

SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS
AT THE
DELAWARE COUNTY GOVERNMENT CENTER BUILDINGS
LOCATED IN
MEDIA, PENNSYLVANIA
FOR
THE COUNTY OF DELAWARE
CONSTRUCTION CONTRACT NO. ePW-121422-2



DRAWING LIST

CS-1 COVER SHEET

ARCHITECTURAL DRAWINGS

A-100 CH ARCH. DEMO & NEW WORK COURTHOUSE BASEMENT FLOOR
A-101 PG ARCH. DEMO & NEW WORK PARKING GARAGE - LEVEL A & B

LANDSCAPE DRAWINGS

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L-501 SITE IMPROVEMENTS & PLANTING DETAILS

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S-3 PARTIAL PLANS & DETAILS
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FP-201 PG FIRE PROTECTION NEW WORK PLAN PARKING GARAGE - LEVEL A
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FP-207 CH FIRE PROTECTION NEW FIRE PUMP HOUSE - COURTHOUSE
FP-300 FIRE PROTECTION DETAILS
FP-400 FIRE PROTECTION SCHEDULES

PLUMBING DRAWINGS

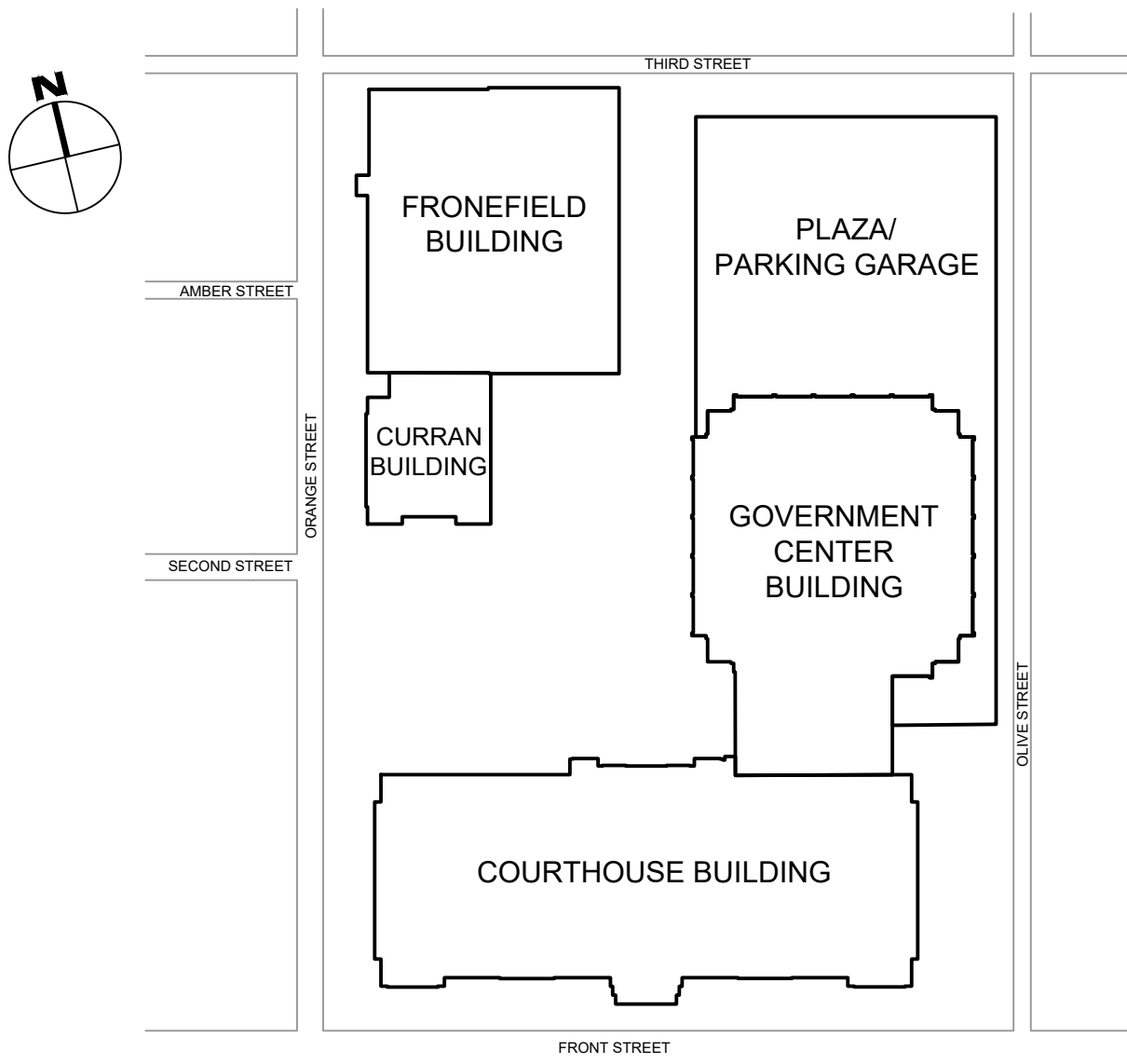
P-100 PLUMBING REMOVALS, NEW WORK, AND SCHEDULES
P-101 PLUMBING REMOVALS, NEW WORK, LEGEND, AND ABBREVIATIONS

HVAC DRAWINGS

H-100 HVAC REMOVALS AND NEW WORK
H-101 HVAC REMOVALS, SCHEDULES, LEGEND, AND ABBREVIATIONS


ELECTRICAL DRAWINGS

E-001 ELECTRICAL LEGEND, NOTES, DETAILS AND SCHEDULES
E-200 PG ELECTRICAL REMOVAL AND NEW WORK PLAN PARKING GARAGE - SINGLE LINE DIAGRAM, ELECTRICAL ROOM, FIRE PUMP ROOM, AND MECH. ROOM
E-201 PG ELECTRICAL NEW WORK PLAN PARKING GARAGE - LEVEL A
E-202 PG ELECTRICAL NEW WORK PLAN PARKING GARAGE - LEVEL B
E-203 PG ELECTRICAL NEW WORK PLAN PARKING GARAGE - LEVEL C
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E-205 CH ELECTRICAL REMOVAL AND NEW WORK PLAN COURTHOUSE - BASEMENT
E-206 CH ELECTRICAL NEW COURTHOUSE FIRE PUMP HOUSE AND EMERGENCY GENERATOR PLAN AND SINGLE LINE DIAGRAM



LOCATION MAP

09/23/2022
FOR COUNTY REVIEW
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	APP
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SHEET TITLE COVER SHEET			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 18811 610-935-0101 FAX: 610-935-7520 215-238-9510 609-347-1593 302-654-0909 gillan@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET CS-1
CHECKED BY RAS	SCALE NONE	COMB. NO.	

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M

24x24 DN AND
TRANSITION TO
20x20 THRU DECK
W/ FD

ACCESS HATCH

(E) 36X18

DIESEL STORAGE
TANK ROOM

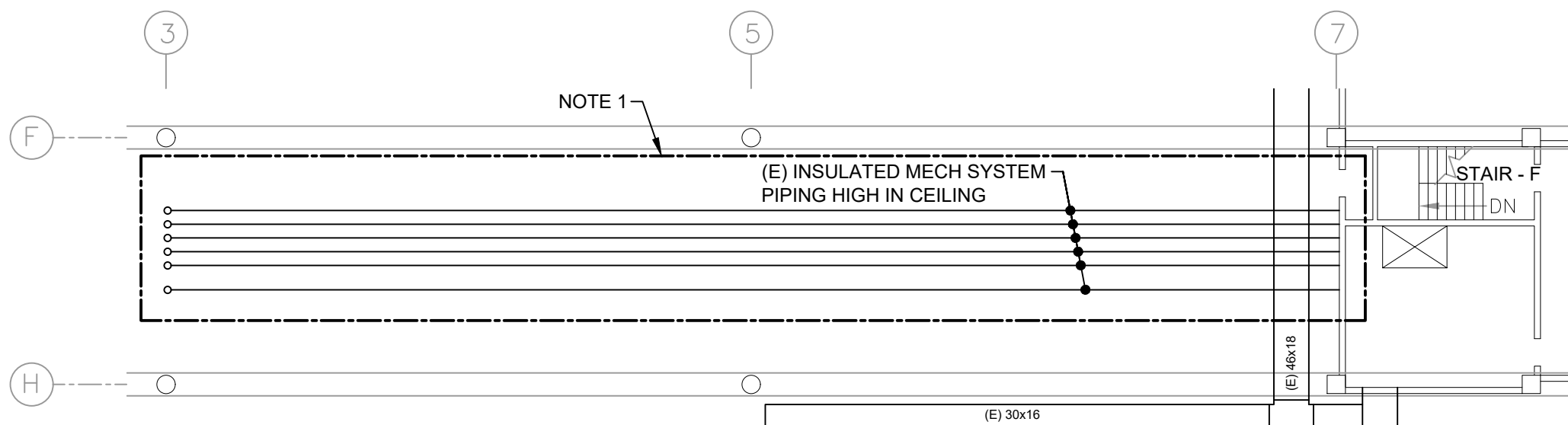
STAIR - G

DN

(E) 36X18

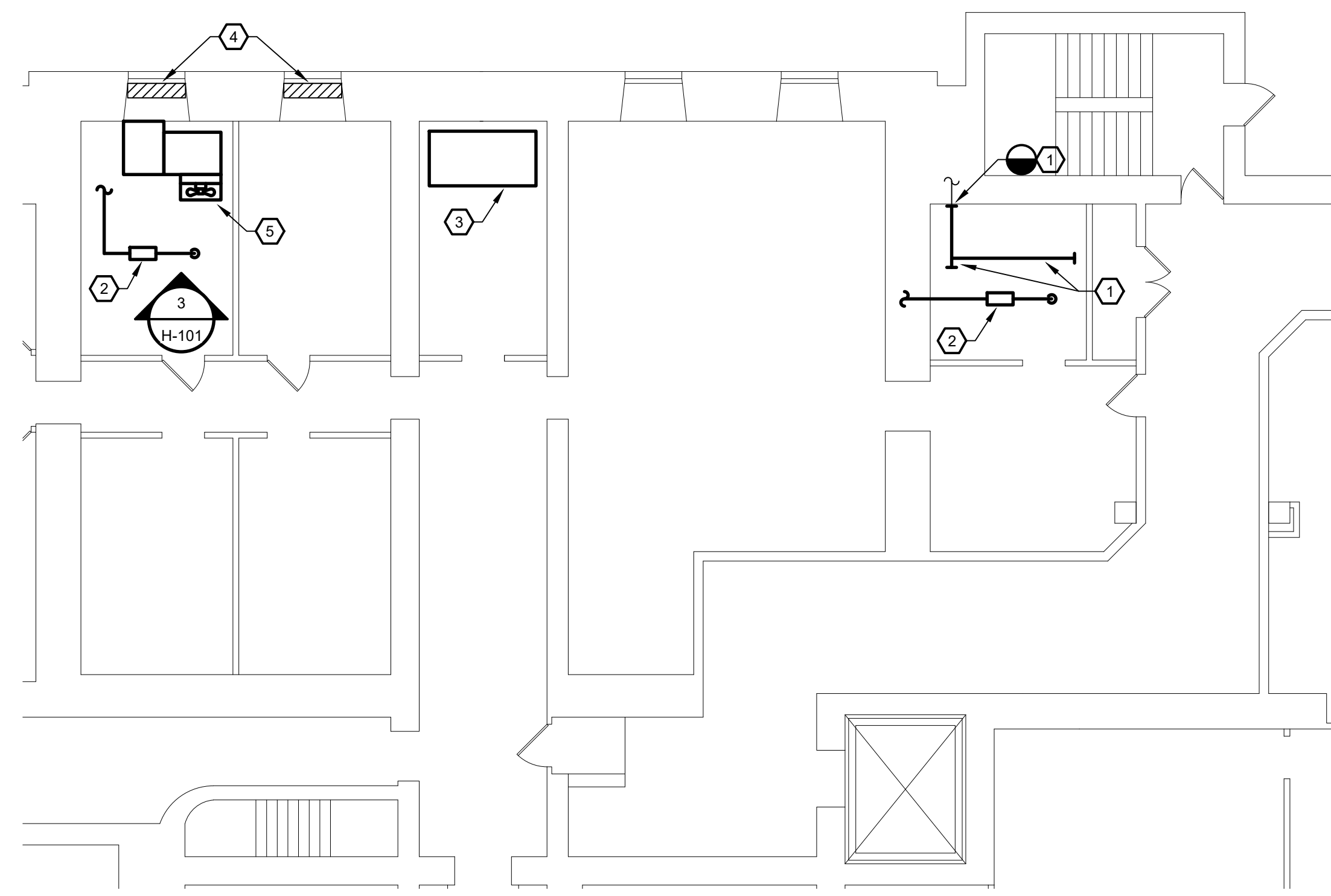
(E) 36X18

1 PARKING GARAGE - LEVEL A - HVAC
H-100 SCALE: 1/4" = 1'-0"

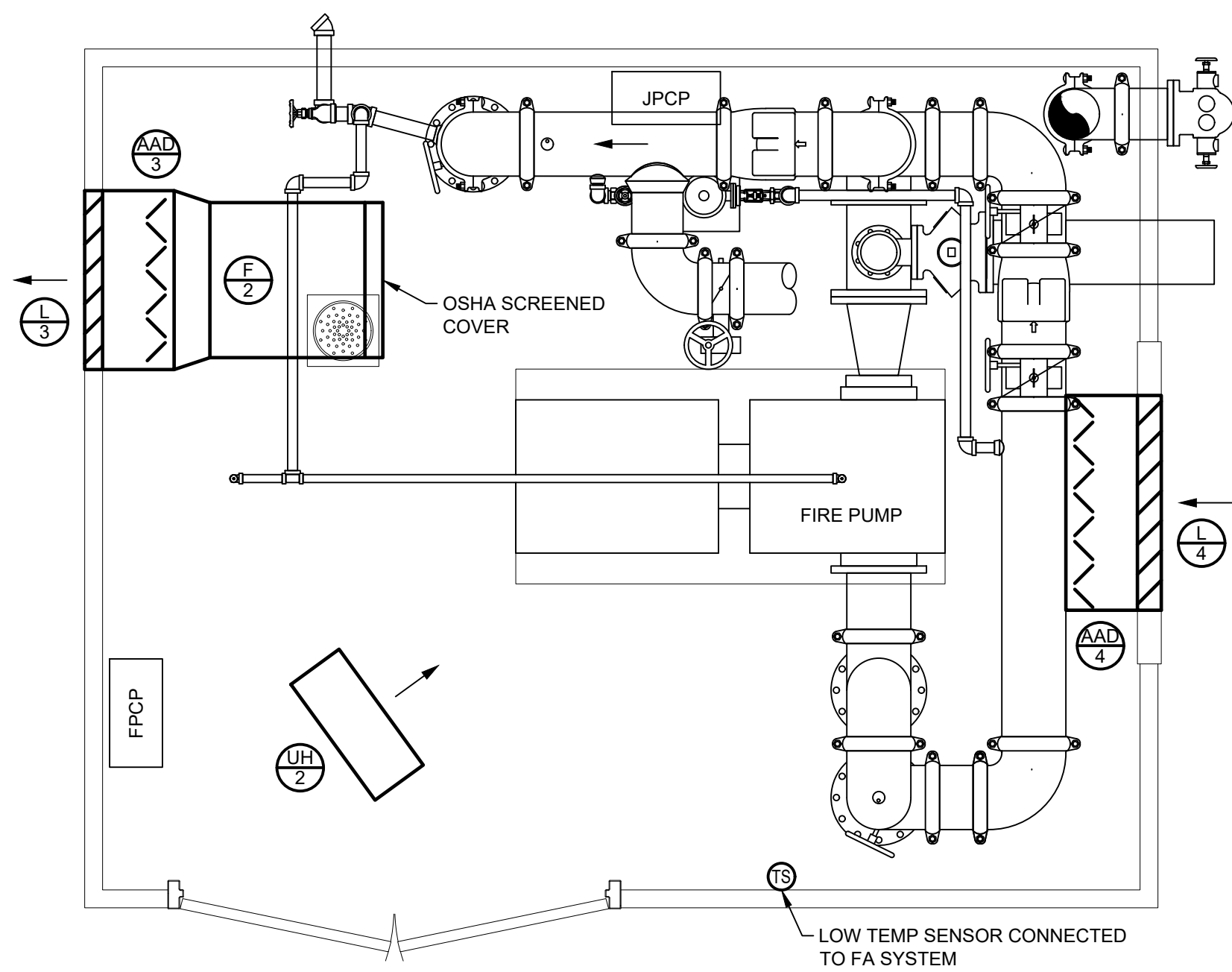


3 PARKING GARAGE - LEVEL B - HVAC
H-100 SCALE: 1/16" = 1'-0"

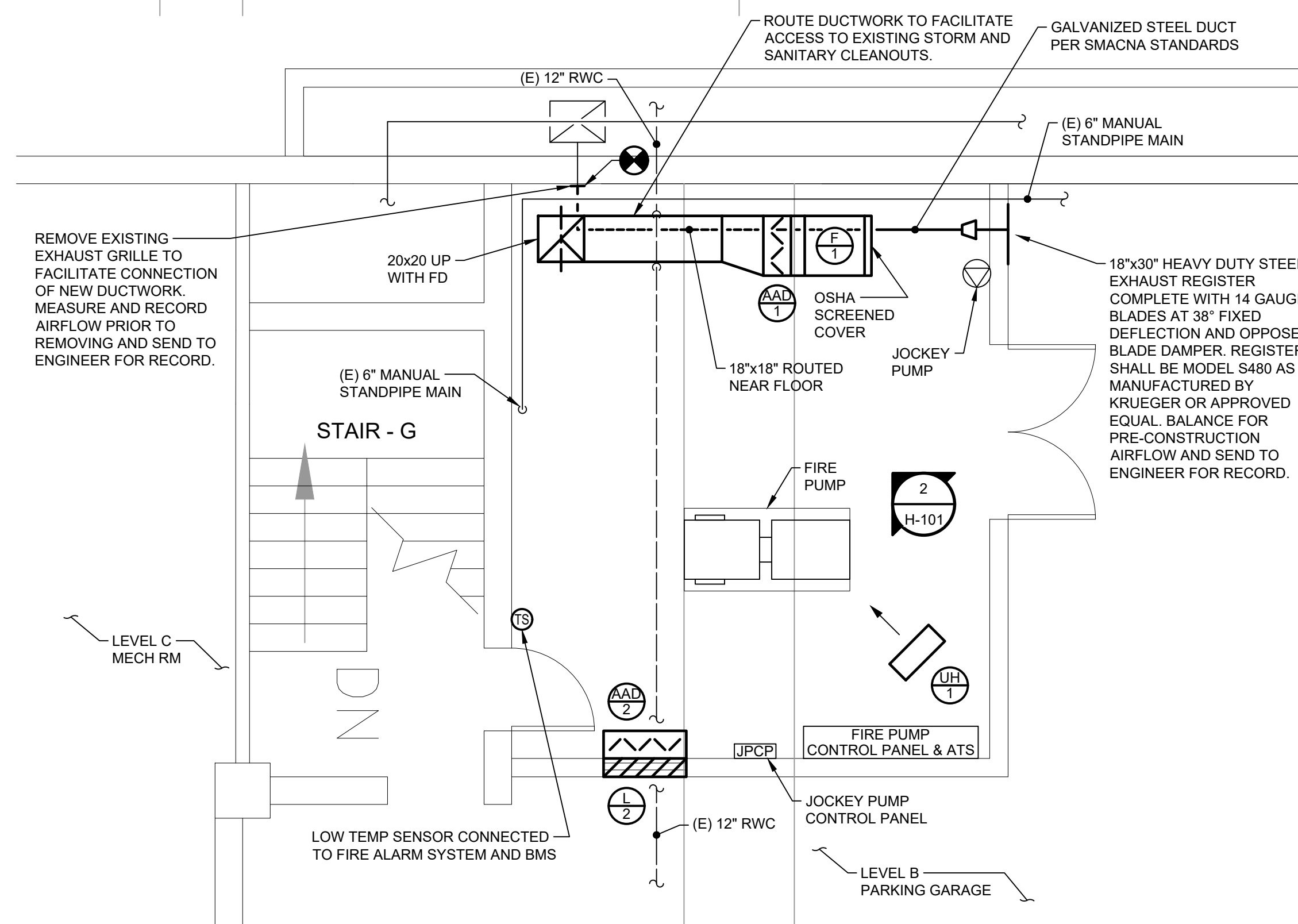
NOTE 1: PROVIDE HEAT TRACE TAPE ON EXISTING CHILLED WATER (SUPPLY & RETURN), CONDENSER WATER (SUPPLY & RETURN) AND HEATING WATER SUPPLY & RETURN. REMOVE EXISTING PIPE INSULATION AND INSTALL NEW INSULATION AND JACKET OVER HEAT TRACE TAPE. INSTALL HEAT TRACING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



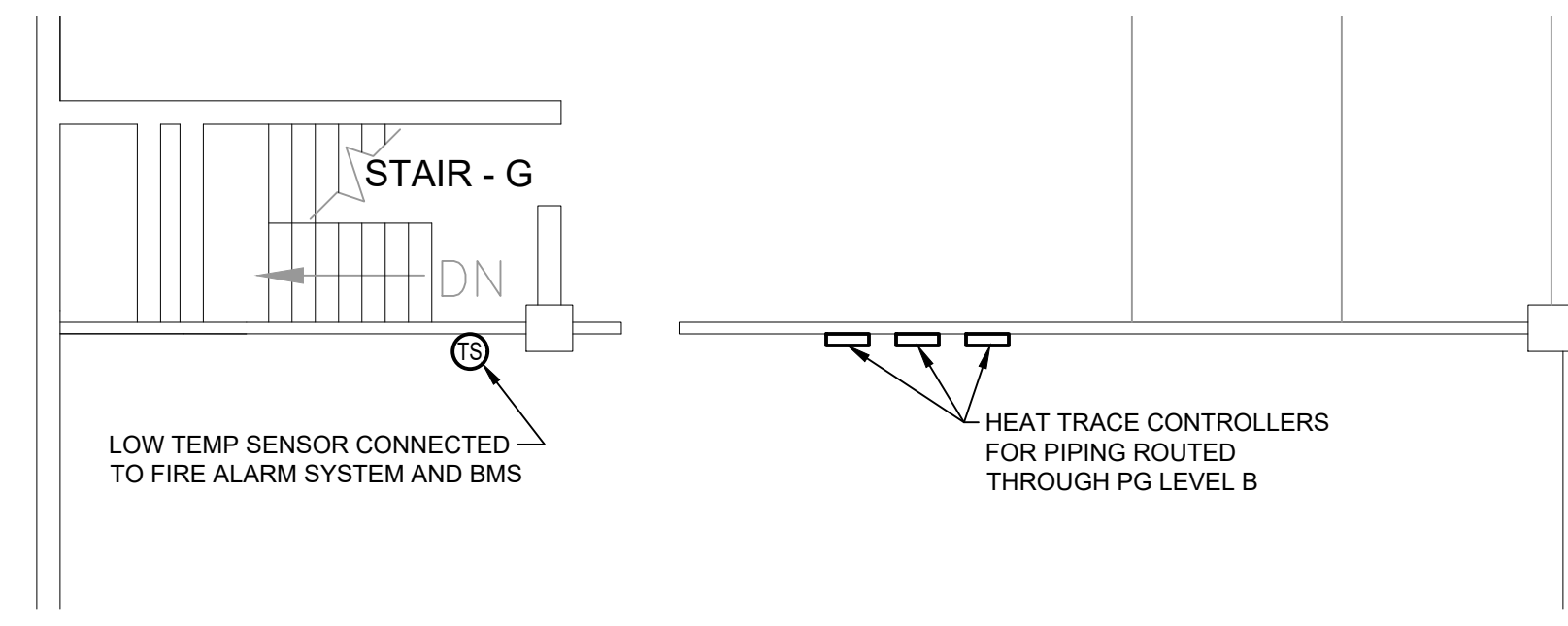
6 COURTHOUSE - PARTIAL BASEMENT PLAN - HVAC
H-100 SCALE: 1/8" = 1'-0"



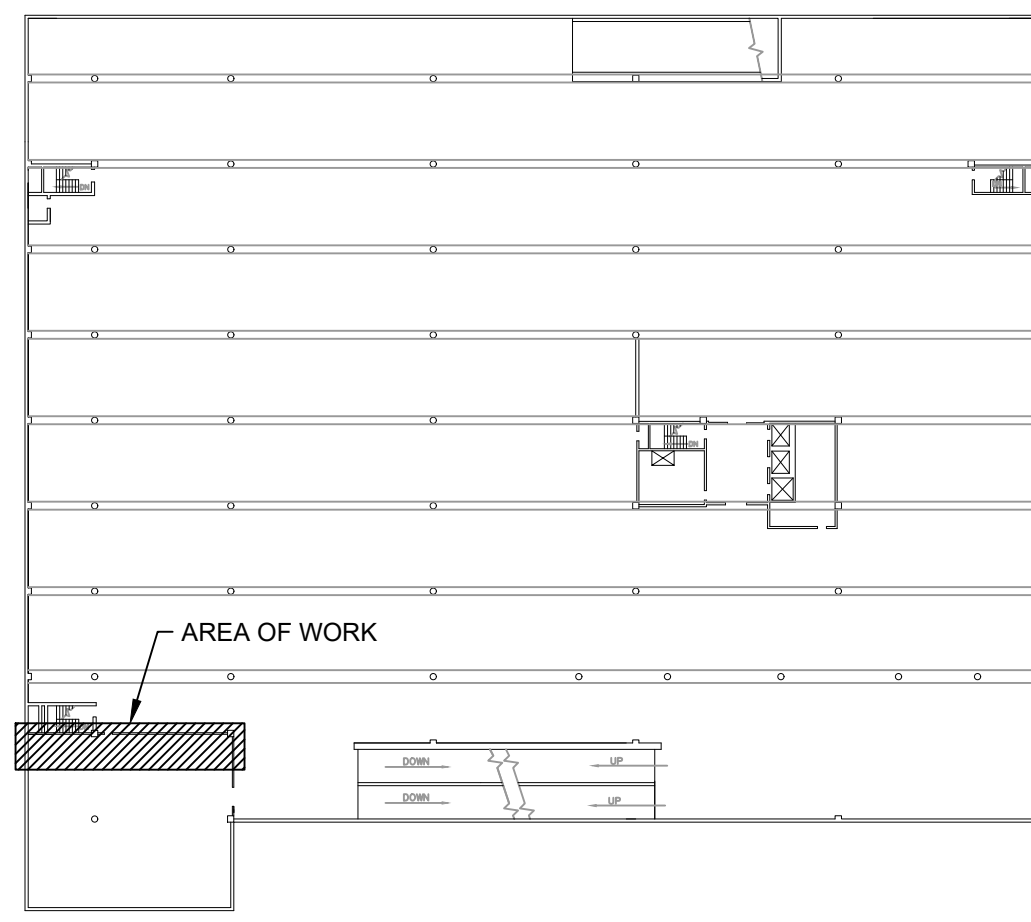
4 COURTHOUSE - PUMP HOUSE - HVAC
H-100 SCALE: 1/2" = 1'-0"



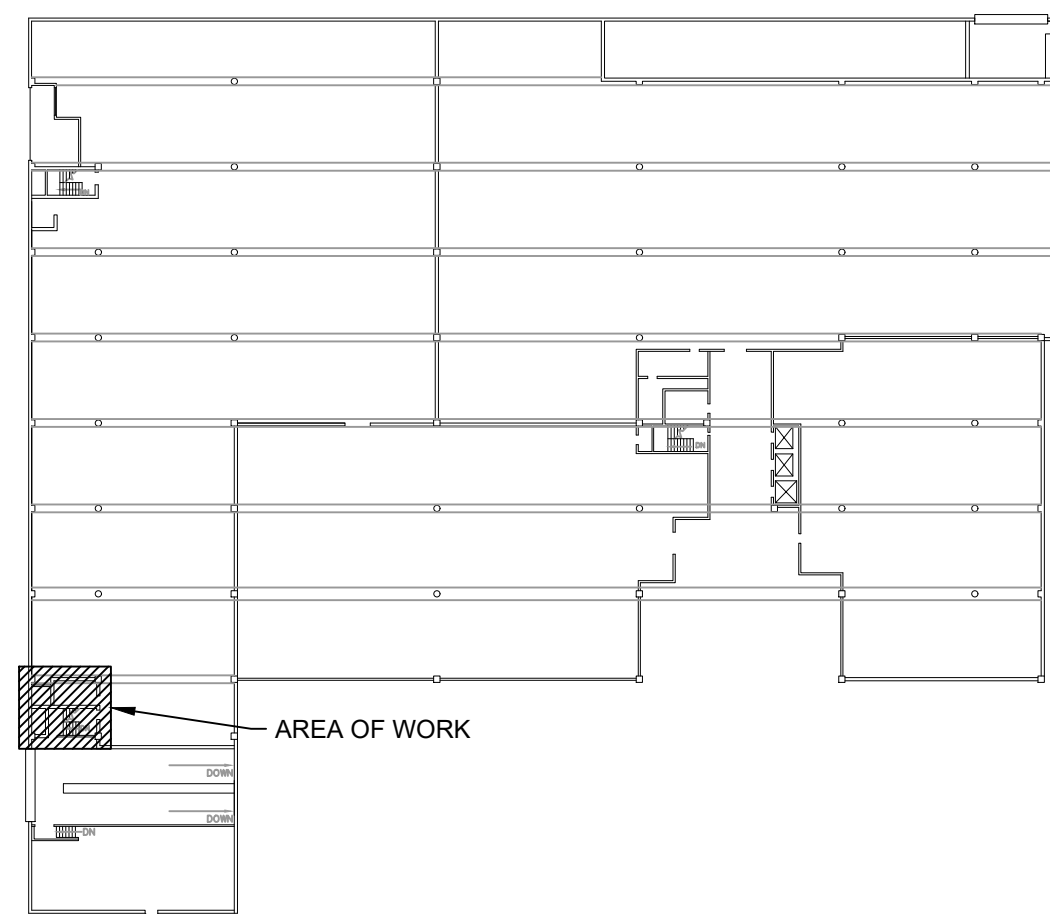
2 PARKING GARAGE - LEVEL B - FIRE PUMP ROOM - HVAC
H-100 SCALE: 1/4" = 1'-0"



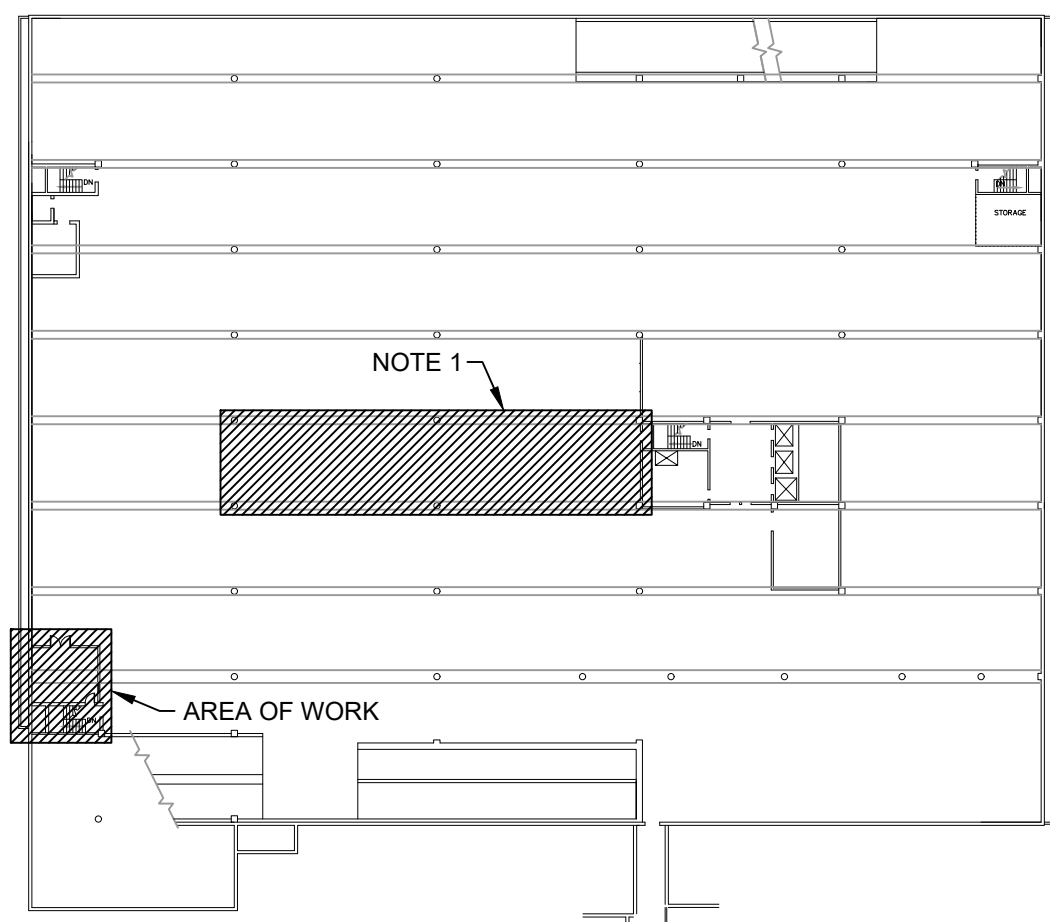
5 PARKING GARAGE - LEVEL C - MECHANICAL ROOM - HVAC
H-100 SCALE: 1/8" = 1'-0"



PARKING GARAGE - LEVEL C



PARKING GARAGE - LEVEL A



PARKING GARAGE - LEVEL B

REMOVAL NOTES:

- 1 REMOVE EXISTING EMERGENCY GENERATOR EXHAUST DUCTWORK (APPROX. 30"x30") IN ITS ENTIRETY TO WALL PENETRATION. CAP AND INSULATE EXTERIOR WALL PENETRATION WITH 24 GAUGE GALVANIZED STEEL SANDWICHED AROUND 2" RIGID INSULATION.
- 2 REMOVE EXISTING EMERGENCY GENERATOR MUFFLER AND ALL ASSOCIATED PIPING, FITTINGS, ETC. IN ITS ENTIRETY. CAP AND INSULATE EXTERIOR WALL PENETRATION WATER TIGHT AND MATCH EXISTING CONSTRUCTION AND EXTERIOR FINISHES.
- 3 REMOVE EXISTING ABANDONED DUCT. DO NOT DISTURB INSULATED PIPING ROUTED THROUGH ABANDONED DUCT. PATCH WALL PENETRATIONS.
- 4 CAP AND INSULATE INSIDE OF EXISTING LOUVER WITH 24 GAUGE GALVANIZED STEEL SANDWICHED AROUND 2" RIGID INSULATION.
- 5 REMOVE EXISTING EXHAUST FAN, DUCTWORK AND PLENUM IN THEIR ENTIRETY. REMOVE EXISTING EMERGENCY GENERATOR EXHAUST DUCTWORK AND PLENUM IN THEIR ENTIRETY.
- 6 REMOVE EXISTING EMERGENCY GENERATOR EXHAUST PIPING AND ALL ASSOCIATED APPURTENANCES IN ITS ENTIRETY. PATCH ROOF TO MATCH EXISTING CONSTRUCTION TO MAINTAIN EXISTING ROOF WARRANTY. REMOVE ALL EXISTING FUEL OIL PIPING AND ALL ASSOCIATED APPURTENANCES IN ITS ENTIRETY. PATCH ALL WALL AND FLOOR OPENINGS TO MATCH EXISTING CONSTRUCTION. COORDINATE WITH THE ELECTRICAL CONTRACTOR.

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DRAWN BY	DTS	DATE	10/28/2022	JOB NO.	2020-183	SHEET	H-100
CHECKED BY	RAS	SCALE	AS NOTED	CORR. NO.			

FAN SCHEDULE									
BASIS OF DESIGN: GREENHECK									
REF. NO.	LOCATION	VOLUME (CFM)	EXTERNAL STATIC PRESSURE IN. WC.	DRIVE	MOTOR INFORMATION (1)			TYPE	MODEL
					HP	V/C/P	FAN RPM		REMARKS
F-1	PG - LEVEL B - FP ROOM	2,800	0.5	DIRECT	1	460/60/3	1,140	INLINE	SQ-160
F-2	CH - FP ROOM	2,800	0.4	DIRECT	1	208/60/3	1,120	INLINE	SQ-160

- (1) PROVIDE WITH NON-FUSED DISCONNECT.
(2) PROVIDE WITH OSHA APPROVED INLET SCREEN.
(3) PROVIDE WITH HANGING KIT.

UNIT HEATER SCHEDULE									
BASIS OF DESIGN: BERKO									
REF. NO.	MBH	CFM	TEMP RISE °F	KW	MOTOR INFORMATION			THROW FT.	MODEL
					W	RPM	VOLTS	PHASE	REMARKS
UH-1	17	270	60	5	6	1,400	460	3	16
UH-2	17	270	60	5	6	1,400	208	3	16

- (1) FURNISH WITH SINGLE ADJUSTABLE THERMOSTAT KIT.
(2) FURNISH WITH ADJUSTABLE DISCHARGE LOUVER.
(3) FURNISH WITH 3-POLE DISCONNECT SWITCH.

LOUVER SCHEDULE							
BASIS OF DESIGN: POTTORFF							
REF. NO.	LOCATION	SIZE WxH (IN.)	DEPTH (IN.)	FREE AREA (FP)	CFM	PRESS. DROP (IN. WC.)	MODEL
L-1	PG - LEVEL A	24x36	6	3.1	2,800	0.10	EFD-637
L-2	PG - LEVEL B - FP ROOM	36x36	6	4.9	2,800	0.07	EFD-637
L-3	CH - FP ROOM	30x30	4	3.3	2,800	0.10	EFD-435
L-4	CH - FP ROOM	36x36	4	4.9	2,800	0.07	EFD-435

- (1) FURNISH WITH BIRD SCREEN AND FLANGE FRAME.
(2) COLOR SHALL BE SELECTED BY ARCHITECT.
(3) FURNISH LOUVER TO GENERAL CONTRACTOR FOR INSTALLATION. COORDINATE LOCATION AND SIZE.

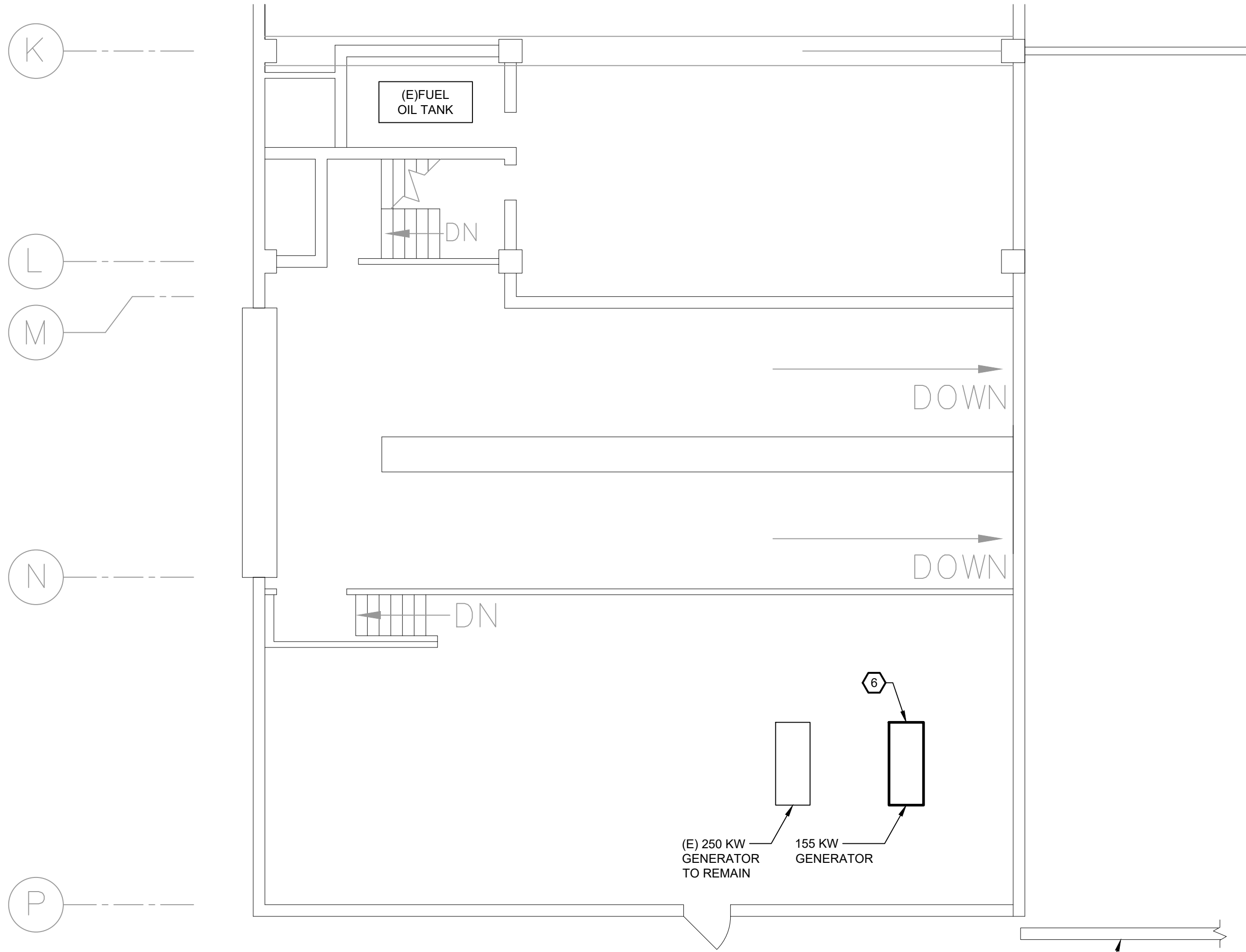
AUTOMATIC AIR DAMPER SCHEDULE							
BASIS OF DESIGN: POTTORFF							
REF. NO.	LOCATION	BLADE ARRANGEMENT	SIZE WxH (IN.)	NO. OF SECTIONS	ACTUATOR	PRESS. DROP (IN. WC.)	MODEL
AAD-1	PG - LEVEL B - FP ROOM	HORIZONTAL	24x24	1	ELECTRIC	<0.1	CD-41
AAD-2	PG - LEVEL B - FP ROOM	HORIZONTAL	36x36	1	ELECTRIC	<0.1	TICD-51BF
AAD-3	CH - FP ROOM	HORIZONTAL	30x30	1	ELECTRIC	<0.1	TICD-51BF
AAD-4	CH - FP ROOM	HORIZONTAL	36x36	1	ELECTRIC	<0.1	TICD-51BF

HEAT TRACE SCHEDULE							
BASIS OF DESIGN: NVENT, RAYCHEM							
SYSTEM	PIPE SIZE [# OF PIPES]	NUMBER OF CONTROLLERS	WATTS/ LF	VOLTS	PHASE	HZ.	CB SIZE
CONDENSER WATER	8" [2]	1	5	277	1	60	30
CHILLED WATER	8" [2]	1	5	277	1	60	30
HEATING HOT WATER	6" [2]	1	5	277	1	60	30

SELECTIONS BASED ON 40°F START UP TEMPERATURE AND 0°F AMBIENT TEMPERATURE.
CONTRACTOR SHALL FIELD VERIFY SYSTEM, SIZE AND LENGTH.
PIPING IS LOCATED IN PARKING GARAGE LEVEL B

SHEET NOTES:

FOR HVAC REMOVAL NOTES REFER TO SHEET H-100.



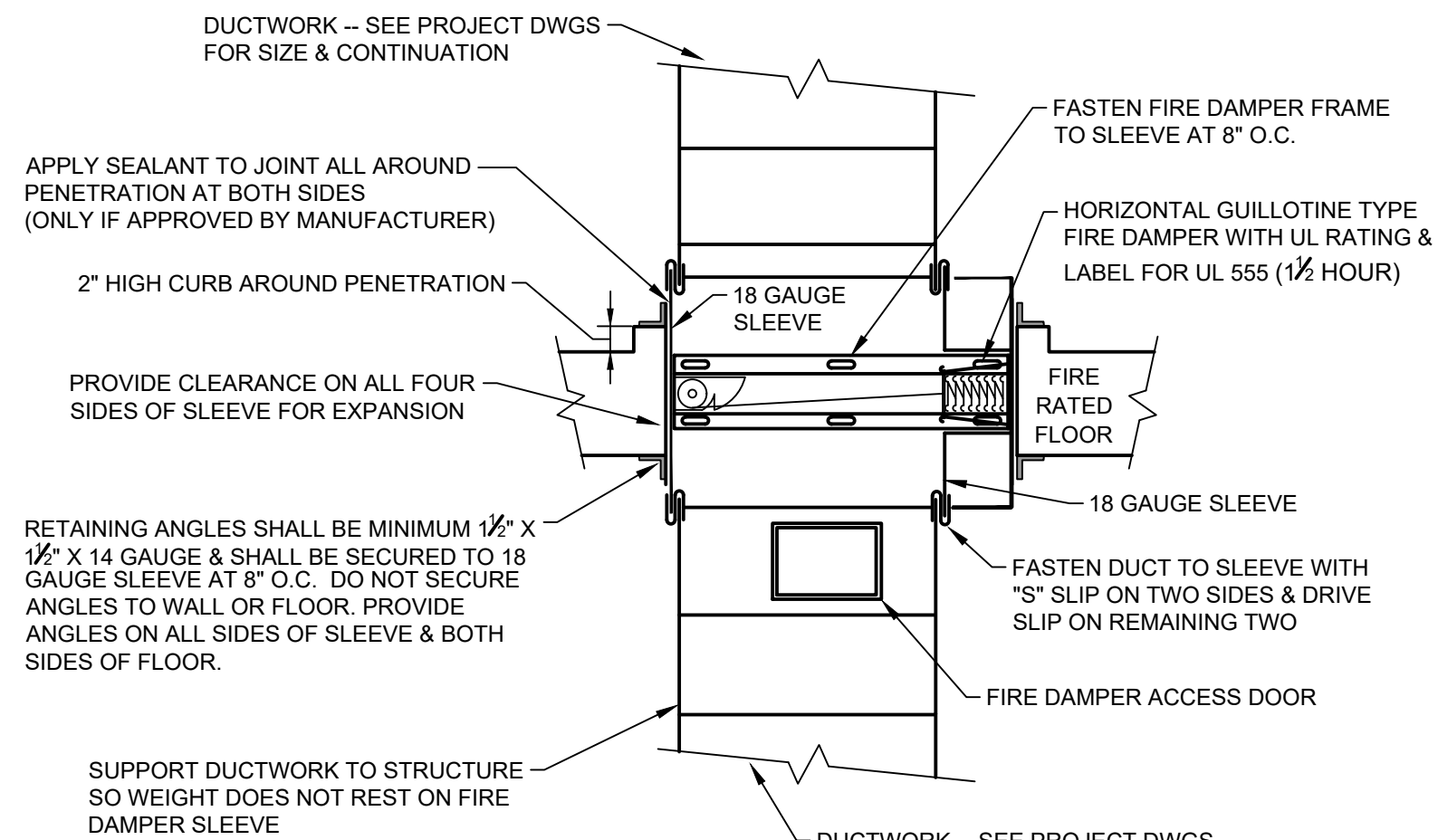
1 PARKING GARAGE - LEVEL A - HVAC REMOVALS
SCALE: 1/8" = 1'-0"



2 PARKING GARAGE - PHOTOGRAPH
H-101 NO SCALE

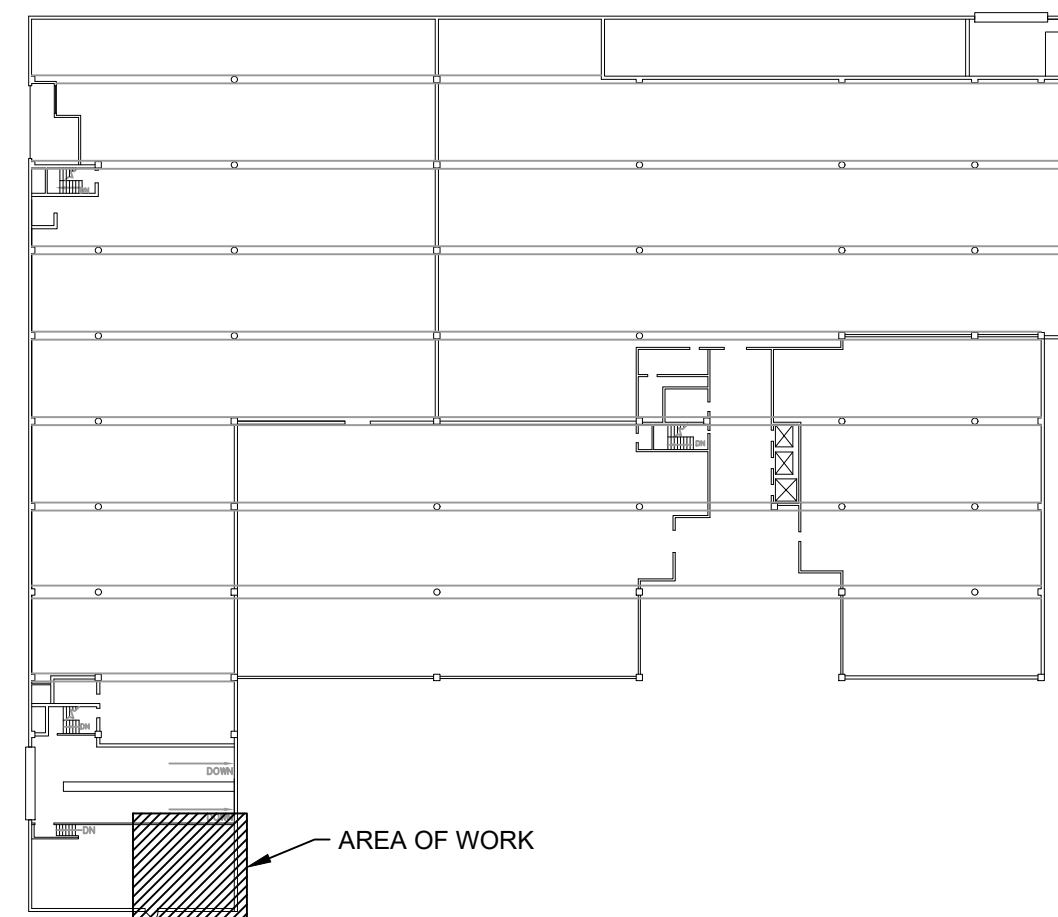


3 PARKING GARAGE - PHOTOGRAPH
H-101 NO SCALE



NOTE:
THE DAMPER MANUFACTURER'S INSTALLATION DETAILS AND INSTRUCTIONS AS TESTED AND APPROVED BY U.L. MUST BE USED IN LIEU OF THIS WHERE APPLICABLE.

4 DETAIL-FLOOR MOUNTED FIRE DAMPER WITH BLADES OUT OF STREAM
H-101 NO SCALE



PARKING GARAGE - LEVEL A

REV	DATE	DESCRIPTION	APP

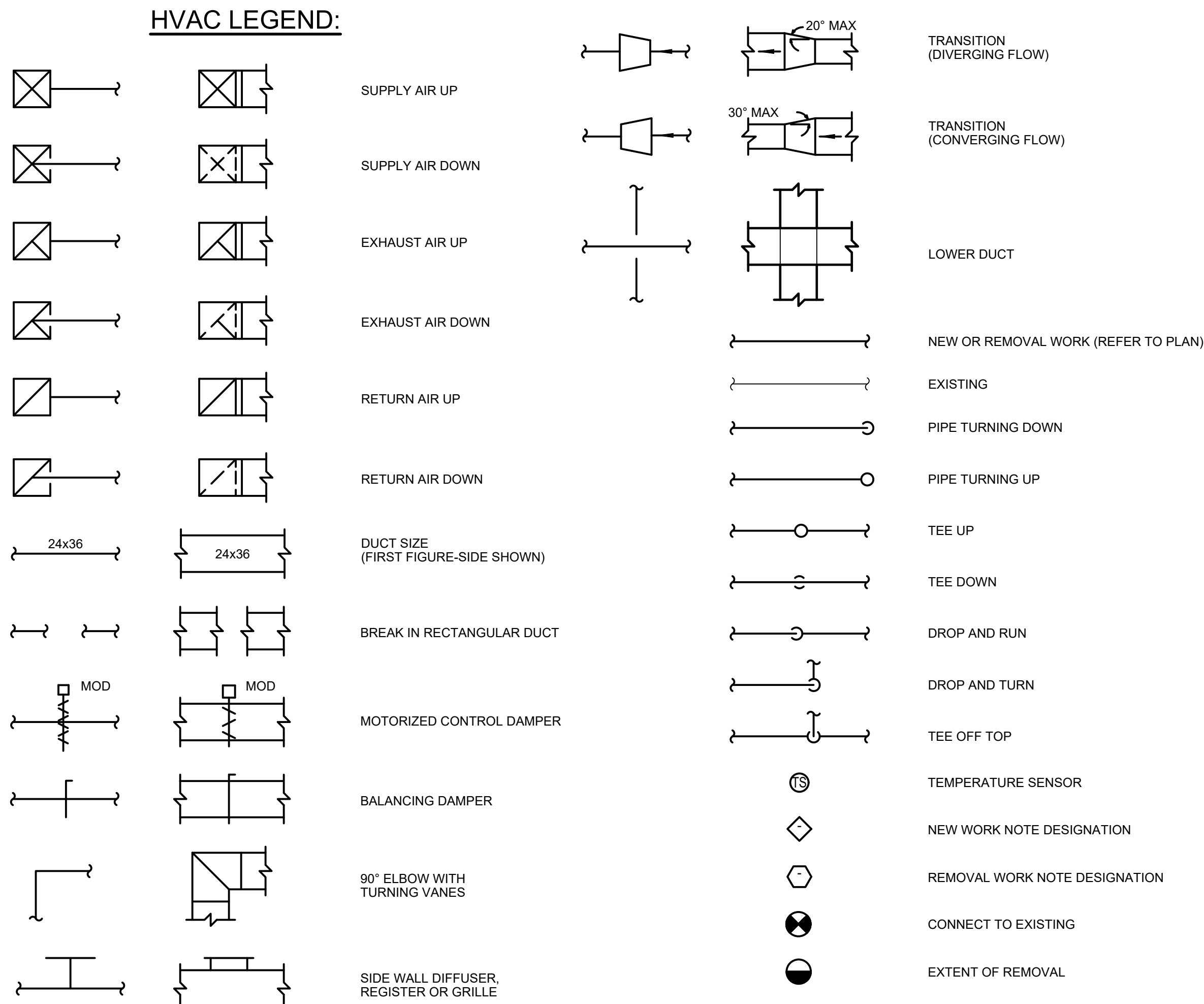
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SHEET TITLE			
HVAC REMOVALS, SCHEDULES, LEGEND, AND ABBREVIATIONS			
PROJECT			
DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
Gillan & Hartmann, Inc.			
MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19415 215-238-0510 609-347-1593 302-654-0909 gillan@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
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DTS	10/28/2022	2020-183	H-101
CHECKED BY	SCALE	CORR. NO.	
RAS	AS NOTED		

GENERAL NOTES:

- COORDINATE LOCATION OF ALL MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, COUNTY FURNISHED, AND G.C. EQUIPMENT WITH THE RESPECTIVE TRADE CONTRACTORS.
- PERFORM ALL CUTTING AND PATCHING NECESSARY TO PERFORM WORK. MATCH EXISTING MATERIALS, FINISHES, FIRE RATINGS, PAINT COLORS, ETC. IN ALL AREAS OF PATCHING.
- COORDINATE AND FIELD VERIFY ALL DIMENSIONS, SIZES, CLEARANCES, AND LOCATIONS PRIOR TO THE START OF CONSTRUCTION. WHEN CONFLICT ARISES, MAKE ANY NECESSARY CHANGES TO ROUTING OF PIPING WITHOUT COMPROMISING THE INTEGRITY AND PERFORMANCE OF THE SYSTEM, AND AT NO ADDITIONAL COST.
- INSTALL ALL EQUIPMENT TO MAINTAIN ADEQUATE CLEARANCES PER CODE AND MANUFACTURER'S REQUIREMENTS. PROVIDE OFFSETS AS NECESSARY TO FACILITATE.
- PROVIDE GROUND PENETRATING RADAR (GPR) FOR CUTTING/PATCHING ASSOCIATED WITH PENETRATIONS IN ACCORDANCE WITH STRUCTURAL DRAWING.

HVAC LEGEND:

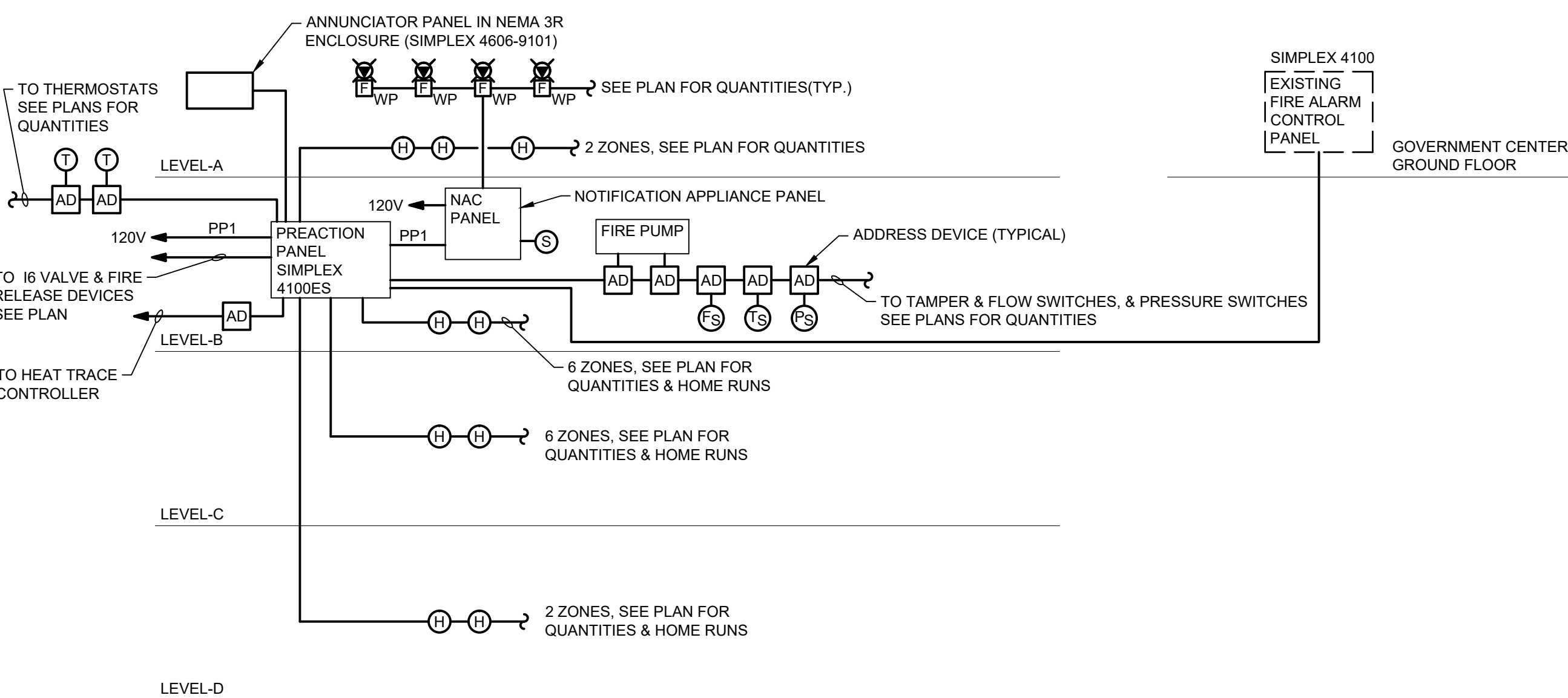


NUMBER PLAN, SECTION, OR DETAIL
SHEET NUMBER SCALE: 1/4" = 1'-0"

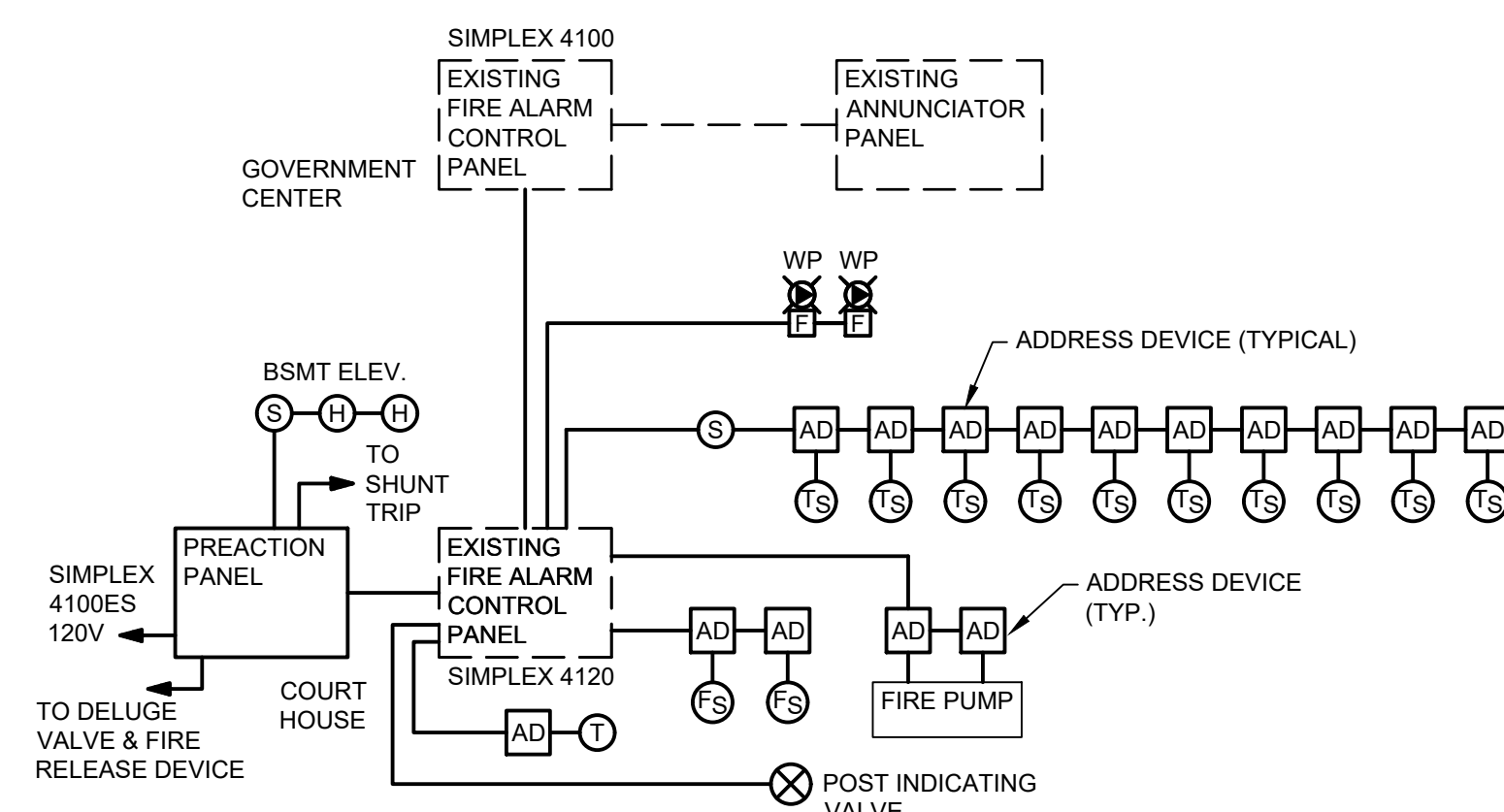
HVAC ABBREVIATIONS:

AAD	AUTOMATIC AIR DAMPER
ATS	AUTOMATIC TRANSFER SWITCH
BMS	BUILDING MANAGEMENT SYSTEM
CB	CIRCUIT BREAKER
CFM	CUBIC FEET PER MINUTE
DN	DOWN
DWG.	DRAWING
(E)	EXISTING
F	FAN
FA	FIRE ALARM
FD	FIRE DAMPER
FP	FIRE PROTECTION
FP/CP	FIRE PUMP CONTROL PANEL
FT	FEET
H	HEIGHT
HP	HORSEPOWER
HZ	HERTZ
IN	INCHES
JPCP	JOCKEY PUMP CONTROL PANEL
KW	KILOWATT
L	LOUVER
LF	LINEAR FEET
MBH	THOUSANDS BTU/H
NO.	NUMBER
PRESS	PRESSURE
REF.	REFERENCE
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RWC	RAINWATER CONDUCTOR
TEMP	TEMPERATURE
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
W	WIDTH
WC	WATER COLUMN
WI	WITH

PENDANT MOUNTED LED FIXTURE, LITHONIA #FEM4-LED-4L/35-IMAFL



2 PARKING GARAGE - FIRE ALARM DIAGRAM



3 COURT HOUSE - FIRE ALARM DIAGRAM

[illegible][illegible][illegible]

1. PROVIDE GROUND PENETRATING RADAR (GPR) FOR CUTTING/PATCHING ASSOCIATED WITH PARKING GARAGE PENETRATIONS IN ACCORDANCE WITH STRUCTURAL DRAWINGS.

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SHEET TITLE	ELECTRICAL LEGEND, NOTES, DETAILS AND SCHEDULES
PROJECT	DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS
	<p>Gillman & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS</p> <p>VALLEY Forge, PA 19481 610-658-0701 FAX 610-658-7520 210-238-9510 302-654-1593 302-654-9969 www.GILLMANHARTMANN.COM</p>

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CHECKED BY ROB	SCALE AS NOTED	COMM. NO.	

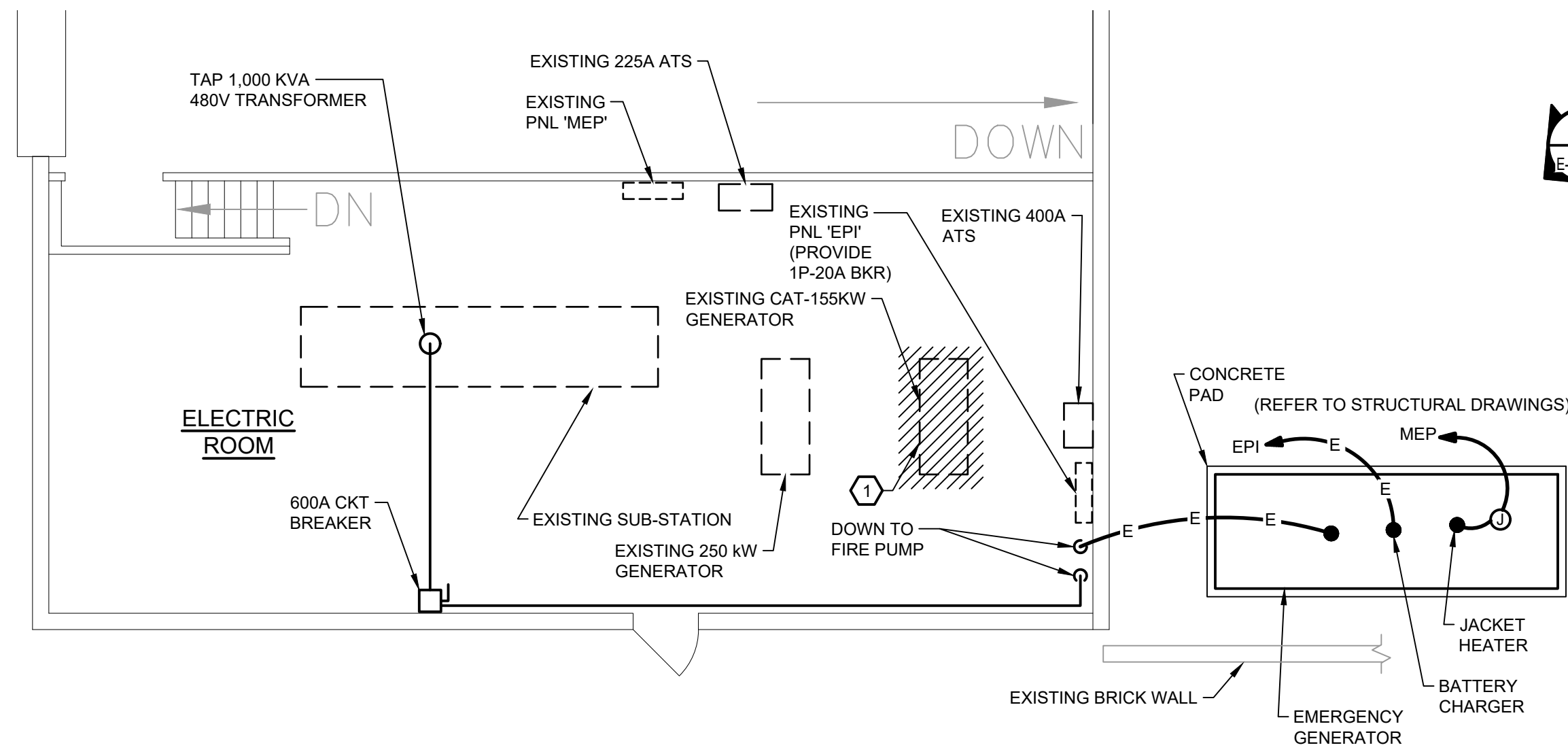
E-001



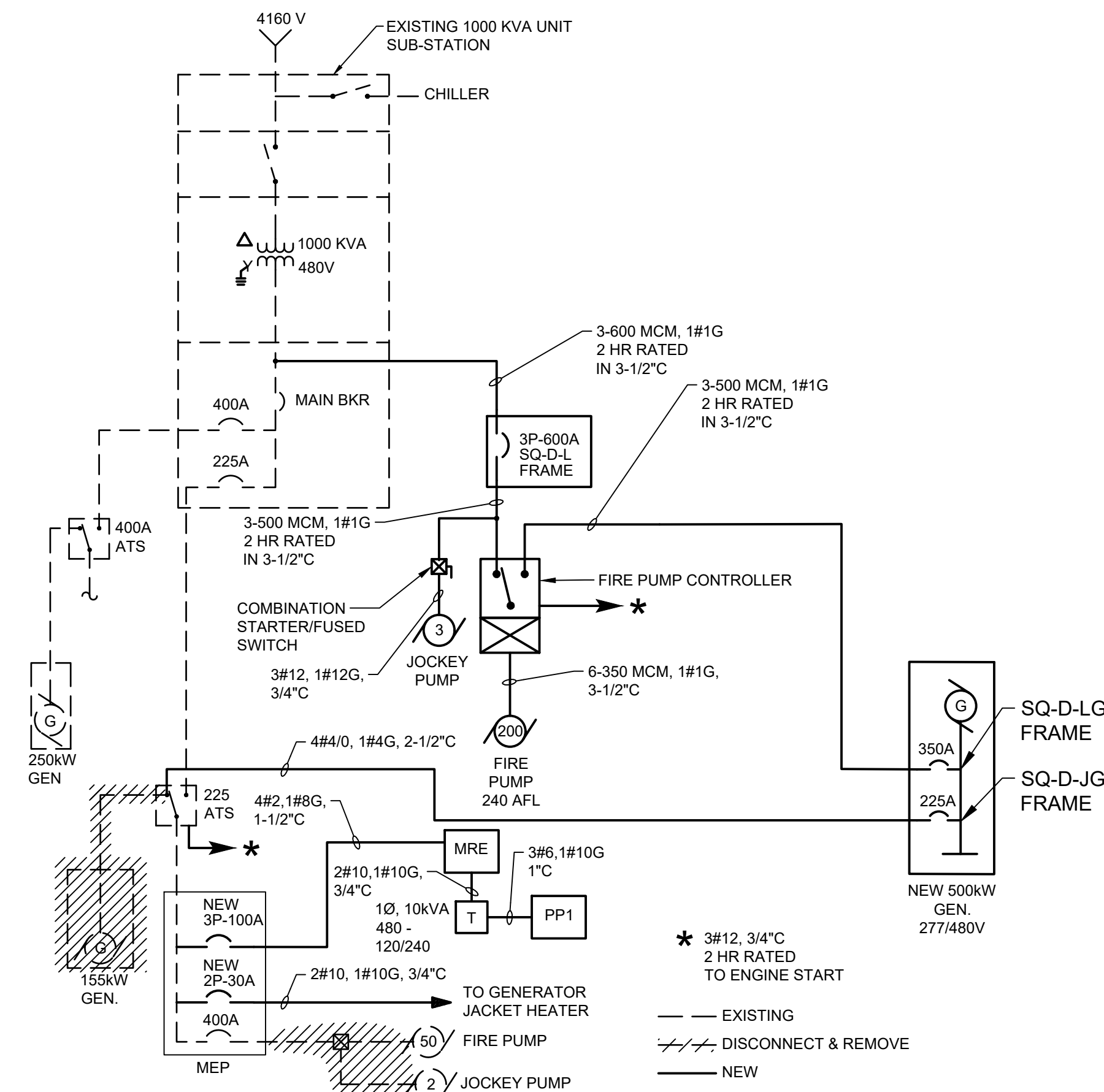
7 PARKING GARAGE - PHOTOGRAPH
E-200 PG NO SCALE

REMOVAL NOTES

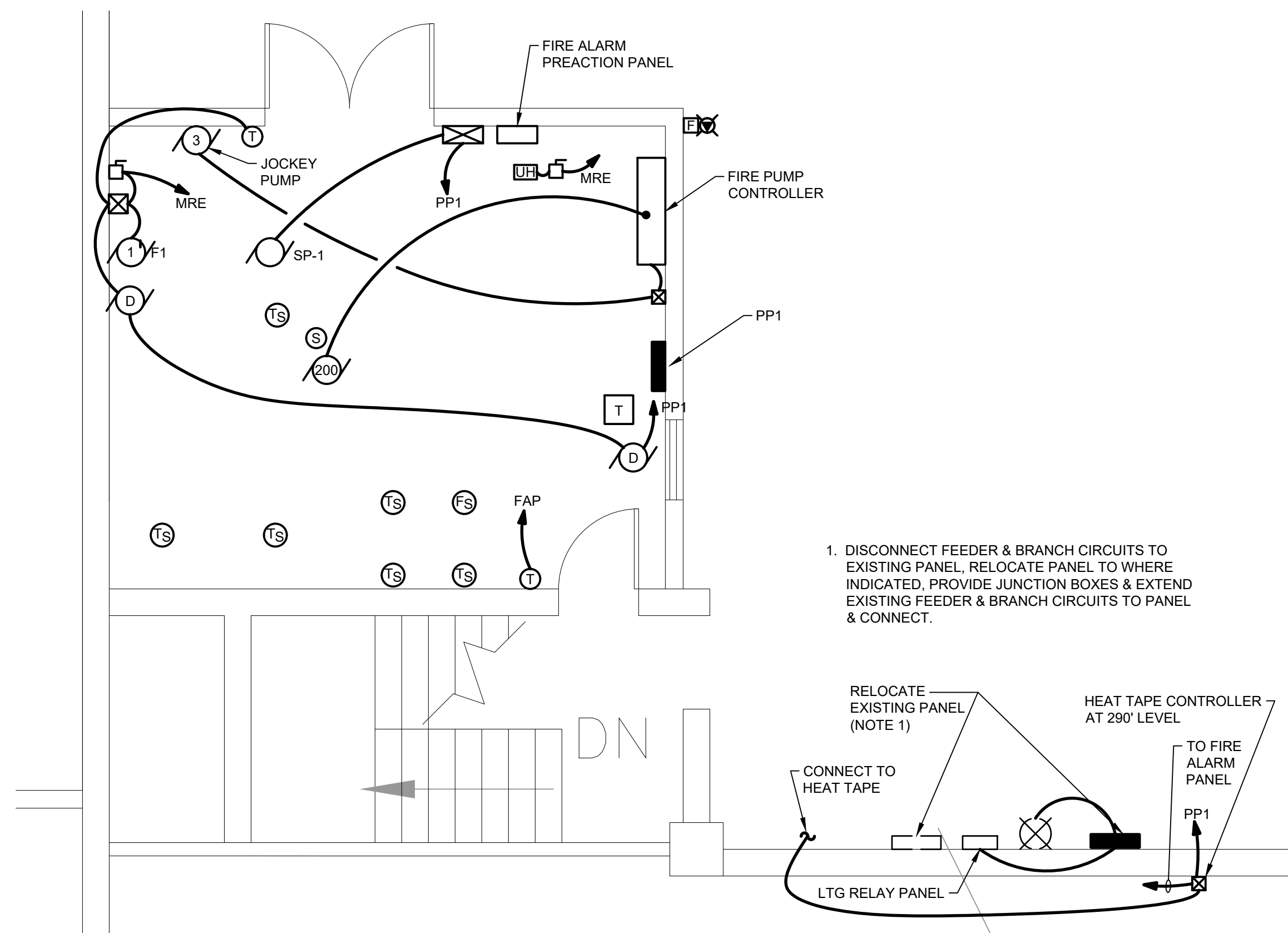
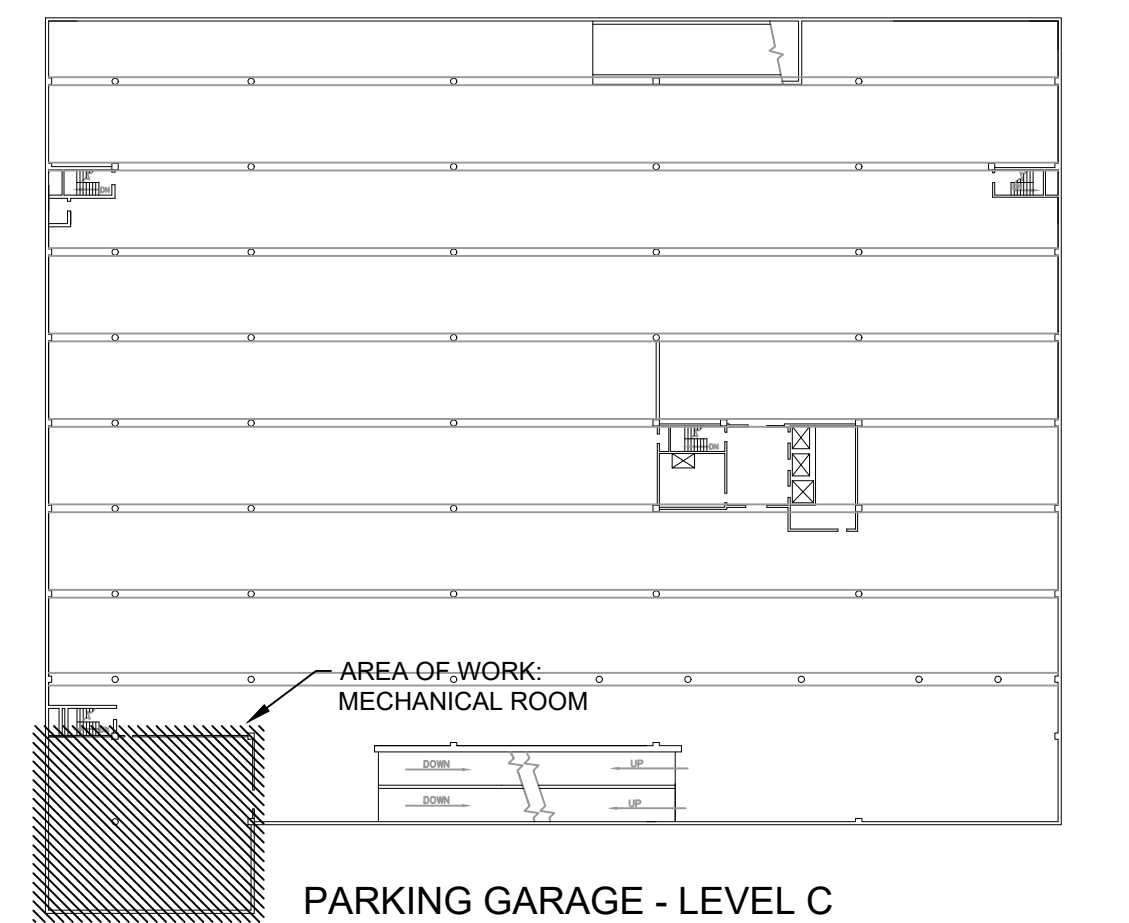
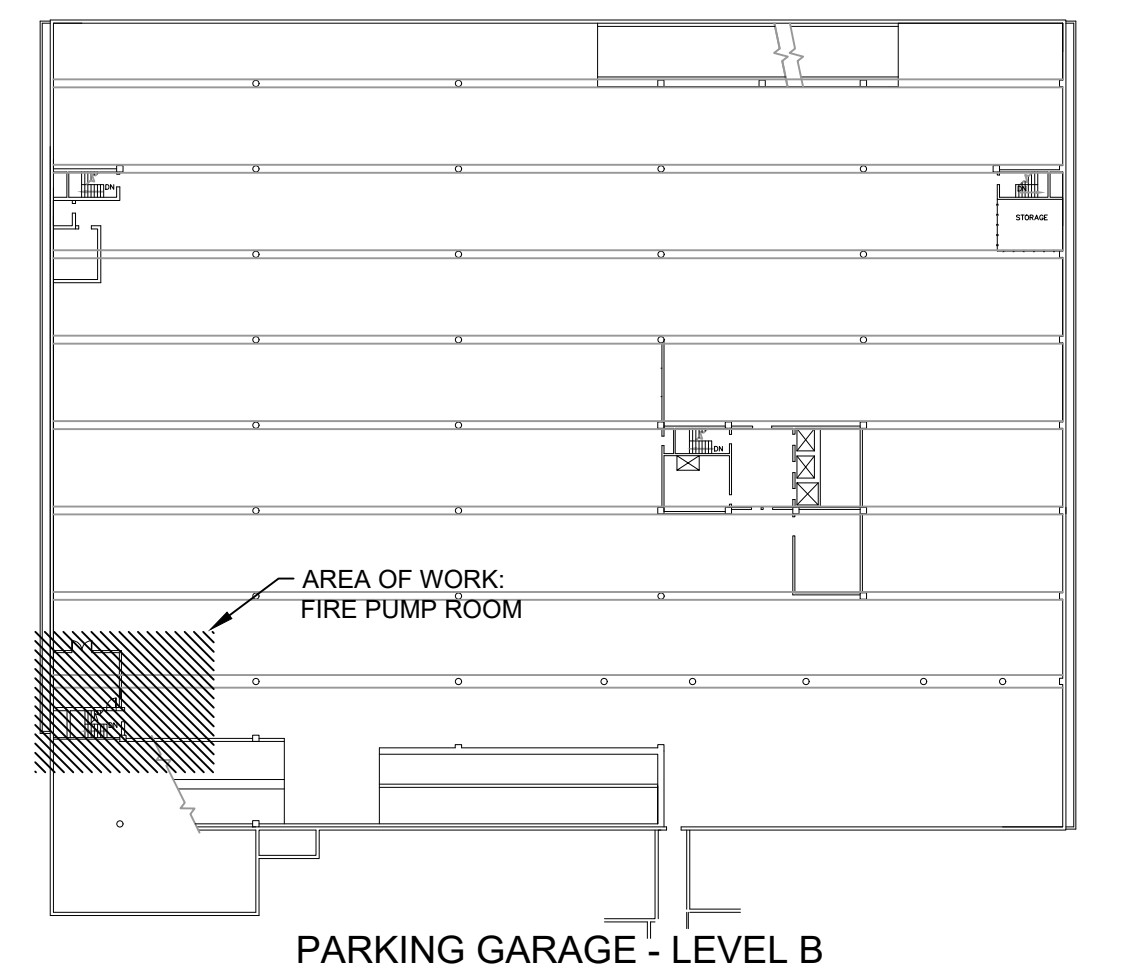
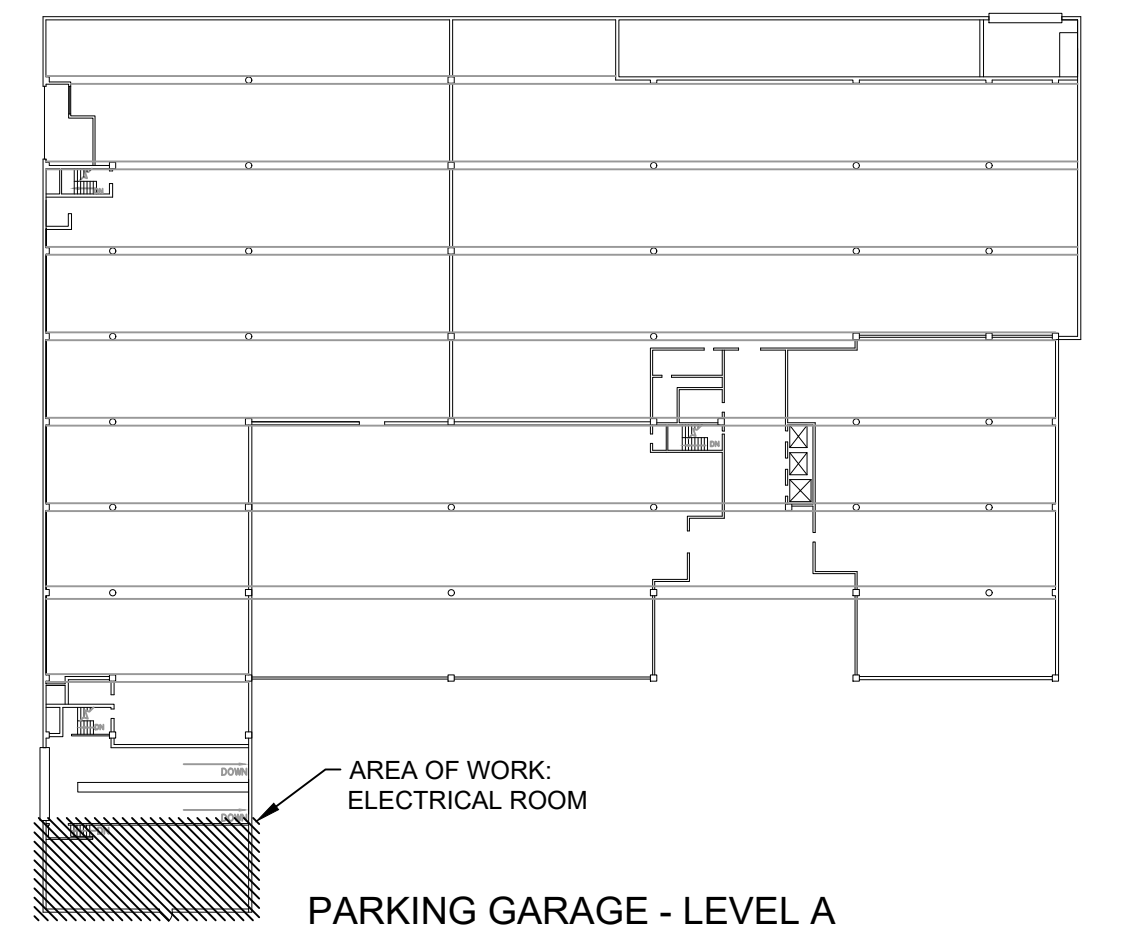
- DISCONNECT & REMOVE GENERATOR, & ASSOCIATED WIRING & CONDUIT INCLUDING EXHAUST PIPE & MUFFLER & ROOF TOP RADIATOR, WIRING & PIPING & FAN.
- CUT AND CAP CONDUIT & PIPING & PATCH ROOF TO MATCH EXISTING.



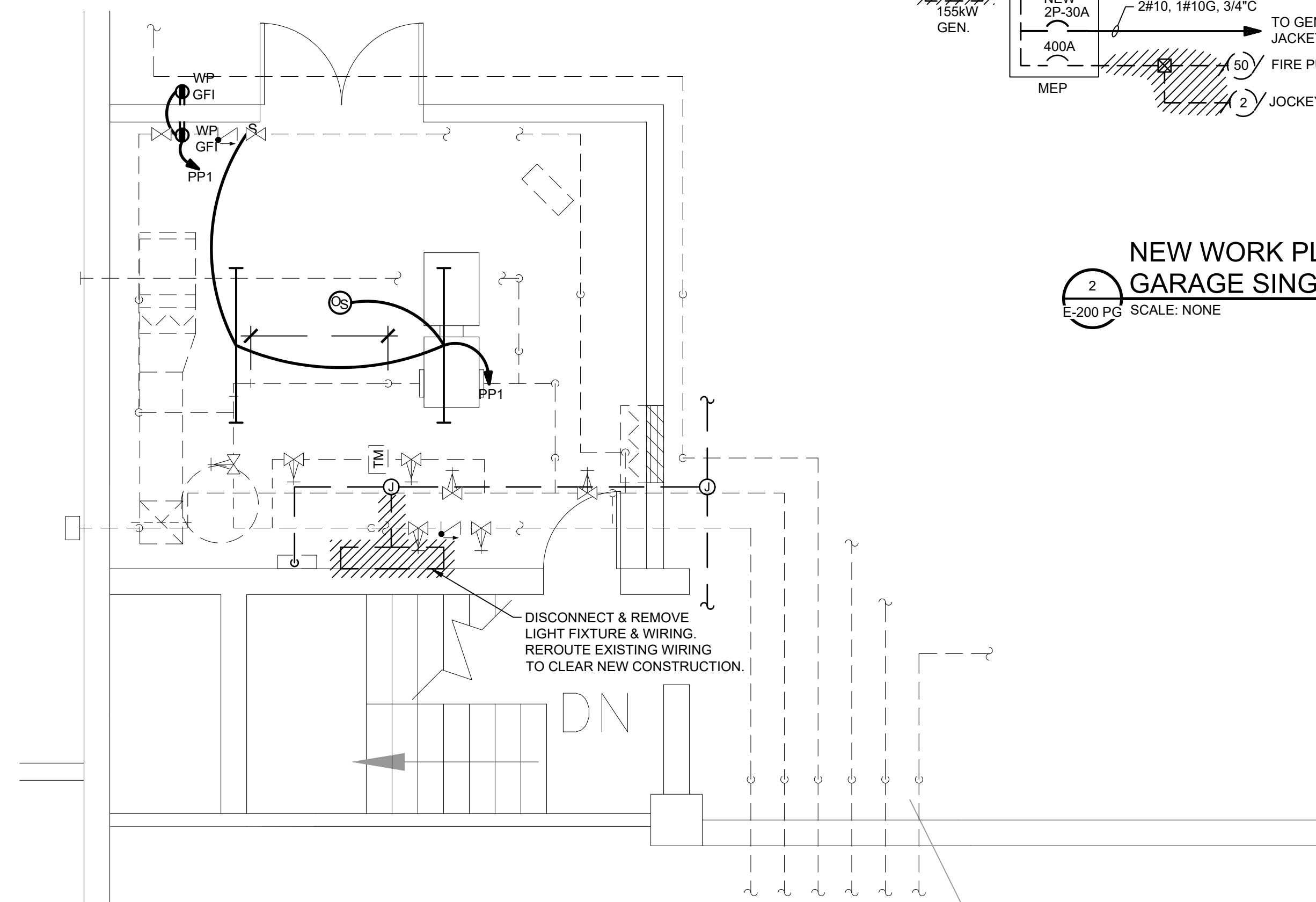
1 NEW WORK PLAN
GARAGE ELECTRICAL ROOM - LEVEL A (ELEV. 310.0')
E-200 PG SCALE: 1/8" = 1'-0"



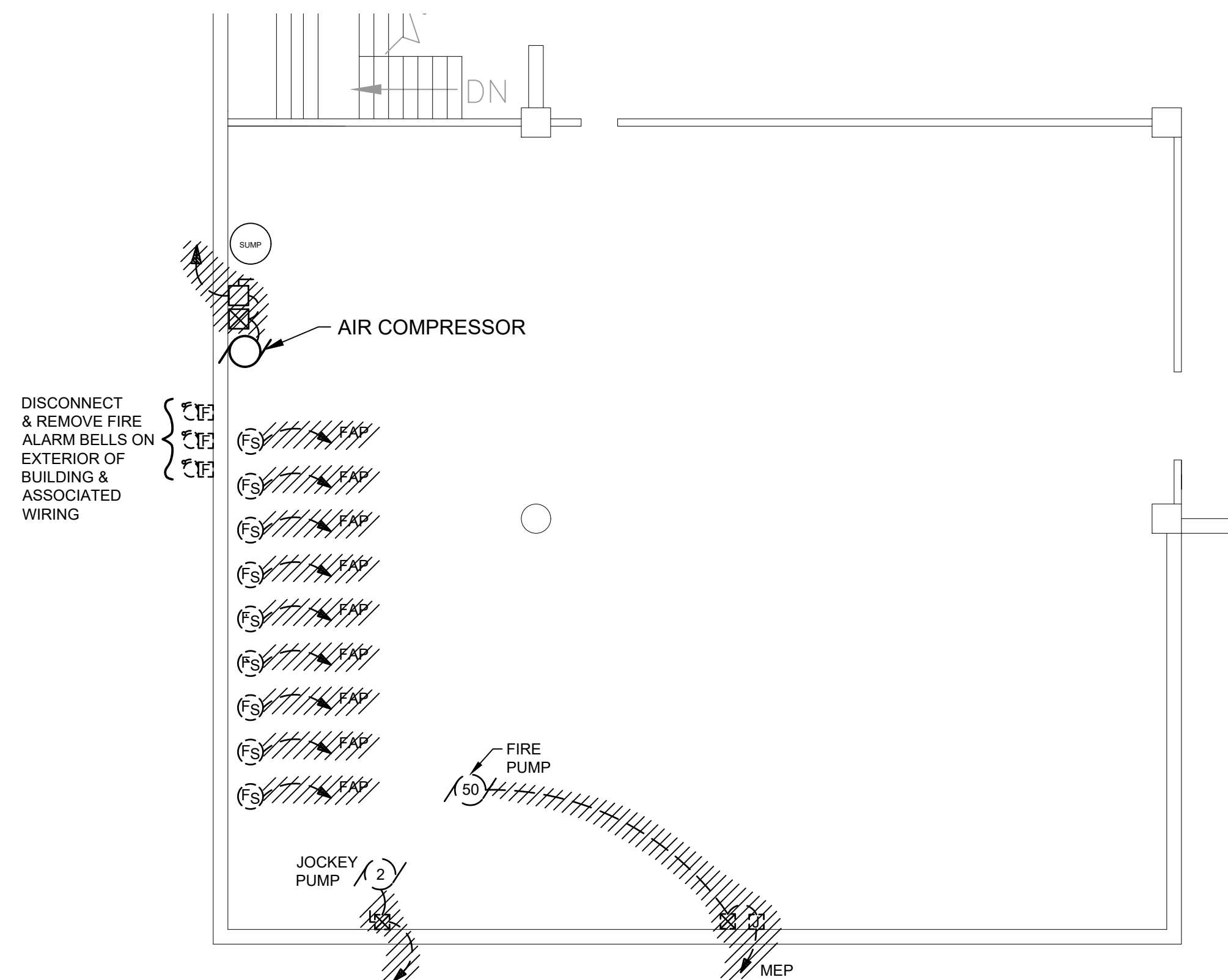
2 NEW WORK PLAN
GARAGE SINGLE LINE DIAGRAM
E-200 PG SCALE: NONE



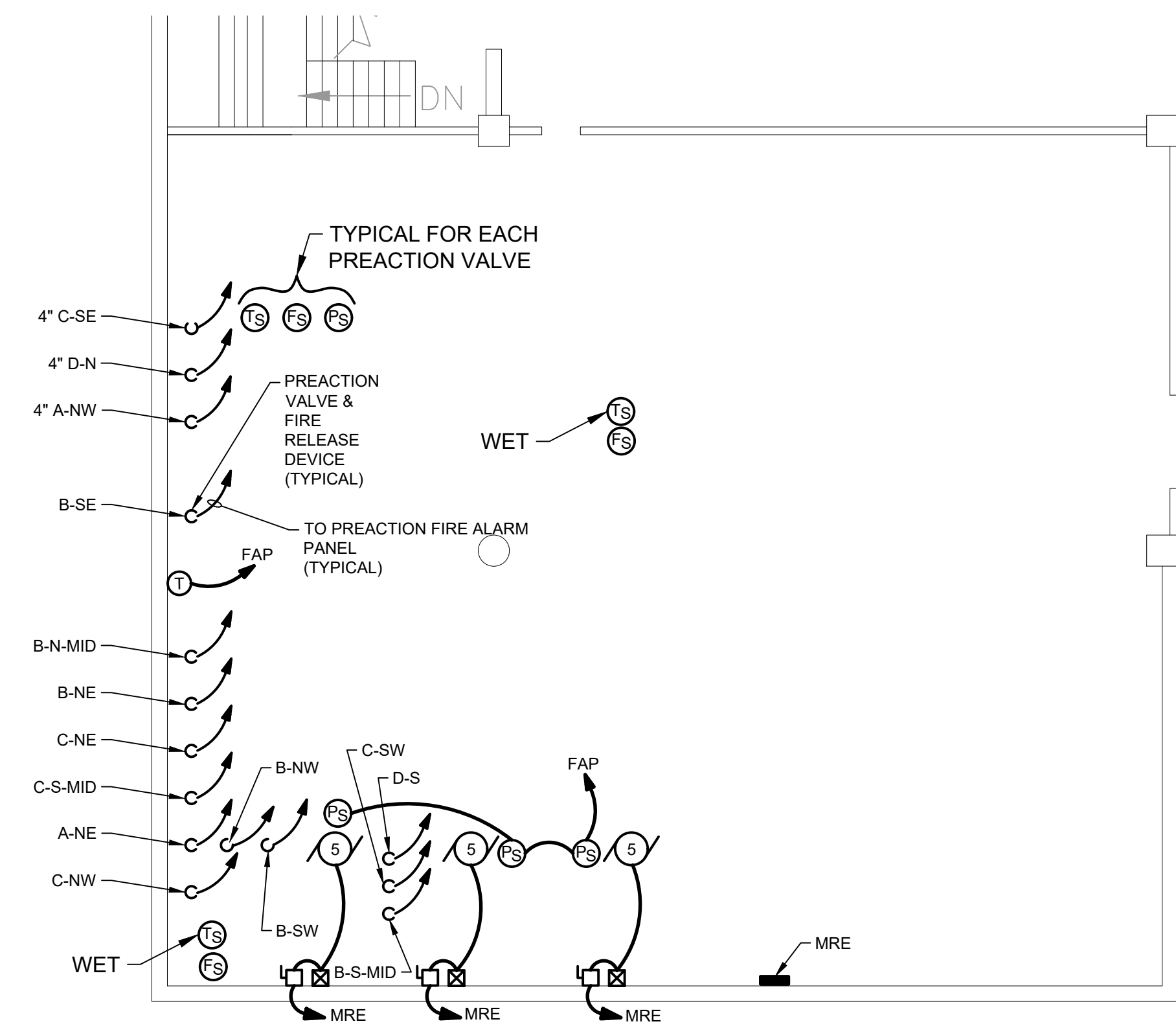
3 NEW WORK PLAN- POWER
GARAGE FIRE PUMP ROOM - LEVEL B (ELEV. 300.0')
E-200 PG SCALE: 1/4" = 1'-0"



4 DEMO & NEW WORK PLAN - POWER & LIGHTING
GARAGE FIRE PUMP ROOM - LEVEL B (ELEV. 300.0')
E-200 PG SCALE: 1/4" = 1'-0"



5 REMOVAL PLAN
GARAGE MECHANICAL ROOM - LEVEL C (ELEV. 290.0')
E-200 PG SCALE: 1/8" = 1'-0"



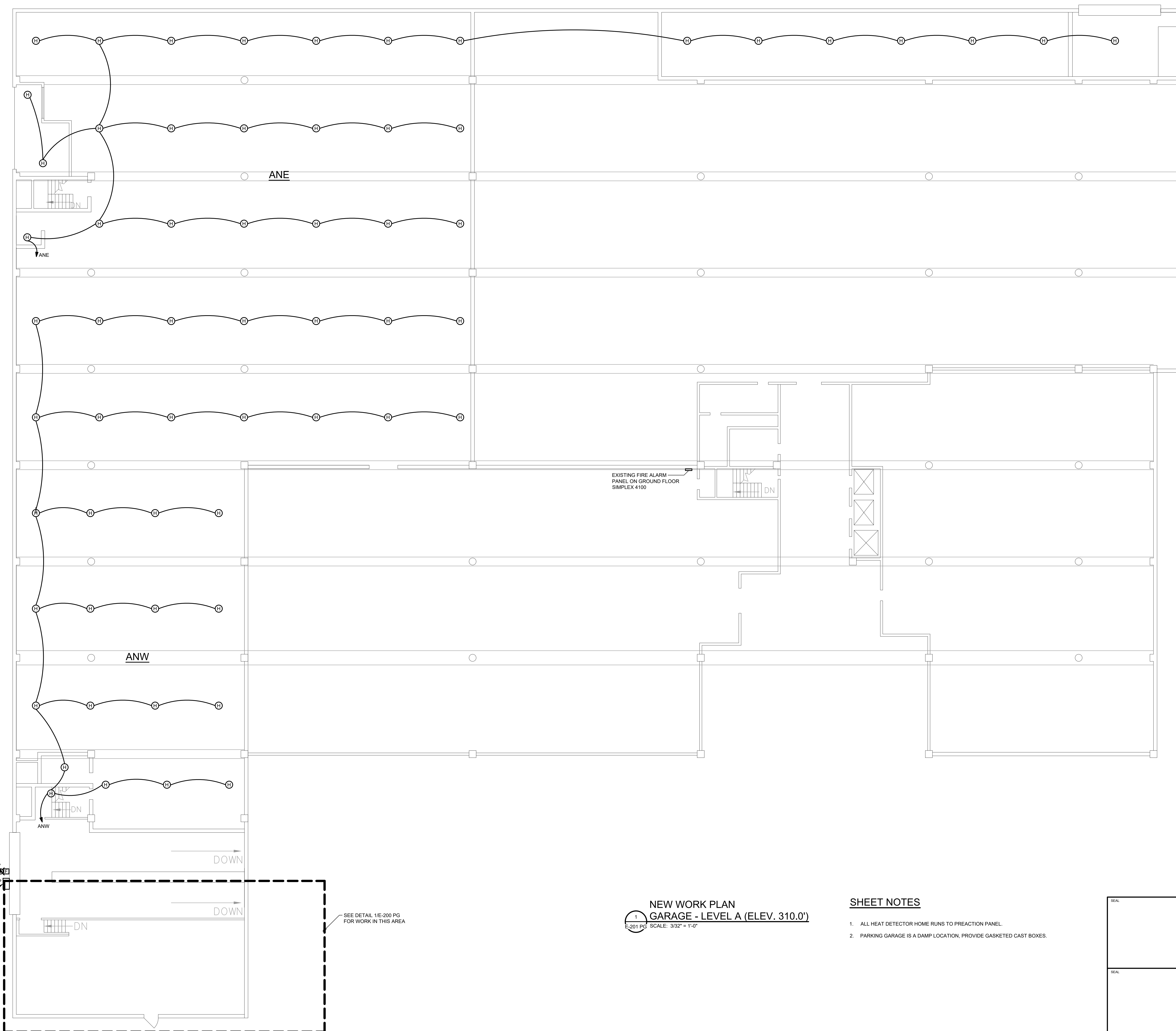
6 NEW WORK PLAN
GARAGE MECHANICAL ROOM - LEVEL C (ELEV. 290.0')
E-200 PG SCALE: 1/8" = 1'-0"

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SHEET TITLE	ELECTRICAL REMOVAL & NEW WORK PLAN PARKING GARAGE - SINGLE LINE DIAGRAM, ELECTRICAL RM, FIRE PUMP RM, & MECH RM		
	PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS		
DRAWN BY	DATE	JOB NO.	SHEET
CHECKED BY	SCALE	AS NOTED	CORR. NO.





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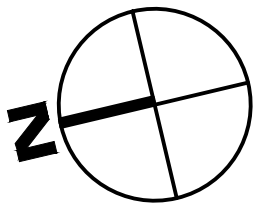


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215-238-9510 609-347-1593 302-654-6959
shen@CSE-VALLEYFORGE.COM www.cse-engineers.com

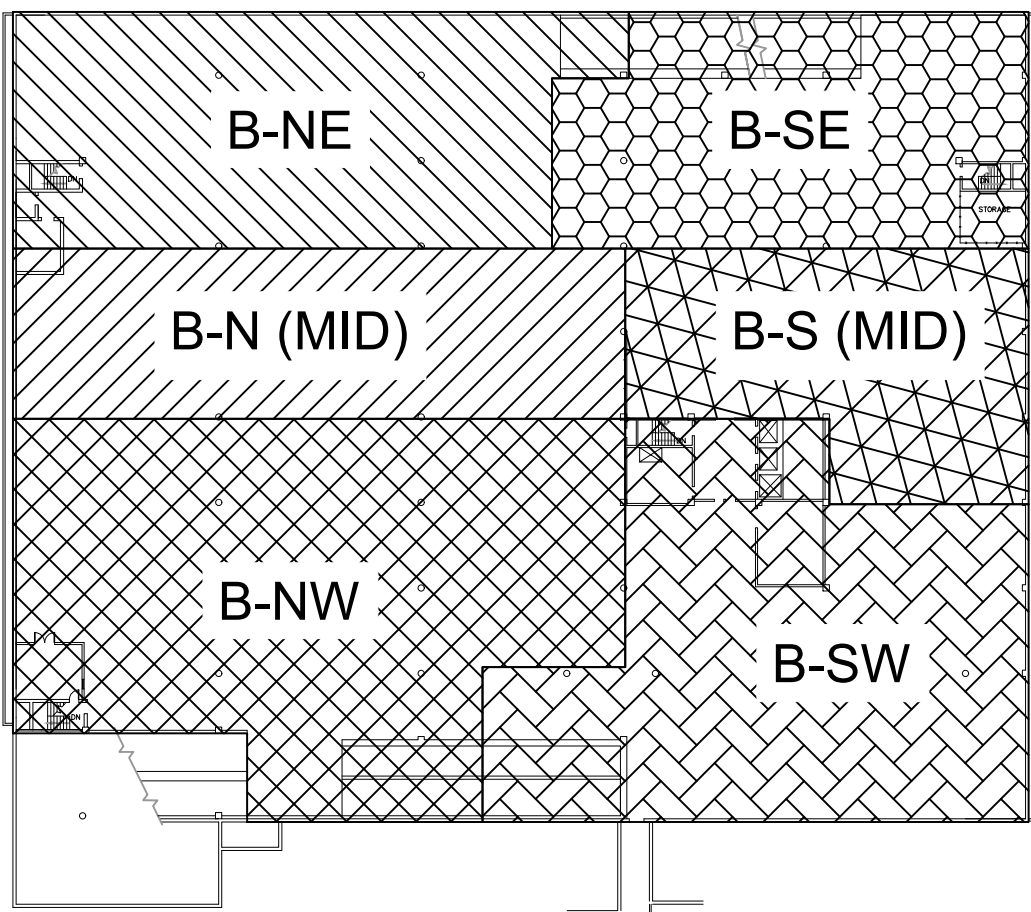
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CHECKED BY ROB		SCALE AS NOTED	COMM. NO.	

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 PLOTTED BY: IEB
 PLOTTED: 2022.10.28 12:20 PM



SHEET NOTES

1. ALL HEAT DETECTOR HOME RUNS TO PREACTION PANEL.
2. PARKING GARAGE IS A DAMP LOCATION, PROVIDE GASKETED CAST BOXES.



GARAGE - LEVEL B
ZONE KEYPLAN

REV	DATE	DESCRIPTION	APP

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ELECTRICAL NEW WORK PLAN
PARKING GARAGE - LEVEL B

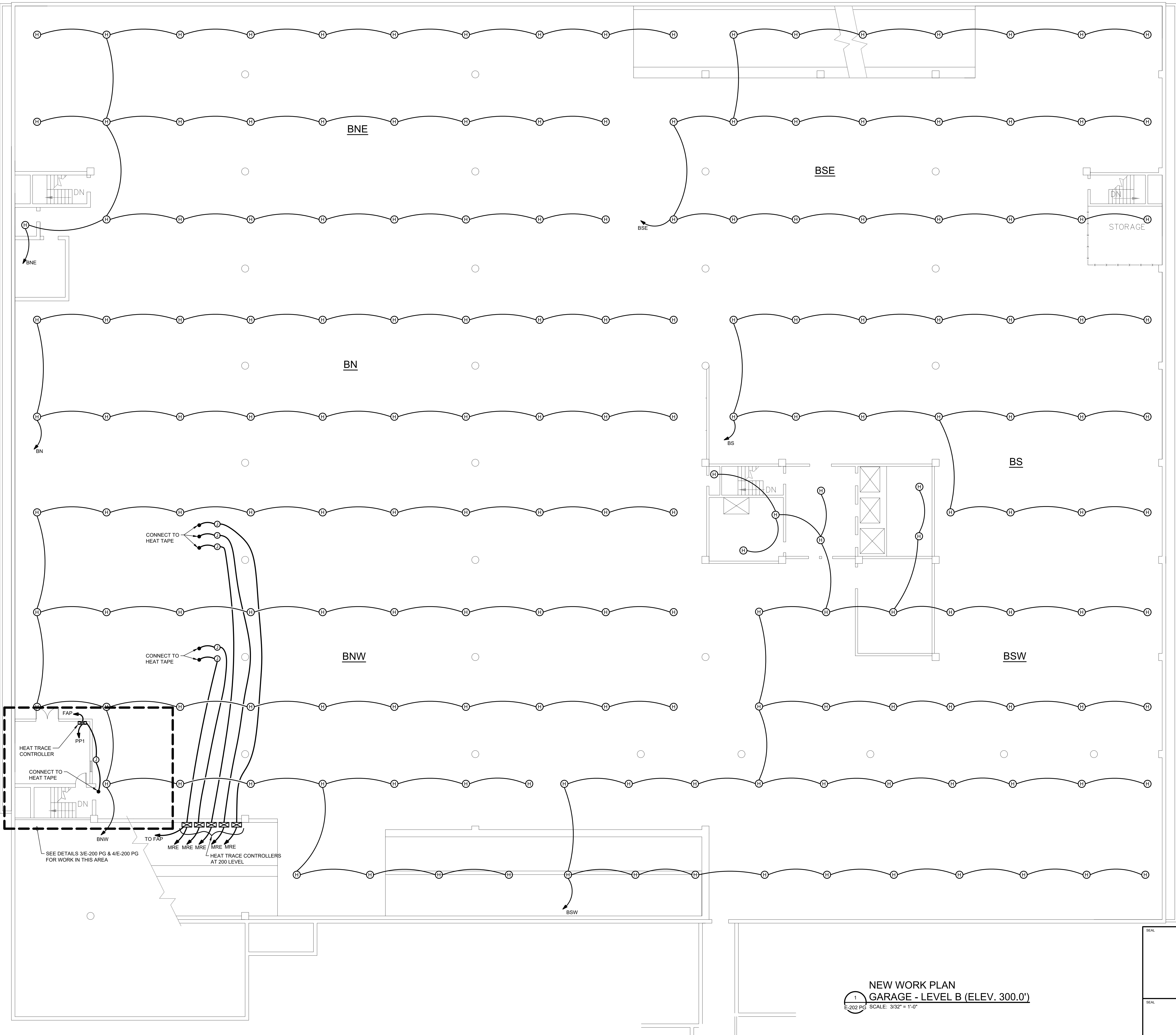
PROJECT DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS

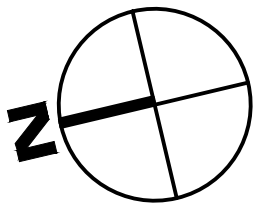


Gillan & Hartmann, Inc.
MECHANICAL AND ELECTRICAL ENGINEERS
VALLEY FORGE, PA 19415
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215-238-9510 609-347-1593 302-654-0909
gillan@GILLAN-HARTMANN.COM www.gillan-hartmann.com

DRAWN BY JTM	DATE 10/28/2022	JOB NO. 2020-183	SHEET E-202 PG
CHECKED BY ROB	SCALE AS NOTED	COMB. NO.	

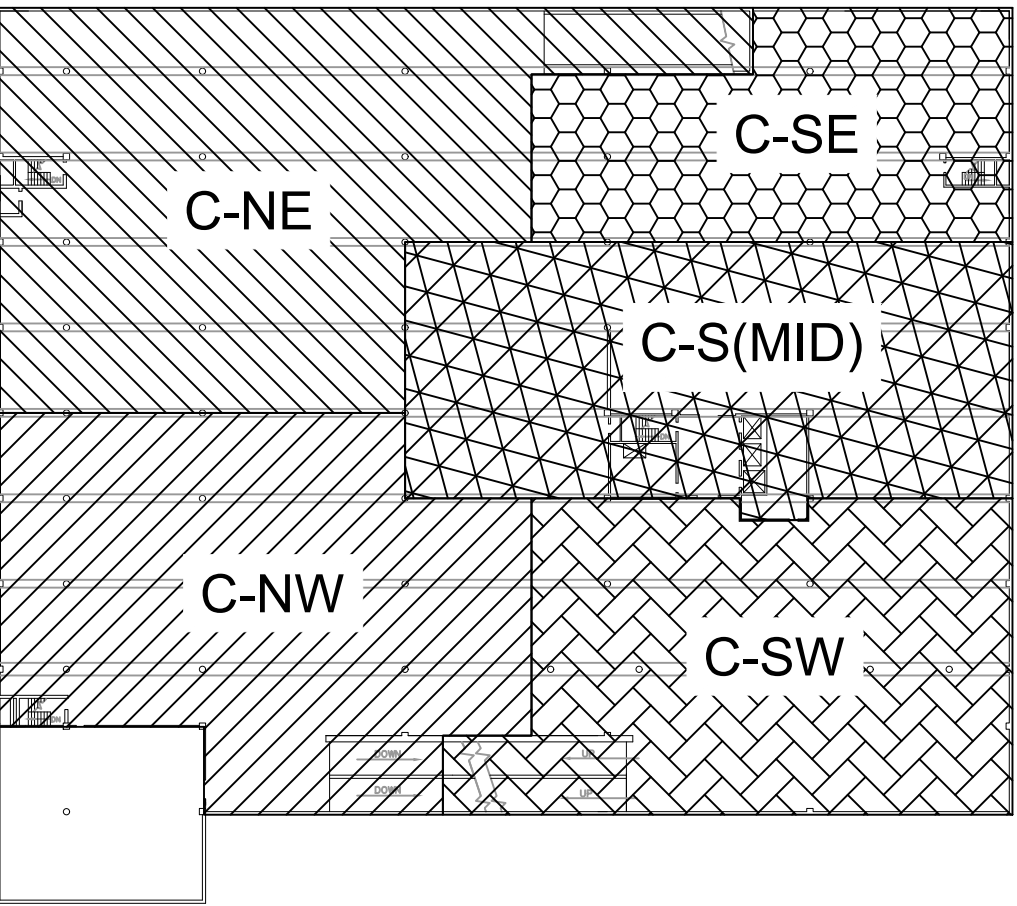
NEW WORK PLAN
GARAGE - LEVEL B (ELEV. 300.0')
E-202 PG SCALE: 3/32" = 1'-0"





SHEET NOTES

1. ALL HEAT DETECTOR HOME RUNS TO PREACTION PANEL.
2. PARKING GARAGE IS A DAMP LOCATION, PROVIDE GASKETED CAST BOXES.

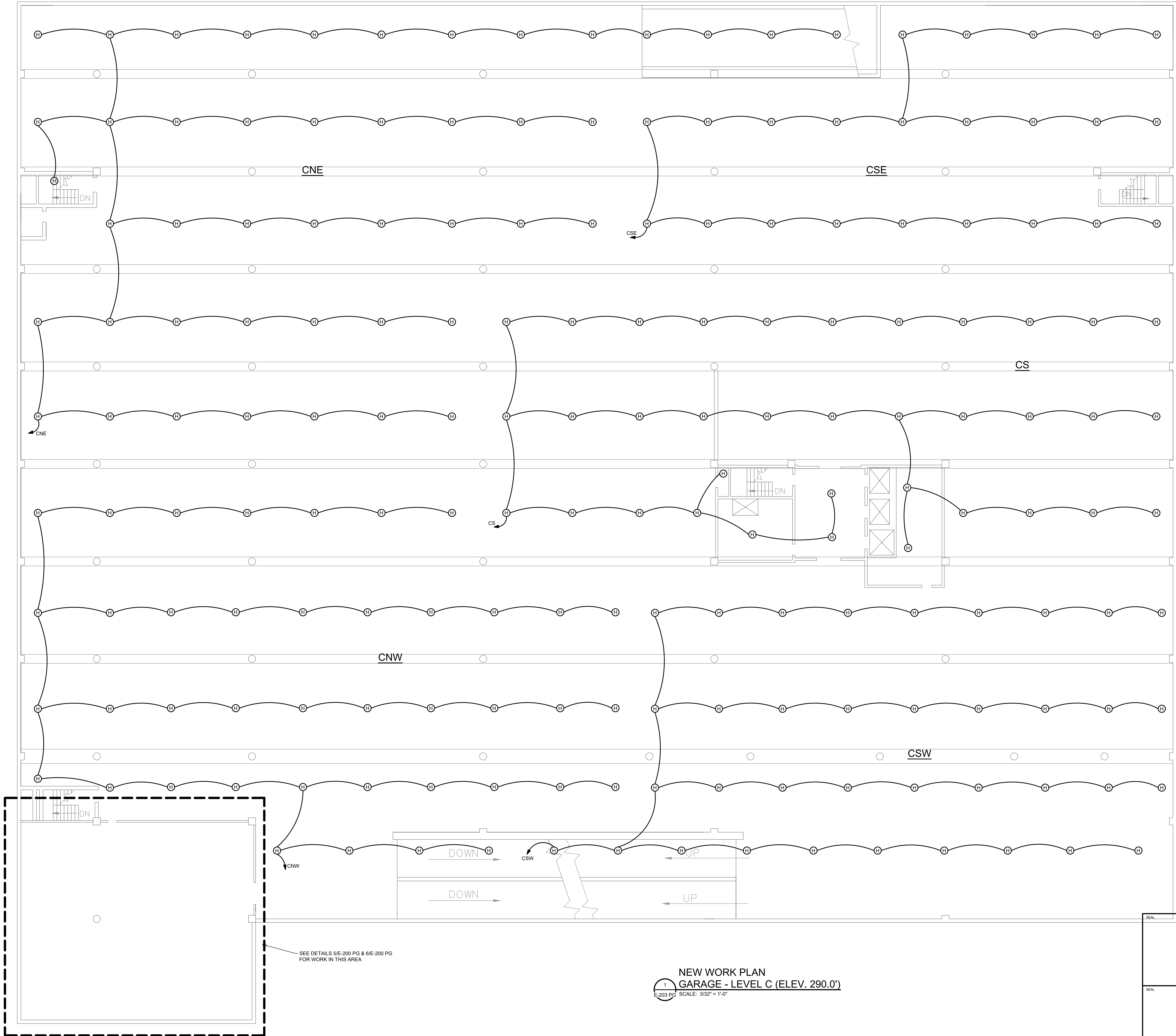


GARAGE - LEVEL C
ZONE KEYPLAN

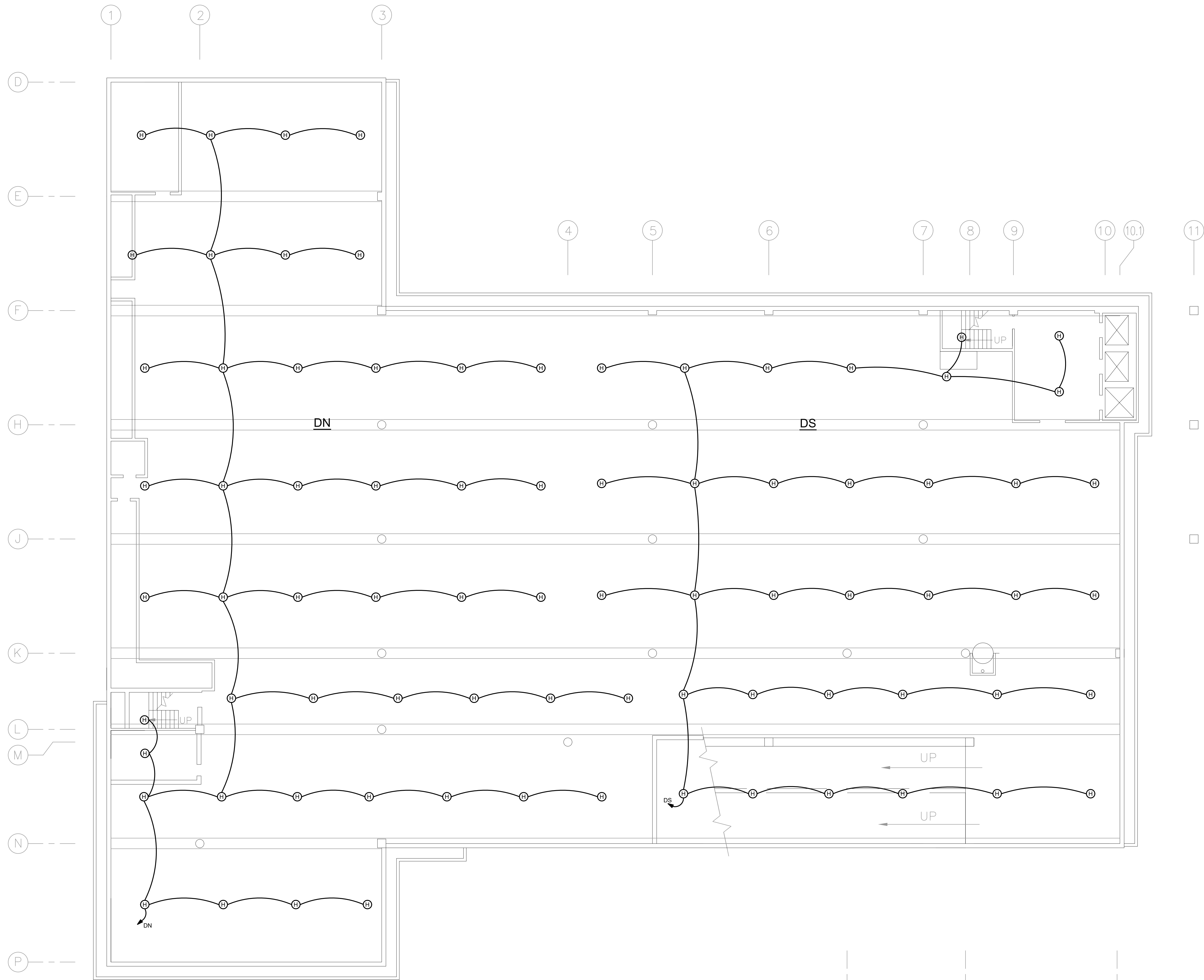
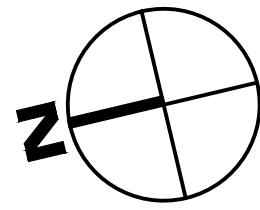
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SHEET TITLE ELECTRICAL NEW WORK PLAN PARKING GARAGE - LEVEL C			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19481 610-935-0101 FAX: 610-935-7520 215-238-0510 609-347-1593 302-654-0909 gillan@GILLAN-HARTMANN.COM gph@gphartmann.com			
DRAWN BY JTM	DATE 10/28/2022	JOB NO. 2020-183	SHEET E-203 PG
CHECKED BY ROB	SCALE AS NOTED	CONTRACT NO.	

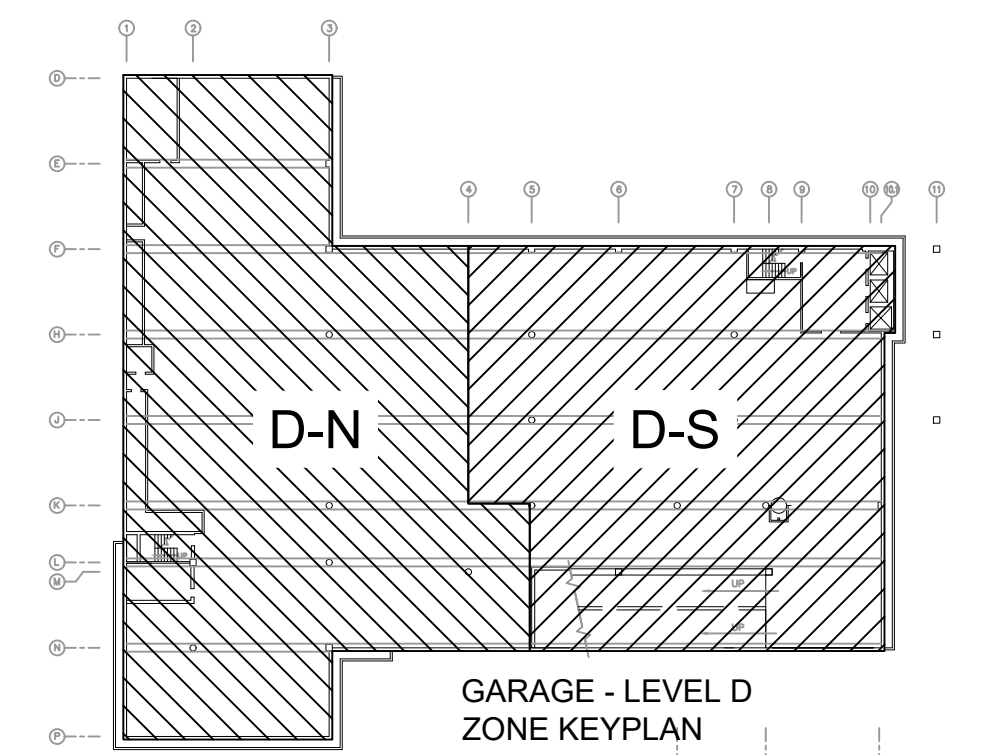


NEW WORK PLAN
GARAGE - LEVEL C (ELEV. 290.0')
E-203 PG SCALE: 3/32" = 1'-0"



SHEET NOTES

1. ALL HEAT DETECTOR HOME RUNS TO PREACTION PANEL.
2. PARKING GARAGE IS A DAMP LOCATION, PROVIDE GASKETED CAST BOXES.

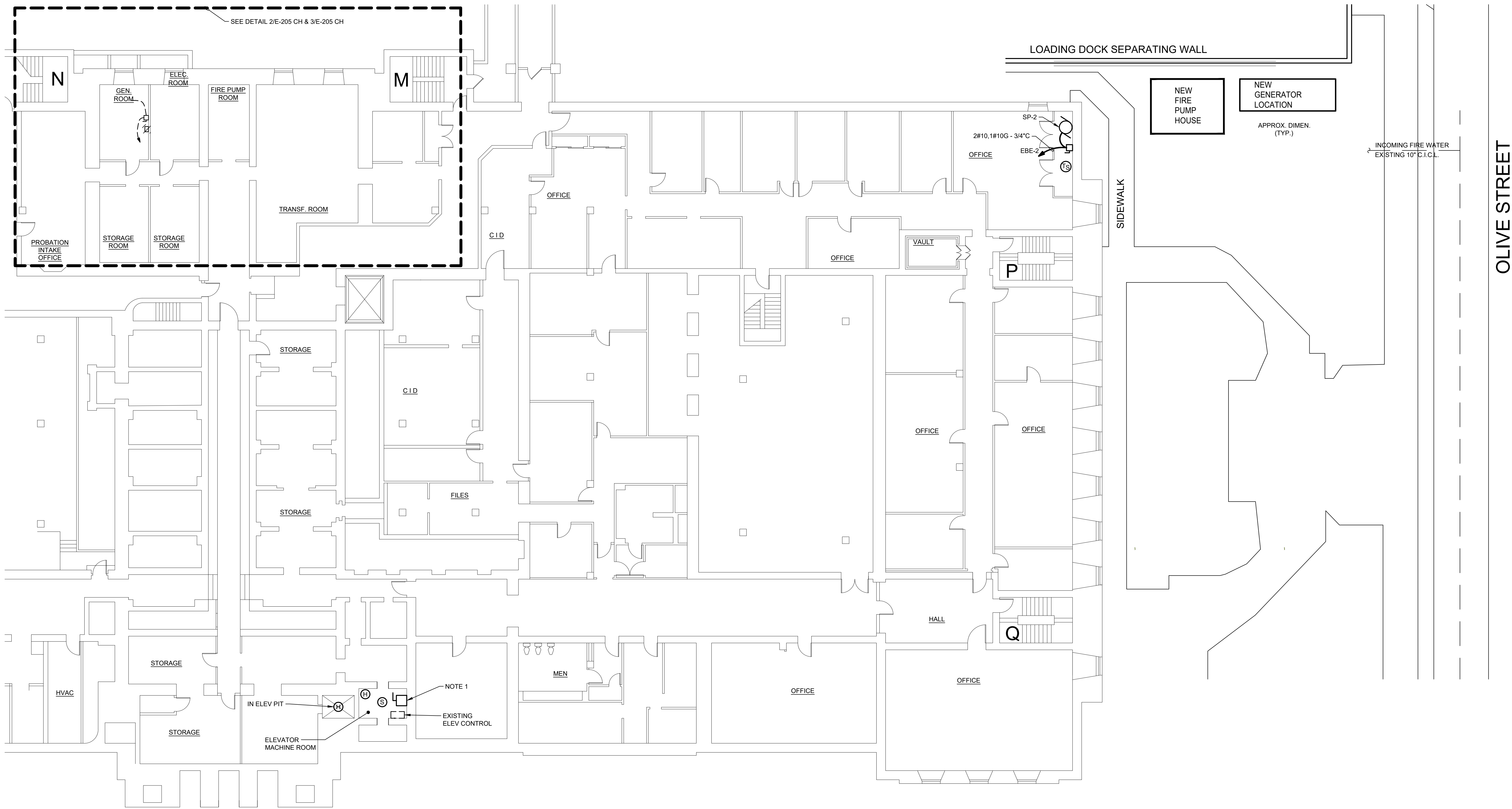


NEW WORK PLAN
GARAGE - LEVEL D (ELEV. 280.0')
E-204 PG SCALE: 3/32" = 1'-0"

REV	DATE	DESCRIPTION	APP

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SEAL	SHEET TITLE ELECTRICAL NEW WORK PLAN PARKING GARAGE - LEVEL D			
	PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
SEAL	 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19481 610-935-0101 FAX: 610-935-7520 215-238-0510 609-347-1593 302-654-0909 gillan@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
	DRAWN BY JTM	DATE 10/28/2022	JOB NO. 2020-183	SHEET E-204 PG
CHECKED BY ROB		SCALE AS NOTED	CORRE NO.	



1
E-205 CH SCALE: 3/32" = 1'-0"

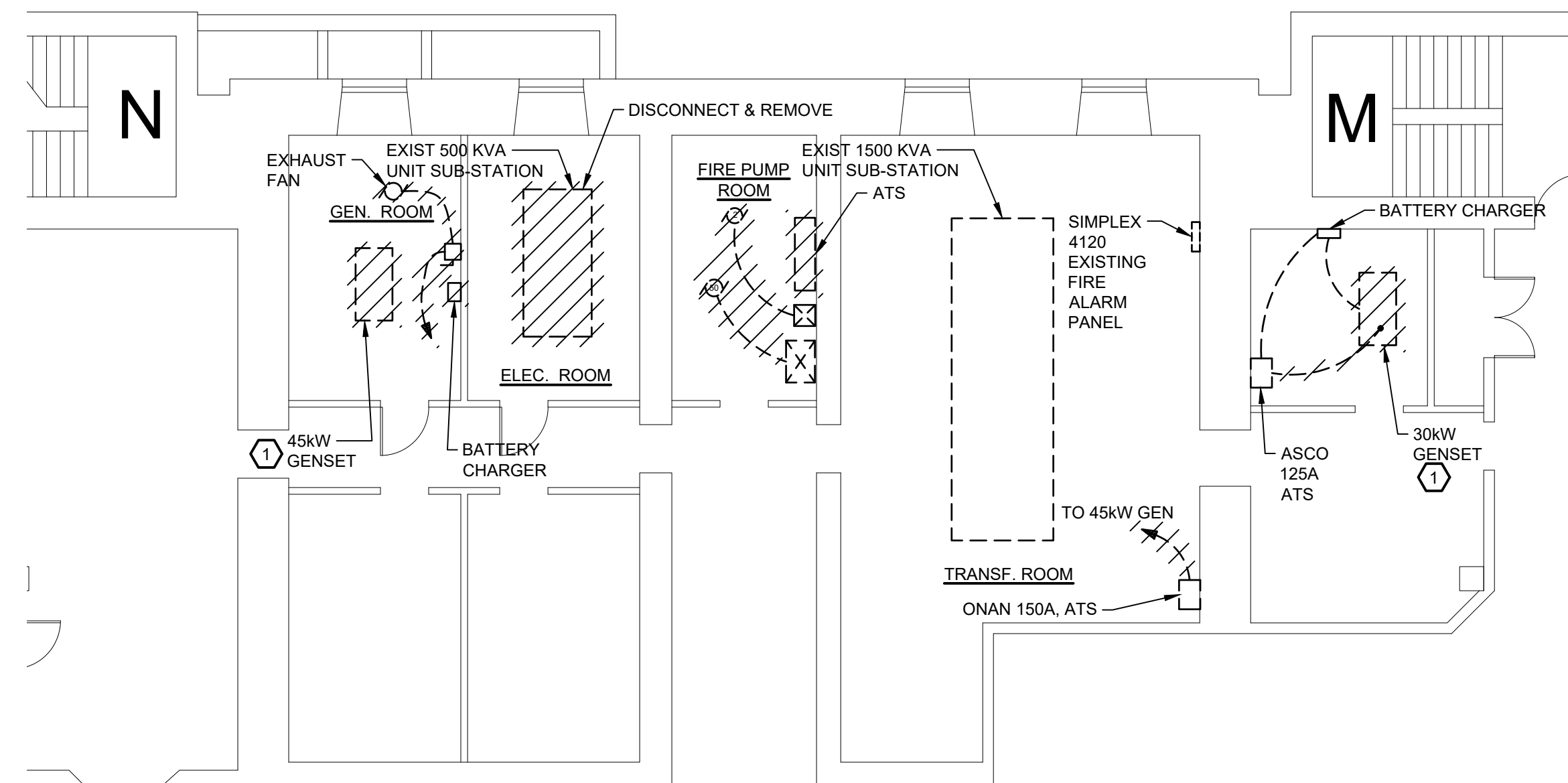
DELAWARE COUNTY COURTHOUSE
BASEMENT ELECTRICAL PLAN

REMOVAL NOTES

1. DISCONNECT AND REMOVE GENERATOR BATTERY CHARGER AND ASSOCIATED WIRING INCLUDING EXHAUST PIPE & MUFFLER.

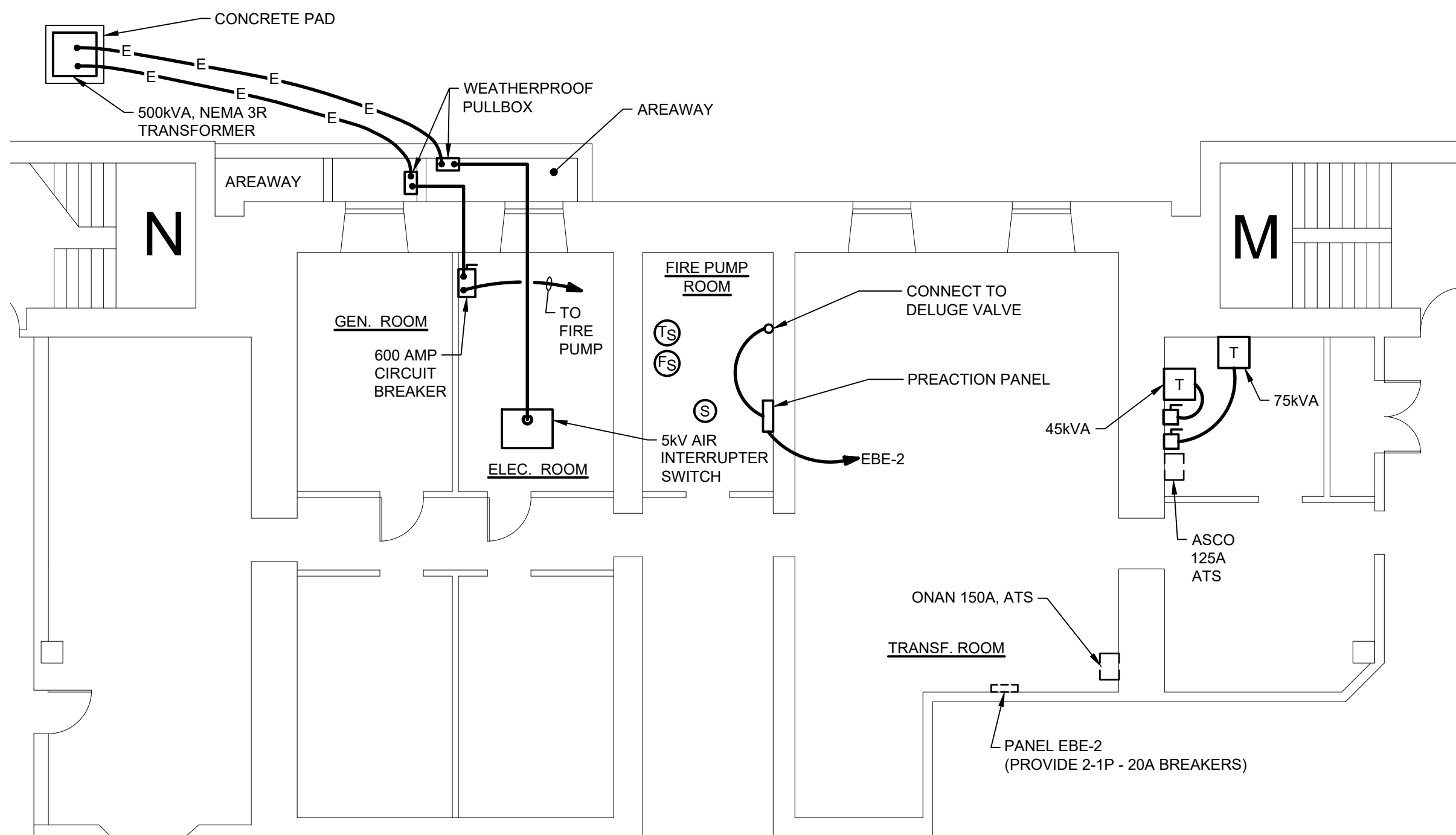
SHEET NOTES:

1. INTERCEPT EXIST FEED TO ELEV. PROVIDE 3P-100A BKR WITH SHUNT TRAP AND RECONNECT FEED TO ELEVATOR.



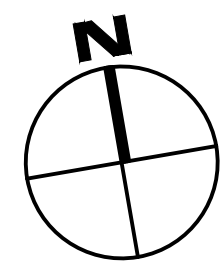
2
E-205 CH SCALE: 1/8" = 1'-0"

FIRE PUMP ROOM
ENLARGED PLAN - DEMOLITION



3
E-205 CH SCALE: 1/8" = 1'-0"

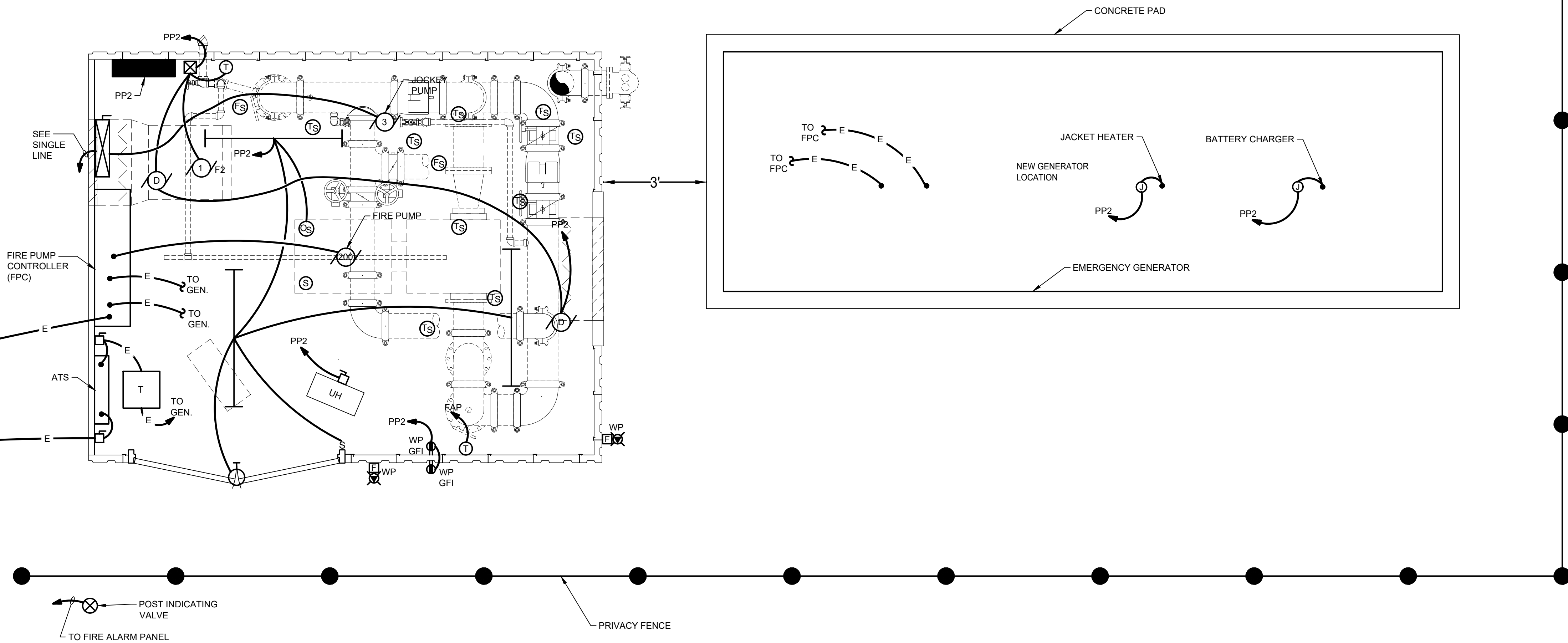
FIRE PUMP ROOM
ENLARGED PLAN - NEW WORK



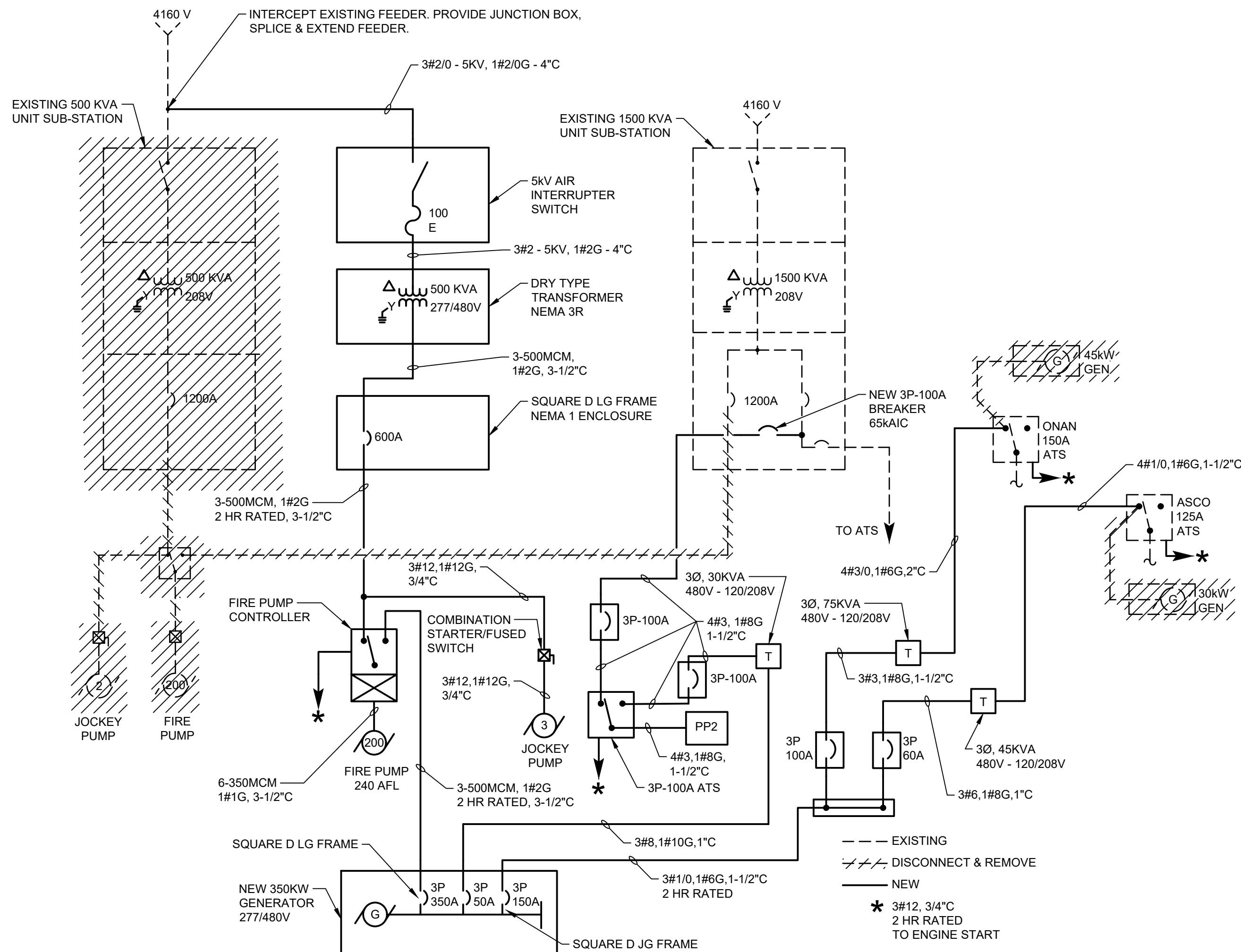
REV	DATE	DESCRIPTION	APP

SHEET TITLE ELECTRICAL REMOVAL & NEW WORK PLAN COURTHOUSE - BASEMENT			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY Forge, PA 19415 610-935-0101 FAX: 610-935-7520 215-238-0510 609-347-1593 302-654-0909 gillan@GILLANHARTMANN.COM www.gillanhartmann.com			
DRAWN BY JTM	DATE 10/28/2022	JOB NO. 2020-183	SHEET E-205 CH
CHECKED BY ROB	SCALE AS NOTED	COMB. NO.	

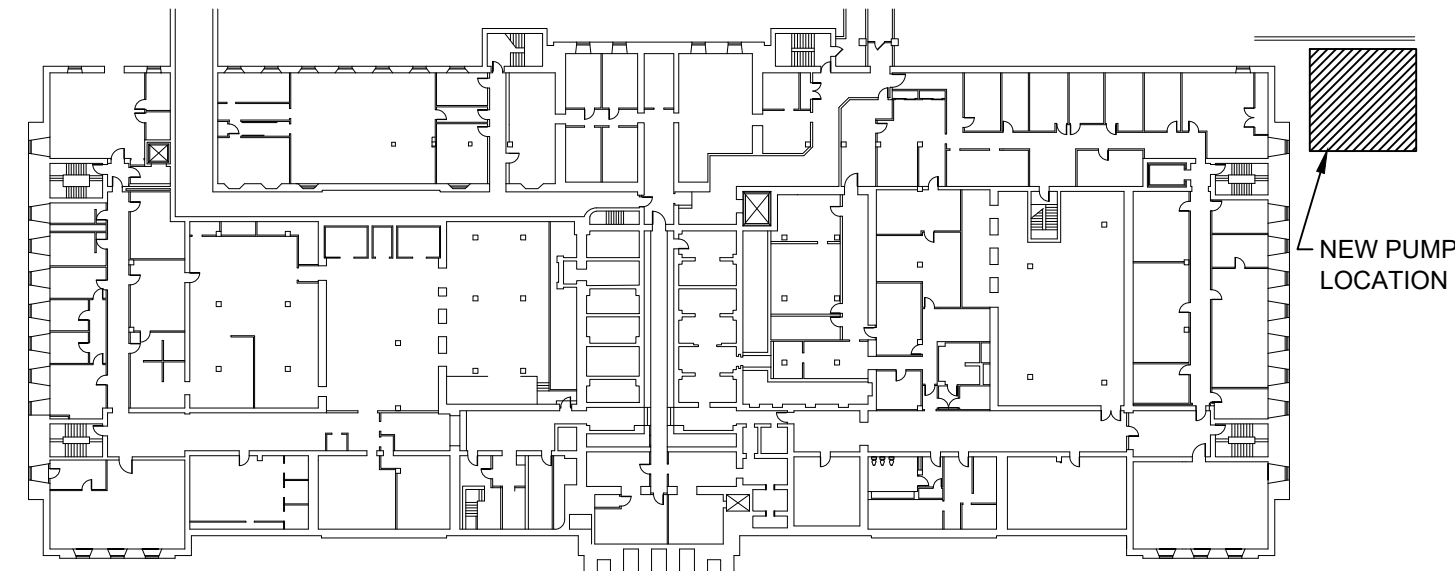
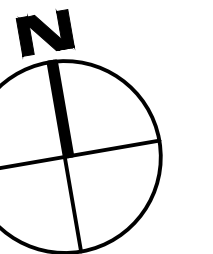
LOADING DOCK SEPARATING WALL




1 PLAN - NEW GENERATOR LOCATION
E-206 CH SCALE: 1/2" = 1'-0"



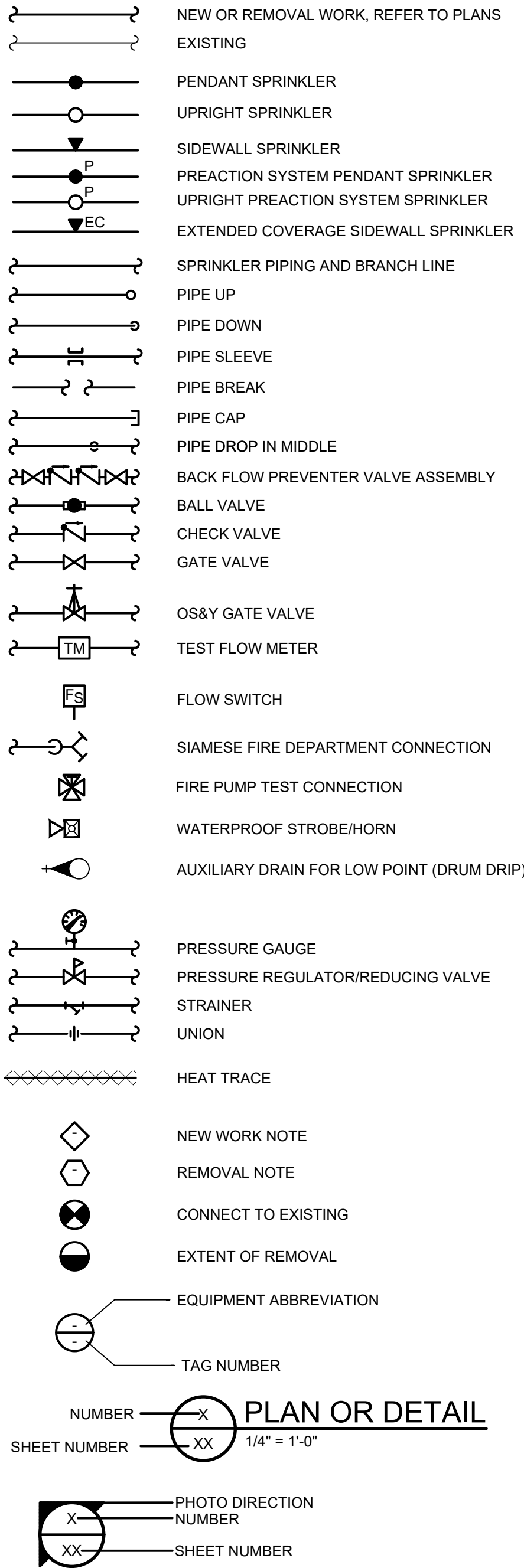
2 COURTHOUSE POWER SINGLE LINE DIAGRAM
E-206 CH NO SCALE



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SHEET TITLE ELECTRICAL NEW COURTHOUSE FIRE PUMP HOUSE & EMERGENCY GENERATOR PLAN & SINGLE LINE DIAGRAM			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 17881 610-935-0101 FAX: 610-935-7520 215-238-9510 609-347-1593 302-654-0909 gillan@GILLANHARTMANN.COM www.gillanhartmann.com			
DRAWN BY JTM	DATE 10/28/2022	JOB NO. 2020-183	SHEET E-206 CH
CHECKED BY ROB	SCALE AS NOTED	DATE 2020-183	COMB. NO.

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LAST SAVED: 2022.10.28 09:15 AM PLOTTED: 2022.10.28 12:29 PM

FIRE PROTECTION LEGEND



FIRE PROTECTION ABBREVIATIONS

ABV.	ABOVE
AC	AIR COMPRESSOR
A.F.F.	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
BFP	BACK FLOW PREVENTER
BLW.	BELOW
CH	COURTHOUSE
C.I.C.L.	CAST IRON CEMENT LINED
CONT.	CONTINUATION
CW	DOMESTIC COLD WATER
DIA.	DIAMETER
DN.	DOWN
(E)	EXISTING
E.C.	ELECTRICAL CONTRACTOR
EL.	ELEVATION
ENT.	ENTERING
FDC	FIRE DEPARTMENT CONNECTION
FP	FIRE PROTECTION
FF.	FINISHED FLOOR
FS	FLOW SWITCH
G.C.	GENERAL CONTRACTOR
HT	HEAT TRACE
HC	HOSE CABINET
IN.	INCH
INV.	INVERT
LVG.	LEAVING
MAX	MAXIMUM
M.C.	MECHANICAL CONTRACTOR
MECH.	MECHANICAL
MIN.	MINIMUM
N.C.	NORMALLY CLOSED
N.I.C.	NOT IN CONTRACT
N.O.	NORMALLY OPEN
OS&Y	OUTSIDE SCREW & YOKE VALVE
P.C.	PLUMBING CONTRACTOR
PG	PARKING GARAGE
PIV	POSITION INDICATING VALVE
PRESS.	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
(R)	REMOVE
REF.	REFERENCE
SF	SQUARE FEET
SP	SPRINKLER PIPING
STP	STANDPIPE PIPING
TEMP.	TEMPERATURE
TS	TAMPER SWITCH
TYP.	TYPICAL
W/	WITH
W.C.	WATER COLUMN

REMOVAL NOTES:

- REMOVE EXISTING ELECTRIC FIRE PUMP AND JOCKEY PUMP IN THEIR ENTIRETY AND ALL ASSOCIATED APPURTENANCES.
- REMOVE EXISTING FIRE PUMP CONCRETE PAD.
- REMOVE EXISTING FIRE PROTECTION SUPPLY HEADER AND ALL ASSOCIATED HANGERS, SUPPORTS AND APPURTENANCES.
- REMOVE EXISTING AUTOMATIC DRY PIPE SYSTEM VALVES IN THEIR ENTIRETY. TYPICAL FOR ALL DRY PIPE SYSTEM ZONES.
- REMOVE EXISTING DELUGE SYSTEM VALVES IN THEIR ENTIRETY. TYPICAL FOR ALL DRY PIPE SYSTEM ZONES.
- REMOVE EXISTING FIRE PUMP TEST CONNECTION AND ALL ASSOCIATED PIPING IN ITS ENTIRETY AND ALL ASSOCIATED HANGERS, SUPPORTS AND APPURTENANCES. FILL AND PATCH EXISTING WALL PENETRATION MATCHING EXISTING FINISHES AND CONSTRUCTION.
- REMOVE EXISTING FIRE PROTECTION WATER SERVICE PIPING BACK TO POINT INDICATED ALONG WITH ALL ASSOCIATED SUPPORTS, HANGERS, VALVES AND APPURTENANCES.
- REMOVE EXISTING DOMESTIC WATER PIPING TO POINTS INDICATED TO SEPERATE COMBINED SERVICE. CAP DOMESTIC WATER BRANCH TAKE-OFF. COORDINATE WITH P.C. EXISTING DOMESTIC WATER PIPING. EXISTING DOMESTIC WATER PIPING AND ASSOCIATED BACKFLOW PREVENTER AND VALVES TO REMAIN.
- REMOVE EXISTING AIR COMPRESSOR, CONCRETE PAD AND ALL ASSOCIATED PIPING, VALVES AND FITTINGS.
- REMOVE EXISTING WET FIRE PROTECTION PIPING SUPPLYING THE MULTI-STORY OFFICE SPRINKLER SYSTEMS AND WET STANDPIPES BACK TO POINTS INDICATED.
- REMOVE EXISTING DELUGE SPRINKLER PIPING AND ALL ASSOCIATED HANGERS, SUPPORTS, VALVES, SPRINKLER HEADS, DRAINS AND APPURTENANCES.
- REMOVE EXISTING DRY PIPE SPRINKLER PIPING AND ALL ASSOCIATED HANGERS, SUPPORTS, VALVES, CHECK VALES, SPRINKLER HEADS, DRAINS AND APPURTENANCES. PATCH EXISTING WALL/FLOOR OPENINGS TO MATCH EXISTING CONSTRUCTION AND FINISHES.
- EXISTING MANUAL DRY PIPE STANDPIPE SYSTEM AND ALL ASSOCIATED PIPING SHALL REMAIN AND BE RETAINED FOR REUSE. TEST THE MANUAL DRY PIPE SYSTEM IN ACCORDANCE WITH NFPA 25 PRIOR TO THE START OF CONSTRUCTION AND PROVIDE A REPORT FOR THE OWNERS AND ENGINEERS REVIEW AND RECORDS PRIOR TO THE START OF CONSTRUCTION.
- REMOVE WET FDC SYSTEM PIPING BACK TO POINT INDICATED.
- REMOVE EXISTING DELUGE VALVE, ASSOCIATED APPURTENANCES AND ASSOCIATED PIPING.
- REMOVE EXISTING WET SPRINKLER SYSTEM SUPPLYING CONDITIONED SPACES ALONG WITH ALL ASSOCIATED VALVES, HANGERS AND SUPPORTS TO POINTS INDICATED.
- REMOVE EXISTING WET SPRINKLER SYSTEM SUPPLYING LEVEL D AREA IN IT ENTIRETY ALONG WITH ALL ASSOCIATED VALVES, HANGERS AND SUPPORTS.
- REMOVE ALL EXISTING SPRINKLER PIPING, HEADS, HANGERS, SUPPORTS, CHECK VALVES, AND ASSOCIATED APPURTENANCES ON EACH LEVEL OF THE PARKING GARAGE.
- REMOVE EXISTING SPRINKLER MAIN AND ALL ASSOCIATED HANGERS AND SUPPORTS THROUGH THE OCCUPIED OFFICE AREA.
- REMOVE ABANDONED SPRINKLER PIPING IN ITS ENTIRETY ALONG WITH ALL ASSOCIATED HANGERS AND SUPPORTS.
- REMOVE ABANDONED SECTIONS OF DUCTWORK IN ITS ENTIRETY IN THIS AREA.
- REMOVE EXISTING WET STANDPIPE SYSTEM PIPING ALONG WITH ALL ASSOCIATED HANGERS AND SUPPORTS BACK TO POINTS INDICATED.
- REMOVE AND CAP EXISTING SPRINKLER RISER UPSTREAM OF PIV AND SCHEDULE AND COORDINATE SERVICE DISCONNECT FOR THIS LOCATION. PATCH OPENING TO MATCH EXISTING CONSTRUCTION AND FINISHES.
- REMOVE AND CAP SPRINKLER RISER AT THE FDC PIPING. FDC TO REMAIN AND REMAIN AN ACTIVE CONNECTION FOR FIRE DEPARTMENT USE.
- REMOVE EXISTING SECTION OF SPRINKLER PIPING AS NECESSARY TO FACILITATE NEW 4" TEE CONNECTION.
- REMOVE EXISTING SPRINKLER HEAD LOCATED ABOVE THE CEILING AND ASSOCIATED PIPING TO FACILITATE NEW HEADS IN THE CEILING.
- REMOVE ALL DRIP PANS ASSOCIATED WITH REMOVED PIPING IN THE EMERGENCY GENERATOR ROOMS, ELECTRICAL ROOM AND TRANSFORMER ROOM.

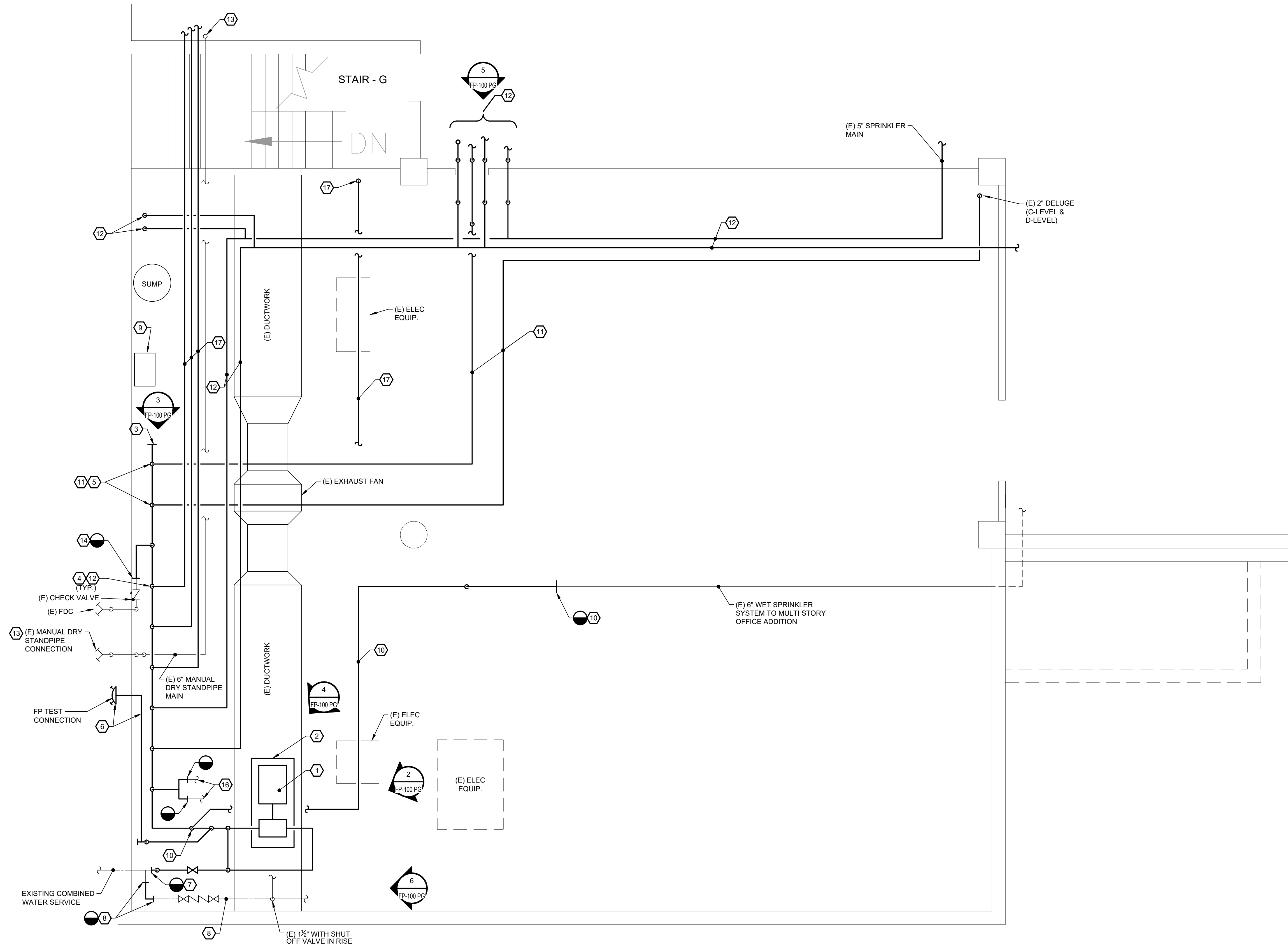
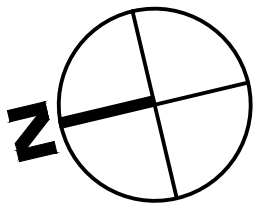
GENERAL NOTES:

- COORDINATE LOCATION OF ALL MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, COUNTY FURNISHED, AND G.C. EQUIPMENT WITH THE RESPECTIVE TRADE CONTRACTORS.
- SPRINKLER PIPING LAYOUTS (WHERE INDICATED) ARE SCHEMATIC IN NATURE. PROVIDE OFFSETS AND DRAINS AS NECESSARY TO FACILITATE DROPS/RISERS THROUGH FLOOR/CEILING SYSTEMS WITH STRUCTURAL COMPONENTS AND AROUND STRUCTURAL COMPONENTS.
- PROVIDE PIPE SLEEVES AND LINK-SEAL OR EQUIVALENT SYSTEM FOR ALL PENETRATIONS THROUGH FLOOR SYSTEM TO BELOW GRADE, THROUGH FOUNDATION WALLS AND/OR ANY PENETRATIONS WHICH WOULD POTENTIALLY ALLOW FOR GROUND WATER SEEPAGE.
- COORDINATE THE INSTALLATION OF ALL PIPING WITH ALL TRADES. INSTALL AND ROUTE PIPE AS CLOSE TO THE UNDERSIDE OF THE STRUCTURE AS POSSIBLE.
- PROVIDE FIRE PROOFING AND LIFE SAFETY DEVICES AT WALL PENETRATIONS.
- PERFORM ALL CUTTING AND PATCHING NECESSARY TO PERFORM WORK. MATCH EXISTING MATERIALS, FINISHES, FIRE RATINGS, PAINT COLORS, ETC. IN ALL AREAS OF PATCHING.
- GENERAL NOTES APPLY TO ALL FIRE PROTECTION DRAWINGS.
- COORDINATE AND FIELD VERIFY ALL DIMENSIONS, SIZES, CLEARANCES, AND LOCATIONS PRIOR TO THE START OF CONSTRUCTION. WHEN CONFLICT ARISES, MAKE ANY NECESSARY CHANGES TO ROUTING OF PIPING WITHOUT COMPROMISING THE INTEGRITY AND PERFORMANCE OF THE SYSTEM, AND AT NO ADDITIONAL COST.
- COORDINATE CONSTRUCTION OF ALL FIRE PROTECTION WORK WITH ALL TRADES.
- IDENTIFICATION LABELS TO BE USED/MADE FOR ALL SYSTEMS MUST USE THE COUNTY'S ROOM NUMBERS AND ROOM NAMES, NOT THE NUMBERS OR NAMES ON THE CONSTRUCTION DOCUMENTS. MEET WITH THE COUNTY TO REVIEW AND CONFIRM ROOM NUMBERS AND NAMES PRIOR TO LABELING SYSTEMS.
- ALL PIPING TO BE CONCEALED UNLESS OTHERWISE INDICATED.
- PROVIDE ALL NECESSARY HANGERS AND/OR SUPPORTS TO FACILITATE INSTALLATION OF ALL PIPING, EQUIPMENT, ETC.
- COORDINATE ALL VALVE ACCESS DOORS & PANELS WITH ALL TRADES.
- PROVIDE HANGERS AND SUPPORTS PER THE SPECIFICATIONS FOR ALL PIPING AND FIRE PROTECTION EQUIPMENT TO FACILITATE INSTALLATION OF THE WORK.
- SCHEDULE AND OBTAIN APPROVAL FOR ALL SYSTEM SHUTDOWNS WITH THE INSTITUTION PRIOR TO COMMENCING WITH REMOVAL AND NEW WORK.
- COORDINATE REQUIREMENTS FOR LOSS OF PHASE PROTECTION ON ALL THREE PHASE MOTORS SERVING EQUIPMENT ON THIS CONTRACT.
- INSTALL ALL EQUIPMENT TO MAINTAIN ADEQUATE CLEARANCES PER CODE AND MANUFACTURER'S REQUIREMENTS. PROVIDE OFFSETS AS NECESSARY TO FACILITATE.
- FIRE PROTECTION REMOVAL WORK IN THE BUILDING SHALL BE THE RESPONSIBILITY OF THE FIRE PROTECTION CONTRACTOR INCLUDING FIRE PROTECTION EQUIPMENT, SYSTEMS, APPARATUS, AND ACCESSORIES.
- THE DRAWINGS SHOW A GENERAL REPRESENTATION OF QUANTITIES AND LOCATIONS OF EXISTING MECHANICAL AND ELECTRICAL COMPONENTS AND SYSTEMS, AND ARE NOT ALL INCLUSIVE. IT IS THE FIRE PROTECTION CONTRACTOR'S RESPONSIBILITY TO PROVIDE REMOVAL OF THE FIRE PROTECTION BUILDING SYSTEMS TO FULFILL THE INTENT OF THE DESIGN INDICATED BY THE CONTRACT DOCUMENTS, UNLESS OTHERWISE NOTED. REMOVAL WORK IS TO INCLUDE, BUT NOT LIMITED TO REMOVAL OF EQUIPMENT, APPARATUS, SYSTEM ACCESSORIES, PIPING, INSULATION, VALVES, DROPS, RISERS, AUXILIARY SYSTEMS/PIPING/CONTROLS, VALVES, PIPING ACCESSORIES, CONTROLS, CONTROL WIRING/TUBING, CONDUITS, BASES, SUPPORTS, HANGERS AND SYSTEM APPURTENANCES.
- PROVIDE BOLLARDS AS INDICATED ON THE FIRE PROTECTION DRAWINGS. PAINT BOLLARDS YELLOW. REFER TO S-SERIES DRAWINGS FOR DETAIL.
- PROVIDE GROUND PENETRATING RADAR (GPR) FOR CUTTING/PATCHING ASSOCIATED WITH PENETRATIONS IN ACCORDANCE WITH STRUCTURAL DRAWING.

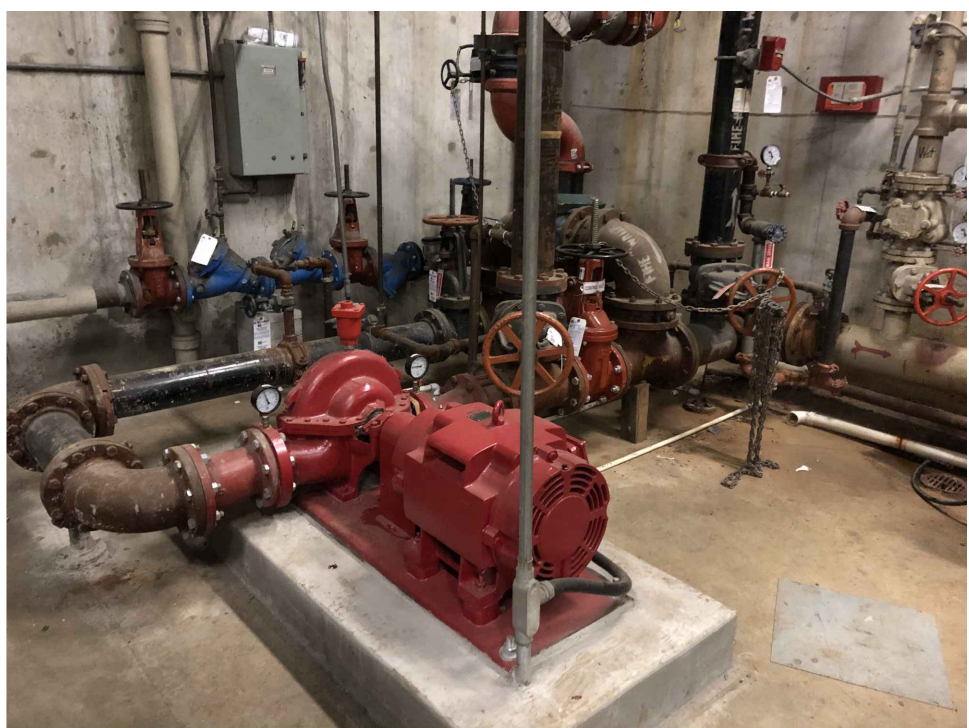
REV	DATE	DESCRIPTION	APP

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SHEET TITLE			
FIRE PROTECTION LEGEND, NOTES, AND ABBREVIATIONS			
PROJECT			
DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 17881 610-655-0101 FAX: 610-655-7520 215-238-0510 609-347-1593 302-654-0909 gpm@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
DRAWN BY	DATE	JOB NO.	SHEET
DTS	10/28/2022	2020-183	FP-001
CHECKED BY	SCALE	COMM. NO.	
RAS	AS NOTED		



REMOVAL PLAN
1 GARAGE MECHANICAL ROOM - LEVEL C
FP-100 PG SCALE: 1/4" = 1'-0"



2 PHOTOGRAPH
PARKING GARAGE
FP-100 PG NO SCALE



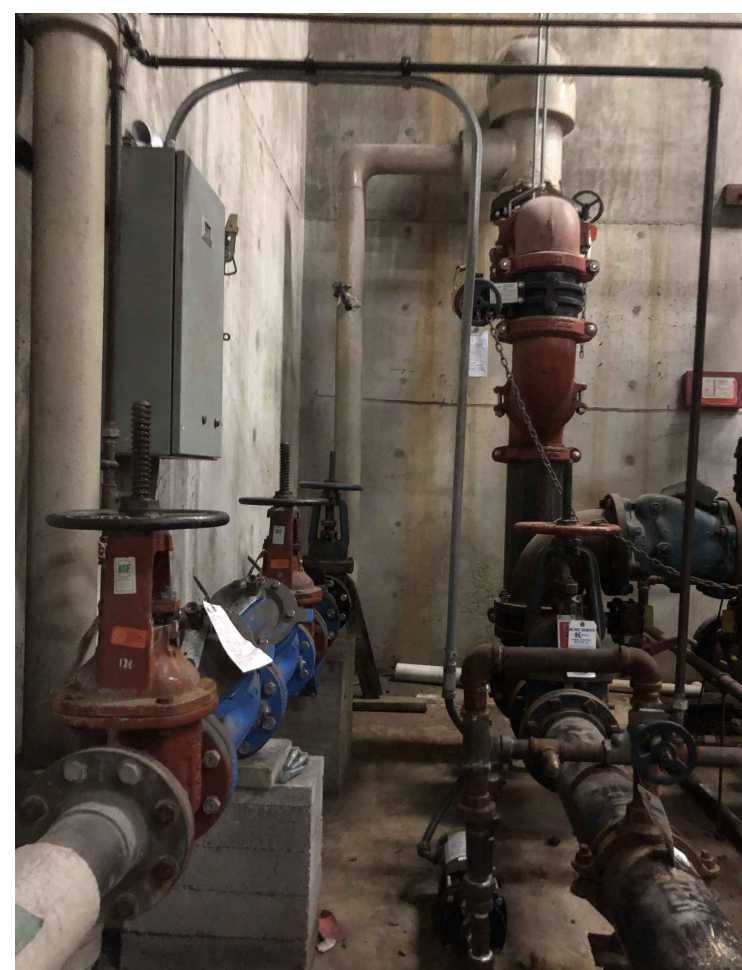
3 PHOTOGRAPH
PARKING GARAGE
FP-100 PG NO SCALE



4 PHOTOGRAPH
PARKING GARAGE
FP-100 PG NO SCALE



5 PHOTOGRAPH
PARKING GARAGE - LEVEL B
FP-100 PG NO SCALE

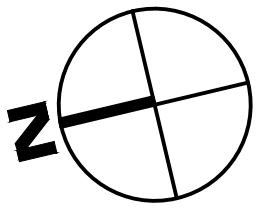
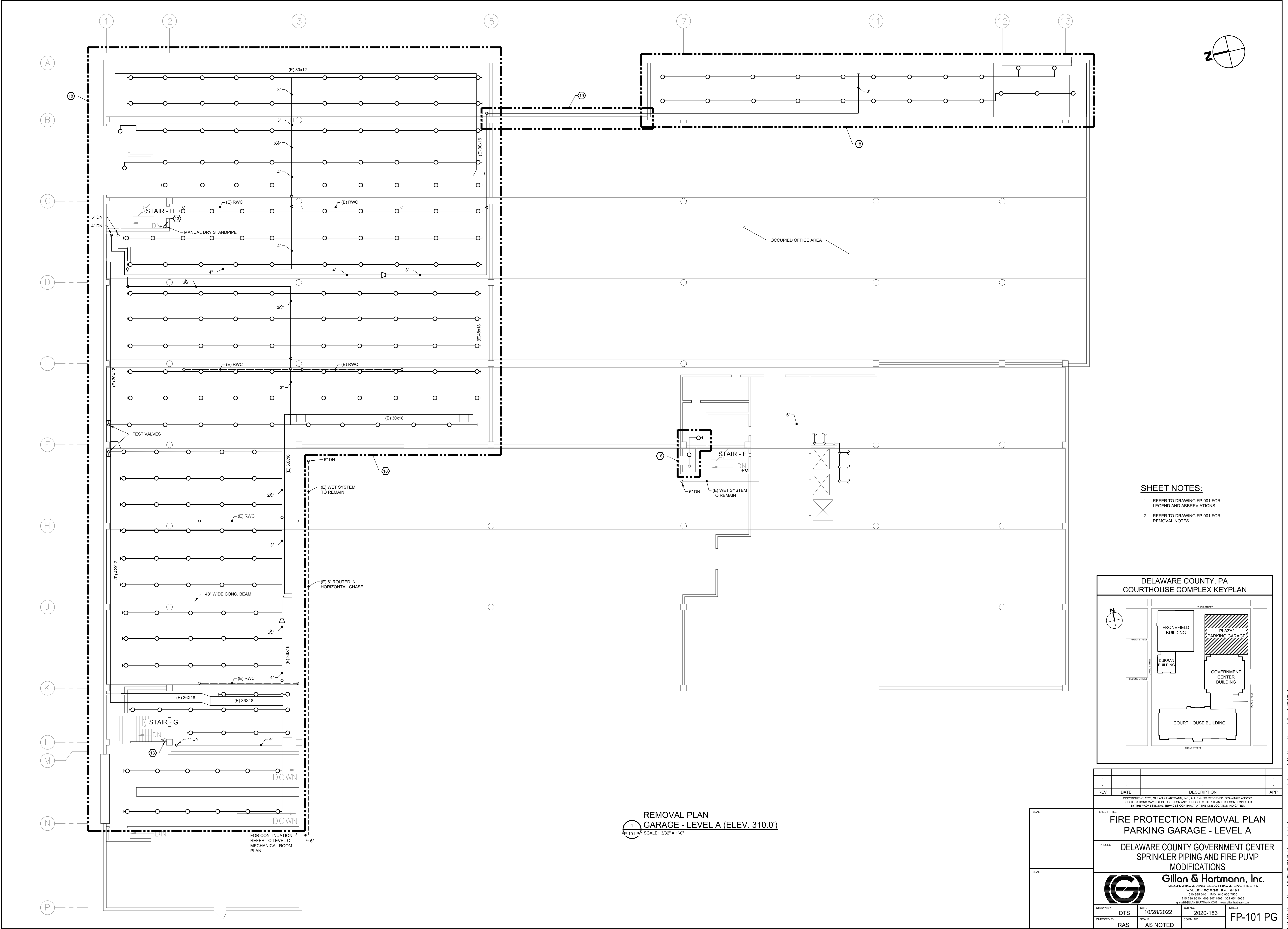


6 PHOTOGRAPH
PARKING GARAGE
FP-100 PG NO SCALE

SHEET NOTES:

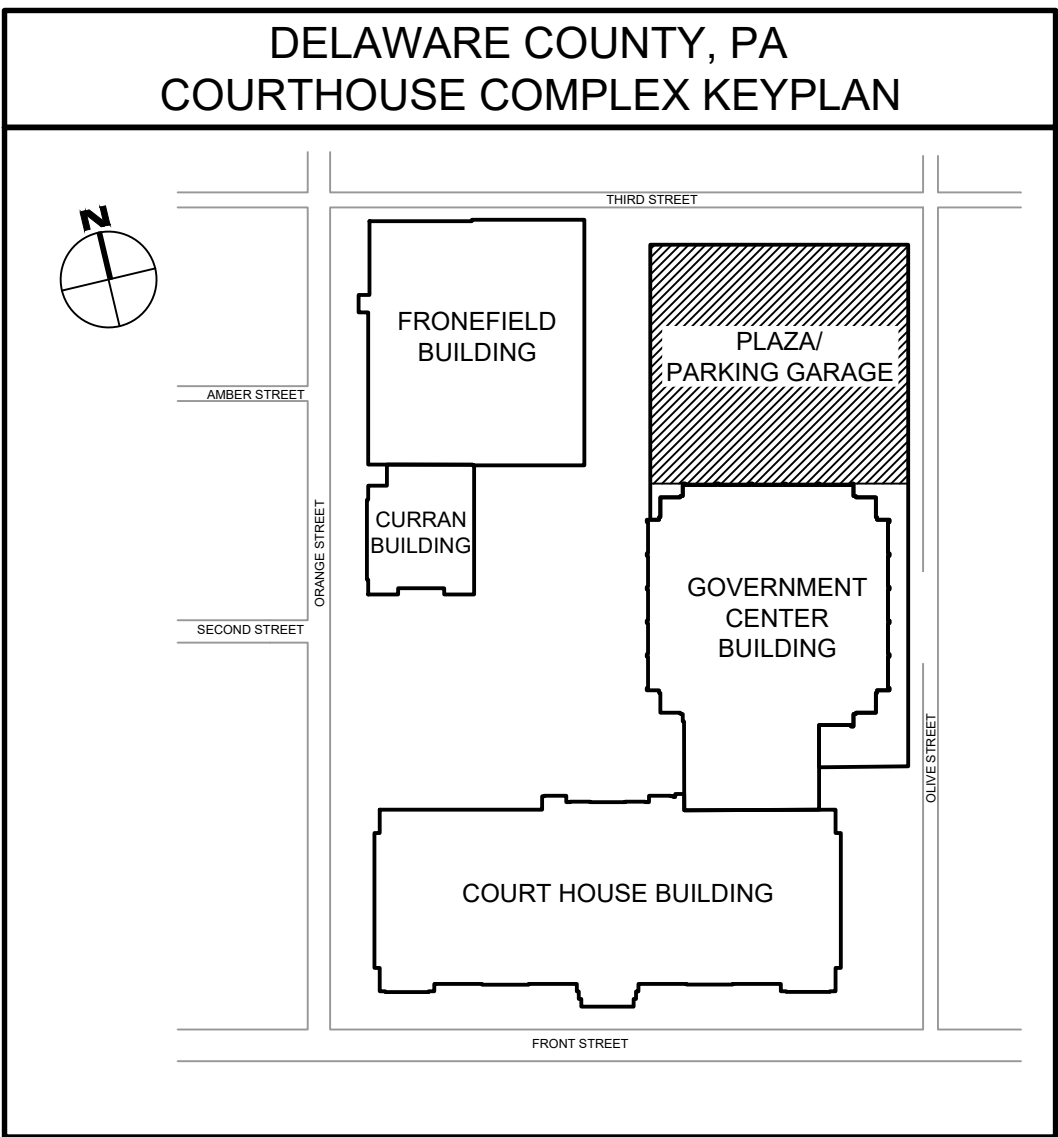
1. REFER TO DRAWING FP-001 FOR REMOVAL NOTES, LEGEND AND ABBREVIATIONS.

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SHEET TITLE FIRE PROTECTION REMOVAL PLAN PARKING GARAGE - MECH ROOM			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19415 610-935-0101 FAX: 610-935-7520 ghe@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET FP-100 PG
CHECKED BY RAS	SCALE AS NOTED	COMB. NO.	



SHEET NOTES:

1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-001 FOR REMOVAL NOTES.



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**FIRE PROTECTION REMOVAL PLAN
PARKING GARAGE - LEVEL A**

PROJECT
DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS

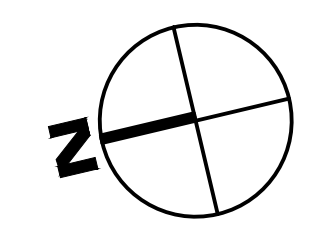
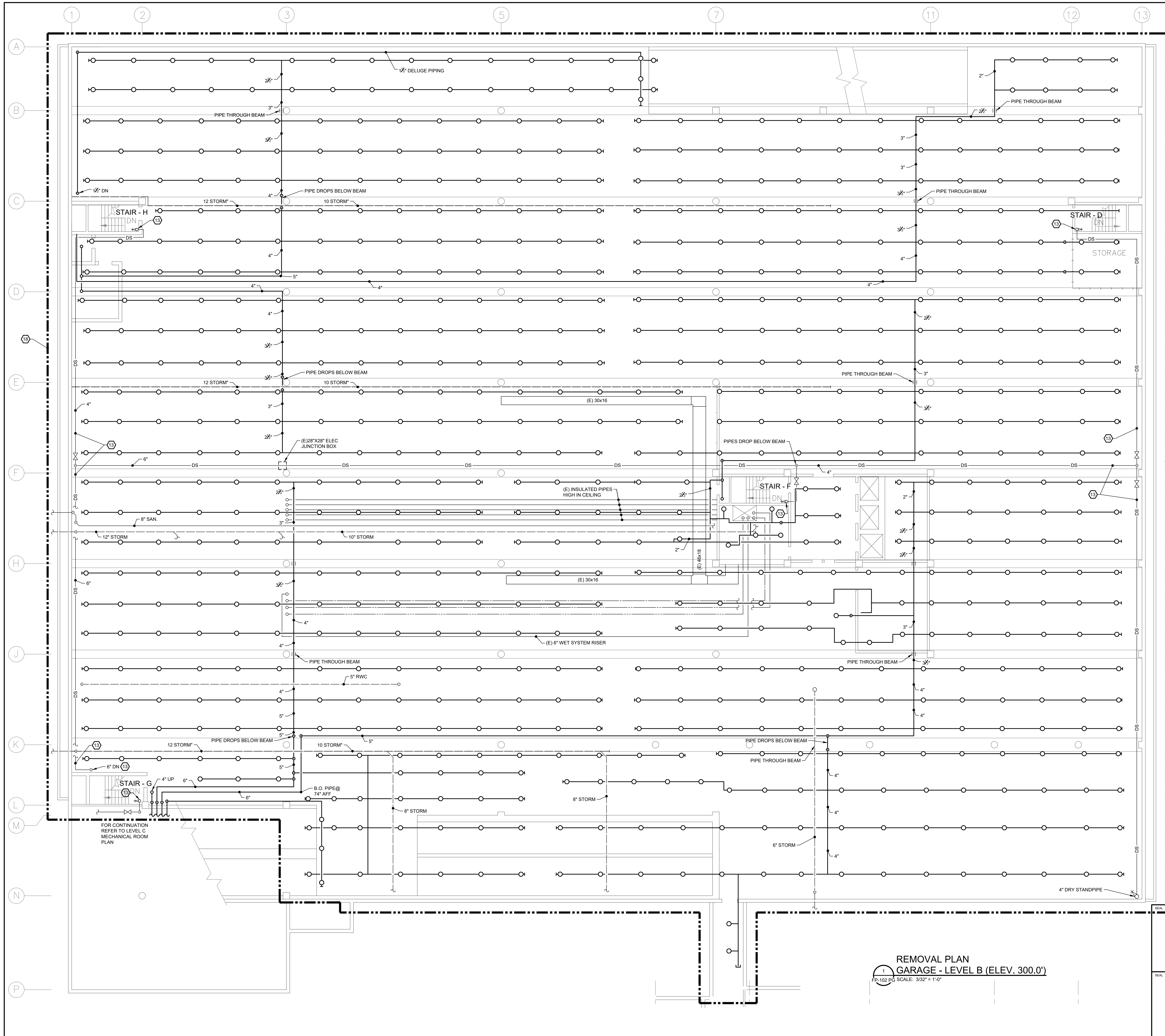


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DRAWN BY	DTS	DATE	10/28/2022	JOB NO.	2020-183	SHEET	FP-101 PG
CHECKED BY	RAS	SCALE	AS NOTED	COMB. NO.			

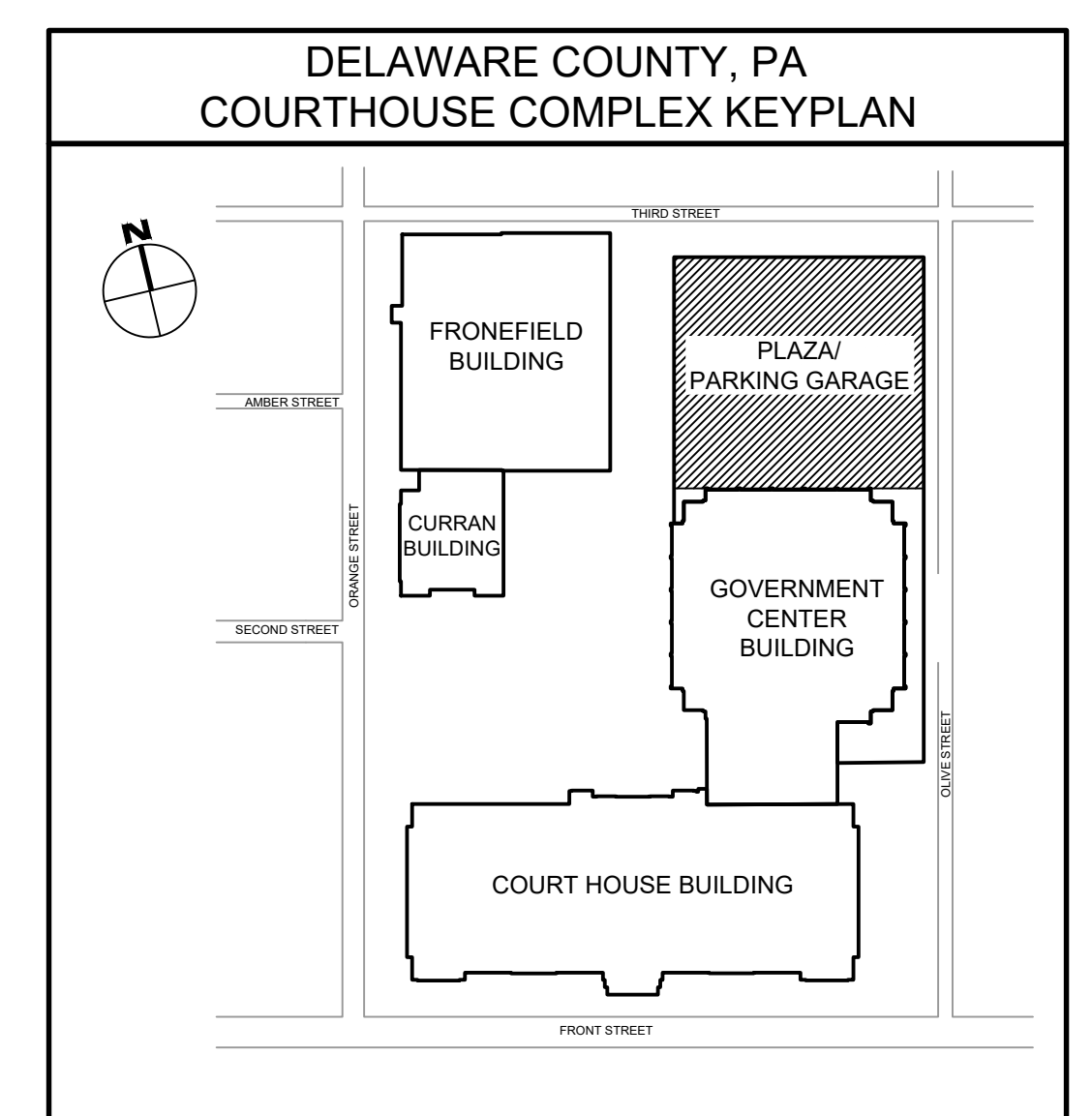
**REMOVAL PLAN
GARAGE - LEVEL A (ELEV. 310.0')**
FP-101 PG SCALE: 3/32" = 1'-0"

FOR CONTINUATION
REFER TO LEVEL C
MECHANICAL ROOM
PLAN



SHEET NOTES:

1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-001 FOR REMOVAL NOTES.



REV	DATE	DESCRIPTION	APP

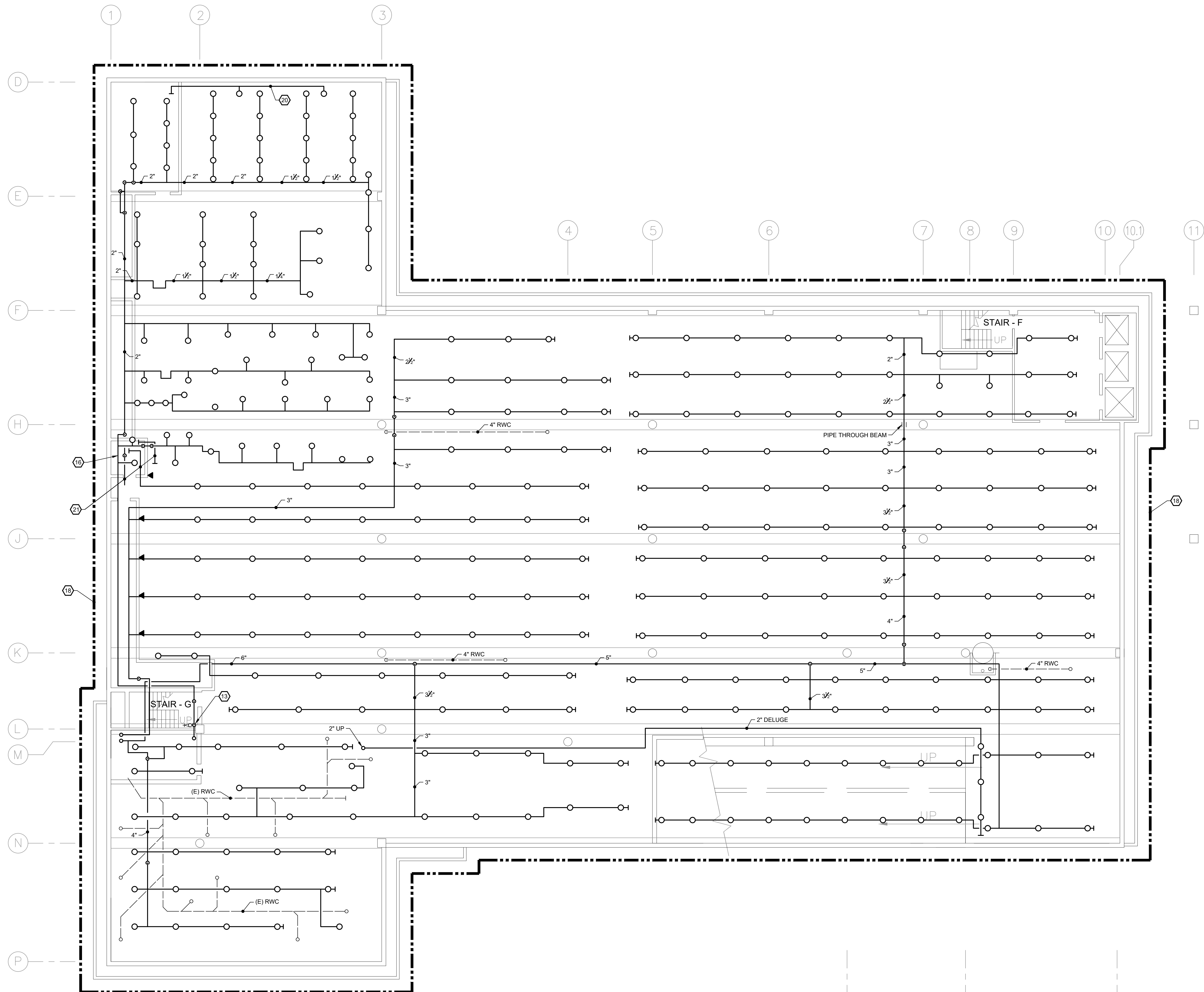
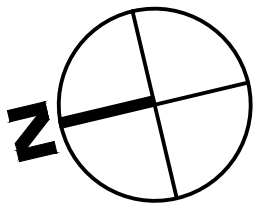
**REMOVAL PLAN
GARAGE - LEVEL B (ELEV. 300.0')**

FR-102 PG SCALE: 3/32" = 1'-0"

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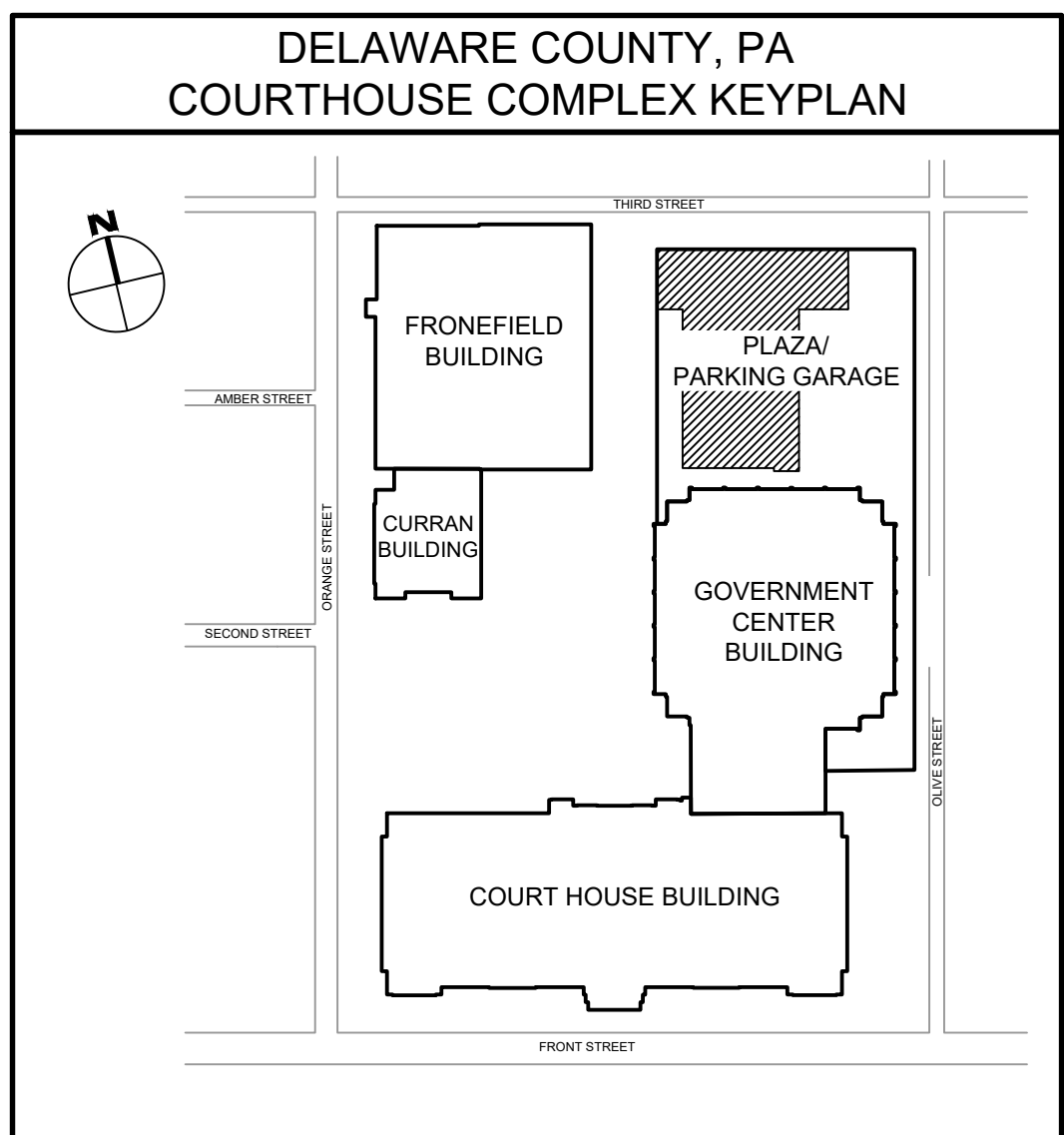
FP-102 PG

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LAST SAVED: 2022.10.27 8:57 AM
PLOTTED: 2022.10.28 12:18 PM
PLOTTED BY: JEB



SHEET NOTES:

1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-001 FOR REMOVAL NOTES.



REV	DATE	DESCRIPTION	APP

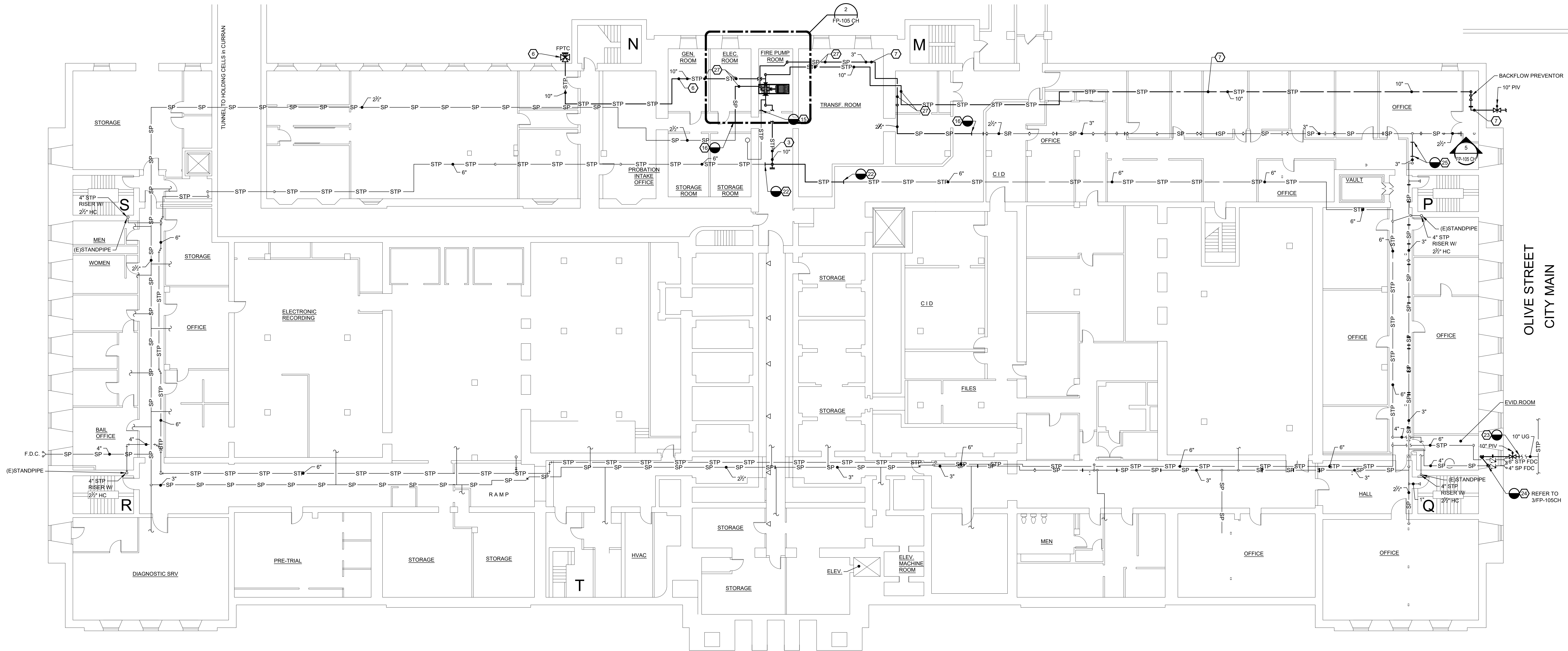
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REMOVAL PLAN
GARAGE - LEVEL D (ELEV. 280.0')
FP-104 PG SCALE: 3/32" = 1'-0"



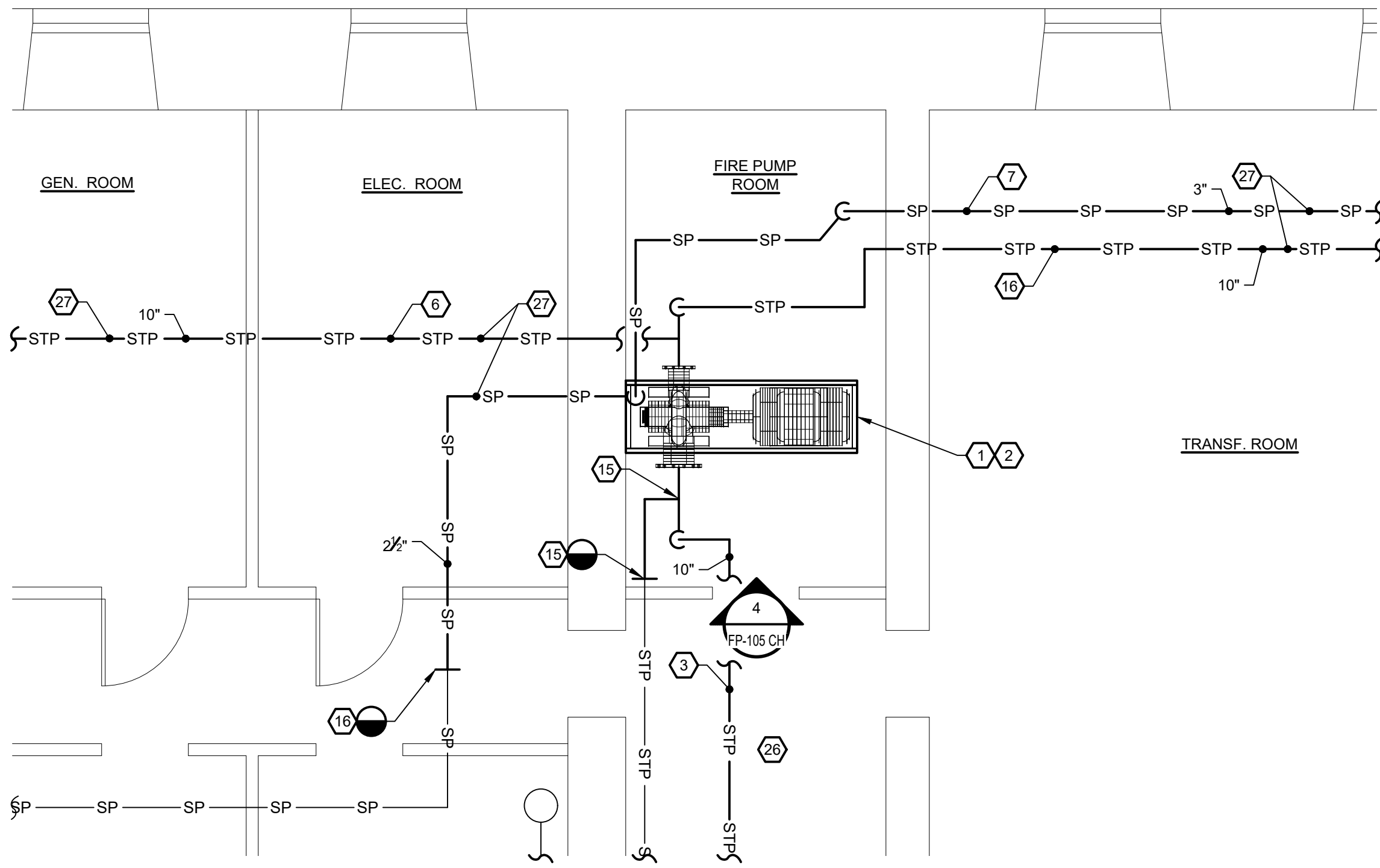
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DELAWARE COUNTY COURTHOUSE
BASEMENT SPRINKLER PIPING PLAN
FP-105 CH SCALE: 3/32" = 1'-0"

SHEET NOTES:

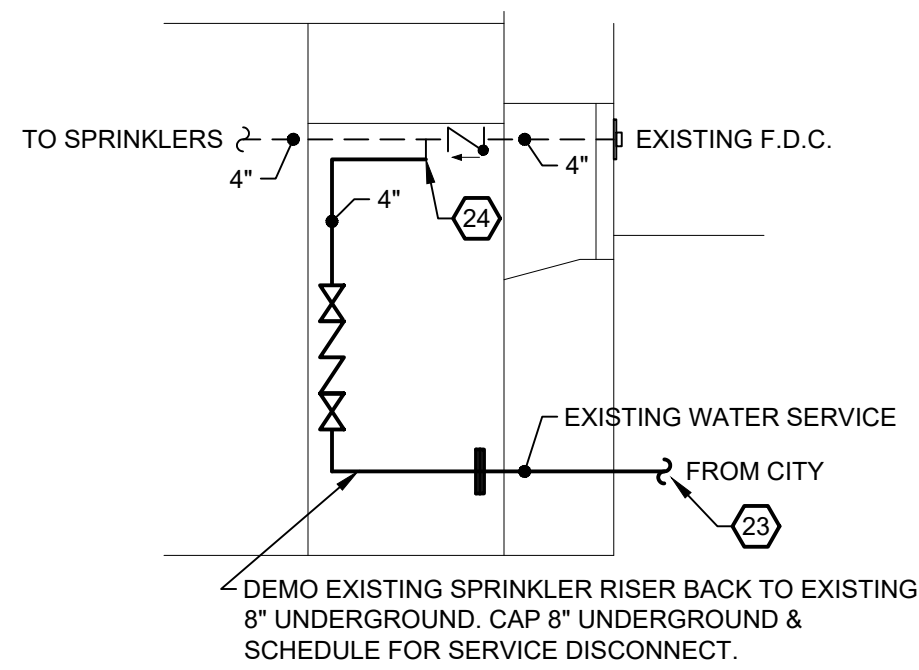
1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-001 FOR REMOVAL NOTES.

LEGEND(RELATIVE TO BASEMENT PLAN ONLY) :

	FIRE PUMP TEST CONNECTION
	CHECK VALVE
	SPRINKLER PIPING
	STANDPIPE PIPING
	FIRE DEPARTMENT TEST CONNECTION
	HOSE CONNECTION
	POST INDICATOR VALVE
	UNDERGROUND
	FIRE DEPARTMENT CONNECTION



2
ENLARGED PLAN AT FIRE PUMP ROOM
FP-105 CH SCALE: 1/4" = 1'-0"



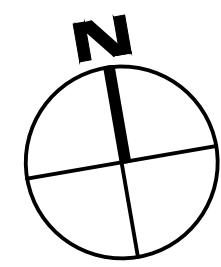
3
DETAIL - EXISTING RISER IN EVID. ROOM
FP-105 CH SCALE: 1/4" = 1'-0"



4
COURTHOUSE - PHOTOGRAPH
FP-105 CH NO SCALE



5
COURTHOUSE - PHOTOGRAPH
FP-105 CH NO SCALE



REV	DATE	DESCRIPTION	APP

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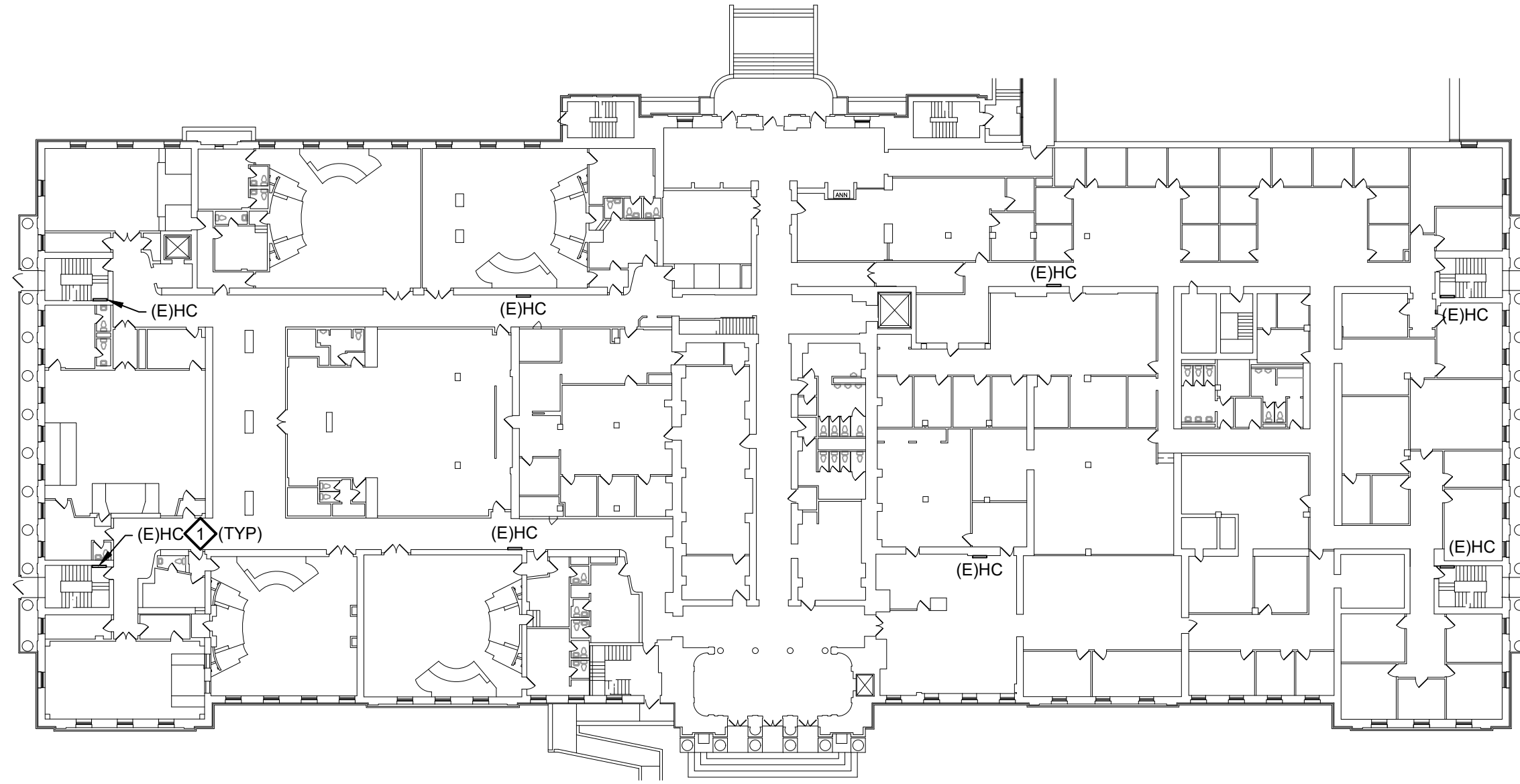
**FIRE PROTECTION REMOVAL PLAN
COURTHOUSE - BASEMENT**

**DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS**

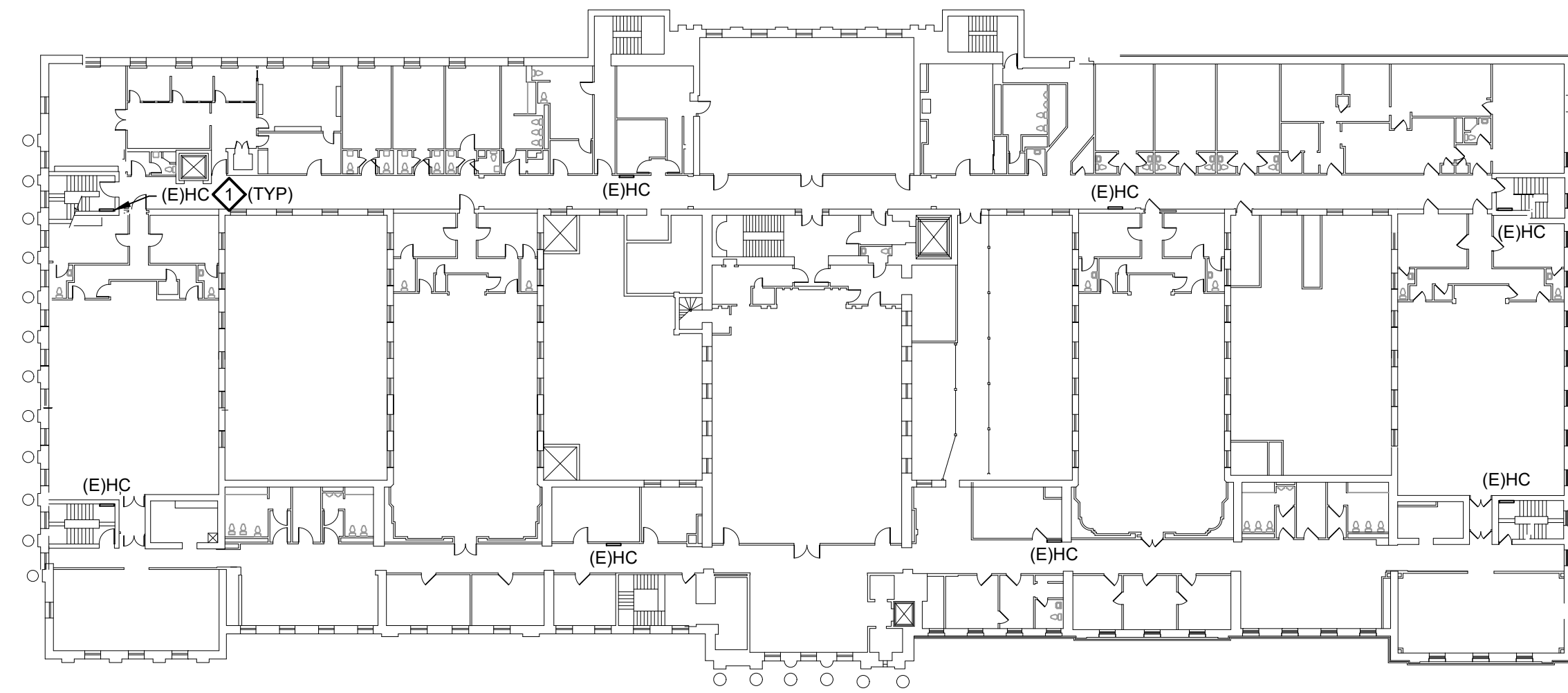


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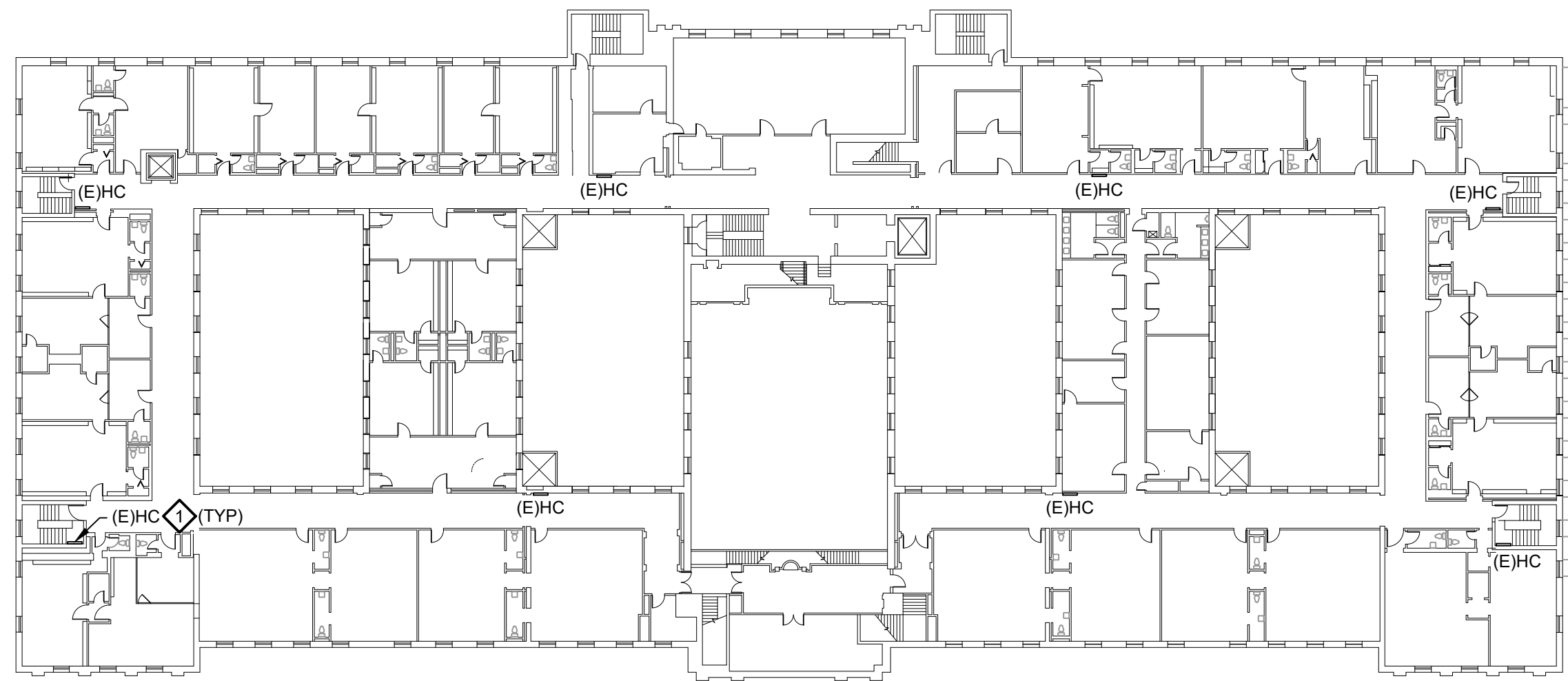
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CHECKED BY	RAS	SCALE	AS NOTED	CORR. NO.			



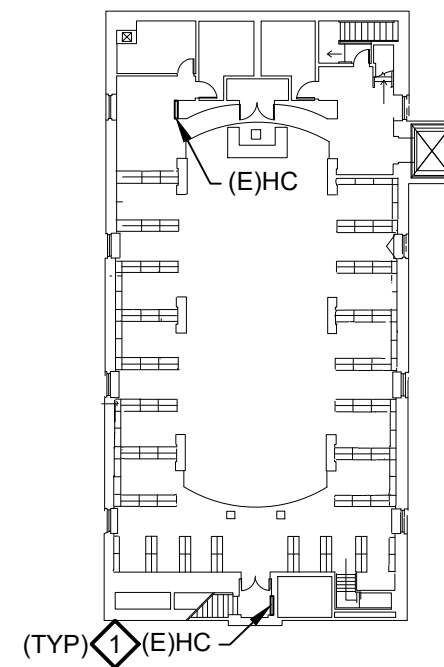
1 1ST FLOOR PLAN - HOSE CABINET LOCATIONS
FP-106 CH SCALE: 1/32" = 1'-0"



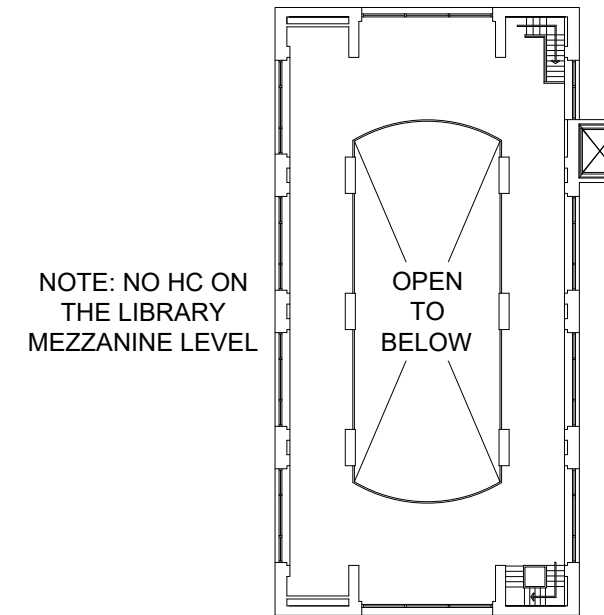
2 2ND FLOOR PLAN - HOSE CABINET LOCATIONS
FP-106 CH SCALE: 1/32" = 1'-0"



3 3RD FLOOR PLAN - HOSE CABINET LOCATIONS
FP-106 CH SCALE: 1/32" = 1'-0"



4 4TH FLOOR LAW LIBRARY PLAN - HOSE CABINET LOCATIONS
FP-106 CH SCALE: 1/32" = 1'-0"



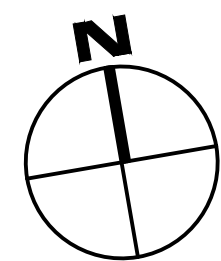
4 LAW LIBRARY MEZZANINE PLAN - HOSE CABINET LOCATIONS
FP-106 CH SCALE: 1/32" = 1'-0"

SHEET NOTE:

- EXISTING HOSE CABINETS (HC) INCLUDE A 2-1/2" VALVED HOSE CONNECTION
- HC LOCATIONS FOR REFERENCE ONLY - NO WORK RELATED TO THIS SHEET.

NEW WORK NOTE:

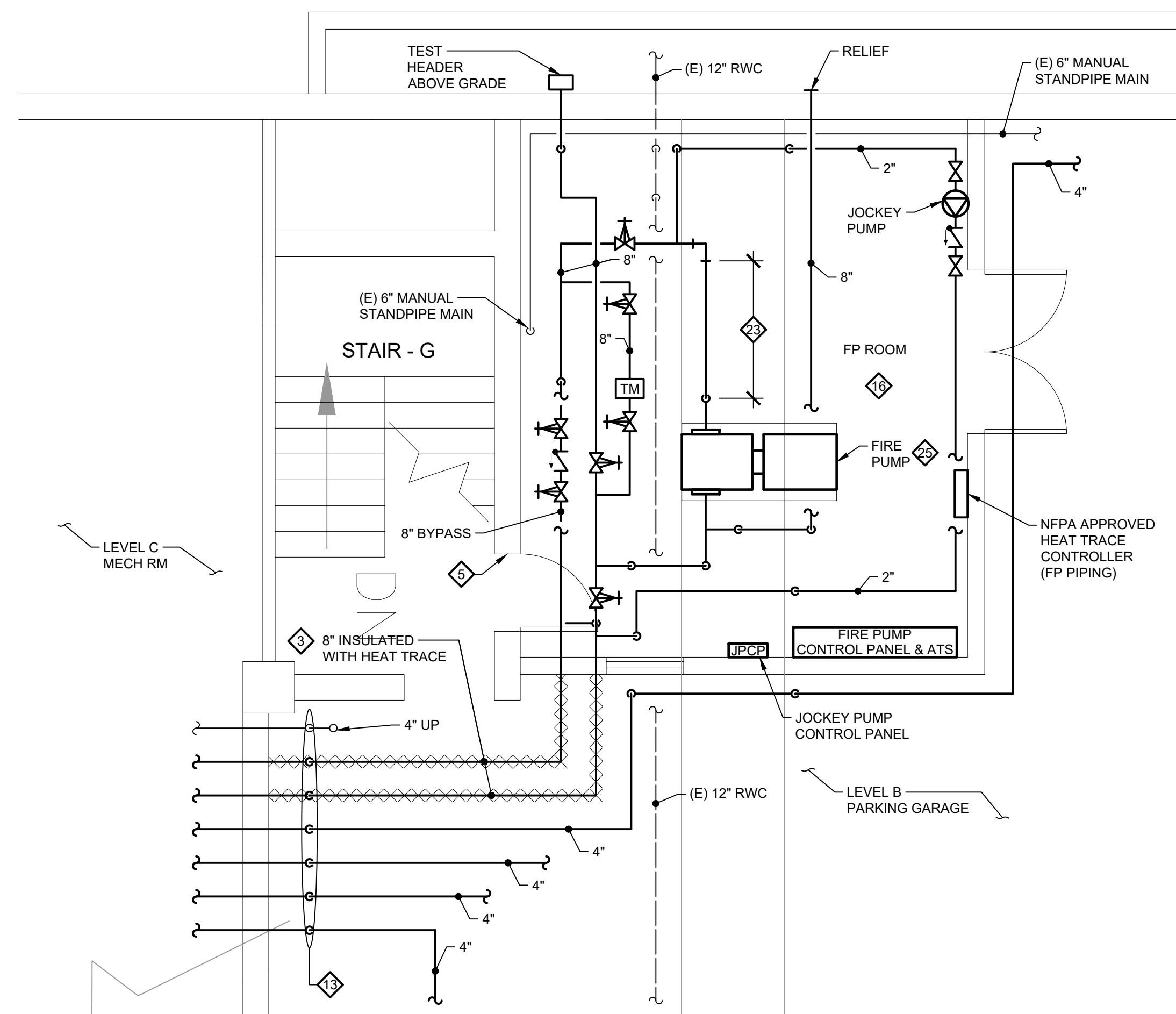
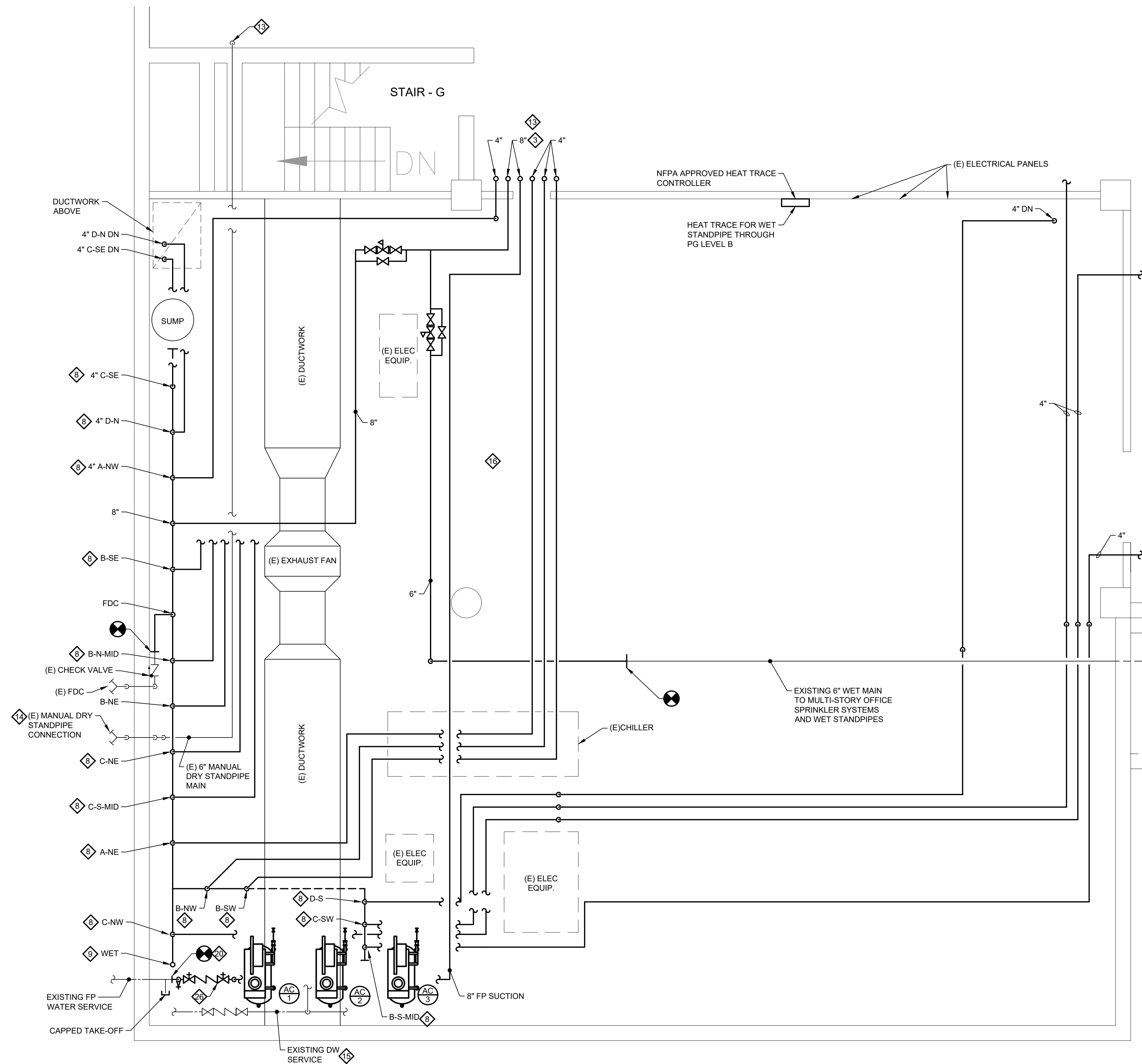
- REPLACE EXISTING 2" FIRE HOSE VALVE, COORDINATE VALVE REQUIREMENTS WITH LOCAL AHJ AND FIRE DEPARTMENT.



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SHEET TITLE FIRE PROTECTION HOSE CABINET PLAN COURTHOUSE			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19481 610-935-0101 FAX: 610-935-7520 215-238-9510 609-347-1593 302-654-0909 gillan@GILLANHARTMANN.COM www.gillanhartmann.com			
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CHECKED BY RAS	SCALE AS NOTED	COMB. NO.	



NEW WORK PLAN
GARAGE MECHANICAL ROOM - LEVEL C

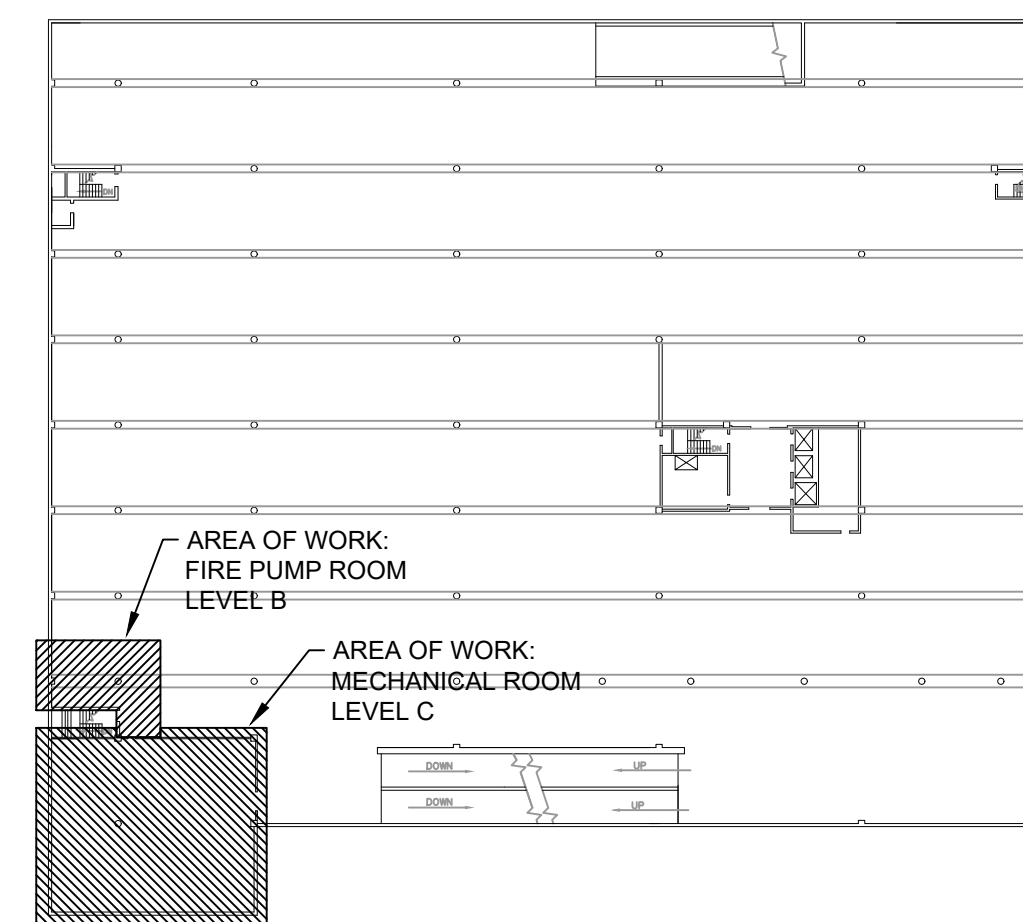
- ◆ UTILIZE EXISTING BEAM SLEEVE FOR NEW FIRE PROTECTION PIPING. VERIFY EXACT SIZE AND HEIGHT IN THE FIELD TO FACILITATE NEW PIPING AND NFPA REQUIRED PIPE SLOPE.
- ◆ DROP BELOW BEAM AND PROVIDE AUXILIARY DRAIN AT LOW POINT PER NFPA AND LOCATE TIGHT TO COLUMN.
- ◆ PROVIDE HEAT TRACE TAPE ON THE 6" FIRE PROTECTION MAINS ROUTED THROUGH THE UNCONDITIONED LEVEL 8 GARAGE AREA.
- ◆ PROVIDE HEAT TRACE TAPE ON THE EXISTING 6" WET FIRE PROTECTION MAIN ROUTED THROUGH THE UNCONDITIONED LEVEL 8 GARAGE AREA. REMOVE EXISTING PIPE INSULATION AND INSTALL NEW OVER THE HEAT TRACE TAPE. INSTALL HEAT TRACE TAPE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ◆ COORDINATE LOCATION OF THE NEW ACCESS DOOR FROM STAIR TOWER G INTO THE NEW FIRE PUMP ROOM WITH THE GC.
- ◆ ROUTE SPRINKLER PIPING BELOW OBSTRUCTION TO PROVIDE FULL COVERAGE. PROVIDE DRAIN AT LOW POINT. LOCATE DRAIN SO IT DOES NOT IMPEDE VEHICLES.
- ◆ OPEN WALL AS NECESSARY TO FACILITATE NEW PIPING IN EXISTING HORIZONTAL PIPE CHASE BEHIND THE STAIR TOWER. PATCH WALL TO MATCH EXISTING CONSTRUCTION AND FINISH.
- ◆ PROVIDE NEW OS & Y SPRINKLER VALVE, REFER TO DRAWING FP-300 DETAIL 12, TYPICAL.
- ◆ PROVIDE WET SYSTEM SPRINKLER ALARM VALVE, REFER TO DRAWING FP-300 DETAIL 11, TYPICAL.
- ◆ PROVIDE NEW 8" DETECTOR CHECK VALVE WITH METEERED BYPASS.
- ◆ SLOPE ALL DRY PRE-ACTION FIRE PROTECTION PIPING PER NFPA REQUIREMENTS TO FACILITATE DRAINAGE OF ALL PIPING.
- ◆ PROVIDE UPRIGHT SPRINKLER HEAD BELOW LOWEST LANDING WITH VALVED DRAIN PIPED THROUGH THE STAIR TOWER WALL, AND DISCHARGE WITH ELBOW TURNING DOWN, 6" (MINIMUM) ABOVE GARAGE FLOOR.
- ◆ PROVIDE BOLLARDS TO PROTECT FIRE PROTECTION PIPING AND/OR FIRE PROTECTION PIPE PENETRATIONS. SEE BOLLARD DETAIL ON S-SERIES DRAWINGS.
- ◆ THE EXISTING PARKING GARAGE DRY STANDPIPE SYSTEM SHALL REMAIN.
- ◆ THE EXISTING DOMESTIC WATER SERVICE VALVES AND ACCESSORIES SHALL REMAIN.

- 17 PROVIDE IDENTIFICATION OF ALL EQUIPMENT, ZONES, PIPING SYSTEMS AND VALVES. REMOVE ANY EXISTING FIRE PROTECTION SIGNAGE THAT IS NO LONGER APPLICABLE. PATCH WALLS/CEILINGS TO MATCH EXISTING.
- 18 COORDINATE FINAL PREACTION SPRINKLER SYSTEM ZONING WITH THE ELECTRICAL CONTRACTOR TO DETERMINE FINAL HEAT DETECTOR ZONING.
- 19 PROVIDE 2 CHECK VALVES (MIN) EACH SENSING LINE GREATER THAN 5 FT APART ALONG WITH 2 INSPECTION TEST VALVES PER NFPA REQUIREMENTS.
- 20 BACKFLOW PREVENTORS AND CHECK VALVES SHALL BE LISTED FOR FIRE PROTECTION SERVICE.
- 21 THE FIRST OS&Y GATE VALVE OFF THE COMBINED SERVICE SHALL BE BRONZE FITTED.
- 22 THE DISTANCE BETWEEN THE PUMP FLANGE AND FIRST PERPENDICULAR ELBOW/TIE OR VALVE SHALL BE GREATER THAN 10 PIPE DIAMETERS PER NFPA.
- 23 PRESSURE TEST EXISTING SPRINKLER PIPING BACK TO BASEMENT FIRE PUMP ROOM TO ENSURE SAFE.
- 24 MAINTAIN 10 PIPE DIAMETERS (MIN) OF HORIZONTAL AND VERTICAL PIPING UPSTREAM OF ELBOW CONNECTED TO PUMP SUCTION CONNECTION PER NFPA 20.
- 25 ADD SUPPORTS FOR EXISTING SPRINKLER PIPING IN THIS ROOM. CONNECT EXISTING PIPING TO NEW SPRINKLER PIPING PER NFPA 13.
- 26 PROVIDE NEW FIRE PUMP.
- 27 PROVIDE NEW BACKFLOW PREVENTOR WITH METER TRIM KIT.

A DOUBLE INTERLOCK DRY SYSTEM AFFORDS MAXIMUM PROTECTION AGAINST AN ACCIDENTAL FILLING OF THE SYSTEM WITH WATER THE PNEUMATIC DETECTION SYSTEM MUST ACTUATE AND A SPRINKLER MUST FUSE BEFORE WATER WILL ENTER THE SYSTEM. ACTIVATION OF ONE WITHOUT THE OTHER WILL ONLY SOUND AN ALARM.

[illegible]

1. REFER TO DRAWING FP-001 FOR
LEGEND AND ABBREVIATIONS.



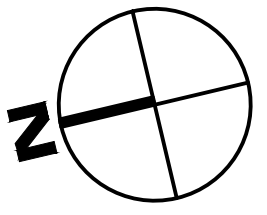
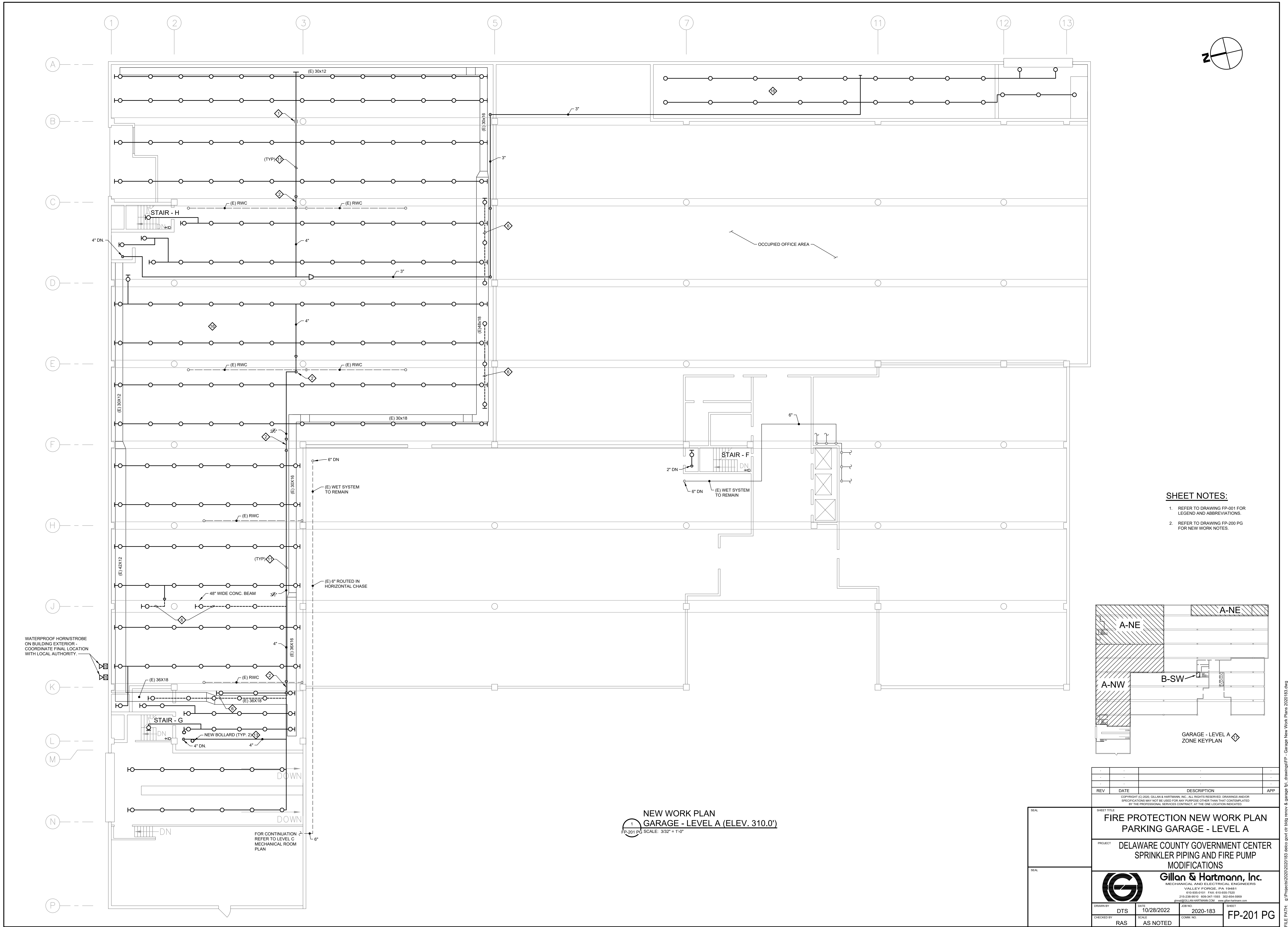
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SHEET TITLE	FIRE PROTECTION NEW WORK PLAN PARKING GARAGE - MECH RM AND FIRE PUMP ROOM
PROJECT	DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS



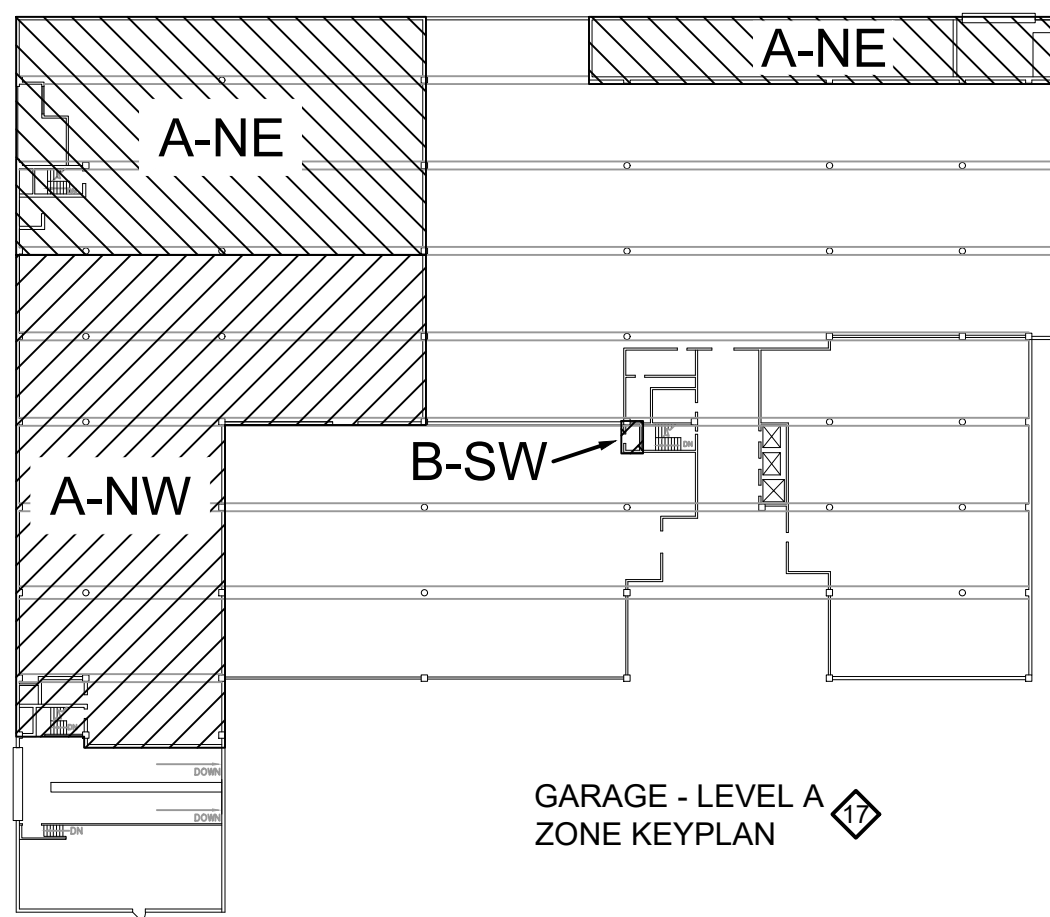
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1515-238-6161 6039-347-1393 302-664-0669

3
FP-200 PG SCALE: 1/4" = 1'-0"




SHEET NOTES:

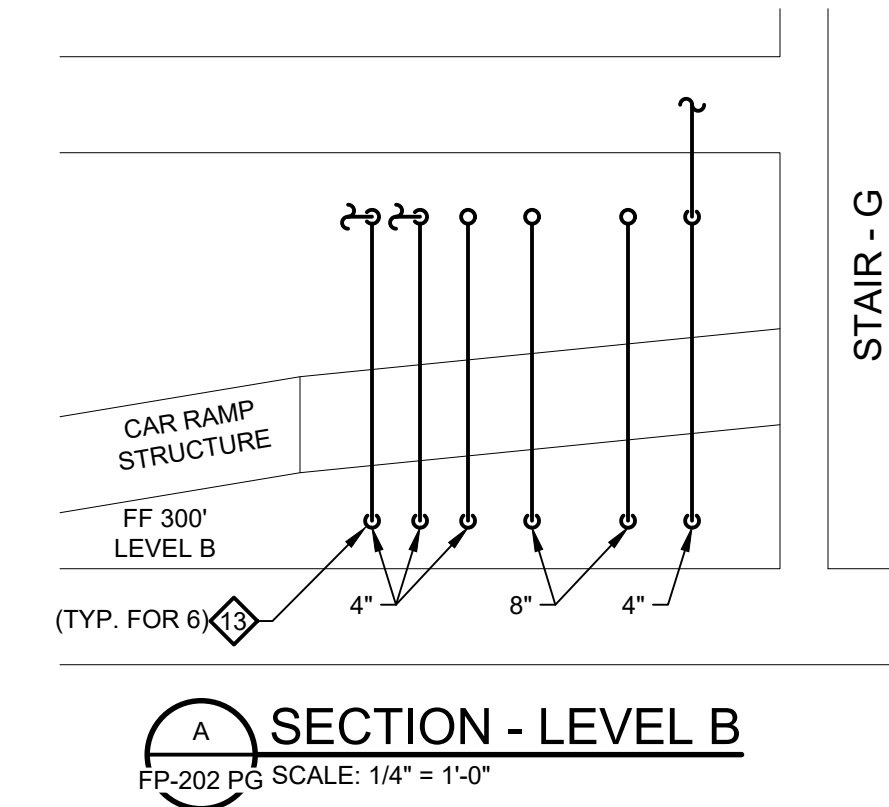
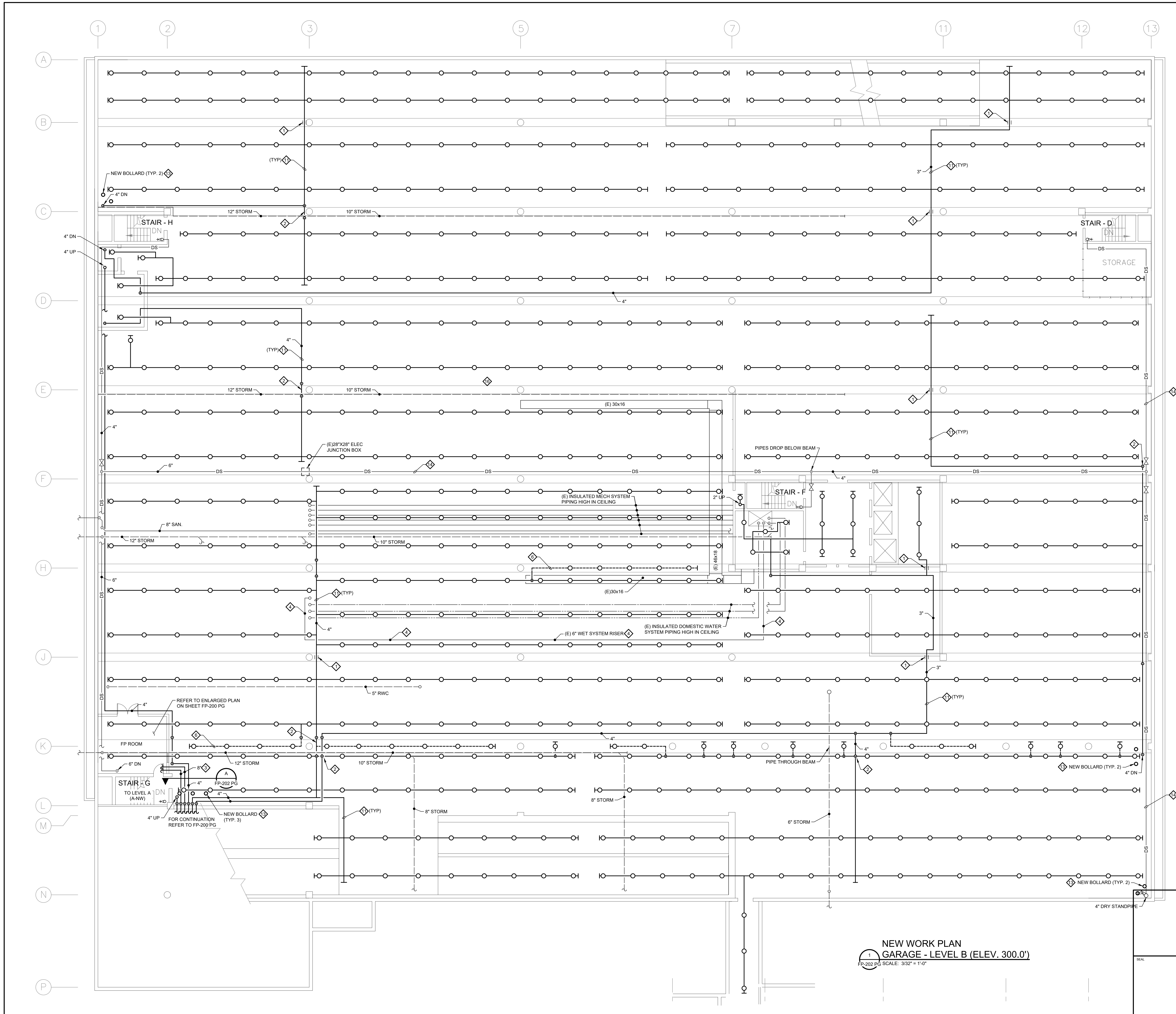
1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-200 PG FOR NEW WORK NOTES.



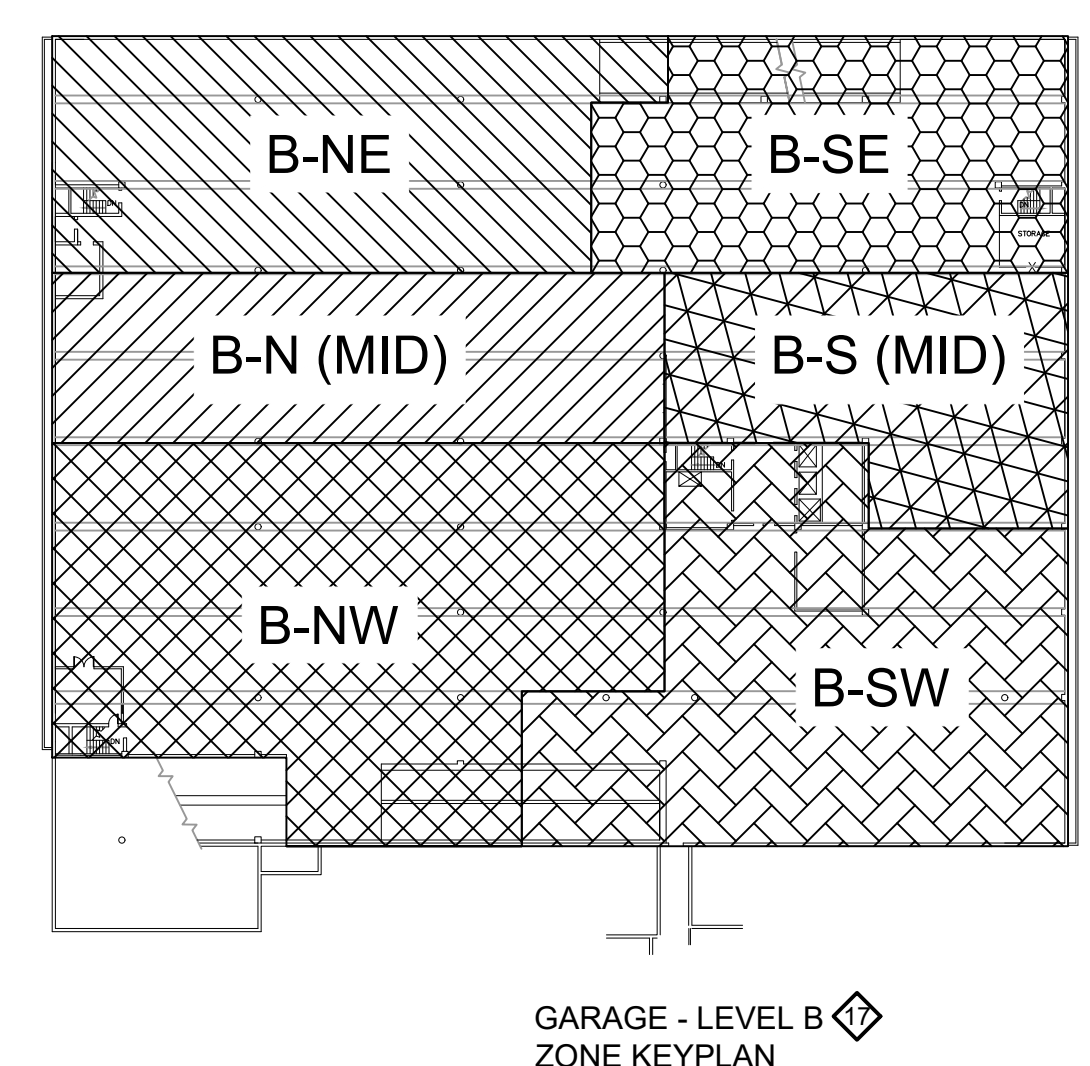
NEW WORK PLAN
GARAGE - LEVEL A (ELEV. 310.0')
FP-201 PG SCALE: 3/32" = 1'-0"

REV	DATE	DESCRIPTION	APP

SHEET TITLE FIRE PROTECTION NEW WORK PLAN PARKING GARAGE - LEVEL A			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 17881 610-535-0101 FAX: 610-535-7520 215-238-9510 609-347-1593 302-654-0909 gillan@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
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CHECKED BY RAS	SCALE AS NOTED	DATE 2020-183	APP



- SHEET NOTES:**
1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
 2. REFER TO DRAWING FP-200 PG FOR NEW WORK NOTES.



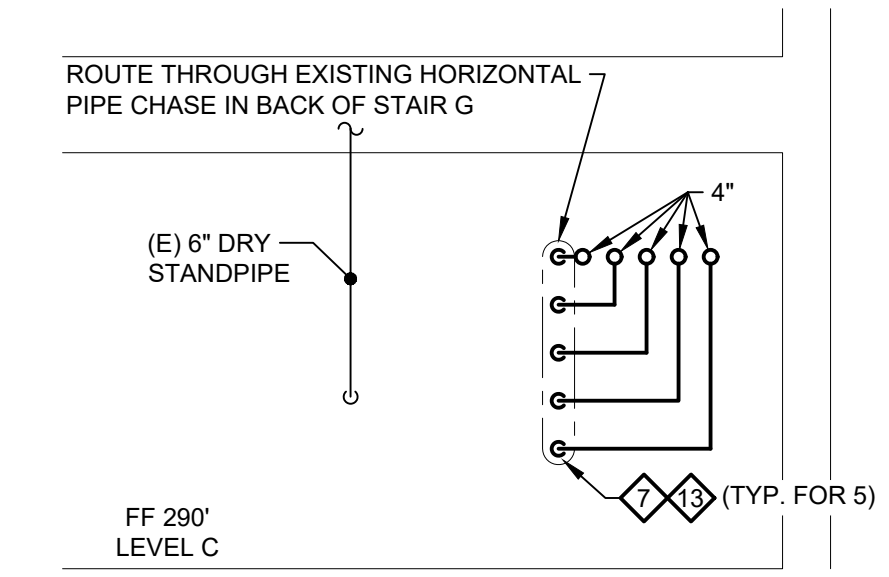
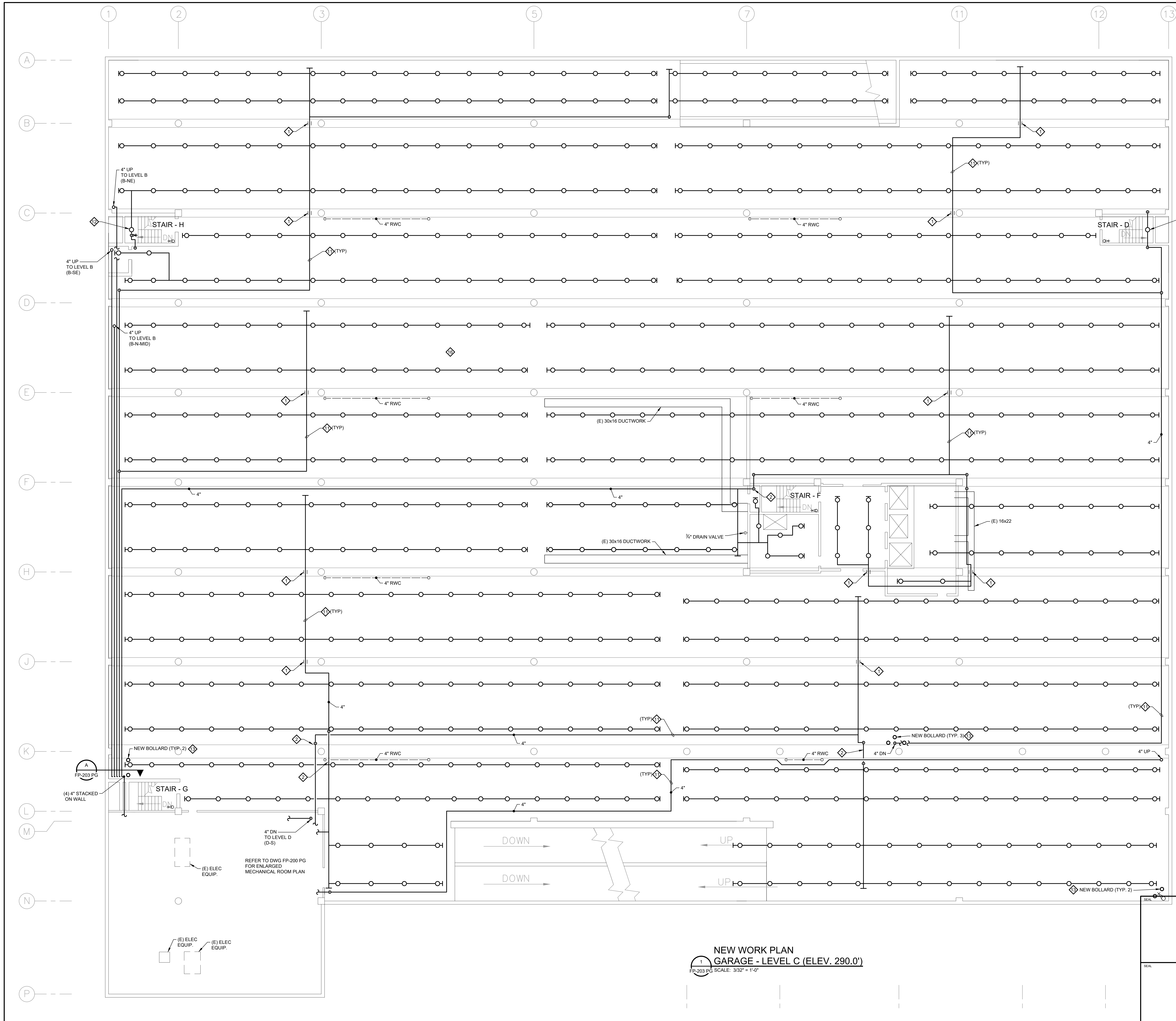
**NEW WORK PLAN
GARAGE - LEVEL B (ELEV. 300.0')**
FP-202 PG SCALE: 3/32" = 1'-0"

REV	DATE	DESCRIPTION	APP

SHEET TITLE		FIRE PROTECTION NEW WORK PLAN PARKING GARAGE - LEVEL B	
PROJECT		DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS	
DRAWN BY		DATE	SHEET
DTS	10/28/2022	2020-183	FP-202 PG
CHECKED BY	RAS	SCALE	AS NOTED



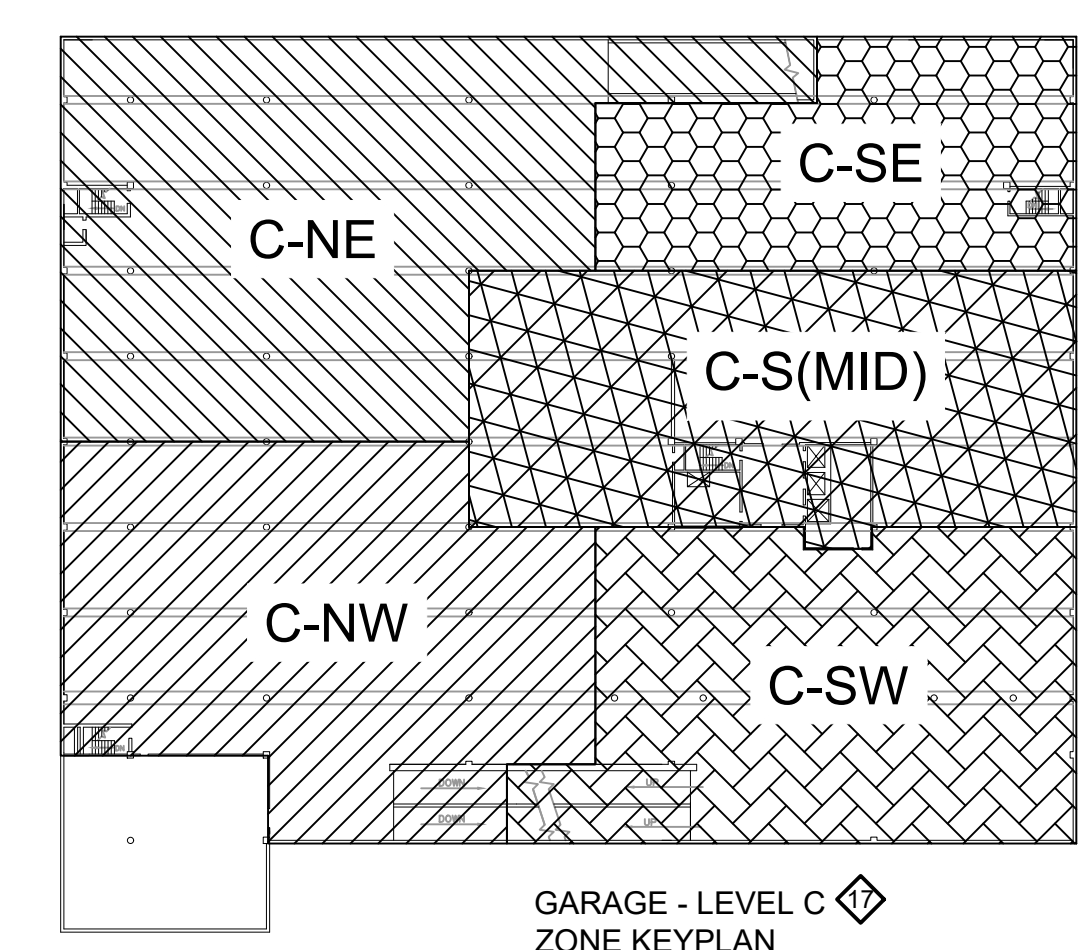
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SECTION - LEVEL C
FP-203 PG SCALE: 1/4" = 1'-0"

SHEET NOTES:

- REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
- REFER TO DRAWING FP-200 PG FOR NEW WORK NOTES.



REV	DATE	DESCRIPTION	APP

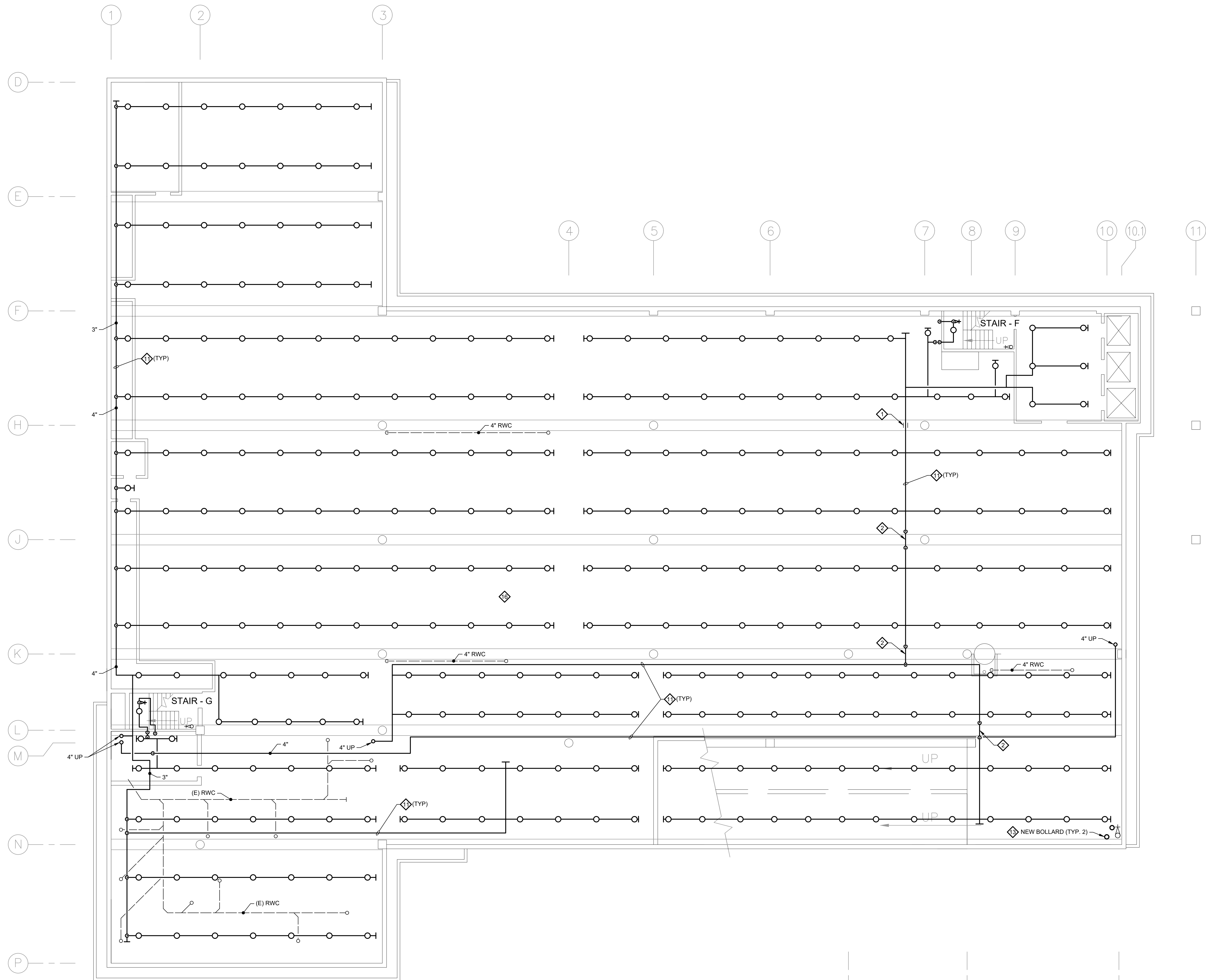
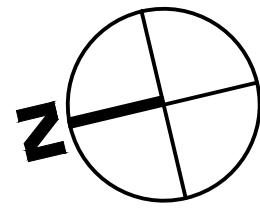
FIRE PROTECTION NEW WORK PLAN
PARKING GARAGE - LEVEL C

PROJECT: DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS

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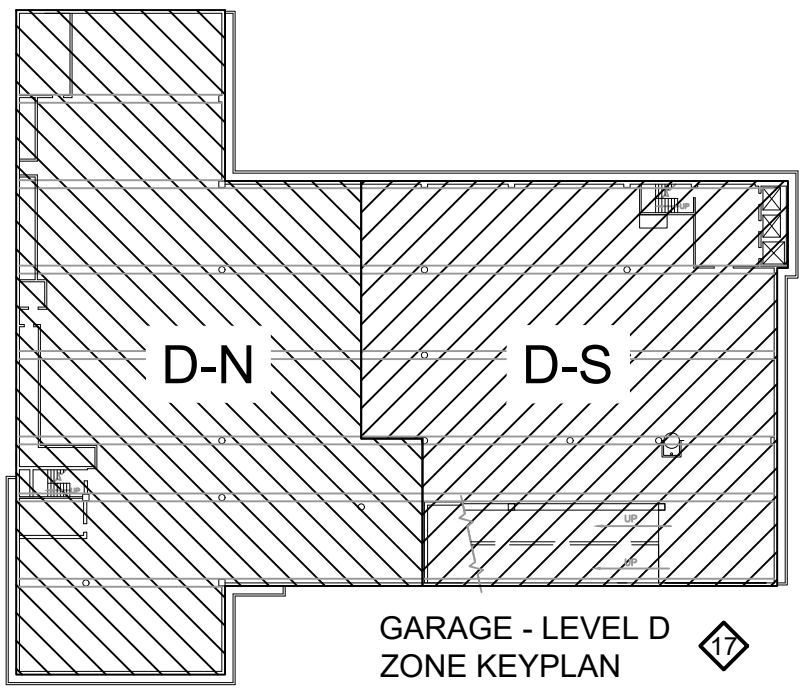
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CHECKED BY: RAS SCALE: AS NOTED COME NO:

NEW WORK PLAN
GARAGE - LEVEL C (ELEV. 290.0')
FP-203 PG SCALE: 3/32" = 1'-0"



SHEET NOTES:

1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-200 PG FOR NEW WORK NOTES.



NEW WORK PLAN
GARAGE - LEVEL D (ELEV. 280.0')
FP-204 PG SCALE: 3/32" = 1'-0"

REV	DATE	DESCRIPTION	APP

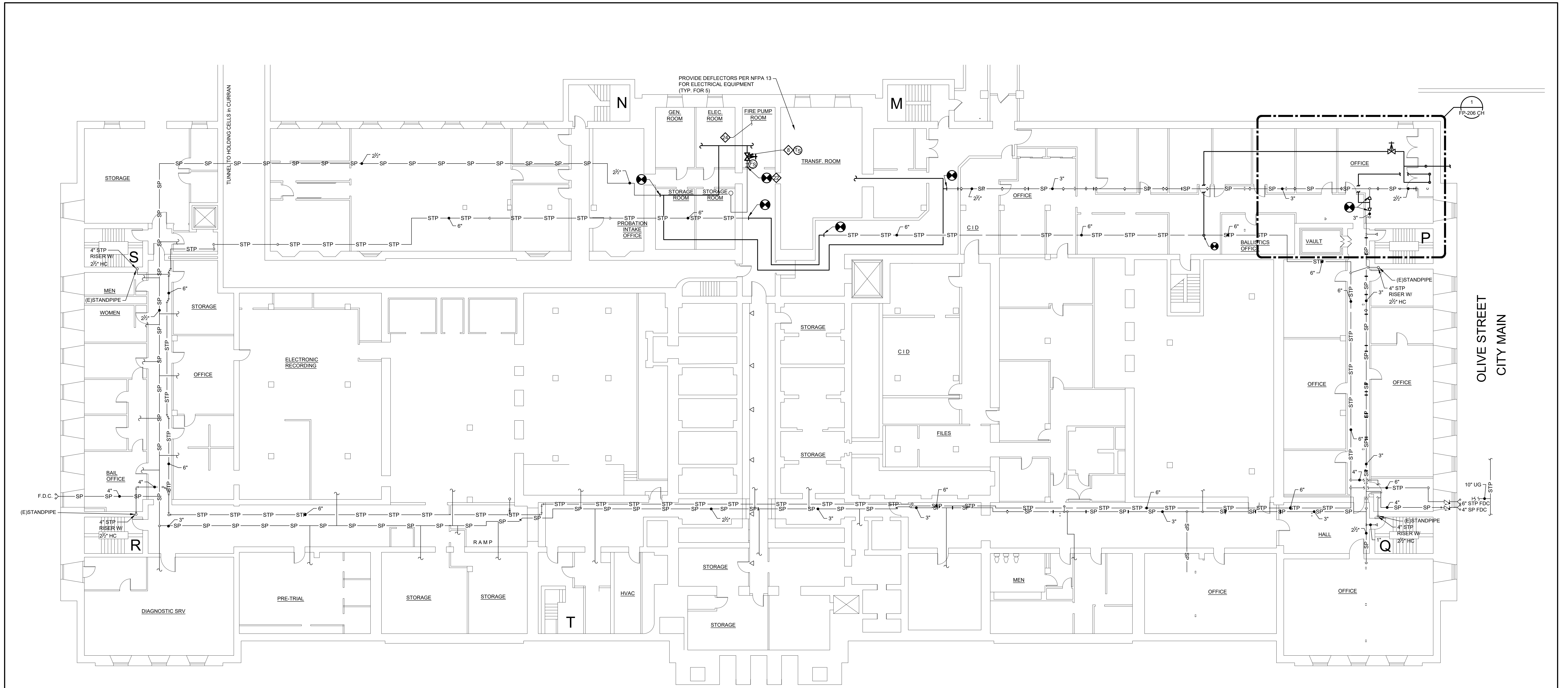
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**FIRE PROTECTION NEW WORK PLAN
PARKING GARAGE - LEVEL D**

PROJECT
**DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS**

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CHECKED BY RAS	SCALE AS NOTED	COMB. NO.	



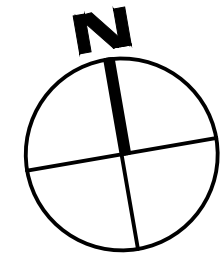
1
DELAWARE COUNTY COURTHOUSE
BASEMENT SPRINKLER PIPING PLAN
FP-205 CH SCALE: 3/32" = 1'-0"

SHEET NOTES:

1. REFER TO DRAWING FP-001 FOR LEGEND AND ABBREVIATIONS.
2. REFER TO DRAWING FP-200 PG FOR NEW WORK NOTES.

LEGEND(RELATIVE TO BASEMENT PLAN ONLY):

- FIRE PUMP TEST CONNECTION
- CHECK VALVE
- SPRINKLER PIPING
- STANDPIPE PIPING
- FIRE DEPARTMENT TEST CONNECTION
- HOSE CONNECTION
- POST INDICATOR VALVE
- UNDERGROUND
- FIRE DEPARTMENT CONNECTION



REV	DATE	DESCRIPTION	APP

SEAL

SEAL

SHEET TITLE
**FIRE PROTECTION NEW WORK PLAN
COURTHOUSE - BASEMENT**

PROJECT
**DELAWARE COUNTY GOVERNMENT CENTER
SPRINKLER PIPING AND FIRE PUMP
MODIFICATIONS**

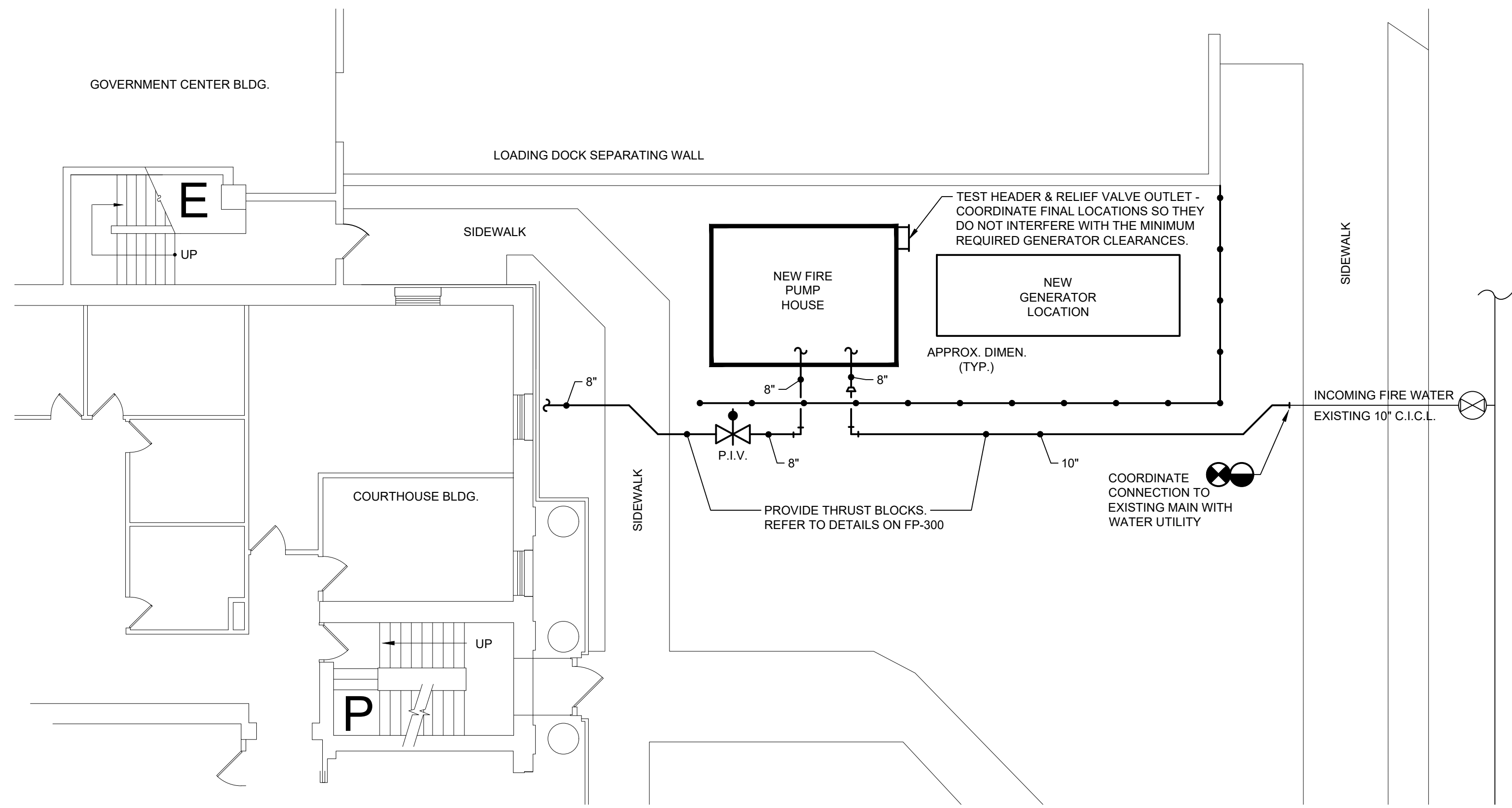
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DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET FP-205 CH
CHECKED BY RAS	SCALE AS NOTED	DATE 10/28/2022	

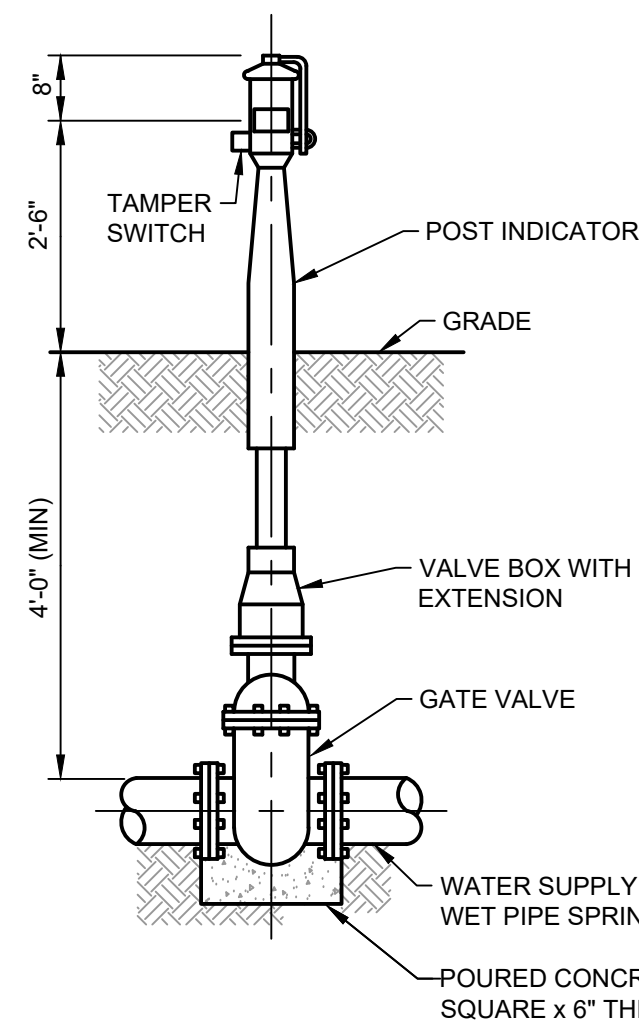


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| REV | DATE | DESCRIPTION | APP |
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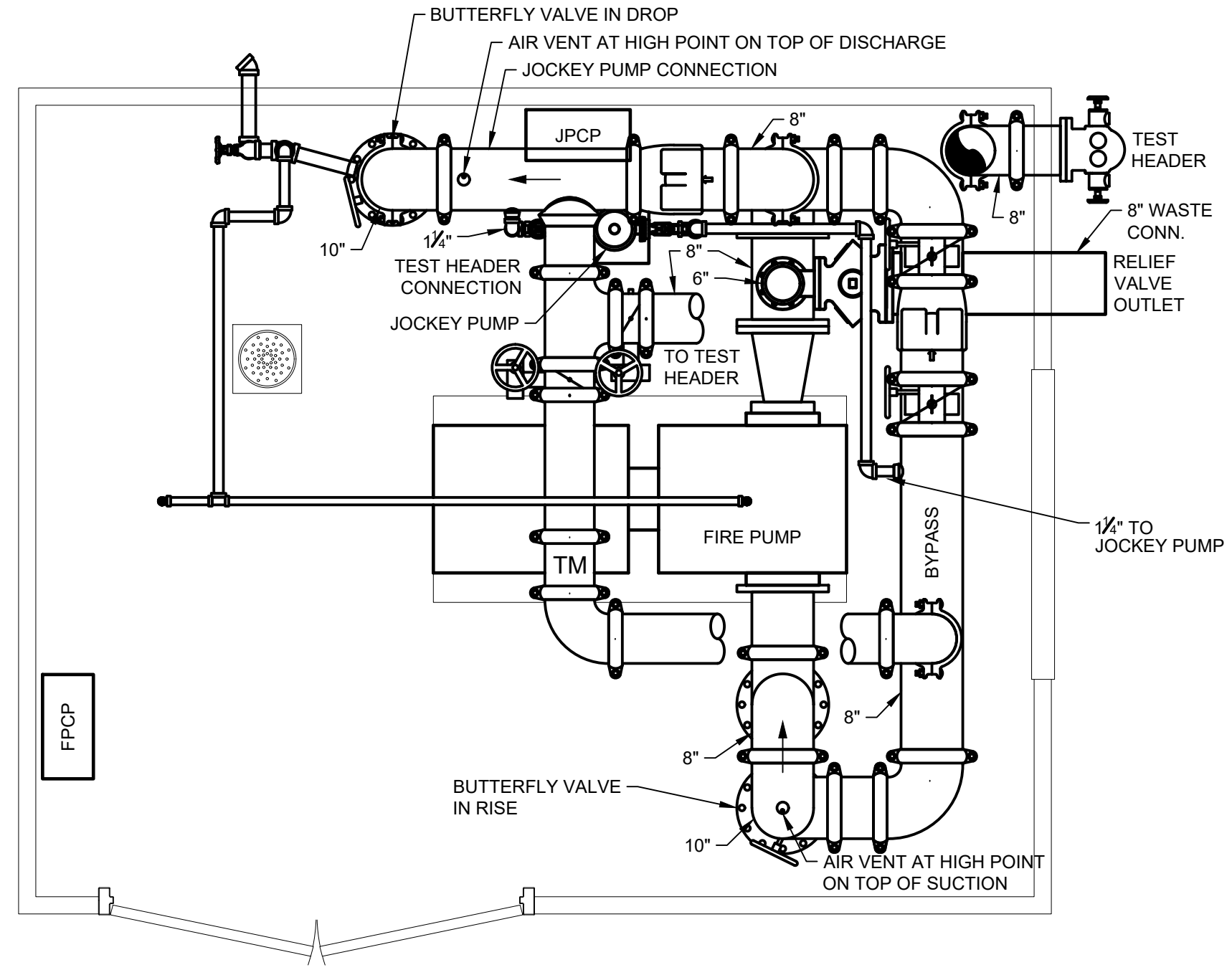
FP-206 CH



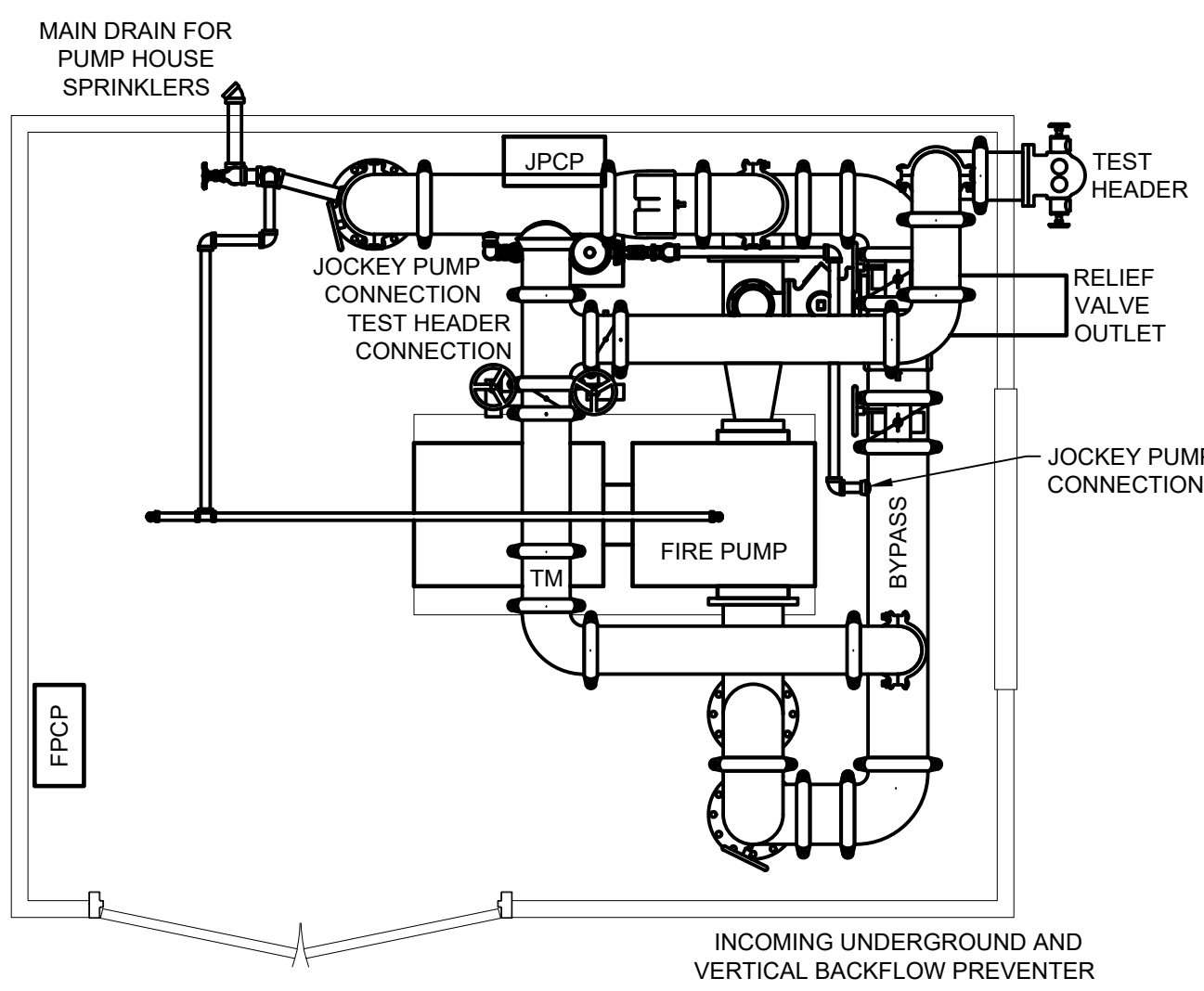
1 COURTHOUSE SITE PLAN - FIRE PROTECTION
FP-207 CH SCALE: 1/8" = 1'-0"



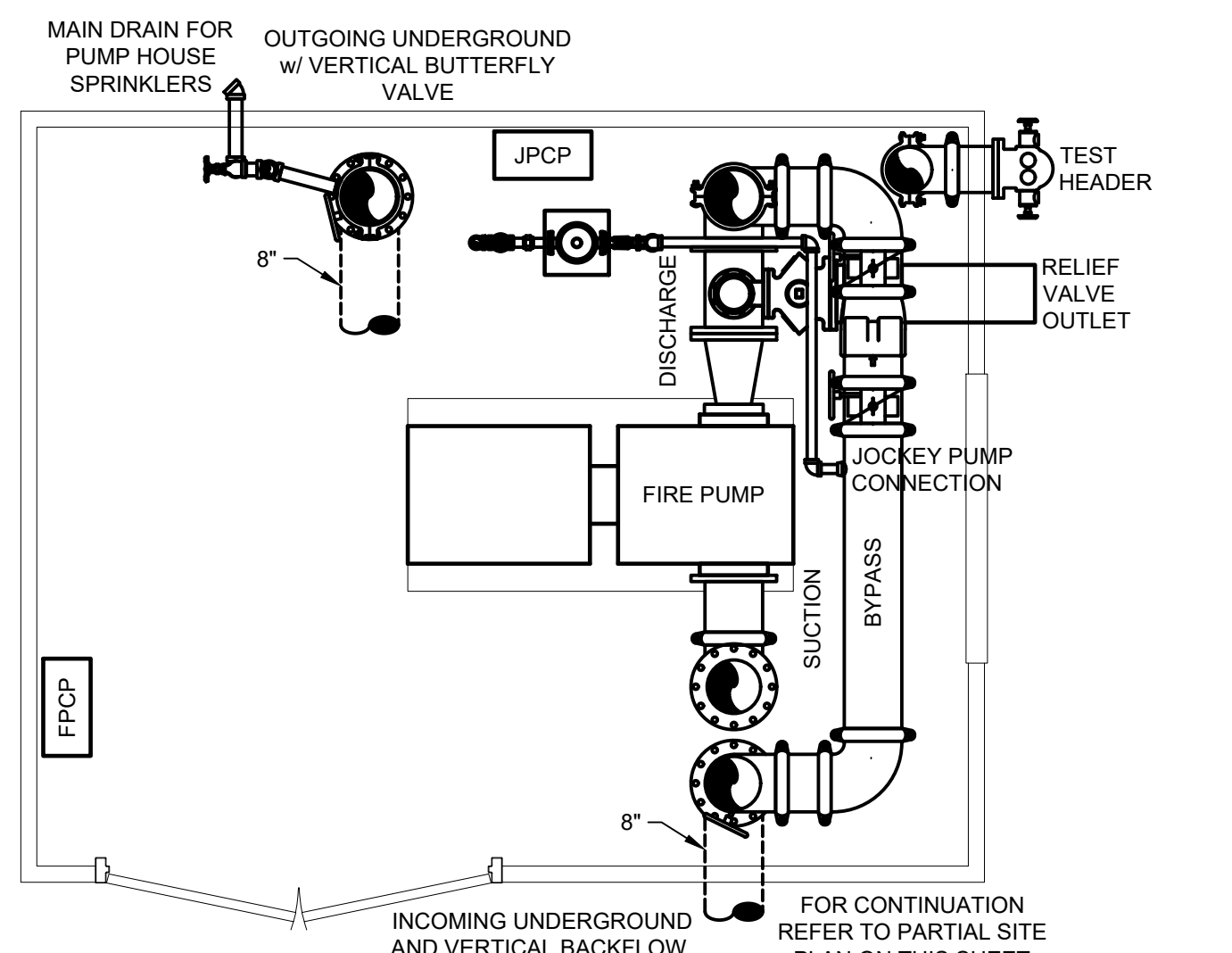
7 DETAIL - POST INDICATOR VALVE
FP-207 CH NO SCALE



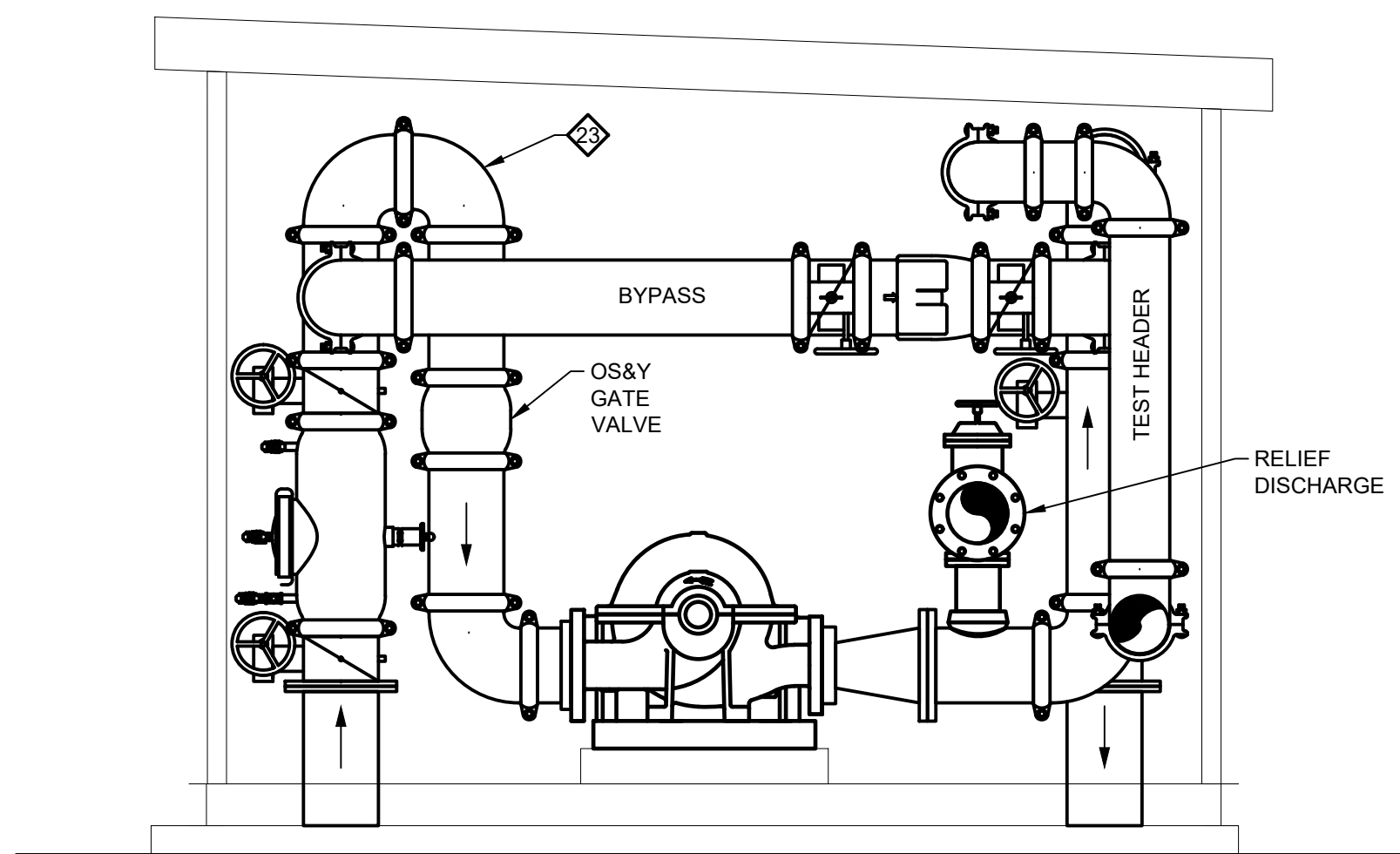
2 COURTHOUSE - PUMP HOUSE - FIRE PROTECTION
FP-207 CH SCALE: 1/2" = 1'-0"



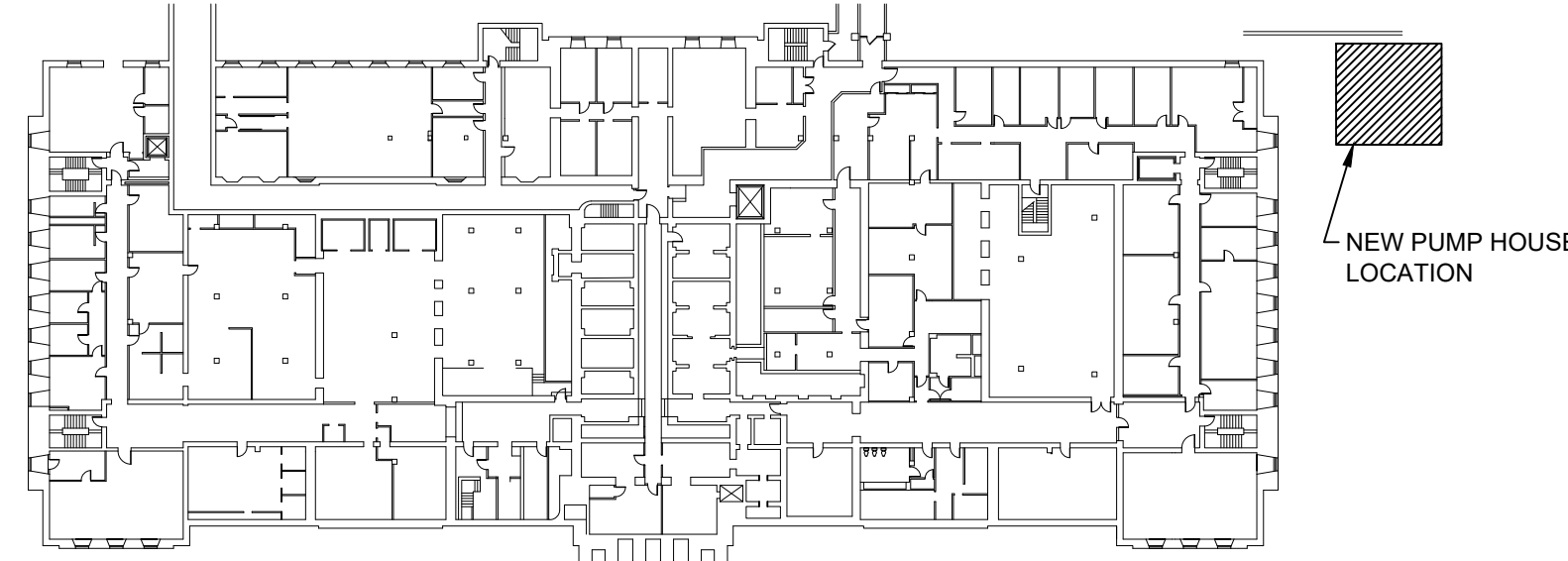
3 PLAN - COURTHOUSE
FIRE PUMP PIPING CONFIGURATIONS (10' ABOVE SLAB)
FP-207 CH SCALE: 3/8" = 1'-0"



4 PLAN - COURTHOUSE
FIRE PUMP PIPING CONFIGURATIONS (8' ABOVE SLAB)
FP-207 CH SCALE: 3/8" = 1'-0"



5 SECTION - COURT HOUSE PUMP HOUSE - LOOKING WEST
FP-207 CH SCALE: 1/2" = 1'-0"



REV	DATE	DESCRIPTION	APP

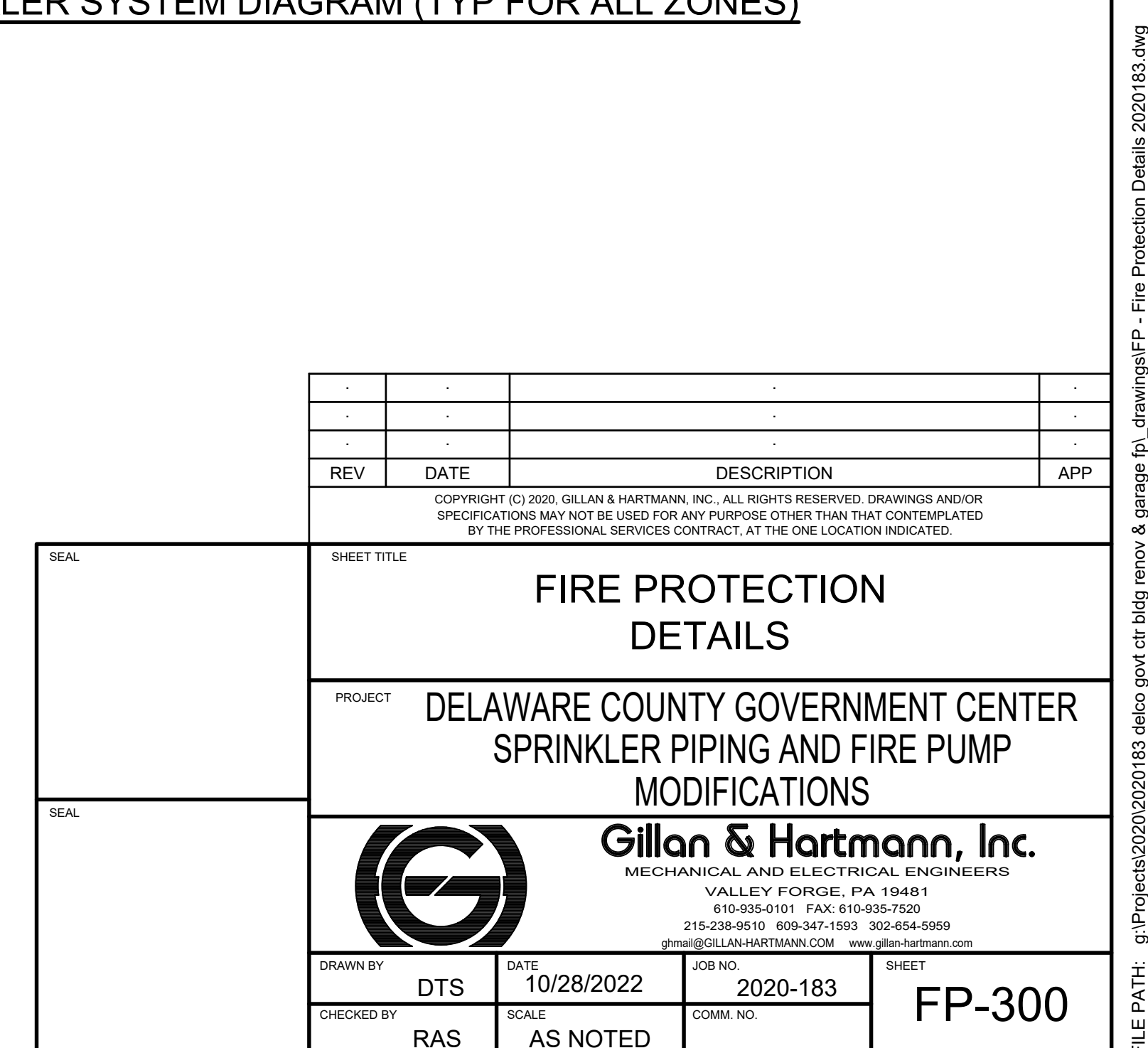
SHEET TITLE FIRE PROTECTION NEW FIRE PUMP HOUSE - COURTHOUSE			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 17881 610-935-0101 FAX: 610-935-7520 215-238-9510 609-347-1593 302-654-0909 gillan@GILLANHARTMANN.COM www.gillanhartmann.com			
DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET FP-207 CH
CHECKED BY RAS	SCALE AS NOTED	DATE 10/28/2022	TIME 12:18 PM




MINIMUM SIZE OF CONCRETE THRUST BLOCKS (PUMP DISCHARGE: 200PSI)												
PIPE SIZE	TEES & CROSSES			90° BENDS			45° BENDS			22 ° & 11 ° BENDS		
	A	B	C	A	B	C	A	B	C	A	B	C
8"	72"	24"	48"	66"	24"	60"	48"	24"	45"	36"	24"	30"
10"	108"	24"	48"	100"	24"	60"	72"	24"	45"	55"	24"	30"

NOTE:
WHERE CONCRETE CANNOT BE POURED AGAINST TWO SURFACES OF UNDISTURBED SOIL, GALVANIZED METAL TIE RODS & CLAMPS OR LUGS SHALL BE USED.

1 DETAILS - THRUST BLOCK
FP-300 NO SCALE



AIR COMPRESSOR SCHEDULE						BASIS OF DESIGN: GENERAL AIR PRODUCTS				
REF. NO.	LOCATION	CAPACITY (GAL)	FILL TIME / PRESS. (MIN / PSI)	MOISTURE FREE AIR TEMP (°F)	MOTOR INFORMATION				MODEL	REMARKS
					HP	VOLTS	PHASE	HZ		
AC-1	MECH ROOM (LEVEL C)	2000	30 / 40	-40	5	460	3	60	DAP2000B	(1)(2)
AC-2	MECH ROOM (LEVEL C)	2000	30 / 40	-40	5	460	3	60	DAP2000B	(1)(2)
AC-3	MECH ROOM (LEVEL C)	2000	30 / 40	-40	5	460	3	60	DAP2000B	(1)(2)

(1) FURNISHED WITH DESICCANT DRYER, AIR COOLED AFTERCOOLER, PREFILTER WITH DIFFERENTIAL PRESSURE GAUGE, FULLY INTEGRATED CONTROL PANEL, AND ELECTRONIC DRAIN VALVE
(2) SYSTEM SHALL BE PRE-PIPED, PREWIRED AND PRETESTED.

HEAT TRACE SCHEDULE			BASIS OF DESIGN: NVENT, RAYCHEM				
SYSTEM	PIPE SIZE	NUMBER OF CONTROLLERS	POWER				
			WATTS/ LF	VOLTS	PHASE	HZ	CB SIZE
WET STAND PIPE	6"	1	5	277	1	60	20
PG FP SUPPLY & RETURN	8" [2]	1	5	120	1	60	20

SELECTIONS BASED ON 40°F START UP TEMPERATURE AND 0°F AMBIENT TEMPERATURE.
FIRE PROTECTION CONTRACTOR SHALL FIELD VERIFY SYSTEM, SIZE AND LENGTH.

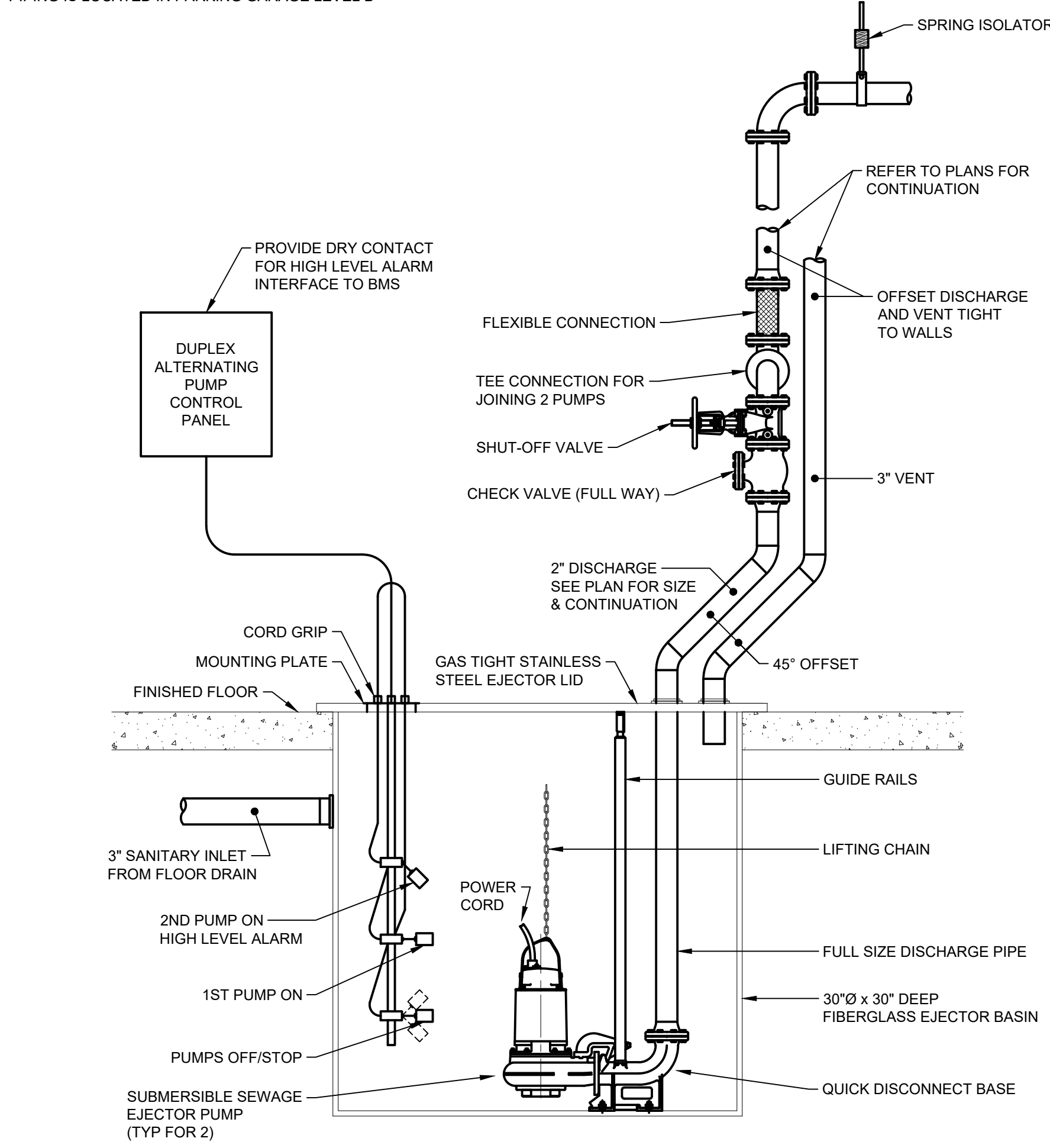
REV	DATE	DESCRIPTION	APP
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SEAL	SHEET TITLE FIRE PROTECTION SCHEDULES		
SEAL	PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS		
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 18481 610-935-0101 FAX: 610-935-7520 gpm@GILLAN-HARTMANN.COM www.gillan-hartmann.com			
DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET FP-400
CHECKED BY RAS	SCALE AS NOTED	CORRE NO.	

WASTE WATER SUMP PUMP SCHEDULE									
BASIS OF DESIGN (RECESSED): ZOELLER PUMPS									
BASIS OF DESIGN (FREE STANDING): LITTLE GIANT									
REF. NO.	LOCATION	CAPACITY (GPM)	DISCHARGE PRESS. (FT. HD.)	DISCHARGE CONN. SIZE	VENT CONN. SIZE	MOTOR INFORMATION			MODEL
						HP	RPM	VOLTS	PHASE
SP-1	FIRE PUMP ROOM - PARK GARAGE LEVEL B	30	20	1/2"	1/2"	1/2	1,750	120	1
SP-2	BASEMENT CORNER OFFICE	30	20	2"	2"	1/2	-	120	1
									10SF2V2D

- (1) PROVIDE CHECK VALVE AND FLOW CONTROL VALVE ON OUTLET OF SUMP PUMP.
(2) PROVIDE 30" DIAMETER BY 30" DEEP RECESSED BASIN.
(3) PROVIDE DRY CONTACT FOR CONNECTION TO BUILDING MANAGEMENT SYSTEM.
(4) EACH SUMP PUMP SHALL BE DUPLEX TYPE.
(5) PROVIDE 20" DIAMETER BY 30" HIGH FREE STANDING MOLDED POLYETHYLENE BASIN WITH MOLDED BASIN TOP.
(6) LOCATE IN OFFICE CLOSET.
(7) SINGLE PUMP.

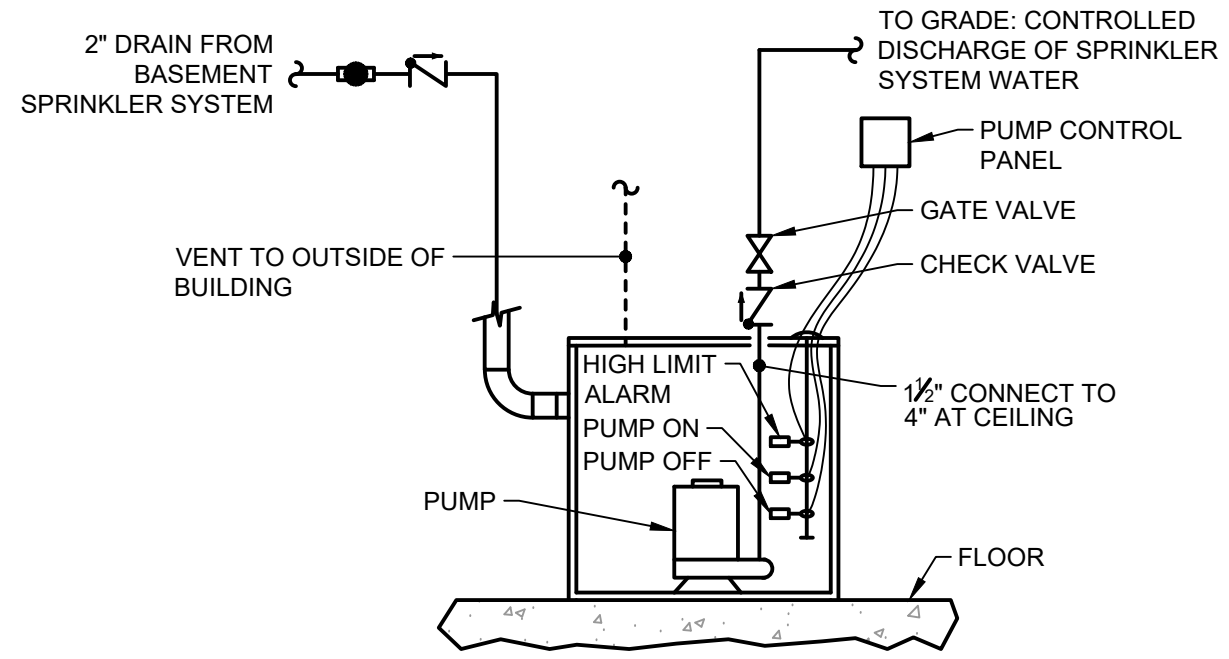
HEAT TRACE SCHEDULE									
BASIS OF DESIGN: NVENT, RAYCHEM									
SYSTEM	PIPE SIZE	NUMBER OF CONTROLLERS	WATTS/ LF	VOLTS	PHASE	HZ.	CB SIZE		
DOM. WATER (CW, HW, HWR)	4", 2", 1"	1	5	277	1	60	30		

SELECTIONS BASED ON 40°F START UP TEMPERATURE AND 0°F AMBIENT TEMPERATURE.
CONTRACTOR SHALL FIELD VERIFY SYSTEM, SIZE AND LENGTH.
PIPING IS LOCATED IN PARKING GARAGE LEVEL B

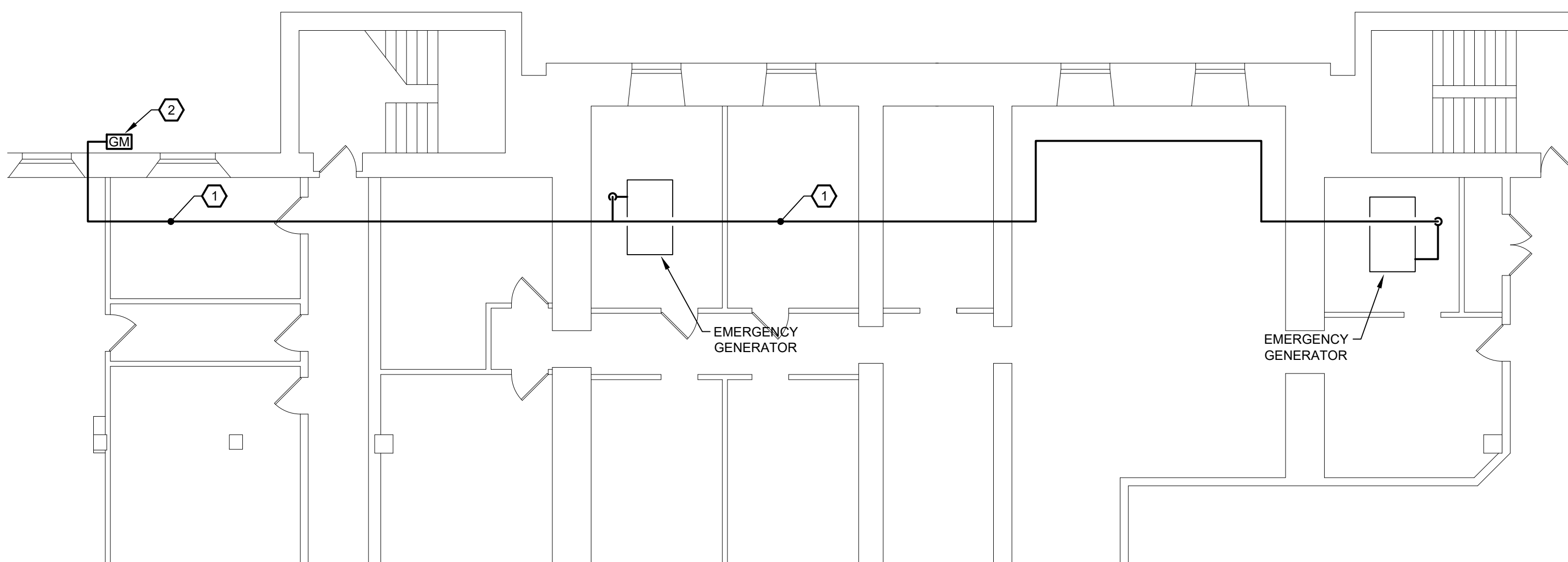


NOTE:
FLOAT SWITCH SET DEPTHS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS

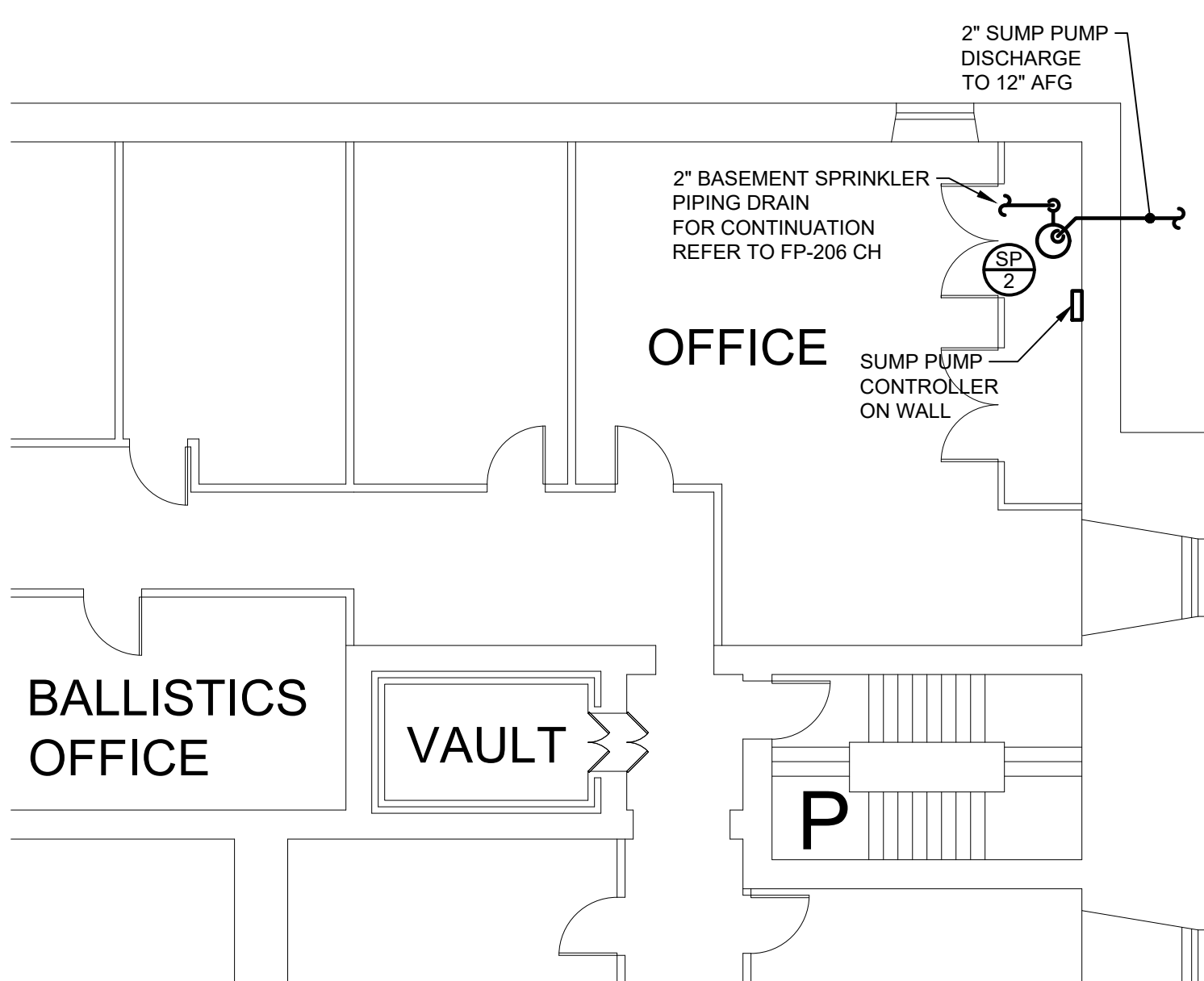
DETAIL - PARKING GARAGE DUPLEX FLOOR DRAIN EJECTOR PUMP SP-1
P-100 NO SCALE



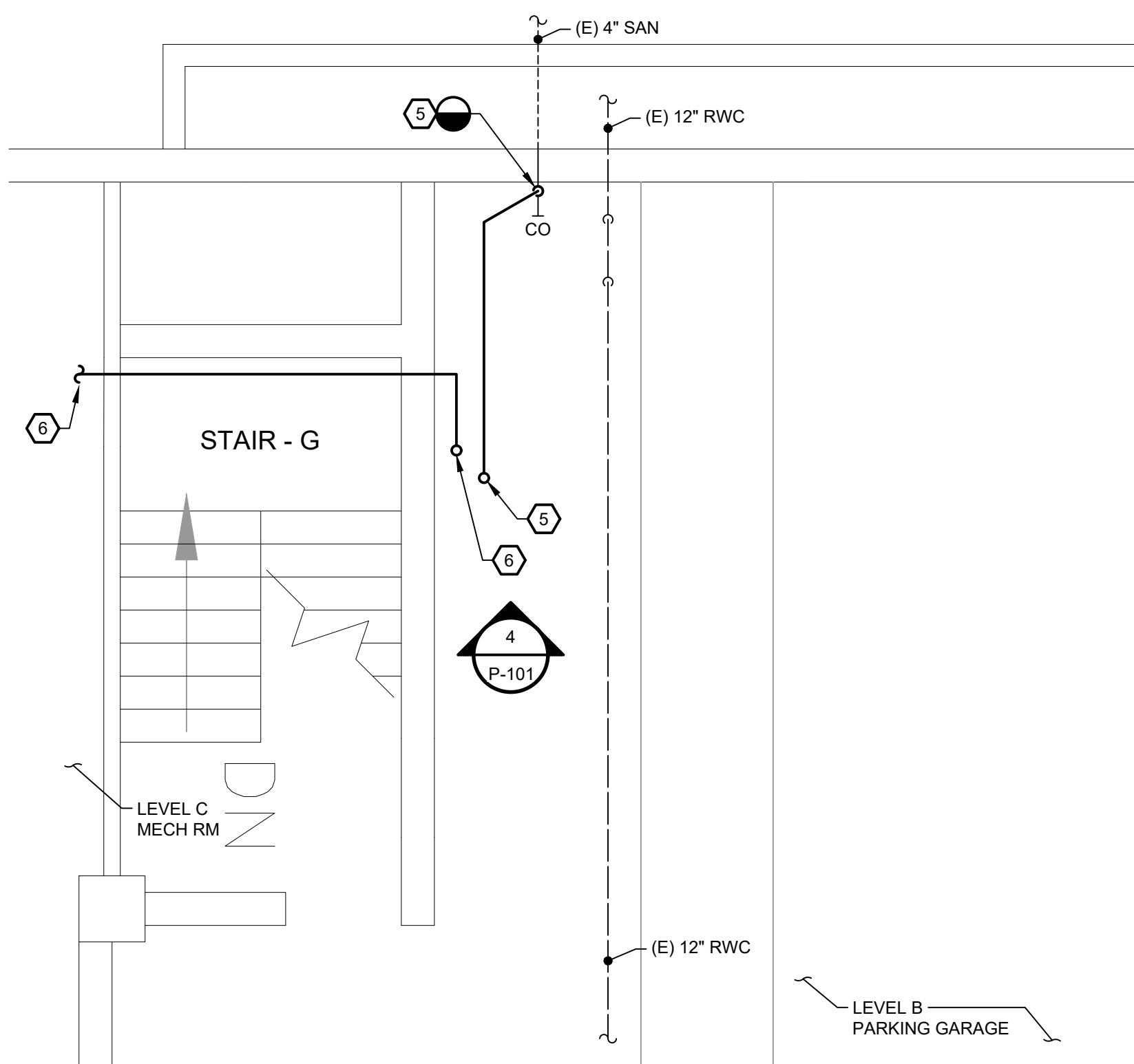
DETAIL - COURTHOUSE WASTE WATER BASIN & PUMP SP-2
P-100 NO SCALE



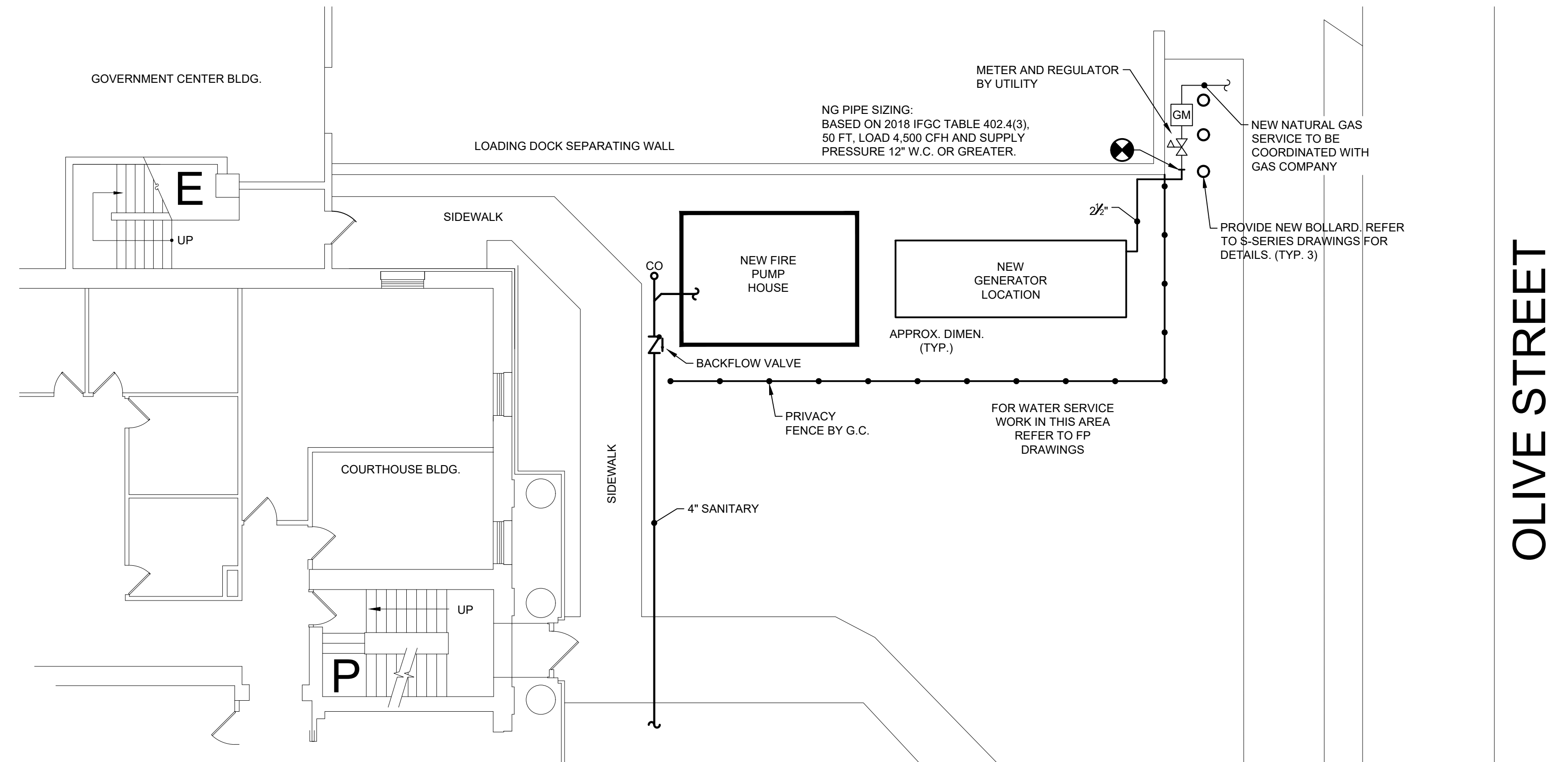
COURTHOUSE - PARTIAL BASEMENT PLAN
P-100 SCALE: 1/8" = 1'-0"



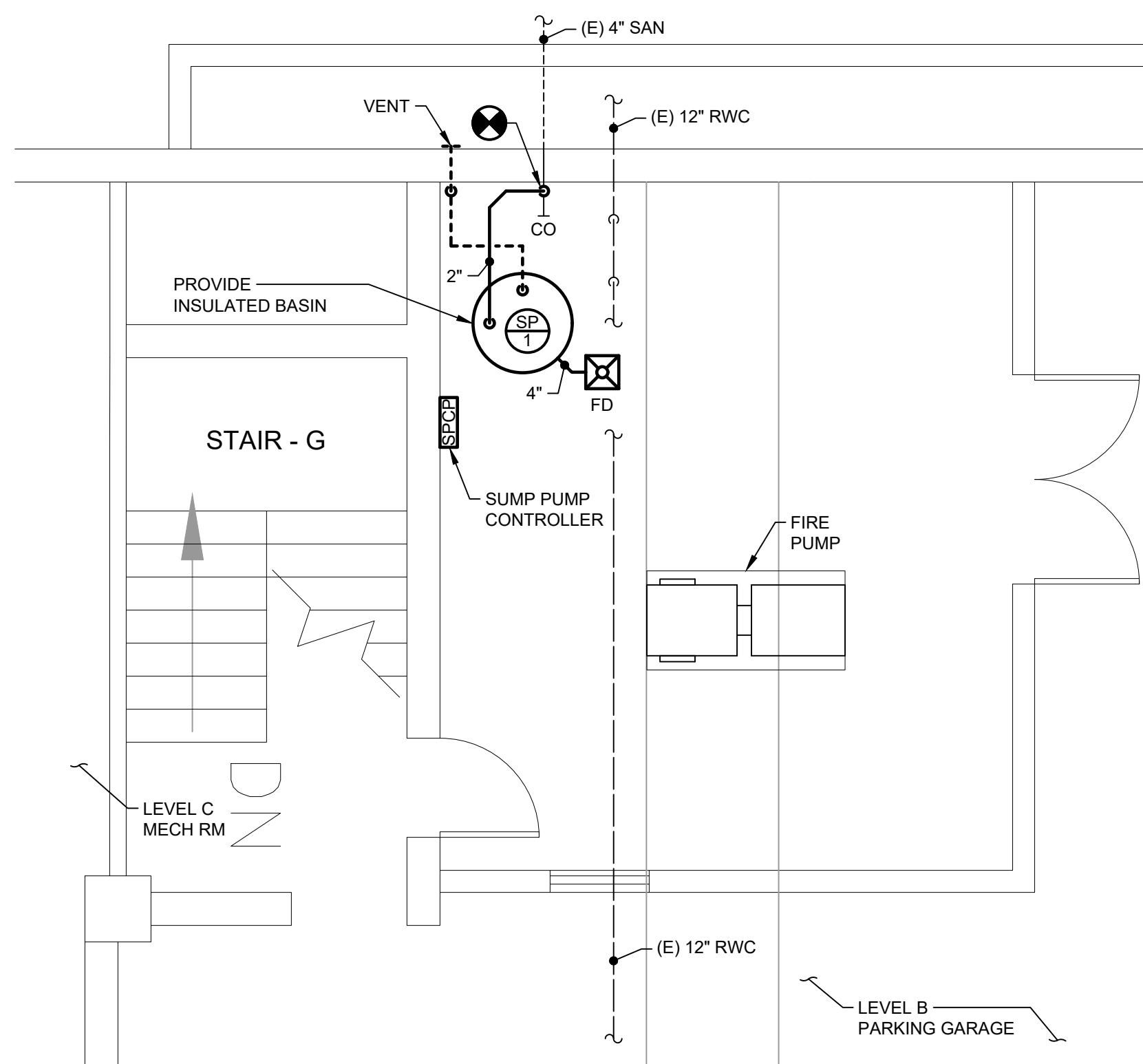
COURTHOUSE - BASEMENT PARTIAL PLAN
P-100 SCALE: 1/8" = 1'-0"



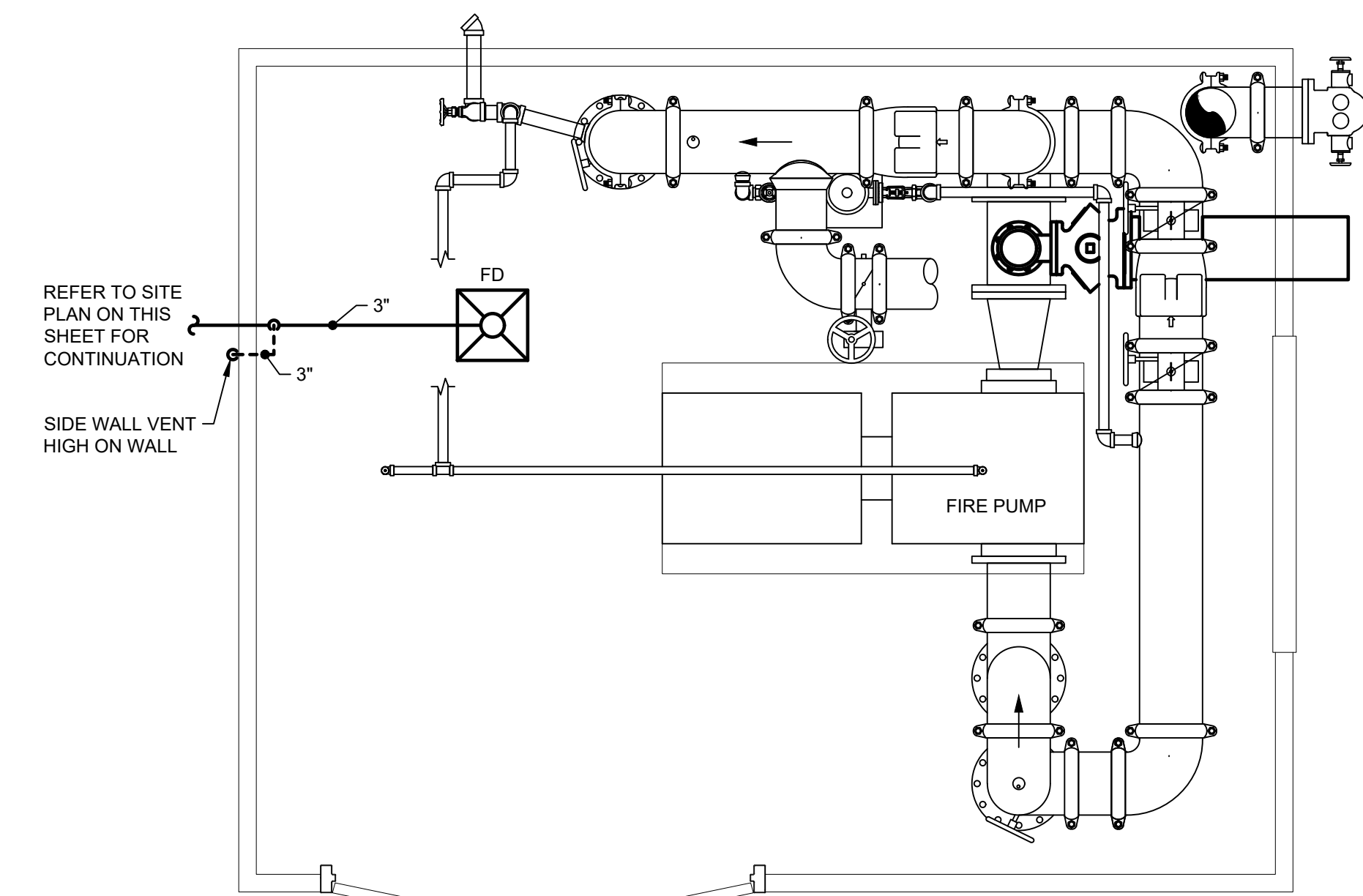
PARKING GARAGE - LEVEL B FIRE PUMP ROOM - PLUMBING REMOVALS
P-100 SCALE: 1/4" = 1'-0"



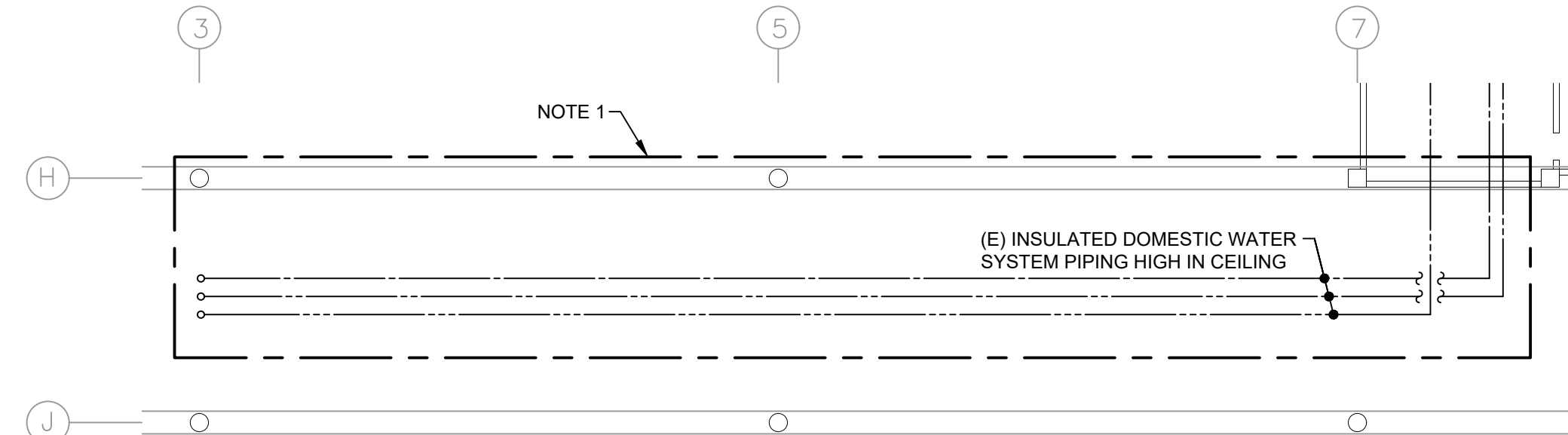
COURTHOUSE SITE PLAN - PLUMBING
P-100 SCALE: 1/8" = 1'-0"



PARKING GARAGE - LEVEL B FIRE PUMP ROOM - PLUMBING NEW WORK
P-100 SCALE: 1/4" = 1'-0"



COURTHOUSE - PUMP HOUSE - PLUMBING
P-100 SCALE: 1/2" = 1'-0"

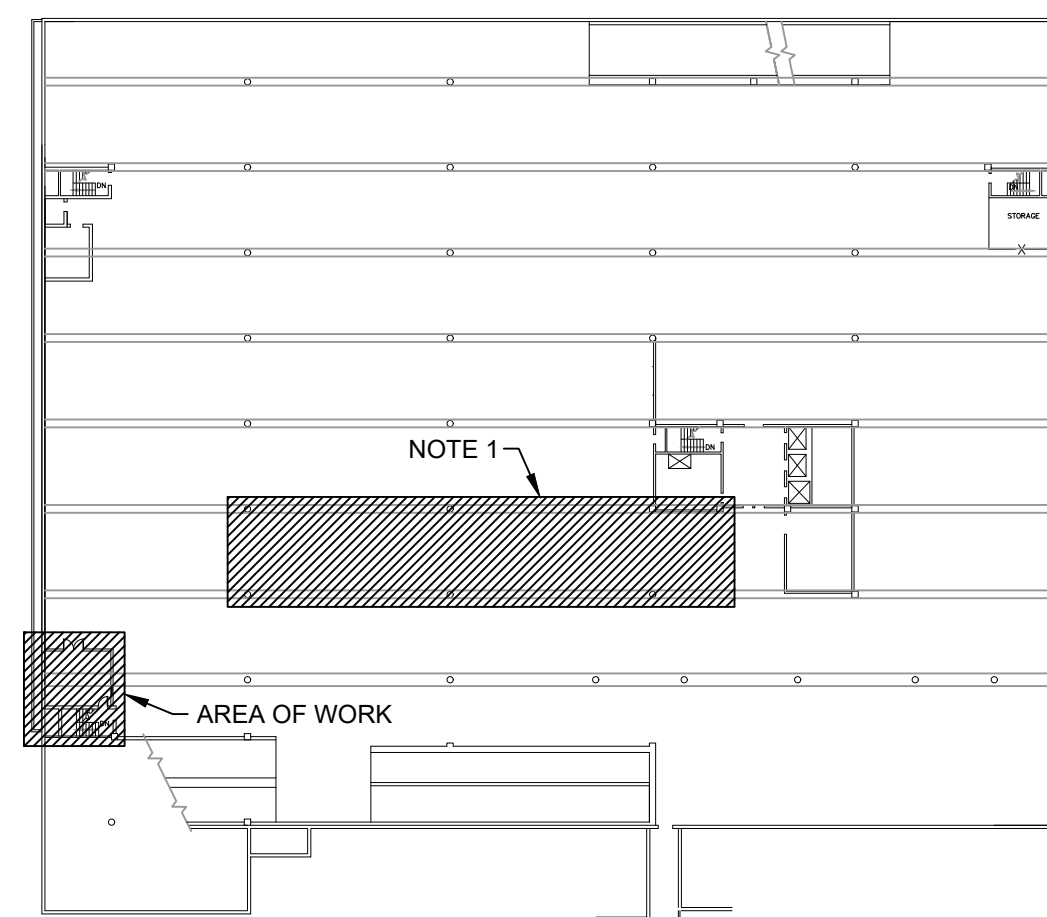


PARKING GARAGE - LEVEL B - PLUMBING
P-100 SCALE: 1/16" = 1'-0"

REMOVAL NOTES:

- REMOVE ALL EXISTING GAS PIPING, REGULATORS, VALVES, HANGERS, AND SUPPORTS FROM EMERGENCY GENERATORS TO EXTERIOR UTILITY GAS METER. PATCH EXTERIOR WALL WATER TIGHT, MATCHING EXISTING EXTERIOR FINISHES.
- COORDINATE NATURAL GAS SHUT-OFF AND REMOVAL OF GAS METER ASSEMBLY WITH UTILITY.
- REMOVE EXISTING TEST CONNECTION DRAIN PIPING IN ITS ENTIRETY FROM SPRINKLER ZONE VALVES TO SUMP PUMP.
- TEST SUMP PUMPS AND ASSOCIATED MOTORS, FLOATS, CONTROLS ETC. FOR A PROPER OPERATING SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE REPORT FOR THE OWNER'S REVIEW AND RECORD.
- REMOVE SANITARY PIPING FROM CEILING PENETRATION TO WALL PENETRATION AND CAP. PATCH CEILING PENETRATION MATCHING EXISTING CONSTRUCTION.
- REMOVE EXISTING DW PIPING IN ITS ENTIRETY BACK TO VALVED TAKEOFF IN THE LEVEL C MECH ROOM. PATCH CEILING AND WALL PENETRATIONS MATCHING EXISTING CONSTRUCTION.
- CONTRACTOR TO SCOPE EXISTING STORM WATER DRAIN PIPING FROM EXISTING DRAIN TO MAIN LATERAL AND PROVIDE REPORT INCLUDING ROUTING, SIZE, AND CONDITION OF PIPE TO OWNER'S REPRESENTATIVE PRIOR TO START OF CONSTRUCTION.
- REMOVE PIPE TO POINT INDICATED TO FACILITATE INSTALLATION OF NEW EMERGENCY GENERATOR AND ASSOCIATED PAD.

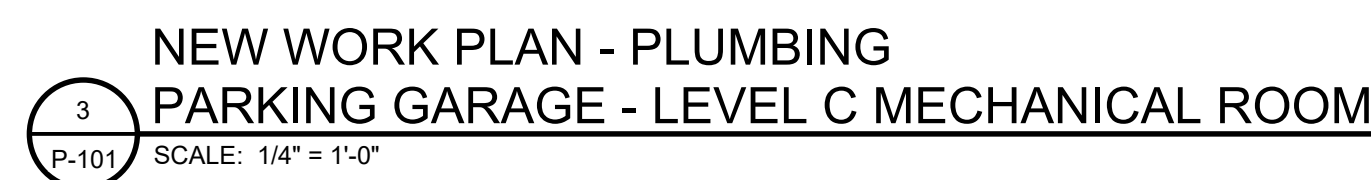
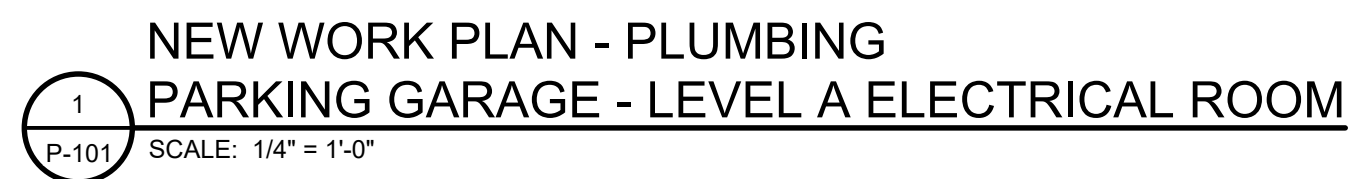
NOTE 1: PROVIDE HEAT TRACE TAPE ON EXISTING CW, HW, & HWR PIPING IN THIS AREA. REMOVE EXISTING PIPE INSULATION AND INSTALL NEW INSULATION AND JACKET OVER HEAT TRACE TAPE. INSTALL HEAT TRACING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



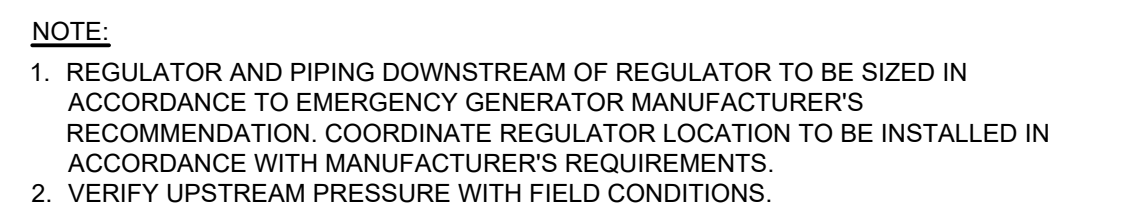
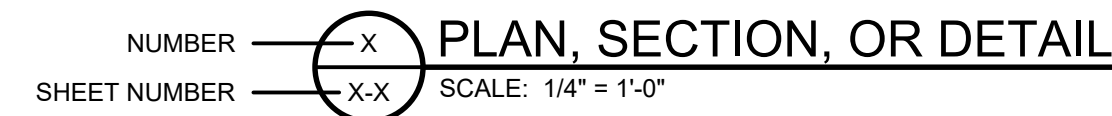
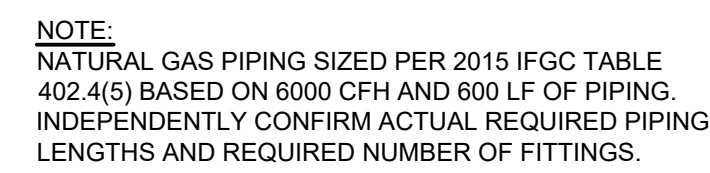
PARKING GARAGE - LEVEL B

REV	DATE	DESCRIPTION	APP

SHEET TITLE PLUMBING REMOVALS, NEW WORK, AND SCHEDULES			
PROJECT DELAWARE COUNTY GOVERNMENT CENTER SPRINKLER PIPING AND FIRE PUMP MODIFICATIONS			
 Gillan & Hartmann, Inc. MECHANICAL AND ELECTRICAL ENGINEERS VALLEY FORGE, PA 19481 215-238-0510 609-347-1593 302-654-0909 gillan@GILLANHARTMANN.COM www.gillanhartmann.com			
DRAWN BY DTS	DATE 10/28/2022	JOB NO. 2020-183	SHEET P-100
CHECKED BY RAS	SCALE AS NOTED	DATE 2020-183	



1. COORDINATE LOCATION OF ALL MECHANICAL, PLUMBING, FIRE PROTECTION, ELECTRICAL, COUNTY FURNISHED, AND G.C. EQUIPMENT WITH THE RESPECTIVE TRADE CONTRACTORS.
2. PROVIDE PIPE SLEEVES AND LINK-SEAL OR EQUIVALENT SYSTEM FOR ALL PENETRATIONS THROUGH FLOOR SYSTEM TO BELOW GRADE, THROUGH FOUNDATION WALLS AND/OR ANY PENETRATIONS WHICH WOULD POTENTIALLY ALLOW FOR GROUND WATER SEEPAGE.
3. PERFORM ALL CUTTING AND PATCHING NECESSARY TO PERFORM WORK. MATCH EXISTING MATERIALS, FINISHES, FIRE RATINGS, PAINT COLORS, ETC. IN ALL AREAS OF PATCHING.
4. COORDINATE AND FIELD VERIFY ALL DIMENSIONS, SIZES, CLEARANCES, AND LOCATIONS PRIOR TO THE START OF CONSTRUCTION. WHEN CONFLICT ARISES, MAKE ANY NECESSARY CHANGES TO ROUTING OF PIPING WITHOUT COMPROMISING THE INTEGRITY AND PERFORMANCE OF THE SYSTEM, AND AT NO ADDITIONAL COST.
5. PROVIDE ALL NECESSARY HANGERS AND/OR SUPPORTS TO FACILITATE INSTALLATION OF ALL PIPING, EQUIPMENT, ETC.
6. SCHEDULE AND OBTAIN APPROVAL FOR ALL SYSTEM SHUTDOWNS WITH THE INSTITUTION PRIOR TO COMMENCING WITH REMOVAL AND NEW WORK.
7. COORDINATE REQUIREMENTS FOR LOSS OF PHASE PROTECTION ON ALL THREE PHASE MOTORS SERVING EQUIPMENT ON THIS CONTRACT.
8. PROVIDE BOLLARDS AS INDICATED ON THE PLUMBING DRAWINGS, PAINT BOLLARDS YELLOW. REFER TO S-SERIES DRAWINGS FOR DETAIL.
9. PROVIDE GROUND PENETRATING RADAR (GPR) FOR CUTTING/PATCHING ASSOCIATED WITH PENETRATIONS IN ACCORDANCE WITH STRUCTURAL DRAWING.



1. REFER TO DRAWING P-100 FOR REMOVAL NOTES.

- | | |
|--------|-----------------------------|
| AFB | ABOVE FINISHED GRADE |
| CB | CIRCUIT BREAKER |
| CFH | CUBIC FEET PER HOUR |
| CON. | CLEANOUT |
| CONN. | CONNECTION |
| CW | DOMESTIC COLD WATER |
| DN | DOWN |
| (E) | EXISTING |
| FD | FLOOR DRAIN |
| FT. | FEET |
| FP | FIRE PROTECTION |
| G | NATURAL GAS |
| GPM | GALLONS PER MINUTE |
| HD. | HEAD |
| HP | HORSEPOWER |
| HW | DOMESTIC HOT WATER |
| HWI | DOMESTIC HOT WATER RETURN |
| HE | HEAD |
| IFGC | INTERNATIONAL FUEL GAS CODE |
| LF | LINEAR FOOT |
| NO. | NUMBER |
| PRESS. | PRESSURE |
| REF. | REFERENCE |
| RM | ROOM |
| RPM | ROTATIONS PER MINUTE |
| RWC | RAINWATER CONDUCTOR |
| SAN | SANITARY |
| SP | SUMP PUMP |
| TYP. | TYPICAL |

[illegible]