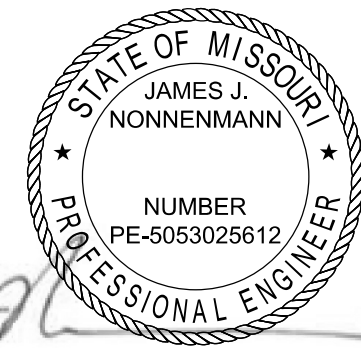


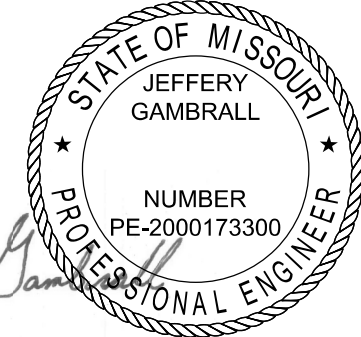
# CLYDESDALE HALL REPLACE STEAM SERVICE PROJECT NUMBER: CP241001

AT: UNIVERSITY OF MISSOURI - COLUMBIA, MISSOURI  
FOR: THE CURATORS OF THE UNIVERSITY OF MISSOURI  
ISSUE FOR BID: 02/09/2024

I HEREBY CERTIFY THAT DRAWINGS AND/OR SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND/OR SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH BUILDING CODES OF THE UNIVERSITY OF MISSOURI.  
SIGNATURE: *James J. Nonnenmann*



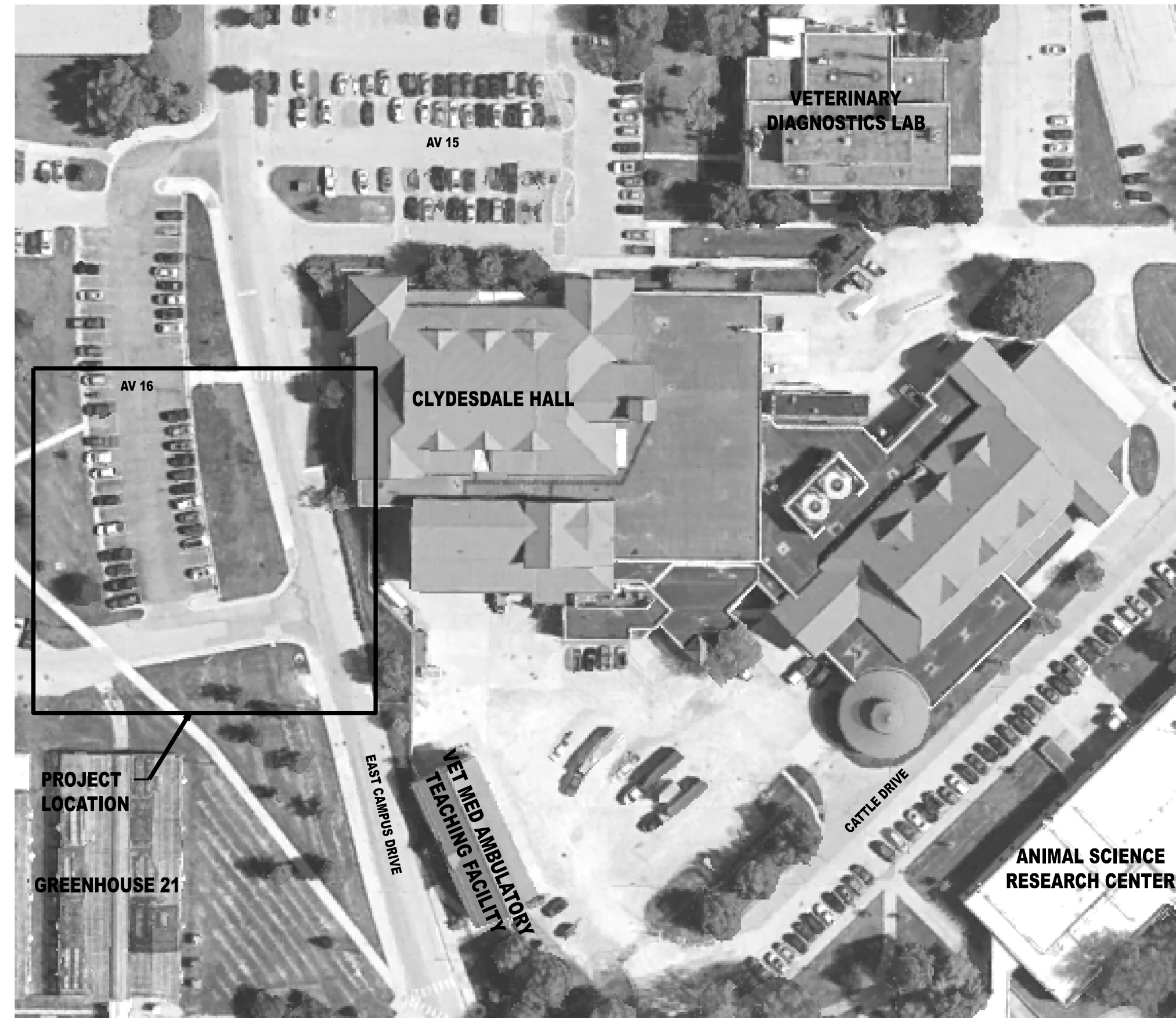
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SIGNATURE: *Jeffery J. Gambrell*



I HEREBY CERTIFY THAT DRAWINGS AND/OR SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND/OR SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH BUILDING CODES OF THE UNIVERSITY OF MISSOURI.  
SIGNATURE: *Andrew T. Greene*



I HEREBY CERTIFY THAT DRAWINGS AND/OR SPECIFICATIONS HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE DRAWINGS AND/OR SPECIFICATIONS ARE AS REQUIRED BY AND IN COMPLIANCE WITH BUILDING CODES OF THE UNIVERSITY OF MISSOURI.  
SIGNATURE: *Gregory L. Unnenman*



## DESIGN CONSULTANTS:

### MECHANICAL AND ELECTRICAL

PRVN CONSULTANTS, INC.  
1617 SECOND AVE. SUITE 110  
ROCK ISLAND, IL 61201  
563-263-5160

### CIVIL AND STRUCTURAL

CROCKETT ENGINEERING CONSULTANTS  
1000 W. NIFONG BOULEVARD, BUILDING 1  
COLUMBIA, MO 65203  
573-447-0292

### OWNER'S REPRESENTATIVE

DERICK LAUBERT  
112 GENERAL SERVICES BUILDING  
COLUMBIA, MO 65211  
573-882-6800

### CODES & STANDARDS

UM CONSULTANT PROCEDURES AND DESIGN GUIDELINES: CURRENT EDITION

IBC:	2021	NFPA 45:	2019
IEBC:	2021	NFPA 72:	2019
IMC:	2021	NFPA 90A:	2018
IPC:	2021	NFPA 96:	2017
IFC:	2021	NFPA 110:	2019
IFGC:	2021	NFPA 150:	2019
NEC:	2020	ASHRAE 90.1:	2019
NFPA 13:	2019	ASME A17.1:	2016
NFPA 14:	2019	ICC A117.1:	2017
NFPA 20:	2019		

## INDEX OF DRAWINGS

SHEET NUMBER	SHEET TITLE	REVISION DESCRIPTION	
		REVISION DELTA #	
GG001	STEAM LINE REPLACEMENT COVER SHEET	0	
GG002	GENERAL LEGEND AND NOTES	1	
CE1	SITE NOTES AND EXISTING CONDITIONS PLAN		
CE2	DEMOLITION AND FENCING PLAN - PHASE 1		
CE3	UTILITY PLAN - PHASE 1		
CE4	SITE PLAN - PHASE 1		
CE5	DEMOLITION AND FENCING PLAN - PHASE 2		
CE6	UTILITY PLAN - PHASE 2		
CE7	SITE PLAN - PHASE 2		
CE8	GRADING AND EROSION CONTROL PLAN		
CE9	TRAFFIC CONTROL PLAN - PHASE 1		
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CE12	WATER LINE DETAILS		
DM001	DEMOLITION SITE PLAN		
DM010	DEMOLITION PLAN SMH-462		
DM011	DEMOLITION PLAN SMH-439 AND SMH-421		
DM050	DEMOLITION PHOTO VIEWS		
S100	STEAM MANHOLE #468 PLAN		
S101	STEAM MANHOLE #468 DETAILS		
S102	STEAM MANHOLE #468 DETAILS		
S110	TYPICAL WATERPROOFING & REPAIR DETAILS AND NOTES		
S111	TYPICAL CONCRETE REPAIR DETAILS & NOTES		
MP001	MECHANICAL SITE PLAN		
MP010	MECHANICAL PLAN AND SECTIONS SMH-462		
MP011	MECHANICAL PLAN AND SECTIONS SMH-468		
MP012	MECHANICAL PLAN AND SECTIONS - SMH-421 AND CLYDESDALE HALL		
MP020	PIPING PLAN AND PROFILE STEAM AND CONDENSATE - SHEET 1		
MP021	PIPING PLAN AND PROFILE STEAM AND CONDENSATE - SHEET 2		
MP040	THERMAL EXPANSION PLAN MPS		
MP041	THERMAL EXPANSION PLAN PC		
MP050	MECHANICAL DETAILS - SHEET 1		
MP051	MECHANICAL DETAILS - SHEET 2		
EP001	ELECTRICAL SITE PLAN		
EP002	ELECTRICAL FIRST FLOOR PLAN - MECHANICAL ROOM A109		
EP011	ELECTRICAL PLAN SMH-468		
EP051	ELECTRICAL DETAILS - SHEET 1		
EP061	ELECTRICAL CABLE SCHEDULE		

**PROJECT ADDRESS**  
900 E Campus Drive,  
Columbia, MO 65201

**PROJECT DESCRIPTION**  
Replace steam and condensate services to Clydesdale Hall.

#### SPECIAL INSPECTIONS [IBC CHAPTER 17]:

- All concrete waterproofing shall be fully placed and inspected by the owner prior to proceeding to the next step of installation. Owner shall receive 24 hour notice of inspections being required. These inspections for approval shall include:
  - Substrate conditions and preparations
  - Flashing installation
  - Membrane installation
  - Protection and drainage installation
- The owner will contract with an independent testing firm to complete ultrasonic shear wave weld inspections on owner selected field welds. If the results of these tests indicate poor quality welds, those "failed" welds shall be replaced at no additional cost to the project. If further ultrasonic inspection is required to assure quality weld workmanship, these tests shall be at the expense of the contractor, and any and all defective welds shall be replaced at no additional cost to the project.

#### DELEGATED DESIGN:

Contractor is responsible for the design of shoring, earth retention systems, temporary excavations support, existing utility protection systems, and associated items as needed to facilitate completion of this work. Design shall be completed by a licensed professional structural engineer registered in the State of Missouri. Designs shall be submitted to review by project engineer.

PRVN CONSULTANTS, INC.  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
-2023077605

CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
REPLACE STEAM SERVICE  
COVER SHEET

PROJECT NUMBER

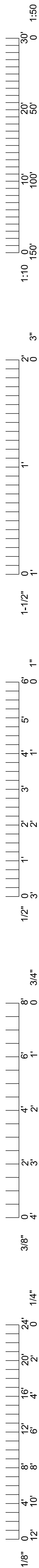
CP241001

SHEET

GG001

02/09/24 ISSUED FOR BID  
02/09/24 DRAWN BY: MAO  
CHECKED BY: JUN





**GENERAL SYMBOLS**

	NORTH ARROW		GRATING COVER (PLAN)
	REVISION INDICATOR: # - REVISION NUMBER X - PART OF ADDENDUM TO CONTRACT FOR INSTANCES WHEN ONLY A PORTION OF DRAWING IS MODIFIED BY ADDENDUM, THE AFFECTED AREA IS "CLOUDED."		CHECKERED PLATE COVER (PLAN)
	COLUMN IDENTIFICATION: # - COLUMN IDENTIFIER		GUARDRAIL/HANDRAIL
	STREAM IDENTIFIER		CENTERLINE
	DESCRIPTION EL 100'-0"		DIAMETER OR ROUND
	EXISTING OBJECT LINE		SQUARE
	OUTLINE OF NEW OR RELOCATED OBJECT		KEY NOTE IDENTIFIER
	OUTLINE OF FUTURE OBJECT		
	CENTER LINE		
	HIDDEN LINE		
	SURFACE BREAK LINE		
	MATCH LINE		

**SECTION, VIEW, OR DETAIL CALLOUTS**

	SECTION MARKER IDENTIFYING PLANE OF CUT
	TYPICAL VIEW DIRECTION
	DETAIL CALLOUT

**SECTION OR DETAIL IDENTIFIERS**

**SECTION TOP IDENTIFIER**  
BOTTOM IDENTIFIER

**DETAIL TOP IDENTIFIER**  
BOTTOM IDENTIFIER

TOP IDENTIFIER: SECTION OR DETAIL CALLOUT WITH SHEET NUMBER IT IS LOCATED ON

BOTTOM IDENTIFIER: SHEET NUMBERS WHERE DETAIL OR SECTION IS INDICATED

**PROJECT ABBREVIATIONS**

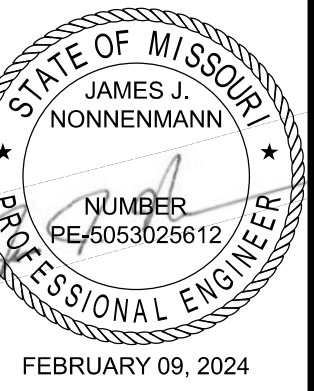
AC	AIR COMPRESSOR	HHWS	HEATING HOT WATER SUPPLY	SI	STATUS INDICATOR
ACID	SULFURIC ACID	HOV	HYDRAULIC OPERATED VALVE	SIC	STATUS INDICATOR CONTROL
AD	AIR DRYER	HP	HORSEPOWER	SIZ	STATUS INDICATOR CONTROL DRIVE
ADDL	ADDITIONAL	HRS	HOUR	SP	SPRINKLER
AFF	ABOVE FINISHED FLOOR	HSS	HAND START SWITCH	SPCF	SPEED POINT CONTROL FLOW
AHU	AIR HANDLING UNIT	HST	HAND STOP TRANSMITTER	SQ	SQUARE
AI	ANALOG INPUT	HVAC	HEATING, VENTILATION AND AIR CONDITIONING	SOV	SOLENOID VALVE
AT	AMP TRIP	HWR	HOT WATER RETURN	SSP	SOUTH STEAM PLANT
BDW	BLOW-DOWN WATER	HWS	HOT WATER SUPPLY	STA	STATION
BI	BRINE	HZ	HERTZ	STR	STORM SEWER
BFF	BACK FLOW PREVENTER	ID	INSIDE DIAMETER, IDENTIFICATION	SW	SOFT WATER
BMS	BUILDING MANAGEMENT SYSTEM OR BURNER MANAGEMENT SYSTEM	IT	INDICATING TRANSMITTER	TES	TERMINAL ENERGY SYSTEM
BP	BRINE PUMP	KV	KILOVOLT	TG	TEMPERATURE GAUGE
BOD	BOTTOM OF DUCT	KVA	KILOVOLT AMPERE	T	TANK
C	COIL	KW	KILOWATT	TRS	TEMPERATURE SENSOR
CA	COMPRESSED AIR	LAT	LEAVING AIR TEMPERATURE	TS	TRANSFER SWITCH
CCUT	COUPLING CAPACITIVE VOLTAGE TRANSFORMER	LB	POUND	TT	TEMPERATURE TRANSMITTER
CFM	CUBIC FEET PER MINUTE	LOR	LOCAL OFF REMOTE	TW	THERMOWELL
CFS	CHEMICAL FEED SUPPLY	LS	LEVEL SWITCH	TYP	TYPICAL
CL	CENTERLINE	LT	LEVEL TRANSMITTER	UH	UNIT HEATER
CHLR	CHILLER	LWT	LEAVING WATER TEMPERATURE	UTIL	UTILITY
CO	CLEANOUT	M	METER	V	VENT
COL	COLUMN	MAU	MAKEUP AIR UNIT	VFD	VARIABLE FREQUENCY DRIVE
COMM	COMMUNICATION	MAX	MAXIMUM	VP	VACUUM PUMP
COND	CONDENSATE	MBH	1000 BTU PER HOUR	VS	VARIABLE SPEED
CR	CONDENSER WATER RETURN	MCC	MOTOR CONTROL CENTER	VTR	VENT THROUGH ROOF
CS	CONDENSER WATER SUPPLY	MIN	MINIMUM, MINUTE	W	WIDTH, WATER, WIDE, WATT
CT	COOLING TOWER	MISC	MISCELLANEOUS	WCCUP	WEST CENTRAL UTILITY PLANT
CTP	CONDENSATE TRANSFER PUMP	MOV	MOTOR OPERATED VALVE	WE	WITH EQUIPMENT
CTHH	CONTROL TRANSMITTER HIGH HIGH	MPH	MILES PER HOUR	WTR	WATER
CTL	CONTROL	NC	NORMALLY CLOSED	XLG	INDICATING LIGHT GREEN
CV	CONTROL VALVE	NG	NATURAL GAS	XLR	INDICATING LIGHT RED
CWR	CHILLED WATER RETURN	NO	NORMALLY OPEN	XSS	PLC/DCS START SWITCH
CWS	CHILLED WATER SUPPLY	NPT	NATIONAL PIPE THREAD	XST	PLC/DCS STOP SWITCH
DB	DUCT BANK	NS	RUN STATUS		
DCS	DISTRIBUTED CONTROL SYSTEM	NSA	RUN STATUS AUTO		
DEG	DEGREES	NTS	NOT TO SCALE		
DIA	DIAMETER	OFD	OVER FLOW DRAIN		
DN	DOWN	P&ID	PIPING & INSTRUMENTATION DIAGRAM		
DWG	DRAWING	PCR	PUMPED CONDENSATE RETURN		
EA	EXHAUST AIR	PCT	PUMPED CONDENSATE TRANSFER		
EAT	ENTERING AIR TEMPERATURE	PCW	PROCESS COLD WATER		
EF	EXHAUST FAN	PG	PRESSURE GAUGE		
EL	ELEVATION	PMP	PUMP		
EWT	ENTERING WATER TEMPERATURE	PS	PRESSURE SWITCH		
ETC	ET CETERA	PSIG	POUNDS PER SQUARE INCH		
EXST	EXISTING	PSV	PRESSURE SUSTAINING VALVE		
F	FAHRENHEIT	PT	PRESSURE TRANSMITTER		
FACP	FIRE ALARM CONTROL PANEL	PWS	POTABLE WATER SUPPLY OR PROCESS WATER SUPPLY		
FC	FAIL CLOSED	RA	RETURN AIR		
FCU	FAN COIL UNIT	RAD	RADIAL		
FD	FLOOR DRAIN, FIRE DAMPER	RD	ROOF DRAIN		
FL	FAIL LAST	REC	RECEIVER		
FLA	FULL LOAD AMPS	R.O.	REVERSE OSMOSIS		
FLT	FLOW TRANSMITTER	RP	RESERVOIR PUMP		
FM	FLOW METER	S	SOUTH		
FPM	FEET PER MINUTE	S (#)	STEAM AT PRESSURE LISTED		
FO	FAIL OPEN	SAN	SANITARY SEWER		
FOR	FUEL OIL RETURN	SC	SPEED COMMAND		
FOS	FUEL OIL SUPPLY	SCH	SCHEDULE		
FS	FLOW SWITCH	SEL	SELECT		
FT	FLOW TRANSMITTER, FOOT, FEET				
GA	GAUGE				
GPM	GALLONS PER MINUTE				
H	HEIGHT				
HHWR	HEATING HOT WATER RETURN				

**GENERAL CONSTRUCTION NOTES**

- CONTRACTOR AND SUB-CONTRACTORS OF EACH TRADE SHALL BE RESPONSIBLE FOR INCLUDING WORK ASSOCIATED WITH FIRE PROTECTION OF ALL SPECIFIC TRADE RELATED PENETRATIONS THROUGH RATED WALLS AND FLOOR/CEILING ASSEMBLIES. FIRE SAFING RELATED TO PENETRATIONS BY EACH TRADE SHALL BE PERFORMED BY INDIVIDUALS EXPERIENCED WITH INSTALLING UL RATED PENETRATION ASSEMBLIES.
- CONTRACTORS SHALL INFILL AND PAINT ALL PENETRATIONS FROM REMOVAL OF EXISTING EQUIPMENT, PIPING, AND ELECTRICAL CONDUIT. COORDINATE INFILLS WITH ALL TRADES. ALL PENETRATIONS ARE NOT SHOWN ON PLANS. UNLESS NOTED OTHERWISE, INFILL REMAINING PENETRATIONS ABOVE CEILINGS WITH 5/8" GYPSUM BOARD AND METAL STUDS. USE TYPE X GYPSUM BOARD AND AN APPROVED UL LISTED ASSEMBLY AT WALLS REQUIRED TO MAINTAIN FIRE RESISTANCE RATING. UNLESS NOTED OTHERWISE, INFILL EXISTING PENETRATIONS BELOW CEILINGS WITH MATERIALS MATCHING EXISTING ADJACENT CONSTRUCTION. FINISH EXPOSED INFILLED AREAS TO MATCH ADJACENT FINISHES. WHERE EXISTING MATERIAL CANNOT BE MATCHED, COORDINATE WITH DESIGN PROFESSIONAL.
- ALL NEW PENETRATIONS CREATED AS PART OF THIS PROJECT ARE REQUIRED TO BE SEALED. ALL EXISTING PENETRATIONS UTILIZED FOR NEW WORK ARE REQUIRED TO BE SEALED. WHERE EXISTING PENETRATIONS ARE LARGER THAN NEEDED FOR NEW WORK, PENETRATION IS REQUIRED TO BE INFILLED AROUND THE NEW WORK TO ALLOW FOR TIGHT SEAL.
- WORK INCLUDES PARTIAL (CUTOUT) DEMOLITION OF SELECT ELEMENTS TO ALLOW FOR THE INSTALLATION OF NEW UTILITIES AND EQUIPMENT. CONTACT DESIGN PROFESSIONAL IF DEMOLITION IMPACTS THE STABILITY OF WALLS, SUPPORTING ELEMENTS, ETC. REPAIR ALL DEMOLITION NECESSARY FOR INSTALLATION WITH MATERIALS AND FINISHES MATCHING ADJACENT CONSTRUCTION.
- ALL CONNECTIONS TO INSTRUMENTATION, PIPING SYSTEMS, EQUIPMENT, AND ALL OTHER ITEMS SHOWN ARE BASED UPON THE ENGINEER'S RECOMMENDED MANUFACTURER AND MODEL. IF CONNECTION SIZES OR TYPES DIFFER FROM THAT SHOWN ON THE CONTRACT DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE APPROPRIATE CONNECTIONS. CONNECTIONS PROVIDED MUST MEET SPECIFICATIONS.
- ELEVATIONS SHOWN ON CONTRACT DRAWING ARE RELATIVE TO EACH PLANT'S RESPECTIVE DATUM PLANE. DATUM PLANES FOLLOW ORIGINAL PLANT DRAWINGS.

**NOTES:**

1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.



The Professional Engineer's seal and signature affixed to this sheet applies only to this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be responsible for such plans, drawings, or specifications. This seal does not constitute a warranty, and if no digital signature is attached to this file, this media should not be considered a certified document.

ISSUED FOR BID: JUN  
DRAWN BY: MAO  
CHECKED BY: JUN

**PRV CONSULTANTS, INC.**  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
- 2023077605

CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
GENERAL LEGEND AND NOTES

PROJECT NUMBER

CP241001

SHEET

GG002



**CIVIL LEGEND OF SYMBOLS:**

	EXISTING CURB		FINISH FLOOR OF STRUCTURE
	PROPOSED CURB		PROPOSED TOP OF CURB ELEVATION
	RIP RAP		PROPOSED TOP OF PAVEMENT ELEVATION
	EXISTING STRUCTURE		PROPOSED FINISH GRADE ELEVATION
	EXISTING TREELINE		PROPOSED TOP OF WALL
	PROPOSED TREELINE		LOT NUMBER
	EDGE OF WATERWAY		STORM SEWER STRUCTURE LABEL
	EXISTING WATERLINE		SANITARY SEWER STRUCTURE LABEL
	PROPOSED WATERLINE		H.P. HIGH POINT
	EXISTING GAS LINE		L.P. LOW POINT
	PROPOSED GAS LINE		EXISTING SIGNS
	EXISTING UNDERGROUND TELEPHONE		EXISTING POWER POLE
	EXISTING UNDERGROUND CABLE TELEVISION		EXISTING GAS VALVE
	EXISTING HIGH VOLTAGE ELECTRIC		EXISTING WATER VALVE
	EXISTING OVERHEAD ELECTRIC		EXISTING GAS METER
	EXISTING UNDERGROUND ELECTRIC		EXISTING WATER METER
	EXISTING OVERHEAD ELEC. & TV		EXISTING FIRE HYDRANT
	EXISTING OVERHEAD ELEC., TV & TELE.		MANHOLE
	EXISTING SANITARY SEWER		EXISTING SANITARY SEWER LATERAL
	PROPOSED SANITARY SEWER		PROPOSED SANITARY SEWER LATERAL
	EXISTING MINOR CONTOUR		PROPOSED TRACER WIRE TEST STATION BOX
	EXISTING MAJOR CONTOUR		EXISTING AIR CONDITIONER
	PROPOSED MINOR CONTOUR		EXISTING TELEPHONE PEDESTAL
	PROPOSED MAJOR CONTOUR		EXISTING ELECTRICAL TRANSFORMER
	100 YEAR FLOOD PLAN		EXISTING ELECTRIC METER
	FLOODWAY		EXISTING LIGHT POLE
	ORDINARY HIGH WATER MARK		EXISTING GUY WIRE
	STREAM SIDE BUFFER		CONSTRUCTION BARRIER FENCING
	OUTER STREAM BUFFER		TREE PROTECTION FENCING
	DEMOLITION LIMITS		SHORING
	SILT FENCE		

**PROJECT BENCHMARKS:**

TEMPORARY BENCHMARK #1 - CHISELED SQUARE IN THE NORTHEAST CORNER OF THE STEAM STRUCTURE LID LOCATED NORTHWEST OF THE INTERSECTION OF CAMPUS DRIVE AND THE NORTH ENTRY TO PARKING LOT AV16. ALSO LOCATED APPROXIMATELY 148 FEET NORTHWEST OF THE NORTHWEST CORNER OF CLYDESDALE HALL. ELEVATION = 766.97'

CONTROL POINT #CP-013 - STEAM MH - N. OF ROLLINS & EAST CAMPUS DR.  
 N = 1131972.40  
 E = 16922007.37  
 ELEV. = 759.01

CONTROL POINT #CP-017 - INLET - W. SIDE CAMPUS DR. N. OF CHLR PLANT.  
 N = 1130793.31  
 E = 1692158.36  
 ELEV. = 752.90

**GENERAL SITE NOTES:**

CONTRACTOR WILL BE RESPONSIBLE FOR PLACEMENT AND MAINTENANCE OF TRAFFIC CONTROL DEVICES NECESSARY TO COMPLETE THEIR PORTION OF WORK. THE DEVICES AND METHODS EMPLOYED WILL COMPLY WITH THE CURRENT VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD). REFER TO TRAFFIC CONTROL PLANS, CE 9 & CE 10, WITHIN THIS PLAN SET.

EXISTING UTILITIES SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE LOCATES PRIOR TO ANY EXCAVATION.

ALL EXCAVATION TO BE IN ACCORDANCE WITH SECTIONS 319.010-319.050, REVISED STATUTES OF THE STATE OF MISSOURI. SUCH COMPLIANCE SHALL NOT, HOWEVER, EXCUSE ANY PERSON MAKING ANY EXCAVATION FROM DOING SO IN A CAREFUL AND PRUDENT MANNER, NOR SHALL IT EXCUSE SUCH PERSON FROM LIABILITY FOR ANY DAMAGE OR INJURY TO UNDERGROUND UTILITIES RESULTING FROM THE EXCAVATION.

IT IS THE INTENT OF THESE PLANS TO COMPLY WITH THE REQUIREMENTS OF THE MO/DNR CLEAN WATER COMMISSION.

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL EROSION CONTROL DEVICES AND REMOVING THEM ONCE THE SITE IS STABILIZED.

STORM WATER OR OTHER SOURCES OF WATER SHALL NOT BE ALLOWED TO ENTER ACTIVE STEAM SYSTEMS.

CONTRACTOR TO PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND PAVEMENT THAT IS TO REMAIN. ALL DAMAGED ITEMS OUTSIDE THE SCOPE OF WORK TO BE REPLACED OR REPAIRED TO ORIGINAL CONDITION AT THE CONTRACTORS EXPENSE.

ALL PAVEMENTS, SIDEWALKS, ABANDONED SEWERS, PIPELINES, EXCESS EARTHWORK, OR OTHER OBSTRUCTIONS TO CONSTRUCTION THAT ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS SPECIFICALLY NOTED AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH STATE REGULATION 10 CSR 80-2.010 (9)(A1).

ALL SLOPES ARE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

ALL DISTURBED AREAS WITHIN THE "LIMITS OF DISTURBANCE" SHALL BE FINE GRADED AND LEFT (6" FOR TURF AREAS OR 18" FOR PLANTER BED AREAS) BELOW FINAL GRADE BY CONTRACTOR. FINAL TOPSOIL AND VEGETATION WILL BE REESTABLISHED BY OWNER.

TOTAL DISTURBED AREA ON SITE ≈ 0.4 AC.

MISSOURI DNR LAND DISTURBANCE PERMIT NOT NEEDED FOR THIS PROJECT.

THE PROJECT REQUIRES OUTAGES TO SITE UTILITY SYSTEMS. CONTRACTOR SHALL COMPLETE ALL RELATED WORK TO THE MAXIMUM EXTENT POSSIBLE PRIOR TO THE START OF OUTAGES. CONTRACTOR SHALL HAVE ALL REQUIRED MATERIALS ON SITE PRIOR TO START OF OUTAGES.

TIE-INS TO UNIVERSITY UTILITY SYSTEMS SHALL BE MADE ON WEEKENDS OR NIGHTS AND WORK SHALL BE DONE AROUND-THE-CLOCK UNTIL THE TIE-IN IS COMPLETED.

**UTILITY COMPANIES:**

**LOCATES:**

MISSOURI ONE CALL INC.  
 1022 B NORTHEAST DRIVE  
 JEFFERSON CITY, MO 65109  
 1-800-344-7483



**TELEPHONE:**

UNIVERSITY OF MISSOURI, DIVISION OF I.T.  
 615 LOCUST ST.  
 COLUMBIA, MO 65211  
 573-882-5000

**FIBER/CABLE TELEVISION:**

CHARTER COMMUNICATIONS  
 1510 CHARTER BOONE INDUSTRIAL BOULEVARD  
 COLUMBIA, MO 65202  
 573-875-8875

**STEAM & MEDIUM VOLTAGE ELECTRIC:**

ENERGY MANAGEMENT  
 417 S. 5TH ST.  
 COLUMBIA, MO 65211  
 573-882-3094

**WATER:**

ENERGY MANAGEMENT  
 417 S. 5TH ST.  
 COLUMBIA, MO 65211  
 573-882-3094

**STORM/SANITARY SEWER & SECONDARY ELECTRIC:**

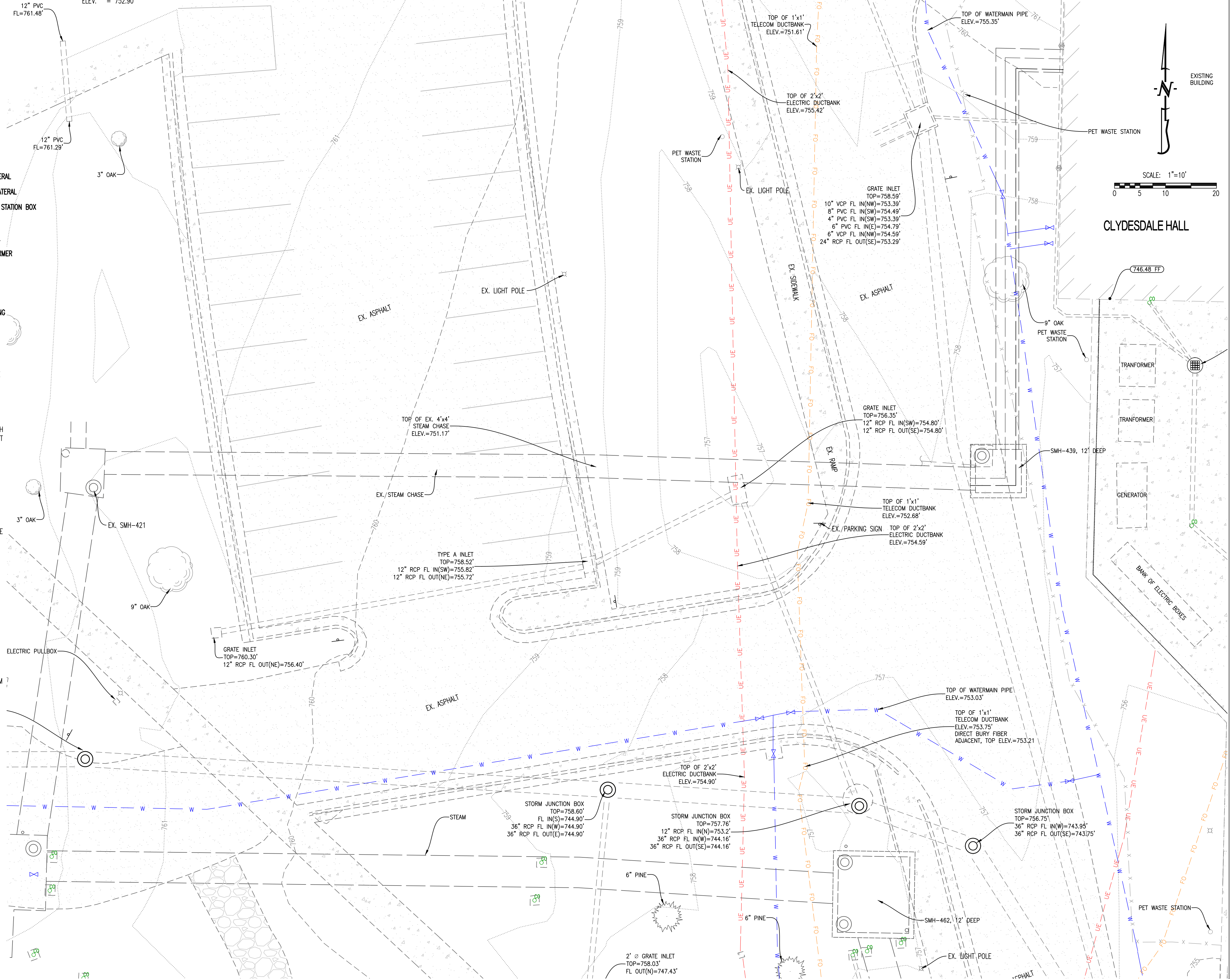
UNIVERSITY CAMPUS FACILITY OPERATIONS  
 180 GENERAL SERVICES BUILDING  
 COLUMBIA, MO 65211  
 573-882-8211

**CABLE TELEVISION:**

MEDIACOM  
 1211 WILKES BLVD.  
 COLUMBIA, MO 65201  
 856-633-4226

**NATURAL GAS:**

AMEREN MISSOURI  
 2001 MAGUIRE BLVD.  
 COLUMBIA, MO 65201  
 573-876-3030



ISSUED FOR BID 02/09/2024  
 DRAWN BY: ATG  
 CHECKED BY: ATG

PRV CONSULTANTS, INC.  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING  
 -2023017605

CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211  
**SITE NOTES AND EXISTING CONDITIONS PLAN**

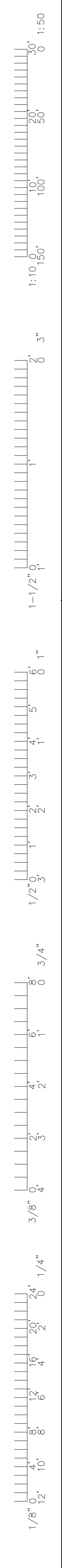
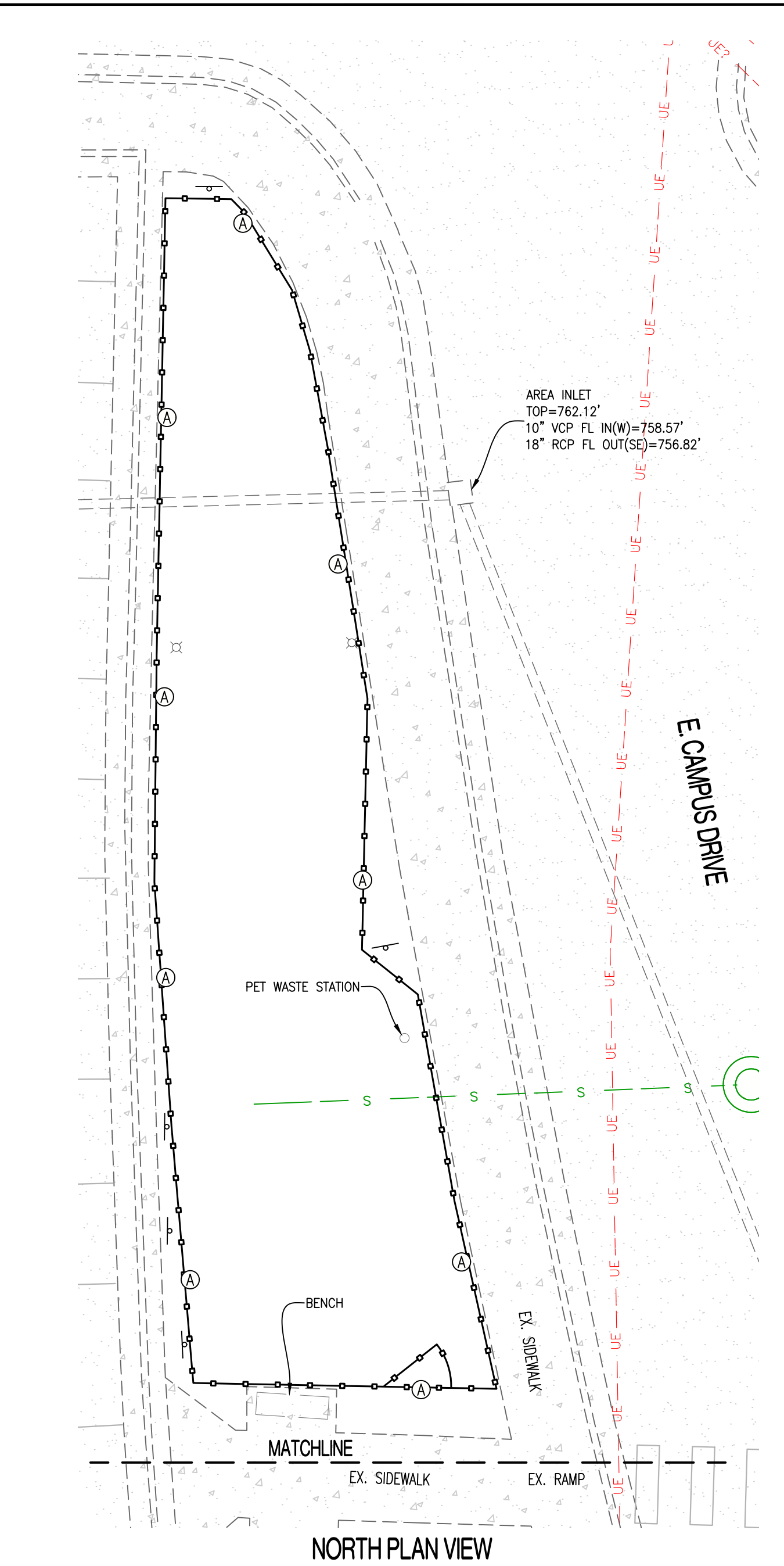
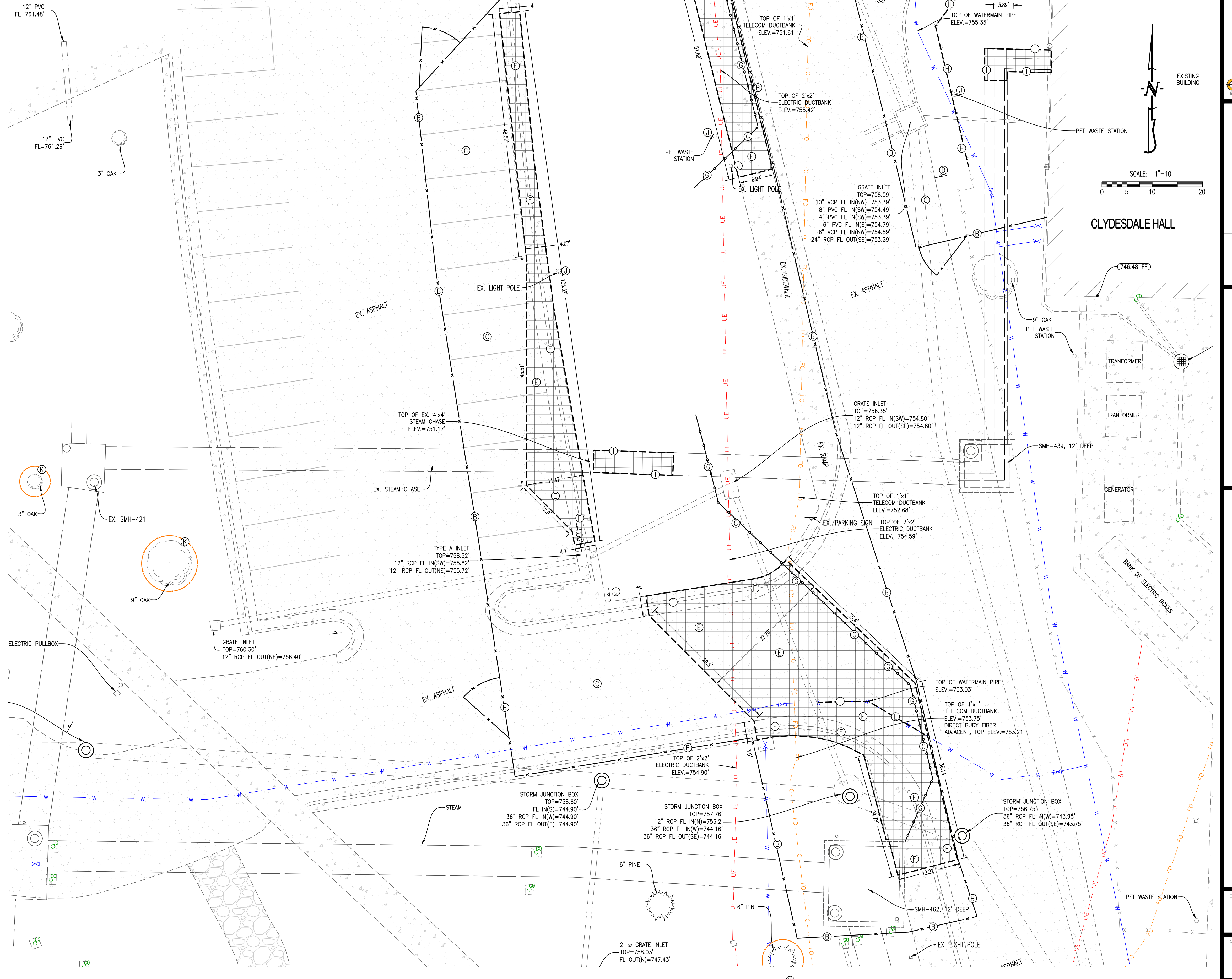
PROJECT NUMBER  
 CP241001  
 SHEET  
 CE1



- LEGEND OF LABELS**
- A INSTALL 6' TALL CHAIN LINK FENCE WITH SPRING RETURN CLOSING GATE AS SHOWN FOR TEMPORARY SMALL ANIMAL SERVICE AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION. REFER TO SPECIFICATIONS FOR FURTHER FENCING REQUIREMENTS.
  - B INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PHASE DURATION. REFER TO SPECIFICATIONS FOR FURTHER FENCING REQUIREMENTS.
  - C CONTRACTOR TO USE EXISTING PAVING AS STAGING AREA WITHIN THE FENCE LIMITS. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
  - D PHASE 1 ONLY - EXISTING STOP SIGN AND CROSSING SIGN TO BE SALVAGED AND STORED FOR REINSTALLATION AT THE END OF THE PROJECT.
  - E REMOVE EXISTING ASPHALT PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
  - F REMOVE EXISTING CONCRETE PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
  - G CONTRACTOR TO PROVIDE STABLE EXCAVATION WITH SHORING AS REQUIRED. SHORING SHOWN ON THE PLAN ARE THE MINIMUM LOCATIONS THAT SHORING WILL BE REQUIRED TO PERFORM WORK. SHORING MAY BE EXPANDED THROUGHOUT THE PROJECT AREA TO REDUCE DEMOLITION AND EXCAVATION REQUIREMENTS. DESIGN OF SHORING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
  - H PHASE 1 ONLY - EXISTING FENCE SEGMENT(S) TO BE SALVAGED AND STORED FOR REINSTALLATION. COORDINATE WITH OWNER'S REPRESENTATIVE. REINSTALL ONCE PROJECT IS COMPLETED.
  - I PHASE 1 ONLY - PORTION OF STEAM CHASE TO BE REMOVED TO INSTALL NEW STEAM CHASE OR TEMPORARY SERVICE. EXISTING STEAM SERVICE SHALL REMAIN ACTIVE FOR AS LONG AS POSSIBLE. COORDINATE SCHEDULE OF OUTAGES WITH SPECIFICATIONS AND OWNER'S REPRESENTATIVE.
  - J EXISTING LIGHT POLES, SIGNS, PET WASTE STATIONS, AND OTHER SIMILAR SITE FEATURES WITHIN THE WORKING AREA TO BE SALVAGED AND STORED FOR REINSTALLATION. COORDINATE WITH OWNER'S REPRESENTATIVE. REINSTALL ONCE PROJECT IS COMPLETED.
  - K EXISTING TREE TO BE PROTECTED. INSTALL TREE PROTECTION FENCING PER DETAIL ON CE 11.
  - L APPROXIMATELY 23 FEET OF EXISTING 10" WATERLINE TO BE REMOVED AND REPLACED WITH DUCTILE IRON AT THE NEW STEAM CHASE CROSSING. REFER TO UTILITY PLAN.

- GENERAL DEMOLITION NOTES:**
1. CONTRACTOR SHALL TAKE CAUTION TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN.
  2. CERTAIN AREAS MAY BE REQUIRED TO BE REMOVED IN PHASES. CONTRACTOR TO COORDINATE TIMING WITH OWNER.
  3. ITEMS OUTSIDE CONSTRUCTION LIMITS OR CALLED OUT TO REMAIN SHALL BE PROTECTED AS REQUIRED. CONTRACTOR SHALL REPAIR/REPLACE DAMAGED ITEMS OUTSIDE PROJECT SCOPE OF WORK AT NO EXPENSE TO THE OWNER.
  4. CONCRETE TO BE REMOVED TO THE NEAREST SAW JOINT, BUT NOT LESS THAN THE DEMOLITION LIMITS SHOWN ON THE PLAN.
  5. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO DISCONNECTING ANY UTILITIES.
  6. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.

**UTILITY PROTECTION DURING SHORING/EXCAVATION NOTE:**  
 ALL EXISTING UTILITIES SHALL BE PROTECTED DURING WORK, EXCAVATION AND/OR SHORING. UTILITY SHALL REMAIN ACTIVE DURING WORK AND SHALL BE PROTECTED FROM SHIFTING, SAGGING OR OTHER DAMAGE. REFER TO SPECIFICATIONS.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

  
 ANDREW T. GREEBE  
 PROFESSIONAL ENGINEER  
 MISSOURI LICENSE NO. PE-202000043  
 EXPIRES 12/31/2024

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**CROCKETT**  
ENGINEERING CONSULTANTS

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DRAWN BY: ATG  
CHECKED BY: ATG  
ISSUED FOR BID 02/09/2024

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**PRW CONSULTANTS, INC.**  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING  
 -202307605

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CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211  
**DEMOLITION AND FENCING PLAN - PHASE 1**

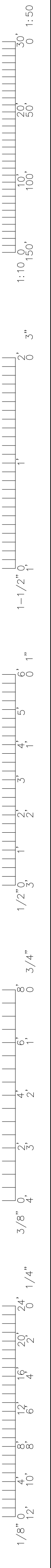
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PROJECT NUMBER  
CP241001

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SHEET  
CE 2





- LEGEND OF LABELS**
- (A) INSTALL NEW STEAM CHASE AS SHOWN. REFER TO MEP AND STRUCTURAL PLANS FOR DETAILS.
  - (B) PHASE 1 ONLY - INSTALL NEW STEAM MANHOLE AS SHOWN. REFER TO MEP AND STRUCTURAL PLANS FOR DETAILS.
  - (C) AT THE PROPOSED STEAM CHASE CROSSING, INSTALL APPROXIMATELY 23 FEET OF 10" DUCTILE IRON WATERLINE WITH FITTINGS AS REQUIRED. WATERLINE SHALL HAVE A MINIMUM OF 42" COVER FROM FINISHED GRADE. CENTER FULL STICK OF PIPE OVER CROSSING TO LOCATE JOINTS AS FAR AWAY FROM THE STEAM AS POSSIBLE. REFER TO STEAM CROSSING, PIPE INSTALLATION, AND TAPS/RISERS FOR FLUSHING AND DISINFECTION DETAILS ON CE 12.
  - (D) PHASE 1 ONLY - INSTALL MANHOLE VENT. REFER TO REFER TO MEP AND STRUCTURAL PLANS FOR DETAILS. INSTALL VENT TOP 3" ABOVE ADJACENT GRADE AND BLEND SOIL UP TO EDGE AND FEATHER DOWN TO EXISTING GRADE, ENSURING NO SURFACE DRAINAGE WILL GO INTO THE VENT.

**WATERLINE CONSTRUCTION NOTES:**

WHERE WATER MAIN IS LESS THAN 10' FROM SANITARY SEWER AS MEASURED EDGE TO EDGE, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE (1) SIDE OF THE SANITARY SEWER AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN INCHES (18") ABOVE THE TOP OF THE SANITARY SEWER.

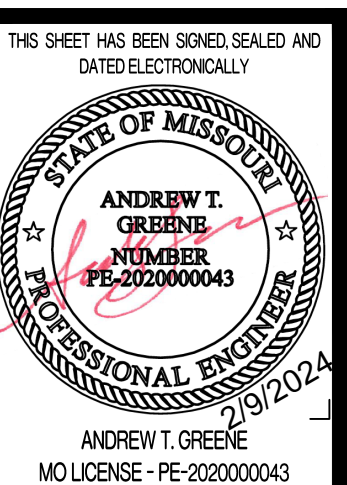
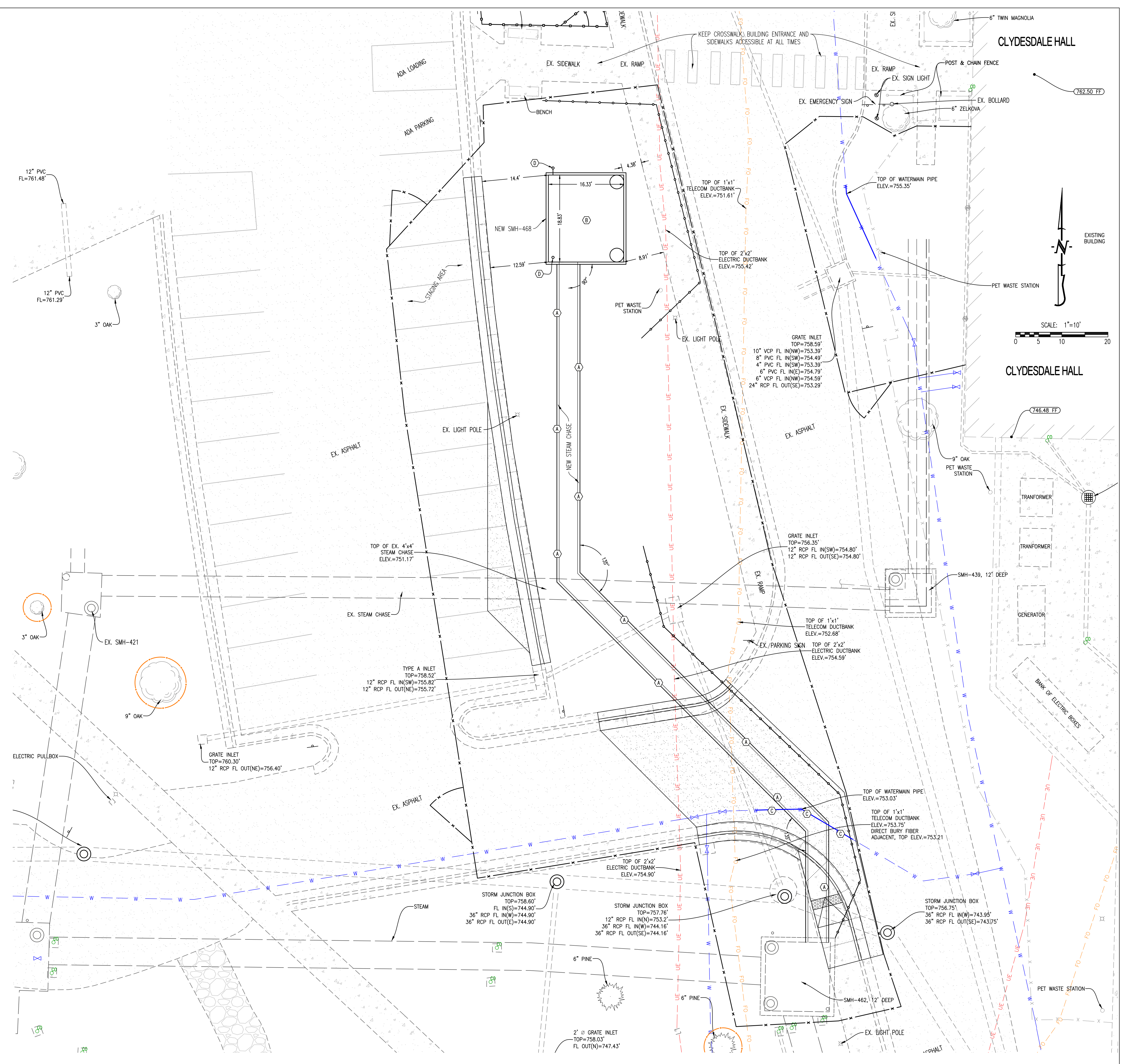
MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATERLINE & SANITARY SEWER LINES. AT CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SANITARY SEWER LINE AS POSSIBLE.

MAINTAIN 12" VERTICAL SEPARATION BETWEEN WATERLINE & ALL OTHER UTILITIES.

MINIMUM COVER OF 42" REQUIRED ON WATERLINES. REFER TO PROFILES FOR ASSUMED VERTICAL ALIGNMENT OF NEW WATERLINES. SHOULD FIELD CONDITIONS ALLOW FOR WATER TO BE INSTALLED ABOVE A UTILITY INSTEAD OF BELOW AS SHOWN ON A PROFILE, IT SHALL BE INSTALLED ABOVE ASSUMING COVER AND SEPARATION REQUIREMENTS ARE MET.

ALL UTILITIES SHOWN ARE FOR REFERENCE AND HAVE BEEN DETERMINED BY FIELD LOCATES AND MAPPING SERVICES. CONTRACTOR SHALL PERFORM LOCATES PRIOR TO WORK.

LINES PASSING DIRECTLY OVER OR UNDER STEAM TUNNELS OR DIRECT BURIED STEAM/CONDENSATE LINES MUST BE DUCTILE IRON WITH 4" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM LINES. AT THESE CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE CENTERED ON THE CROSSING SO BOTH JOINTS WILL BE AS FAR FROM THE CROSSING AS POSSIBLE.



**CROCKETT**  
ENGINEERING CONSULTANTS

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ISSUED FOR BID  
02/09/2024

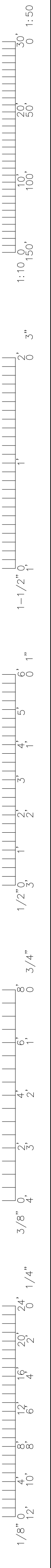
**PRW CONSULTANTS, INC.**  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
- 202307605

CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211

PROJECT NUMBER  
CP241001  
SHEET  
CE3

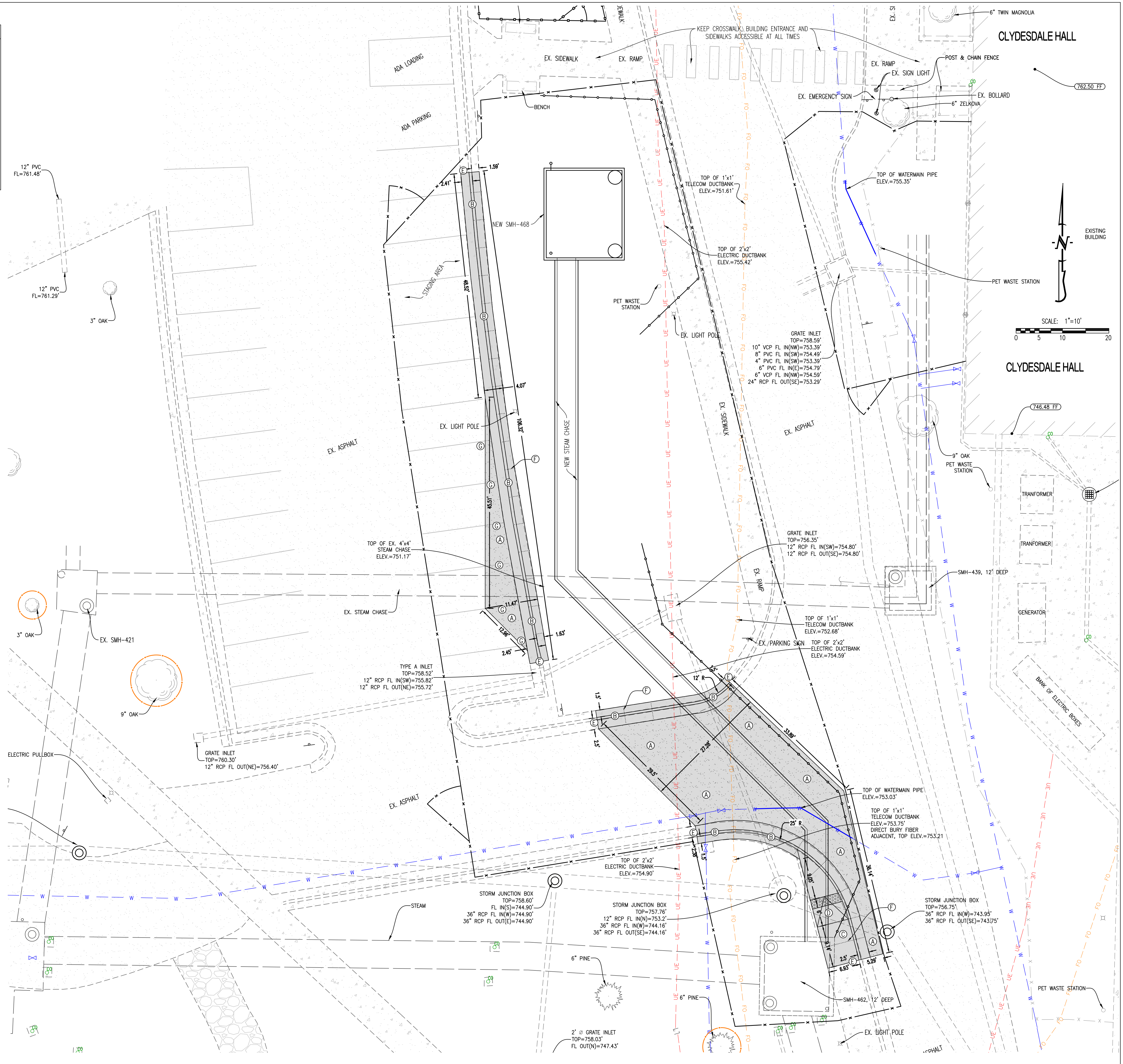
**UTILITY PLAN - PHASE 1**





**LEGEND OF LABELS**

- Ⓐ PATCH ASPHALT STREET PAVEMENT AS SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS; OTHERWISE, MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
- Ⓑ PHASE 1 ONLY - CONSTRUCT CONCRETE CURB AND GUTTER WITH MOW STRIP WHERE SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS; OTHERWISE, MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
- Ⓒ CONSTRUCT THICKENED EDGE SIDEWALK AT BACK OF NEW CURB AS SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS; OTHERWISE, MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
- Ⓓ PHASE 1 ONLY - CONSTRUCT ADA ACCESSIBLE SIDEWALK RAMP WITH DETECTABLE WARNING AS SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS. MAXIMUM RUNNING SLOPE SHALL BE 1:12 IN RAMP. REFER TO DETAIL ON CE 11.
- Ⓔ INSTALL DOWELED CONSTRUCTION JOINT AT CONNECTION TO EXISTING CONCRETE PAVEMENT WITH SEALANT AS SHOWN. REFER TO DETAIL ON CE 11.
- Ⓕ INSTALL SAWED CONTROL JOINT WITH SEALANT AS SHOWN (TYPICAL). REFER TO JOINT DETAILS ON CE 11.
- Ⓖ PHASE 1 ONLY - REPAINT PARKING AREAS THAT FALL WITHIN THE PAVEMENT REPLACEMENT AREAS, TYPICAL ALL NEW PAVED AREAS.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

ANDREW T. GREEBE  
 MISSOURI LICENSE - PE-2020000043  
 02/09/2024

**CROCKETT**  
 ENGINEERING CONSULTANTS

CHECKED BY: ATG  
 DRAWN BY: ATG  
 ISSUED FOR: B0

**PRW CONSULTANTS, INC.**  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING  
 -202307605

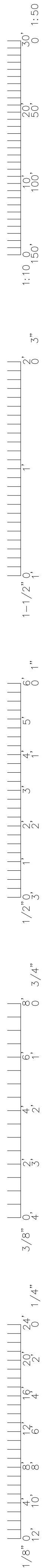


CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211

PROJECT NUMBER  
**CP241001**  
 SHEET  
**CE 4**

**SITE PLAN - PHASE I**





**LEGEND OF LABELS**

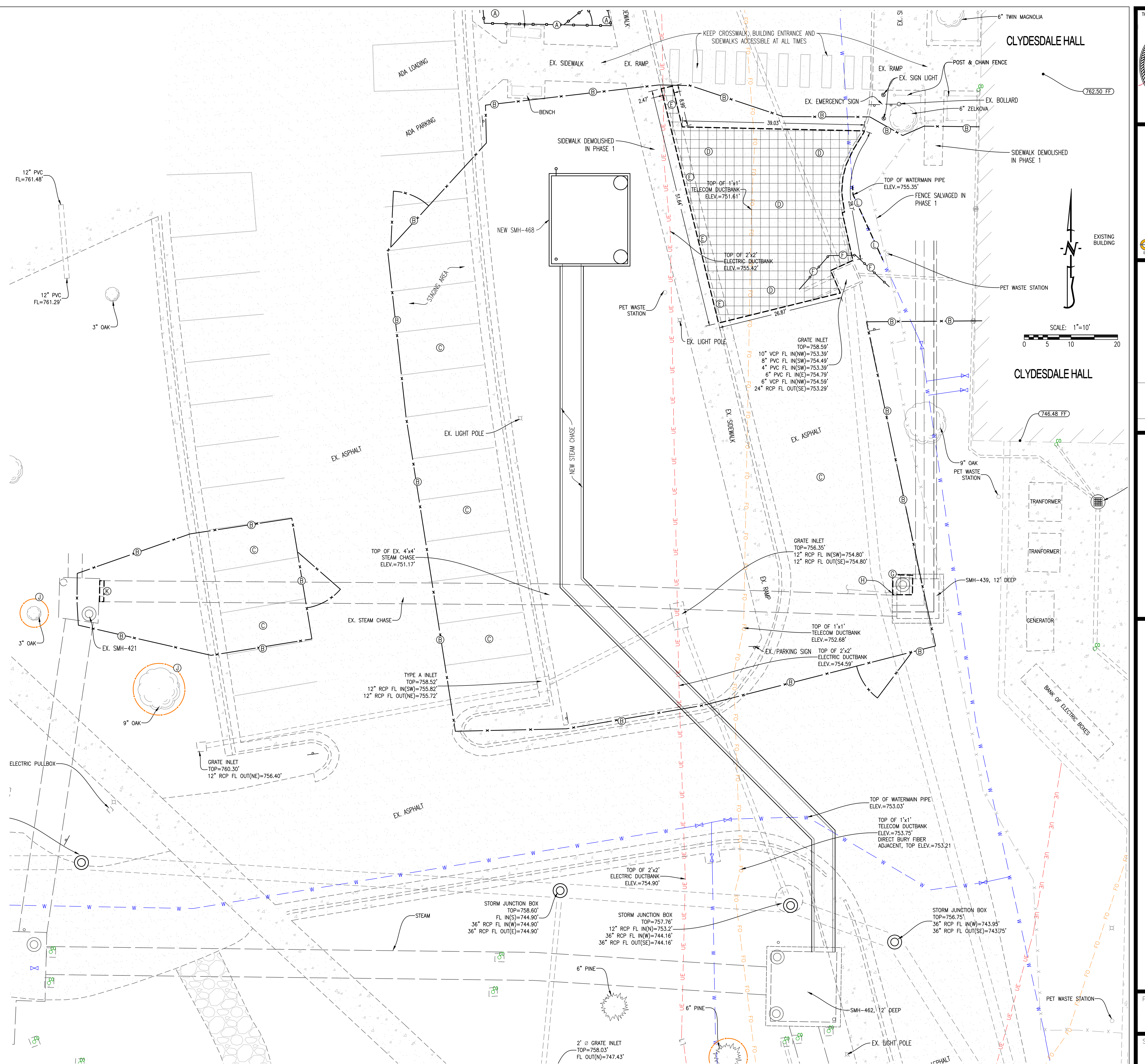
- (A) MAINTAIN 6' TALL CHAIN LINK FENCE WITH SPRING RETURN CLOSING GATE AS SHOWN FOR TEMPORARY SMALL ANIMAL FENCED AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PROJECT DURATION. REFER TO SPECIFICATIONS FOR FURTHER FENCING REQUIREMENTS.
- (B) INSTALL 6' TALL CHAIN LINK FENCE WITH GATES AS SHOWN FOR LIMITS OF WORK AREA. FENCE SHALL REMAIN IN PLACE THROUGHOUT PHASE DURATION. REFER TO SPECIFICATIONS FOR FURTHER FENCING REQUIREMENTS.
- (C) CONTRACTOR TO USE EXISTING PAVING AS STAGING AREA WITHIN THE FENCE LIMITS. ANY DAMAGED PAVEMENT DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.
- (D) REMOVE EXISTING ASPHALT PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
- (E) REMOVE EXISTING CONCRETE PAVEMENT FOR UTILITY CONSTRUCTION AS SHOWN. PROVIDE CLEAN, FULL DEPTH SAW CUT IN EXISTING PAVEMENT TO REMAIN TO PROVIDE A CLEAN CONNECTION TO THE NEW PAVEMENT.
- (F) CONTRACTOR TO PROVIDE STABLE EXCAVATION WITH SHORING AS REQUIRED. SHORING SHOWN ON THE PLAN ARE THE MINIMUM LOCATIONS THAT SHORING WILL BE REQUIRED TO PERFORM WORK. SHORING MAY BE EXPANDED THROUGHOUT THE PROJECT AREA TO REDUCE DEMOLITION AND EXCAVATION REQUIREMENTS. DESIGN OF SHORING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- (G) PHASE 2 ONLY - CONCRETE PAVEMENT, ACCESS LID, AND STRUCTURE RISER FOR SMH-439 TO BE REMOVED TO AT LEAST 3 FEET BELOW GRADE. REFER TO UTILITY PLAN FOR FURTHER INSTRUCTIONS TO ABANDON STEAM MANHOLE.
- (H) PHASE 2 ONLY - EXISTING DRAIN INTO SMH-439 TO BE CAPPED PRIOR TO FILLING MANHOLE WITH SAND/FLOWABLE FILL.
- (I) EXISTING LIGHT POLES, SIGNS, PET WASTE STATIONS, AND OTHER SIMILAR SITE FEATURES WITHIN THE WORKING AREA TO BE SALVAGED AND STORED FOR REINSTALLATION. COORDINATE WITH OWNER'S REPRESENTATIVE. REINSTALL ONCE PROJECT IS COMPLETED.
- (J) EXISTING TREE TO BE PROTECTED. INSTALL TREE PROTECTION FENCING PER DETAIL ON CE 11.
- (K) PHASE 2 ONLY - PORTION OF STEAM CHASE TO BE REMOVED TO INSTALL NEW BULK HEAD FROM OUTSIDE OF MANHOLE. COORDINATE SCHEDULE OF OUTAGES WITH SPECIFICATIONS AND OWNER'S REPRESENTATIVE.
- (L) APPROXIMATELY 18 FEET OF EXISTING 10" WATERLINE TO BE REMOVED AND REPLACED WITH DUCTILE IRON AT THE NEW STEAM CHASE CROSSING. REFER TO UTILITY PLAN.

**GENERAL DEMOLITION NOTES:**

1. CONTRACTOR SHALL TAKE CAUTION TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN.
2. CERTAIN AREAS MAY BE REQUIRED TO BE REMOVED IN PHASES. CONTRACTOR TO COORDINATE TIMING WITH OWNER.
3. ITEMS OUTSIDE CONSTRUCTION LIMITS OR CALLED OUT TO REMAIN SHALL BE PROTECTED AS REQUIRED. CONTRACTOR SHALL REPAIR/REPLACE DAMAGED ITEMS OUTSIDE PROJECT SCOPE OF WORK AT NO EXPENSE TO THE OWNER.
4. CONCRETE TO BE REMOVED TO THE NEAREST SAW JOINT, BUT NOT LESS THAN THE DEMOLITION LIMITS SHOWN ON THE PLAN.
5. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO DISCONNECTING ANY UTILITIES.
6. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR. CONTRACTOR SHALL CLEAN/POWER WASH CONSTRUCTION AREA PAVEMENT ONCE WORK IS COMPLETE.

**UTILITY PROTECTION DURING SHORING/EXCAVATION NOTE:**

ALL EXISTING UTILITIES SHALL TO BE PROTECTED DURING WORK, EXCAVATION AND/OR SHORING. UTILITY SHALL REMAIN ACTIVE DURING WORK AND SHALL BE PROTECTED FROM SHIFTING, SAGGING OR OTHER DAMAGE. REFER TO SPECIFICATIONS.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY  
 ANDREW T. GREENE  
 MISSOURI LICENSE NO. PE-202000043  
 02/09/2024 ISSUED FOR BID  
 DRAWN BY: ATG  
 CHECKED BY: ATG

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 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING  
 --2023.07605

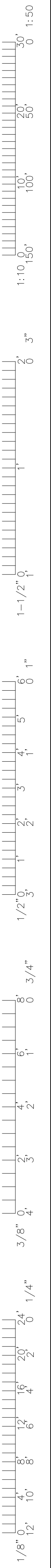


CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211  
 DEMOLITION AND FENCING PLAN - PHASE 2

PROJECT NUMBER  
 CP241001

SHEET  
 CE5





**LEGEND OF LABELS**

- (A) INSTALL STEAM CHASE AS SHOWN. REFER TO MEP AND STRUCTURAL PLANS FOR DETAILS.
- (B) PHASE 2 ONLY - NEW STEAM VENT AT BUILDING. REFER TO MEP PLANS.
- (C) PHASE 2 ONLY - BLOCK OFF EXISTING STEAM CHASE TO BE ABANDONED AS SHOWN. INSTALL BULKHEAD AND WATERPROOF. REFER TO MEP AND STRUCTURAL PLANS FOR DETAILS.
- (D) PHASE 2 ONLY - FILL EXISTING STEAM CHASE TO BE ABANDONED WITH FLOWABLE FILL.
- (E) PHASE 2 ONLY - AT EXISTING STEAM MANHOLE TO BE ABANDONED - REMOVE PIPING AND SUPPORTS WITHIN MANHOLE, BREAK OUT BOTTOM & FILL W/ SAND. REMOVE RISER TO WITHIN 3 FEET OF SURFACE.
- (F) AT THE PROPOSED STEAM CHASE CROSSING, INSTALL APPROXIMATELY 18 FEET OF 10" DUCTILE IRON WATERLINE WITH FITTINGS AS REQUIRED. WATERLINE SHALL HAVE A MINIMUM OF 42" COVER FROM FINISHED GRADE. CENTER FULL STICK OF PIPE OVER CROSSING TO LOCATE JOINTS AS FAR AWAY FROM THE STEAM AS POSSIBLE. REFER TO STEAM CROSSING, PIPE INSTALLATION, AND TAPS/RISERS FOR FLUSHING AND DISINFECTION DETAILS ON CE 12.
- (G) PHASE 2 ONLY - INSTALL 2" TYPE K HARD COPPER SUMP PUMP DRAIN LINE TO STUB INTO EXISTING STORM BOX AS SHOWN. CORE DRILL HOLE INTO BOX FOR NEW CONNECTION.

**WATERLINE CONSTRUCTION NOTES:**

WHERE WATER MAIN IS LESS THAN 10' FROM SANITARY SEWER AS MEASURED EDGE TO EDGE, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE (1) SIDE OF THE SANITARY SEWER AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN INCHES (18") ABOVE THE TOP OF THE SANITARY SEWER.

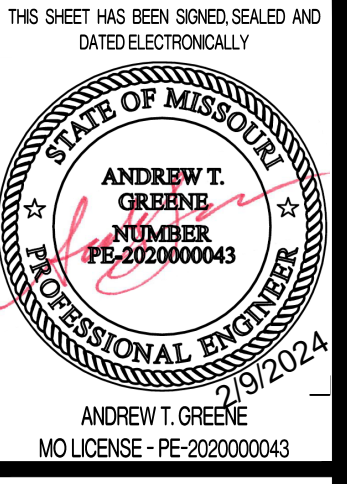
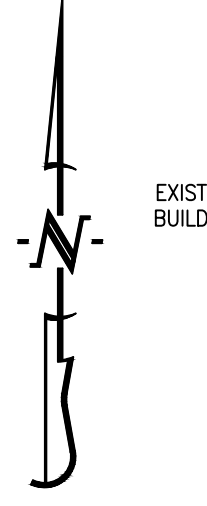
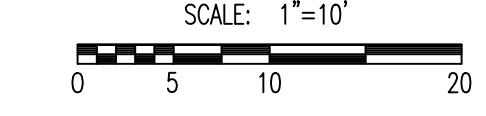
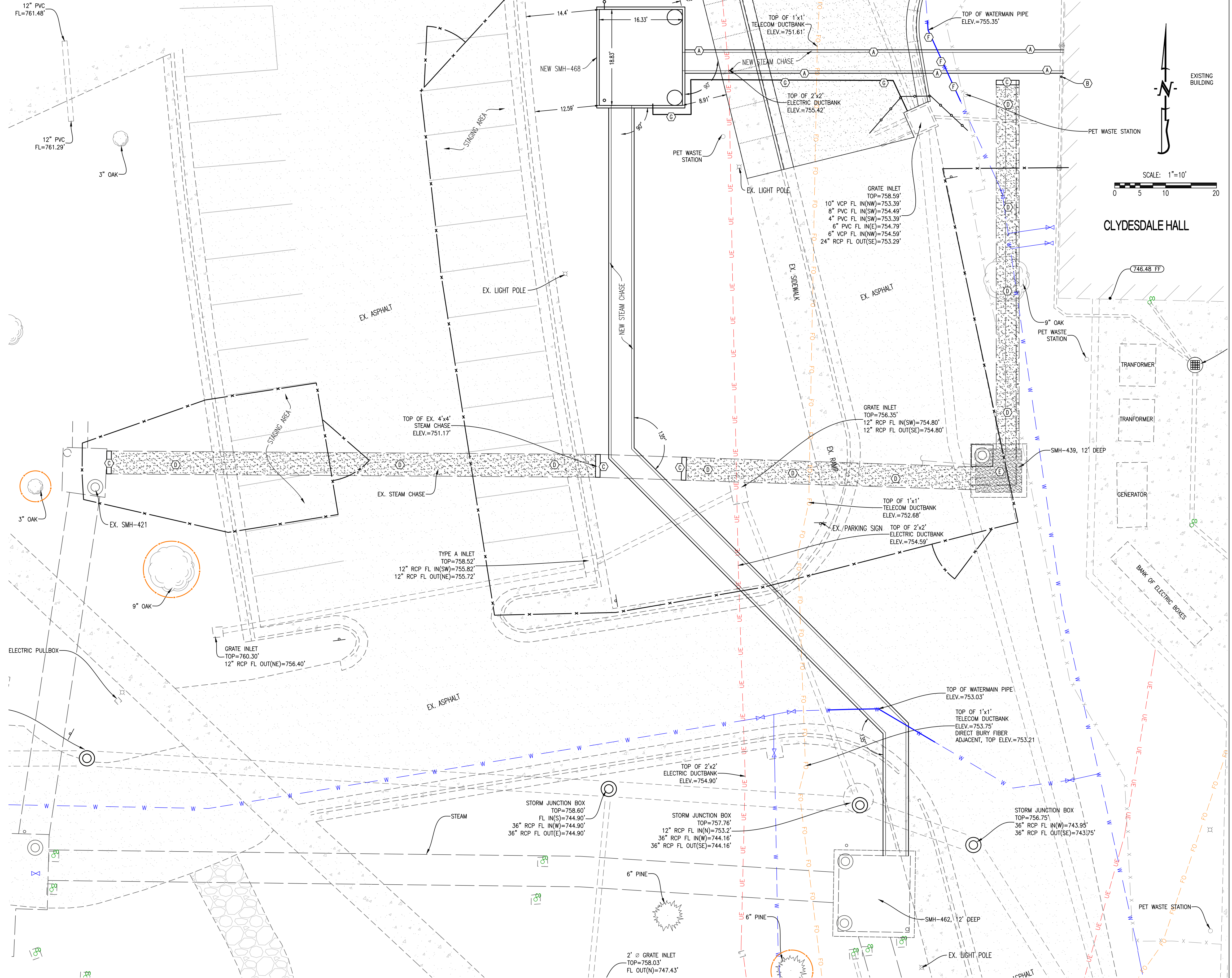
MAINTAIN 18" VERTICAL SEPARATION BETWEEN WATERLINE & SANITARY SEWER LINES. AT CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE SANITARY SEWER LINE AS POSSIBLE.

MAINTAIN 12" VERTICAL SEPARATION BETWEEN WATERLINE & ALL OTHER UTILITIES.

MINIMUM COVER OF 42" REQUIRED ON WATERLINES. REFER TO PROFILES FOR ASSUMED VERTICAL ALIGNMENT OF NEW WATERLINES. SHOULD FIELD CONDITIONS ALLOW FOR WATER TO BE INSTALLED ABOVE A UTILITY INSTEAD OF BELOW AS SHOWN ON A PROFILE, IT SHALL BE INSTALLED ABOVE ASSUMING COVER AND SEPARATION REQUIREMENTS ARE MET.

ALL UTILITIES SHOWN ARE FOR REFERENCE AND HAVE BEEN DETERMINED BY FIELD LOCATES AND MAPPING SERVICES. CONTRACTOR SHALL PERFORM LOCATES PRIOR TO WORK.

INES PASSING DIRECTLY OVER OR UNDER STEAM TUNNELS OR DIRECT BURIED STEAM/CONDENSATE LINES MUST BE DUCTILE IRON WITH 4" R-5 EXTRUDED POLYSTYRENE INSULATION BOARD BETWEEN THE PIPE AND STEAM LINES. AT THESE CROSSINGS, ONE (1) FULL LENGTH OF WATER PIPE MUST BE CENTERED ON THE CROSSING SO BOTH JOINTS WILL BE AS FAR FROM THE CROSSING AS POSSIBLE.



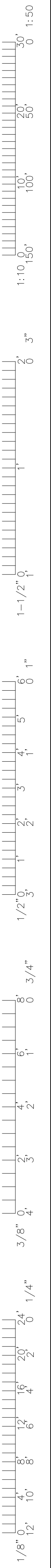
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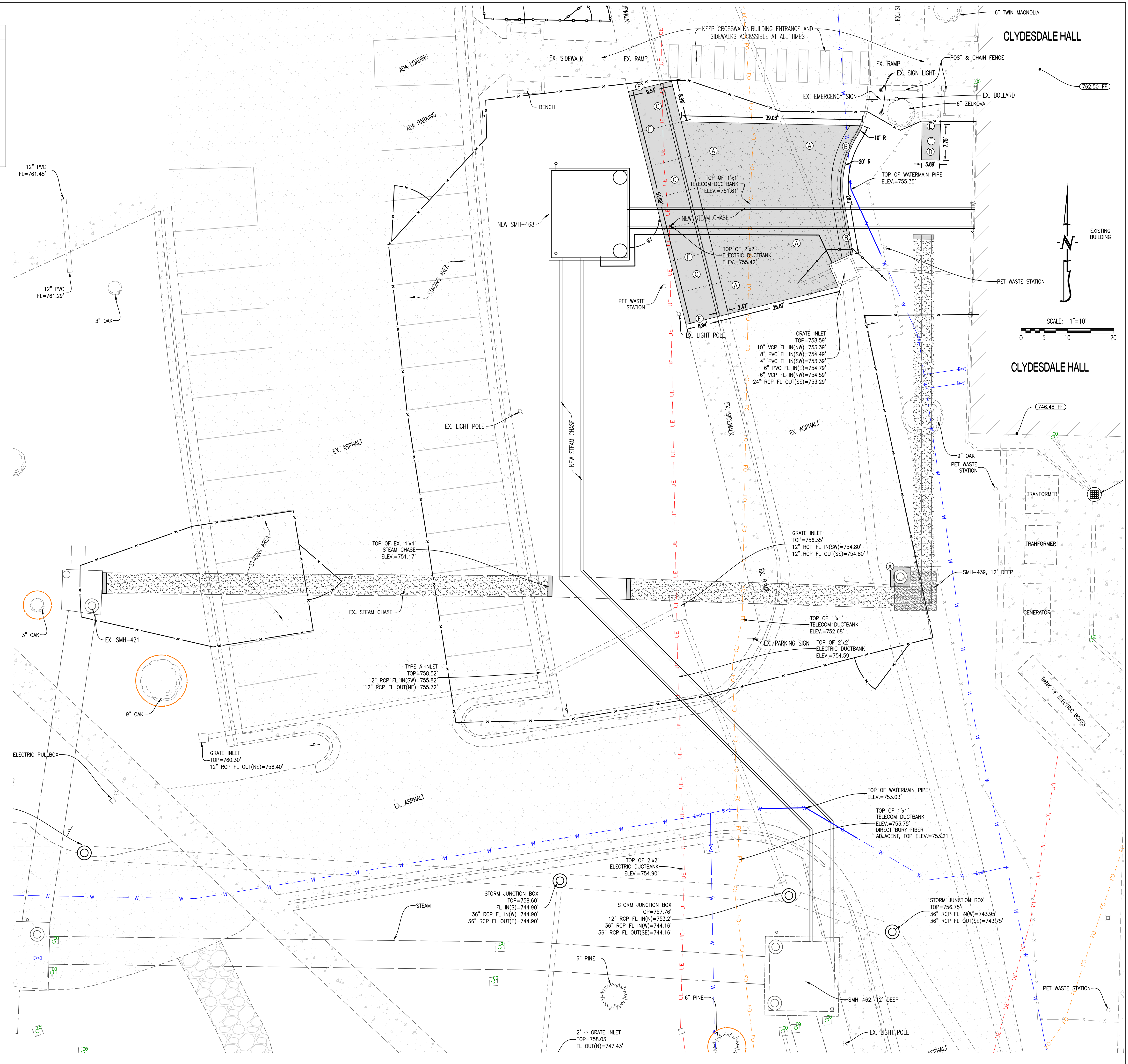
CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
**UTILITY PLAN - PHASE 2**

PROJECT NUMBER  
**CP241001**  
SHEET  
**CE 6**





- LEGEND OF LABELS**
- Ⓐ PATCH ASPHALT STREET PAVEMENT AS SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS; OTHERWISE, MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
  - Ⓑ PHASE 2 ONLY - CONSTRUCT CONCRETE CURB AND GUTTER ABUTTING NEW ASPHALT PAVEMENT AS SHOWN. MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
  - Ⓒ CONSTRUCT THICKENED EDGE SIDEWALK AT BACK OF NEW CURB AS SHOWN. REFER TO GRADING PLAN FOR SPOT ELEVATIONS; OTHERWISE, MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
  - Ⓓ PHASE 2 ONLY - CONSTRUCT TYPICAL PRIVATE SIDEWALK AS SHOWN. MATCH EXISTING GRADES. REFER TO DETAIL ON CE 11.
  - Ⓔ INSTALL DOWELED CONSTRUCTION JOINT AT CONNECTION TO EXISTING CONCRETE PAVEMENT WITH SEALANT AS SHOWN. REFER TO DETAIL ON CE 11.
  - Ⓕ INSTALL SAWED CONTROL JOINT WITH SEALANT AS SHOWN (TYPICAL). REFER TO JOINT DETAILS ON CE 11.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

ANDREW T. GREEBE  
NUMBER  
PE-2022000043  
ISSUED 07/07/2024  
ANDREW T. GREEBE  
MO LICENSE - PE-2022000043

**CROCKETT**  
ENGINEERING CONSULTANTS

CHECKED BY: ATG  
DRAWN BY: ATG  
ISSUED FOR BID  
02/05/2024

**PRW CONSULTANTS, INC.**  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
-- 2023017605

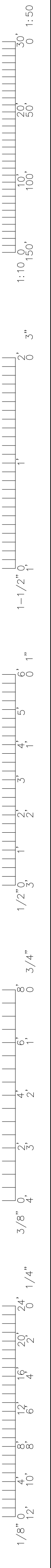


CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211

PROJECT NUMBER  
CP241001  
SHEET  
**CE7**

**SITE PLAN - PHASE 2**





**LEGEND OF LABELS**

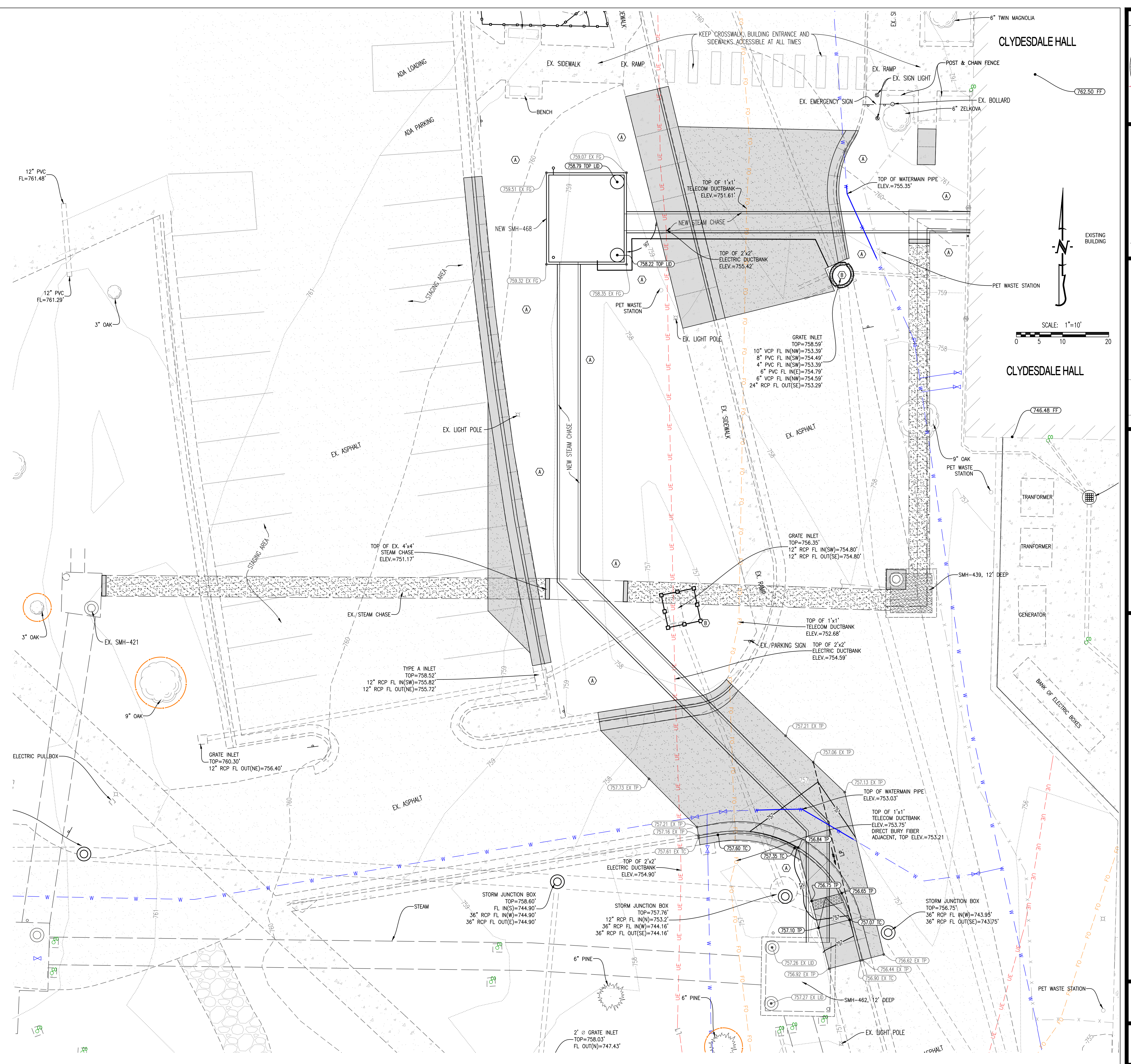
(A)	ALL DISTURBED AREAS WITHIN THE PROJECT LIMITS, THAT ARE NOT TO BE PAVED, SHALL BE FINE GRADED BY CONTRACTOR TO AN ELEVATION OF 6" BELOW FINISHED GRADE. FINAL TOP SOIL PLACEMENT AND VEGETATION WILL BE REESTABLISHED BY OWNER.
(B)	INSTALL GUTTER BUDDY, SILT FENCE, STRAW WADDLE OR EQUAL AT INLETS AS SHOWN. THESE SHALL REMAIN IN PLACE UNTIL VEGETATION HAS BEEN REESTABLISHED.

**LEGEND OF SYMBOLS:**

---XXX---	EXISTING MINOR CONTOUR
- - -XXX-	EXISTING MAJOR CONTOUR
---XXX---	PROPOSED MINOR CONTOUR
- - -XXX-	PROPOSED MAJOR CONTOUR
XXXXXX TO	PROPOSED TOP OF CURB ELEVATION TC = (TP+6") UNLESS NOTED OTHERWISE
XXXXXX TP	PROPOSED TOP OF PAVEMENT ELEVATION
XXXXXX FG	PROPOSED FINISHED GRADE ELEVATION
XXXXXX FF	PROPOSED FINISHED FLOOR AT DOOR
XXXXXX TW	PROPOSED FINISHED GRADE AT TOP OF WALL
XXXXXX EX	EXISTING SPOT ELEVATION MODIFIER

- GENERAL EROSION CONTROL NOTES:**
- THE CONTRACTOR SHALL PROVIDE FOR CONTROL OF SURFACE EROSION AND SEDIMENT DEPOSITION DURING ALL PHASES OF CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS SUBSTANTIALLY COMPLETE.
  - CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ROADWAYS AND SIDEWALKS ADJACENT TO THE CONSTRUCTION SITE FREE OF DIRT AND DEBRIS RESULTING FROM ACTIVITIES RELATED TO THE CONSTRUCTION OF THIS PROJECT.
  - CONTRACTOR SHALL KEEP THE ENTIRE PROJECT SITE FREE OF DEBRIS AND TRASH AT ALL TIMES. CONTRACTOR SHALL EXECUTE WORK USING METHODS THAT MINIMIZE EXCESSIVE NOISE OR DUST EMISSIONS. CONTRACTOR SHALL PROVIDE METHODS, MEANS AND FACILITIES TO PREVENT CONTAMINATION OF SOIL OR WATER FROM DISCHARGE OF REGULATED MATERIALS (I.E., DIESEL FUEL) USED DURING CONSTRUCTION.
  - CONTRACTOR MUST INSTALL AND MAINTAIN THE EROSION CONTROL MEASURES SHOWN ON THIS PLAN. IF THE ENGINEER, OWNER'S REPRESENTATIVE, DETERMINES THAT THE INSTALLATION OF THE MAINTENANCE IS INADEQUATE, THE CONTRACTOR MUST IMMEDIATELY CORRECT AT THEIR EXPENSE. IF IT IS DETERMINED THAT ADDITIONAL EROSION CONTROL MEASURES ARE NEEDED THE CONTRACTOR WILL BE DIRECTED TO INSTALL AND MAINTAIN THOSE MEASURES.
  - THE CONTRACTOR SHALL INSPECT THE LAND DISTURBANCE SITE AT LEAST ONCE EVERY SEVEN (7) DAYS AND WITHIN TWENTY-FOUR (24) HOURS FOLLOWING EACH RAINFALL EVENT OF 1/2" OR MORE WITHIN ANY TWENTY-FOUR (24) HOUR PERIOD. THE CONTRACTOR SHALL ALSO INSPECT AND ASSURE THAT ALL SEDIMENT CONTROL DEVICES ARE IN WORKING CONDITION PRIOR TO ANY FORECASTED RAINFALL.
  - THE CONTRACTOR SHALL REMOVE SEDIMENT FROM THE FLOW AREAS AND MAKE ALL NECESSARY REPAIRS TO MAINTAIN THE INTEGRITY OF THE SEDIMENT CONTROL MEASURES. SEDIMENT SHALL BE REMOVED ONCE IT REACHED 1/2 THE INSTALLED HEIGHT OF MEASURE.
  - SOME OF THE EROSION AND SEDIMENT CONTROL MEASURES, WILL REQUIRE THE CONTRACTOR TO INSTALL, REMOVE, AND REINSTALL THE MEASURES AS CONSTRUCTION PROCEEDS. THE PHASING OF THIS WORK IS DEPENDENT ENTIRELY ON THE CONTRACTOR'S SCHEDULE, AND IS NOT SPECIFIED HEREIN. HOWEVER, THE CONTRACTOR SHALL COORDINATE THESE ACTIONS WITH THE ENGINEER AT THE TIMES ADJUSTMENTS ARE NEEDED.
  - CONTRACTOR SHALL DIRECT CONCRETE TRUCKS TO WASHOUT AT PLANT.

- GENERAL LANDSCAPE NOTES:**
- VEHICLES ARE TO USE DESIGNATED CONSTRUCTION ENTRANCES AS INDICATED ON DRAWINGS OR CONSTRUCTION DOCUMENTS. IF NO CONSTRUCTION ROUTE IS INDICATED VEHICLES ARE RESTRICTED TO PAVED AREAS. ALL CONSTRUCTION EQUIPMENT AND OR VEHICLES SHALL VERIFY ON THE WEIGHT LIMIT AND RESTRICTION ON PAVEMENT PRIOR TO CONSTRUCTION AND NOTIFY OWNERS REPRESENTATIVE OF THE PLANNED ROUTE.
  - THERE SHALL BE NO VEHICLE MOVEMENT IN ANY LANDSCAPED, SHRUB OR PERENNIAL AREAS, MULCH BED AND/OR TREE CANOPY DRIP AND ROOT ZONES, WITHOUT PRIOR MODIFICATIONS AND APPROVAL FROM LANDSCAPE SERVICES. LANDSCAPE SERVICES REQUIRES ONE WEEK NOTICE PRIOR TO ANY VEHICLE MOVEMENT IN THESE AREAS.
  - VEHICLE ACCESS SHALL NOT BREAK OR RUB TREE BRANCHES. OWNER WILL PRUNE TREE BRANCHES TO PROVIDE CLEARANCE AROUND BUILDING ENTRANCE. OWNER REQUIRES ONE WEEKS NOTICE FOR THIS WORK TO BE DONE.
  - DO NOT COMPACT GRADE WITHIN THE DRIP LINE OF TREES TO REMAIN. PROVIDE APPROVED FENCING TO PREVENT DRIVING OR EQUIPMENT PARKING WITHIN DRIP LINE OF TREES. PRIOR TO CONSTRUCTION OR WORK IN THE PROJECT AREA. MU'S CAMPUS STANDARD 6" CHAIN LINK FENCE AND POST SHALL BE USED UNLESS OTHERWISE NOTED AND/OR APPROVED BY OWNERS REPRESENTATIVE.
  - CONTRACTOR SHALL RIP THE SUB-SOIL TO A DEPTH OF 6" TO BREAK UP COMPACTION. CONTRACTOR SHALL THEN COMPACT THE SUB-SOIL TO 85% (IN NON-PAVED AREAS) OR 95% (IN PAVED AREAS) OF THE MATERIAL'S STANDARD PROCTOR DRY DENSITY. CONTRACTOR SHALL LEAVE THE AREA 6" BELOW THE FINISHED GRADE IN TURF AREAS AND 24" BELOW THE FINISHED GRADE IN PLANTER BED AREAS.
  - FINAL 6" OF TOP SOIL PLACEMENT AND TURF ESTABLISHMENT BY MU.
  - THE CONTRACTOR SHALL ADJUST EXISTING AND NEW YARD BOXES VALVE BOXES, PULL BOXES, CLEANOUTS, AND MANHOLE LID RINGS ETC. (INCLUDES IRRIGATION, SEWERS, WATER AND ELECTRIC), TO THE INDICATED FINAL FINISH GRADE WHERE NEW FINISHED GRADE ELEVATIONS ARE PROVIDED, INDICATED, OR OTHERWISE IMPLIED.
  - THE OWNER WILL WATER AND MAINTAIN ALL SEED AND LANDSCAPING.
  - IRRIGATION LINES AND VALVES MAY EXIST IN THE AREA. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE OF THE SYSTEM AS CAUSED BY CONSTRUCTION. WITHIN REASON AND WHEN POSSIBLE, THE NEW WORK SHALL BE INSTALLED TO AVOID LANDSCAPING COMPONENTS. IF AVOIDANCE IS NOT POSSIBLE, CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, REPAIR AND/OR RE-INSTALLATION OF THE IRRIGATION AS REQUIRED TO COMPLETE THE WORK AS SHOWN AND TO LEAVE THE OWNER WITH AN IRRIGATION SYSTEM IN THE SAME CONDITION AS WHEN WORK BEGAN.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI

ANDREW T. GREENE  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-202000043  
ISSUED 07/2024  
MO LICENSE - PE-202000043

**CROCKETT**  
ENGINEERING CONSULTANTS

CHECKED BY: ATG  
DRAWN BY: ATG  
ISSUED FOR BO: 02/09/2024

**PRW CONSULTANTS, INC.**  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF AUTHORITY ENGINEERING  
- 202.30.7605

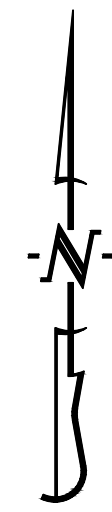
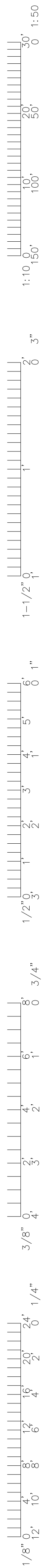
CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211

**GRADING AND EROSION CONTROL PLAN**

PROJECT NUMBER  
CP241001

SHEET  
CE 8





SCALE: 1"=30'

**GENERAL NOTES**

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.

CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MUTCD MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES. REFER TO SECTION 616 OF THE MUTCD STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL PROCEDURES. ALL WARNING SIGNS WITH "WORK-AHEAD" IN THE LEGEND ABOVE SHALL BE BLACK LETTERING WITH ORANGE BACKGROUND.

TEMPORARY SPEED BUMPS SHALL BE 2" TO 3" TALL AND MADE OF RUBBER. TEMPORARY SPEED BUMPS SHALL BE BLACK WITH REFLECTIVE YELLOW STRIPES AND SHALL BE STAKED TO PAVEMENT WITH 12" GALVANIZED STEEL SPIKES. CONTRACTOR SHALL REMOVE BUMPS AND SPIKES WHEN CONSTRUCTION IS COMPLETE.

**SCHEDULING OF CLOSURES**

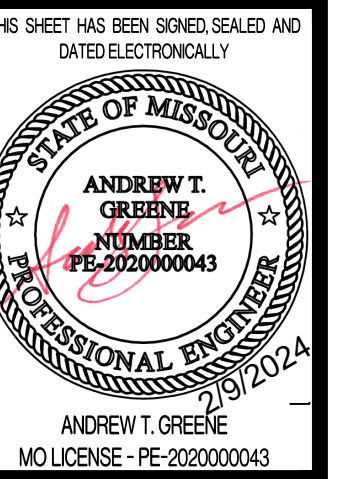
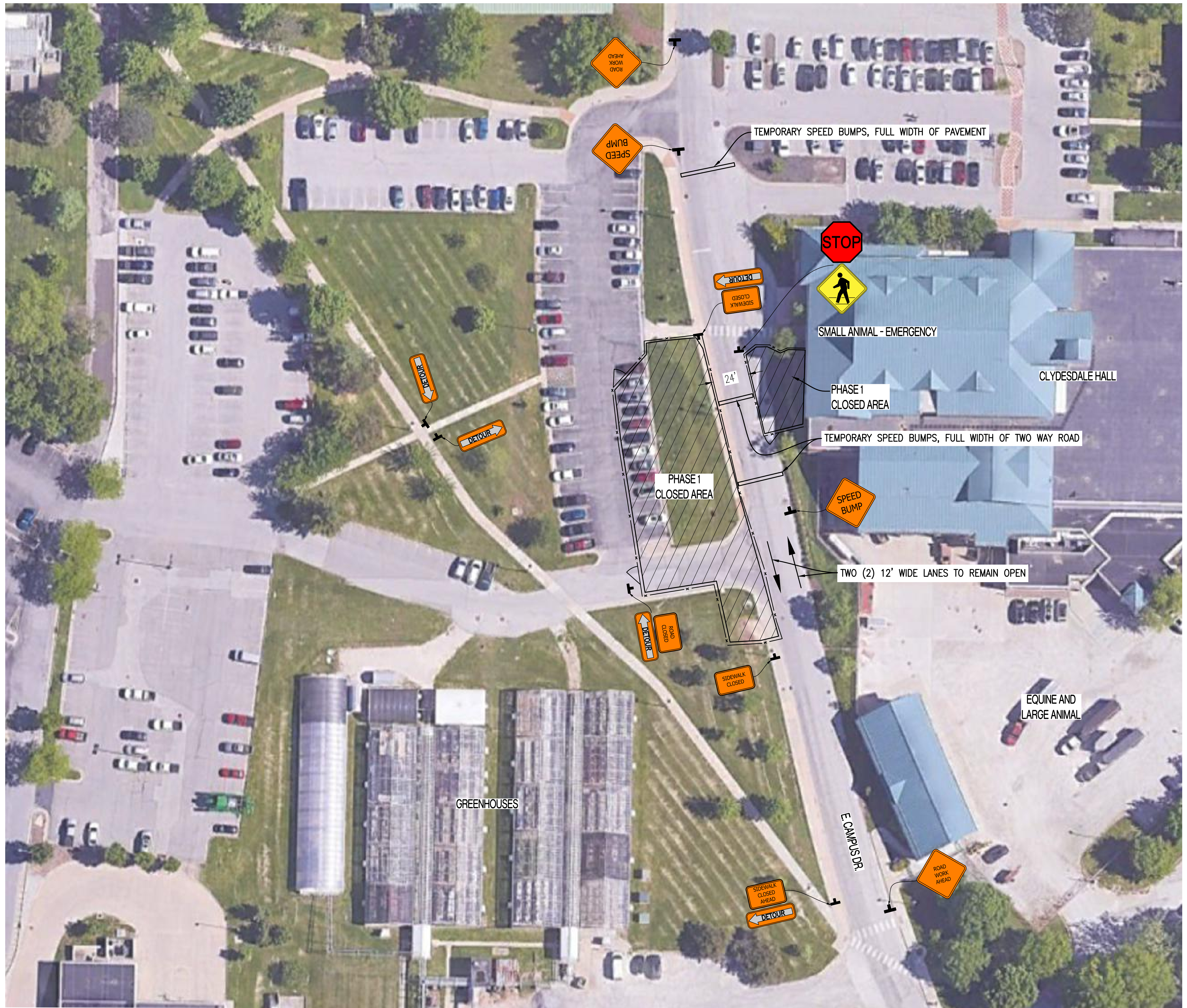
DETOUR SIGNS ARE TO BE PLACED PER THE DETOUR PLAN PRIOR TO ANY CLOSURES.

CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE FOLLOWING AGENCIES, AS REQUIRED, IMMEDIATELY PRIOR TO CLOSURE OF STREET AND AGAIN WHEN WORK IS COMPLETE AND STREET IS REOPENED:

JOINT COMMUNICATIONS (EMERGENCY SERVICES) 874-8471

**TRAFFIC CONTROL DEVICE LEGEND**

	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W20-1 SHOULD READ "ROAD WORK AHEAD"). SIGN SHALL BE 36" X 36" MIN.
	PLACE CUSTOM SIGN. SIGN SHALL BE 24" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # M4-10 SHOULD READ "DETOUR"). SIGN SHALL BE 48" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # R9-9 SHOULD READ "SIDEWALK CLOSED"). SIGN SHALL BE 24" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # R11-2 SHOULD READ "ROAD CLOSED"). SIGN SHALL BE 24" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W17-1B SHOULD READ "SPEED BUMP"). SIGN SHALL BE 24" X 24" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # R1-1 SHOULD READ "STOP"). SIGN SHALL BE 36" X 36" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W11-2). SIGN SHALL BE 36" X 36" MIN.



CHECKED BY: ATG  
 DRAWN BY: ATG  
 ISSUED FOR BO: 02/09/2024

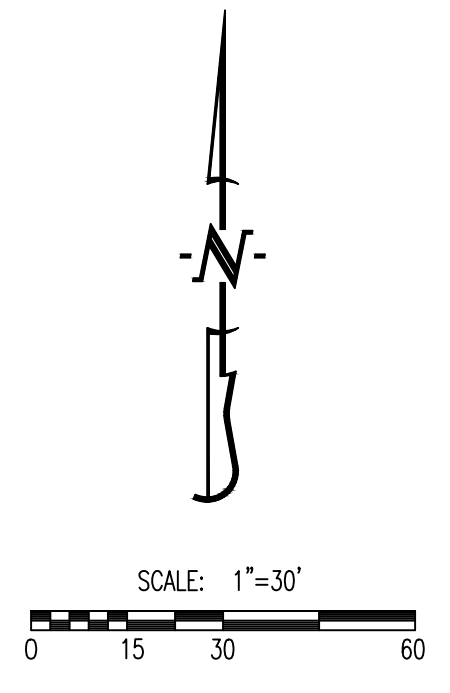
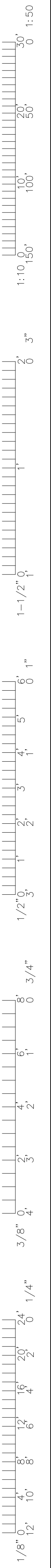
**PRW CONSULTANTS, INC.**  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF AUTHORITY: ENGINEERING  
 -- 2023.07605

CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211  
**TRAFFIC CONTROL PLAN - PHASE 1**

PROJECT NUMBER  
 CP241001

SHEET  
 CE9





**GENERAL NOTES**

TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE MUTCD.  
 CONTRACTOR SHALL REFER TO THE CURRENT EDITION OF THE MODOT MANUAL OF TRAFFIC CONTROL FOR FIELD OPERATIONS FOR INFORMATION ON THE PROPER DEPLOYMENT OF TRAFFIC CONTROL DEVICES. REFER TO SECTION 616 OF THE MODOT STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL PROCEDURES. ALL WARNING SIGNS WITH "WOXY-Y" IN THE LEGEND ABOVE SHALL BE BLACK LETTERING WITH ORANGE BACKGROUND.  
 TEMPORARY SPEED BUMPS SHALL BE 2" TO 3" TALL AND MADE OF RUBBER. TEMPORARY SPEED BUMPS SHALL BE BLACK WITH REFLECTIVE YELLOW STRIPES AND SHALL BE STAKED TO PAVEMENT WITH 12" GALVANIZED STEEL SPIKES. CONTRACTOR SHALL REMOVE BUMPS AND SPIKES WHEN CONSTRUCTION IS COMPLETE.

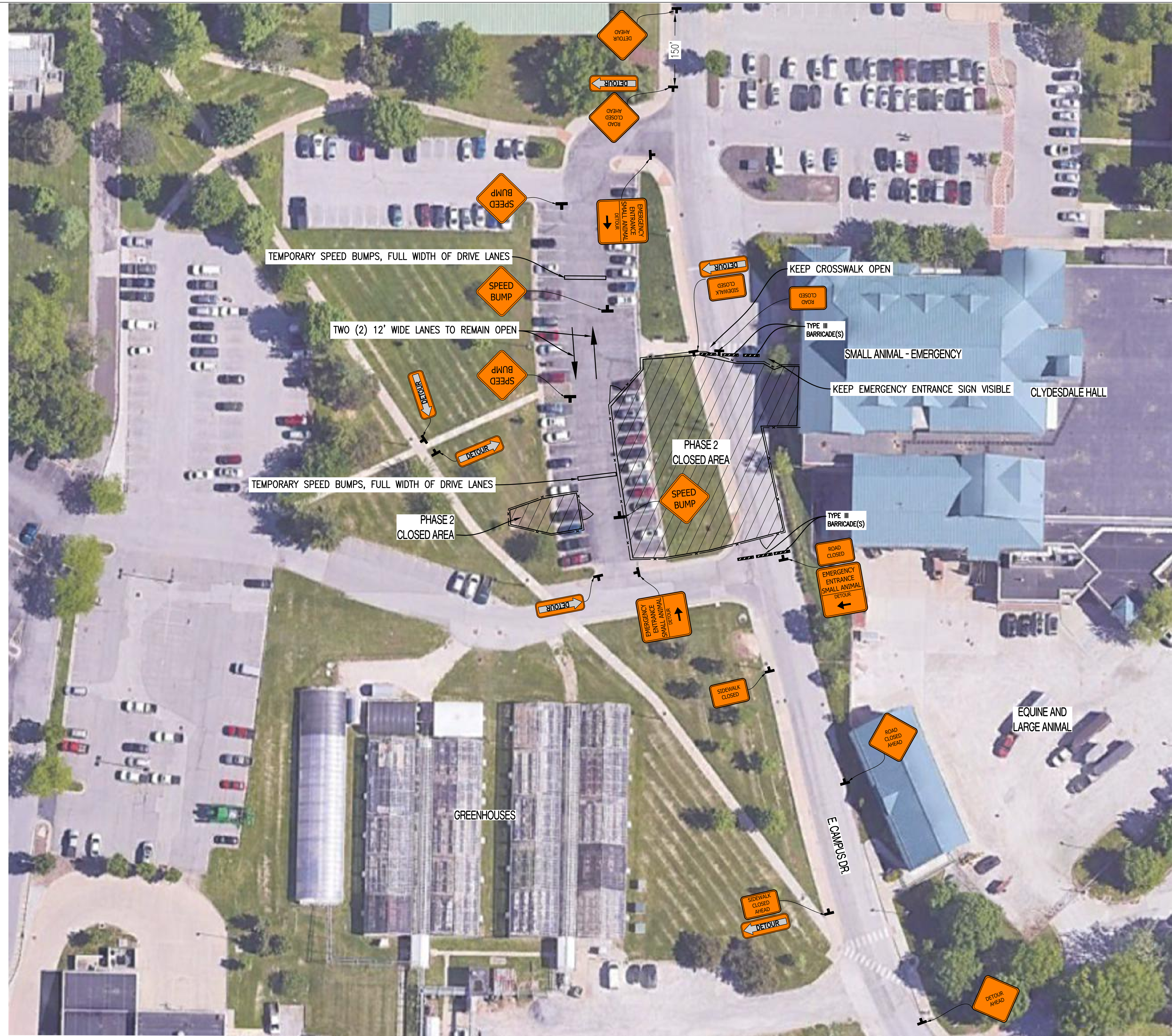
**SCHEDULING OF CLOSURES**

DETOUR SIGNS ARE TO BE PLACED PER THE DETOUR PLAN PRIOR TO ANY CLOSURES.  
 CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE FOLLOWING AGENCIES, AS REQUIRED, IMMEDIATELY PRIOR TO CLOSURE OF STREET AND AGAIN WHEN WORK IS COMPLETE AND STREET IS REOPENED:

JOINT COMMUNICATIONS (EMERGENCY SERVICES) 874-8471

**TRAFFIC CONTROL DEVICE LEGEND**

	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W20-3 SHOULD READ "ROAD CLOSED AHEAD"). SIGN SHALL BE 36" X 36" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W20-2 SHOULD READ "DETOUR AHEAD"). SIGN SHALL BE 36" X 36" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # M4-10 SHOULD READ "DETOUR"). SIGN SHALL BE 48" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # R9-9 SHOULD READ "SIDEWALK CLOSED"). SIGN SHALL BE 24" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # R11-2 SHOULD READ "ROAD CLOSED"). SIGN SHALL BE 24" X 18" MIN.
	PLACE STANDARD HIGHWAY SIGN (MUTCD SIGN # W17-1B SHOULD READ "SPEED BUMP"). SIGN SHALL BE 24" X 24" MIN.
	PLACE CUSTOM SIGN. SIGN SHALL BE 24" X 18" MIN.
	PLACE CUSTOM SIGN. SIGN SHALL BE 30" X 24" MIN. POINT RIGHT OR LEFT PER PLAN.



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.  
 ANDREW T. GREEBE  
 NUMBER  
 PE-2022000043  
 PROFESSIONAL ENGINEER  
 ANDREW T. GREEBE  
 MO LICENSE - PE-2022000043  
 1/9/2024

**CROCKETT**  
 ENGINEERING CONSULTANTS

ISSUED FOR BO  
 02/09/2024  
 DRAWN BY: ATG  
 CHECKED BY: ATG

PRW CONSULTANTS, INC.  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF  
 AUTHORITY ENGINEERING  
 - 2023017605



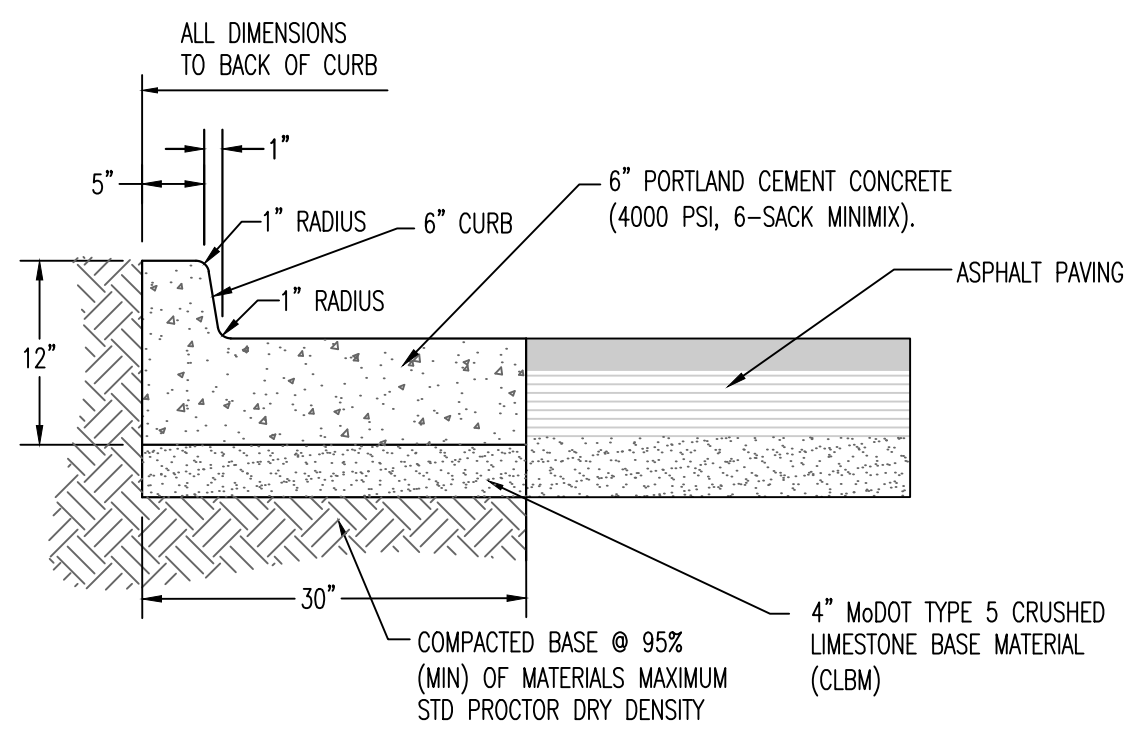
CLYDESDALE HALL  
 COLUMBIA, BOONE COUNTY, MISSOURI 65211  
 TRAFFIC CONTROL PLAN - PHASE 2

PROJECT NUMBER  
 CP241001

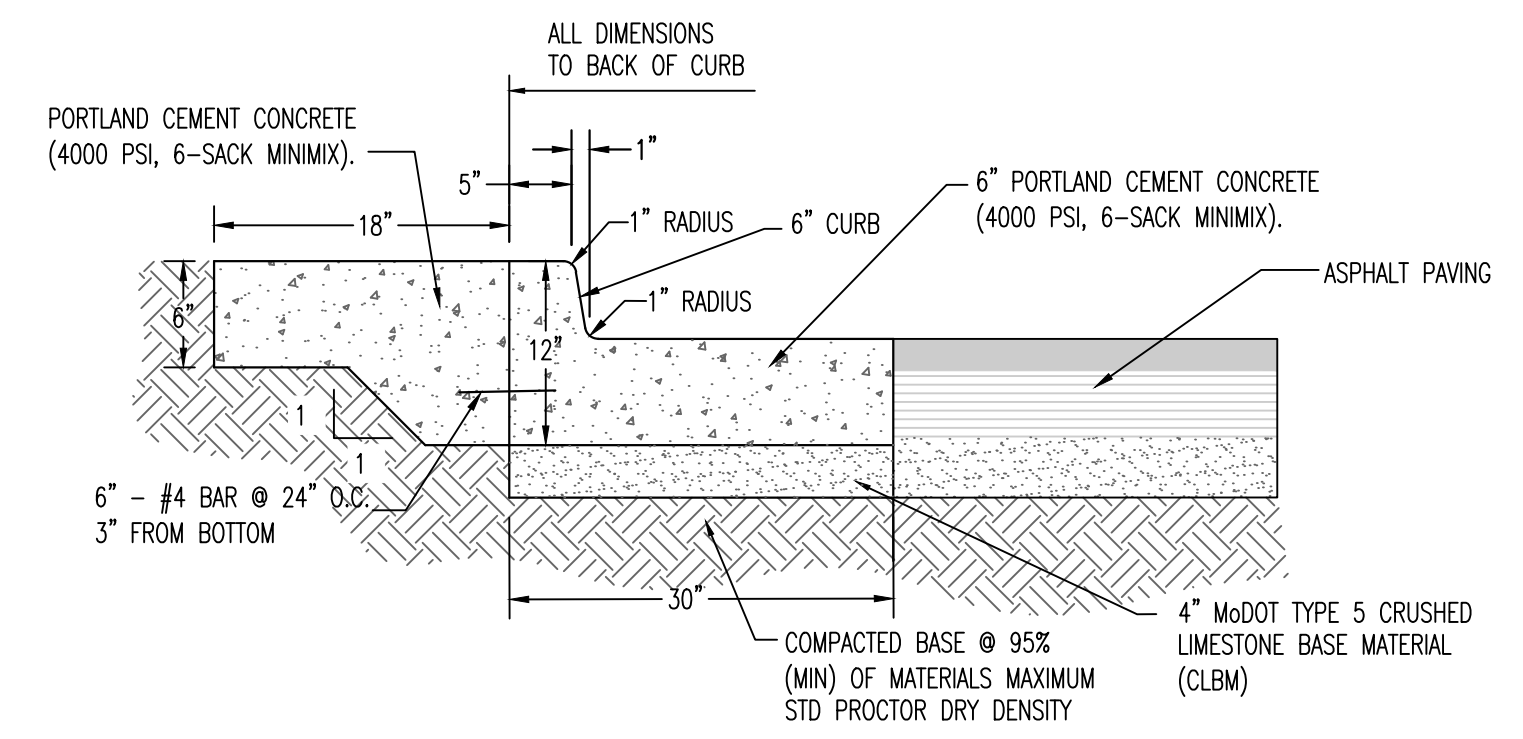
SHEET  
 CE 10



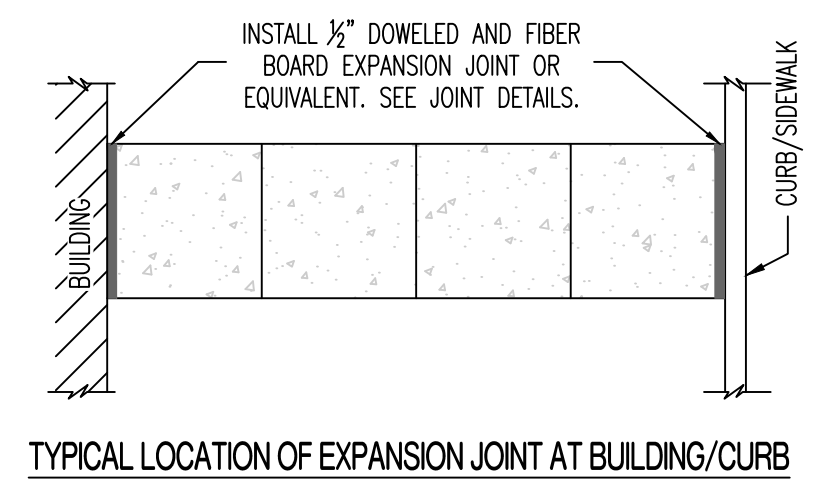
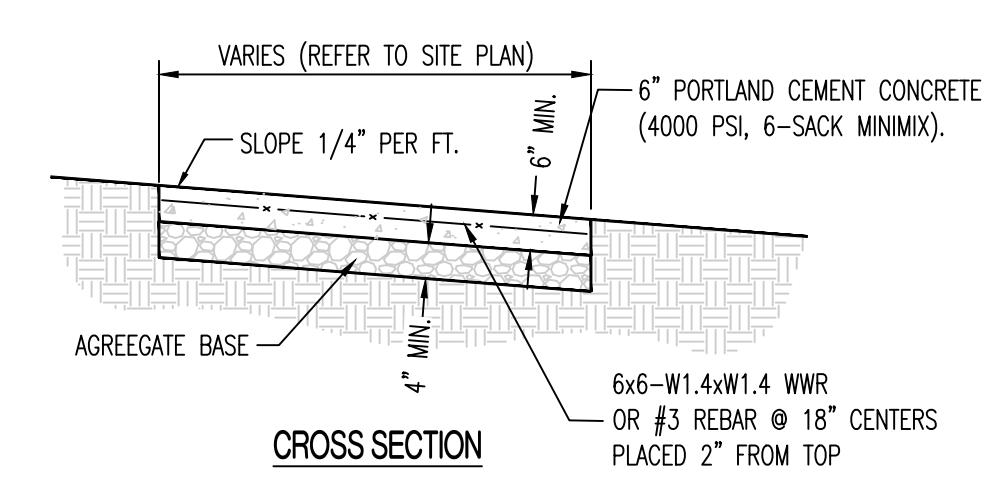
1:10  
1:50  
3"  
1"  
3/4"  
3/8"  
1/4"  
1/8"



**6" TALL CURB ABUTTING ASPHALT**

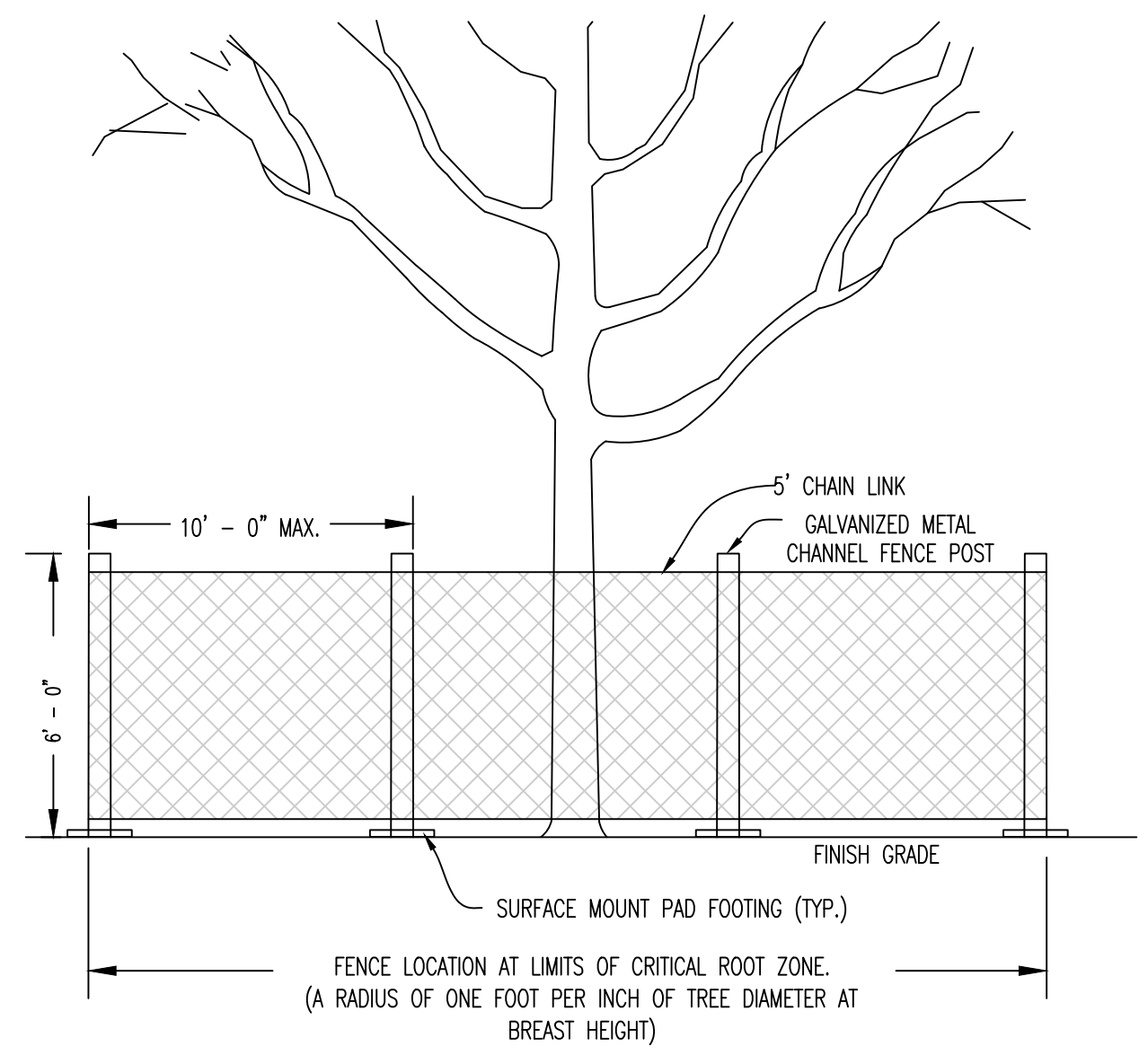


**6" TALL CURB ABUTTING ASPHALT WITH MOW STRIP**



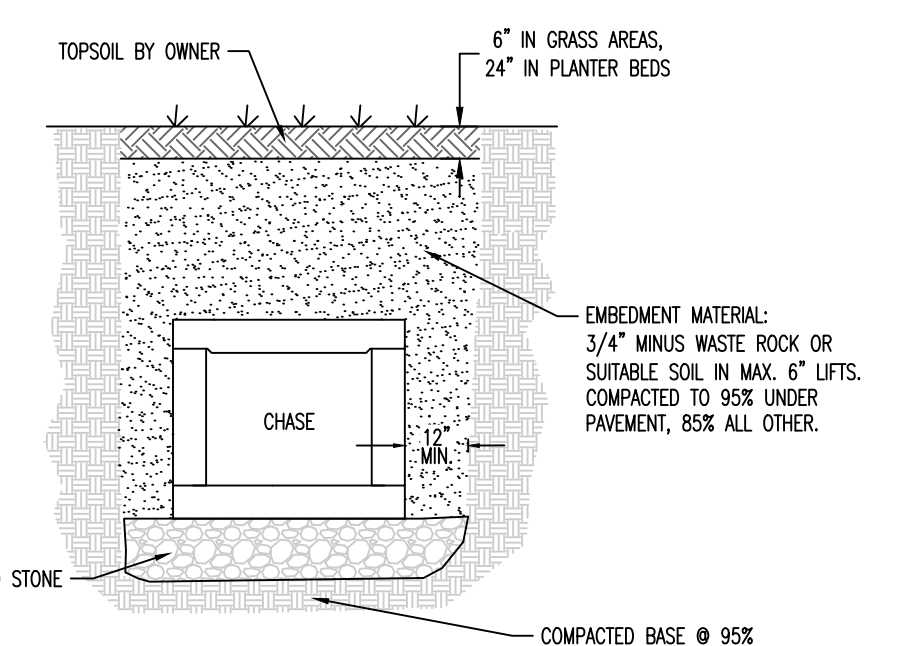
- NOTE:
1. SIDEWALK SHALL BE 6" THICK CLASS A CONCRETE ON 4" AGGREGATE BASE.
  2. INSTALL 1/2" DOWELED EXPANSION JOINTS AT INTERSECTIONS, RAMPS, STRUCTURES, AND DRIVEWAY APPROACHES. MAX. EXPANSION JOINT SPACING = 150'
  3. INSTALL TRANSVERSE SAW JOINTS AT SPACING = SIDEWALK WIDTH.

**TYPICAL PRIVATE SIDEWALK**

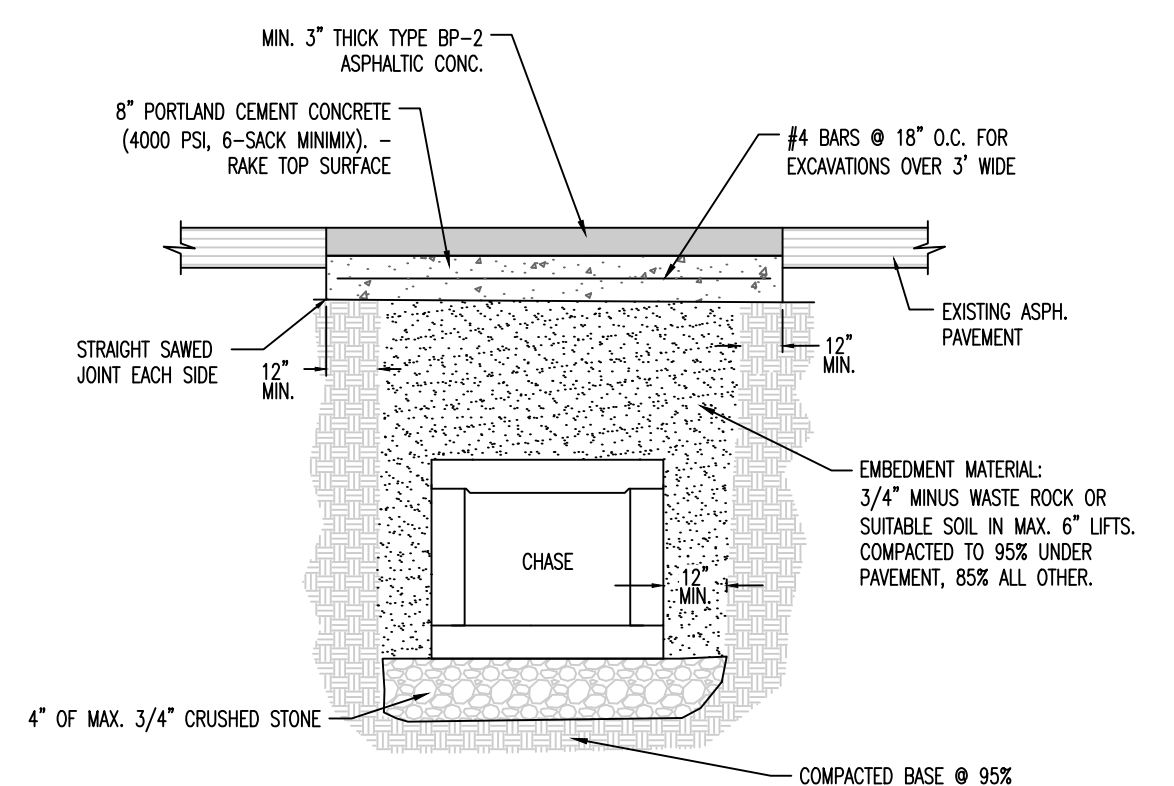


- NOTES:
1. MAKE CLEAN SAWCUTS ON ROOTS EXPOSED BY GRADING AND BACKFILL IMMEDIATELY W/ TOPSOIL THOROUGHLY.
  2. MAINTAIN FENCE TO KEEP IT ANCHORED FIRMLY TO POST WITHOUT SAGGING.
  3. ANCHOR FENCE TO POSTS WITH WIRES OR PLASTIC TIES.
  4. REMOVE FENCING AND TIES FROM SITE WHEN DIRECTED BY OWNER/ENGINEER OR AT SUBSTANTIAL COMPLETION OF PROJECT.

**TREE PROTECTION FENCE**

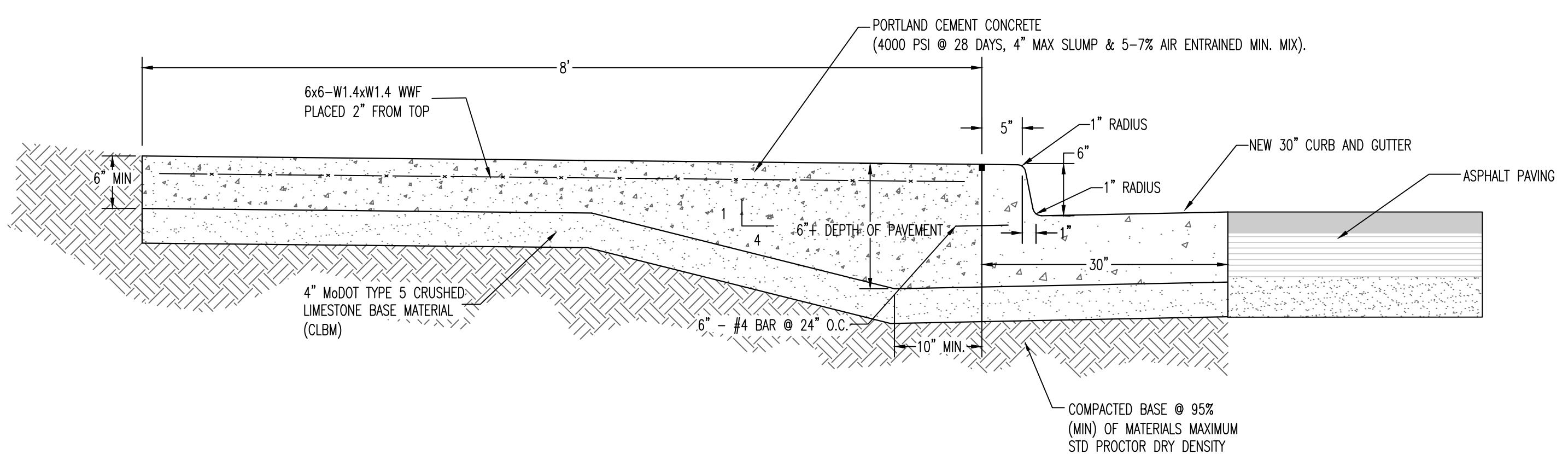


**CHASE BACKFILL IN NON-PAVED AREA**

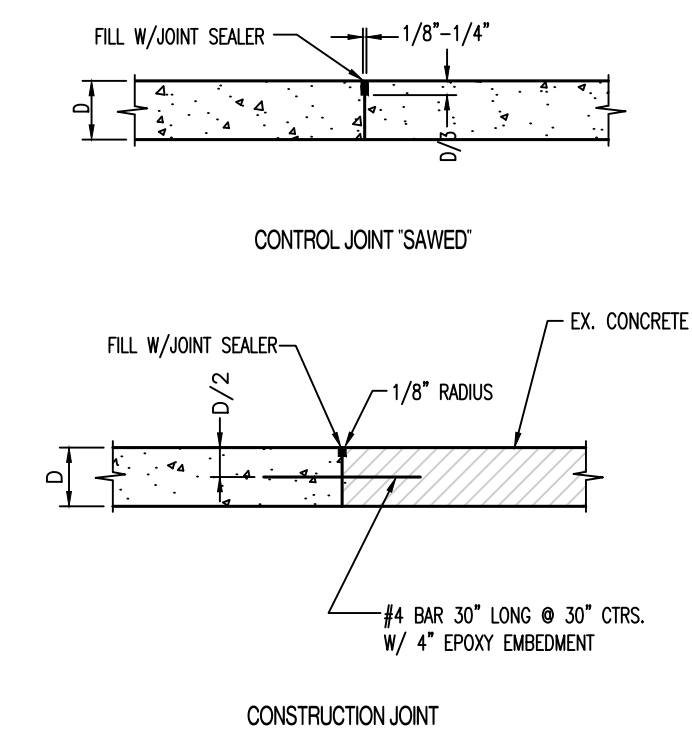


**TYPICAL ASPHALT PAVEMENT PATCH & CHASE BACKFILL IN PAVED AREA**

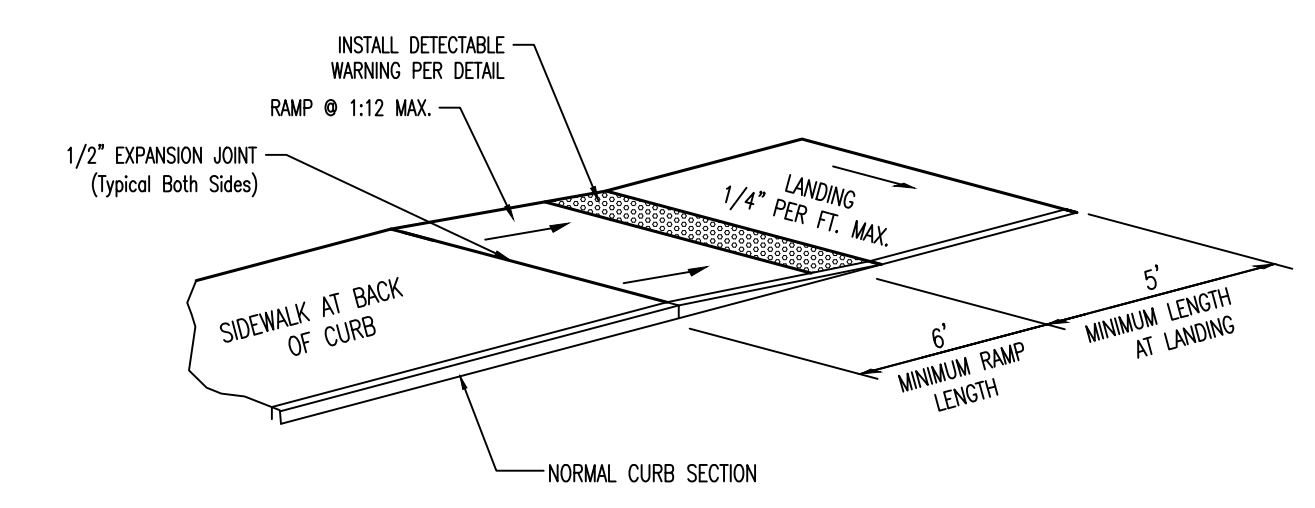
- NOTES:
- CONCRETE SHALL BE CLASS AA
  - REINFORCING STEEL SHALL BE GRADE 60



**THICKENED EDGE SIDEWALK AT BACK OF CURB & GUTTER**

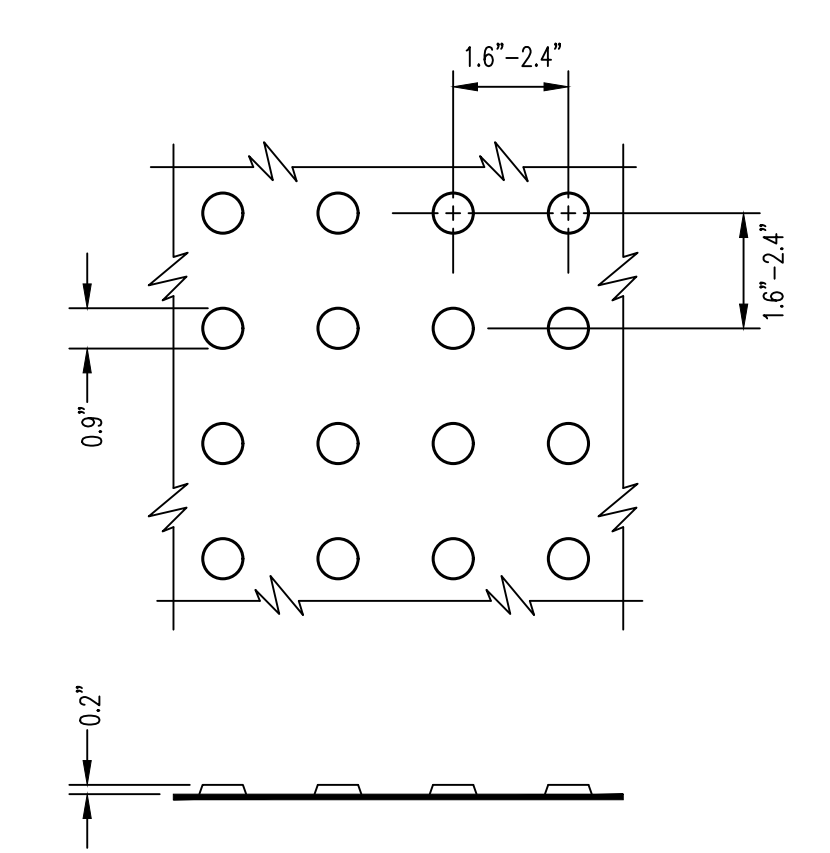


**JOINT DETAILS (P.C. CONCRETE PAVEMENT)**



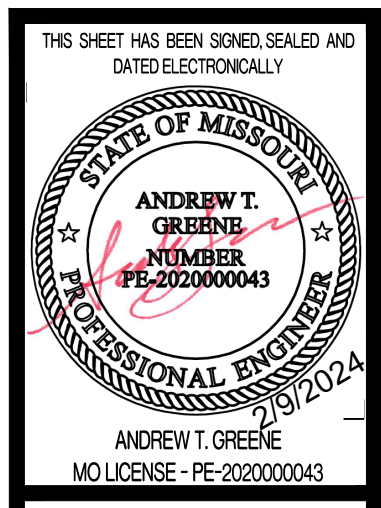
- NOTE:
1. RAMP SHALL BE 6" THICK CLASS A CONCRETE REINFORCED SAME AS SIDEWALK.
  2. EXPANSION JOINT SHALL BE 1/2" PREFORMED CORK OR BITUMINOUS EXPANSION JOINT MATERIAL.
  3. MAXIMUM RAMP CROSS SLOPE IS 2.00%.
  4. ALL SLOPES ARE MEASURED FROM THE HORIZONTAL.
  5. CROSS SLOPE OF LANDING SHALL NOT EXCEED 2%.
  6. RAMP IS 1:12 MAX. SLOPE. USE FLATTER WHEN POSSIBLE.

**SIDEWALK RAMP AT BACK OF CURB**



- NOTE:
1. DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF 0.9", A HEIGHT OF NOMINAL 0.2", AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35", AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, ACHIEVED BY THE INSTALLATION OF ADA 2004 COMPLIANT DETECTABLE WARNING PAVERS.
  2. MANUFACTURER TO BE WAUSAU TILE, OR APPROVED EQUAL. PAVERS TO BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.
  3. STAMPED CONCRETE IS NOT AN APPROVED EQUAL.
  4. COLOR TO BE APPROVED BY OWNER.
  5. DETECTABLE WARNING SURFACES SHALL BE 24" WIDE AND EXTEND THE FULL LENGTH OF THE PUBLIC USE AREA.

**DETECTABLE WARNING (435.01)**



CHECKED BY: ATG  
ISSUED FOR BID  
02/09/2024  
DRAWN BY: ATG

PRW CONSULTANTS, INC.  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
-- 2023.07605

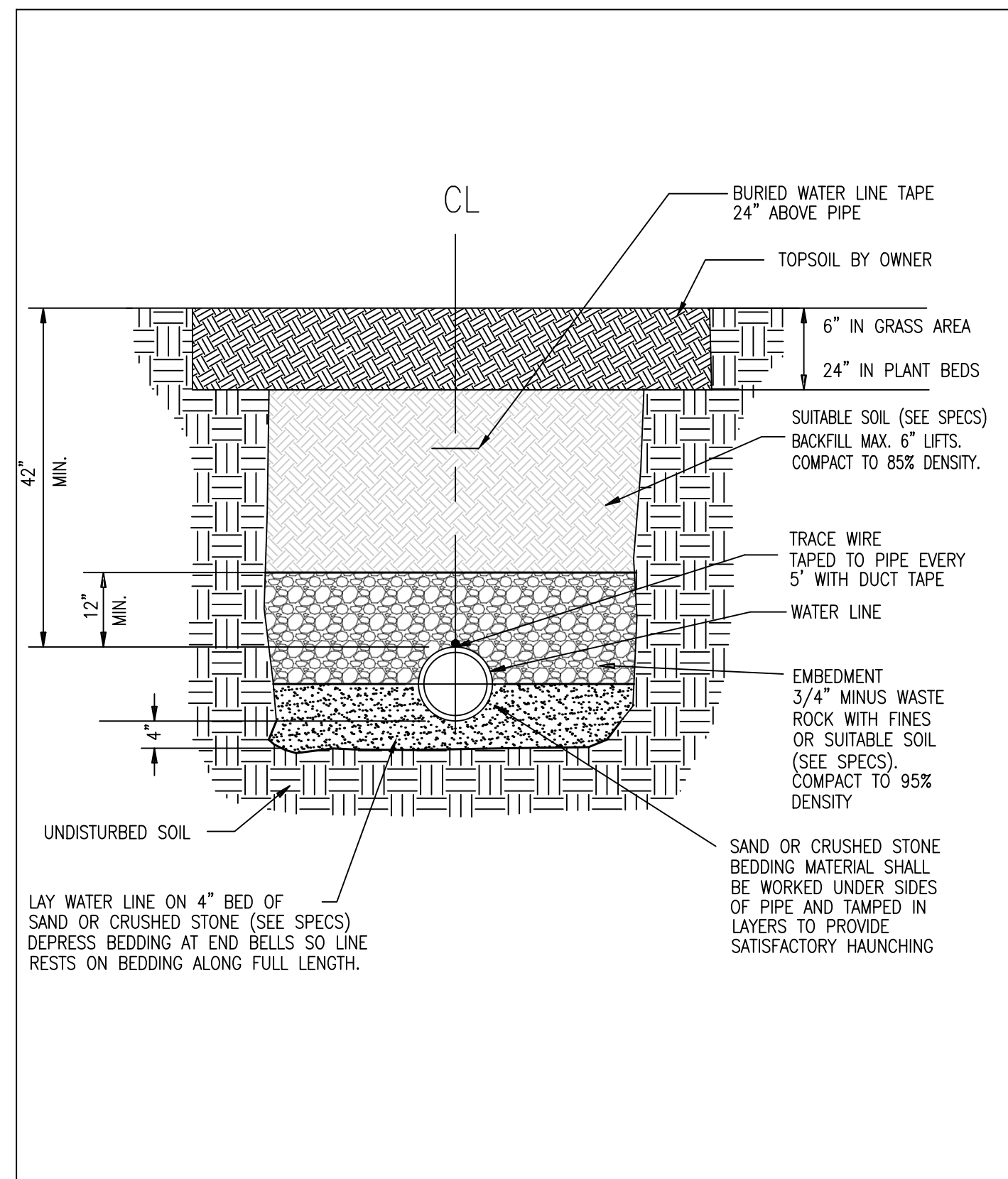
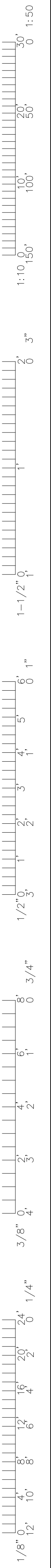


CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
SITE CONSTRUCTION DETAILS

PROJECT NUMBER  
CP241001

SHEET  
CE 11





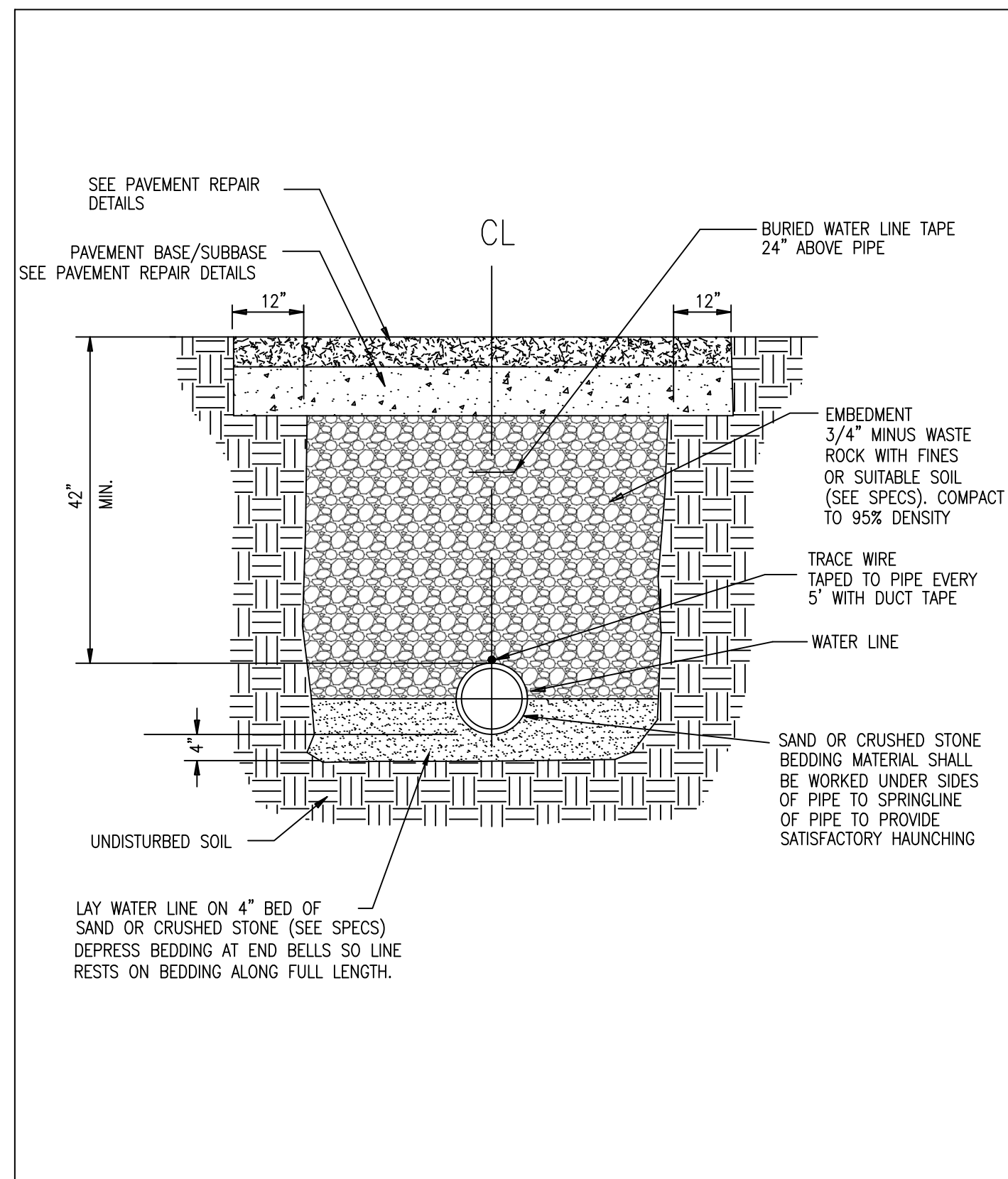
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3	1/6/14	
4	6/5/14	
5	11/05/15	

Construction Standard  
Trench at Grass & Plantings

Energy Management  
Campus Facilities  
UNIVERSITY OF MISSOURI

DRAWING NOT TO SCALE  
DATE: 12/22/02

DRAWN BY: BB  
CHECKED BY: TG



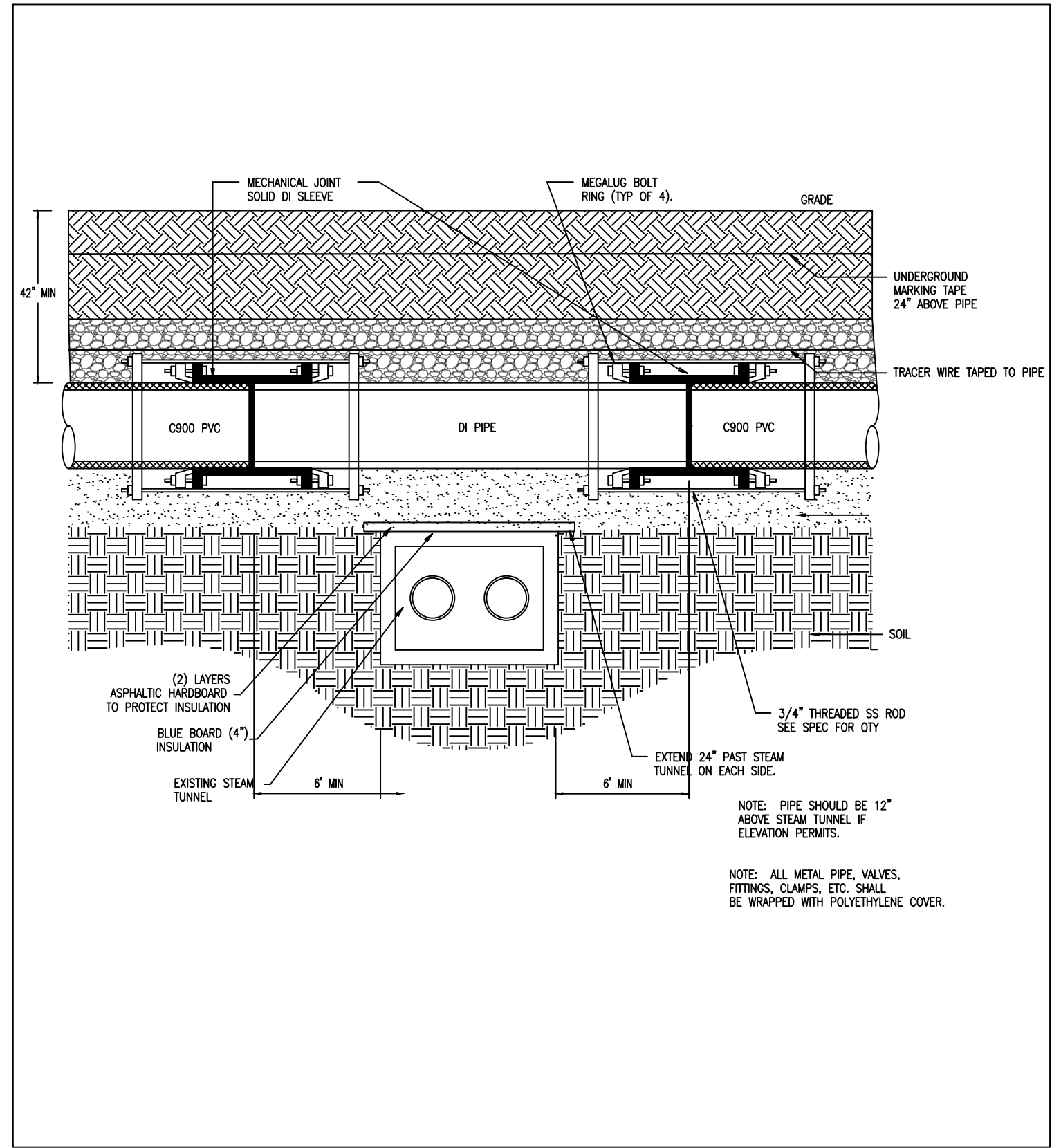
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4	11/05/15	

Construction Standard  
Trench at Paving

Energy Management  
Campus Facilities  
UNIVERSITY OF MISSOURI

DRAWING NOT TO SCALE  
DATE: 12/22/02

DRAWN BY: BB  
CHECKED BY: TG



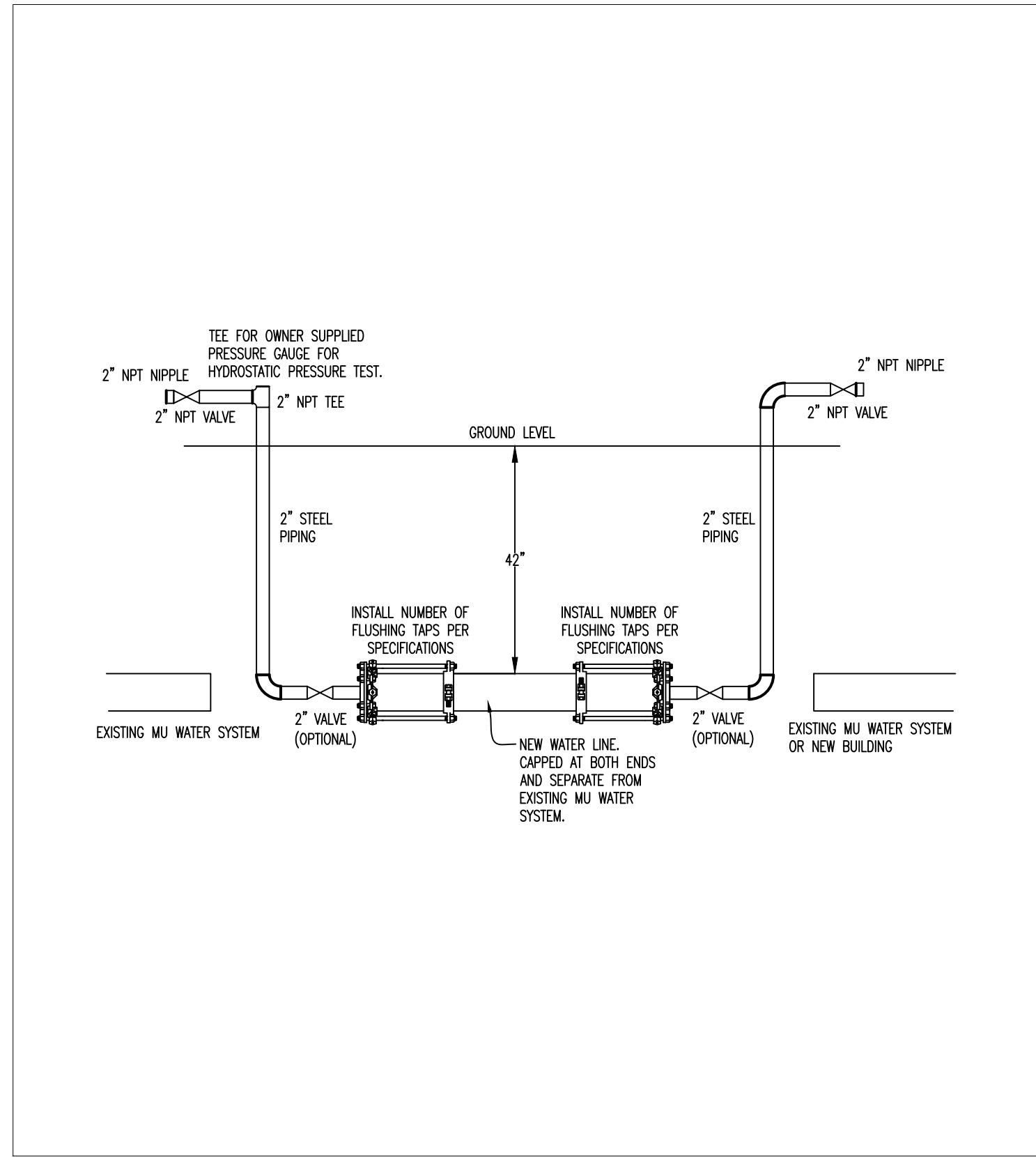
REV	DATE	DESCRIPTION
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2	8/15/11	
3	6/05/14	
4	11/05/15	

Construction Standard  
Steam Tunnel Crossing

Energy Management  
Campus Facilities  
UNIVERSITY OF MISSOURI

DRAWING NOT TO SCALE  
DATE: 12/18/02

DRAWN BY: AM  
CHECKED BY: TG



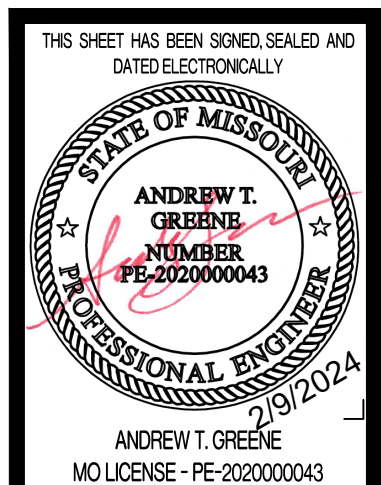
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Taps for Flushing and  
Disinfection of Water Lines

Energy Management  
Campus Facilities  
UNIVERSITY OF MISSOURI-COLUMBIA

DRAWING NOT TO SCALE  
DATE: 1/4/14

DRAWN BY:  
CHECKED BY:



ISSUED FOR BID  
02/09/2024  
DRAWN BY: ATG  
CHECKED BY: ATG

PRW CONSULTANTS, INC.  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
-202307605

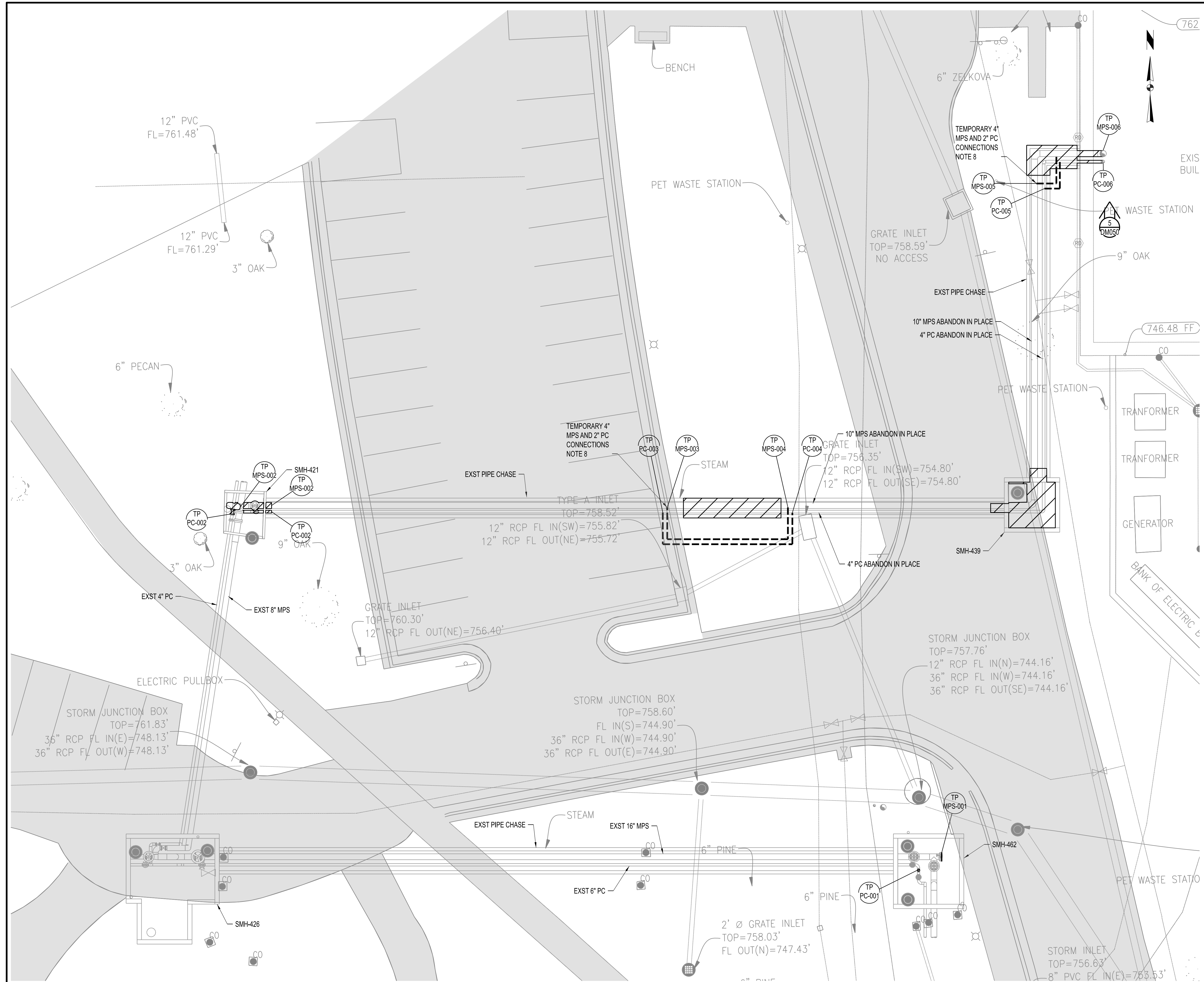
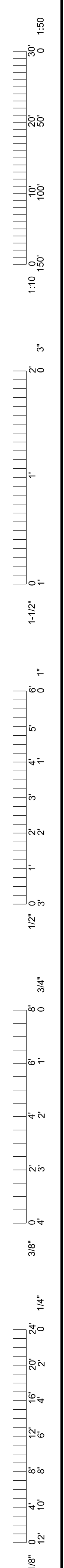


CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
WATER LINE DETAILS

PROJECT NUMBER  
CP241001

SHEET  
CE 12

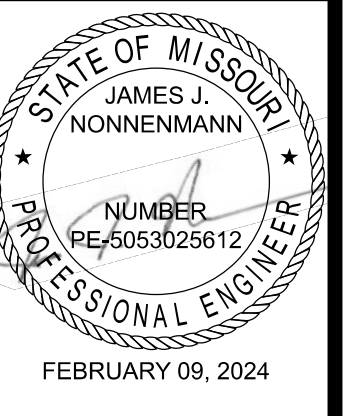




- NOTES:**
1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.
  2. FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
  3. PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  4. EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
  5. TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
  6. PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  7. PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  8. CONTRACTOR SHALL INSTALL TEMPORARY DRIP LEG AND STEAM TRAP ON MEDIUM PRESSURE STEAM DURING INSTALLATION OF TEMPORARY CONNECTIONS.
  9. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
  10. CONTRACTOR SHALL PROTECT THE ELECTRICAL DUCTBANK DURING THE DEMOLITION OF SMH-439 AND THE SURROUNDING PIPE CHASES.

- LEGEND:**
- C-01 | C-01 CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - TP XXX-### TIE-POINT INDICATOR  
XXX: SYSTEM  
###: TIE-POINT NUMBER
  - [Hatched Box] ITEMS TO BE DEMOLISHED
  - [Cross-hatched Box] ITEMS TO BE SALVAGED

**DEMOLITION - SITE PLAN**  
SCALE: 1" = 10'



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Rock Island, IL 61201  
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-2023077605

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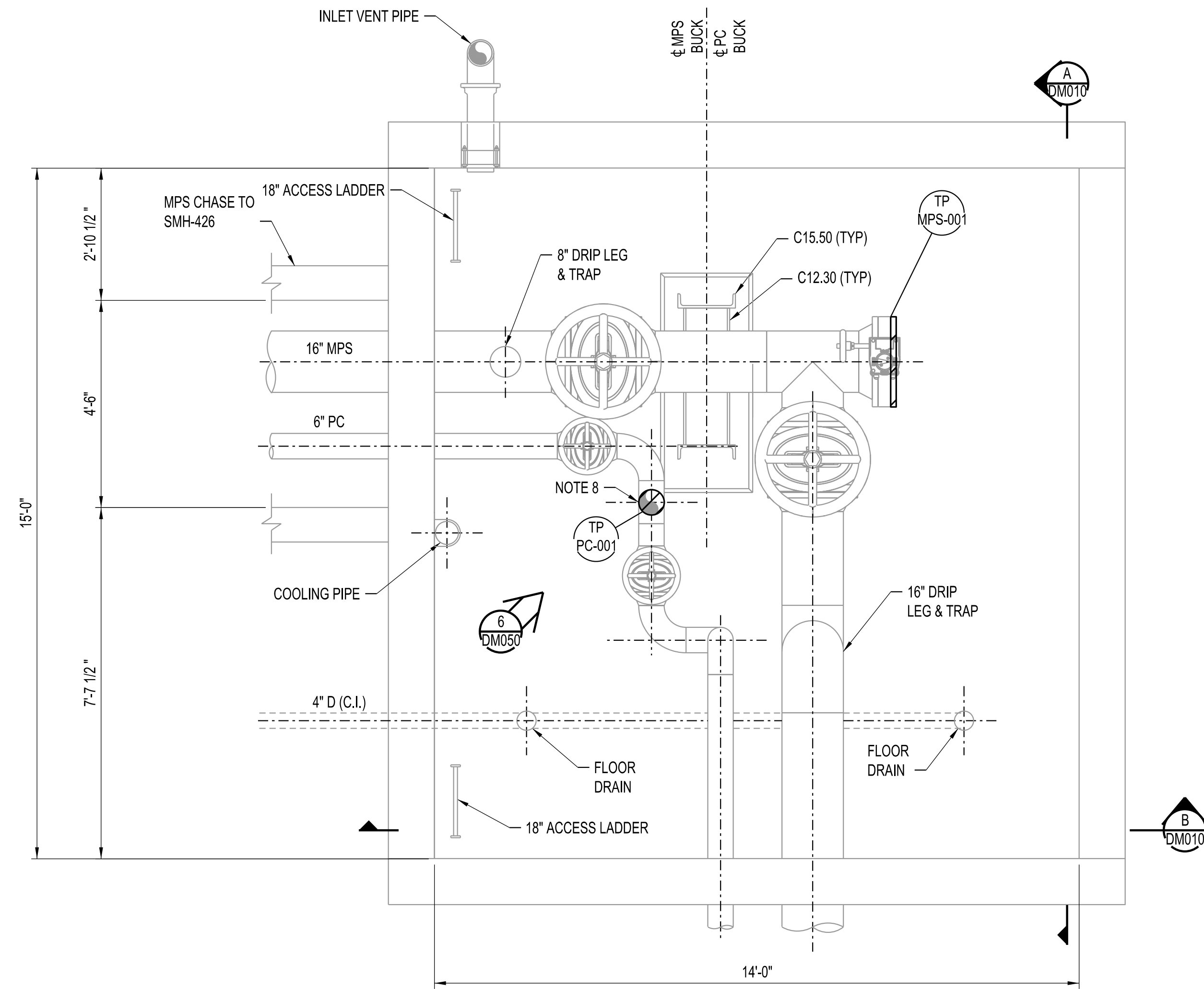
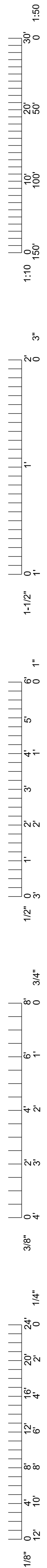
**PRVN**

**CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
DEMOLITION  
SITE PLAN**

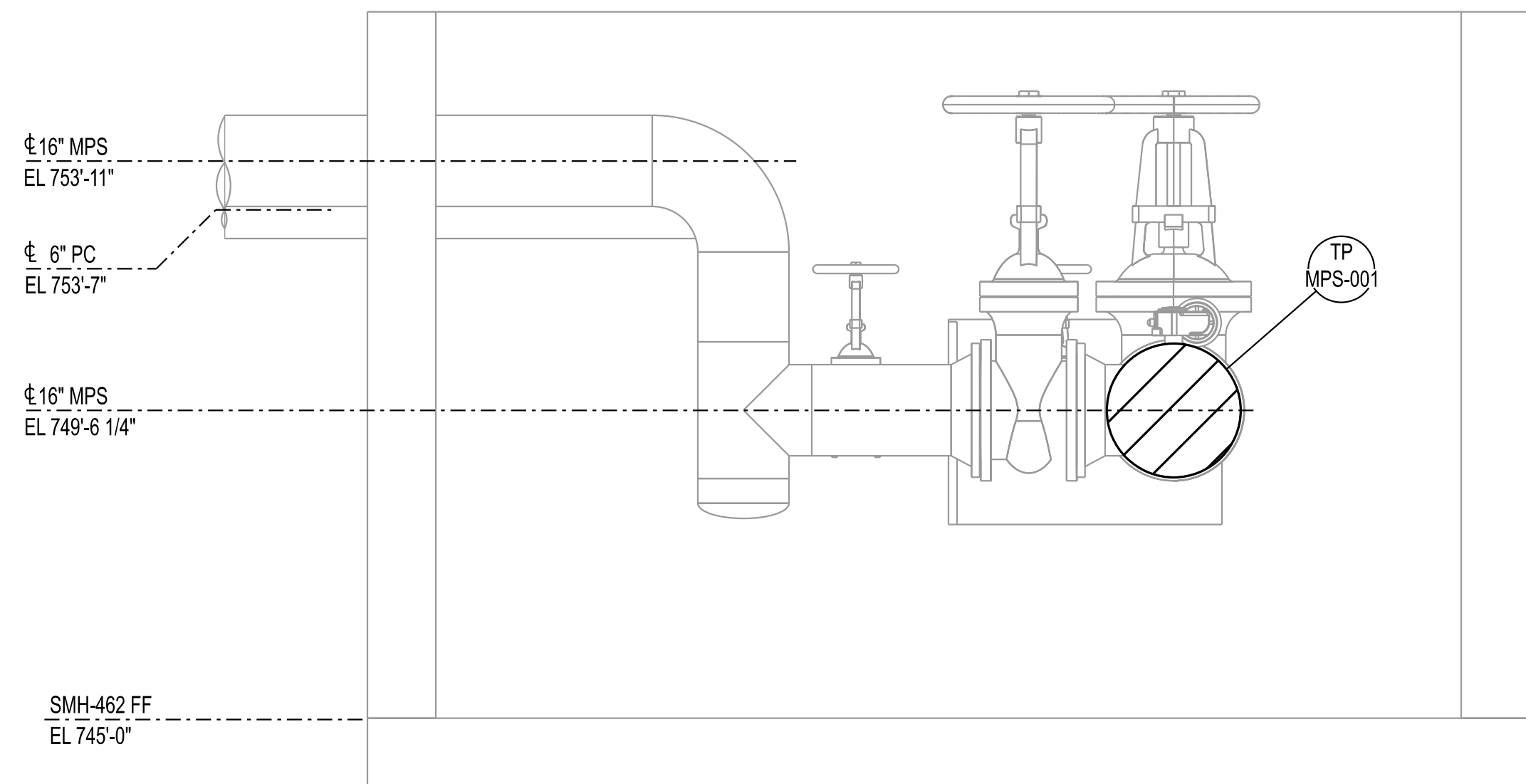
PROJECT NUMBER  
**CP241001**

SHEET  
**DM001**

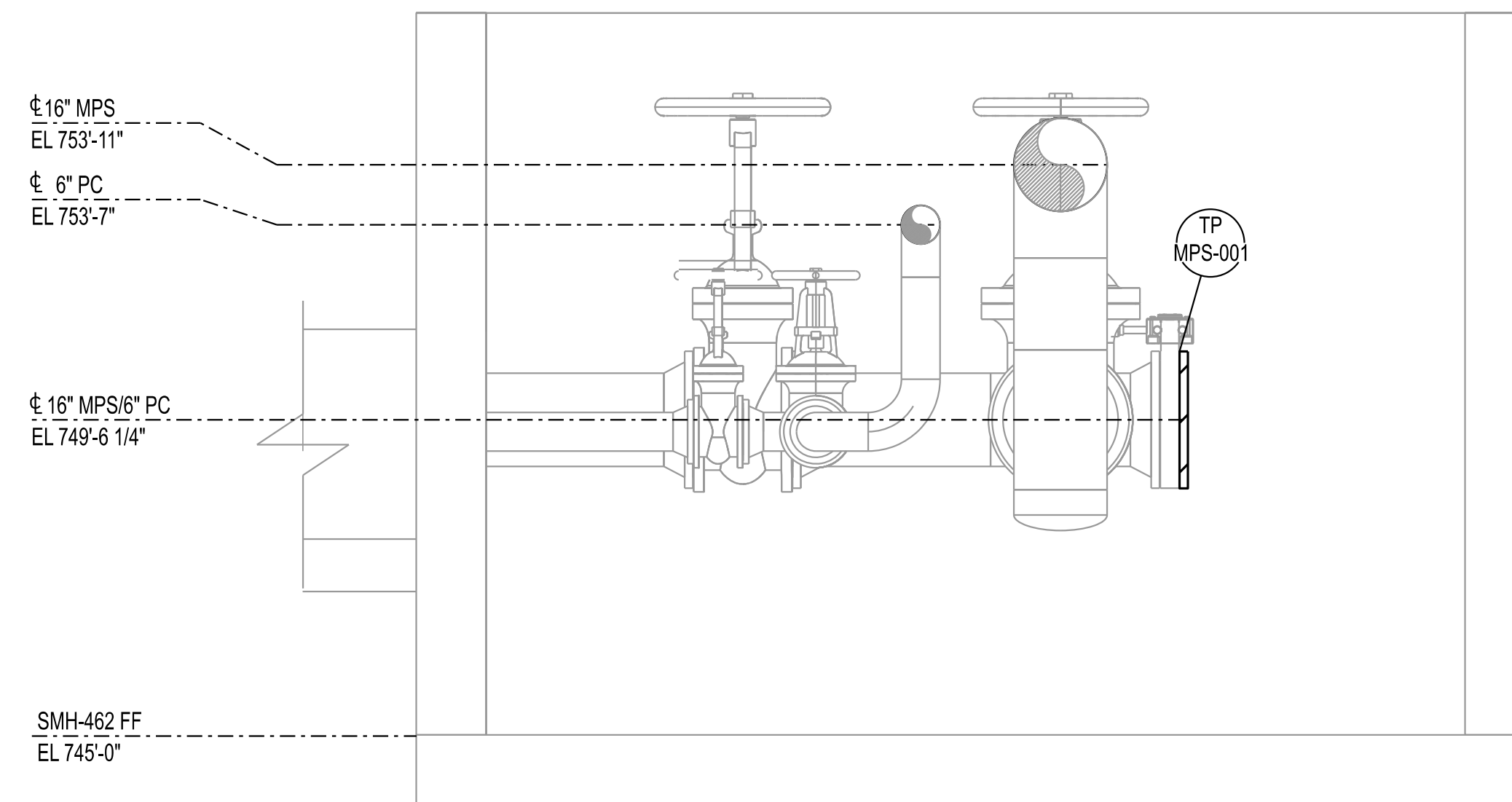




**DEMOLITION PLAN - SMH-462**  
SCALE: 3/4" = 1'-0"



**SECTION A - SMH-462**  
SCALE: 1/2" = 1'-0"  
DM010



**SECTION B - SMH-462**  
SCALE: 1/2" = 1'-0"  
DM010

**NOTES:**

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- FIELD VERIFY ALL SIZES BEFORE COMMENCEMENT OF DEMOLITION ACTIVITIES.
- PROTECT ALL EQUIPMENT AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
- EXERCISE CARE TO PERFORM WORK WITHOUT DAMAGING EXISTING INSULATION. NOTIFY OWNER IMMEDIATELY IF INSULATION IS DAMAGED. REPAIR INSULATION AS REQUIRED.
- TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
- PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
- PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL RELOCATE EXISTING 3/4" CONDENSATE CONNECTION TO EXISTING 6" CONDENSATE HEADER.
- CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.

**LEGEND:**

- C-01 | C-01 CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
- TP XXX-### TIE-POINT INDICATOR  
XXX: SYSTEM  
###: TIE-POINT NUMBER
- [Diagonal lines] ITEMS TO BE DEMOLISHED
- [Cross-hatch] ITEMS TO BE SALVAGED



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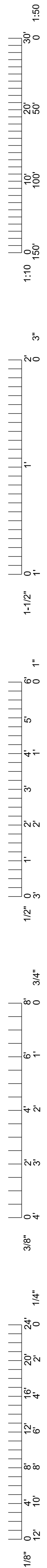
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		DRAWN BY: MAO	

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**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**DEMOLITION PLAN**  
**SMH-462**

PROJECT NUMBER  
**CP241001**  
SHEET  
**DM010**





- NOTES:**
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  - TEMPORARY CAPS, COVERS, OR BLIND FLANGES SHALL BE PROVIDED TO PROTECT PIPING AND EQUIPMENT TO REMAIN FROM ENTRY OF FOREIGN MATERIALS DURING CONSTRUCTION ACTIVITIES.
  - PROTECT ALL ELECTRICAL CABLING, BOXES, RACEWAY, AND CONDUIT FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - PROVIDE DUST PROTECTION FOR EXISTING EQUIPMENT, PIPING, AND OWNER OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - REMOVE ALL STEAM TRAPS AND ASSOCIATED PIPING.
  - REMOVE ALL ABANDONED PIPE SUPPORTS, BRACKETS, HANGERS, ETC.
  - REMOVE ALL DEBRIS FROM MANHOLE PRIOR TO FILLING.
  - FLOOR DRAIN, SUMP PIT, AND DISCHARGE PIPING SHALL BE FILLED WITH FLOWABLE FILL OR GROUT AND BE WATER TIGHT PRIOR TO FILLING THE MANHOLE WITH SAND.
  - CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
  - CONTRACTOR SHALL PROTECT THE ELECTRICAL DUCTBANK DURING THE ABANDON IN PLACE OF SMH-439 AND THE SURROUNDING PIPE CHASES.



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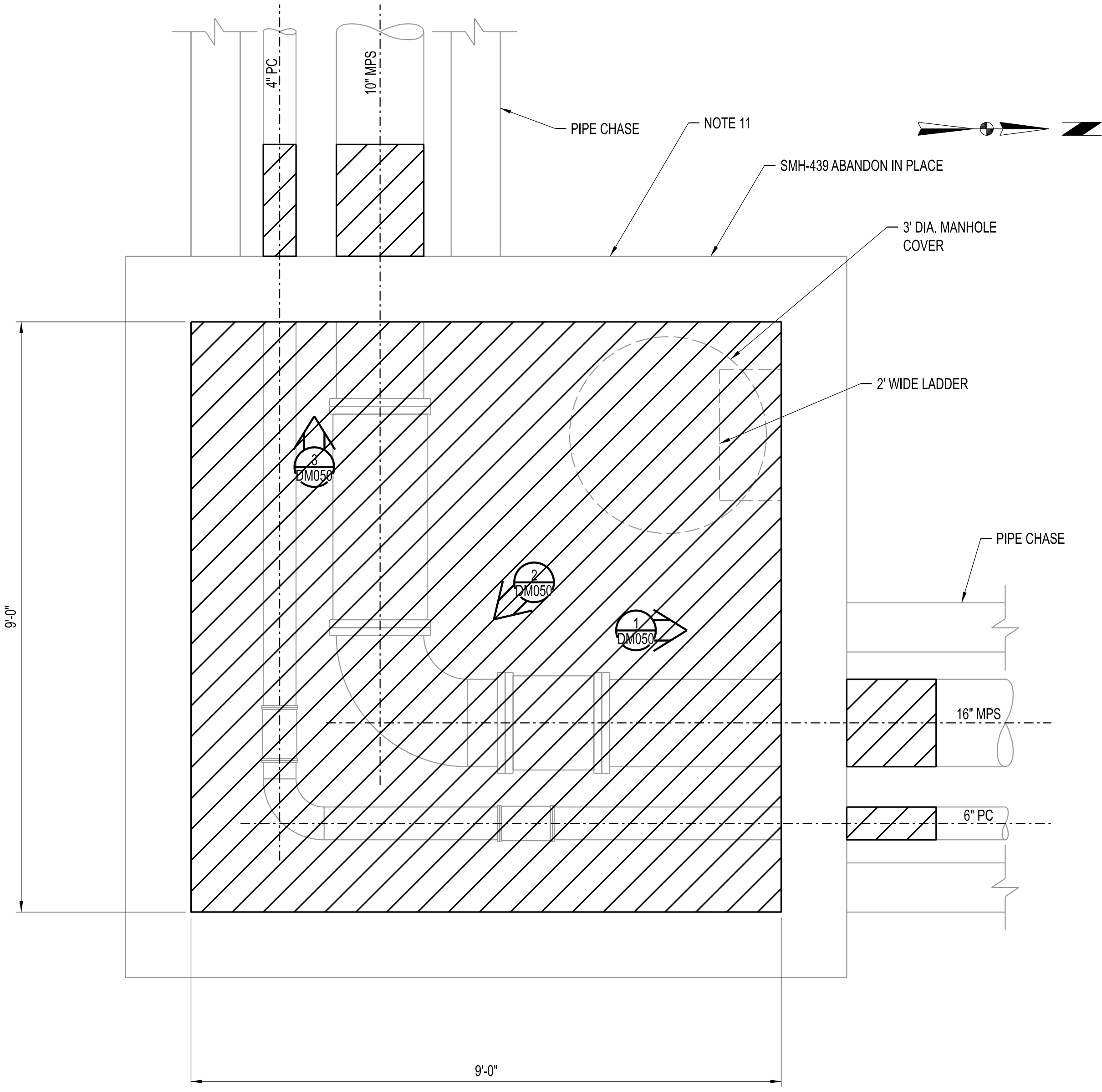
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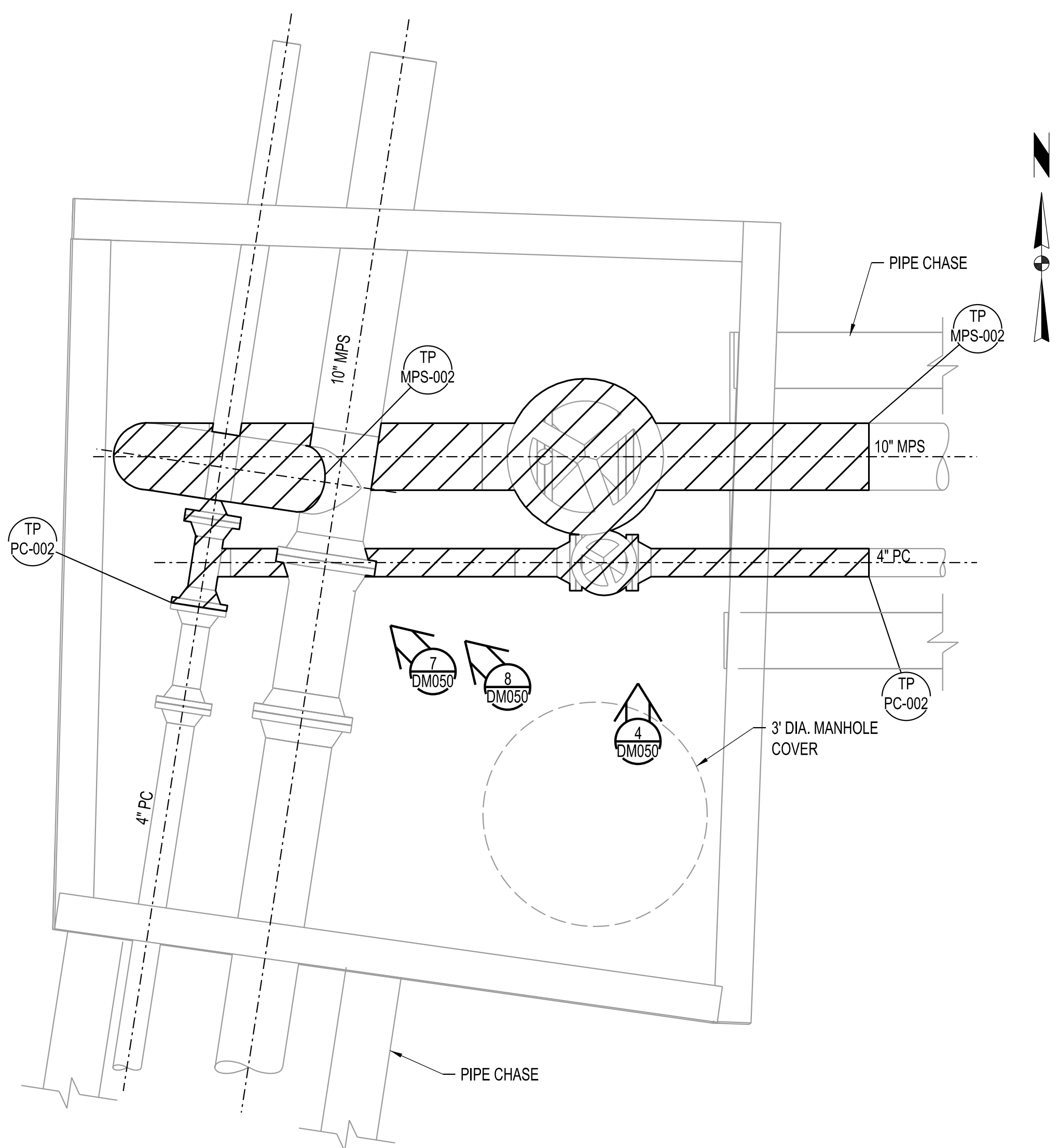
**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**DEMOLITION PLAN**  
**SMH-439 AND SMH-421**

PROJECT NUMBER  
**CP241001**  
 SHEET  
**DM011**

- LEGEND:**
- C-01 | C-01 CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - TP XXX-### TIE-POINT INDICATOR  
 XXX: SYSTEM  
 ###: TIE-POINT NUMBER
  - [Hatched Box] ITEMS TO BE DEMOLISHED
  - [Cross-hatched Box] ITEMS TO BE SALVAGED

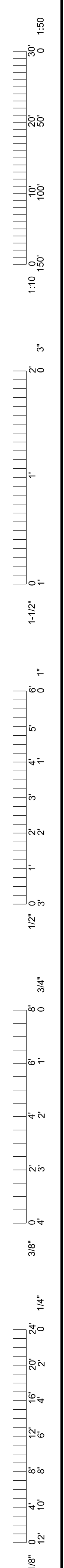


**DEMOLITION PLAN - SMH-439**  
 SCALE: 3/4" = 1'-0"

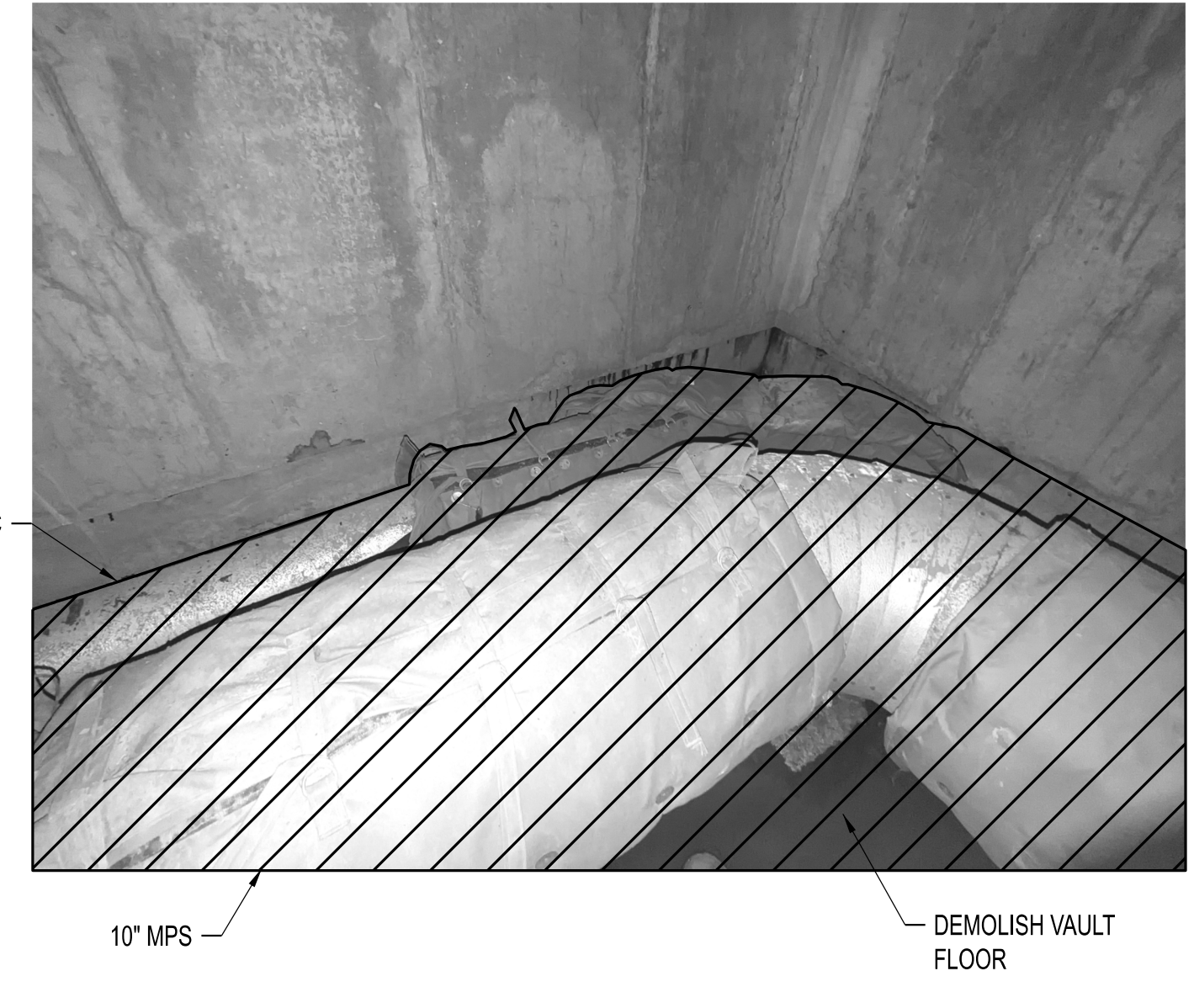


**DEMOLITION PLAN - SMH-421**  
 SCALE: 3/4" = 1'-0"





1 MPS AND PC IN SMH-439 (LOOKING NORTH)  
DM011



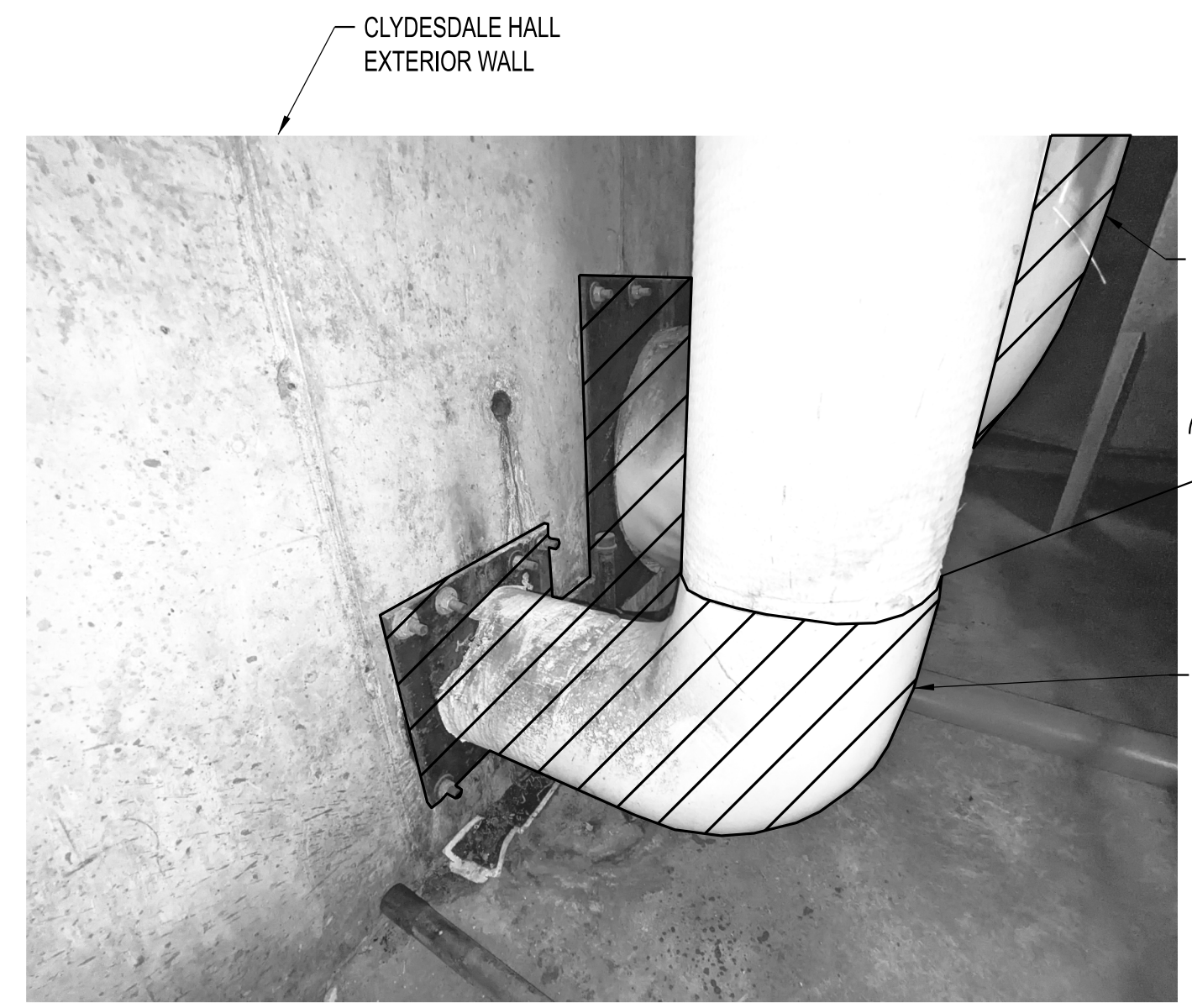
2 MPS AND PC IN SMH-439 (LOOKING SOUTHWEST)  
DM011



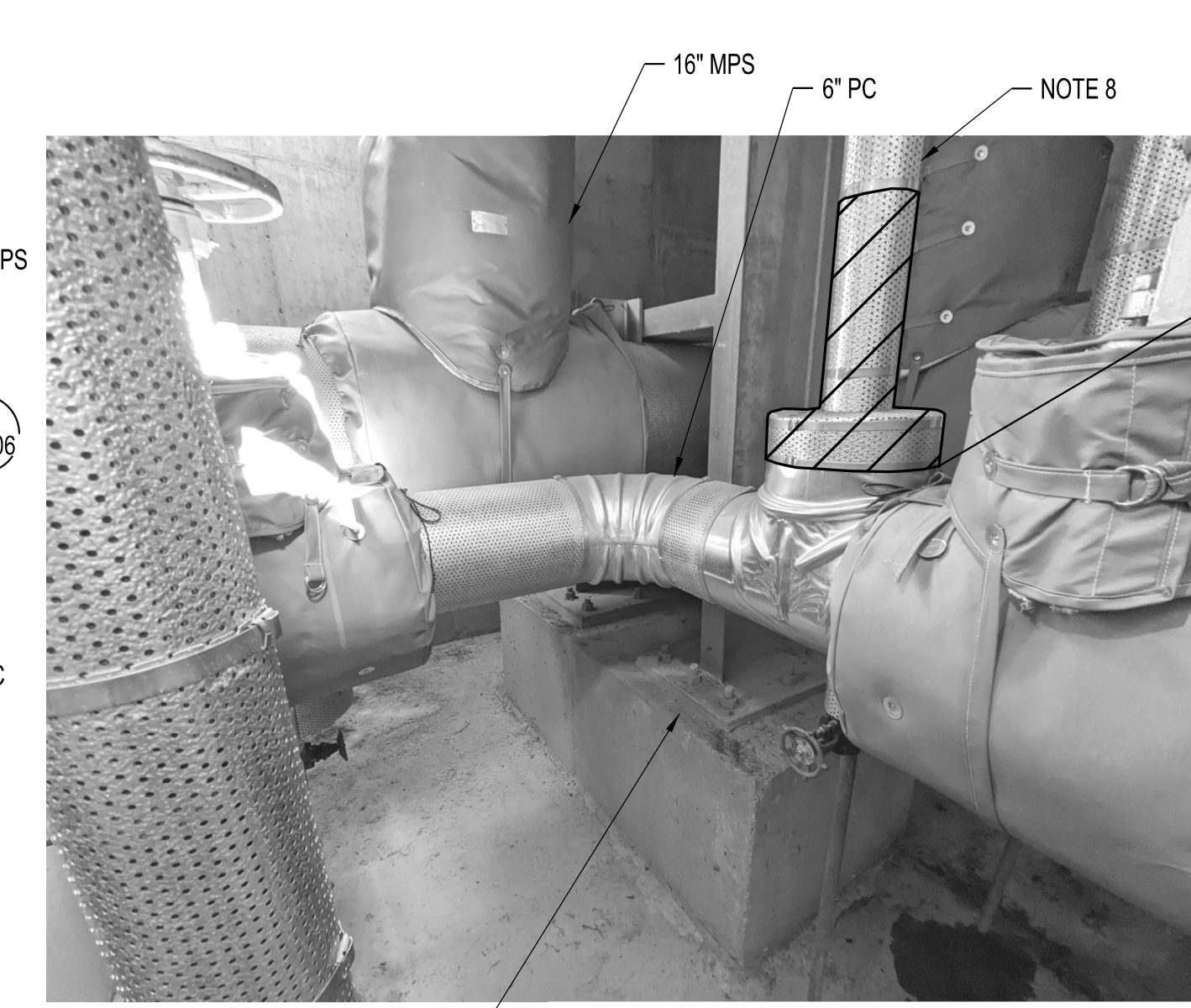
3 MPS AND PC IN SMH-439 (LOOKING WEST)  
DM011



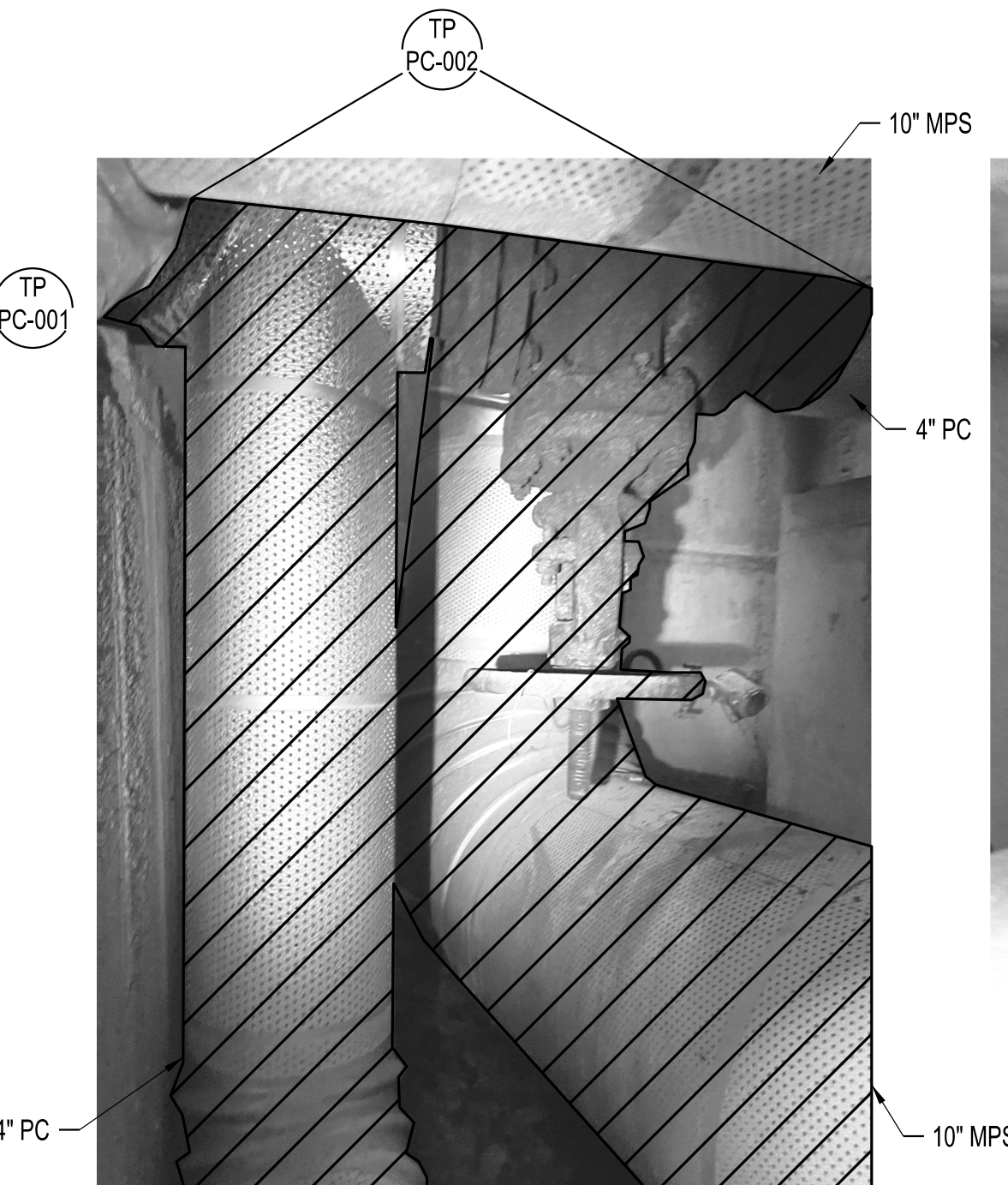
4 MPS AND PC IN SMH-421 (LOOKING NORTH)  
DM011



5 MPS AND PC IN CLYDESDALE HALL (LOOKING NORTH)  
DM001



6 MPS AND PC IN SMH-462 (LOOKING NORTHEAST)  
DM010



7 MPS AND PC IN SMH-421 (LOOKING NORTHWEST)  
DM011



8 MPS AND PC IN SMH-421 (LOOKING NORTHWEST)  
DM011

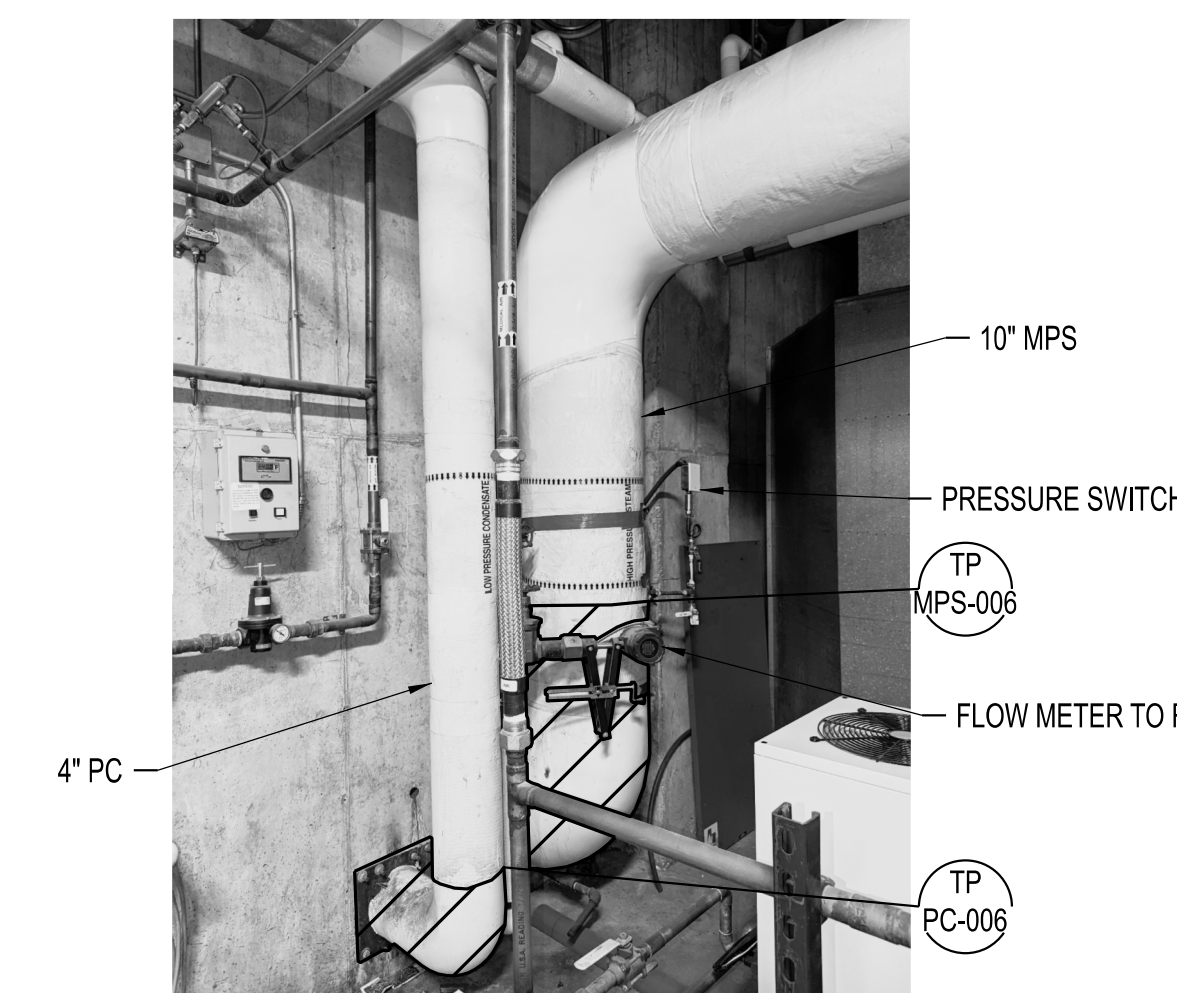
**NOTES:**

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- CONTRACTOR SHALL PROTECT THE ELECTRICAL DUCTBANK DURING THE DEMOLITION OF SMH-439 AND THE SURROUNDING PIPE CHASES.
- CONTRACTOR SHALL REMOVE INSULATION AND FIELD VERIFY PIPE SIZE PRIOR TO FABRICATION.

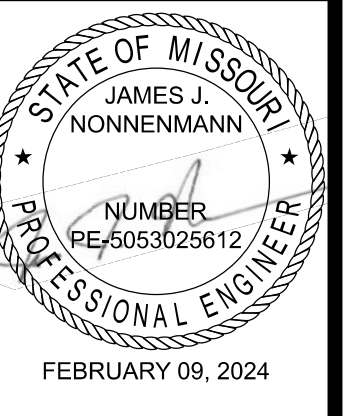
**LEGEND:**

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XXX: SYSTEM  
###: TIE-POINT NUMBER
- [Hatched Box] ITEMS TO BE DEMOLISHED
- [Cross-hatched Box] ITEMS TO BE SALVAGED

TIE POINT SCHEDULE					
TIE POINT DESIGNATION	PIPE SIZE & SERVICE/TASK DESCRIPTION	DEMO DWG	MECH DWG	PHOTO	NOTES
TP-MPS-001	16" MPS CONNECTION IN VAULT 462	DM001, DM010	MP001, MP010	N/A	MPS SUPPLYING NEW VAULT 468
TP-PC-001	6" PC CONNECTION IN VAULT 462	DM001, DM010	MP001, MP010	DM050: 6	PC SUPPLYING NEW VAULT 468
TP-MPS-002	10" MPS CONNECTION IN VAULT 421	DM001, DM011	MP001, MP012	DM050: 8	MPS SUPPLYING OLD VAULT 439
TP-PC-002	4" PC CONNECTION AT VAULT 421	DM001, DM011	MP001, MP012	DM050: 7, 8	PC SUPPLYING OLD VAULT 439
TP-MPS-003	4" TEMPORARY STEAM TO CLYDESDALE CONNECTION IN CHASE FROM 421	DM001	N/A	N/A	ADD DRIP LEG AND STEAM TRAP
TP-PC-003	2" TEMPORARY CONDENSATE TO CLYDESDALE CONNECTION IN CHASE FROM 421	DM001	N/A	N/A	
TP-MPS-004	4" TEMPORARY STEAM TO CLYDESDALE CONNECTION IN CHASE TO 439	DM001	N/A	N/A	ADD DRIP LEG AND STEAM TRAP
TP-PC-004	2" TEMPORARY CONDENSATE TO CLYDESDALE CONNECTION IN CHASE TO 439	DM001	N/A	N/A	
TP-MPS-005	4" TEMPORARY STEAM TO CLYDESDALE CONNECTION AT CLYDESDALE	DM001	N/A	N/A	
TP-PC-005	2" TEMPORARY CONDENSATE TO CLYDESDALE CONNECTION AT CLYDESDALE	DM001	N/A	N/A	
TP-MPS-006	10" MPS CONNECTION AT CLYDESDALE	DM001	MP001	DM050: 5	
TP-PC-006	4" PC CONNECTION AT CLYDESDALE	DM001	MP001	DM050: 5, 9	



9 MPS AND PC IN CLYDESDALE HALL (LOOKING NORTHWEST)  
DM011



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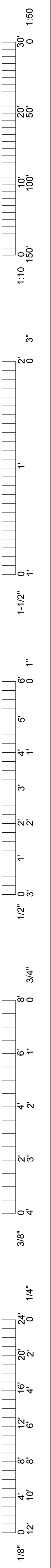
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DRAWN BY: MAO  
02/09/24

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CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
DEMOLITION  
PHOTO VIEWS

PROJECT NUMBER  
CP241001  
SHEET  
DM050





**NOTES**  
 1 SEE MECHANICAL & CIVIL PLANS FOR MANHOLE LOCATIONS & ELEVATIONS.



**CROCKETT**  
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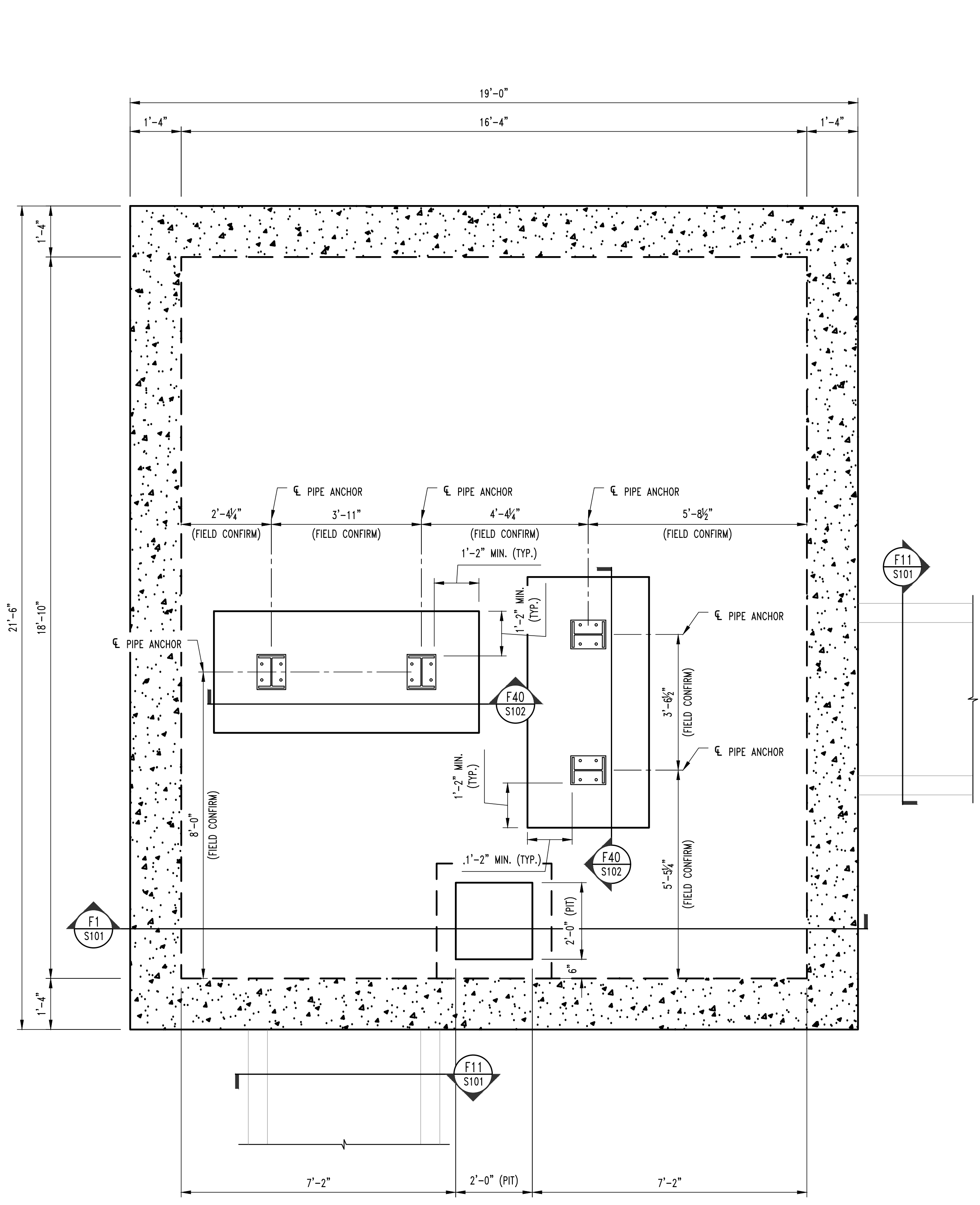
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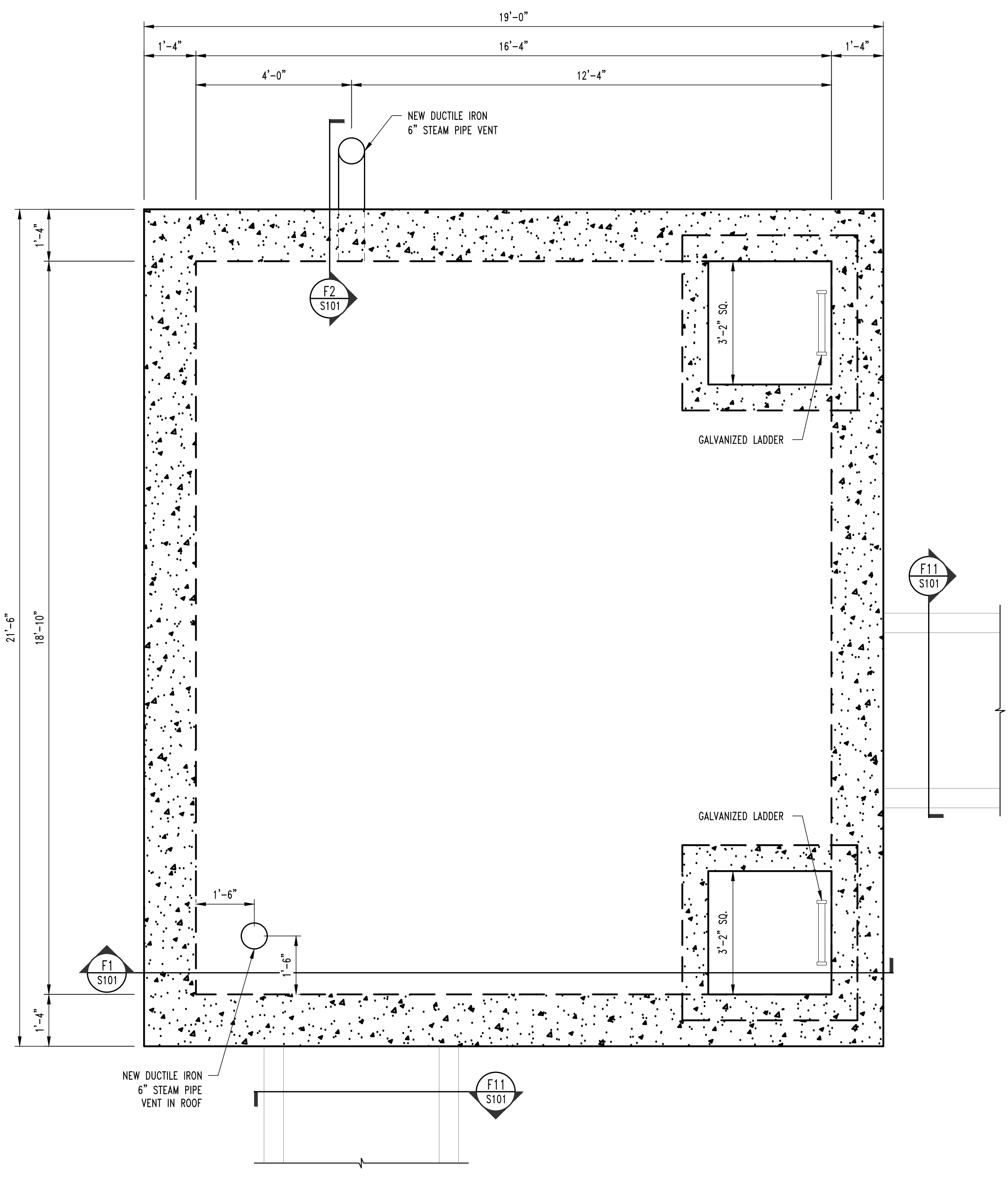
**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**STEAM MANHOLE #468 PLAN**

PROJECT NUMBER  
**CP241001**

SHEET  
**S100**

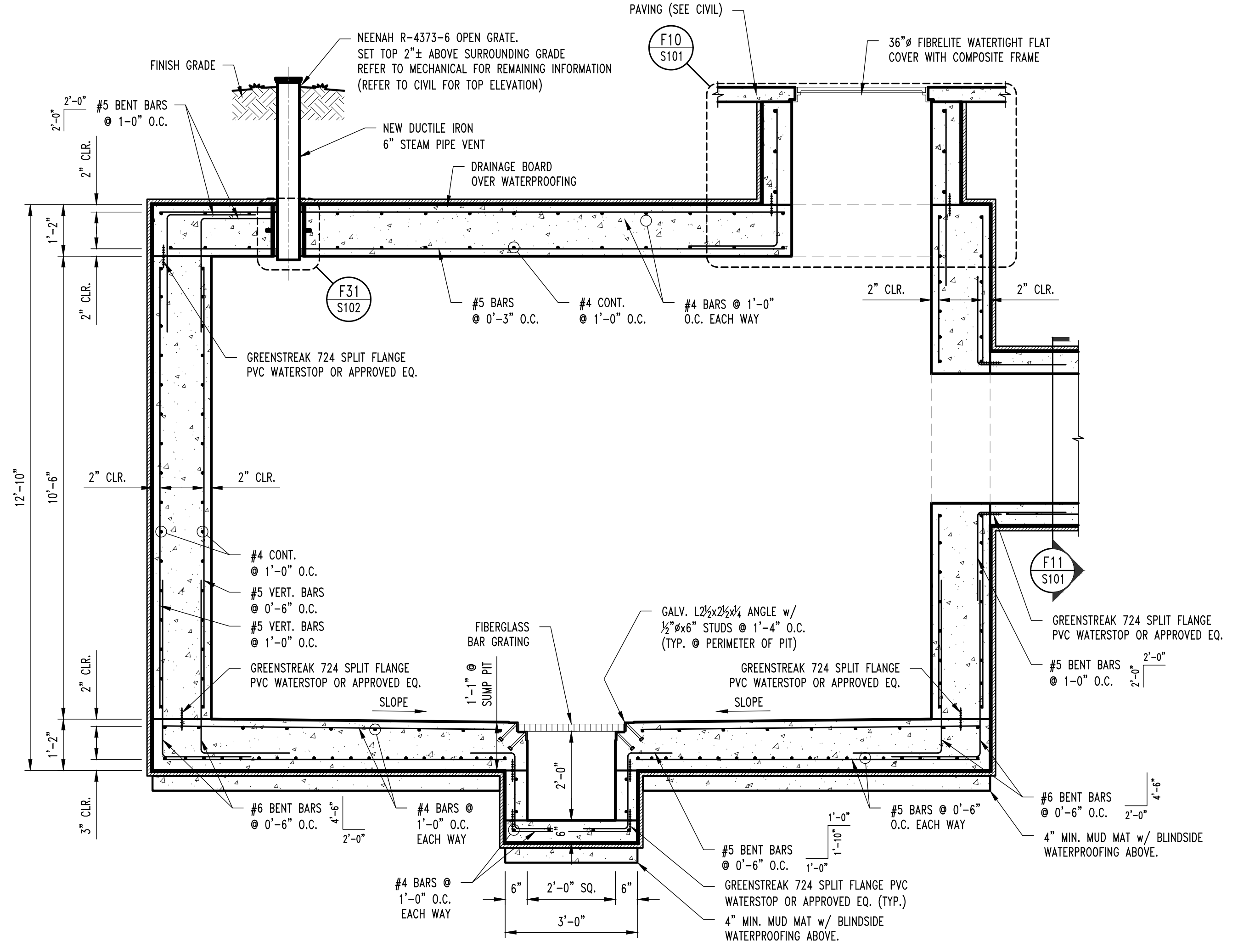
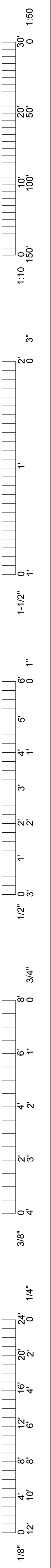


**1 STEAM MANHOLE #468 PLAN @ FLOOR**  
 SCALE: 1/2" = 1'-0"  
 PLAN NORTH  
**NOTE:**  
 COORDINATE STEEL LOCATION w/ PIPE EXPANSION JOINT LOCATION PRIOR TO INSTALL.

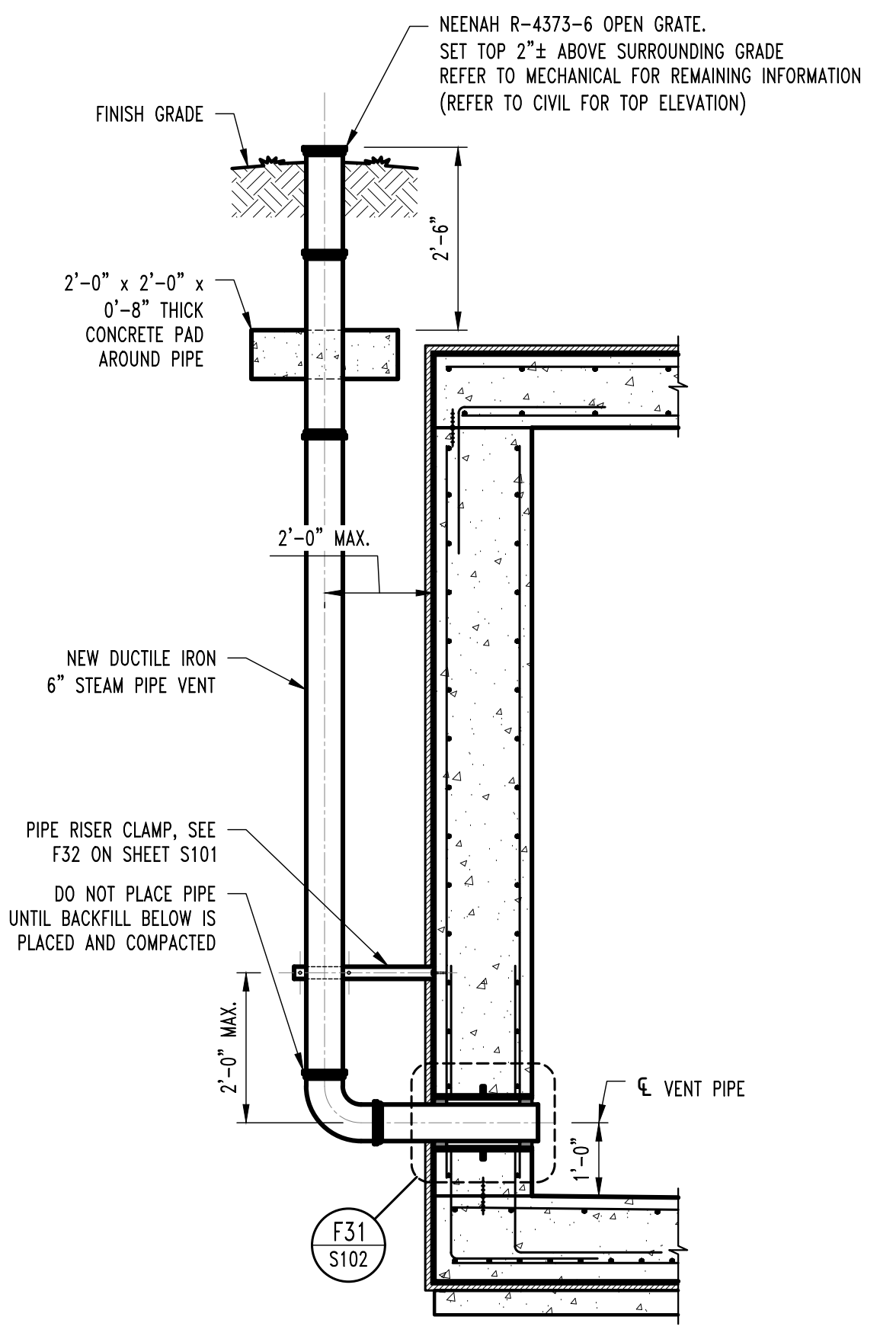


**2 STEAM MANHOLE #468 PLAN @ LID**  
 SCALE: 1/2" = 1'-0"  
 PLAN NORTH

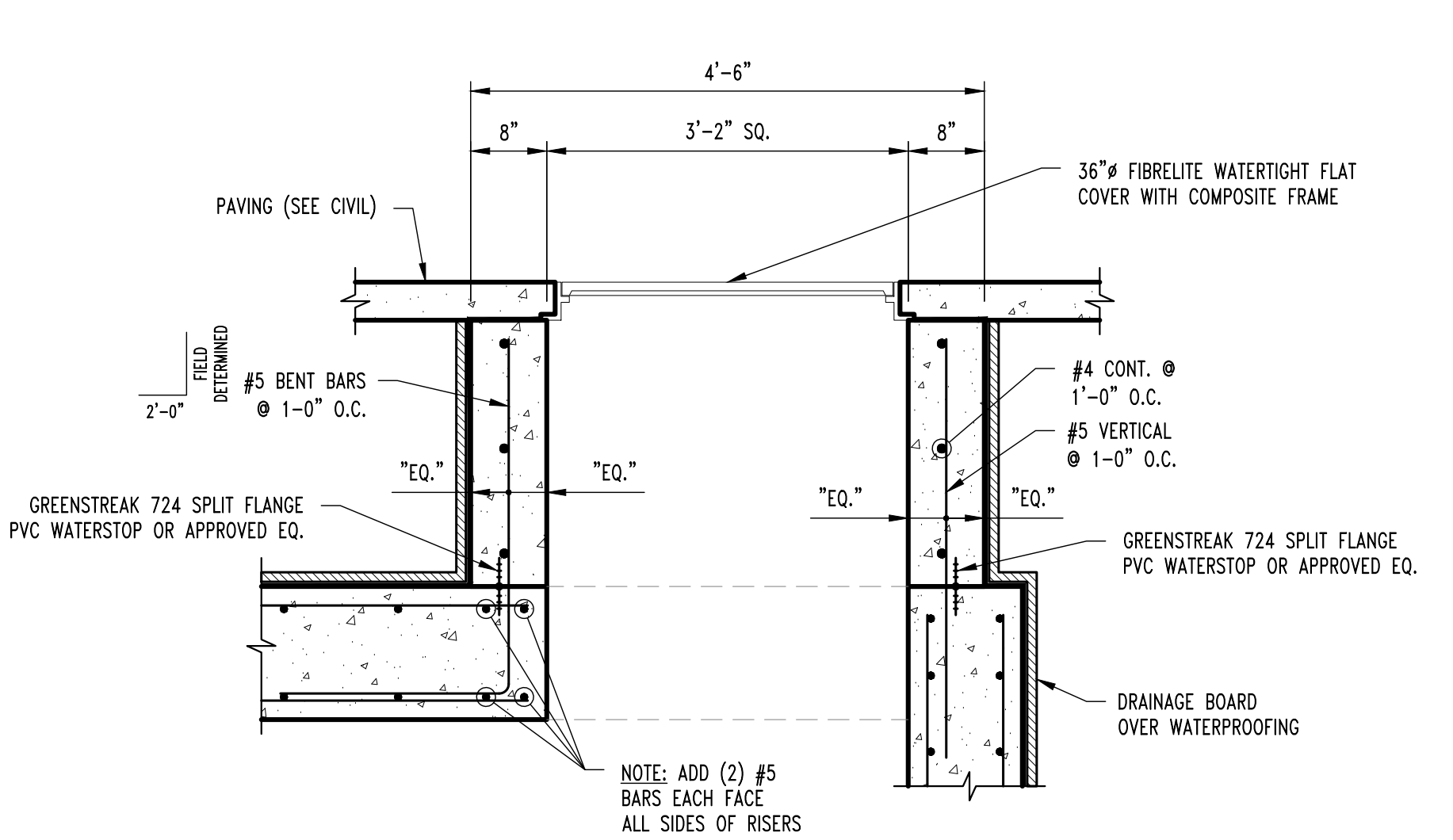




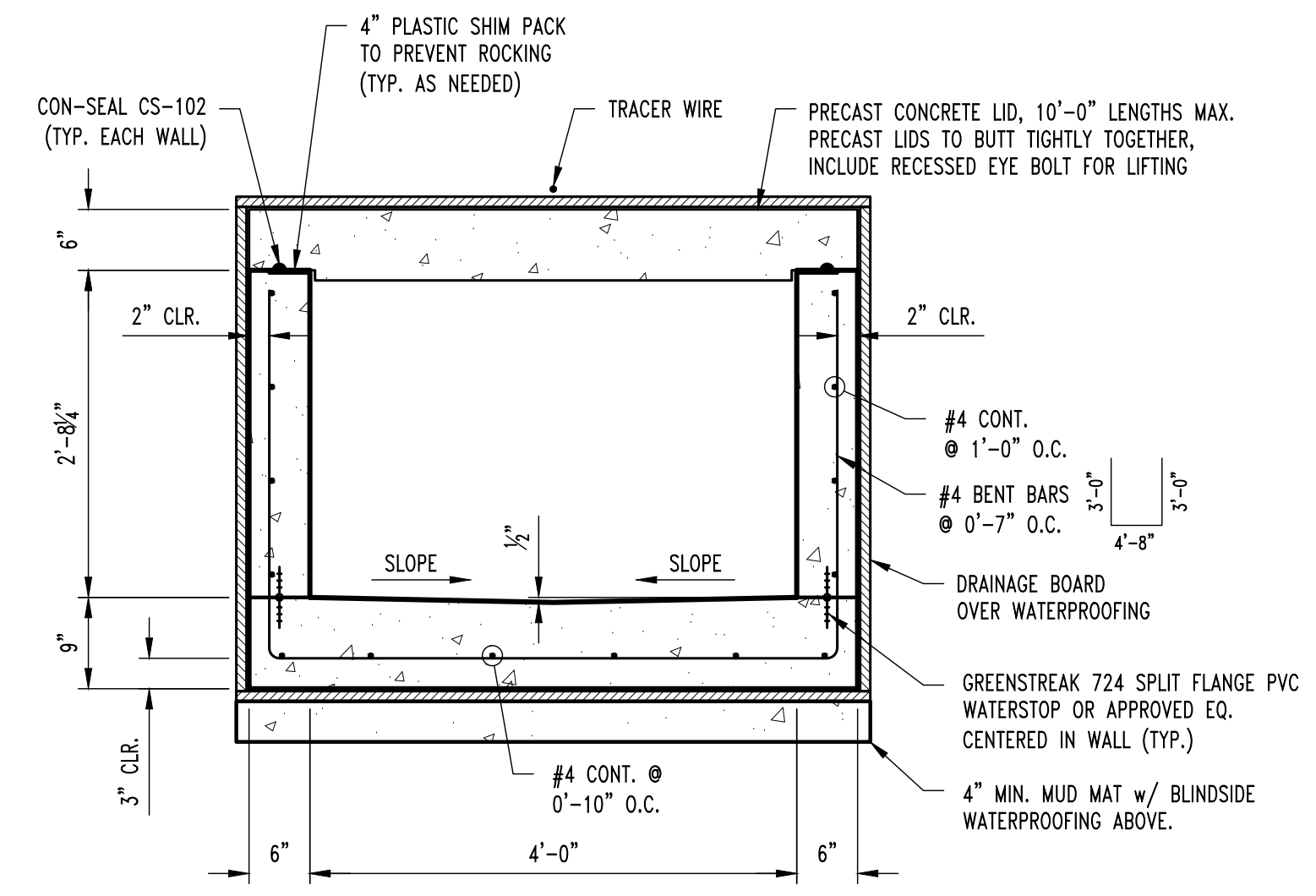
**F1 S100** STEAM MANHOLE #468 SECTION  
SCALE: 1/2" = 1'-0"



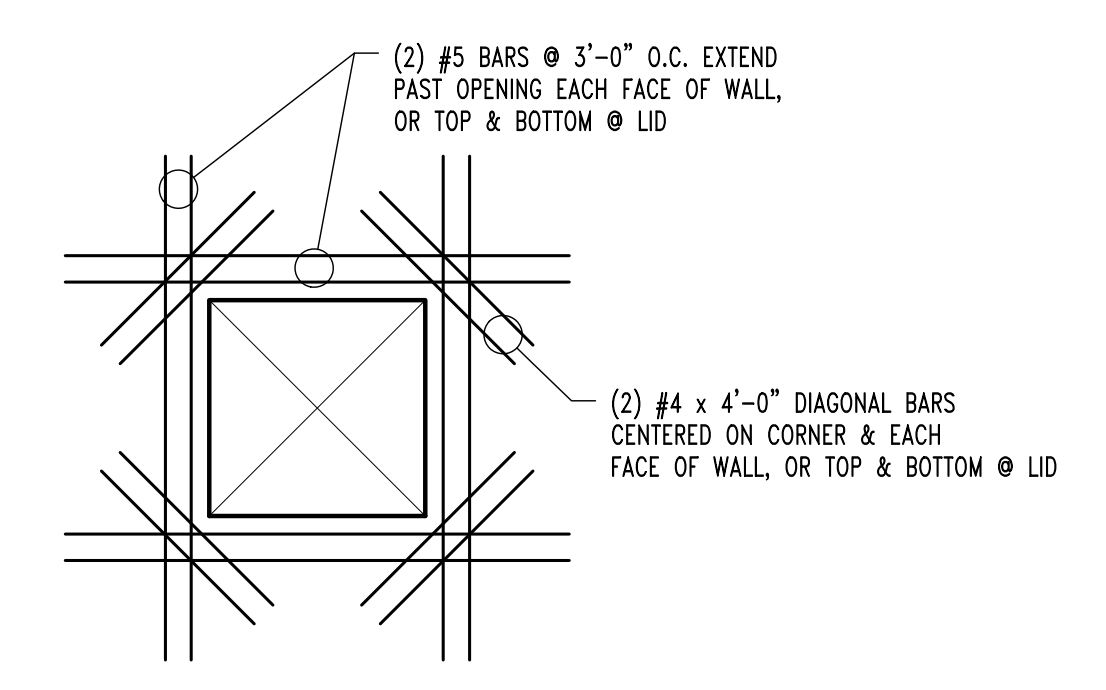
**F2 S100** VENT PIPE SECTION  
SCALE: 1/2" = 1'-0"



**F10 S101** TYP. ACCESS FRAME AND RISER DETAIL  
SCALE: 3/4" = 1'-0"



**F11 S100** CHASE SECTION  
SCALE: 3/4" = 1'-0"



TYP. WALL & LID OPENING REINFORCEMENT

DESIGN DATA	
2021 INTERNATIONAL BUILDING CODE / ASCE 7-16	
<b>NEW STEAM CHASE LOAD DATA</b>	
LIVE LOAD	250
SOIL OVER LID (6 FEET)	1320
CONCRETE LID	100
TOTAL TO LID	1670 lbs/sqft
<b>NEW STEAM MANHOLE LOAD DATA</b>	
LIVE LOAD	250
SOIL OVER LID (5 FEET)	600
CONCRETE LID	100
MECHANICAL ALLOWANCE	15
TOTAL TO LID	965 lbs/sqft
<b>SOIL PARAMETERS</b>	
BEARING CAPACITY	2500 PSF
ACTIVE AT-REST EARTH PRESSURES (GRANULAR)	60 PCF
<b>EARTHQUAKE DESIGN DATA</b>	
RISK CATEGORY	IV
$I_p$	1.5
$S_{ps}$	0.161
SITE CLASS	C
$S_{ms}$	0.14
$S_{ps}$	0.094
SEISMIC DESIGN CATEGORY	C
BASIC SEISMIC-FORCE-RESISTING SYSTEM = ORDINARY REINFORCED CONCRETE SHEAR WALLS	
$R_w$	40
$\Omega_{ps}$	2.5
$C_u$	40
DESIGN BASE SHEAR	V = 0.054W
EQUVALENT LATERAL FORCE PROCEDURE	



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CHECKED BY: GLL

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CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
STEAM MANHOLE #468 DETAILS

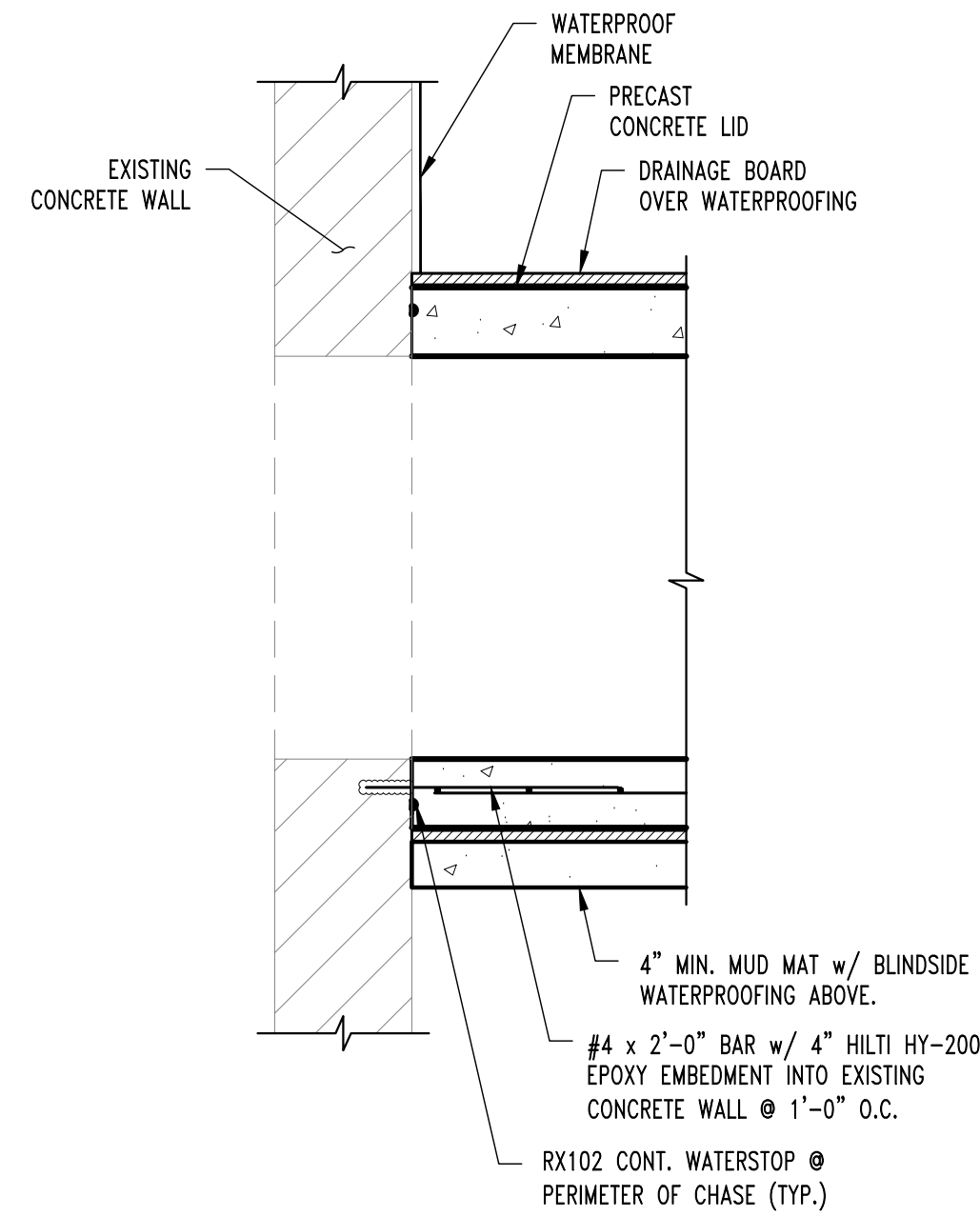
PROJECT NUMBER  
CP241001

SHEET  
S101

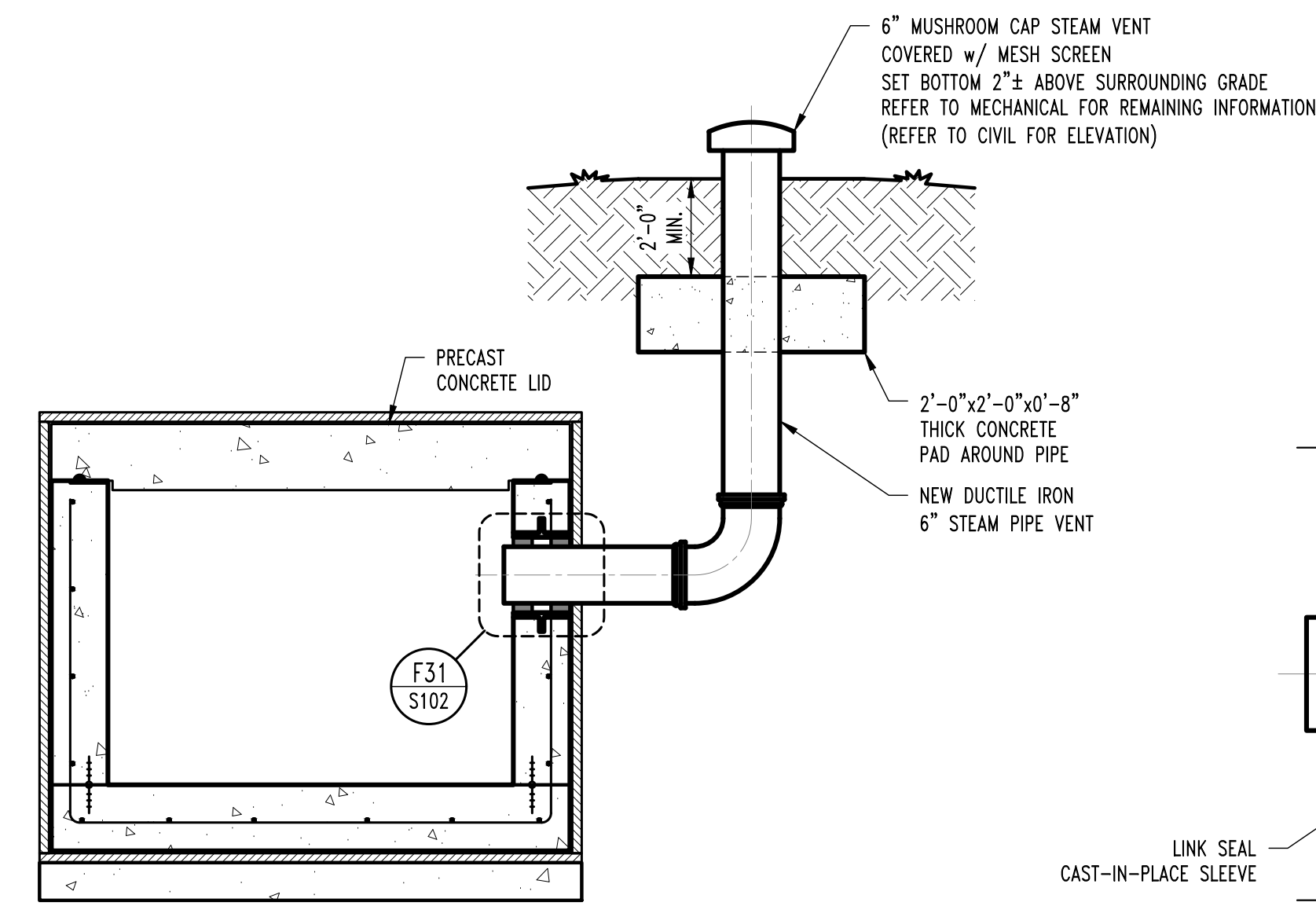


**STRUCTURAL STEEL**

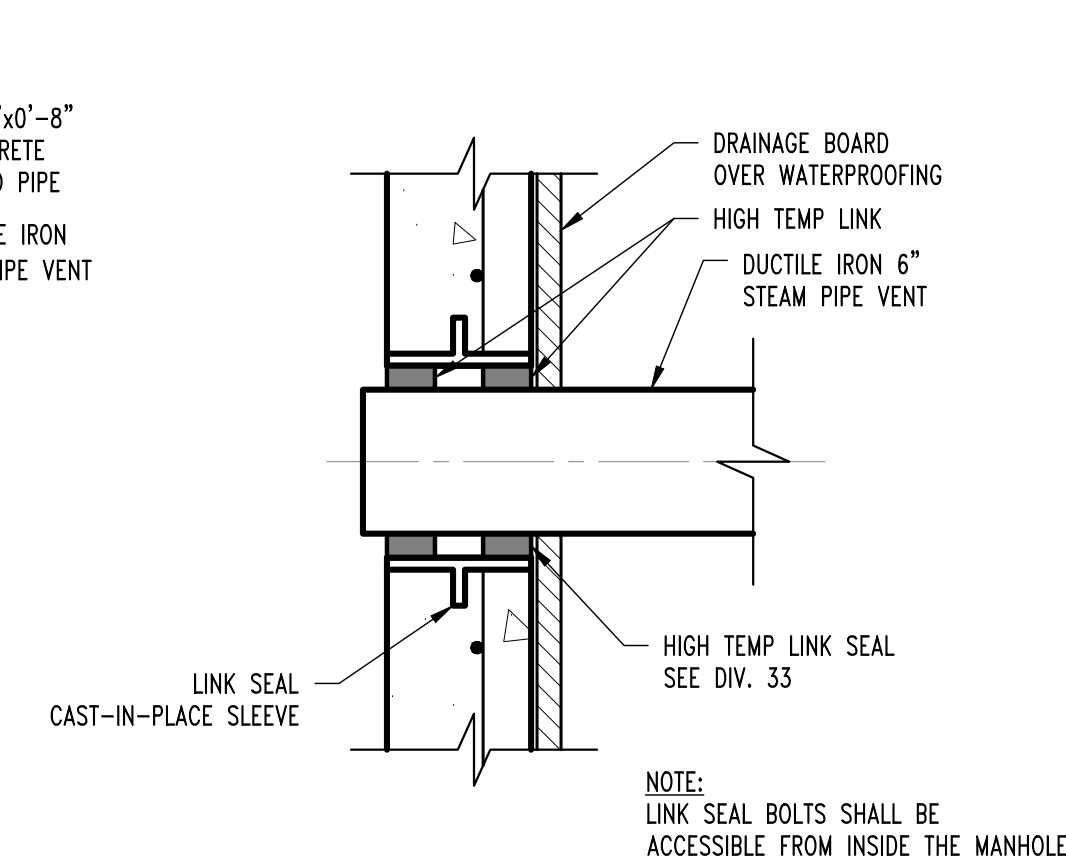
1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AND CURRENT OSHA STANDARDS.
2. WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. STRUCTURAL TUBES SHALL CONFORM TO ASTM A500 GRADE B. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
3. BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM A325-N, SIZE AS PER PLAN.
4. ANCHOR BOLTS, UNLESS OTHERWISE SHOWN, SHALL CONFORM TO ASTM F1554 GRADE 36.
5. SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.
6. ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED. TOUCH-UP DAMAGED GALVANIZING w/ MELTED ZINC STICK. PREPARE SURFACE TO BRIGHT METAL & HEATING TO 600 DEGREES FAHRENHEIT.
7. ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS IN ACCORDANCE WITH THE CURRENT EDITION OF THE AWS STRUCTURAL WELDING CODE. WELDING ELECTRODES SHALL BE E70XX.



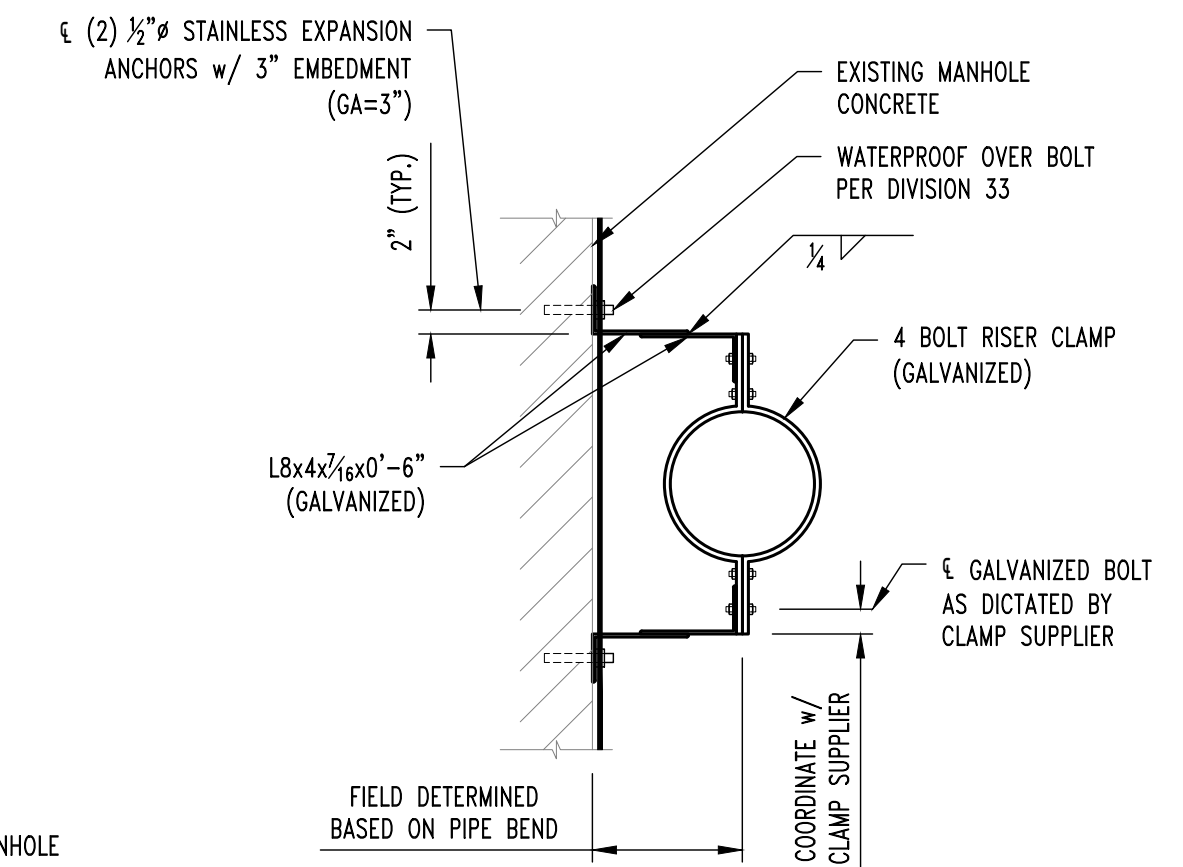
**F20**  
S102  
**TYP. NEW CHASE TO EXISTING SECTION**  
SCALE: 3/4" = 1'-0"



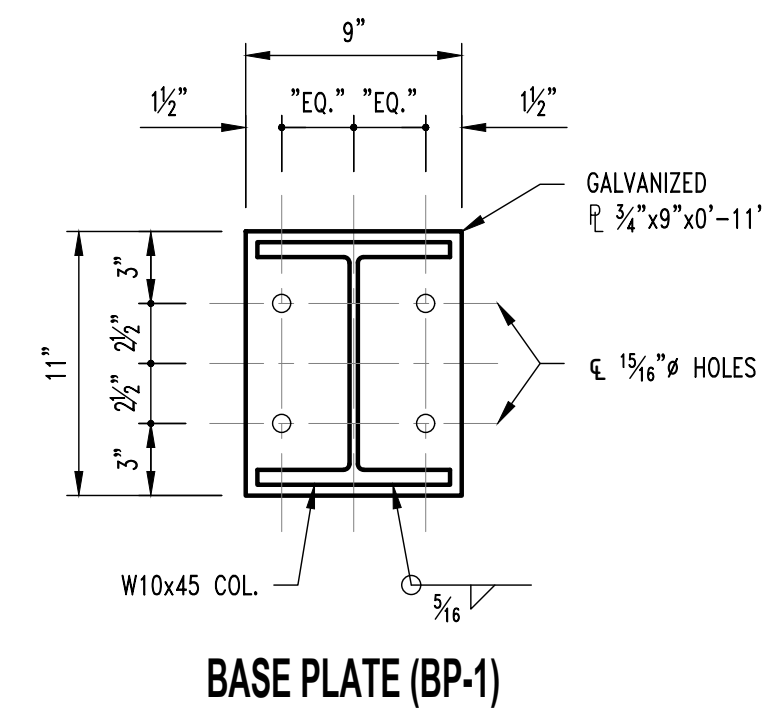
**F30**  
S102  
**CHASE SECTION @ STEAM VENT**  
SCALE: 3/4" = 1'-0"  
NOTE: REFER TO CHASE SECTION FOR REINFORCING OR DIMENSIONS.



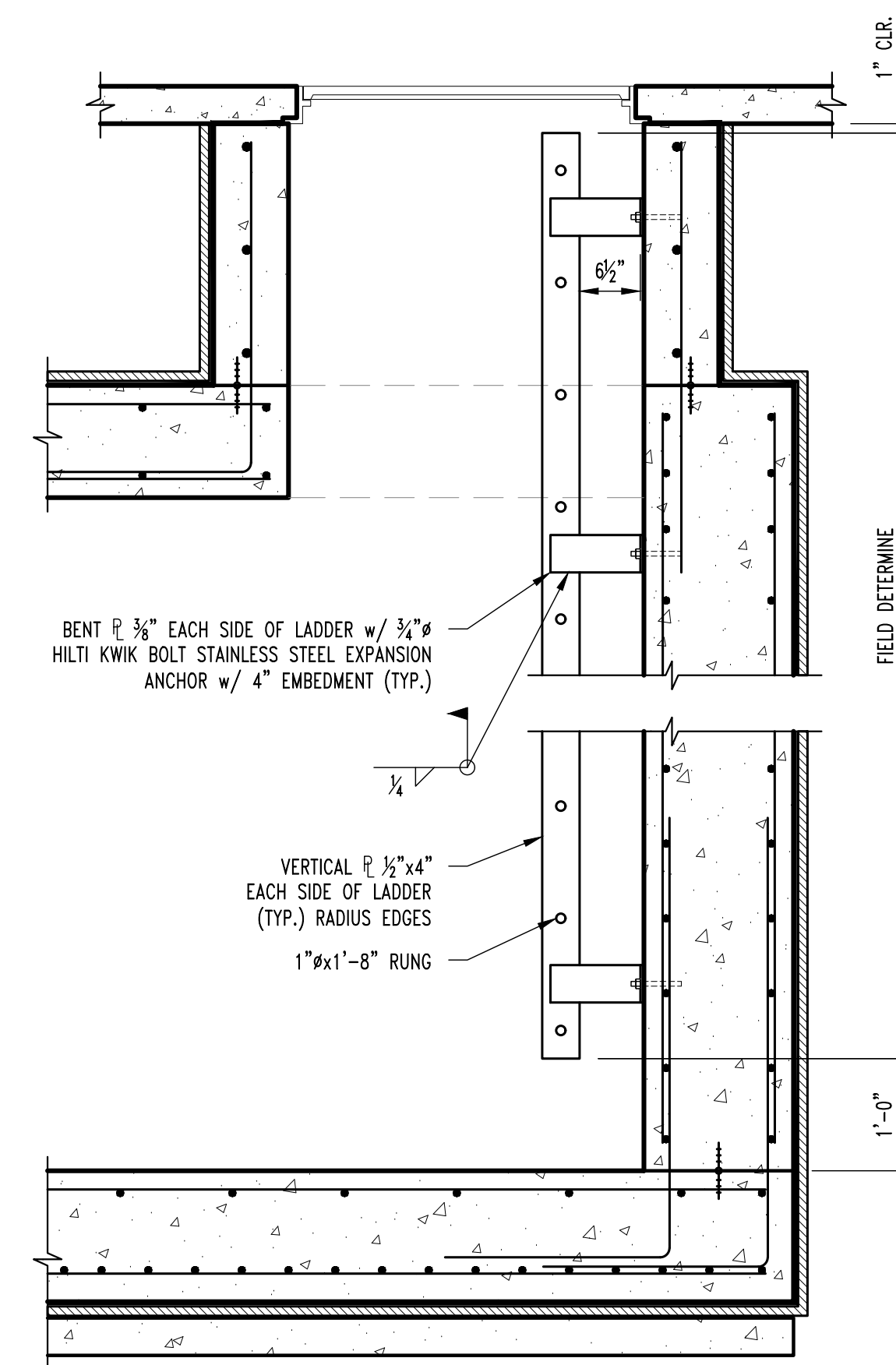
**F31**  
S101, S102  
**ENLARGED DETAIL**  
SCALE: 1 1/2" = 1'-0"  
NOTE: LINK SEAL BOLTS SHALL BE ACCESSIBLE FROM INSIDE THE MANHOLE



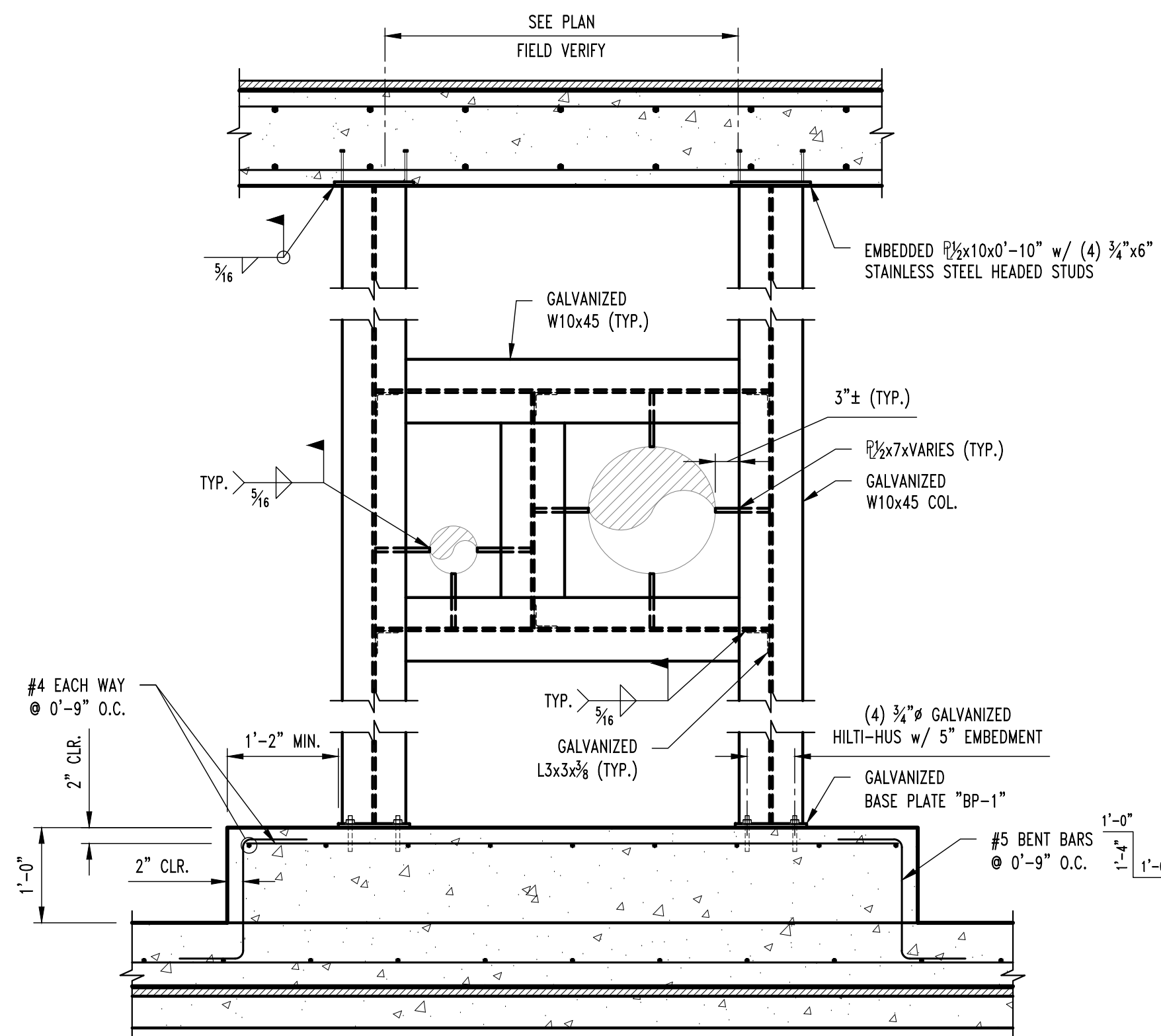
**F32**  
S101  
**ENLARGED DETAIL**  
SCALE: 1 1/2" = 1'-0"



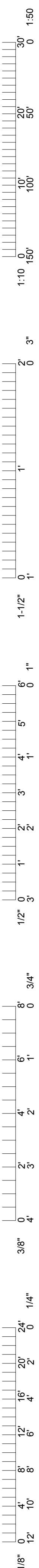
**F40**  
S102  
**TYP. STEAM/CONDENSATE PIPE ANCHOR DETAIL**  
SCALE: 3/4" = 1'-0"



**F50**  
S102  
**TYP. LADDER DETAIL**  
SCALE: 3/4" = 1'-0"  
NOTE: 1. ALL STEEL TO BE HOT-DIPPED GALVANIZED. 2. COAT ALL EXPOSED STEEL & TOUCH UP AREAS w/ MELTED ZINC STICK.



**F40**  
S102  
**TYP. STEAM/CONDENSATE PIPE ANCHOR DETAIL**  
SCALE: 3/4" = 1'-0"



**CROCKETT**  
ENGINEERING CONSULTANTS

ISSUED FOR BID  
DRAWN BY: RCA  
CHECKED BY: GLL

**PRW CONSULTANTS, INC.**  
1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
AUTHORITY ENGINEERING  
- 2023017605



**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**STEAM MANHOLE #468 DETAILS**

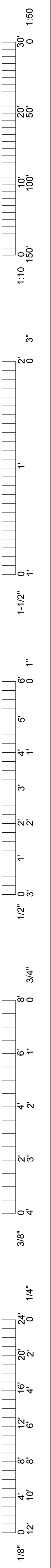
PROJECT NUMBER

CP241001

SHEET

S102





**TYPICAL WATERPROOFING NOTES**

1. OVERLAP HOT AND COLD APPLIED MEMBRANES PER MANUFACTURER'S REQUIREMENTS.
2. CONTRACTOR SHALL PROTECT UNDER SLAB WATERPROOFING FROM HOT APPLIED WATERPROOFING.
3. PREPARE ALL JOINTS IN ACCORDANCE w/ WATERPROOFING MANUFACTURER'S INSTRUCTIONS & DETAILS.
4. CONTRACTOR SHALL PROPERLY PREPARE EXISTING CONCRETE SUBSTRATE & EXISTING WATERPROOFING TO PROPERLY INTERFACE w/ NEW WATERPROOFING SYSTEMS TO OBTAIN WATERPROOF JOINT. PROVIDE HOT TO EXISTING WATERPROOFING BARRIER AS REQUIRED.
5. BUTT LIDS TIGHTLY TOGETHER @ PRE CAST LIDS w/ 1/4" SHIM PLATE BETWEEN. REMOVE SHIM PLATES AFTER LIDS ARE IN FINAL POSITION & SEAL.
6. ALL SEALANTS SHALL BE COMPATIBLE w/ WATERPROOFING SYSTEM.
7. PREPARE ALL JOINTS IN ACCORDANCE w/ WATERPROOFING MANUFACTURER'S INSTRUCTIONS & DETAILS.

**GENERAL NOTES**

1. ALL CONCRETE, REINFORCING, AND WATERPROOFING SHALL MEET THE SPECIFICATIONS IN DIVISION 33.
2. WATERPROOFING SHOP DRAWINGS SHALL BE PROVIDED PER THE SPECIFICATIONS IN DIVISION 33.
3. ALL UTILITIES IN AREA OF MANHOLE MAY BE ACTIVE DURING THE DURATION OF THE PROJECT INCLUDING THE STEAMLINES INSIDE THE MANHOLE. PIPING THAT WILL REMAIN NEEDS TO BE PROTECTED AS TO NOT DAMAGE DURING CONSTRUCTION. ANY DAMAGED MATERIALS WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE. CONTRACTOR IS TO LIMIT WATER ENTRY INTO STEAM SYSTEM DURING CONSTRUCTION.
4. ALL BACKFILL SHALL BE WDOT TYPE 1 OR 5 AND SHALL HAVE COMPACTION TESTS COMPLETED IN 8 INCH LIFTS PER SPECIFICATION.
5. ALL WATERSTOPS SHALL BE SECURELY FASTENED INTO PLACE AND FULLY INSPECTED BY THE OWNER. CONCRETE CANNOT BE CAST AGAINST WATERSTOPS UNTIL APPROVED BY THE OWNER. OWNER SHALL RECEIVE 24 HOUR NOTICE OF INSPECTIONS BEING REQUIRED.
6. ALL CONCRETE WATERPROOFING SHALL BE INSPECTED BY THE OWNER PRIOR TO PROCEEDING TO NEXT STEP OF INSTALLATION. OWNER SHALL RECEIVE 24 HOUR NOTICE OF INSPECTIONS BEING REQUIRED. THESE INSPECTIONS FOR APPROVAL INCLUDE:
  - a. SUBSTRATE CONDITIONS READY FOR WATERPROOFING
  - b. CRACK AND HOLE SURFACE PREPARATIONS COMPLETED
  - c. FLASHING INSTALLATION COMPLETE
  - d. MEMBRANE INSTALLATION COMPLETE
  - e. PROTECTION AND DRAINAGE INSTALLATION COMPLETE



**CROCKETT**  
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CHECKED BY: GLL

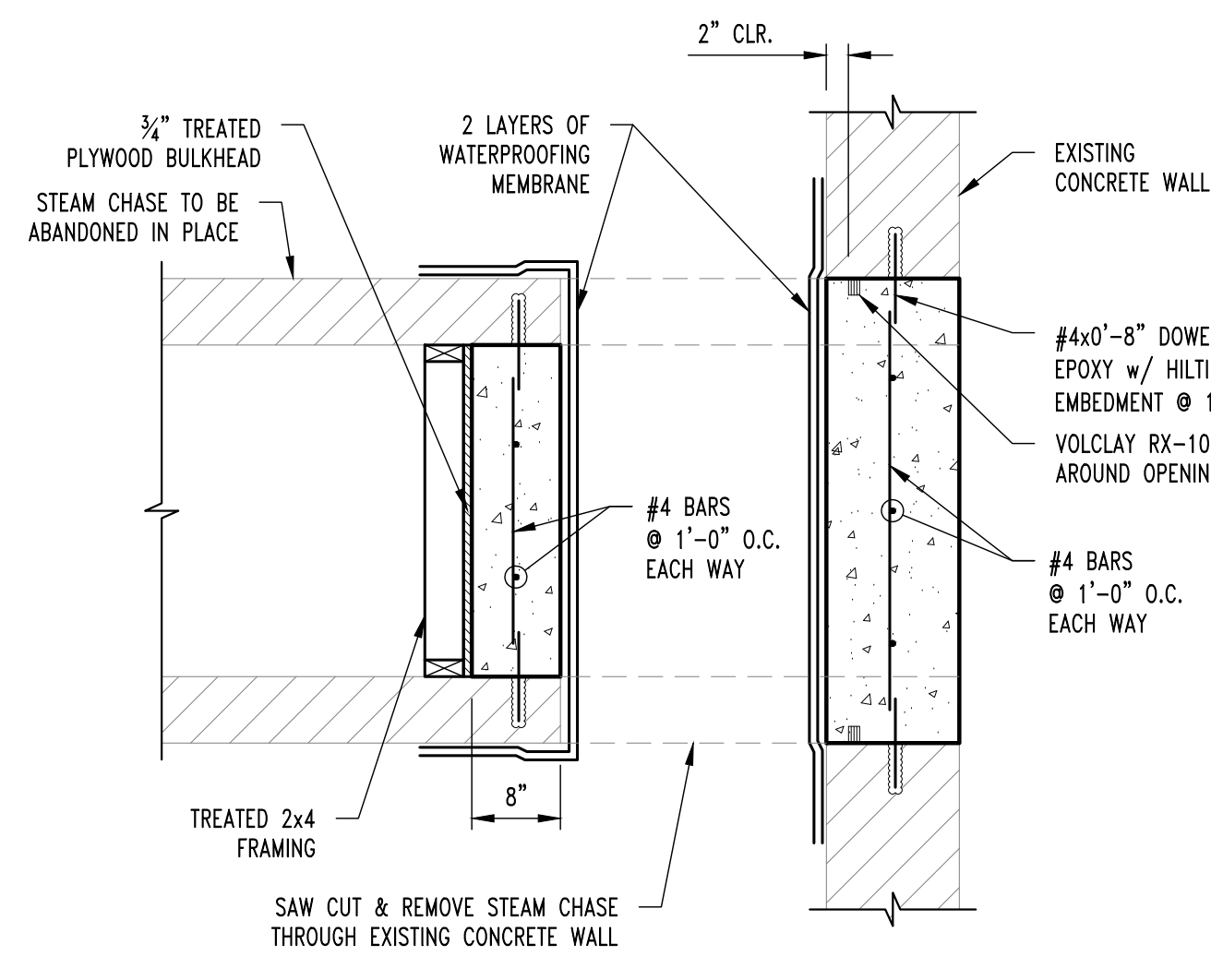
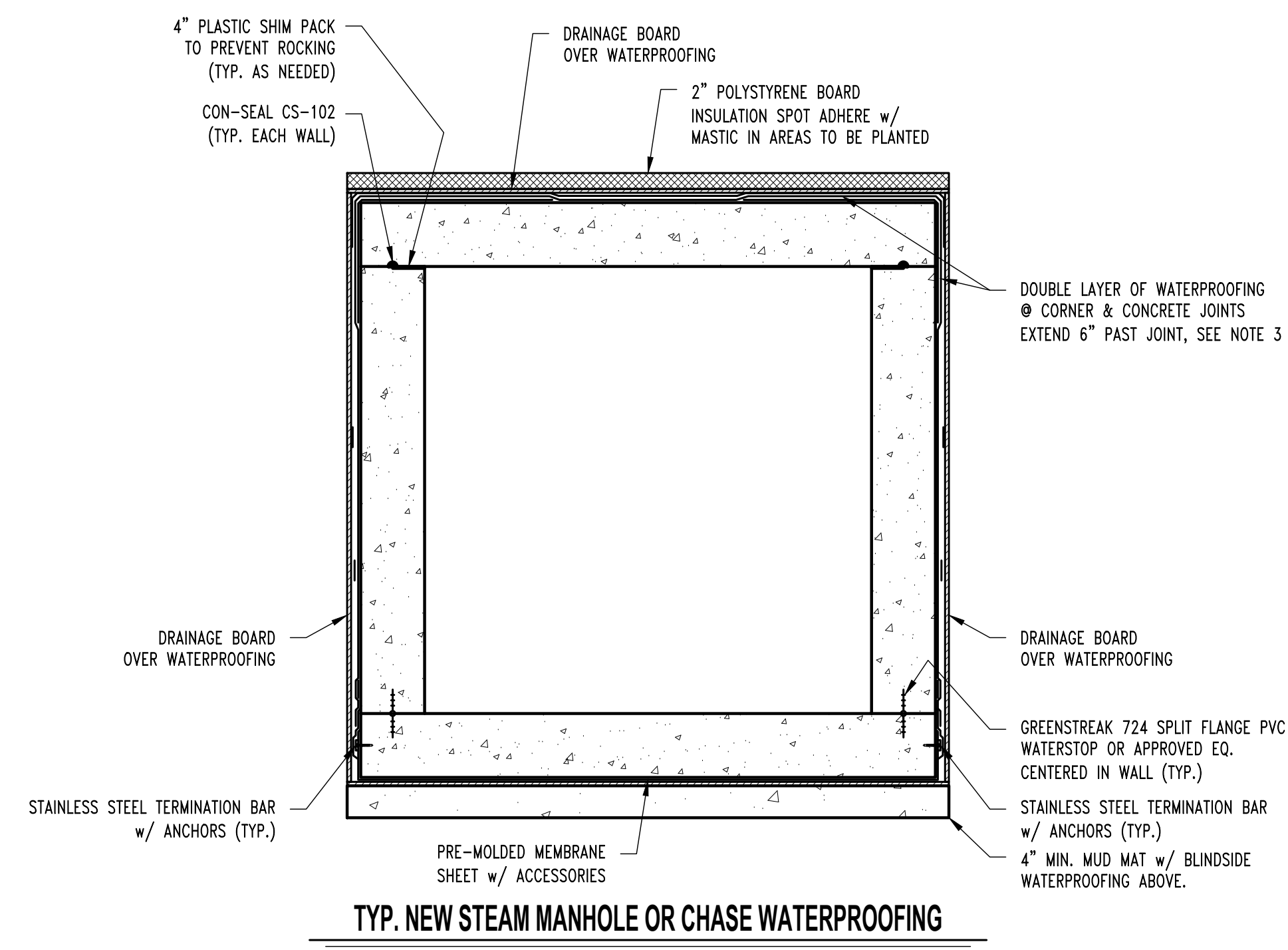
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1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
MISSOURI CERTIFICATE OF  
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- 202.30.7605



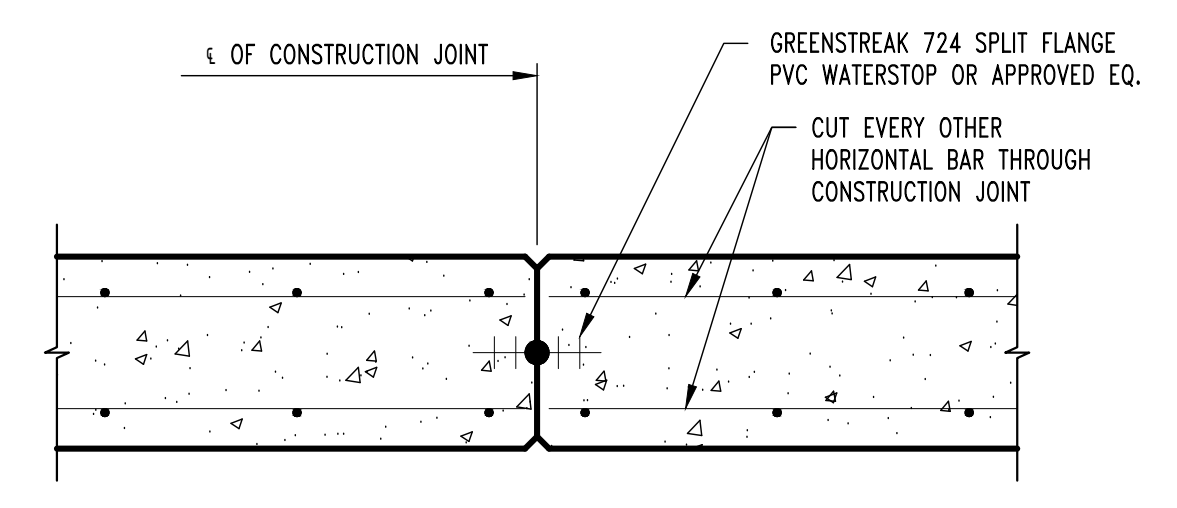
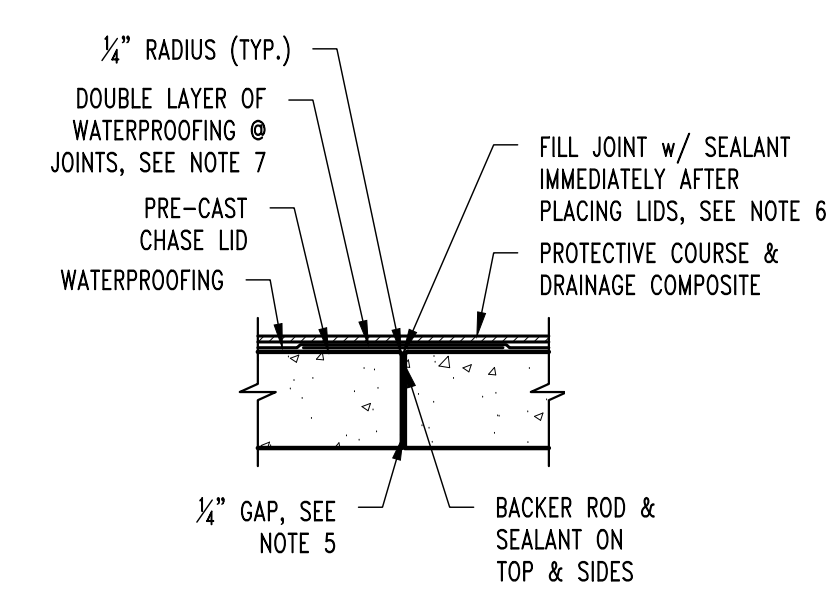
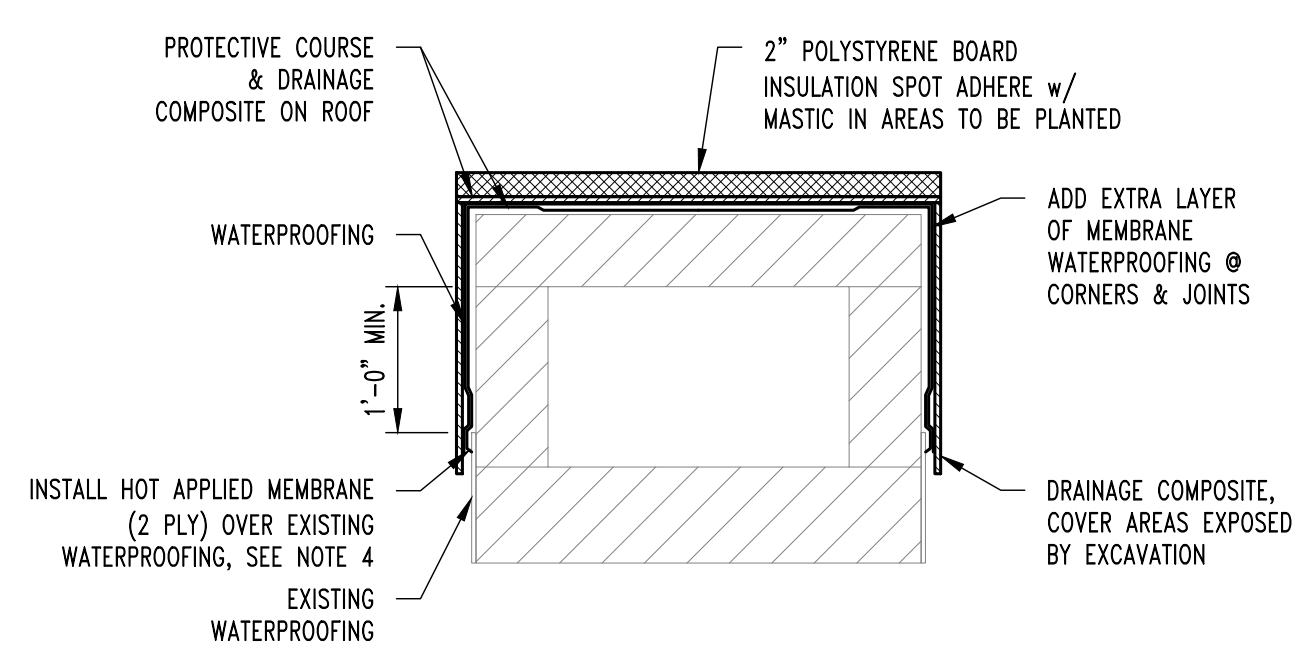
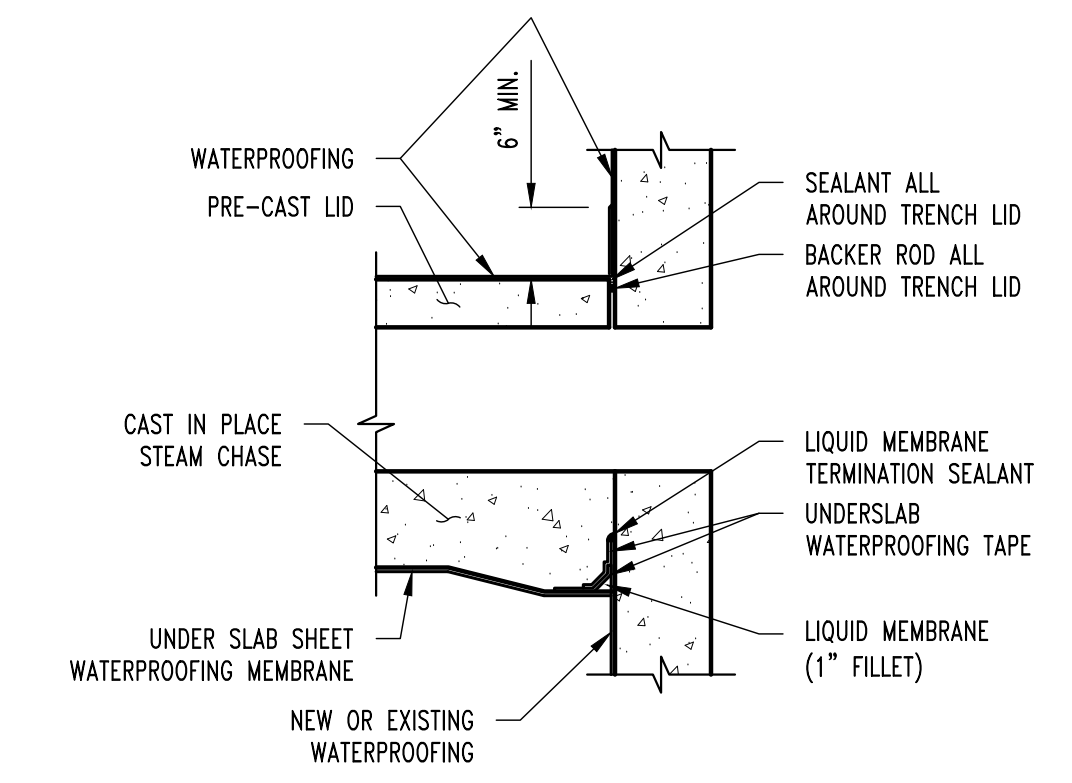
CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
TYPICAL WATERPROOFING DETAILS & NOTES

PROJECT NUMBER  
CP241001

SHEET  
S110



**NOTE:**  
COORDINATE LOCATIONS  
w/ MECHANICAL DRAWINGS



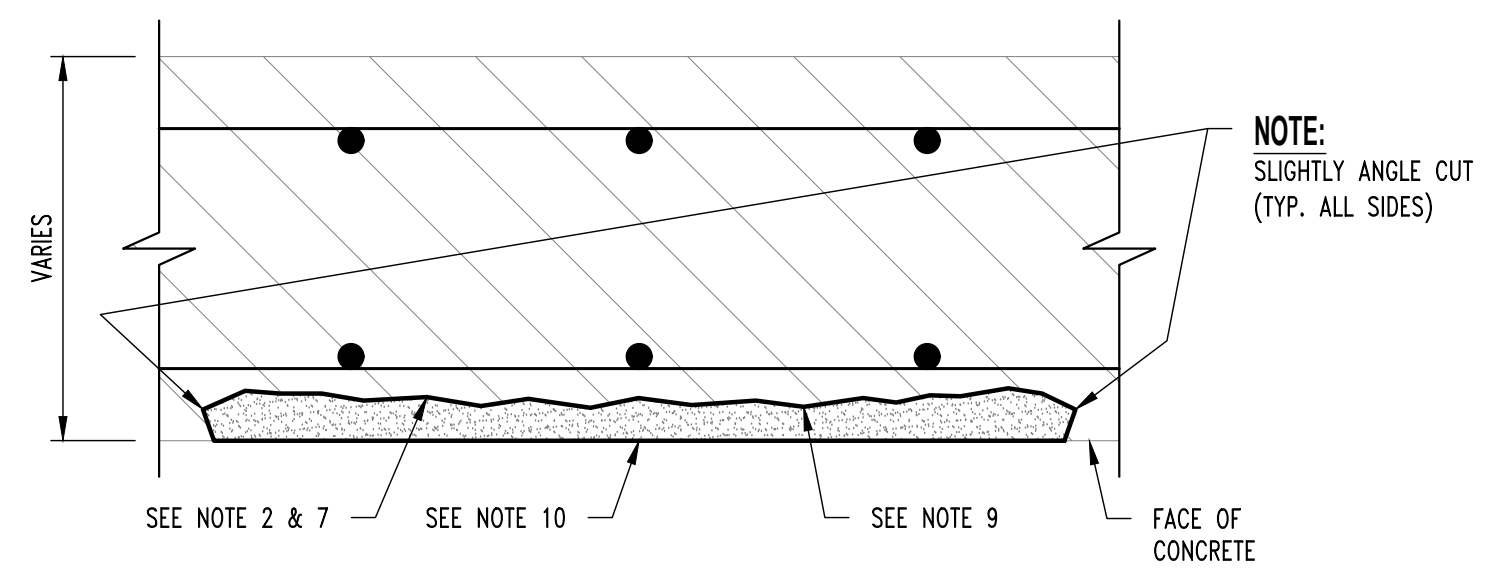
**TYP. EXISTING STEAM CHASE WATERPROOFING DETAIL**

**BELOW GRADE STEAM CHASE LID JOINT**

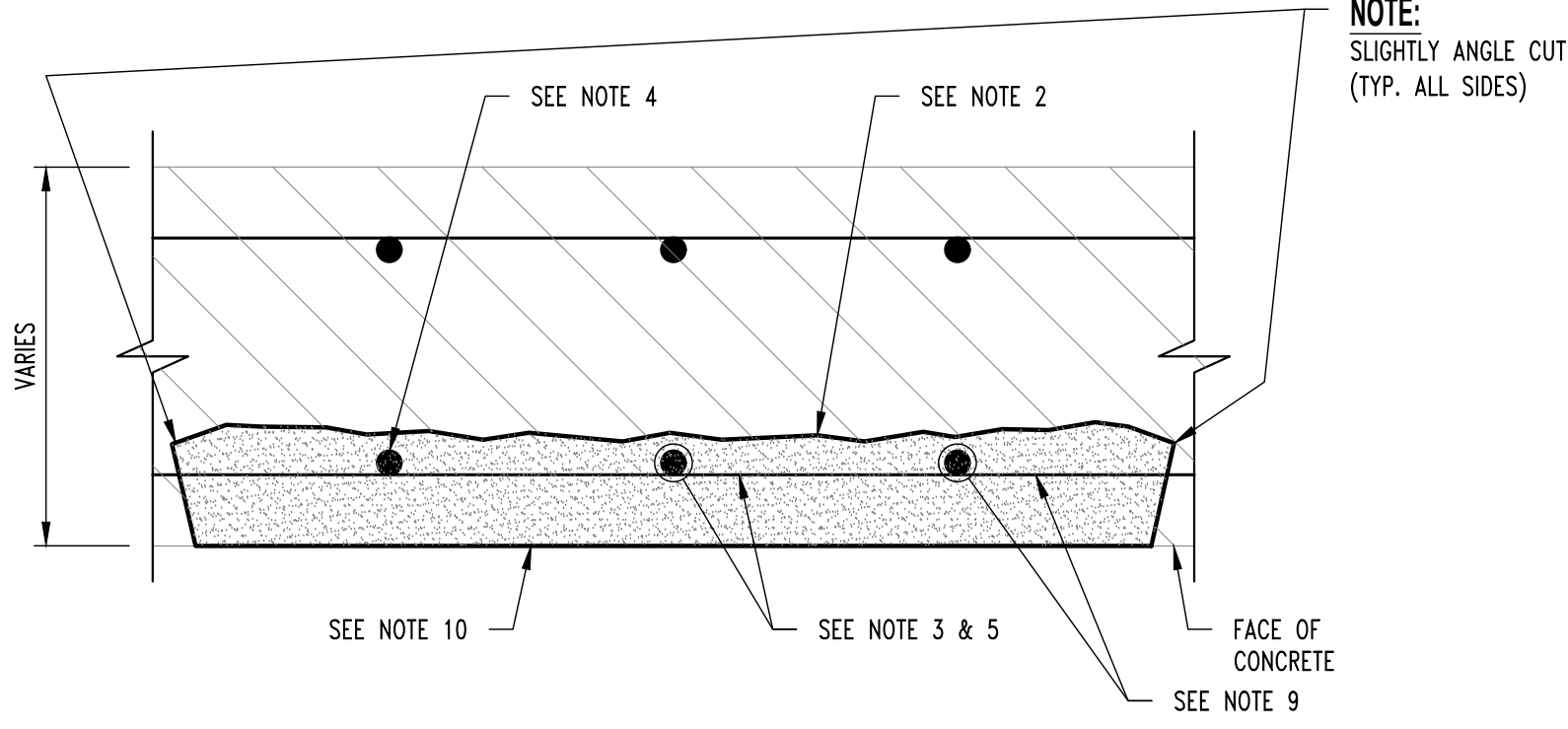
**TYPICAL COLD JOINT DETAIL**



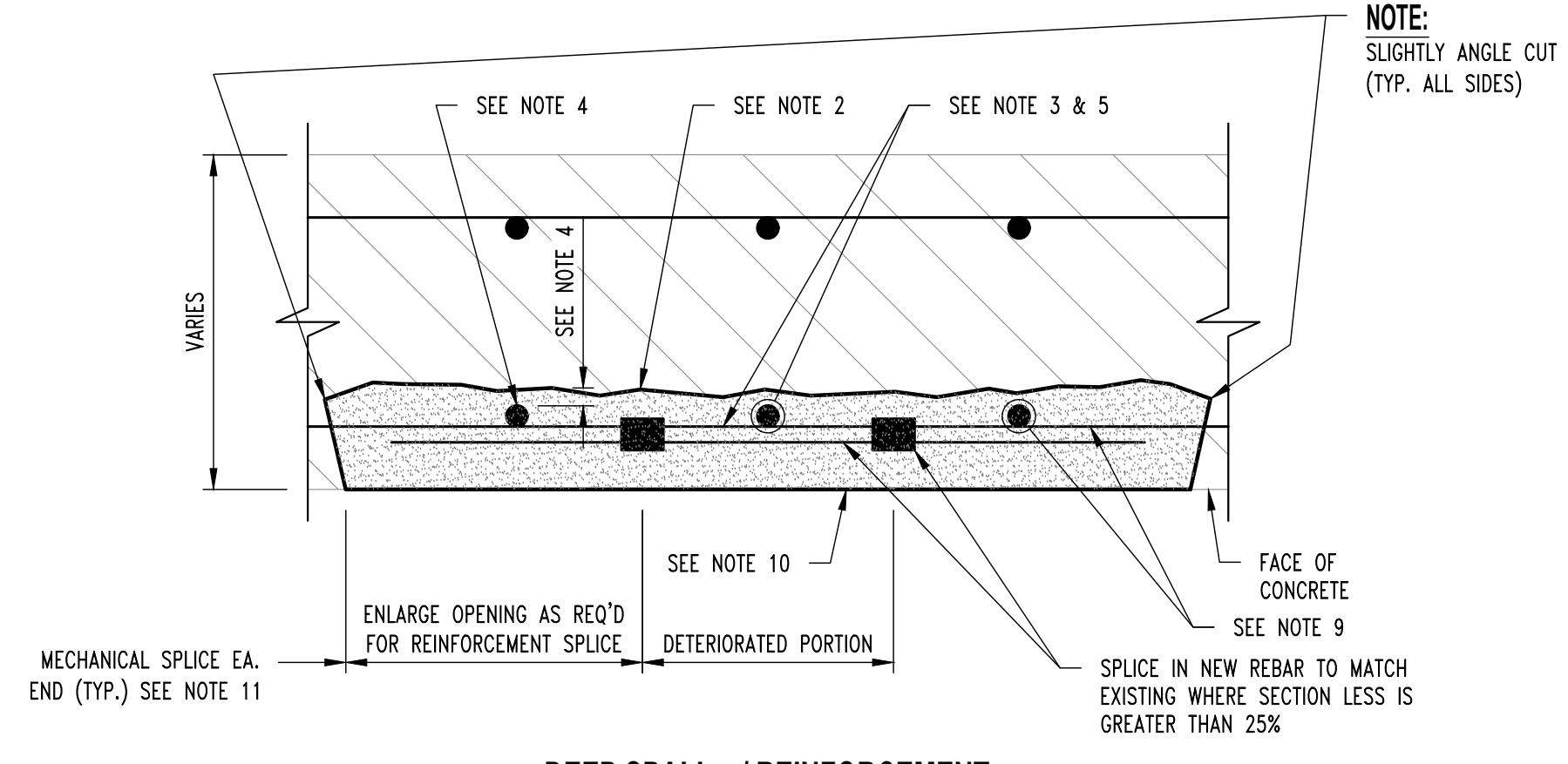
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3/4"  
1/4"  
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4"  
6"  
8"  
10"  
12"



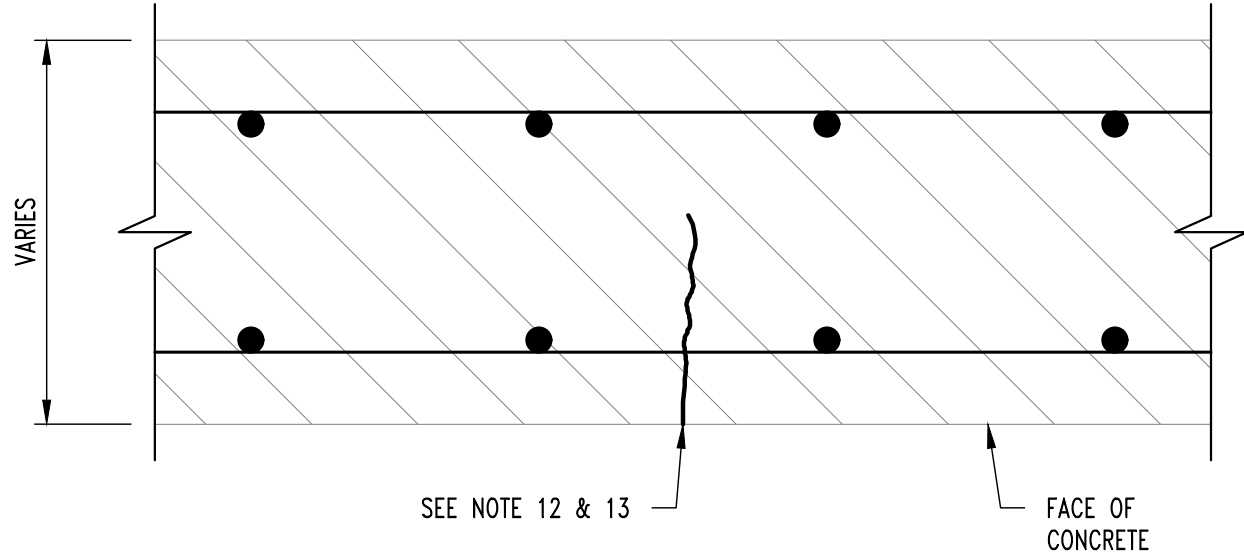
**SURFACE SPALL REPAIR**  
**REPAIR #1**  
NOTE: DETAIL APPLIES TO SURFACE SPALLS WITH NO REINFORCEMENT EXPOSED.



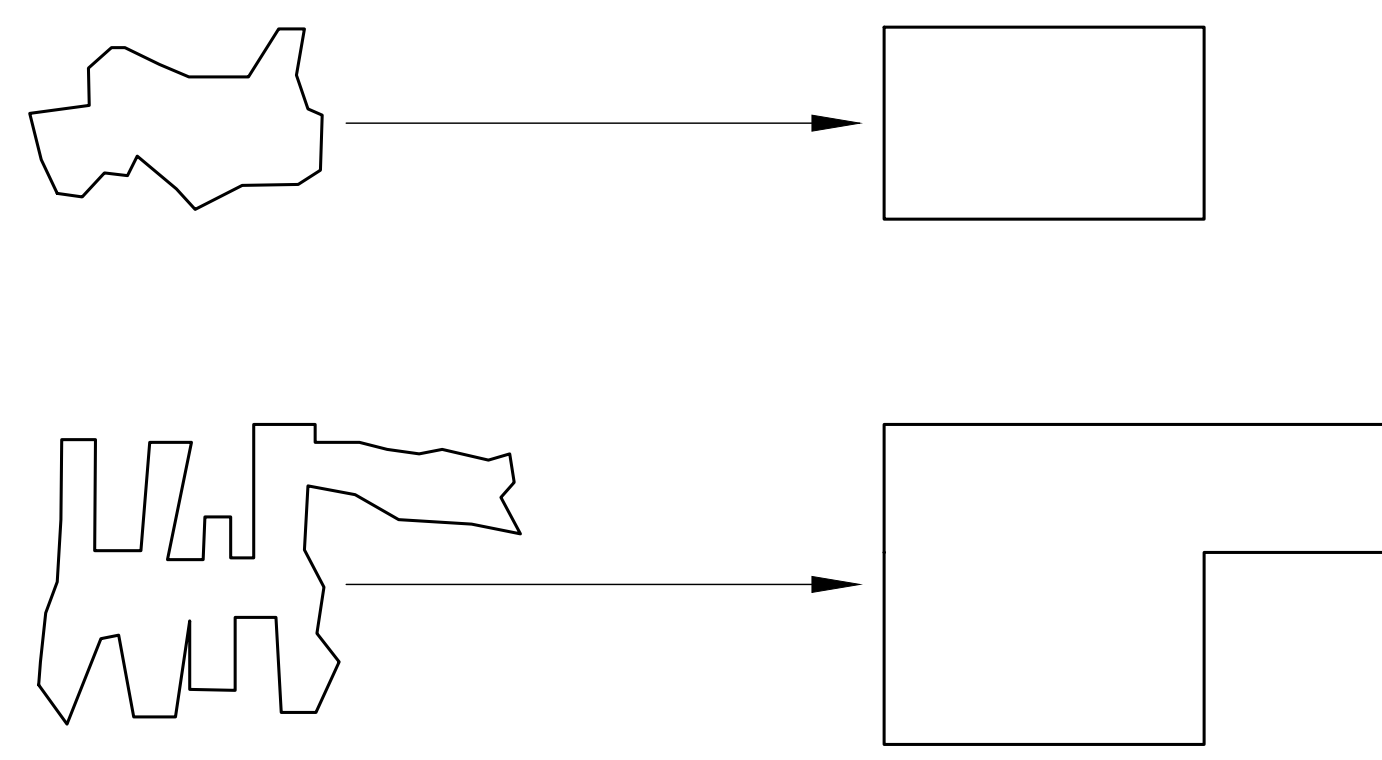
**DEEP SPALL w/ REINFORCEMENT**  
**SECTION LOSS LESS THAN OR EQUAL TO 25%**  
**REPAIR #2**  
NOTE: DETAIL APPLIES TO SURFACE SPALLS WITH REINFORCEMENT EXPOSED.



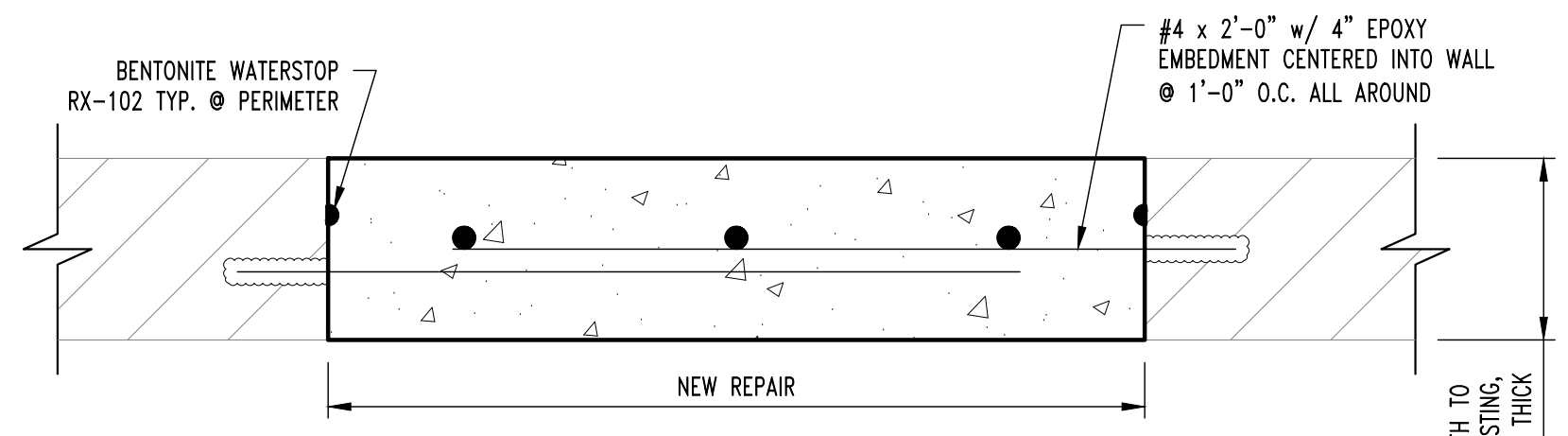
**DEEP SPALL w/ REINFORCEMENT**  
**SECTION LOSS GREATER THAN OR EQUAL TO 25%**  
**REPAIR #3**  
NOTE: DETAIL APPLIES TO SURFACE SPALLS WITH REINFORCEMENT EXPOSED.



**CRACK REPAIR**  
**REPAIR #4**  
NOTE: DETAIL APPLIES TO CRACKS LARGER THAN 0.03".



**DETERIORATED CONCRETE SURFACE REPAIR**  
NOTE:  
1. REPAIR CONFIGURATIONS TO BE KEPT AS SIMPLE AS POSSIBLE.  
2. CORNERS MUST BE SQUARED TO AVOID FEATHERED EDGES.



**FULL DEPTH REPAIR DETAIL**  
NEW DEPTH TO MATCH EXISTING, EXCEPT 8" THICK

BAR SIZE	NOMINAL DIAMETER (IN.)	MINIMUM ALLOWABLE DIAMETER (IN.)
#3	0.375	0.325
#4	0.500	0.433
#5	0.625	0.541
#6	0.750	0.650
#7	0.875	0.758
#8	1.000	0.866
#9	1.128	0.977
#10	1.270	1.100

**REINFORCING BAR DIAMETER TABLE**

- CONCRETE REPAIR NOTES**
- PRIOR TO PERFORMING ANY CONCRETE REPAIRS, CONTRACTOR SHALL EXAMINE THE ENTIRE CONCRETE SURFACE BY SOUNDING TO DETECT ANY DEFICIENCIES NOT SHOWN ON THE CONTRACT DOCUMENTS. IF DEFICIENCIES ARE DETECTED, MARK OUTLINE ON CONCRETE SURFACE AND NOTIFY OWNER'S REPRESENTATIVE. PROVIDE OWNER'S REPRESENTATIVE WITH APPROXIMATE SIZE AND LOCATION OF EACH DEFICIENCY NOTED.
  - REMOVE ALL LOOSE AND DETERIORATED CONCRETE. CHIP OUT AND PATCH AREA 1/2" MIN. BEYOND SPALLED SURFACE. AT BOUNDARIES OF DETERIORATED CONCRETE, SAWCUT BOUNDARY TO A MINIMUM DEPTH OF 3/4". DO NOT FEATHER EDGES.
  - CARE SHOULD BE EXERCISED NOT TO DAMAGE EXISTING REINFORCING STEEL DURING CONCRETE REMOVAL. CONCRETE REMOVAL SHALL EXTEND TO WHERE BAR IS WELL BONDED TO SURROUNDING SOUND CONCRETE. CARE SHALL BE EXERCISED NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR IS REQUIRED AS SPECIFIED IN ITEM 4 BELOW.
  - IF HALF OF THE THICKNESS OF THE REINFORCEMENT BAR OR MORE IS EXPOSED PROVIDE A MINIMUM OF 1/2" CLEARANCE BETWEEN EXPOSED REINFORCEMENT AND SURROUNDING CONCRETE FOR HAND APPLIED REPAIR MATERIALS AND A MINIMUM OF 1" CLEARANCE FOR SPRAY APPLIED REPAIR MATERIALS.
  - MECHANICALLY CLEAN STEEL BY SANDBLASTING OR WIRE BRUSH TO WHITE METAL CONDITION TO REMOVE CORROSION. AFTER CLEANING REINFORCING STEEL, MEASURE DIAMETER AT NARROWEST POINT. IF SECTION LOSS IS GREATER THAN 25% (SEE "REINFORCING BAR DIAMETER TABLE" ON THIS SHEET) ADD NEW REINFORCING BAR MATCHING SIZE OF EXISTING. MAINTAIN A MINIMUM OF 1/2" CONCRETE COVER AT ALL NEW AND EXISTING REINFORCEMENT. ANY REINFORCEMENT TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE SHALL USE HILTI HIT HY 200 MAX EPOXY ADHESIVE (OR APPROVED EQUAL).
  - SCARIFY CONCRETE SURFACE TO OBTAIN CONCRETE SURFACE PROFILE ROUGHENED.
  - MINIMUM DEPTH OF PATCH TO BE 3/8".
  - SUBSTRATE SHOULD BE SATURATED SURFACE DRY (SSD) WITH NO STANDING WATER DURING APPLICATION.
  - APPLY CONCRETE PRIMER TO SUBSTRATE PER MANUFACTURERS SPECIFICATIONS. APPLY TWO COATS OF ANTI-CORROSION COATING PER MANUFACTURERS SPECIFICATIONS TO ALL EXPOSED REINFORCEMENT ALLOWING TO PROPERLY DRY BETWEEN COATS. SIKAFERROGARD 901 OR APPROVED EQUAL.
  - WHILE CONCRETE PRIMER IS STILL WET, APPLY PATCH MATERIAL PER MANUFACTURERS SPECIFICATIONS. FOR APPLICATIONS GREATER THAN 1" IN DEPTH, APPLY PATCH MATERIAL IN LIFTS. SCORE THE TOP SURFACE OF EACH LIFT AND ALLOW EACH LIFT TO REACH FINAL SET THEN REPEAT FROM STEP 8.
  - PROVIDE MECHANICAL SPLICE CAPABLE OF DEVELOPING 125% F<sub>y</sub>. MAINTAIN A MINIMUM OF 1/2" CONCRETE COVER AT ALL NEW AND EXISTING REINFORCEMENT.
  - CLEAN CRACK SURFACES AND REMOVE ANY FOREIGN MATTER AND DEPOSITS.
  - INSTALL POLYMER MODIFIED CEMENTITIOUS PATCHING MATERIAL PER MANUFACTURERS SPECIFICATION AND TOOL SURFACE TO MATCH SURROUNDING SURFACE. SIKATOP-123 OR APPROVED EQUAL.
  - LID REPAIRS REQUIRE SHORING TO BE INSTALLED PRIOR TO DAMAGED CONCRETE BEING REMOVED. SHORING SHALL PROVIDE ADEQUATE SUPPORT TO STRUCTURE UNTIL PATCH IS INSTALLED AND CURED.



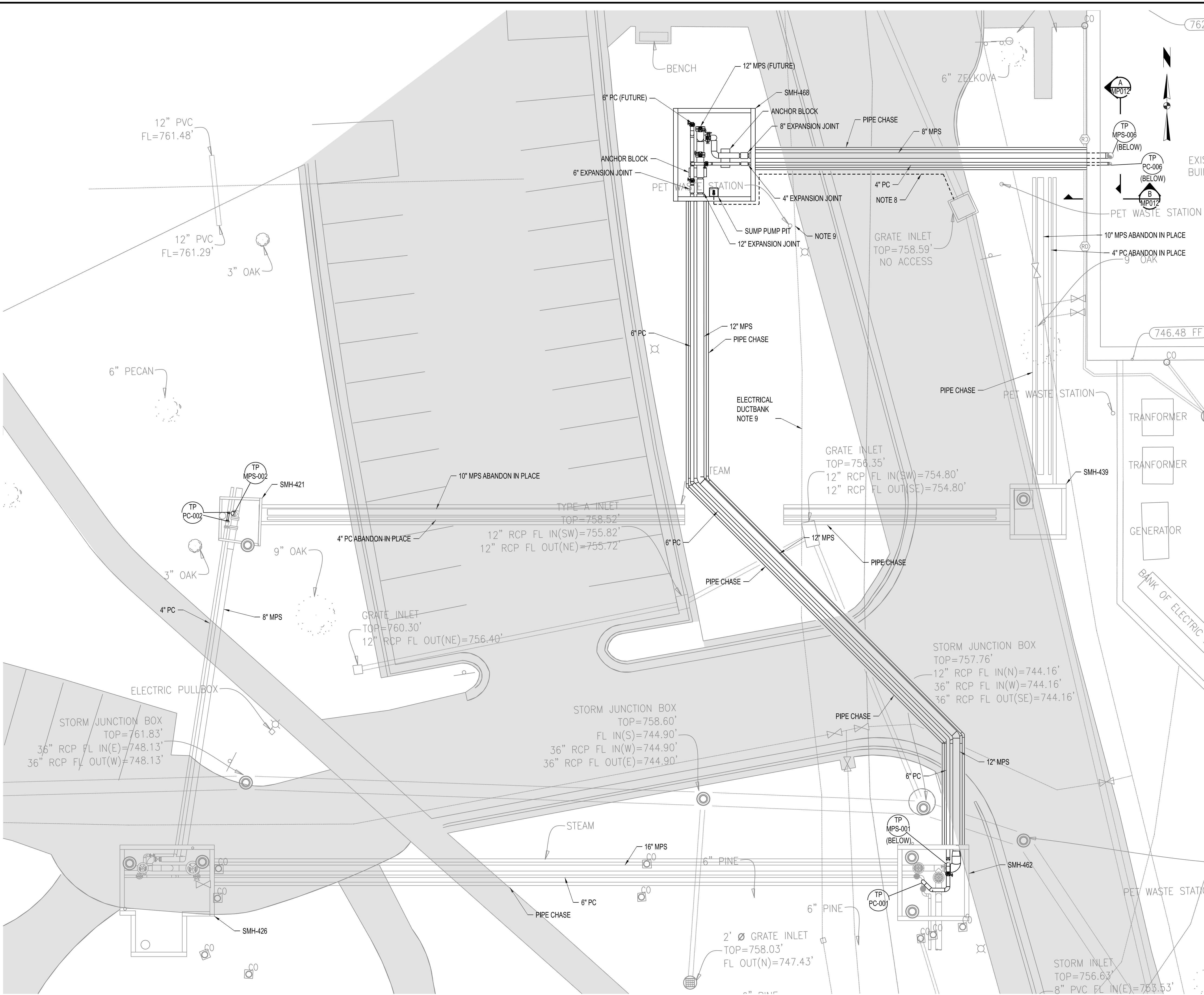
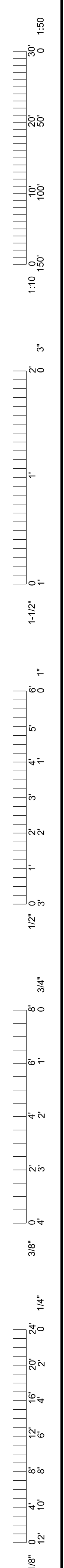
02/09/2024  
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DRAWN BY: RCA  
CHECKED BY: GLL

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**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**TYPICAL CONCRETE REPAIR DETAILS & NOTES**

PROJECT NUMBER  
**CP241001**  
SHEET  
**S111**

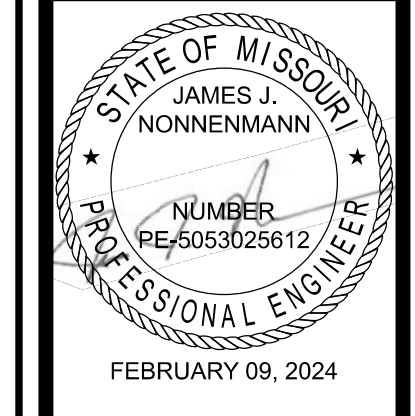




- NOTES:**
- ALL WORK ON THIS SHEET BY C-01 | C-01 UNLESS OTHERWISE INDICATED.
  - PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
  - RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
  - PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
  - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
  - COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
  - CONTRACTOR SHALL INSTALL SUMP PUMP DISCHARGE FROM SMH-468 TO SANITARY SEWER GRATE AT 4' BELOW GRADE.
  - CONTRACTOR SHALL PROTECT ELECTRICAL DUCTBANK DURING THE CONSTRUCTION OF SMH-468 AND SURROUNDING PIPE CHASES.
  - CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.

- LEGEND:**
- C-01 | C-01 CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - TP XXX-### TIE-POINT INDICATOR  
XXX: SYSTEM  
###: TIE-POINT NUMBER

**MECHANICAL - SITE PLAN**  
SCALE: 1" = 10'



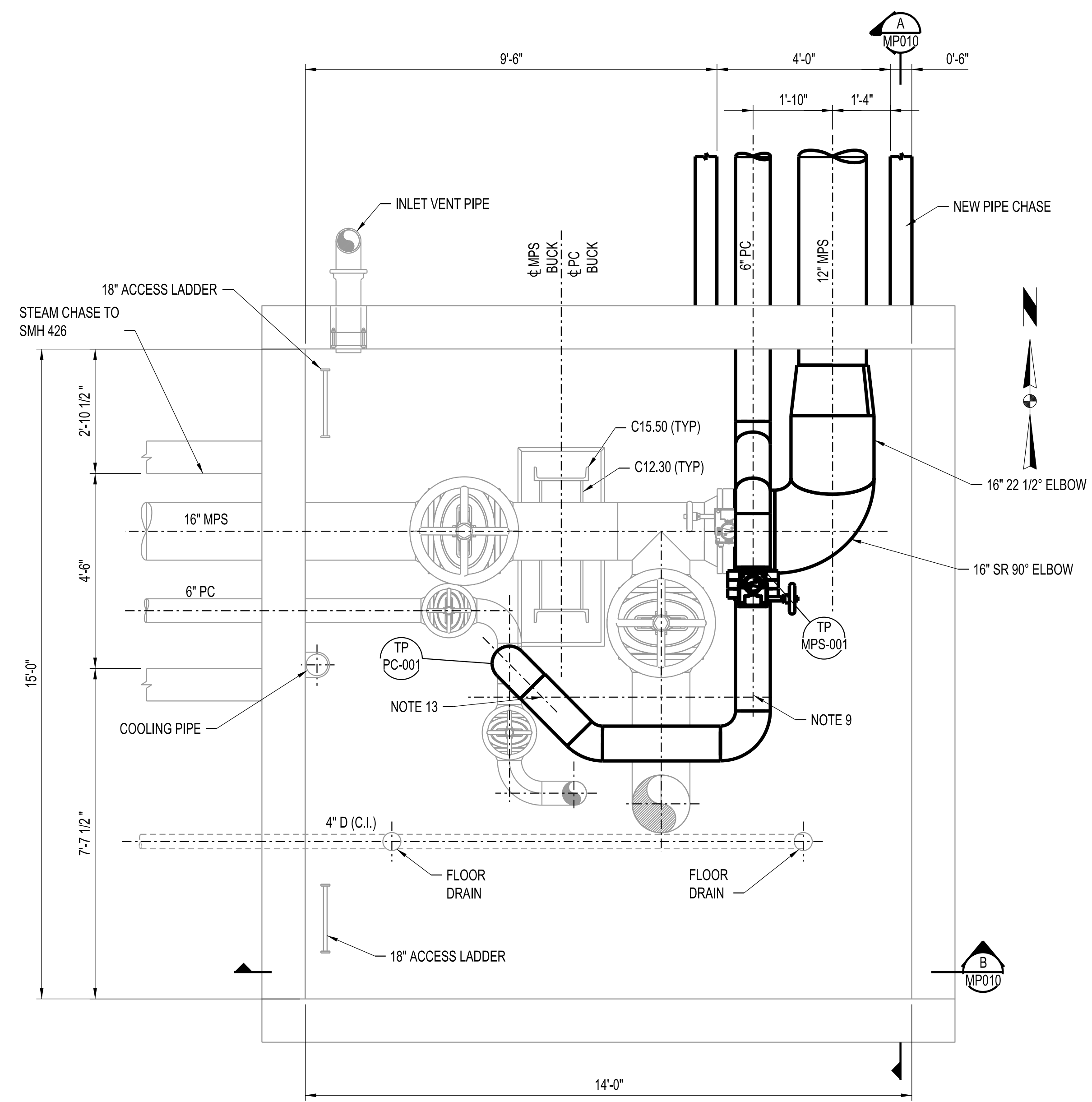
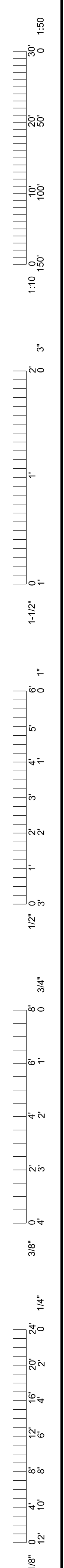
0 02/09/24 ISSUED FOR BID  
DRAWN BY: MAO CHECKED BY: JUN

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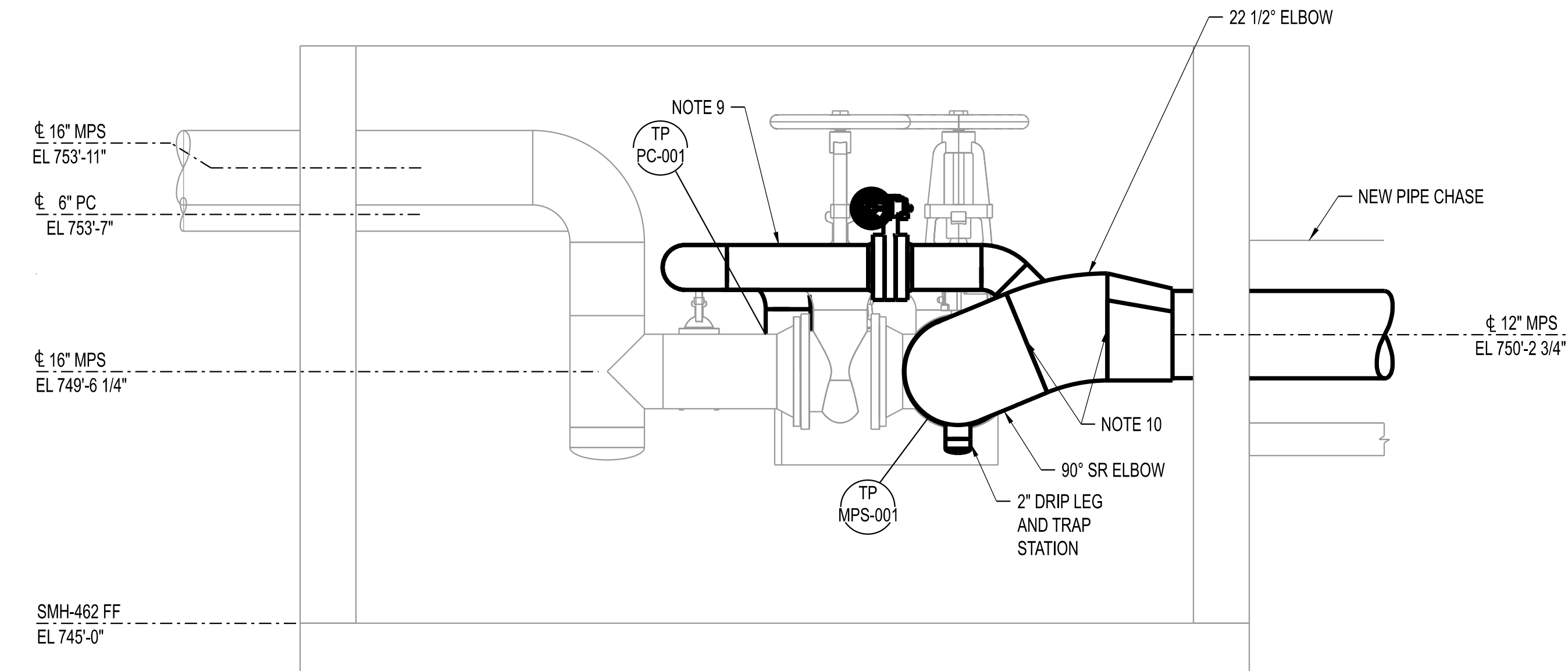
**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**MECHANICAL**  
**SITE PLAN**

PROJECT NUMBER  
**CP241001**  
SHEET  
**MP001**

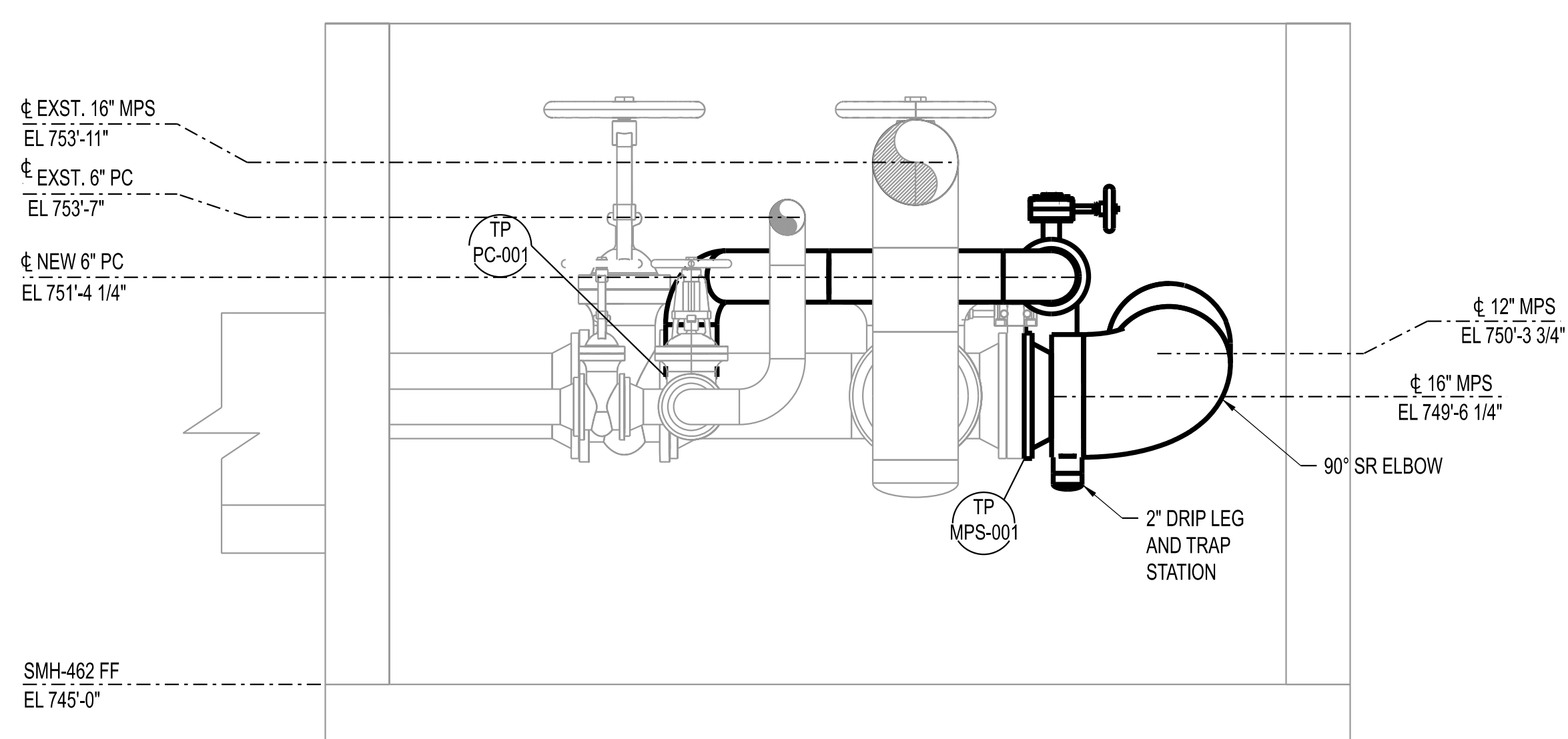




**SMH-462**  
SCALE: 1/2" = 1'-0"



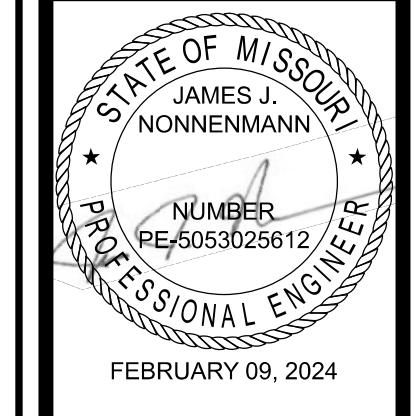
**SECTION A - SMH-462**  
SCALE: 1/2" = 1'-0"  
MP010



**SECTION B - SMH-462**  
SCALE: 1/2" = 1'-0"  
MP010

- NOTES:**
- ALL WORK ON THIS SHEET BY [C-01] UNLESS OTHERWISE INDICATED.
  - PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
  - RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
  - COORDINATE CONNECTIONS TO EXST SERVICES WITH OWNER'S REPRESENTATIVE.
  - PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
  - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
  - FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
  - COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
  - CONTRACTOR SHALL INSTALL LIMIT STOP ON 6" CONDENSATE LINE. SEE SHEET MP050 FOR DETAIL.
  - CONTRACTOR SHALL ESTABLISH INSPECTION HOLD POINTS ON THE WELDS ON BOTH SIDES OF THE 22.5 DEGREE ELBOW. CONTRACTOR SHALL NOT PROCEED UNTIL APPROVAL FROM OWNER'S REPRESENTATIVE.
  - CONTRACTOR SHALL ONLY CUT THE 22.5 DEGREE ELBOW USING MECHANICAL METHODS. NO TORCH CUTTING IS ALLOWED.
  - CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
  - CONTRACTOR SHALL INSTALL CLEVIS HANGER TO SUPPORT CONDENSATE PIPING. SEE MP051 FOR DETAIL.

- LEGEND:**
- [C-01] CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - TP TIE-POINT INDICATOR
  - XXX-### XXX: SYSTEM
  - ###: TIE-POINT NUMBER



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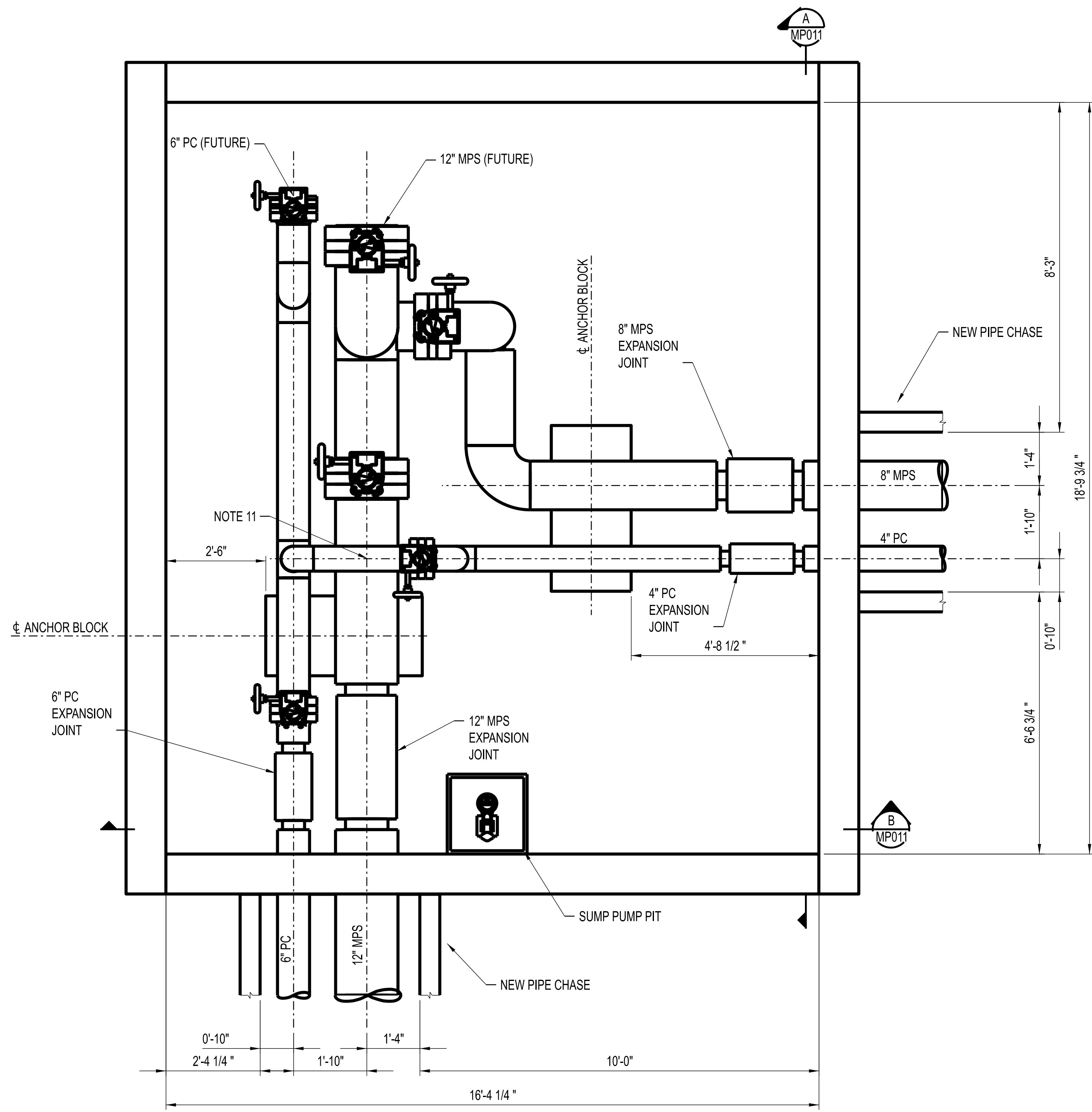
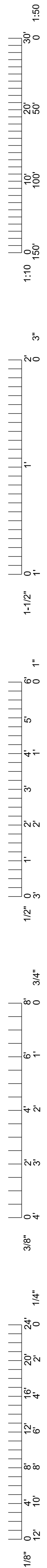
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1617 Second Ave., Ste. 110  
Rock Island, IL 61201  
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**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**MECHANICAL PLAN AND SECTIONS**  
**SMH-462**

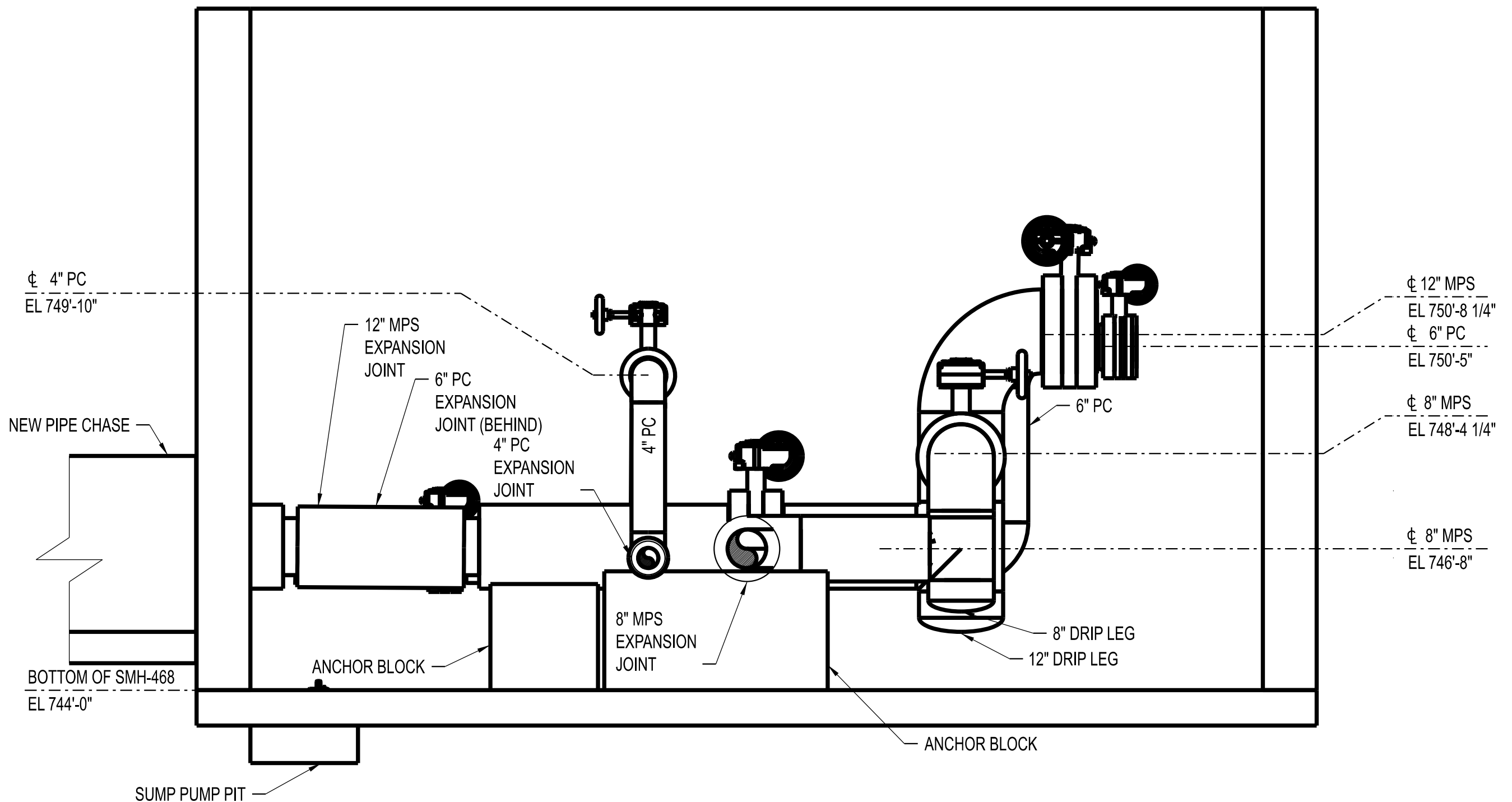
PROJECT NUMBER  
**CP241001**

SHEET  
**MP010**

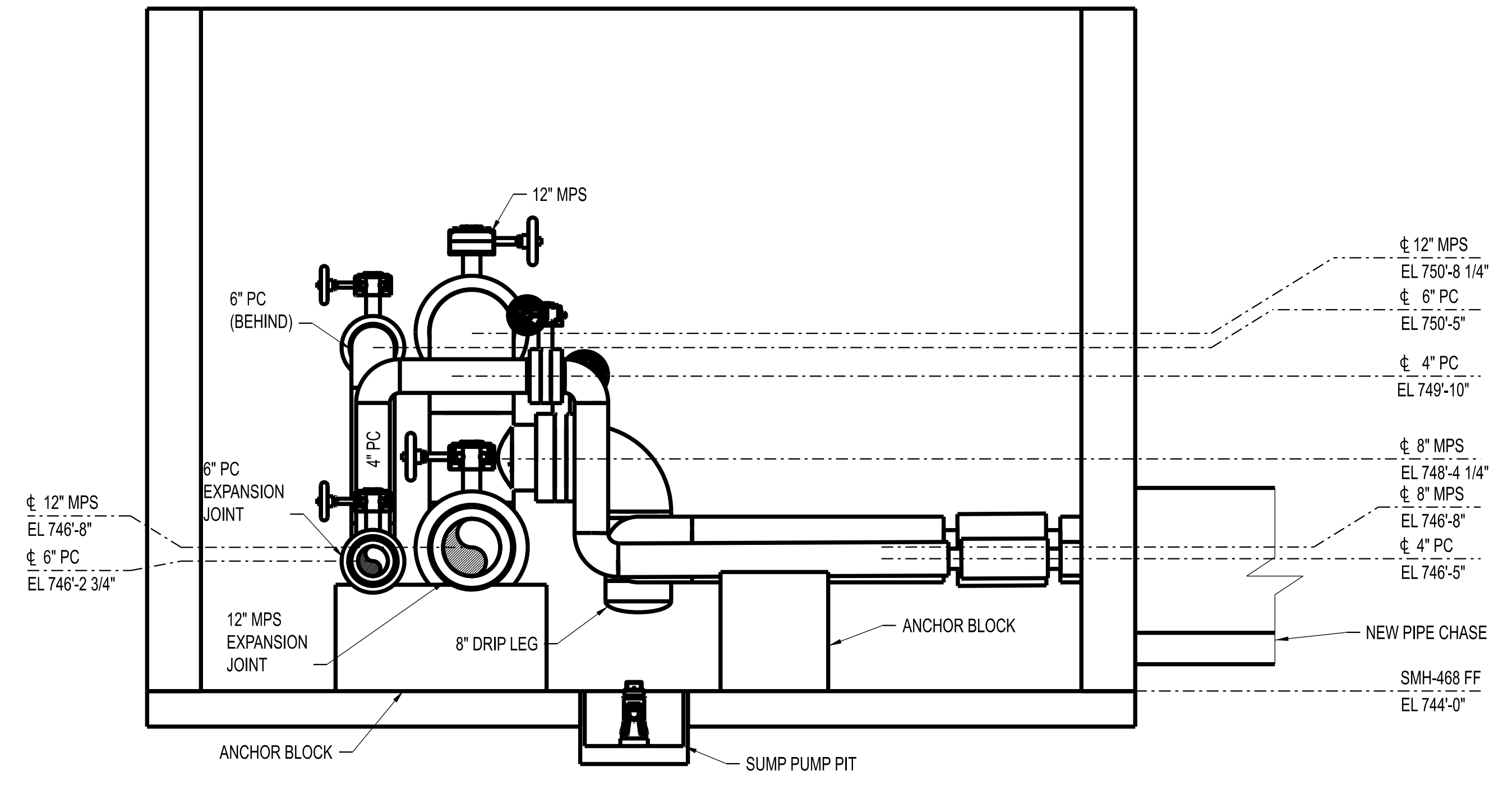




**SMH-468**  
SCALE: 1/2" = 1'-0"



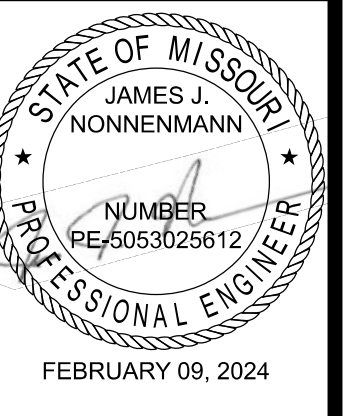
**SECTION A - SMH-468**  
SCALE: 1/2" = 1'-0"  
MP011



**SECTION B - SMH-468**  
SCALE: 1/2" = 1'-0"  
MP011

- NOTES:**
1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.
  2. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
  3. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
  4. COORDINATE CONNECTIONS TO EXST SERVICES WITH OWNER'S REPRESENTATIVE.
  5. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
  6. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
  7. FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
  8. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
  9. CONTRACTOR SHALL PROTECT ELECTRICAL DUCTBANK DURING THE CONSTRUCTION OF SMH-468 AND SURROUNDING PIPE CHASES.
  10. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
  11. CONTRACTOR SHALL INSTALL CLEVIS HANGER TO SUPPORT CONDENSATE PIPING. SEE SHEET MP051 FOR DETAIL.

- LEGEND:**
- C-01 | C-01 CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - TP XXX-### TIE-POINT INDICATOR  
XXX: SYSTEM  
###: TIE-POINT NUMBER



The Professional Engineer's seal and signature affixed to this sheet applies only to the work shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered as the work of this engineer. This engineer expressly disclaims any and all responsibility for such plans, drawings, or specifications prepared by others as are indicated on this sheet. If no digital signature is attached to this file, this media should not be considered a contract document.

0	02/09/24	ISSUED FOR BID	JUN
		DRAWN BY: MAO	CHECKED BY: JUN

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MISSOURI CERTIFICATE OF  
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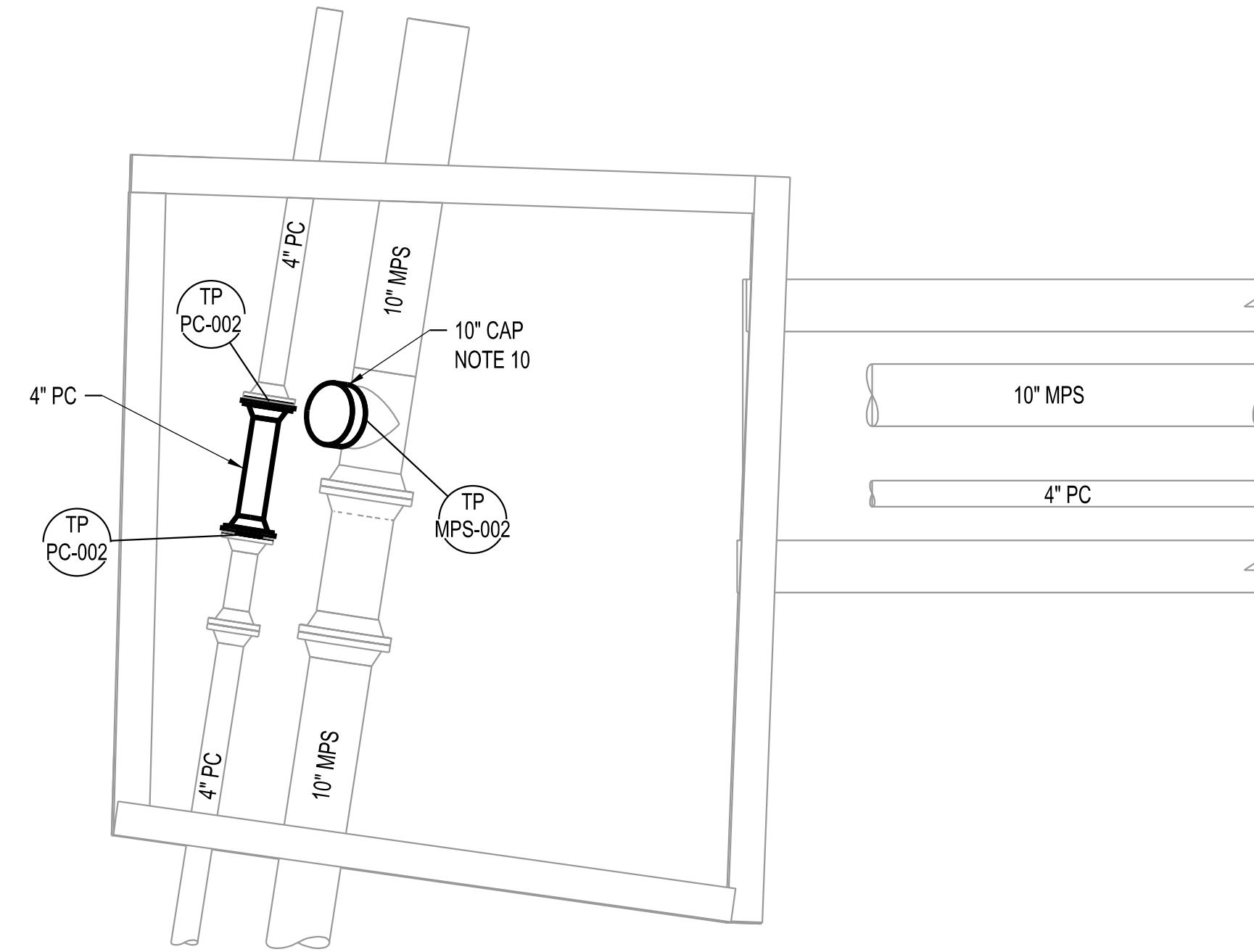


CLYDESDALE HALL  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
MECHANICAL PLAN AND SECTIONS  
SMH-468

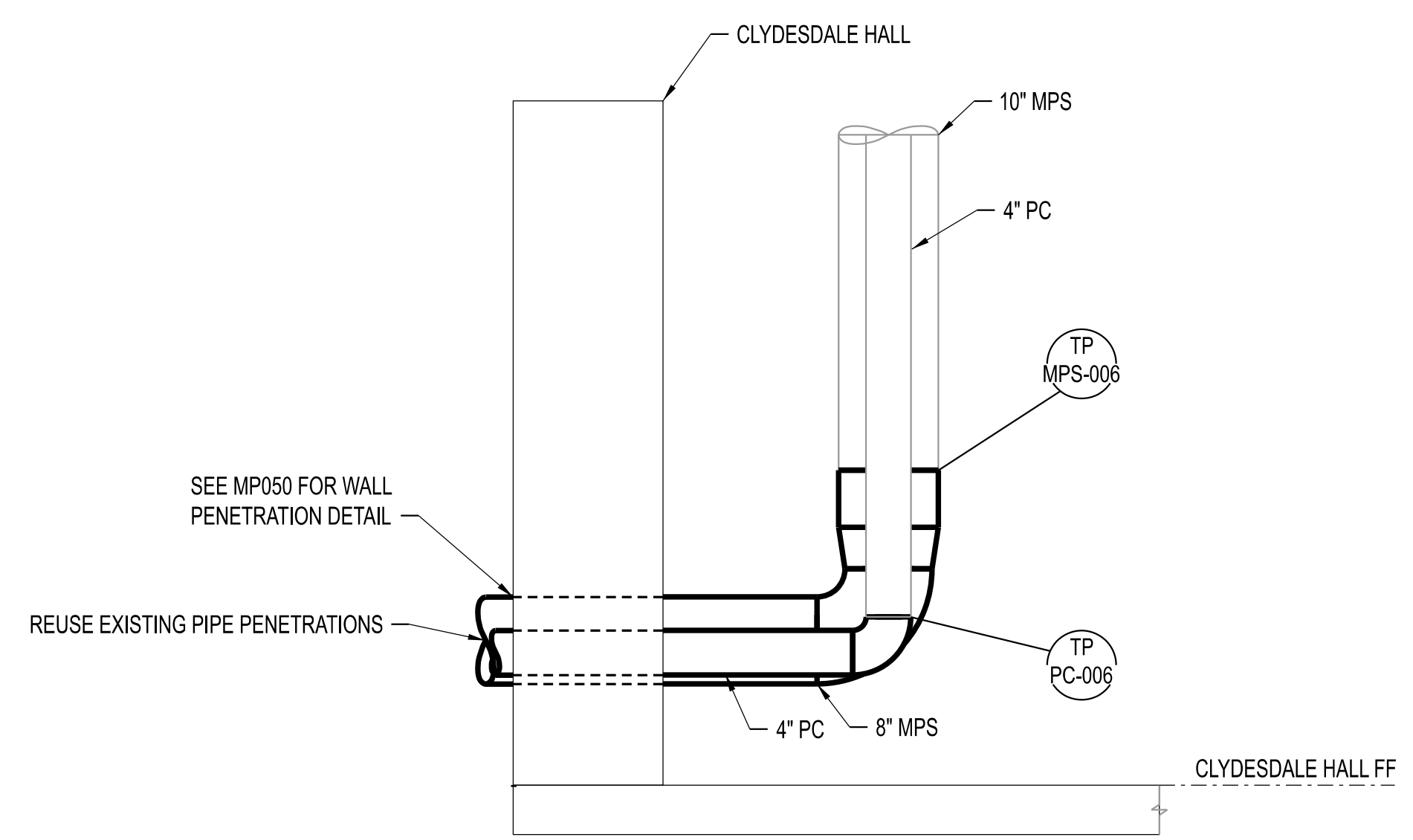
PROJECT NUMBER  
CP241001  
SHEET  
MP011



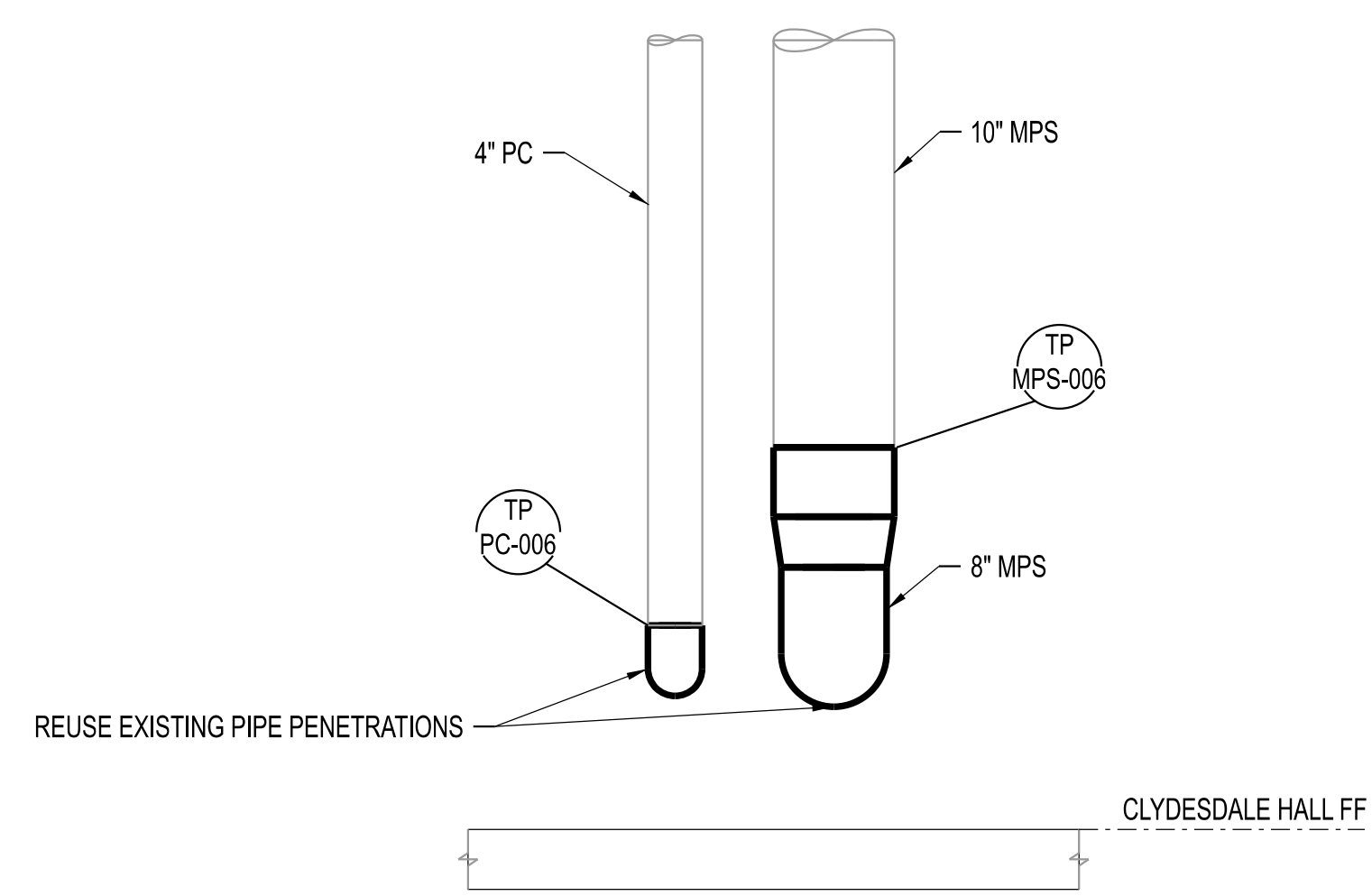
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**MECHANICAL PLAN - SMH-421**  
SCALE: 1/2" = 1'-0"



**SECTION A - MP012**  
SCALE: 1/2" = 1'-0"  
MP001



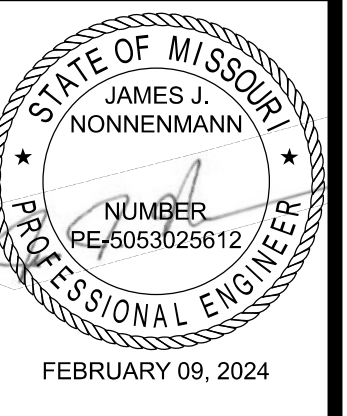
**SECTION B - MP012**  
SCALE: 1/2" = 1'-0"  
MP001

**NOTES:**

1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.
2. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
3. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
4. COORDINATE CONNECTIONS TO EXST SERVICES WITH OWNER'S REPRESENTATIVE.
5. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
6. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
7. FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
8. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
9. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.
10. CONTRACTOR SHALL REMOVE INSULATION AND FIELD VERIFY PIPE SIZE PRIOR TO FABRICATION.

**LEGEND:**

- C-01 | C-01 CONTRACT IDENTIFICATION:  
NUMBER AT LEFT INDICATES CONTRACT  
FURNISHING, NUMBER AT RIGHT INDICATES  
CONTRACT INSTALLING.
- TP  
XXX-### TIE-POINT INDICATOR  
XXX: SYSTEM  
###: TIE-POINT NUMBER



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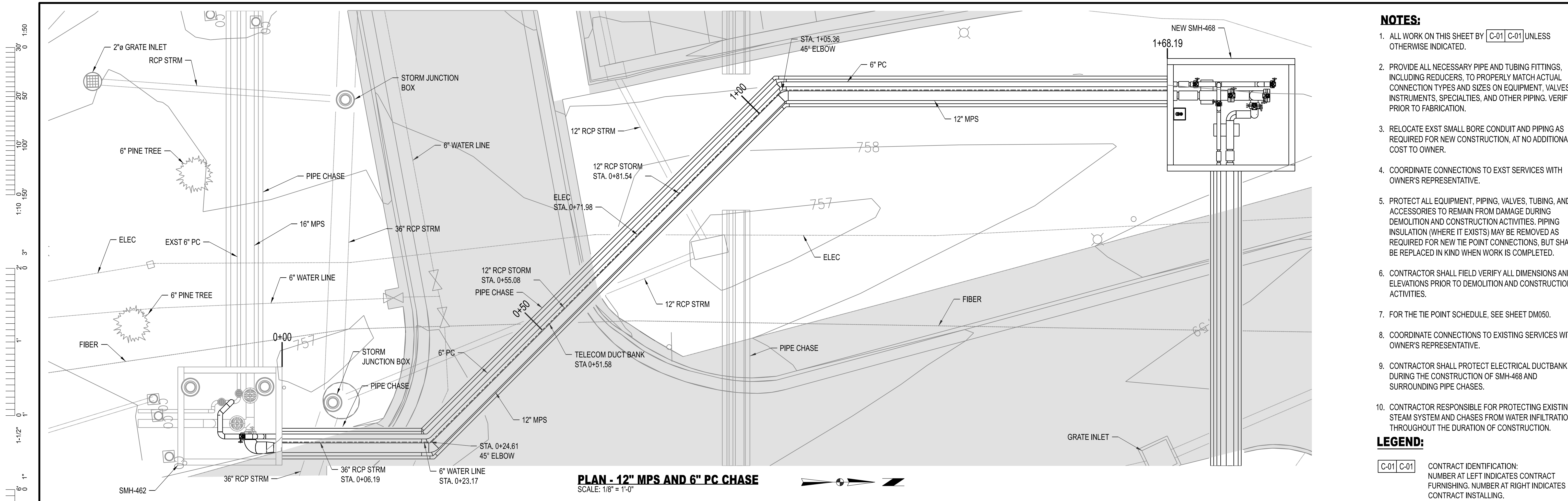
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- 2023017605

**CLYDESDALE HALL**  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
MECHANICAL PLAN AND SECTIONS  
SMH-421 AND CLYDESDALE HALL

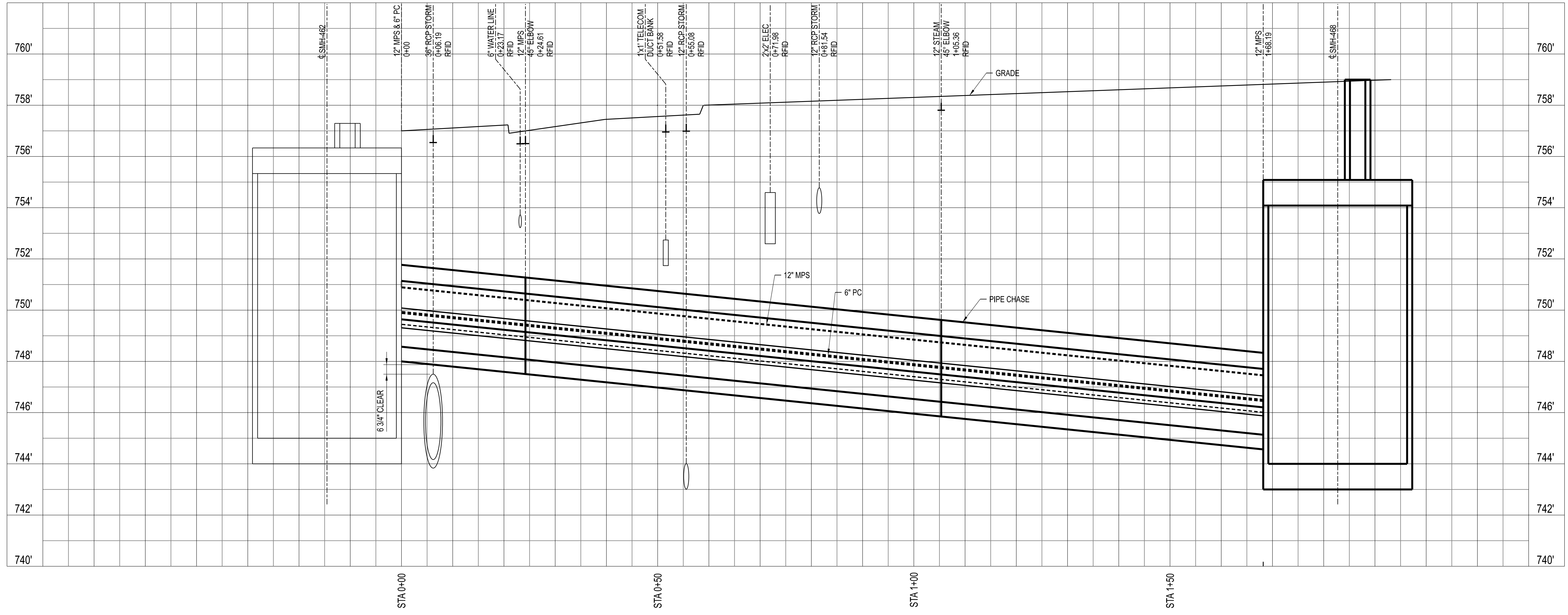
PROJECT NUMBER  
CP241001  
SHEET  
MP012





**PLAN - 12\"/>**

SCALE: 1/8\"/>



**PROFILE - 12\"/>**

SCALE: 1\"/>

- NOTES:**
1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.
  2. PROVIDE ALL NECESSARY PIPE AND TUBING FITTINGS, INCLUDING REDUCERS, TO PROPERLY MATCH ACTUAL CONNECTION TYPES AND SIZES ON EQUIPMENT, VALVES, INSTRUMENTS, SPECIALTIES, AND OTHER PIPING. VERIFY PRIOR TO FABRICATION.
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  7. FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
  8. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
  9. CONTRACTOR SHALL PROTECT ELECTRICAL DUCTBANK DURING THE CONSTRUCTION OF SMH-468 AND SURROUNDING PIPE CHASES.
  10. CONTRACTOR RESPONSIBLE FOR PROTECTING EXISTING STEAM SYSTEM AND CHASES FROM WATER INFILTRATION THROUGHOUT THE DURATION OF CONSTRUCTION.

**LEGEND:**

C-01 C-01 CONTRACT IDENTIFICATION:  
 NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.



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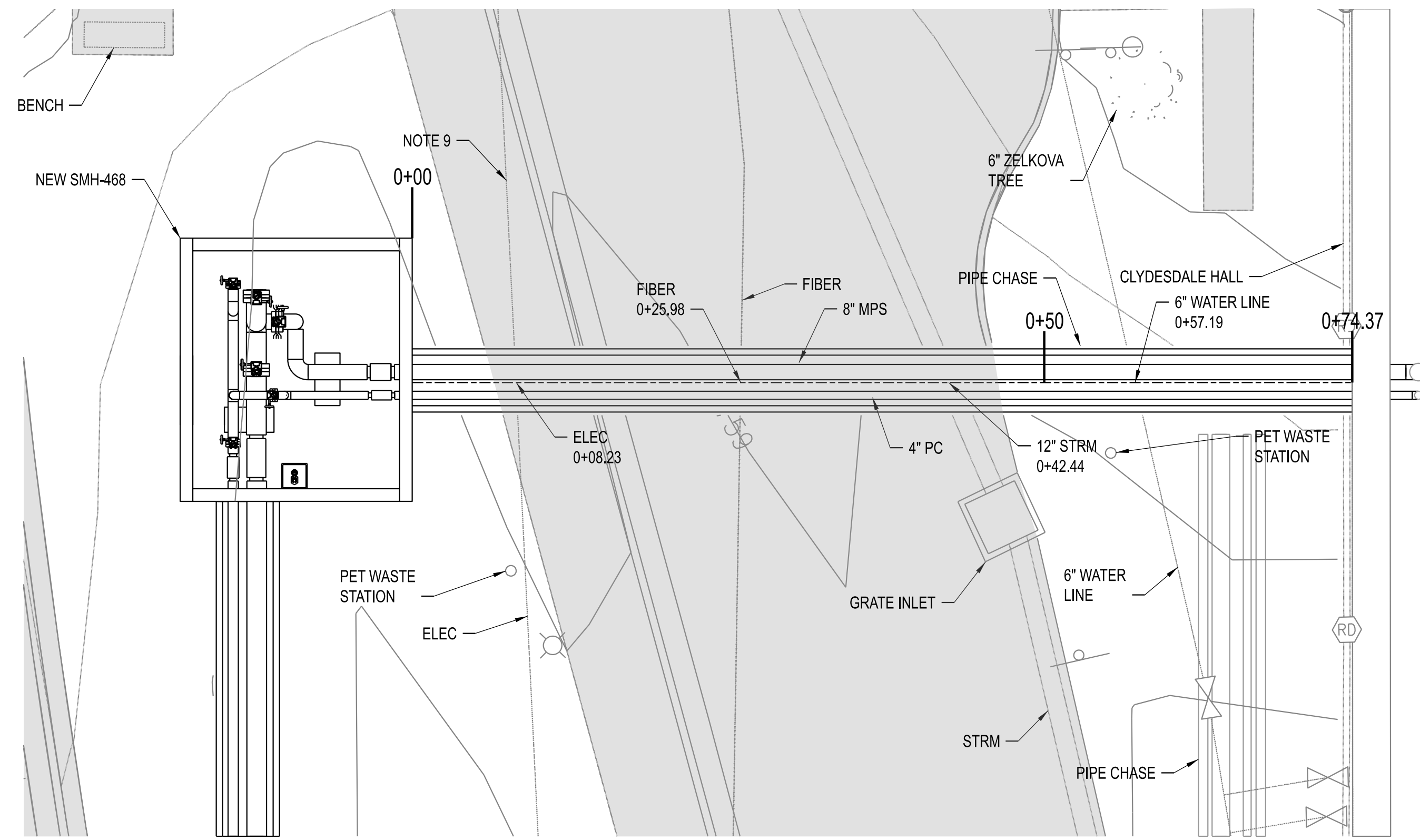
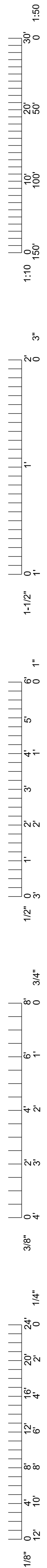
**PRVN CONSULTANTS, INC.**  
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 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF  
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 -2023077605

**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**PIPING PLAN AND PROFILE**  
**STEAM AND CONDENSATE - SHEET 1**

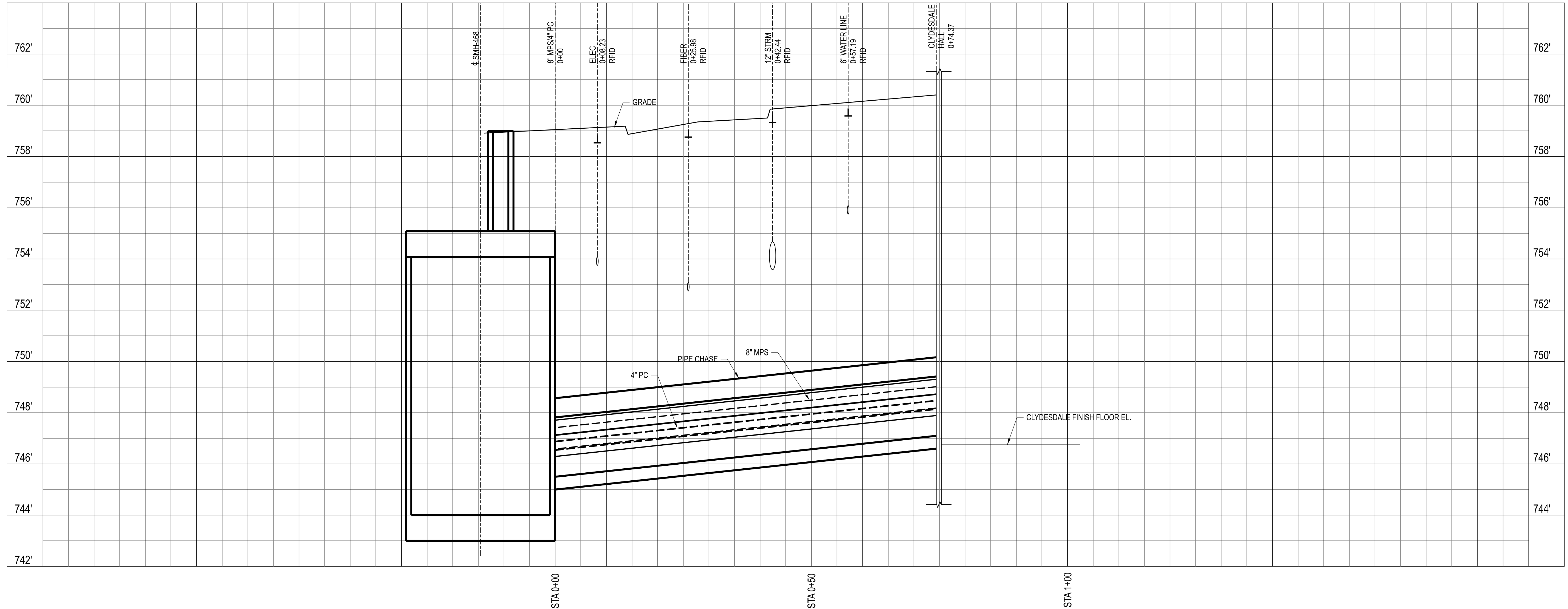
PROJECT NUMBER  
 CP241001

SHEET  
 MP020





**PLAN - 8" MPS AND 4" PC CHASE**  
SCALE: 1/8" = 1'-0"



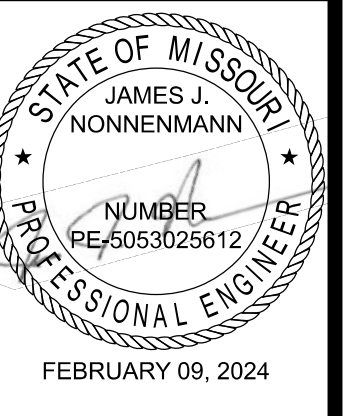
**PROFILE - 8" MPS AND 4" PC CHASE**  
SCALE: 1" = 10' HORIZONTAL  
2" = 4' VERTICAL

**NOTES:**

1. ALL WORK ON THIS SHEET BY C-01 UNLESS OTHERWISE INDICATED.
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7. FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
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**LEGEND:**

C-01 | C-01 CONTRACT IDENTIFICATION:  
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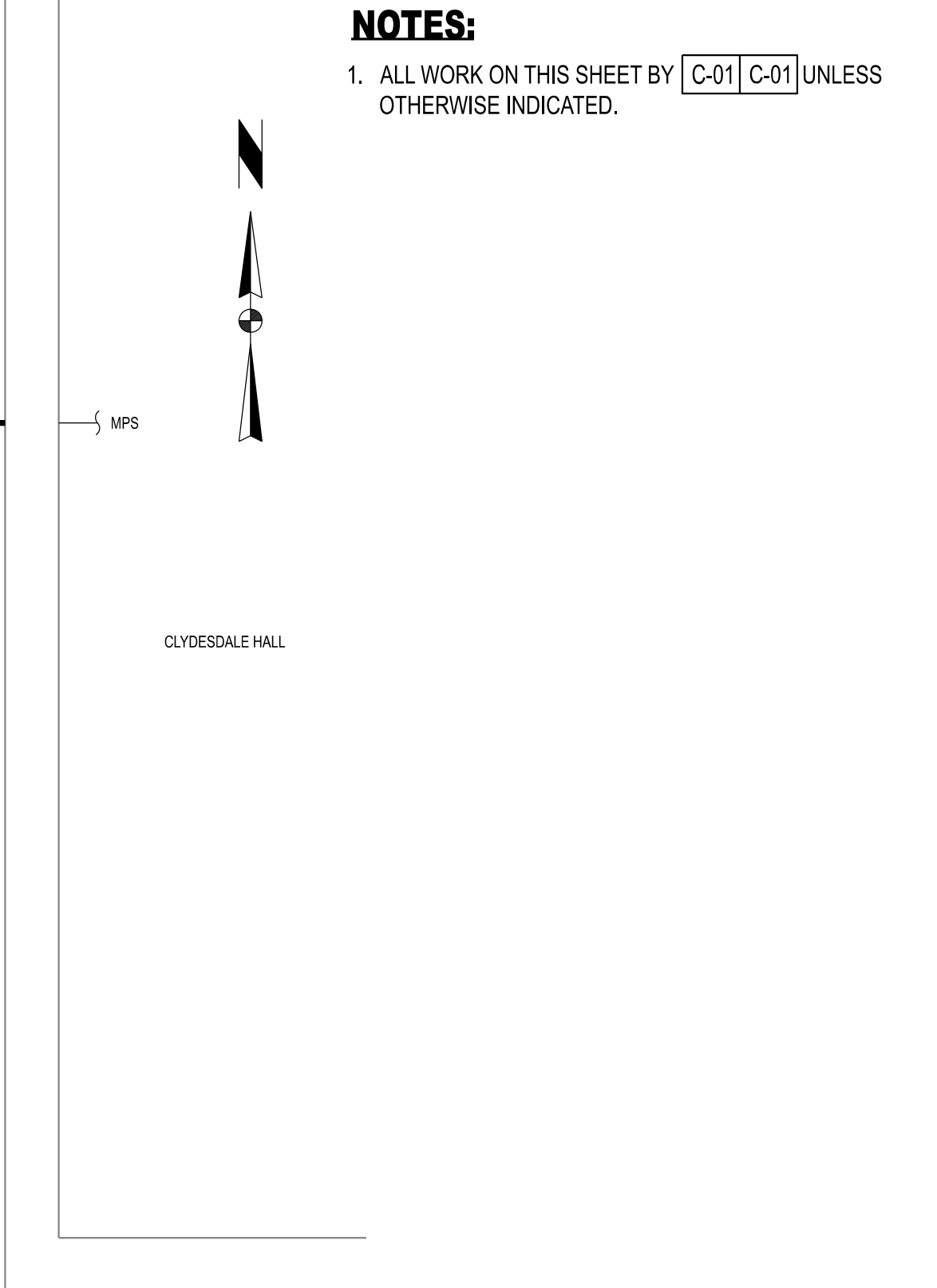
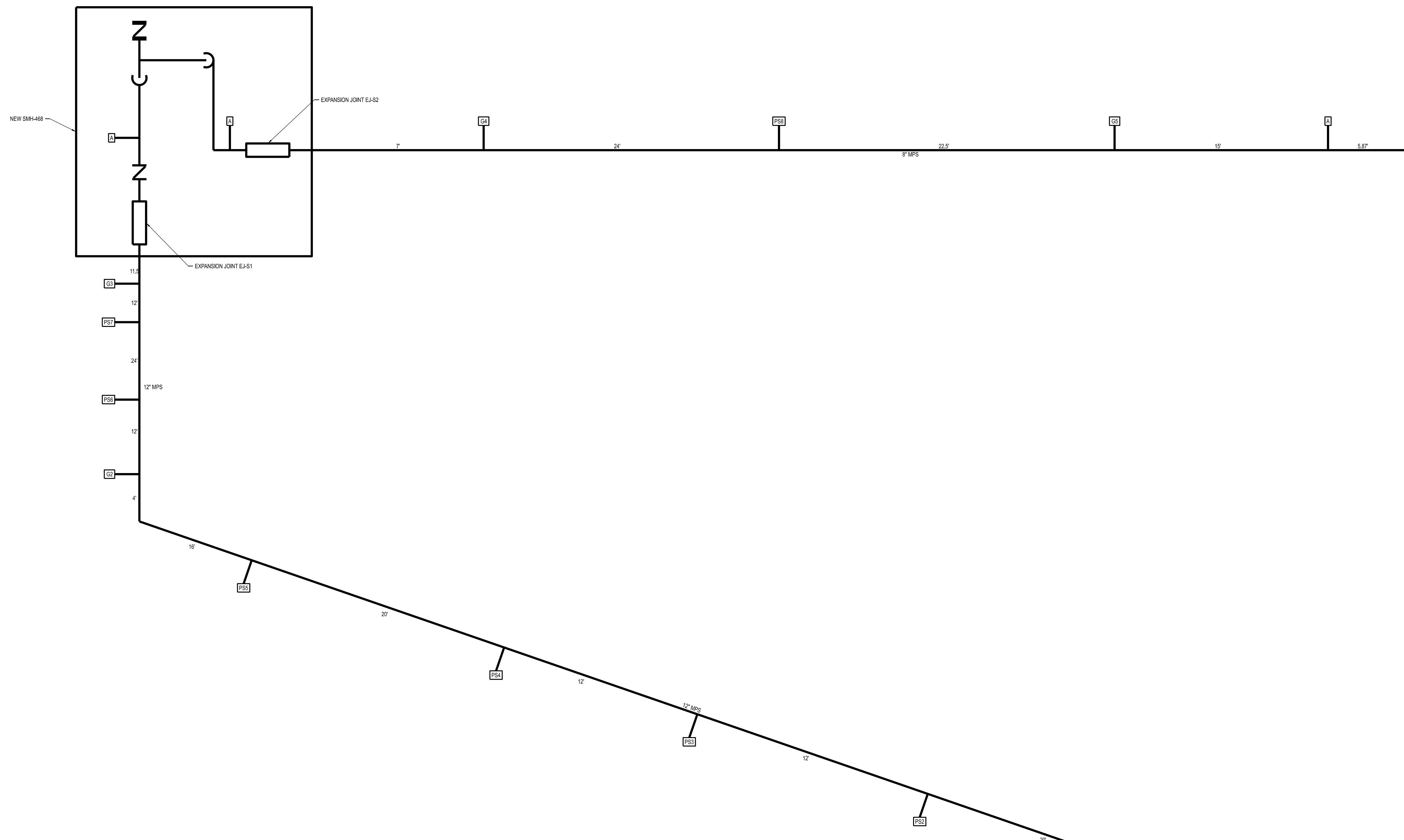
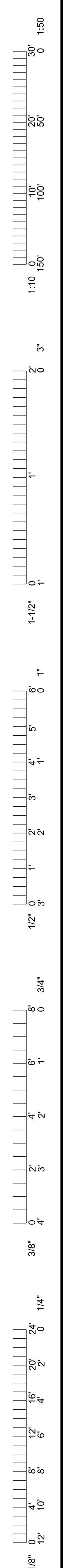
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**CLYDESDALE HALL**  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
PIPING PLAN AND PROFILE  
STEAM AND CONDENSATE - SHEET 2

PROJECT NUMBER  
CP241001  
SHEET  
MP021





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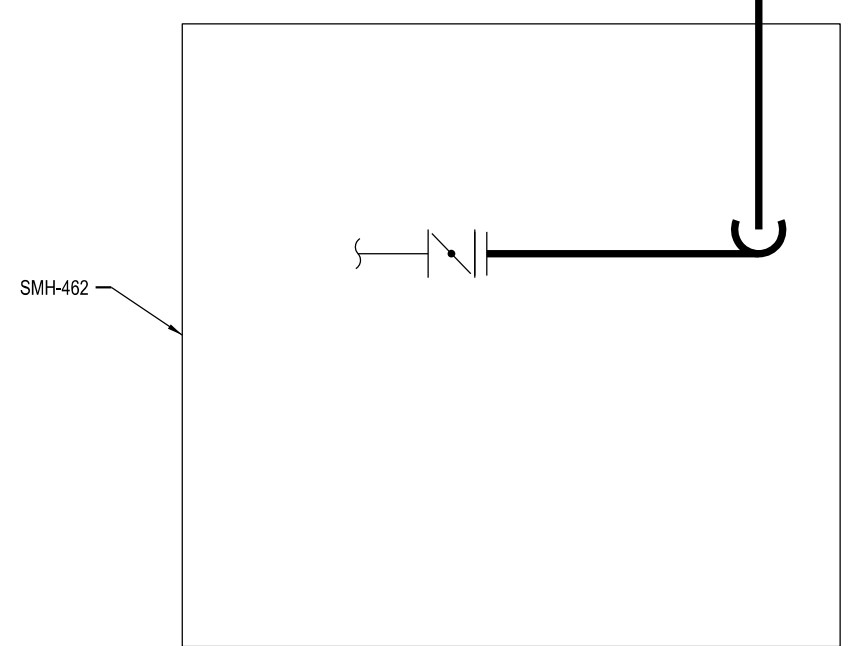
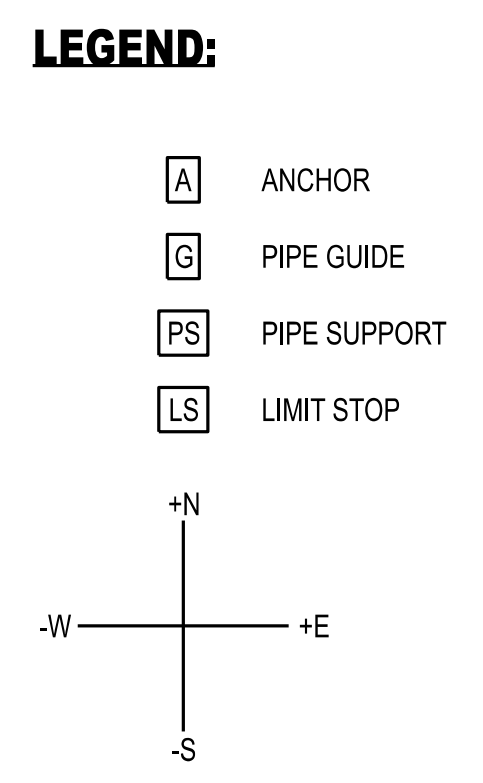
**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**THERMAL EXPANSION PLAN**  
**MPS**

PROJECT NUMBER: CP241001  
SHEET: MP040

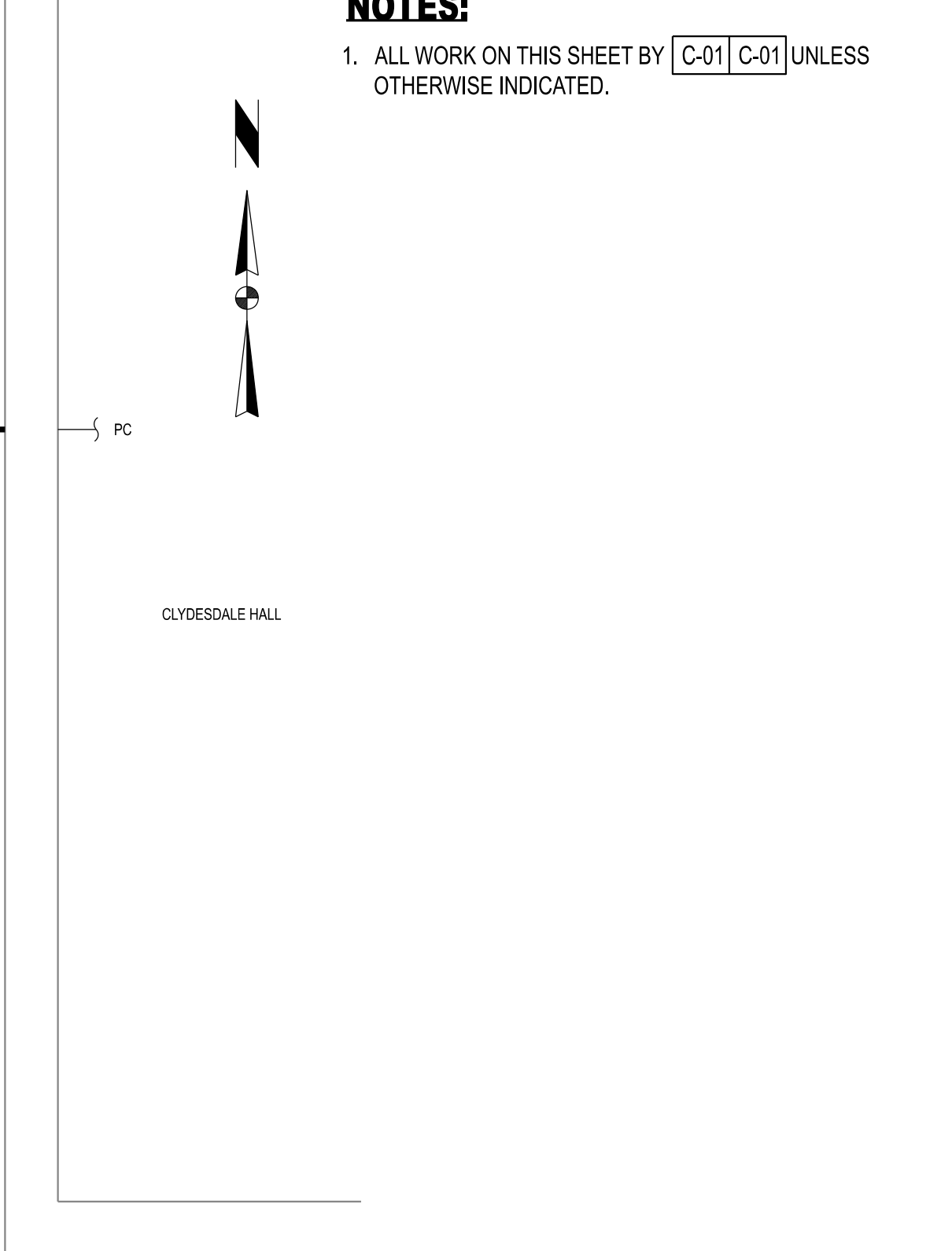
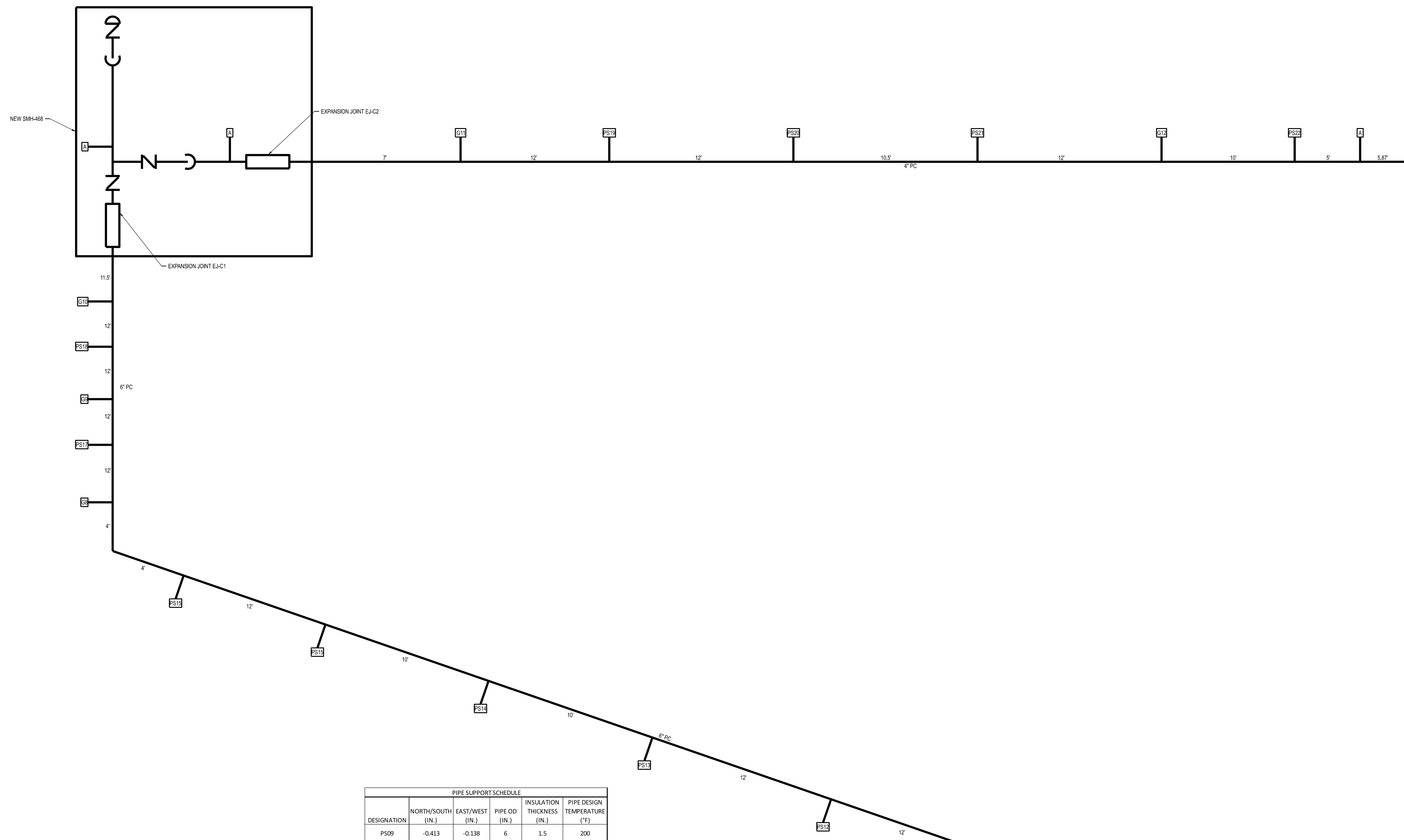
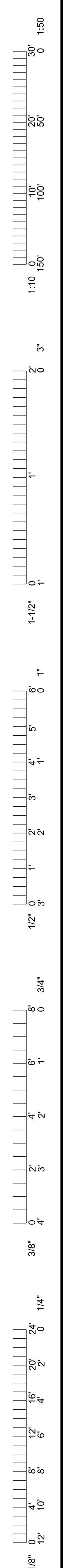
GUIDE SUPPORT SCHEDULE						
DESIGNATION	NORTH/SOUTH (IN.)	EAST/WEST (IN.)	UP/DOWN (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)	PIPE DESIGN TEMPERATURE (°F)
G1	0.218	0.125	0.25	12	3	450
G2	2.821	-0.125	0	12	3	450
G3	4.348	0.125	0	12	3	450
G4	0	-2.098	0	8	3	450
G5	0	-0.639	0	8	3	450

PIPE SUPPORT SCHEDULE					
DESIGNATION	NORTH/SOUTH (IN.)	EAST/WEST (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)	PIPE DESIGN TEMPERATURE (°F)
PS1	-0.212	0.122	12	3	450
PS2	0.777	0.49	12	3	450
PS3	0.943	0.121	12	3	450
PS4	0.832	-1.059	12	3	450
PS5	1.282	-1.512	12	3	450
PS6	3.203	1.375	12	3	450
PS7	3.966	0.758	12	3	450
PS8	0	-1.344	8	3	450

EXPANSION JOINT SCHEDULE										
EXPANSION JOINT DESIGNATION	LOCATION	SIZE	TYPE	ENDS	SERVICE	PRESSURE (PSI)	TEMP (°F)	RATED TRAVEL (in)	MAX OAL (in)	THERMAL EXPANSION (in)
EJ-S1	MANHOLE NO. 468	12"	EXTERNALLY PRESSURIZED BELLOWS	WELD	STEAM	75	450	8	44	4.73
EJ-S2	MANHOLE NO. 468	8"	EXTERNALLY PRESSURIZED BELLOWS	WELD	STEAM	75	450	4	26	2.32







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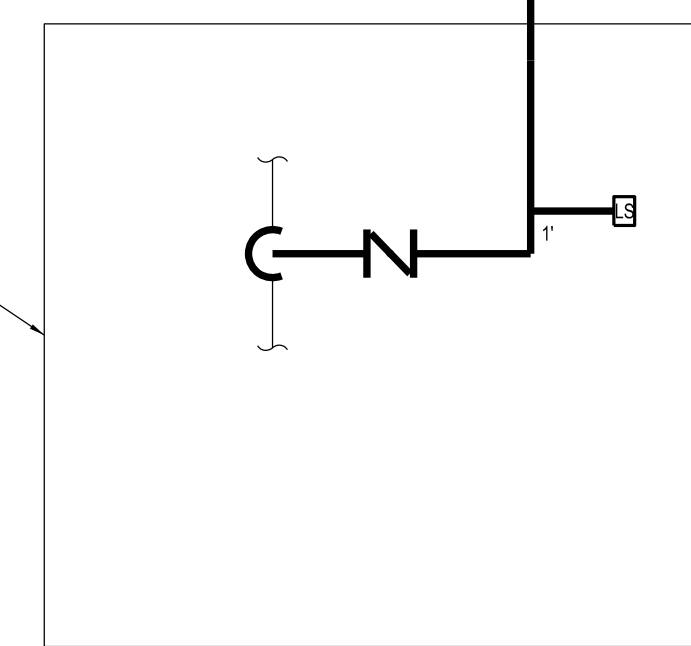
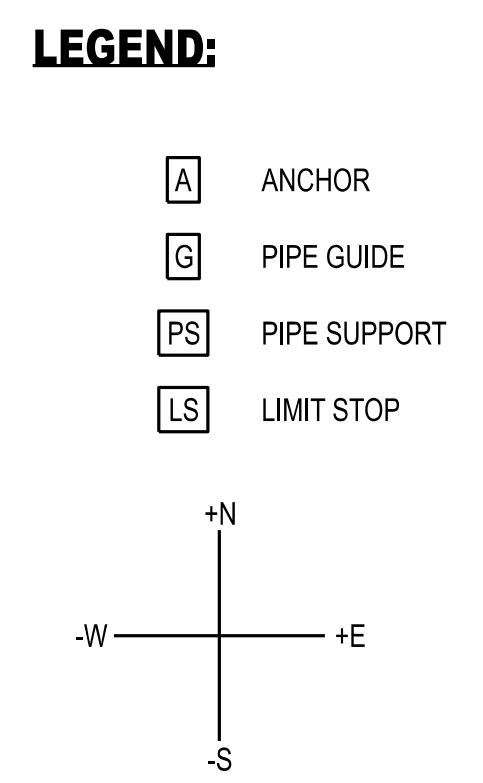
**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**THERMAL EXPANSION PLAN**  
 PC

PROJECT NUMBER  
**CP241001**  
 SHEET  
**MP041**

DESIGNATION	NORTH/SOUTH (IN.)	EAST/WEST (IN.)	UP/DOWN (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)	PIPE DESIGN TEMPERATURE (°F)
G6	-0.482	-0.059	0	6	1.5	200
G7	-0.345	0.125	0	6	1.5	200
G8	-0.726	-0.125	0	6	1.5	200
G9	-0.49	0.125	0	4	1.5	200
G10	-0.255	-0.125	0	4	1.5	200
G11	0	-0.648	0	4	1.5	200
G12	0	-0.195	0	4	1.5	200

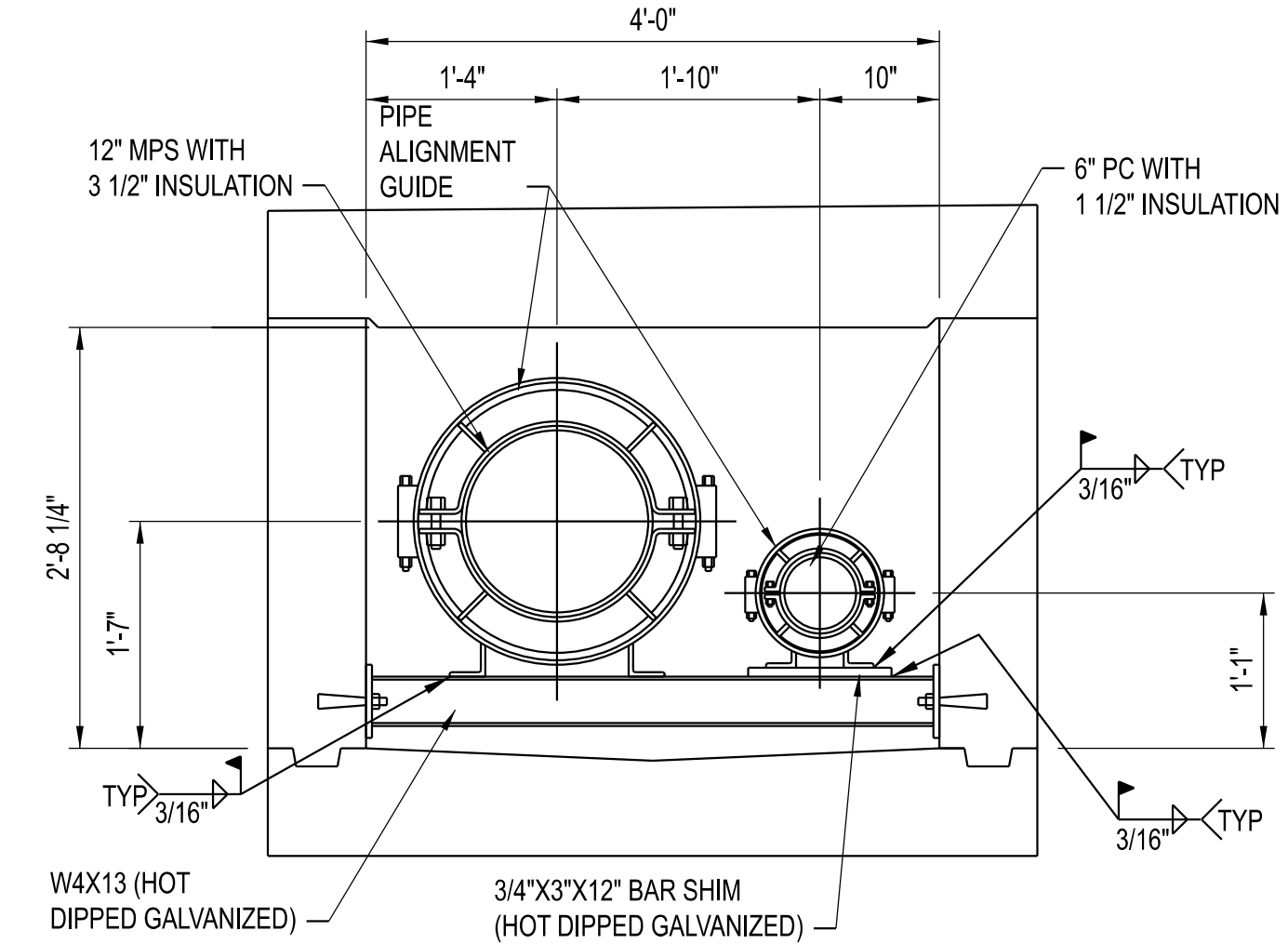
DESIGNATION	NORTH/SOUTH (IN.)	EAST/WEST (IN.)	PIPE OD (IN.)	INSULATION THICKNESS (IN.)	PIPE DESIGN TEMPERATURE (°F)
PS09	-0.413	-0.138	6	1.5	200
PS10	-0.123	0.442	6	1.5	200
PS11	-0.407	-0.007	6	1.5	200
PS12	-1.027	-0.792	6	1.5	200
PS13	-1.681	-1.611	6	1.5	200
PS14	-2.036	-2.102	6	1.5	200
PS15	-2.033	-2.237	6	1.5	200
PS16	-1.315	-1.683	6	1.5	200
PS17	-0.608	0.7	6	1.5	200
PS18	-0.373	-0.172	6	1.5	200
PS19	0	-0.531	4	1.5	200
PS20	0	-0.414	4	1.5	200
PS21	0	-0.312	4	1.5	200
PS22	0	-0.097	4	1.5	200

EXPANSION JOINT DESIGNATION	LOCATION	SIZE	TYPE	ENDS	SERVICE	PRESSURE (PSI)	TEMP (°F)	RATED TRAVEL (in)	MAX OAL (in)	THERMAL EXPANSION (in)
EJ-C1	MANHOLE NO. 468	6"	EXTERNALLY PRESSURIZED BELLOWS	WELD	CONDENSATE	75	200	4	26	0.2
EJ-C2	MANHOLE NO. 468	4"	EXTERNALLY PRESSURIZED BELLOWS	WELD	CONDENSATE	75	200	4	25	0.72

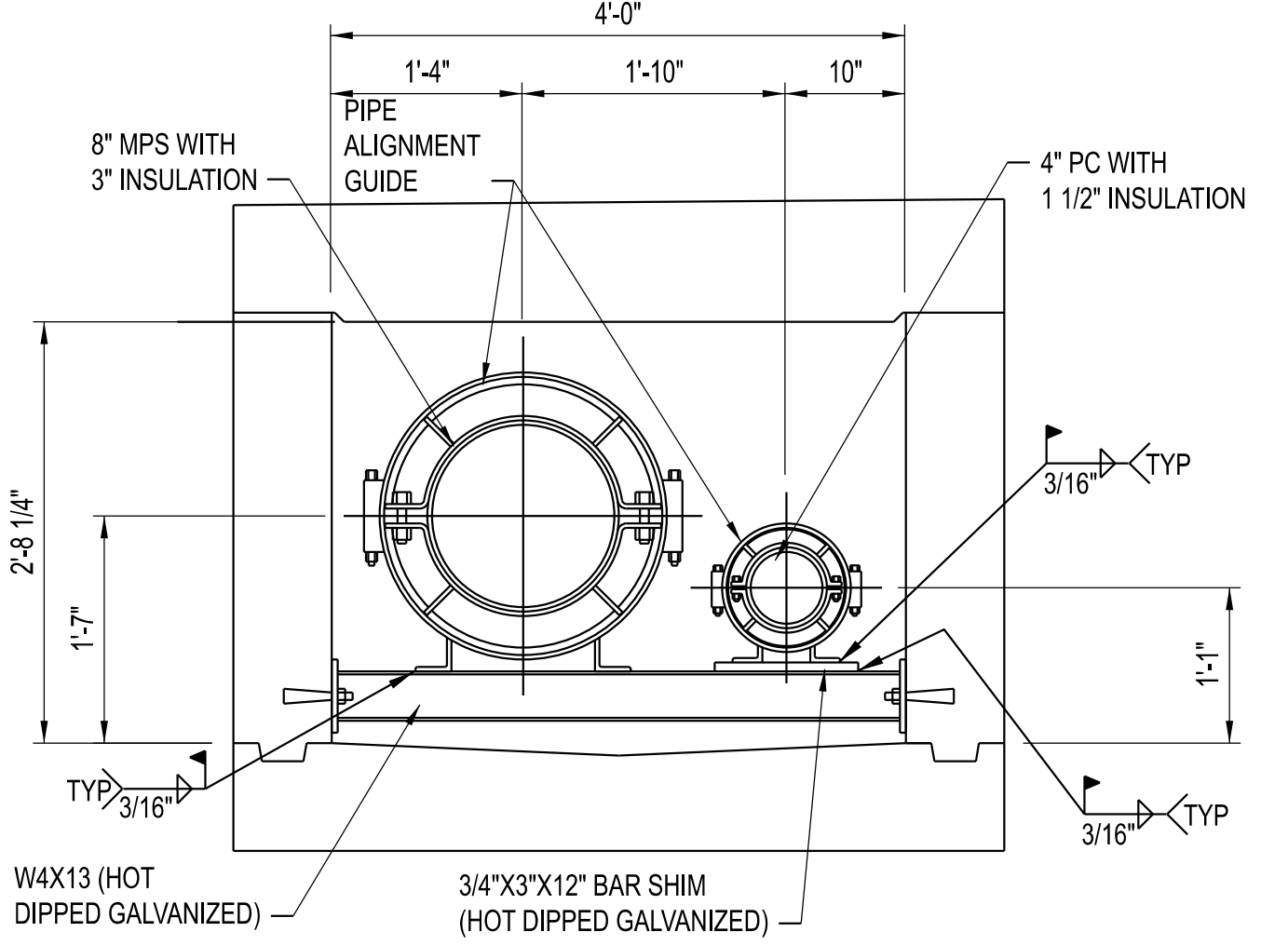




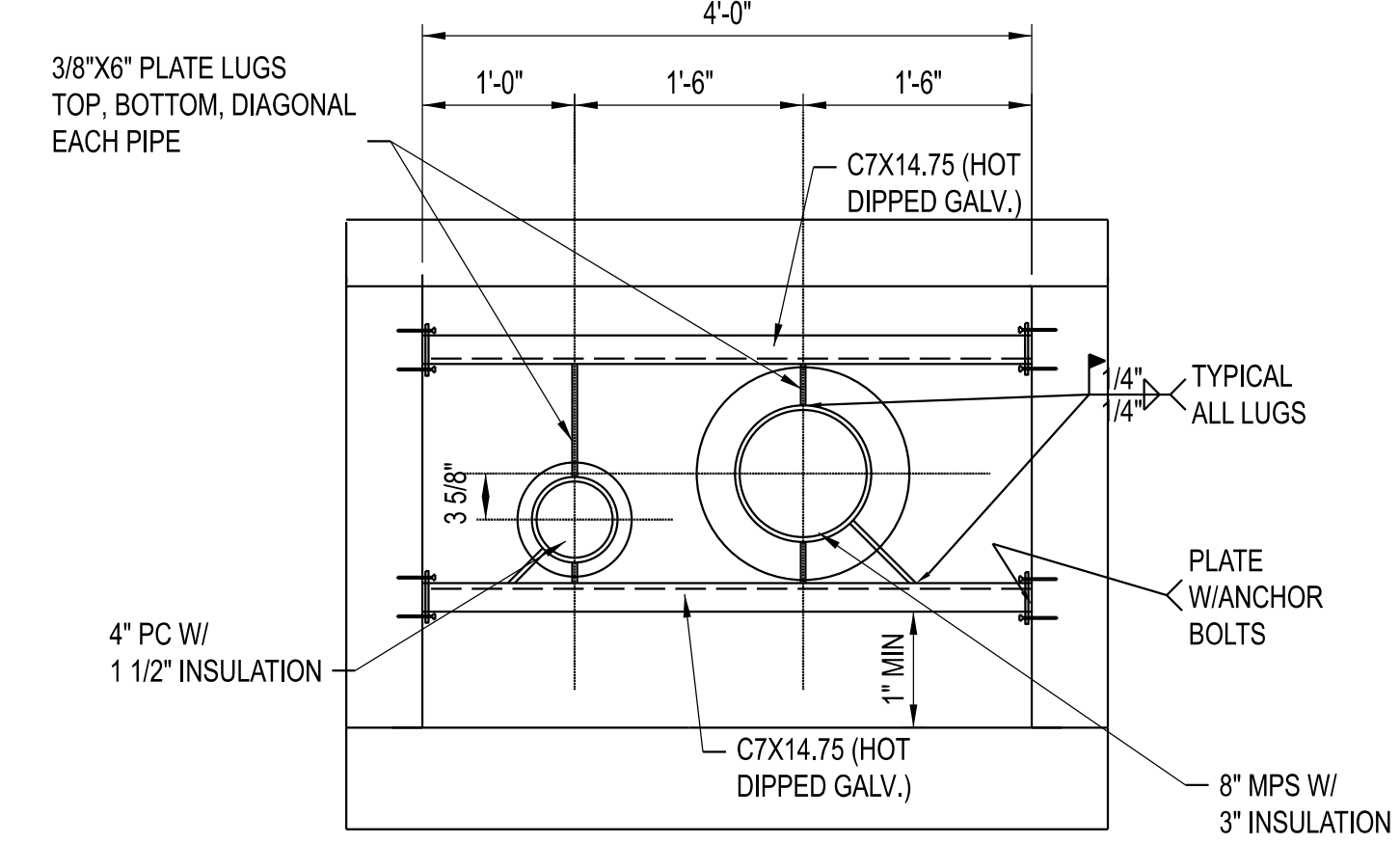
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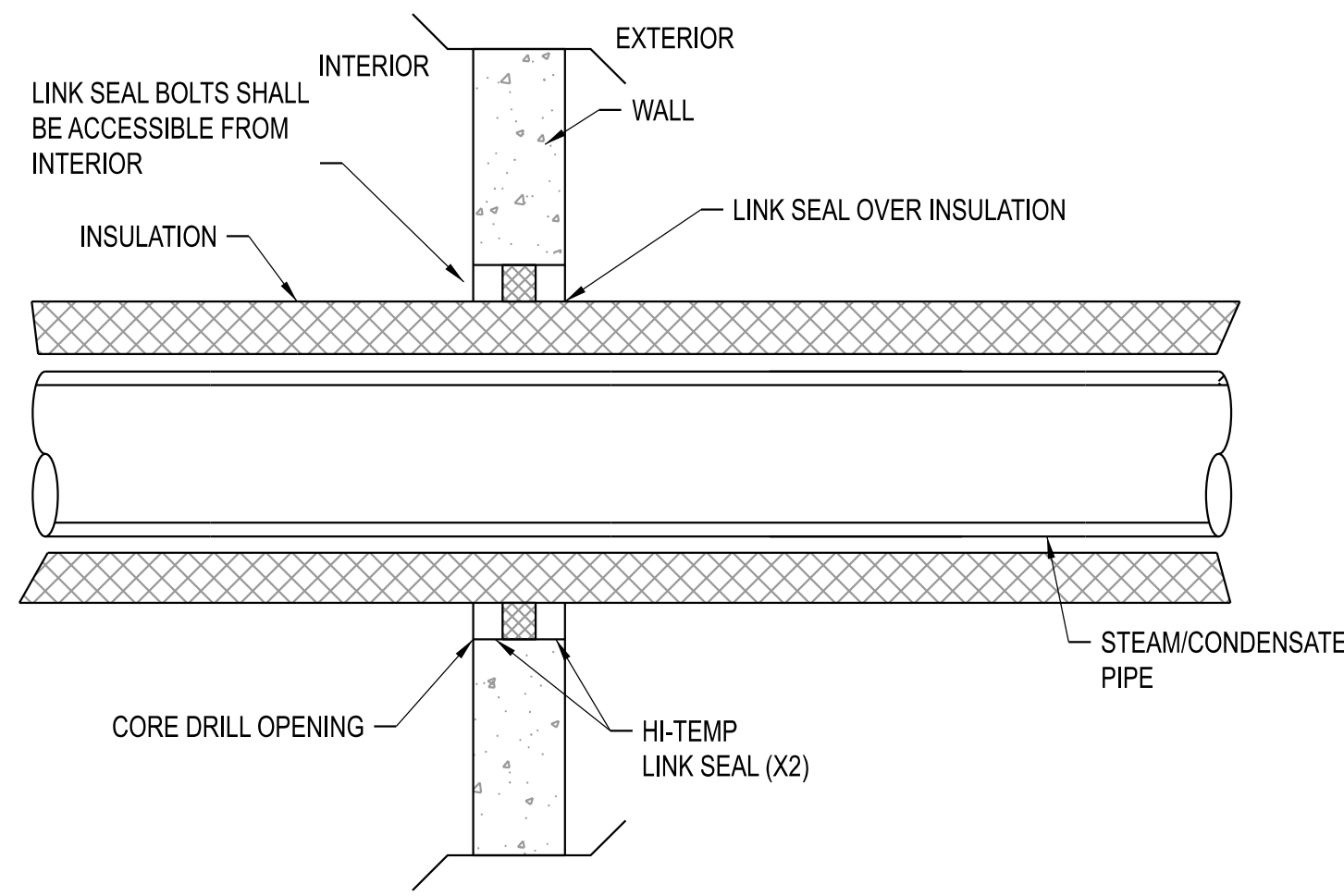
**TYPICAL PIPE GUIDE DETAIL  
12" MPS AND 6" PC**



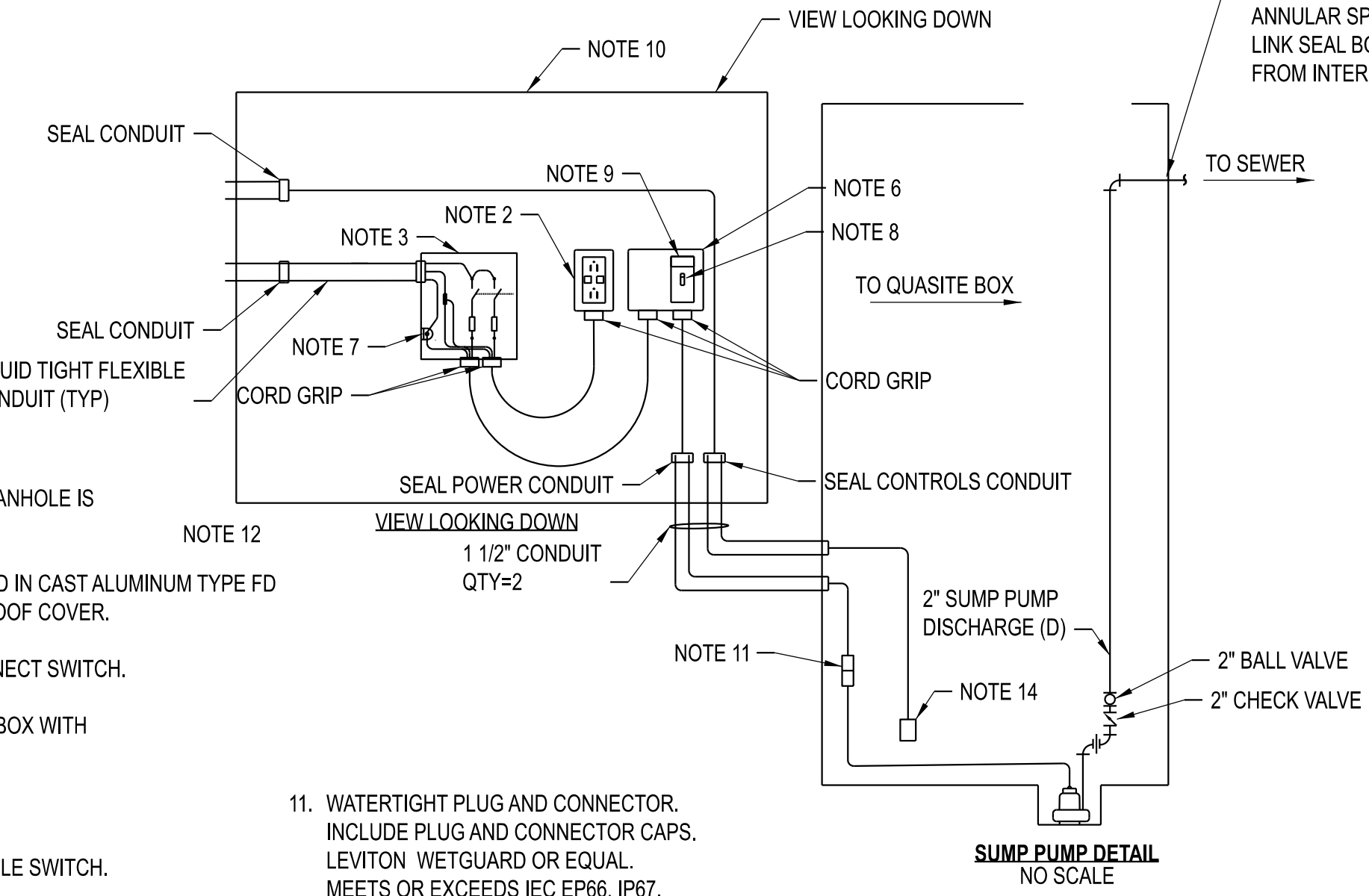
**TYPICAL PIPE GUIDE DETAIL  
8" MPS AND 4" PC**



**TYPICAL CHASE ANCHOR**



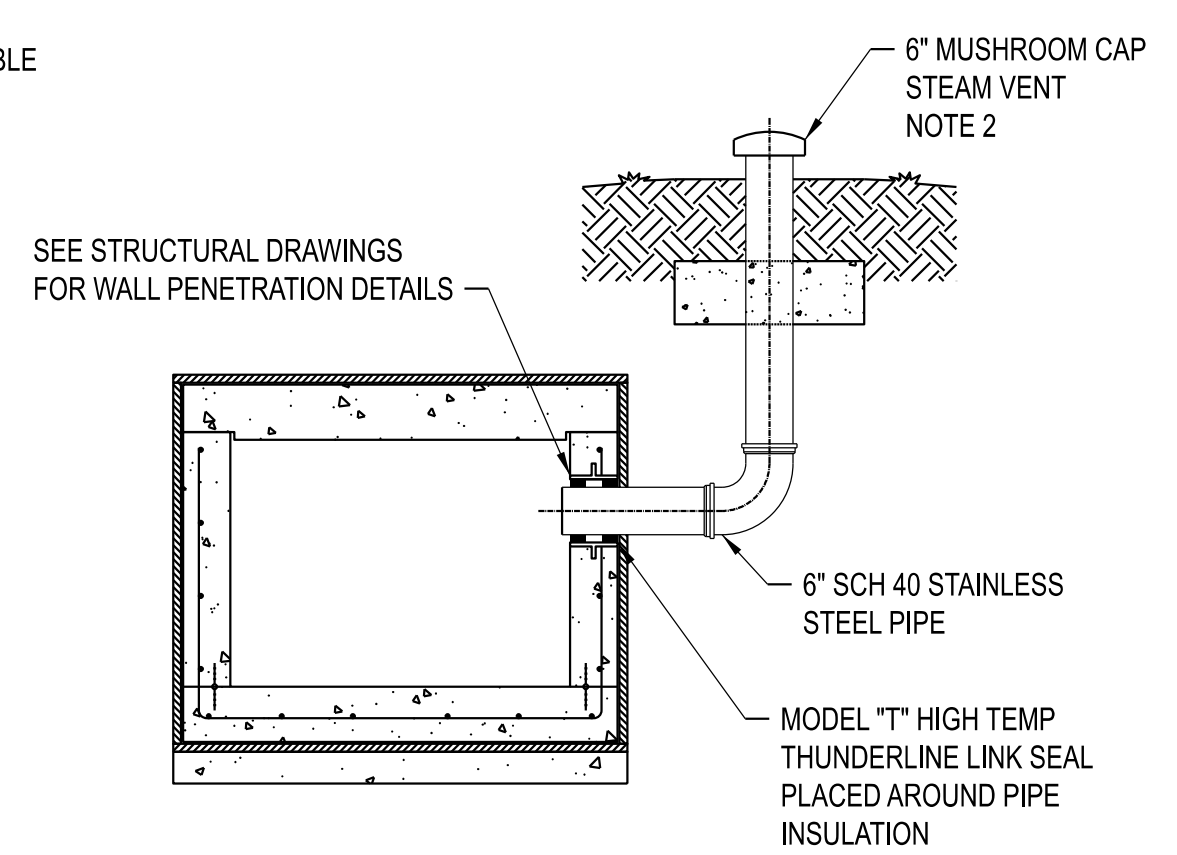
**STEAM AND CONDENSATE PIPE  
WALL PENETRATION**



**SUMP PUMP DETAIL  
NO SCALE**

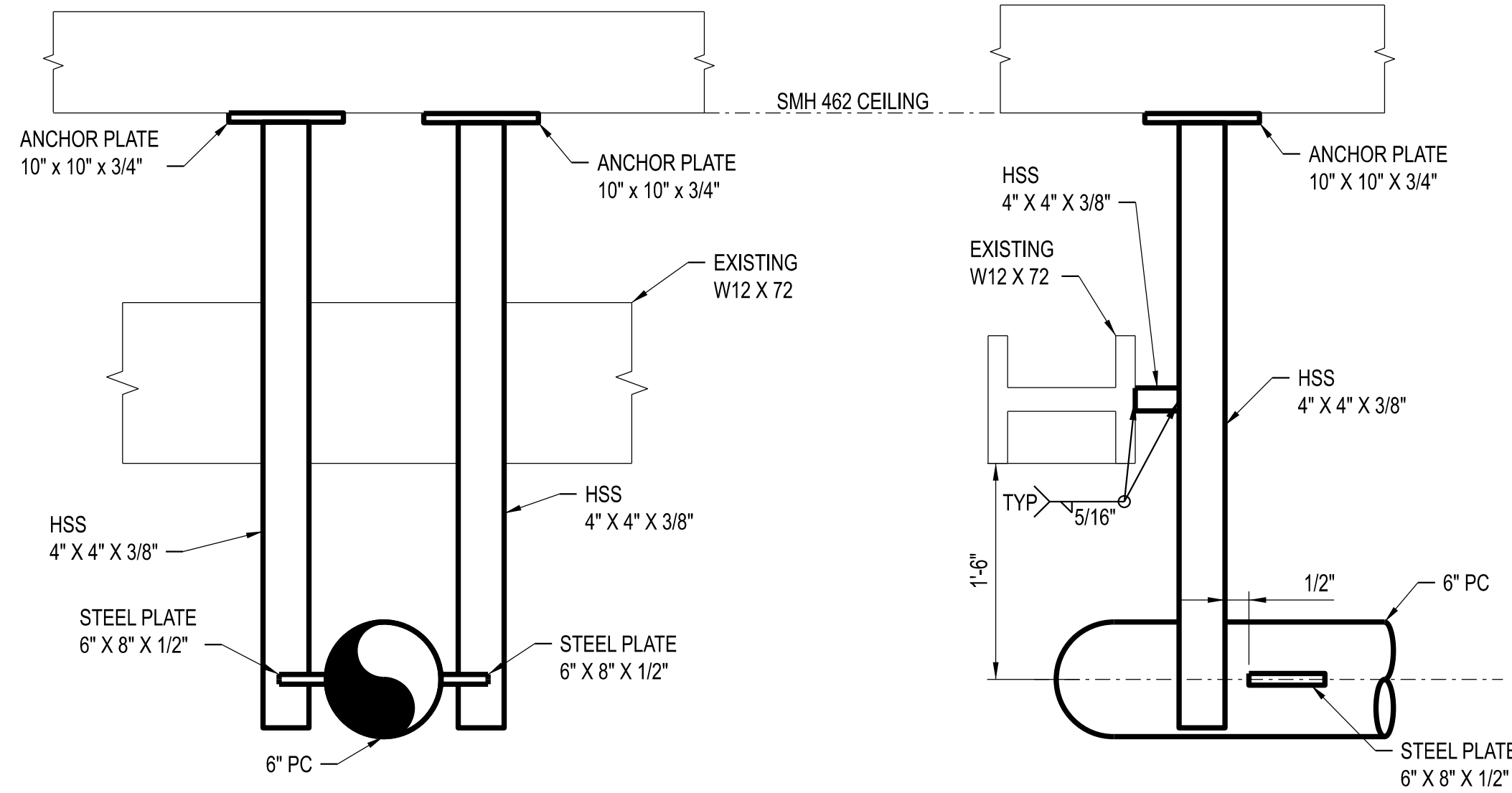
- NOTES:**
- DO NOT INSTALL NEW PUMP UNTIL MANHOLE IS CLEANED OF ALL DIRT AND DEBRIS.
  - CFCI DUPLEX RECEPTACLE MOUNTED IN CAST ALUMINUM TYPE FD SINGLE GANG BOX WITH WEATHERPROOF COVER.
  - 600VAC, 60A, 2-POLE FUSED DISCONNECT SWITCH.
  - CAST ALUMINUM TPE FD TWO GANG BOX WITH WEATHERPROOF COVER.
  - ENCLOSURE GROUND.
  - INDUSTRIAL GRADE, HP RATED TOGGLE SWITCH.
  - NAMEPLATE - "SUMP PUMP"
  - PROVIDE OUTDOOR RATED IN-GROUND HANDHOLE PRECISION PRECAST TB-1627 TRAFFIC BOX ENCLOSURE WITH K&B STEEL 13 1/4" x 24" GALVANIZED FRAME. MINIMUM INTERNAL DIMENSIONS SHALL BE 24"L x 13"W x 18"D. PROVIDE SOLID COVER RATED FOR 4000 PSI CONCRETE. H-20 LOAD RATING. COVER SHALL BE FOR THE ENTIRE OPENING WITH A SLOTTED PICK HOLE AND TWO RECESSED FLAT HEAD GALVANIZED SCREWS WITH ANCHORS. CONCRETE SHALL CONTAIN POLYMESH FIBERS. INSTALL HANDHOLE ENCLOSURE FLUSH WITH GRADE. PROVIDE SEALING COMPOUND INSIDE CONDUITS TO PREVENT AIR TRANSFER BETWEEN VAULT AND HANDHOLE ENCLOSURE.
  - WATERTIGHT PLUG AND CONNECTOR. INCLUDE PLUG AND CONNECTOR CAPS. LEVITON WETGUARD OR EQUAL. MEETS OR EXCEEDS IEC EP66, IP67.
  - ENCLOSURE TO BE SEATED ON 1" CLEAN ROCK. DEPTH OF ROCK TO BE EQUAL TO THE HEIGHT OF THE ENCLOSURE.
  - ITEM 2, 3, AND 6 TO BE MOUNTED HORIZONTAL INSIDE THE GRADE LEVEL ENCLOSURE.
  - PROVIDE MADISON #M5600 HIGH LEVEL FLOAT SWITCH. INSTALL AT ELEVATION SUCH THAT THE BOTTOM OF HIGH LEVEL FLOAT SWITCH IS 1/2" ABOVE THE VAULT FLOOR.

**SUMP PUMP INSTALLATION**



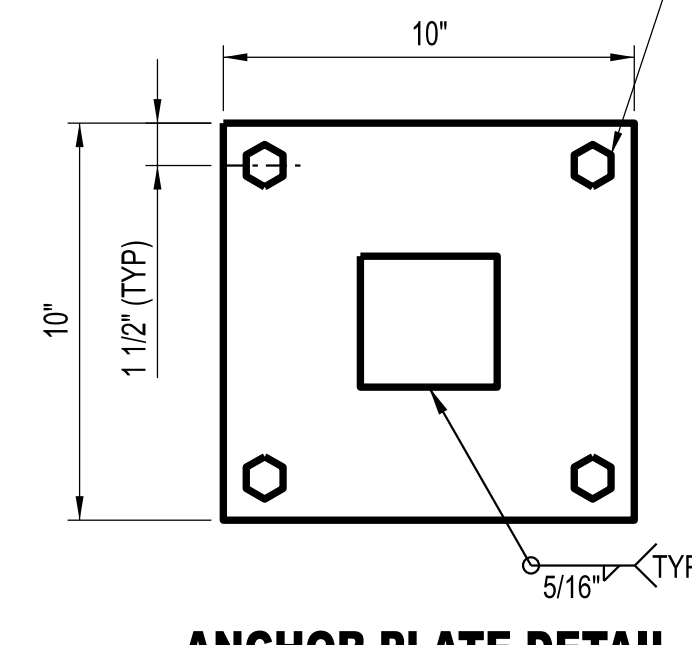
**TYPICAL CHASE VENT**

- NOTES:**
- PIPE VENT SHALL BE MUSHROOM TYPE WITH GALVANIZED CAST IRON BODY, 30 MESH STAINLESS STEEL SCREEN, POSITIVE STOP AND 4" NPT CONNECTION, OIL EQUIPMENT MANUFACTURING CORP. FIG NO. 4028 OR APPROVED EQUAL.
  - PIPE VENT SHALL HAVE A MESH STAINLESS STEEL SCREEN SURROUNDING THE PERIMETER TO PREVENT CONTACT WITH THE HOT VENT. SEE PROTECTION SCREEN ON STEAM TRAP IN SMH 462.

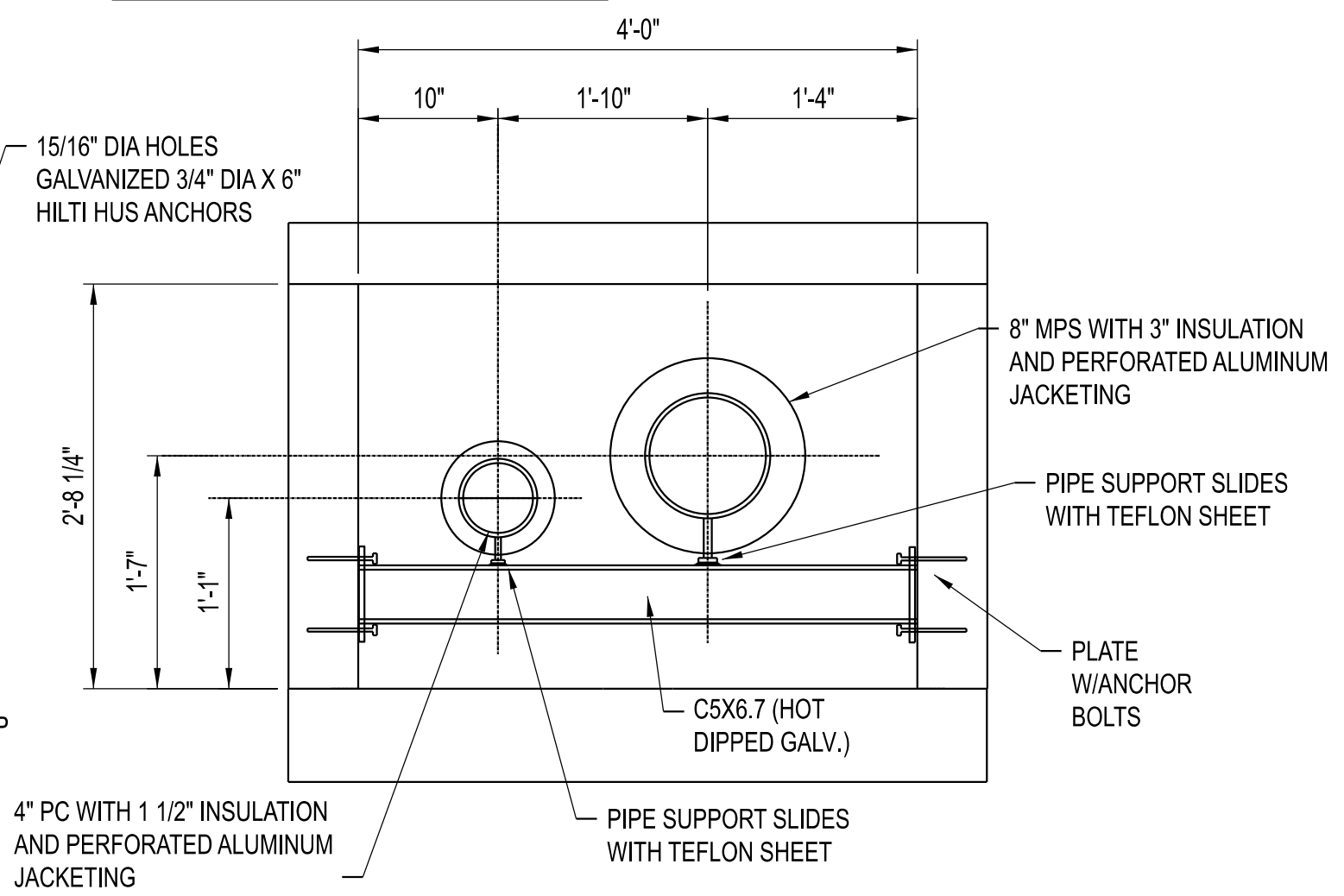


**LIMIT STOP DETAIL**

- NOTES:**
- ALL COMPONENTS SHALL BE HOT DIPPED GALVANIZED.

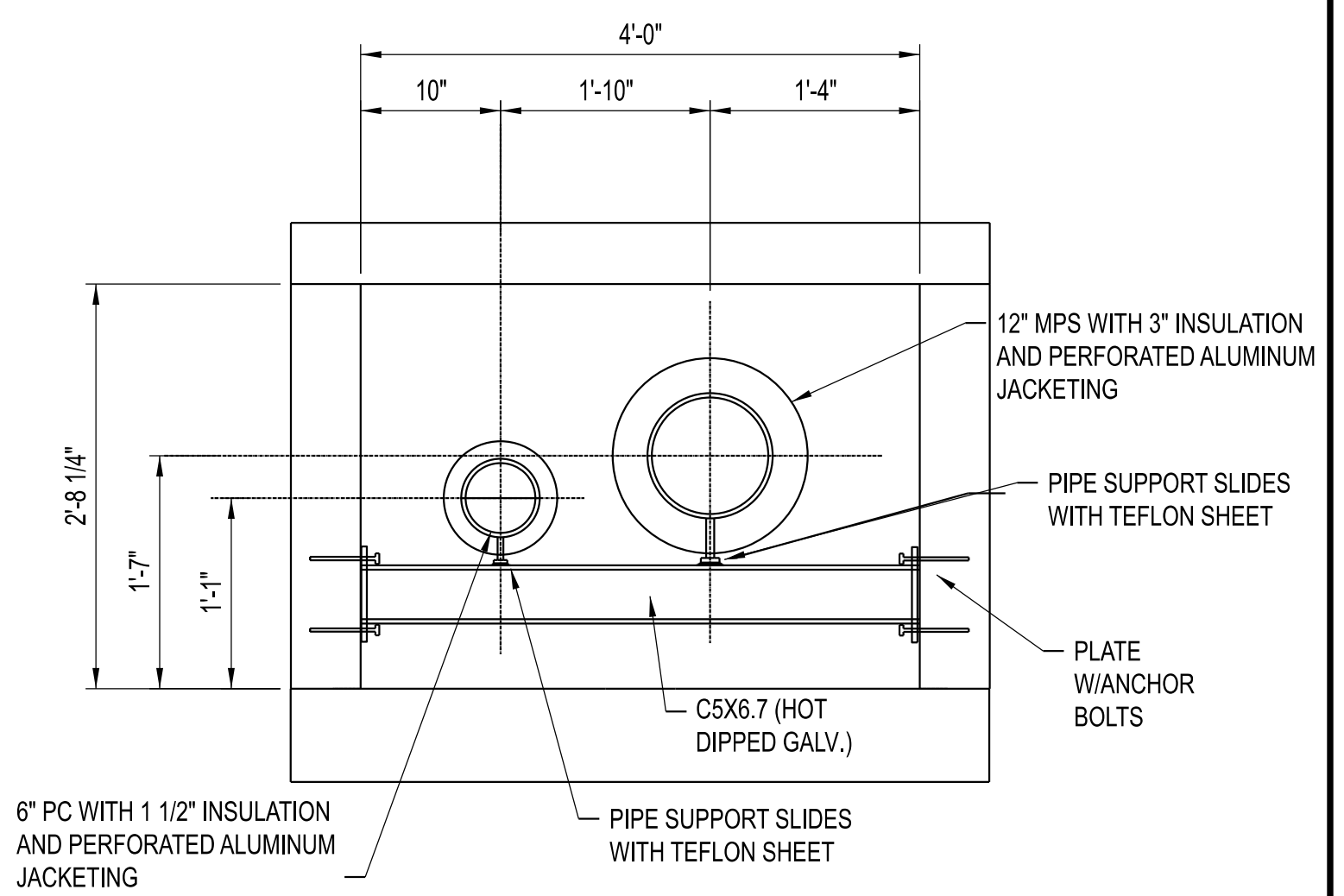


**ANCHOR PLATE DETAIL**



**PIPE SUPPORT DETAIL  
8" MPS AND 4" PC**

- NOTES:**
- PIPE SADDLES INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.



**PIPE SUPPORT DETAIL  
12" MPS AND 6" PC**

- NOTES:**
- PIPE SADDLES INSTALLATION IN COLD CONDITION SHALL BE LOCATED OFF CENTER OPPOSITE THE DIRECTION OF EXPANSION SUCH THAT SADDLE BEARS ON SUPPORT IN BOTH HOT AND COLD POSITIONS.



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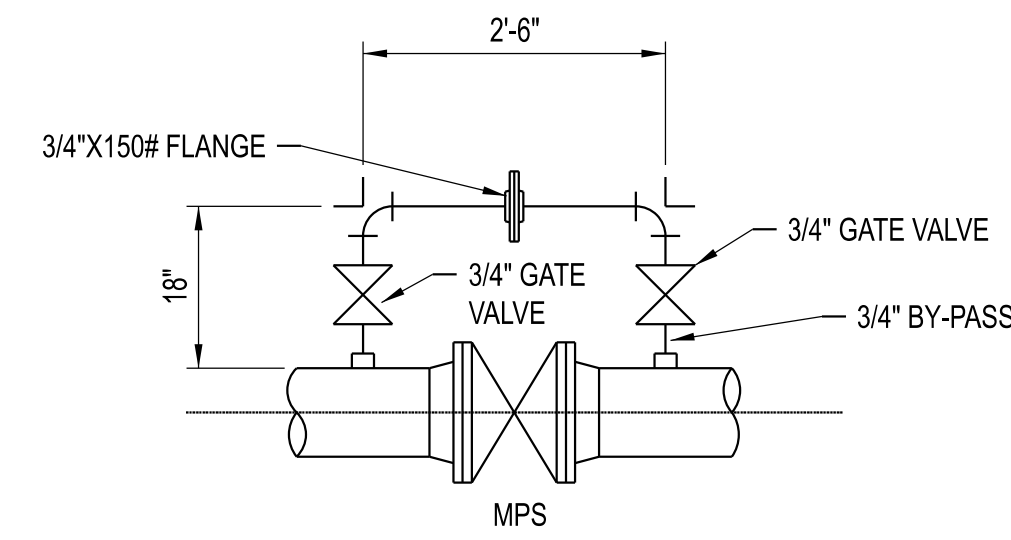
**CLYDESDALE HALL  
BOONE COUNTY, MISSOURI 65211  
COLUMBIA, BOONE COUNTY, MISSOURI 65211  
MECHANICAL DETAILS  
SHEET 1**

PROJECT NUMBER  
**CP241001**

SHEET  
**MP050**

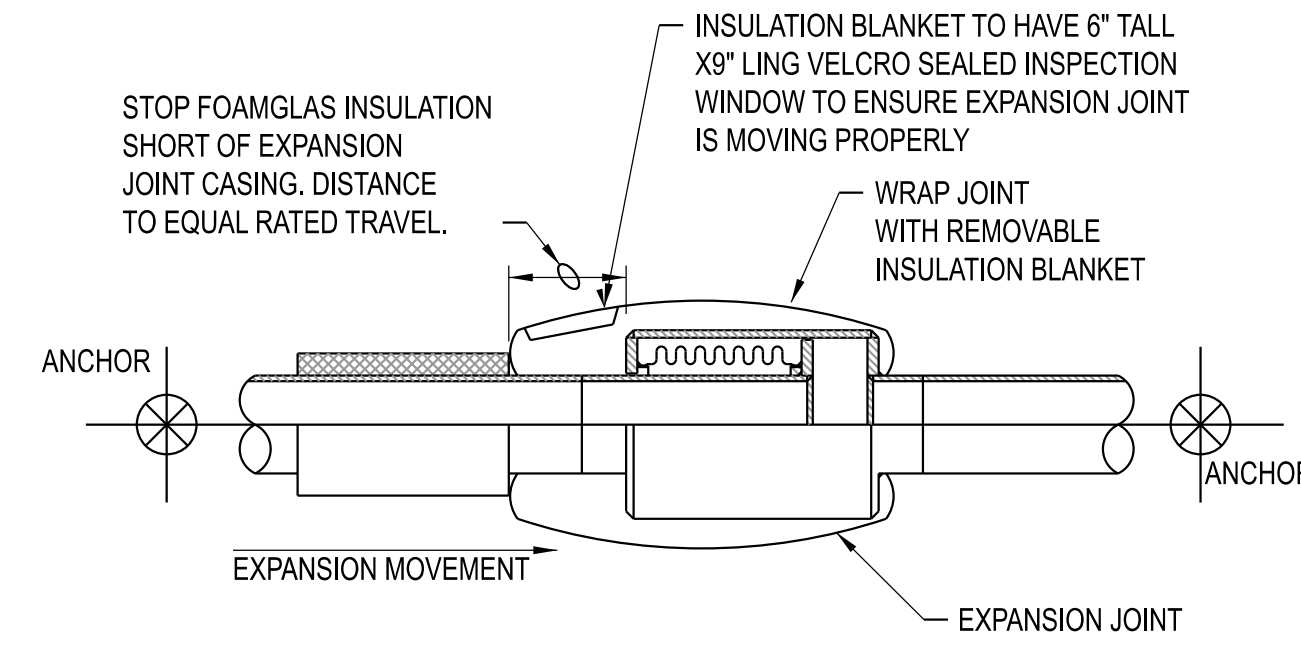


1:50  
0  
50  
100  
150  
3"  
0  
1"  
1-1/2"  
0  
1"  
0  
5  
4  
3  
2  
1  
1/2"  
0  
3/4"  
0  
6  
1  
2  
3  
4  
3/8"  
0  
1/4"  
0  
2  
4  
6  
8  
10  
12  
1/8"



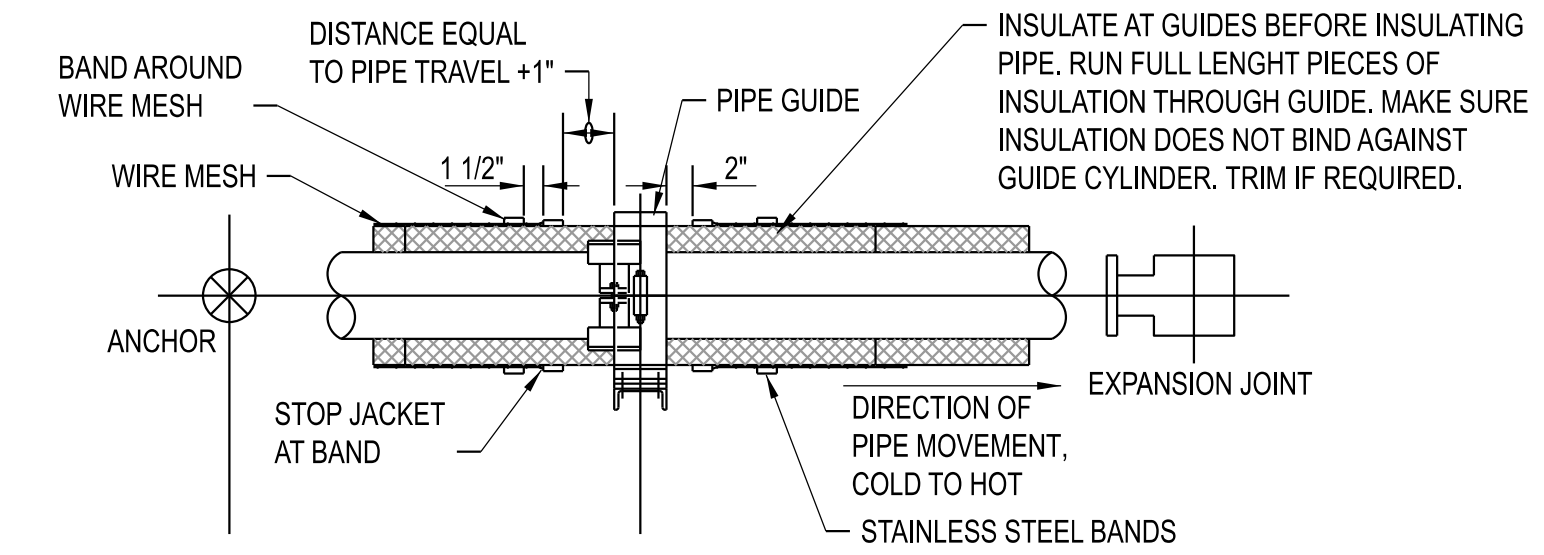
PROVIDE 3/4" BY-PASS WITH GATE VALVES AROUND MPS VALVES 6" AND LARGER. FIELD LOCATE BY-PASS FOR GOOD ACCESS. USE SCHEDULE 40 PIPE AND 3000# FORGED STEEL SOCKET WELD FITTINGS.

**TYPICAL VALVE BY-PASS**



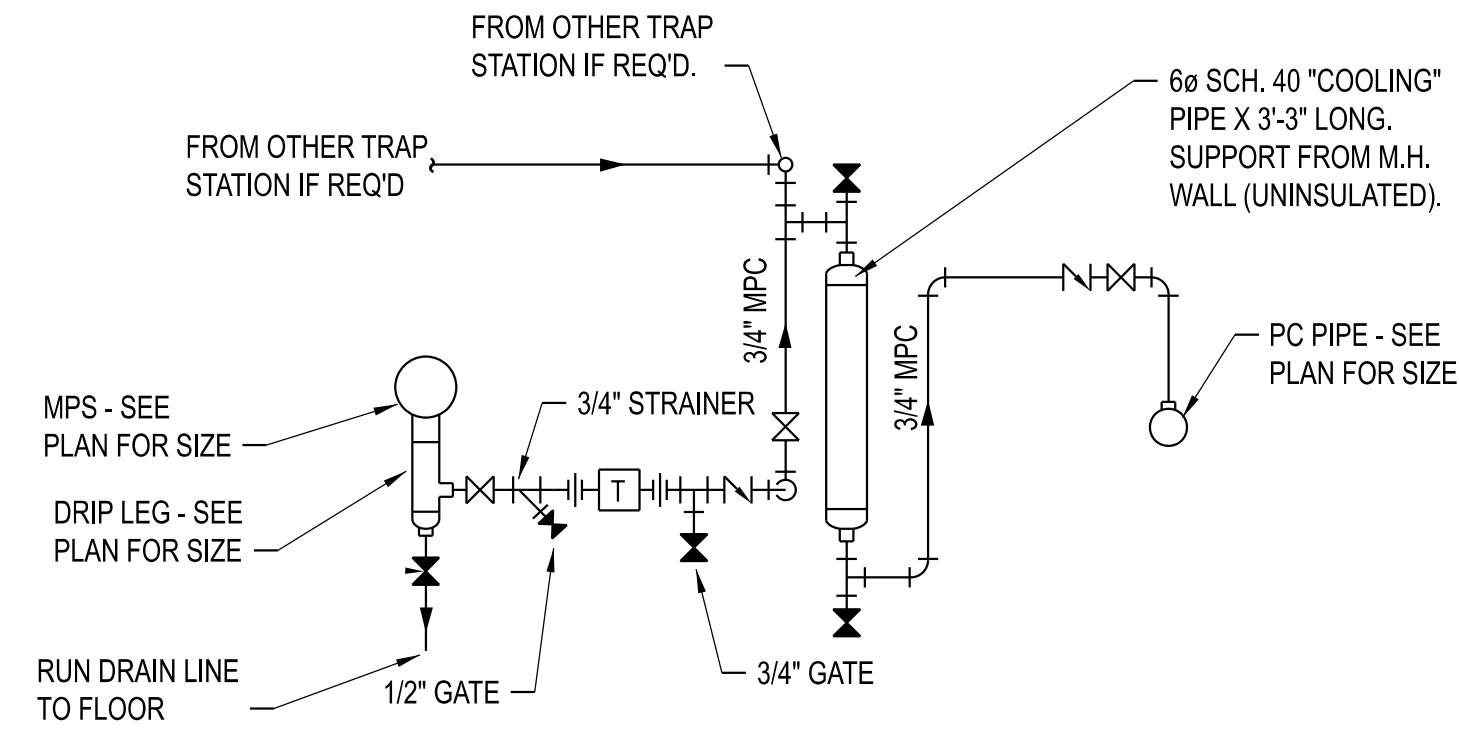
**TYPICAL EXPANSION JOINT INSULATION DETAIL**

SCALE: NONE



**TYPICAL PIPE GUIDE INSULATION DETAIL**

SCALE: NONE

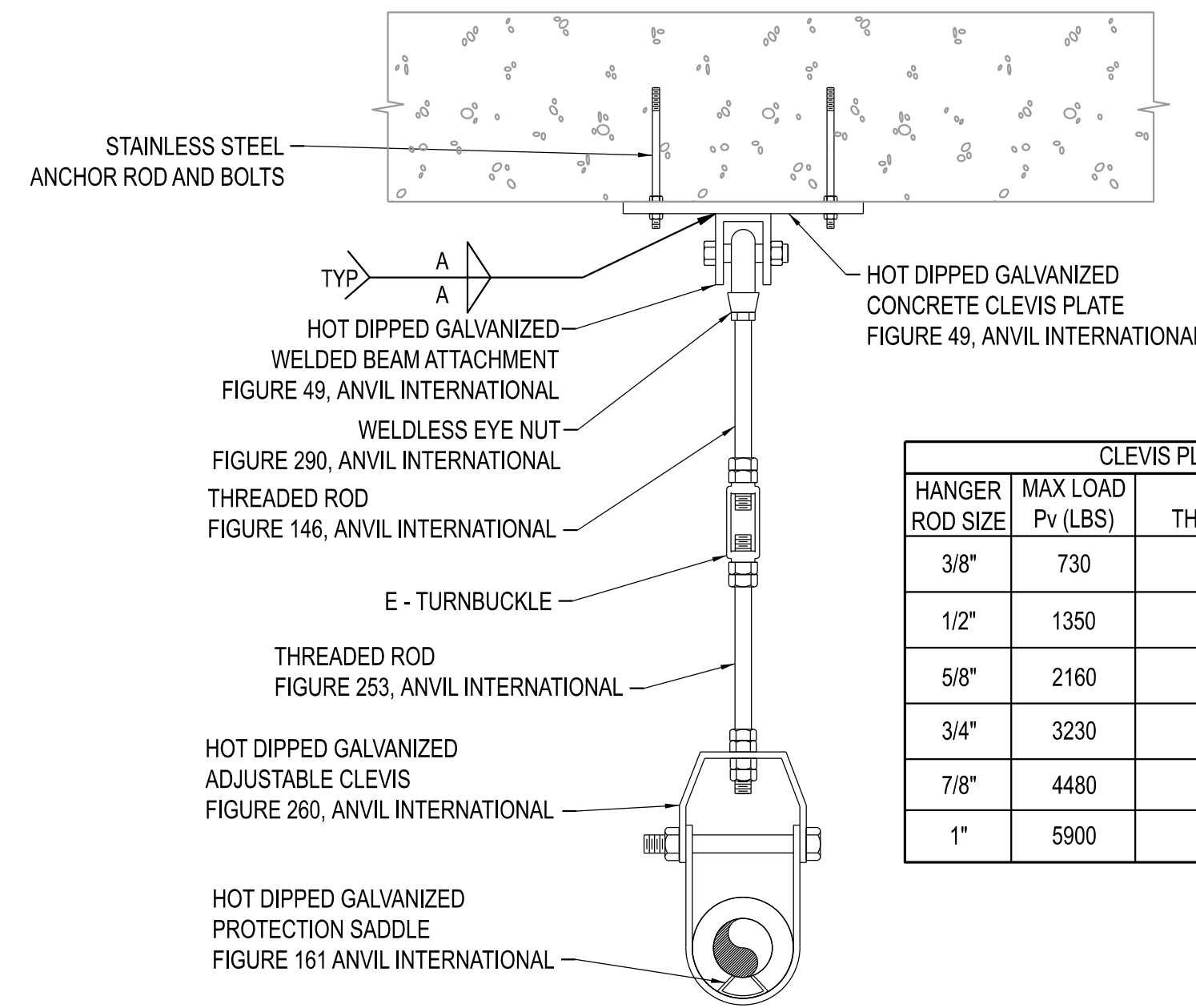


NOTES:

1. MOUNT COOLING PIPE FROM INSIDE WALL OF MANHOLE AS SHOWN IN PLAN VIEW.
2. TRAPS AND VALVING SHALL BE EASILY ACCESSIBLE FOR MAINTENANCE.
3. COOLING PIPE SHALL HAVE GALVANIZED EXPANDED METAL CAGE FOR PERSONNEL PROTECTION.

**TYPICAL TRAP AND COOLING PIPE SCHEMATIC**

SCALE: NONE

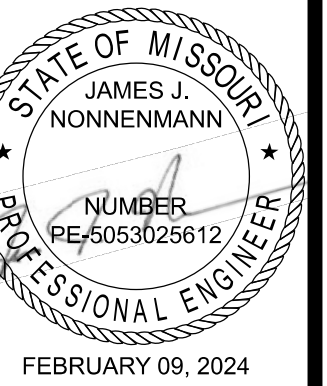


NOTES:

1. ALL COMPONENTS SHALL BE HDG (HOT DIPPED GALVANIZED).

**CLEVIS HANGER DETAIL**

CLEVIS PLATE SCHEDULE			
HANGER ROD SIZE	MAX LOAD P <sub>v</sub> (LBS)	ANCHOR ROD THREAD DIA. (EACH)	ANCHOR ROD LENGTH
3/8"	730	5/8"	6 1/2"
1/2"	1350	5/8"	6 1/2"
5/8"	2160	5/8"	8"
3/4"	3230	3/4"	8 1/2"
7/8"	4480	3/4"	8 1/2"
1"	5900	7/8"	9 3/4"



FEBRUARY 09, 2024

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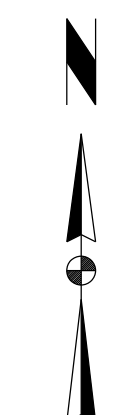
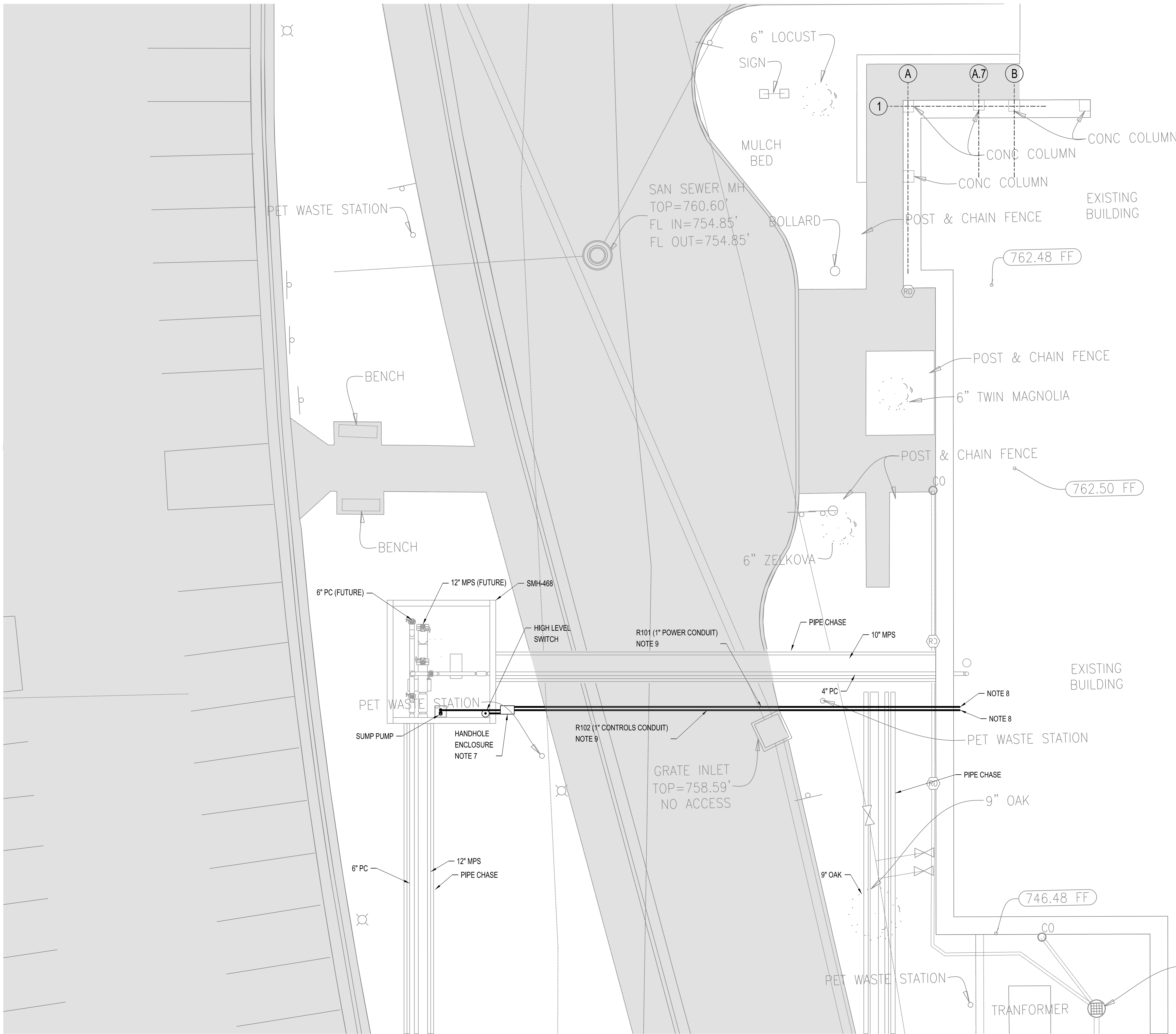
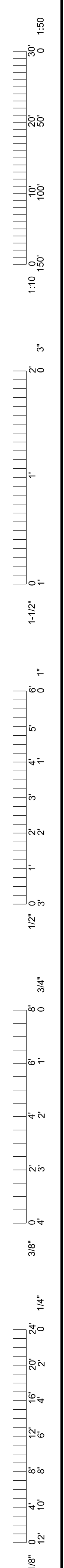
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**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**MECHANICAL DETAILS**  
**SHEET 2**

PROJECT NUMBER  
**CP241001**  
SHEET  
**MP051**





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1. ALL WORK ON THIS SHEET BY [C-01] UNLESS OTHERWISE INDICATED.
  2. RELOCATE EXST SMALL BORE CONDUIT AND PIPING AS REQUIRED FOR NEW CONSTRUCTION, AT NO ADDITIONAL COST TO OWNER.
  3. PROTECT ALL EQUIPMENT, PIPING, VALVES, TUBING, AND ACCESSORIES TO REMAIN FROM DAMAGE DURING DEMOLITION AND CONSTRUCTION ACTIVITIES. PIPING INSULATION (WHERE IT EXISTS) MAY BE REMOVED AS REQUIRED FOR NEW TIE POINT CONNECTIONS, BUT SHALL BE REPLACED IN KIND WHEN WORK IS COMPLETED.
  4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO DEMOLITION AND CONSTRUCTION ACTIVITIES.
  5. FOR THE TIE POINT SCHEDULE, SEE SHEET DM050.
  6. COORDINATE CONNECTIONS TO EXISTING SERVICES WITH OWNER'S REPRESENTATIVE.
  7. PROVIDE OUTDOOR RATED IN-GROUND HANDHOLE PRECISION PRECAST TB-1627 TRAFFIC BOX ENCLOSURE WITH K&B STEEL 13 1/4" x 24" GALVANIZED FRAME. MINIMUM INTERNAL DIMENSIONS SHALL BE 24"L x 13"W x 18"D. PROVIDE SOLID COVER RATED FOR 4000 PSI CONCRETE. H-20 LOAD RATING. COVER SHALL BE FOR THE ENTIRE OPENING WITH A SLOTTED PICK HOLE AND TWO RECESSED FLAT HEAD GALVANIZED SCREWS WITH ANCHORS. CONCRETE SHALL CONTAIN POLYMESH FIBERS. INSTALL HANDHOLE ENCLOSURE FLUSH WITH GRADE. PROVIDE SEALING COMPOUND INSIDE CONDUITS TO PREVENT AIR TRANSFER BETWEEN VAULT AND HANDHOLE ENCLOSURE. REFER TO SUMP PUMP INSTALLATION DETAIL ON SHEET EP051.
  8. CONTRACTOR SHALL CORE DRILL HOLE IN WALL AND SEAL ANNULAR SPACE WITH LINK SEAL. LINK SEAL BOLTS SHALL BE ACCESSIBLE FROM INTERIOR OF ROOM A109. CONTRACTOR SHALL FIELD ROUTE CONDUITS FROM WHERE THEY PENETRATE THE ROOM A109 WALL TO THE POWER AND CONTROL PANELS. SEAL INSIDE OF CONDUIT WHERE IT ENTERS BUILDING WITH 3M 3000WT SEALANT. REFER TO DRAWING EP002 FOR DETAIL ON EQUIPMENT INSIDE ROOM A109.
  9. PROVIDE SCHEDULE 80 PVC CONDUIT FOR DIRECT BURIED CONDUITS. CONDUITS SHALL BE BURIED AT A DEPTH OF NOT LESS THAN 2'-0" BELOW GRADE AND SHALL SLOPE DOWN 8" PER 100' TOWARD VAULT SMH-468.

- LEGEND:**
- [C-01] [C-01] CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
  - ⊙ INSTRUMENT LOCATION

**ELECTRICAL - SITE PLAN**  
SCALE: 1/8" = 1'-0"



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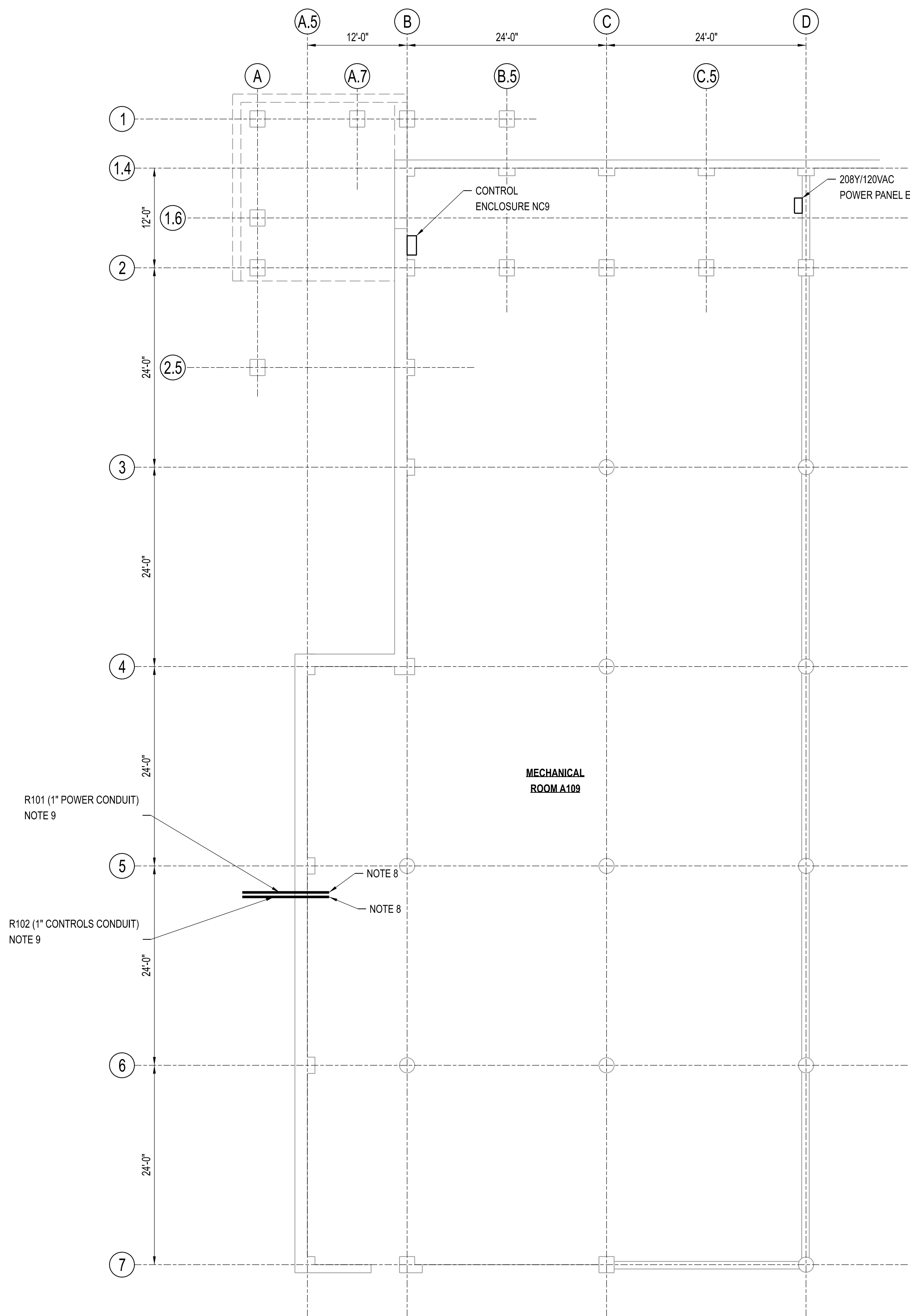
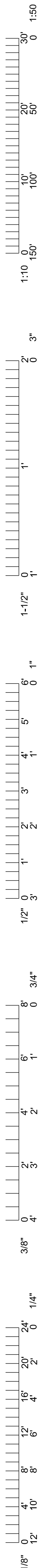
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**CLYDESDALE HALL**  
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**ELECTRICAL**  
**SITE PLAN**

PROJECT NUMBER  
**CP241001**

SHEET  
**EP001**





**ELECTRICAL PLAN - FIRST FLOOR - MECHANICAL ROOM A109**  
SCALE: 1/8" = 1'-0"

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9. PROVIDE SCHEDULE 80 PVC CONDUIT FOR DIRECT BURIED CONDUITS. CONDUITS SHALL BE BURIED AT A DEPTH OF NOT LESS THAN 2'-0" BELOW GRADE AND SHALL SLOPE DOWN 8" PER 100' TOWARD VAULT SMH-468. REFER TO DRAWING EP001 FOR DETAIL ON CONDUIT ROUTING TO VAULT.

**LEGEND:**

C-01 | C-01 CONTRACT IDENTIFICATION:  
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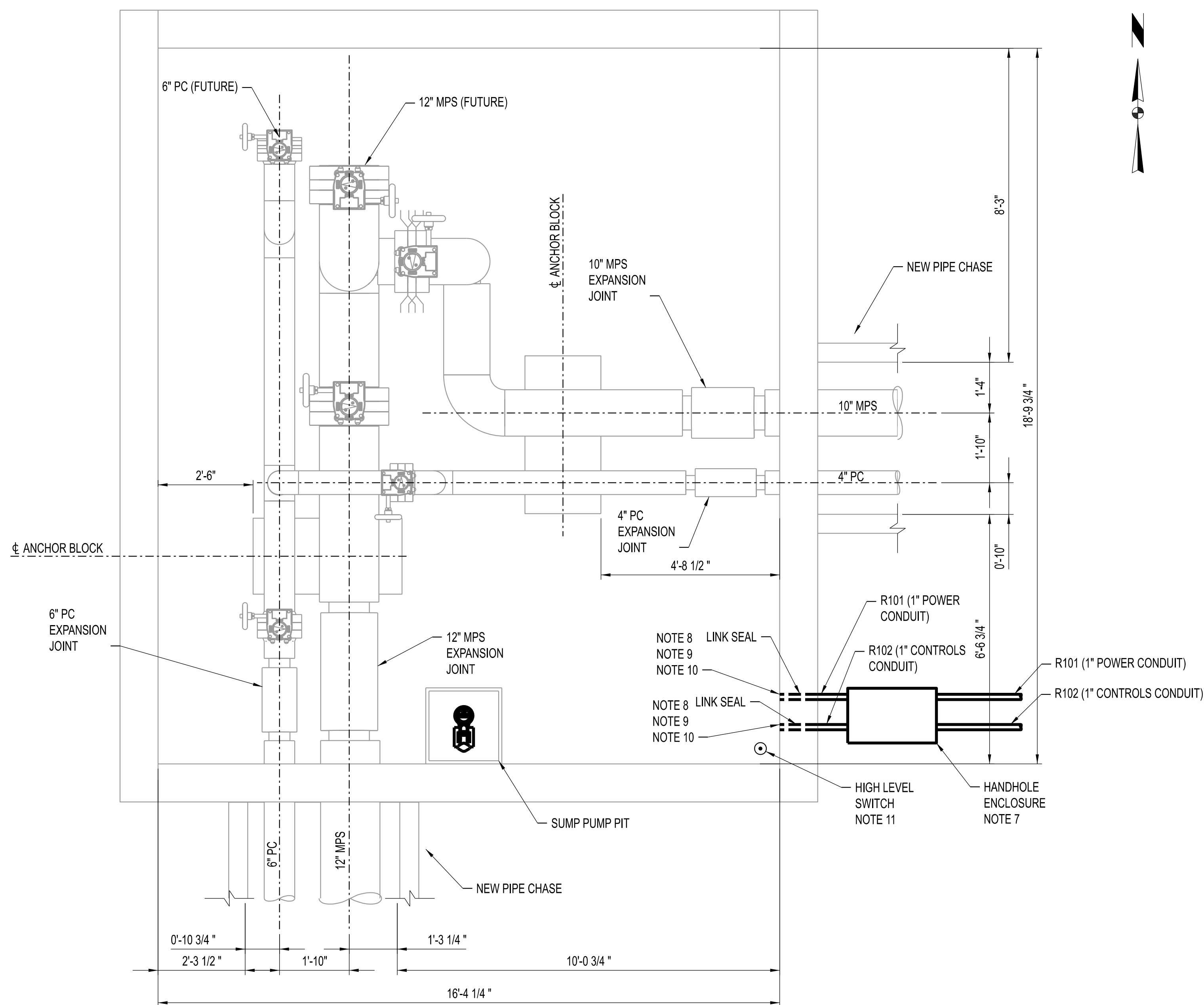
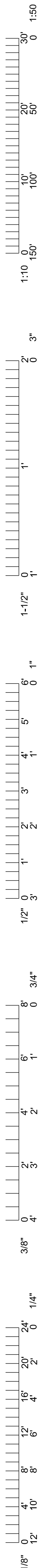
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**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**ELECTRICAL**  
**FIRST FLOOR PLAN - MECHANICAL ROOM A109**

PROJECT NUMBER  
CP241001

SHEET  
EP002





**SMH-468**  
SCALE: 1/2" = 1'-0"

**NOTES:**

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8. PROVIDE VERTICALLY-ORIENTED RGS T-FITTING TO ENDS OF SCHEDULE 80 PVC CONDUIT WHERE THEY ENTER THROUGH THE VAULT WALL. PROVIDE RGS CONDUIT DRAIN FITTING ON BOTTOM OF T-FITTING. PROVIDE FIELD-ROUTED RGS CONDUIT BETWEEN THE TOP OF THE T-FITTING AND SUMP PUMP OR LEVEL SWITCH.
9. SEAL INSIDE OF CONDUIT AT CONDUIT BODY ENTRY WITH 3M 3000WT SEALANT.
10. PROVIDE SS U-CHANNEL SUPPORTS WITH SS CONDUIT CLAMPS WITHIN 3" OF EACH CONDUIT TERMINATION AND AT 9' INTERVALS IN BETWEEN.
11. PROVIDE MADISON #M5600 HIGH LEVEL FLOAT SWITCH. INSTALL AT ELEVATION SUCH THAT THE BOTTOM OF HIGH LEVEL FLOAT SWITCH IS 1/2" ABOVE THE VAULT FLOOR.

**LEGEND:**

- [C-01] [C-01] CONTRACT IDENTIFICATION: NUMBER AT LEFT INDICATES CONTRACT FURNISHING, NUMBER AT RIGHT INDICATES CONTRACT INSTALLING.
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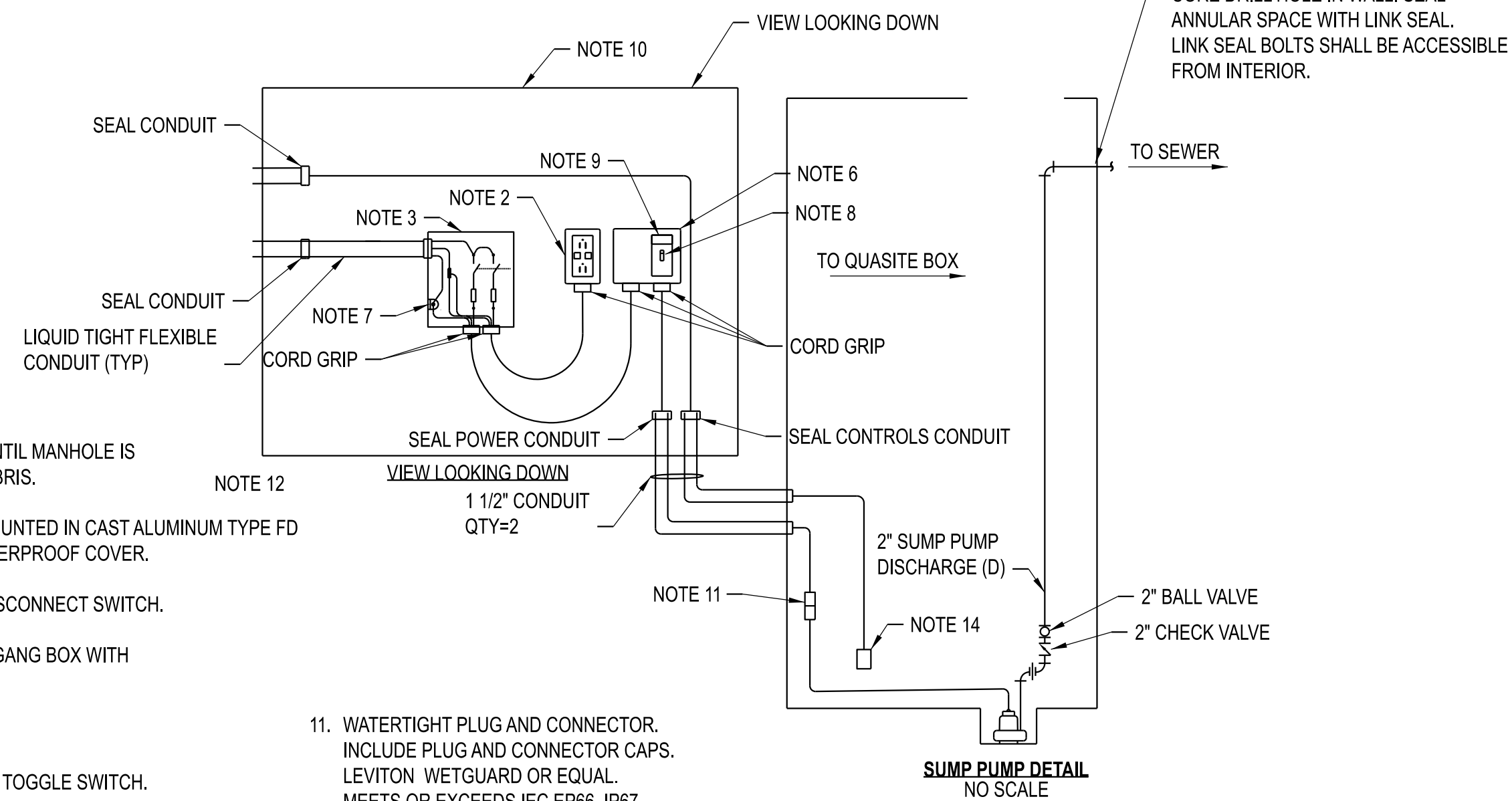
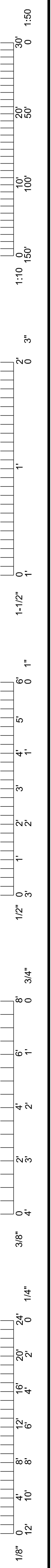


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**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**ELECTRICAL PLAN**  
**SMH-468**

PROJECT NUMBER  
**CP241001**

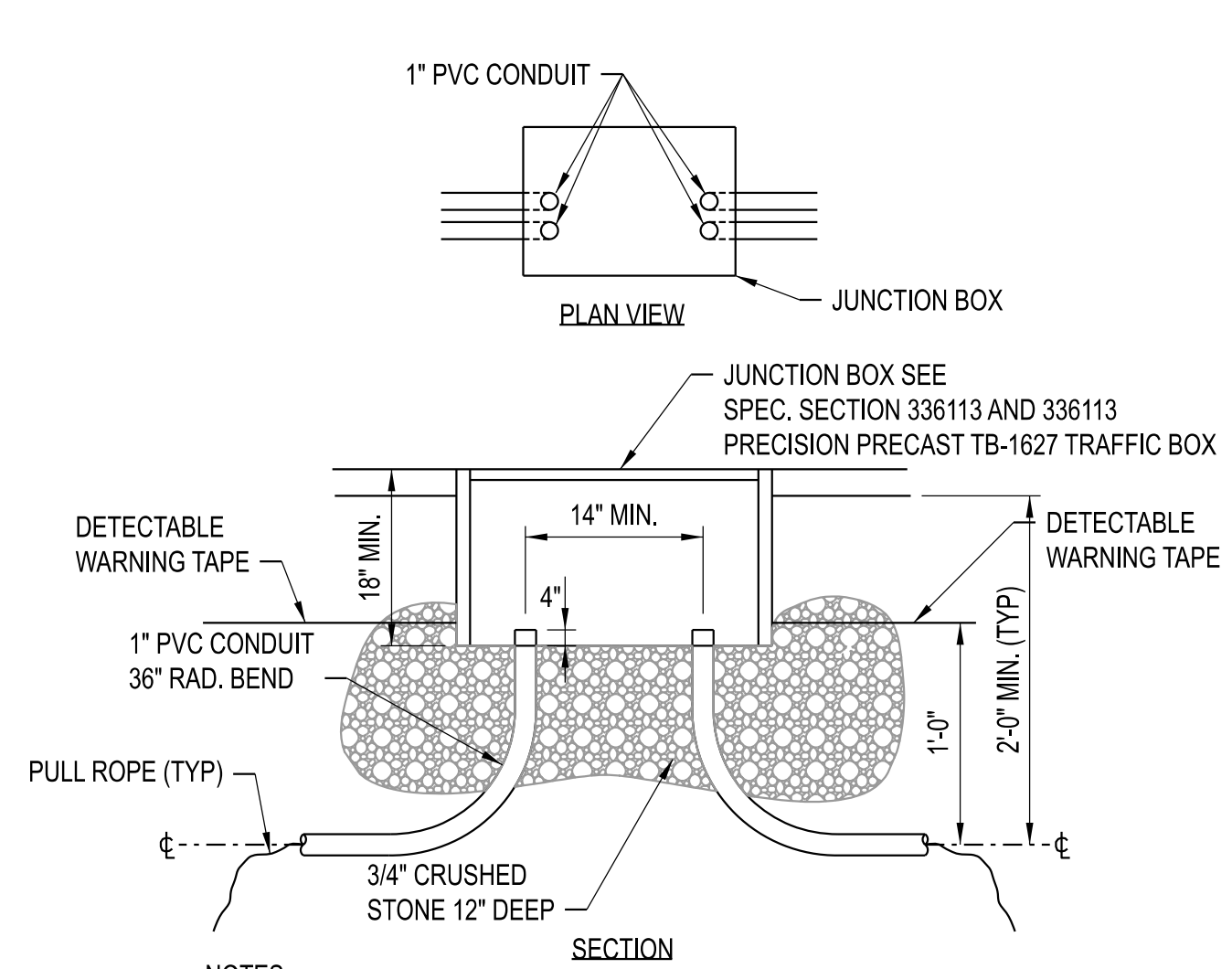
SHEET  
**EP011**





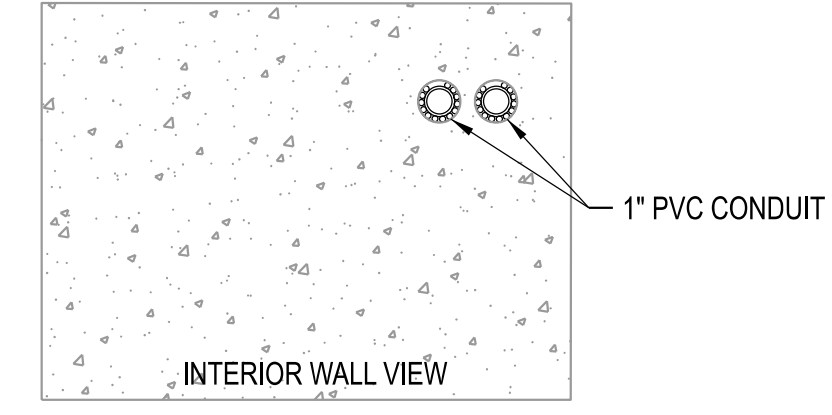
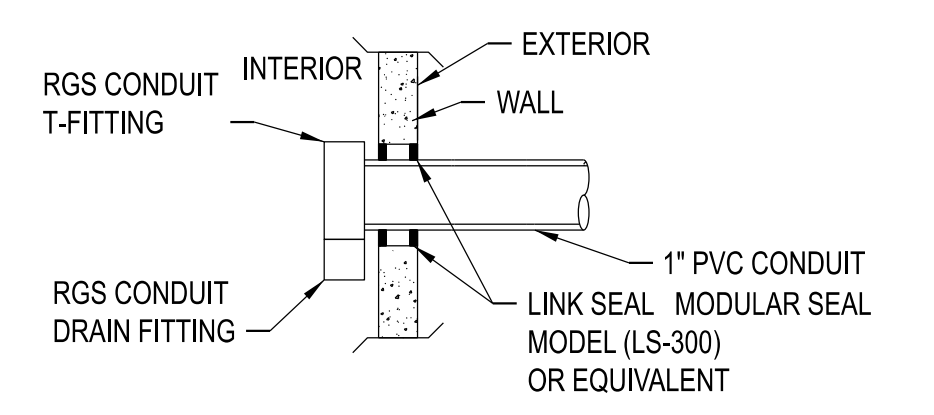
- NOTES:**
- DO NOT INSTALL NEW PUMP UNTIL MANHOLE IS CLEANED OF ALL DIRT AND DEBRIS.
  - GFCI DUPLEX RECEPTACLE MOUNTED IN CAST ALUMINUM TYPE FD SINGLE GANG BOX WITH WEATERPROOF COVER.
  - 600VAC, 60A, 2-POLE FUSED DISCONNECT SWITCH.
  - CAST ALUMINUM TPE FD TWO GANG BOX WITH WEATHERPROOF COVER.
  - ENCLOSURE GROUND.
  - INDUSTRIAL GRADE, HP RATED TOGGLE SWITCH.
  - NAMEPLATE - "SUMP PUMP"
  - PROVIDE OUTDOOR RATED IN-GROUND HANDHOLE PRECISION PRECAST TB-1627 TRAFFIC BOX ENCLOSURE WITH K&B STEEL 13 1/4" x 24" GALVANIZED FRAME. MINIMUM INTERNAL DIMENSIONS SHALL BE 24"L x 13"W x 18"D. PROVIDE SOLID COVER RATED FOR 4000 PSI CONCRETE. H-20 LOAD RATING. COVER SHALL BE FOR THE ENTIRE OPENING WITH A SLOTTED PICK HOLE AND TWO RECESSED FLAT HEAD GALVANIZED SCREWS WITH ANCHORS. CONCRETE SHALL CONTAIN POLYMESH FIBERS. INSTALL HANDHOLE ENCLOSURE FLUSH WITH GRADE. PROVIDE SEALING COMPOUND INSIDE CONDUITS TO PREVENT AIR TRANSFER BETWEEN VAULT AND HANDHOLE ENCLOSURE.
  - WATERTIGHT PLUG AND CONNECTOR. INCLUDE PLUG AND CONNECTOR CAPS. LEVITON WETGUARD OR EQUAL. MEETS OR EXCEEDS IEC EP66, IP67.
  - ENCLOSURE TO BE SEATED ON 1" CLEAN ROCK. DEPTH OF ROCK TO BE EQUAL TO THE HEIGHT OF THE ENCLOSURE.
  - ITEM 2, 3, AND 6 TO BE MOUNTED HORIZONTAL INSIDE THE GRADE LEVEL ENCLOSURE.
  - PROVIDE MADISON #M5600 HIGH LEVEL FLOAT SWITCH. INSTALL AT ELEVATION SUCH THAT THE BOTTOM OF HIGH LEVEL FLOAT SWITCH IS 1/2" ABOVE THE VAULT FLOOR.

**SUMP PUMP INSTALLATION**  
SCALE: NONE



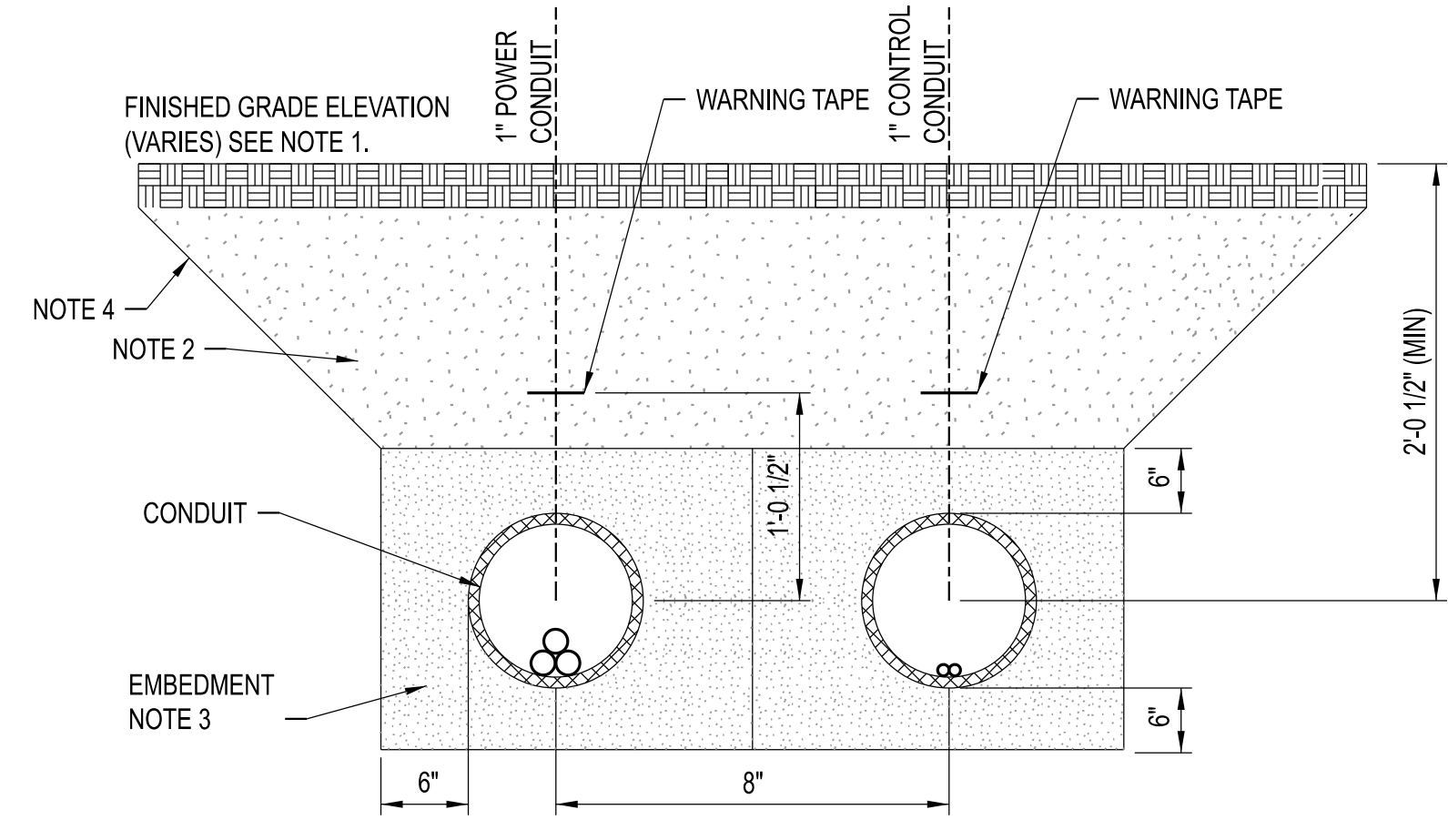
- NOTES:**
- LOCATE JUNCTION BOXES AS FOLLOWS:  
A. AT EVERY TEE IN THE CONDUIT  
B. AFTER 270 DEGREES OF BEND IN THE CONDUIT.

**JUNCTION BOX**  
SCALE: NONE



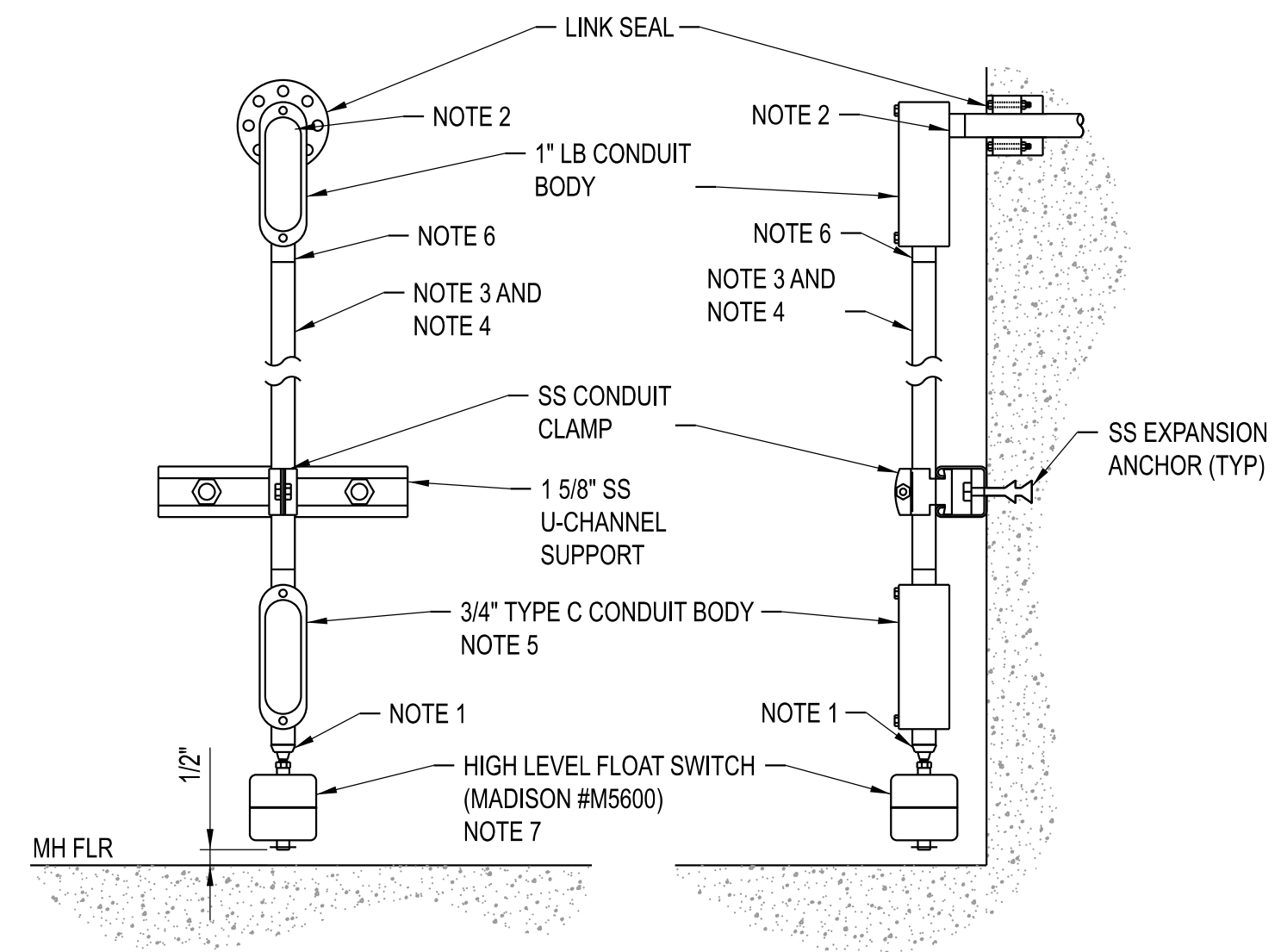
- NOTES:**
- MUST MAINTAIN A BENDING RADIUS OF NO LESS THAN 8" FOR INSTALLED CABLE.

**WALL PENETRATION FOR SUMP PUMP CONDUITS**  
SCALE: NONE



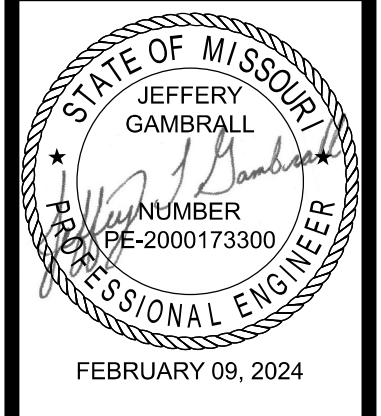
- NOTES:**
- SEE SURFACE RESTORATION PLANS AND SPECIFICATIONS FOR FINISHED GRADE (PAVING, TOPSOIL, ETC.)
  - PROVIDE BACK FILL FROM SUITABLE NATIVE MATERIAL. COMPACTION REQUIREMENTS SHALL BE AS SPECIFIED.
  - ELECTRICAL CONDUIT SHALL BE BACKFILLED WITH CLEAN SAND 6" IN ALL DIRECTIONS.

**DIRECT BURIED CONDUIT INSTALLATION DETAIL**  
SCALE: NONE



- NOTES:**
- PROVIDE ALUMINUM OR SS LIQUIDTIGHT FLEXIBLE CORD & POWER CABLE CONNECTOR.
  - SEAL INSIDE OF CONDUIT AT ENCLOSURE/CONDUIT BODY. ENTRY WITH 3M 3000WT SEALANT.
  - 3/4" CONDUIT, CABLE C101 (2C-#14AWG).
  - PROVIDE SS U-CHANNEL SUPPORTS WITH SS CONDUIT CLAMPS WITHIN 3' OF EACH CONDUIT TERMINATION AND AT 9' INTERVALS IN BETWEEN.
  - MAINTAIN FULL LENGTH OF FACTORY WIRING ON FLOAT SWITCH TO ALLOW SLACK FOR REPLACING IN THE FUTURE AND PROVIDE WATERPROOF SPLICE CONNECTIONS USING SCREW ON SPRING CONNECTORS AND 3M NO. 3570G-N OR EQUAL EPOXY RESIN. PROVIDE SHOP DWG SUBMITTAL FOR EPOXY RESIN PACKS.
  - PROVIDE ALUMINUM REDUCING BUSHING(S) AS REQ'D.
  - PROVIDE SHOP DRAWING SUBMITTAL FOR FLOAT SWITCH.

**STEAM MANHOLE LEVEL SWITCH MTG DETAIL**  
SCALE: NONE



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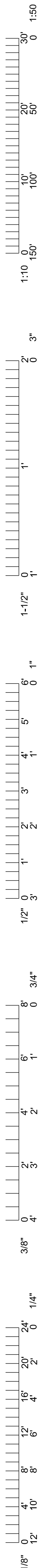


**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**ELECTRICAL DETAILS**  
**SHEET 1**

PROJECT NUMBER  
**CP241001**

SHEET  
**EP051**





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**PRVN CONSULTANTS, INC.**  
 1617 Second Ave., Ste. 110  
 Rock Island, IL 61201  
 MISSOURI CERTIFICATE OF  
 AUTHORITY ENGINEERING  
 - 2023077605

**CLYDESDALE HALL**  
**COLUMBIA, BOONE COUNTY, MISSOURI 65211**  
**ELECTRICAL CABLE SCHEDULE**

PROJECT NUMBER  
**CP241001**  
 SHEET  
**EP061**

Cable Description						Cable Schedule			
Revision	Cable Number	Sets #	Phase	Qty.	Ground Conductor	From	To	Raceway	Comments
A	P101	1	10 AWG	2	10 AWG	CLYDESDALE HALL MECHANICAL ROOM A109 120/208V PANEL CKT 26	SMH-468 HANDHOLE ENCLOSURE 2-POLE FUSED DISCONNECT SWITCH	R101	600VAC, 60A, 2-POLE FUSED DISCONNECT SWITCH.
A	P102	1	10 AWG	2	10 AWG	SMH-468 HANDHOLE ENCLSOURE 2-POLE FUSED DISCONNECT SWITCH	SMH-468 HANDHOLE ENCLOSURE RECEPTACLE		GFCI RECEPTACLE.
A	P103	1	10 AWG	2	10 AWG	SMH-468 HANDHOLE ENCLSOURE 2-POLE FUSED DISCONNECT SWITCH	SMH-468 HANDHOLE ENCLOSURE SUMP PUMP TOGGLE SWITCH		
A	P104	1	10 AWG	2	10 AWG	SMH-468 HANDHOLE ENCLSOURE SUMP PUMP TOGGLE SWITCH	SMH-468 SUMP PUMP CONNECTOR		
A	C101	1	2C-14 AWG	1		SMH-468 HIGH LEVEL SWITCH	CLYDESDALE HALL NC9 BAS CONTROL PANEL	R102	HI LEVEL ALARM STATUS.

**CABLE SCHEDULE**

**LEGEND:**

C-01 C-01 CONTRACT IDENTIFICATION:  
 NUMBER AT LEFT INDICATES CONTRACT  
 FURNISHING, NUMBER AT RIGHT INDICATES  
 CONTRACT INSTALLING.