIRE GAUGE BARE COPPER BOARD BREAKER CONDUIT CABINET CIRCUIT BREAKER CIRCUIT CEILING CONDUIT ONLY COMPARTMENT CONDUCTOR CONTROL CONTINUED CONTROL POWER TRANSFORMER CONTROL PANEL CURRENT TRANSFORMER COPPER CONTROL RELAY DIRECT CURRENT DISCONNECT DISCONNECT SWITCH DOUBLE POLE DOUBLE THROW DOUBLE POLE SINGLE THROW DRAWING DOOR SWITCH ELEVATION ELECTRICAL METALLIC TUBING ELECTRICALLY OPERATED EXISTING FURNISHED BY OWNER FEEDER FINISHED FULL LOAD AMPS FLEXIBLE FLOW METER FLOW SWITCH FEET OR FOOT FLOW TRANSMITTER FUTURE FULL VOLTAGE NON REVERSING GALVANIZED GAS DETECTORS GROUND FAULT INTERRUPTER GROUND FAULT PROTECTION GROUND HANDHOLE HAND/OFF/AUTO HEATER INTERRUPTING CURRENT INCHES OR INCH INDICATING INSTANTANEOUS INSTRUMENT INTERLOCK JUNCTION BOX, CONDULET OR FITTING AS REQUIRED BY NEC. UNLESS OTHERWISE NOTED KILOWATTS LONG CONTINUOUS LOAD LOCAL CONTROL PANEL LEVEL LIMIT LOCAL/REMOTE LOCKOUT STOP STATION LEVEL OR LIMIT SWITCH LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT ADJUSTMENTS LIGHT LIGHTING UNDERGROUND LOW VOLTAGE MILLIAMPERE MAINTAINED MANUAL MAXIMUM MAINTAINED CONTACT MOTOR CONTROL CENTER THOUSAND CIRCULAR MILS MOTOR CIRCUIT PROTECTOR	MH MIN MLO MOV MSB MTG MTR N NA NC NCIO NCTC NCTO NEC NIC No NO NOIC NOTC NOTO NP NTS OL OTT PB PC PCV PMR PNL POS PR PRI PS PT PVC PVC/RGS PW RECEP RCP RGS RTU RVAT RVYD STCP SDG&E SEC SEL SP SPEC SPDT SPST SS SSRV ST STA STL STP STR STT SV SW SWBD TB TEL TEMP TERM TM TS TS2W TVSS TW/SH TYP UG UON V W W/ W/O WP XFMR XP ZS 3W 4W	MANHOLE MINIMUM OR MINUTE MAIN LUGS ONLY MOTOR OPERATED VALVE ACTUATOR MAIN SWITCHBOARD MOUNTING MOTOR NEUTRAL NON-AUTOMATIC NORMALLY CLOSED NORMALLY CLOSED, INSTANTANEOUS OPEN NORMALLY CLOSED, TIME CLOSE NORMALLY CLOSE, TIME OPEN NATIONAL ELECTRIC CODE NOT IN CONTRACT NUMBER NORMALLY OPEN NORMALLY OPEN, INSTANTANEOUS CLOSE NORMALLY OPEN, TIME CLOSE NORMALLY OPEN, TIME OPEN NAMEPLATE NOT TO SCALE OVERLOAD OVERTEMP SWITCH PUSHBUTTON PULLBOX RECEPTACLE PUMP CONTROL VALVE POWER MONITOR RELAY PANEL POSITION PAIR PRIMARY PRESSURE SWITCH POTENTIAL TRANSFORMER POLYVINYL CHLORIDE PVC JACKETED RIGID GALVANIZED STEEL CONDUIT PART WINDING REMOTE CONTROL PANEL RIGID GALVANIZED STEEL CONDUIT REMOTE TERMINAL UNIT REDUCED VOLTAGE AUTO TRANSFORMER REDUCED VOLTAGE WYE DELTA SURGE TANK CONTROL PANEL SAN DIEGO GAS AND ELECTRIC COMPANY SECONDARY SELECTOR SPARE SPECIFICATION SINGLE POLE DOUBLE THROW SINGLE POLE SINGLE THROW STAINLESS STEEL SOLID STATE REDUCED VOLTAGE STARTER SHUNT TRIP STATION STEEL SHIELDED TWISTED PAIR STARTER SHIELDED TWISTED TRIPLET SOLENOID VALVE SWITCH SWITCHBOARD TERMINAL BOX TELEPHONE TEMPERATURE TERMINAL TELEMETRY TEMPERATURE SWITCH TWO SPEED TWO WINDING TRANSIENT VOLTAGE SURGE SUPPRESSOR TWISTED SHIELDED TYPICAL UNDERGROUND UNLESS OTHERWISE NOTED VOLTS WATTS WITH WITHOUT WEATHERPROOF TRANSFORMER EXPLOSION PROOF POSITION SWITCH OR LIMIT SWITCH THREE WIRE FOUR WIRE
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9/28/21

DESIGN
JM

DRAWN
CAD

CHECK
JMM

REVISIONS

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

STANDARD ELECTRICAL SYMBOLS
AND ABBREVIATIONS

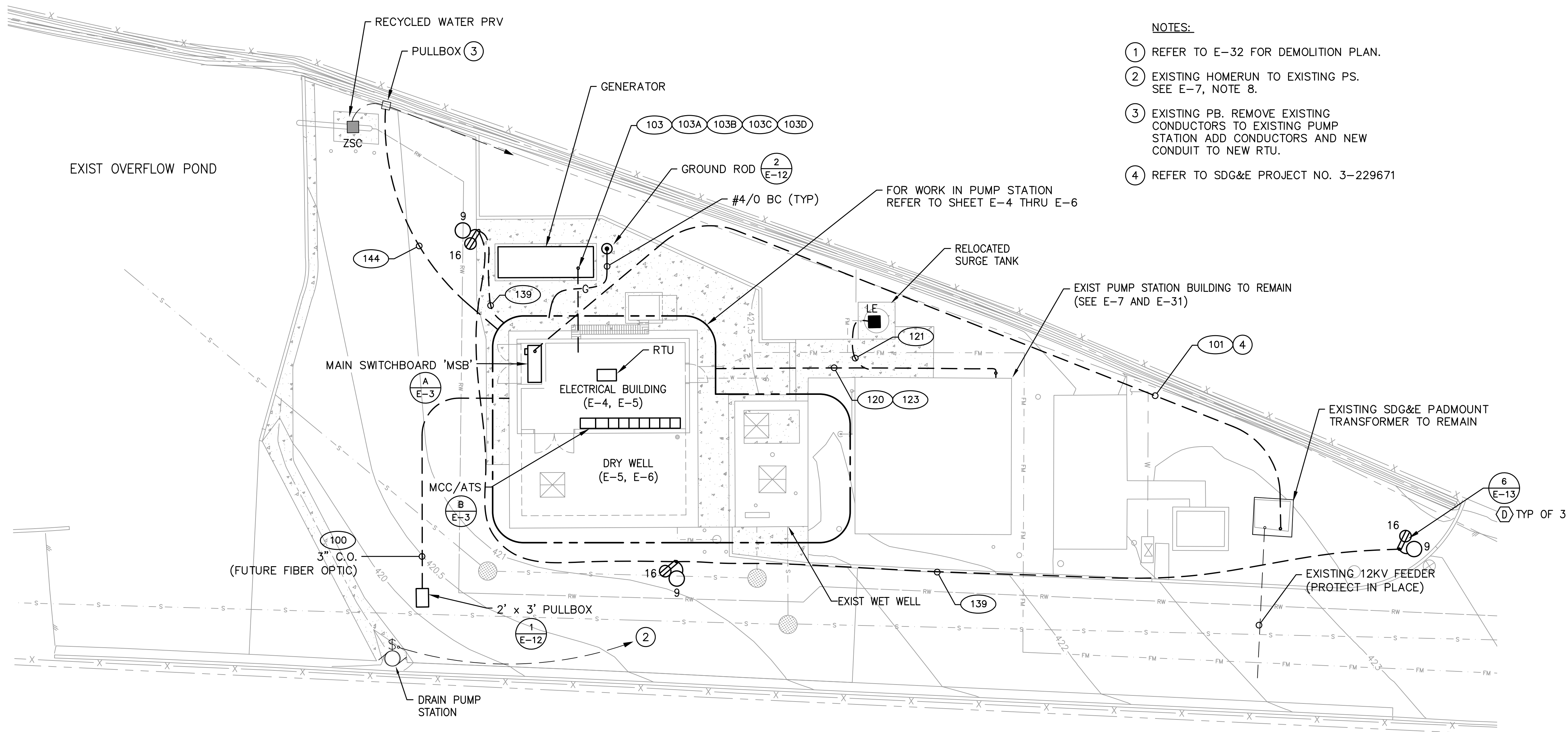
SHEET
56 of 90

DRAWING
E-1

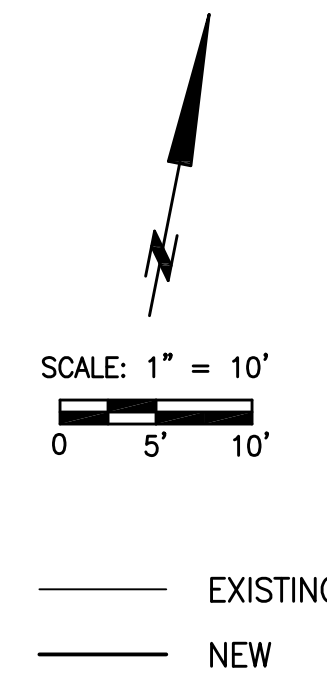
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ORIGINAL SCALE IN INCHES

0 1 2 3 4

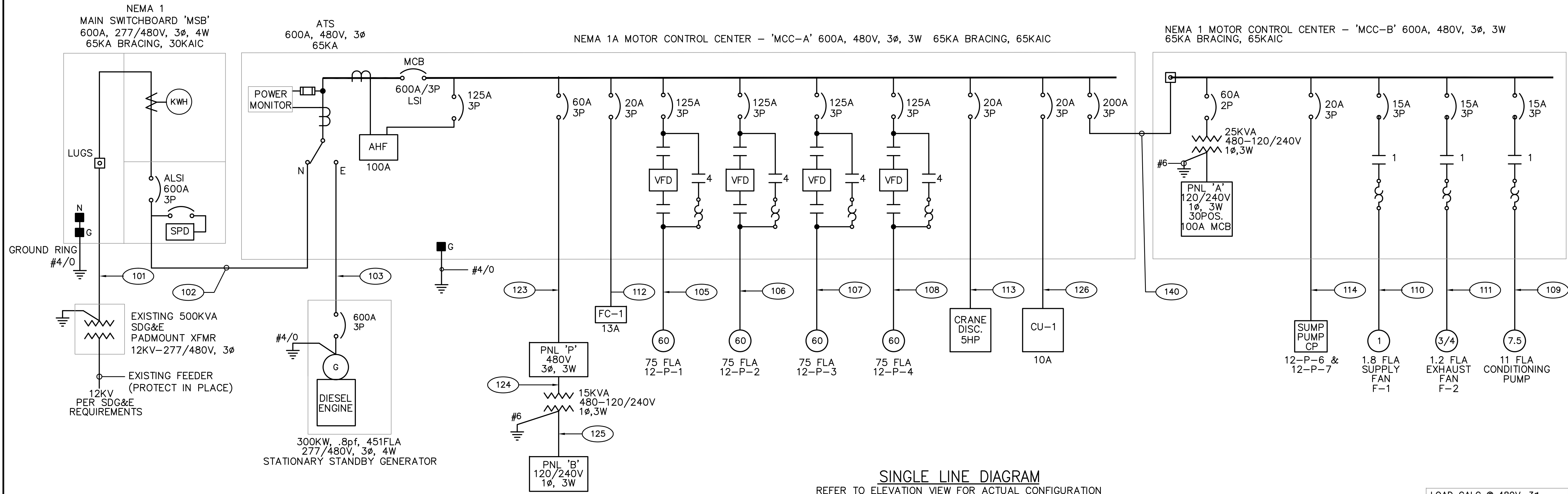


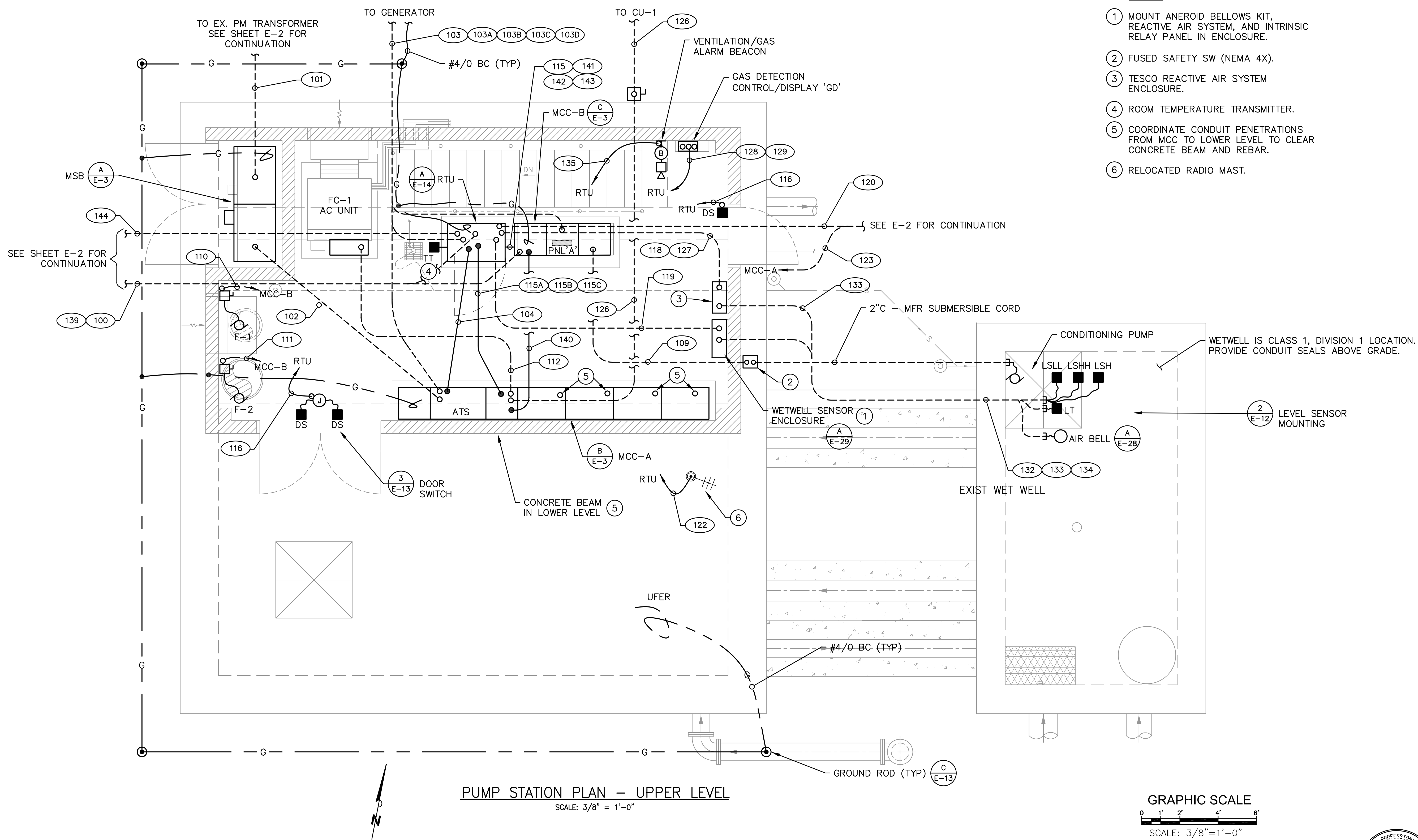
- NOTES:
- 1 REFER TO E-32 FOR DEMOLITION PLAN.
 - 2 EXISTING HOMERUN TO EXISTING PS. SEE E-7, NOTE 8.
 - 3 EXISTING PB. REMOVE EXISTING CONDUCTORS TO EXISTING PUMP STATION ADD CONDUCTORS AND NEW CONDUIT TO NEW RTU.
 - 4 REFER TO SDG&E PROJECT NO. 3-229671



9/28/21

DESIGN JM		DRAWN CAD		CHECK JMM		BY		REVISIONS	
MORAES / PHAM & ASSOCIATES 2131 Palomar Airport Rd. #120 Carlsbad, CA 92011									
OLIVENHAIN Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 (760) 753-6466									
4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT					REVISED ELECTRICAL SITE PLAN				
SHEET 57 of 90					DRAWING E-2				
D700004					ORIGINAL SCALE IN INCHES				





- NOTES:
- 1 MOUNT ANEROID BELLOWS KIT, REACTIVE AIR SYSTEM, AND INTRINSIC RELAY PANEL IN ENCLOSURE.
 - 2 FUSED SAFETY SW (NEMA 4X).
 - 3 TESCO REACTIVE AIR SYSTEM ENCLOSURE.
 - 4 ROOM TEMPERATURE TRANSMITTER.
 - 5 COORDINATE CONDUIT PENETRATIONS FROM MCC TO LOWER LEVEL TO CLEAR CONCRETE BEAM AND REBAR.
 - 6 RELOCATED RADIO MAST.

DESIGN	DRAWN	CHECK	DATE	BY
JM	CAD	JMM		

MORAN
MORAES / PHAM & ASSOCIATES
2131 Palomar Airport Rd. #120
Carlsbad, CA 92011

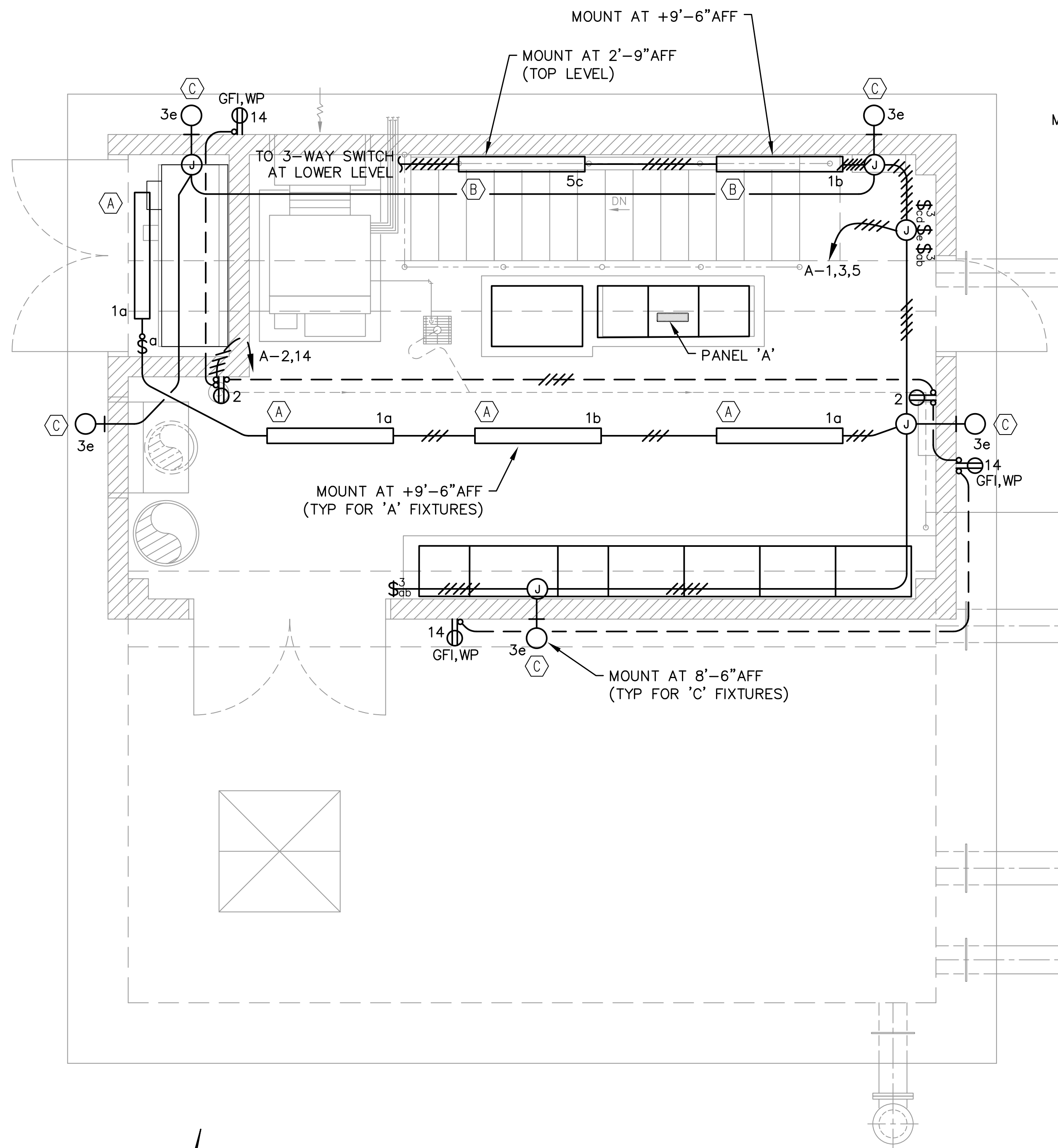
OLIVENHAIN
Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760) 753-6466

4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT	
PUMP STATION UPPER LEVEL POWER AND SIGNAL PLAN	
SHEET 59 of 90	DRAWING E-4
D700004	

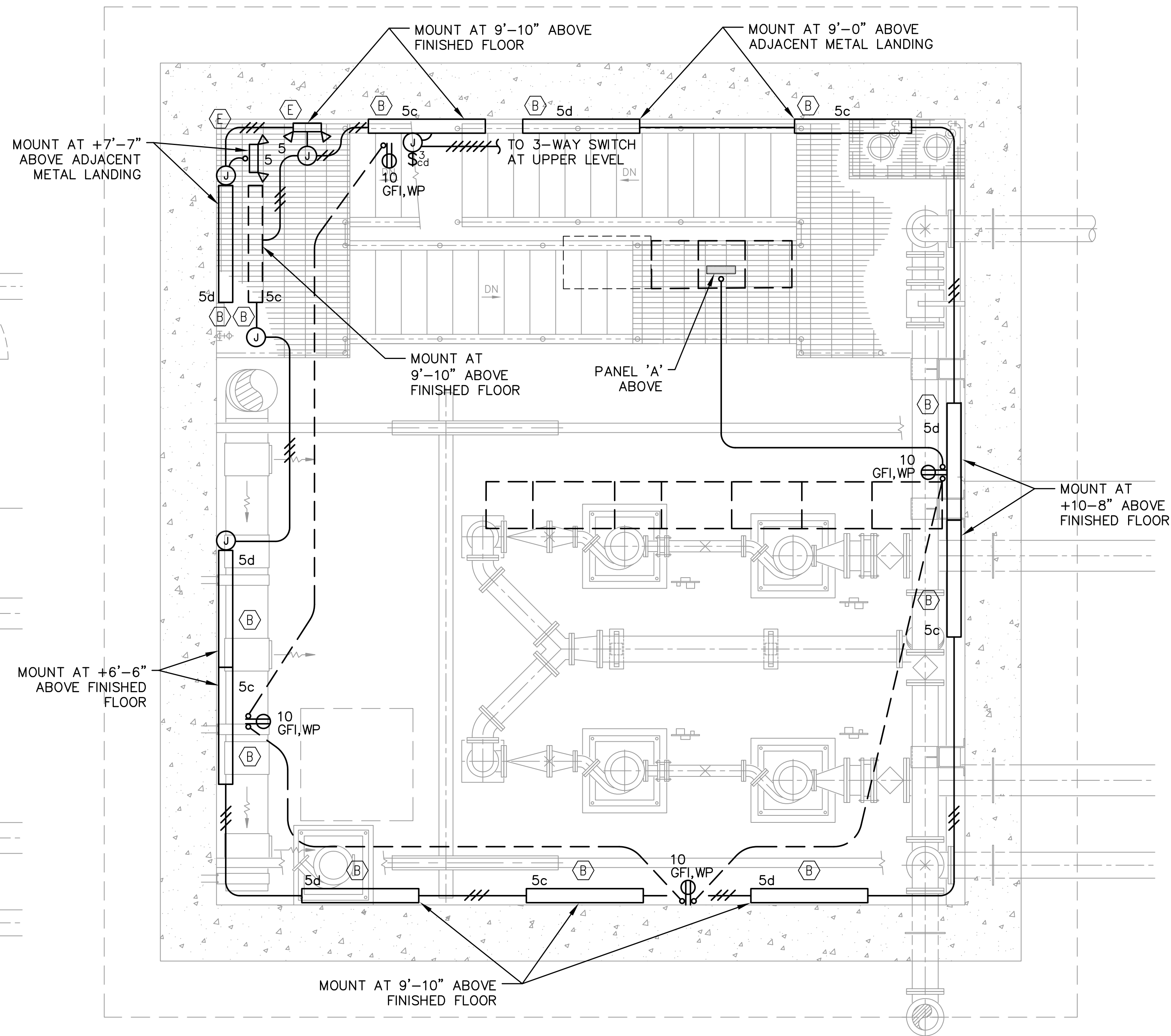


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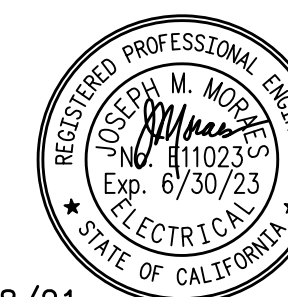
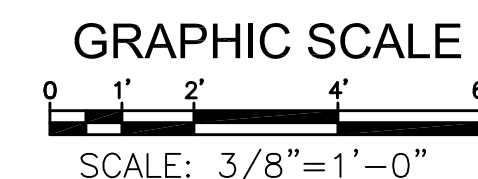
ORIGINAL SCALE IN INCHES



PUMP STATION LIGHTING PLAN - UPPER LEVEL
SCALE: 3/8" = 1'-0"



PUMP STATION LIGHTING PLAN - LOWER LEVEL
SCALE: 3/8" = 1'-0"



9/28/21

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

PUMP STATION UPPER AND LOWER LEVEL
LIGHTING AND RECEPTACLE PLAN

SHEET 60 of 90
DRAWING E-5

D700004

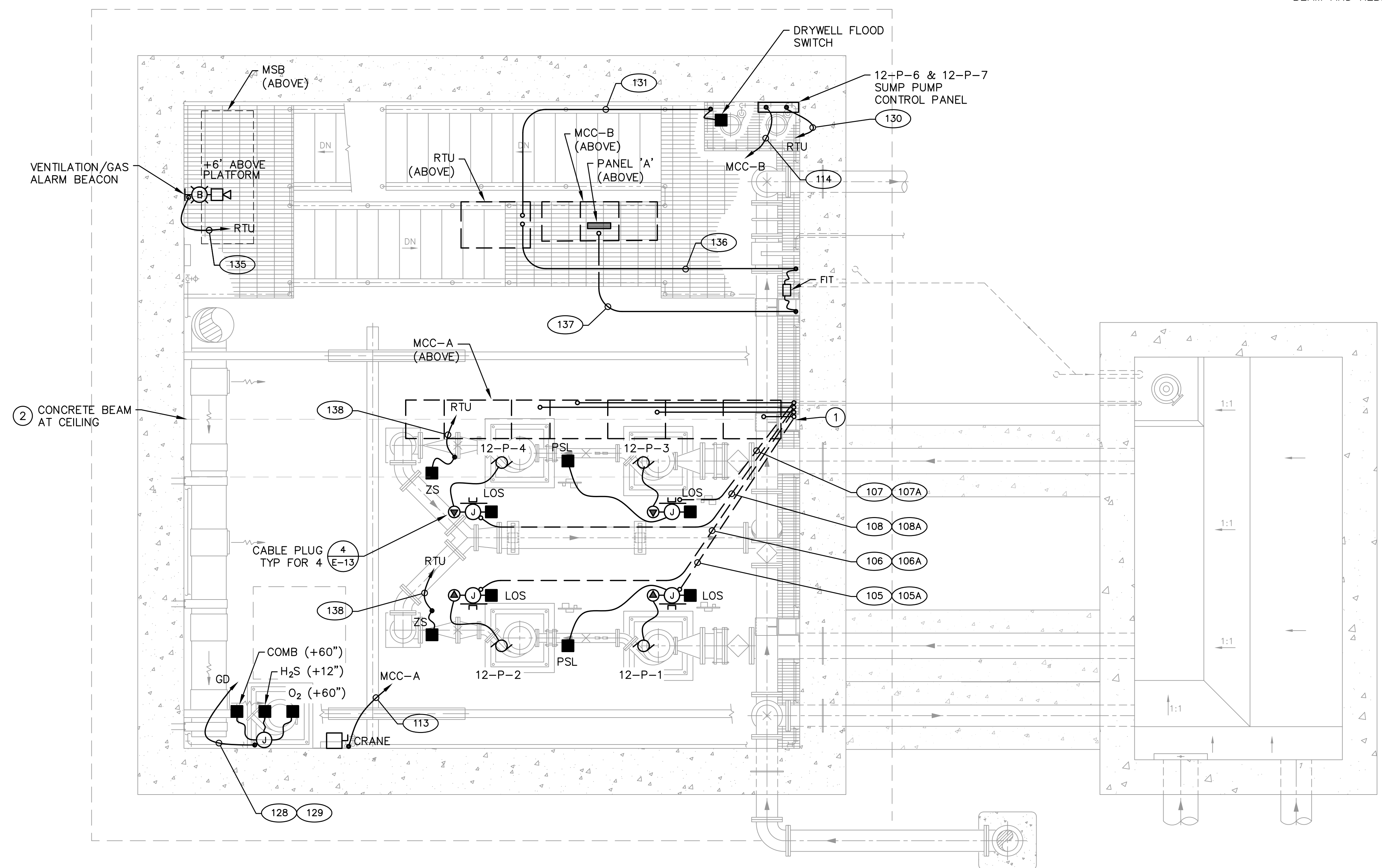
MORAS
MORAS / PHAM & ASSOCIATES
2131 Palomar Airport Rd. #120
Carlsbad, CA 92011

OLIVENHAIN
Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760) 753-6466

DESIGN JM
DRAWN CAD
CHECK JMM

REVISIONS
DATE BY

ORIGINAL SCALE IN INCHES



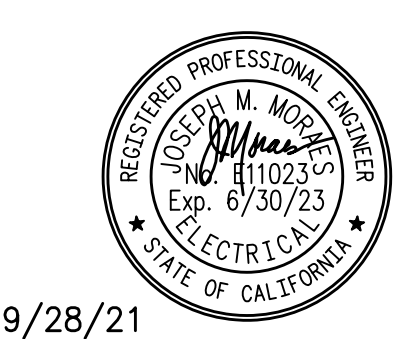
- NOTES:**
- ① ROUTE PUMP CONDUITS EXPOSED AT CEILING (ABOVE CRANE) AND DROP AT WALL AND RUN IN BOTTOM SLAB TO PUMP PLUG LOCATION.
 - ② COORDINATE CONDUIT PENETRATIONS FROM MCC ABOVE TO CLEAR CONCRETE BEAM AND REBAR.

PUMP STATION PLAN – LOWER LEVEL

SCALE: 3/8" = 1'-0"

GRAPHIC SCALE

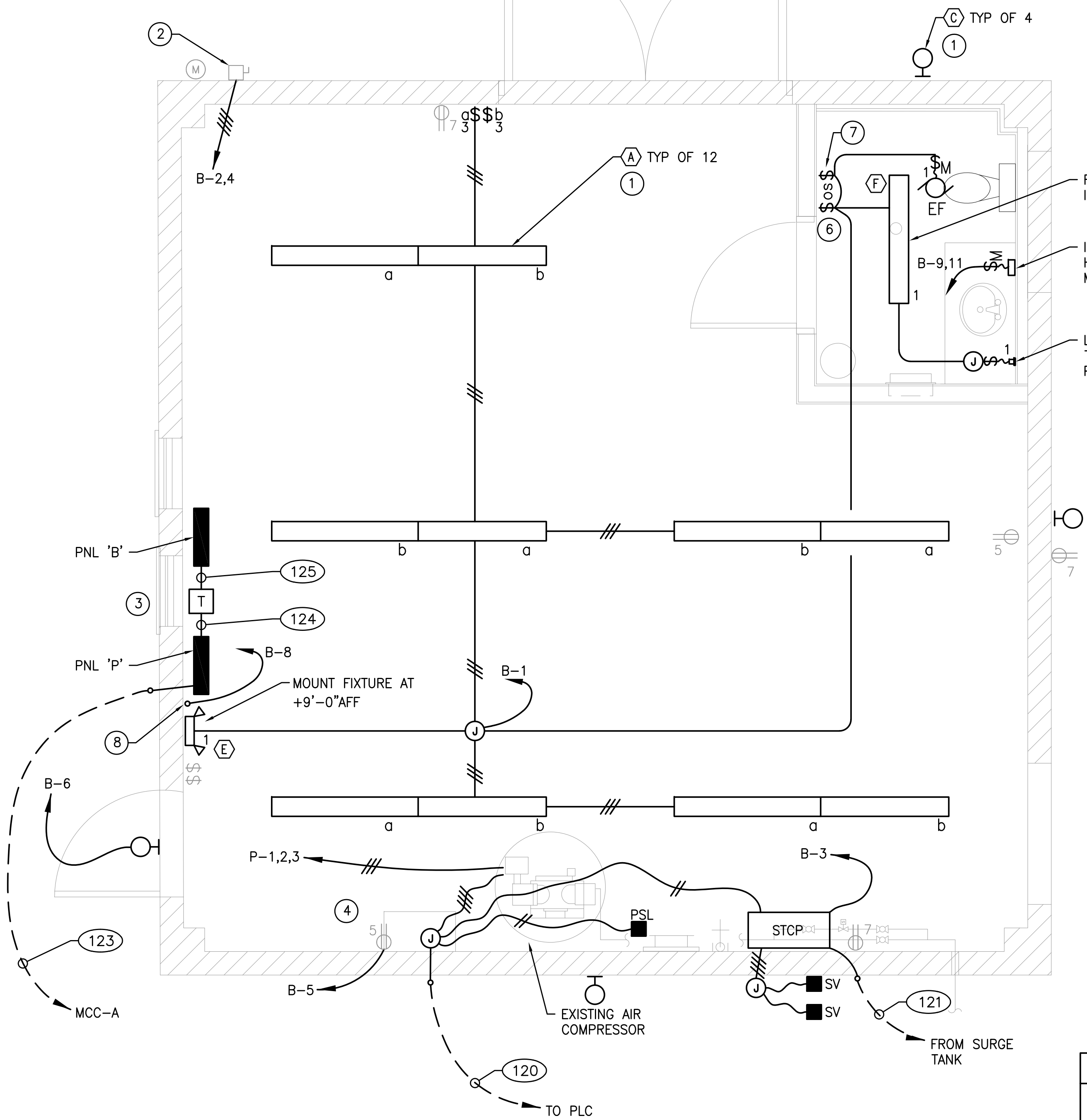
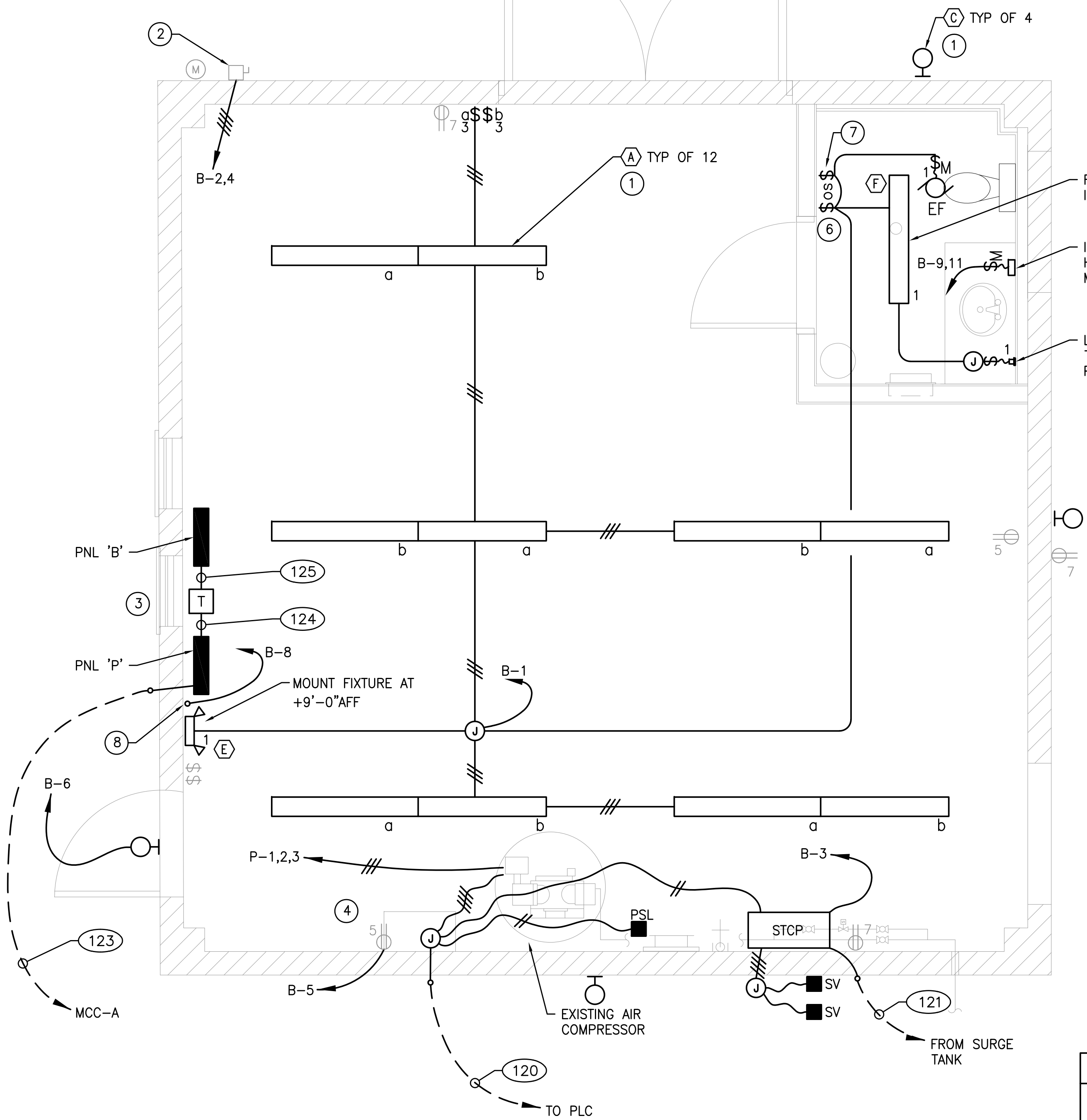
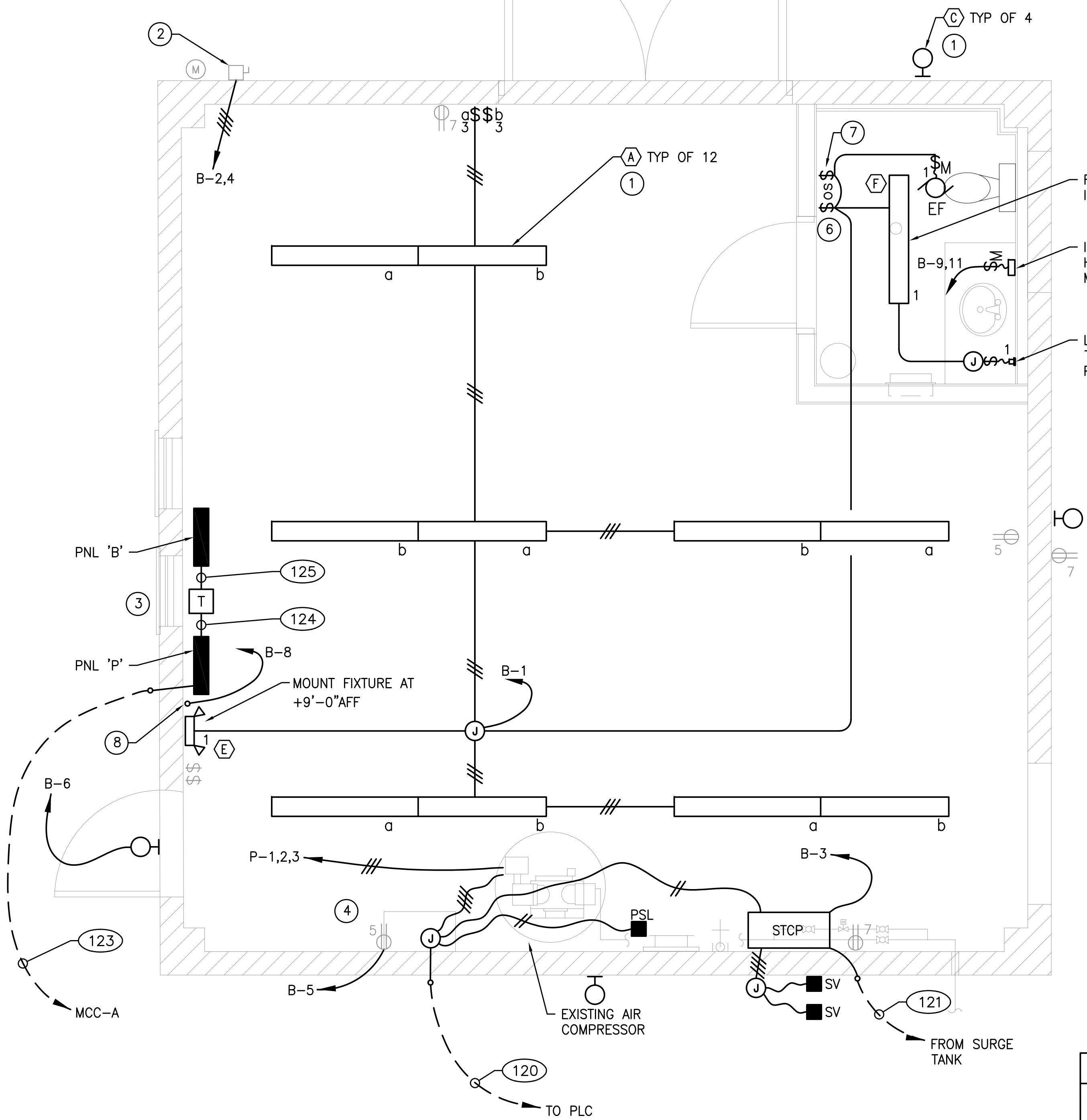
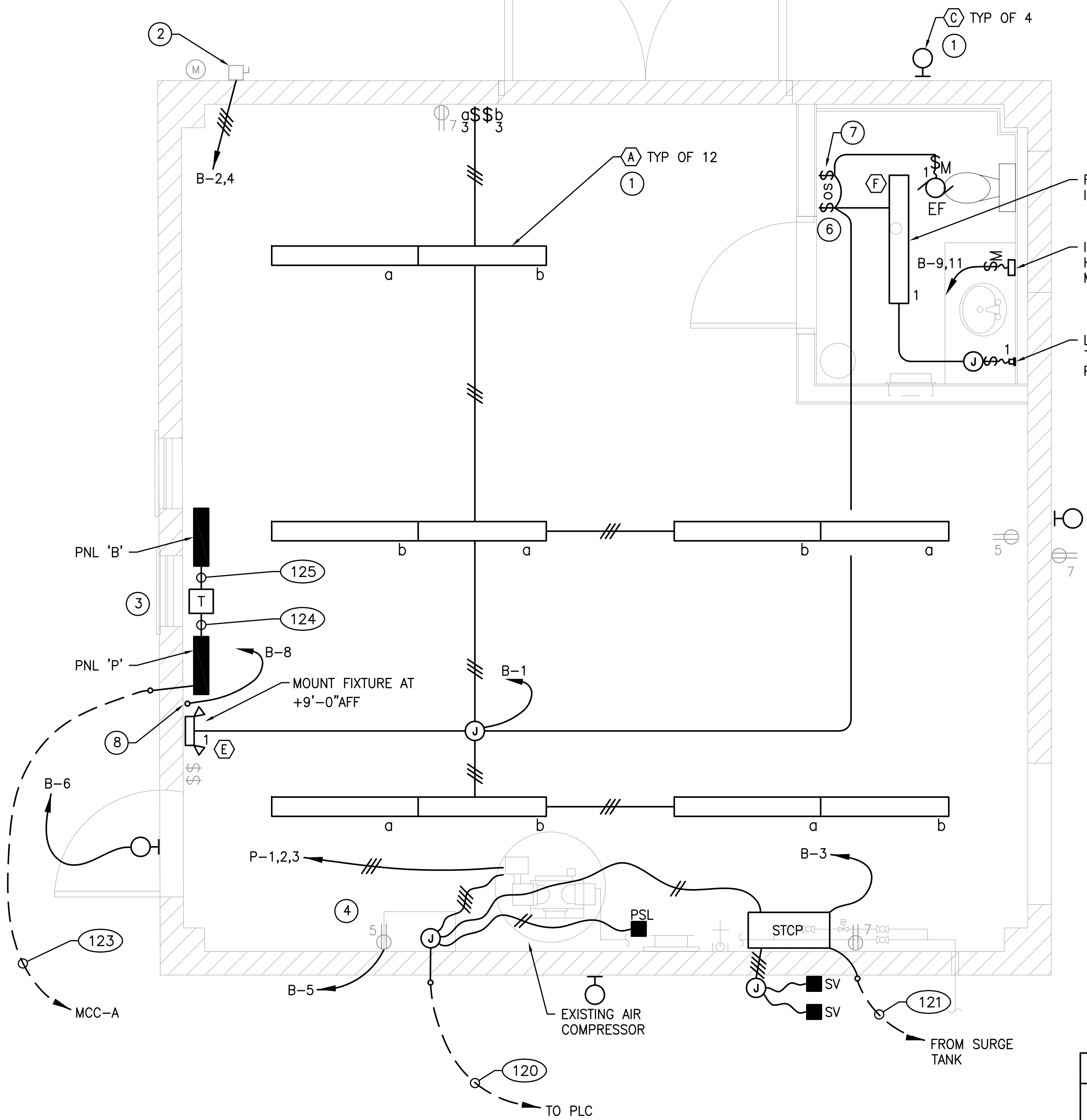
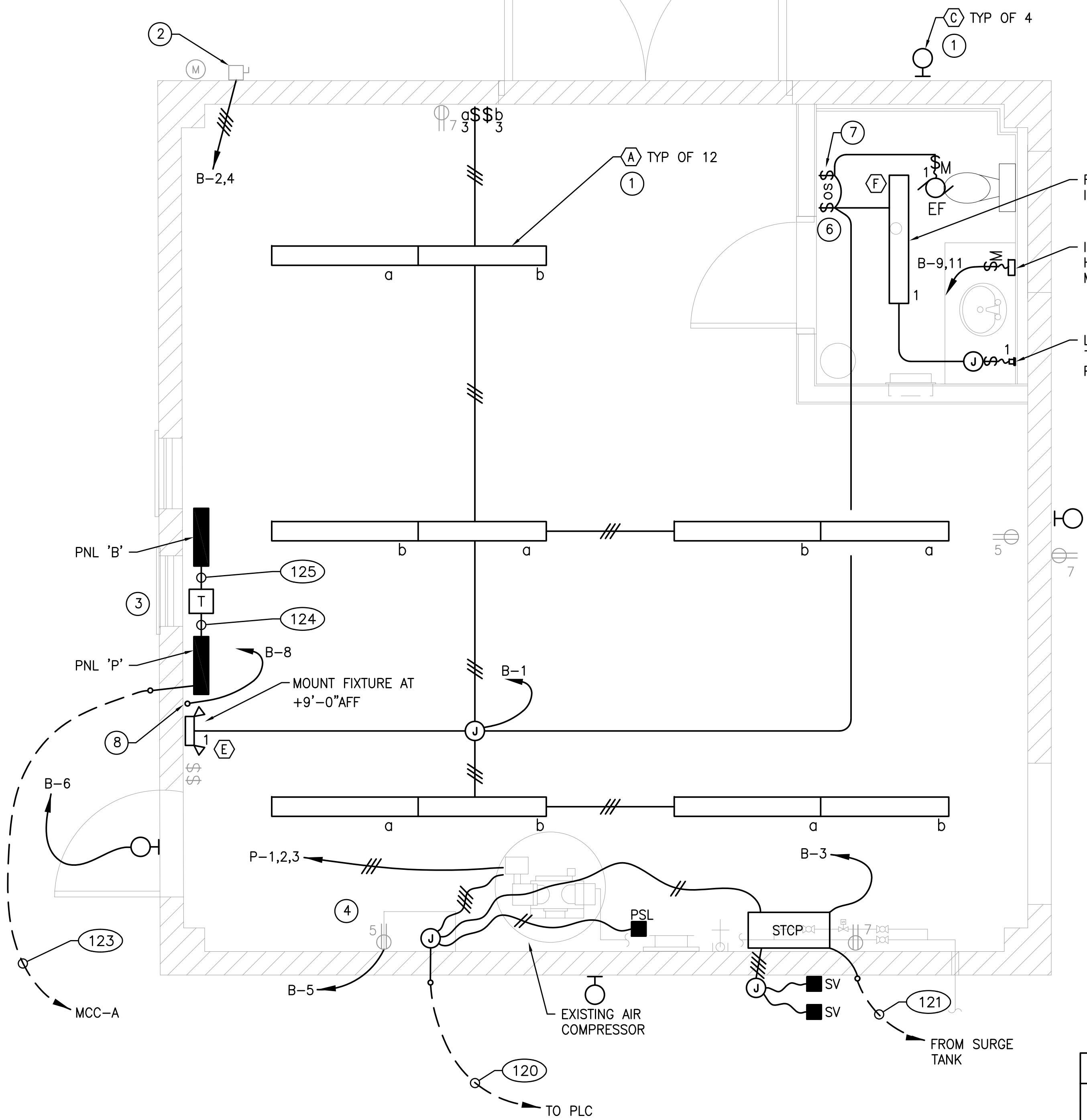
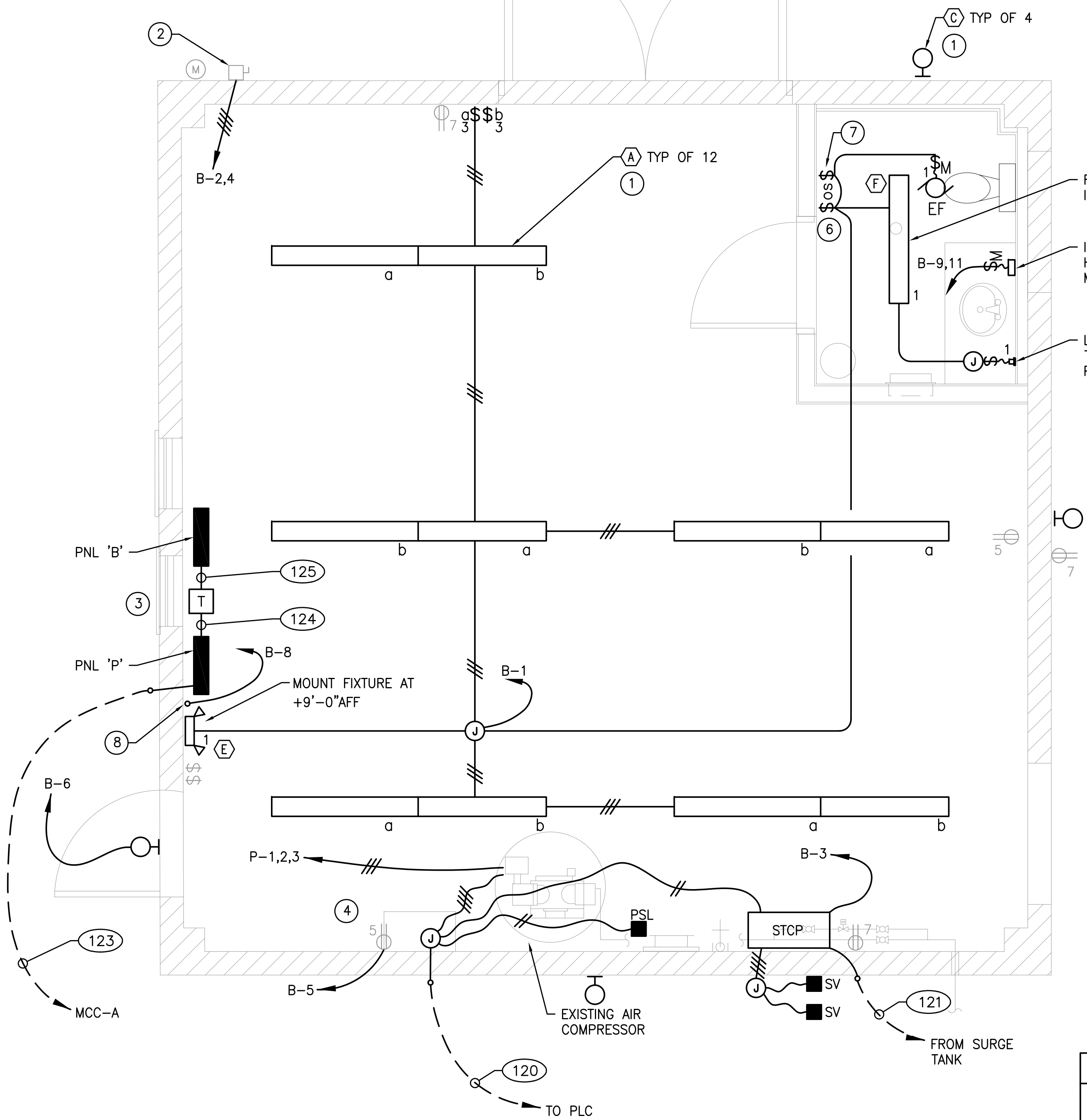
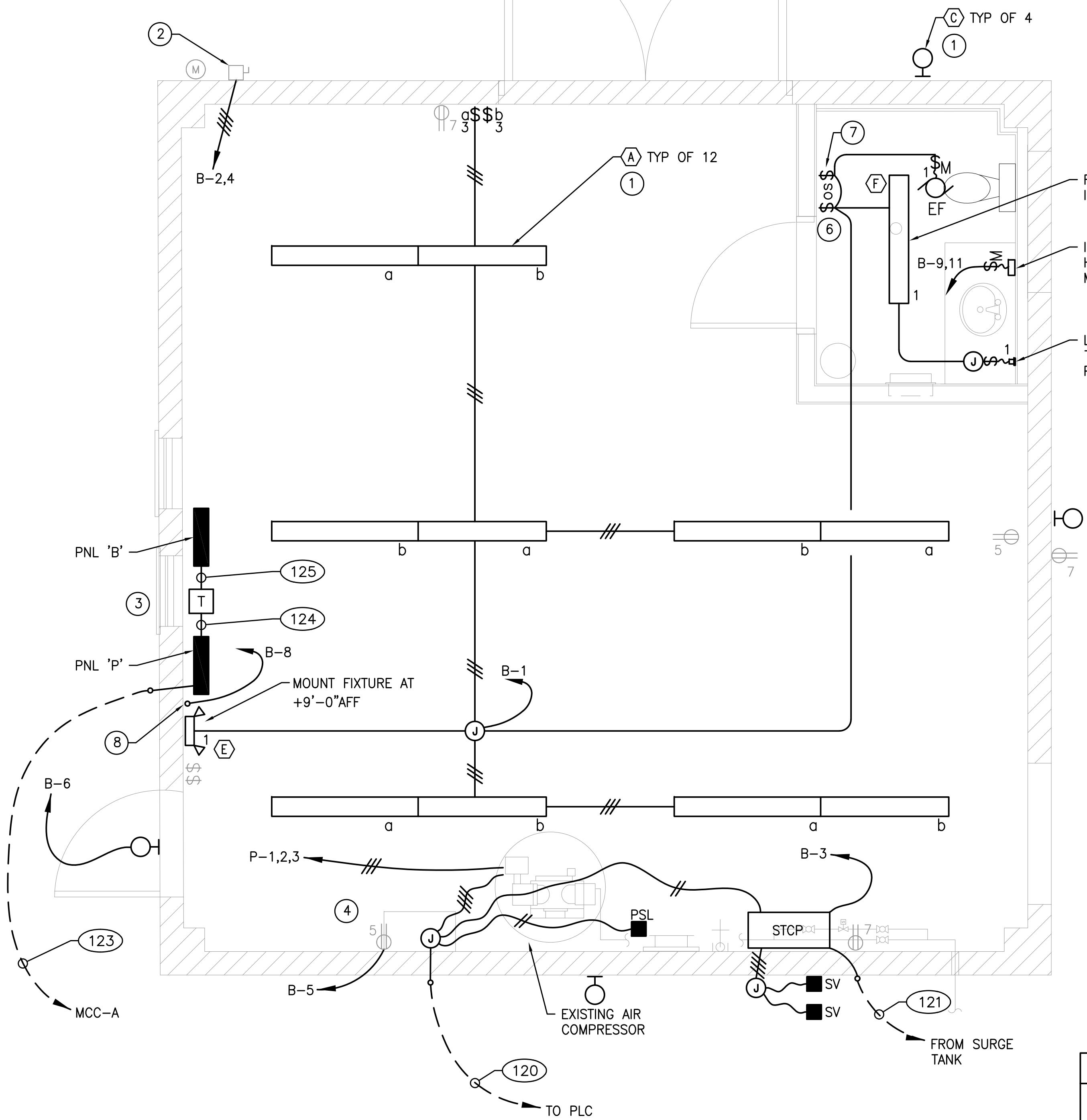
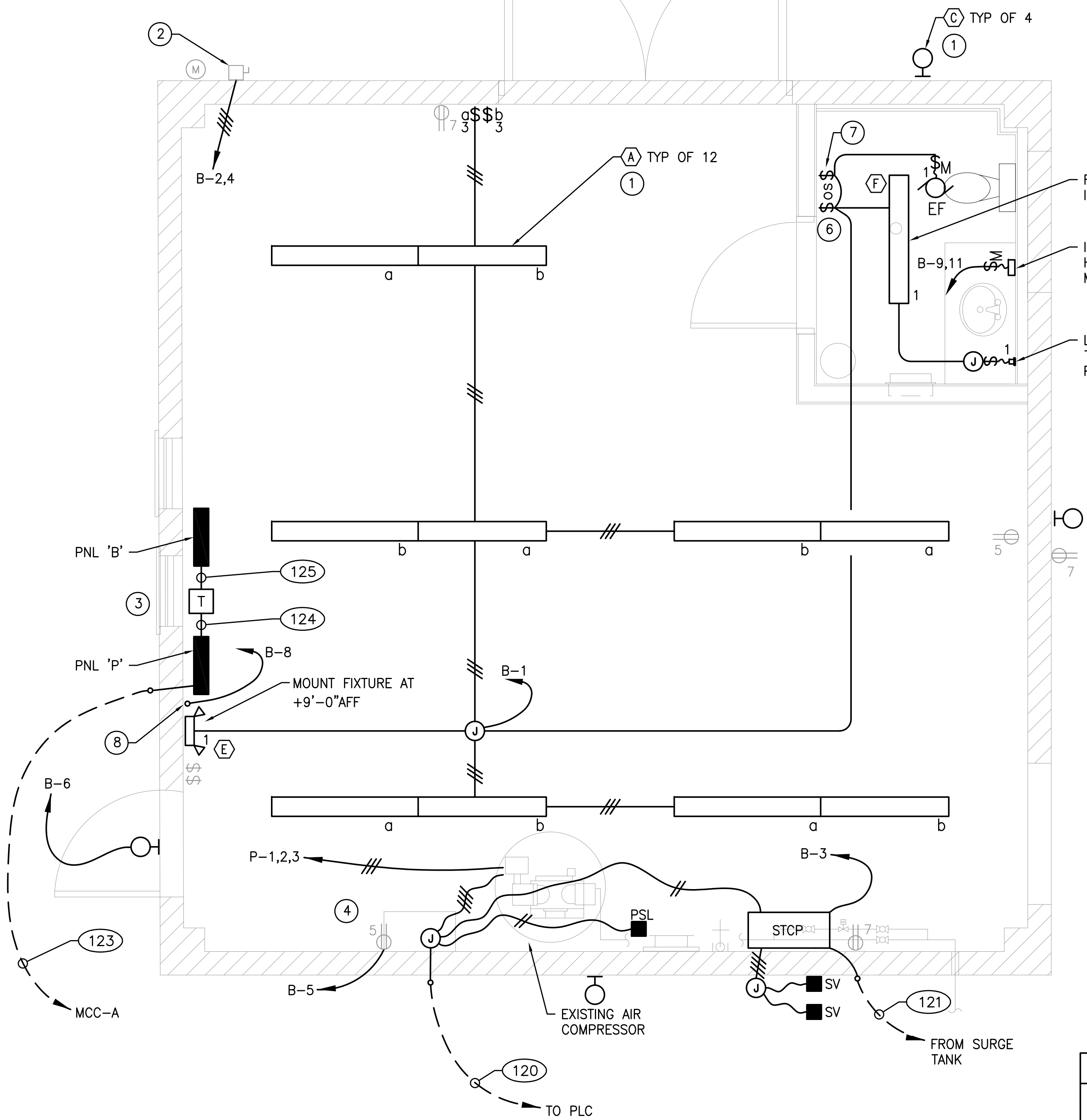
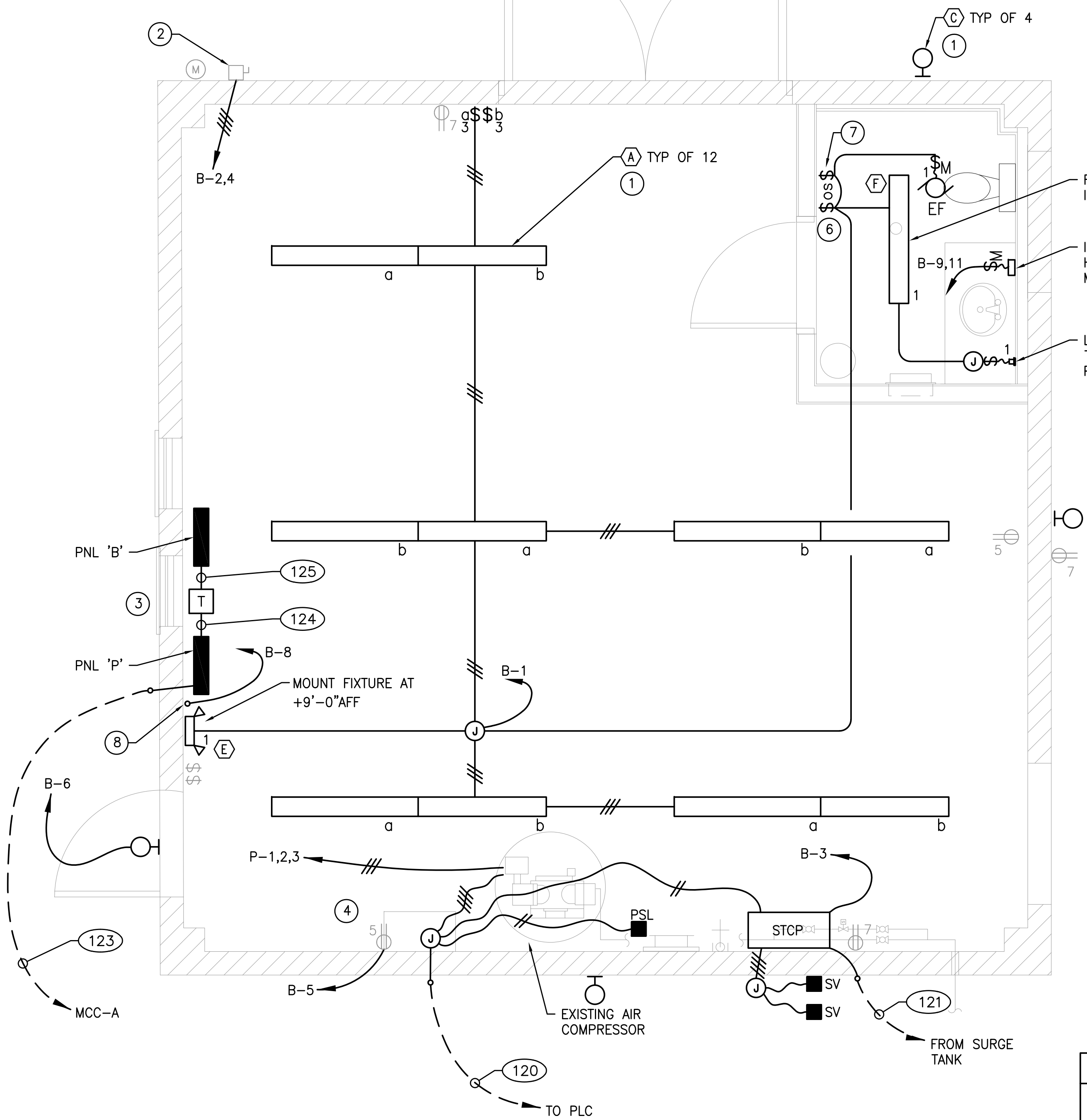
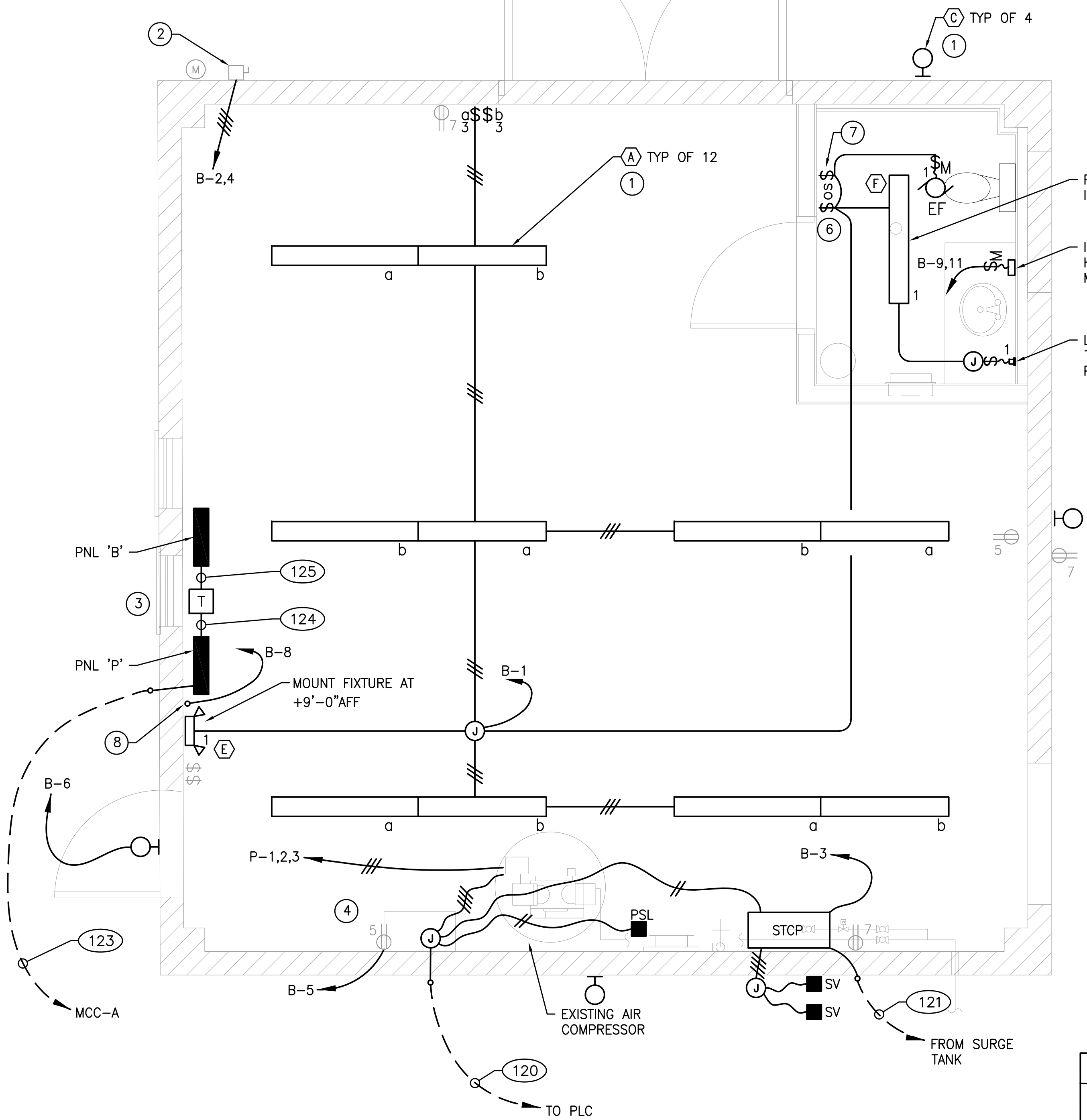
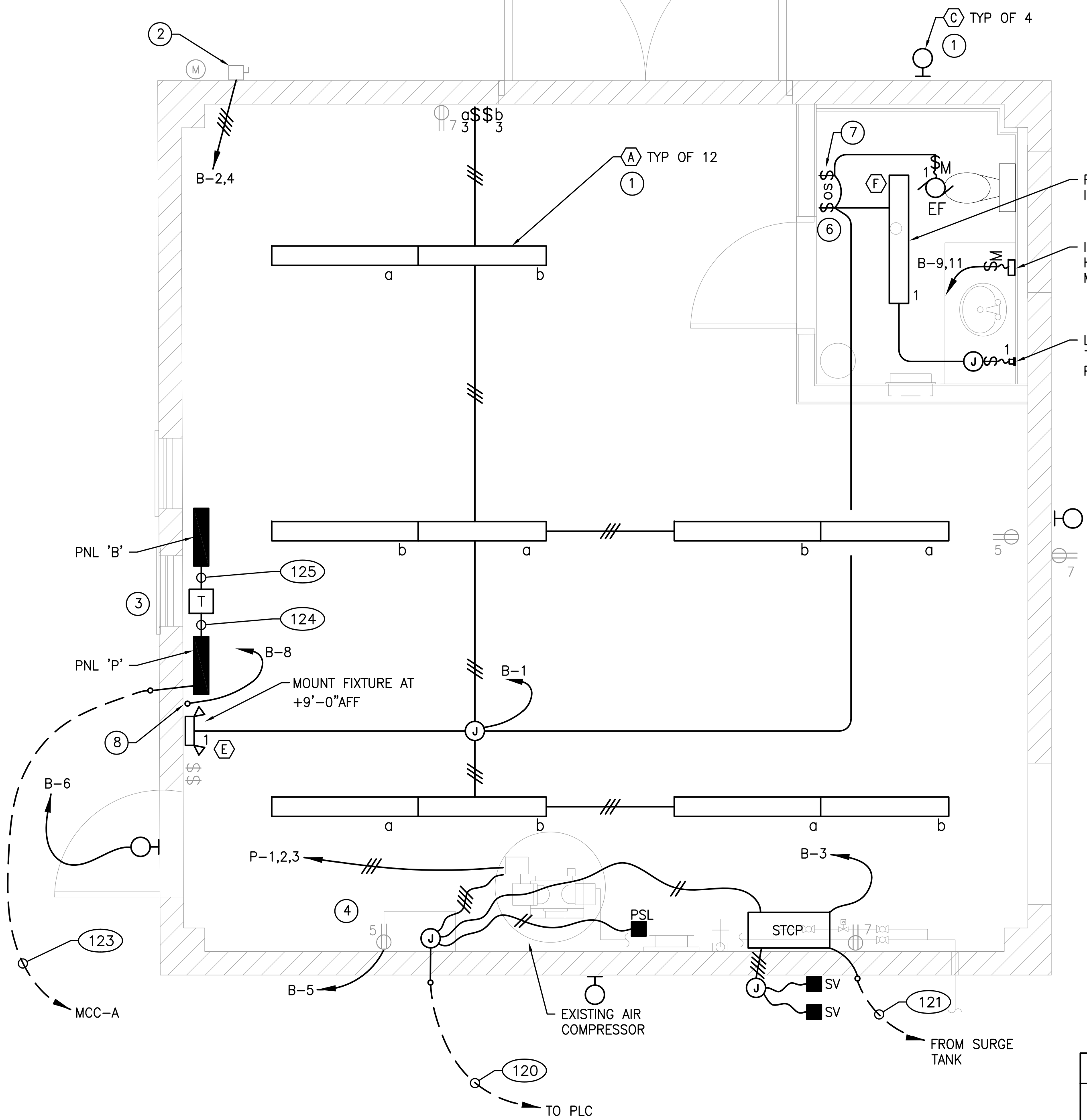
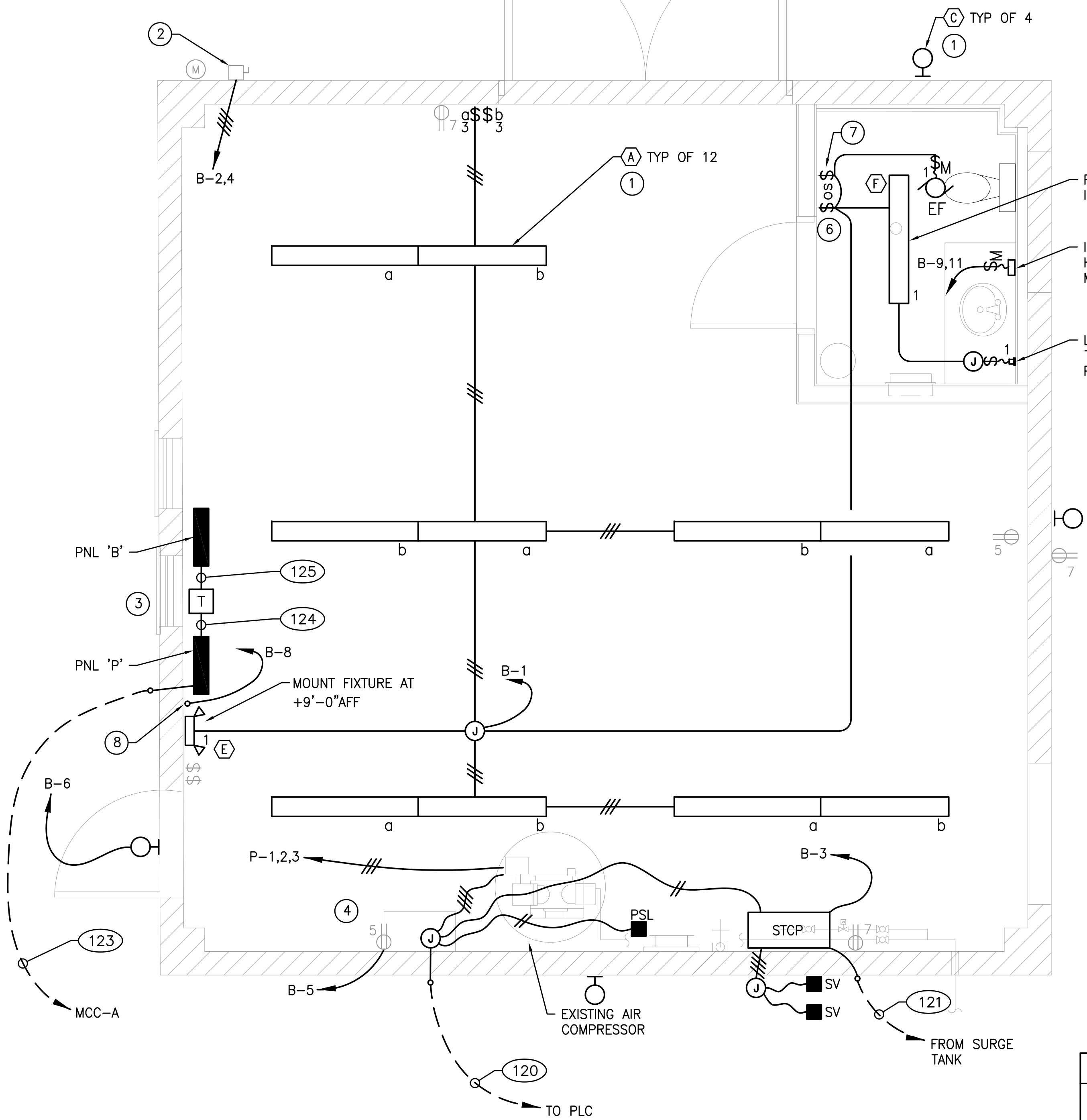
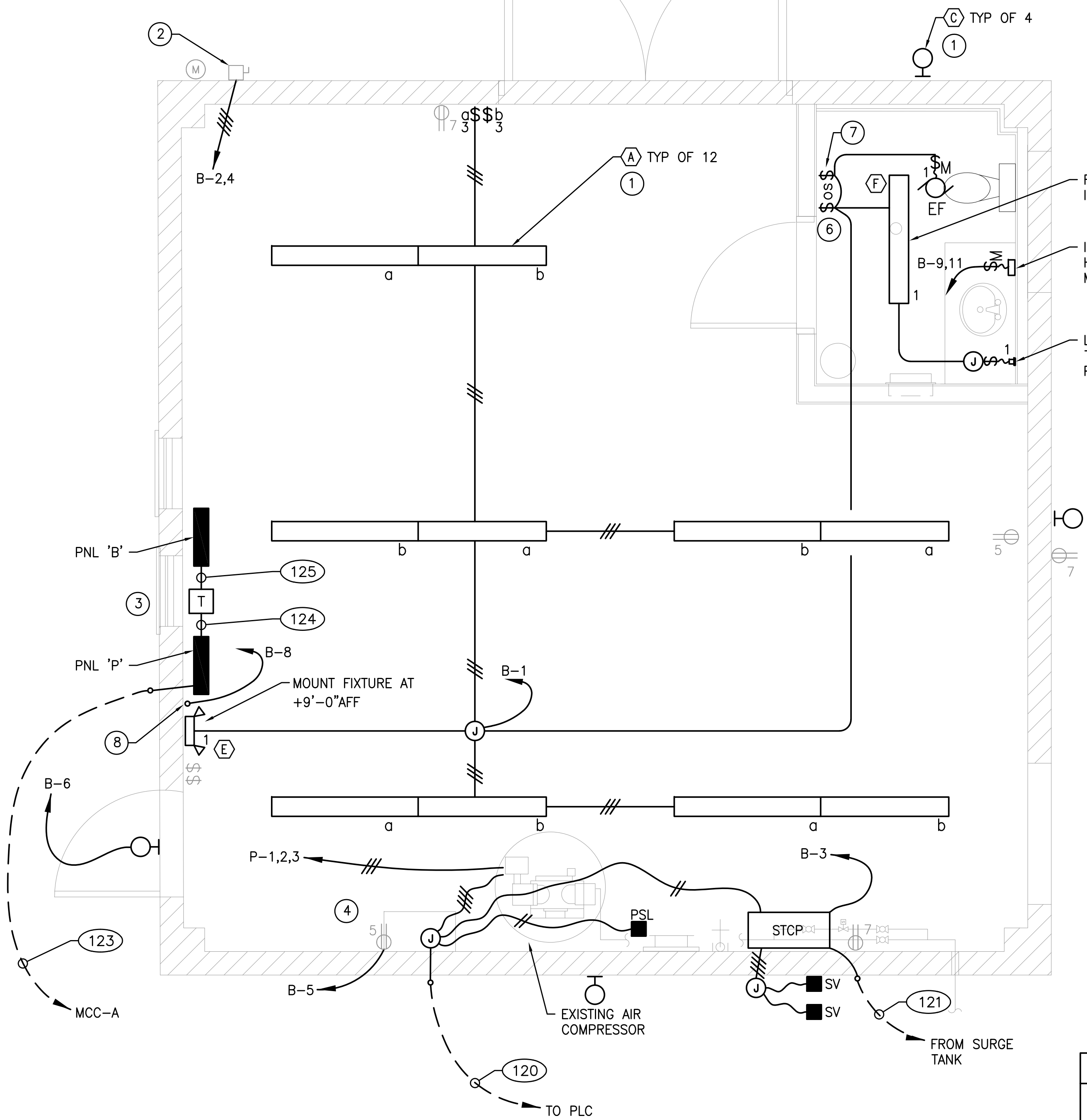
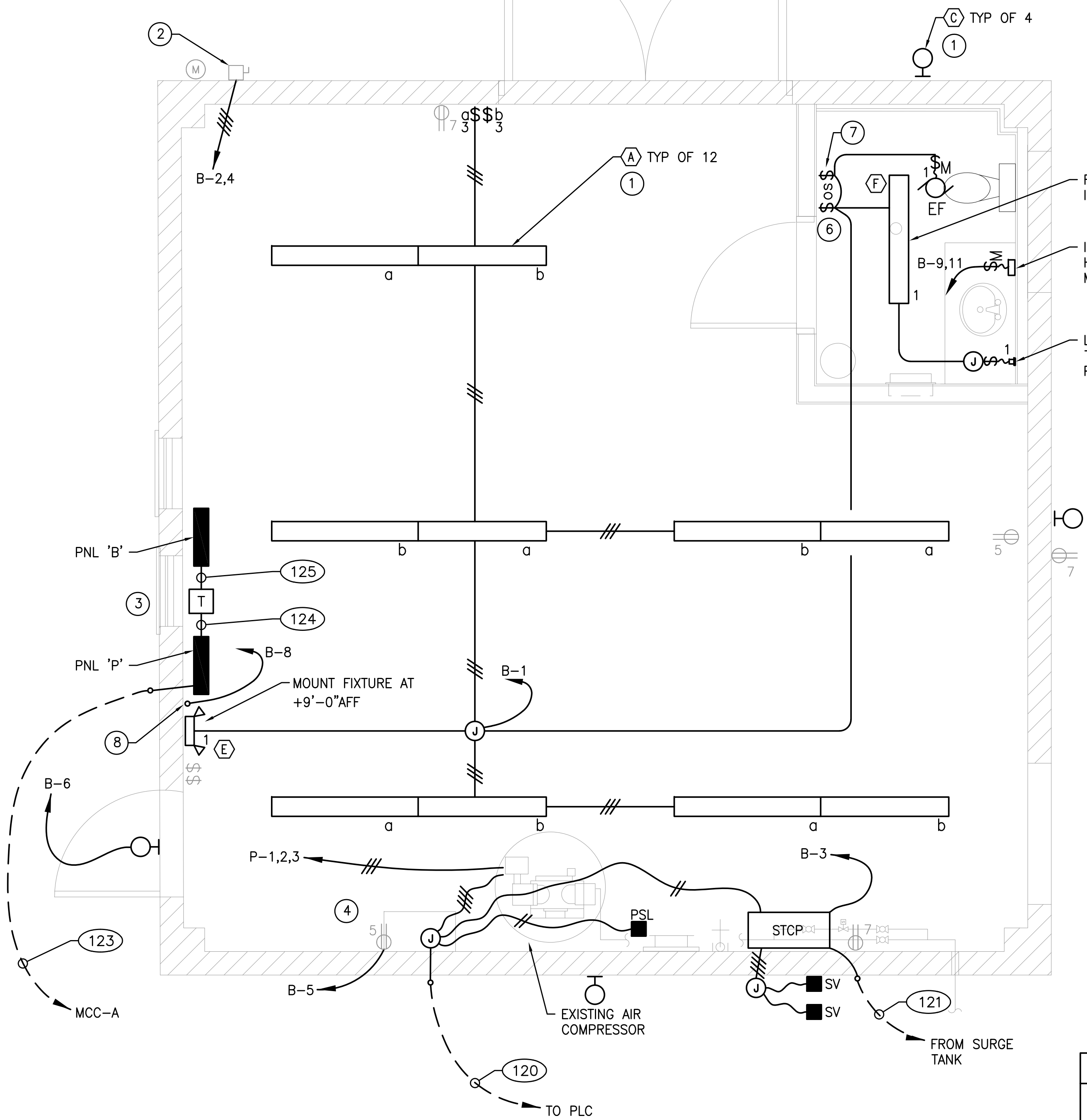
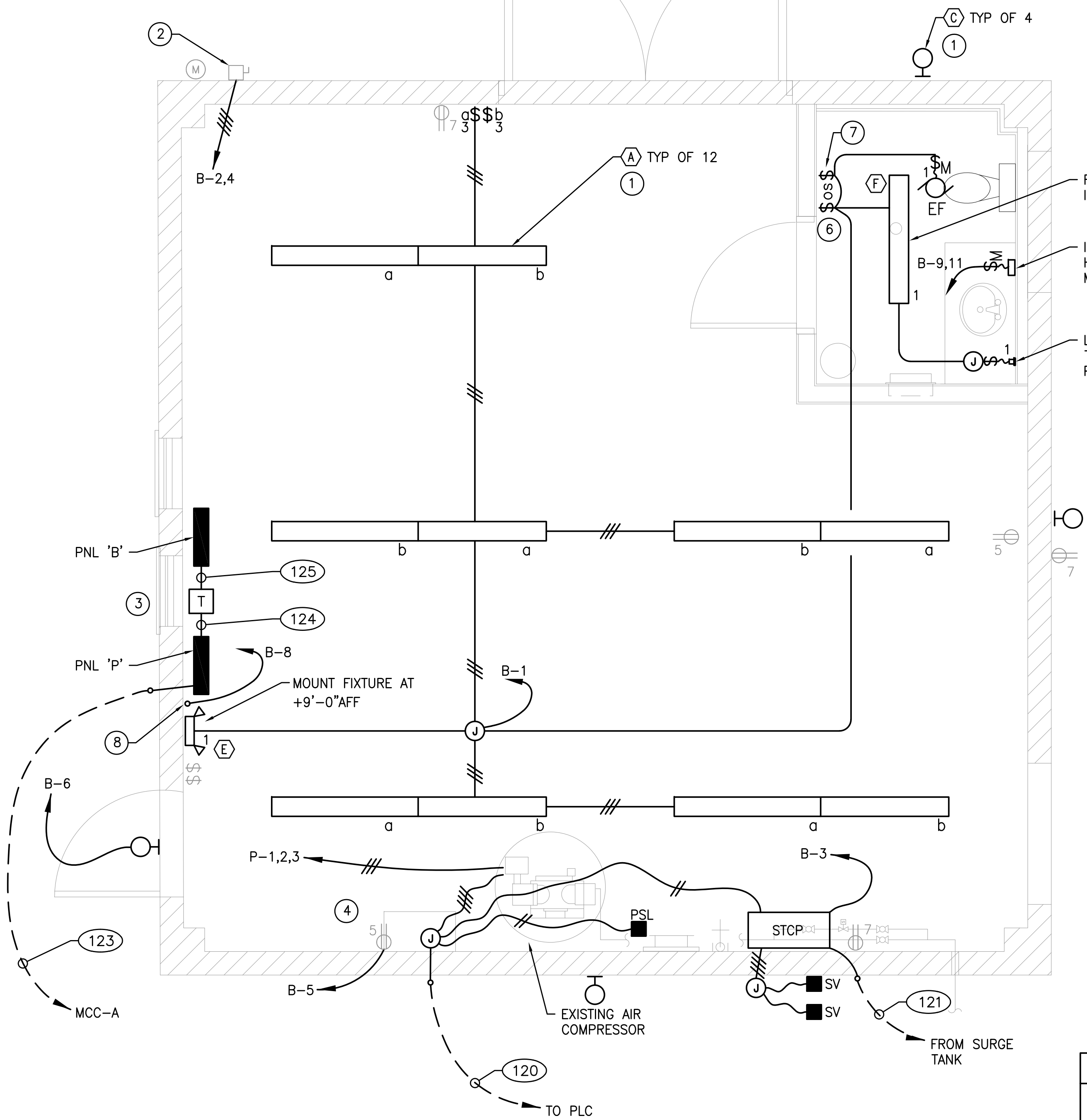
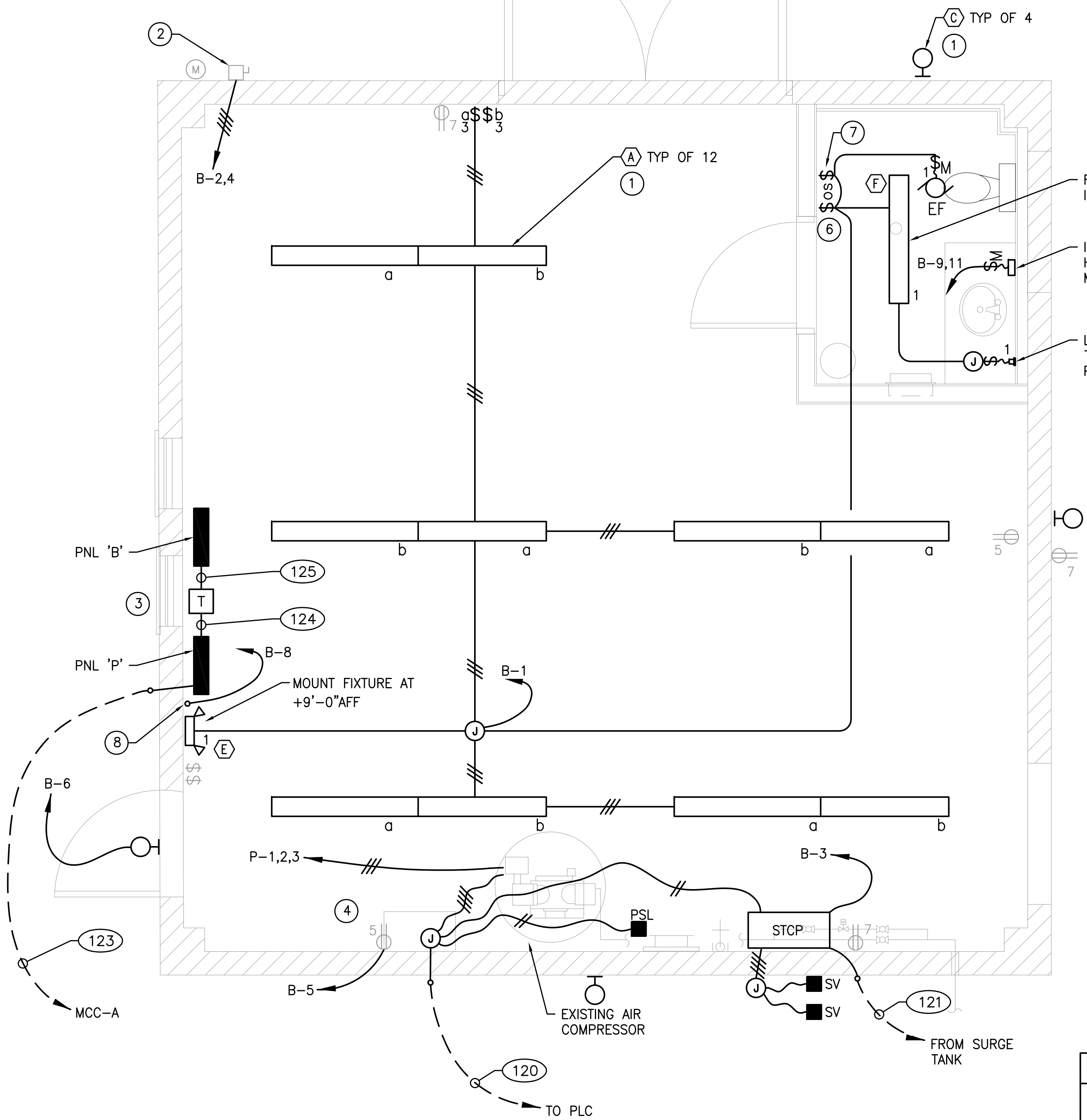
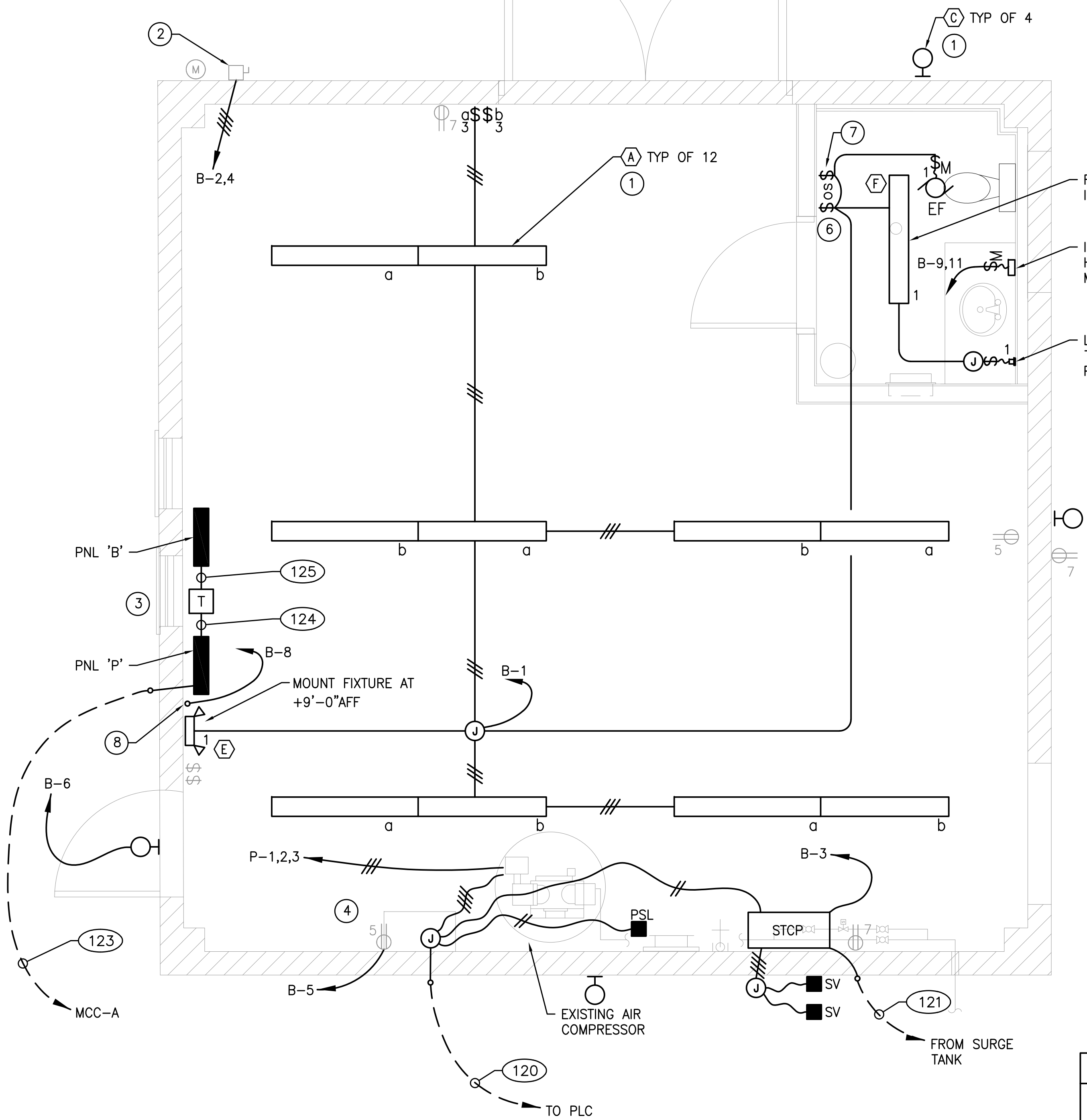
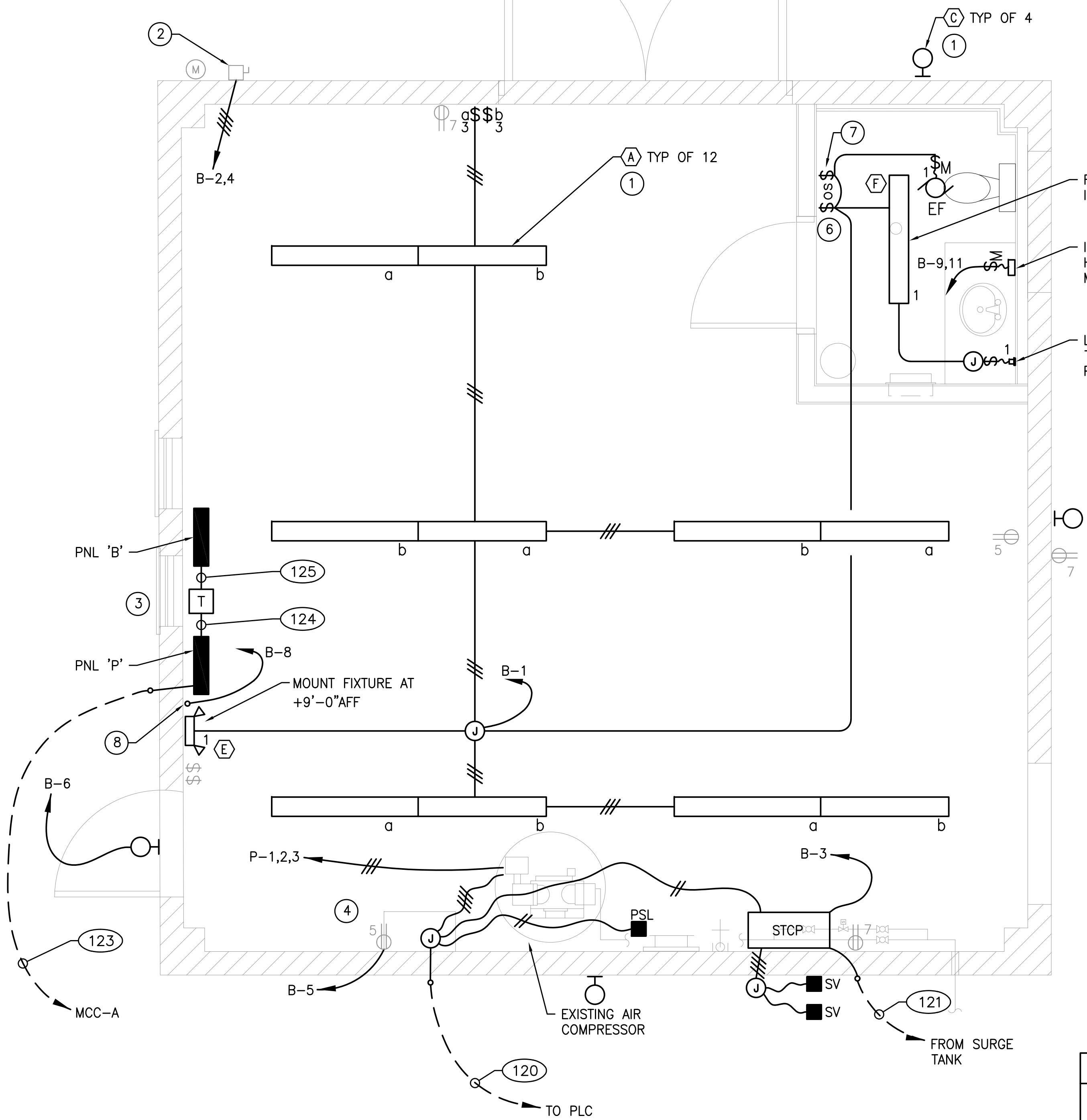
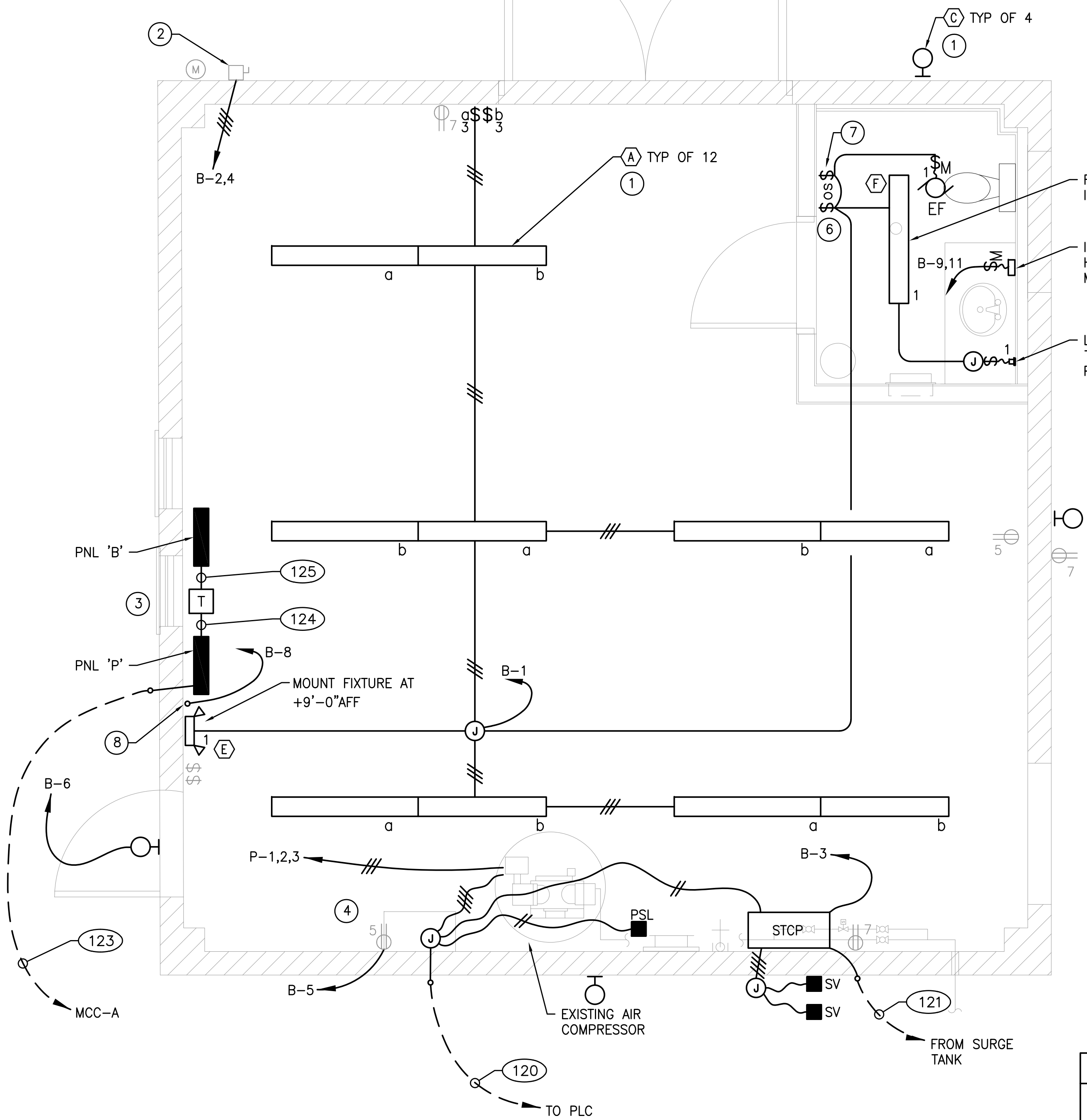
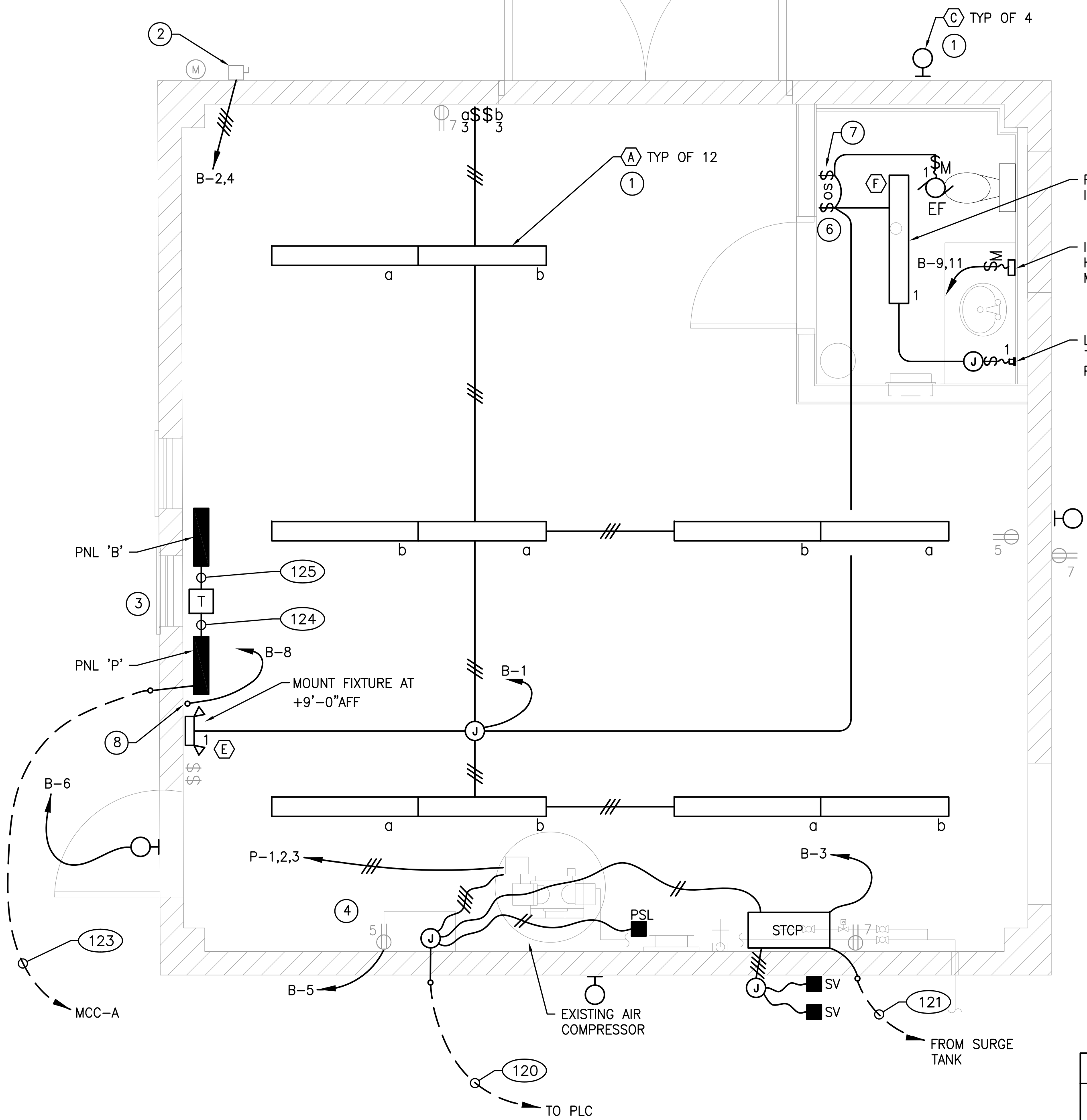
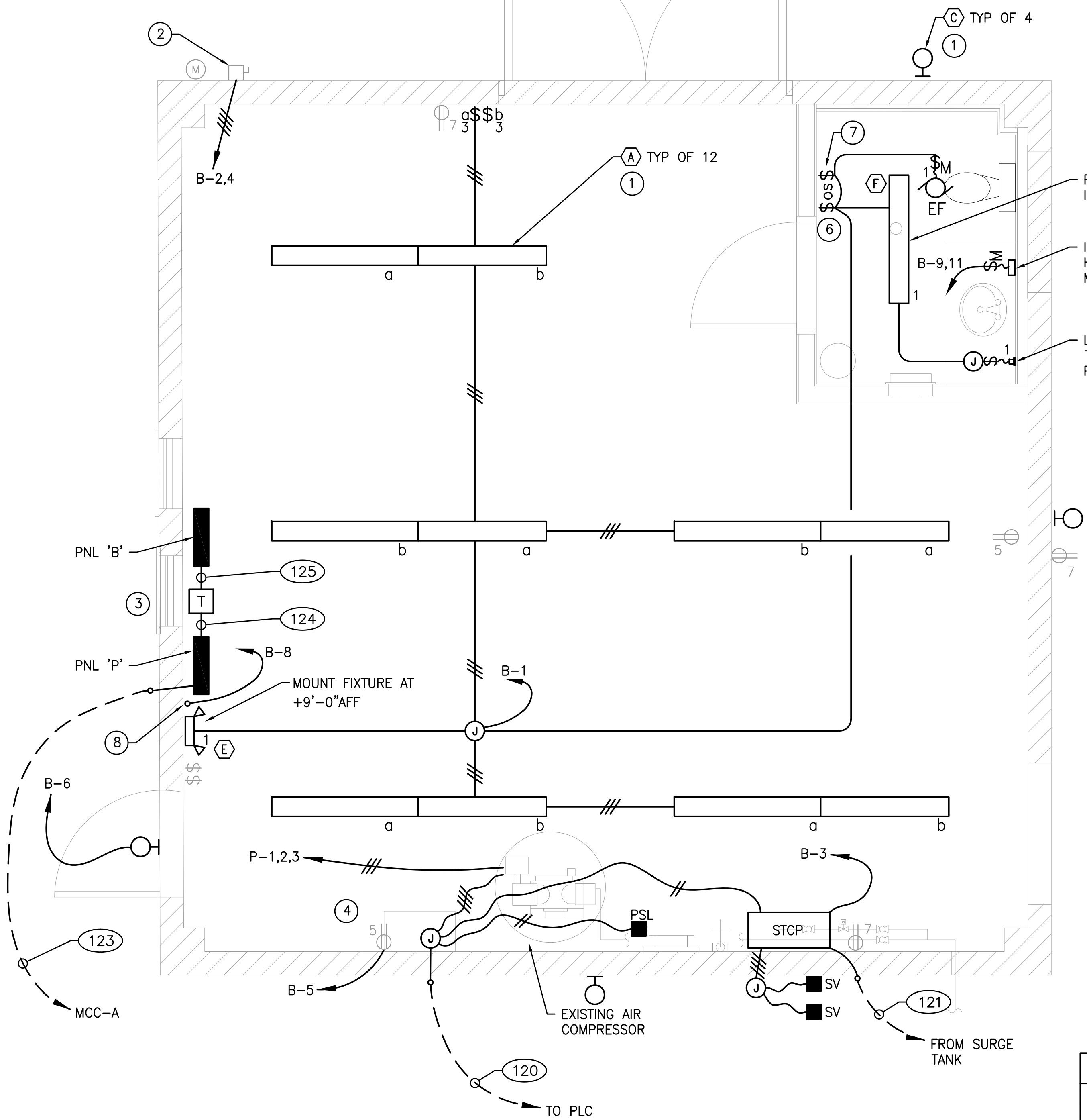
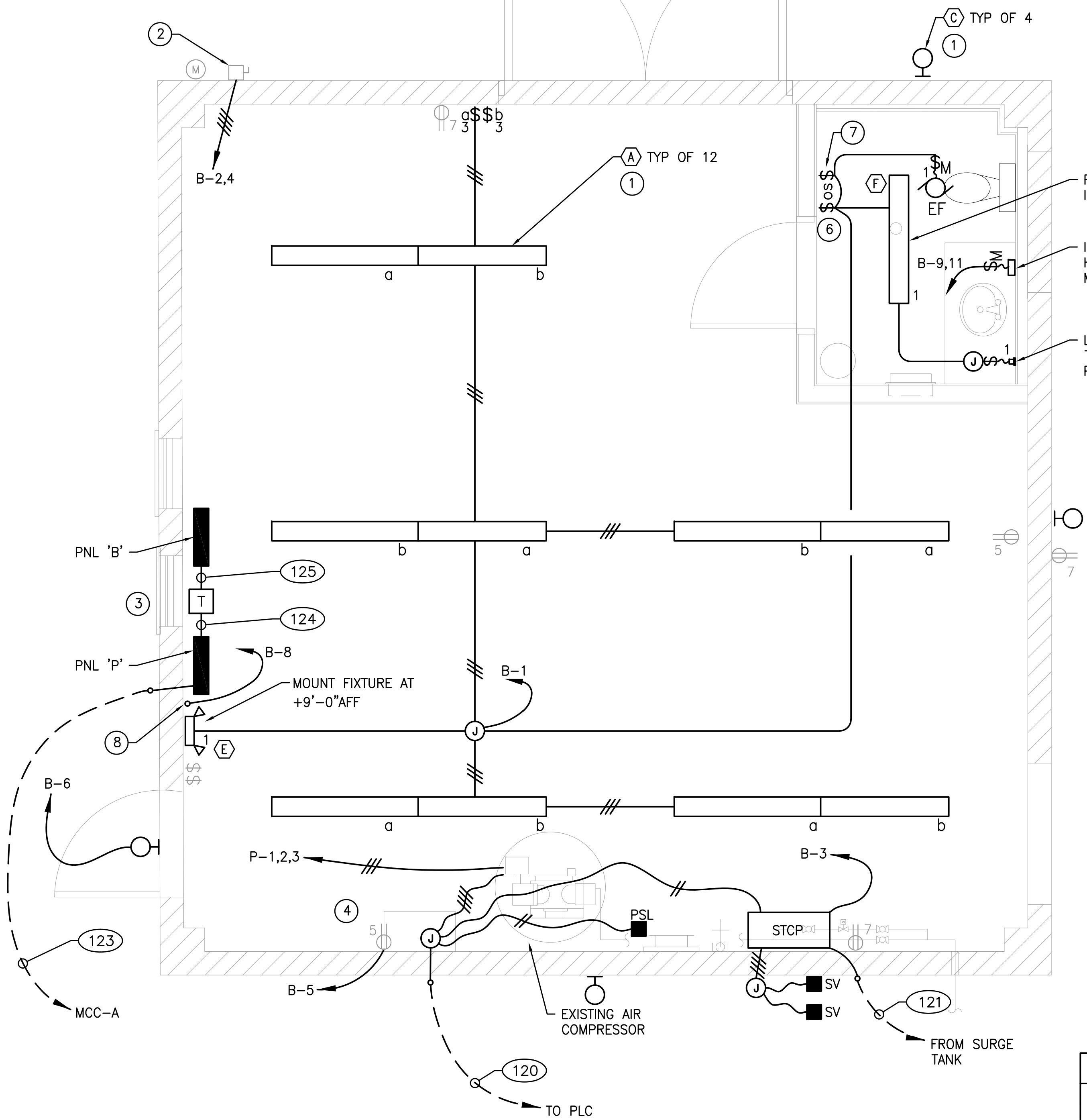
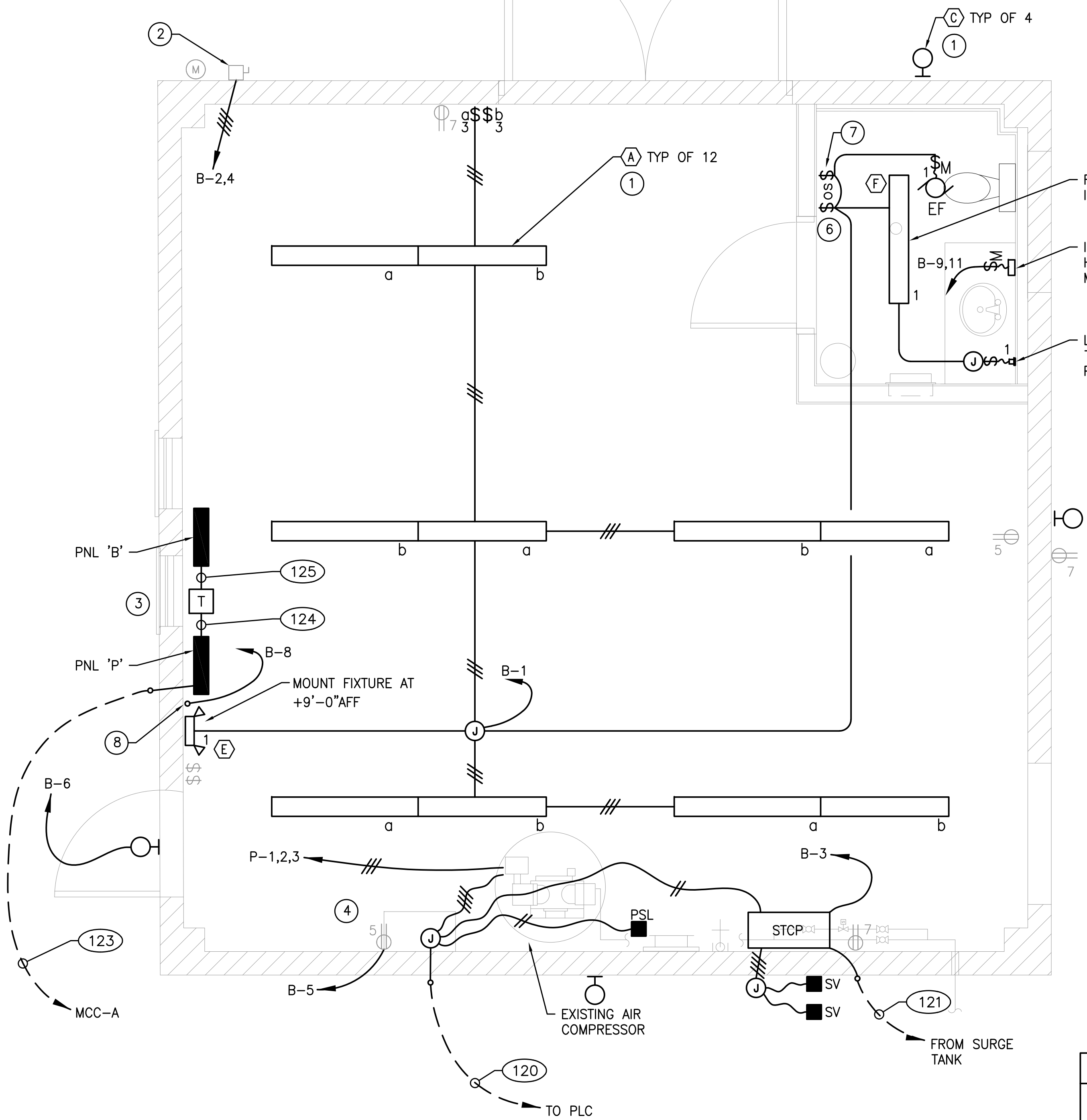
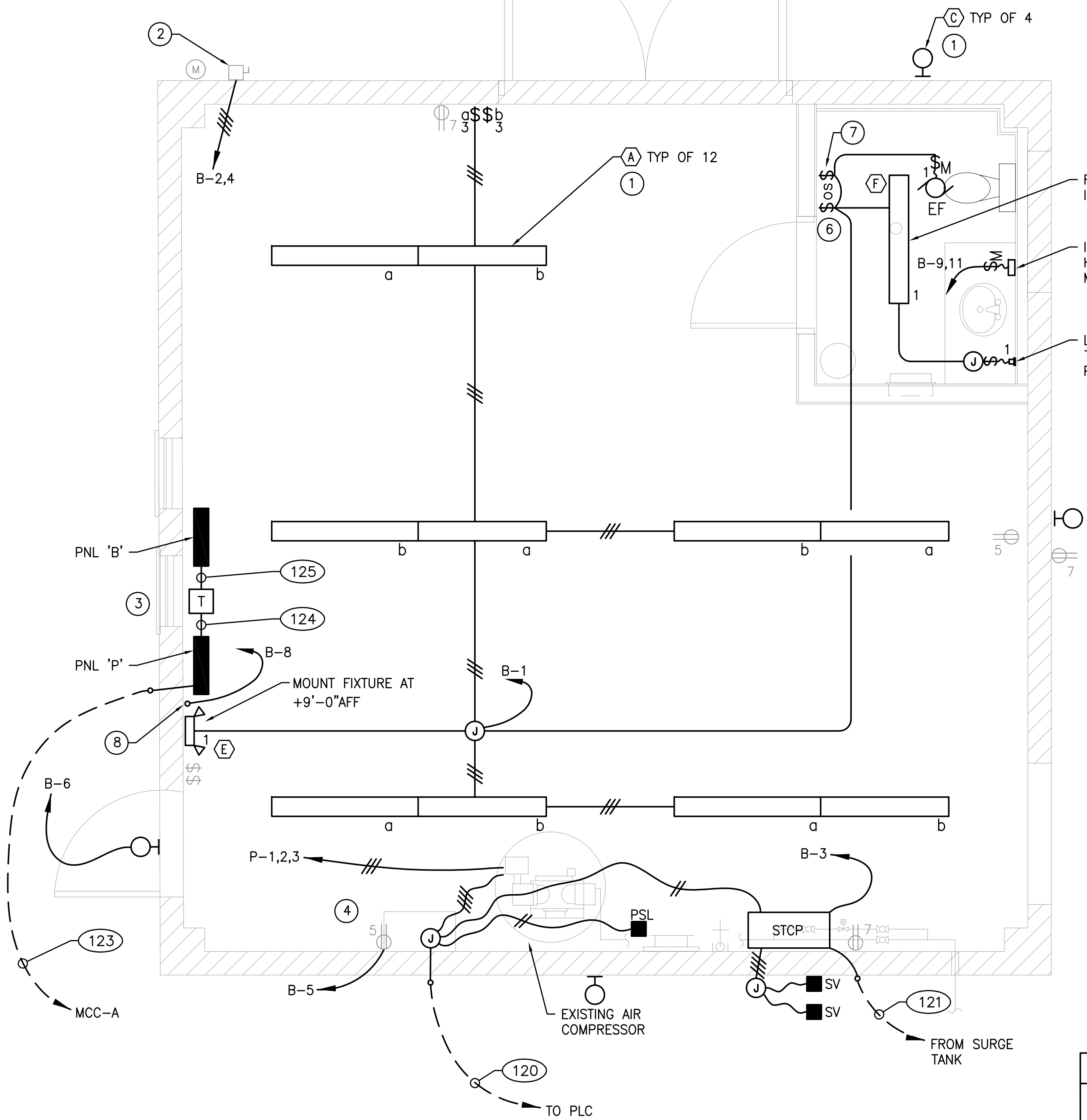
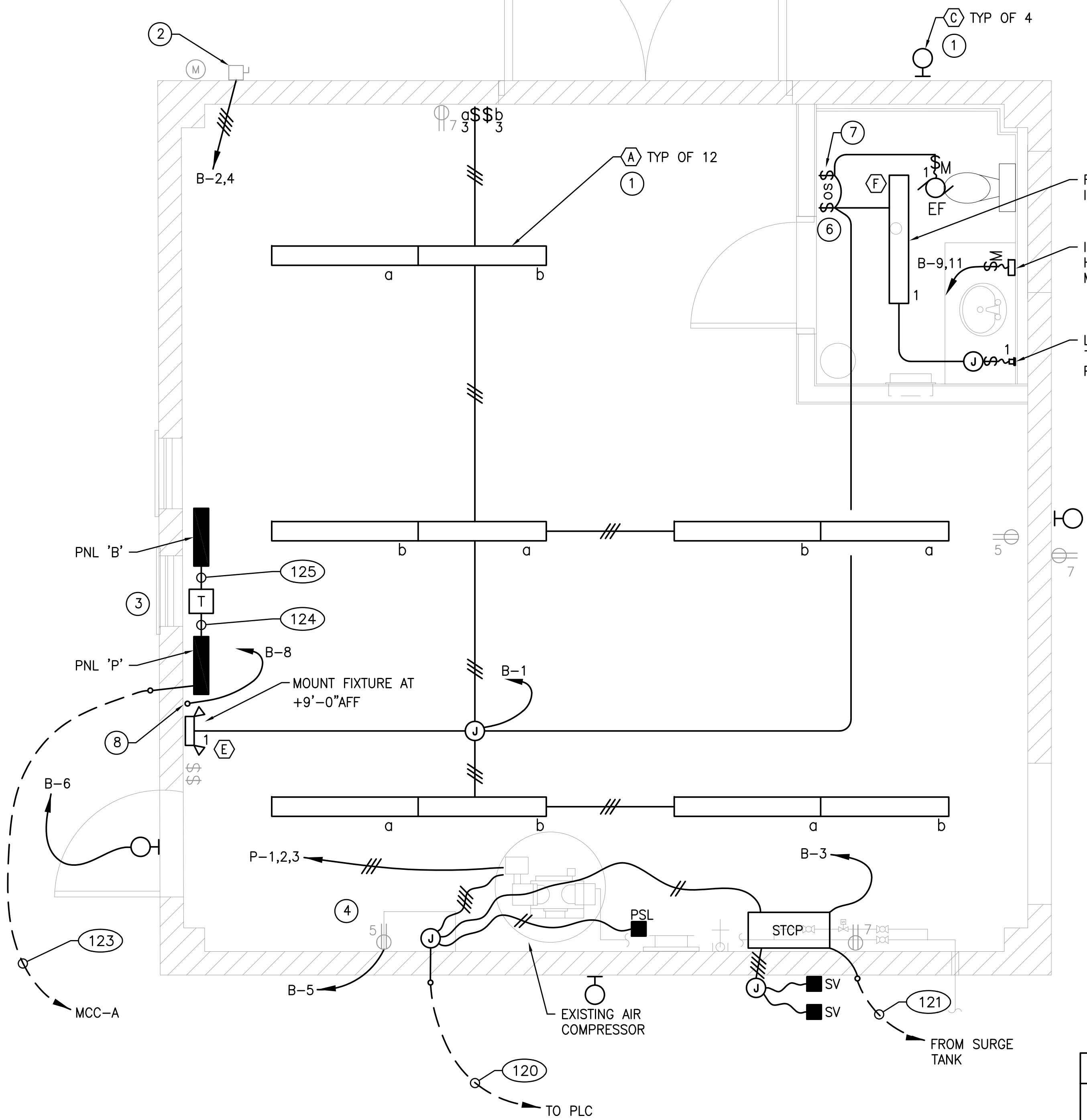
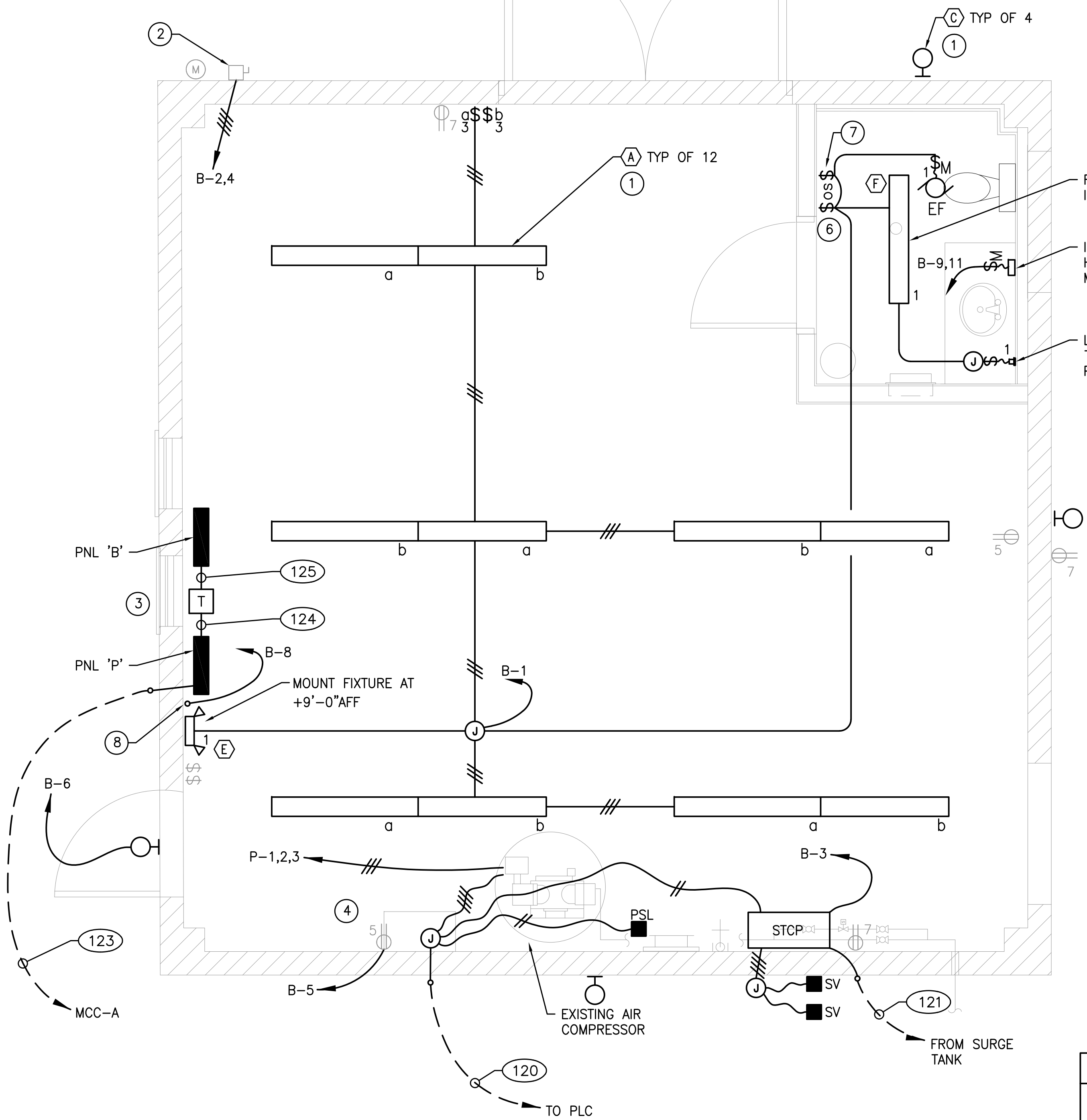
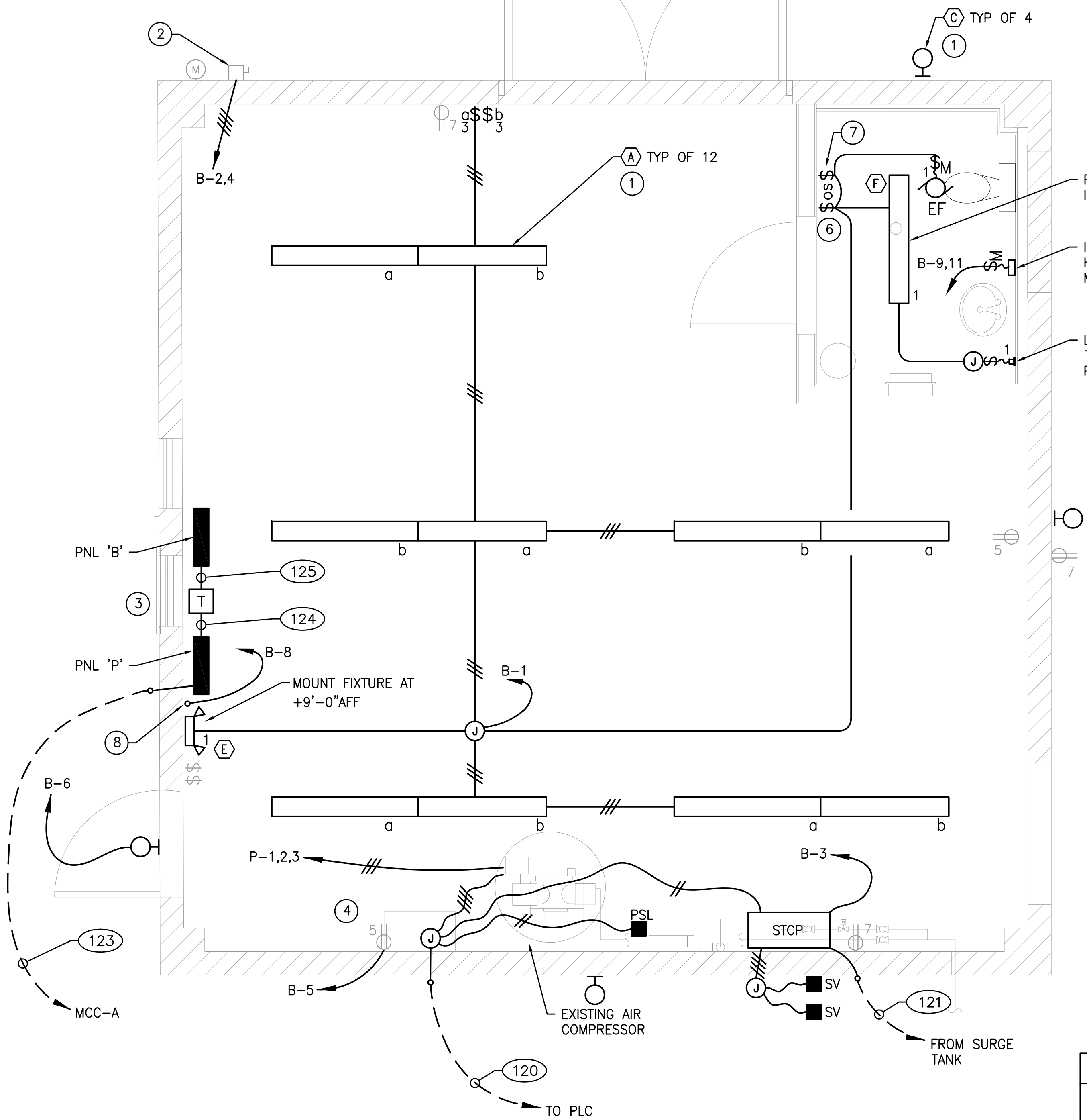
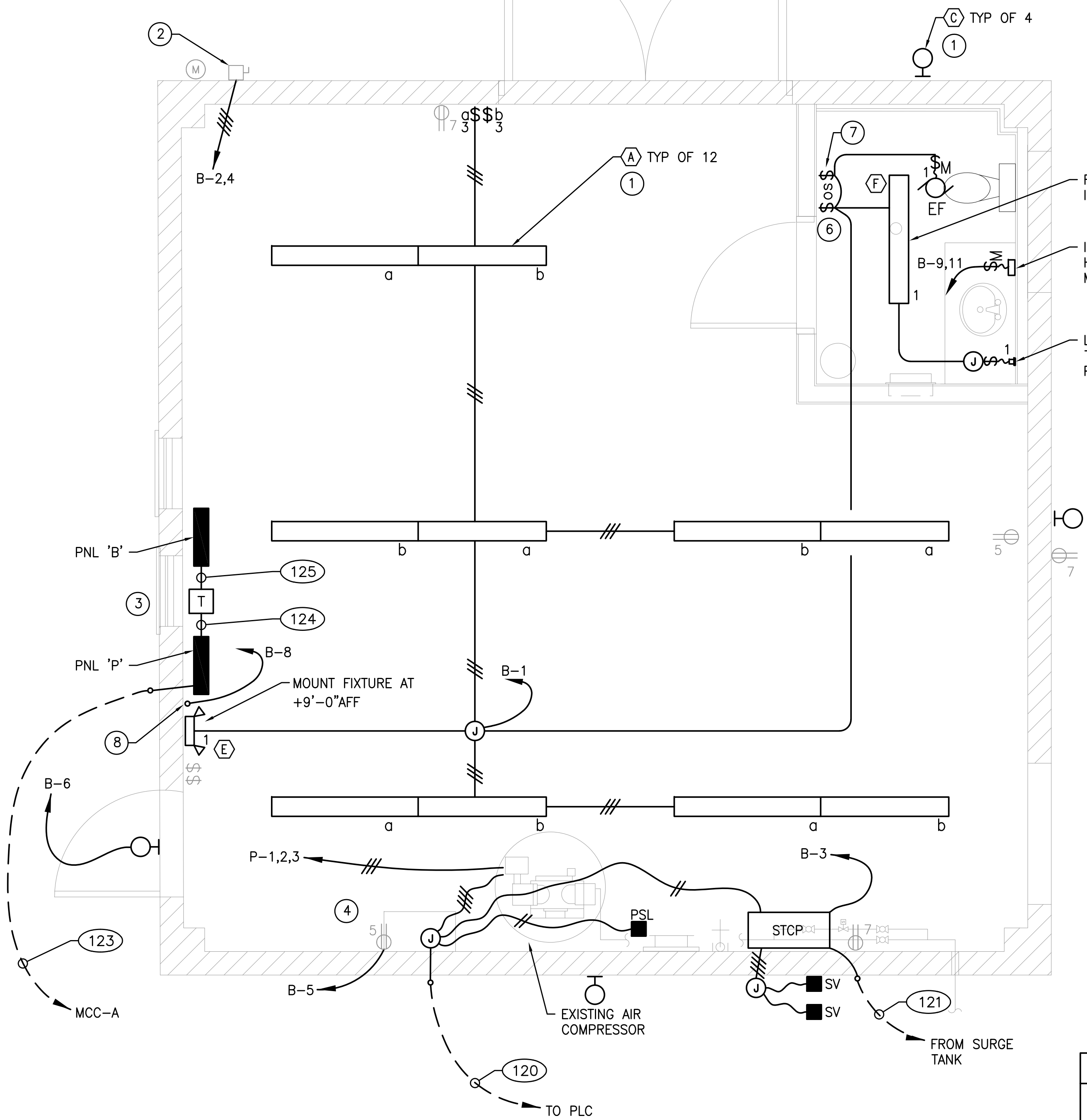
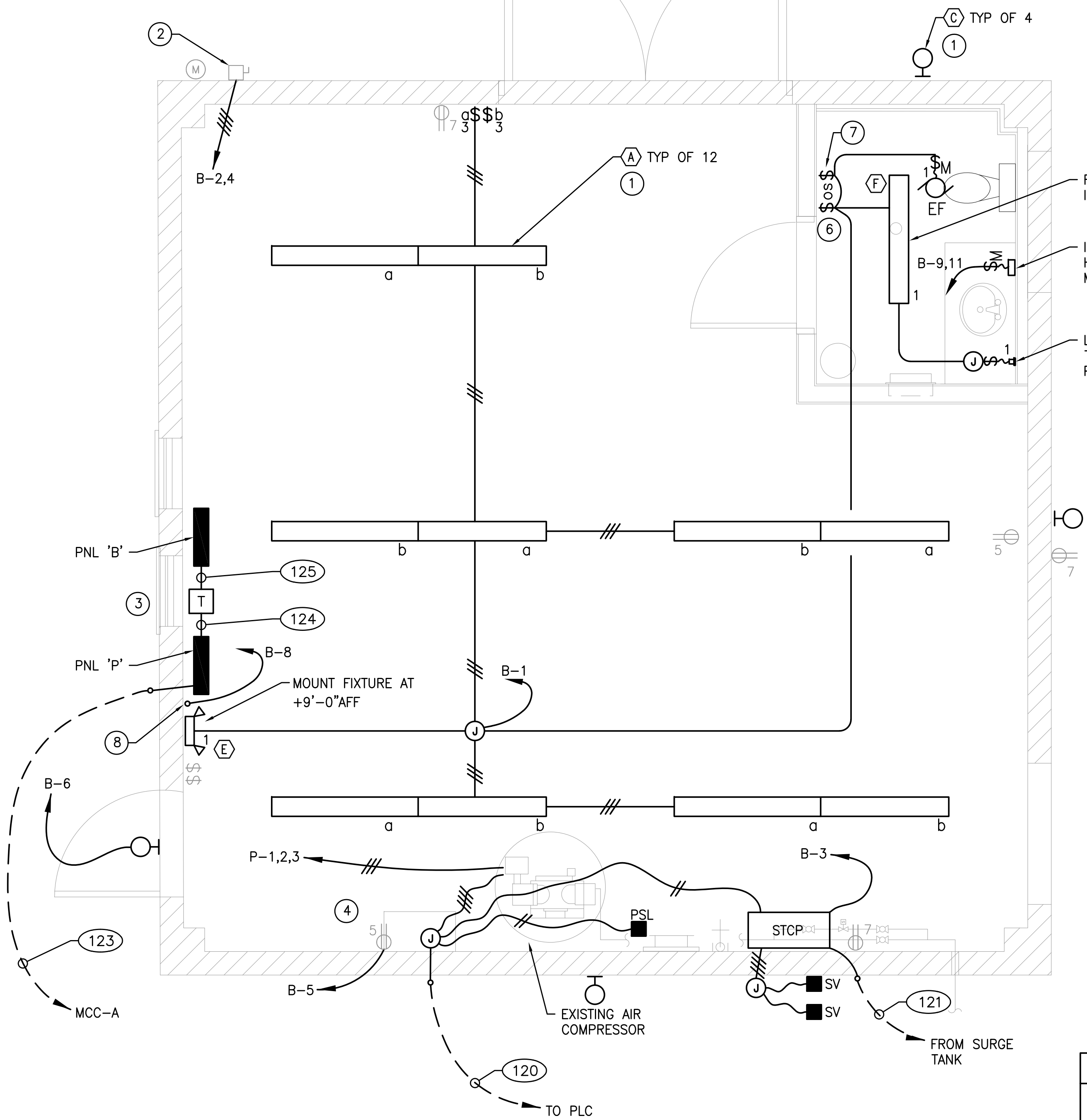
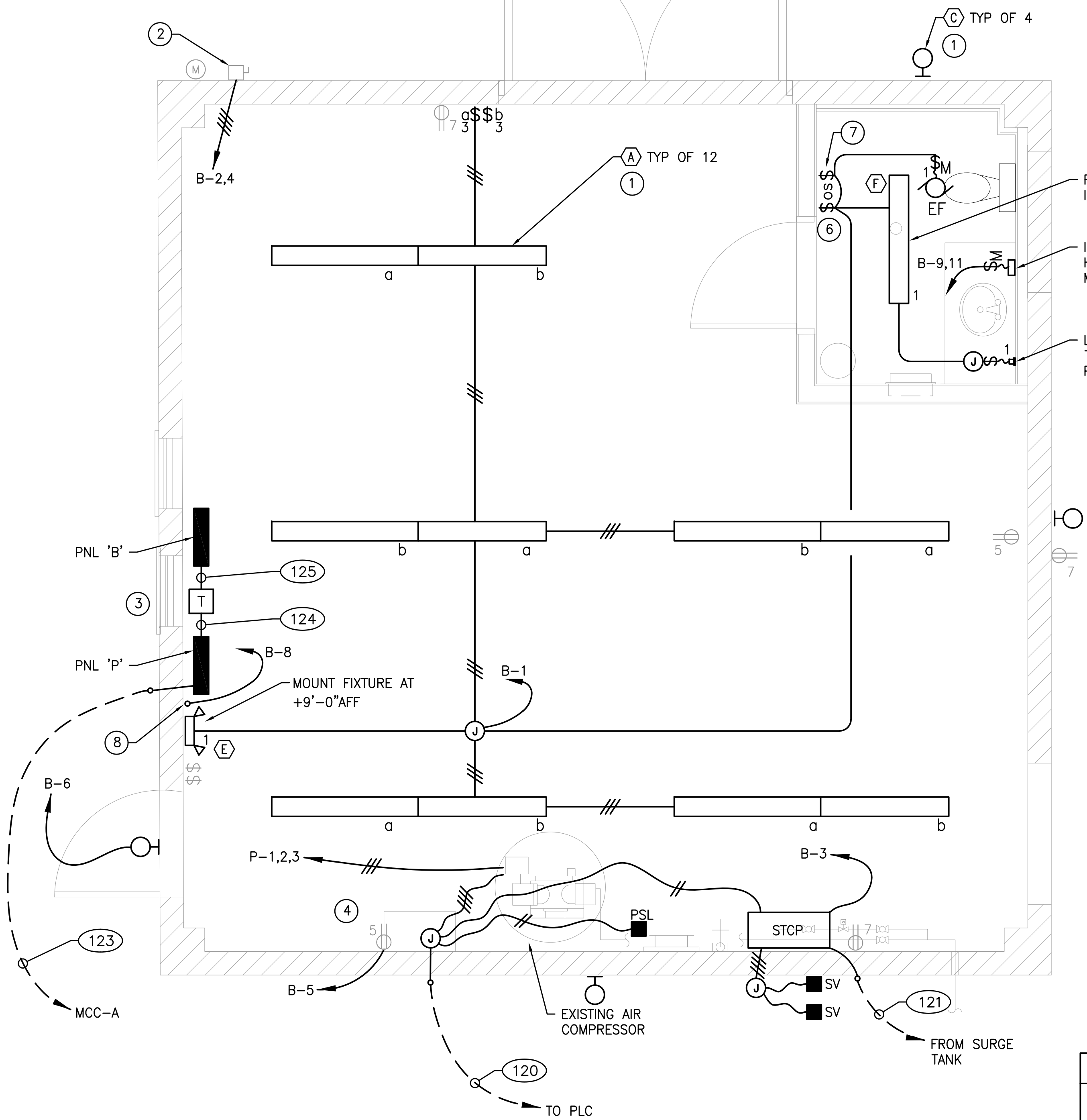
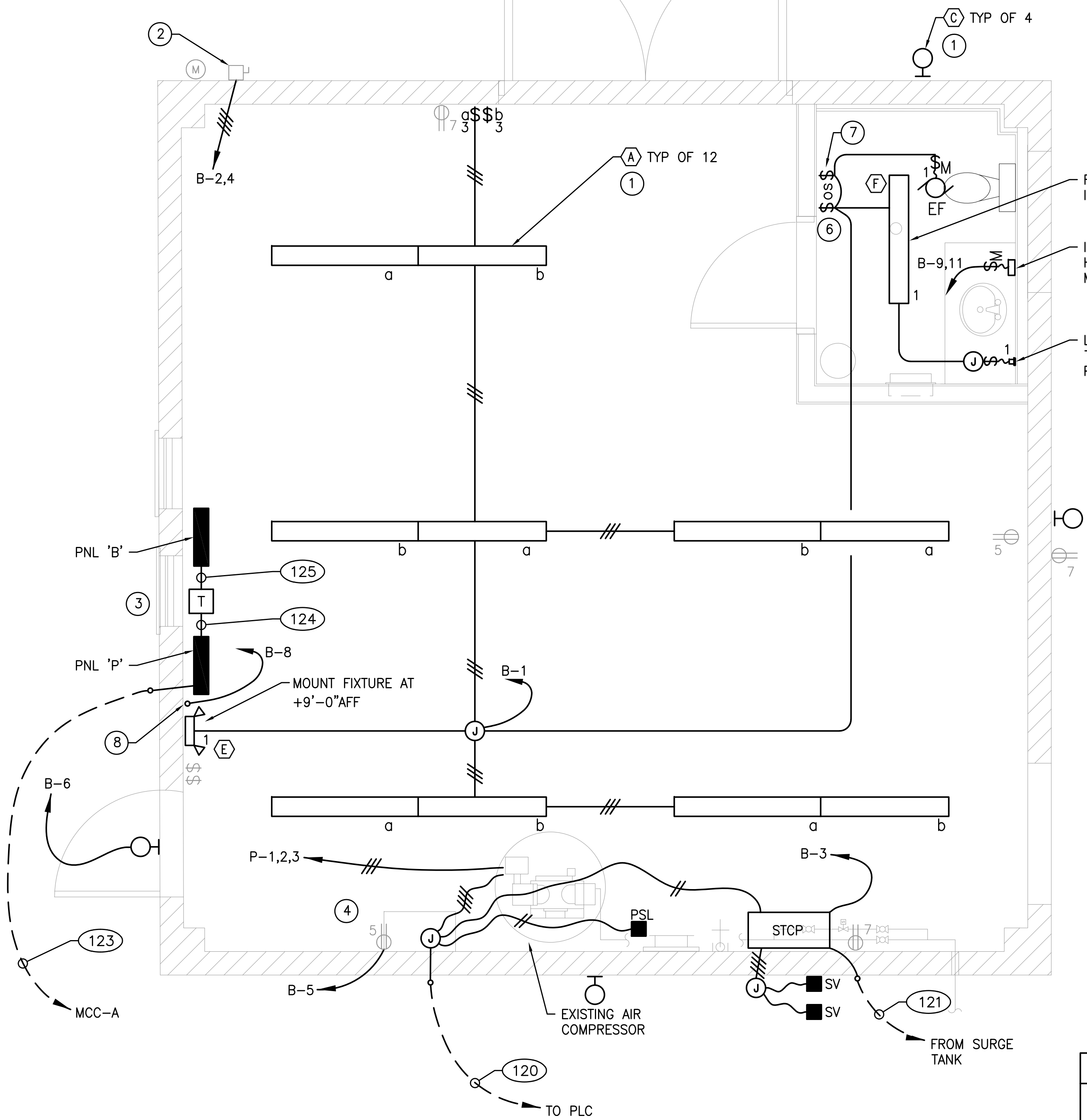
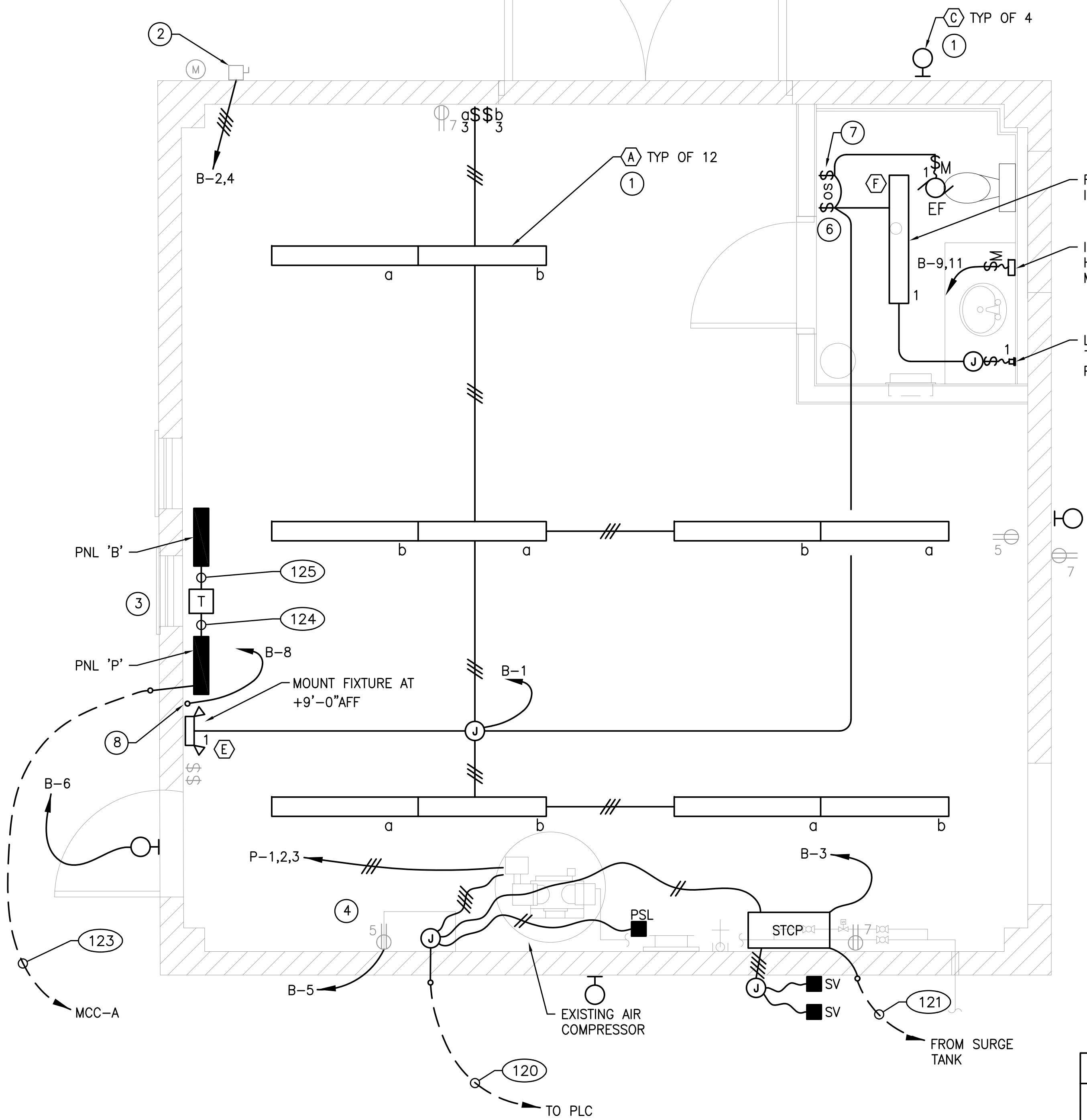
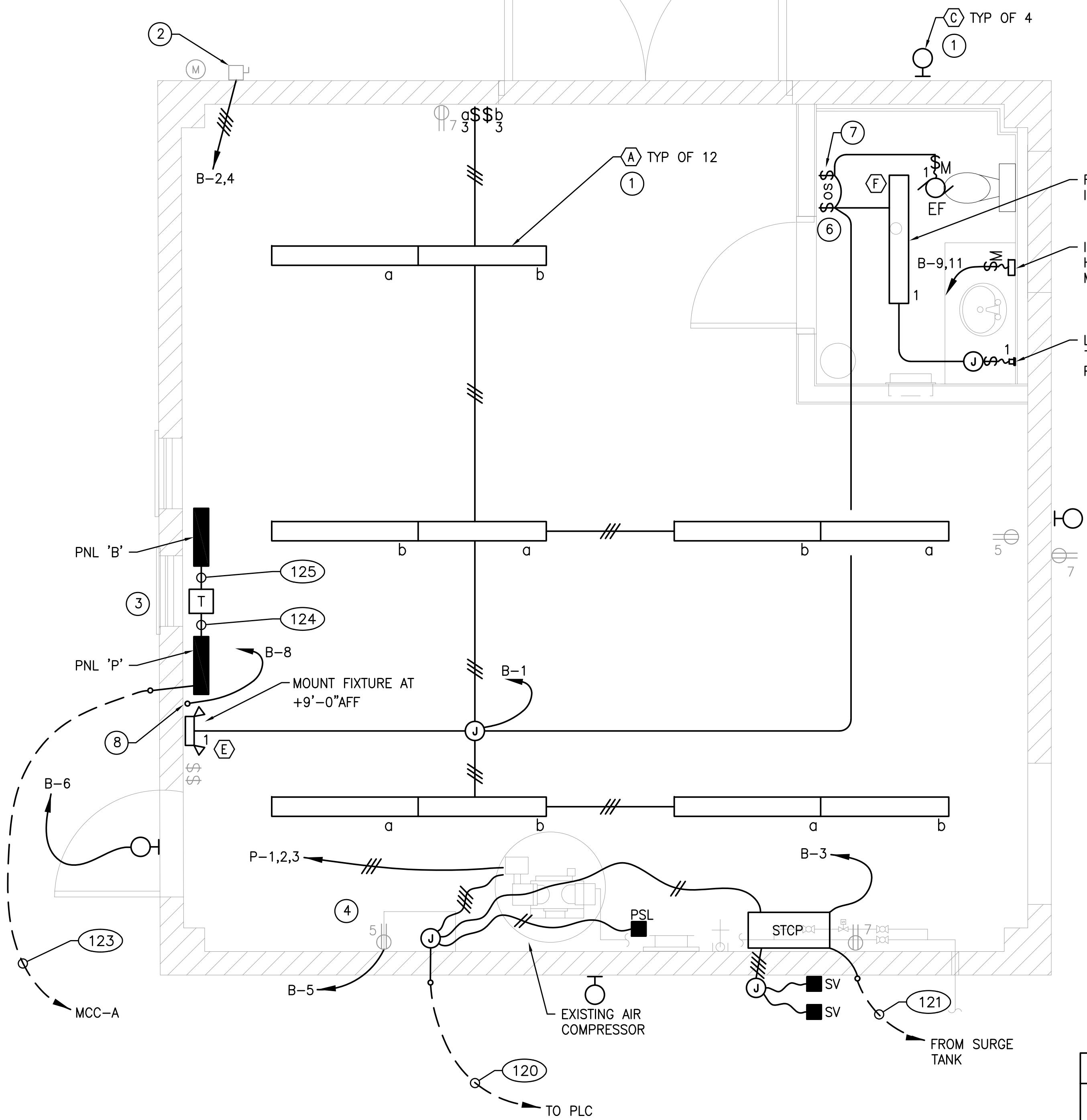
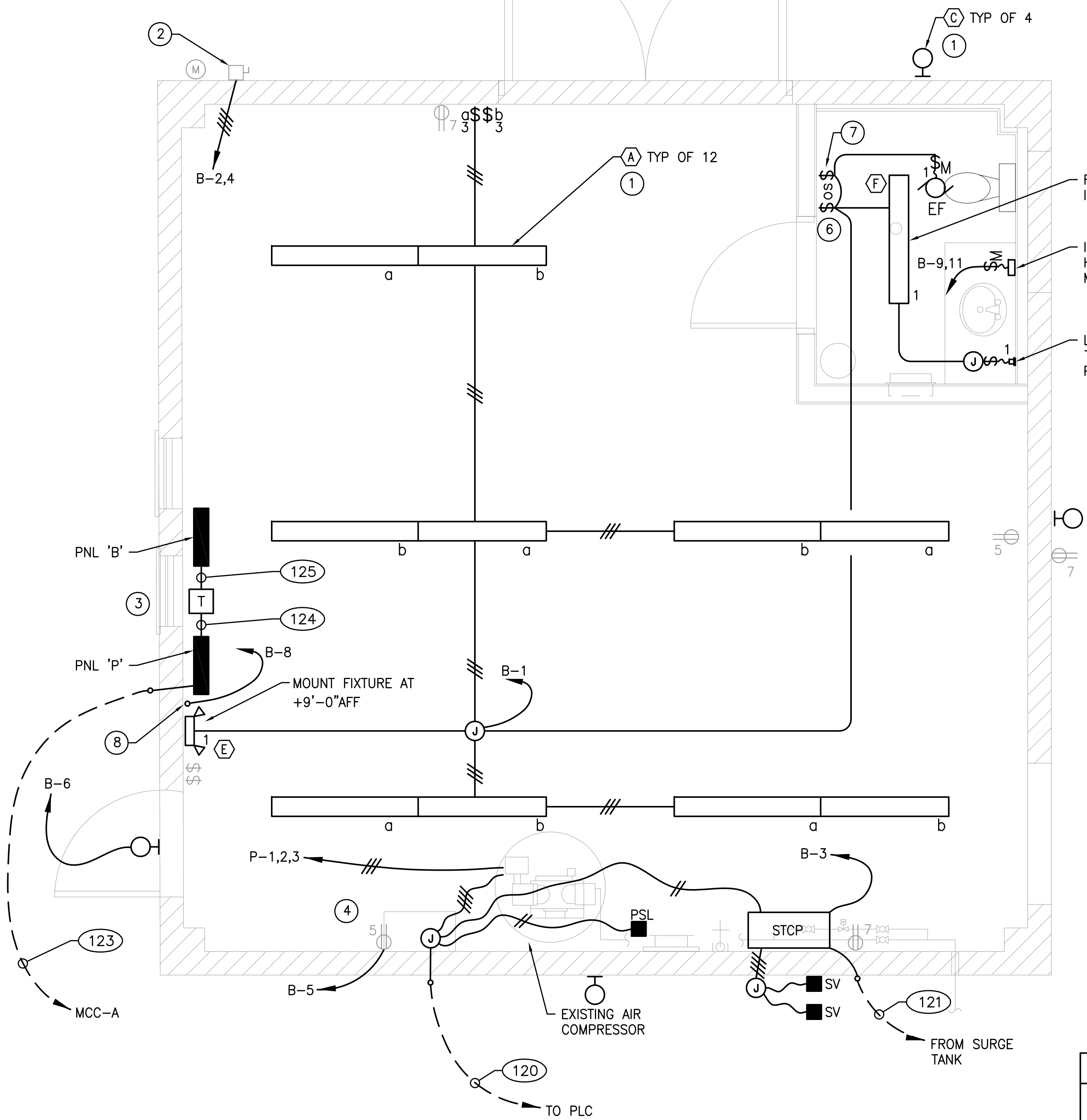
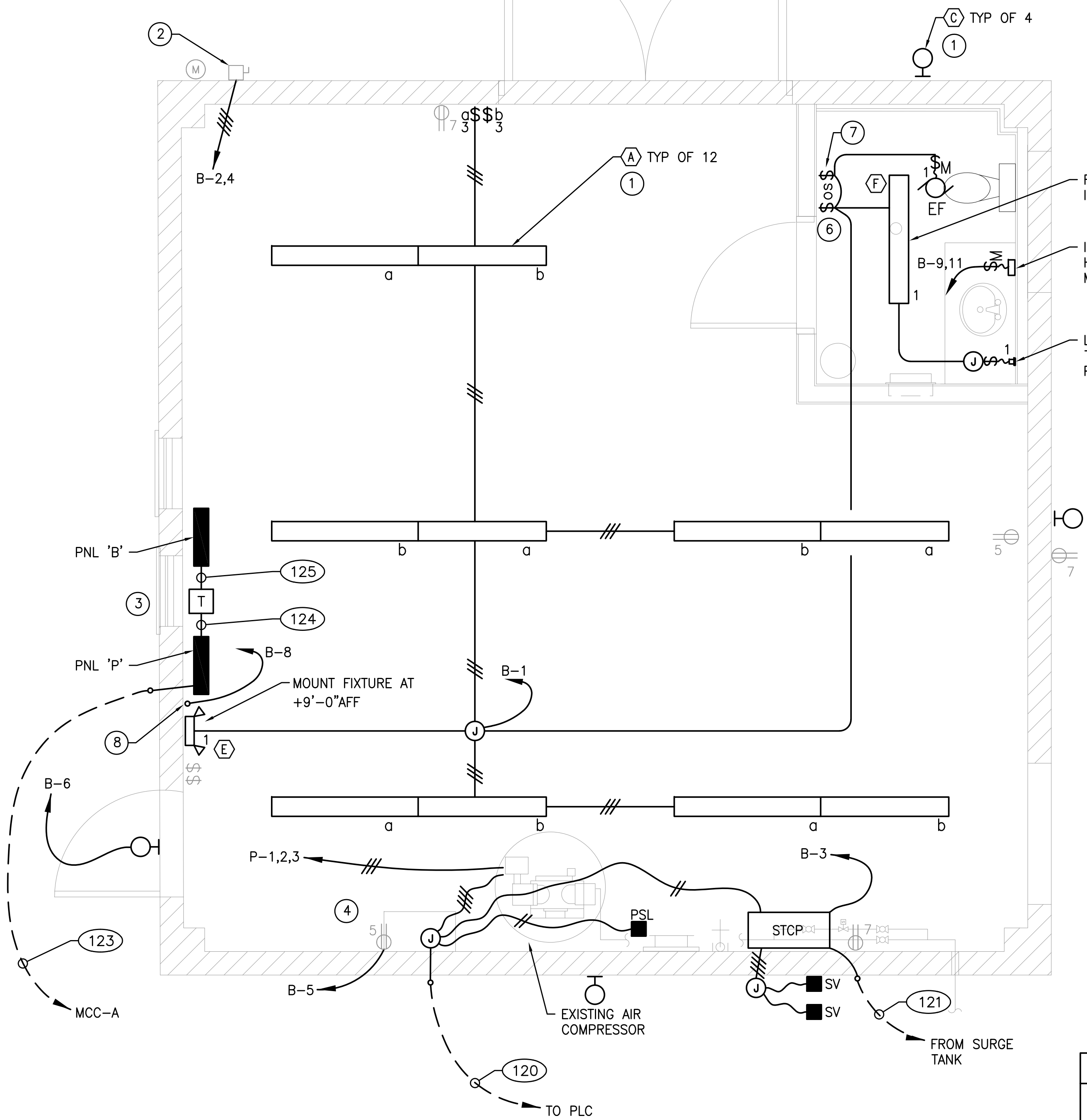
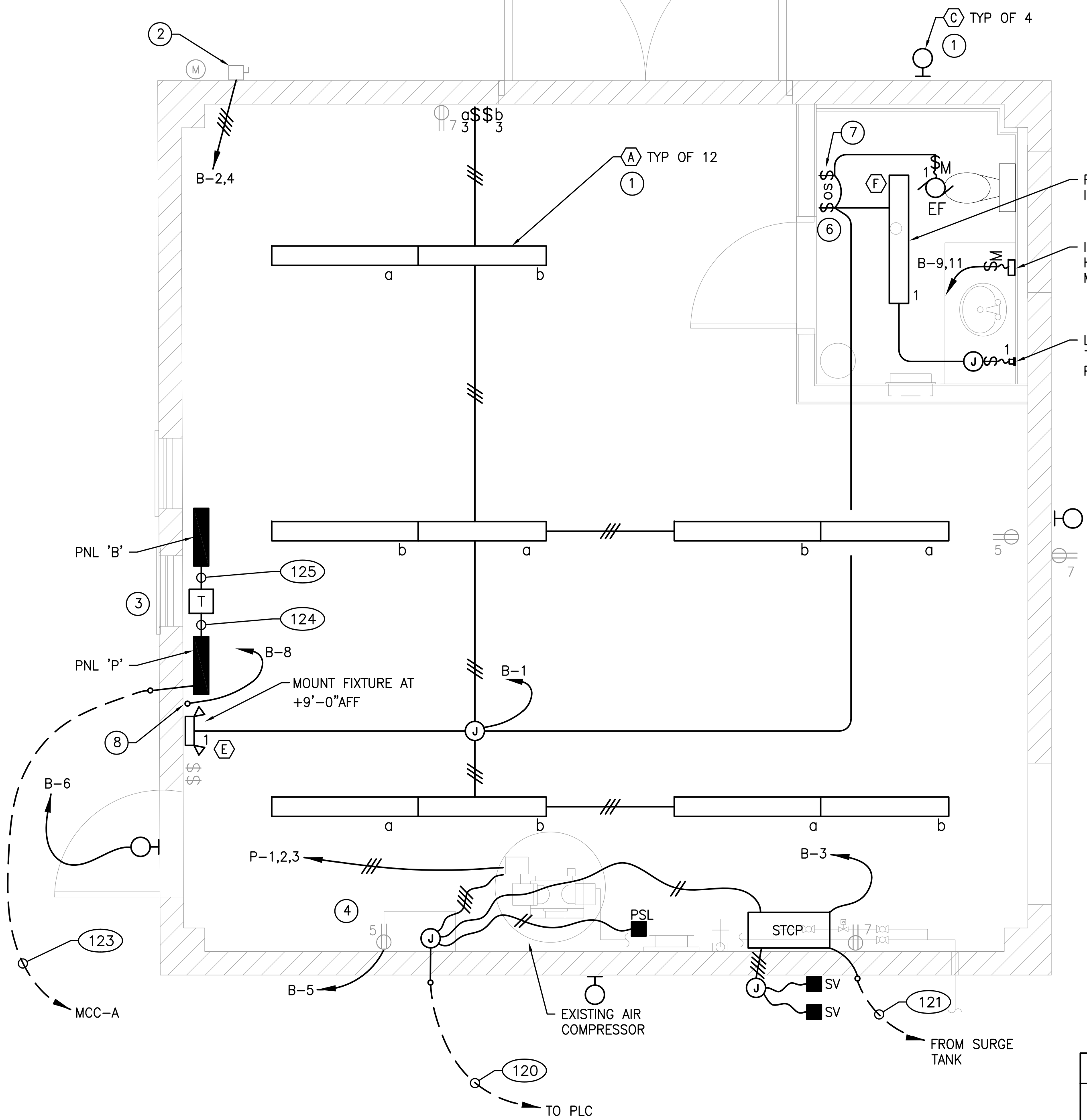
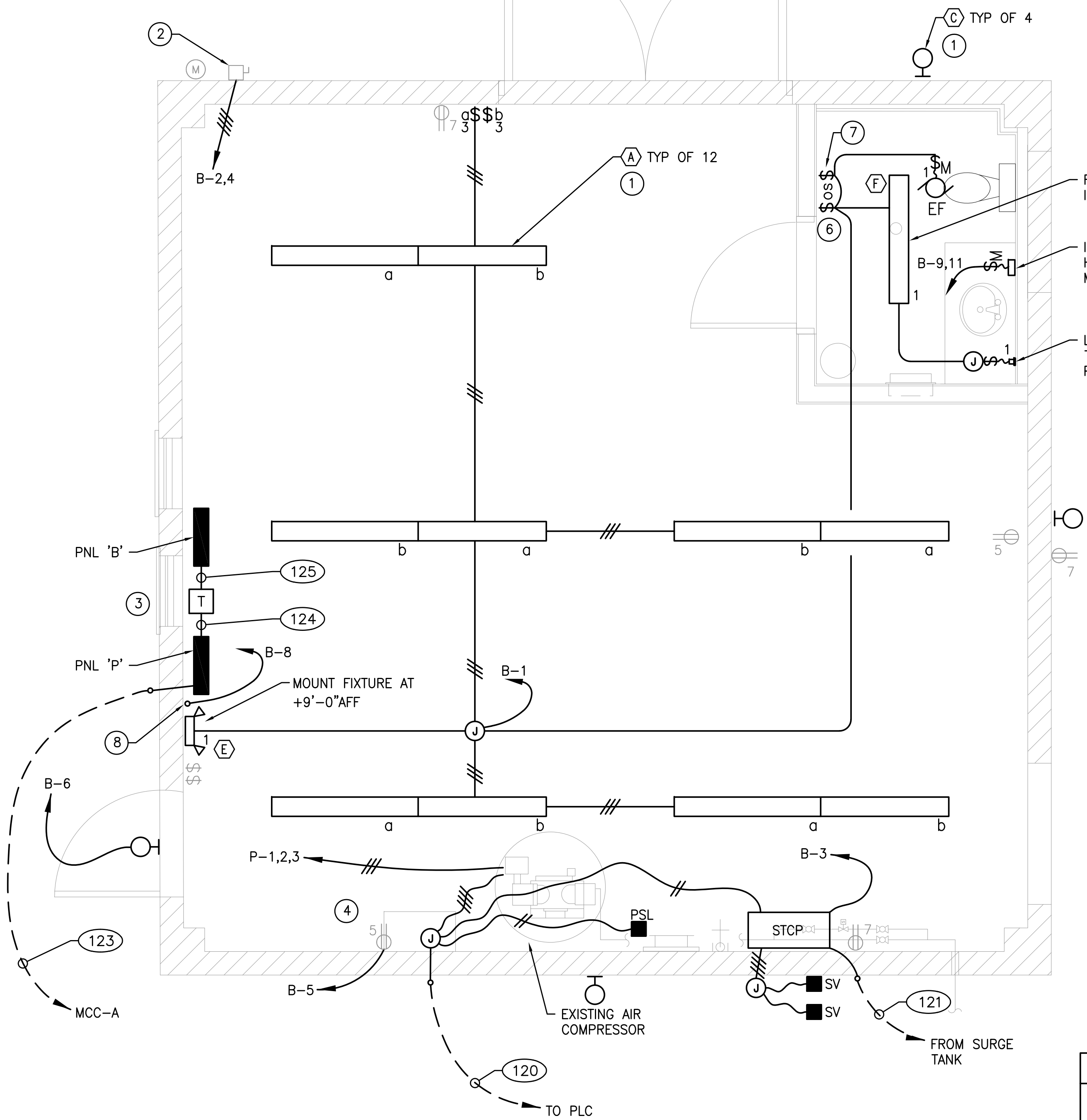
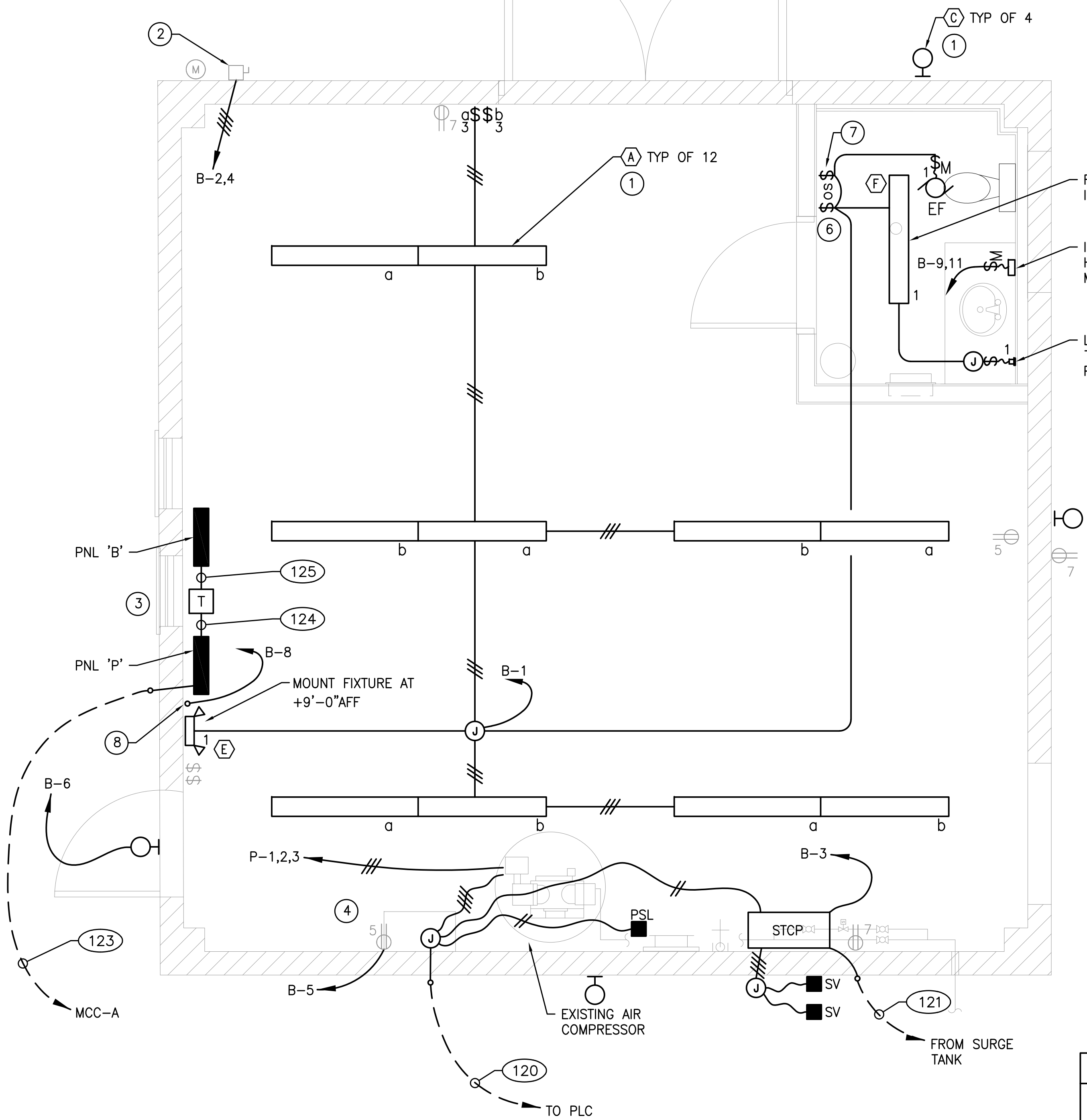
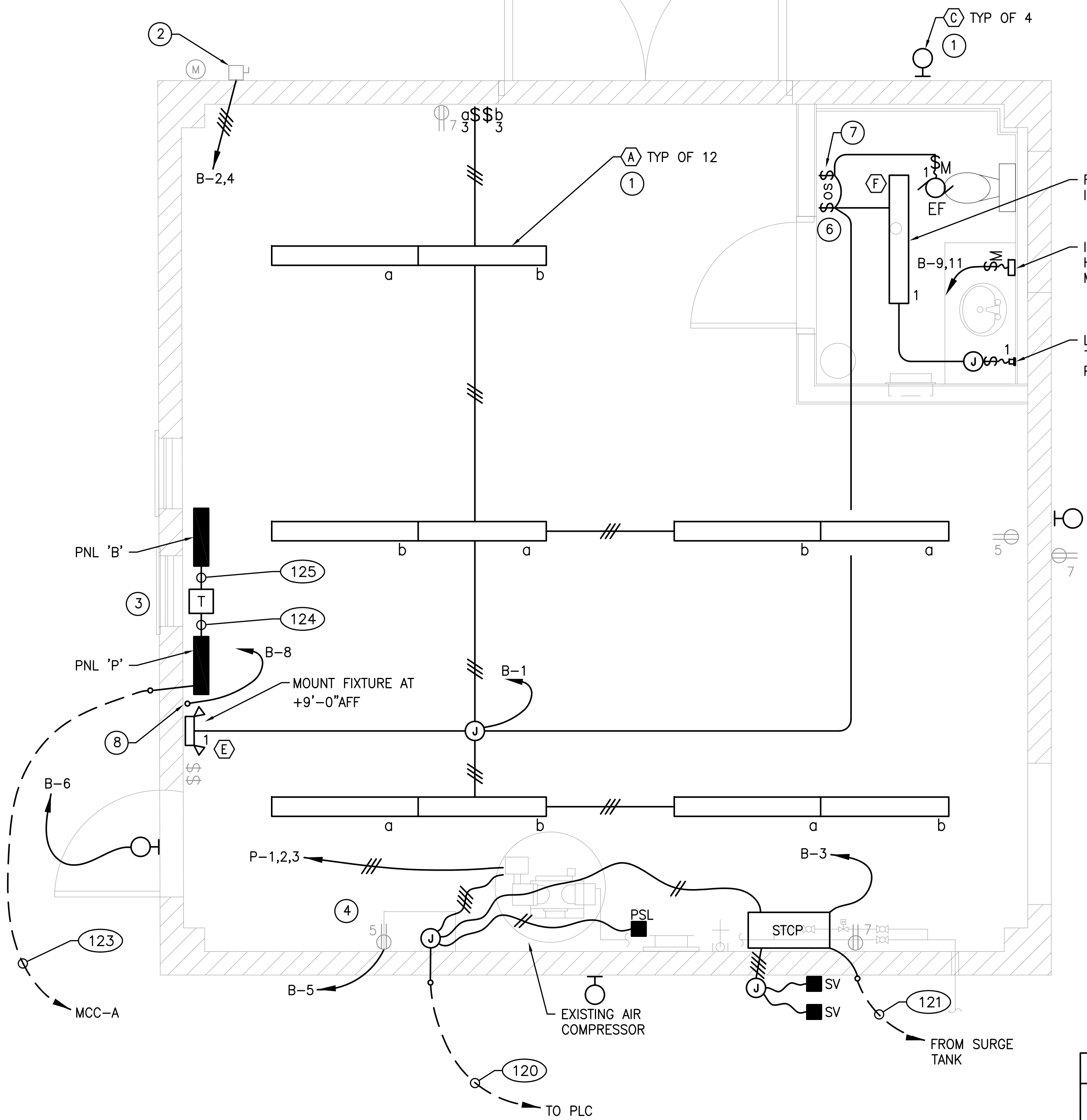
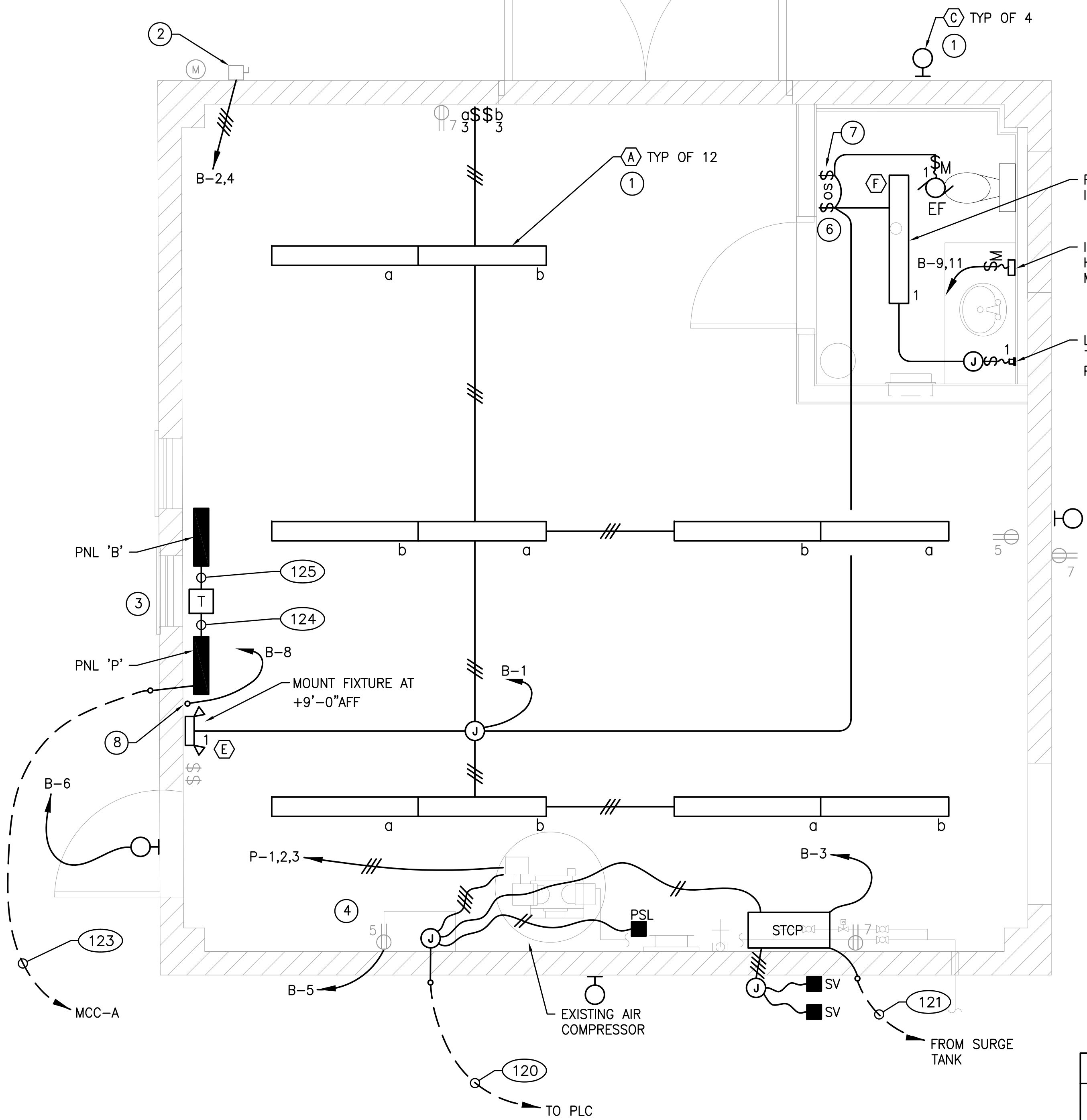
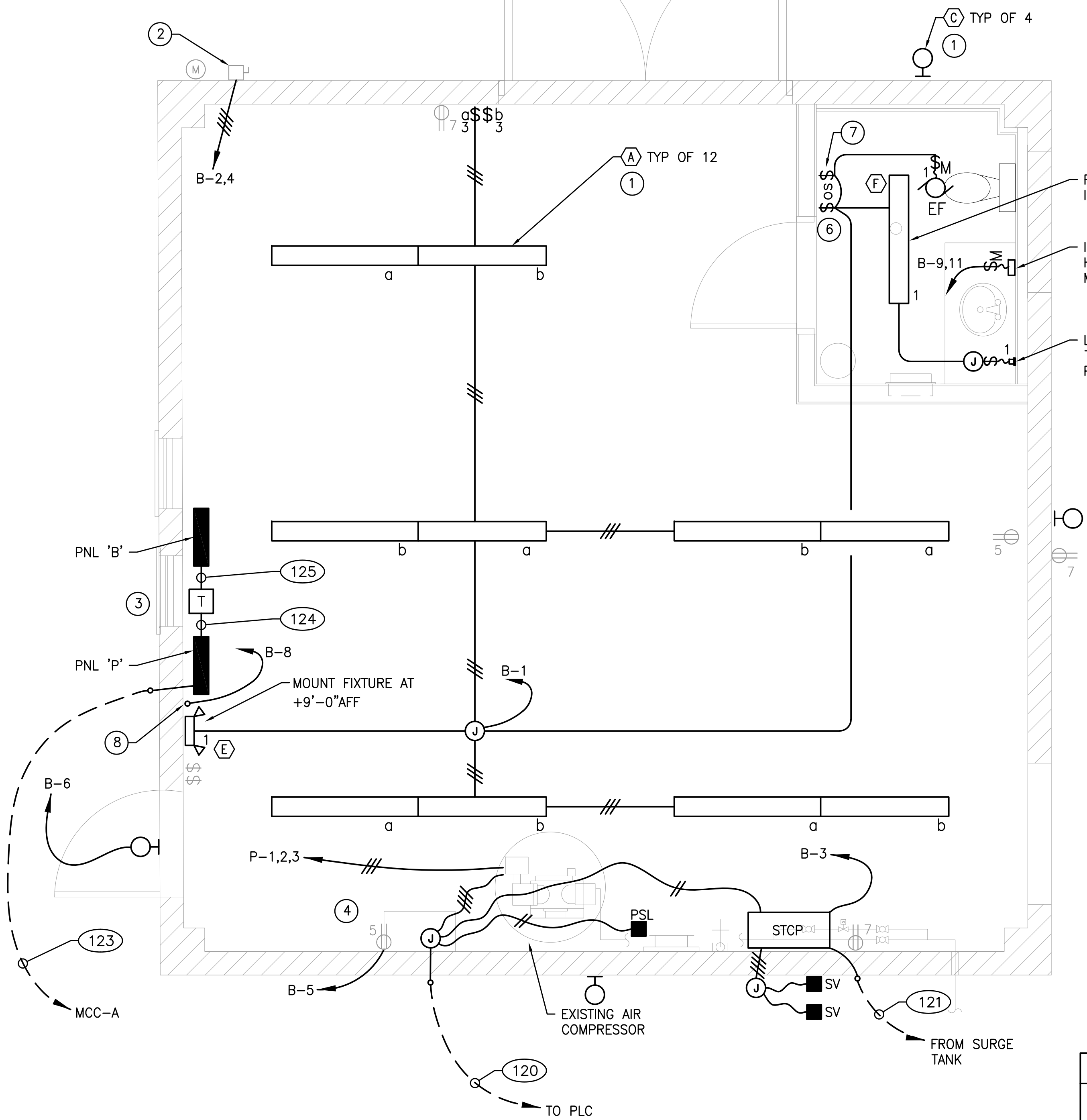
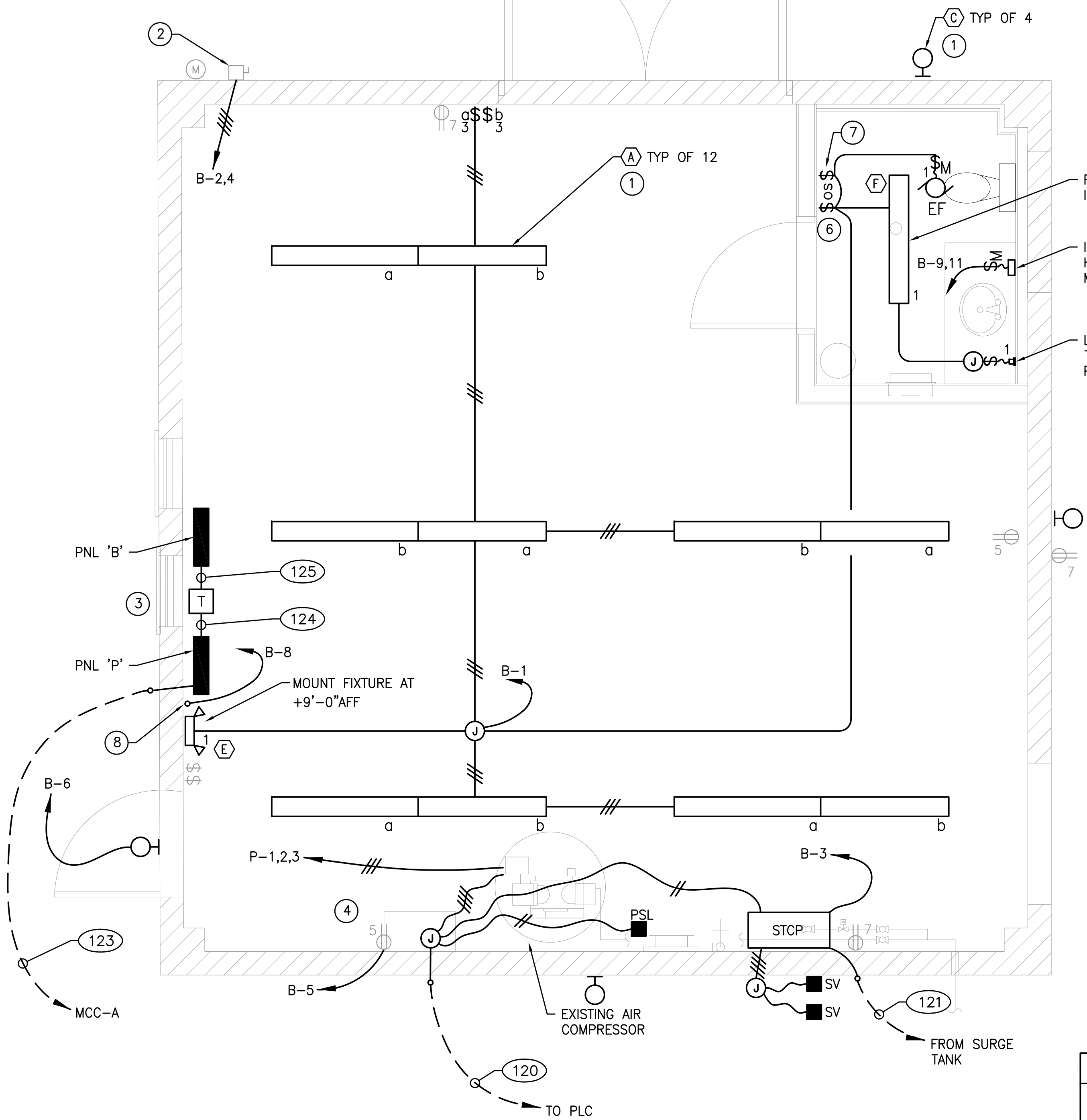
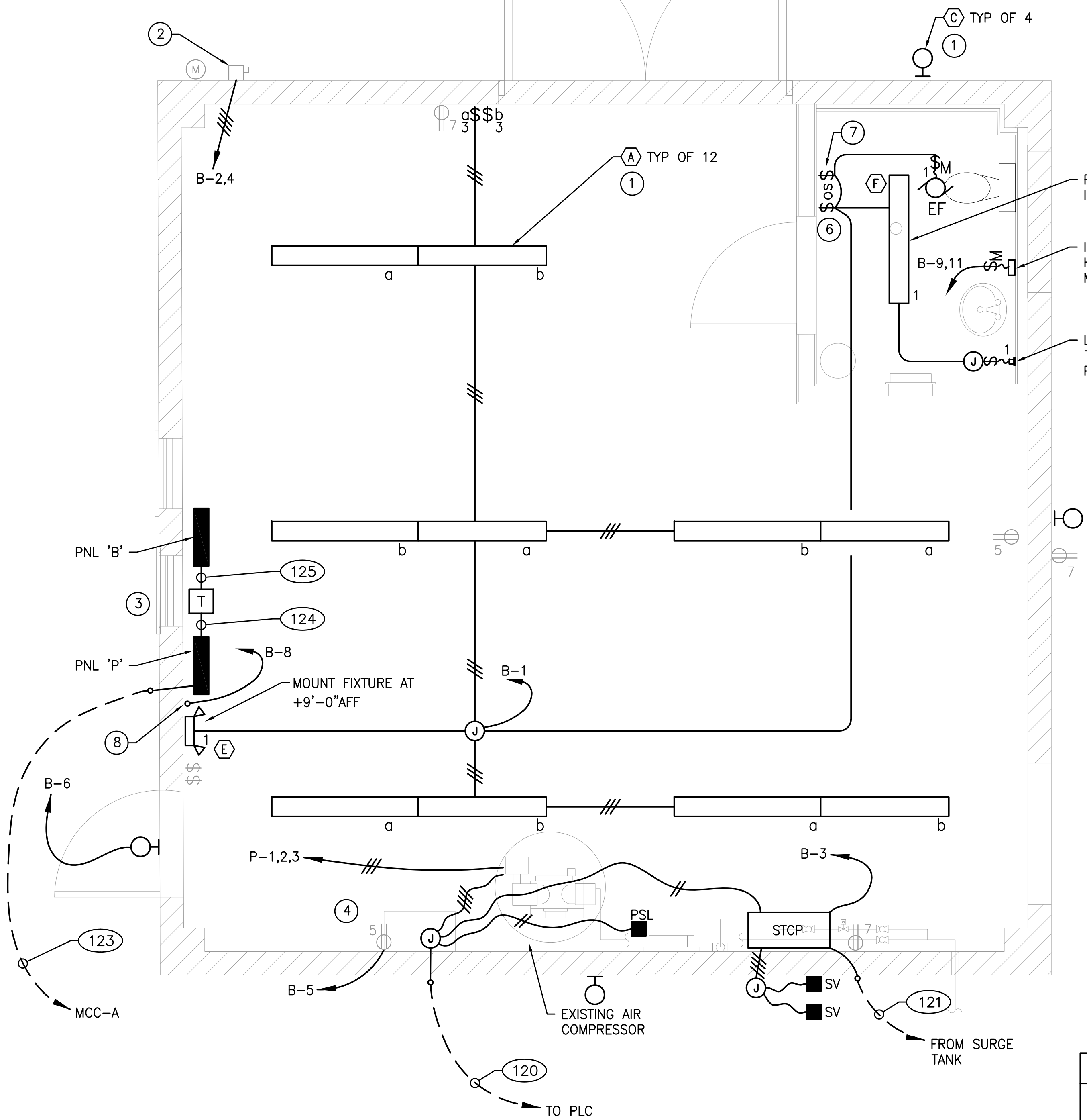
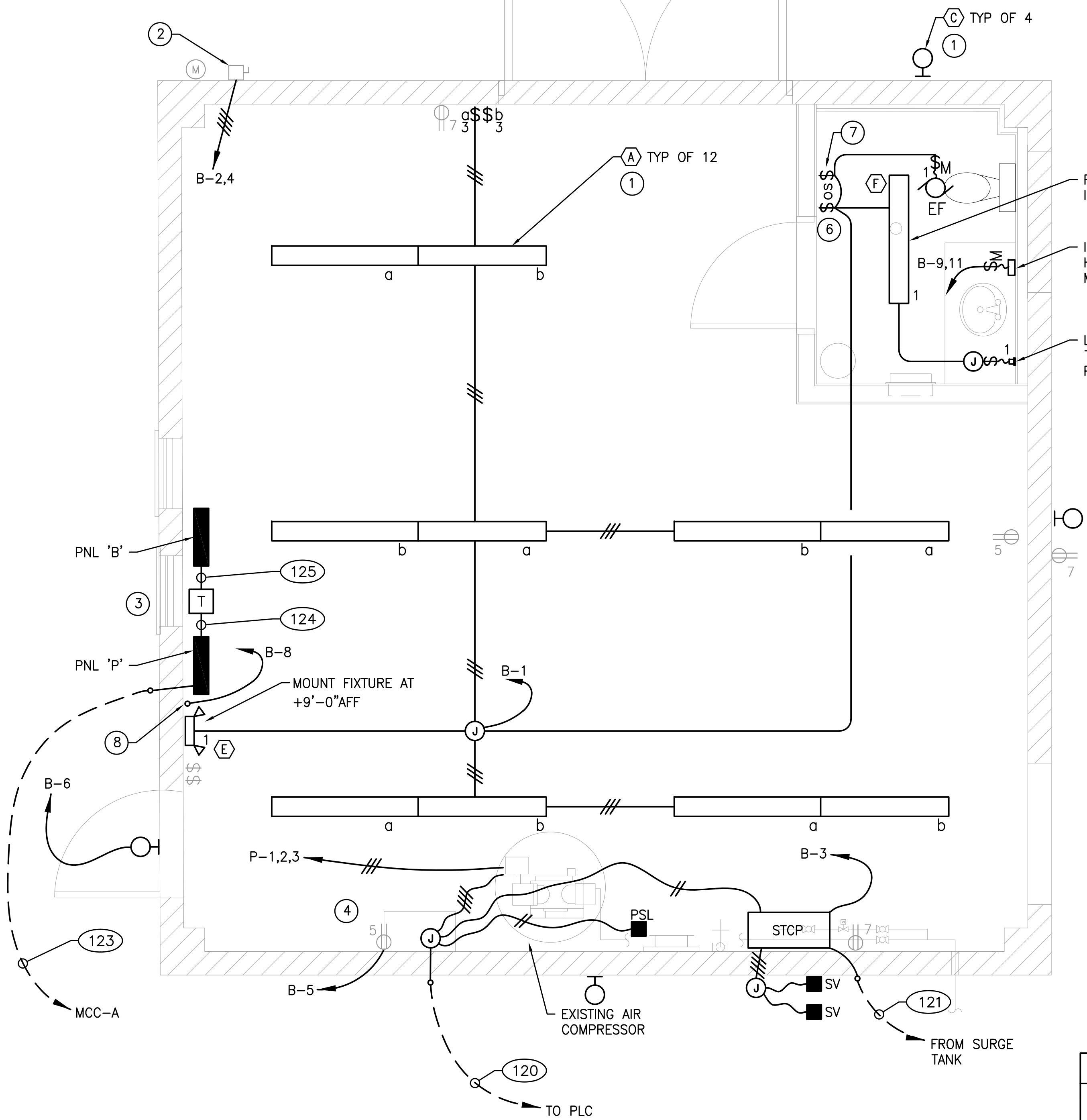
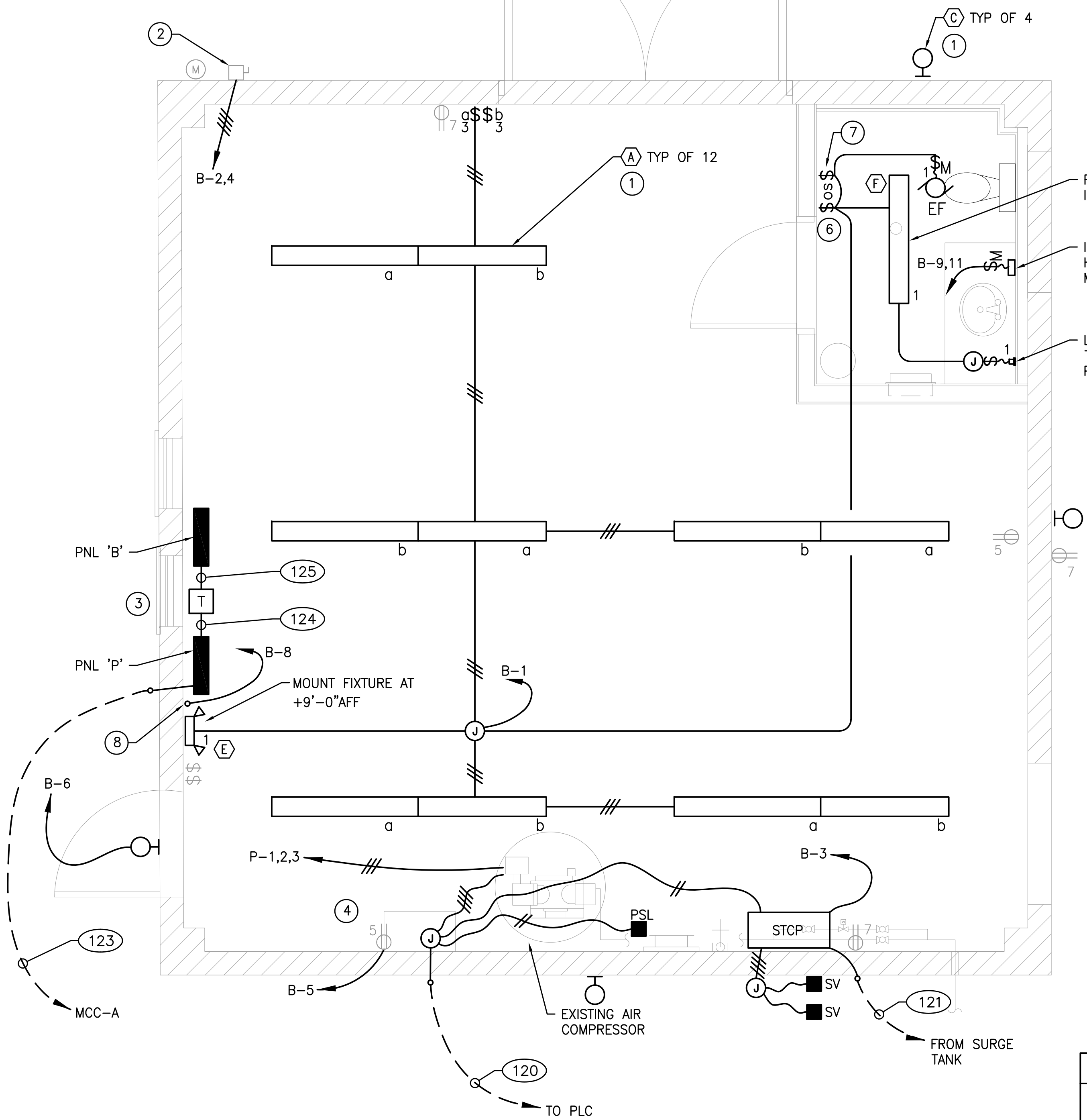
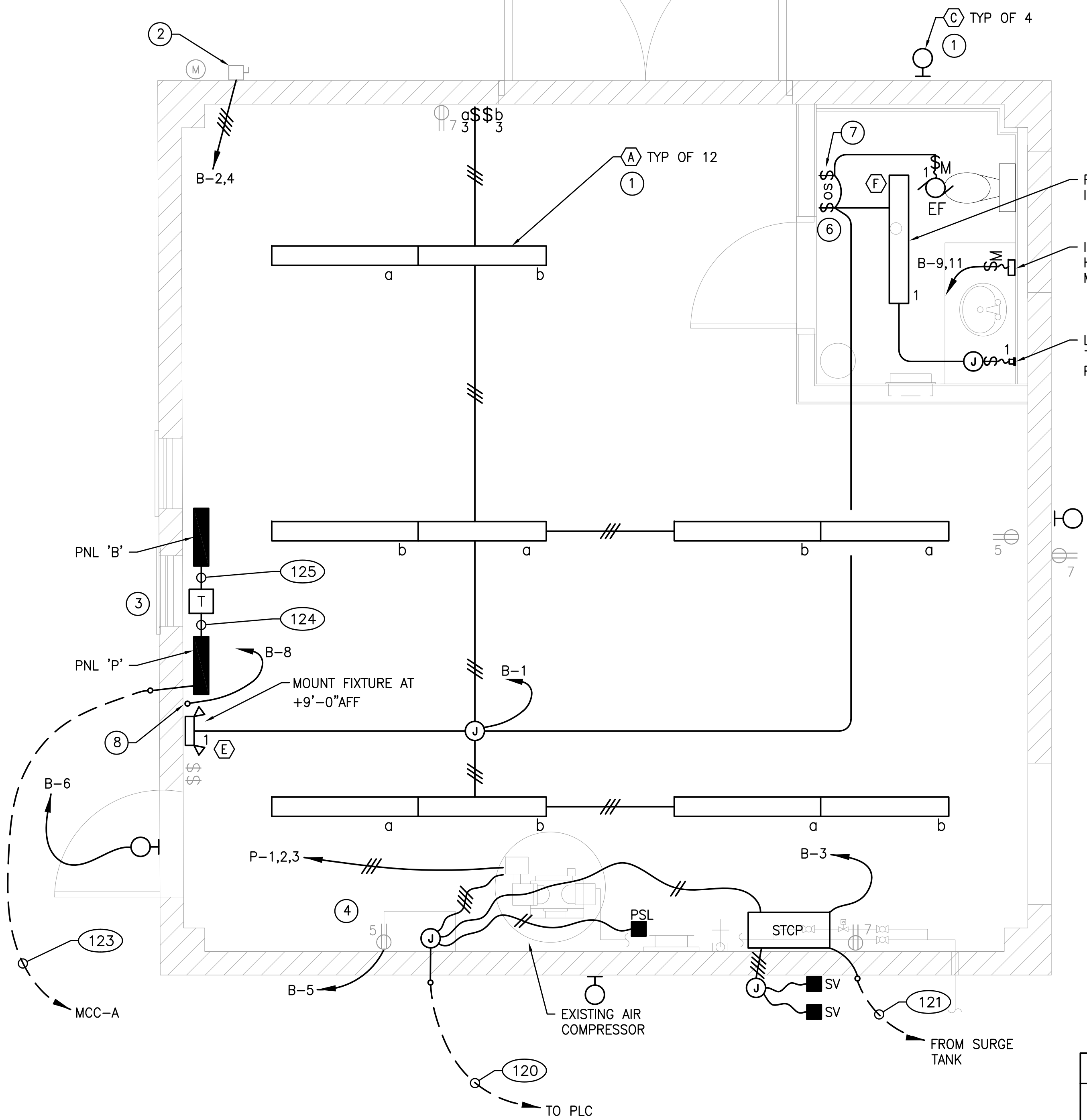
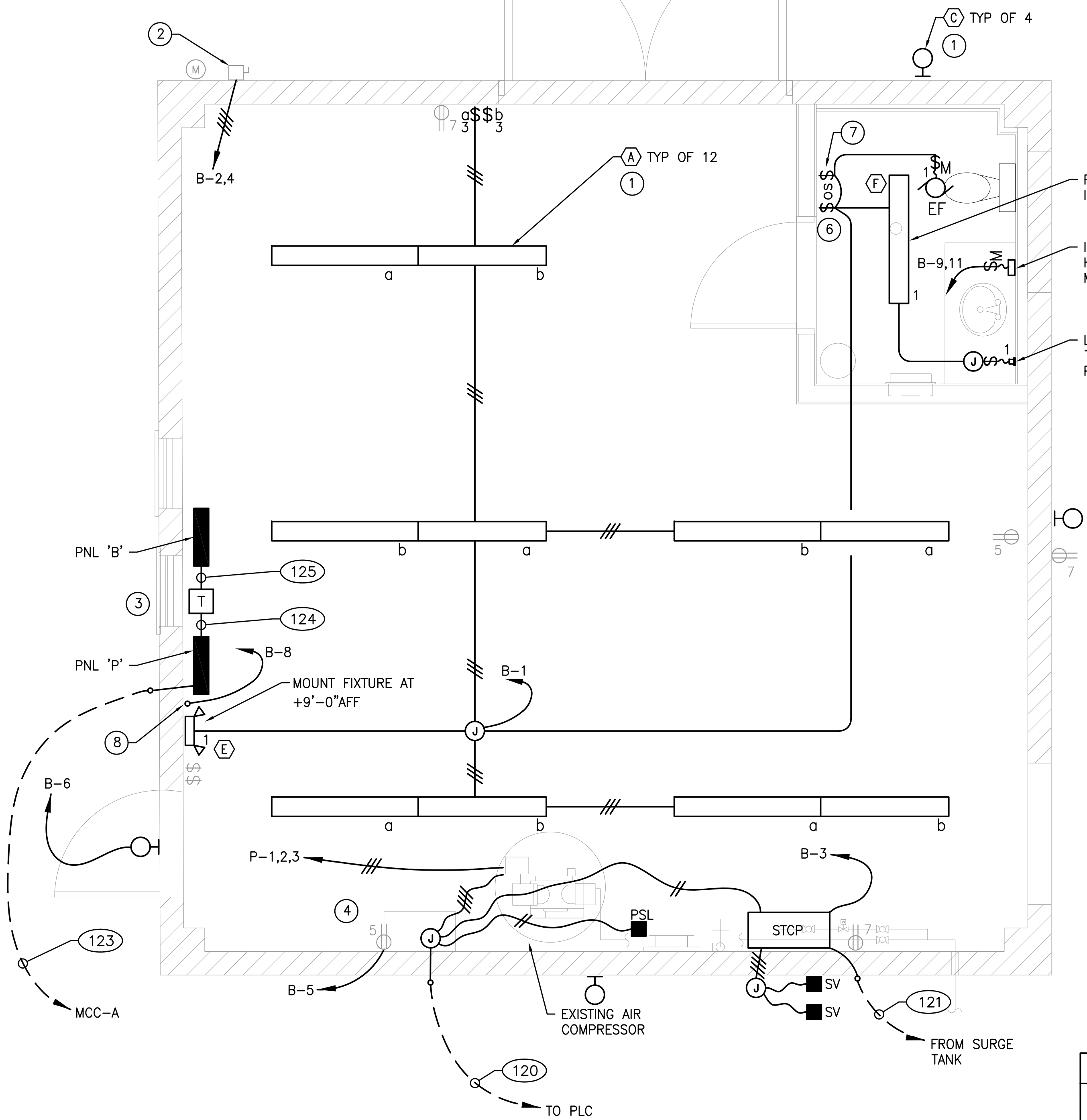
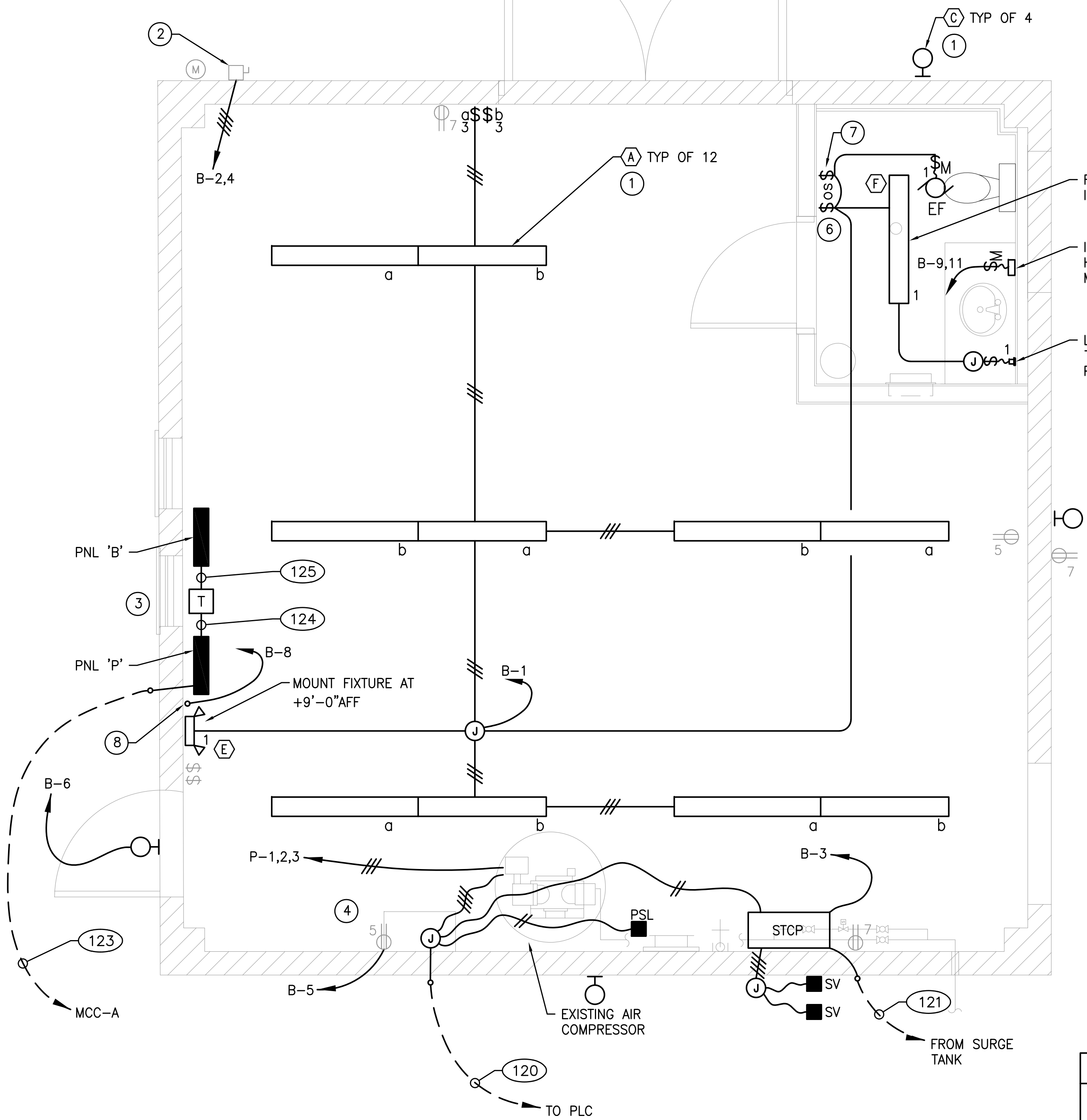
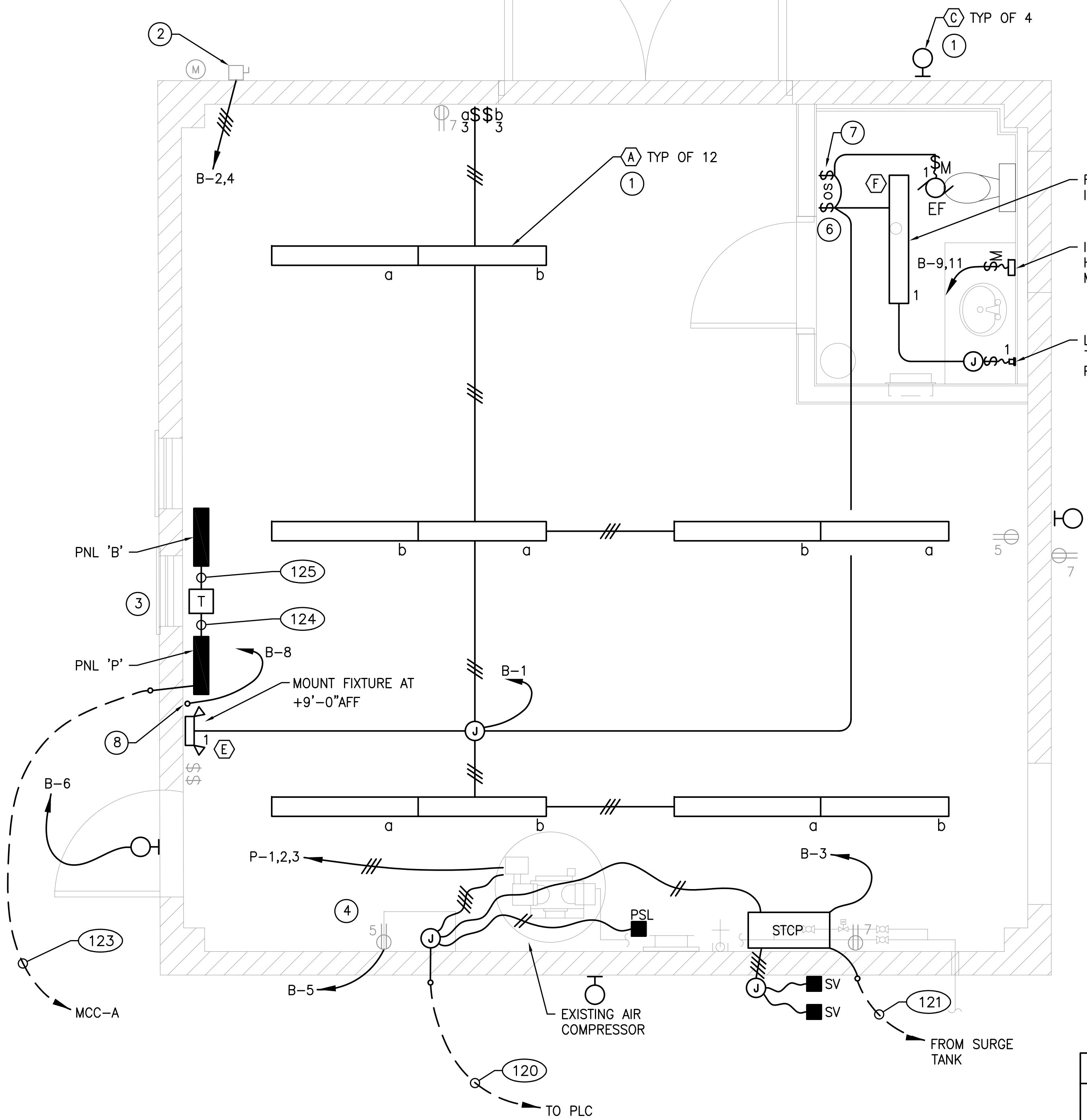
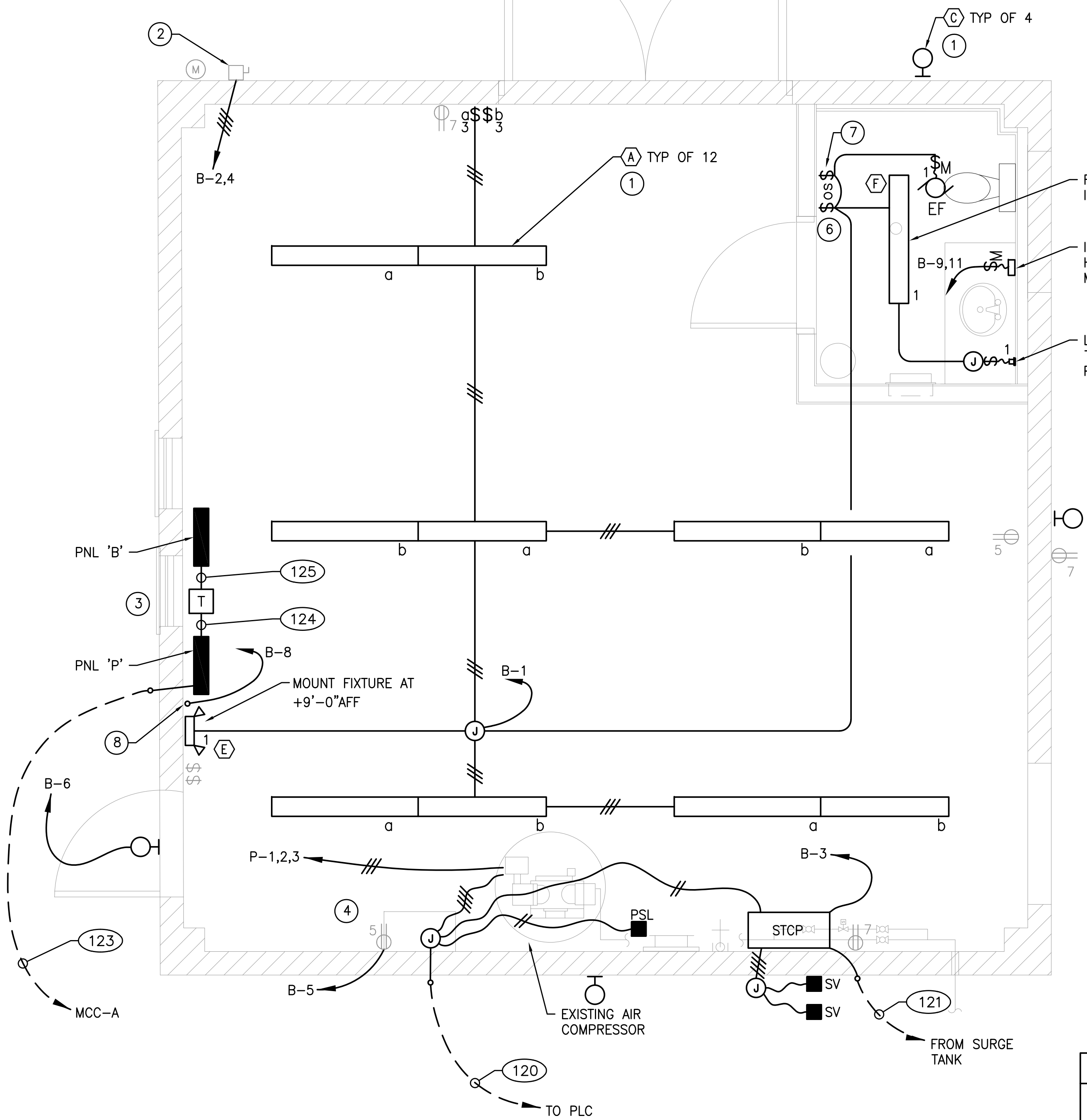
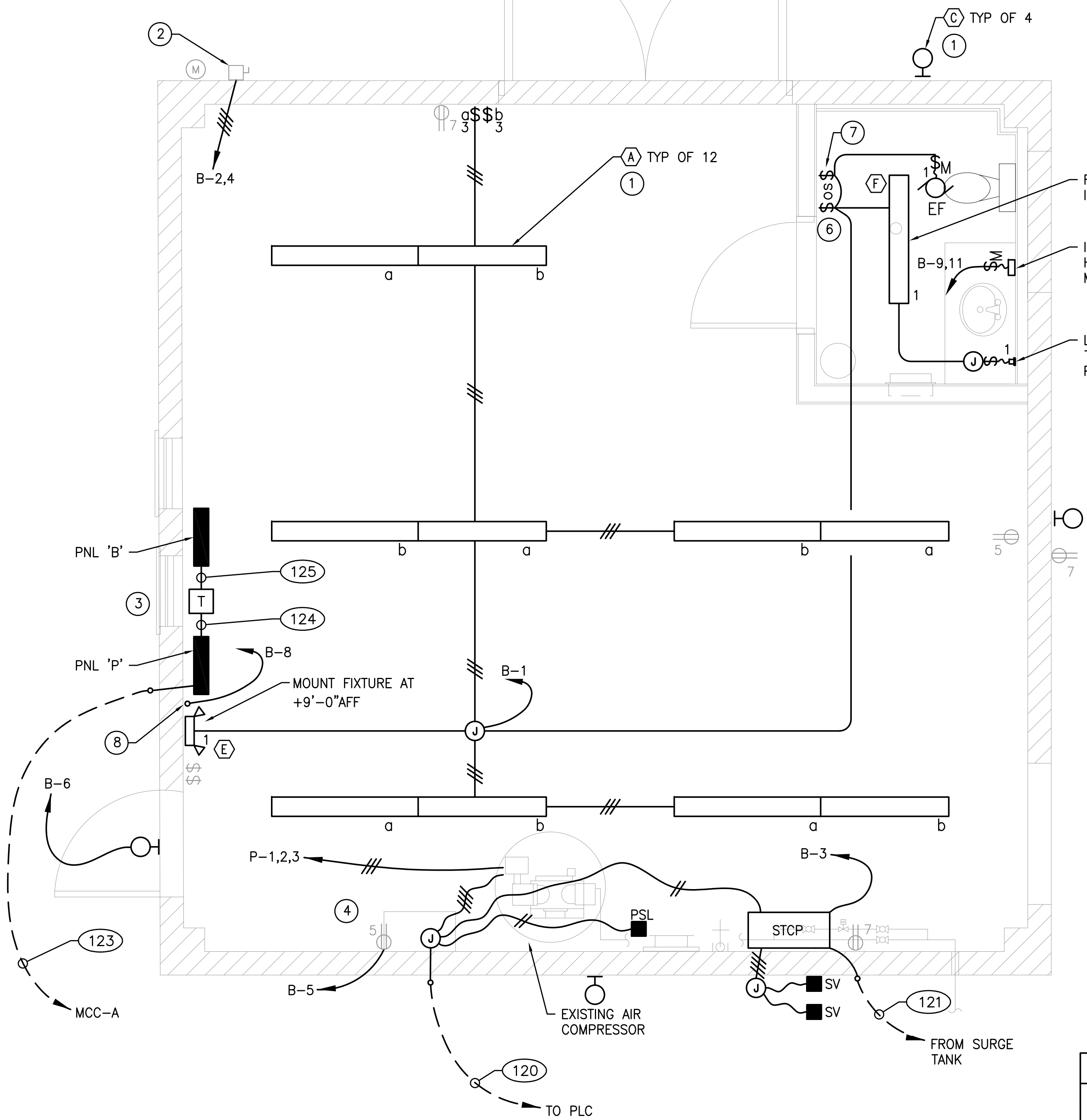
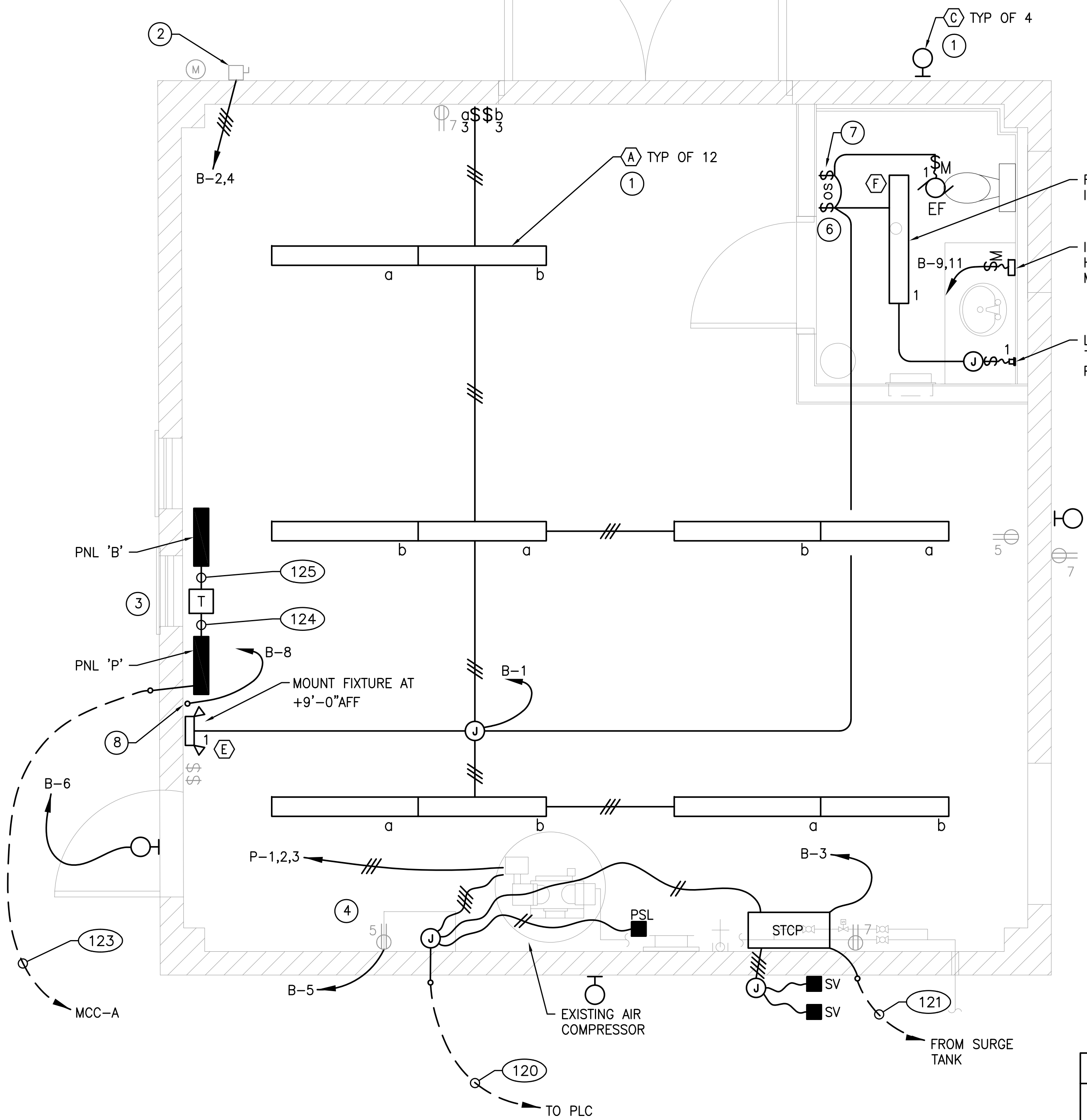
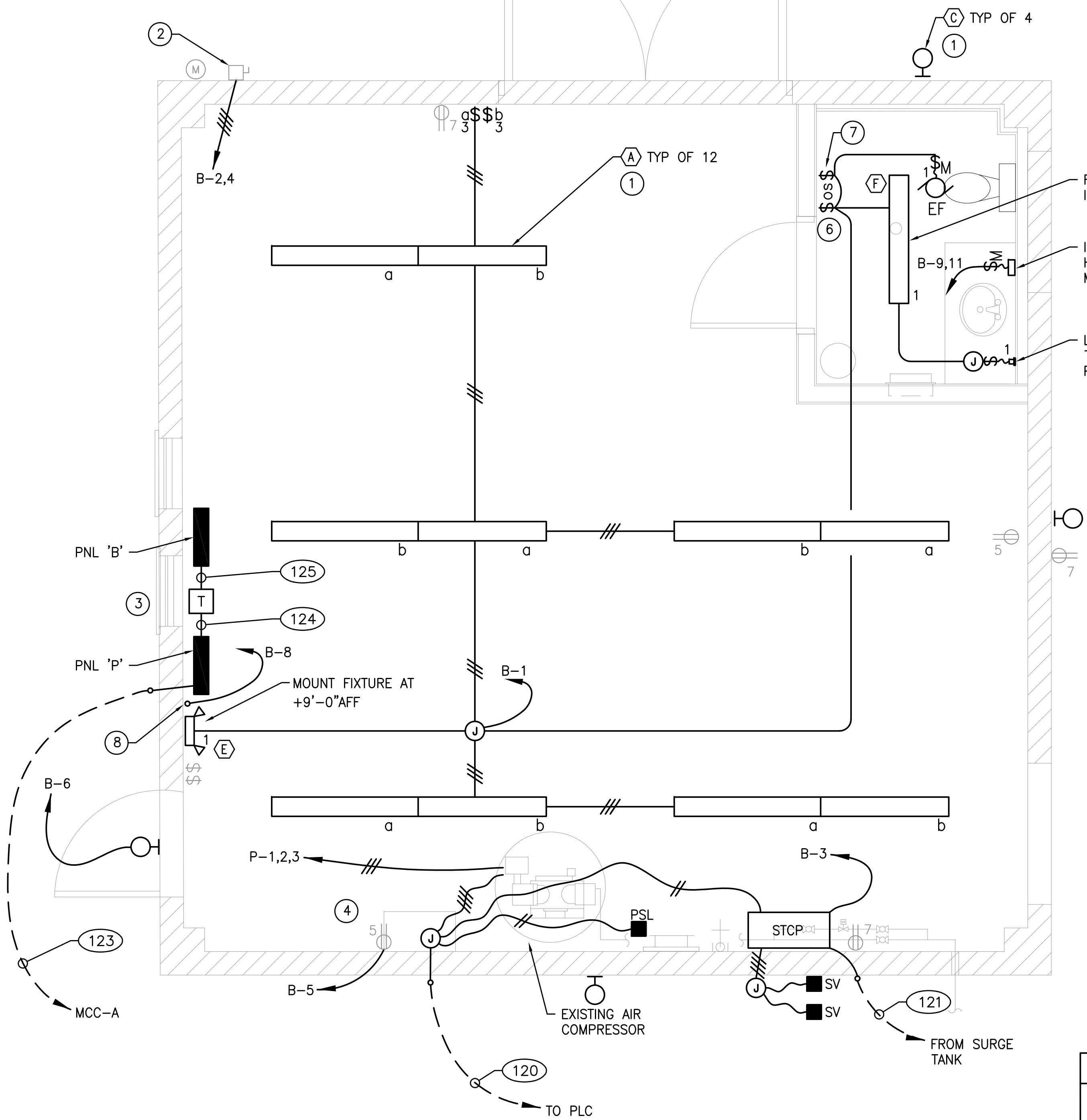
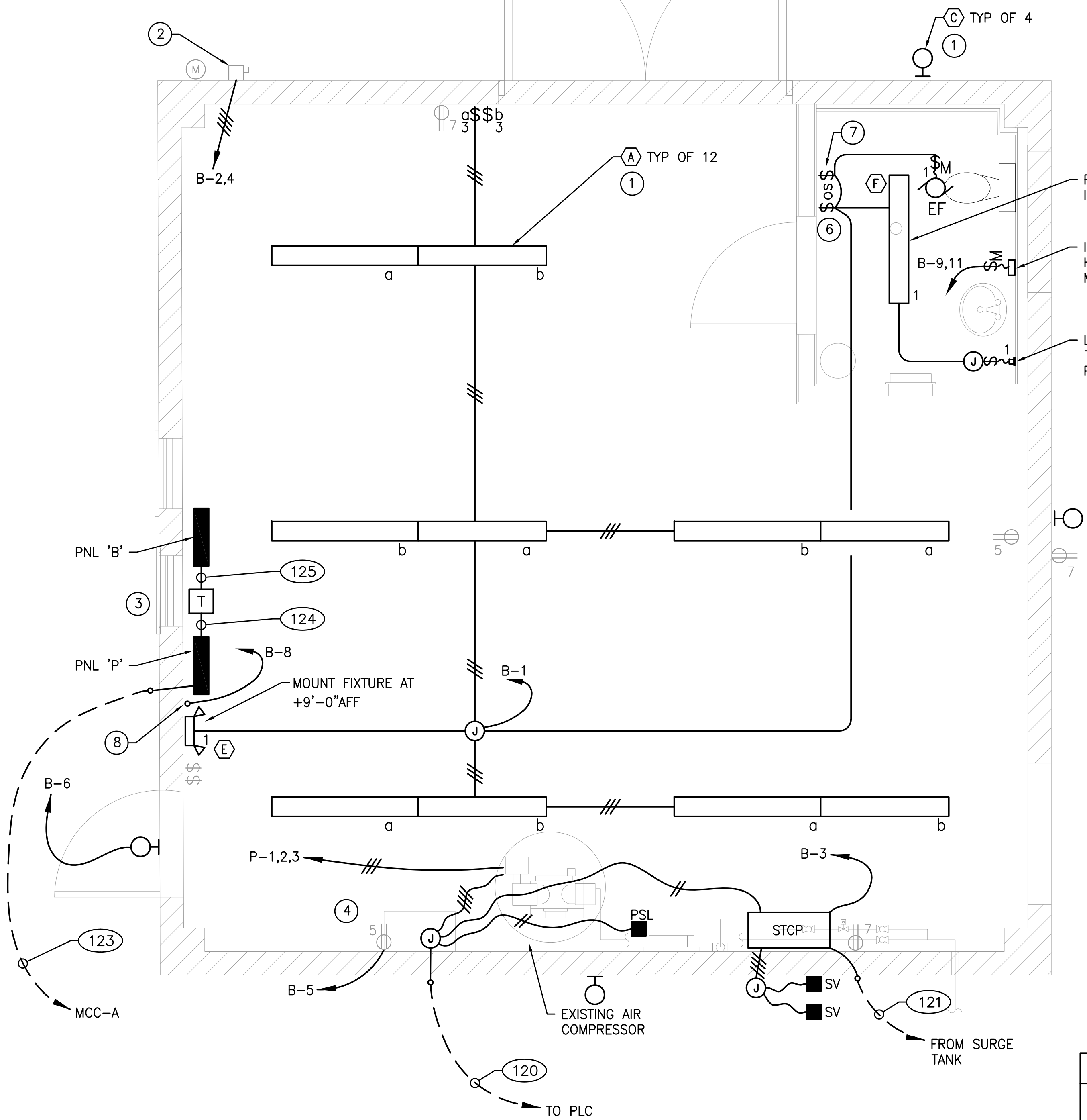
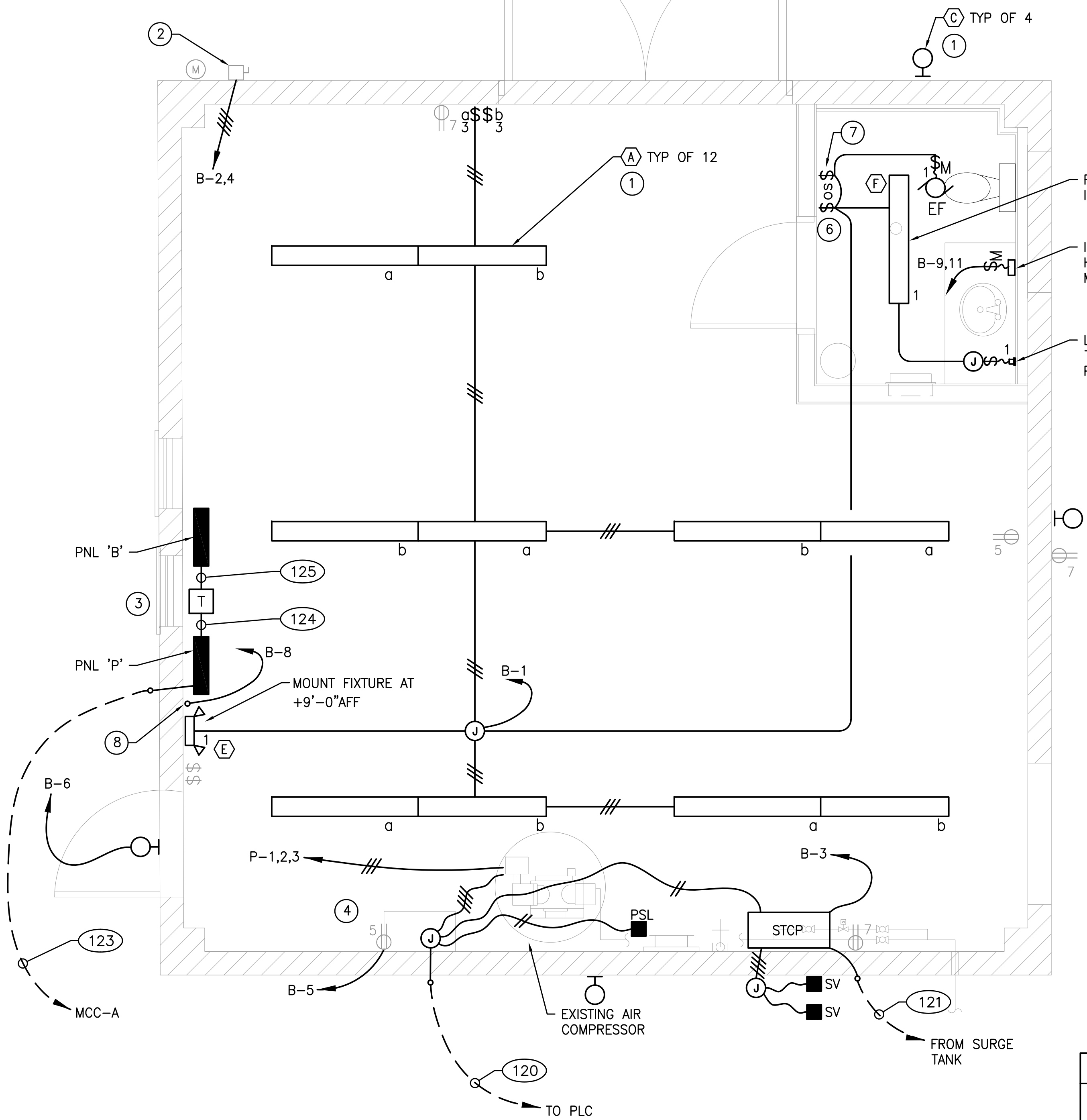
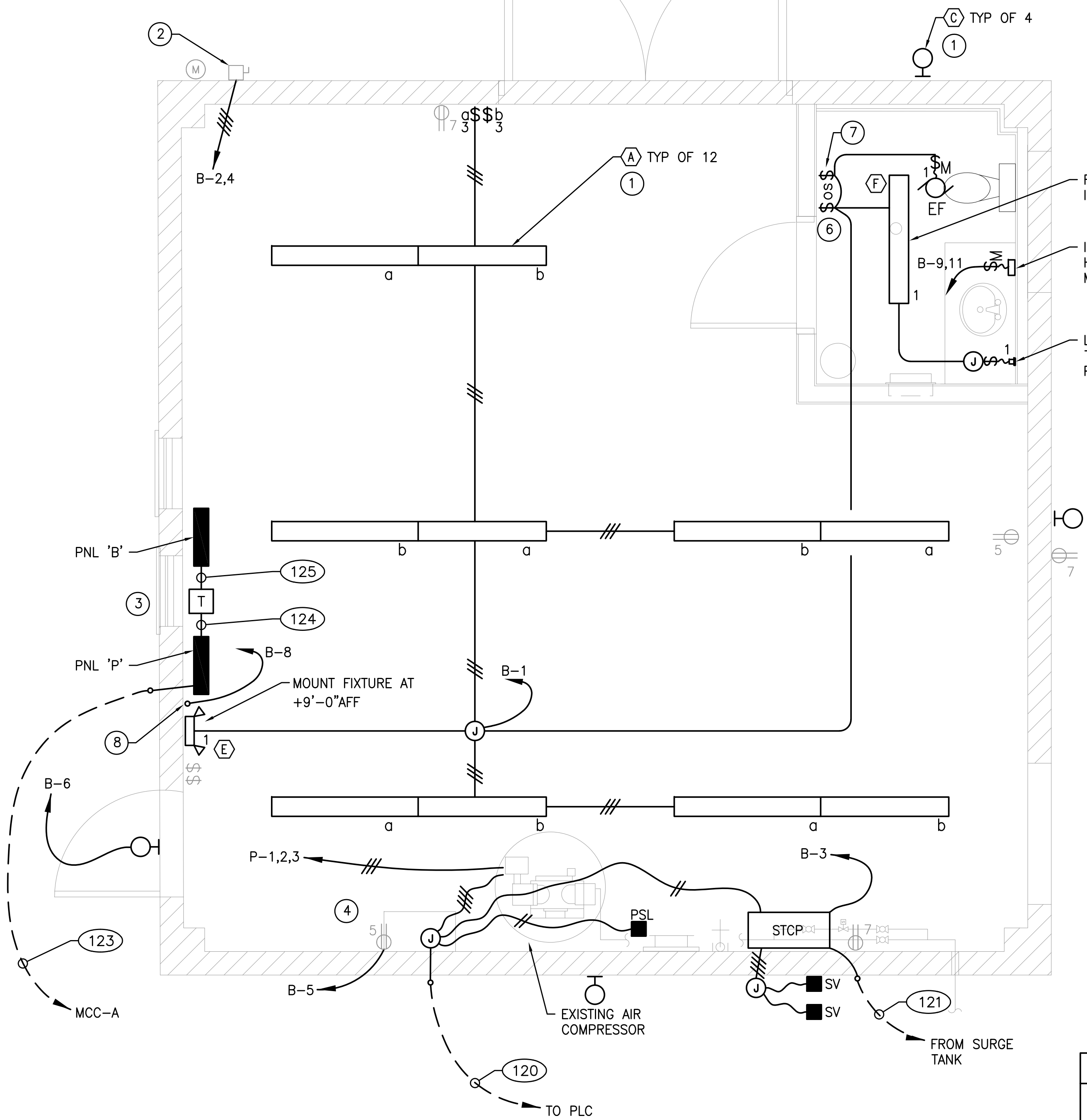
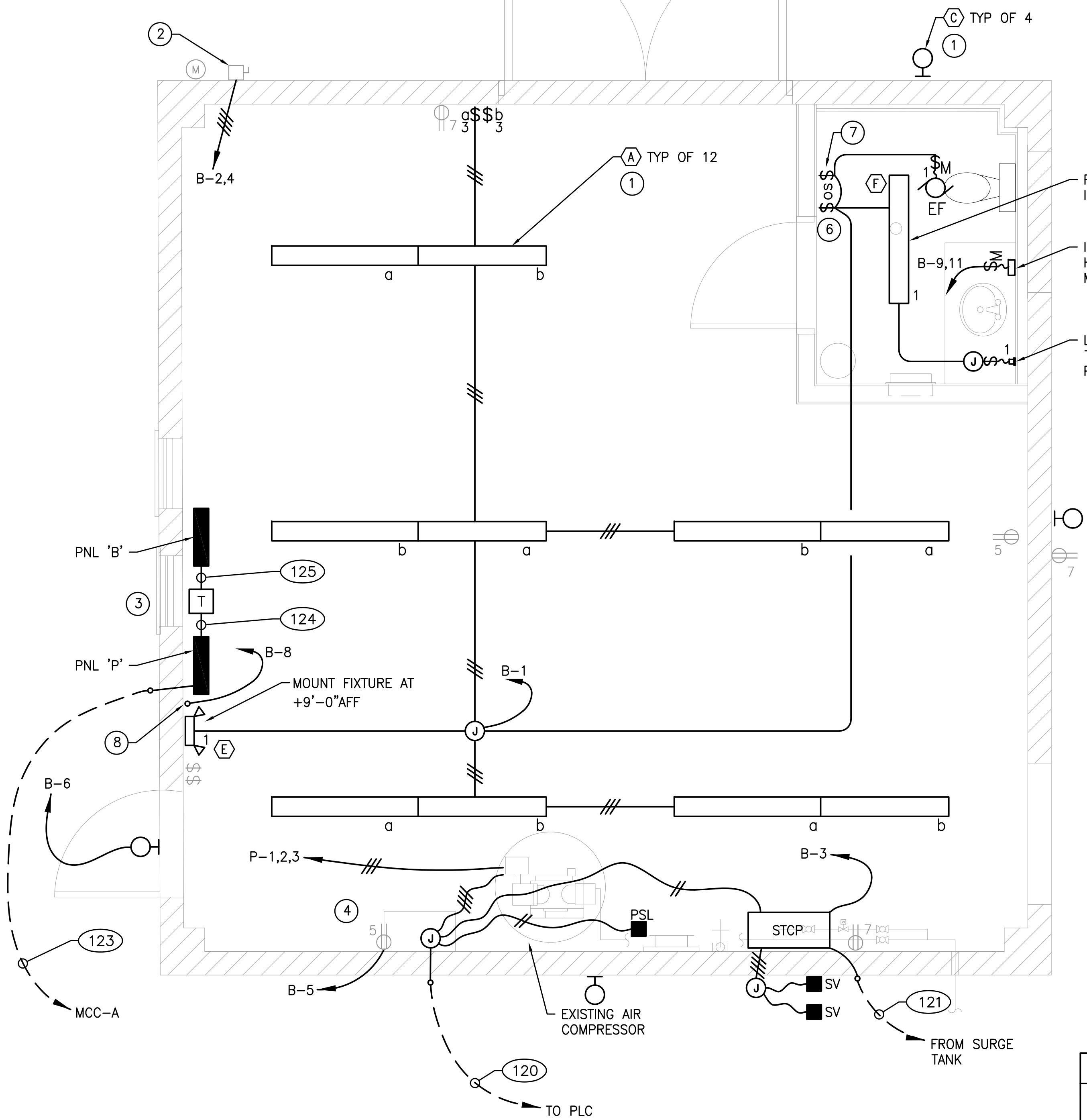
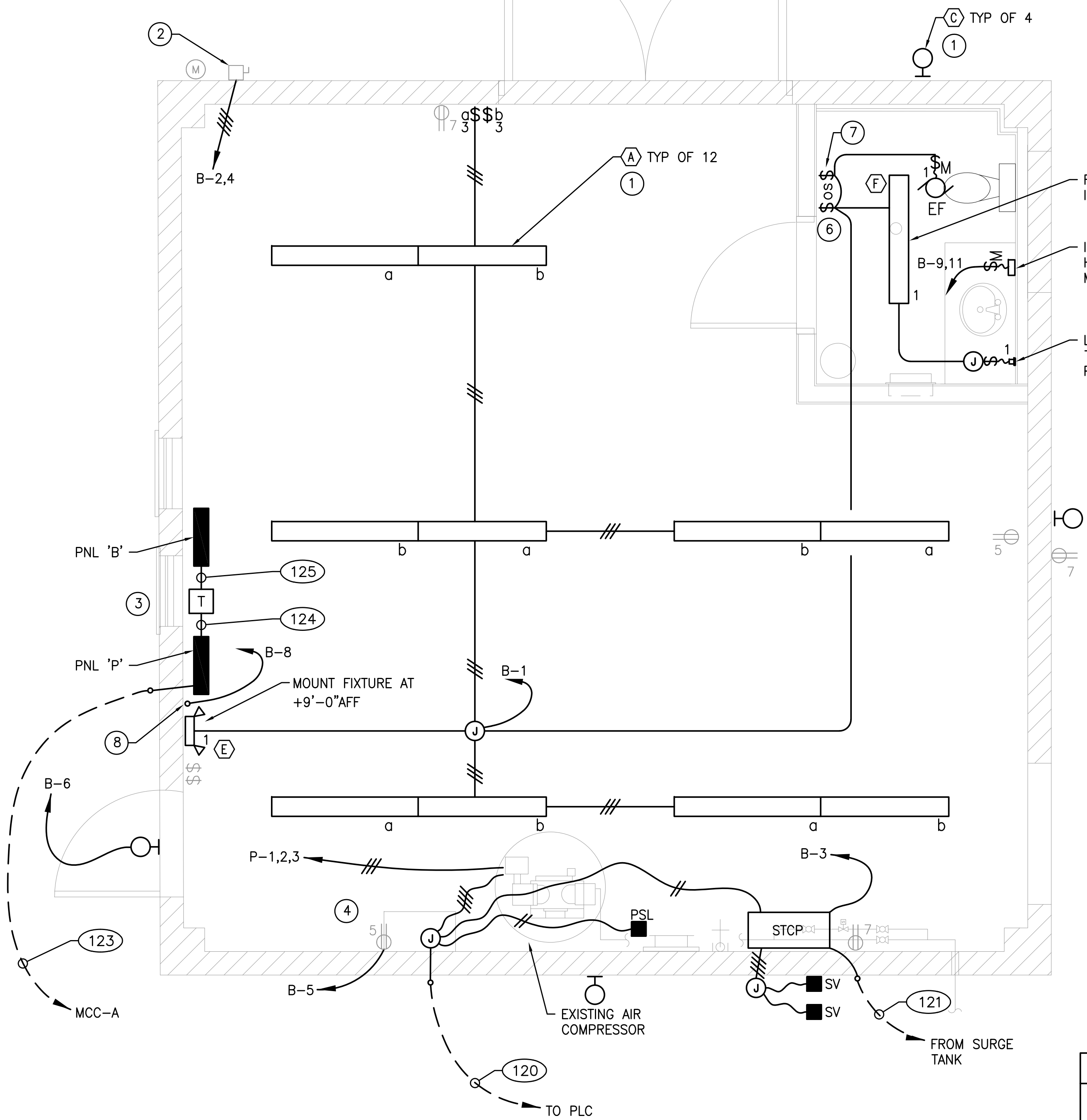
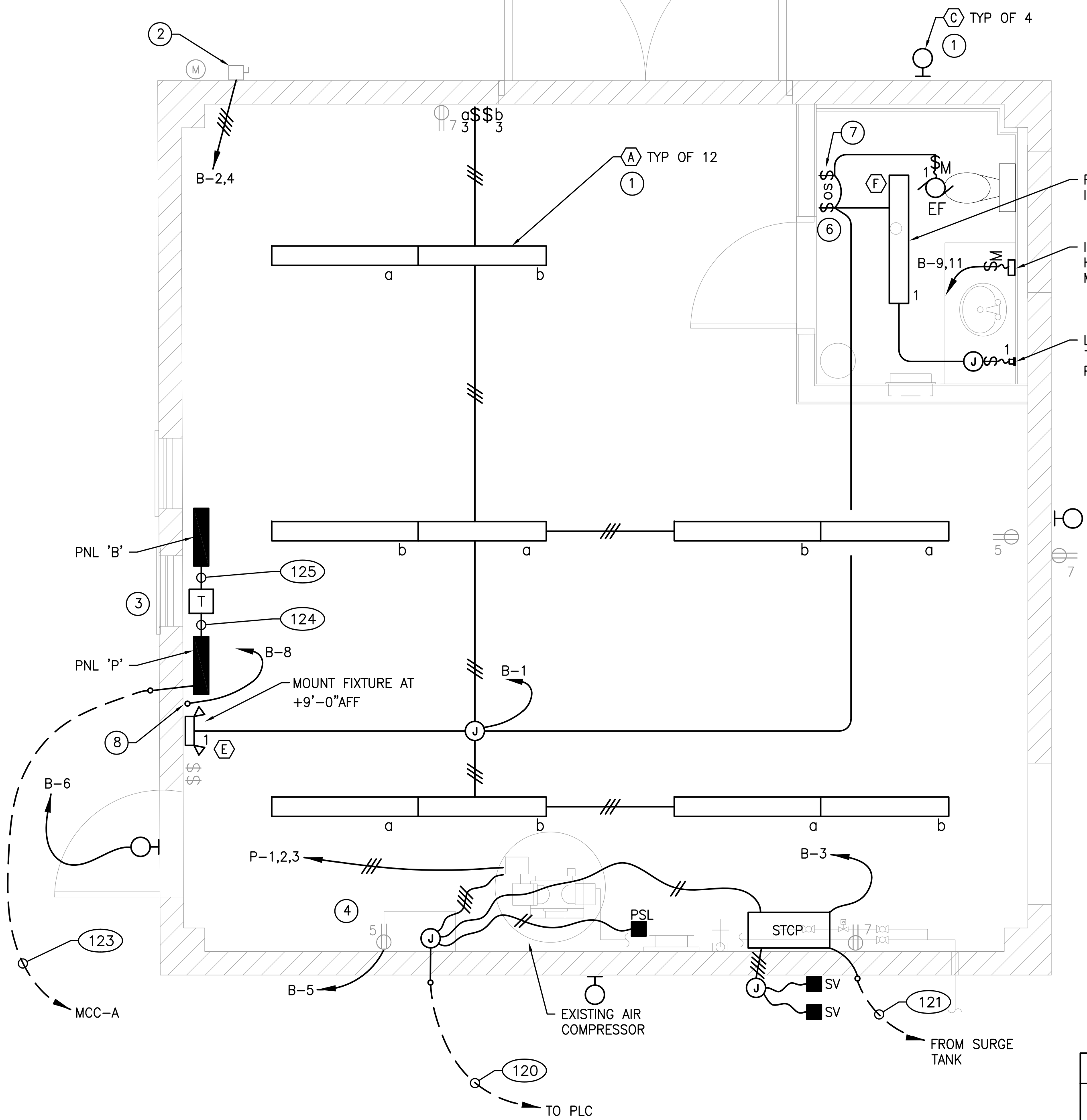
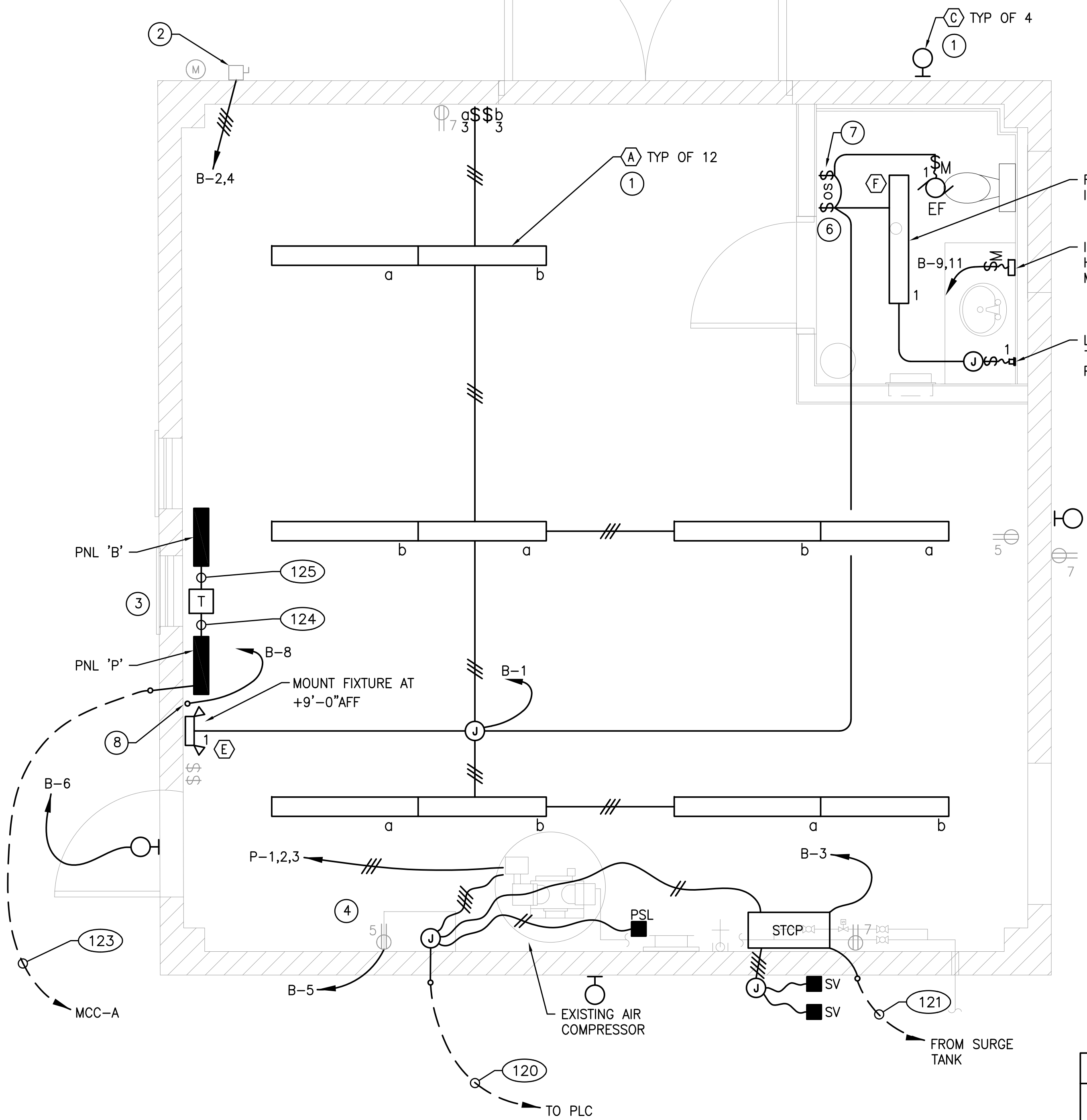
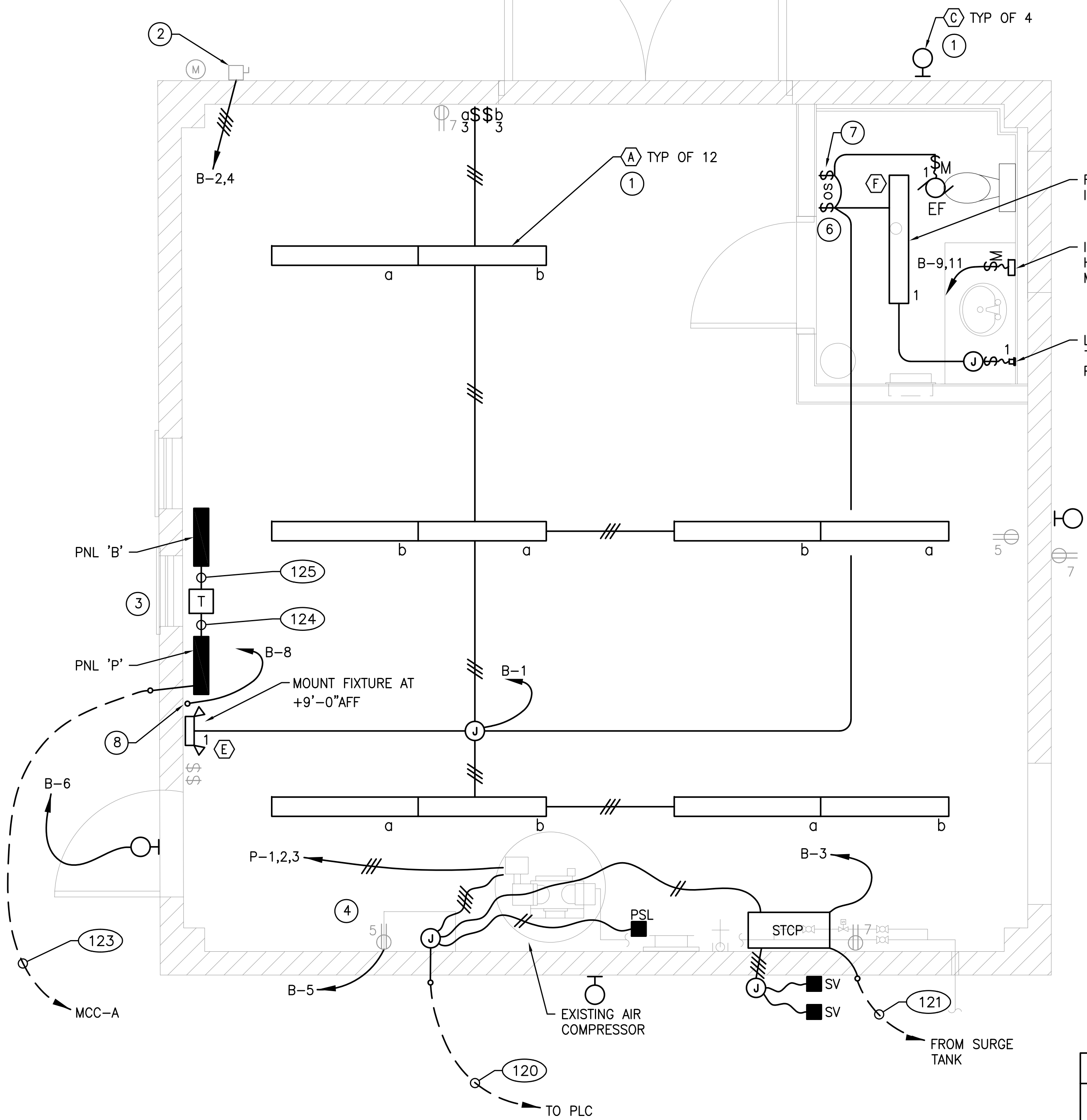
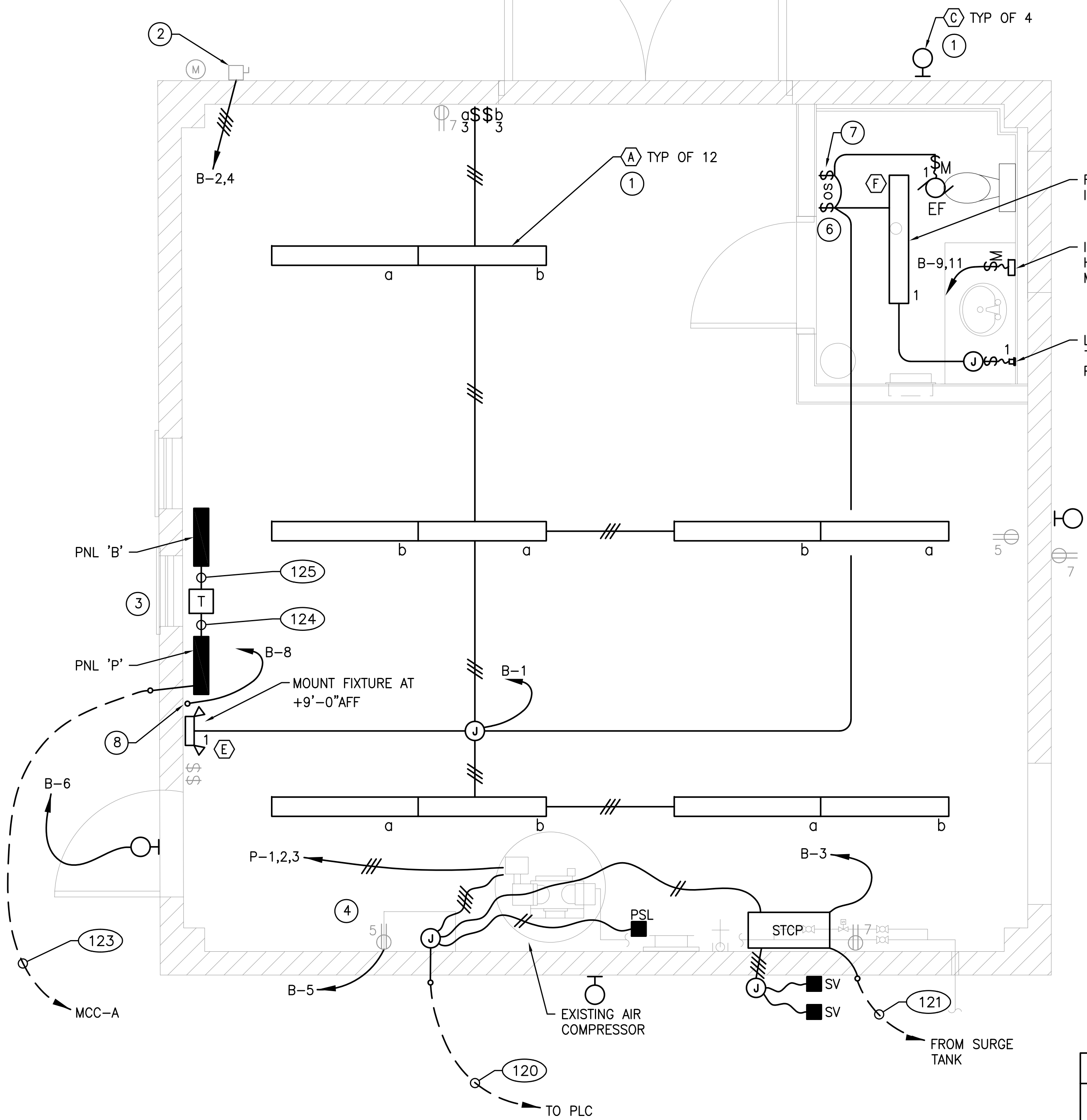
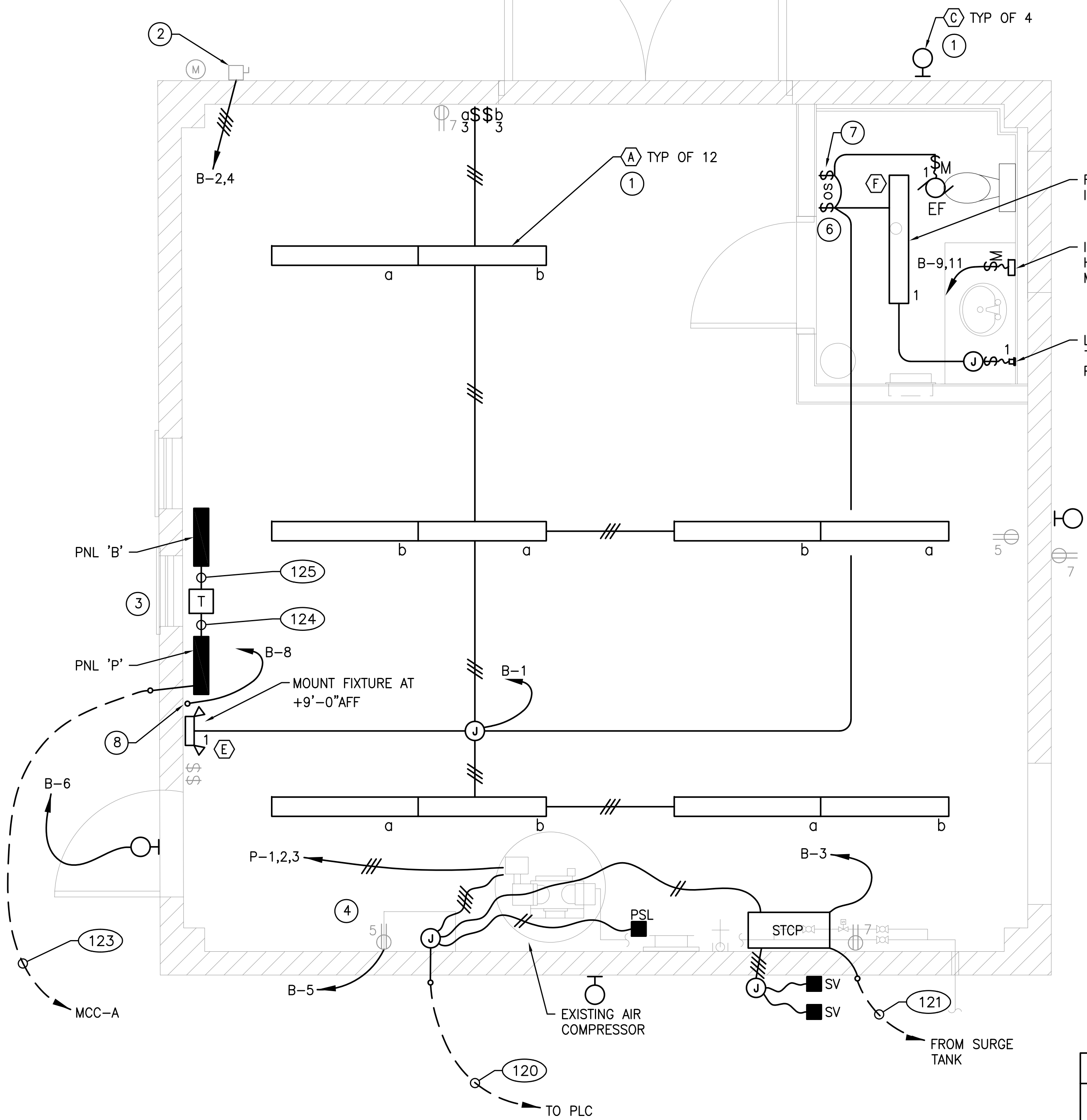
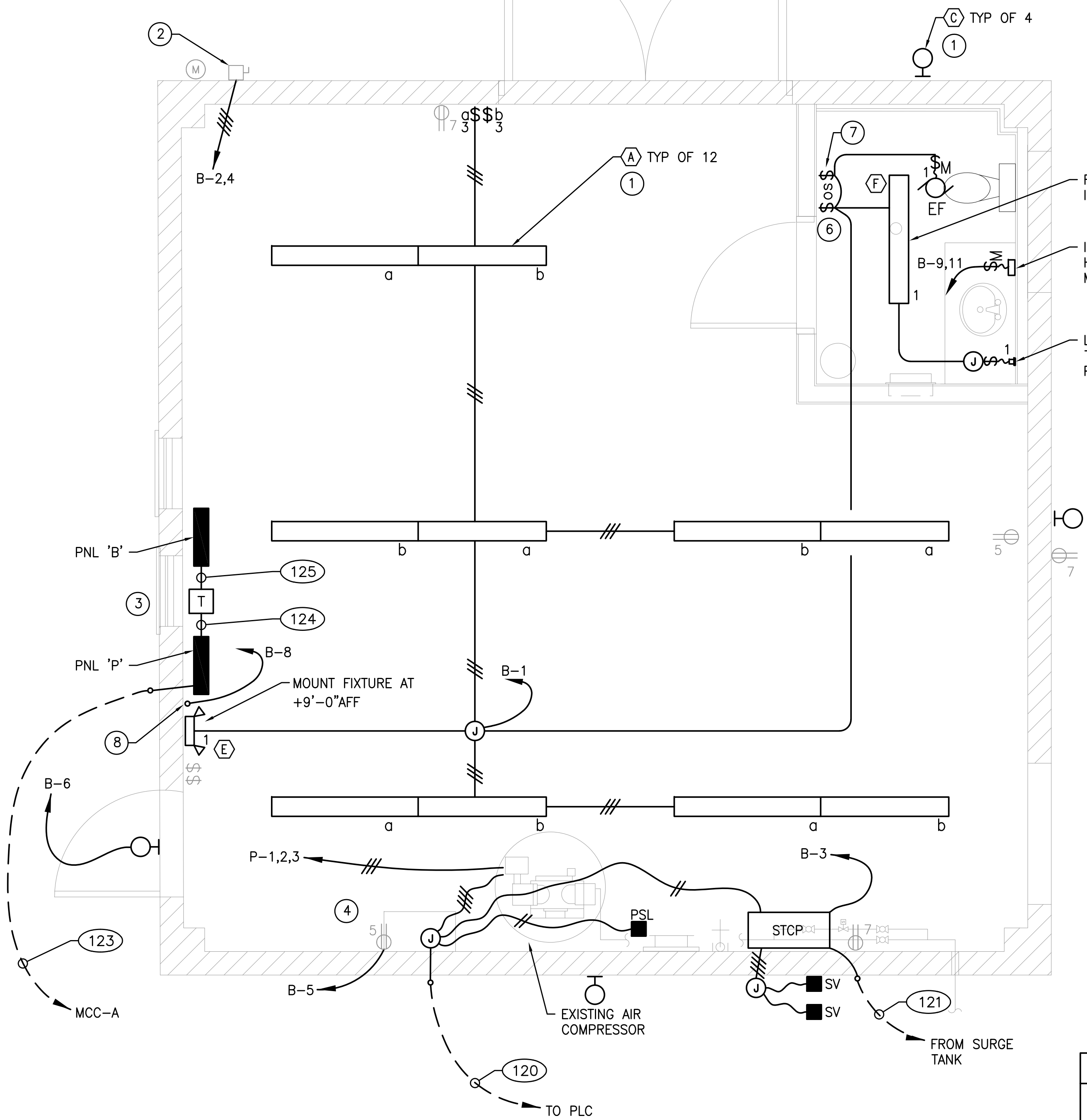
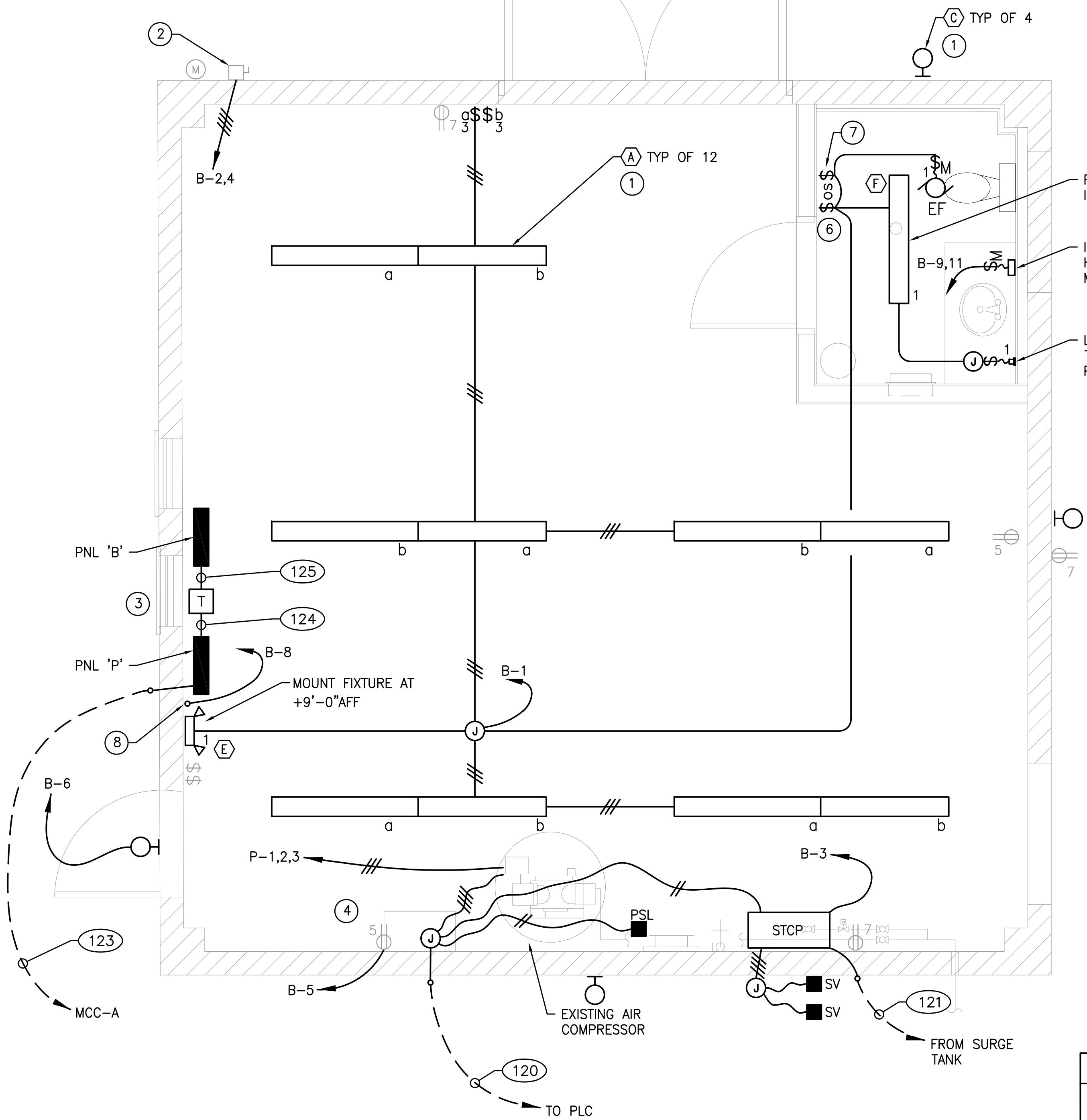
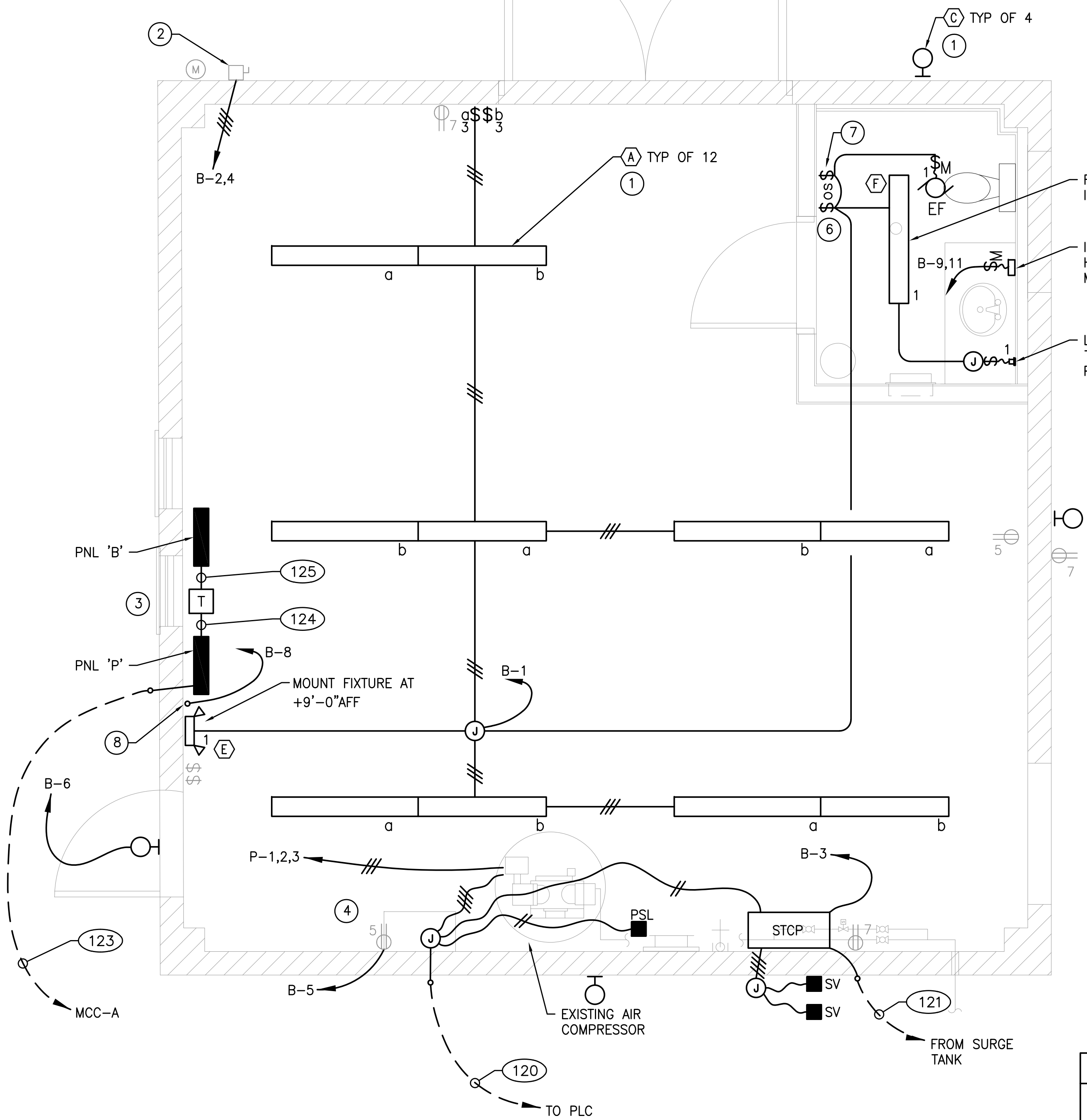
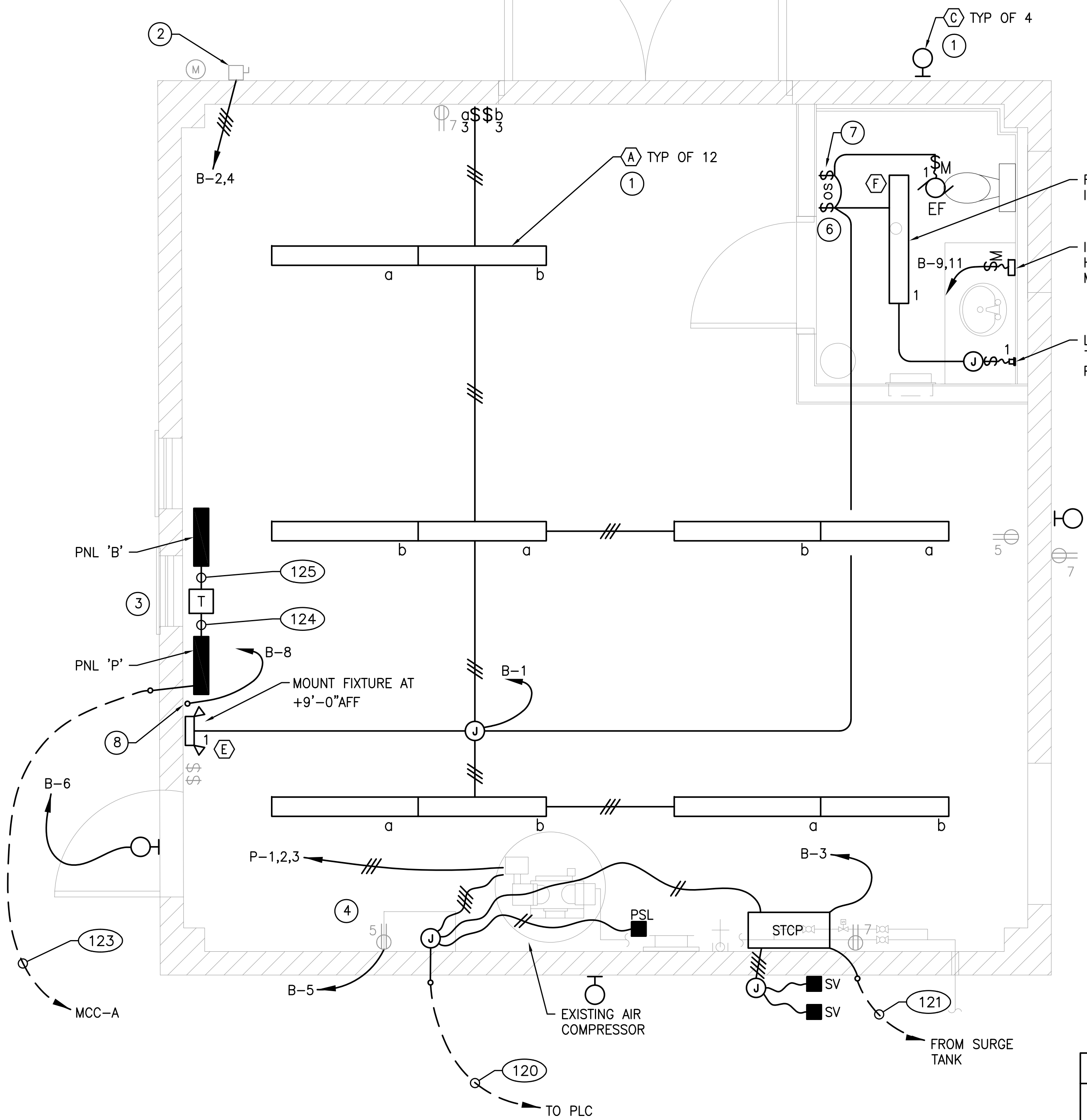
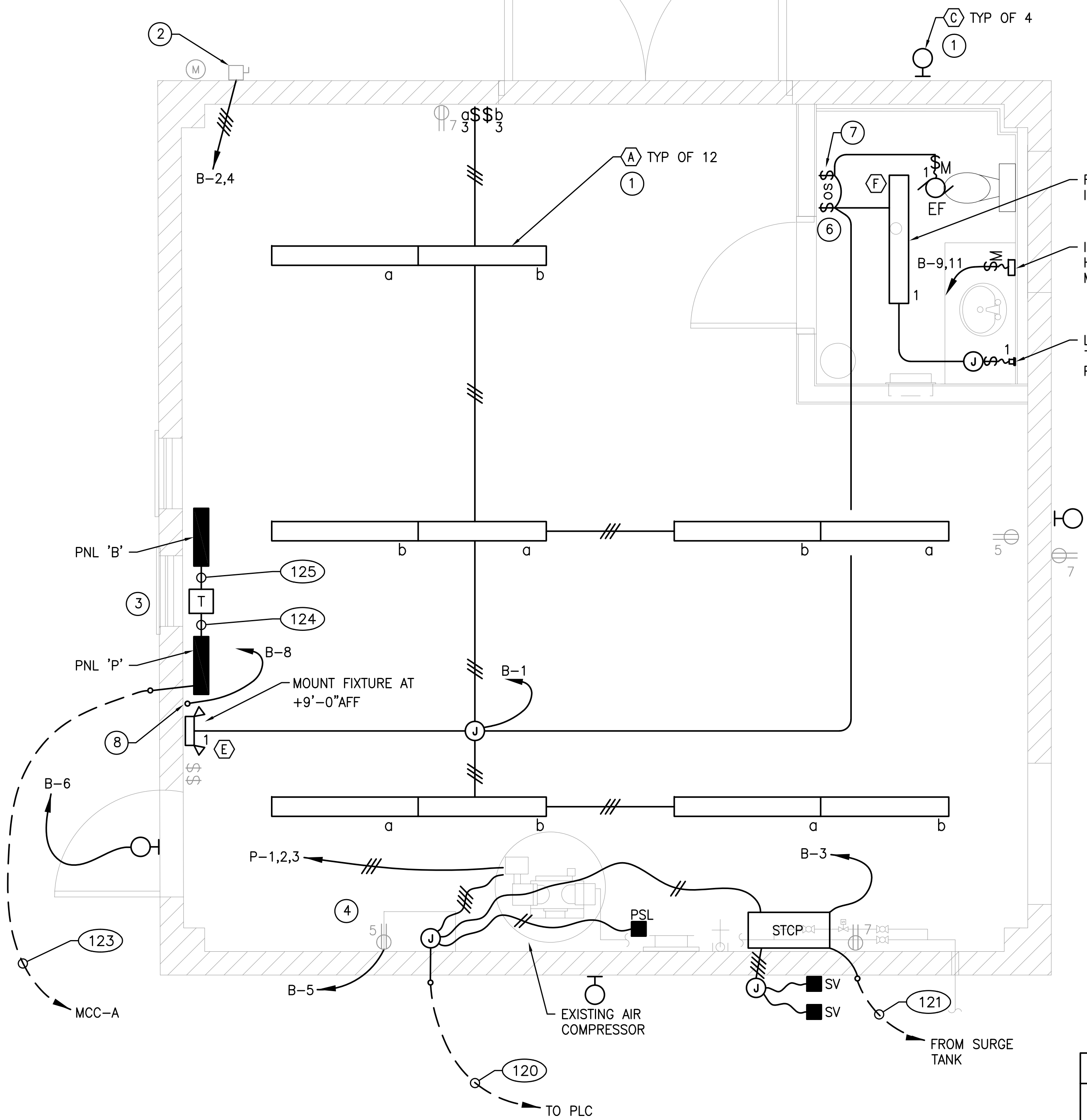
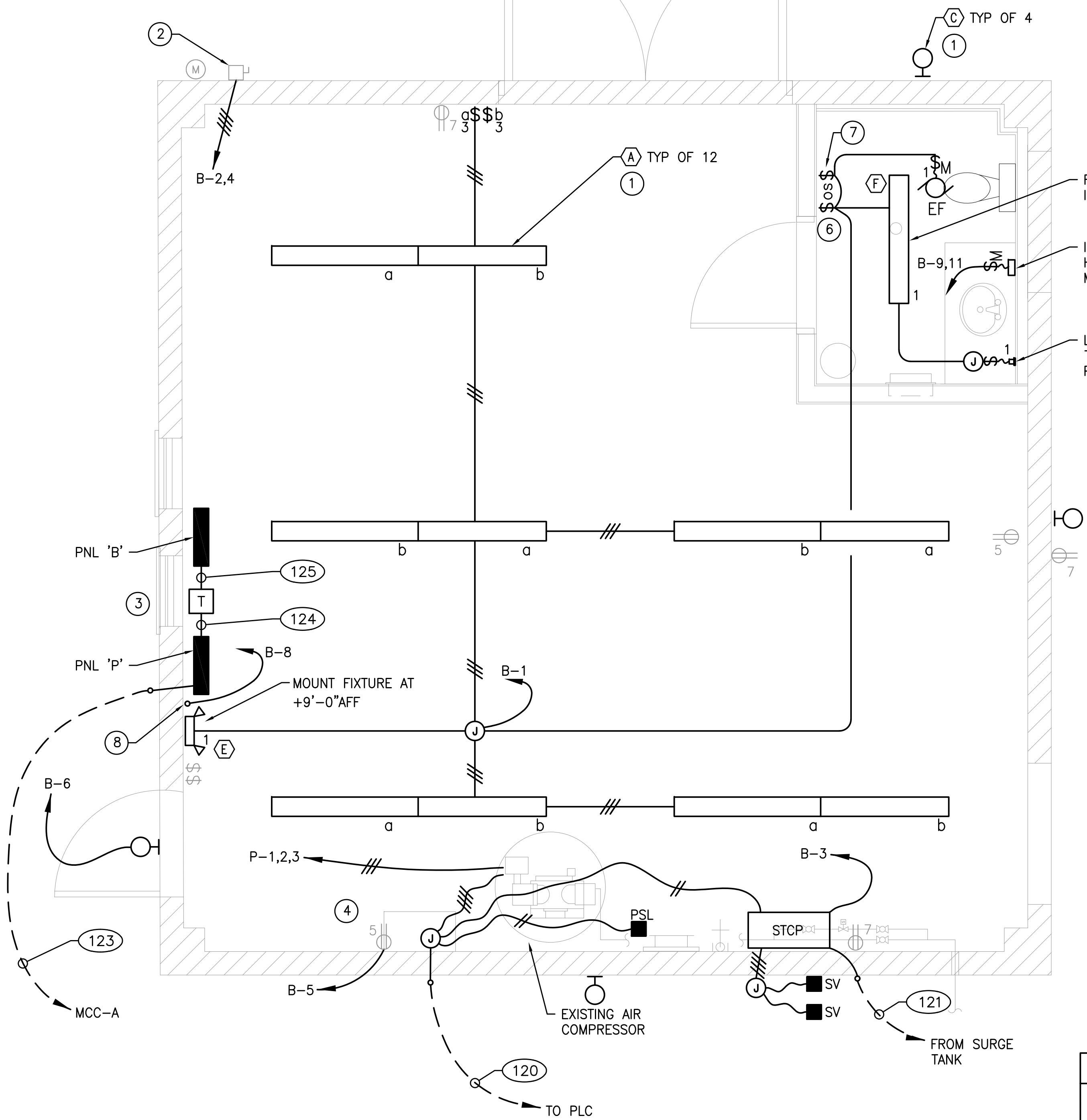
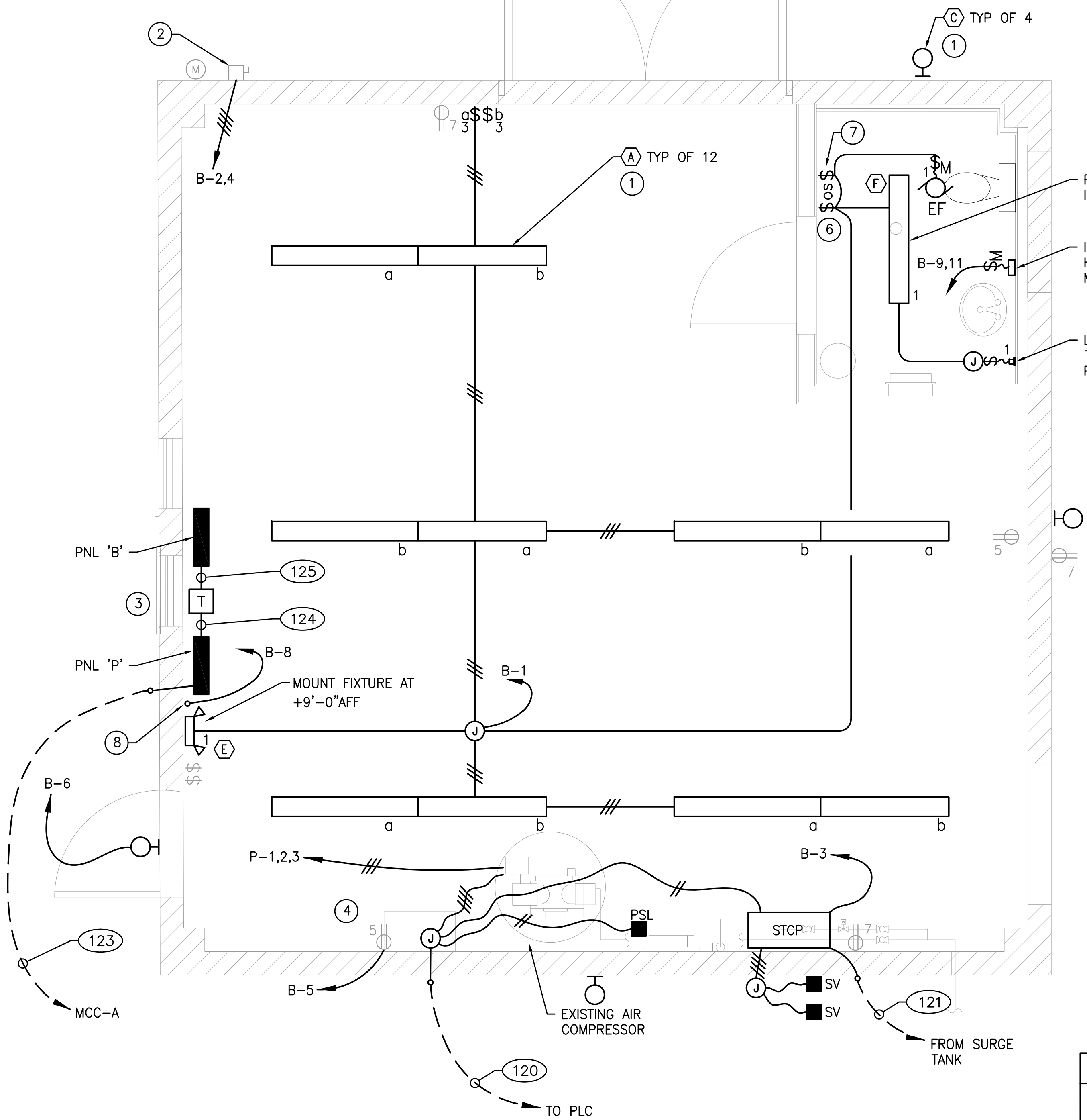
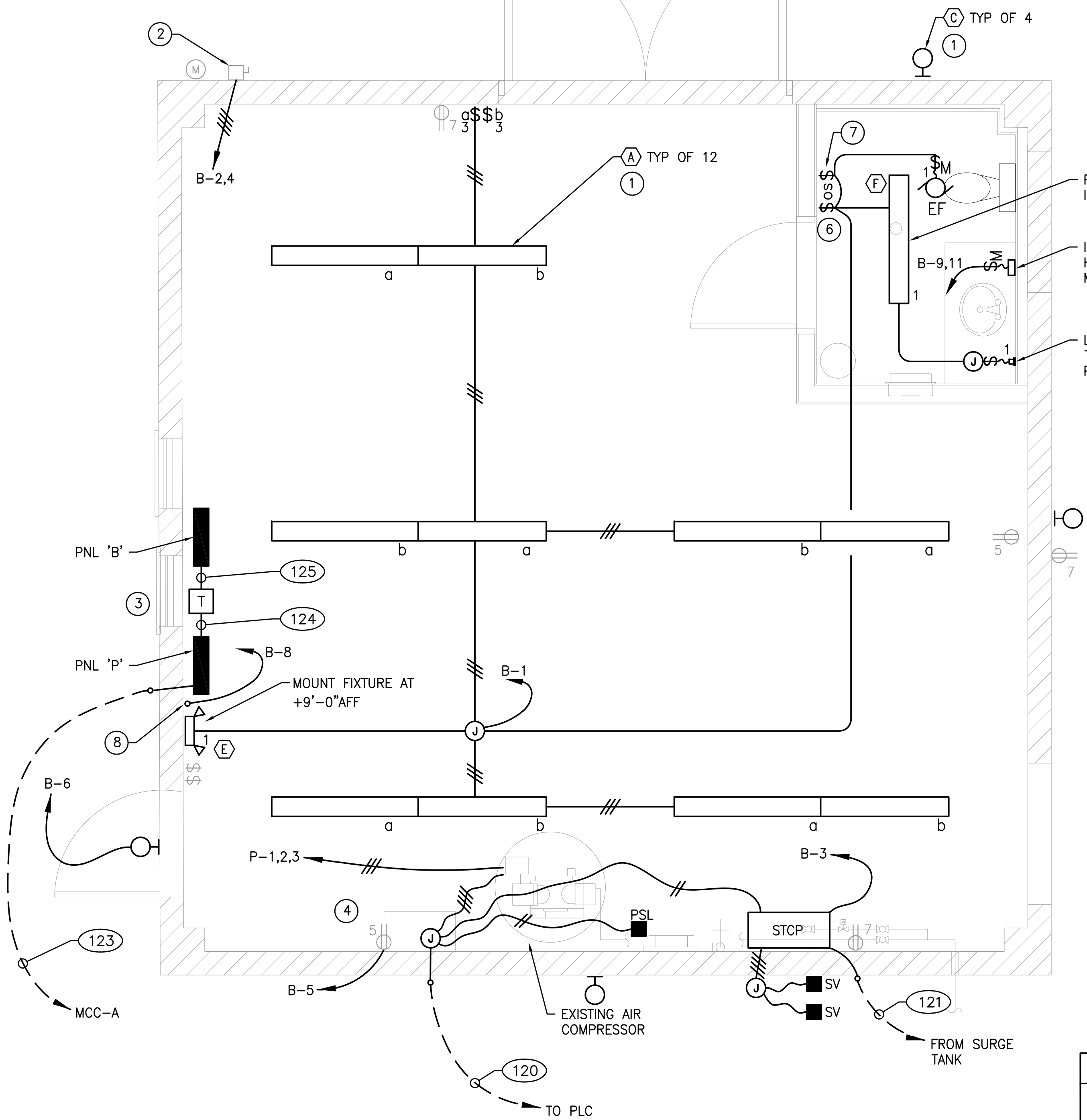
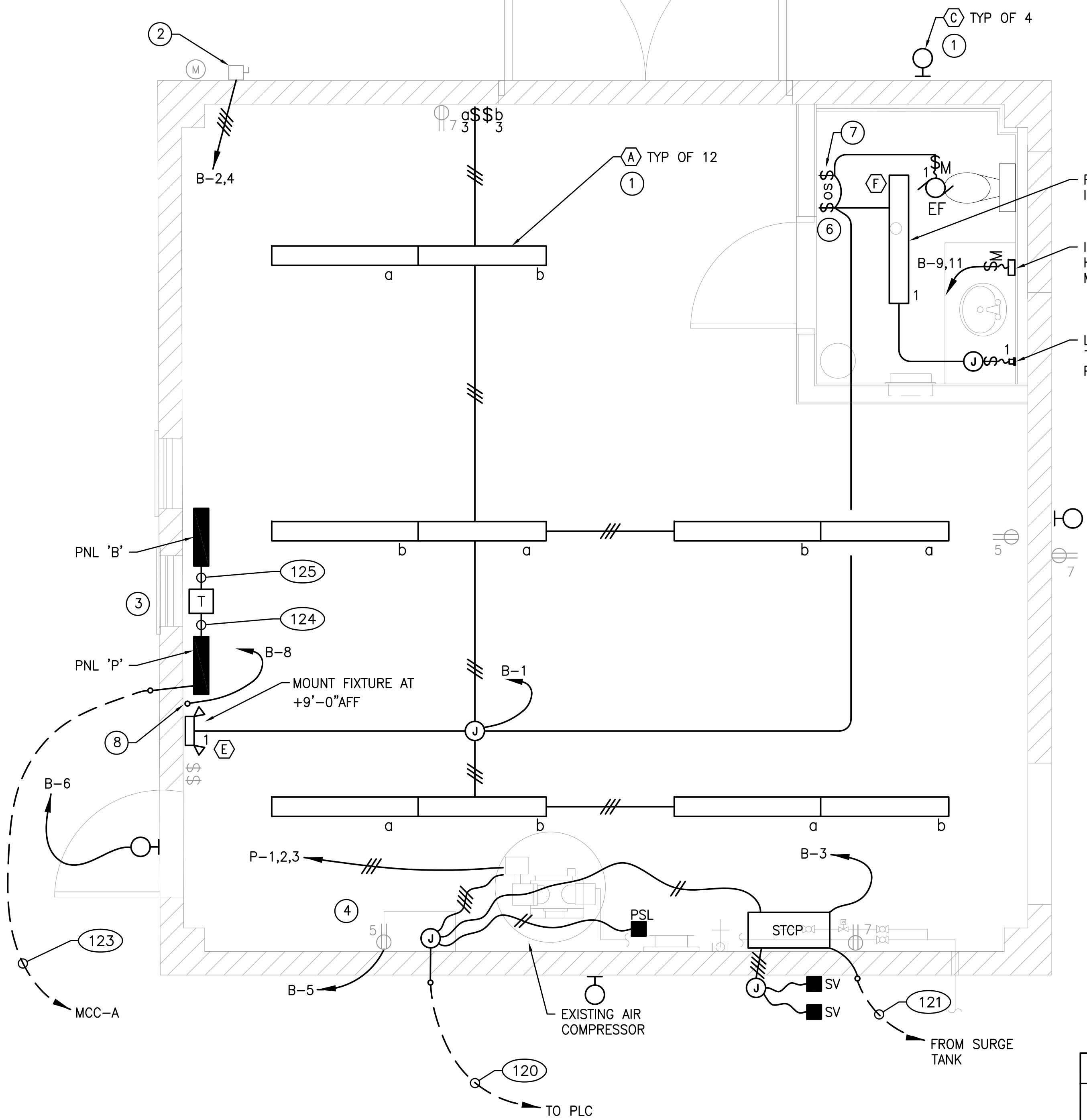
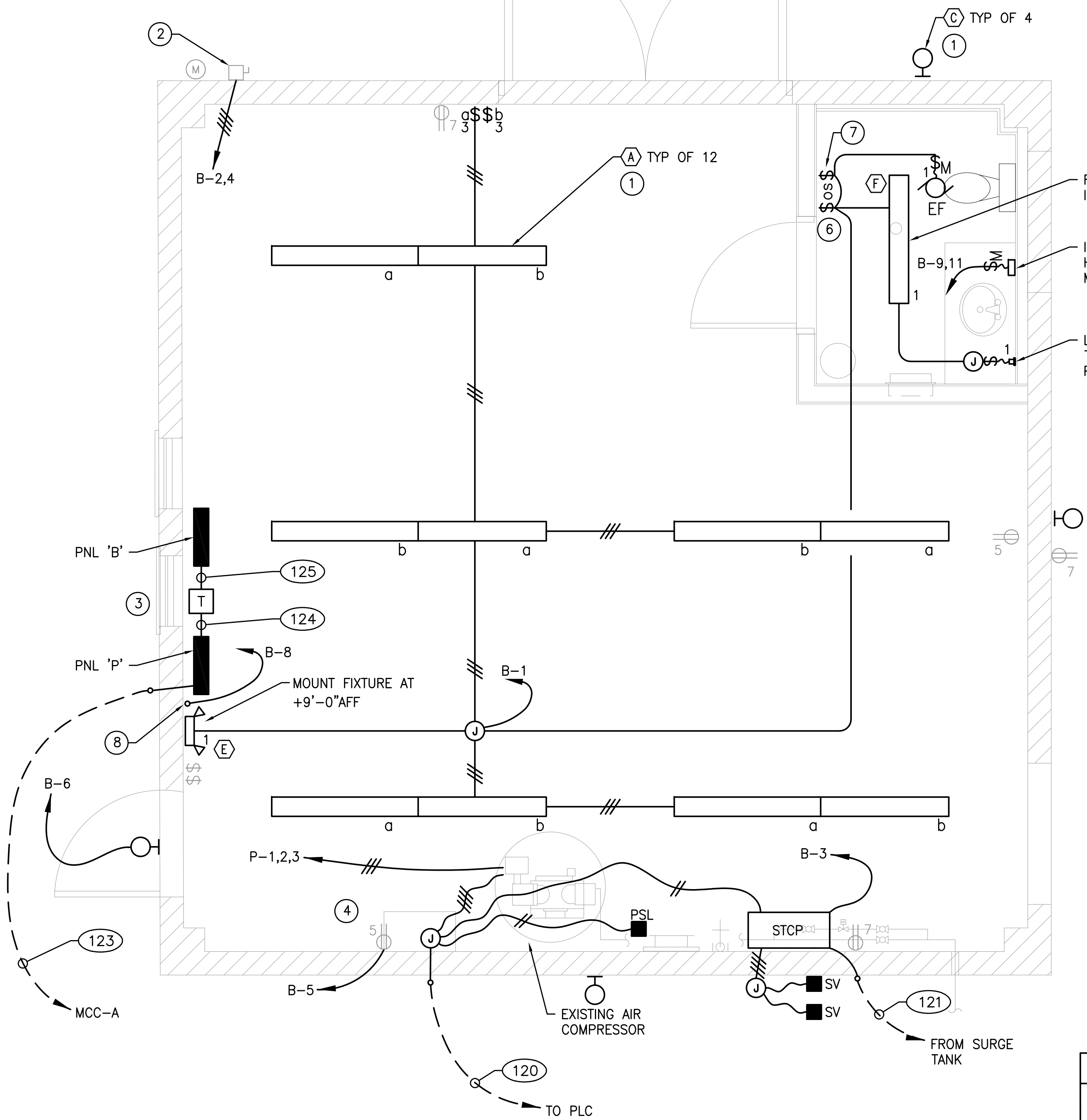
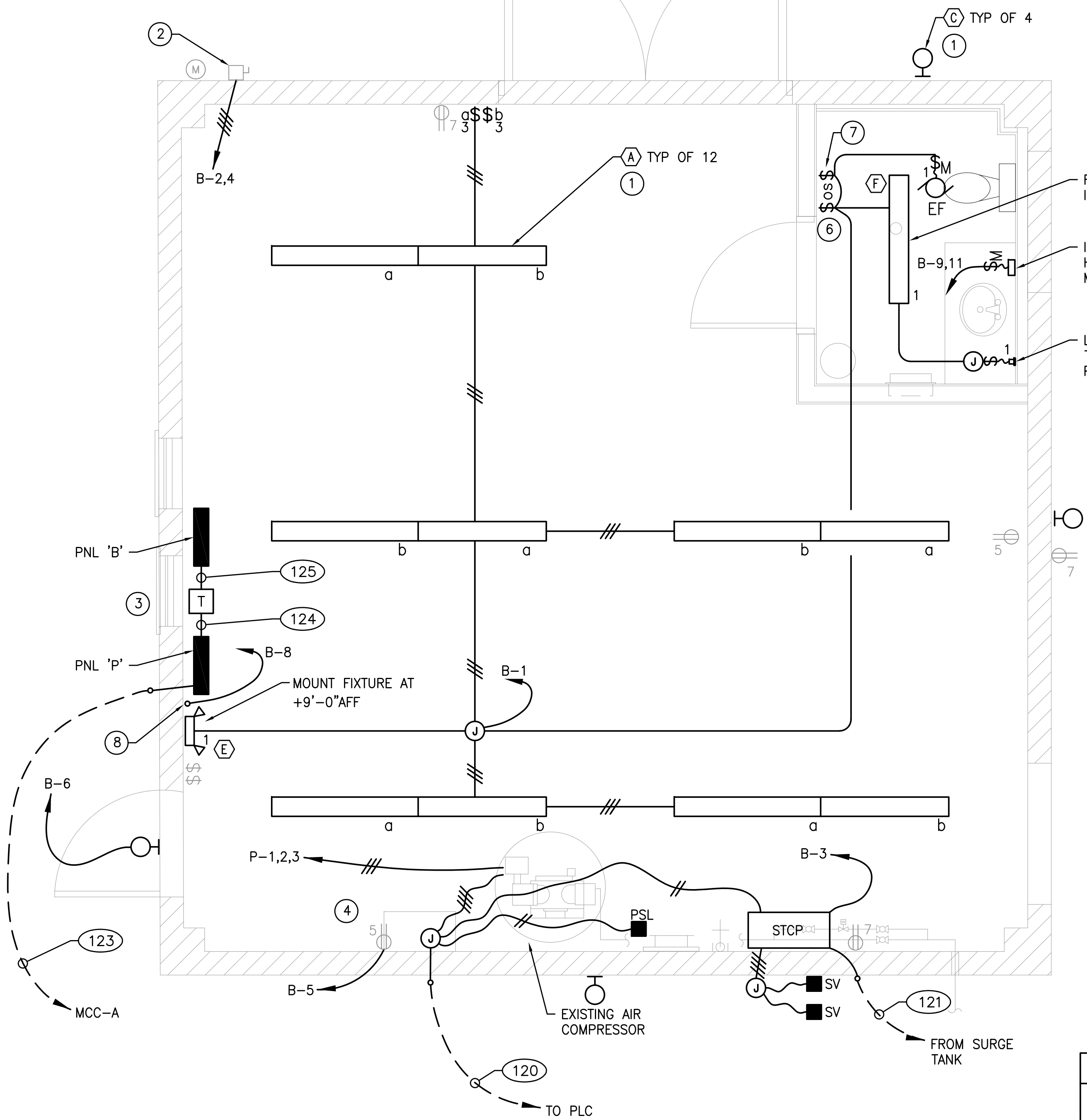
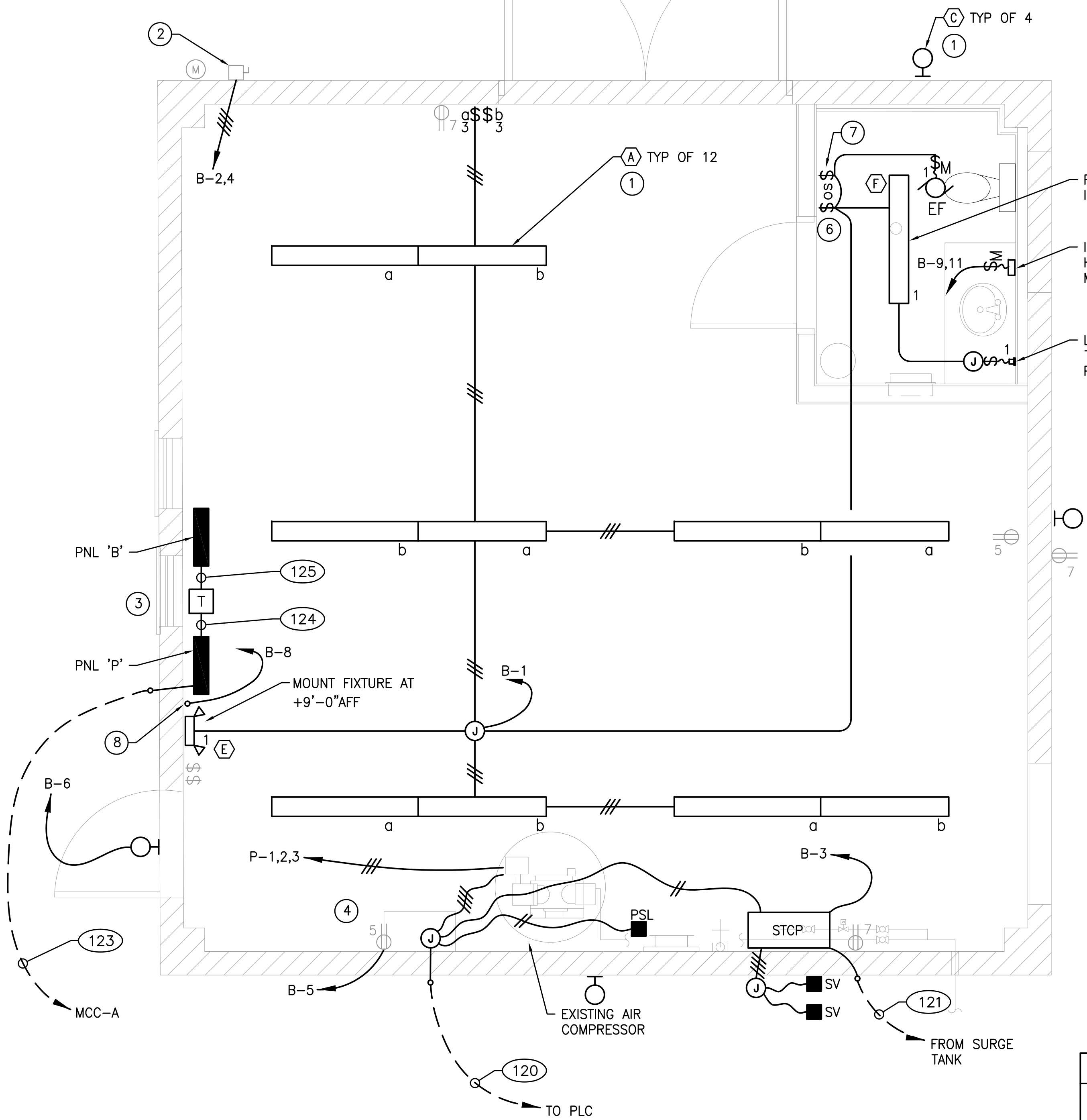
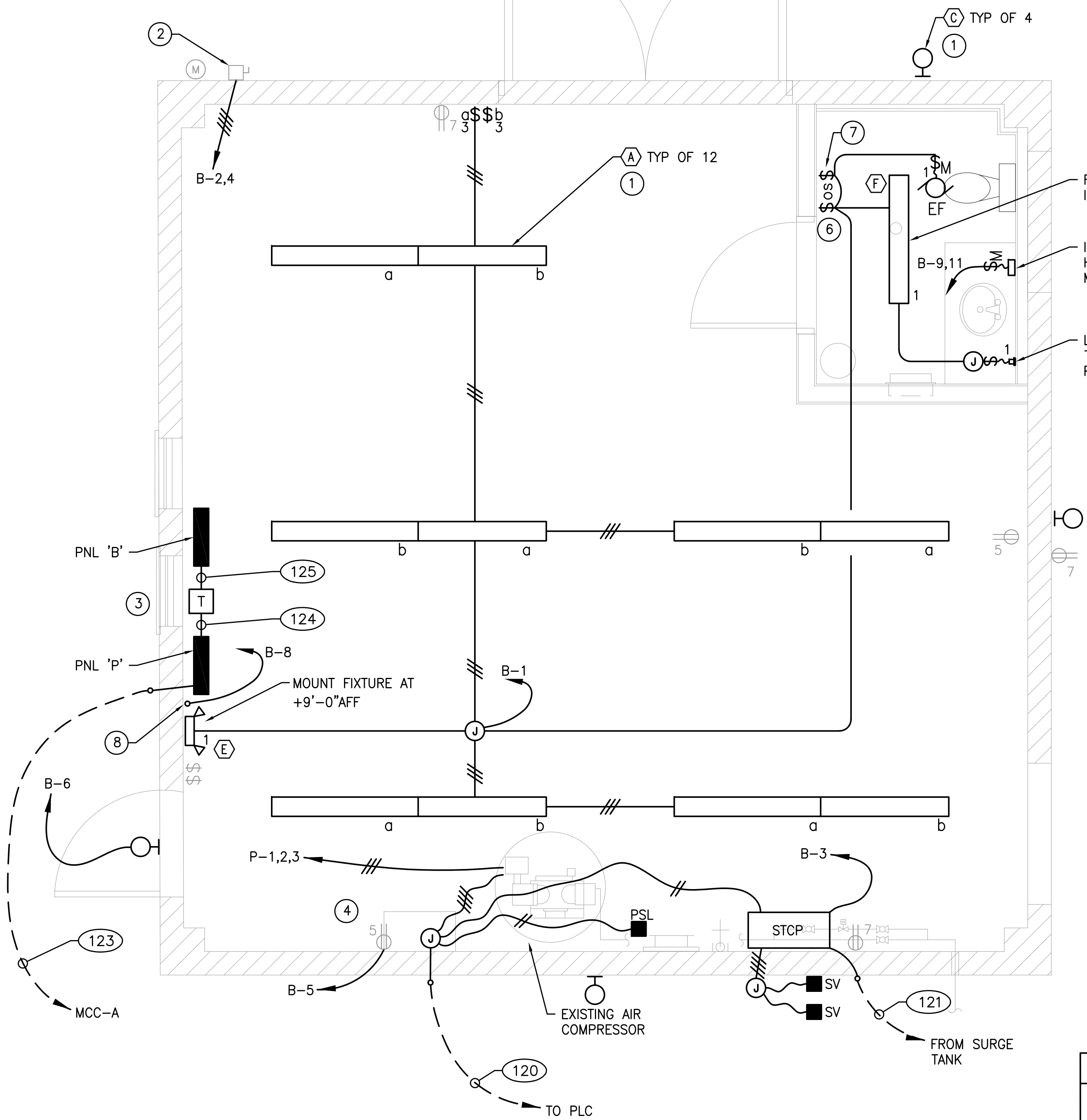
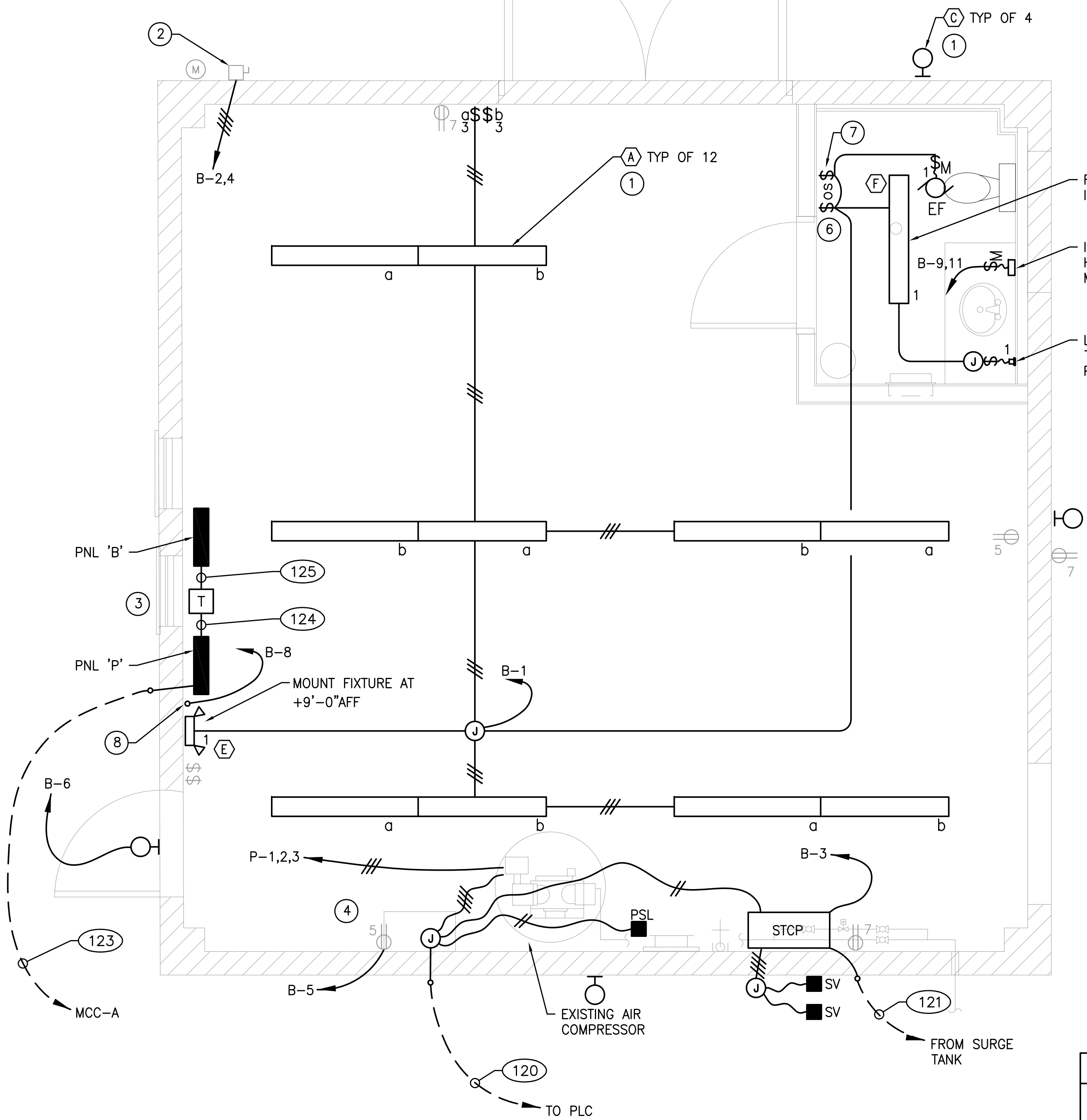
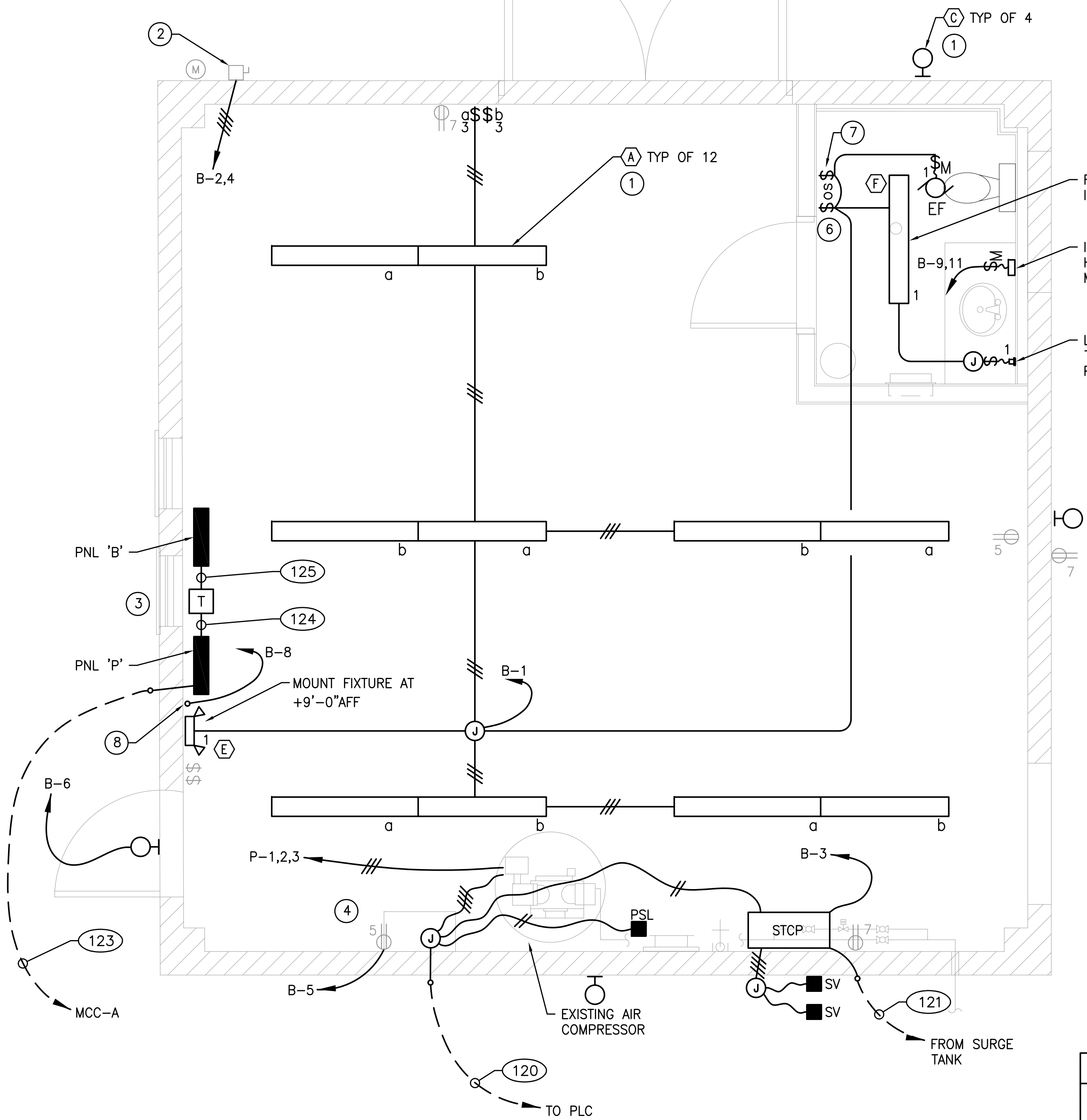
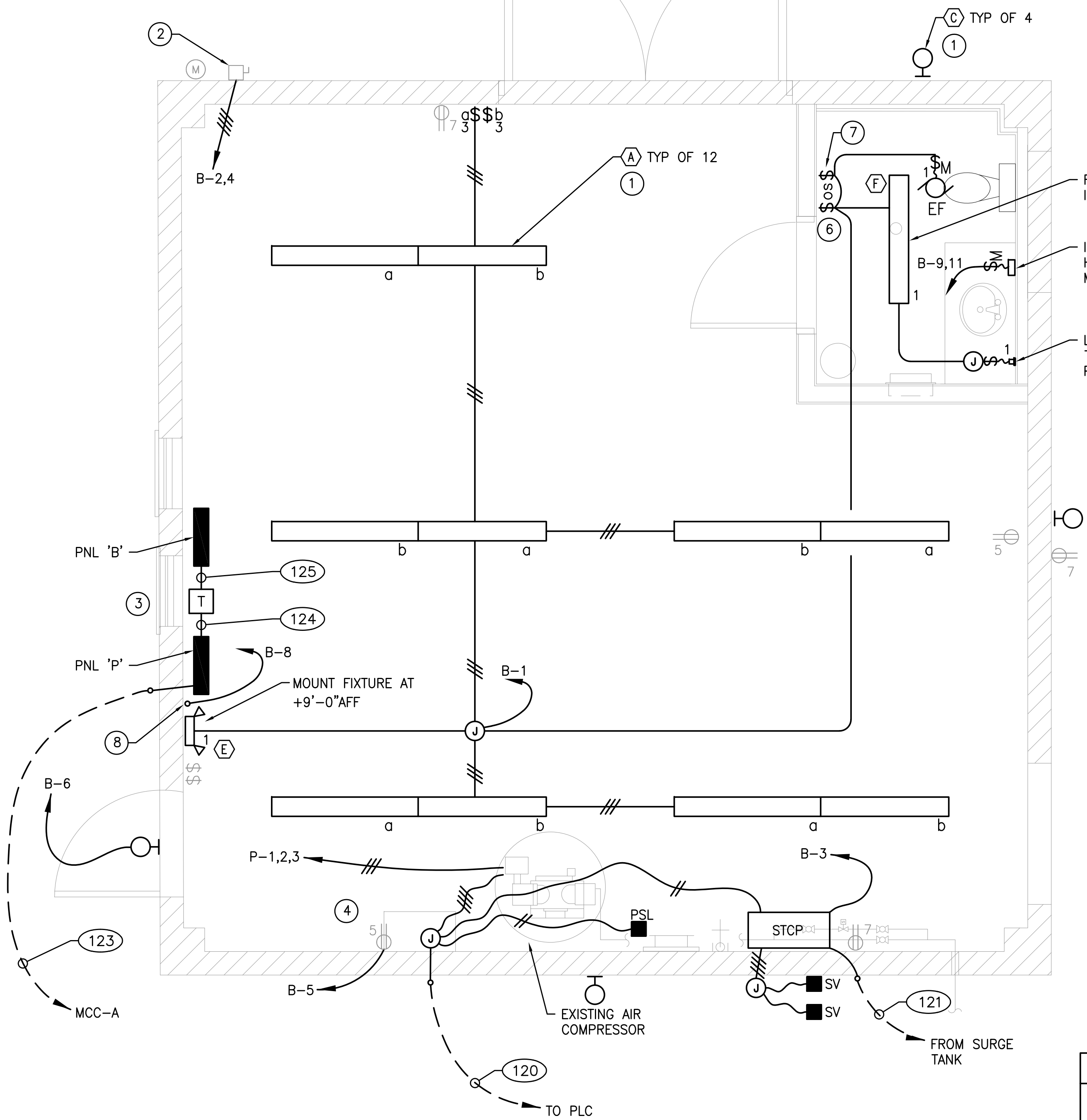
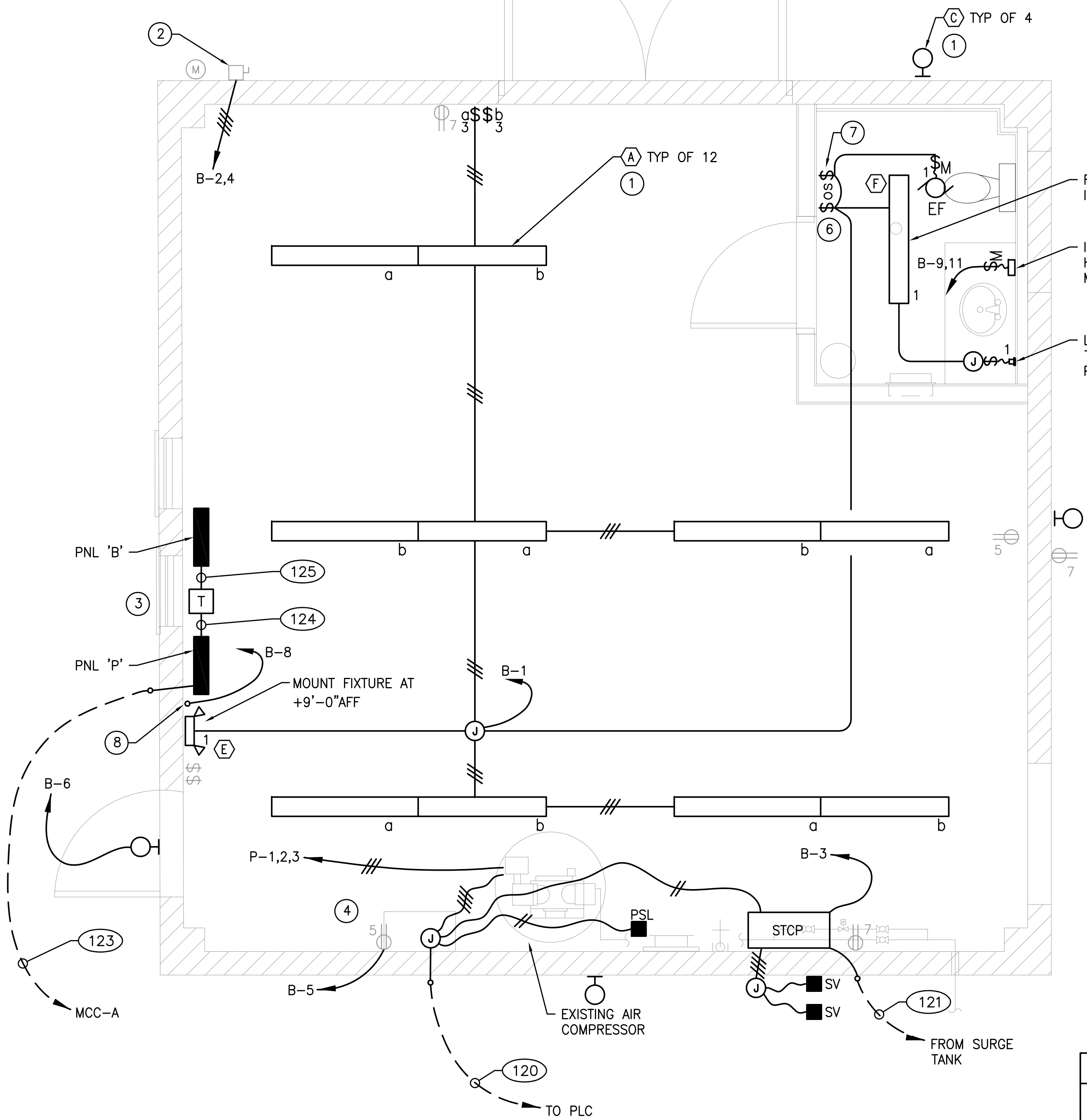
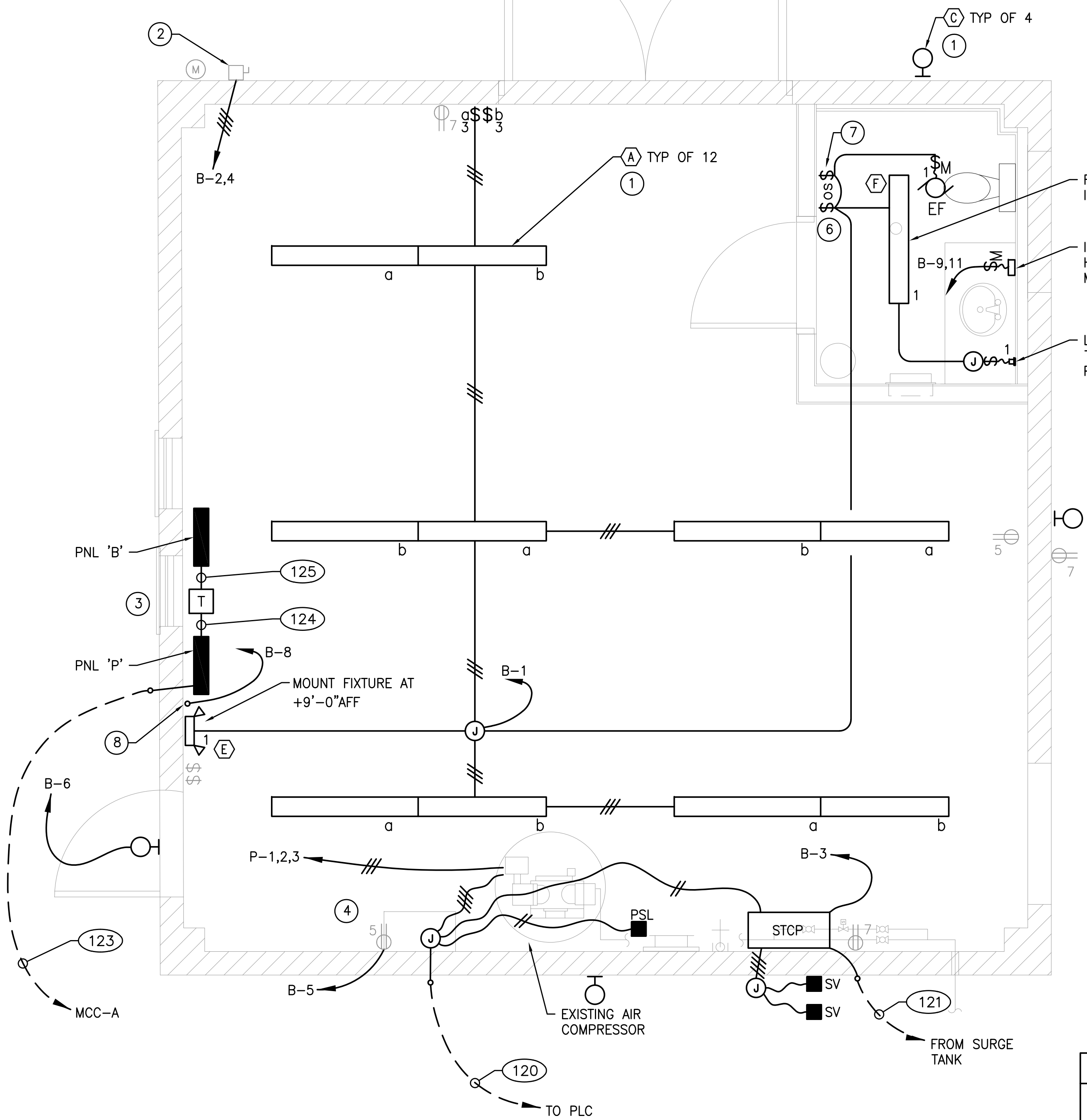
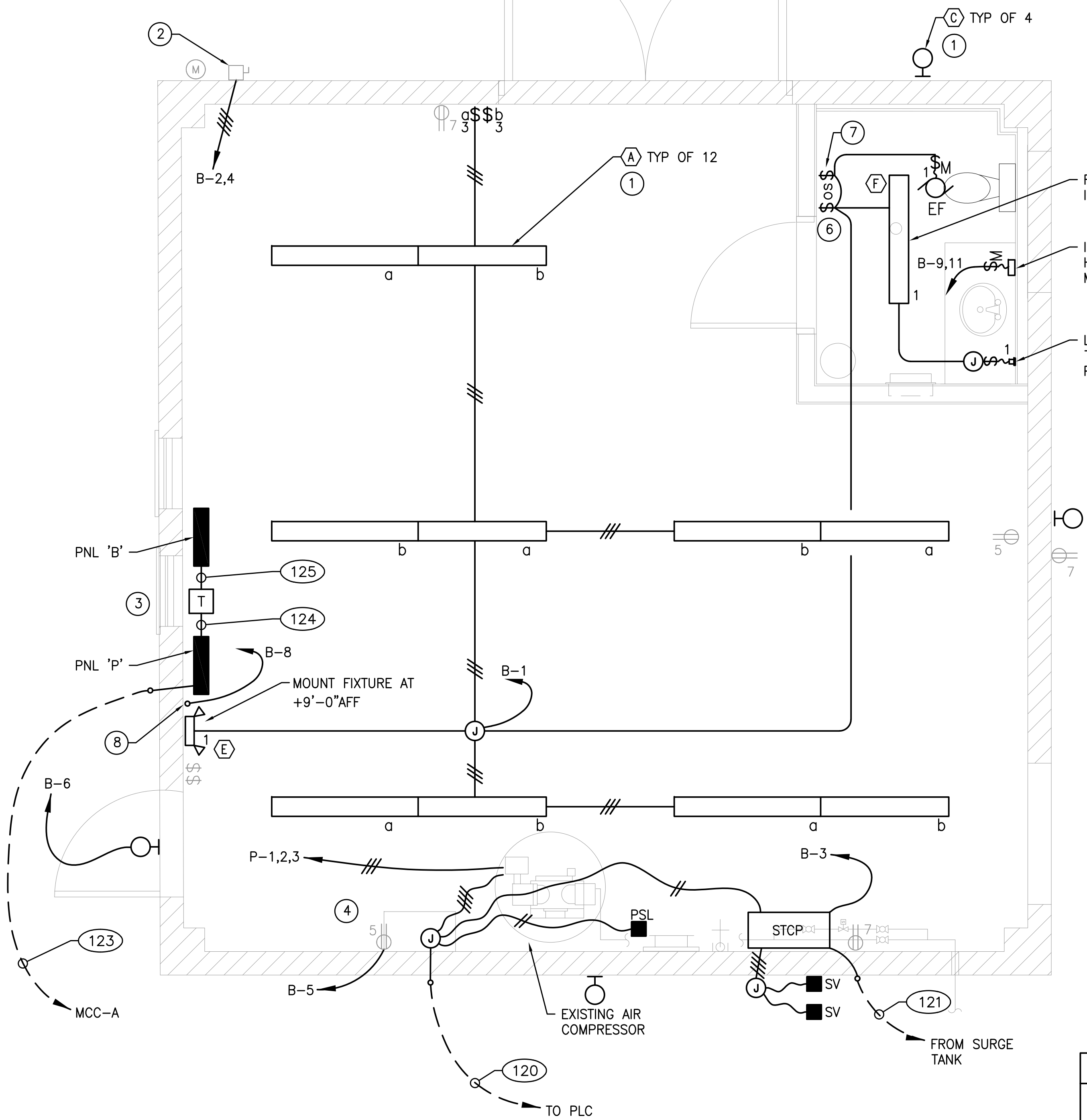
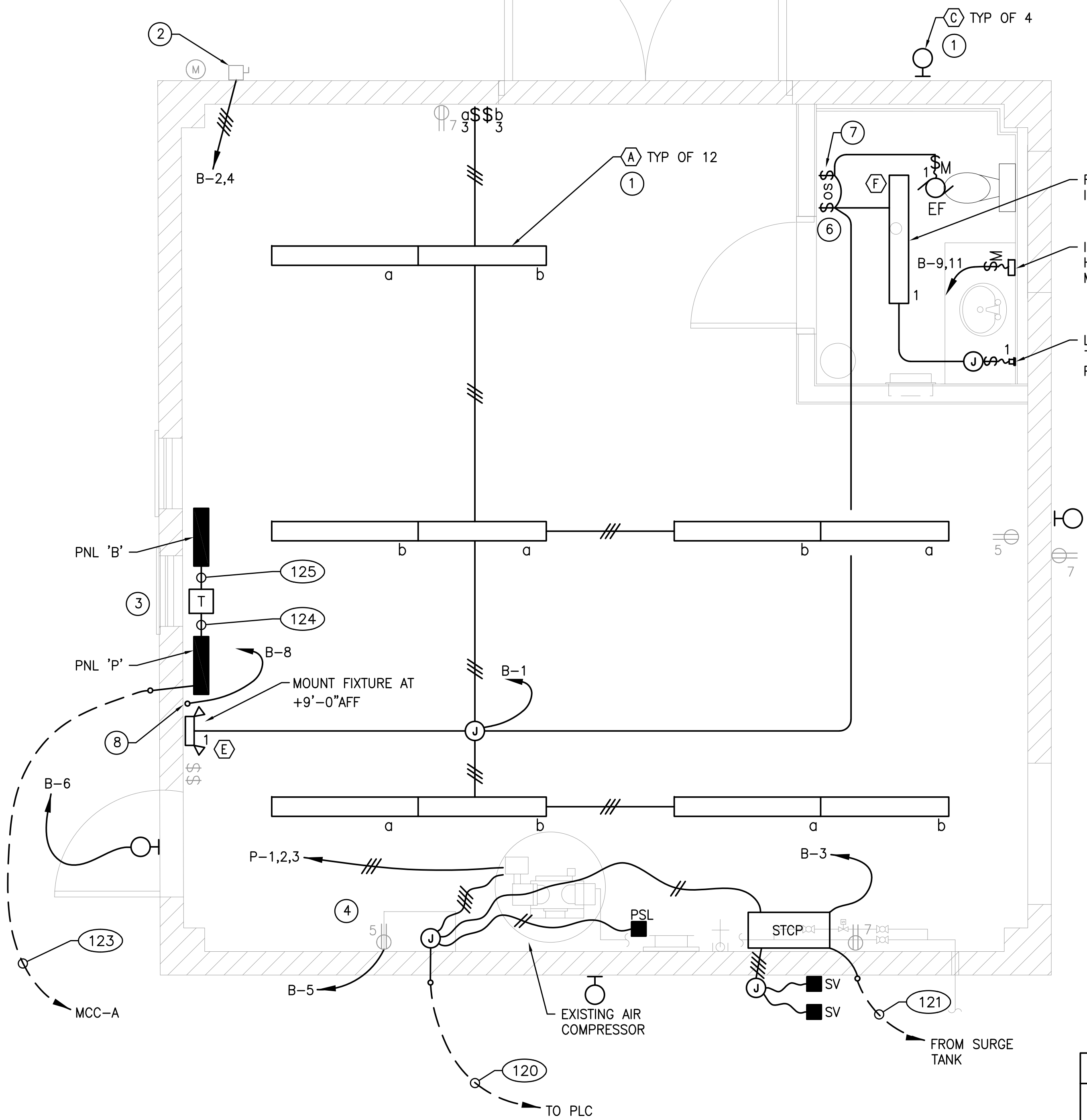
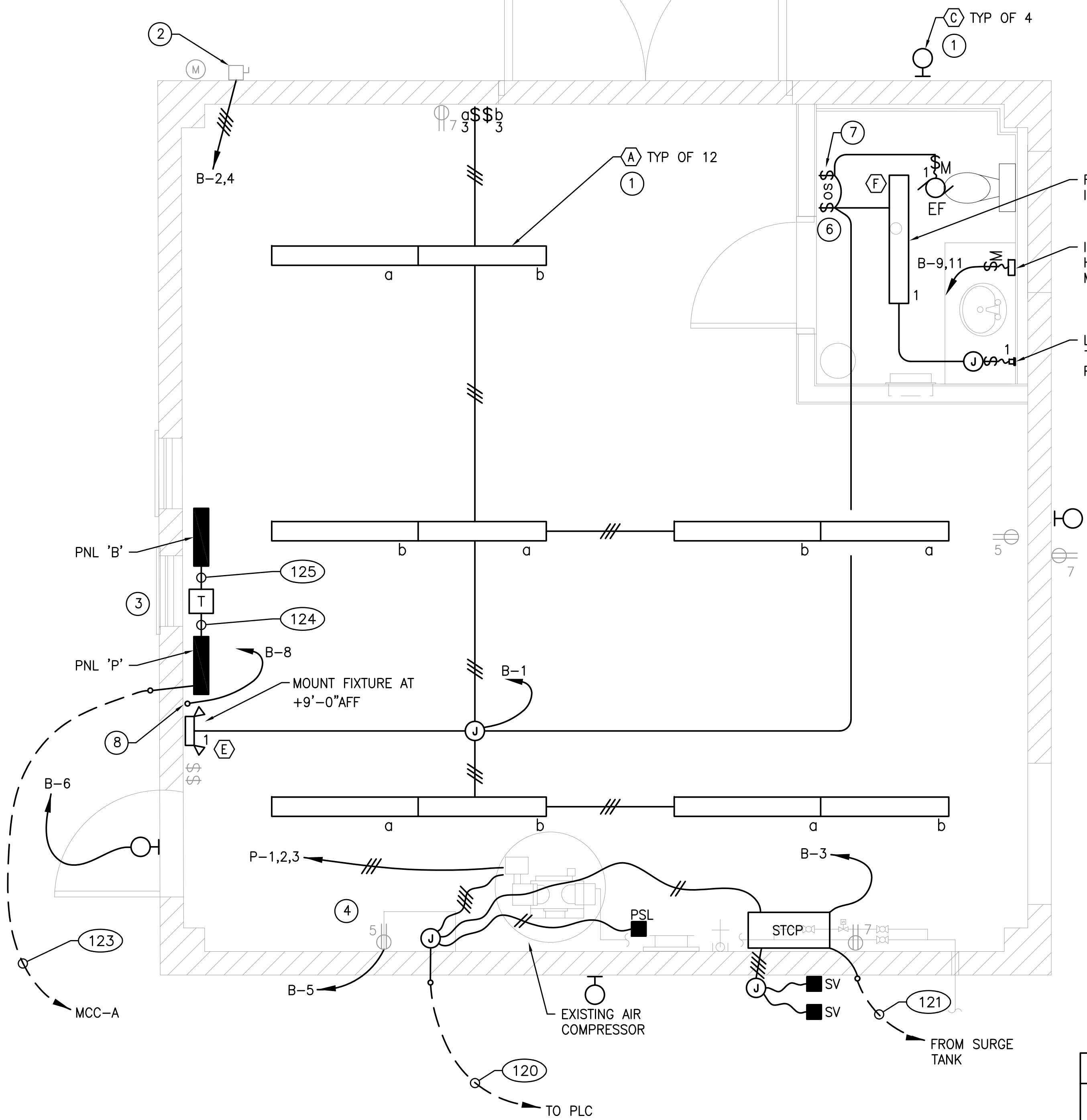
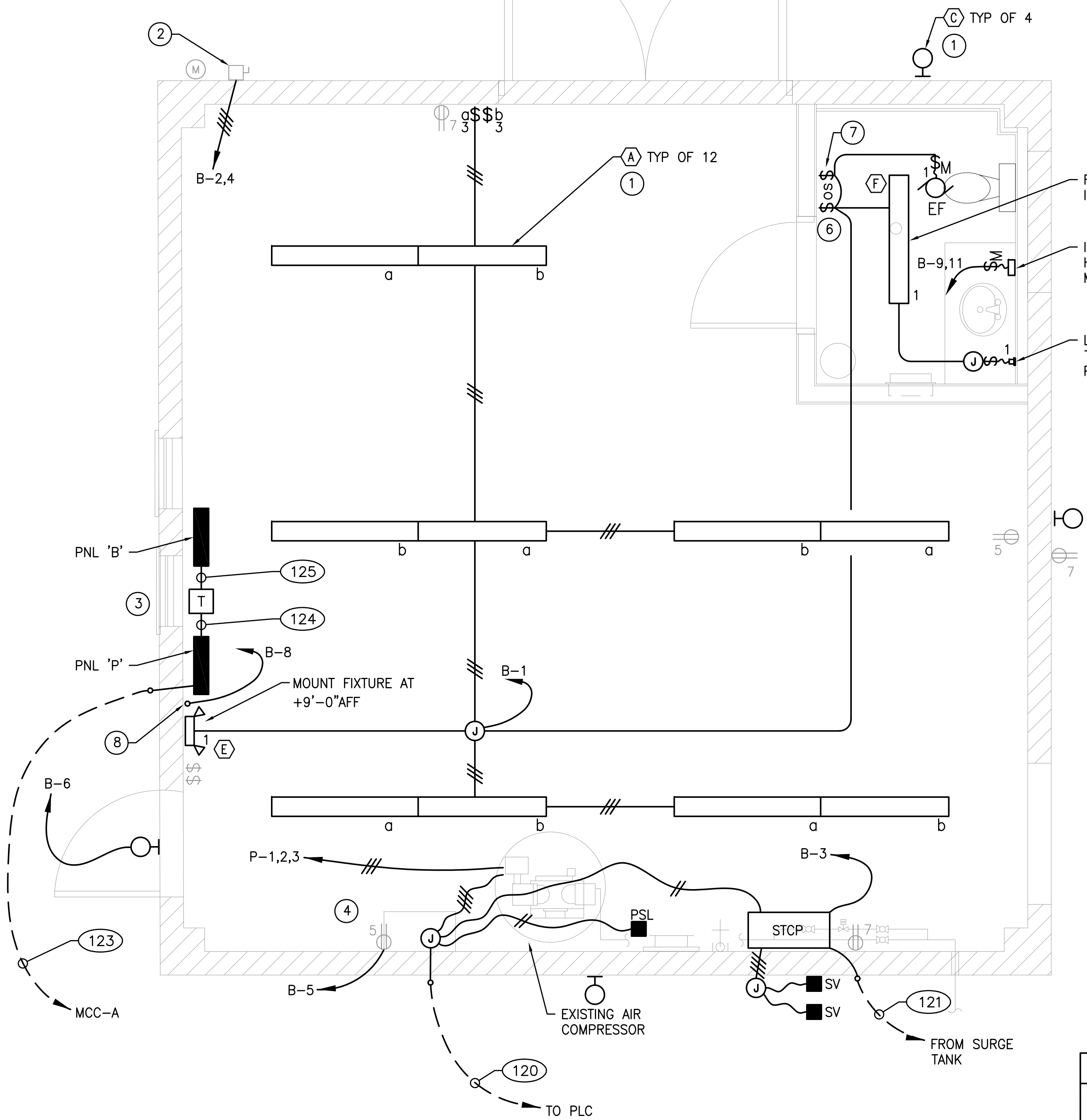
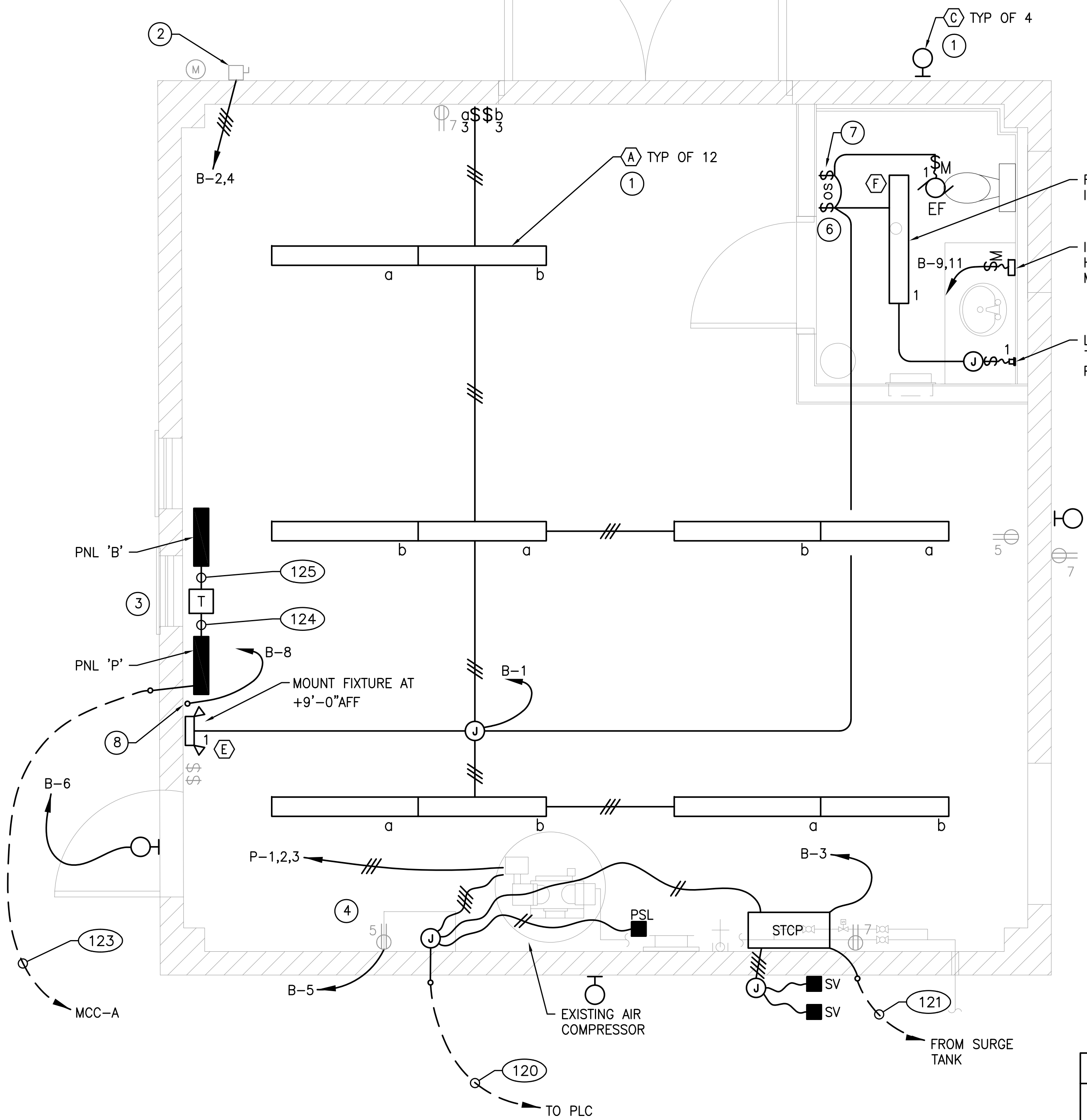
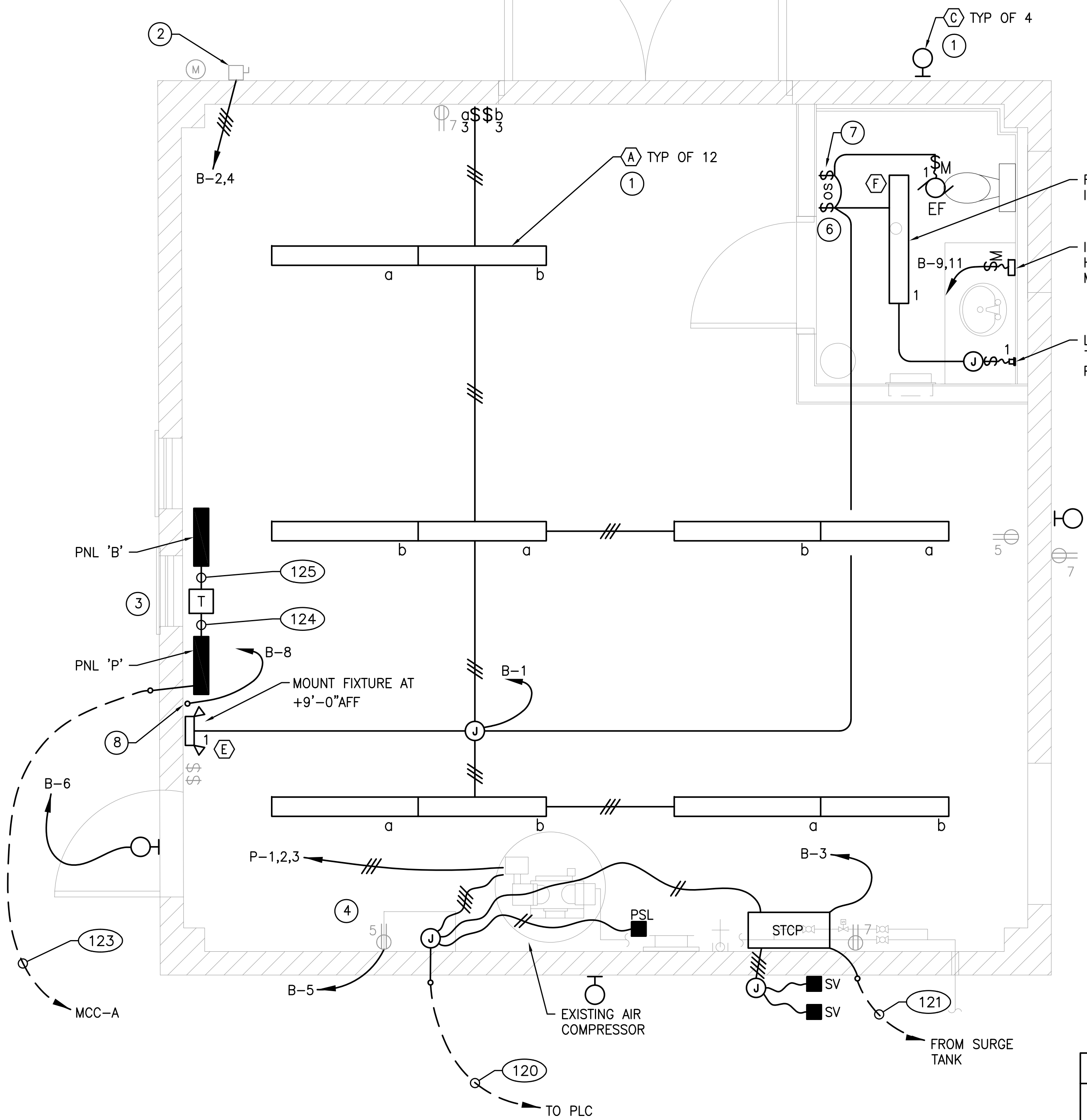
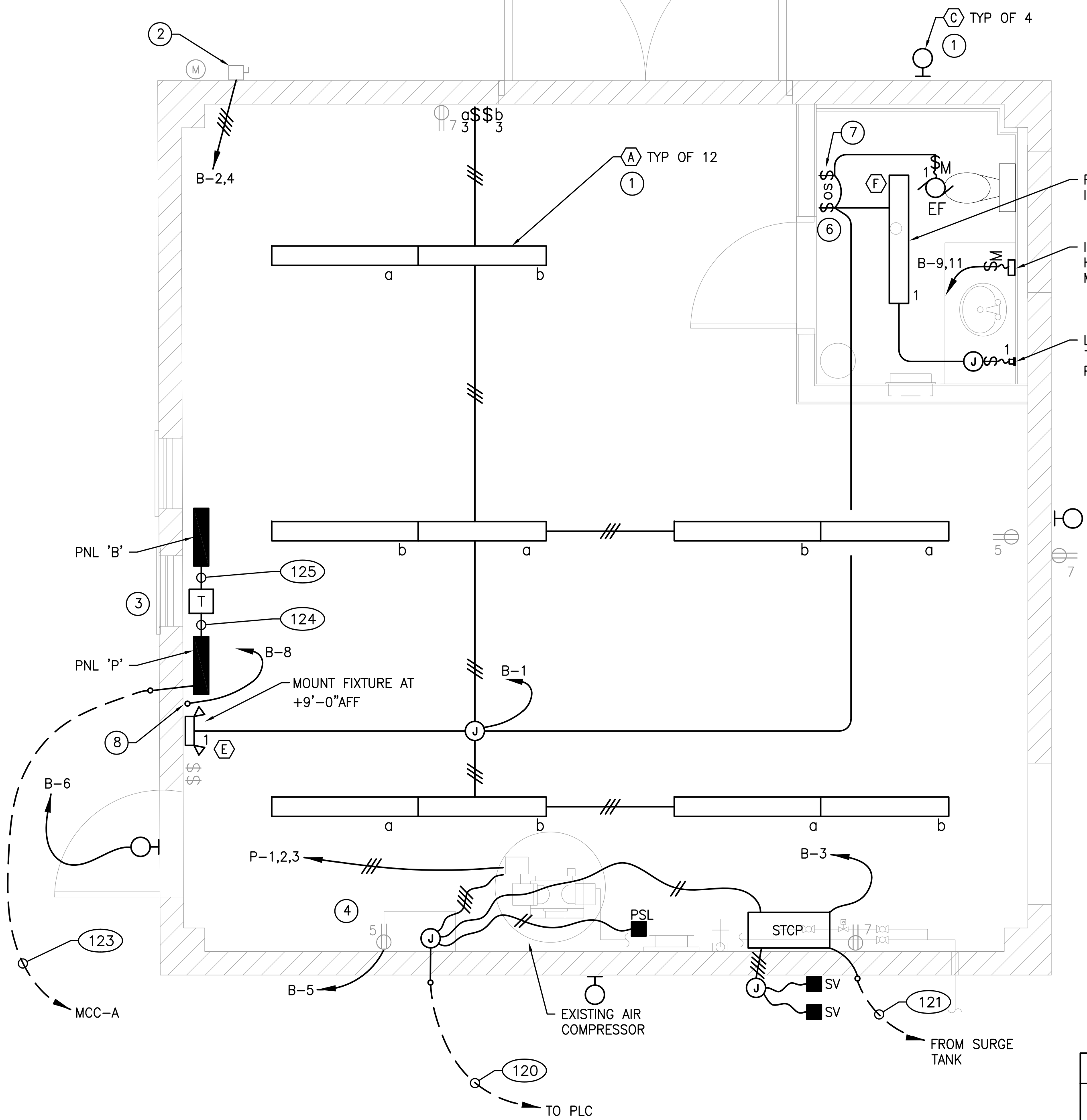
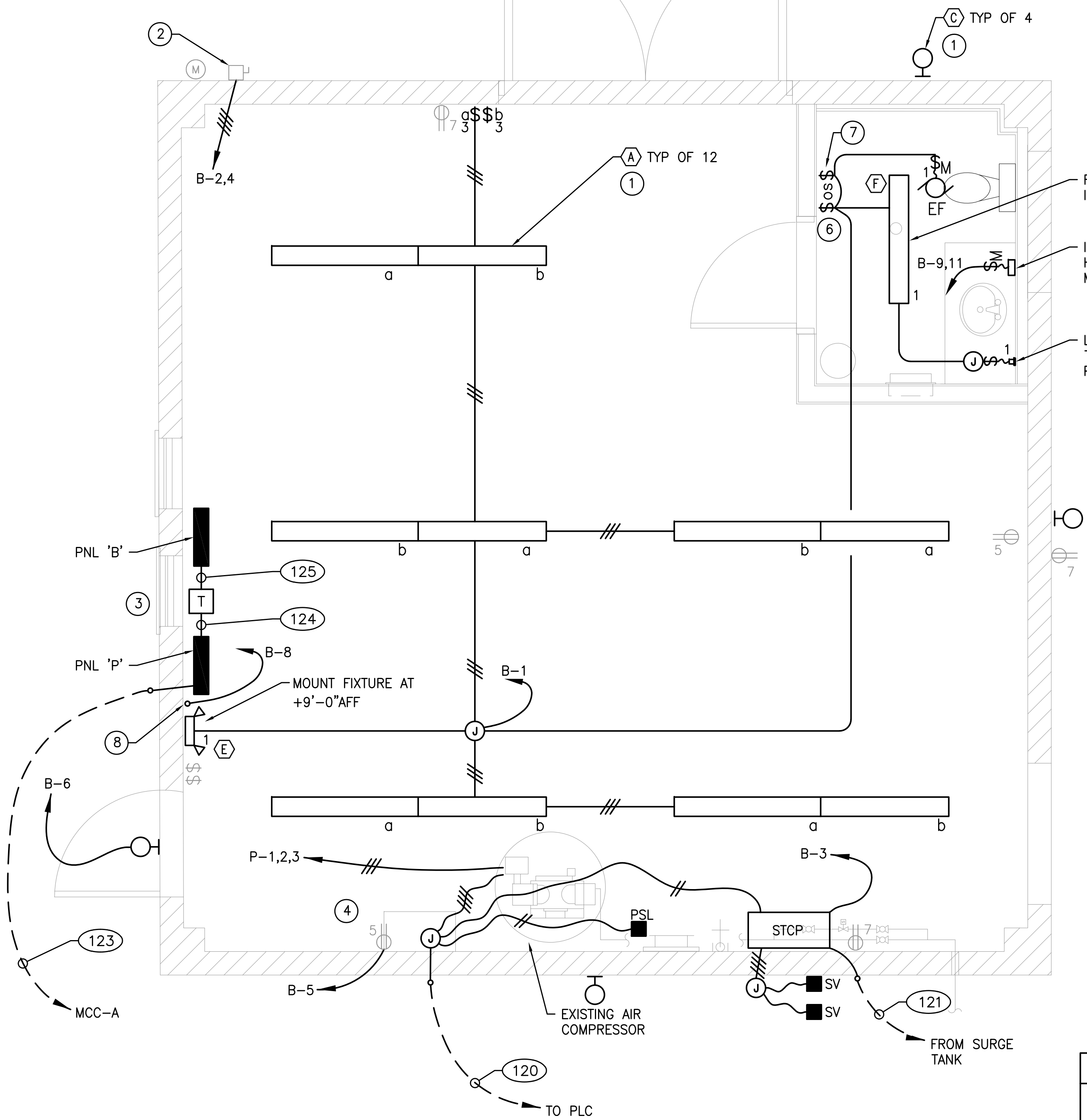
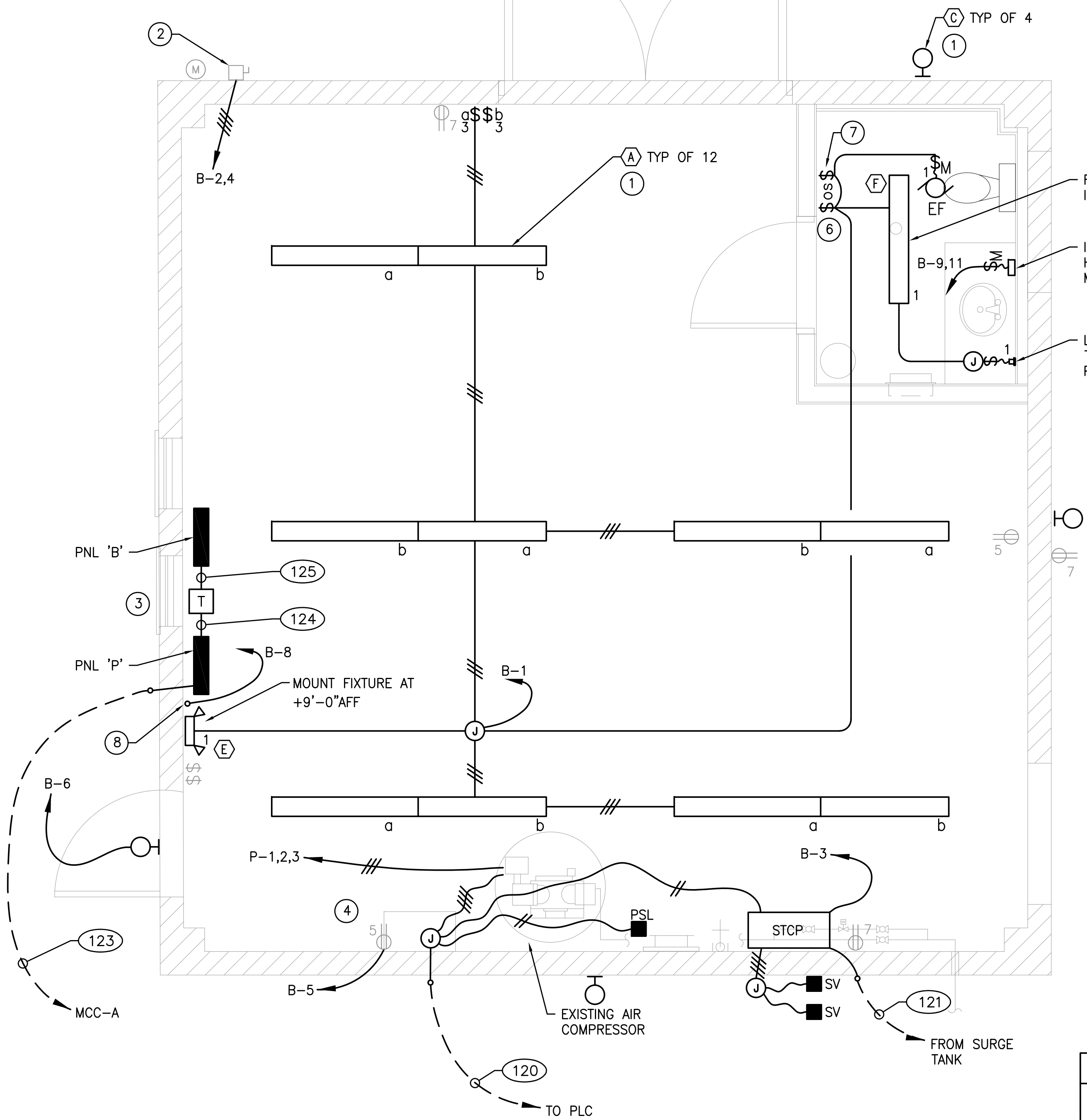
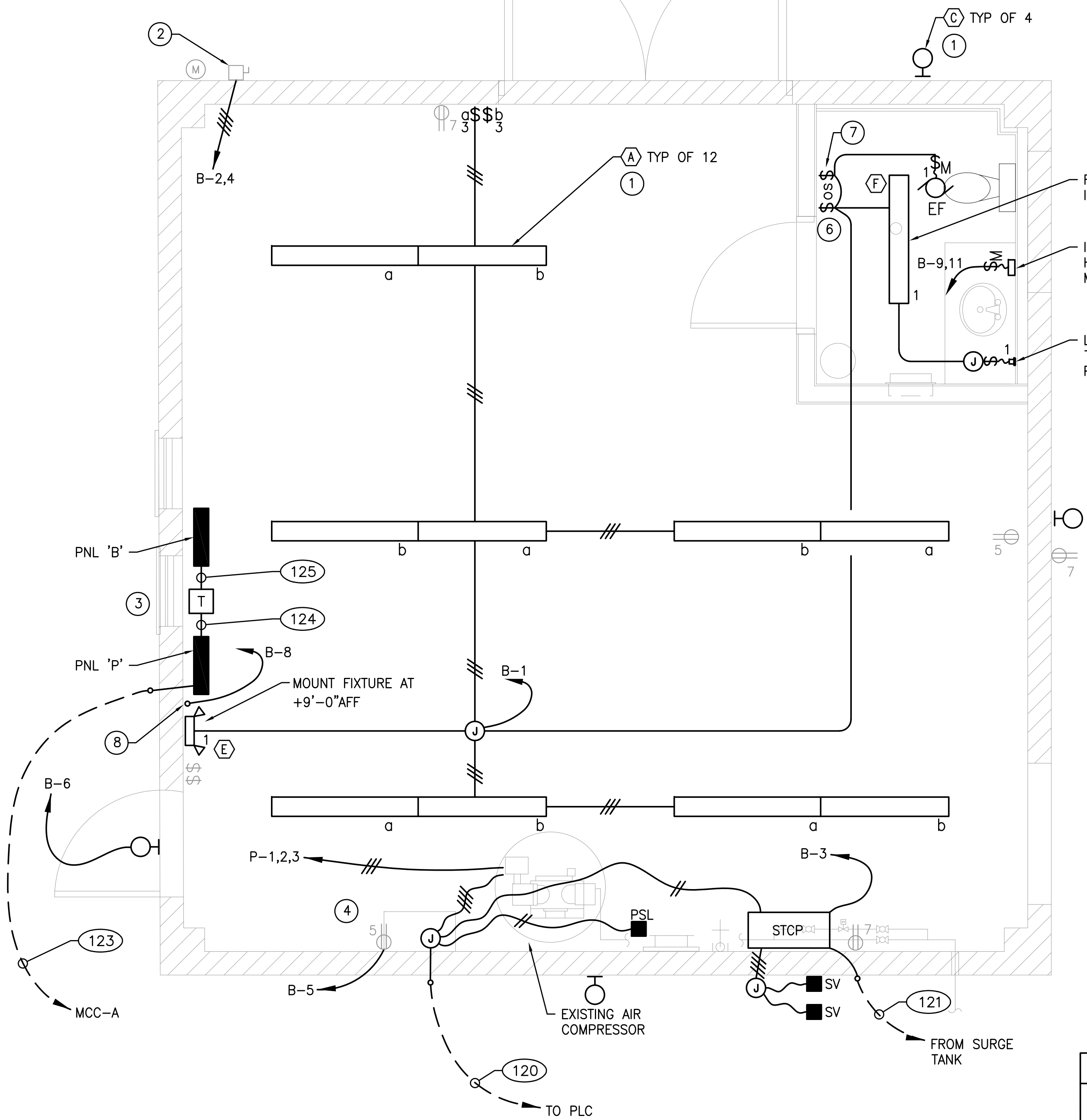
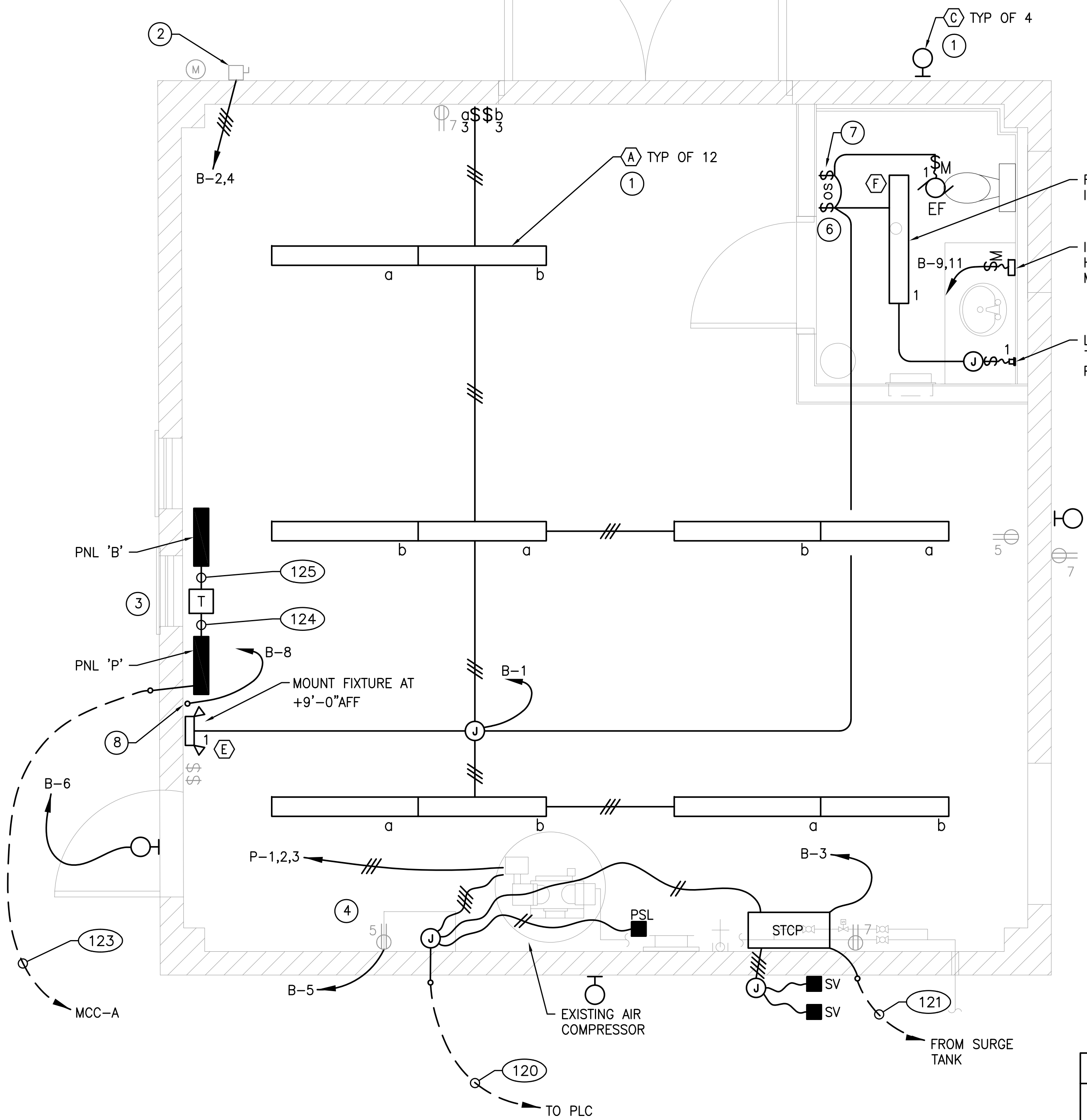
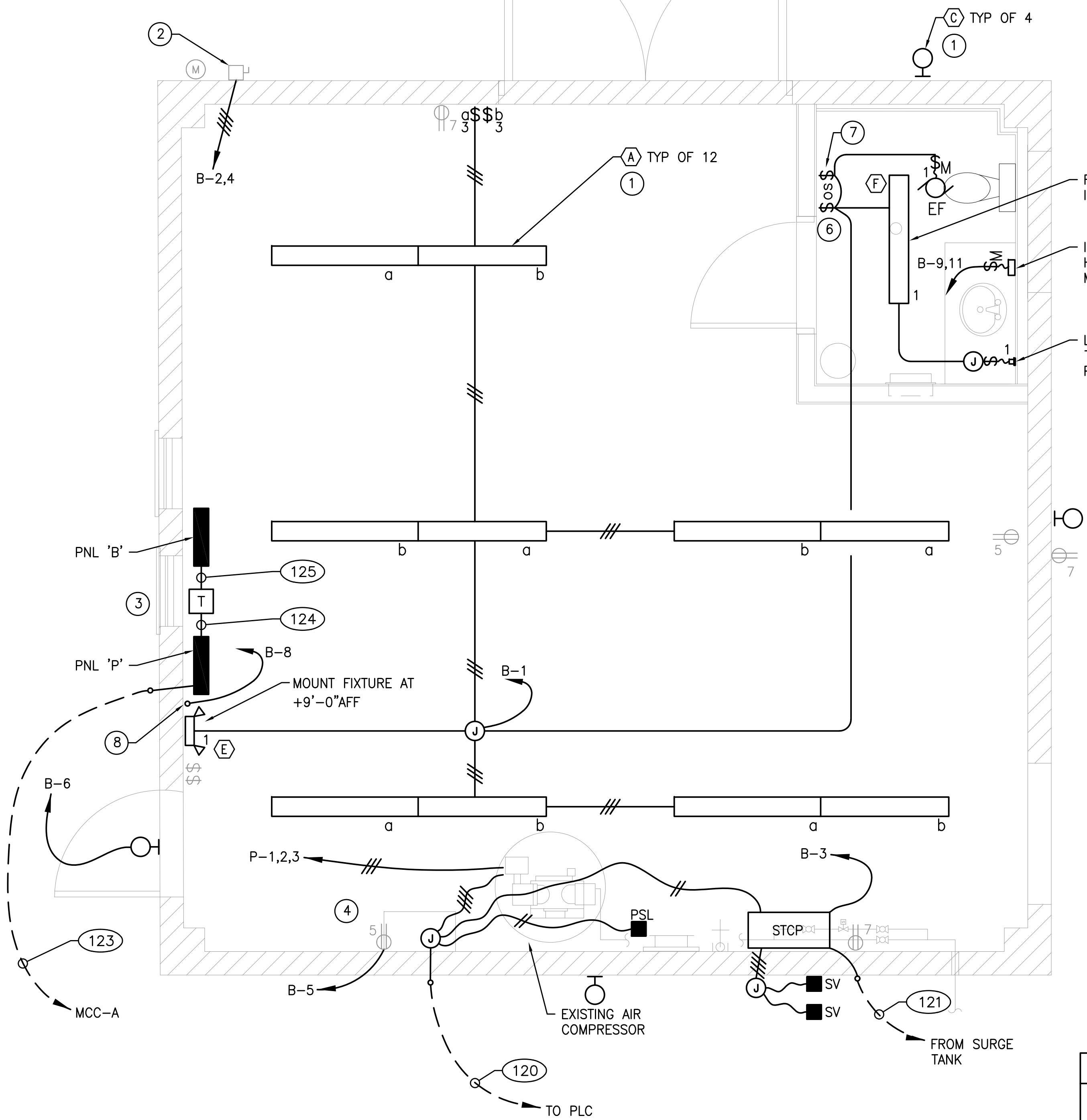
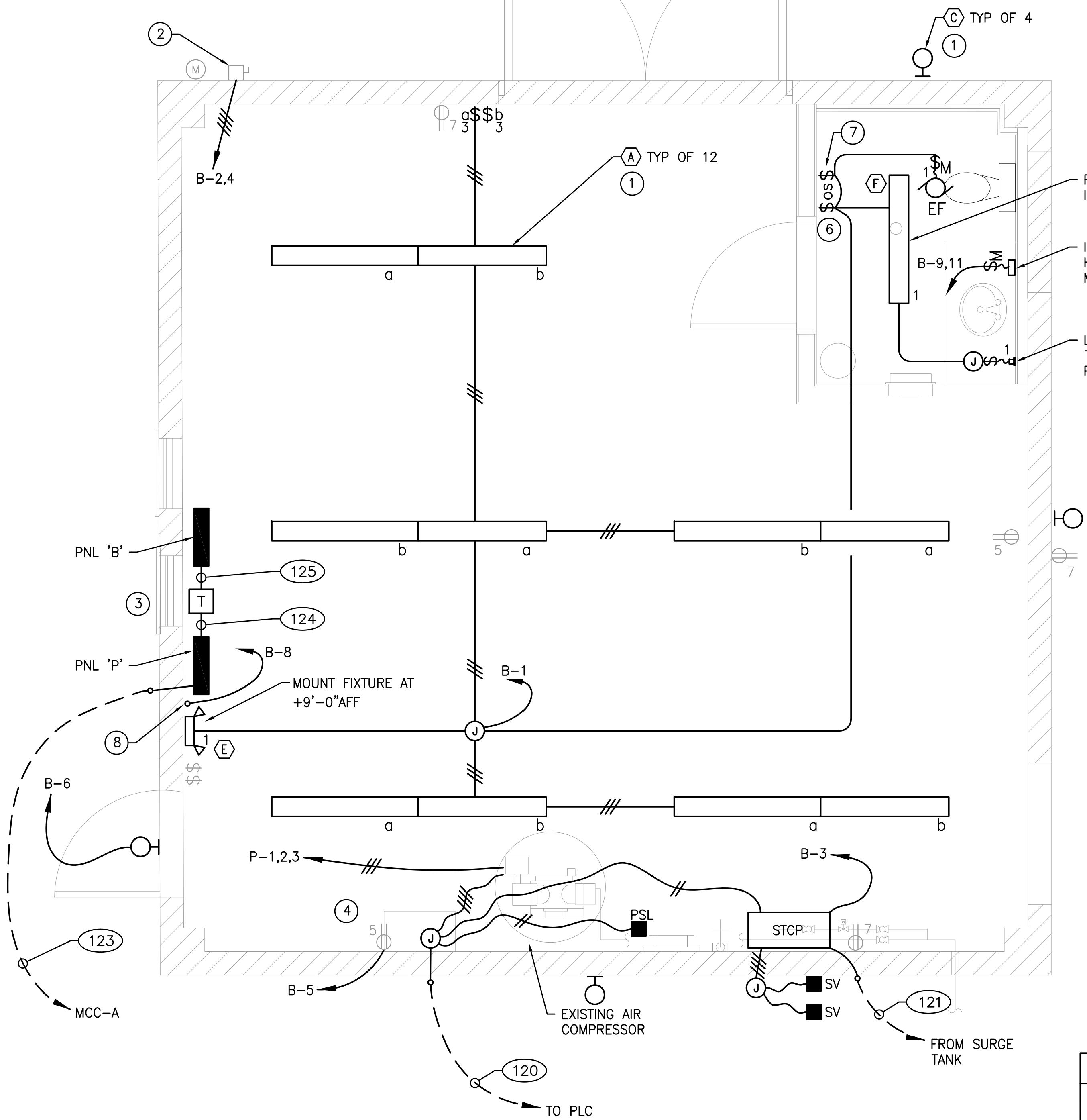
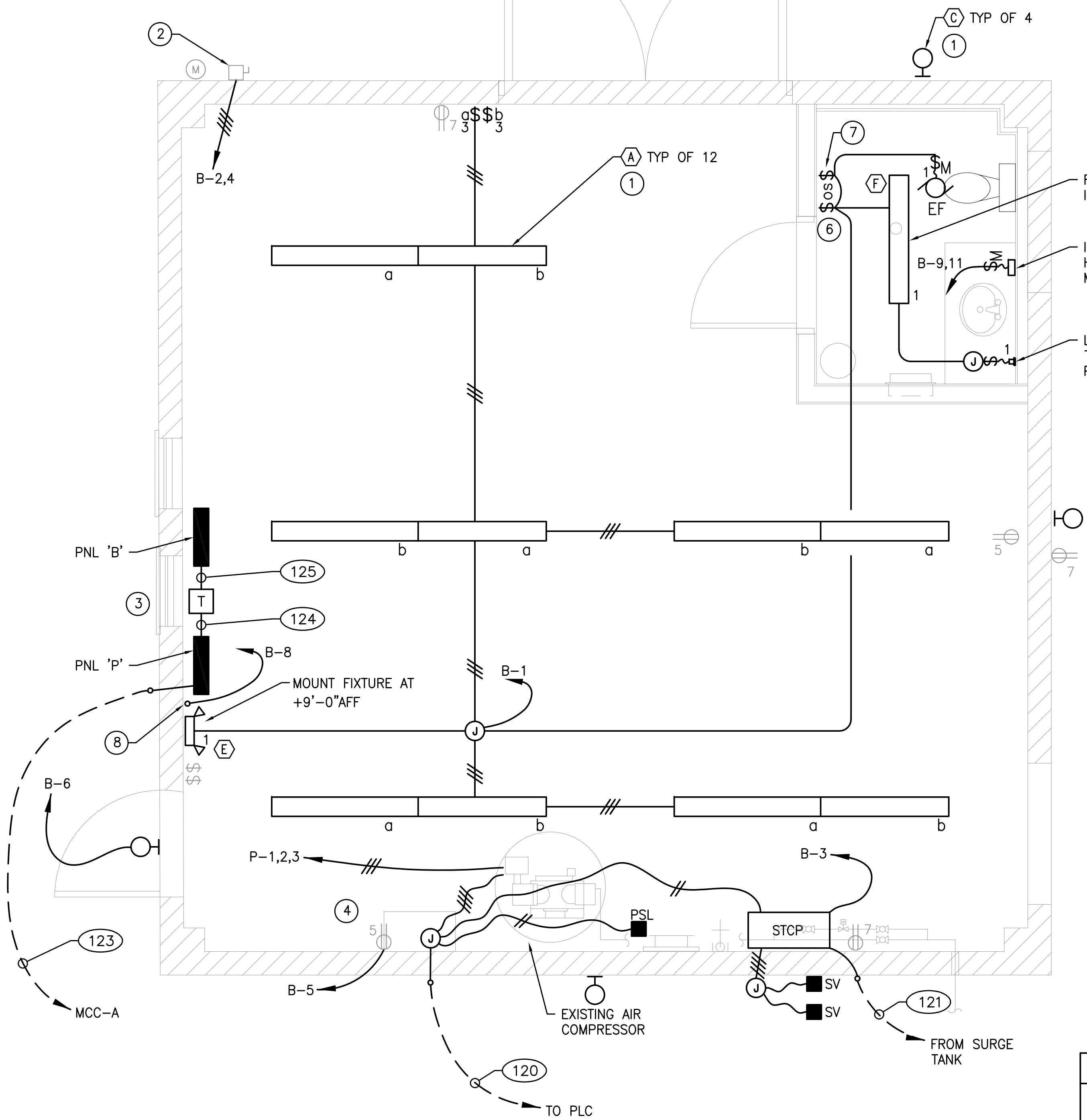
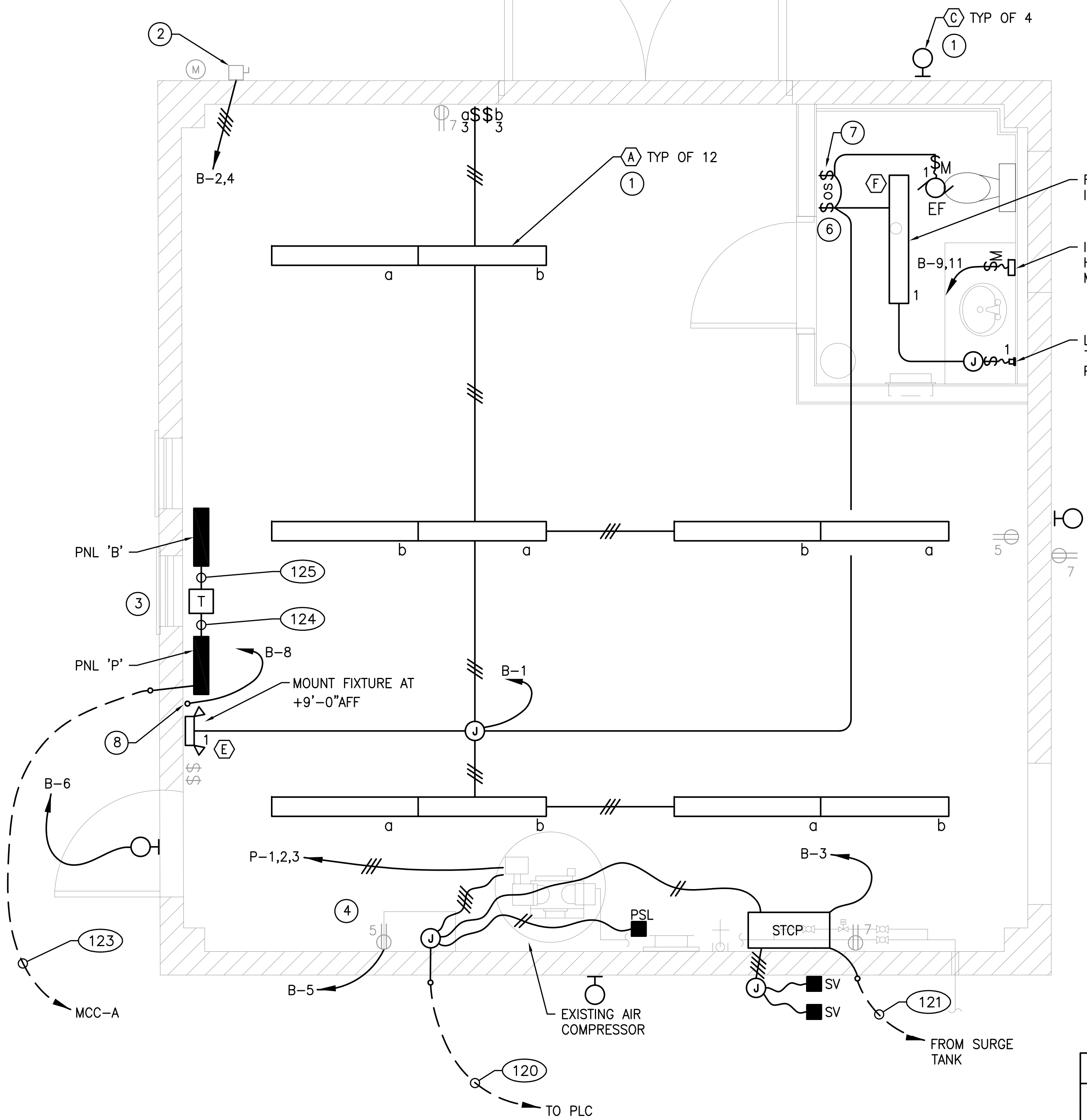
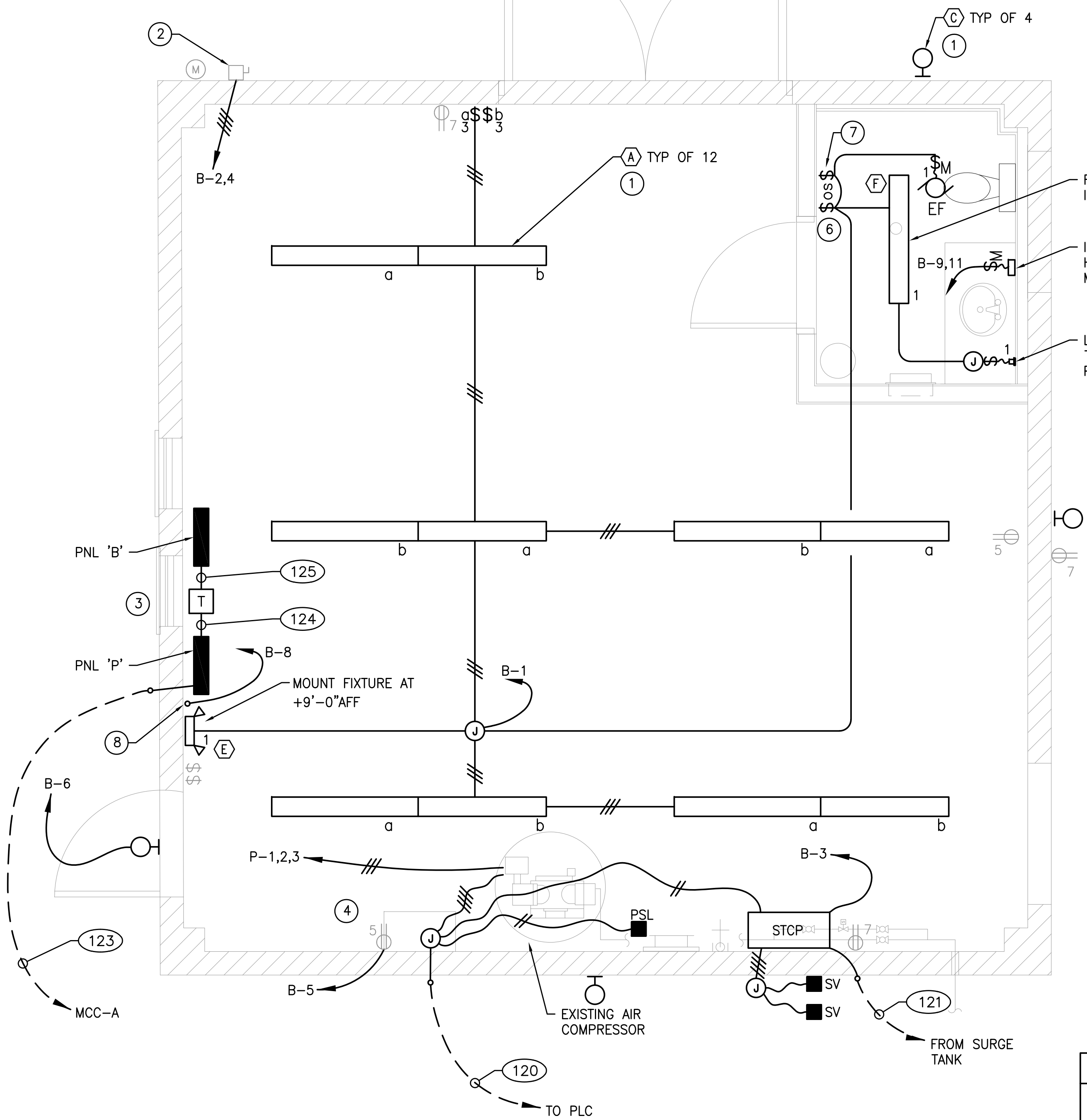
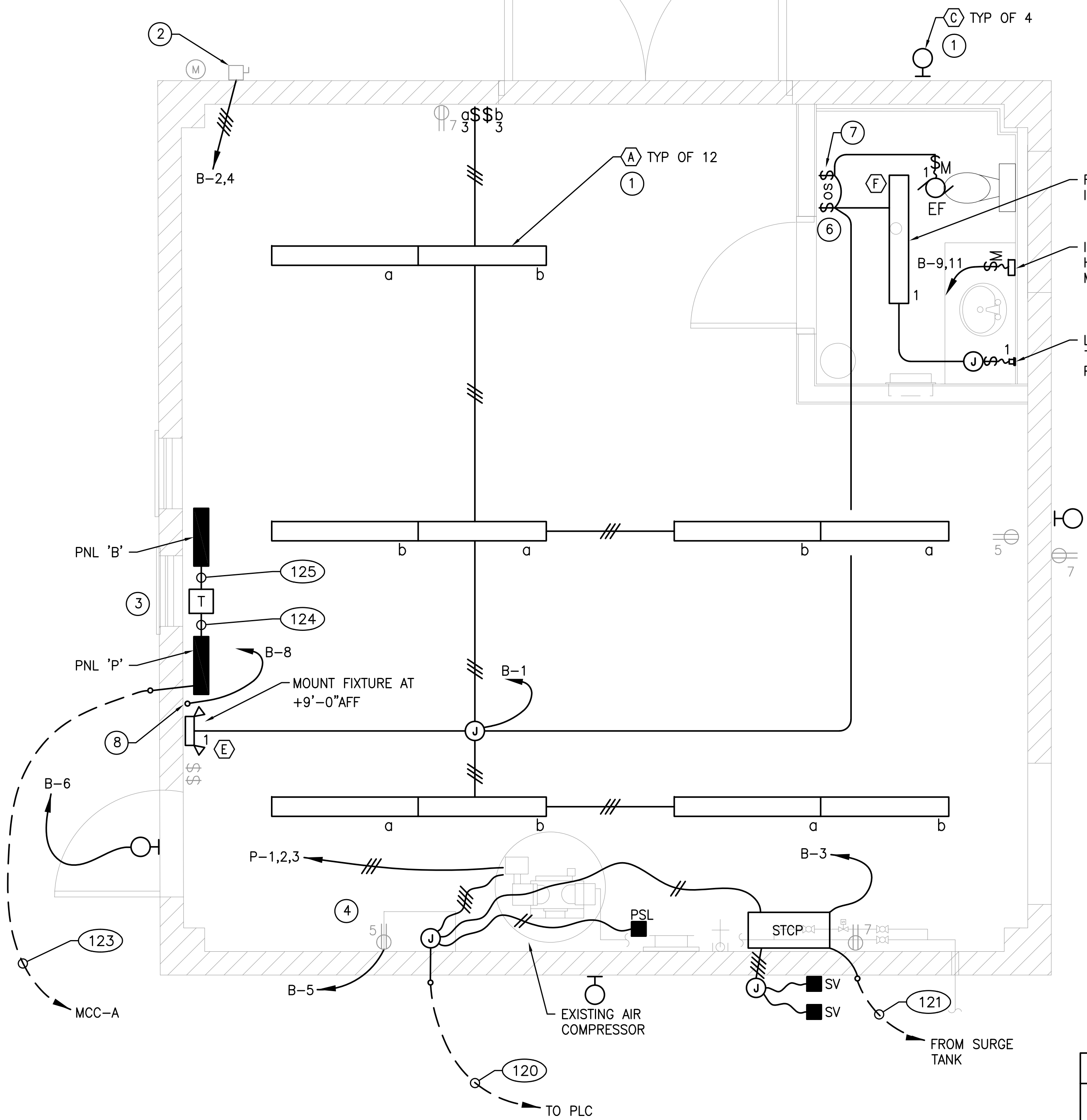
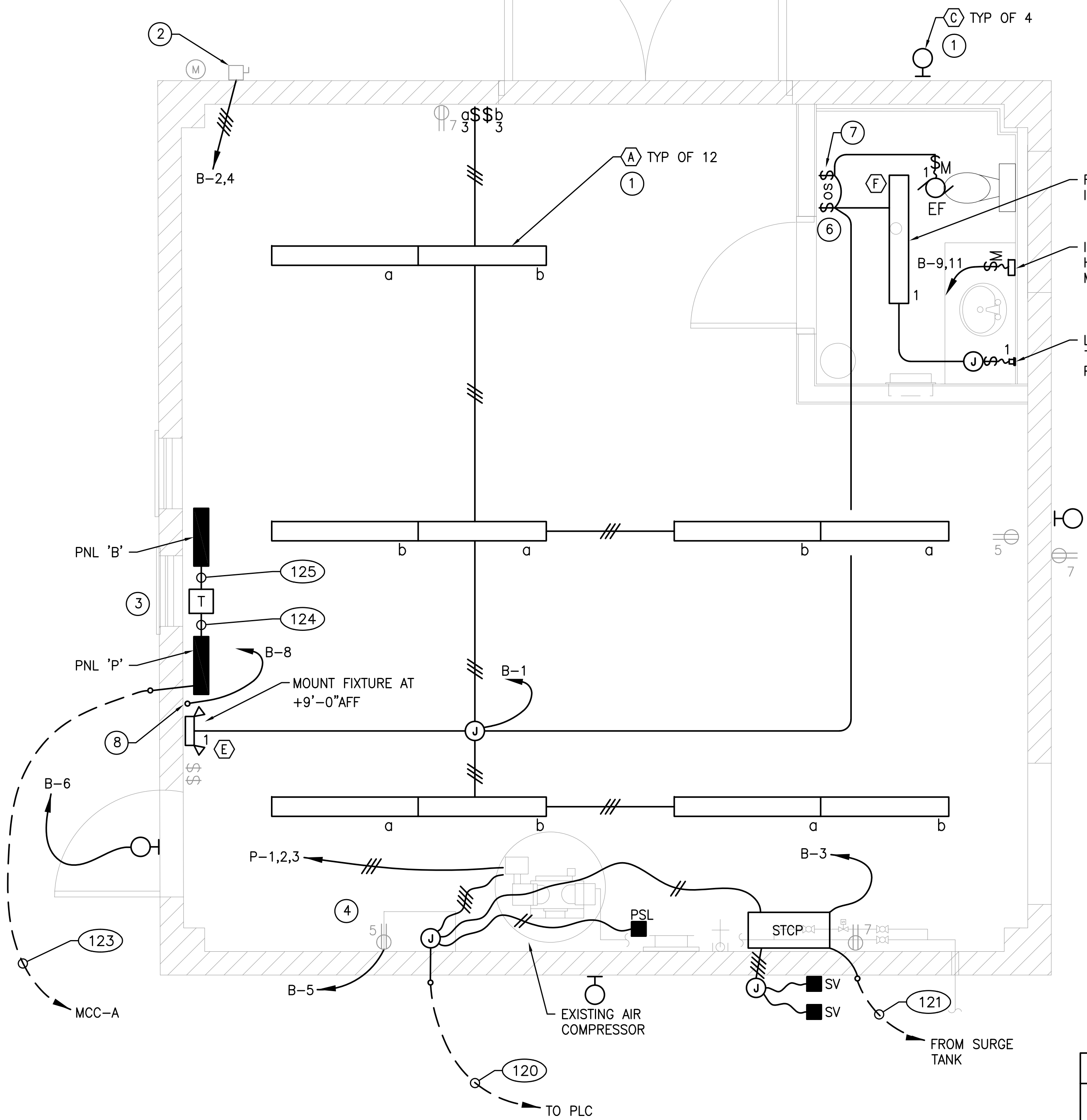
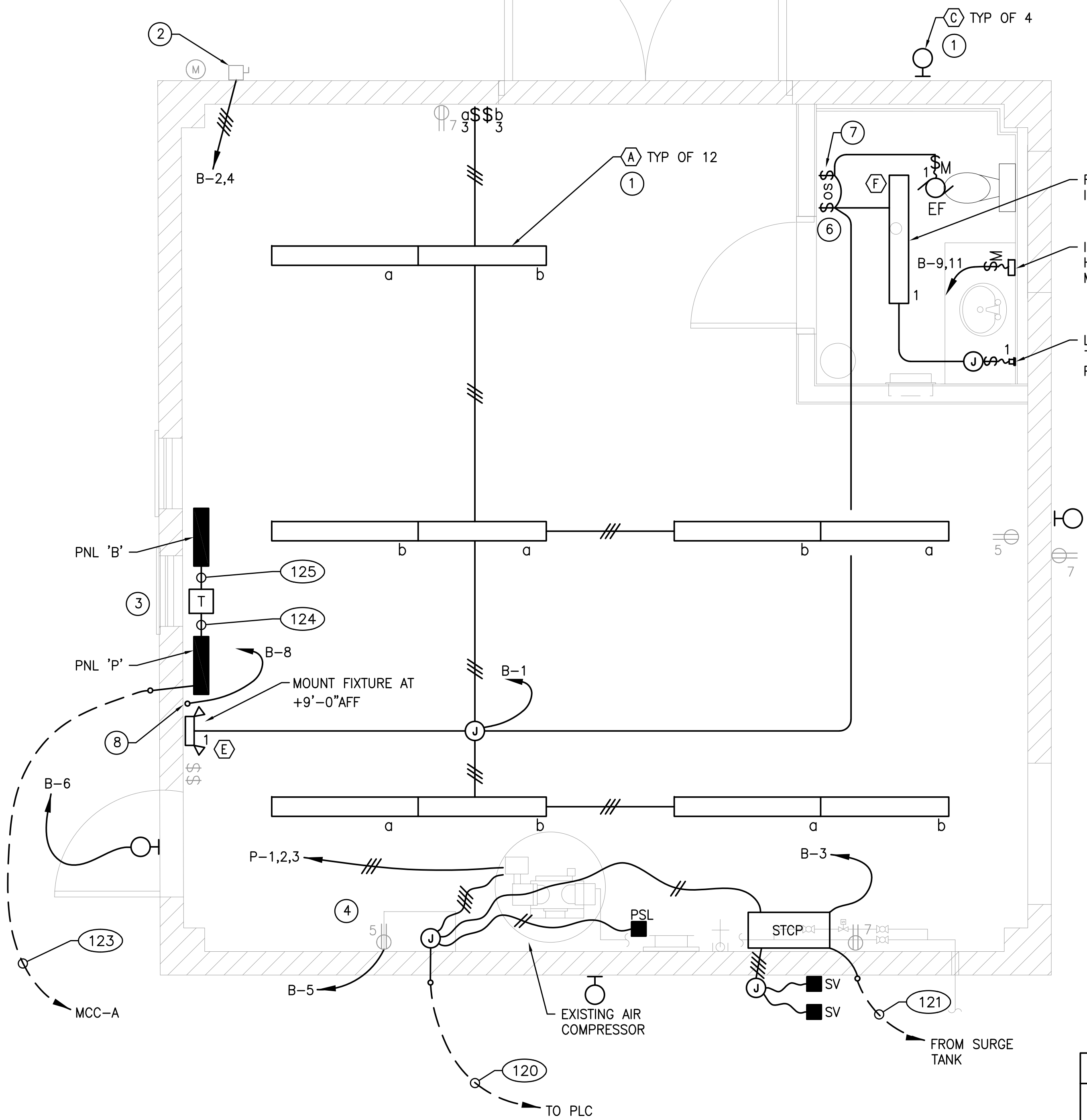
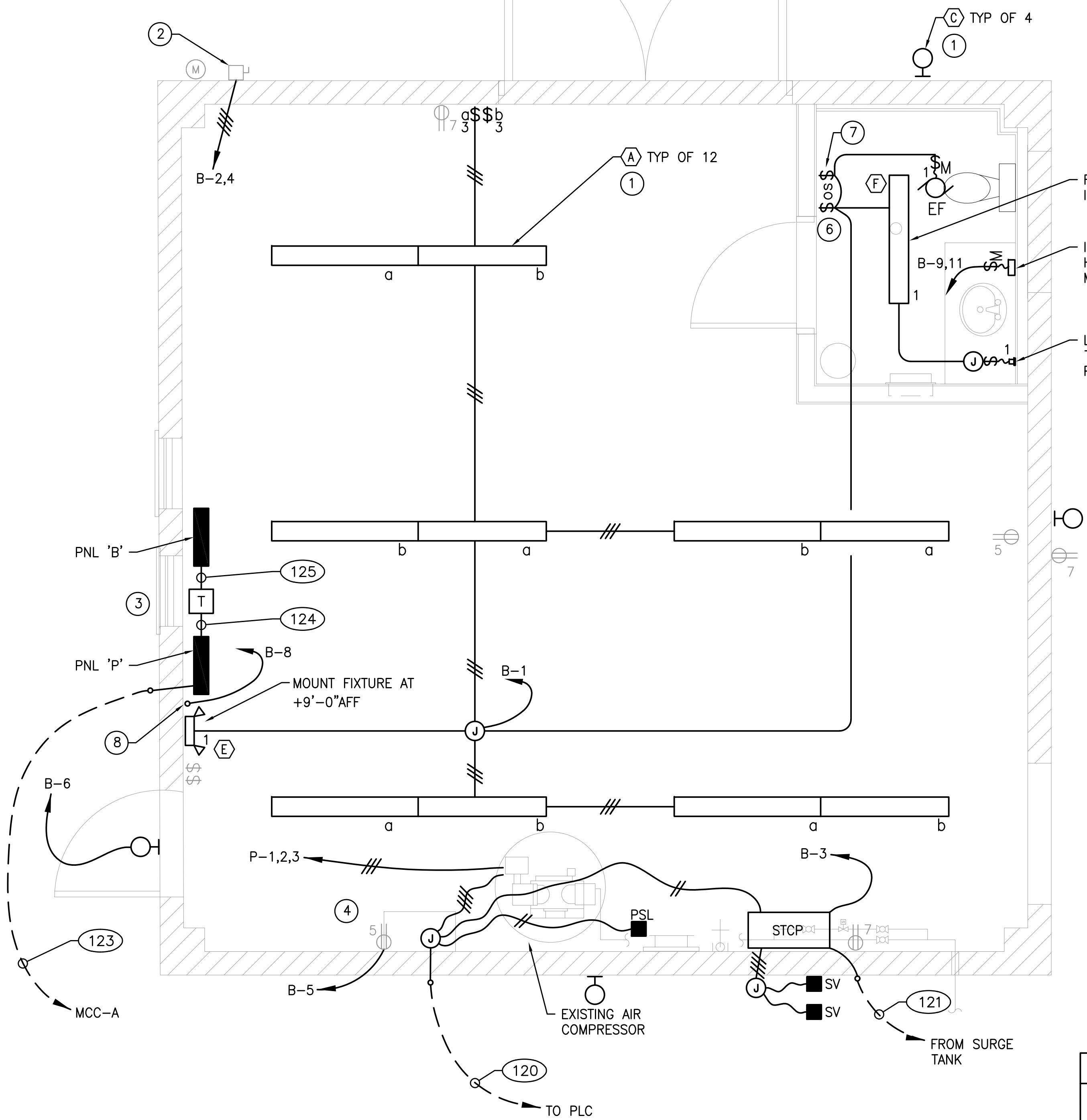
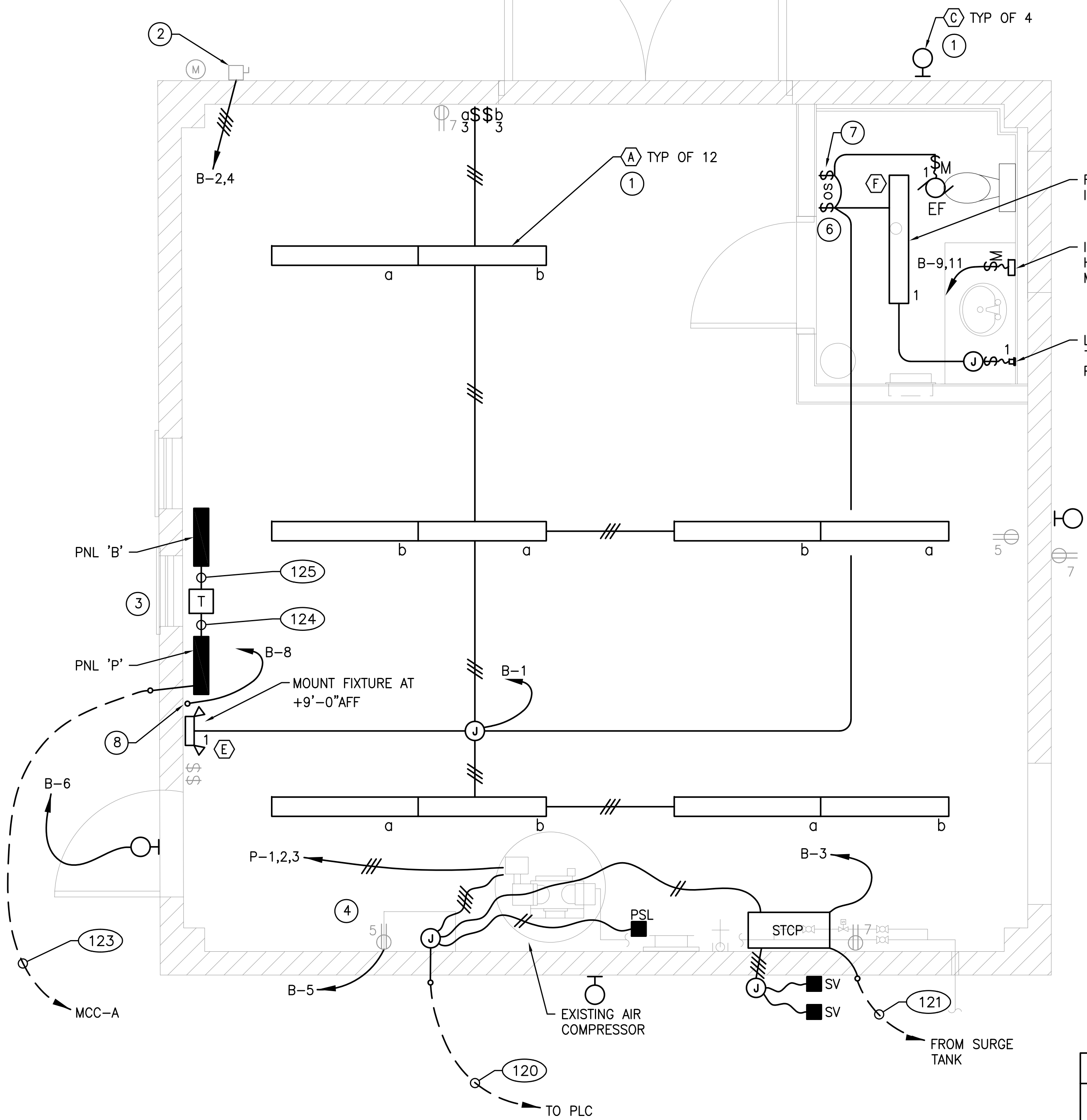
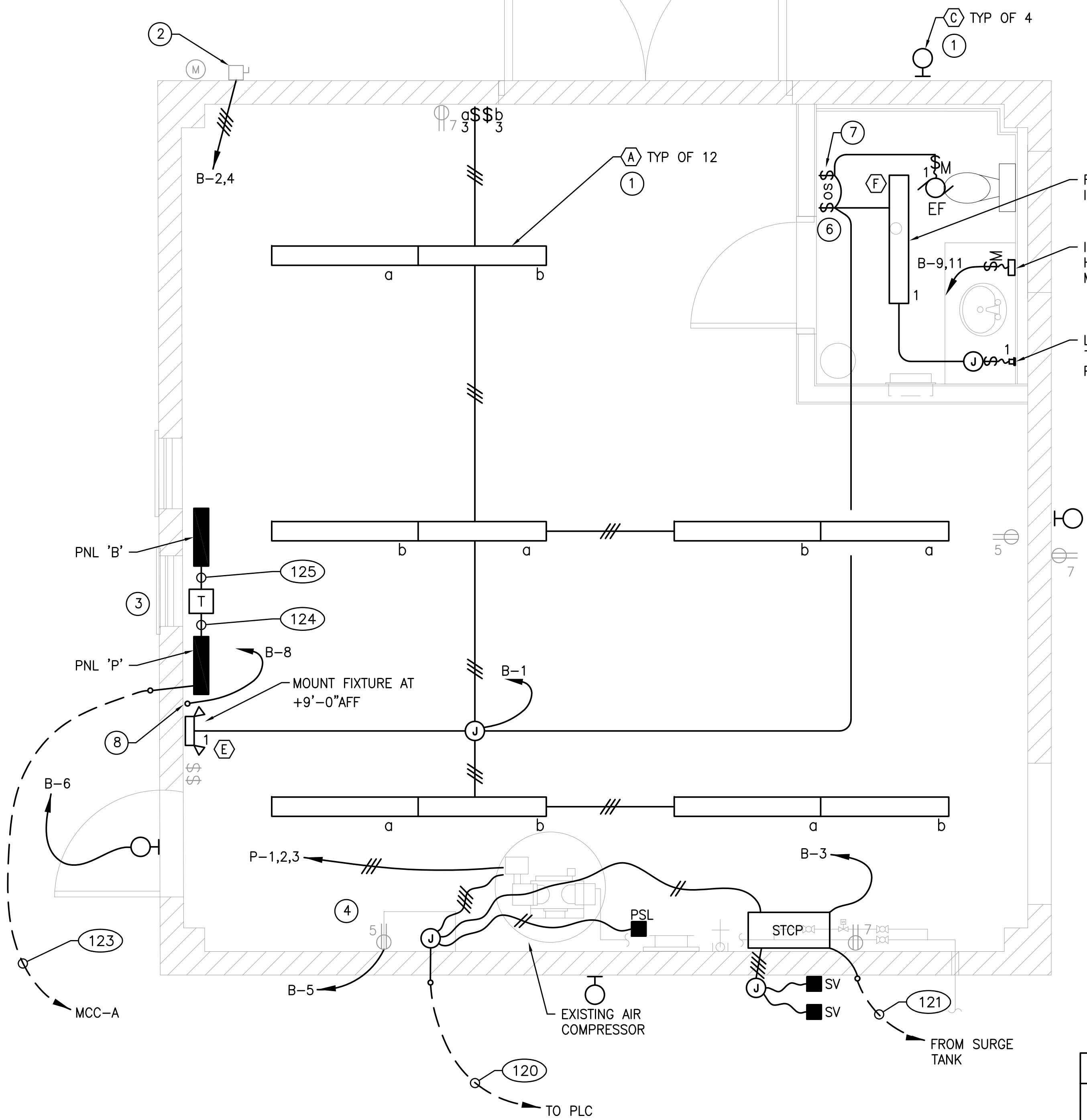
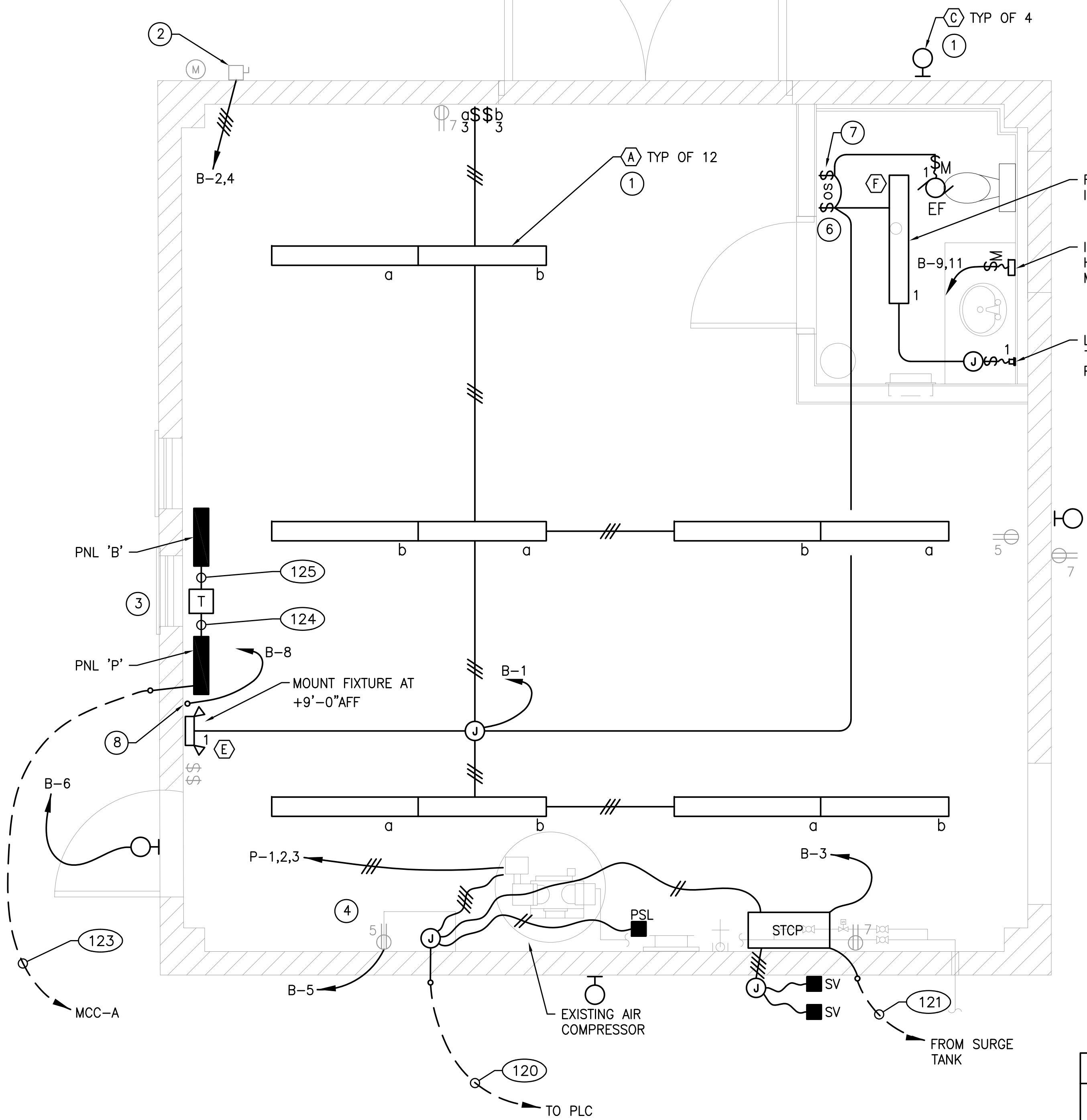
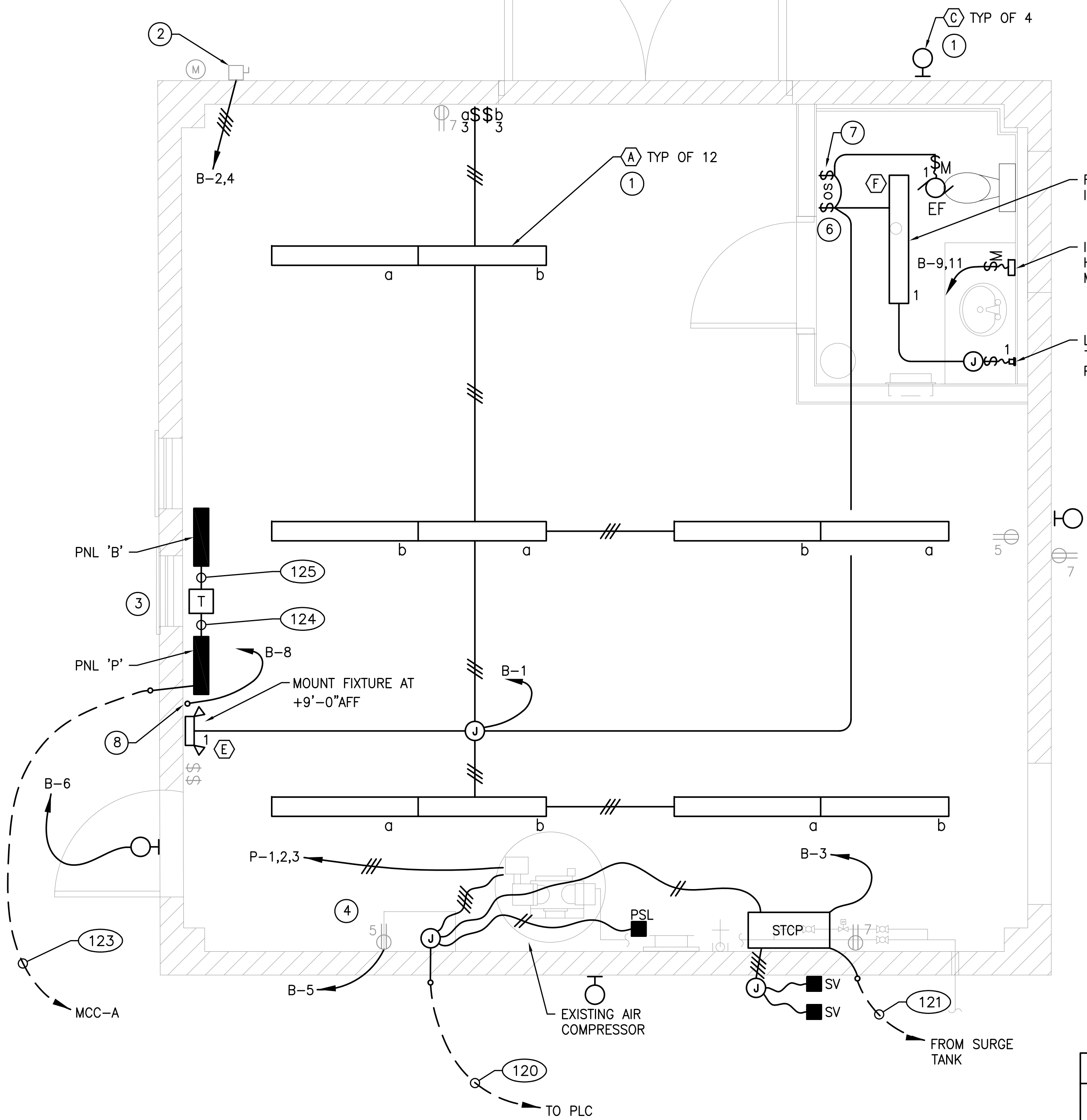
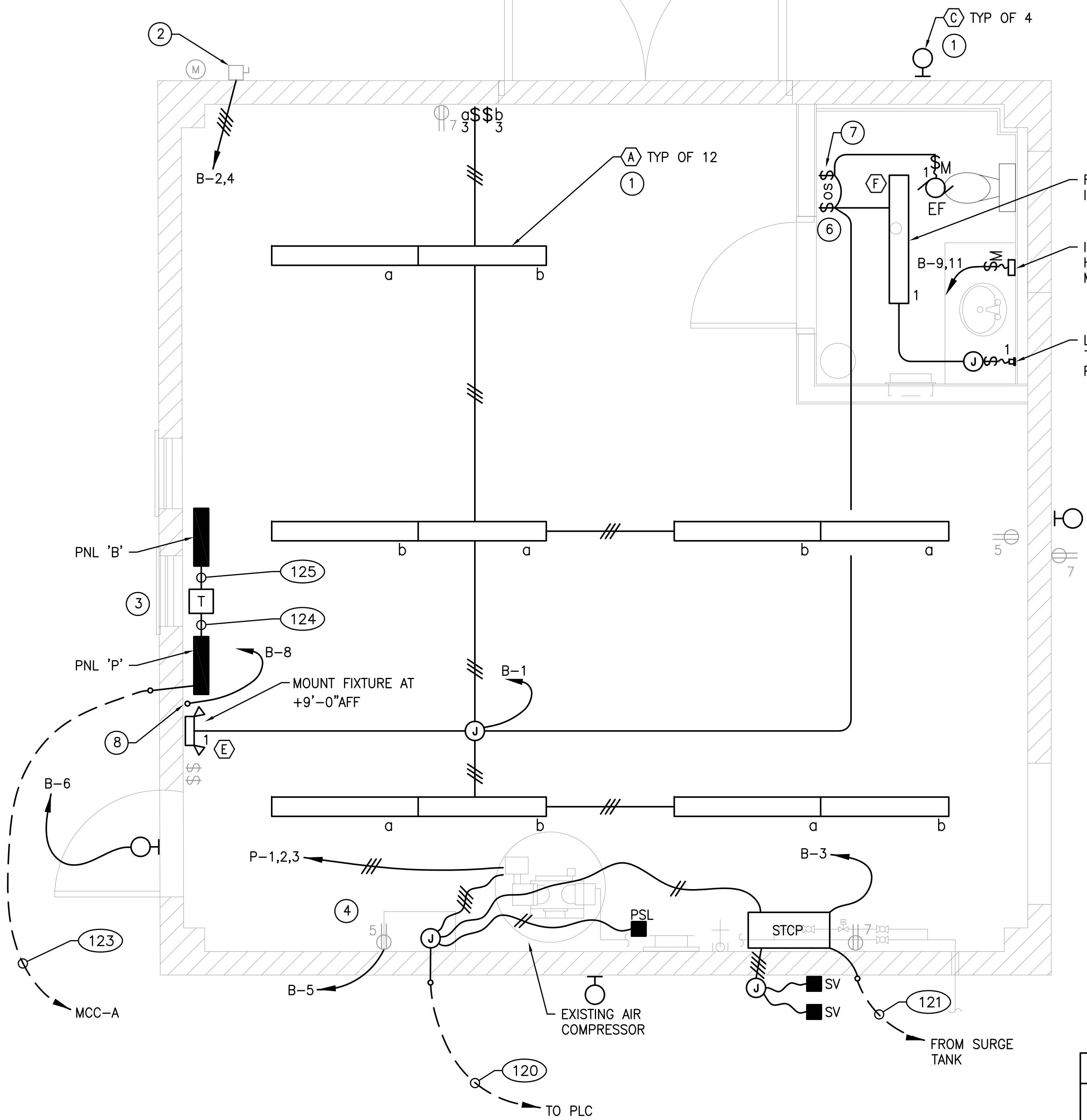
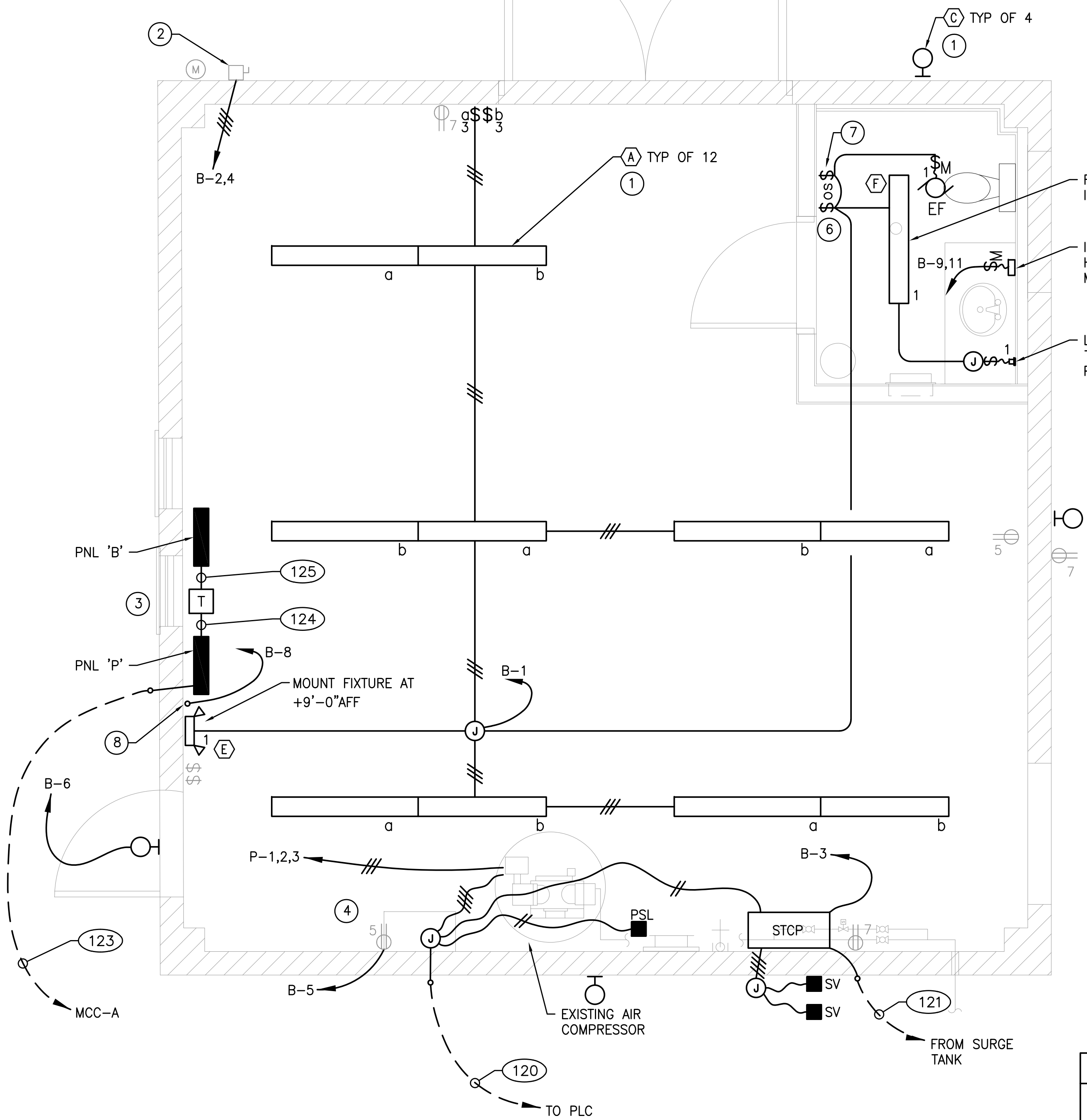
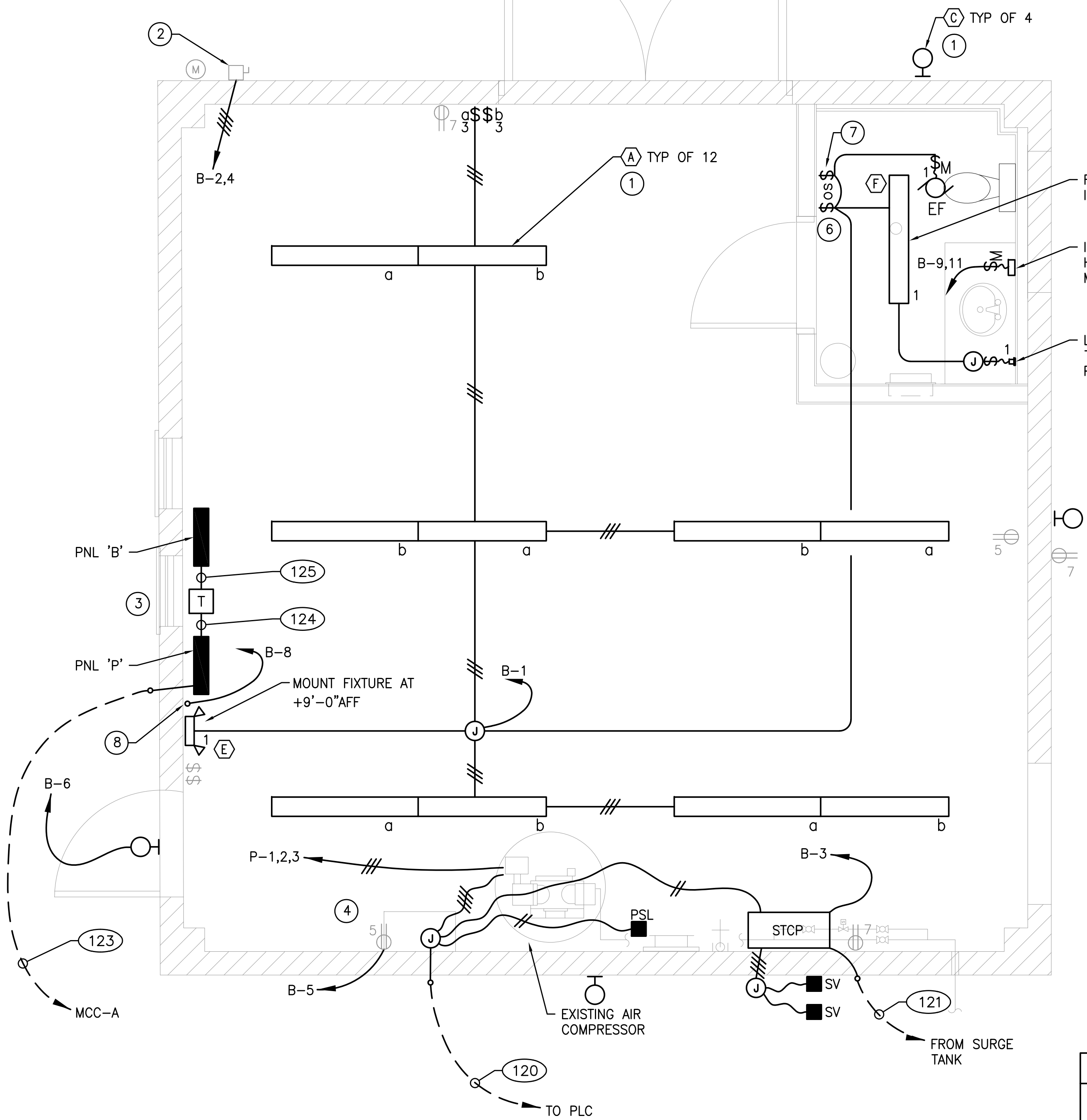
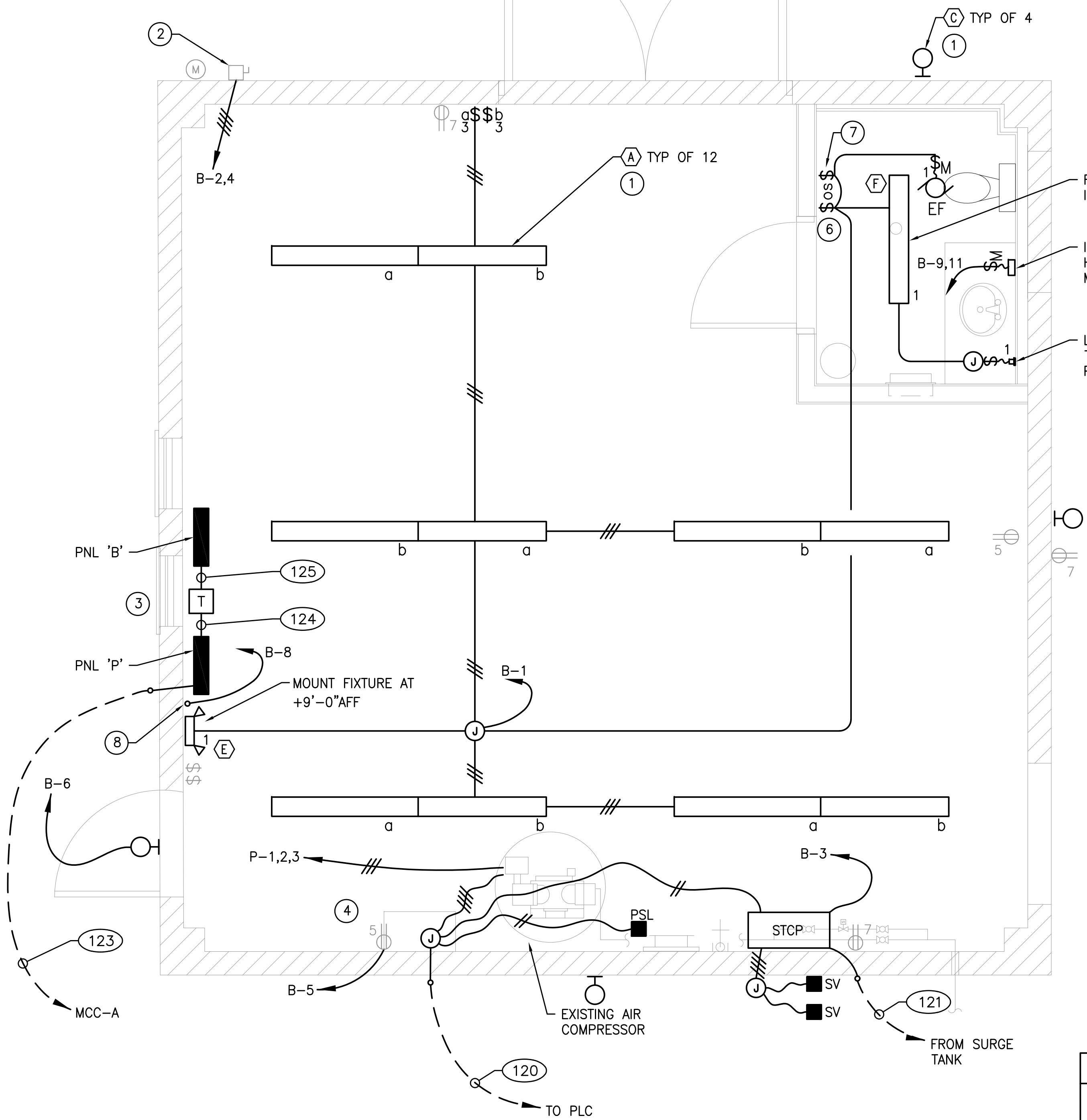
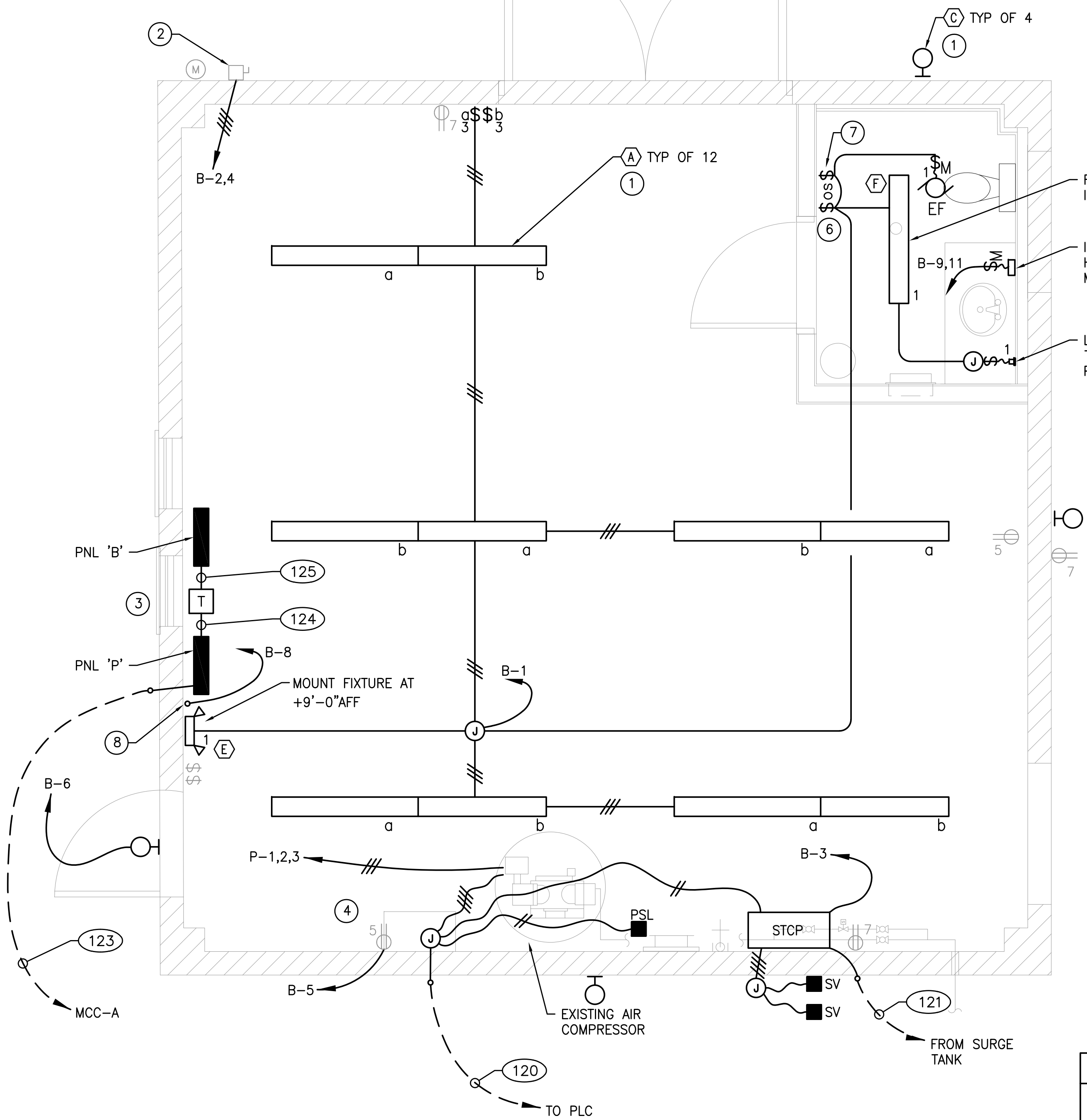
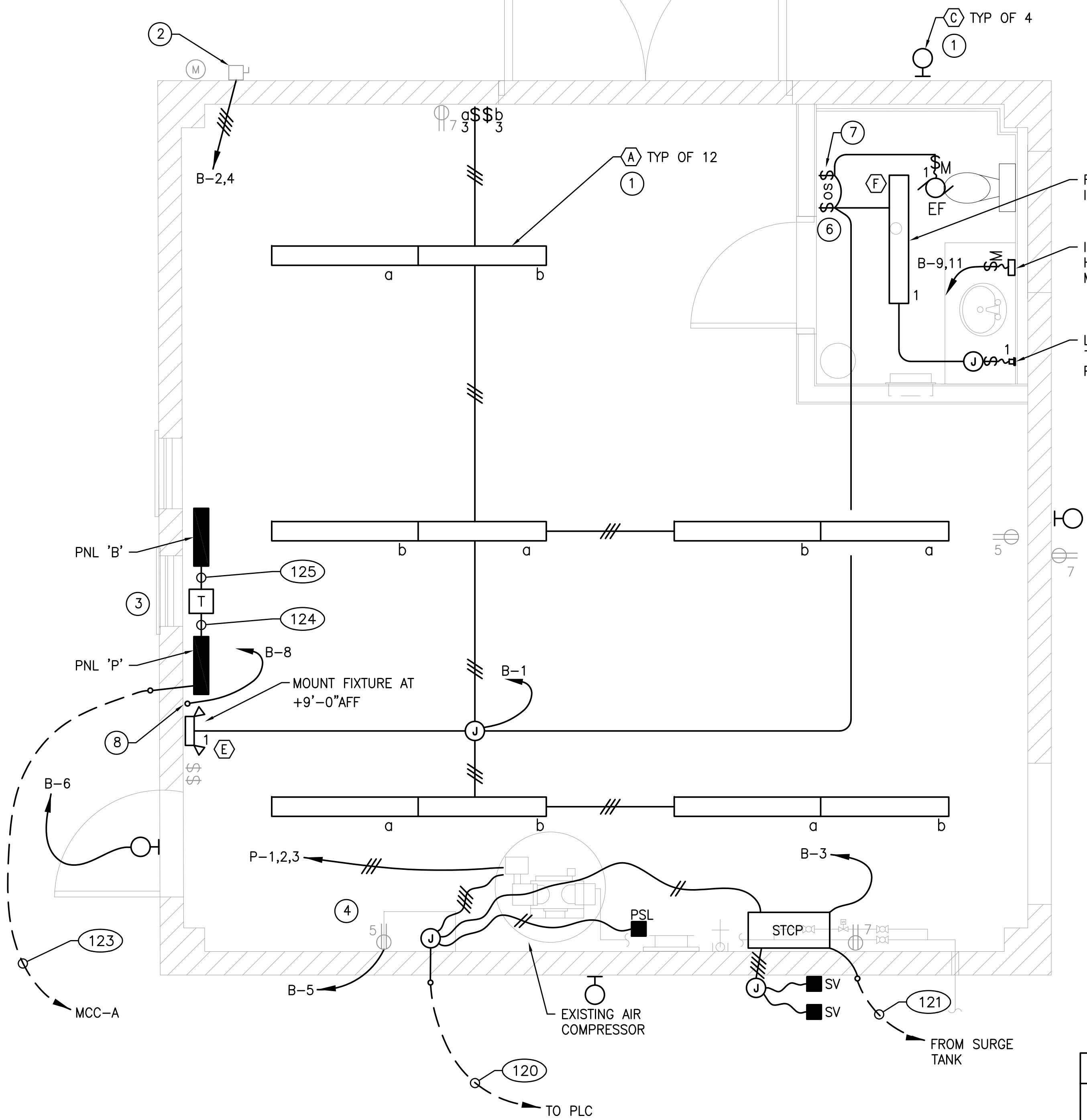
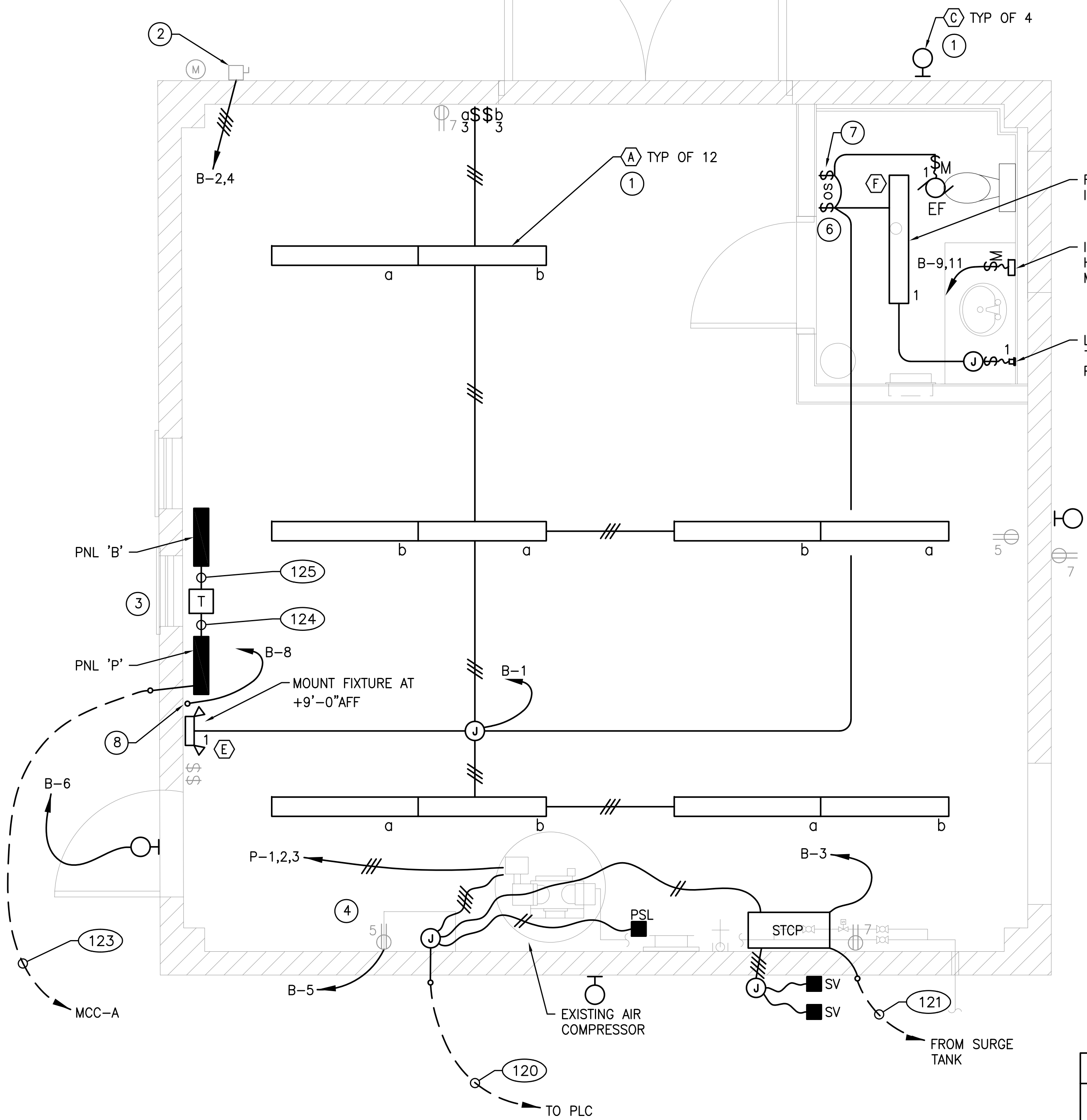
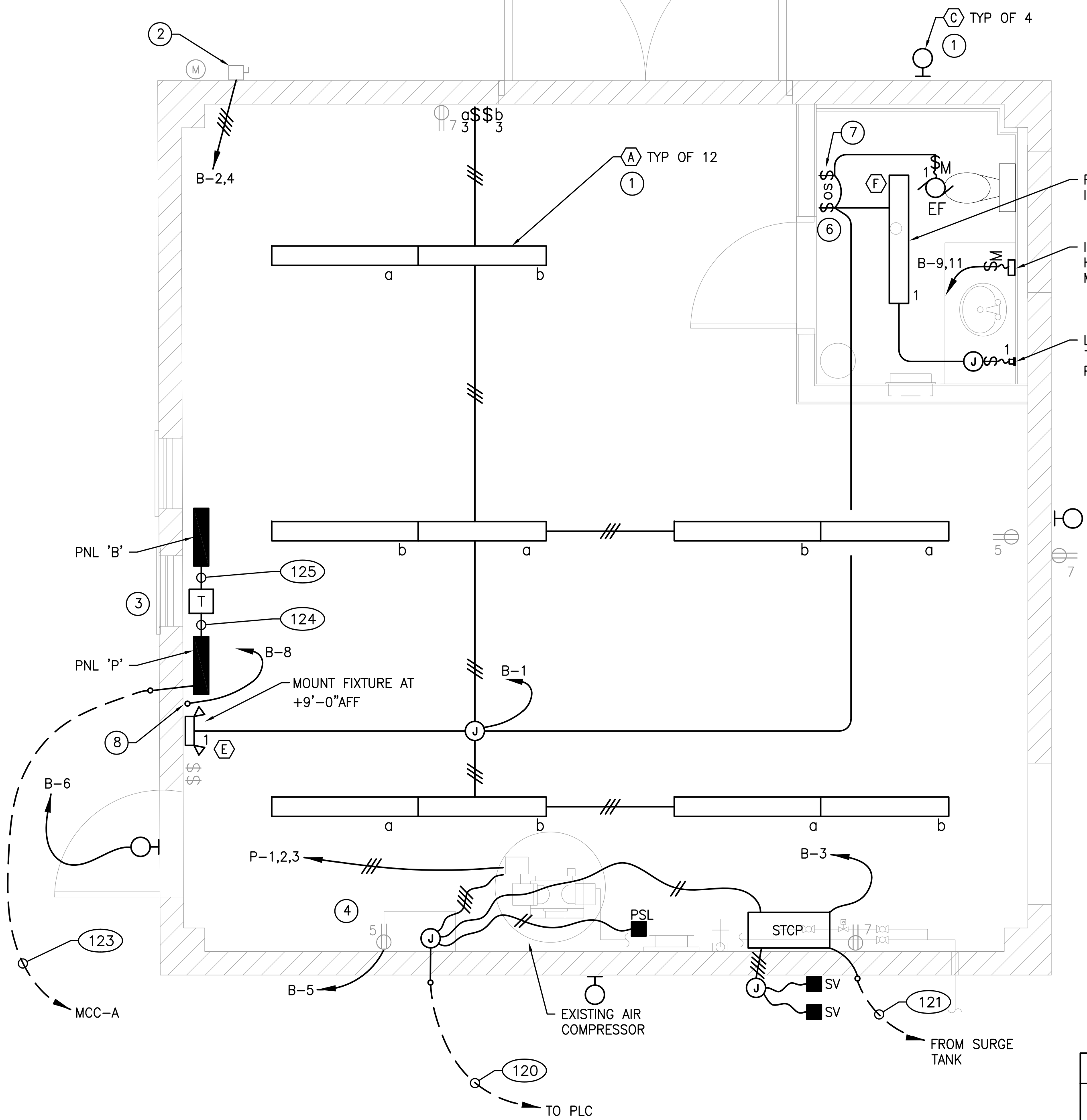
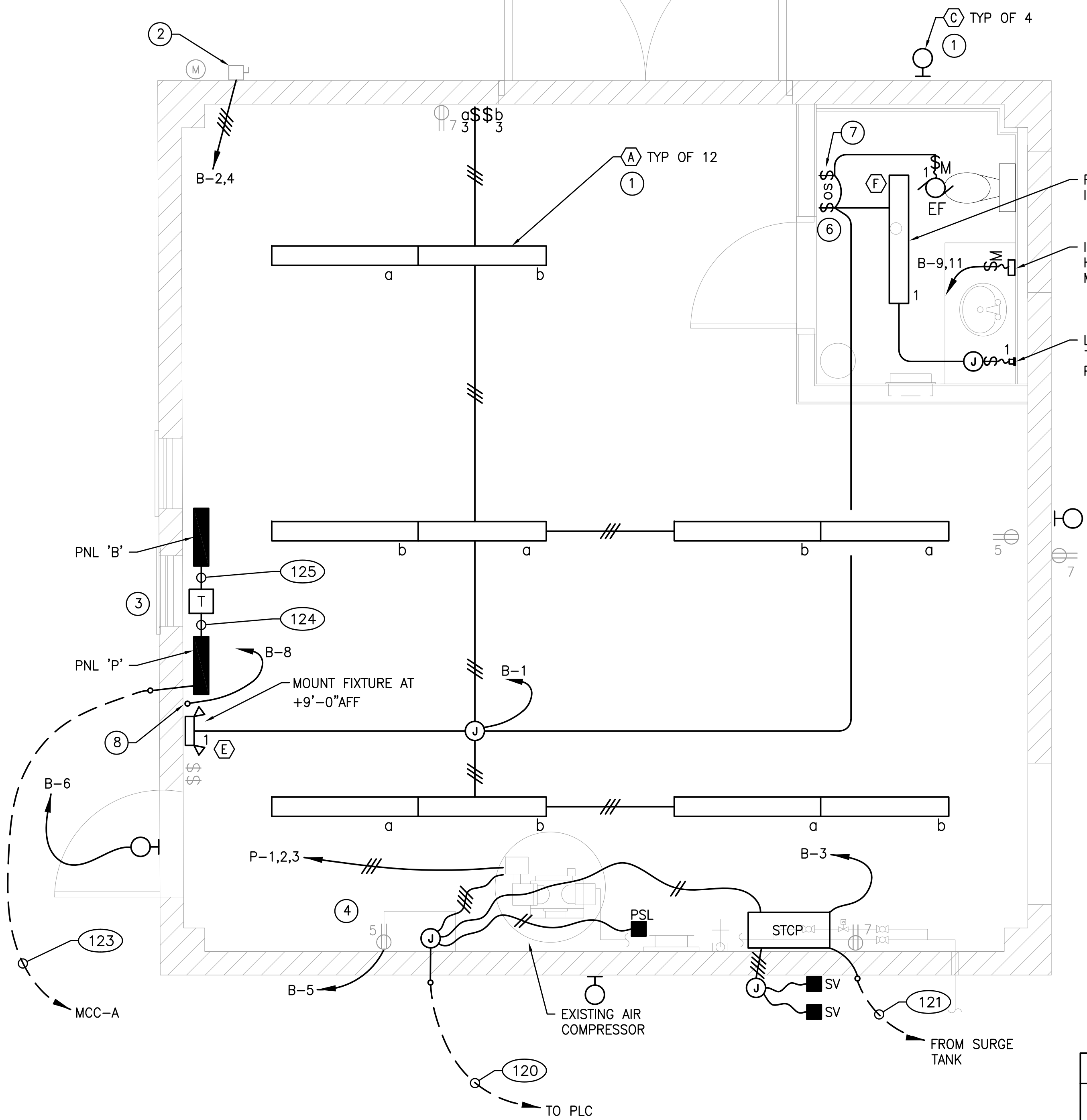
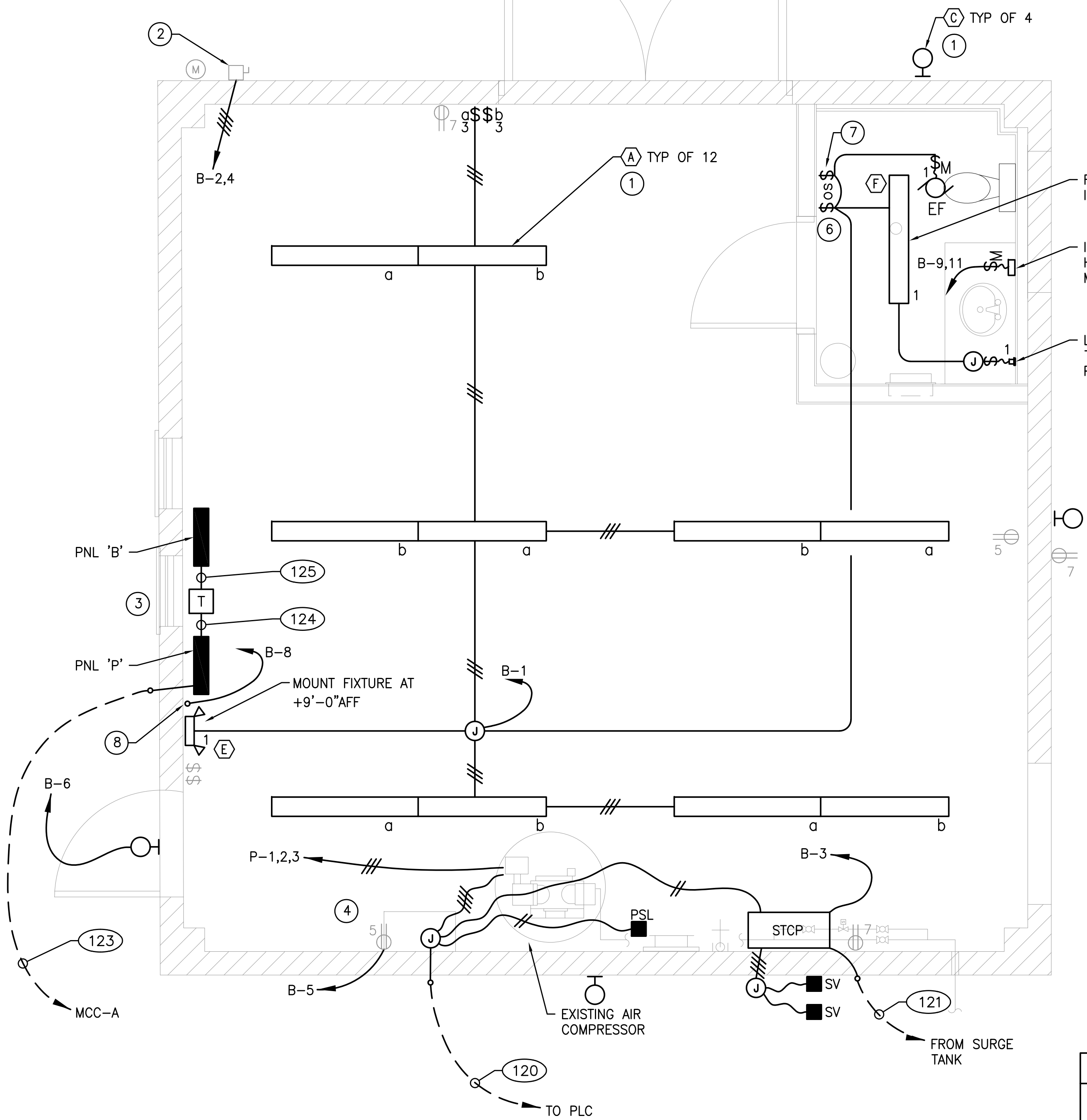
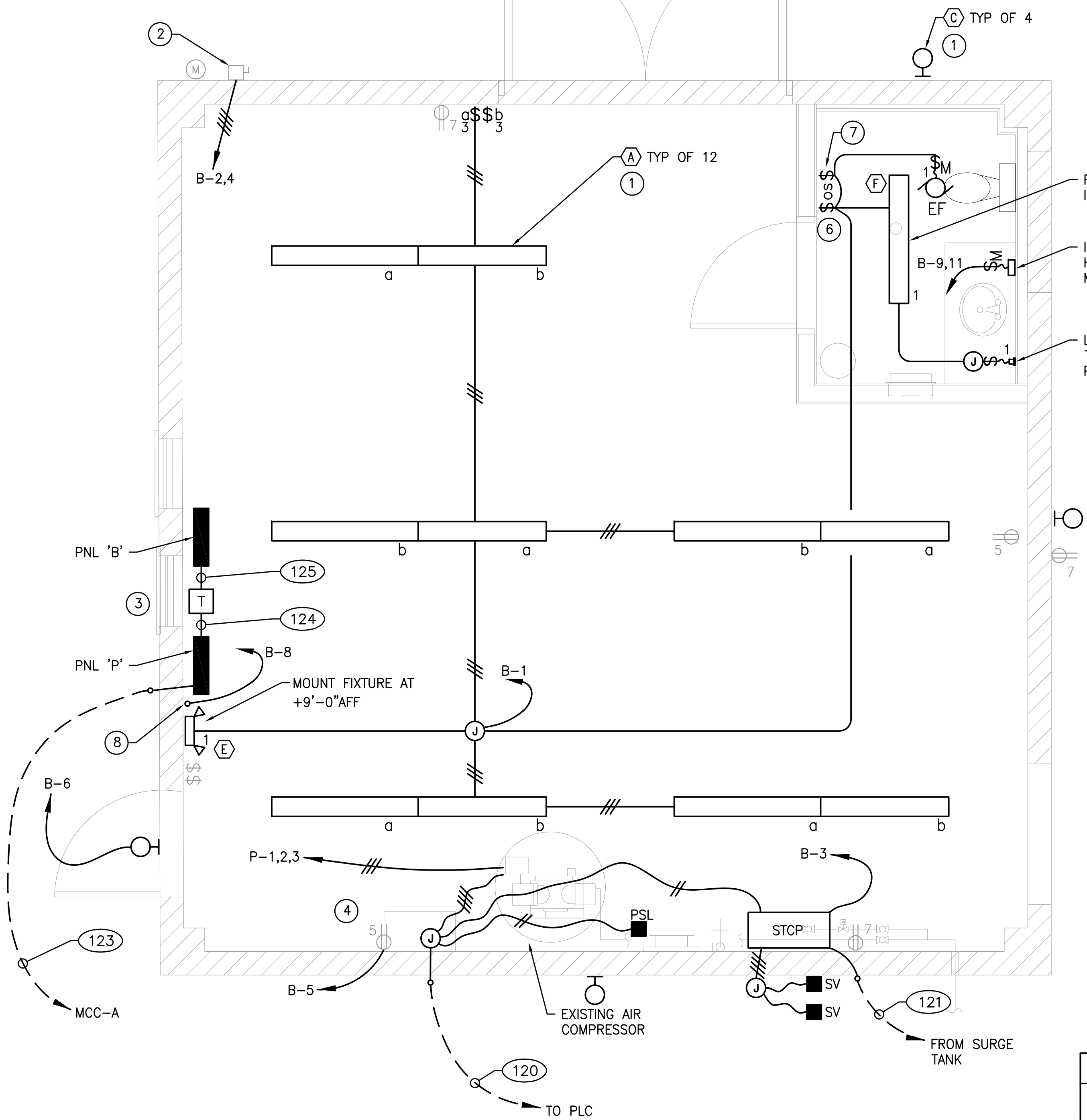
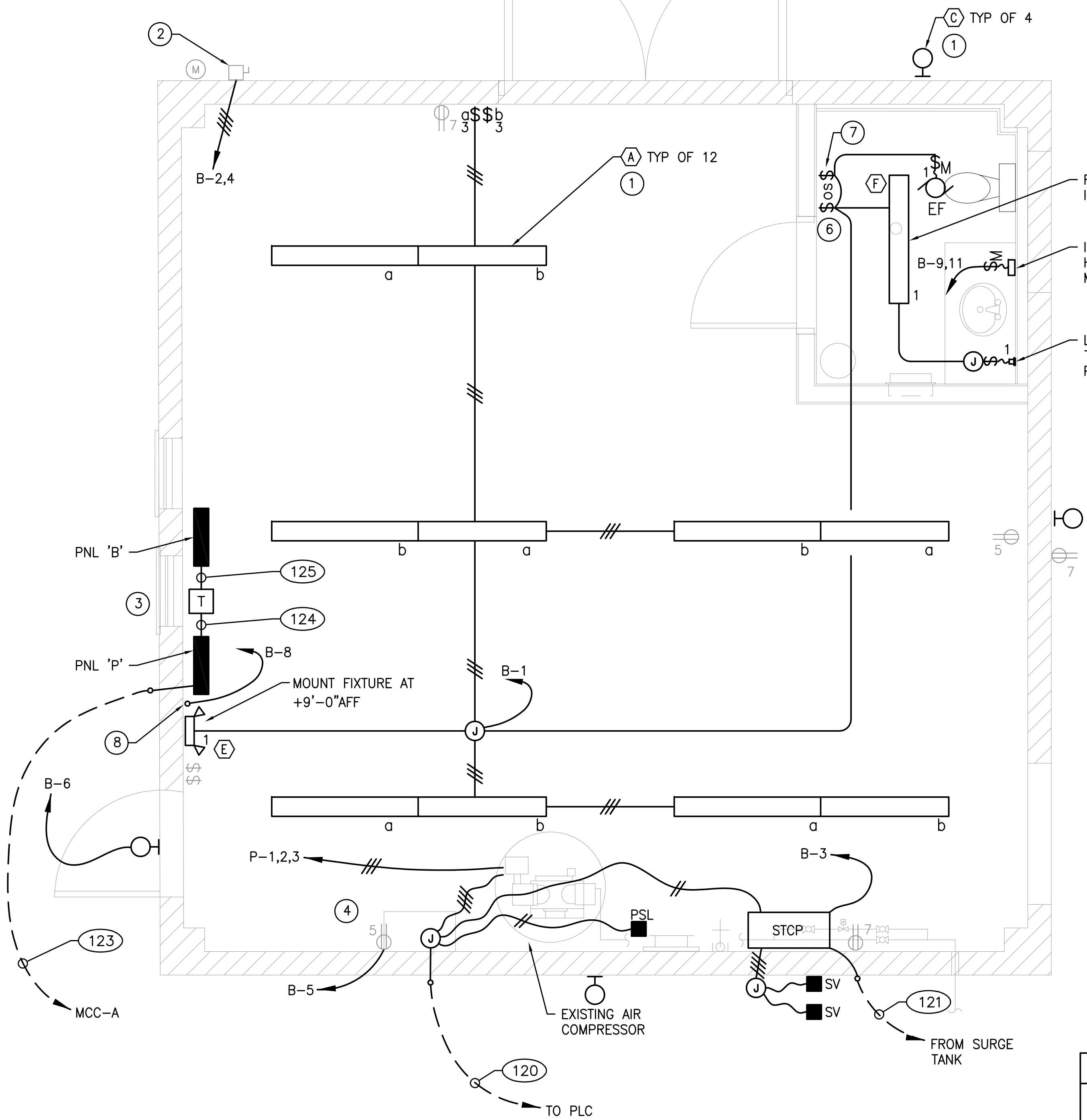
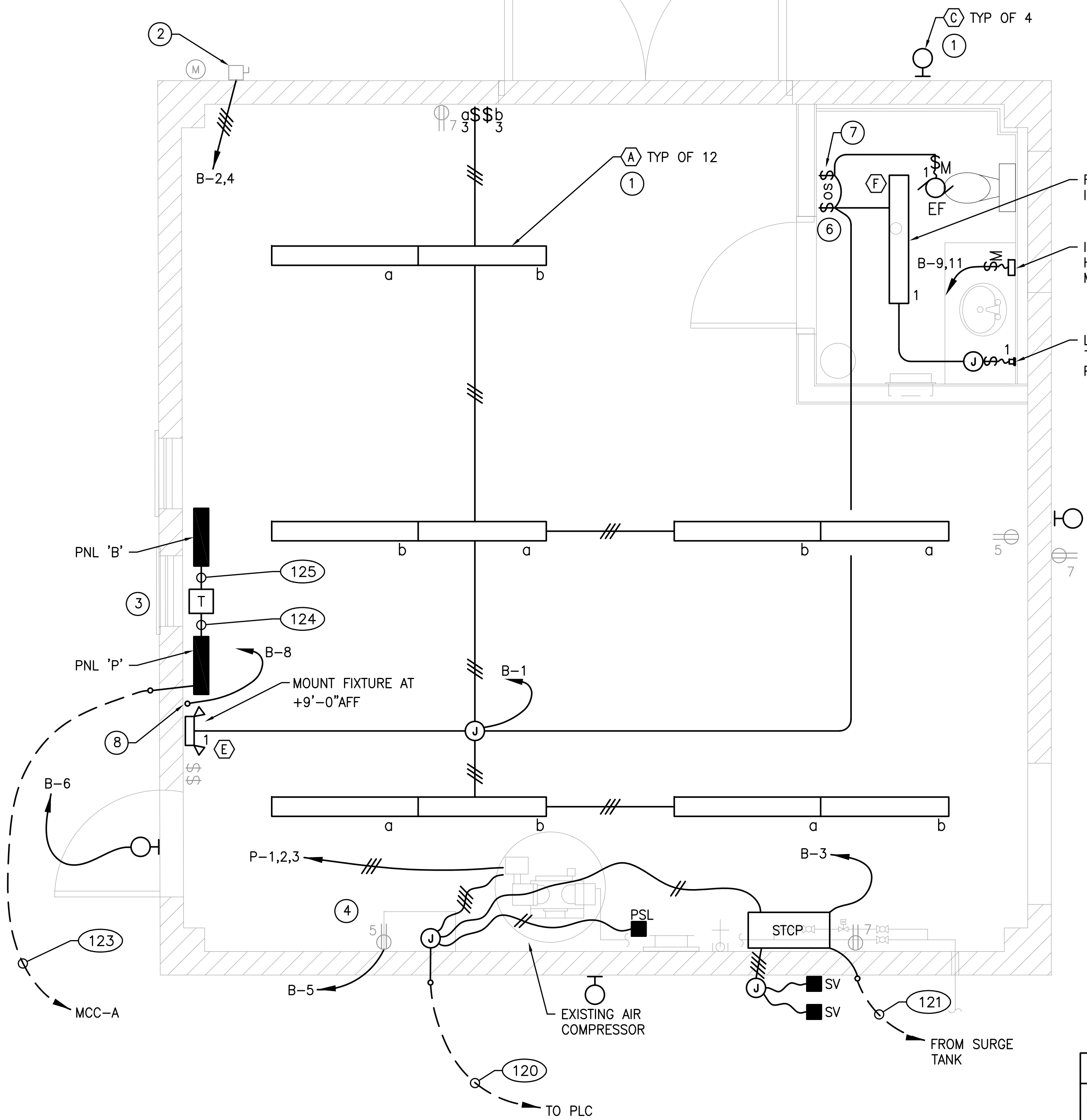
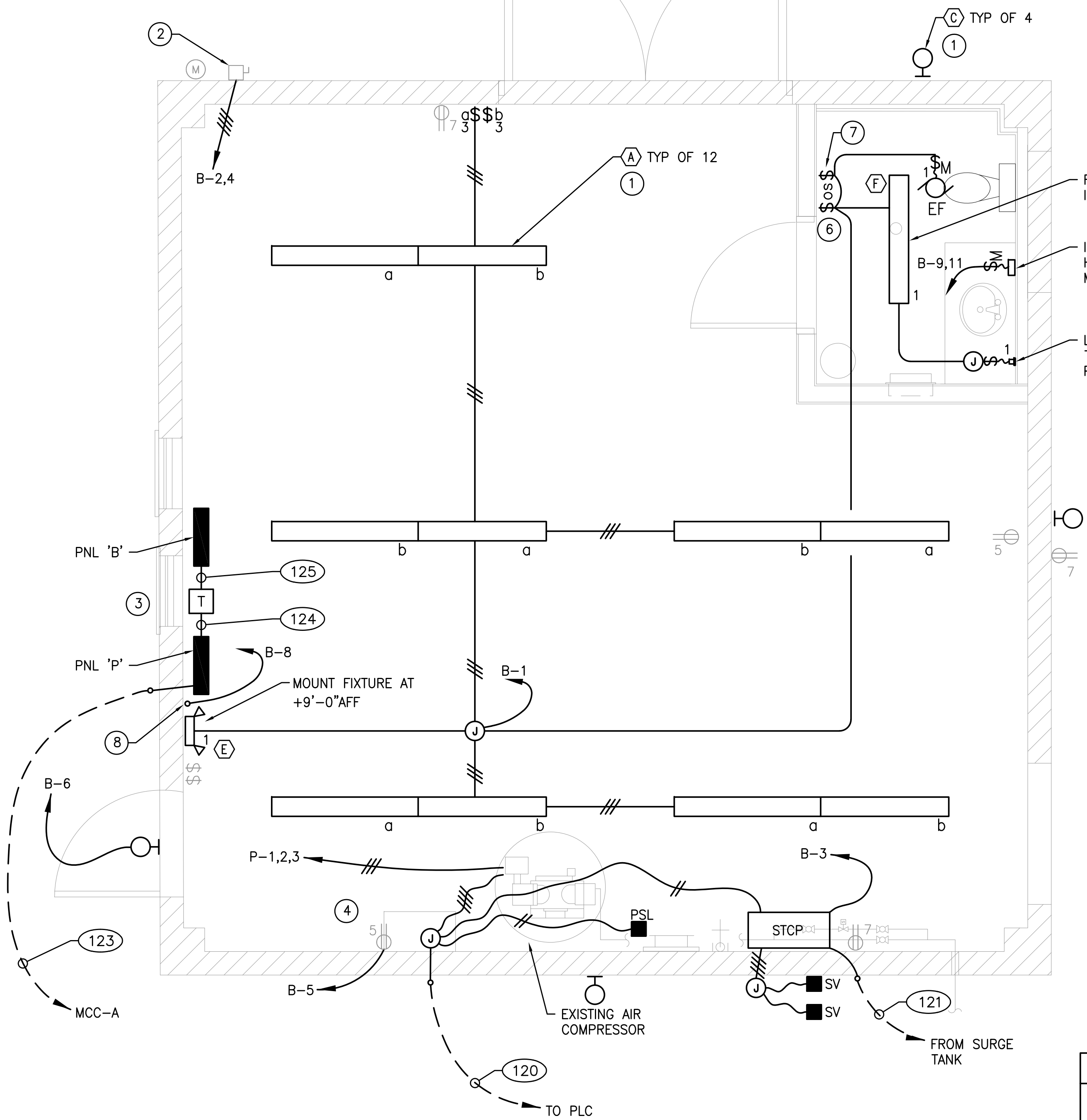
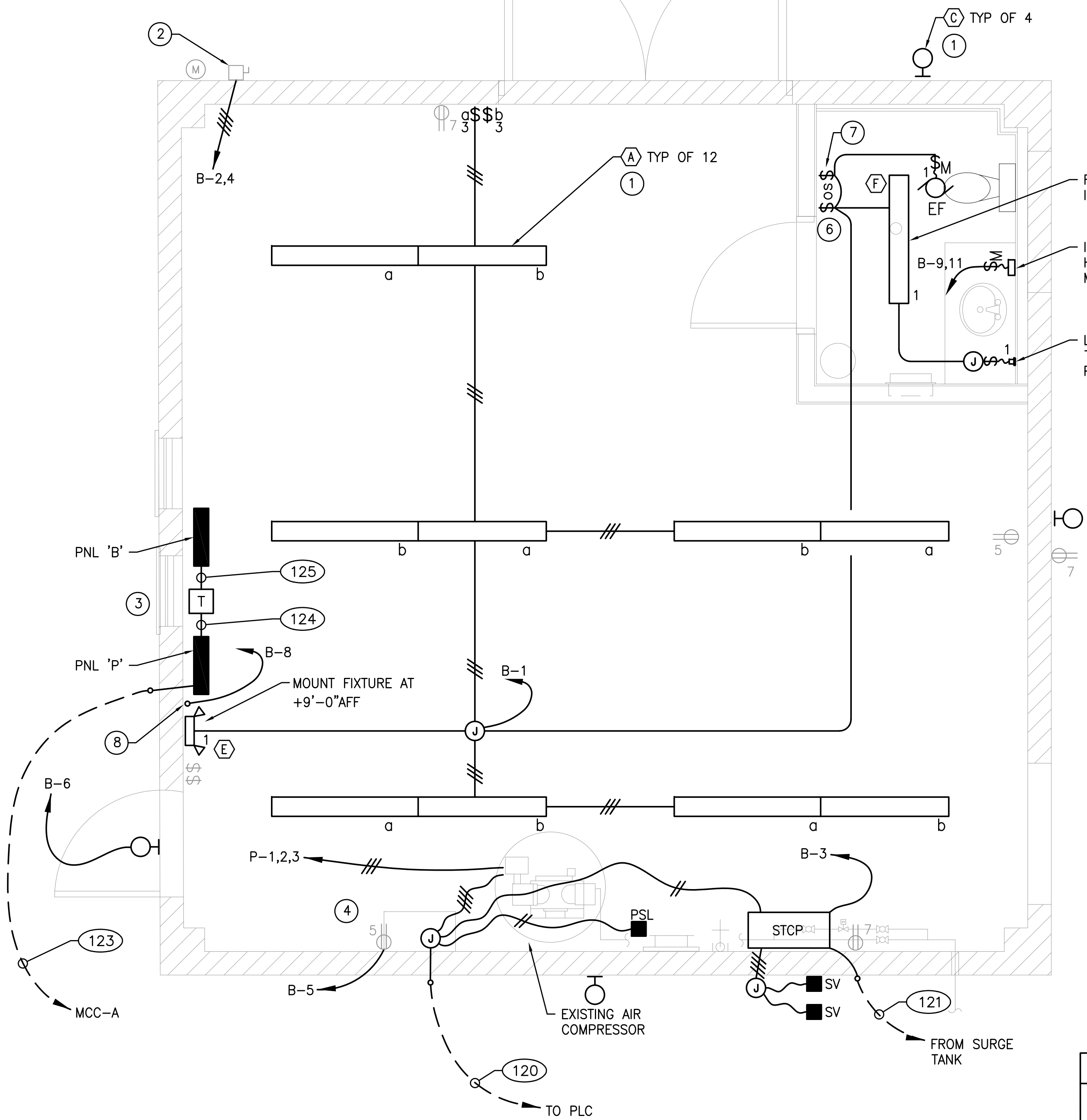
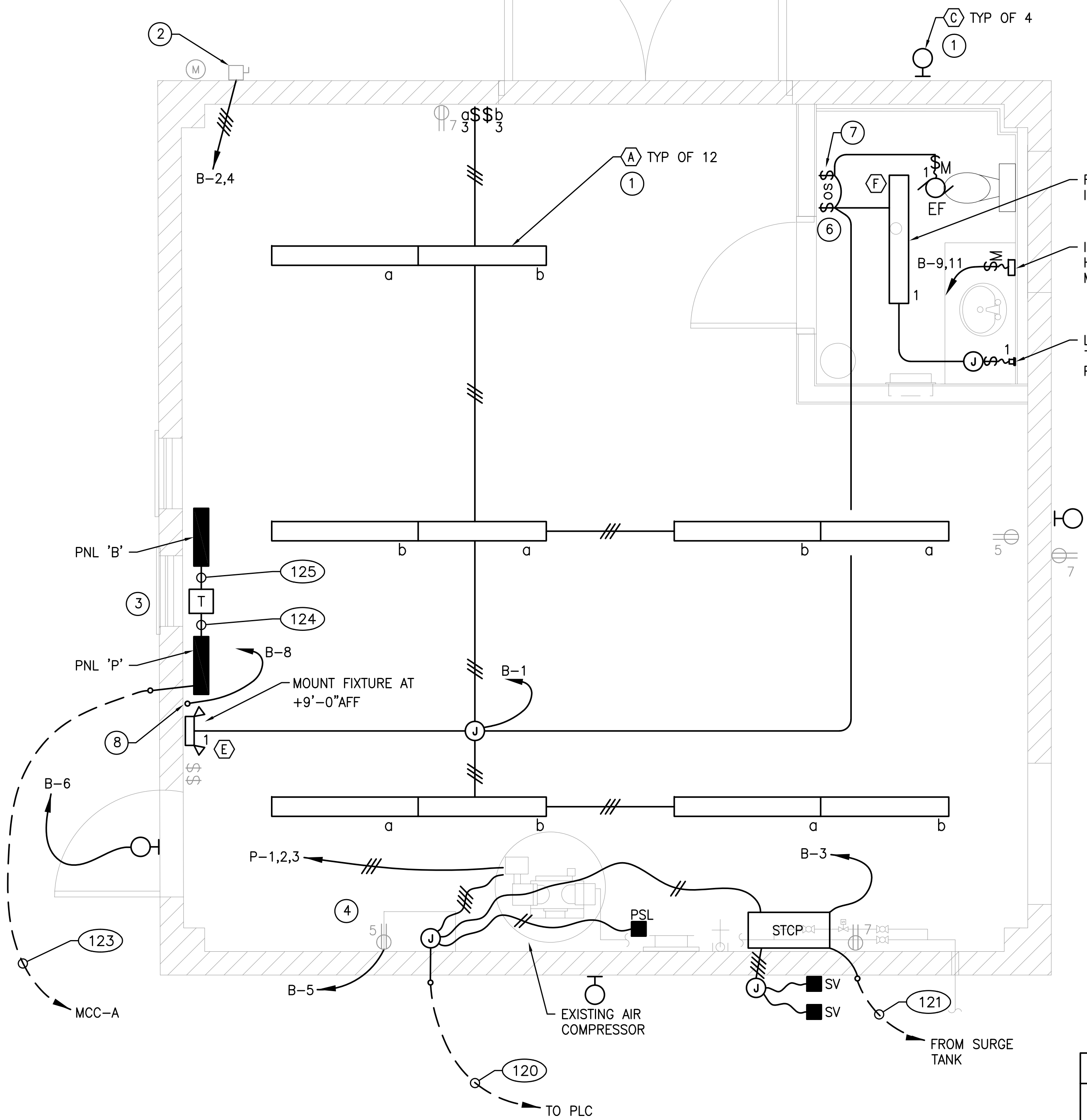
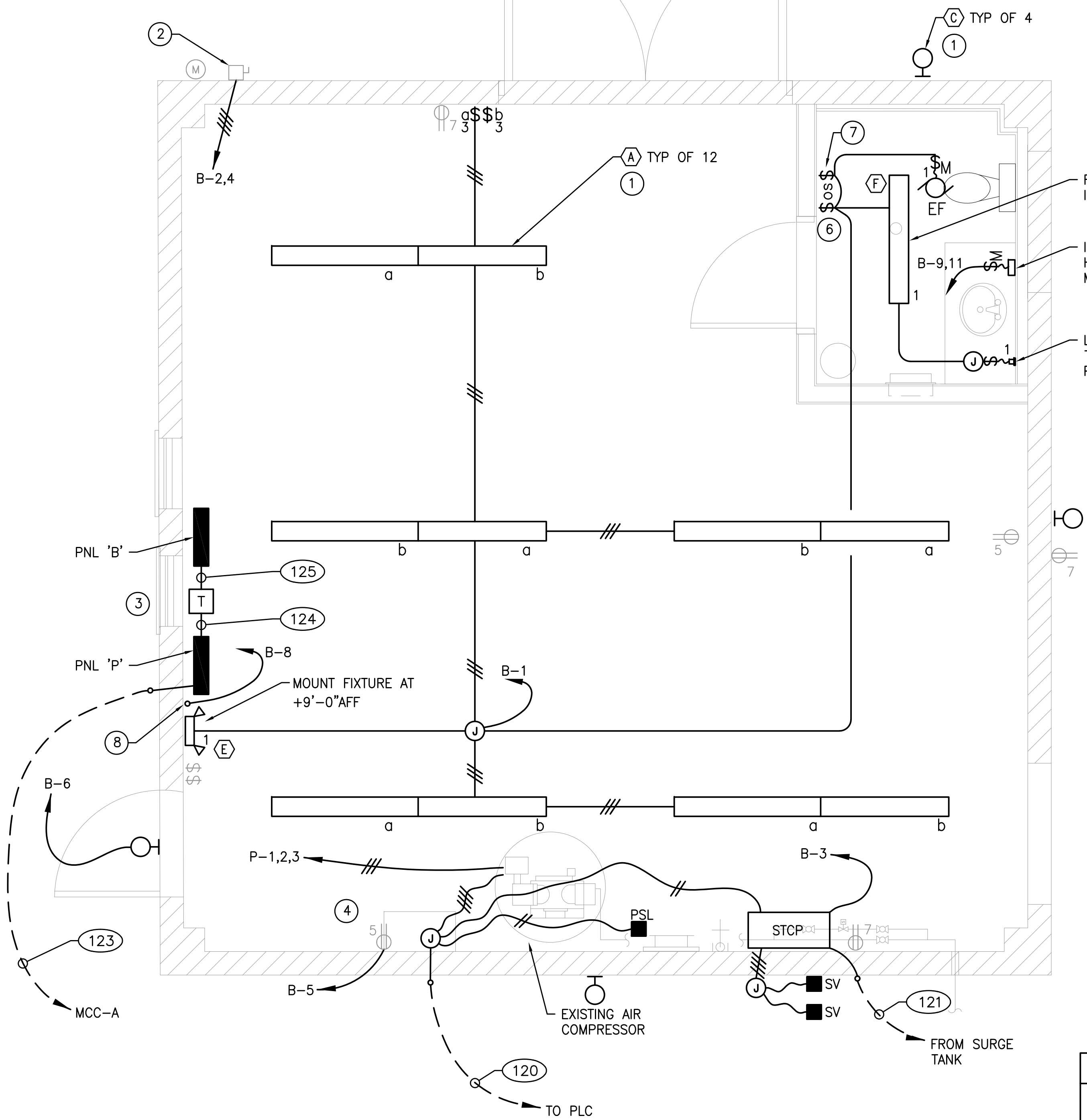
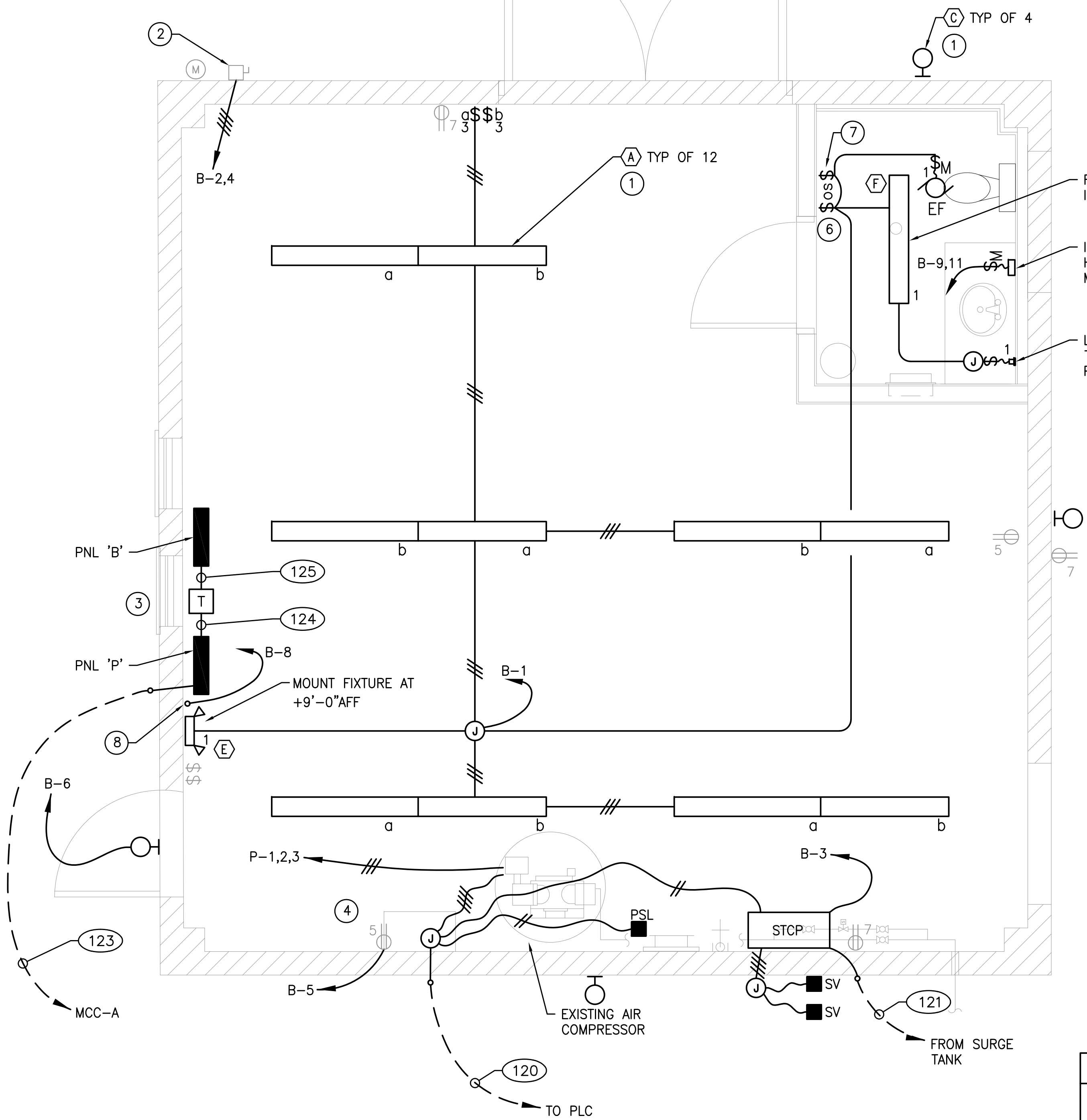
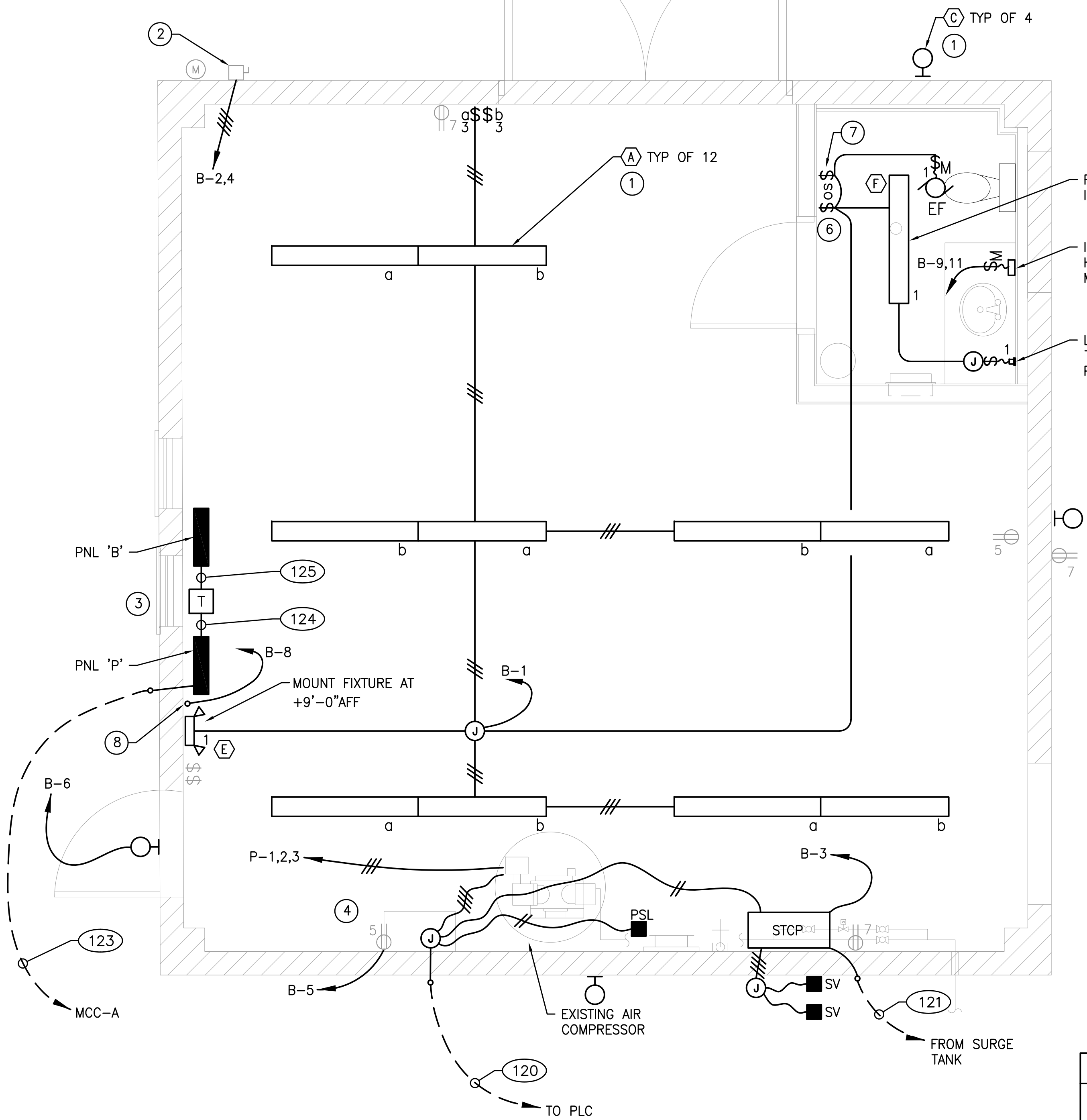
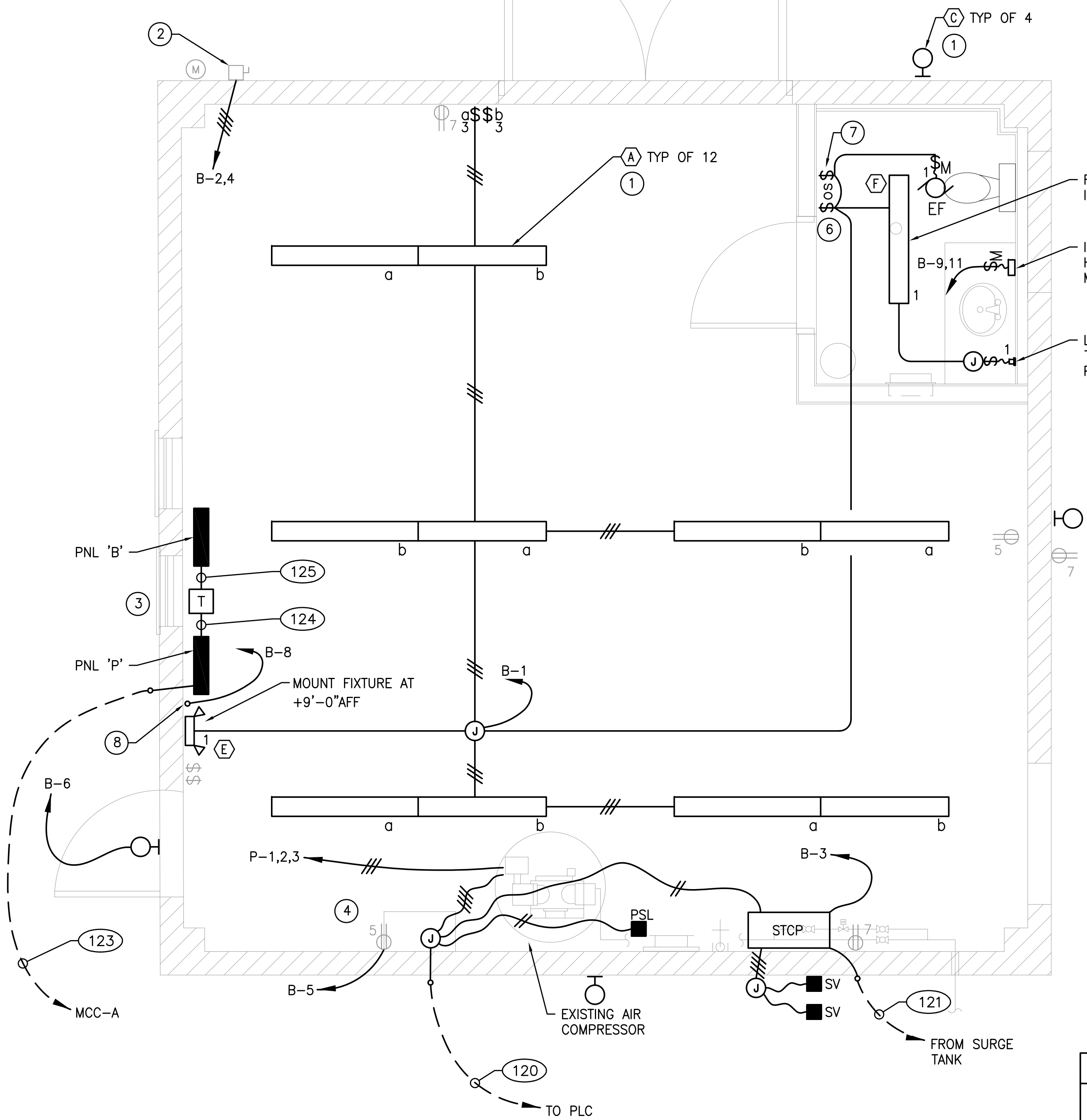
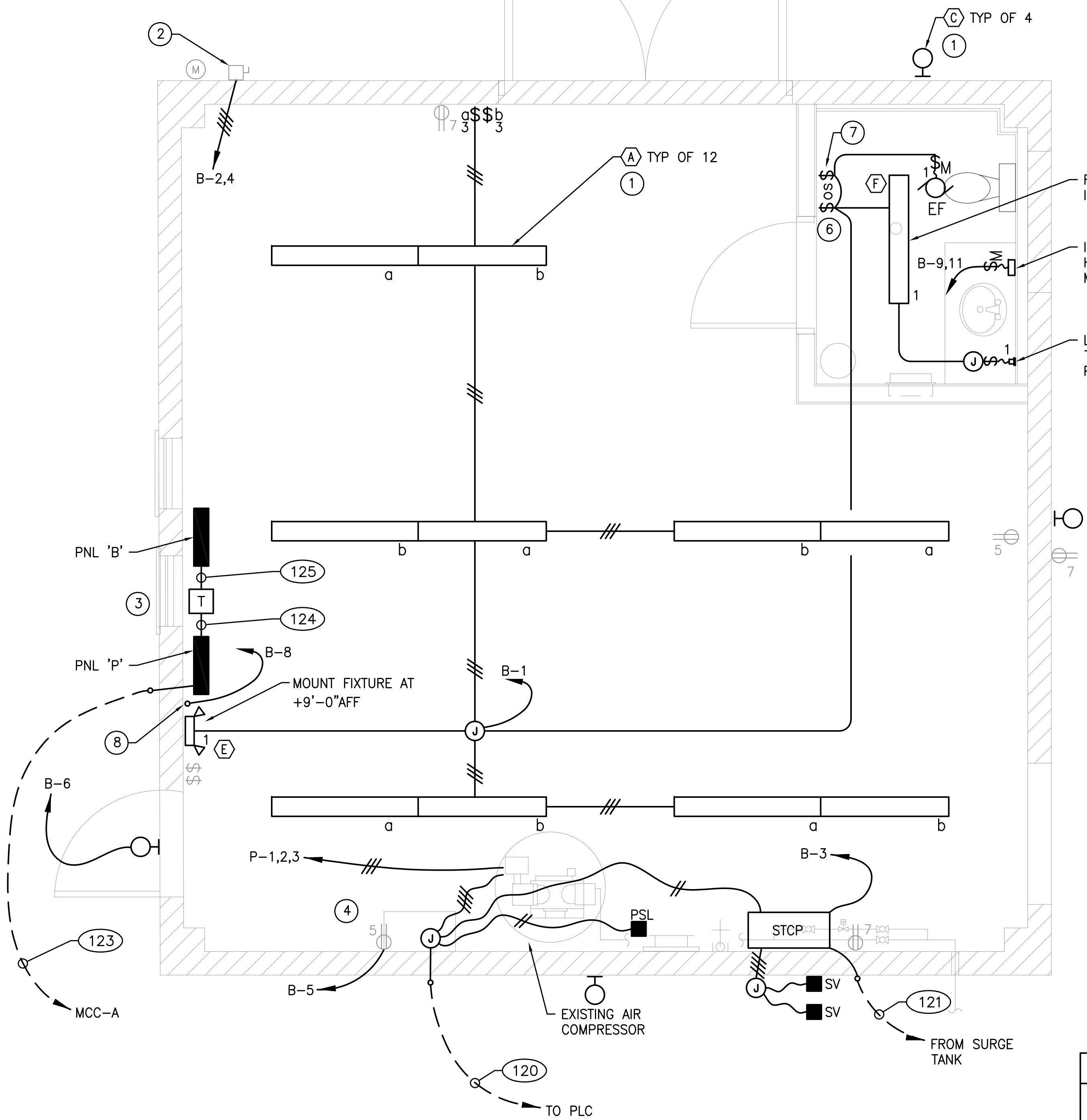
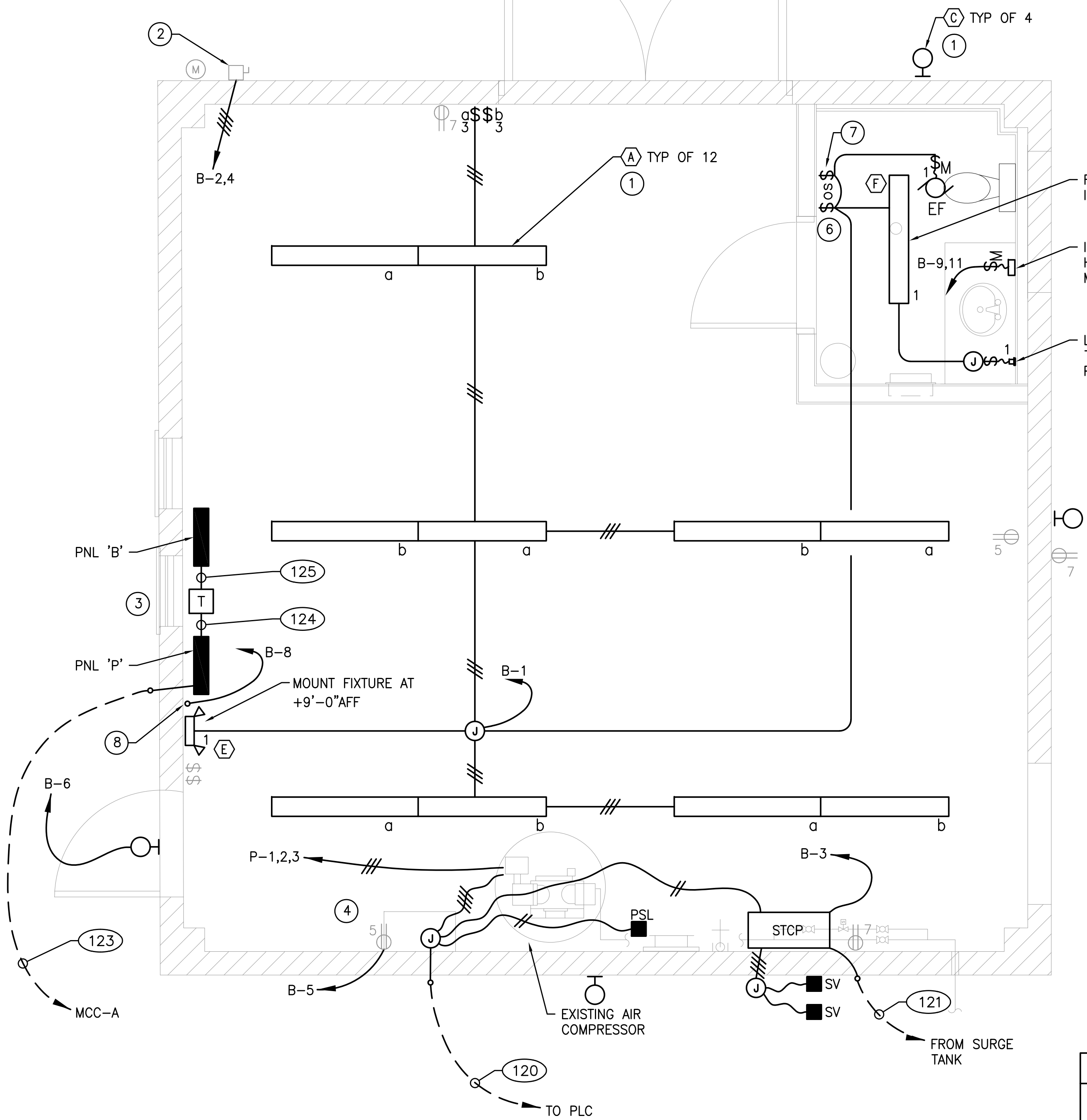
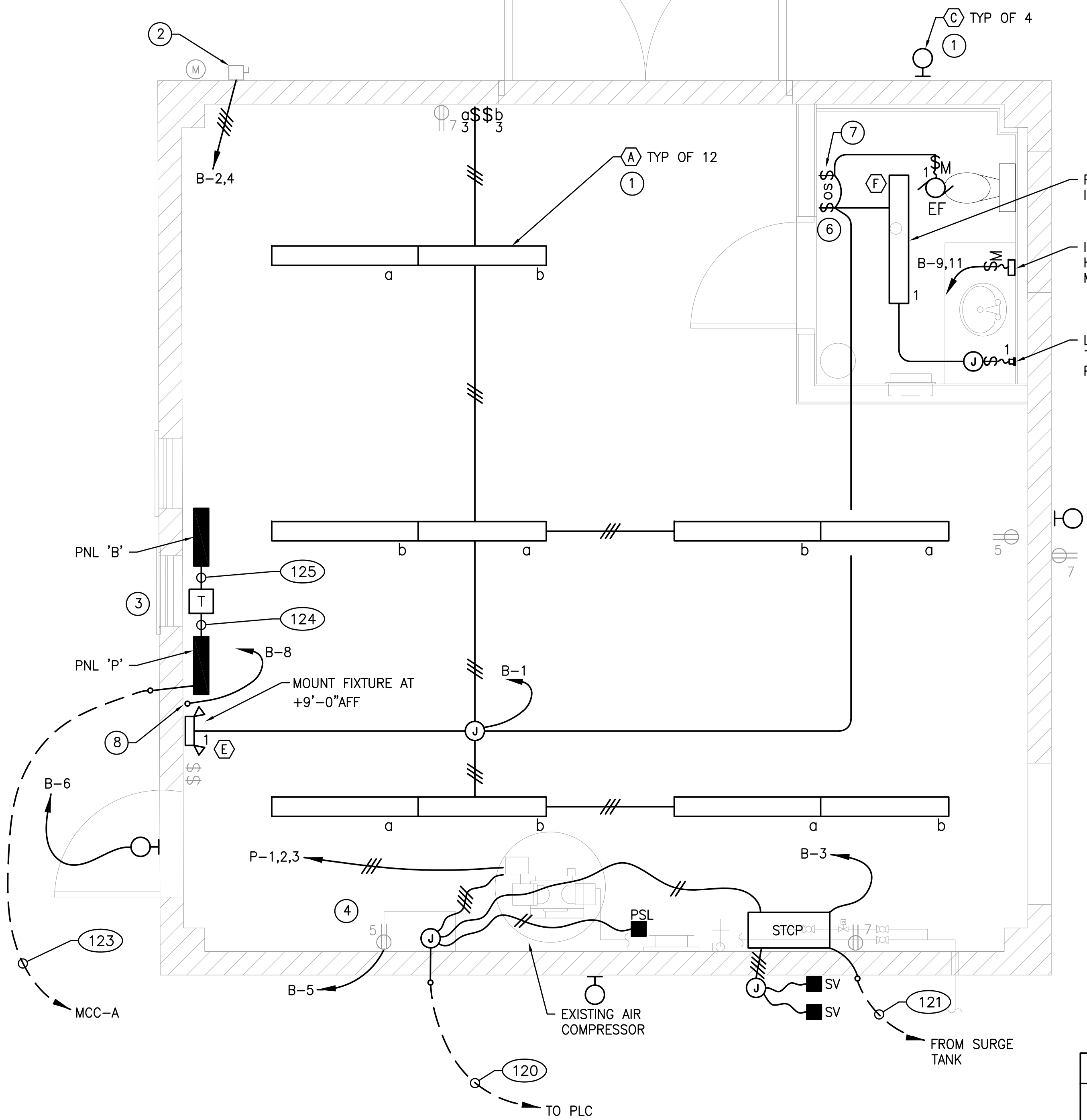
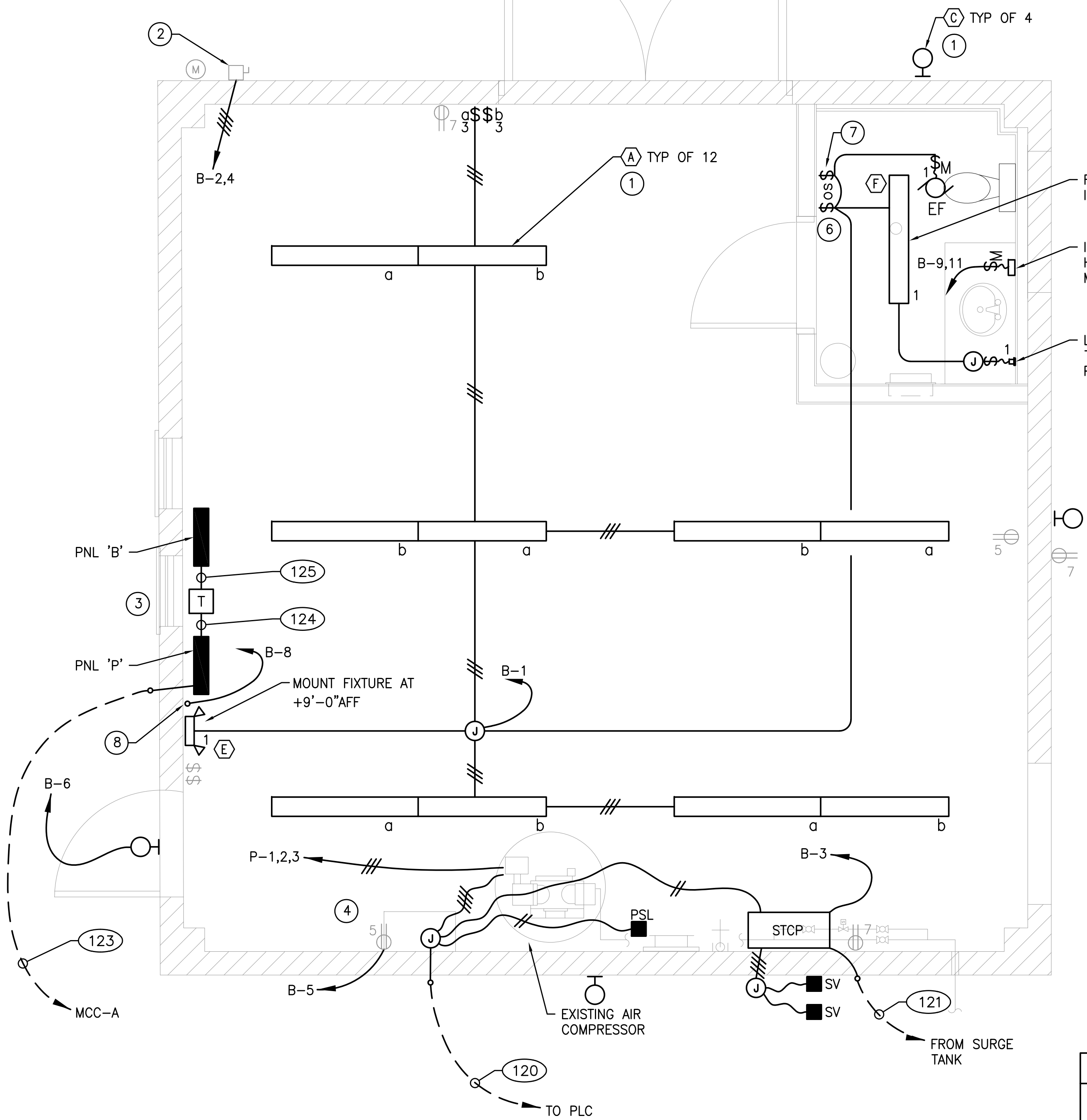
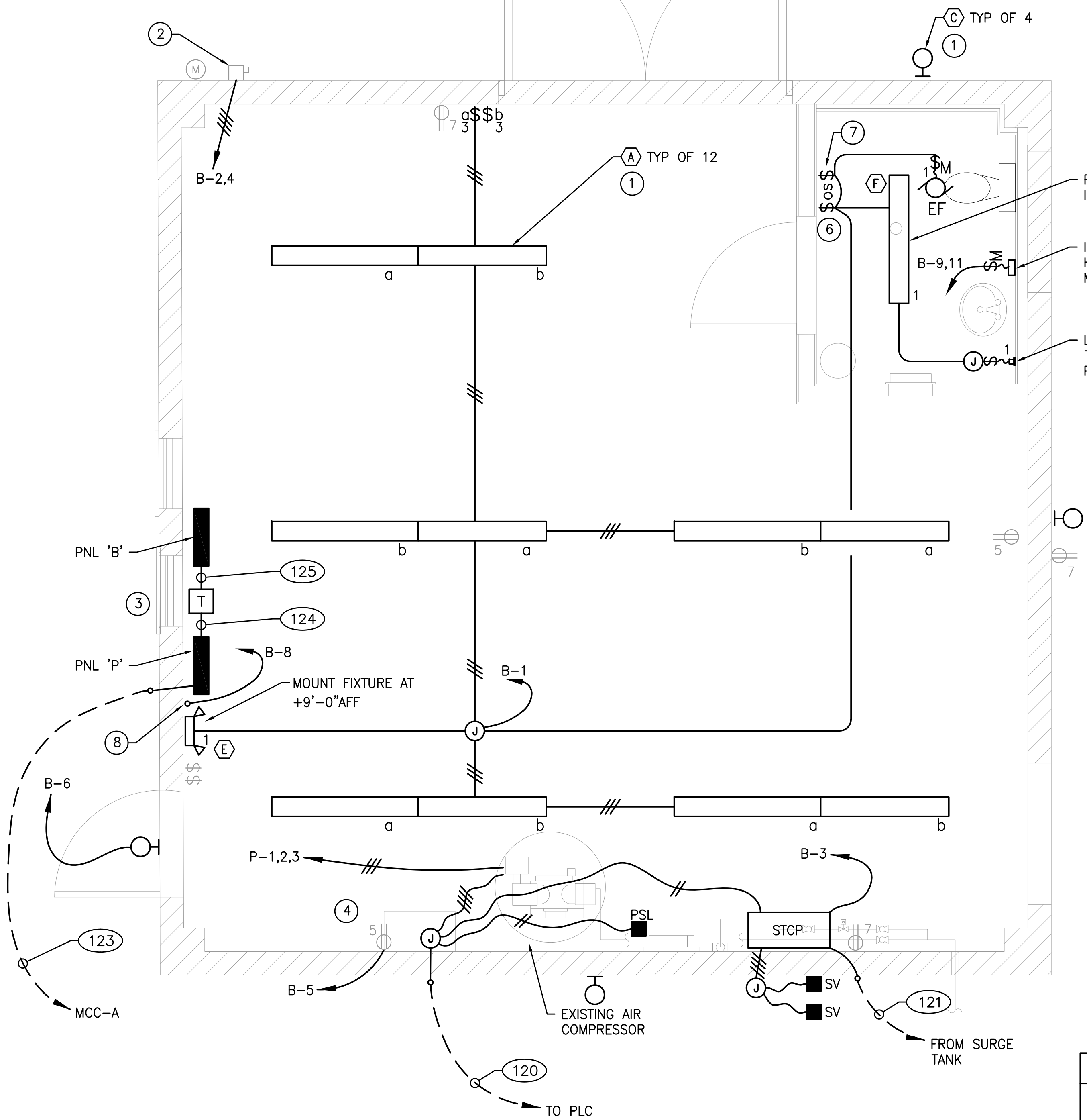
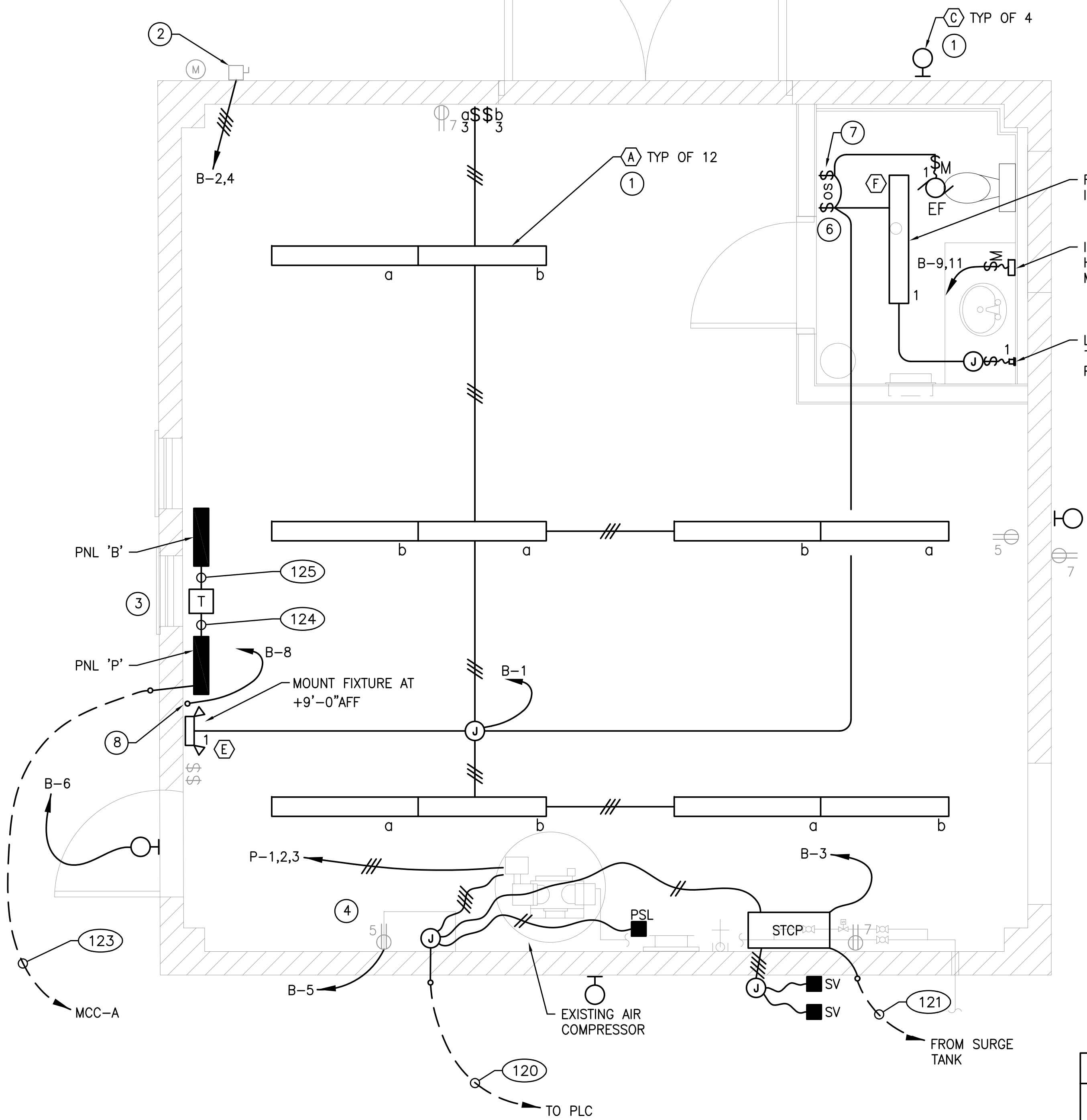
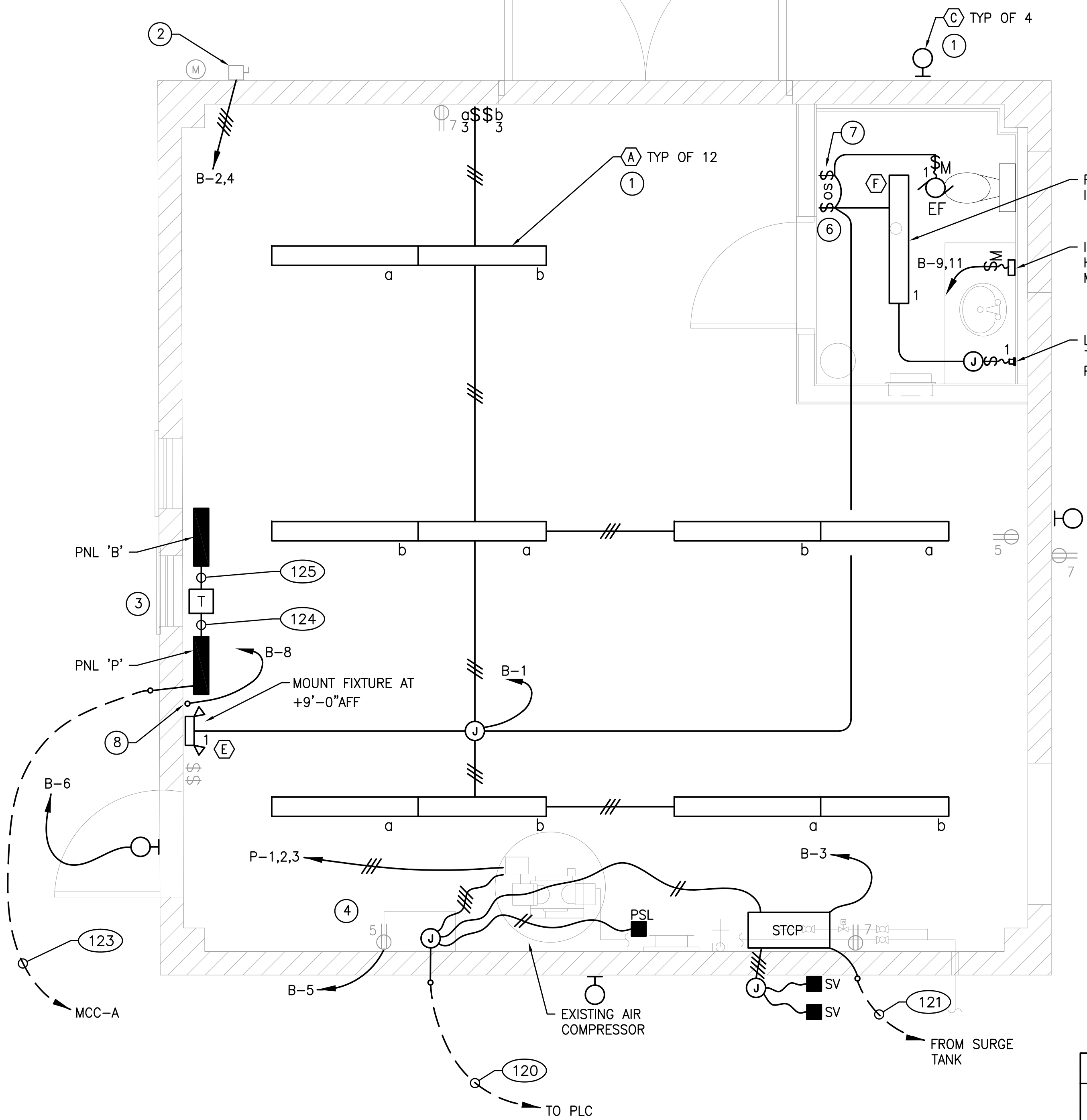
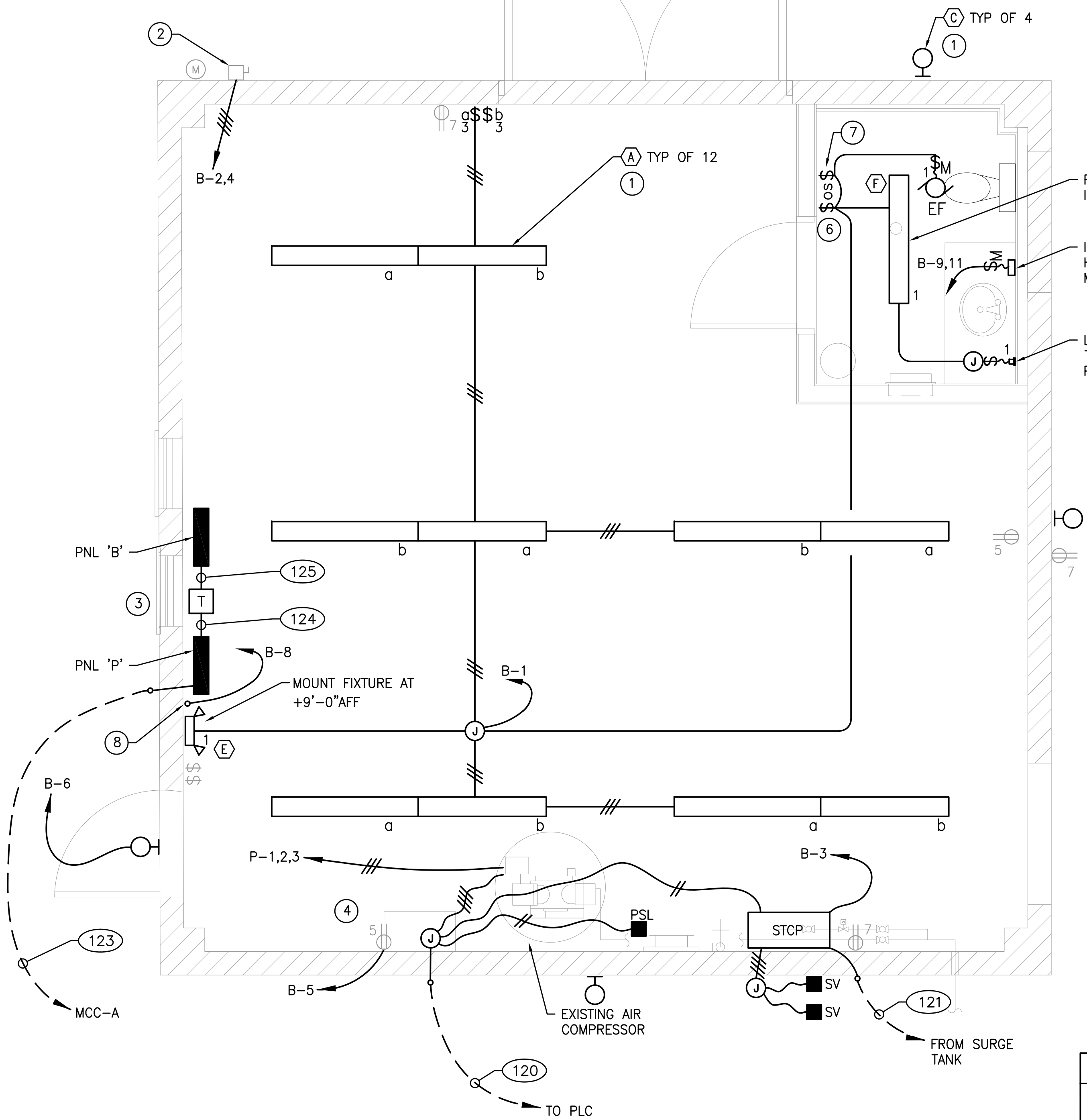
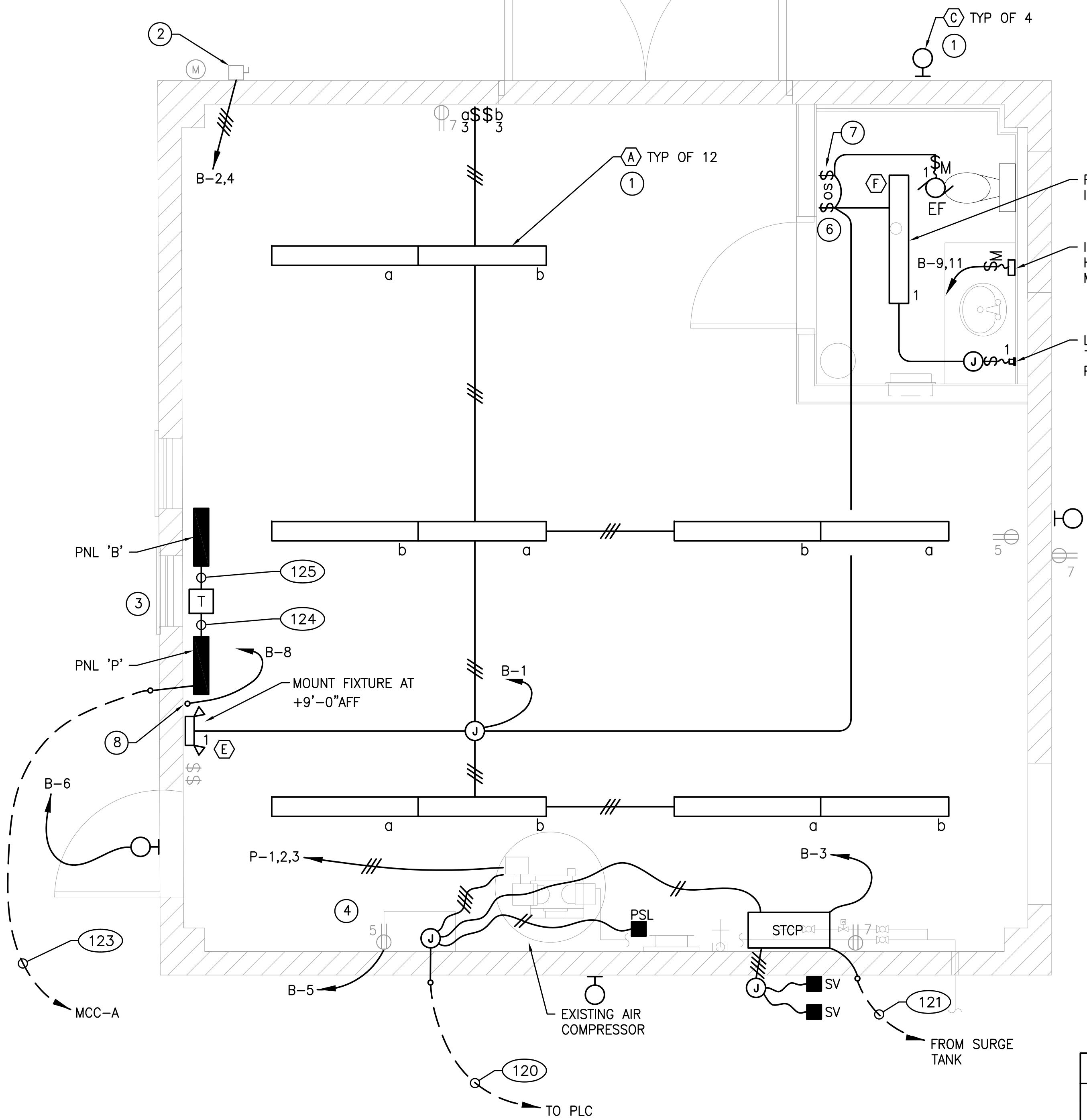
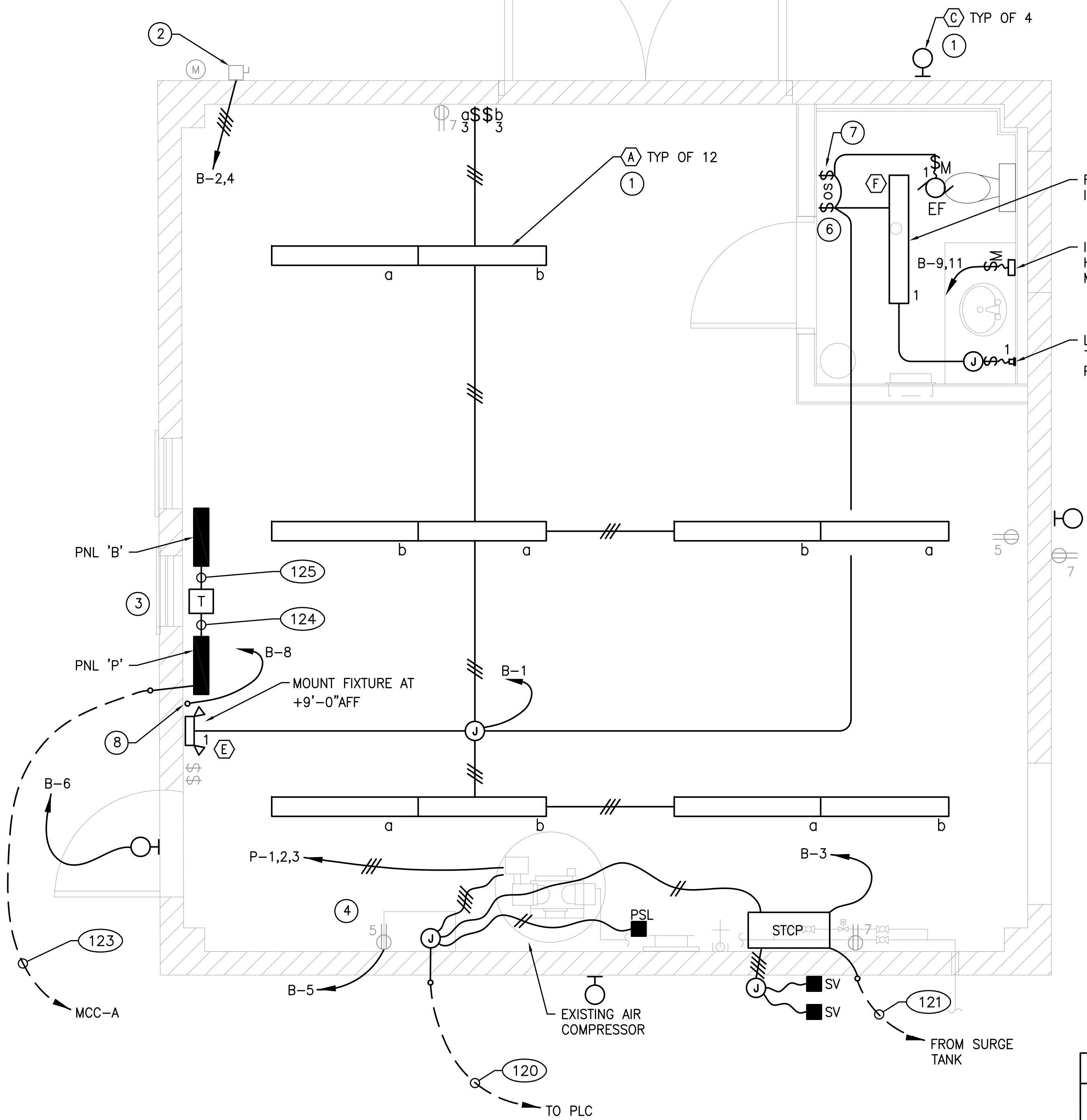
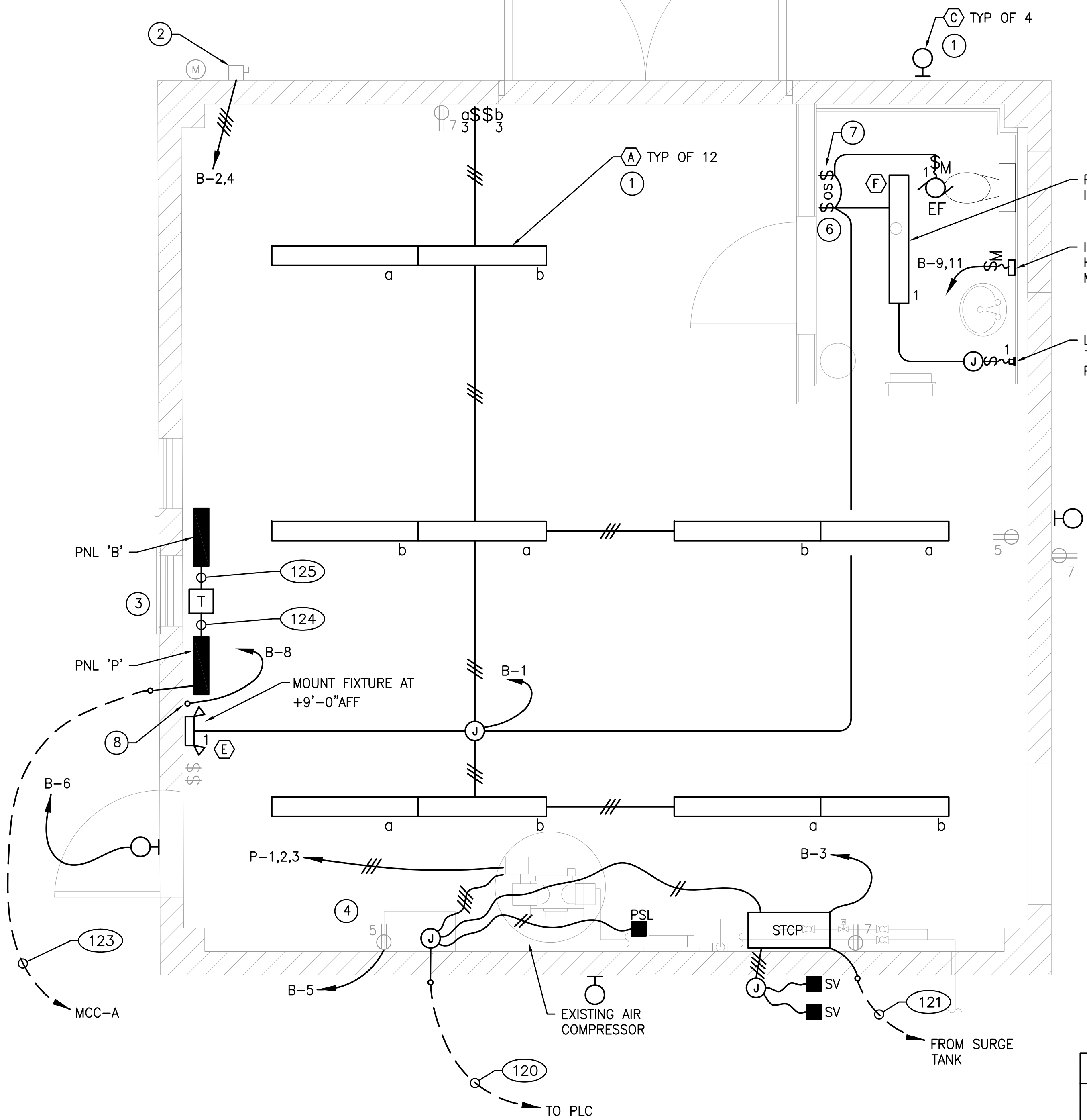
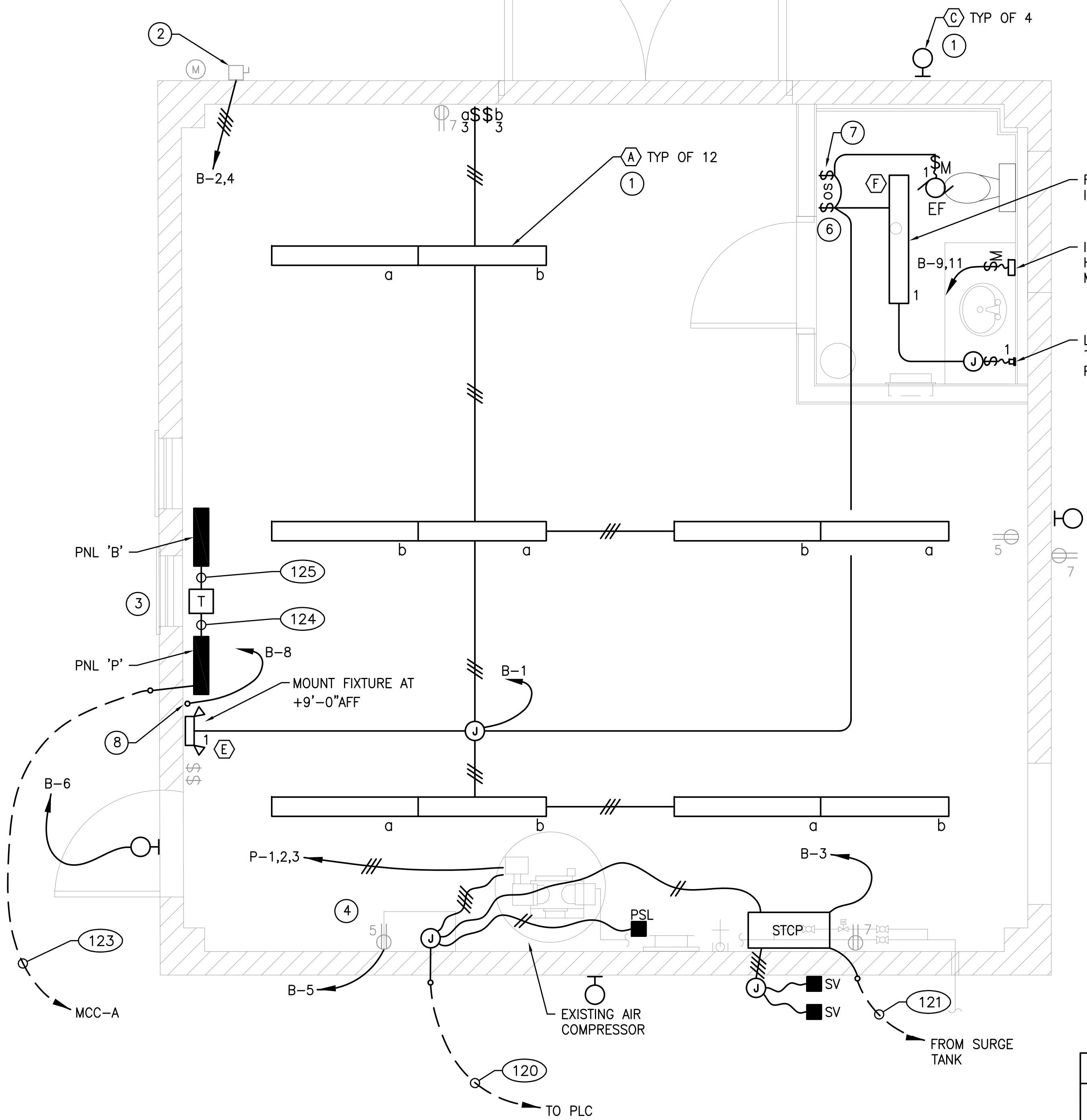
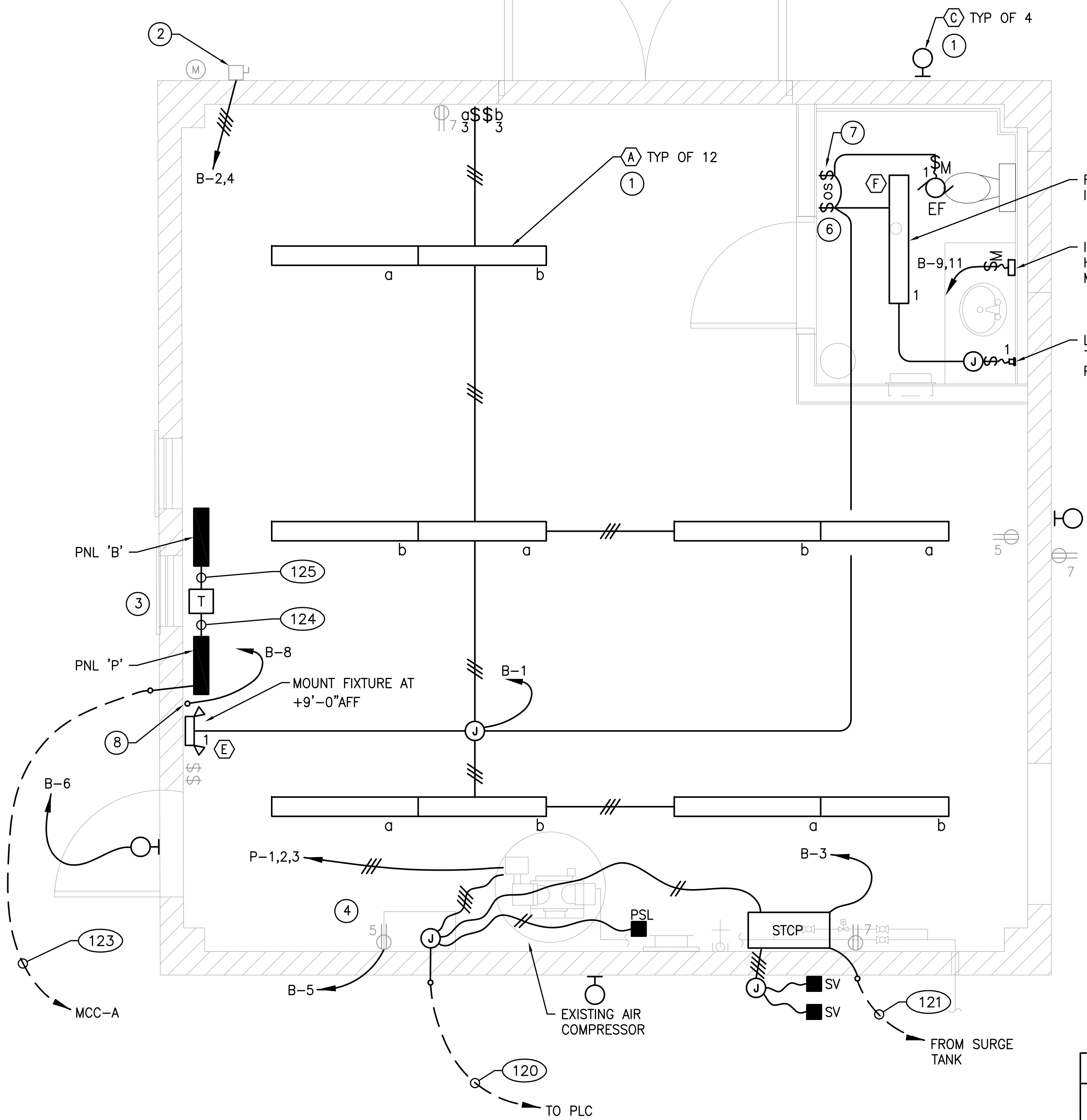
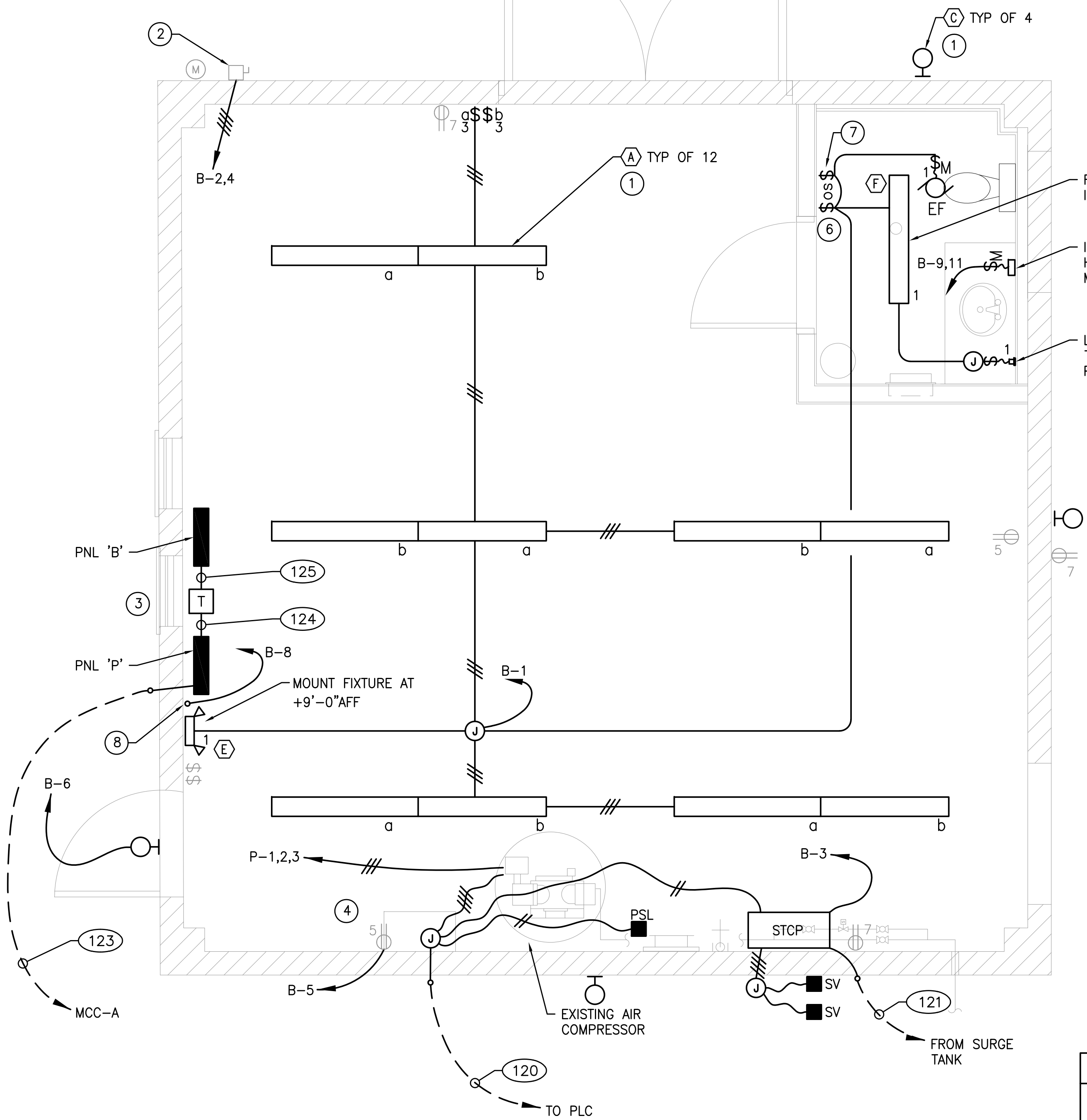
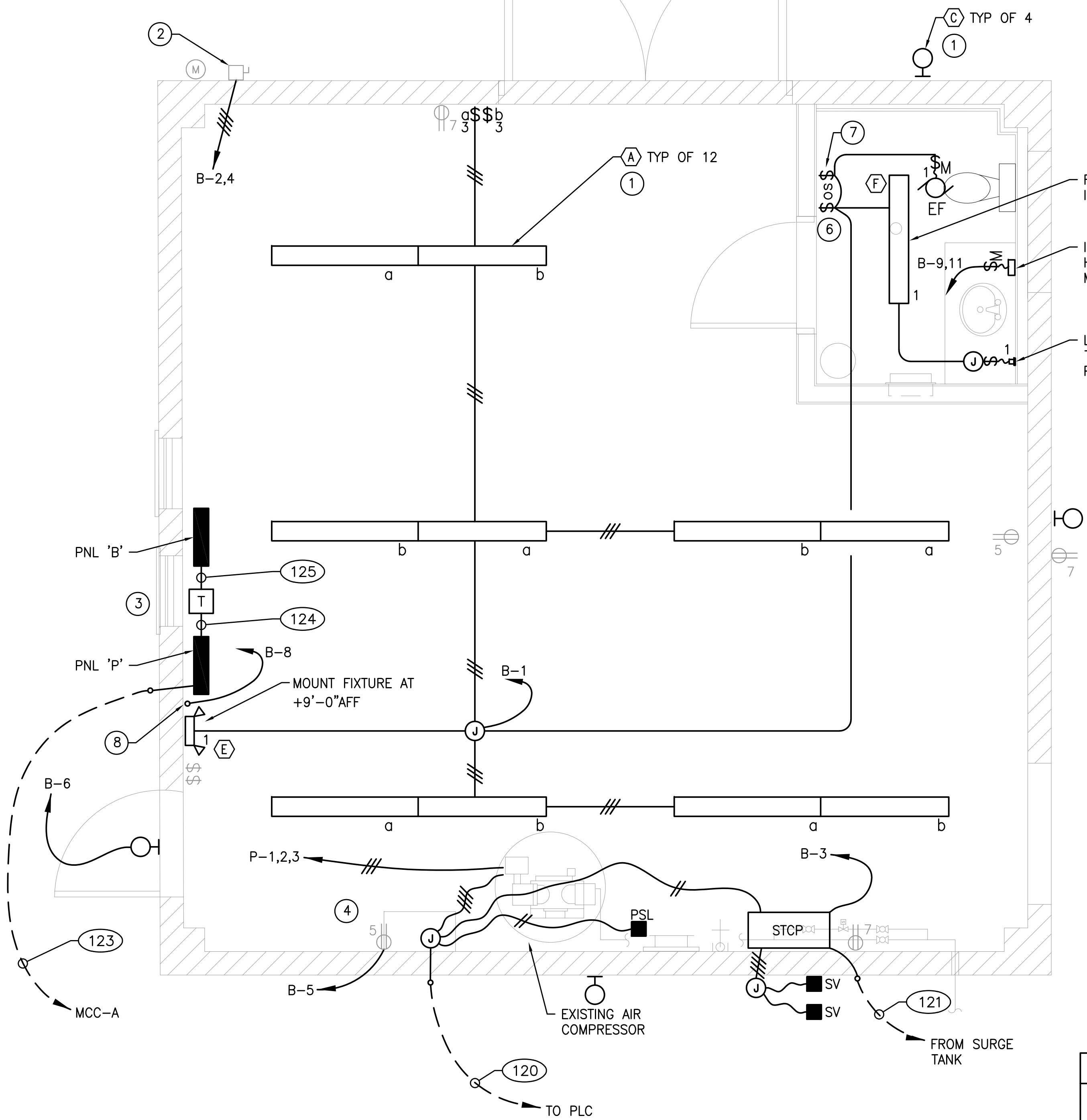
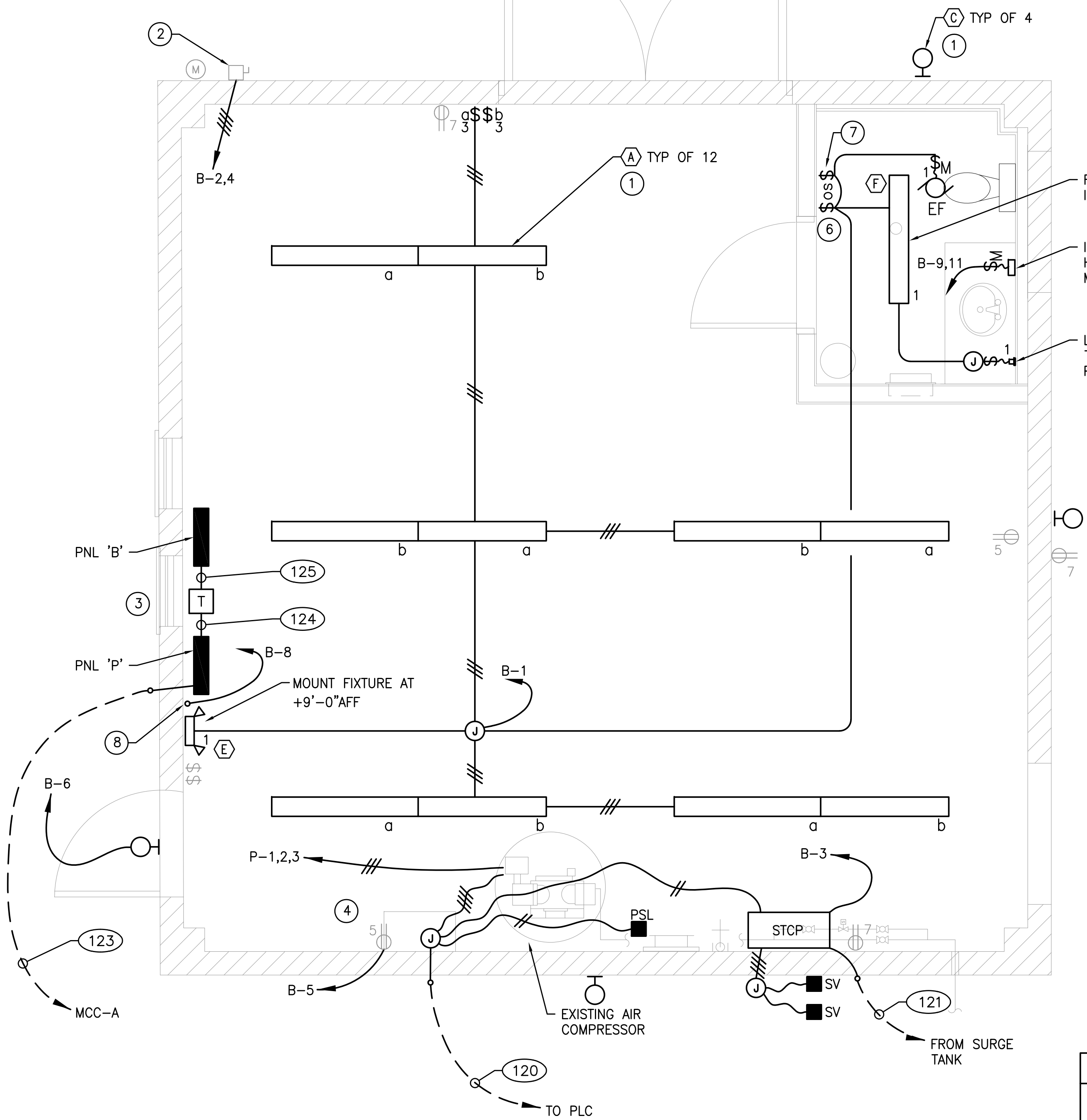
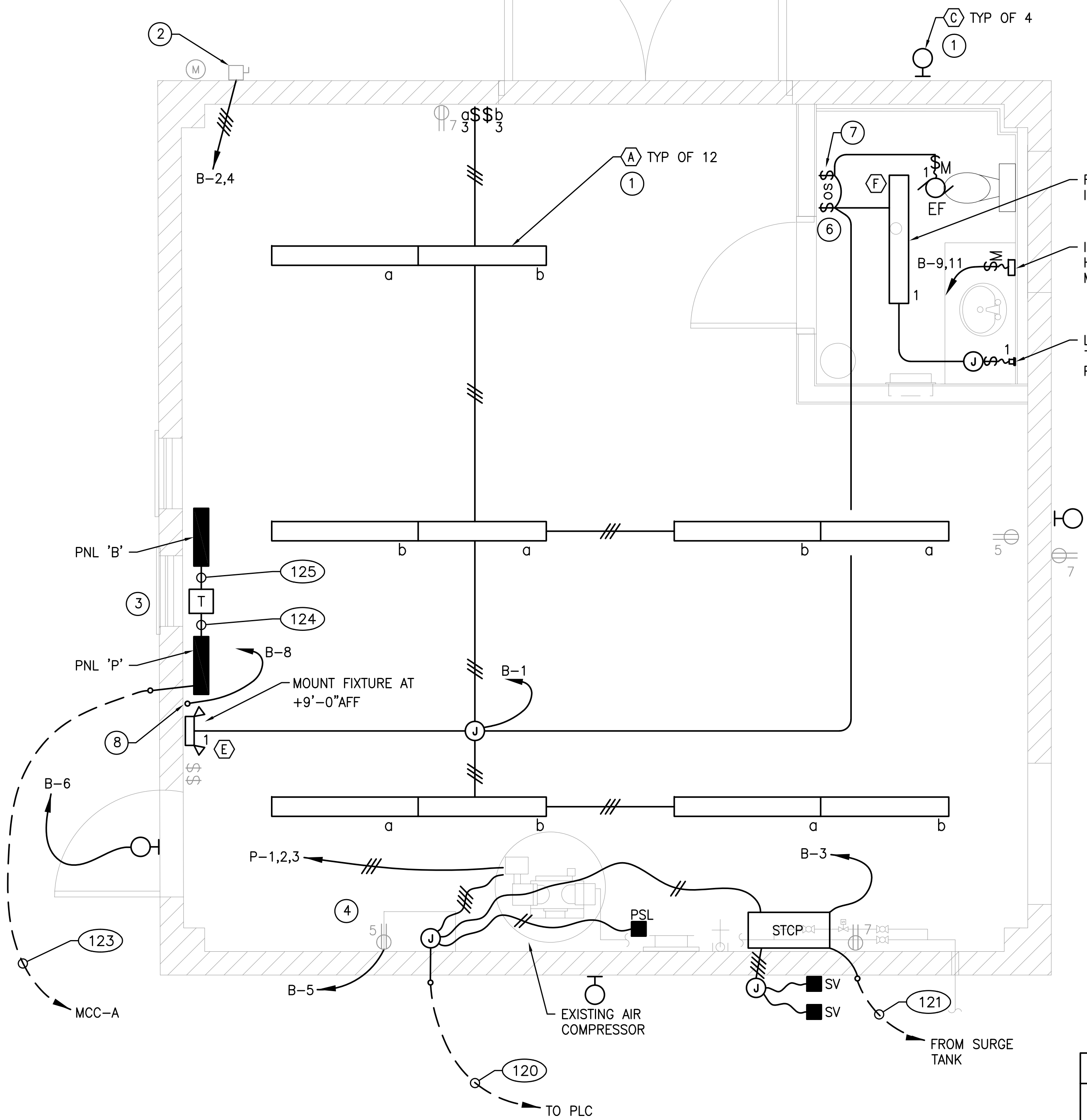
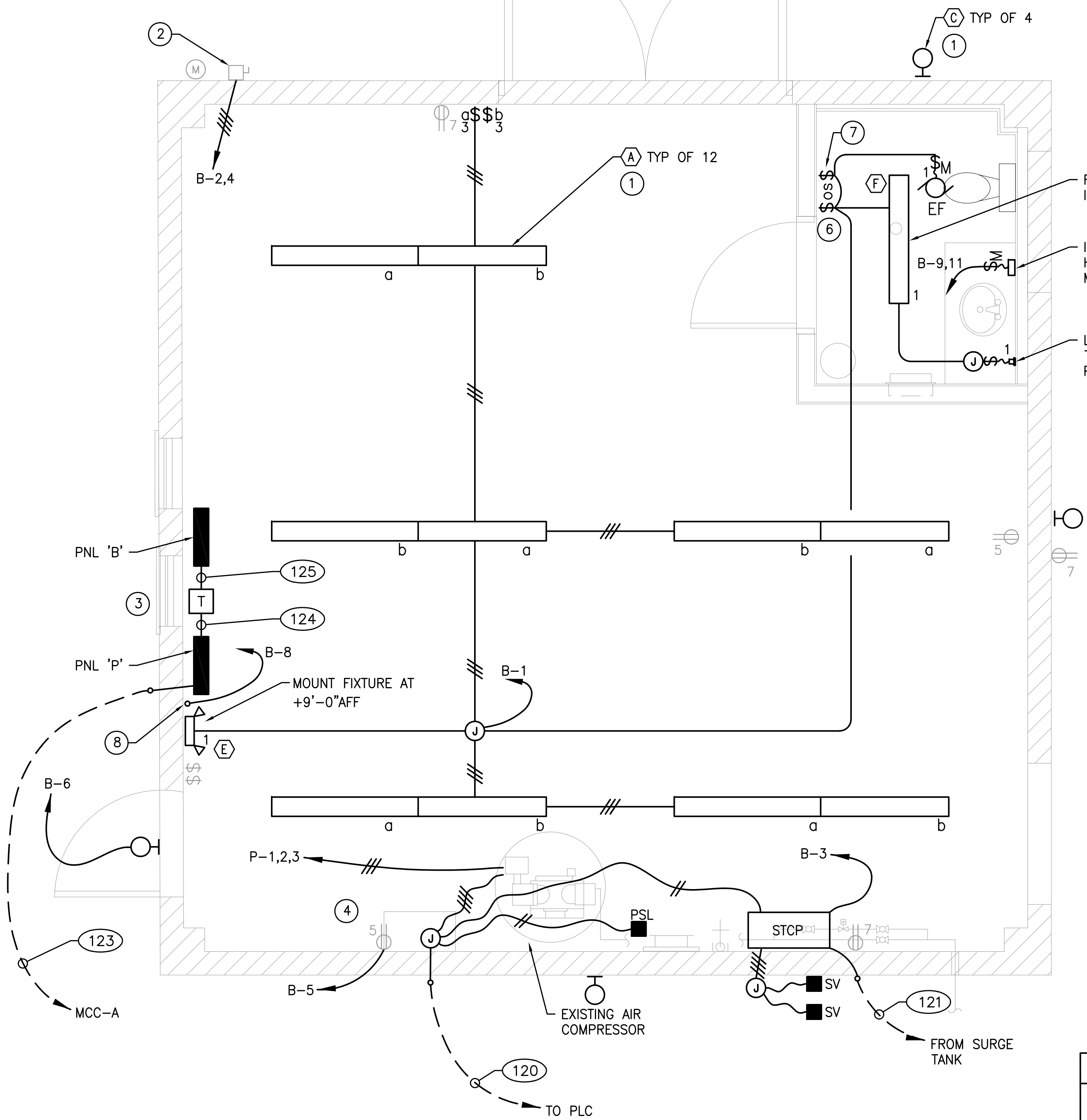
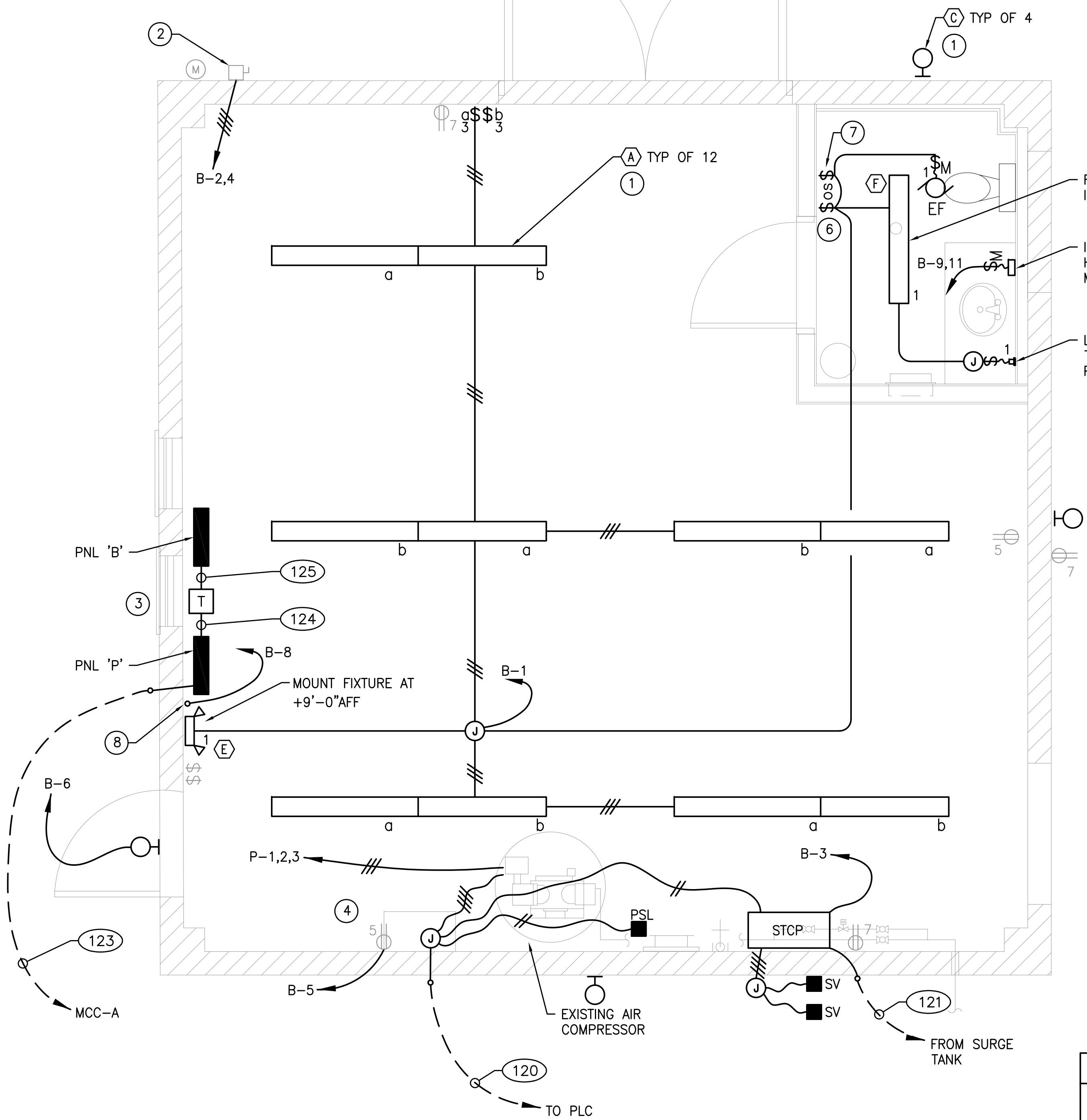
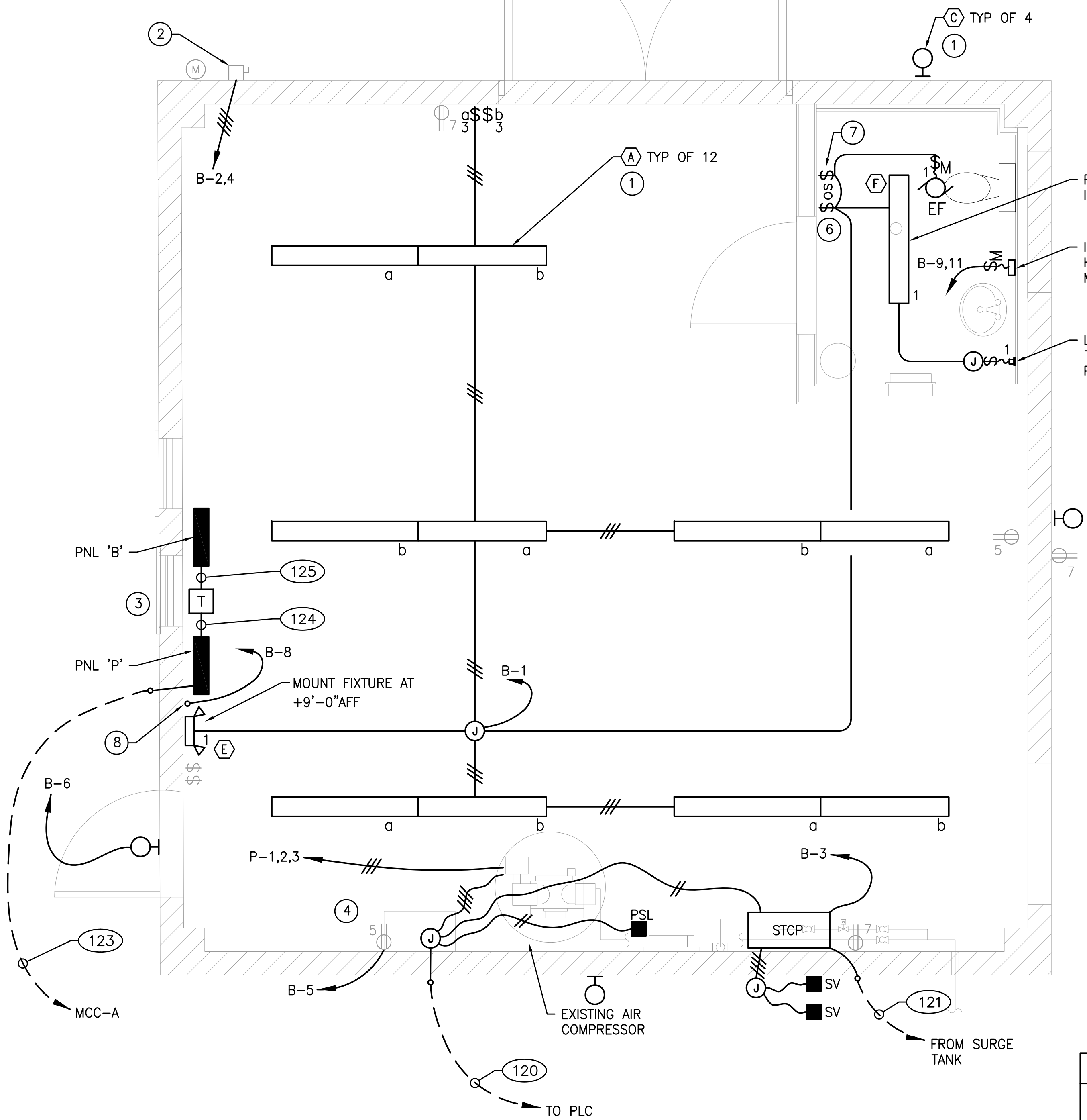
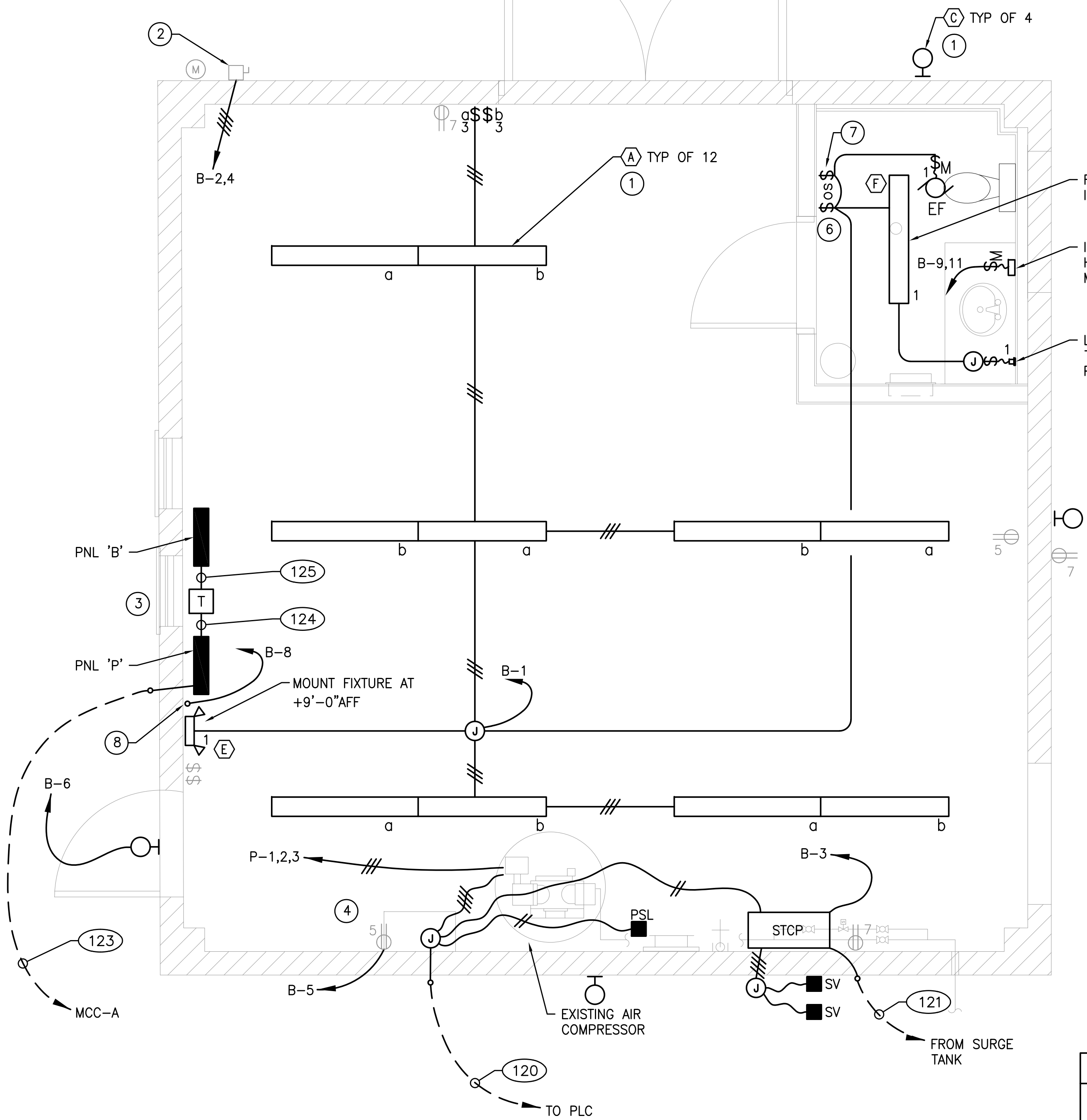
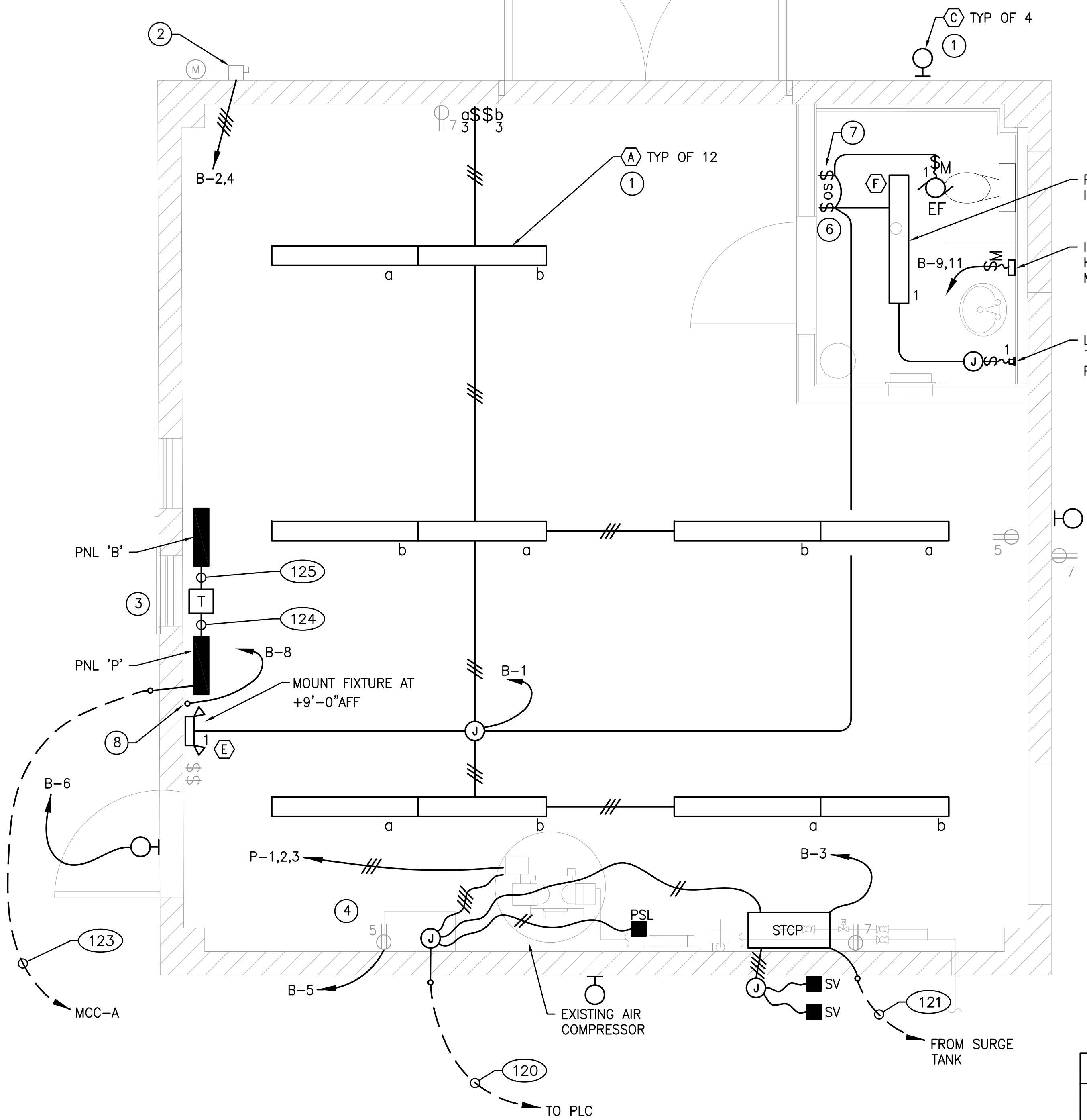
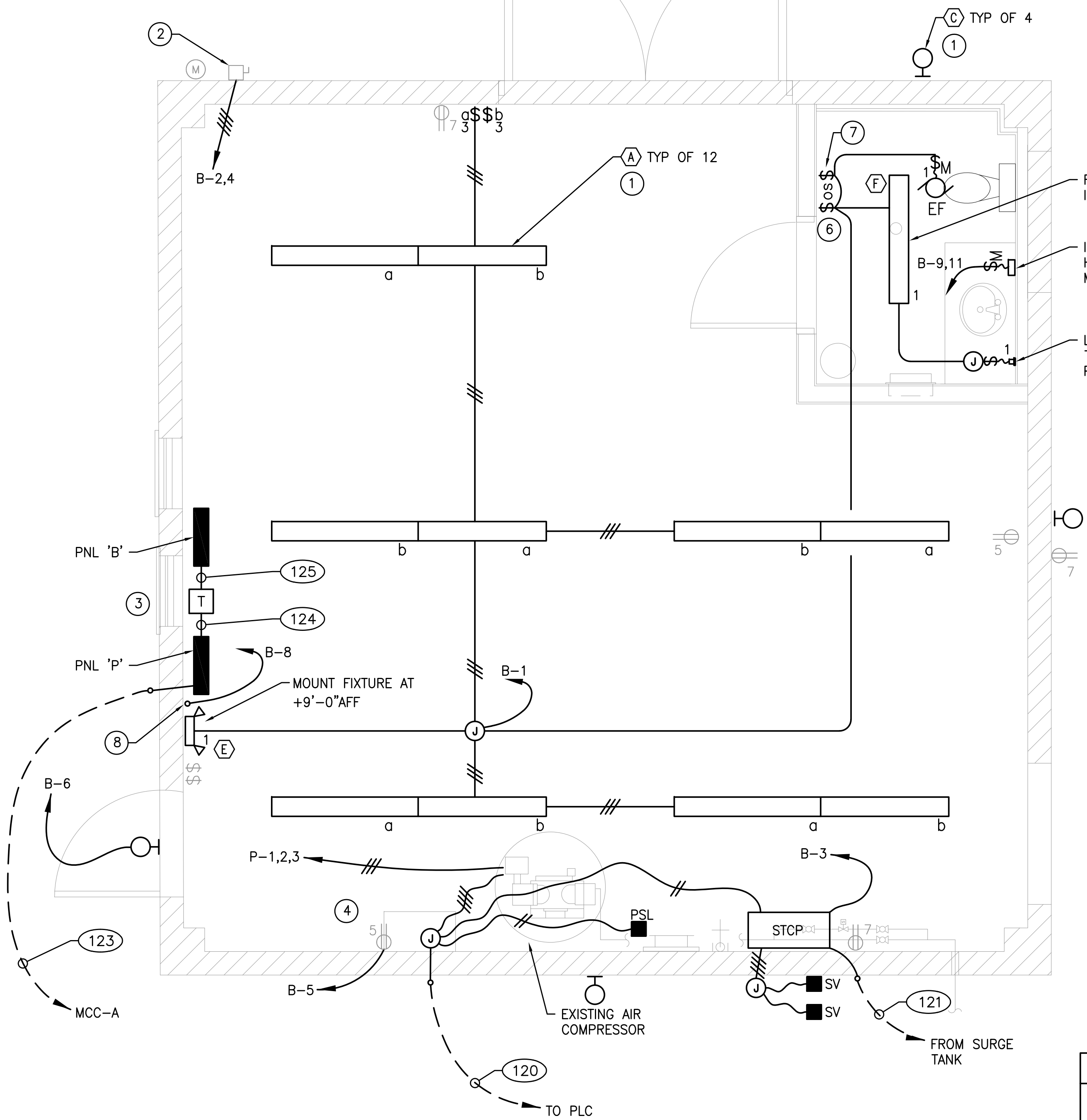
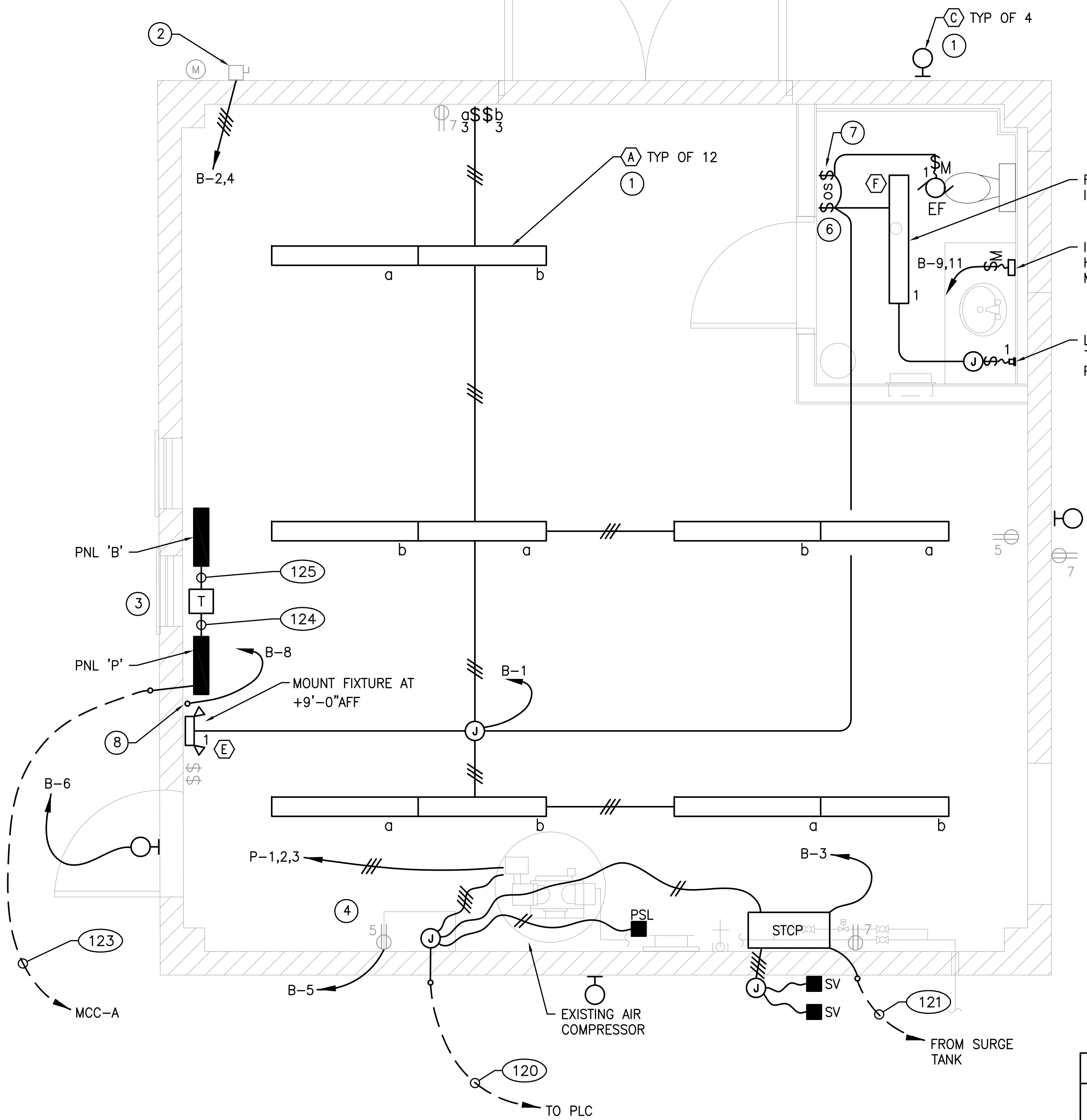
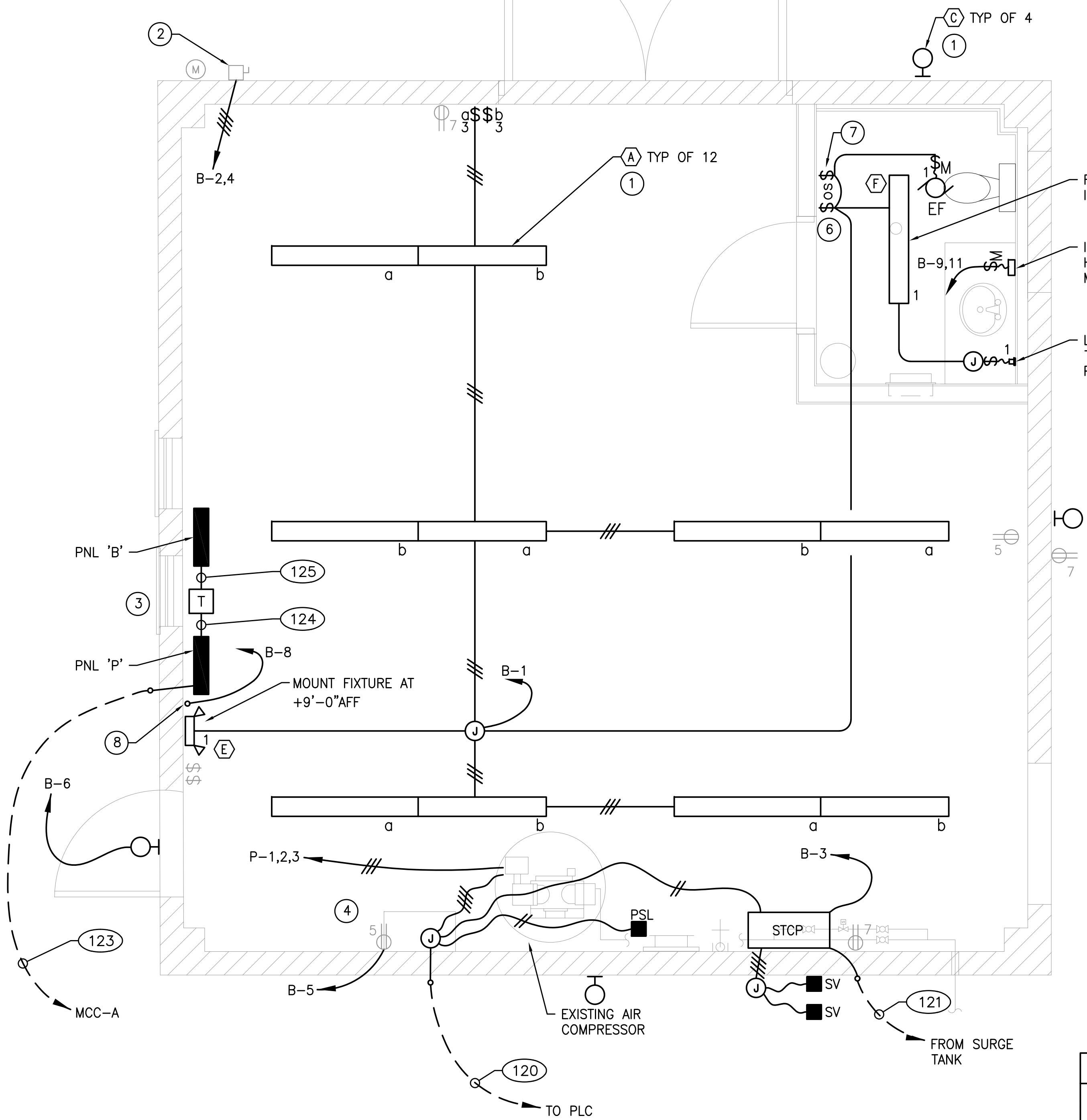
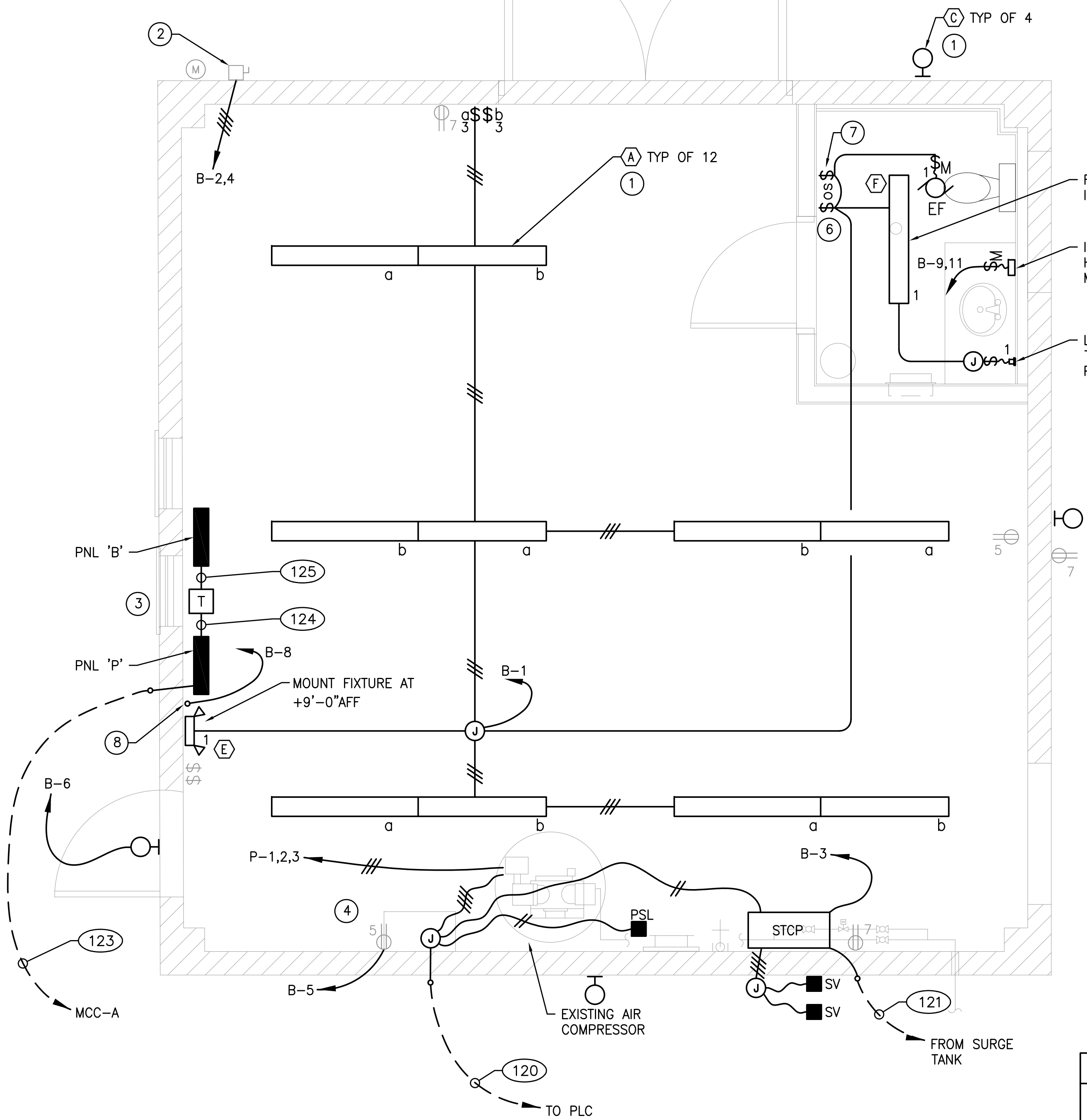
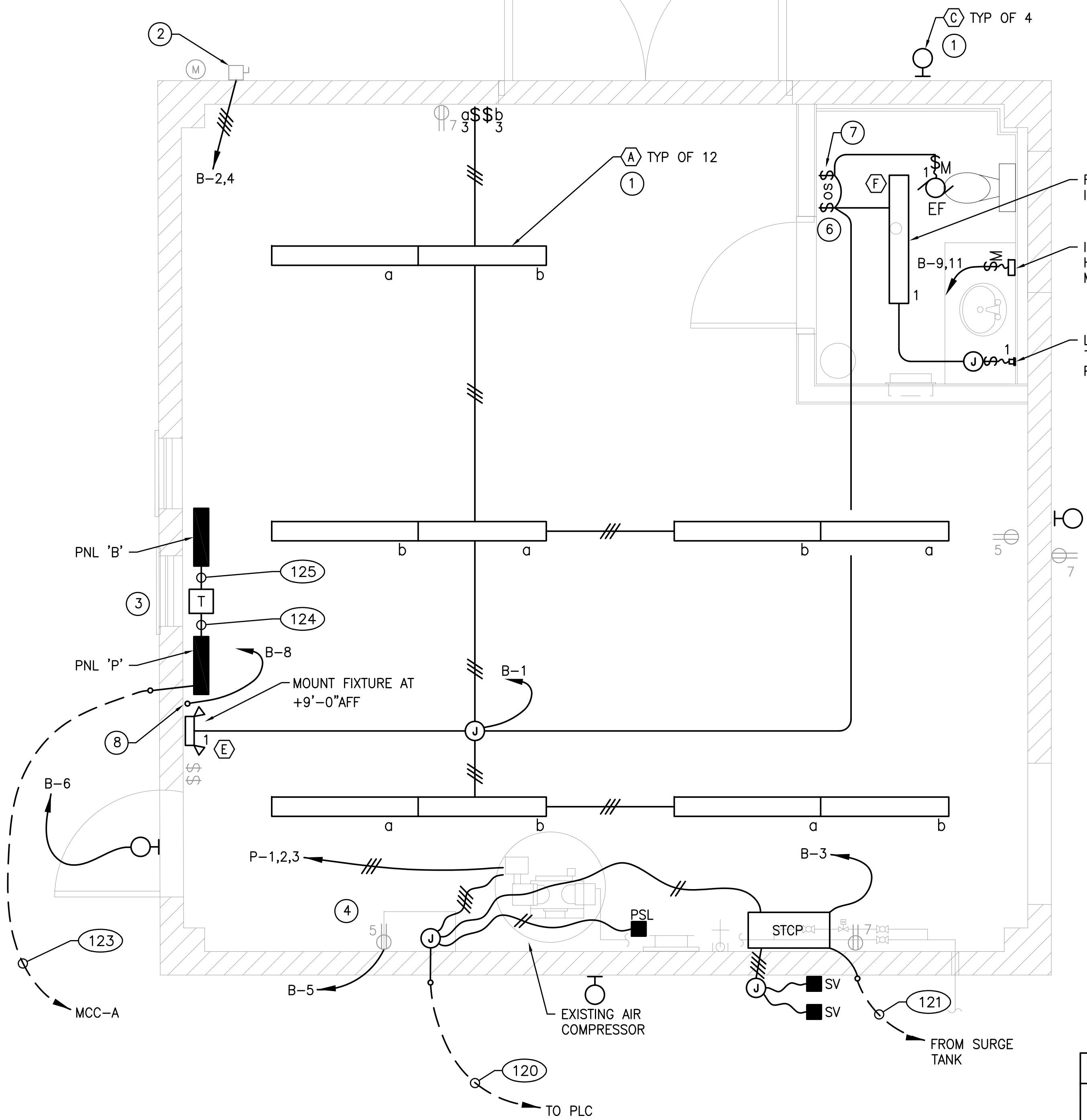
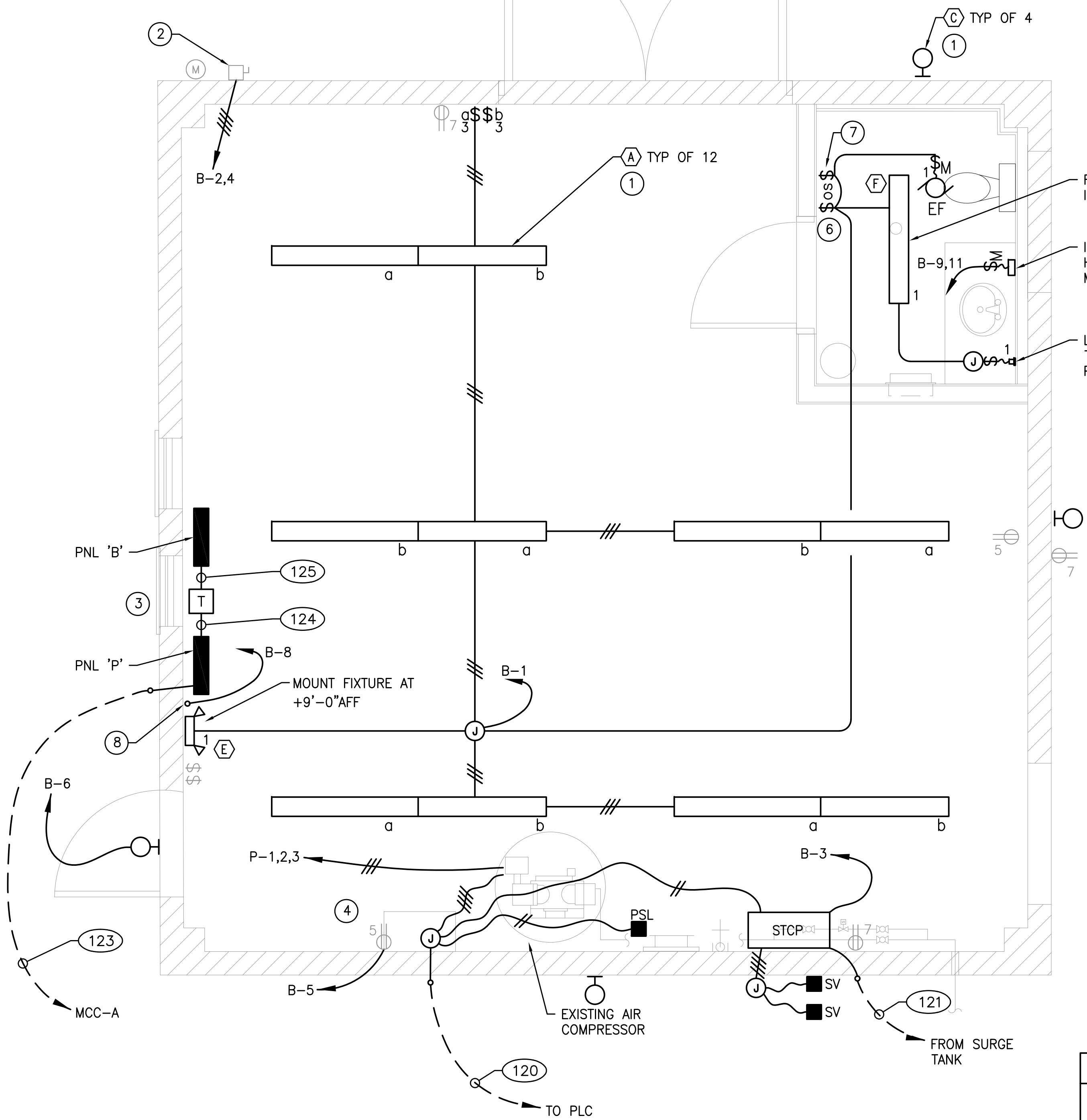
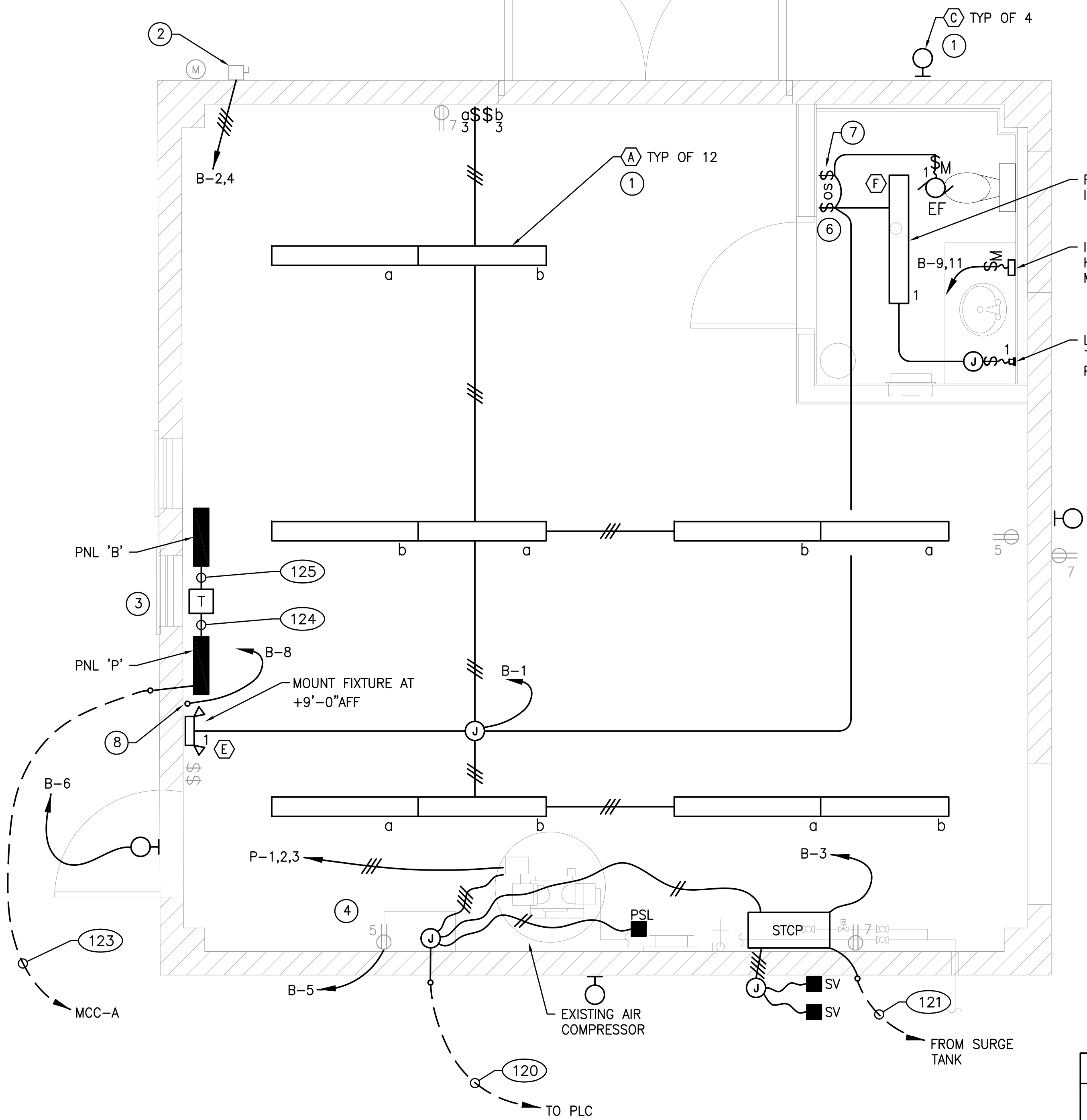
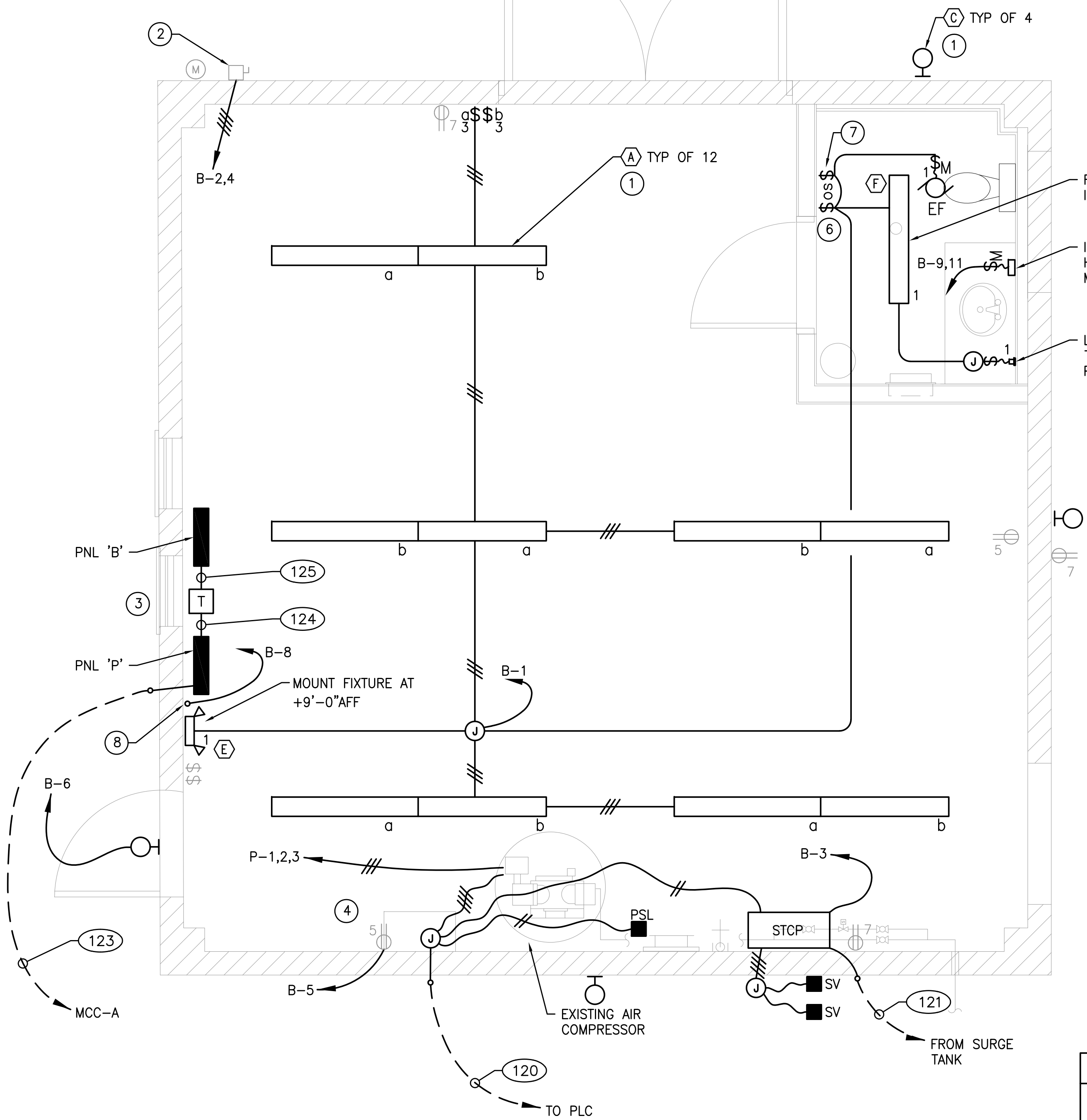
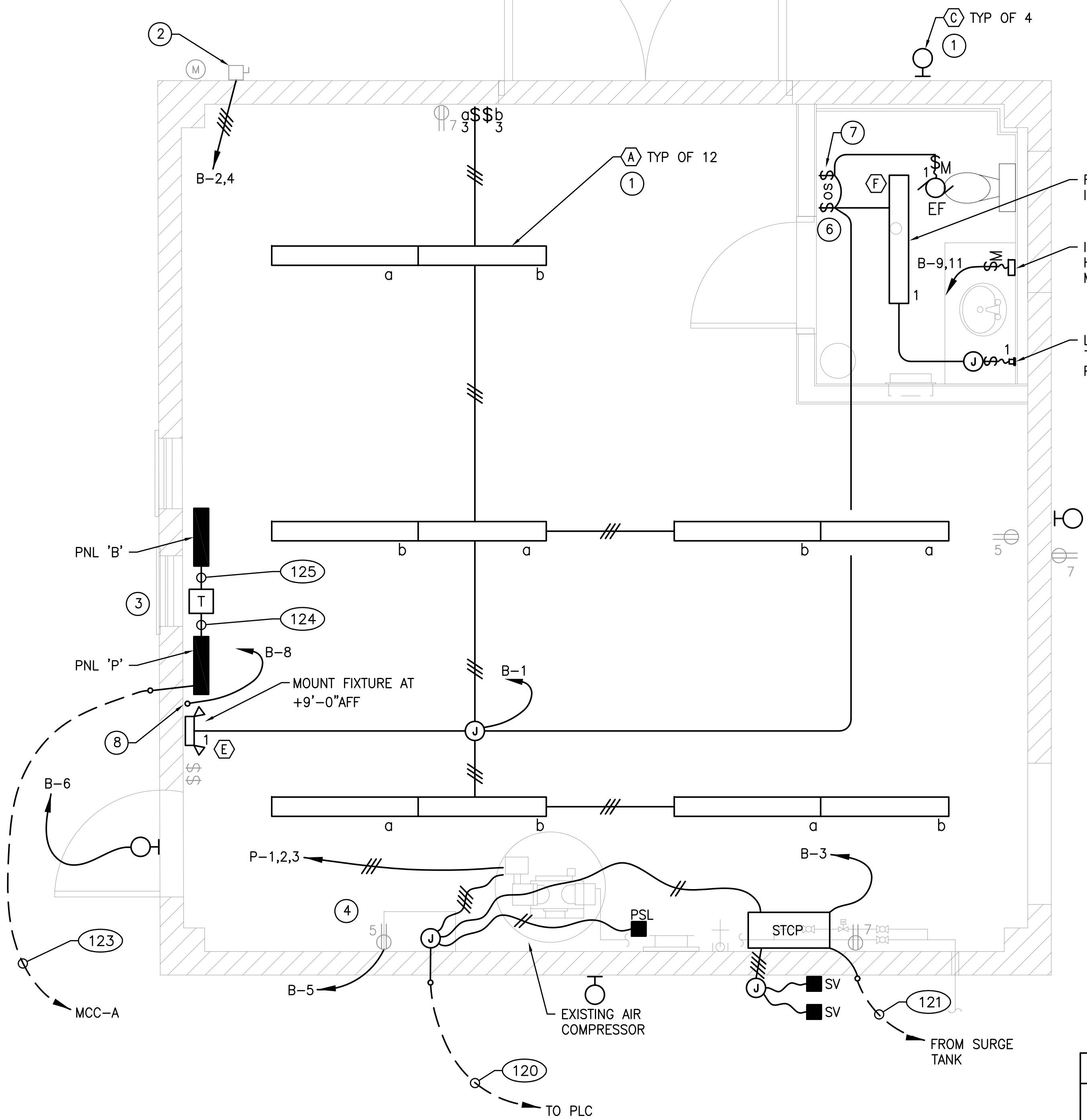
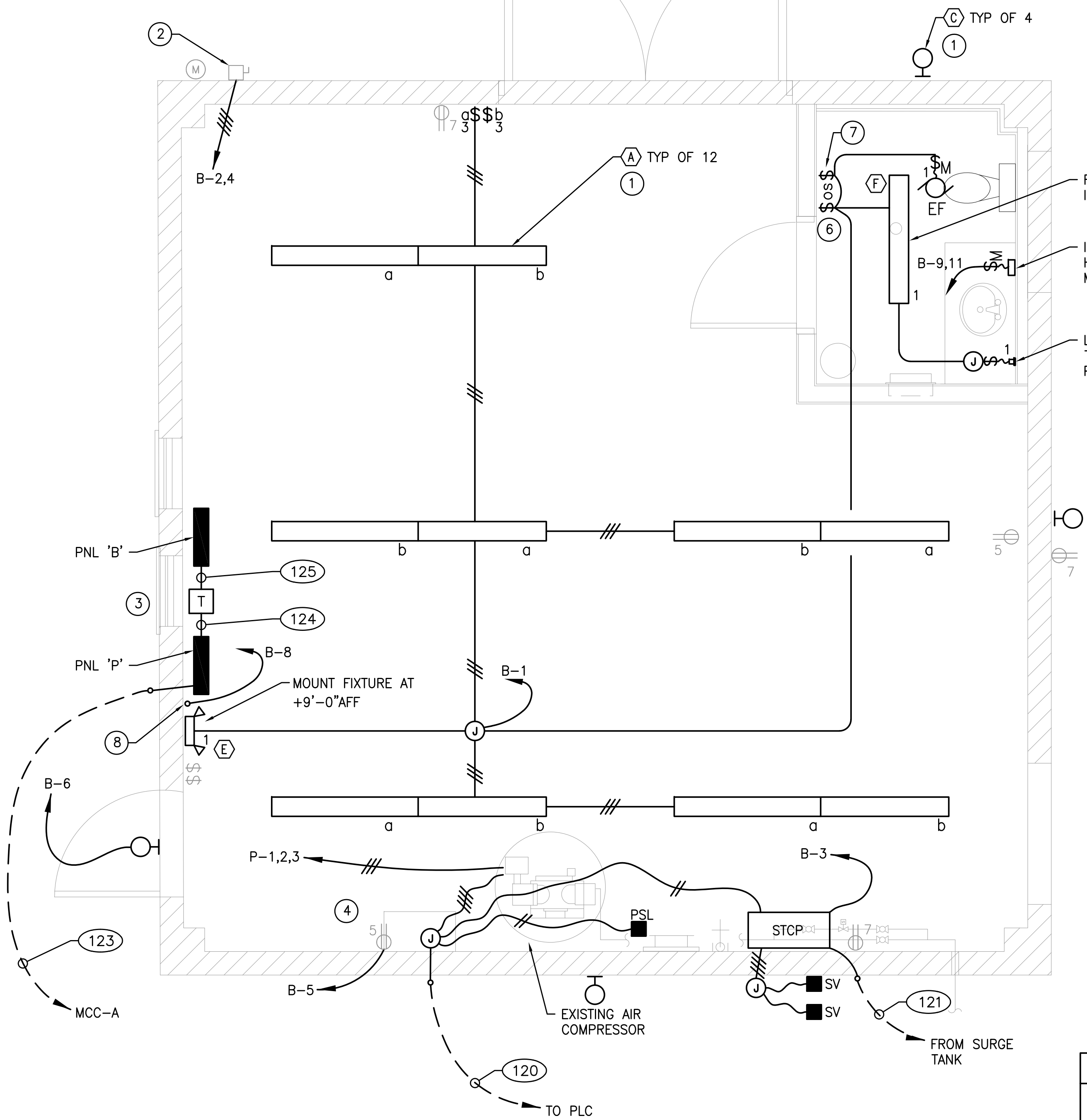
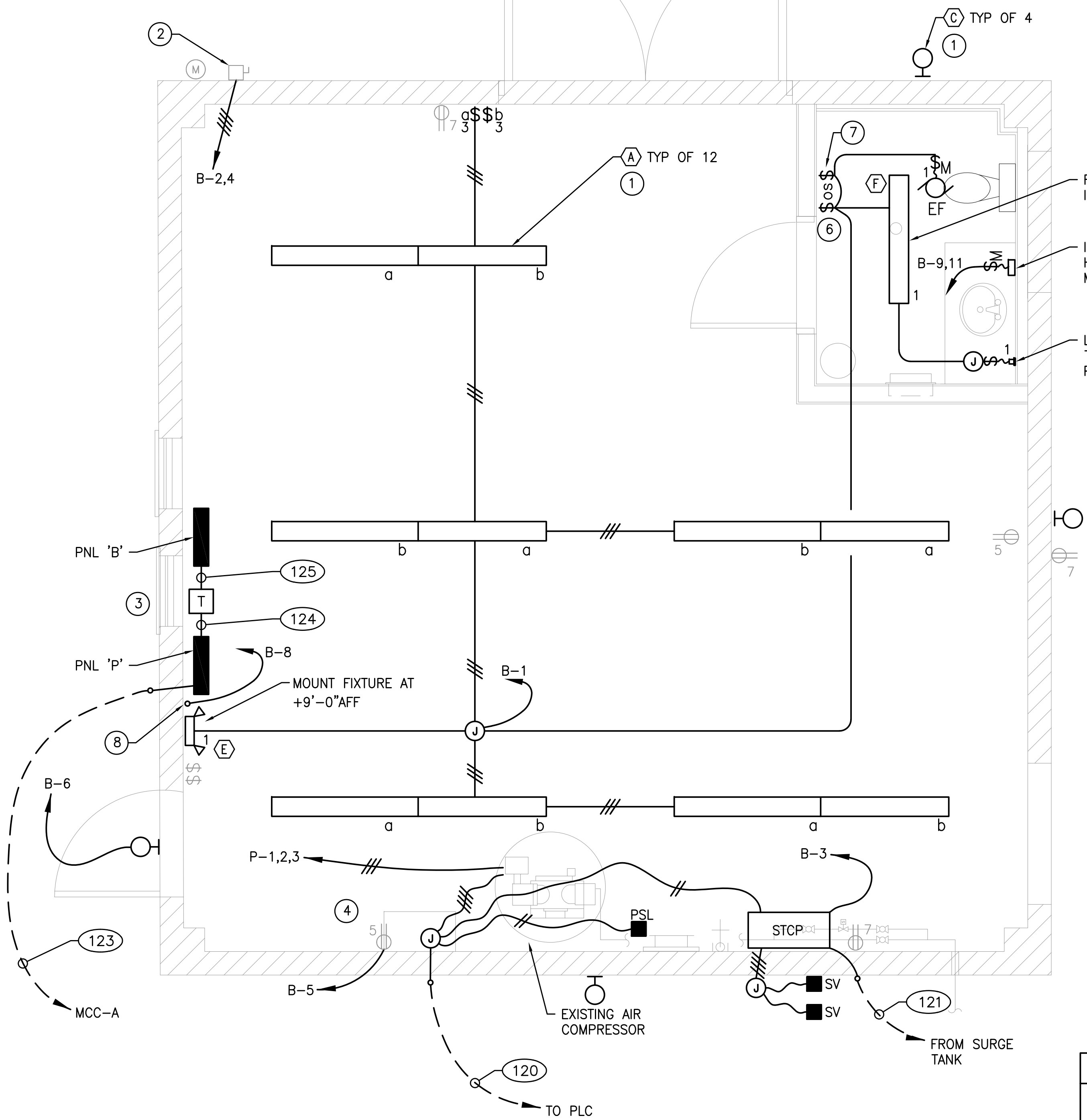
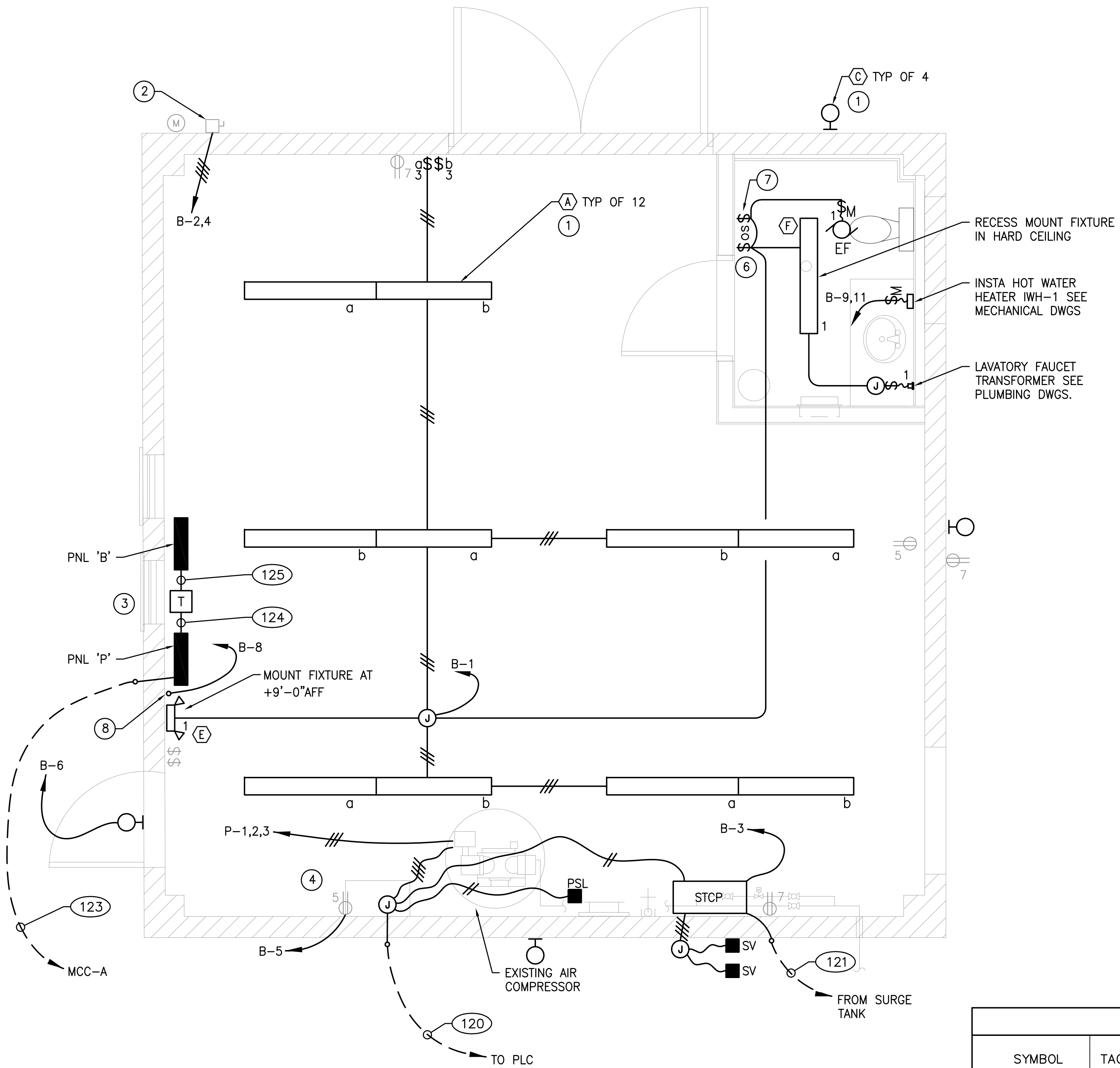
SCALE: 3/8" = 1'-0"



9/28/21

<p>MORAES / PHAM & ASSOCIATES 2131 Palomar Airport Rd. #120 Carlsbad, CA 92011</p>		DESIGN JM	DRAWN CAD	CHECK JMM	BY	DATE	REVISIONS	
<p>OLIVENHAIN Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 (760) 753-6466</p>		<p>4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT</p> <p>PUMP STATION LOWER LEVEL POWER AND SIGNAL PLAN</p>						
SHEET 61 of 90		DRAWING E-6						
D700004								


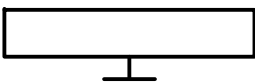

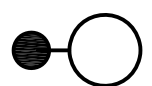
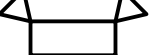
ORIGINAL SCALE IN INCHES 0 1 2 3 4



CONDUIT		FROM	TO	CABLE			VOLTAGE		REMARKS
NO.	SIZE			QTY.	SIZE	GND.*			
100	2"	RTU	PULL BOX	—	—	—	—	SIGNAL	C.O.
101	(2)4"	EX SDG&E PADMOUNT TRANSFORMER	MAIN SWITCHBOARD 'MSB'	—	—	—	480	—	PER SDG&E REQUIREMENTS
102	(2)4"	MAIN SWITCHBOARD 'MSB'	ATS	6	#350 MCM	#1	480	POWER	
103	(2)4"	GENERATOR	ATS	6	#350MCM	#1	480	POWER	
103A	1"	GENERATOR	PANEL 'A'	2	#12	#12	240	POWER	A—4,6 BLOCK HEATER
				2	#12	#12	120	POWER	A—11, BATT CHARGER/CP
103B	1"	GENERATOR	ATS	2	#14	#14	120	CONTROL	START/STOP
103C	1"	GENERATOR CP	RTU	10	#14	—	24	CONTROL	GEN. STATUS
103D	1"	GENERATOR	RTU	1	#18STP	—	24	SIGNAL	FUEL LEVEL
104	1"	ATS	RTU	2	#14	—	24	CONTROL	ATS POSITION
105	2"	MCC—A	PUMP 12—P—1	3	#1	#6	480	POWER	
105A	1"	MCC—A	PUMP 12—P—1	6	#14	#14	120	CONTROL	SEAL FAIL, LOS
106	2"	MCC—A	PUMP 12—P—2	3	#1	#6	480	POWER	
106A	1"	MCC—A	PUMP 12—P—2	8	#14	#14	120	CONTROL	SEAL FAIL, LOS, PSL
107	2"	MCC—A	PUMP 12—P—3	3	#1	#6	480	POWER	
107A	1"	MCC—A	PUMP 12—P—3	6	#14	#14	120	CONTROL	SEAL FAIL, LOS
108	2"	MCC—A	PUMP 12—P—4	3	#1	#6	480	POWER	
108A	1"	MCC—A	PUMP 12—P—4	8	#14	#14	120	CONTROL	SEAL FAIL, LOS, PSL
109	1"	MCC—B	CONDITIONING PUMP	3	#12	#12	480	POWER	
110	1"	MCC—B	SUPPLY FAN F—1	3	#12	#12	480	POWER	
111	3/4"	MCC—B	EXHAUST FAN F—2	3	#12	#12	480	POWER	
112	1"	MCC—A	FC—1	3	#12	#12	480	POWER	
113	1"	MCC—A	CRANE	3	#12	#12	480	POWER	
114	1"	MCC—B	SUMP PUMP CP	3	#12	#12	480	POWER	
115	1"	PANEL 'A'	RTU	2	#12	#12	120	POWER	A—9
115A	3"	MCC—A	RTU	60	#14	#14	24	CONTROL	STATUS
115B	1"	MCC—A	RTU	4	#14	#14	120	CONTROL	
115C	2"	MCC—A	RTU	8	#18STP	—	24	SIGNAL	VFD SPEED & CONTROL
116	3/4"	SECURITY PANEL	INTRUSION SWITCHES	4	#14	#14	24	SIGNAL	INTRUSION
117	1"	WETWELL SENSOR ENCLOSURE	RTU	2	#12	#12	120	POWER	
118	1"	RTU	BUBBLER	2	#12	#12	120	POWER	
119	1"	RTU	WETWELL SENSOR ENCLOSURE	6	#14	—	24	CONTROL	FLOAT SWITCHES, INTRINSIC RELAY
120	1"	STCP/COMP	RTU	8	#14	—	24	CONTROL	
121	1"	SURGE TANK	STCP	8	#14	#14	120	CONTROL	
122	1"	RTU	ANTENNA MAST	1	CAT 5E	—	—	SIGNAL	
123	1"	MCC—A	PNL 'P'	3	#6	#10	480	POWER	
124	1"	PNL 'P'	XFR	2	#8	#10	480	POWER	
125	1"	XFR	PNL 'B'	3	#6	#10	240	POWER	
126	1"	MCC—A	CU—1	3	#12	#12	480	POWER	
127	1"	RTU	BUBBLER	1	#18STP	—	24	SIGNAL	BUBBLER LEVEL
128	1"	GAS SENSORS	GD	2	#12	#12	24	POWER	
129	1"	GAS SENSORS	RTU	3	#18 STT	—	—	SIGNAL	
130	3/4"	SUMP PUMP CP	RTU	4	#14	—	24	CONTROL	
131	1"	RTU	DRYWELL FLOOD SW	2	#14	—	24	SIGNAL	
132	1"	WETWELL SENSOR ENCLOSURE	LEVEL TRANSMITTER (LT)	1	MFR CABLE		24	SIGNAL	—

CONDUIT		FROM	TO	CABLE			VOLTAGE		REMARKS
NO.	SIZE			QTY.	SIZE	GND.*			
133	1"	REACTIVE AIR	AIR BELL	—	—	—	—	SIGNAL	AIR TUBE
134	2"	WETWELL SENSOR ENCLOSURE	FLOATS	3	MFR CABLE		24	CONTROL	—
135	1"	RTU	ALARM BEACONS	3	#14	#14	120	CONTROL	—
136	1"	RTU	FLOW TRANSMITTER	2	#14	—	24	POWER	—
137	1"	PANEL 'A'	FLOW TRANSMITTER	2	#12	#12	120	POWER	A—12
138	1"	RTU	CHECK VALVE ZS	2	#14	—	24	CONTROL	
139	1"	PANEL 'A'	AREA LIGHTS	2	#10	#10	120	POWER	A—9
140	2"	MCC—A	MCC—B	3	#3/0	#6	480	POWER	
141	1"	MCC—B	RTU	12	#14	—	24	CONTROL	
142	1"	MCC—B	RTU	4	#14	#14	120	CONTROL	
143	1"	MCC—B	RTU	—	—	—	—	CONTROL	SPARE
144	1"	RW PRV	RTU	2	#14	—	24	CONTROL	

* — ONE GROUND PER CONDUIT

LIGHTING FIXTURE SCHEDULE						
SYMBOL	TAG	DESCRIPTION	FIXTURE WATTS	LAMP TYPE NO. OF LAMPS	MOUNTING	MANUFACTURER CATALOG NO.
			VOLTAGE	WATTS		
	A	4' LED FIXTURE WITH LED DRIVER AND SURGE PROTECTION. REINFORCED FIBERGLASS HOUSING. IMPACT RESISTANT, UV RESISTANT ACRYLIC DIFFUSER, FULLY GASKETED. UL WET LOCATION LISTED.	42W 120VAC	LED 1 42	PENDANT	COLUMBIA LIGHTING LXEM4—40ML—RFP—EU—SSL—XEDPM
	B	SIMILAR TO FIXTURE TYPE 'A' EXCEPT WALL MOUNTED.	42W 120VAC	LED 1 42	WALL	COLUMBIA LIGHTING LXEM4—40ML—RFP—EU—SSL—WALL MOUNTING BRACKET (45°)
	C	LED WALL PACK WITH DRIVER AND SURGE PROTECTION. ONE PIECE DIE—CAST ALUMINUM HOUSING, HIGH IMPACT POLYCARBONATE LENS, UL LISTED FOR WET LOCATIONS. FIELD VERIFY COLOR.	71W 120VAC	LED 1 71	WALL	SPAULDING LIGHTING LMC—30LU—3K—4—1
	D	LED AREA LIGHT FIXTURE WITH LED DRIVERS AND SURGE PROTECTOR. 15' HIGH, 4" SQUARE STEEL POLE. LUMINAIRE CUT—OFF TYPE III. WITH TEMPERED GLASS LENS. COMPLETE WITH ANCHOR, BASE, POLE, ANCHOR BOLTS, BASE COVER, WIRING, PHOTOCELL CONTROLLER AND AND FIXTURE MOUNTING BRACKETS. PROVIDE RECEPTACLE FESTOON BOX.	268W 120VAC	LED 1 268	POLE	LITHONIA LIGHTING CSX2—LED—120C—700—40K—T3M—MVOLT—RPUMBA—HS—SF—BS—DNATXD LITHONIA LIGHTING SSS—15—4C—DM19AS—DDB
	E	EMERGENCY LIGHT, 6V SELF CONTAINED NI—CAD BATTERY. WHITE, HEAVY—DUTY POLYCARBONATE HOUSING AND POLYCARBONATE CLEAR HOUSING LENS WITH LINEAR PATTERN LED LAMPS. HOUSING SHALL BE SEALED, GASKETED AND CORROSION—RESISTANT. 90 MINUTES OF ILLUMINATION MIN. SELF—DIAGNOSTICS AND AUDIBLE FAILURE INDICATION. 120V, UL LISTED	18W 120VAC	LED 2 SETS 18W	WALL	LITHONIA LIGHTING INDX618—W—LP05VS—PREM WHITE

MOUNTING		MCC—B		PANEL 'A'										10,000		A.I.C. SYM.					
120/240		VOLT		1		PHASE		3		WIRE		MAIN				125A MCB		BUS		225A Cu	
LOCATION		WATTAGE		REC	LTG	POLE	BKR	CKT NO.	ØA	ØB	CKT NO.	BKR	POLE	LTG	REC	WATTAGE		LOCATION			
		ØA	ØB													ØA	ØB				
LTS ABOVE		300			6	1	20	1	●	—	2	20	1		2	360		RECEPT			
PERIMETER LTS		400			4	1	20	3	—	—	4	20	2			1800		GEN WTR HTR			
LTS BELOW		600			12	1	20	5	—	—	6	—	—			1800		↓			
AREA LTS		900			1	1	20	7	—	—	8	—	—					SPACE			
RTU		500				1	20	9	—	—	10	20	1		5	900		RECEPT BELOW EL.778			
GEN BATT CHGR/CP		100				1	20	11	—	—	12	15	1			200		FIT			
SPACE								13	—	—	14	20	1		2	360		OUTDOOR RECEPTACLE			
↓								15	—	—	16	20	1		3	540		POLE RECEPT			
								17	—	—	18							SPACE			
								19	—	—	20										
								21	—	—	22										
								23	—	—	24										
								25	—	—	26										
								27	—	—	28										
								29	—	—	30										
		1400 1400		WATTS/LINE								3420 2540		↓		ØB= 3940					
ØA= 4820		TOTAL WATTS= 8760								AMPS/LINE= 37				LCL AMPS=							



9/28/21

DESIGN
JM

DRAWN
CAD

CHECK
JMM

DATE

BY

REVISIONS

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OLIVENHAIN

Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

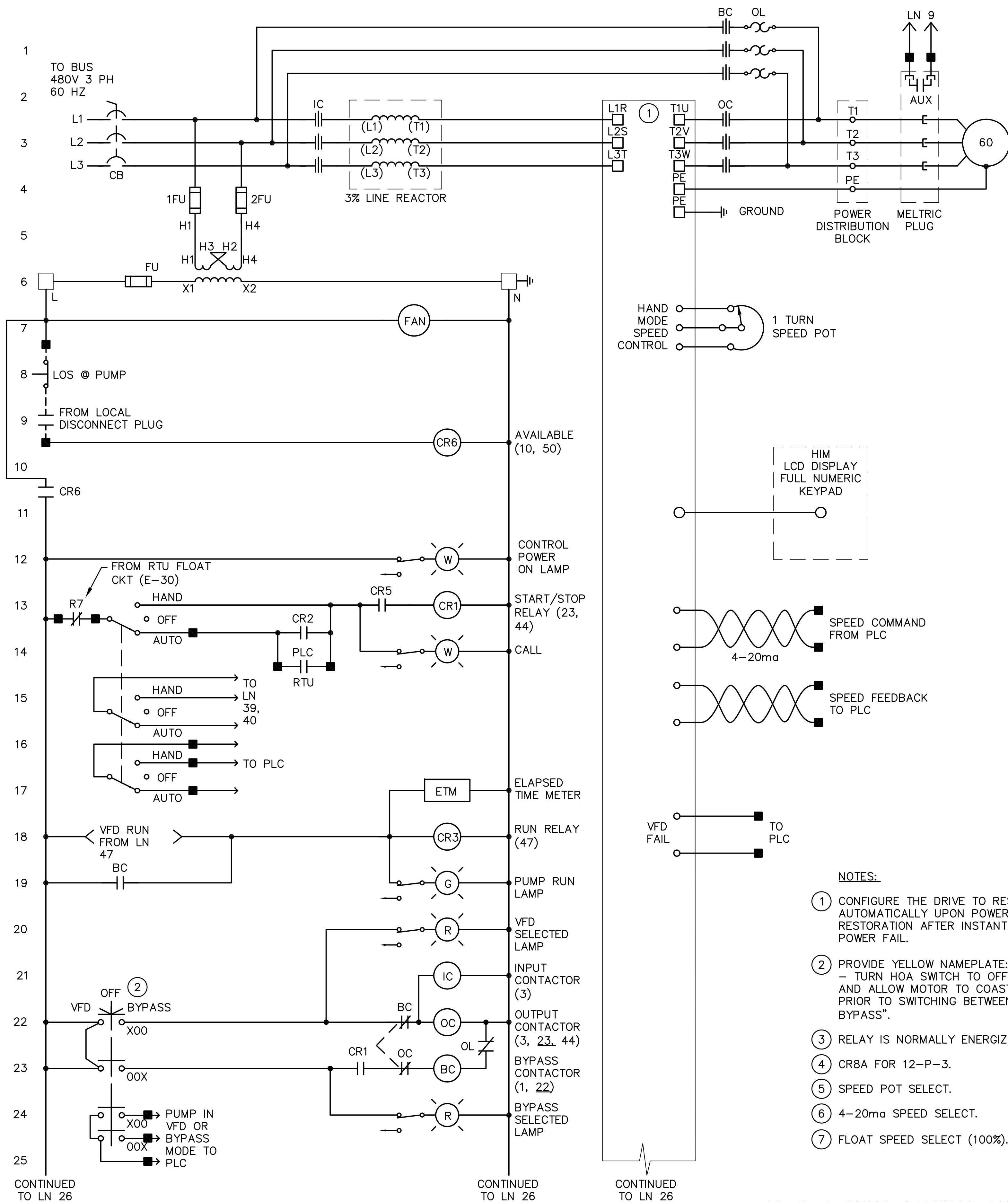
SCHEDULES

SHEET
63 of 90

DRAWING
E-8

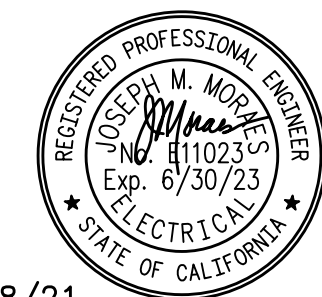
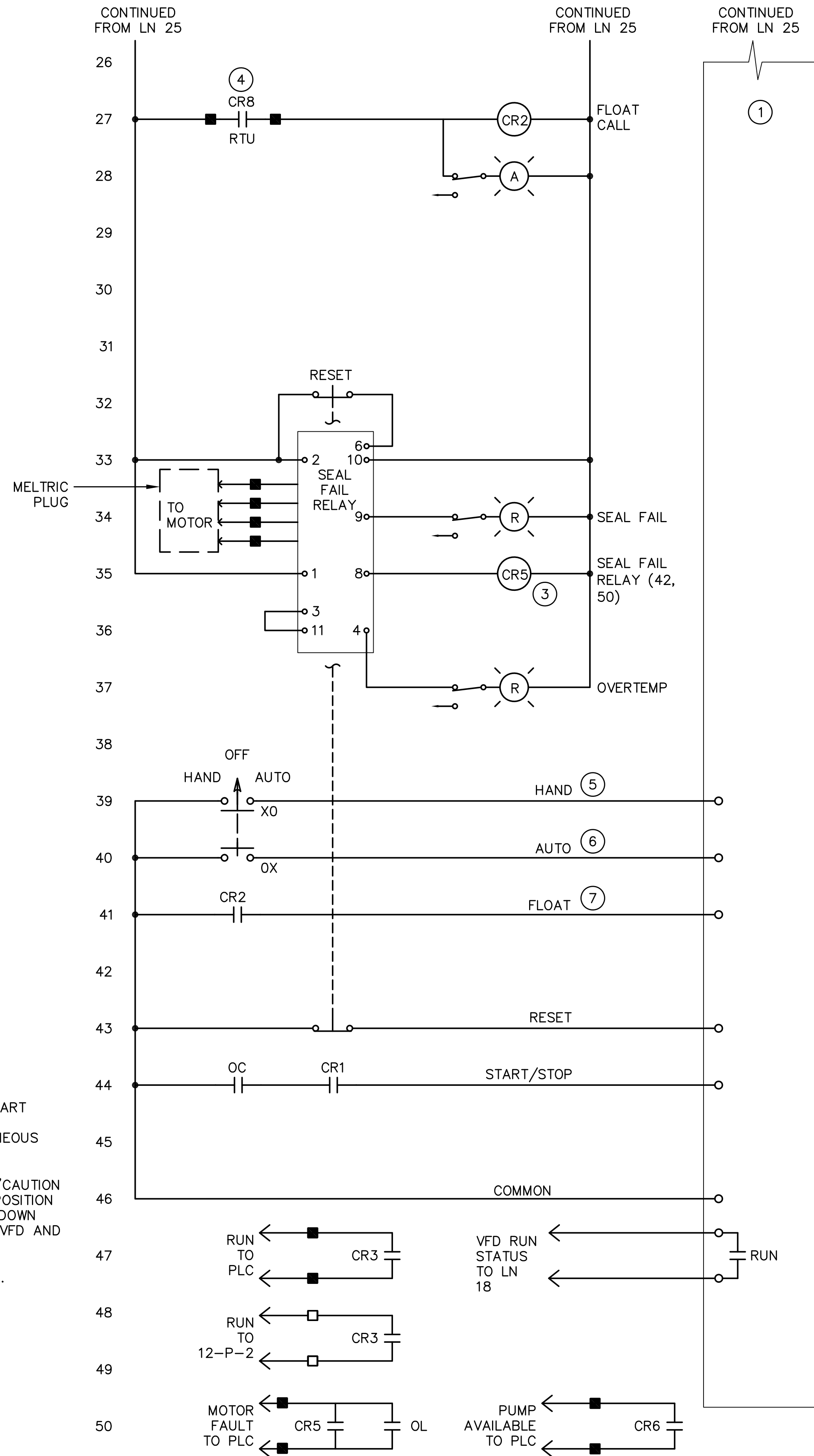
D700004

ORIGINAL SCALE IN INCHES



- NOTES:
- CONFIGURE THE DRIVE TO RESTART AUTOMATICALLY UPON POWER RESTORATION AFTER INSTANTANEOUS POWER FAIL.
 - PROVIDE YELLOW NAMEPLATE: "CAUTION - TURN HOA SWITCH TO OFF POSITION AND ALLOW MOTOR TO COAST DOWN PRIOR TO SWITCHING BETWEEN VFD AND BYPASS".
 - RELAY IS NORMALLY ENERGIZED.
 - CR8A FOR 12-P-3.
 - SPEED POT SELECT.
 - 4-20ma SPEED SELECT.
 - FLOAT SPEED SELECT (100%).

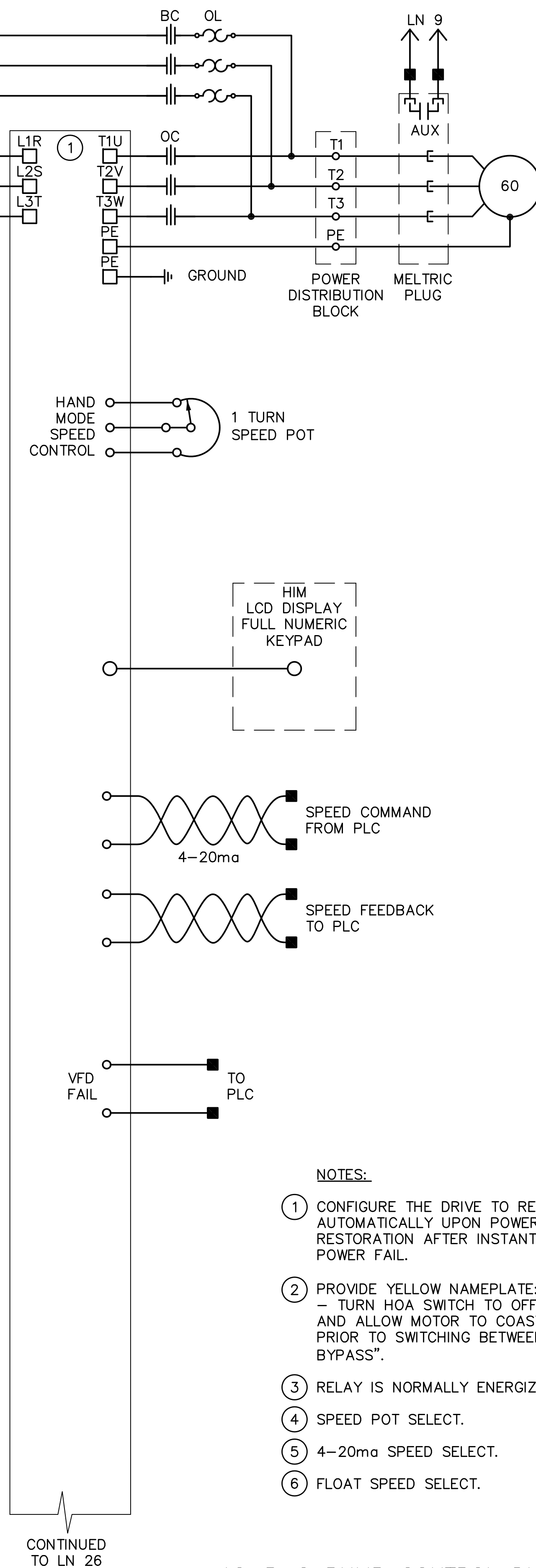
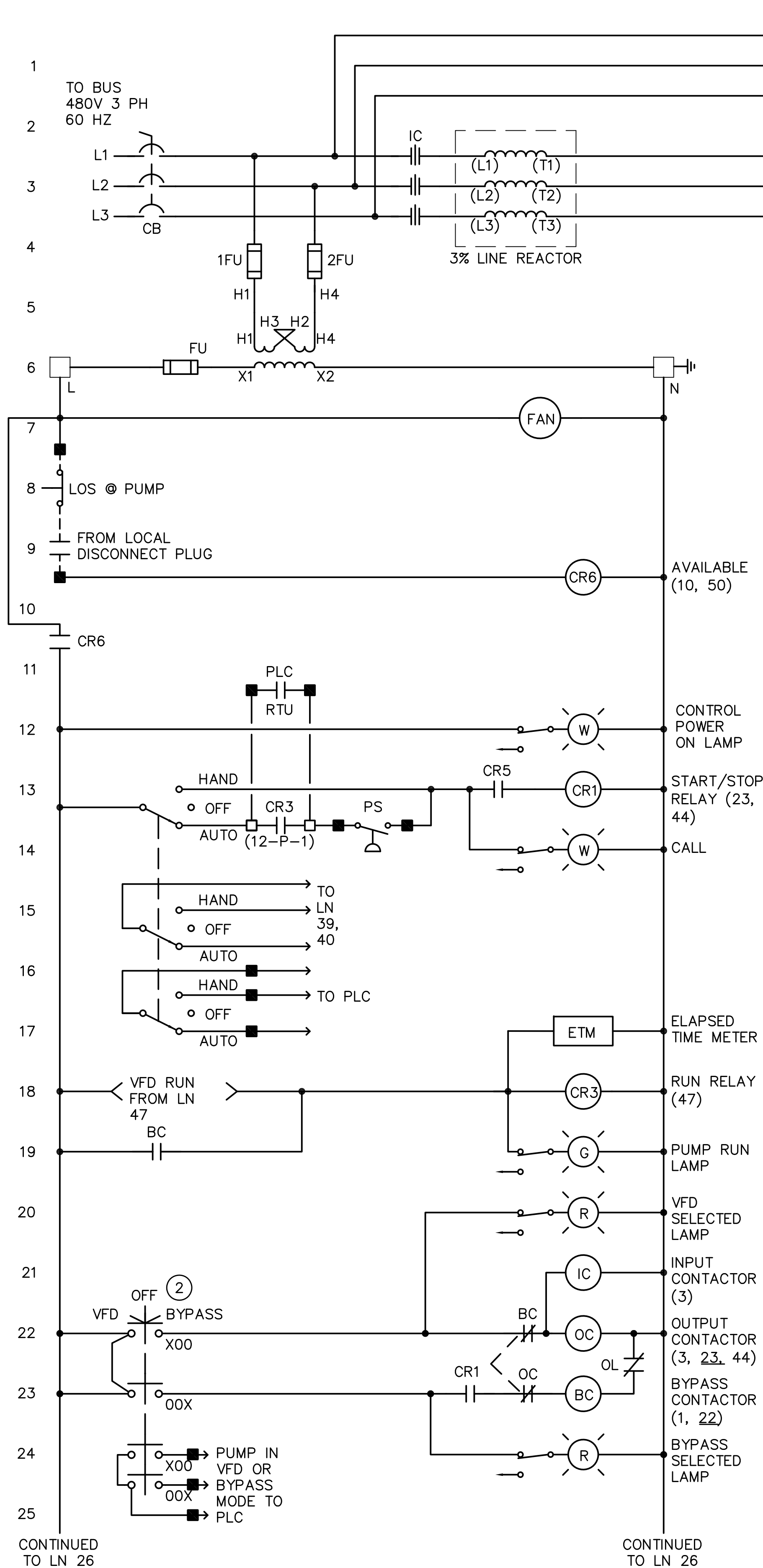
12-P-1 PUMP CONTROL DIAGRAM
(TYPICAL FOR 12-P-3)



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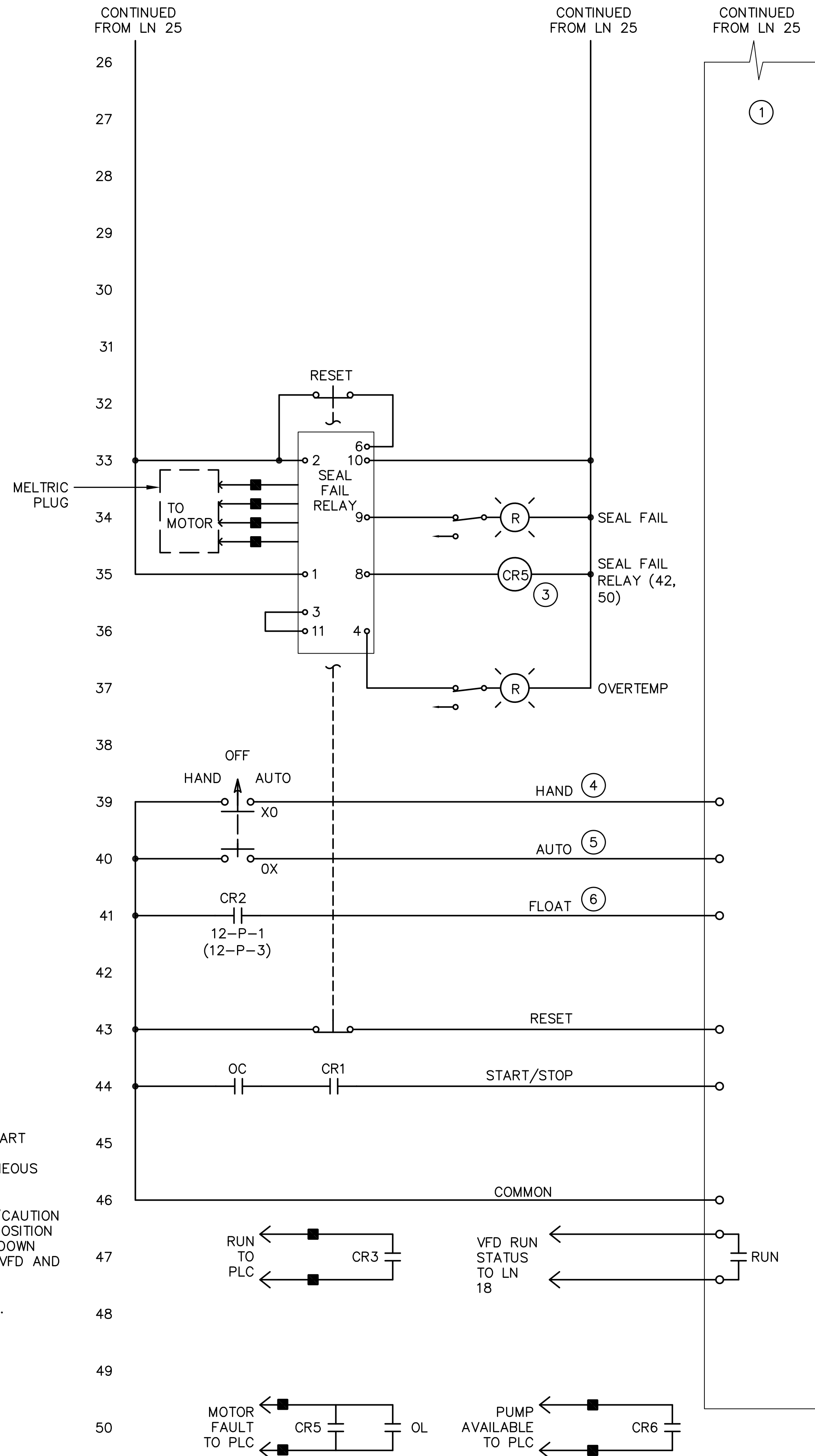
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JM		CAD		JMM			
<p>MORANES / PHAM & ASSOCIATES 2131 Palomar Airport Rd. #120 Carlsbad, CA 92011</p>							
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4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT				MOTOR CONTROLS 1			
SHEET 64 of 90				DRAWING E-9			
D700004							

ORIGINAL SCALE IN INCHES

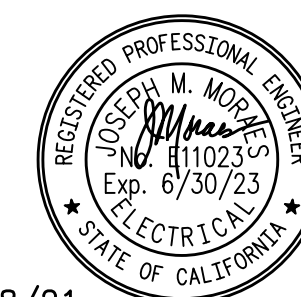


- NOTES:
- 1 CONFIGURE THE DRIVE TO RESTART AUTOMATICALLY UPON POWER RESTORATION AFTER INSTANTANEOUS POWER FAIL.
 - 2 PROVIDE YELLOW NAMEPLATE: "CAUTION - TURN HOA SWITCH TO OFF POSITION AND ALLOW MOTOR TO COAST DOWN PRIOR TO SWITCHING BETWEEN VFD AND BYPASS".
 - 3 RELAY IS NORMALLY ENERGIZED.
 - 4 SPEED POT SELECT.
 - 5 4-20ma SPEED SELECT.
 - 6 FLOAT SPEED SELECT.

12-P-2 PUMP CONTROL DIAGRAM
(TYPICAL FOR 12-P-4)



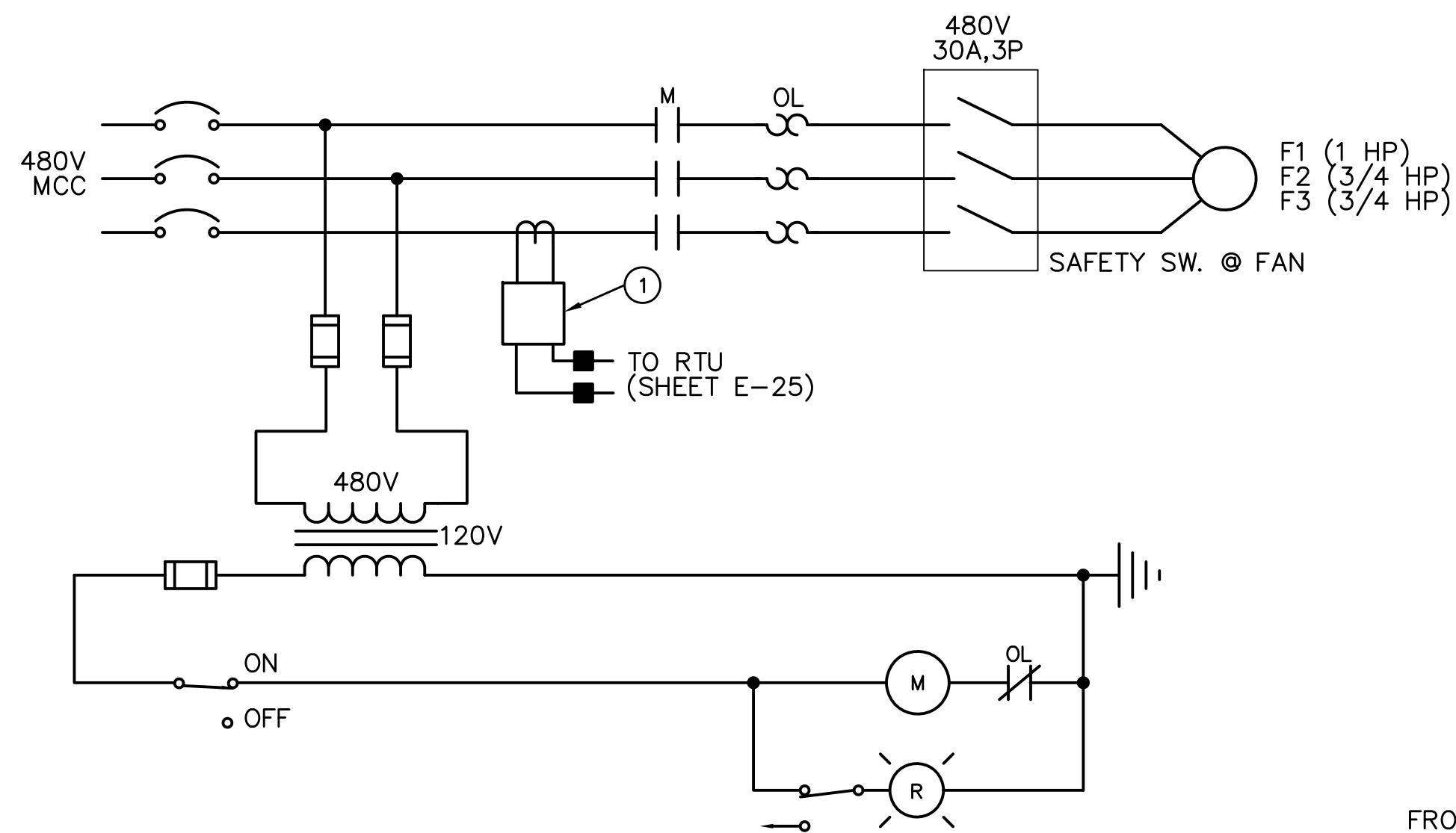
MITSUBISHI
DRIVE



9/28/21

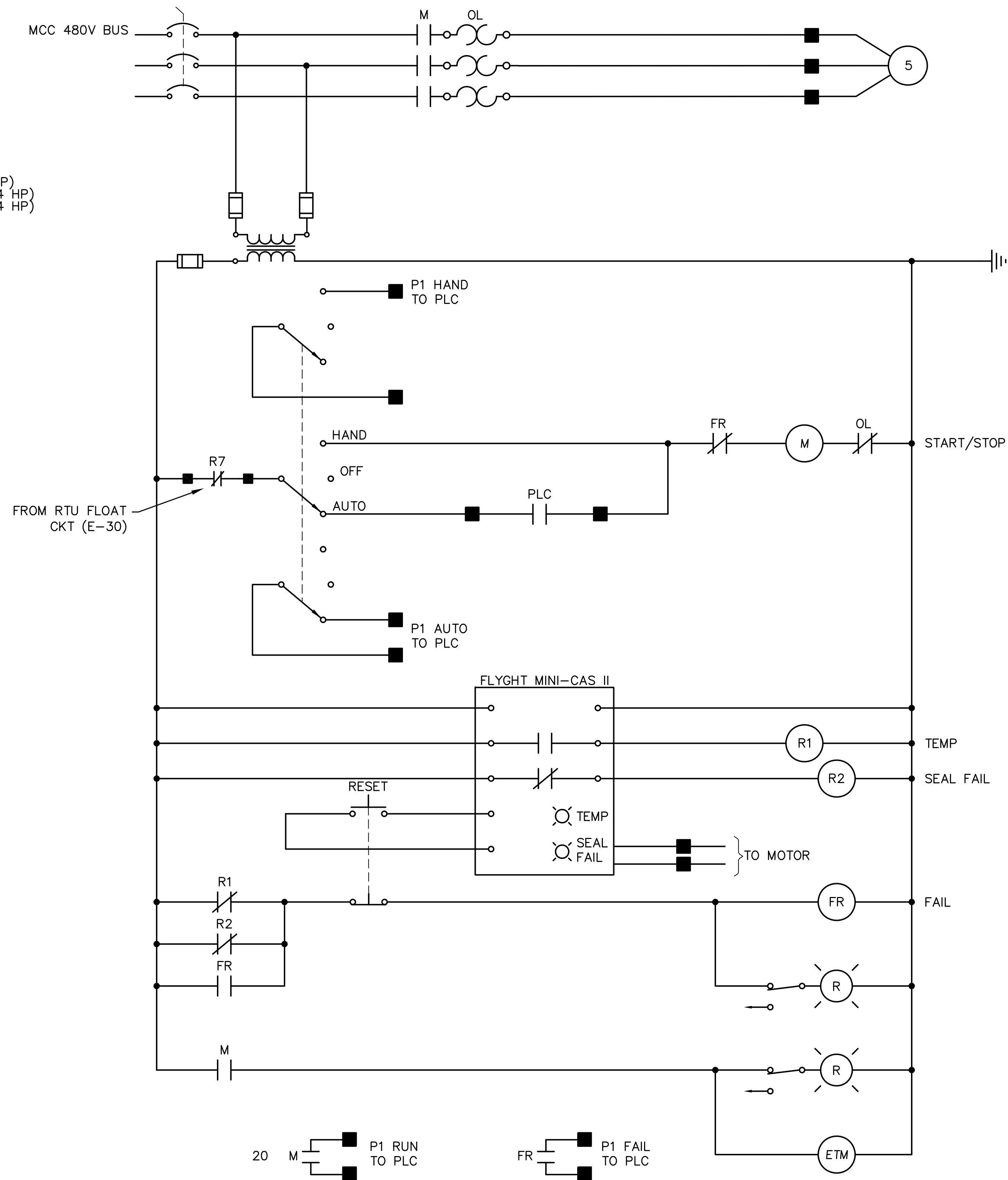
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OLIVENHAIN Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 (760)753-6466											
4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT						MOTOR CONTROLS 2					
SHEET 65 of 90						DRAWING F-10					
D700004											

ORIGINAL SCALE IN INCHES

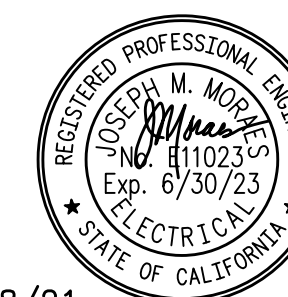


FAN CONTROL DIAGRAM (F1, F2, F3)

① UNDERCURRENT SWITCH TO MONITOR LOSS OF VENTILATION. PART NO. VERIS INDUSTRIES H609, OR EQUAL.



WETWELL CONDITIONING PUMP CONTROL DIAGRAM
(TYPICAL FOR 2)



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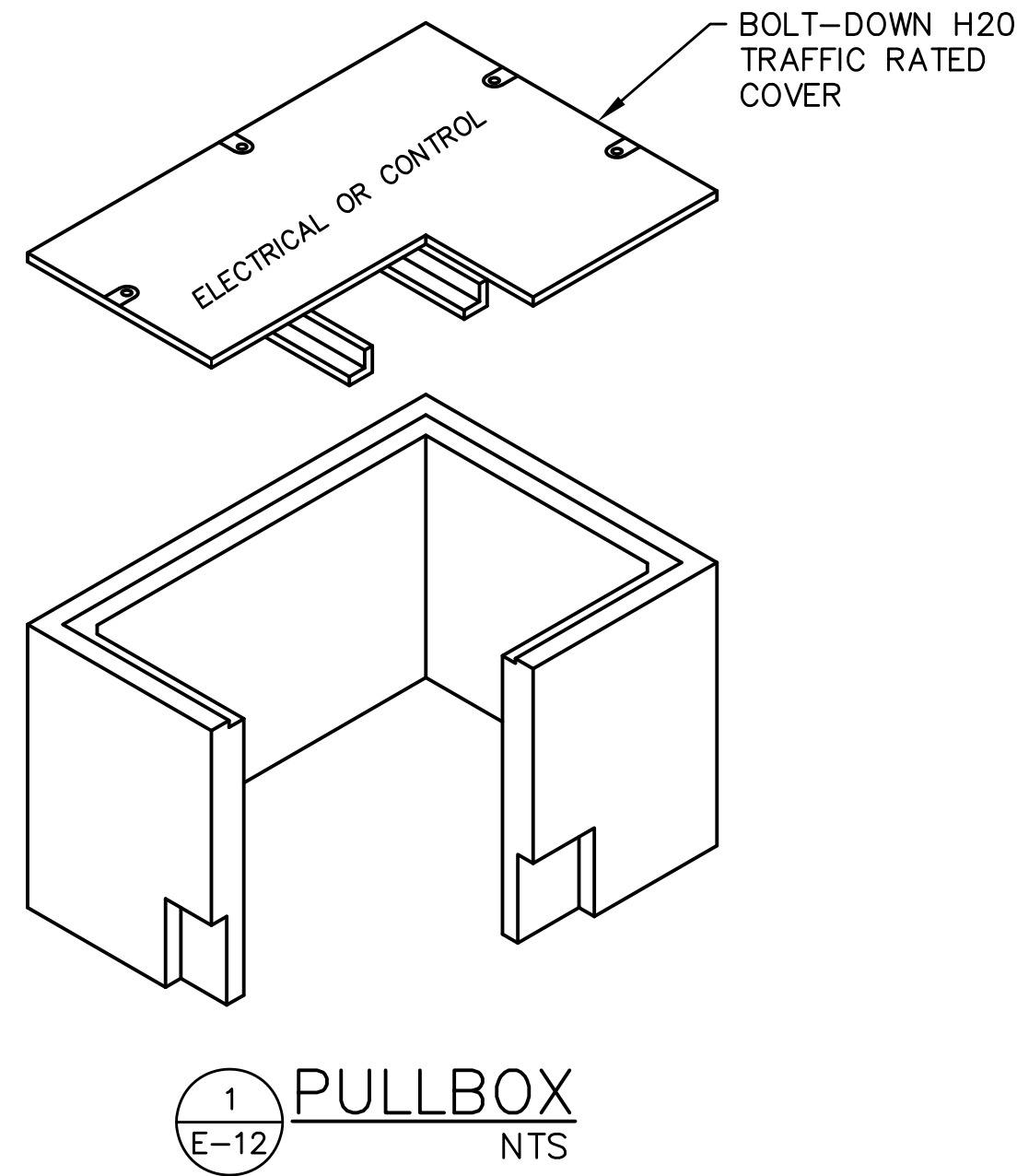
**4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT**

MOTOR CONTROLS 3

SHEET	DRAWING
66 of 90	E-11

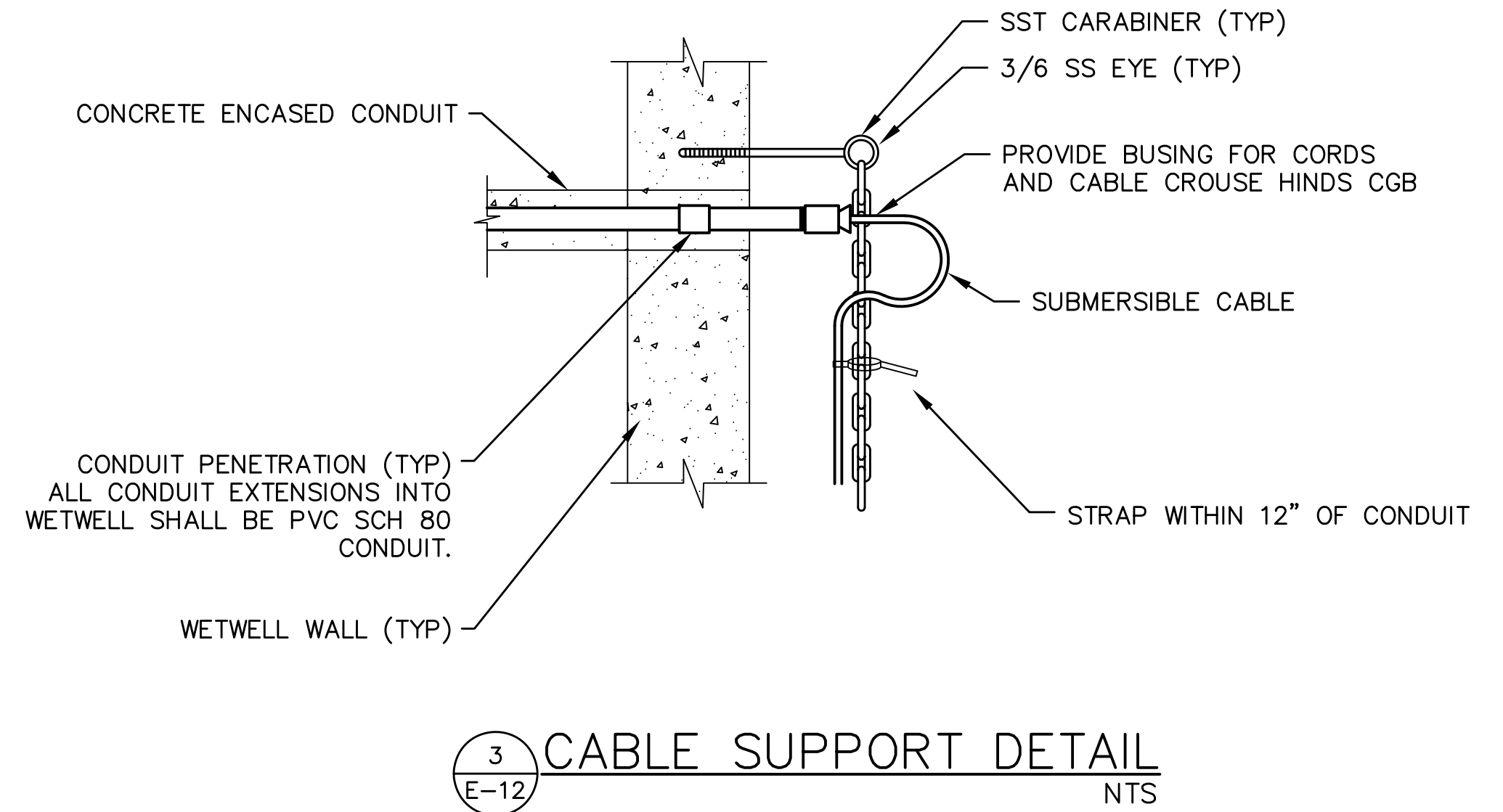
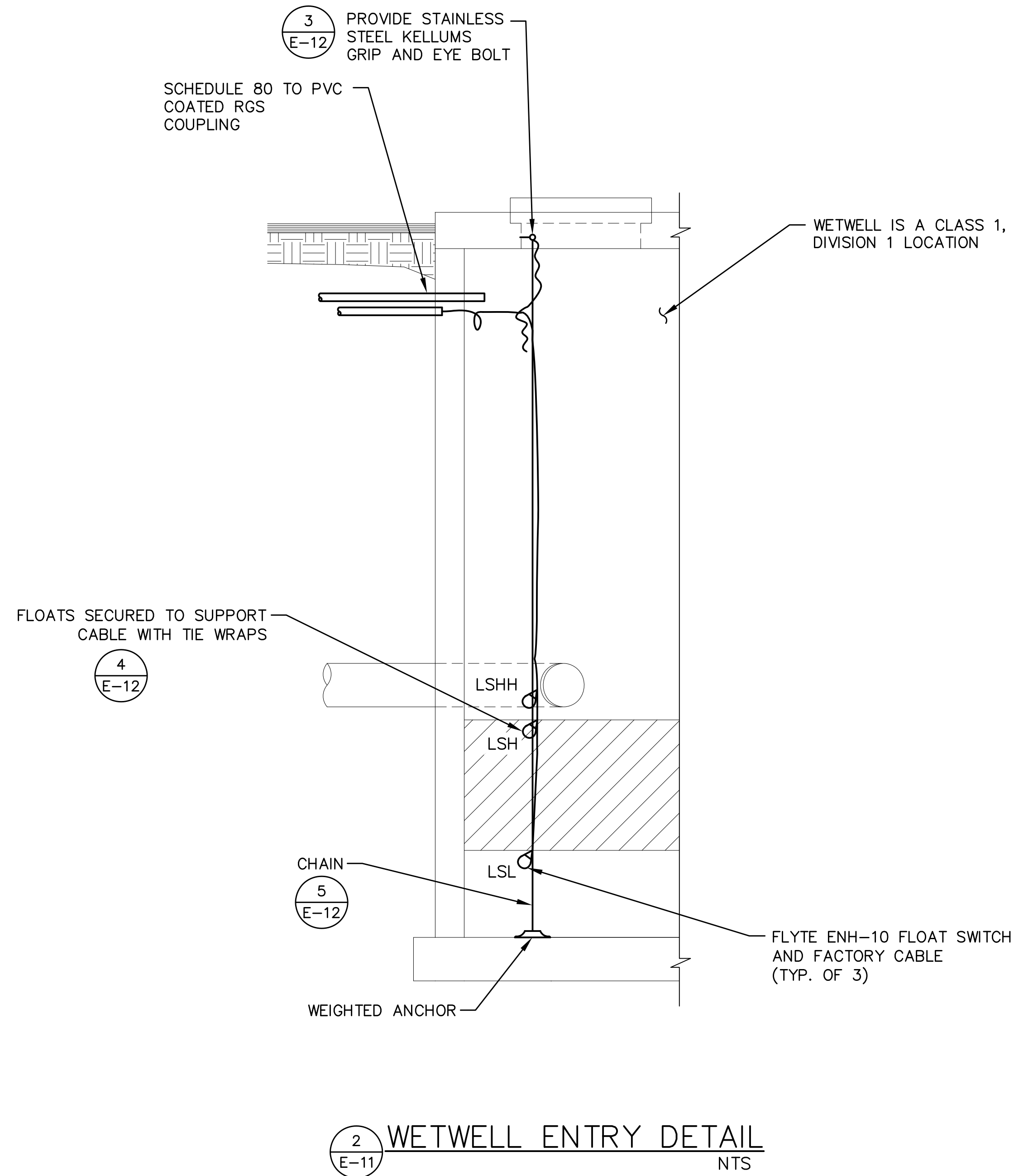
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ORIGINAL SCALE IN INCHES

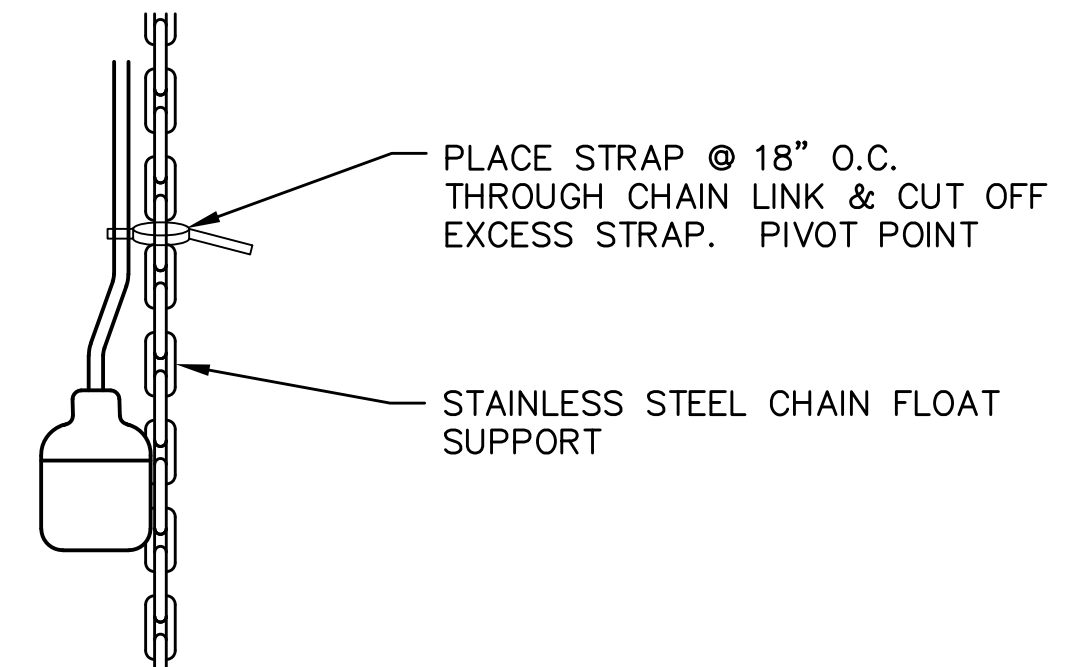


NOTES:

1. MINIMUM PULL BOX DIMENSIONS = 24" x 36" x 24"

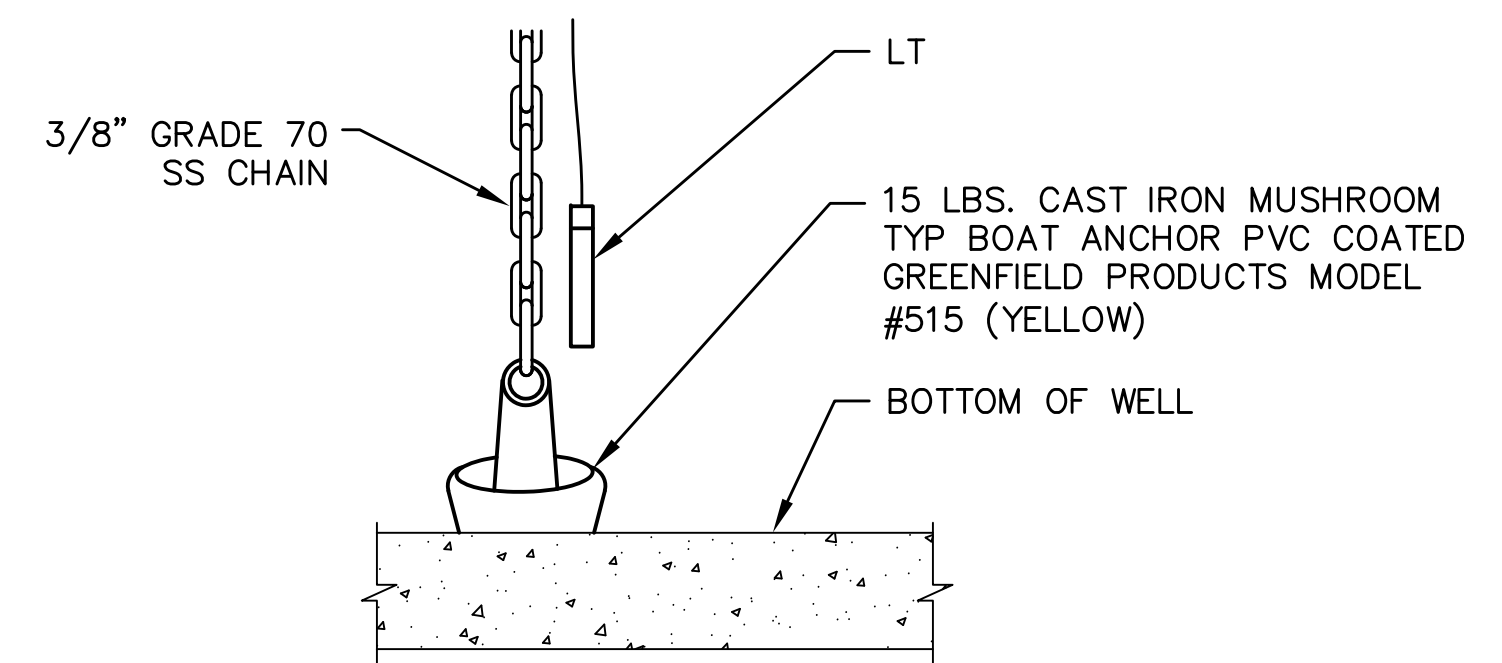


NOTE:
TIE CABLES TO CHAIN INDEPENDANTLY
OF OTHER FLOAT CABLES WHERE
MULTIPLE FLOATS ARE USED. DO NOT
TIE CABLES TOGETHER TO CHAIN.



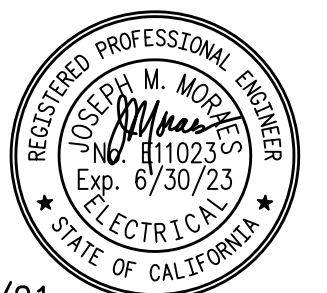
4
E-12

FLOAT SWITCH DETAIL
NTS



5
E-12

CHAIN ANCHOR DETAIL
NTS



9/28/21

REVISIONS	DATE	BY	MARK

DESIGN	JMM
DRAWN	CAD
CHECK	JMM

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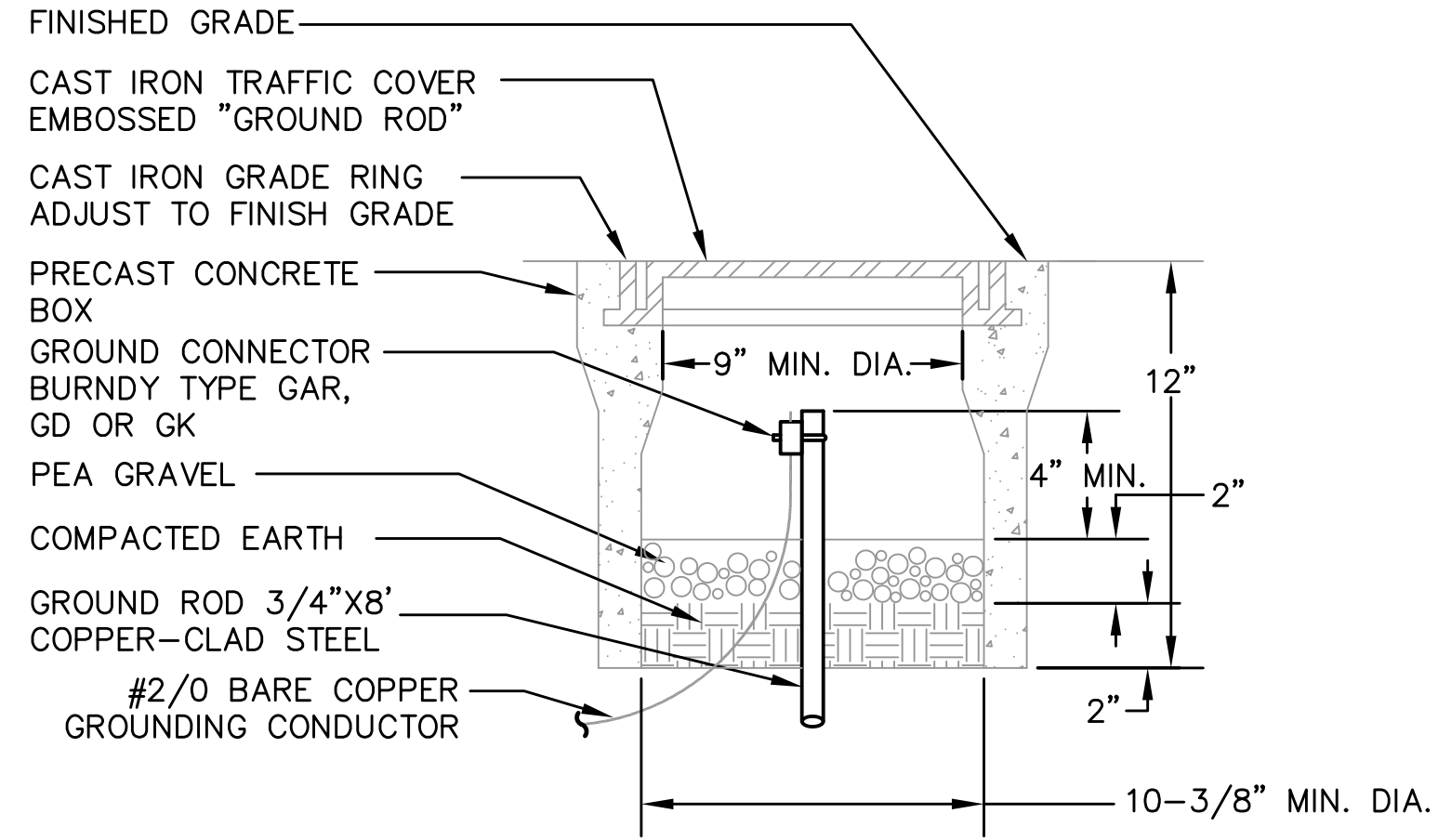
4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

ELECTRICAL DETAILS 1

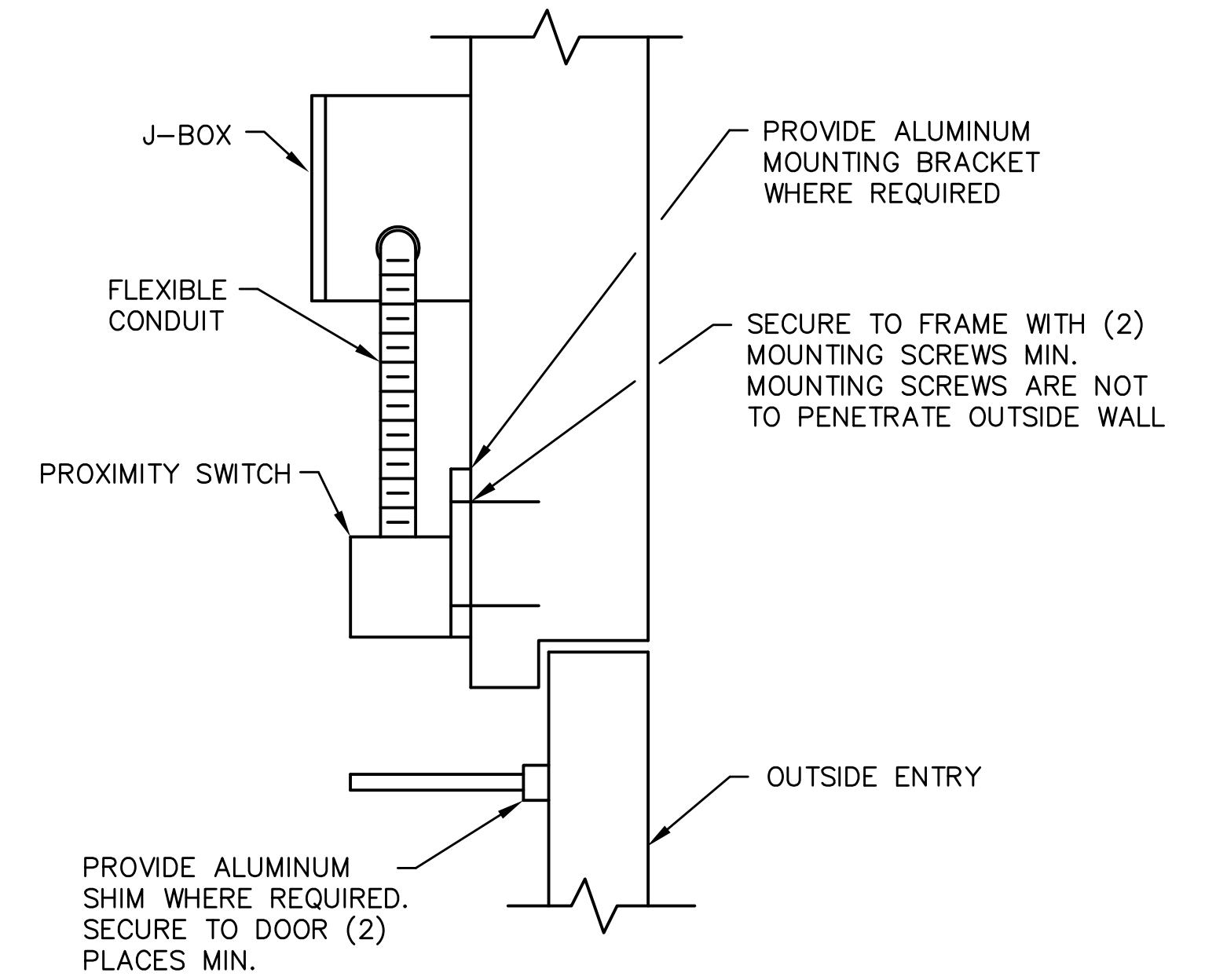
SHEET	DRAWING
67 of 90	E-12

D700004

ORIGINAL SCALE IN INCHES



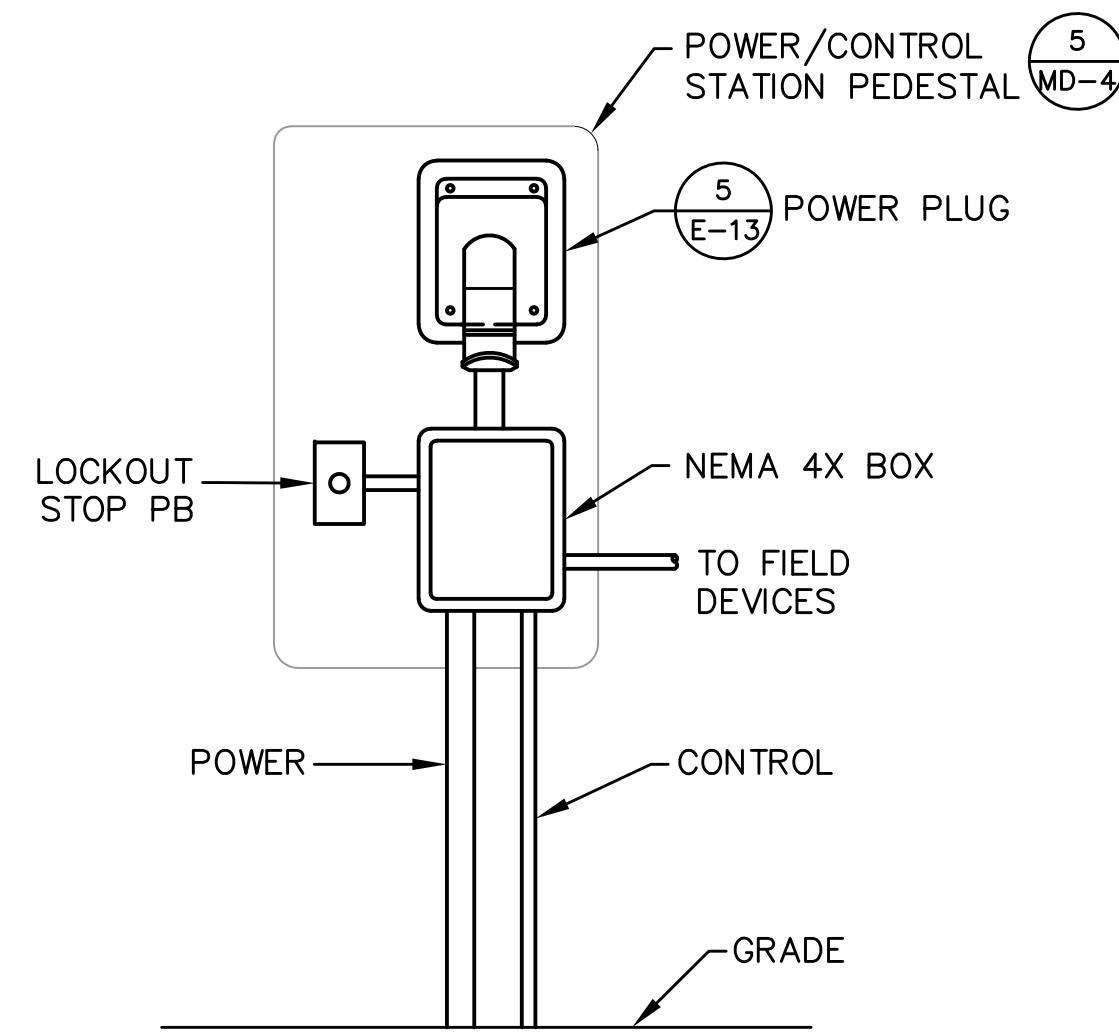
2 GROUND ROD AND BOX INSTALLATION
 E-13 NOT TO SCALE



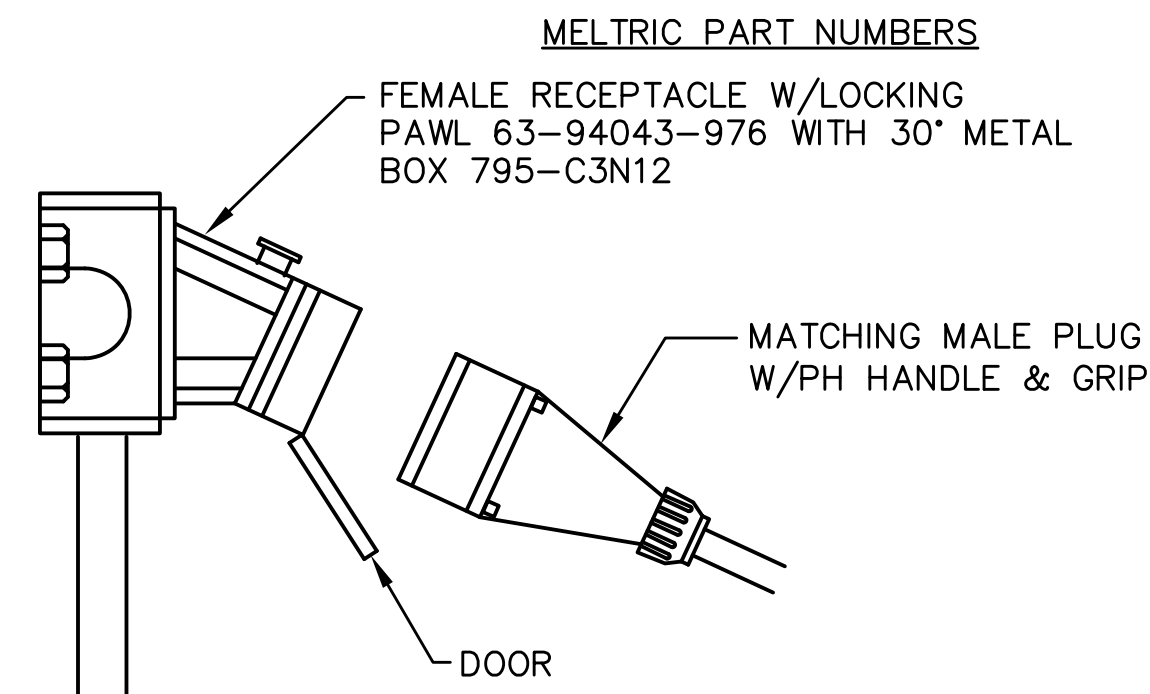
ENTRY DOOR

NOTE:
 ACTUATE SWITCH WHEN DOOR
 OPENS AT 15° MAX.

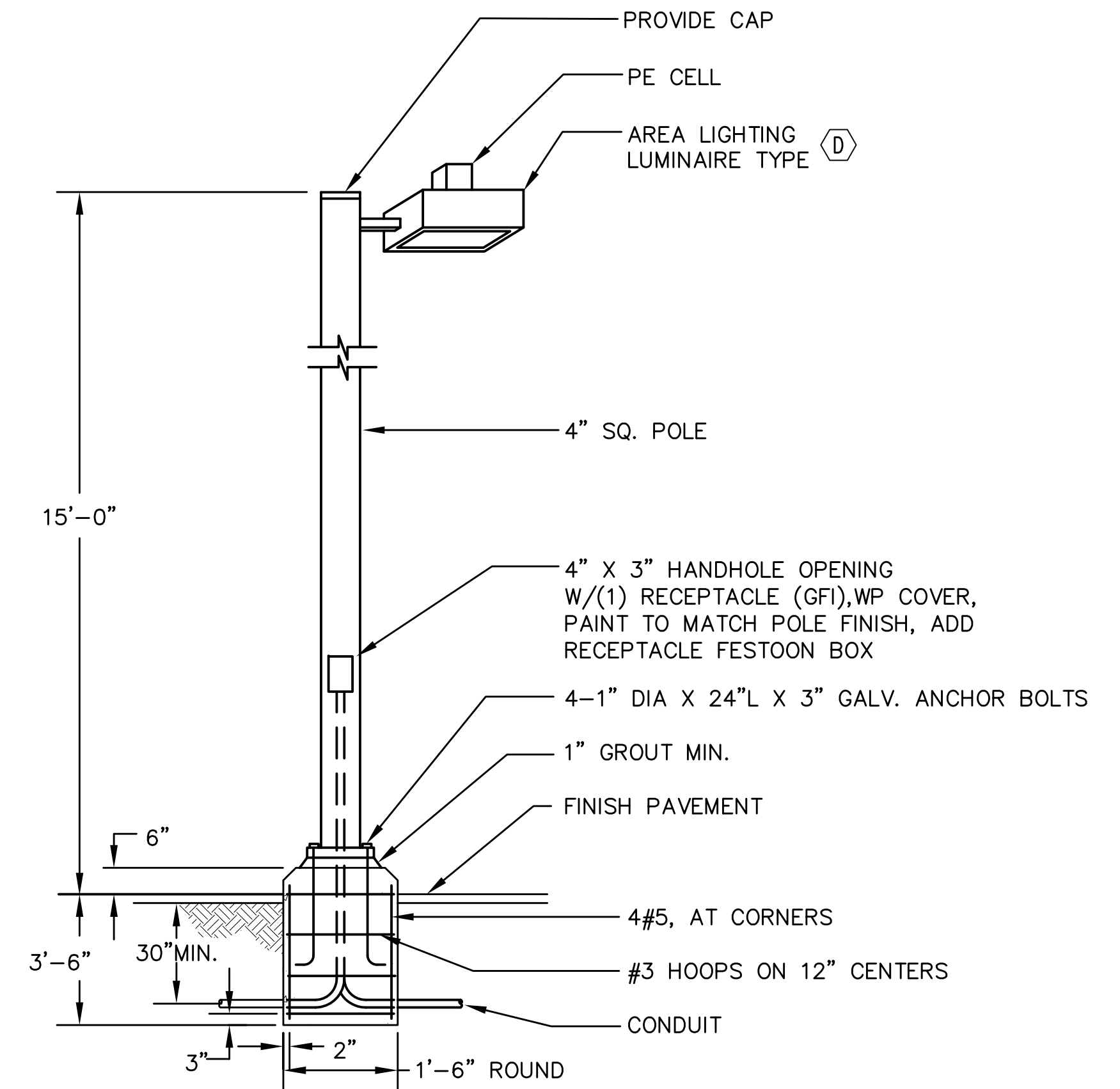
3 DOOR ENTRY SWITCHES
 E-13 NOT TO SCALE



4 POWER PLUG CONNECTOR LAYOUT
 E-13 NOT TO SCALE



5 POWER PLUG DETAIL
 E-13 NOT TO SCALE



6 AREA LIGHT
 E-13 NOT TO SCALE



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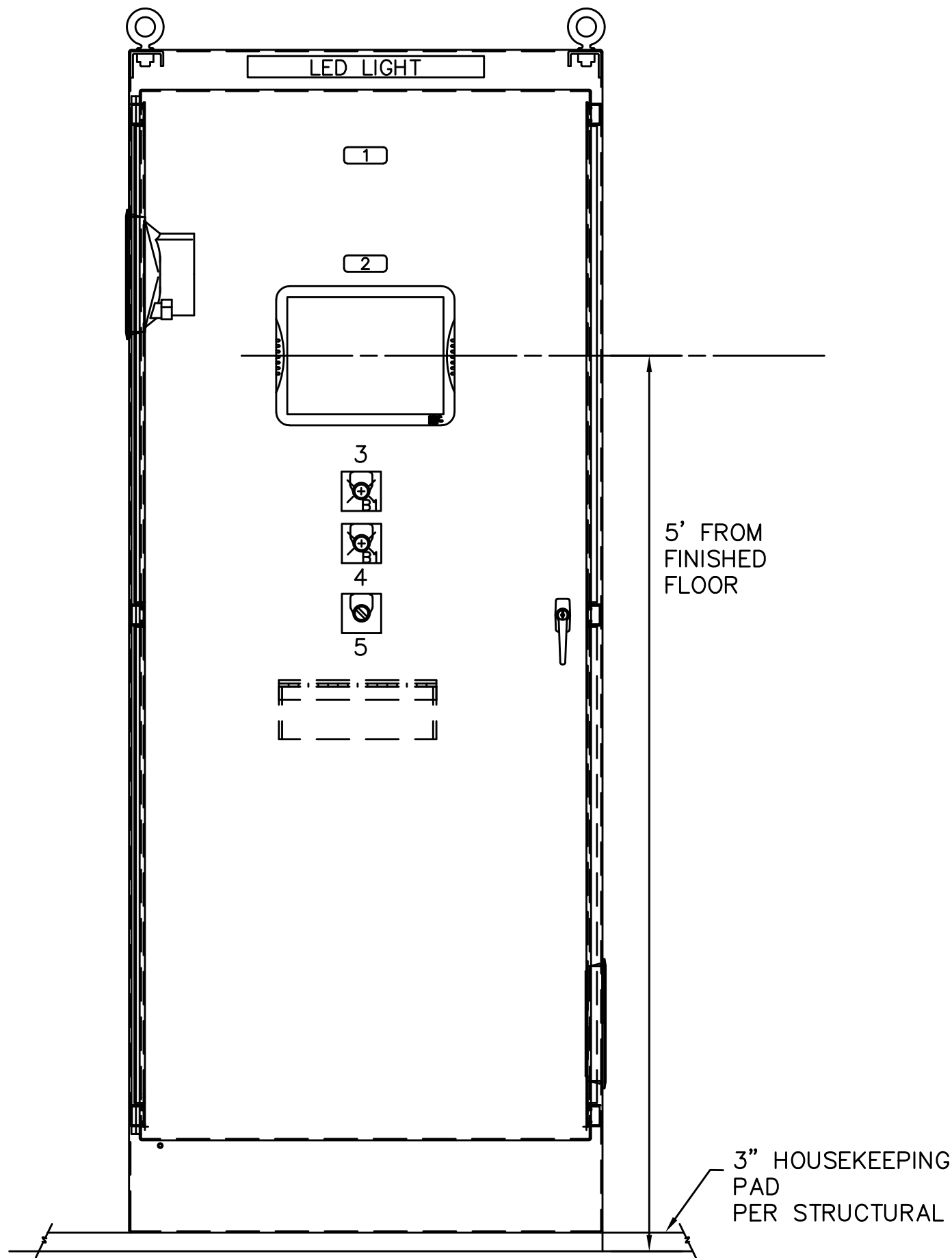
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 1966 Olivenhain Road
 Encinitas, CA 92024 (760) 753-6466

4S RANCH NEIGHBORHOOD 1 SEWER
 PUMP STATION REPLACEMENT

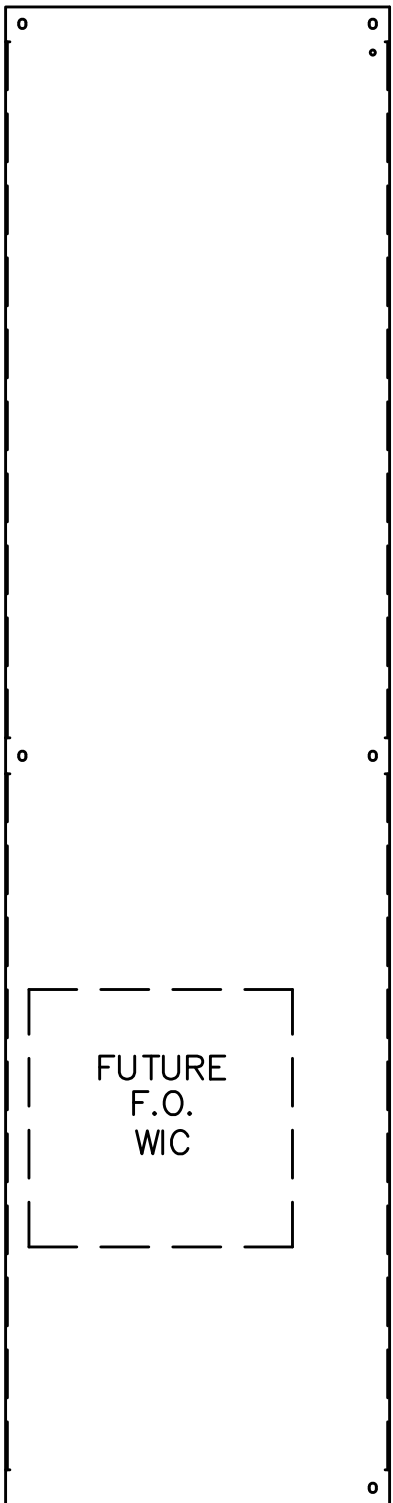
SHEET 68 of 90
 DRAWING E-13

D700004

ORIGINAL SCALE IN INCHES

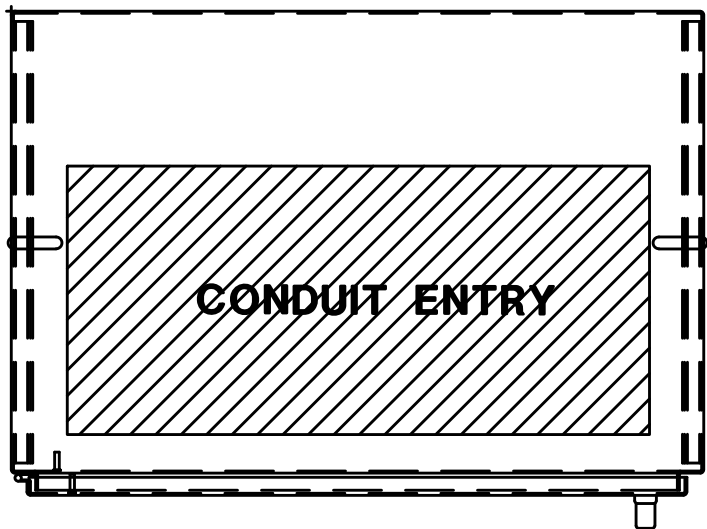


A
E-14 FRONT ELEVATION



LEFT SIDEPANEL LAYOUT

NAMEPLATE SCHEDULE	
TAG#	INSCRIPTION
1	NEIGHBORHOOD 1 PUMP STATION RTU
2	OPERATOR INTERFACE
3	STATION FLOODED ALARM
4	HORN SILENCE SWITCH
5	INTRUSION OVERRIDE KEY SWITCH
6	
7	
8	
9	
10	
11	
12	



BASE PLAN



9/28/21

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

RTU ELEVATIONS

DESIGN
JM

DRAWN
CAD

CHECK
JMM

MARK

DATE

BY

REVISIONS

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Carlsbad, CA 92011

OLIVENHAIN
Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466

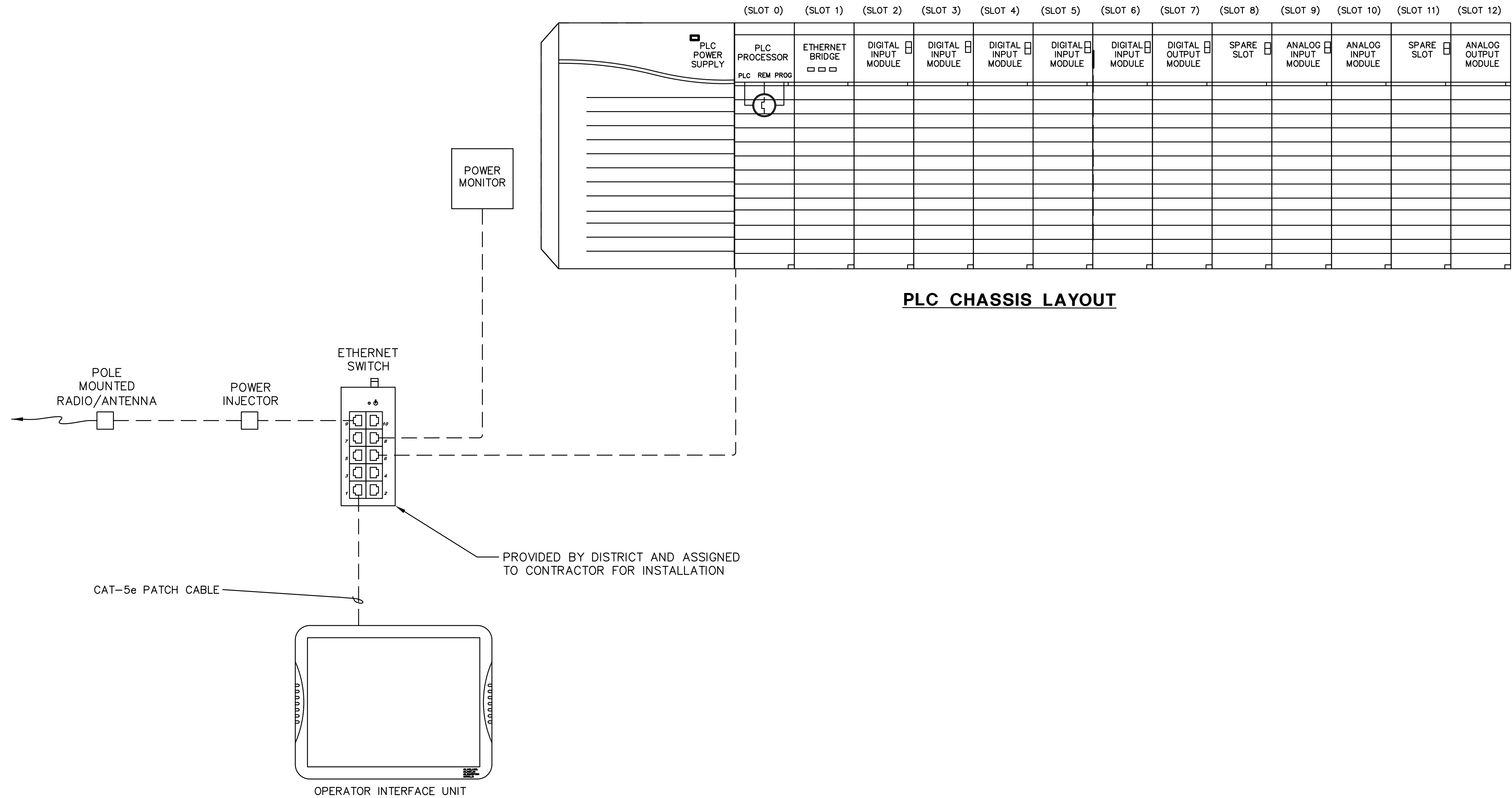
SHEET
69 of 90

DRAWING
E-14

D700004

ORIGINAL SCALE IN INCHES

0 1 2 3 4



PLC CHASSIS LAYOUT

PLC HARDWARE:

- ALLEN-BRADLEY 1756-A13 (13-SLOT CHASSIS)
- ALLEN-BRADLEY 1756-PB75 (24VDC PLC POWER SUPPLY)
- ALLEN-BRADLEY 1756-L61 (CONTROLOGIX PROCESSOR, 2 MB MEMORY SIZE)
- ALLEN-BRADLEY 1756-ENBT (ETHERNET BRIDGE COMMUNICATIONS MODULE)
- ALLEN-BRADLEY 1756-IB16 (16-POINT DC DIGITAL INPUT MODULES)
- ALLEN-BRADLEY 1756-0X8I (8-POINT ISOLATED RELAY DIGITAL OUTPUT MODULE)
- ALLEN-BRADLEY 1756-IF8H (8-POINT DIFFERENTIALLY ISOLATED ANALOG INPUT MODULE)
- ALLEN-BRADLEY 1756-OF6CI (6-POINT ISOLATED ANALOG OUTPUT MODULE)
- ALLEN-BRADLEY 1756-N2 SPARE SLOT FILLER



9/28/21

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

PLC CHASSIS LAYOUT AND BLOCK DIAGRAM

SHEET
70 of 90

DRAWING
E-15

D700004

DESIGN
JM

DRAWN
CAD

CHECK
JMM

MARK

DATE

BY

REVISIONS

MORAN

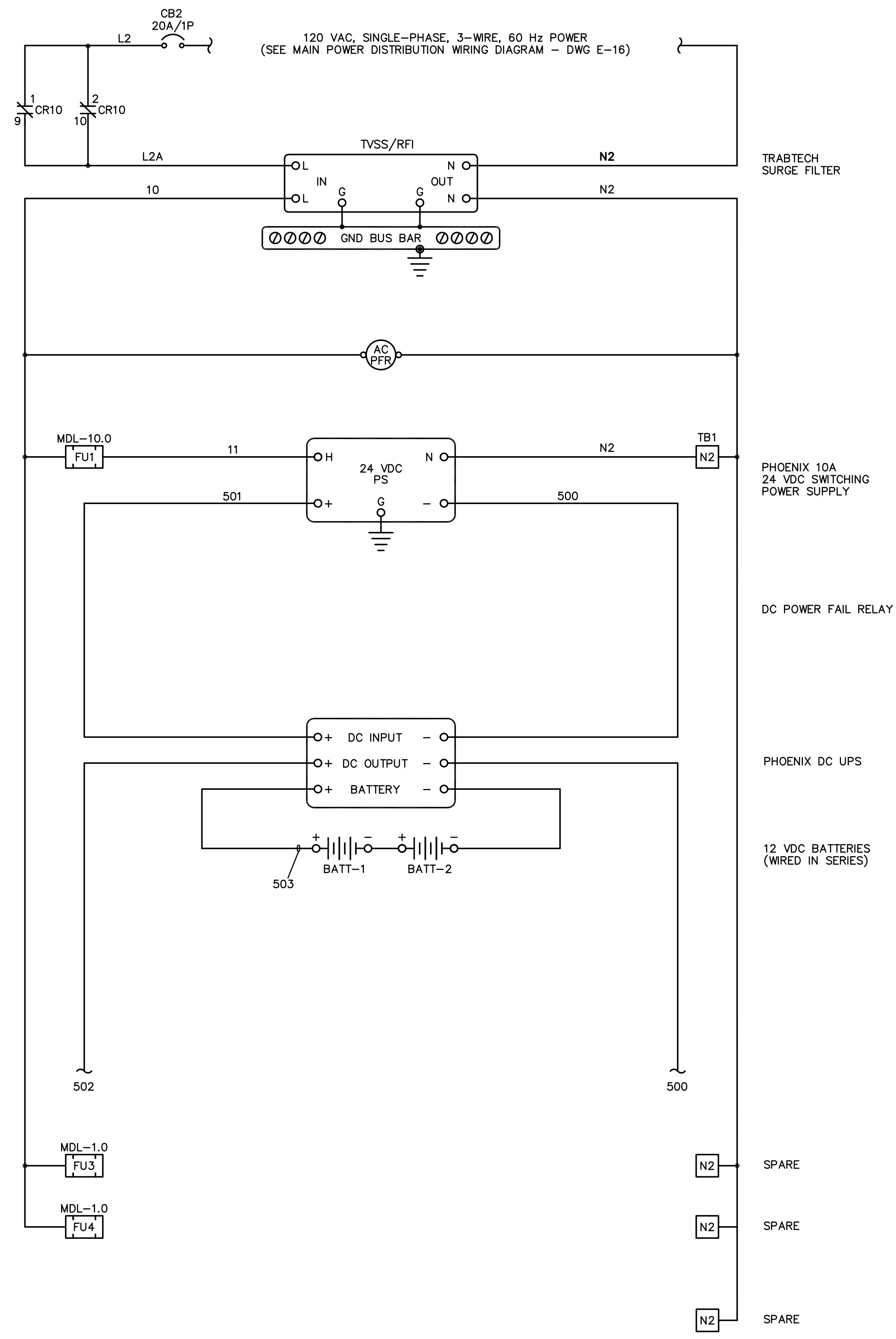
MORAN / PHAM & ASSOCIATES
2131 Palomar Airport Rd. #120
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OLIVENHAIN

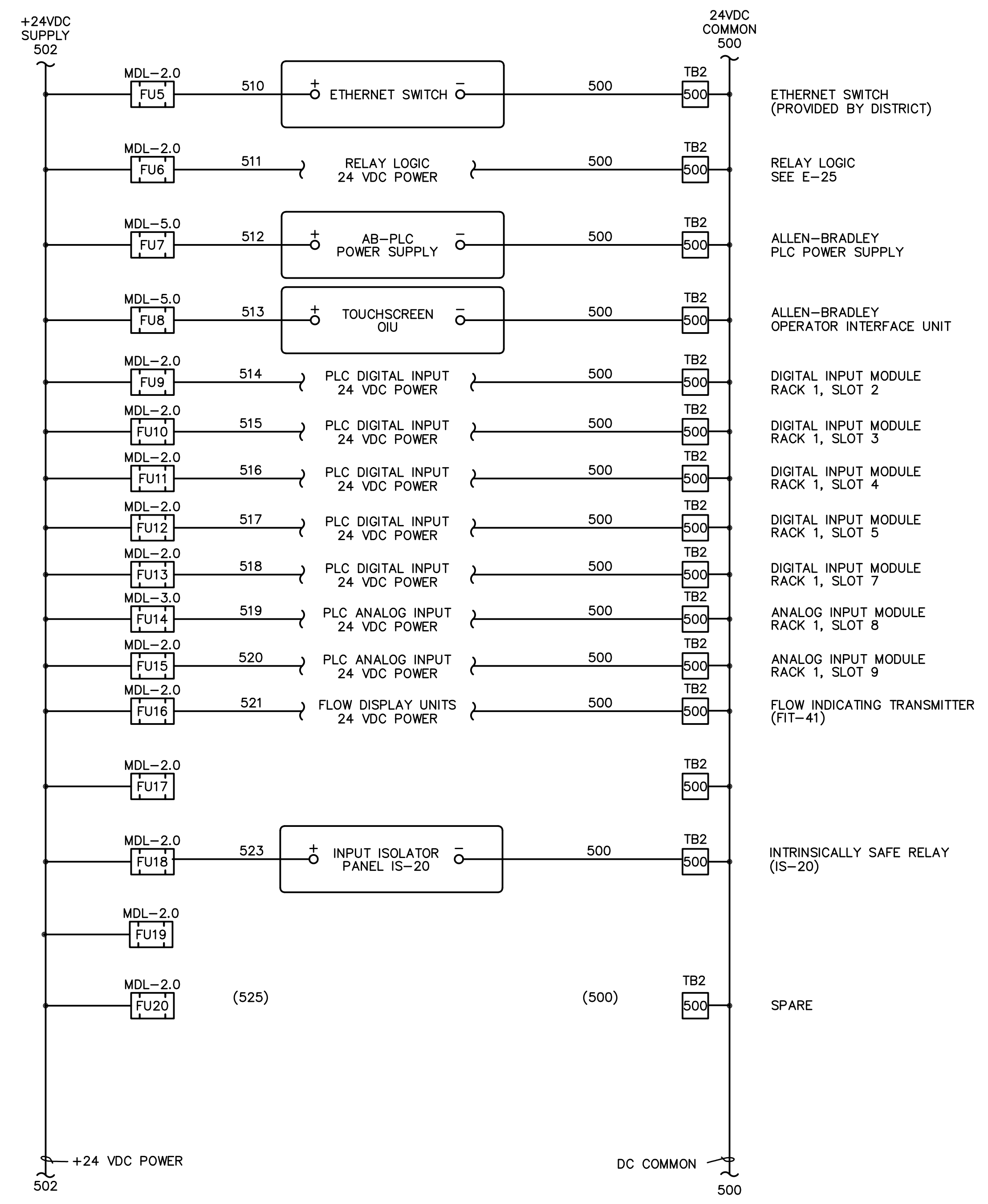
Municipal Water District
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ORIGINAL SCALE IN INCHES

6 1 2 3 4



RTU POWER DISTRIBUTION



DC POWER DISTRIBUTION



4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

RTU POWER DIAGRAMS 1

SHEET 71 of 90
DRAWING E-16

DESIGN JM
DRAWN CAD
CHECK JMM

DATE

BY

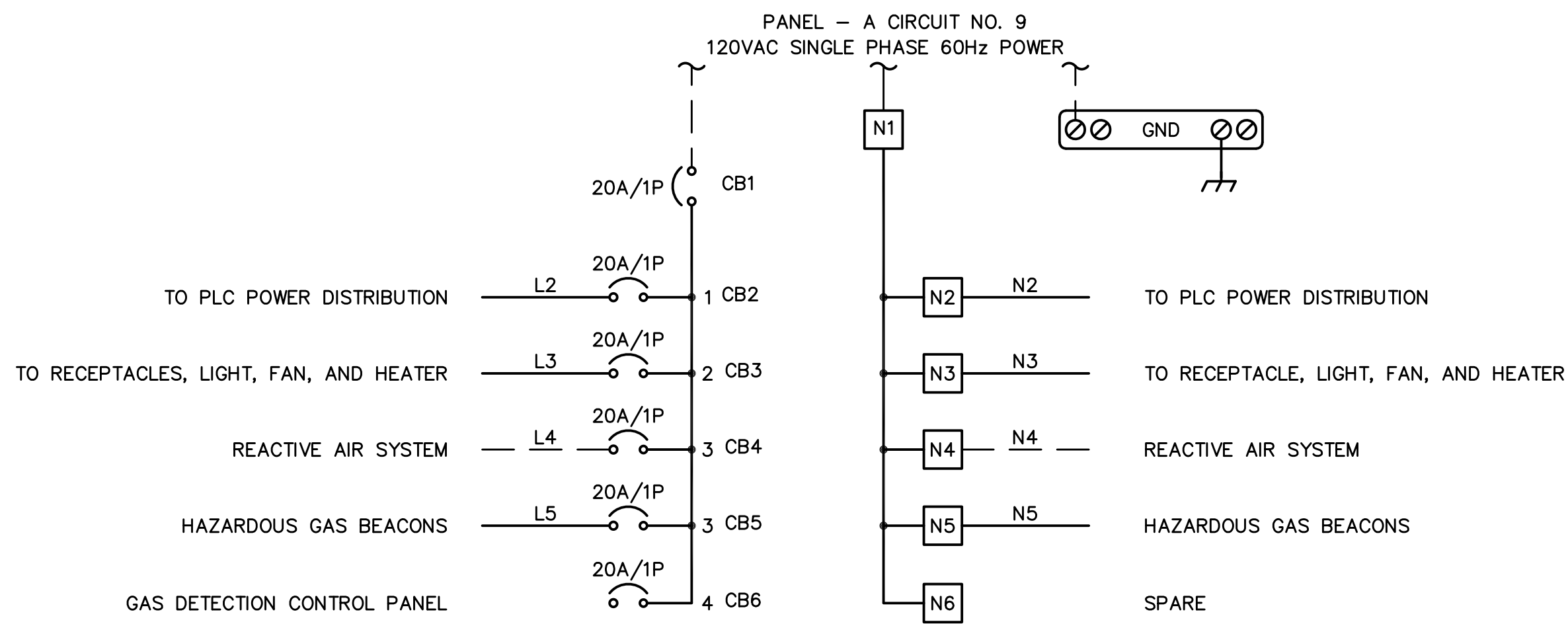
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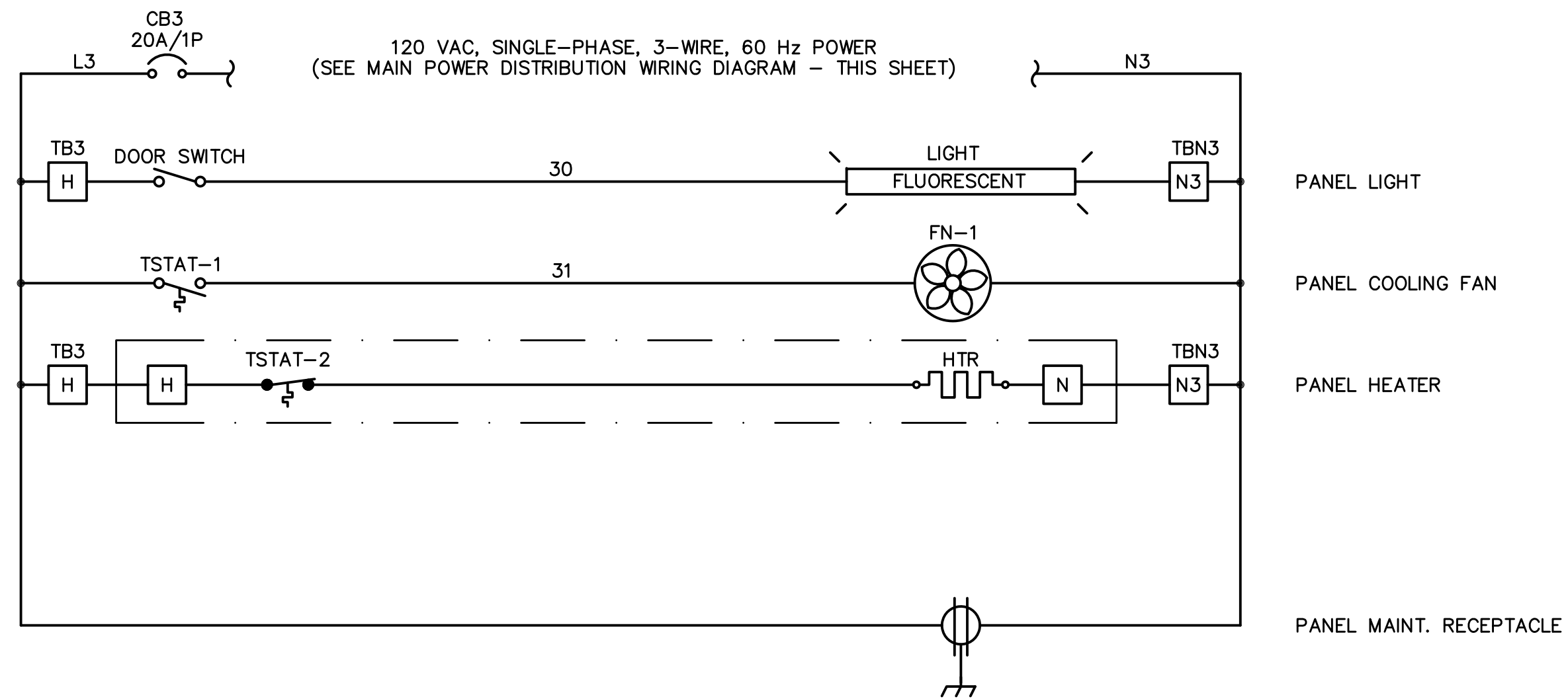
OLIVENHAIN
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D700004

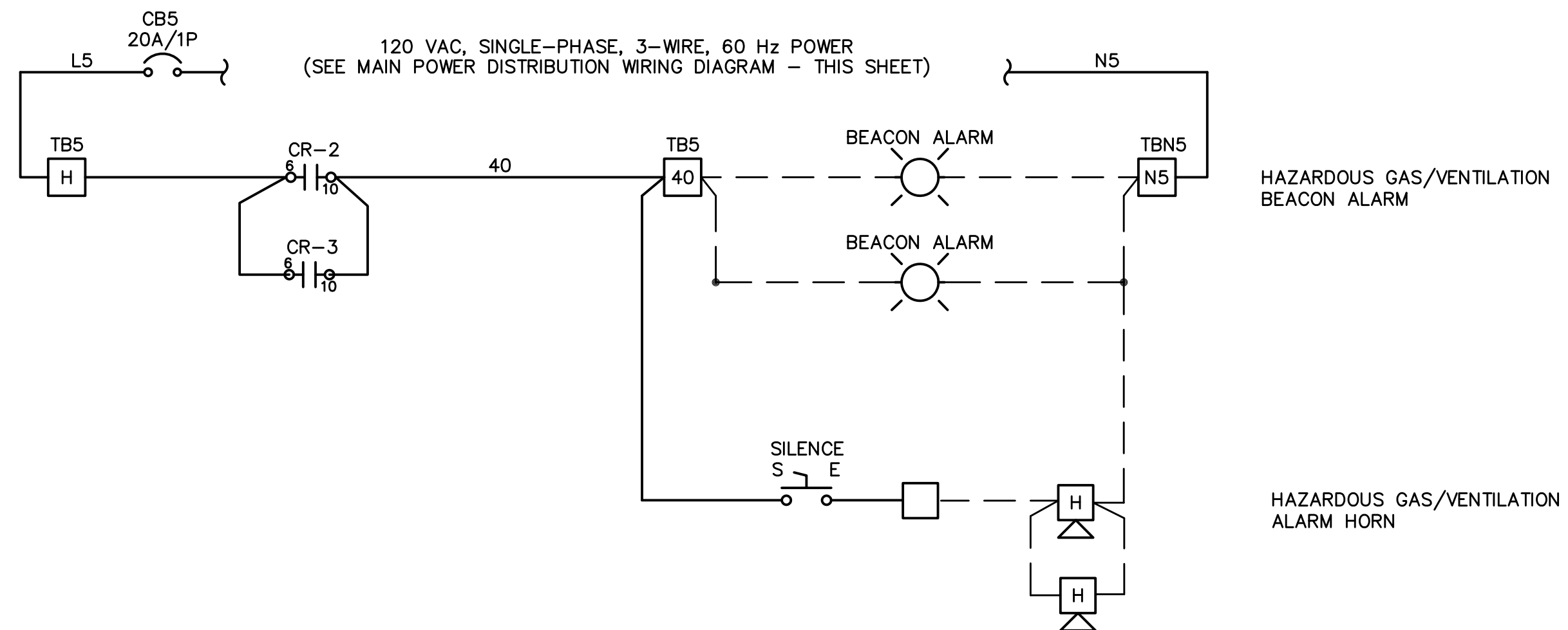
ORIGINAL SCALE IN INCHES



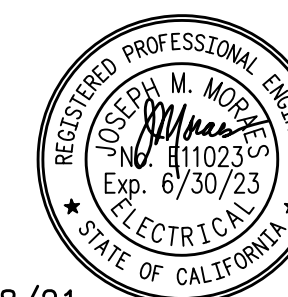
MAIN POWER DISTRIBUTION WIRING DIAGRAM



LIGHT, RECEPTACLE AND HEATER WIRING DIAGRAM



VENTILATION/GAS ALARM CONTROL DIAGRAM



9/28/21

REVISIONS	DATE	BY	MARK

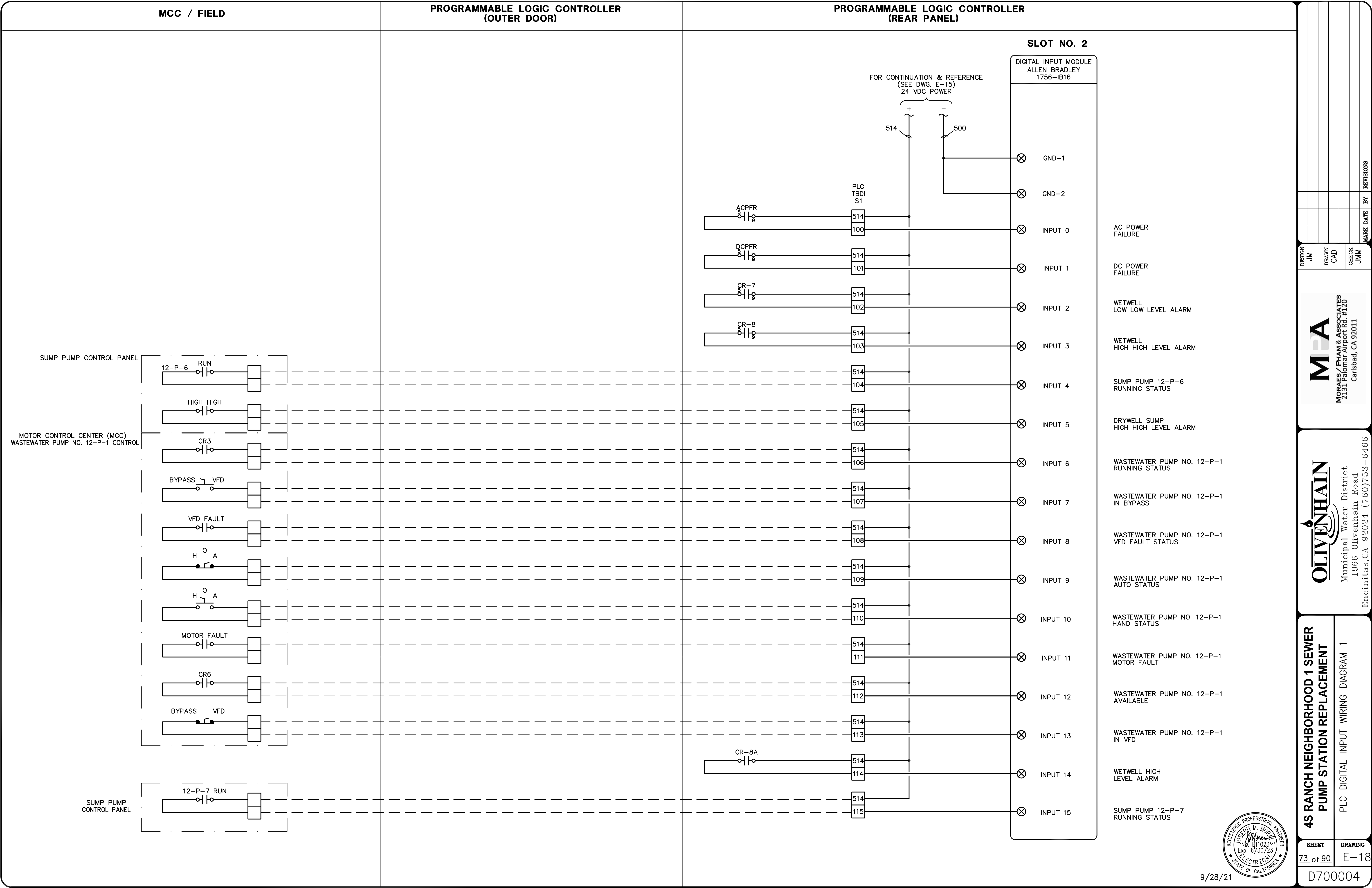
DESIGN	DRAWN	CHECK	DATE
JM	CAD	JMM	

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4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT	RTU POWER DIAGRAMS 2
SHEET 72 of 90	DRAWING E-17
D700004	

ORIGINAL SCALE IN INCHES



DESIGN
JM

DRAWN
CAD

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JMM

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4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

PLC DIGITAL INPUT WIRING DIAGRAM 1

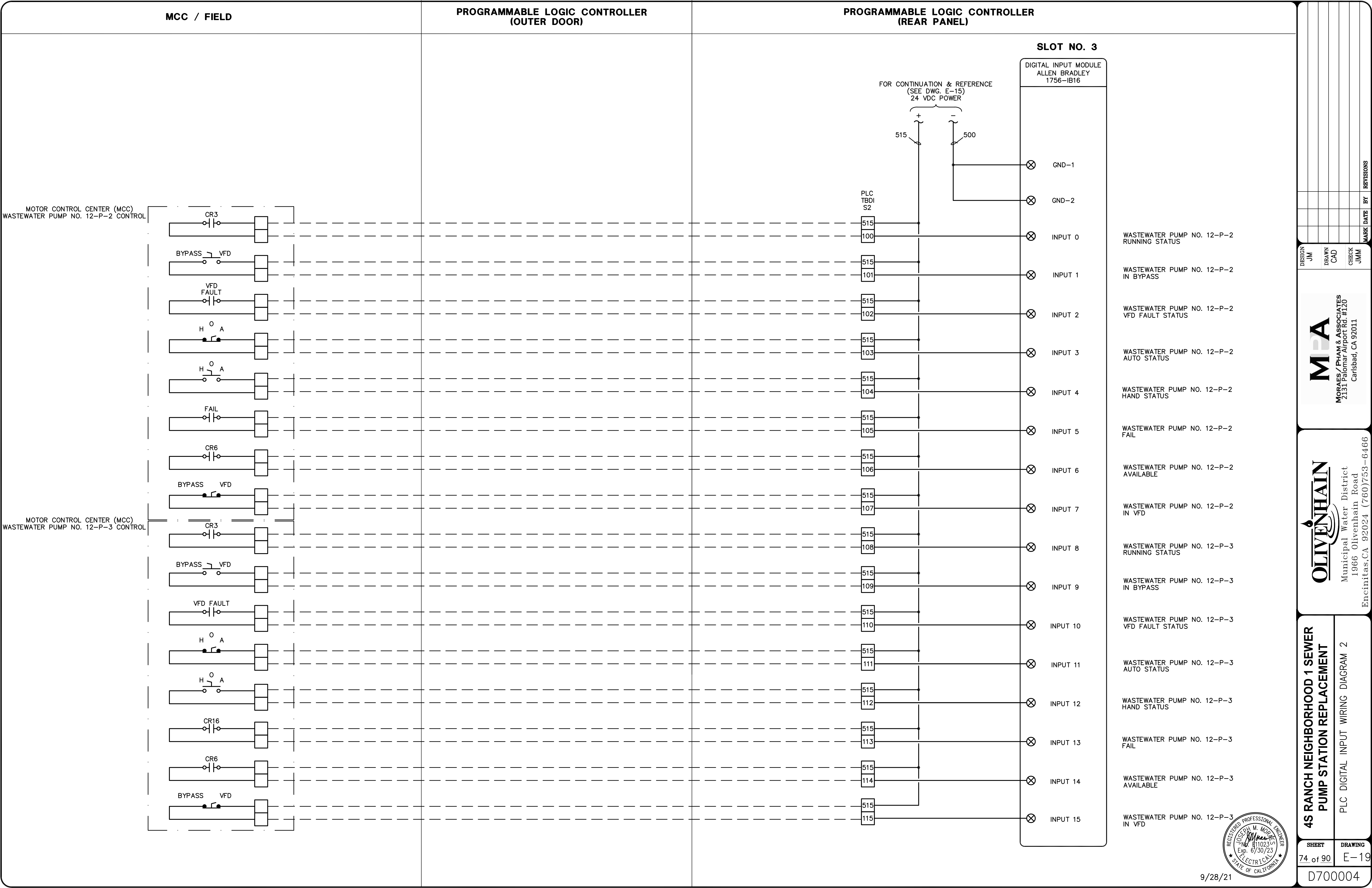
SHEET

DRAWING

73 of 90

E-18

ORIGINAL SCALE IN INCHES



MCC / FIELD

PROGRAMMABLE LOGIC CONTROLLER
(REAR PANEL)

SLOT NO. 4

DIGITAL INPUT MODULE
ALLEN BRADLEY
1756-IB16

FOR CONTINUATION & REFERENCE
(SEE DWG. E-15)
24 VDC POWER

516
500

GND-1

GND-2

INPUT 0

INPUT 1

INPUT 2

INPUT 3

INPUT 4

INPUT 5

INPUT 6

INPUT 7

INPUT 8

INPUT 9

INPUT 10

INPUT 11

INPUT 12

INPUT 13

INPUT 14

INPUT 15

SPD
ALARM

VENTILATION ALARM

HAZARDOUS GAS ALARM

WASTEWATER PUMP NO. 12-P-4
RUNNING STATUS

WASTEWATER PUMP NO. 12-P-4
IN BYPASS

WASTEWATER PUMP NO. 12-P-4
VFD FAULT STATUS

WASTEWATER PUMP NO. 12-P-4
AUTO STATUS

WASTEWATER PUMP NO. 12-P-4
HAND STATUS

WASTEWATER PUMP NO. 12-P-4
FAIL

WASTEWATER PUMP NO. 12-P-4
AVAILABLE

WASTEWATER PUMP NO. 12-P-4
IN VFD

GENERATOR LOW FUEL

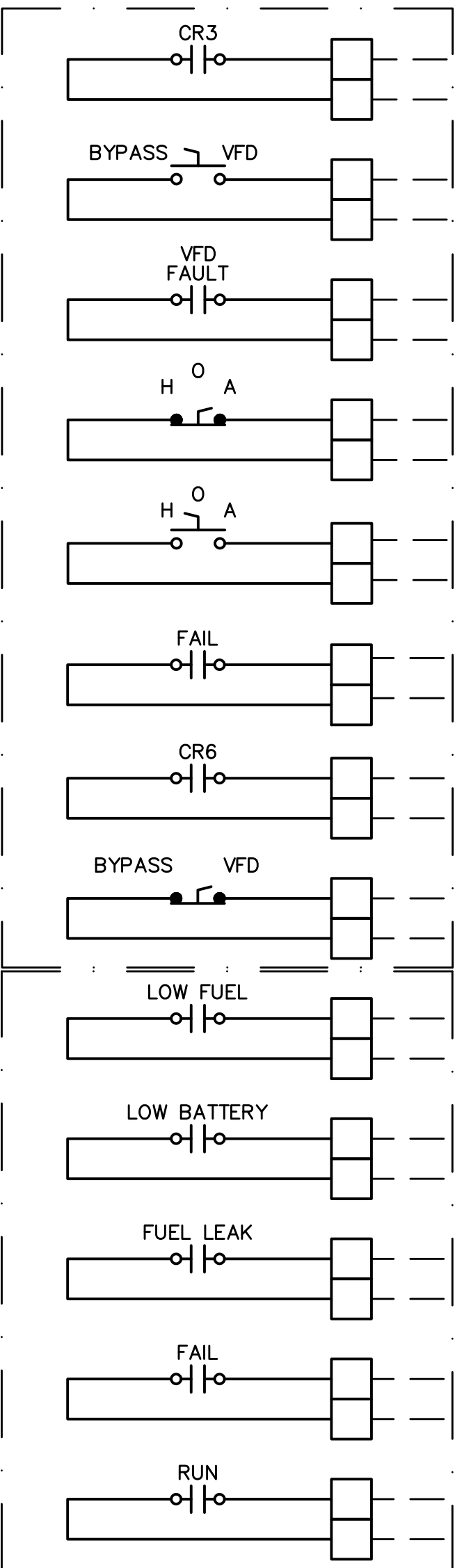
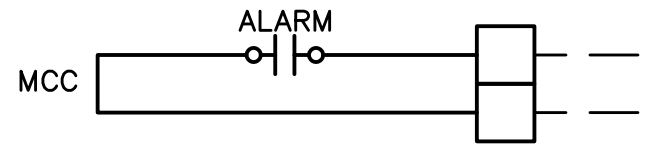
GENERATOR LOW BATTERY

GENERATOR FUEL LEAK

GENERATOR ALARM

GENERATOR RUNNING
STATUS

MOTOR CONTROL CENTER (MCC)
WASTEWATER PUMP NO. 12-P-4 CONTROL



GENERATOR CONTROL
PANEL



9/28/21

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

PLC DIGITAL INPUT WIRING DIAGRAM 3

SHEET
75 of 90

DRAWING
E-20

D700004

ORIGINAL SCALE IN INCHES

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JM

DRAWN
CAD

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JMM

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DATE

MARK

MCC / FIELD

PROGRAMMABLE LOGIC CONTROLLER (REAR PANEL)

DIGITAL INPUT MODULE
ALLEN BRADLEY
1756-IB16

517

517

1

—

1

109

517

[illegible]

11

317

113

517

1

115

GND-2

Discussion

INPUT 4

INPUT 6

INPUT 11

REGISTRATION NO. 811023
EXPIRATION DATE 6/30/2012

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Carlsbad, CA 92011

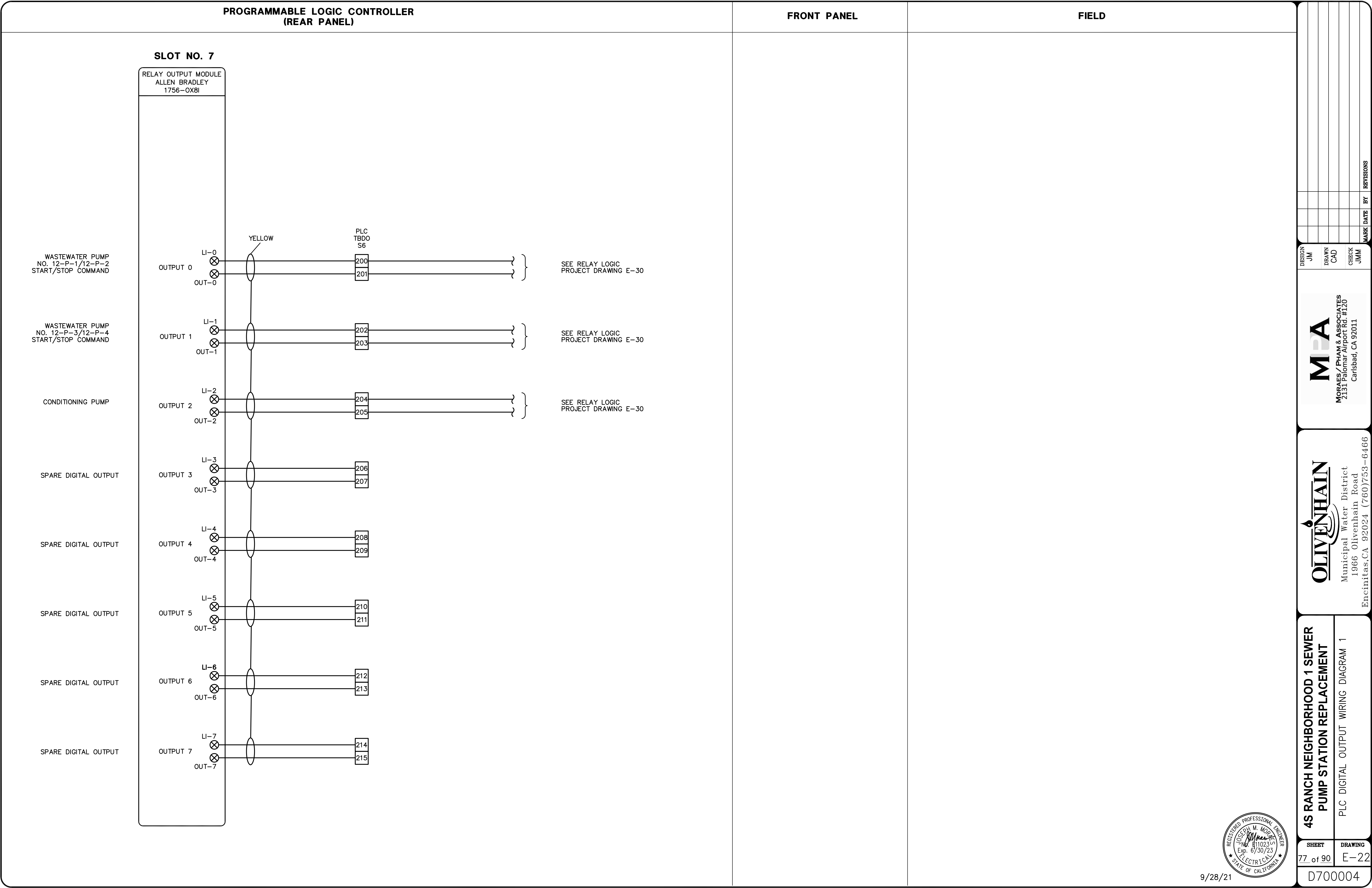
OLIVENHAIN
Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024 (760)753-6466

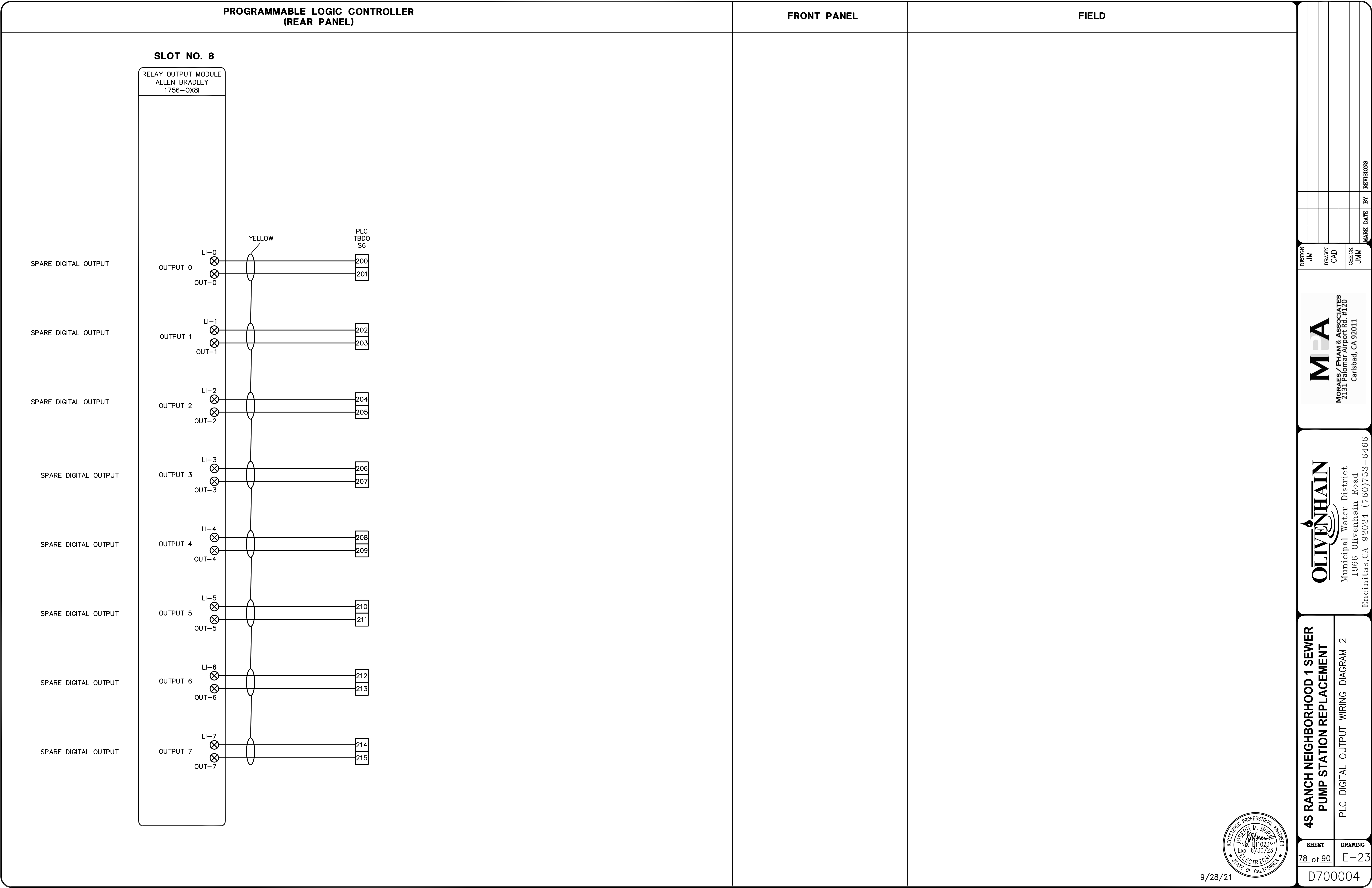
PLS RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT

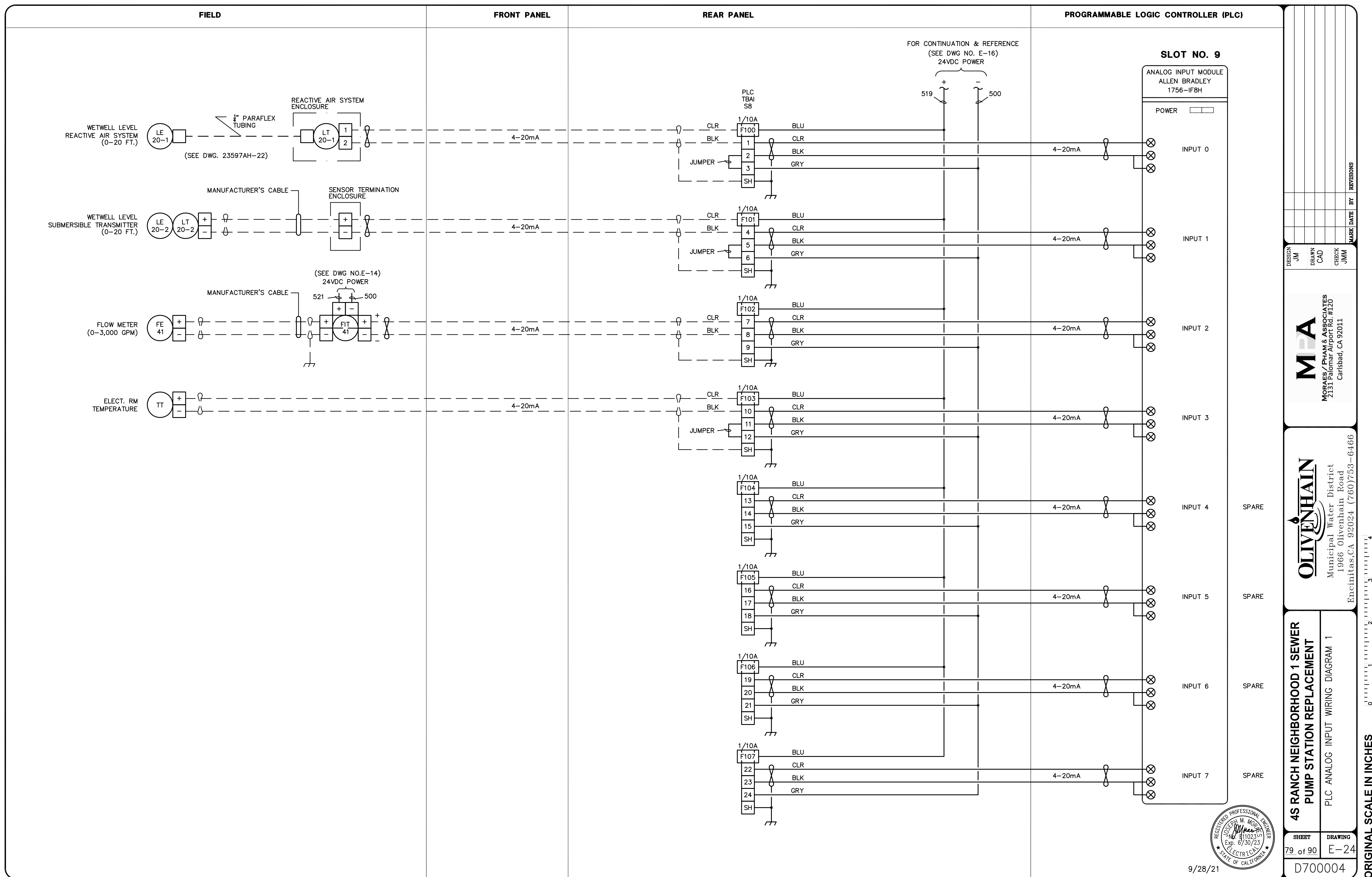
SHEET	DRAWING
76 of 90	E-21

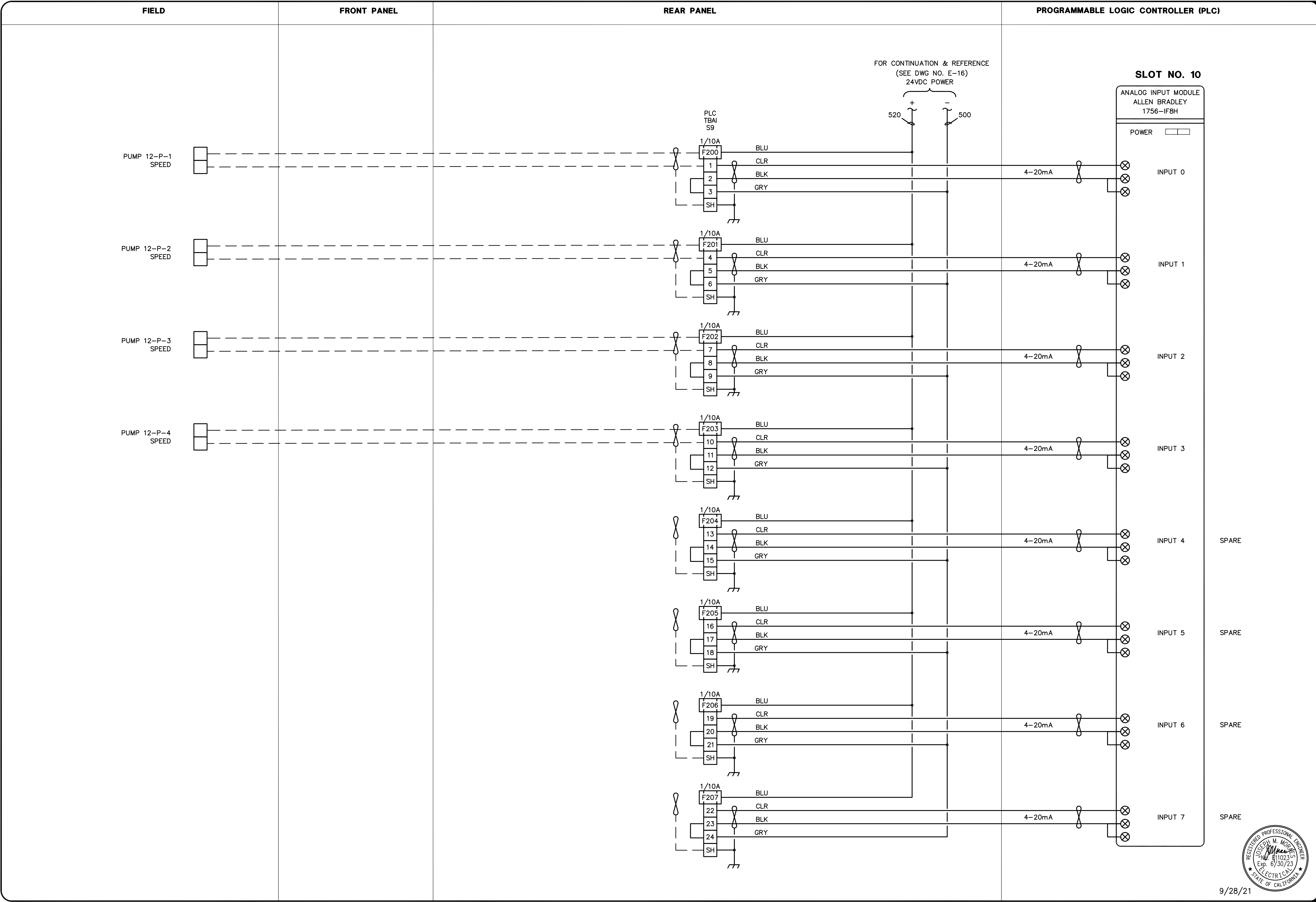
D7000004

ORIGINAL SCALE IN INCHES







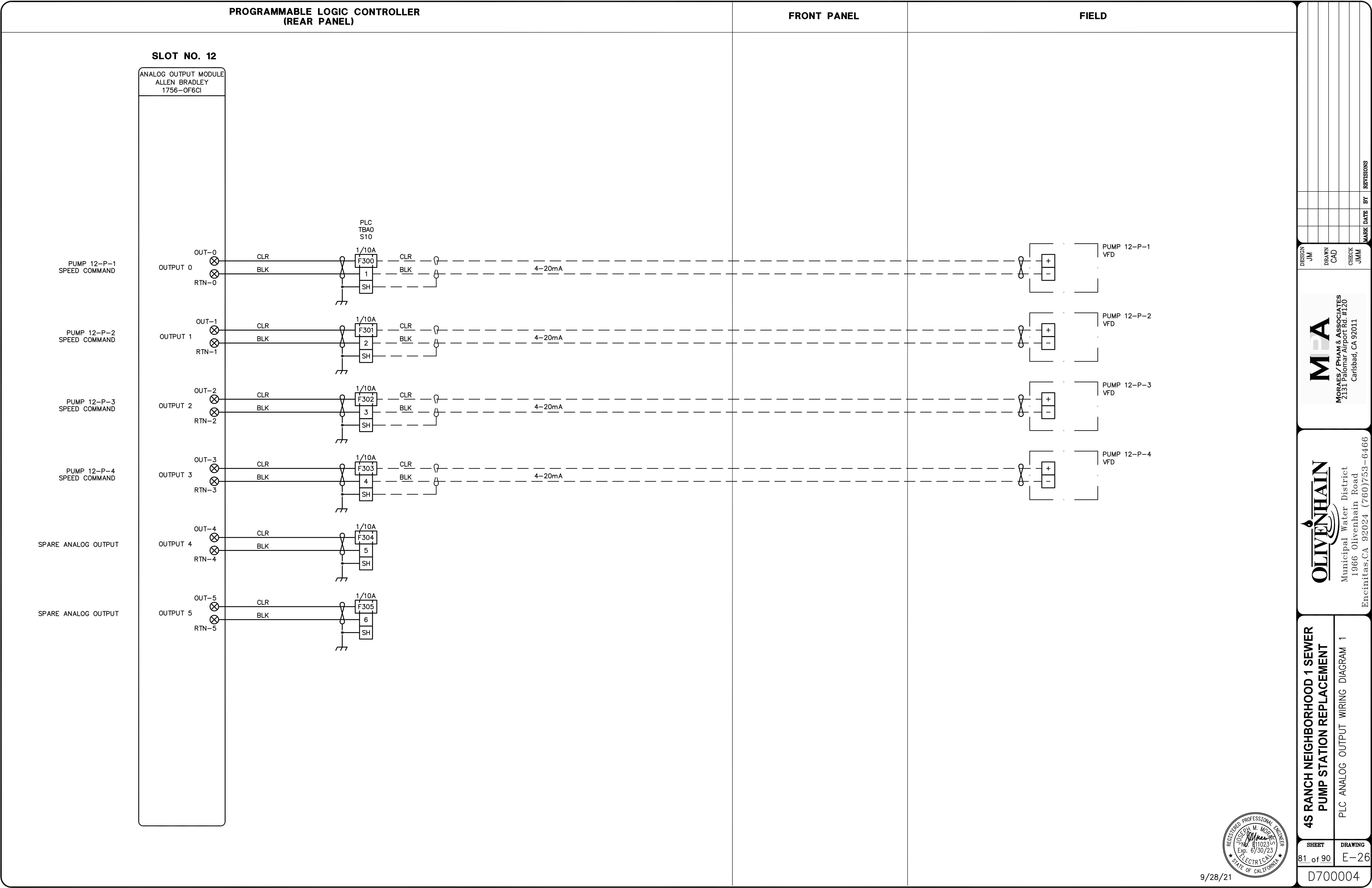


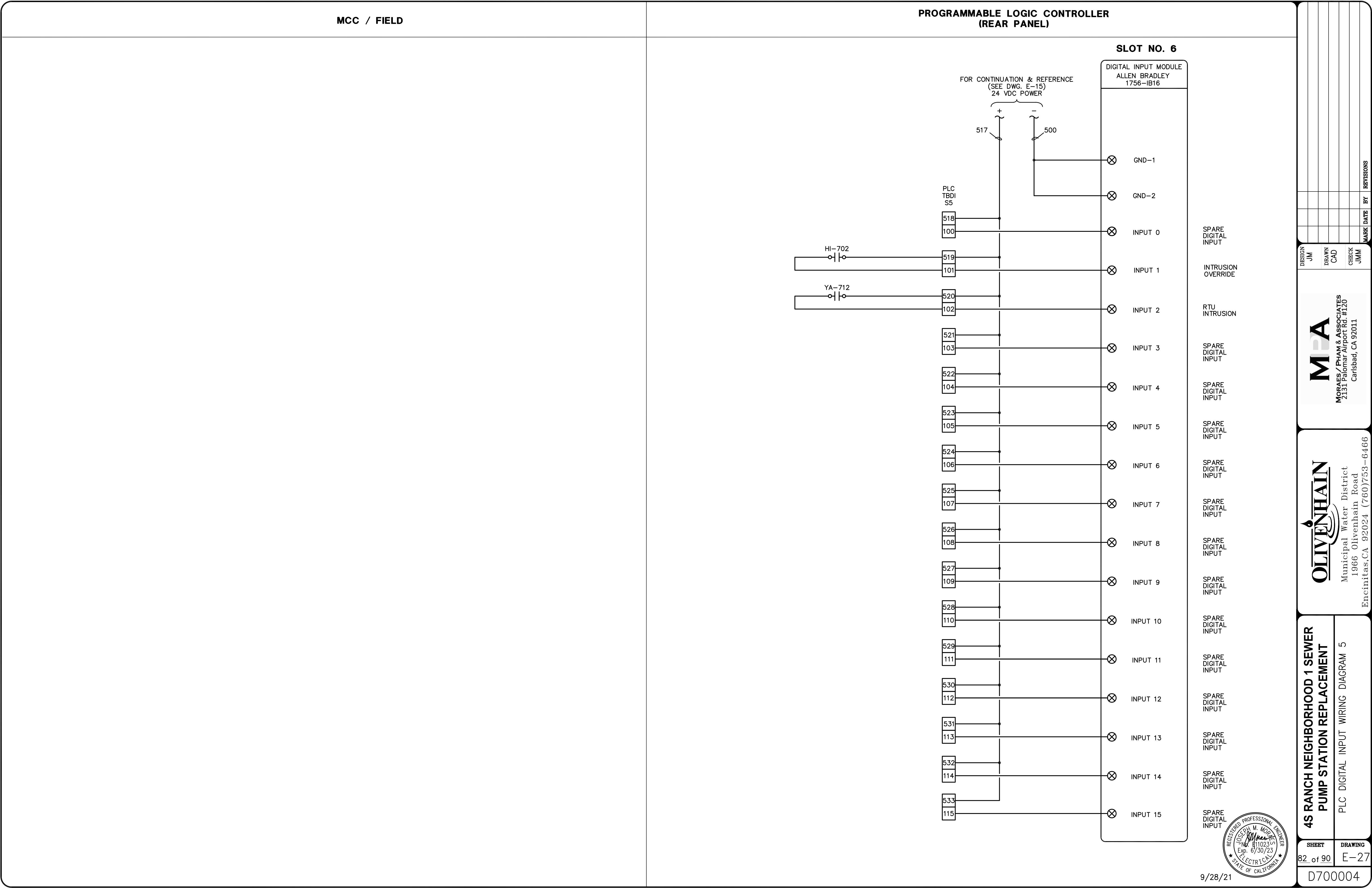
9/28/21

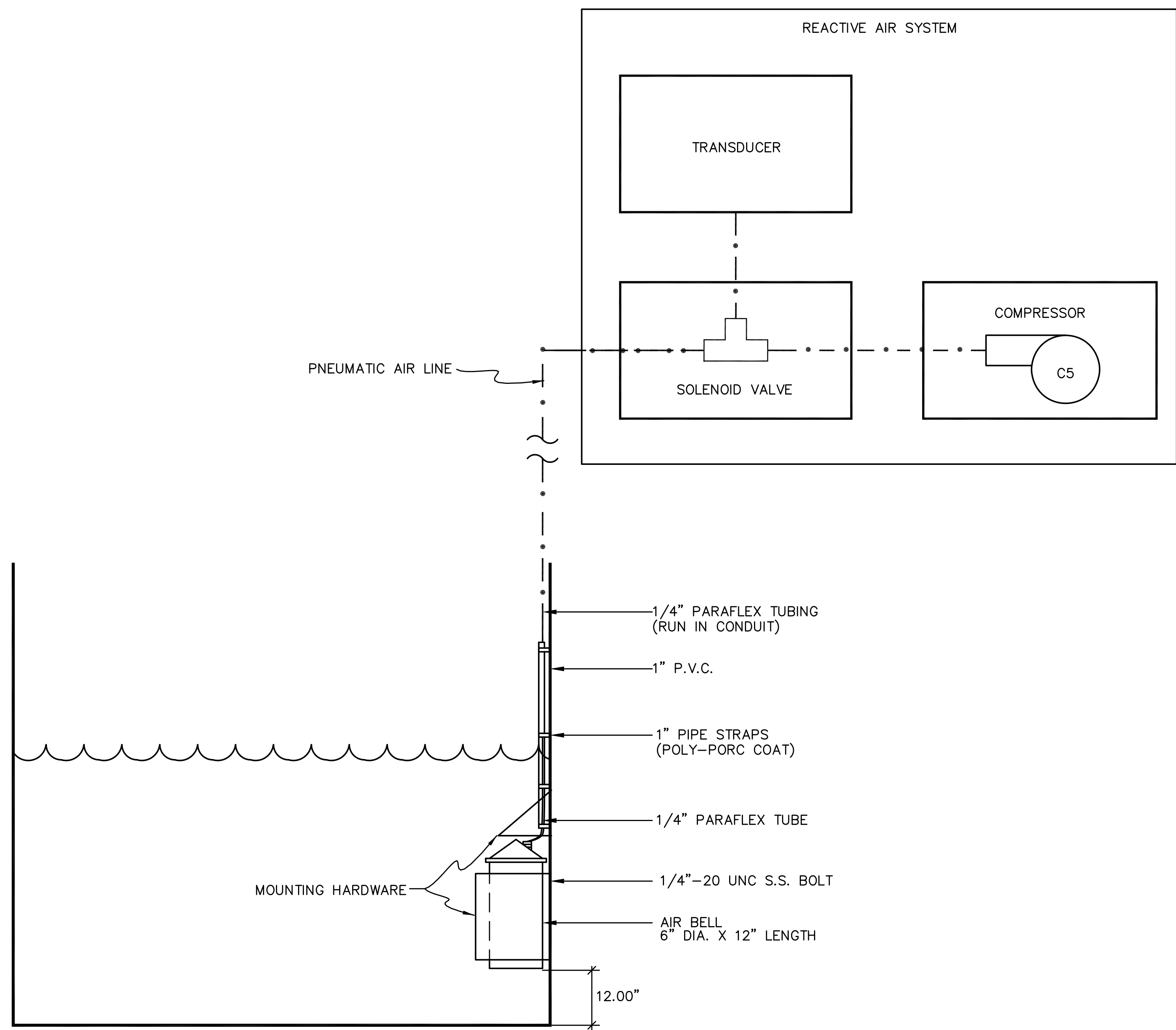


DESIGN JM		DRAWN CAD		CHECK JMM		REVISIONS	
DATE		DATE		DATE		DATE	
BY		BY		BY		BY	
<div>MORALES / PHAM & ASSOCIATES 2131 Palomar Airport Rd. #120 Carlsbad, CA 92011</div>							
<div>OLIVENHAIN Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 (760)753-6466</div>							
4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT				PLC ANALOG INPUT WIRING DIAGRAM 2			
SHEET 80 of 90		DRAWING E-25					
D700004							

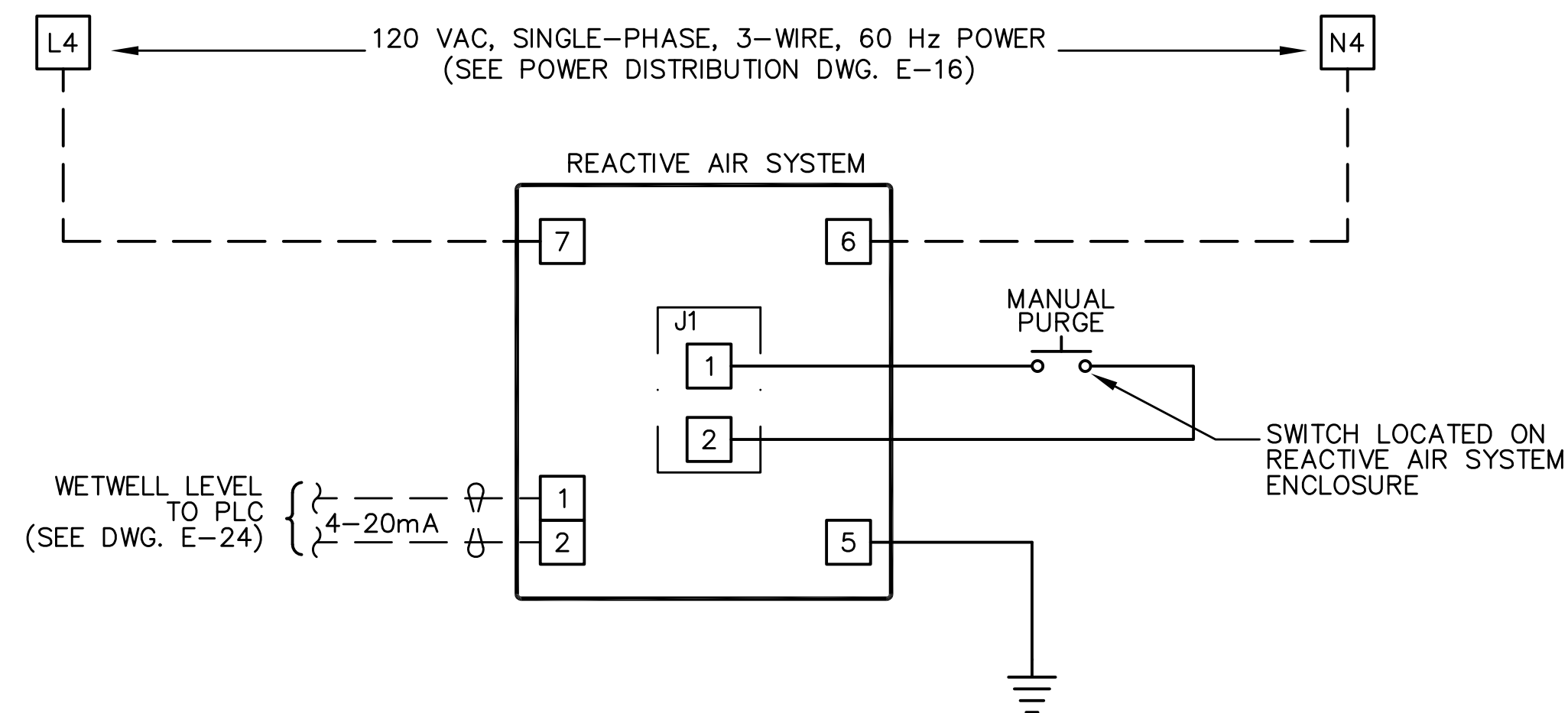
ORIGINAL SCALE IN INCHES



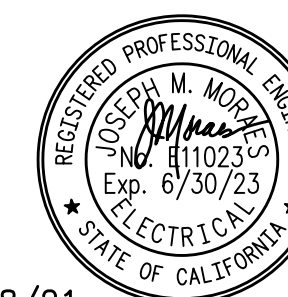




REACTIVE AIR SYSTEM PNEUMATIC AIR DIAGRAM
 NOTE: SENSORS ARE SHOWN SCHEMATICALLY. REFER TO OTHER DRAWINGS FOR LOCATIONS AND WETWELL GEOMETRY.



REACTIVE AIR SYSTEM ELECTRICAL WIRING DIAGRAM



9/28/21

REVISIONS	DATE	BY	MARK

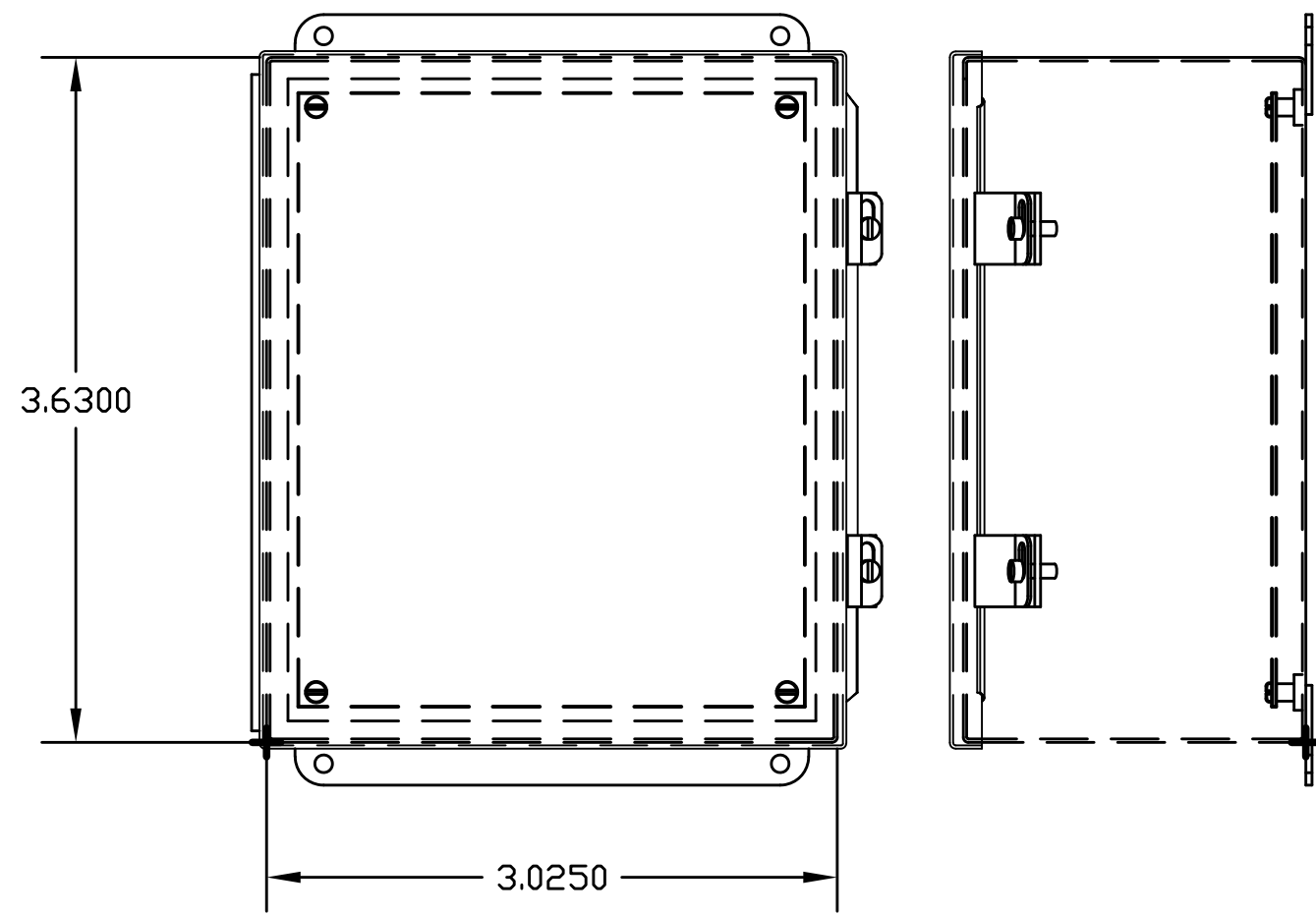
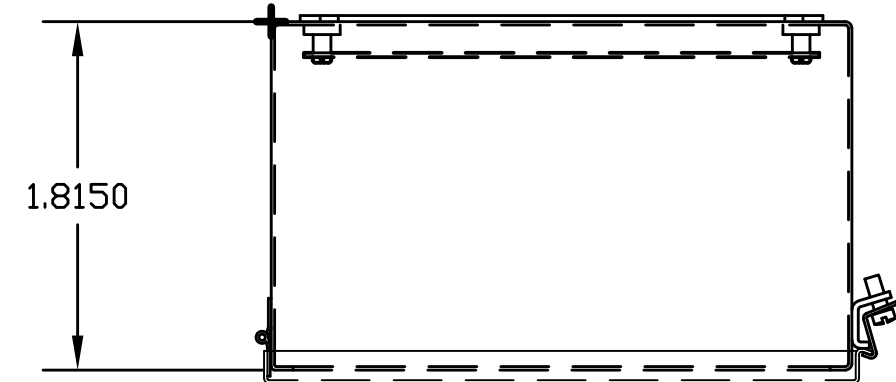
DESIGN	DRAWN	CHECK
JM	CAD	JMM

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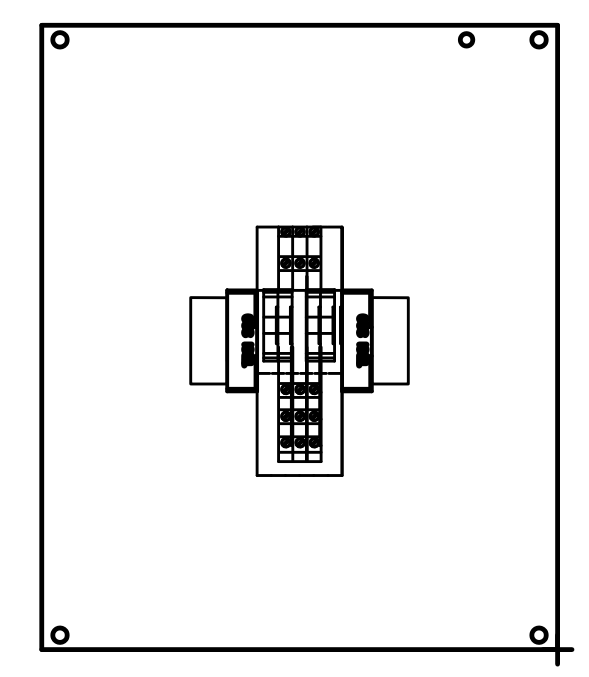
OLIVENHAIN
 Municipal Water District
 1966 Olivenhain Road
 Encinitas, CA 92024 (760) 753-6466

4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT	REACTIVE AIR SYSTEM
SHEET 83 of 90	DRAWING E-28
D700004	

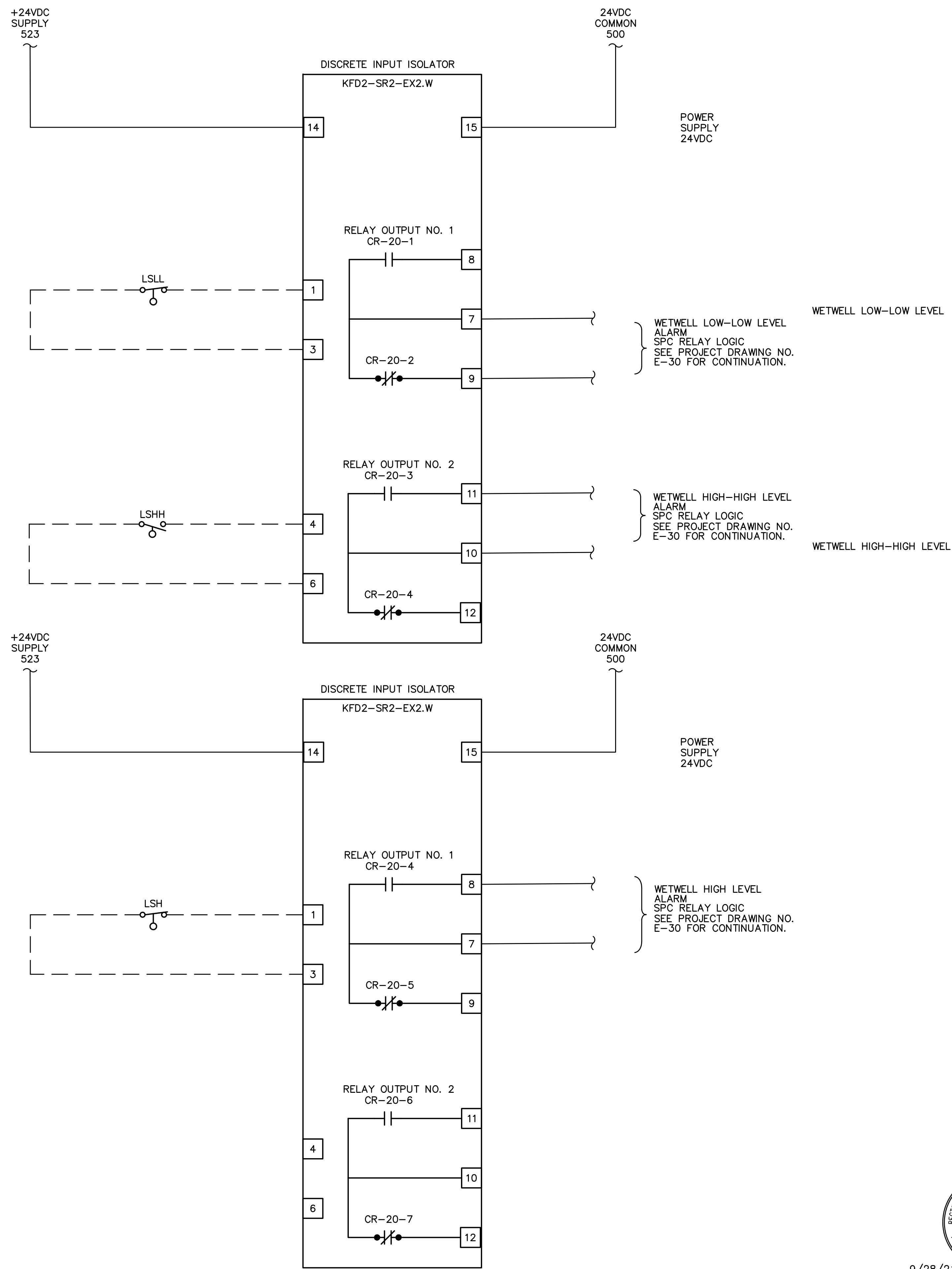
ORIGINAL SCALE IN INCHES



A
E-29
PANEL ELEVATION
NEMA 4X



BACKPANEL LAYOUT



9/28/21

DESIGN	DRAWN	CHECK	DATE	BY	REVISIONS
JM	CAD	JMM			

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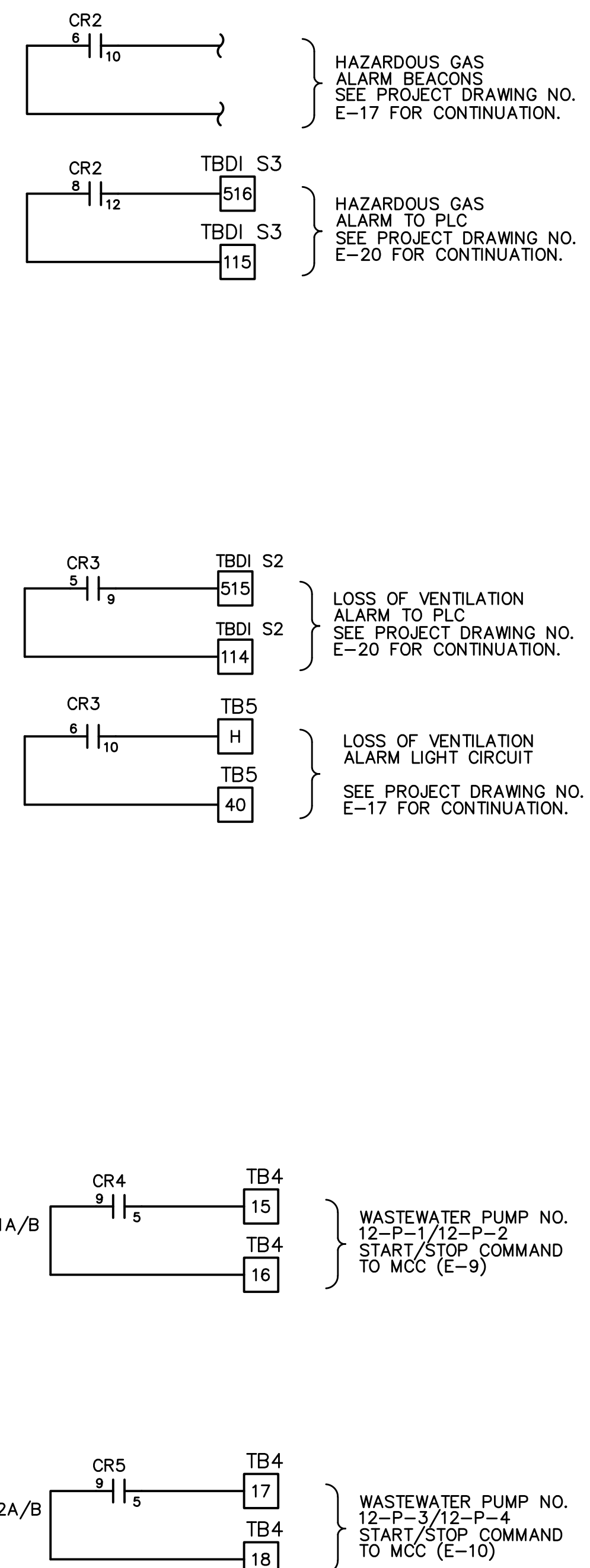
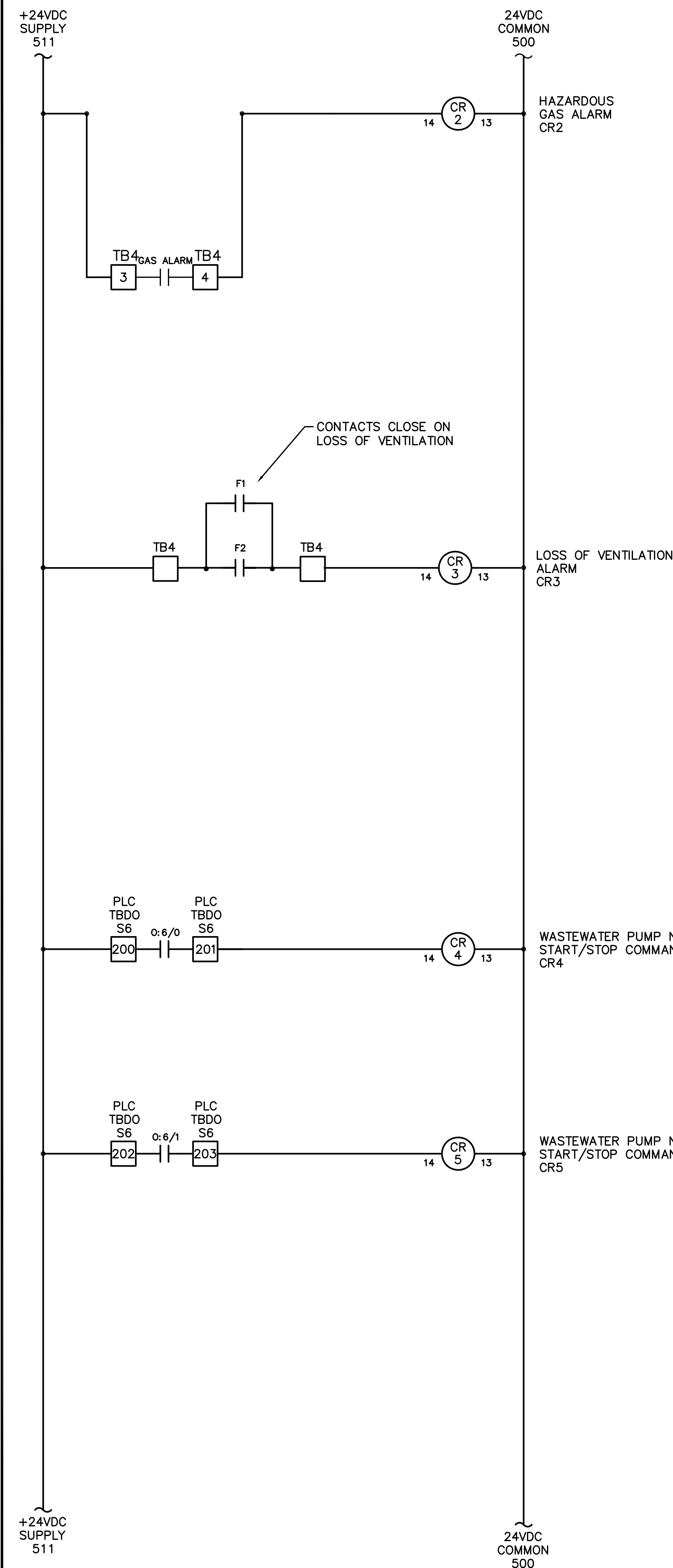
**4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT**

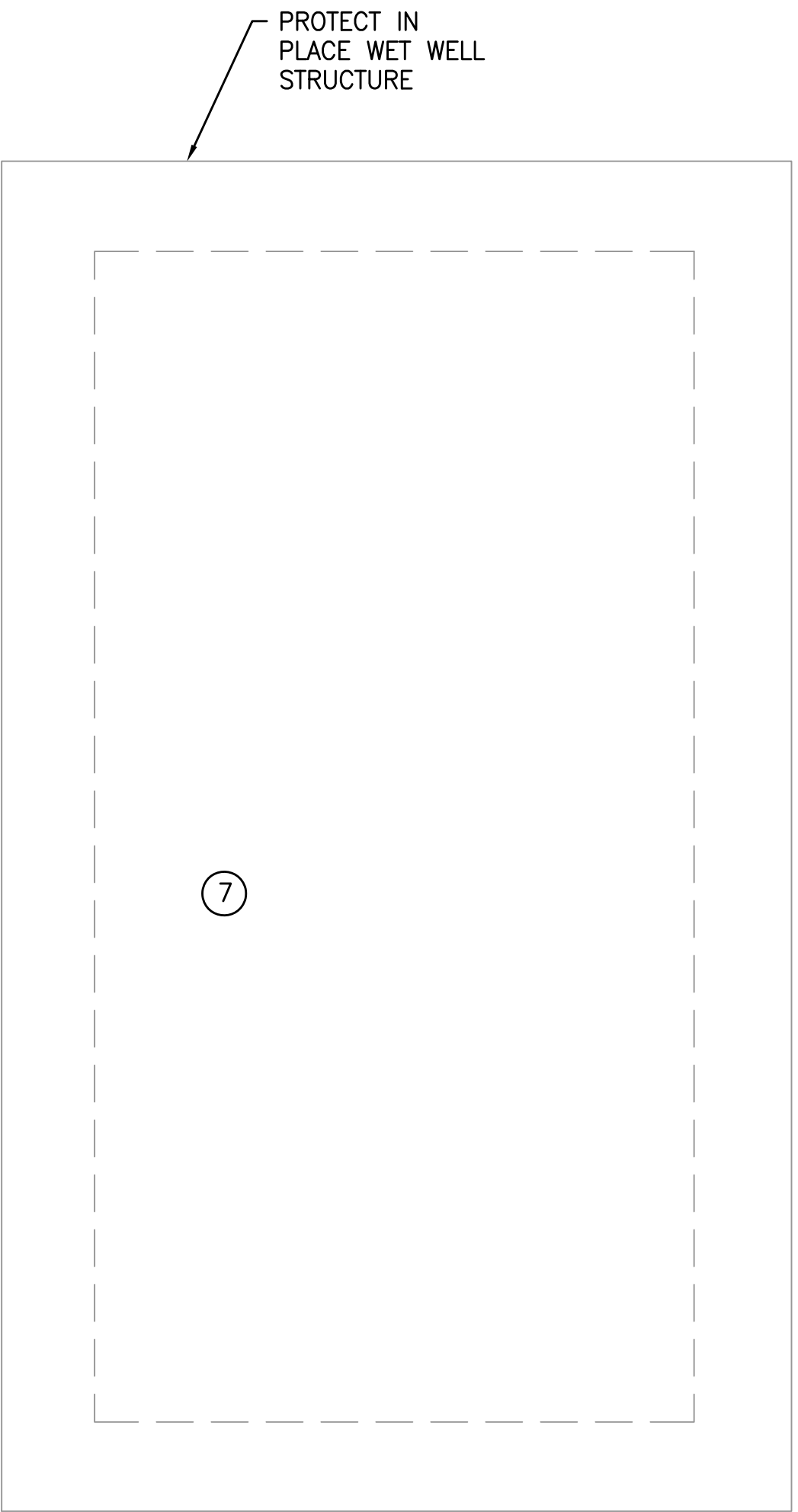
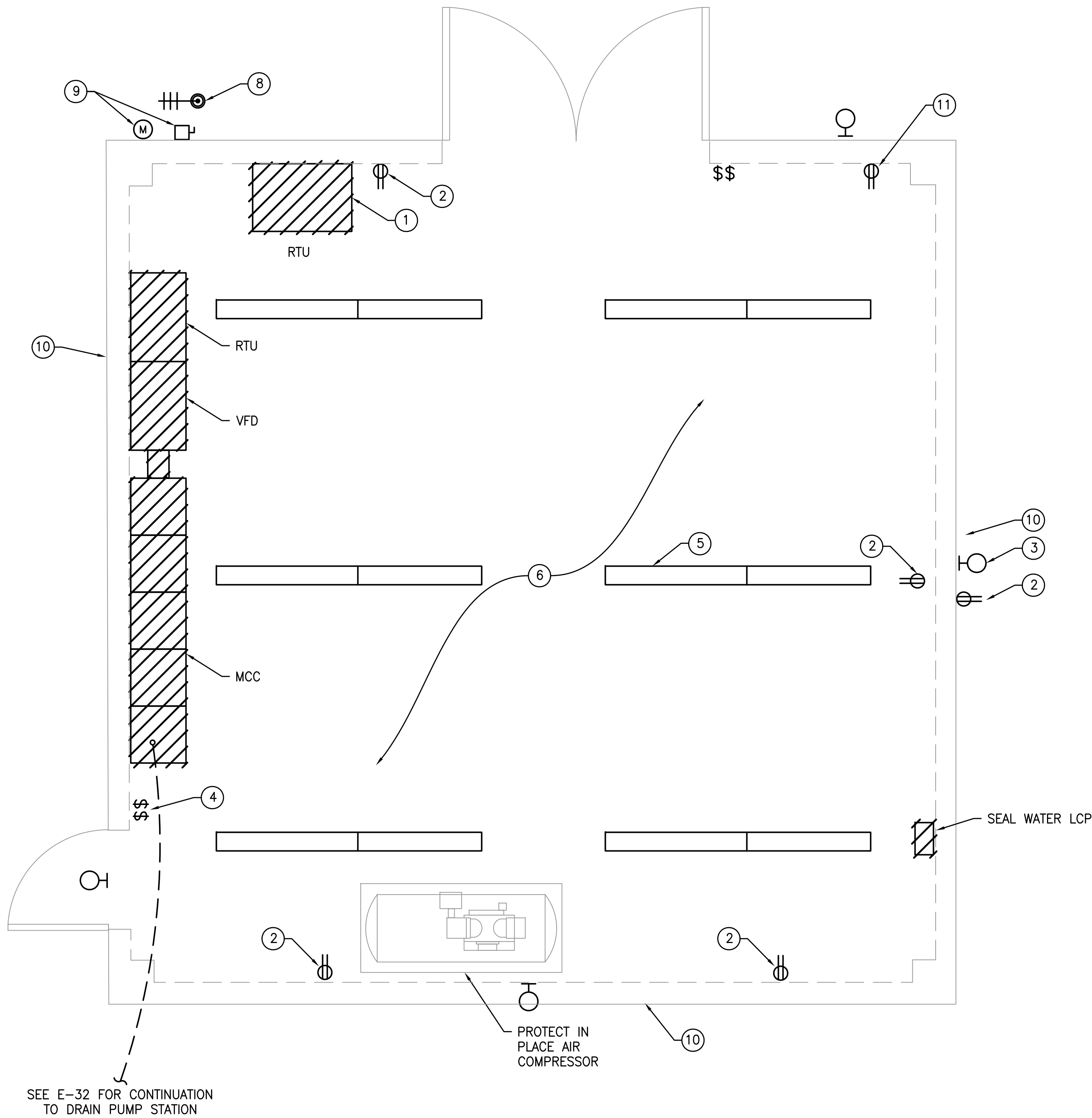
INTRINSICALLY SAFE RELAY PANEL

SHEET	DRAWING
84 of 90	E-29

D700004

ORIGINAL SCALE IN INCHES





DEMOLITION NOTES

- 1 REMOVE RTU AND SALVAGE TO OWNER.
- 2 RECEPTACLE TO REMAIN.
- 3 DEMOLISH WALL PACKS. REPLACE WITH LED TYPE (TYP FOR 4).
- 4 WALL LIGHT SWITCHES TO REMAIN (TYP FOR 2).
- 5 DEMOLISH FLUORESCENT LIGHT FIXTURES. REPLACE WITH LED TYPE (TYP FOR 12).
- 6 DEMOLISH ALL ELECTRICAL INSIDE BUILDING UNLESS OTHERWISE NOTED. REMOVE ALL EXPOSED CONDUIT AND SUPPORTS. CUT ABANDONED CONDUIT FLUSH WITH GRADE AND BACKFILL WITH CONCRETE. PATCH HOLES IN WALLS.
- 7 DEMOLISH ALL WETWELL ELECTRICAL.
- 8 RELOCATE RADIO MAST TO NEW BUILDING. SEE E-4.
- 9 ROOF MOUNTED SOLAR PANELS, DISCONNECT SWITCH AND METER SHALL REMAIN FOR RE-USE.
- 10 DEMOLISH ALL BUILDING ELECTRICAL ON EXTERIOR.
- 11 ADD EXTENSION BOX AND COVER. REMOVE RECEPTACLE.

LEGEND

- EXISTING
- TO BE DEMOLISHED / REMOVED / DISPOSED OF



9/28/21

4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT
EXISTING PUMP STATION BUILDING -
ELECTRICAL DEMOLITION

SHEET 86 of 90
DRAWING E-31

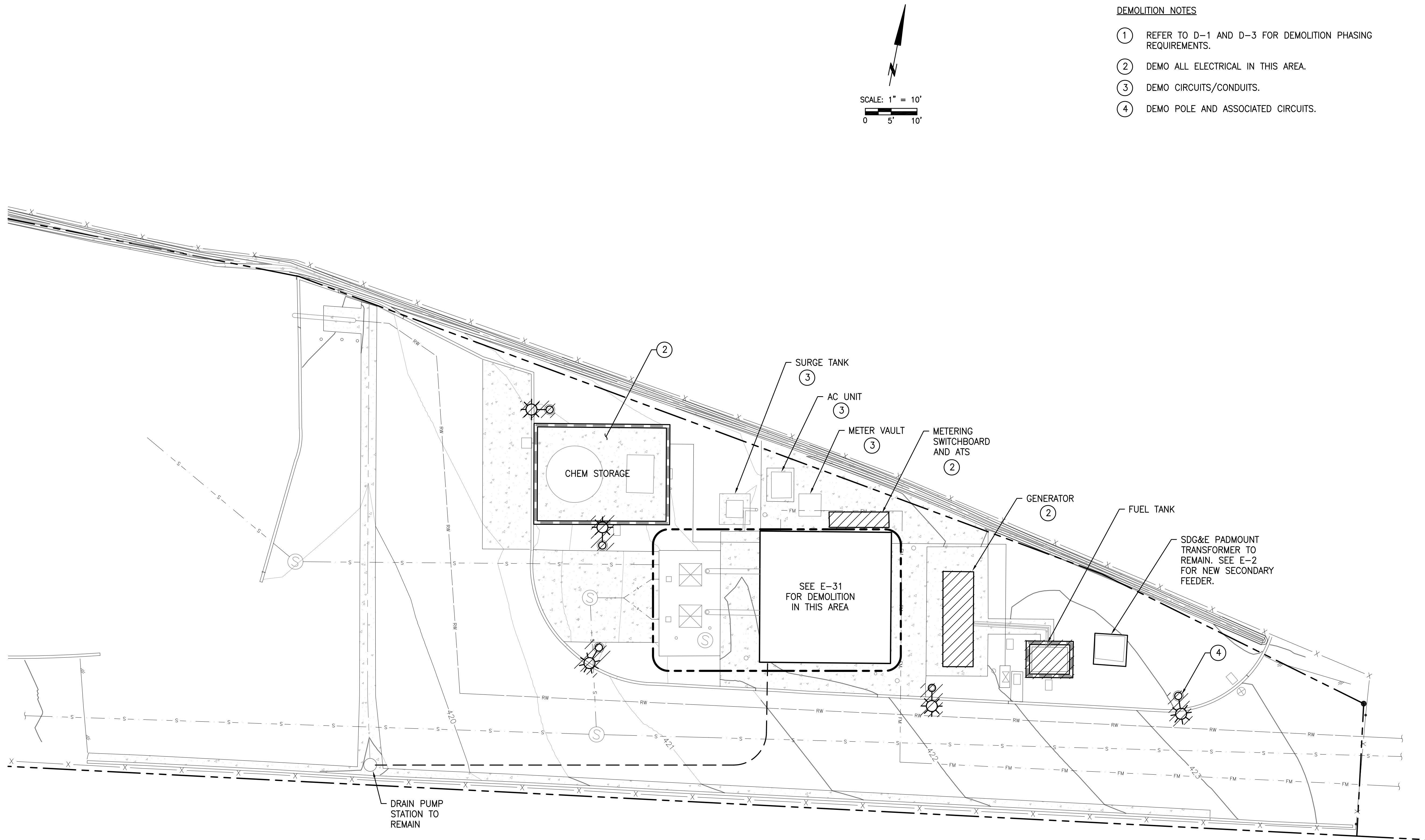
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JM	CAD	JMM			

ORIGINAL SCALE IN INCHES 0 1 2 3 4



- DEMOLITION NOTES**
- ① REFER TO D-1 AND D-3 FOR DEMOLITION PHASING REQUIREMENTS.
 - ② DEMO ALL ELECTRICAL IN THIS AREA.
 - ③ DEMO CIRCUITS/CONDUITS.
 - ④ DEMO POLE AND ASSOCIATED CIRCUITS.



9/28/21

**4S RANCH NEIGHBORHOOD 1 SEWER
PUMP STATION REPLACEMENT**

ELECTRICAL SITE PLAN - DEMOLITION

SHEET	DRAWING
87 of 90	E-32

D700004



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JM	CAD	JMM	

DATE	BY	REVISIONS

ORIGINAL SCALE IN INCHES



INSTRUMENT SOCIETY OF AMERICA TABLE

IDENTIFICATION LETTERS

FIRST-LETTER		SUCCEEDING-LETTERS			
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER	
A	ANALYSIS	ALARM			
B	BURNER, COMBUSTION	USER'S CHOICE	USER'S CHOICE	USER'S CHOICE	
C	CONDUCTIVITY		CONTROL		
D	USER'S CHOICE	DIFFERENTIAL			
E	VOLTAGE				
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE				
H	HAND	SENSOR (PRIMARY ELEMENT)			
I	CURRENT (ELECTRICAL)			HIGH	
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE	CONTROL STATION		
L	LEVEL			LOW	
M	USER'S CHOICE	MOMENTARY		MIDDLE, INTERMEDIATE	
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	
O	USER'S CHOICE	ORIFICE, RESTRICTION			
P	PRESSURE, VACUUM	POINT (TEST) CONNECTION			
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY	SWITCH		
T	TEMPERATURE		TRANSMIT		
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS		VALVE, DAMPER LOUVER		
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED(*)	UNCLASSIFIED(*)	
Y	EVENT, STATE OR PRESENCE	Y AXIS	RELAY, COMPUTE CONVERT		
Z	POSITION, DIMENSION	Z AXIS	DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT		

INSTRUMENT LINE SYMBOLS

	PRIMARY PROCESS FLOW
	SECONDARY PROCESS FLOW, CONNECTION TO PROCESS FLOW, MECHANICAL LINK OR INSTRUMENT SUPPLY
	PROCESS AIR FLOW
	PNEUMATIC SIGNAL OR UNDEFINED SIGNAL FOR PROCESS FLOW DIAGRAMS
	CAPILLARY TUBING (FILLED SYSTEM)
	ELECTRIC SIGNAL (DISCRETE)
	ELECTRIC SIGNAL (ANALOG)
	DATA COMMUNICATION LINE
	FIBER OPTIC NETWORK
	BUILDING OR FACILITY BOUNDARY
	MULTI-CIRCUIT ELECTRIC SIGNALS (NUMBER OF SIGNALS ILLUSTRATED IN PARENTHESIS)
	LOGICAL OR HARDWIRE SIGNAL NUMBER (SHOWN SIGNAL "01" ORIGINATED IN DWG. 1-5)
	LOGICAL OR HARDWIRE SIGNAL NUMBER (SHOWN SIGNAL "01" SENT TO DWG. 1-5)

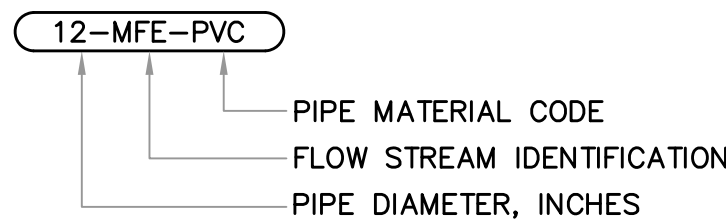
VALVES & GATES

	BUTTERFLY VALVE (BFV)
	GATE VALVE (GV)
	KNIFE GATE VALVE (KGV)
	SWING CHECK VALVE (CV)
	BALL VALVE (BV)
	GLOBE VALVE (GLV)
	DIAPHRAGM VALVE (DV)
	PLUG VALVE (PV)
	COMBINATION AIR VALVE (AVRV)
	3-WAY GLOBE
	BALL CHECK VALVE (BCV)
	MOTOR OPERATED VALVE (MOV)
	BACK PRESSURE RELIEF (BPR)
	PRESSURE CONTROL VALVE (PCV)
	SOLENOID CONTROL VALVE (SV)
	3-WAY SOLENOID
	NEEDLE VALVE (NV)
	PINCH VALVE (PIV)
	PRESSURE RELIEF VALVE (PRV)
	DISK CHECK VALVE (DCV)
	SAMPLE VALVE (S)
	VACUUM BREAKER VALVE (VBV)
	AIR VENT VALVE (AV)
	DISCHARGE VALVE (DSV)
	DRAIN

MECHANICAL EQUIPMENT

	MAGNETIC FLOWMETER
	ORIFICE PLATE
	FLOW TUBE
	ANNUBAR
	PROPELLER METER
	ROTAMETER
	POSITIVE DISPLACEMENT METER
	ULTRASONIC LEVEL INSTRUMENT
	NORMAL LIQUID LEVEL
	LEVEL SENSOR, FLOAT TYPE
	IN-LINE MECHANICAL MIXER
	CALIBRATION COLUMN
	PULSATION DAMPENER (PD)
	REDUCER
	GAGE ISOLATOR
	Y-STRAINER
	BLIND FLANGE
	INJECTION QUILL WITH CORP STOP

PIPING LEGEND



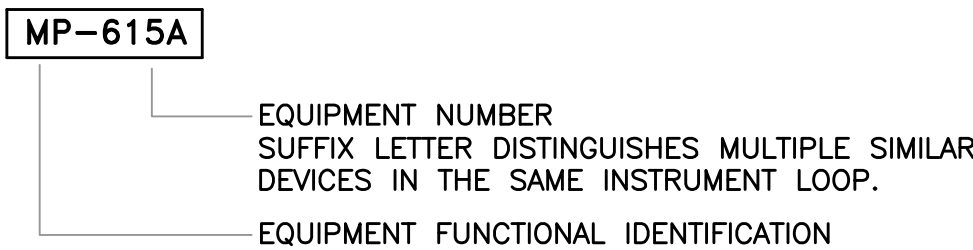
FLOW STREAM IDENTIFICATION

AA	AQUA AMMONIA
BWS	BACKWASH SUPPLY
CA	COMPRESSED AIR
CF	RO CLEANING FEED
CLW	RO CLEANING WASTE
CR	RO CLEANING RETURN
CW	CLARIFIED WATER
D	DRAIN
FPW	FINAL PRODUCT WATER
FW	FILTERED WATER
OF	OVERFLOW
NRW	NON RECLAIMABLE WASTE
PCR	PERMEATE CLEANING RETURN
REC	RO CIP RECIRC
ROC	RO CONCENTRATE
ROF	RO FEED
ROP	RO PERMEATE
RW	RAW WATER
S	SEWER
SA	SULFURIC ACID
SD	STORM DRAIN
SH	SODIUM HYDROXIDE
SHC	SODIUM HYPOCHLORITE
SPD	SUMP PUMPED DRAIN
TI	THRESHOLD INHIBITOR
W1	POTABLE WATER
WBW	WASTE BACKWASH

PIPE MATERIAL CODES

C20	SCHEDULE 40 CARPENTER 20 ALLOY PIPE
CMLS	CEMENT MORTAR-LINED STEEL PIPE
CPVC	SCHEDULE 80 CPVC PIPE
CU	COPPER TUBING
DI	DUCTILE IRON PIPE
EPDM	EPDM TUBING
FRP	150 PSI PRESSURE CLASS FIBERGLASS REINFORCED PLASTIC PIPE
HDPE	150 PSI PRESSURE CLASS HIGH-DENSITY POLYETHYLENE PIPE
PP	150 PSI PRESSURE CLASS POLYPROPYLENE PIPE
PVC	SCHEDULE 80 PVC PIPE
PVC-D	PVC GRAVITY SEWER PIPE
PVDF	230 PSI PRESSURE CLASS POLYVINYLDENE FLUORIDE PIPE
SS	TYPE 316/316L STAINLESS STEEL PIPE
STL	FABRICATED STEEL PIPE
STL-EL	FABRICATED STEEL, EPOXY LINED PIPE

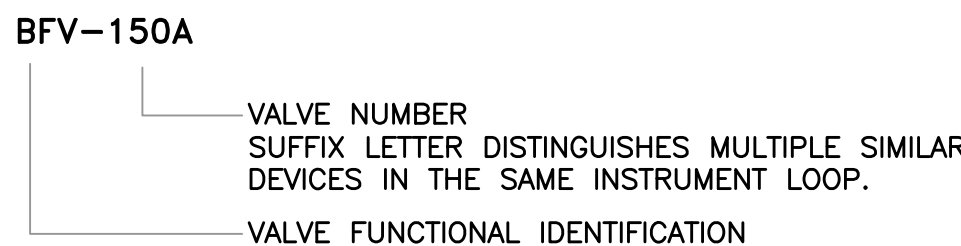
EQUIPMENT TAG



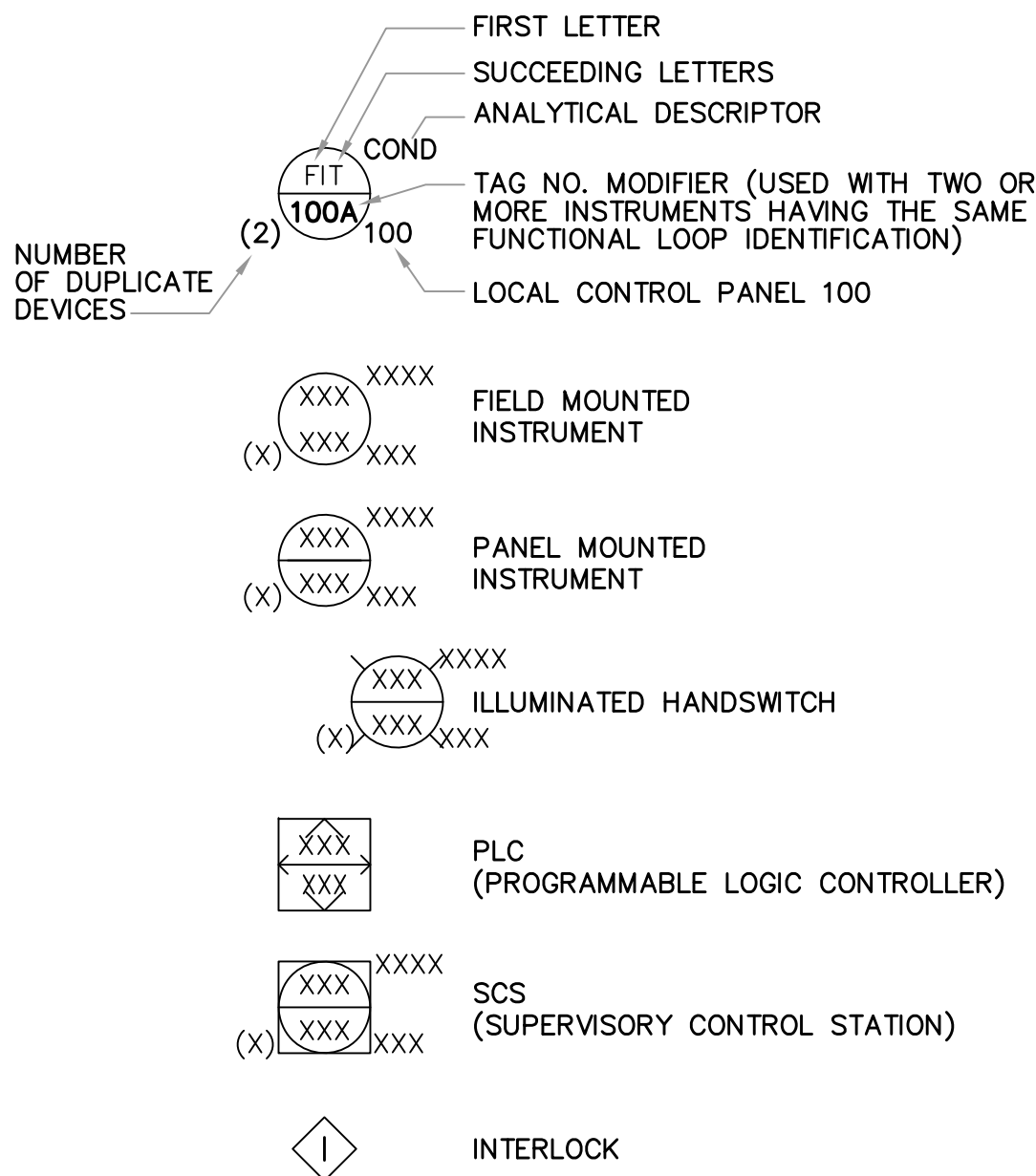
EQUIPMENT FUNCTIONAL IDENTIFICATION

CF	CARTRIDGE FILTER
CP	CONTROL PANEL
DC	DECARBONATOR
IQ	INJECTION QUILL
M	MECHANICAL EQUIPMENT
MP	METERING PUMP
MXR	MIXER
P	PUMP
PD	PULSATION DAMPNER
STR	STRAINER
TK	TANK

VALVE TAG



INSTRUMENT IDENTIFICATION



ACTUATORS OR OPERATORS

	MOTOR OPERATED ACTUATOR WITH POSITIONER
	PNEUMATIC OPERATED ACTUATOR WITH POSITIONER
	MOTOR ACTUATOR
	SOLENOID ACTUATOR
	PNEUMATIC ACTUATOR
	PNEUMATIC ACTUATOR WITH STROKE ADJUSTOR

PUMPS & COMPRESSORS

	CENTRIFUGAL PUMP
	VERTICAL TURBINE PUMP
	COMPRESSOR OR BLOWER
	EJECTOR
	METERING PUMP
	PROGRESSIVE CAVITY PUMP
	GEAR PUMP
	AERATOR

INSTRUMENT ABBREVIATIONS

AC	ALTERNATING CURRENT	OO	ON-OFF
AI	ANALOG INPUT	OOA	ON-OFF-AUTO
AM	AUTO-MANUAL	OOR	ON-OFF-REMOTE
AMR	AUTO-MANUAL-REMOTE	OSC	OPEN-STOP-CLOSE
AO	ANALOG OUTPUT	OSCA	OPEN-STOP-CLOSE-AUTO
C	CLOSE	OSCR	OPEN-STOP-CLOSE-REMOTE
CP	CONTROL PANEL	P	PROPORTIONAL
CSP	CONSTANT SPEED PUMP	P/A	PULSE TO ANALOG
DC	DIRECT CURRENT	PC	PARTICLE COUNTER
DI	DISCRETE INPUT	PID	PROPORTIONAL-INTEGRAL-DERIVATIVE
DO	DISCRETE OUTPUT	P&ID	PROCESS & INSTRUMENTATION DIAGRAM
ETM	ELAPSED TIME METER	PLC	PROGRAMMABLE LOGIC CONTROLLER
FRS	FLOW RATIO	PRV	PRESSURE REDUCING VALVE
HA	HAND-AUTO	RSP	REMOTE SET POINT
HL	HIGH-LOW	RTU	REMOTE TERMINAL UNIT
HLOR	HIGH-LOW-OFF-REMOTE	SCS	SUPERVISORY CONTROL STATION
HOA	HAND-OFF-AUTO	SEL	SELECT
HSC	HAND SWITCH COMPUTER	SMC	SOLID-STATE MOTOR CONTROLLER
I/O	INPUT/OUTPUT	SP	SET POINT
LOR	LOCAL-OFF-REMOTE	SS	START-STOP
LOS	LOCK-OUT STOP	STCD	STATUS-TO-COMMAND DISAGREEMENT
LR	LOCAL-REMOTE	TOT	TOTALIZATION
MCC	MOTOR CONTROL CENTER	TPC	TIME PROPORTIONAL CONTROL
MCP	MASTER CONTROL PANEL	TSP	TWISTED SHIELDED PAIR
MODEM	MODULATE-DEMODULATE	TTR	TONE TELEMETRY RECEIVER
O	OPEN	TTT	TONE TELEMETRY TRANSMITTER
OAC	OPEN-AUTO-CLOSE	TURB	TURBIDITY



9/28/21

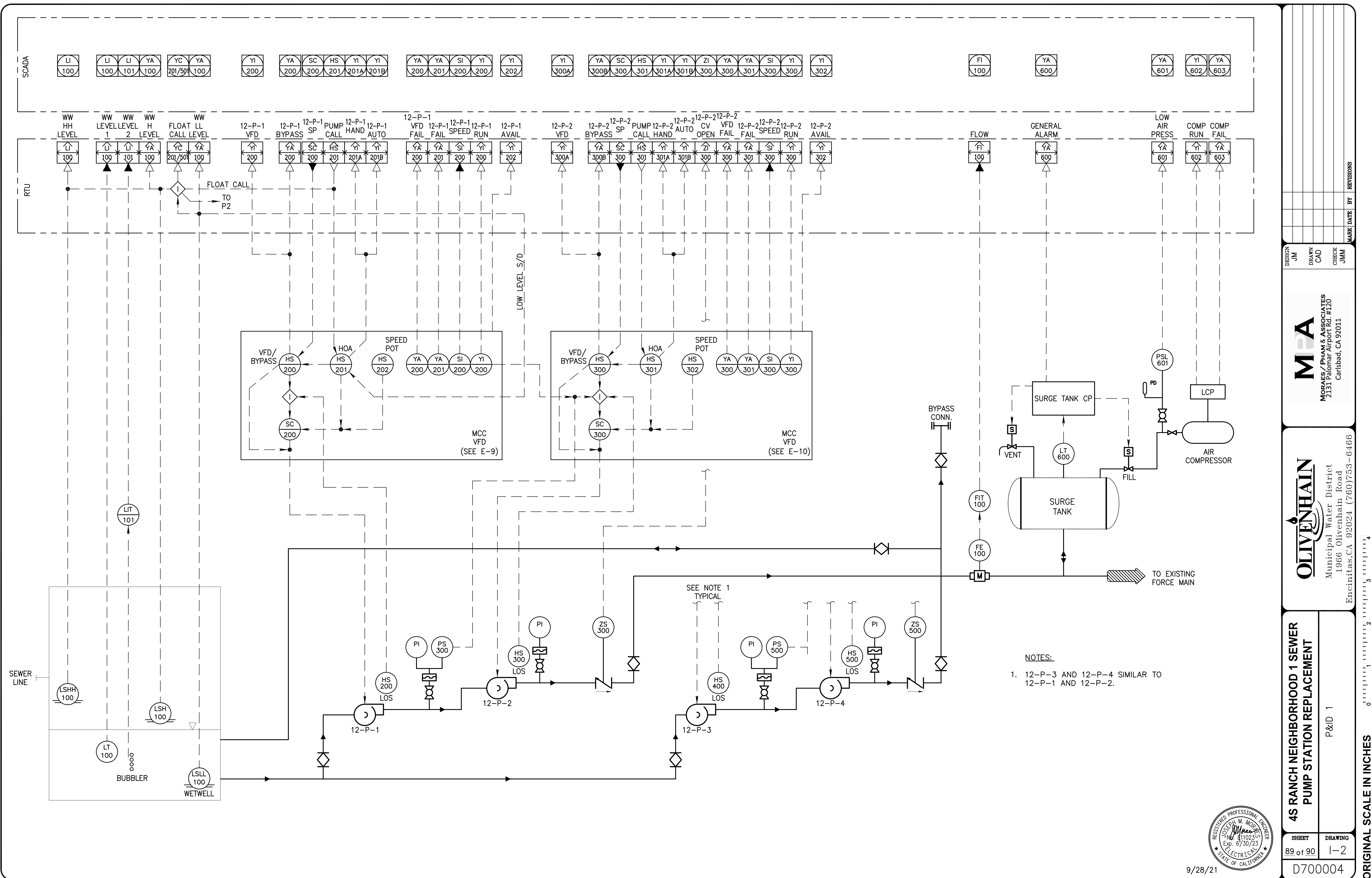
4S RANCH NEIGHBORHOOD 1 SEWER PUMP STATION REPLACEMENT

STANDARD P&ID SYMBOLS AND ABBREVIATIONS

SHEET	DRAWING
88 of 90	1-1

D700004

ORIGINAL SCALE IN INCHES





SHEET	DRAWING
<u>90</u> of <u>90</u>	1-3

D7000004

ORIGINAL SCALE IN INCHES

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1966 Olivenhain Road
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MPA
MORAES / PHAM & ASSOCIATES
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DESIGN JM	DRAWN CAD	CHECK JMM
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