BID SET

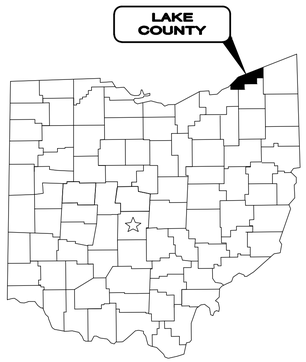
THE CITY OF PAINESVILLE

WATER TREATMENT PLANT
CHLORINE BUILDING

9565 HEADLANDS ROAD, MENTOR, OH

LAKE COUNTY, OHIO

OCTOBER 2024

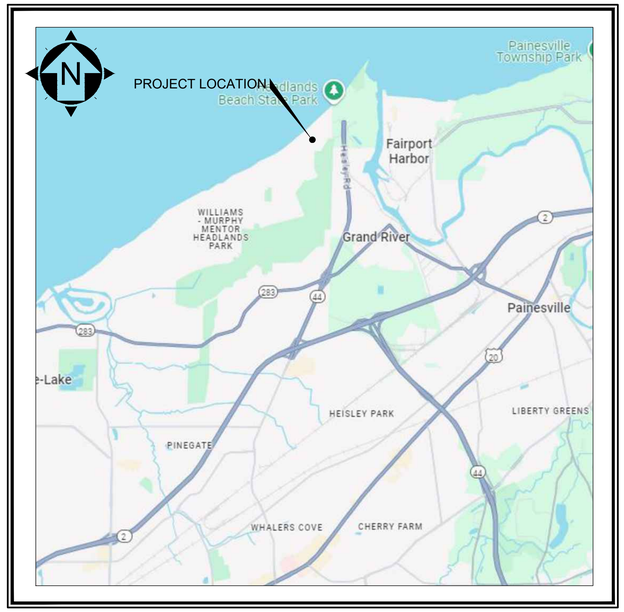


OHIO811 Before You Dig

1-800-362-2764

CALL TWO WORKING DAYS BEFORE YOU DIG
(NON MEMBERS MUST BE CALLED DIRECTLY)

1. THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.
2. UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.
3. THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.



LOCATION MAP
NOT TO SCALE

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ENGINEER'S PROJECT No. 232515

APPROVALS

DOUG LEWIS	CITY MANAGER	DATE
ORIN MCMONIGLE	WASTEWATER SUPERINTENDANT	DATE

OFFICIALS

CITY MANAGER	DOUG LEWIS
FINANCIAL DIRECTOR	BILL PARKINSON
CHIEF OF POLICE	DAN WATERMAN
FIRE CHIEF	TOM HUMMEL

CITY COUNCIL

JIM FODOR	PRESIDENT
CHRISTINE SHOOP	WARD 1
MARIO RODRIGUEZ	WARD 2
NICK AUGUSTINE	WARD 3
PAUL W. HACH II	WARD 4
DERRICK ABNEY	COUNCIL AT LARGE
LORI DINALLO	COUNCIL AT LARGE

DANIEL E. BARR — STATE OF OHIO — DANIEL E. BARR — E-64544 — REGISTERED — PROFESSIONAL ENGINEER

P.E. No. 64544 — 10/30/2024 DATE

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DATE
REVISION
NO

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: VMP
DRAWN BY: VMP
CHECKED BY: ADT

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

GENERAL
COVER SHEET

PROJECT NO: 232515
DRAWING NAME: G-01
SHEET 1 OF 17

H:\2023\232515\DWG\SHEETS\G_232515 - COVER SHEET.DWG - 10/30/2024 12:52:58 PM - PETRO

H:\2023\232515\DWG\SHEETS\G_232515 - COVER SHEET.DWG - COVER SHEET - 10/30/2024 12:52:58 PM - VINCENT PETRO

GENERAL SYMBOLOGY NOTES:

1. THIS IS A STANDARD SHEET SHOWING COMMONLY USED SYMBOLOGY.
2. ALL SYMBOLS ARE NOT NECESSARILY USED ON THIS PROJECT.
3. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE NEW IMPROVEMENTS SO AS TO HIGHLIGHT SPECIFIC TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
4. SYMBOLOGY OR DIAGRAMMATICAL LEGENDS MAY BE SHOWN ON INDIVIDUAL SHEETS FOR SCHEDULES, DIAGRAMS, DETAILS, SCHEMATICS OR EQUIPMENT.

DRAWING CODED NOTE TYPES:

1. CT CONTRACTUAL NOTES ARE DEPICTED WITH A HEXAGON, SQUARE, CIRCLE OR TRIANGLE. ALL OTHER EXISTING WRITTEN CALLOUTS SHOWN ON THE REUSED SCANNED PLANS FROM PREVIOUS CONTRACT DRAWINGS, (BACKGROUND IMAGES), SECTIONS & DETAILS ARE FOR EXISTING CONDITIONS AND REFERENCE ONLY, MANY OF THOSE NOTES FROM THE SCANNED DRAWINGS PERTAIN TO PREVIOUS WORK DONE. THESE BACKGROUND IMAGES ARE SHOWN IN GRAY.

SERIES:

GENERAL - G SERIES
SITE IMPROVEMENTS - C SERIES
STRUCTURAL - S SERIES
ARCHITECTURAL - A SERIES
PROCESS - D SERIES
MECHANICAL - M SERIES (PLUMBING & HVAC)
ELECTRICAL - E SERIES
STANDARD DETAILS - SD SERIES

VALVE OPERATOR ID:

CH = CHAIN
EM = ELECTRIC MOTOR
ES = EXTENSION STEM
FB = FLOOR BOX
FS = FLOOR STAND
GE = GEAR
HC = HYDRAULIC CYLINDER
HW = HANDWHEEL
LE = LEVER
LW = "L" WRENCH
ON = OPERATING NUT
PC = PNEUMATIC CYLINDER
PD = PNEUMATIC DIAPHRAGM
TW = "T" WRENCH
VB = VALVE BOX

PIPE END JOINT ID:

BE = BELL
CM = COMPRESSION
FL = FLANGED
GR = GROOVED
LU = LUG
MJ = MECHANICAL JOINT
NPT = NATIONAL PIPE THREAD
RJ = RESTRAINED JOINT
PE = PLAIN END
S = SOLDERED
SJ = SLIP JOINT (PUSH ON)
SW = SOLVENT WELDED
TH = THREADED
W = WELDED

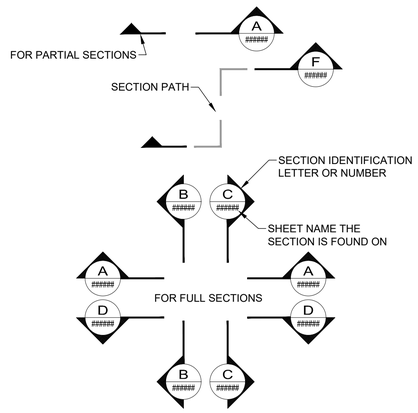
PIPE MATERIAL ID:

BR = BRASS
BS = BLACK STEEL
BZ = BRONZE
CI = GRAY CAST IRON
CU = COPPER
CS = CAST IRON
CT = CARBON STEEL TUBING
DIP = DUCTILE IRON PIPE
DR = DIAMETER RATIO
FRP = FIBERGLASS REINFORCED PLASTIC
GS = GALVANIZED STEEL
HDPE = HIGH-DENSITY POLYETHYLENE PIPE
PVC = POLYVINYL CHLORIDE PIPE
SS = STAINLESS STEEL
STL = STEEL PIPE
SDR = STANDARD DIAMETER RATIO
SCH = SCHEDULE

GATE ABBREVIATIONS:

BG - BULKHEAD GATE
SG - SLIDE GATE
SP - STOP PLATE
SL - STOP LOG
ALUM - ALUMINUM
SS - STAINLESS STEEL
CI - CAST IRON
POLY - POLYMER
B/C - BOTTOM OF CHANNEL
T/C - TOP OF CHANNEL
A - HEIGHT
B - WIDTH

PLAN VIEW SECTION CUT CONVENTIONS:



VALVE ID:

AC = AIR CHECK VALVE
AN = ANGLE VALVE
AR = AIR RELEASE VALVE
AV = AIR & VACUUM VALVE
BA = BALL VALVE
B'FLY = BUTTERFLY VALVE
BK = BACKPRESSURE VALVE
BP = BACKFLOW PREVENTER
CV = CHECK VALVE
CO = C0NE VALVE
GV = GATE VALVE
GL = GLOBE VALVE
KG = KNIFE GATE VALVE
KN = KNIFE VALVE
MV = MUD VALVE
PD = PLUG DRAIN VALVE
PF = PRESSURE RELIEF
PG = PRESSURE REGULATOR
PI = PINCH VALVE
PV = PLUG VALVE
PRV = PRESSURE REDUCING VALVE
PT = PRESSURE TEMPERATURE RELIEF
RF = RATE-OF-FLOW CONTROLLER
SV = SOLENOID VALVE
SU = SURGE VALVE
TE = TELESCOPING VALVE
TM = TEMPERATURE CONTROL VALVE

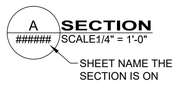
EQUIPMENT ID:

AC = AIR COMPRESSOR
AER = AERATOR
B = BLOWER
BFP = BELT FILTER PRESS
CLS = CLASSIFIER
C = COMMUNITOR
CMP = COMPACTOR
CFD = CHEMICAL FEEDER
CNV = CONVERYOR
CNT = CENTRIGUGE
CC = CALIBRATION CYLINDER
CFD = CHEMICAL FEEDER
CP = CONTROL PANEL
CR = CRANE
D = DECANTER
DR = DRIVE
DFL = DISC FILTER
F = FAN
FL = FILTER
FM = FLOW METER
GBT = GRAVITY BELT THICKENER
GR = GRINDER
GEN = GENERATOR
HB = HOSE BIB
M = MOTOR
MX = MIXER
P = PUMP
PS = PUMP STATION
SMP = SAMPLER
SCR = SCREEN

OTHER:

ADD'L = ADDITIONAL
AGG = AGGREGATE
ALUM. = ALUMINUM
BTWN = BETWEEN
C/L = CWNTERLINE
CLR = CLEAR
CONC = CONCRETE
CONT = CONTINUOUS
DWL = DOWEL(S)
EF = EACH FACE
EL. = ELEVATION
EMBED = EMBEDMENT
EW = EACH WAY
EX = EXISTING
FF = FINISH FLOOR
FND = FOUNDATION
HORIZ = HORIZONTAL
HP = HIGH POINT
LP = LOW POINT
MAX = MAXIMUM
MFR = MANUFACTURER
MIN = MINIMUM
REF = REFERENCE
REINF = REINFORCING
STRC = STRUCTURE
T/ = TOP OF
TYP = TYPICAL
UNO = UNLESS NOTED OTHERWISE
VERT = VERTICAL

SECTION LABEL



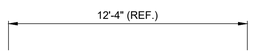
CODED NOTES:

(#) (#) DESCRIPTION

PLAN REVISIONS:

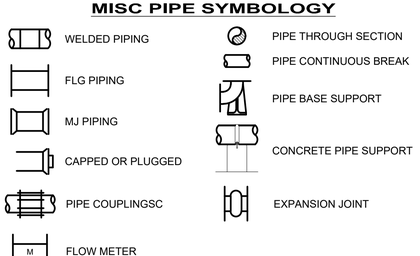
(A) REVISION DESCRIPTION

REFERENCE DIMENSION:

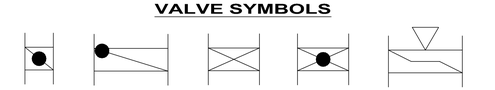


REFERENCE DIMENSIONS ARE GIVEN AS INFORMATION OF EXPECTED DESIGN. THEY ARE CALCULATED DIMENSIONS THAT MAY VARY AND ARE INTENDED TO BE FIELD VERIFIED.

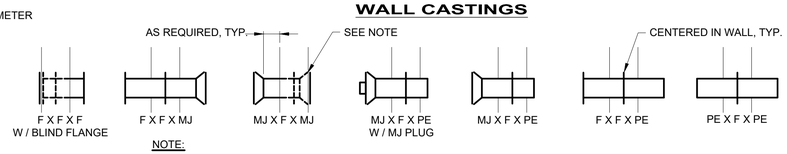
MISC PIPE SYMBOLOGY



VALVE SYMBOLS



WALL CASTINGS



NOTE:

WALL CASTINGS REQUIRING BELL ENDS IN LIEU OF MJ SHALL BE NOTED AS "B", ALL FLANGED (F) AND MECHANICAL JOINT (MJ) FLUSH WITH WALL (SEE DRAWINGS) ARE TO BE DRILLED AND TAPPED FOR STUDS.

Sheet List Table

Sheet Number	Sheet Title	Drawing Name
GENERAL		
1	COVER SHEET	G-01
2	LEGENDS AND ABBREVIATIONS	G-02
CHLORINE FEED BUILDING: CIVIL		
3	SITE PLAN	C-01
CHLORINE FEED BUILDING: STRUCTURAL		
4	FOUNDATION PLAN	S-01
5	ROOF PLAN	S-02
CHLORINE FEED BUILDING: ARCHITECTURAL		
6	FLOOR PLAN	A-01
7	ELEVATIONS	A-02
8	SECTIONS, DETAILS, AND SCHEDULES	A-03
9	WALL SECTIONS	A-04
CHLORINE FEED BUILDING: MECHANICAL		
10	MECHANICAL PLANS AND SCHEDULES	M-01
STANDARD DETAILS: STRUCTURAL		
11	GENERAL NOTES	SD-01
12	GENERAL NOTES	SD-02
13	GENERAL NOTES	SD-03
14	SECTIONS AND TYPICAL DETAILS	SD-04
15	SECTIONS AND TYPICAL DETAILS	SD-05
16	SECTIONS AND TYPICAL DETAILS	SD-06
17	SECTIONS AND TYPICAL DETAILS	SD-07

STATE OF OHIO
ANDREW D. TOROWSKI
14859
REGISTERED ARCHITECT
EXP. 12-31-25

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NO	REVISION	DATE

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: VMP
DRAWN BY: VMP
CHECKED BY: ADT

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

GENERAL

LEGENDS AND ABBREVIATIONS

PROJECT NO: 232515
DRAWING NAME: G-02
SHEET 2 OF 17

SITE PLAN
SCALE: 1" = 10'

AREA PLAN
SCALE: 1" = 400'

NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR BUILDING LOCATION.

STATE OF OHIO
ANDREW D. TOROWSKI
7459
REGISTERED ARCHITECT
EXP. 12-31-25

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DRAWN BY:	AGD
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THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
LAKE COUNTY
MENTOR, OHIO

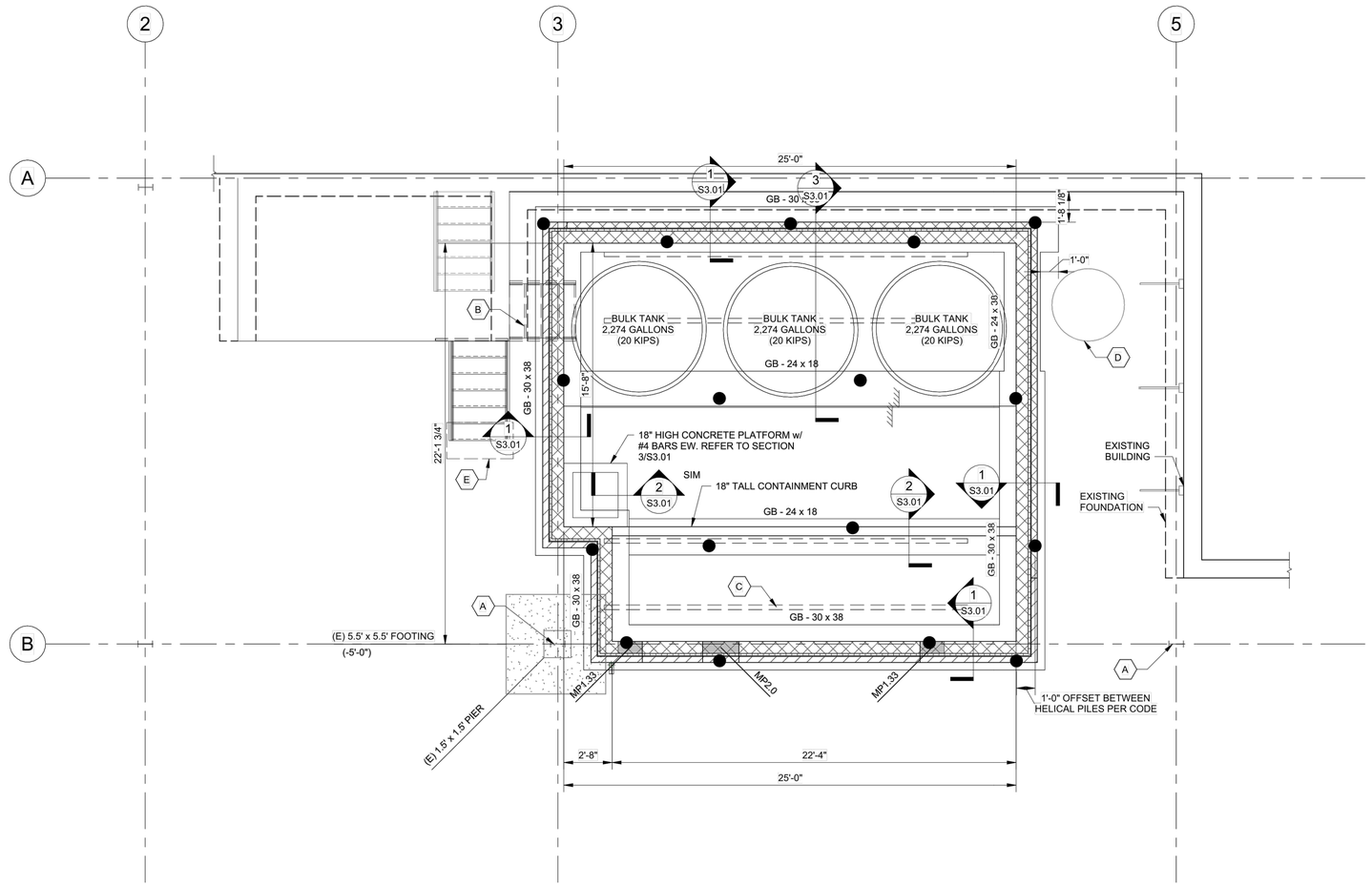
GENERAL

SITE PLAN

PROJECT NO:
232515

DRAWING NAME
C-01

SHEET 3 OF 17



FOUNDATION PLAN

1/4" = 1'-0"

DEEP FOUNDATION PLAN NOTES:

1. SEE SHEETS S0.01, S0.02, AND S0.03 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEET S2.01 FOR TYPICAL FOUNDATION DETAILS.
3. FLOOR CONSTRUCTION - 10" STRUCTURAL CONCRETE SLAB REINFORCED WITH #(6) BARS @ 9" OC, EACH WAY, TOP AND BOTTOM, ON 6" THICK GRANULAR DRAINAGE BASE WITH A 10 MIL VAPOR RETARDER.
4. TOP OF SLAB-ON-GRADE ELEVATION = 100'-0" = PROJECT DATUM, TYP. UNO. ALL ELEVATIONS TO BE REFERENCES FROM THE PROJECT DATUM OF 0'-0".
5. GB-X.X x X.X @ (-X'-X") DENOTES GRADE BEAM TYPE (WIDTH AND THICKNESS @ (DEPTH)). DEPTH IS TO THE TOP OF THE GRADE BEAM REFERENCED FROM THE PROJECT DATUM, UNO. SEE THIS SHEET FOR THE GRADE BEAM SCHEDULE. SEE SHEET S2.01 FOR TYPICAL DETAILS.
6. TOP OF GRADE BEAM ELEVATION SHALL BE AT ELEVATION -1'-0", TYP., UNO.
7. XXXX.X' DENOTES FINISHED GRADE AROUND PERIMETER OF BUILDING. COORDINATE FINAL FINISH GRADE ELEVATIONS WITH CIVIL DWG'S.
8. MPX.X DENOTES MASONRY PIERS. SEE THIS SHEET FOR MASONRY PIER DETAILS AND TYPICAL MASONRY DETAILS. CONCRETE MASONRY WALLS SHALL BE CENTERED ON FOOTING, UNO
9. SEE ARCHITECTURAL DRAWINGS FOR ALL MEASUREMENTS NOT SHOWN. ALL DIMENSIONS SHALL CONFORM TO THE ARCHITECTURAL DRAWINGS.
10. COORDINATE LOCATION AND SIZE OF PENETRATIONS AND OPENINGS WITH MECHANICAL AND SITE DRAWINGS.
11. SEE ROOF PLAN NOTES FOR MASONRY WALL SIZE AND REINFORCING. SEE SHEET S2.03 FOR TYPICAL MASONRY CONTROL / EXPANSION JOINT. COORDINATE LOCATION WITH ARCH DRAWINGS.
12. CONTRACTOR SHALL COORDINATE SLAB FINISHES WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS.

FOUNDATION PLAN LEGEND:

1. ● INDICATES HELICAL PILE. REFER TO GENERAL NOTES FOR MORE INFORMATION.
2. INDICATES SLAB DEPRESSION, REFER TO TYPICAL DETAIL ON SHEET XXX FOR MORE INFORMATION.

FOUNDATION PLAN CODED NOTES: ⬡

A. EXISTING STEEL COLUMN TO REMAIN. TYP, UNLESS NOTED OTHERWISE.

B. EXISTING STAIRS TO BE REMOVED. SEE ARCH DWG'S FOR MORE INFORMATION.

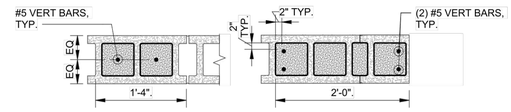
C. EXISTING 3" RAILS EMBEDDED INTO THE ASPHALT TO BE REMOVED. TYP, UNLESS NOTED OTHERWISE.

D. EXISTING SLUDGE MANHOLE TO REMAIN. TYP, UNLESS NOTED OTHERWISE.

E. THICKENED SLAB BENEATH STAIR. SEE SECTION 6/S3.01 FOR MORE INFORMATION.

GRADE BEAM SCHEDULE

MARK	SIZE (WIDTH X DEPTH)	MAIN REINF. (TOP & BOT.)	SIDE BARS	STIRRUPS
GB - 24 X 18	24" X 18"	(4) #5	(1) #5	#3 @ 9" O.C.
GB - 24 X 38	24" X 38"	(6) #5	(2) #5	#3 @ 18" O.C.
GB - 30 X 38	30" X 38"	(6) #5	(2) #5	#3 @ 18" O.C.



MP1.33 **MP2.0**

MASONRY PIER DETAILS

1/2" = 1'-0"

STATE OF OHIO
BRAD A. FRONEK
E-84405
REGISTERED
PROFESSIONAL ENGINEER
10/30/24

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NO	REVISION	DATE

SCALE: AS SHOWN
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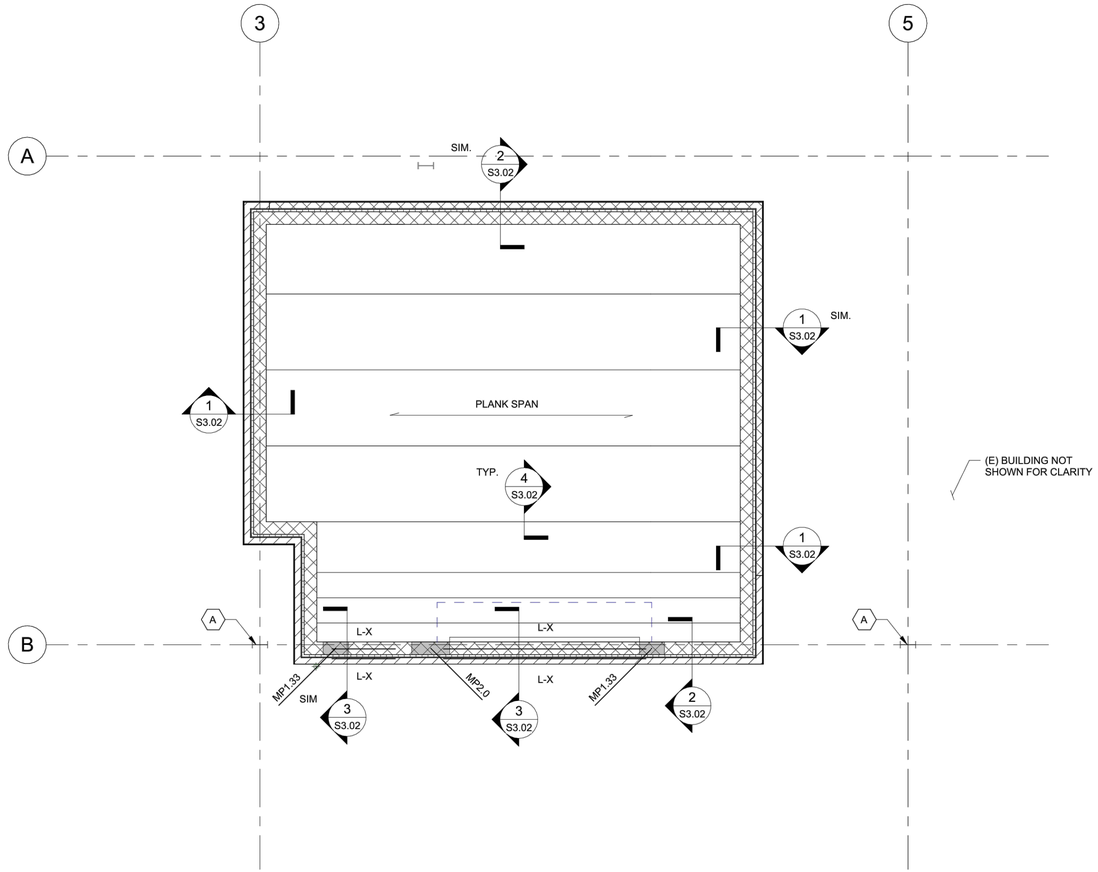
DESIGNED BY: BF
DRAWN BY: BW
CHECKED BY: BF

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

CHLORINE FEED BUILDING
FOUNDATION PLAN

PROJECT NO: 232515
DRAWING NAME: S-01
SHEET 4 OF 17



ROOF
1/4" = 1'-0"

PRECAST ROOF PLAN NOTES:

1. SEE SHEETS S0.01. S0.02, AND S0.03 FOR GENERAL STRUCTURAL NOTES.
2. ROOF CONSTRUCTION - 8" HOLLOW CORE PLANK. SEE HOLLOW CORE PLANK SCHEDULE ON THIS SHEET FOR LIVE AND DEAD LOADS.
3. COORDINATE LOCATION AND SIZE OF ALL ROOF PENETRATIONS AND OPENINGS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS.
4. L-X INDICATES MISC. ANGLE LINTEL, SEE GENERAL NOTES FOR SIZES BASED ON OPENING SIZE.
5. MPX.X INDICATES MASONRY PIER, SEE DETAILS ON S1.01.
6. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR ROOF TOP EQUIPMENT WEIGHTS AND LOCATIONS NOT INDICATED.
7. SEE ARCHITECTURAL DRAWINGS FOR ALL MEASUREMENTS NOT SHOWN. ALL DIMENSIONS SHALL CONFORM TO THE ARCHITECTURAL DRAWINGS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE EXISTING CONDITIONS AND FOR THE PROPER FIT AND CLEARANCE IN THE FIELD OF ANY MATERIAL THAT IS FABRICATED FROM THESE DRAWINGS. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT AS REPRESENTED ON THESE DRAWINGS, THE EOR SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE STRUCTURAL SIGNIFICANCE OF THE DEVIATION.
9. CONCRETE MASONRY WALLS SHALL BE 8" WIDE AND REINFORCED VERTICALLY WITH (1) #5 BAR AT 32" ON CENTER, SEE GENERAL NOTES FOR MORE INFORMATION. CONCRETE MASONRY WALLS SHALL BE CENTERED ON FOOTING UNLESS NOTED OTHERWISE.

ROOF FRAMING PLAN CODED NOTES:

A. EXISTING STEEL COLUMN TO REMAIN.

PRECAST PLANK LOADS				
PLANK	**DEAD LD**	**2" TOPPING**	**TOT D. LD**	**LIVE LD**
8" PLANK	56 PSF	N.A.	56 PSF	SEE DESIGN LOADS IN GENERAL NOTES

STATE OF OHIO
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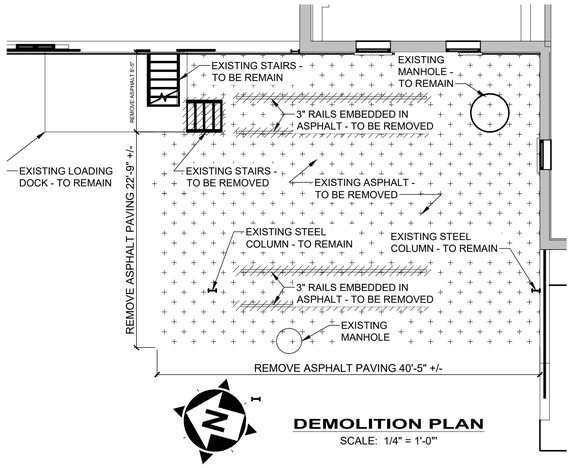
THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

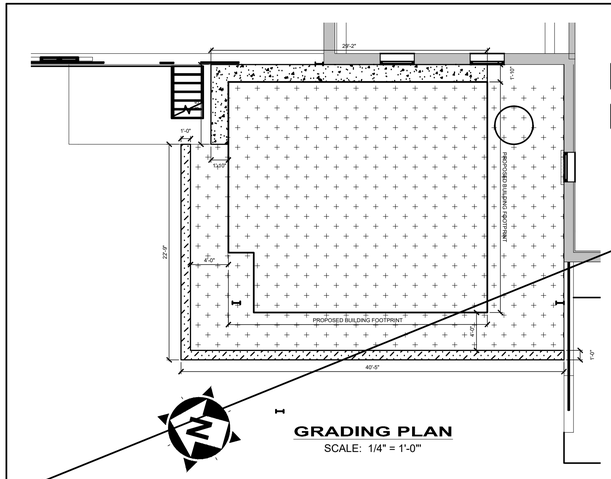
CHLORINE FEED BUILDING
ROOF PLAN

PROJECT NO: 232515
DRAWING NAME: S-02
SHEET: 5 OF: 17



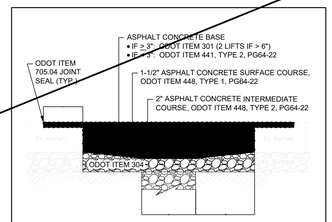
DEMOLITION PLAN

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



GRADING PLAN

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



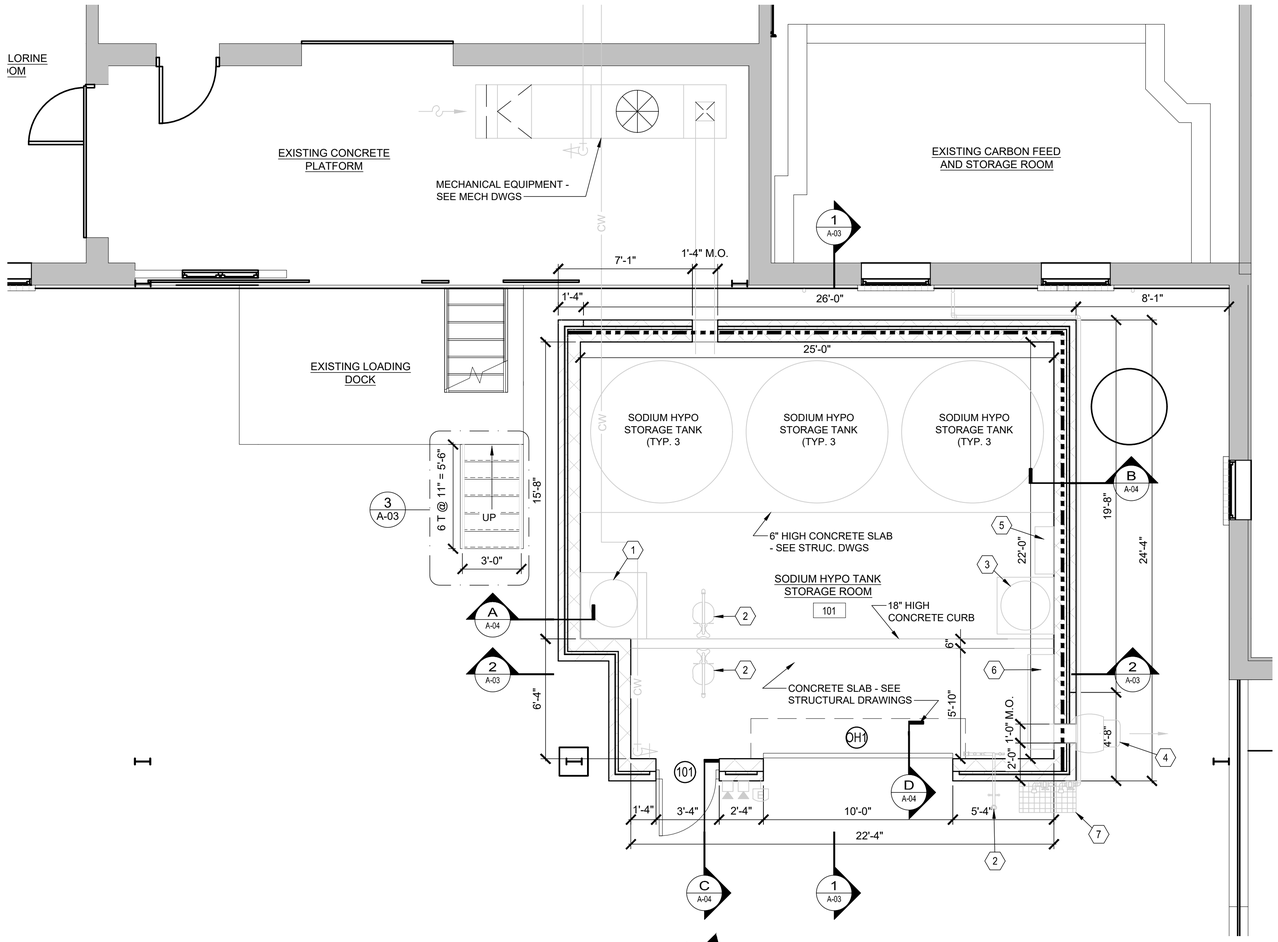
NOTES:

1. ASPHALT PAVEMENT TO BE REMOVED SHALL BE SAW CUT IN A NEAT AND STRAIGHT LINE. ADDITIONAL SAW CUTS MAY BE DESIRED TO FACILITATE REMOVAL, BUT THERE WILL BE NO EXTRA PAYMENT.
2. PAVEMENT SHALL BE REMOVED WITHOUT DAMAGING OR UNDERMINING THE PAVEMENT TO REMAIN. IF ADJACENT PAVEMENT IS DAMAGED, THE CONTRACTOR SHALL MAKE ADDITIONAL SAW CUTS, REMOVE THE DAMAGED AREAS AND REPAIR AS NECESSARY WITH NO ADDITIONAL COMPENSATION.
3. TACK COAT SHALL BE APPLIED TO THE EXPOSED EX. ASPHALT BASE COURSE AND ALL SIDES OF PATCH.
4. ODOT ITEM 705.04 JOINT SEALANT SHALL BE APPLIED AROUND THE EDGE OF PATCH.

ASPHALT PAVEMENT REPAIR OVER TRENCH DETAIL

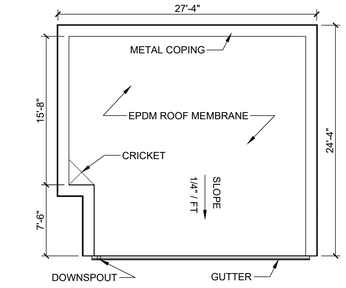
SCALE: NONE

NOT INCLUDED IN CONTRACT



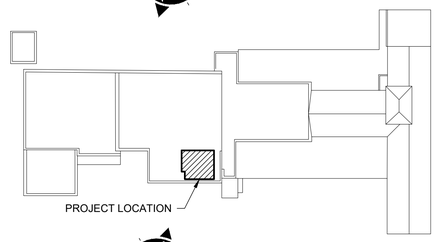
FLOOR PLAN

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



ROOF PLAN

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



KEY PLAN

SCALE: 1/64" = 1'-0"'

CHLORINE FEED BUILDING

CODE DATA:

GOVERNING CODES:
2024 OHIO BUILDING CODE (2021 IBC W/ STATE AMENDMENTS)
2024 OHIO PLUMBING CODE (2021 IPC W/ STATE AMENDMENTS)
2024 OHIO MECHANICAL CODE (2021 IMC W/ STATE AMENDMENTS)
2017 OHIO FIRE CODE (2015 IFC W/ STATE AMENDMENTS)
2017 OHIO ENERGY CODE (2012 IECC W/ STATE AMENDMENTS)

PROJECT DATA:

OCCUPANCY GROUP: H-3

CONSTRUCTION TYPE: IIB, UNPROTECTED, SPRINKLED

ALLOWABLE HEIGHT: 55'-0"
ACTUAL HEIGHT: 13'-6"

ALLOWABLE NUMBER OF STORIES: 2
ACTUAL NUMBER OF STORIES: 1

ALLOWABLE AREA: 15,500 S.F.
ACTUAL AREA: 649 S.F.

3 HOUR FIRE BARRIER
BRICK: MIN 5.5" (TABLE 721.1(2))
CMU: MIN 5.3" (TABLE 721.1(2))

THIS BUILDING IS NOT REGULARLY OCCUPIED. SYSTEMS ARE PROVIDED FOR REMOTE MONITORING. ANY TEMPORARY OCCUPANCY WILL BE LIMIITED TO MAINTENANCE OF EQUIPMENT AND PERIODIC TESTING ONLY.

DEMOLITION NOTES:

1. REMOVE EXISTING ASPHALT AS SHOWN ON PLAN
2. EXISTING LOADING DOCK STAIRS TO BE REMOVED
3. EXISTING 3" EMBEDDED RAIL SYSTEM TO BE REMOVED
4. EXISTING RACK STORAGE TO BE REMOVED
5. EXISTING MANHOLES TO REMAIN
6. EXISTING STEEL COLUMNS TO REMAIN

CODED NOTES:

1. WATER HEATER TANK - NOT INCLUDED IN CONTRACT
2. EMERGENCY EYE WASH STATION - NOT INCLUDED IN CONTRACT
3. DAY TANK WITH SCALE - NOT INCLUDED IN CONTRACT
4. EXHAUST FAN - FUTURE PHASE
5. TRANSFER PUMPS - NOT INCLUDED IN CONTRACT
6. DUPLEX PERISTALTIC PUMP SKID - NOT INCLUDED IN CONTRACT
7. CHEMICAL CONTAINMENT PALLET - NOT INCLUDED IN CONTRACT

STATE OF OHIO
ANDREW D. TOROWSKI
14859
REGISTERED ARCHITECT
EXP. 12-31-25

CT consultants
engineers • architects • planners
a verdantas company

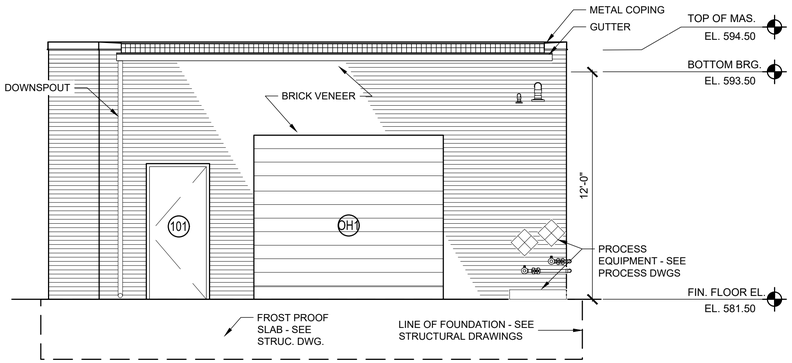
NO	REVISION	DATE

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: ADT
DRAWN BY: VMP
CHECKED BY: ADT

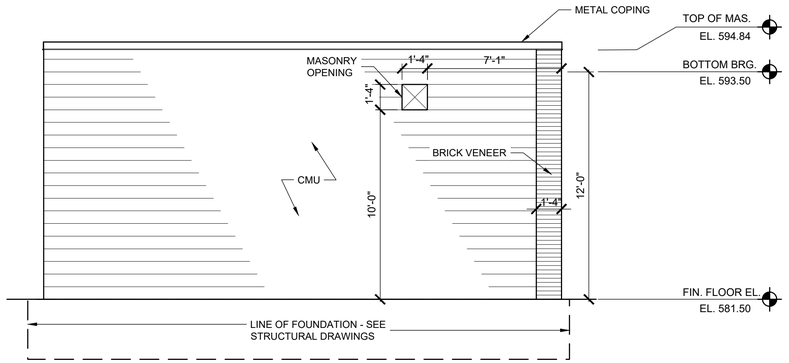
THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
LAKE COUNTY MENTOR, OHIO

CHLORINE FEED BUILDING
FLOOR PLAN

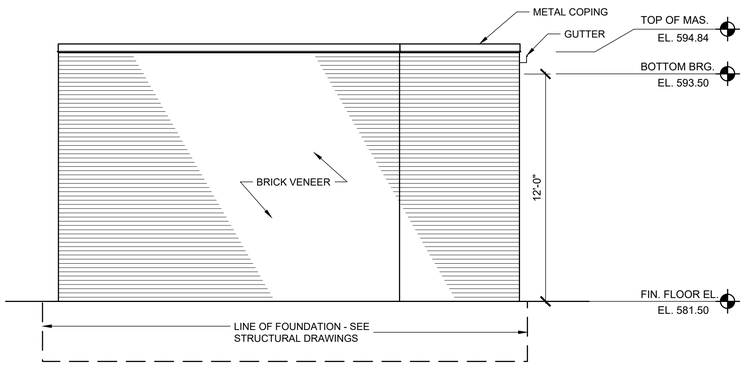
PROJECT NO: 232515
DRAWING NAME: A-01
SHEET 6 OF 17



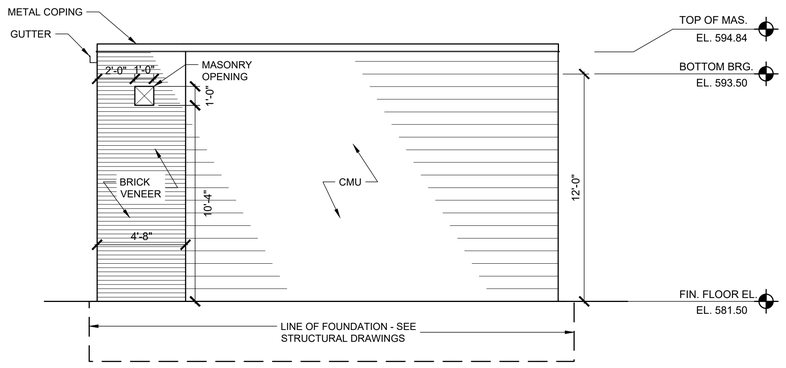
WEST ELEVATION
SCALE: 1/4" = 1'-0"'



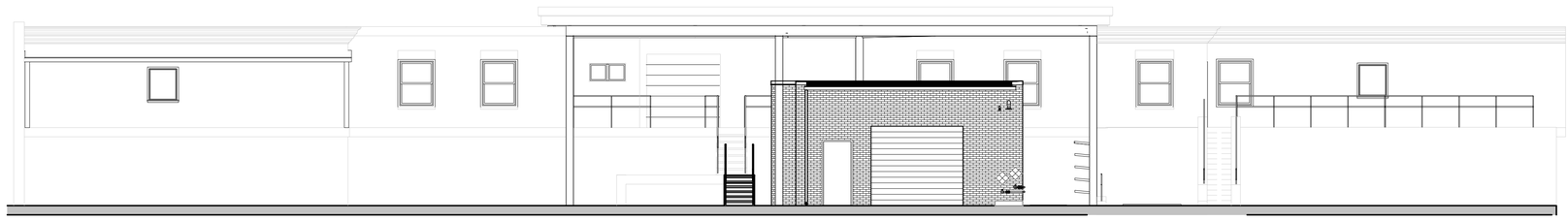
EAST ELEVATION
SCALE: 1/4" = 1'-0"'



NORTH ELEVATION
SCALE: 1/4" = 1'-0"'



SOUTH ELEVATION
SCALE: 1/4" = 1'-0"'



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

STATE OF OHIO
ANDREW D. TOROWSKI
14859
REGISTERED ARCHITECT
EXP. 12-31-25

consultants
engineers • architects • planners
a verdantas company

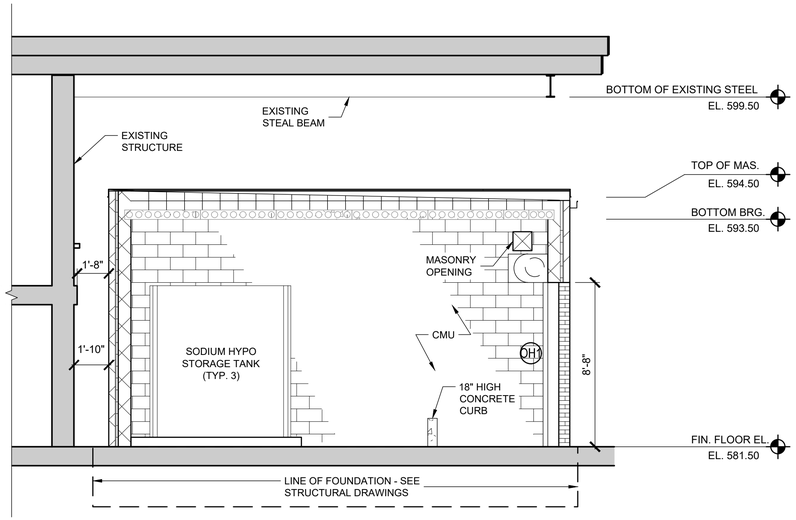
NO	REVISION	DATE

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: ADT
DRAWN BY: VMP
CHECKED BY: ADT

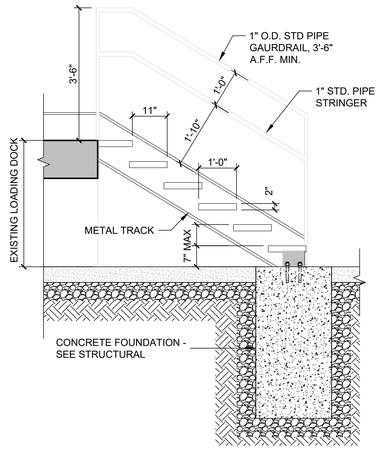
THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

CHLORINE FEED BUILDING
ELEVATIONS

PROJECT NO:
232515
DRAWING NAME
A-02
SHEET 7 OF 17



1 SECTION
A-01 SCALE: 1/4" = 1'-0"



3 SECTION
A-01 SCALE: 1/4" = 1'-0"

ROOM FINISH SCHEDULE

ROOM		FINISHES								REMARKS
				WALLS				CEILING		
NUMBER	NAME	FLOOR	BASE	NORTH	EAST	SOUTH	WEST	TYPE	HEIGHT	
CHLORINE FEED BUILDING										
101	SODIUM HYPO TANK STORAGE ROOM	F1	-	W1	W1	W1	W1	C1	*	VARIES - SEE WALL SECTIONS

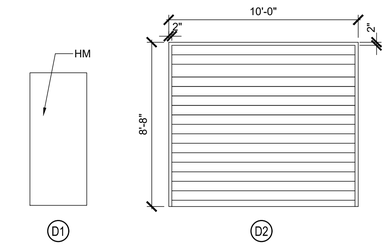
FLOOR
F1 - SEALED CONCRETE

WALLS
W1 - CMU (PAINT)

CEILING
C1 - EXPOSED STRUCTURE (PAINT)

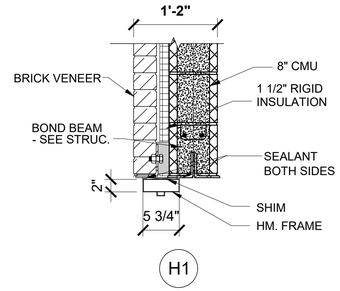
DOOR SCHEDULE

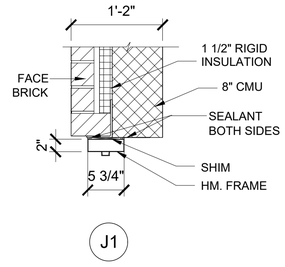
DOOR						FRAME							REMARKS
								DETAIL					
NUMBER	MATERIAL	TYPE	WIDTH	HEIGHT	THICKNESS	MATERIAL	TYPE	HEAD	JAMB	THRES.	LINTEL	HARDWARE SET	FIELD VERIFY ALL DIMENSIONS
DEWATERING BUILDING													
101	HM	D1	3'-0"	7'-0"	1 3/4"	HM	D1	H1	J1		L-1	1	
OH1	STL	D2	10'-0"	10'-0"	-	STL	D2	H1	J2		**	*	* SEE SPECS *

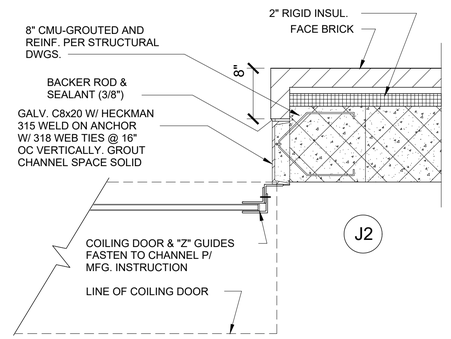


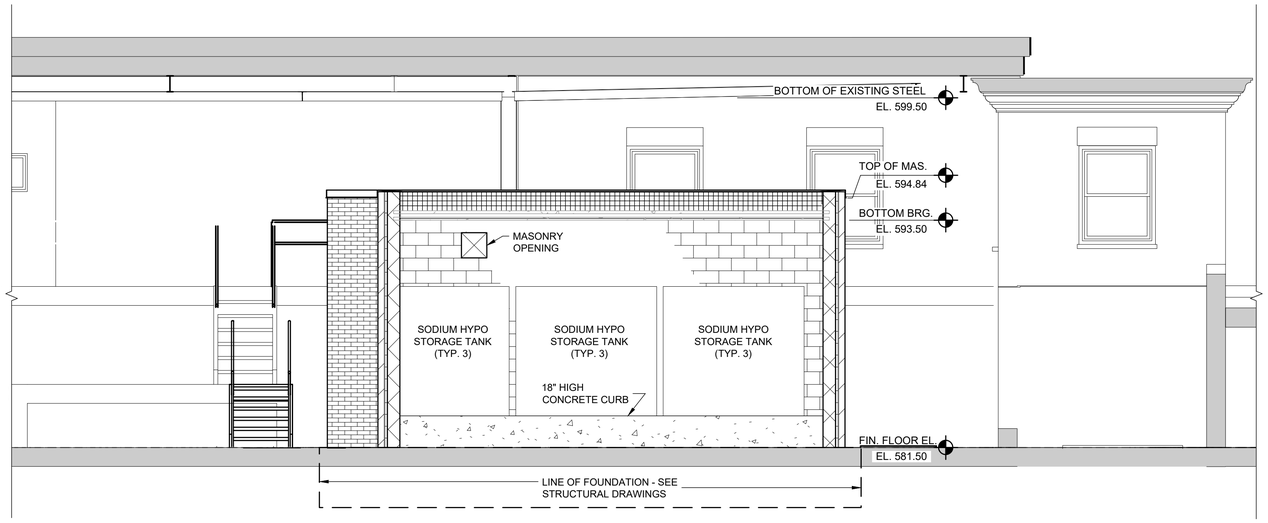
DOOR TYPE
SCALE: NTS

FRAME TYPE
SCALE: NTS









2 SECTION
A-01 SCALE: 1/4" = 1'-0"

STATE OF OHIO
ANDREW D. TOROWSKI
18559
REGISTERED ARCHITECT
EXP. 12-31-25

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a verdantas company

NO	REVISION	DATE

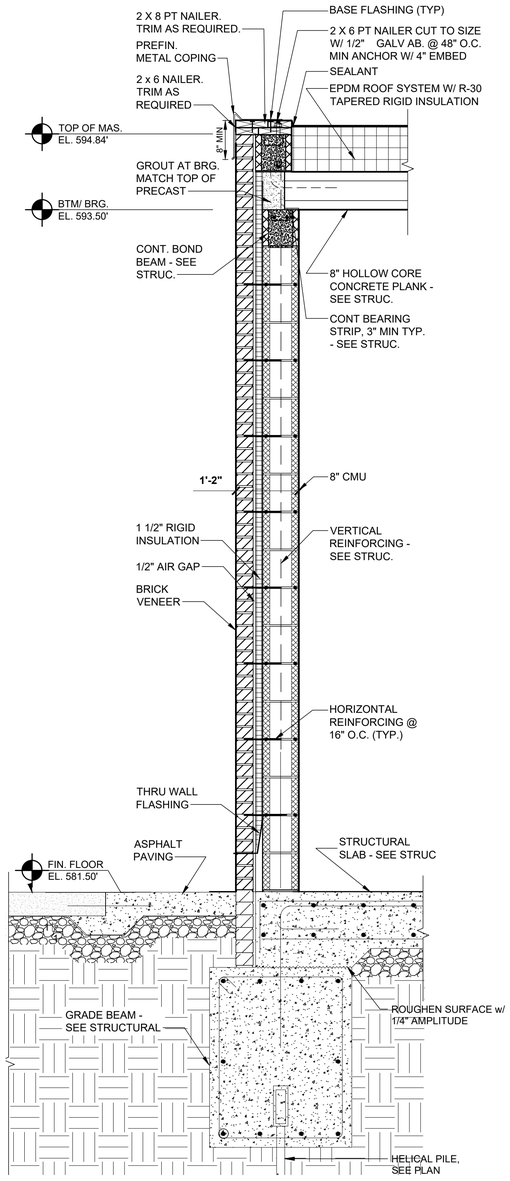
SCALE:	AS SHOWN
DATE:	10/30/2024
DESIGNED BY:	ADT
DRAWN BY:	VMP
CHECKED BY:	ADT

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

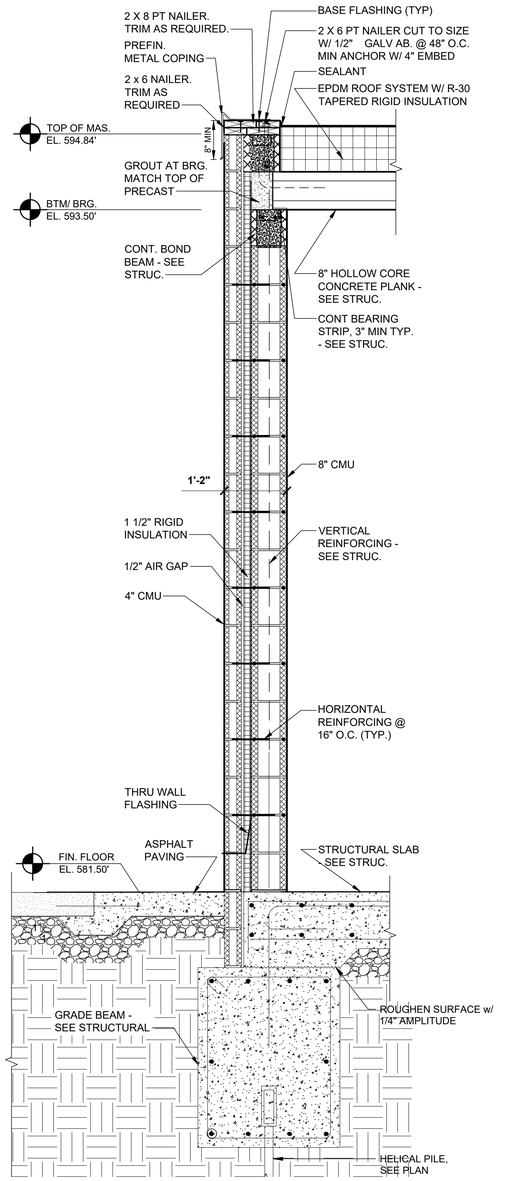
CHLORINE FEED BUILDING

SECTIONS, DETAILS, AND SCHEDULES

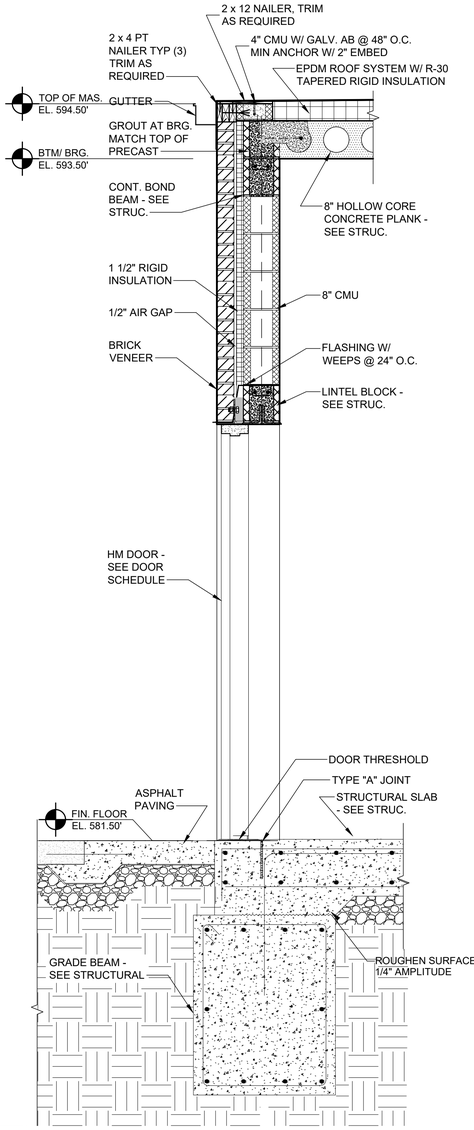
PROJECT NO:	
232515	
DRAWING NAME	
A-03	
SHEET	OF
8	17



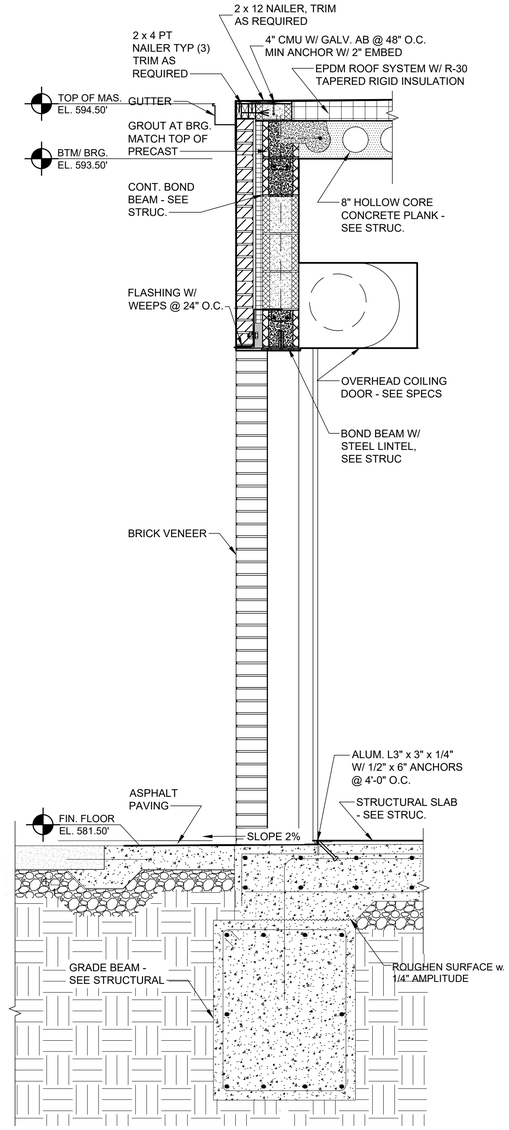
A SECTION
A-01 SCALE: 1/4" = 1'-0"



B SECTION
A-01 SCALE: 1/4" = 1'-0"



C SECTION
A-01 SCALE: 1/4" = 1'-0"



D SECTION
A-01 SCALE: 1/4" = 1'-0"

STATE OF OHIO
ANDREW D. TOROWSKI
48559
REGISTERED ARCHITECT
EXP. 12-31-25

CT consultants
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NO	REVISION	DATE

SCALE:	AS SHOWN
DATE:	10/30/2024
DESIGNED BY:	ADT
DRAWN BY:	VMP
CHECKED BY:	ADT

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
LAKE COUNTY
MENTOR, OHIO

CHLORINE FEED BUILDING
WALL SECTIONS

PROJECT NO:	
232515	
DRAWING NAME	
A-04	
SHEET	OF
9	17

HVAC EQUIPMENT SCHEDULE

SYMBOL	QUANT.	AREA SERVED	DESCRIPTION	ACCESSORIES	ELECTRICAL REQUIREMENTS
MAU-1	1	CHEMICAL FEED BUILDING	GREENHECK #DGX-P116-H12-D1-3 MAKEUP AIR UNIT OUTDOOR, HORIZONTAL CONFIG., DIRECT-FIRED HEAT, NATURAL GAS, PACKAGED DX INTEGRAL COOLING, R-454B REFRIGERANT, RIGHT HAND ACCESS AND CONNECTIONS, TOP DISCHARGE, DIRECT-DRIVE, MIXED FLOW FAN WITH VARIABLE FREQUENCY DRIVE(VFD), SECTIONS: INTAKE LOUVERS, FILTERS, GAS BURNER, DX COOLING, FAN. APPROX. DIMENSIONS: 159"L x 33"W x 39"H, APPROX. WEIGHT: 1,500#±. 800 CFM @ 0.50" E.S.P., 1.18" TOTAL S.P., 1,140 RPM, 0.28 BHP, 1/2 HP MOTOR, HEAT: 90 MBH INPUT, 83 MBH OUTPUT, 95°F ΔT AT 92% EFF., 7" BURNER OPERATING PRESSURE, 30:1 TURNDOWN RATIO. COOLING: 41 MBH TC, 22 MBH SC, 89.4/76.3 EAT, 61.9/61.8 LAT, 15.5 EER. FAN; 57 Lwa, 46 dBA, 3.5 SONES.	SEE SPEC. #237423 FOR ADDITIONAL INFO. DOUBLE WALL CONSTRUCTION (1" INSULATION) FAN AND HEAT SECTIONS HINGED ACCESS DOORS MOTORIZED OUTLET DAMPER, WITH END SWITCH PERMATECTOR COATING: ENTIRE UNIT AND ALL ACCESSORIES LOUVERED INLET HOOD WITH ALUMINUM MESH V-BANK FILTER SECTION WITH: 2" THICK, PLEATED, MERV-13 DISP. FILTERS CUSTOM REMOTE CONTROL PANEL, NEMA 4X DISCHARGE AIR TEMPERATURE CONTROLS, WITH ROOM OVERRIDE THERMOSTAT FREEZE PROTECTION HEATING INLET AIR SENSOR COOLING INLET AIR SENSOR DIRTY FILTER SENSOR/SWITCH EXHAUST FAN STARTER: 208V/1, 1/4 HP (EF-1) AUXILIARY CONTACTS: SUPPLY FAN STATUS, EXHAUST FAN INTERLOCK, EMERGENCY STOP. FM COMPLIANT GAS TRAIN, WITH HIGH/LOW GAS PRESSURE SWITCHES FLAME FAILURE ALARM LIGHT TEFC MOTOR, PREMIUM EFFICIENCY 12" ROOF CURB EMERGENCY STOP - SEE NOTE 2.	208/3/60 21.4 MCA 30A MOCP
EF-1 (N.I.C.)					

NOTES:

1. CHARACTERISTICS (RPM, HP, IMPELLERØ, PRESSURE DROP) SHALL NOT VARY BY MORE THAN 10% OF SPEC'D UNITS. SOUND VALUES SHALL NOT EXCEED THE VALUES INDICATED.
2. CONTRACTOR TO PROVIDE A MANUAL EMERGENCY SHUTOFF TO DE-ENERGIZE MAU-1 AND EF-1 EXHAUST FAN. EMERGENCY SHUTOFF TO BE MODEL #HVAC-120 AS MANUFACTURED BY PILLA ELECTRICAL PRODUCTS, INC., OR EQUAL. SHUTOFF TO BE 120-VOLT, RED PUSH BUTTON TYPE, PULL RESET, METALLIC NEMA 4, 4X, 12 ENCLOSURE, WITH LABEL TO READ: "VENTILATION SYSTEM EMERGENCY SHUTOFF". PROVIDE WITH #PILCLHCOV1 CLEAR HINGED COVER.

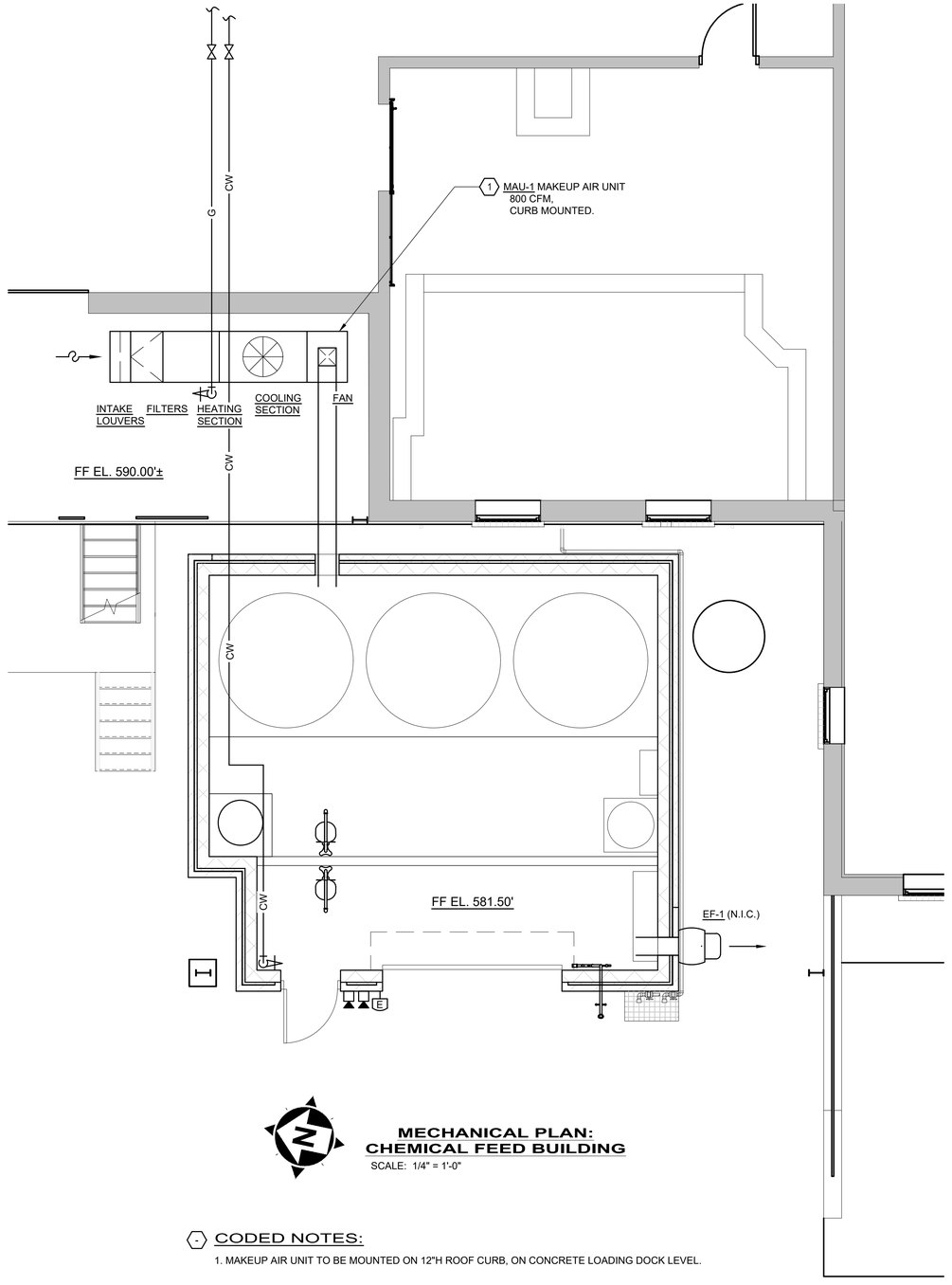
SEQUENCE OF OPERATION

1. MAU-1 MAKEUP AIR UNIT:
   VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
   MAU-1 SHALL BE A HEATING AND COOLING UNIT.
   MAU-1 SHALL BE INTERLOCKED, CONTINGENT UPON THE OPERATION OF EF-1 EXHAUST FAN.
   VENTILATION SYSTEM PROVIDES ~ 7.3 AIR CHANGES PER HOUR, AND 1.4 CFM/SF (MINIMUM OF 1.0 CFM/SF REQUIRED BY THE OHIO MECHANICAL CODE).

   MAU-1 SHALL BE PROVIDED WITH A REMOTE CONTROL PANEL.
   FAN SHALL BE SET TO RUN CONTINUOUSLY.
   CONTROL MODES SHALL INCLUDE A HEAT-COOL-AUTO SWITCH. TEMPERATURE CONTROL SHALL BE DISCHARGE AIR WITH A ROOM OVERRIDE THERMOSTAT. IN THE HEAT POSITION, THE UNIT SHALL BE HEATING ONLY. IN THE COOL POSITION, THE UNIT SHALL BE COOLING ONLY. IN THE AUTO POSITION, THE UNIT CAN FUNCTION IN HEATING OR COOLING MODES.
   SPACE TEMPERATURE SETTINGS TO BE ~65°F HEATING AND ~75°F COOLING, BOTH ADJUSTABLE.

   SYSTEM SHALL INCLUDE AN EMERGENCY STOP BUTTON (SEE PLANS FOR LOCATION) TO SHUT DOWN MAU-1 AND EF-1, PER THE OHIO MECHANICAL CODE FOR HAZARDOUS MATERIAL STORAGE.

   SEE ELECTRICAL DRAWINGS FOR INTERLOCK WIRING, MONITORING, AND ALARM PROVISIONS. AN ALARM SIGNAL SHALL BE INITIATED SHOULD MAU-1 OR EF-1 NOT BE OPERATING (CURRENT SENSING RELAY, ETC).
2. EF-1 EXHAUST FAN:
   VENTILATION SHALL BE CONTINUOUS, 24 HOURS/DAY, 365 DAYS/YEAR.
   MAU-1 MAKEUP AIR UNIT SHALL BE INTERLOCKED WITH EF-1, AS DESCRIBED ABOVE.



MECHANICAL PLAN:
CHEMICAL FEED BUILDING
SCALE: 1/4" = 1'-0"

CODED NOTES:

1. MAKEUP AIR UNIT TO BE MOUNTED ON 12"H ROOF CURB, ON CONCRETE LOADING DOCK LEVEL.

STATE OF OHIO
JONATHAN R. MEOLA
E-60604
REGISTERED PROFESSIONAL ENGINEER
10/30/2024

CT consultants
engineers • architects • planners
a verdantas company

NO	REVISION	DATE

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JRM

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

MECHANICAL

MECHANICAL PLANS AND SCHEDULES

PROJECT NO: 232515
DRAWING NAME: M-01
SHEET 10 OF 17

H:\2023\232515\DWG\SHEETS\M_232515 - MECH PLANS.DWG - M-03 - 10/30/2024 1:01:22 PM - VINCENT PETRO

GOVERNING CODES AND STANDARDS:

OBC	- OHIO BUILDING CODE, 2024 EDITION
IBC	- INTERNATIONAL BUILDING CODE. 2021 EDITION
ASCE 7	- MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, 2010 EDITION
ACI 318	- BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2014 EDITION
PCI	- DESIGN HANDBOOK FOR PRECAST AND PRESTRESSED CONCRETE, SEVENTH EDITION
ACI 301	- SPECIFICATIONS FOR STRUCTURAL CONCRETE, 2010 EDITION
ACI 305R	- HOT WEATHER CONCRETING, 2010 EDITION
ACI 306R	- COLD WEATHER CONCRETING, 2010 EDITION
ACI SP-66	- ACI DETAILING MANUAL, 2004
ACI 350.1	- TIGHTNESS TESTING OF ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES - SPECIFICATION, 2022 EDITION
ACI 530	- BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, 2013 EDITION
ACI 530.1	- SPECIFICATIONS FOR MASONRY STRUCTURES, 2013 EDITION
ADM1	- ALUMINUM DESIGN MANUAL, 2015 EDITION

DESIGN LOADS:

1. LIVE LOADS: (REDUCIBLE PER GOVERNING CODE) — UNIFORM (PSF) — CONCENTRATED (LBS)
   a. FIRST FLOOR (SLAB ON GRADE) — 250 — 2,000
   b. ROOF — 20 — 300

2. SNOW LOADS:
   a. GROUND SNOW LOAD, P_g 30 PSF
   b. FLAT ROOF SNOW LOAD, P_f 23 PSF
   c. SNOW EXPOSURE FACTOR, C_e 1.0
   d. SNOW LOAD IMPORTANCE FACTOR, I_s 1.1
   e. THERMAL FACTOR, C_t 1.0
   f. DESIGN ROOF SNOW LOAD P 30 PSF

3. WIND LOADS
   a. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST), MPH 116
   b. NOMINAL DESIGN WIND SPEED (3-SECOND GUST), MPH 90
   c. RISK CATEGORY III
   d. WIND EXPOSURE D
   e. DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING SHALL BE COMPUTED PER GOVERNING BUILDING CODE USING EXPOSURE D (SEE DIAGRAM ON SHEET S0.03)
   f. INTERNAL PRESSURE COEFFICIENT (ENCLOSED) ±0.18

4. EARTHQUAKE DESIGN DATA:
   a. OCCUPANCY RISK CATEGORY III
   b. SEISMIC IMPORTANCE FACTOR, I_e 1.25
   c. MAPPED SPECTRAL RESPONSE ACCELERATIONS S_S = 0.158, S_1 = 0.049
   d. SITE CLASS D
   e. DESIGN SPECTRAL RESPONSE ACCELERATIONS S_{ds} = 0.169, S_{d1} = 0.078
   f. SEISMIC DESIGN CATEGORY B
   g. BASIC SEISMIC REINFORCING SYSTEM INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
   h. DESIGN BASE SHEAR $V = C_s \times W$
   i. SEISMIC RESPONSE COEFFICIENT C_s = 0.060
   j. RESPONSE MODIFICATION COEFFICIENT R = 3.5
   k. ANALYSIS PROCEDURE USED EQUIVALENT LATERAL FORCE

5. FROST DEPTH 48"

FOUNDATIONS:

1. FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL REPORT NO. 232515, PREPARED BY CT CONSULTANTS, DATED SEPTEMBER 26, 2024. CONTRACTOR SHALL REVIEW GEOTECHNICAL REPORT PRIOR TO CONSTRUCTION.

2. FOUNDATIONS ARE DESIGNED TO BE SUPPORTED ON HELICAL PILES (DELEGATED DESIGN). SEE GEOTECHNICAL REPORT FOR SOIL PROFILE, PROPERTIES AND DESIGN PERAMETERS.

3. TOPSOIL, FILL, AND/OR OTHER DELETERIOUS MATERIALS ENCOUNTERED DURING THE SITE PREPARATION MUST BE REMOVED AND REPLACED WITH SELECT ENGINEERED FILL COMPACTED TO 98% PER ASTM D1557 AND MEETING THE SPECIFIED DESIGN BEARING CAPACITY. (SEE GEOTECH REPORT FOR MORE INFORMATION).

4. CONTRACTOR SHALL EMPLOY A SOILS TESTING LABORATORY APPROVED BY THE ENGINEER TO PERFORM TESTING SERVICES AS REQUIRED BY THE SPECIFICATIONS AND TO INSPECT ALL BEARING SURFACES OF SLABS AND FOUNDATIONS.

5. NOTIFY ENGINEER OF RECORD IF FOUNDATION CONDITIONS ENCOUNTERED DIFFER FROM SOILS EXPLORATION INFORMATION MADE AVAILABLE TO THE CONTRACTOR.

6. REMOVE ALL EXISTING PAVEMENT, STRUCTURES AND FOUNDATIONS, AND TOPSOIL, UNSUITABLE FILLS AND ORGANIC SOILS ENCOUNTERED WITHIN AND BELOW THE AREA TO BE OCCUPIED BY SLABS ON GRADE AND FOUNDATIONS. THESE MATERIALS SHALL NOT BE USED FOR FILL WITHIN OR ADJACENT TO THE BUILDING.

7. CHANGES IN ELEVATION OF WALL FOOTING SHALL BE MADE IN STEPS NOT MORE THAN 2'-0" HIGH AND AT LEAST 4'-0" APART, UNLESS DETAILED OTHERWISE. SEE TYPICAL FOOTING STEP DETAIL.

8. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL PROVIDE TEMPORARY SHORING, BRACING, UNDERPINNING, AND OTHER MEASURES NECESSARY TO INSURE STABILITY AND SAFETY DURING ERECTION AND CONSTRUCTION AND TO PREVENT MOVEMENT OF SOIL THAT COULD DAMAGE EXISTING STRUCTURES, PAVEMENT, UTILITIES, ETC.

9. AFTER EXCAVATING FOR SLABS ON GRADE, THE EXPOSED NATURAL SOIL SHALL BE THOROUGHLY COMPACTED PER GEOTECHNICAL REPORT PRIOR TO PLACING THE GRANULAR MATERIAL.

10. CENTER FOOTINGS UNDER COLUMNS AND WALLS UNLESS NOTED OTHERWISE.

11. THE DIFFERENCE IN ELEVATION OF THE BACKFILL ON THE INSIDE AND OUTSIDE OF WALLS SHALL NOT EXCEED TWO FEET UNTIL THE FIRST FLOOR STRUCTURE SUPPORTING THE WALLS IS IN PLACE, UNLESS THE WALL IS BRACED TO PREVENT MOVEMENT.

12. UNLESS NOTED OTHERWISE ON THE CIVIL/SITE DRAWINGS, PROVIDE A MINIMUM 2% GRADE WITHIN 10-FEET OF THE PERIMETER OF THE FOUNDATION SYSTEM TO ALLOW SURFACE WATER TO DRAIN AWAY.

13. DO NOT PLACE FILL OR CONCRETE ON FROZEN GROUND.

CAST-IN-PLACE CONCRETE AND REINFORCEMENT:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318.

2. CONCRETE SHALL HAVE THE FOLLOWING 28-DAY COMPRESSIVE STRENGTHS:
   CAST-IN-PLACE CONCRETE:
   EXTERIOR CONCRETE 4,500 PSI
   INTERIOR CONCRETE 4,000 PSI
   FILL CONCRETE: 1,500 PSI

3. USE 6% ±1.5%, ENTRAINED AIR PER ASTM C260 FOR ALL CONCRETE EXPOSED TO WEATHER.

4. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60. ALL REINFORCING TO BE WELDED SHALL CONFORM TO ASTM A706.

5. ALL WELDED WIRE REINFORCING SHALL CONFORM TO ASTM A1064 PROVIDED IN FLAT SHEETS OR ROLLS.

6. ADMIXTURES SHALL CONTAIN NO MORE THAN 0.05% CHLORIDE IONS BY WEIGHT OF CEMENT WHEN TESTED IN ACCORDANCE WITH AASHTO T260.

7. CONTRACTOR SHALL KEEP A COPY OF "FIELD REFERENCE MANUAL: STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE ACI 301 WITH SELECTED ACI REFERENCES", (ACI PUBLICATION SP-15) AT THE PROJECT FIELD OFFICE.

8. ALL REINFORCING DETAILS SHALL CONFORM TO THE ACI DETAILING MANUAL, SP-66, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.

9. SUBMIT FOR APPROVAL CONCRETE MIX DESIGN AND CERTIFICATION OF CONCRETE MATERIALS CONFORMING TO THE FOLLOWING EXPOSURE CATEGORIES:

CATEGORY	FOOTINGS, INTERIOR SLAB-ON-GRADE NON-AIR ENTRAINED CLASS:	PIERS, WALLS, EXTERIOR SLABS AIR ENTRAINED CLASS:
FREEZE AND THAWING	F0	F3
SULFATE	S1	S1
IN CONTACT WITH WATER	W1	W1
CORROSION PROTECTION	C2	C2

10. THE CONTRACTOR SHALL EMPLOY A TESTING LABORATORY APPROVED BY THE ENGINEER/ARCHITECT TO PERFORM THE TESTING SPECIFIED PER PARAGRAPH 1.6.4 OF ACI 301. THE TESTING LABORATORY SHALL MEET THE REQUIREMENTS OF ASTM E329. TESTING SHALL BE MADE BY AN ACI CONCRETE FIELD-TESTING TECHNICIAN GRADE 1 OR APPROVED EQUIVALENT. A TECHNICIAN GRADE 1 SHALL BE PRESENT DURING ALL CONCRETE PLACEMENT.

11. SUBMIT SHOP DRAWINGS FOR REVIEW. THESE DRAWINGS SHALL SHOW ALL CONCRETE MEMBER DIMENSIONS AND DOWELS FOR MASONRY WALLS.

12. PROVIDE DOWELS FROM FOUNDATIONS TO MATCH PIER AND WALL VERTICAL REINFORCING. WHERE SHOWN, PROVIDE DOWELS OUT OF WALLS TO MATCH SLAB REINFORCING.

13. PROVIDE CLASS "B" TENSION LAP SPLICE OR FULL MECHANICAL SPLICE (ACI 318, SECT. 12.14.3) FOR ALL VERTICAL STEEL IN WALLS, COLUMNS, AND SLABS. SEE LAP SCHEDULE ON SHEET SX.XX FOR LAP LENGTHS, UNO.

14. PROVIDE ADEQUATE BOLSTERS, HI-CHAIRS, SUPPORT BARS, ETC., TO MAINTAIN SPECIFIED CLEARANCES FOR THE ENTIRE LENGTH OF ALL REINFORCING BARS. SUPPORTS THAT BEAR DIRECTLY ON EXPOSED SURFACES SHALL BE STAINLESS STEEL.

15. ALL SLABS SHALL BE POURED MONOLITHICALLY, EXCEPT FOR THE REQUIRED CONSTRUCTION JOINTS.

16. PROVIDE PERIMETER INSULATION AGAINST EXTERIOR FOUNDATION WALLS AND GRADE BEAMS AND UNDER THE SLAB ADJACENT TO THE EXTERIOR OF THE BUILDING AS SHOWN ON THE ARCHITECTURAL DRAWINGS.

17. PROVIDE 3/4 INCH CHAMFER ON ALL EXPOSED CORNERS OF SLABS UNLESS OTHERWISE INDICATED ON THE ARCHITECTURAL DRAWINGS. MINIMUM CLEARANCES FOR REINFORCING STEEL SHALL BE MAINTAINED.

18. CURE ALL CONCRETE FOR A MINIMUM 7-DAYS. APPLY CURING COMPOUND AT THE MAXIMUM COVERAGE RATE OF 300 SQUARE FEET PER GALLON. USE PRODUCT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SEE SPECIFICATIONS.

19. ALL CONSTRUCTION JOINTS SHALL BE KEYED. PROVIDE KEYWAYS AT MEMBER CENTERLINE WITH A DEPTH OF 1-1/2 INCH AND HEIGHT EQUAL TO ONE-THIRD OF THE MEMBER'S DEPTH/THICKNESS.

20. CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS OF CONSTRUCTION JOINTS NOT INDICATED ON THE DRAWINGS FOR REVIEW BY THE ENGINEER/ARCHITECT.

21. ALL ALUMINUM IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED WITH GRAY EPOXY PRIMER, APPROVED BY THE ENGINEER.

22. FORMWORK, FOR ALL CONCRETE THAT WILL BE EXPOSED IN THE COMPLETED STRUCTURE, SHALL BE CONSTRUCTED FROM A METAL OR SUITABLE SURFACE PLYWOOD THAT WILL PRODUCE AN ACCEPTABLY SMOOTH SURFACE. SEE SPECIFICATIONS.

23. PITCH CONCRETE SLABS TO FLOOR DRAINS SHOWN ON MECHANICAL OR ARCHITECTURAL DRAWINGS.

24. CONCRETE PROTECTION (CLEAR COVER) FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
   a. FOOTINGS:
      - 3 INCHES, BOTTOM AND UNFORMED EDGES
      - 2 INCHES, FORMED EDGES
      - 2 INCHES, EXPOSED TO EARTH, WATER OR WEATHER
      - 2 INCHES, BOTTOM, ON CONCRETE MUDMAT
   b. PIERS:
      - 1 1/2 INCH TO TIES
      - 2 INCH FOR VERTICAL REINFORCEMENT

PRECAST CONCRETE:

1. ALL PRECAST MEMBERS SHALL BE DESIGNED AND FABRICATED IN ACCORDANCE WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;" ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE;" PCI 116-13, "MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST PRESTRESSED PRODUCTS;" AND PCI 135-00, "TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION;" AND "THE PCI DESIGN HANDBOOK."

2. THE MANUFACTURER OF THE PRECAST CONCRETE MEMBERS SHALL BE CERTIFIED BY THE "PRECAST CONCRETE INSTITUTE"(PCI) BY THE BID DATE. THE CERTIFICATION GROUP SHALL BE GROUP "C" FOR STRUCTURAL MEMBERS.

3. PRECAST CONCRETE MEMBERS SHALL CONFORM TO THE APPLICABLE "CONCRETE AND REINFORCEMENT" NOTES.

4. THE FIELD ERECTION CREW FOR PRECAST MEMBERS SHALL BE QUALIFIED BY PCI'S CERTIFICATE OF COMPLIANCE TO ERECT CATEGORY S1-SIMPLE STRUCTURAL SYSTEMS.

5. PRECAST MANUFACTURER SHALL SUBMIT SHOP DRAWINGS WITH DESIGN CALCULATIONS SIGNED AND SEALED BY A REGISTERED ENGINEER IN THE STATE OF THE PROJECT FOR REVIEW PRIOR TO MANUFACTURING. SHOP DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH THE PCI "DRAFTING HANDBOOK -PRECAST AND PRESTRESSED CONCRETE, SECOND EDITION, MNL-119-90. "

6. SHOP DRAWINGS SHALL BE COORDINATED BY THE CONTRACTOR WITH ARCHITECTURAL, MECHANICAL, PLUMBING AND OTHER DRAWINGS AS REQUIRED FOR EQUIPMENT WEIGHTS, PADS, OPENINGS, CONSTRUCTION JOINTS AND OTHER DETAILS PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER FOR REVIEW.

7. PRECAST CONCRETE MEMBERS SHALL BE DESIGNED AND CONSTRUCTED UTILIZING THE FOLLOWING MATERIALS, UNLESS NOTED OTHERWISE:
   a. CONCRETE:
      - COMPRESSIVE STRENGTH AT 28 DAYS: 5,000 PSI
      - COMPRESSIVE STRENGTH AT RELEASE: 3,500 PSI
      - TILT-UP WALL PANELS: 3,000 PSI AT LIFTING, 5,000 PSI AT 28DAYS
   b. REINFORCING STEEL:
      - DEFORMED BARS: ASTM A615, GRADE 60; ASTM A706, GRADE 60 FOR REINFORCING TO BE WELDED; ASTM A996, GRADE 60 FOR RAIL/AXLE STEEL
      - TENDONS: ASTM A416, GRADE 250

8. PRECAST MEMBERS SHALL BE DESIGNED BY THE MANUFACTURER FOR COMPOSITE ACTION TO SUPPORT THE FOLLOWING SUPERIMPOSED DEAD LOADS, IN ADDITION TO THE SUPERIMPOSED LIVE LOADS AS GIVEN IN THE NOTES, PLUS THE DEAD LOAD OF THE PRECAST MEMBER AND TOPPING.
   a. TYPICAL FLOORS: 15 PSF
   b. MECHANICAL AREAS: 25 PSF
   c. USE LINE LOAD OF 600 PLF FOR ALL NON-BEARING MASONRY WALLS. COORDINATE LOCATION OF WALLS WITH ARCHITECTURAL DRAWINGS.

9. PRECAST MANUFACTURER SHALL PROVIDE 3/4 INCH MINIMUM COVER FOR ALL REINFORCING STEEL.

10. PRECAST MANUFACTURER SHALL PROVIDE CAST-IN-PLACE ANCHORS, INSERTS, ETC., WITH SUFFICIENT ANCHORAGE AND EMBEDMENT FOR THE SPECIFIED DESIGN REQUIREMENTS. AIR RELIEF HOLES SHALL BE PROVIDED IN THE HORIZONTAL SURFACES OF ALL CAST-IN PLATES AND ANGLES OVER 3" IN WIDTH WHEN SUCH SURFACES ARE ABOVE THE BOTTOM OF THE PRECAST MEMBER IN THE CASTING POSITION.

11. ALL PRECAST MEMBERS TO RECEIVE TOPPING SHALL HAVE AN INTENTIONALLY ROUGHENED SURFACE WITH A MINIMUM AMPLITUDE OF 1/4 INCH.

12. ELASTOMERIC MATERIALS OF A STRUCTURAL (NON-COMMERCIAL) GRADE CONFORMING TO THE REQUIREMENTS OF SECTION 18, DIVISION 2, OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES 17TH EDITION HAVING A MINIMUM DUROMETER HARDNESS OF 70 SHOULD BE USED UNDER BEARING SURFACES OF PRECAST FLOOR AND ROOF PLANKS. ALL MATERIAL SHALL BE NEW WITH NO RECLAIMED MATERIAL INCORPORATED IN THE FINISHED BEARING PAD.

13. PRECAST INSTALLER SHALL SET UNITS LEVEL AND SQUARE, KEEPING UNITS TIGHT AND IN PROPER ALIGNMENT WITH SUPPORTS. MAXIMUM DIFFERENTIAL CAMBER BETWEEN ADJACENT ELEMENTS SHALL NOT EXCEED 1/4" PER 10'-0"OF LENGTH BUT NOT GREATER THAN 3/4 ". CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO CONFORM TO THESE TOLERANCES INCLUDING, BUT NOT LIMITED TO THE ADJUSTMENT OF BEARING HEIGHTS.

14. PRECAST CONCRETE SLABS AND TEES SHALL HAVE A MINIMUM BEARING SURFACE OF 3 " ON ALL SUPPORTING ELEMENTS, UNLESS NOTED OTHERWISE.

15. PRECAST INSTALLER SHALL WELD MEMBERS TO SUPPORTS, AS SHOWN ON THE DRAWINGS. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1.

16. PRECAST MANUFACTURER SHALL PROVIDE STANDARD SHEAR CONNECTORS IN THE FLANGES OF PRECAST TEES AS SHOWN ON DETAILS. FIELD WELD AS INDICATED IN ACCORDANCE WITH AWS D1.1 SECTION 7.

17. REINFORCING STEEL THAT MAY BE SHOWN IN DETAILS IS FOR IN-PLACE CONDITION. ALL INSERTS, BRACES, STRONGBACKS AND OTHER REQUIRED ACCESSORIES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AND SHALL BE LOCATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF RICHMOND BULLETIN NO. 8, "PRODUCTS FOR PRECAST/PRESTRESSED CONCRETE CONS"RUCTION." THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING SPECIAL REINFORCING ELEMENTS THAT MAY BE REQUIRED TO PREVENT FLEXURAL CRACKS FROM OCCURRING IN THE PANELS DURING LIFTING AND HANDLING OPERATIONS.

18. THE CONTRACTOR SHALL GROUT PRECAST MEMBERS AS OUTLINED BELOW:
   a. BETWEEN SLAB EDGES: FILL GROUT KEYS FULL AND STRIKE OFF FLUSH WITH TOP SURFACE. REMOVE ANY GROUT WHICH SEEPS THROUGH TO UNDERSIDE OF UNITS BEFORE IT HARDENS. CLEAN EXCESS FROM FACES AND FLOORS BELOW.
   b. AT SLAB ENDS: WHERE END GROUTING IS SHOWN ON THE DRAWINGS, PROVIDE SUITABLE END CAP OR DAM IN VOIDS.

19. PRECAST MANUFACTURER/DESIGNER AND CONTRACTOR SHALL COORDINATE WITH OTHER TRADES IN PERMITTING THE INSERTION OF ANCHORS, HANGERS, ELECTRICAL OUTLETS, ETC.

20. PRECAST MANUFACTURER AND GENERAL TRADES CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF ALL HOLES AND OPENINGS REQUIRED THROUGH THE HOLLOW CORE SLABS WITH THE TRADES REQUIRING THE OPENINGS.

21. NOT ALL HOLES AND OPENINGS ARE SHOWN ON THE STRUCTURAL DRAWINGS. THOSE WHICH ARE SHOWN SHALL BE CAST-IN OR CUT-IN BY THE MANUFACTURER. ALL OPENINGS LARGER THAN ONE SLAB WIDTH ARE TO BE FRAMED WITH CONCRETE OR STRUCTURAL STEEL HEADERS, DESIGNED AND PROVIDED BY THE MANUFACTURER. ADJACENT UNITS SHALL BE DESIGNED TO SUPPORT THE ADDITIONAL LOAD.

22. OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE FIELD CUT BY THE GENERAL TRADES CONTRACTOR AT THE EXPENSE OF THE TRADE REQUIRING THE OPENING, THE MANUFACTURER, HOWEVER, IS RESPONSIBLE FOR DESIGNING THE AFFECTED HOLLOW CORE PLANKS TO ACCOMMODATE THESE OPENINGS BY PROVIDING NECESSARY ADDITIONAL REINFORCING IN UNIT WITH OPENING AND IN ADJACENT UNITS. FIELD CUT HOLES MAY BE DRILLED OR CUT AND TRIMMED WITH A CHISEL. CUT OUTLINE OF HOLE THROUGH LOWER PORTION OF SLAB FROM UNDERSIDE, AFTER WHICH THE TOPSIDE MAY BE REMOVED FROM ABOVE. DO NOT CUT PRESTRESSING S"RANDS WITHOUT APPROVAL OF THE MANUFACTURER AND THE ARCHITECT.

23. ALL PRECAST FLOOR MEMBERS SHALL BE DESIGNED FOR A FIRE RATING OF 2 HOURS, UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS. THE SPECIFIED UNIFORM SLAB THICKNESS DURING CONCRETE PLACEMENT SHALL BE MAINTAINED IN ORDER TO ACHIEVE THIS FIRE RATING.

CONCRETE MASONRY:

1. MASONRY IS SUPPORTED IN THE COMPLETED CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SUPPORTING THE MASONRY DURING CONSTRUCTION IN CONFORMANCE WITH LOCAL, STATE AND NATIONAL LAWS AND AS REQUIRED.

2. MASONRY CONSTRUCTION AND MATERIAL SHALL CONFORM TO ALL REQUIREMENTS OF "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1/ASCE 6) EXCEPT AS MODIFIED IN THE SPECIFICATIONS AND BELOW. A COPY OF ACI 530.1/ASCE 6 SHALL BE ON THE JOB SITE AT ALL TIMES THAT MASONRY WORK IS BEING PERFORMED.

3. SUBMIT FOR REVIEW, PRIOR TO CONSTRUCTION, SHOP DRAWINGS SHOWING A PLAN AND ELEVATION VIEW OF ALL CMU WALL, AND A PLAN THAT SHOWS ALL DOWELS REQUIRED FOR VERTICAL CMU REINFORCING THAT EXTEND OUT OF CONCRETE. SHOW WALL THICKNESS, AND DIMENSION WALL LENGTH AND LOCATION. SHOWING TOP ELEVATIONS OF WALLS, BOND BEAMS AND GROUT POURS. SHOW LOCATION OF CONTROL JOINT LOCATIONS, SOLID UNITS, CELLS TO BE GROUT FILLED, OPENING, LINTEL, JOINT REINFORCEMENT, REINFORCING BAR AND EMBEDMENT.

4. SUBMIT FOR REVIEW, PRIOR TO CONSTRUCTION, DOCUMENTATION FOR THE BLOCK, MORTAR, GROUT, ADMIXTURES, REINFORCING, BAR POSITIONER AND OTHER ACCESSORIES PROPOSED FOR USE. SUBMIT A WRITTEN DESCRIPTION OF THE METHOD OF REINFORCEMENT AND GROUT, AND OF GROUT CONSOLIDATION.

5. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, NORMAL WEIGHT.

6. CONCRETE MASONRY UNITS WHICH CONTAIN VERTICAL REINFORCEMENT SHALL BE TWO CORE UNITS AND WITH CORES AND WEBS VERTICALLY ALIGNED.

7. MORTAR FOR CONCRETE MASONRY UNITS SHALL BE NON-AIR ENTRAINED PORTLAND CEMENT-LIME CONFORMING TO ASTM C270, TYPE S. CEMENT IN MORTAR SHALL BE LOW-ALKALI AND NON-STAINING. TYPE N MORTAR AND MASONRY CEMENT SHALL NOT BE USED FOR CMU CONSTRUCTION.

8. ADMIXTURES SHALL NOT BE USED IN THE MORTAR OR GROUT. ANTIFREEZE AND CALCIUM CHLORIDE SHALL NOT BE USED.

9. MINIMUM NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE:
   NET AREA COMPRESSIVE STRENGTH OF ASTM C90 CMU, f'_{cmu} = 2,000 PSI
   NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY, f'_m = 2,000 PSI

10. COARSE GROUT SHALL CONFORM TO ASTM C476 WITH A MAXIMUM AGGREGATE SIZE OF 3/8" AND A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI.

11. ALL LOAD BEARING CONCRETE BLOCK WALLS SHALL BE REINFORCED VERTICALLY AS SHOWN ON PLAN, UNLESS NOTED OTHERWISE.

12. PROVIDE (1) #5 VERTICAL BAR IN FIRST CORE AT EACH CORNER, END OF WALL, AND ADJACENT TO OPENINGS AND CONTROL JOINTS.

13. VERTICAL REINFORCEMENT SHALL EXTEND THROUGH BOND BEAMS AND TO WITHIN 2 INCHES OF THE TOP OF WALLS.

14. REINFORCING STEEL SPLICES SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS BUT NO LESS THAN 12 INCHES, UNLESS NOTED OTHERWISE.

15. ANCHORAGE OF REINFORCING STEEL INTO CONCRETE SHALL BE 36 BAR DIAMETERS BUT NO LESS THAN 12 INCHES, UNLESS NOTED OTHERWISE.

16. HORIZONTAL JOINT REINFORCING SHALL BE, UNLESS SHOWN OTHERWISE, STANDARD 9 GAGE, LADDER TYPE CONFORMING TO ASTM A951, SPACED VERTICALLY AT 8 INCH ON CENTERS ABOVE AND BELOW OPENINGS FOR THREE CONSECUTIVE COURSES AND AT 16 INCHES ON CENTERS ELSEWHERE. EXTEND REINFORCEMENT 2 FEET BEYOND EACH SIDE OF OPENINGS BUT DO NOT EXTEND THROUGH CONTROL JOINTS. PROVIDE FACTORY FABRICATED "T" AND "L" SHAPED PIECES AT INTERSECTIONS AND CORNERS.

17. JOINT REINFORCEMENT SHALL BE SPLICED BY LAPPING THE LONGITUDINAL WIRES AT LEAST 12 INCHES; THE CROSS-WIRES WITHIN THE LAP SHALL BE REMOVED SO THAT THE LONGITUDINAL WIRES ARE SIDE BY SIDE. ALTERNATELY WHERE JOINT REINFORCING IS NOT REQUIRED IN BETWEEN EACH COURSE, SPLICES MAY BE MADE BY ABUTTING THE ADJACENT SECTIONS OF JOINT REINFORCING AND CENTERING A 48 INCH LENGTH OF JOINT REINFORCING IN THE BED JOINT IMMEDIATELY ABOVE OR BELOW THE BUTT JOINT. SPLICE WITH "T" AND "L" SHAPED PIECES AT INTERSECTIONS AND CORNERS.

18. LINTELS SHALL BE PROVIDED OVER ALL OPENINGS AND OVER RECESSES WIDER THAN 12 INCHES IN ACCORDANCE WITH THE ACCOMPANYING LINTEL SCHEDULE, UNLESS NOTED OTHERWISE ON DRAWINGS.

19. FOR LINTELS ENDING AT A CONTROL JOINT, PROVIDE 15 POUND FELT BOND BREAKER UNDER LINTEL BEARING AND A HORIZONTAL DUMMY CONTROL JOINT ON EXPOSED FACES. NO MORTAR OR GROUT SHALL BE IN THE HEAD JOINT OF DUMMY CONTROL JOINTS OPPOSITE THE BLOCK SHELL. PROVIDE A POSITIVE MEANS OF PREVENTING GROUT FROM ENTERING DUMMY JOINT OPPOSITE THE BLOCK SHELL. DUMMY JOINT SHALL BE CAULKED AND MATCH COLOR OF MORTAR.

20. BOND BEAMS SHALL BE PROVIDED IN EACH WALL AT EACH FLOOR LEVEL, ROOF LEVEL, AND AT TOP OF WALL. FILL BOND BEAMS WITH GROUT. REINFORCE BOND BEAMS WITH (2) # 5 UNLESS NOTED OTHERWISE. PROVIDE CORNER BARS WITH 2'-0" LEGS AND BAR SUPPORTS TO OBTAIN THE REQUIRED CLEARANCE.

21. BOND BEAMS AT THE TOP OF SLOPED WALLS SHALL FOLLOW THE SLOPE OF THE WALL. CUT OUT WEB OF BLOCKS SO THAT THE REINFORCING BAR(S) ARE 4 INCHES CLEAR OF THE TOP OF THE WALL. A MINIMUM OF 8 INCHES VERTICALLY SHALL BE GROUT FILLED. (SEE TYPICAL SLOPED BOND BEAM DETAIL).

22. BOND BEAM REINFORCEMENT AND GROUT AT WALL CONTROL JOINTS SHALL BE CONTINUOUS. PROVIDE A DUMMY CONTROL JOINT IN BOTH FACES OF BOND BEAM ALIGNED WITH WALL CONTROL JOINTS. THE BLOCK FACE SHELLS AT DUMMY CONTROL JOINTS SHALL BE FREE OF MORTAR AND GROUT. THE DUMMY CONTROL JOINT IN EXPOSED FACES SHALL HAVE BACKING ROD AND CAULK SEAL AS REQUIRED FOR THE CONTROL JOINT.

23. VERTICAL CONTROL JOINTS IN CONCRETE MASONRY WALLS (OTHER THAN BASEMENT WALLS) SHALL BE PROVIDED WHERE SHOWN ON THE PLANS AND AS GIVEN BELOW:
   a. AT 25 FEET OR LESS ON CENTERS BUT NOT MORE THAN 1 1/2 TIMES THE WALL HEIGHT
   b. AT A DISTANCE NOT OVER ONE-HALF THE ABOVE SPACING FROM BONDED INTERSECTIONS OR CORNERS.
   c. AT ONE END OF A LINTEL FOR WALL OPENINGS SIX FEET OR LESS IN WIDTH
   d. AT BOTH ENDS OF LINTELS FOR OPENINGS MORE THAN SIX FEET WIDE
   e. ALL ABRUPT CHANGES IN WALL HEIGHT.
   f. AT ALL CHANGES IN WALL THICKNESS, SUCH AS THOSE AT PIPE AND DUCT CHASES AND THOSE ADJACENT TO COLUMNS OR PILASTERS.
   g. ABOVE JOINTS IN FOUNDATIONS AND FLOORS.
   h. BELOW JOINTS IN ROOFS AND FLOORS THAT BEAR IN THE WALL.
   i. WHERE SHOWN IN BRICK OR OTHER VENEER.

24. CONTROL JOINTS SHALL NOT OCCUR AT WALL CORNERS, INTERSECTIONS, ENDS, WITHIN 2'-0" OF CONCENTRATED POINTS OF BEARING, OR JAMBS OVER OPENINGS UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.

25. ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID.

26. ANCHOR MASONRY TO STRUCTURAL MEMBERS WITH ADJUSTABLE TIES SPACED AS INDICATED, BUT NOT MORE THAN 16" OC VERTICALLY AND 24" OC HORIZONTALLY.

27. PROVIDE AN EXPANSION JOINT WHERE THE TOP OF BRICK ABUTS CONCRETE OR STEEL AND WHERE THE SIDE OF BRICK ABUTS CONCRETE, CONCRETE BLOCK OR STEEL.

28. MECHANICALLY VIBRATE GROUT IN VERTICAL SPACES IMMEDIATELY AFTER POURING AND AGAIN MINUTES LATER.

29. PROVIDE CLEANOUTS IF GROUT LIFT EXCEEDS 4'-0" IN BLOCK WALLS. MAXIMUM GROUT LIFT SHALL BE 8'-0".

30. SEE VENEER ANCHORAGE NOTES FOR ATTACHMENT OF VENEER TO BLOCK WALLS.

VENEER ANCHORAGE:

1. MASONRY VENEER SHALL BE LAID IN RUNNING BOND. (COORDINATE VENEER CONSTRUCTION WITH ARCHITECTURAL DRAWINGS.)

2. A MINIMUM 1-INCH AIR SPACE AND A 4-1/2 INCH MAXIMUM DISTANCE SHALL BE MAINTAINED BETWEEN THE INSIDE FACE OF THE VENEER AND THE WOOD STUD OR WOOD FRAMING, COLD-FORMED METAL FRAMING OR MASONRY BACKUP.

3. VENEER ANCHORS SHALL CONSIST OF AT LEAST A 9-GAGE GALVANIZED WIRE AND HAVE ENDS BENT TO FORM AN EXTENSION FROM THE BEND AT LEAST 2 INCHES LONG.

4. FOR CONCRETE OR CONCRETE MASONRY BACKING:
   a. MASONRY VENEER SHALL BE ATTACHED TO CONCRETE OR CONCRETE MASONRY BACKUP UTILIZING WIRE ANCHORS EMBEDDED IN THE MORTAR JOINT.
   b. PROVIDE AT LEAST ONE ANCHOR FOR EACH 3.5 SQUARE FEET OF WALL AREA. SPACING OF ANCHORS SHALL NOT EXCEED A MAXIMUM OF 32 INCHES HORIZONTALLY AND 18 INCHES VERTICALLY.

5. WIRE ANCHORS SHALL EXTEND INTO THE VENEER A MINIMUM OF 1-1/2 INCHES WITH AT LEAST 5/8-INCH MORTAR COVER TO THE OUTSIDE FACE.

6. FOR ADJUSTABLE ANCHORS, THE MAXIMUM C

POST-INSTALLED FASTENERS CONT:

i. FASTENERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING IN COORDINATION WITH INFORMATION HEREIN. THE STRUCTURAL ENGINEER SHALL BE NOTIFIED IF CONFLICTS EXIST BETWEEN THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND THE REQUIREMENTS HEREIN.

i. REINFORCEMENT STEEL SHALL NOT BE CUT. PRIOR TO DRILLING THE CONCRETE, THE CONTRACTOR SHALL BE LOCATED WITH A MAGNETIC BAR LOCATOR.POST-INSTALLED BOLTS AND FASTENERS SHALL BE INSTALLED TO MISS REINFORCEMENT STEEL IN CONCRETE. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS.

i. DRILL HOLES USING ROTARY PERCUSSION DRILL WITH A DEPTH GAGE. DO NOT DRILL THROUGH FULL THICKNESS OF CONCRETE. USE OF A DIAMOND CORE BIT WITH ROUGHENING TOOL FOR ANCHOR HOLES MUST BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO DRILLING. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, ALL HOLES SHALL BE DRILLED PERPENDICULAR TO THE CONCRETE SURFACE. CLEAN HOLES IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. IF CONCRETE IS DAMP, BLOW DRY HOLE WITH OIL-FREE COMPRESSED AIR. CLEAN HOLE WITH WATER ONLY IF RECOMMENDED BY MANUFACTURER. ADHESIVE ANCHORS MAY NOT BE SET IF WATER IS SEEPING INTO HOLE AND THE STRUCTURAL ENGINEER. OF RECORD SHALL BE NOTIFIED.

i. ANCHOR SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE SUBMITTED AND APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE DOUCMENTATION DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF MEETING THE PERFORMANCE OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE FOR ITS USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, MOISTURE CONDITION OF CONCRETE, AND DRILLING METHODS.

'. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER 'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF ANCHOR INSTALLATION.

i. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS. CONTRACTOR SHALL CONTACT STRUCTURAL ENGINEER SHOULD THE LAYOUT OF THE ANCHOR, EMBEDMENT, SPACING OR EDGE DISTANCES, IS MODIFIED.

i. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES:

a. ANCHORAGE TO CONCRETE:
   - ADHESIVE ANCHORS:
     1. HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HIT-Z ROD
     2. HILTI HIT-HY 200 SAFE SET SYSTEM INSTALLED USING HILTI HOLLOW DRILL BIT AND VACUUM WITH HAS-V-36 GRADE 36 THREADED ROD
     3. HILTI HIT-RE 500v3 SAFE SET SYSTEM INSTALLED USING HILTI HOLLOW DRILL BIT AND VACUUM WITH HAS THREADED ROD
     4. SIMPSON SET-XP WITH ASTM A36 THREADED ROD
     5. SIMPSON SET-XP INSTALLED USING SIMPSON SPEED CLEAN DXS SYSTEM WITH ASTM A36 THREADED ROD
     6. APPROVED EQUAL
   - MECHANICAL ANCHORS:
     1. HILTI KWIK HUS-EZ (KH-EZ), KH-EZ CRC, KH-EZ SS316, KH-EZ C, KH-EZ E, KH-EZ I, AND KH-EZ P SCREW ANCHOR SAFE SET SYSTEM INSTALLED USING HOLLOW DRILL BIT AND VACUUM
     2. HILTI KWIK BOLT-1 EXPANSION ANCHOR
     3. HILTI KWIK BOLT-TZ2 EXPANSION ANCHOR
     4. SIMPSON TITEN HD SCREW ANCHOR
     5. SIMPSON STRONG-BOLT 2 WEDGE ANCHOR
     6. APPROVED EQUAL
   - REBAR DOWELING INTO CONCRETE:
     1. HILTI HIT-HY 200 SAFE SET SYSTEM INSTALLED USING HILTI HOLLOW DRILL BIT AND VACUUM WITH CONTINUOUSLY DEFORMED REBAR
     2. HILTI HIT-HY 500v3 SAFE SET SYSTEM INSTALLED USING HILTI HOLLOW DRILL BIT AND VACUUM WITH CONTINUOUSLY DEFORMED REBAR
     3. SIMPSON SET-XP WITH CONTINUOUSLY DEFORMED REBAR
     4. SIMPSON SET-XP INSTALLED USING SIMPSON SPEED CLEAN DXS SYSTEM WITH CONTINUOUSLY DEFORMED REBAR
     5. APPROVED EQUAL

b. ANCHORAGE TO SOLID GROUTED MASONRY:
   - ADHESIVE ANCHORS:
     1. HILTI HIT-HY 270 SAFE SET SYSTEM INSTALLED USING HILTI HOLLOW DRILL BIT AND VACUUM WITH HILTI HAS CONTINUOUSLY THREADEDED ROD OR DEFORMED REBAR.
     2. SIMPSON SET-XP WITH ASTM A36 THREADED ROD OR CONTINUOUSLY DEFORMED REBAR
     3. SIMPSON SET-XP INSTALLED USING SIMPSON SPEED CLEAN DXS SYSTEM WITH ASTM A36 THREADED ROD OR CONTINUOUSLY DEFORMED REBAR
     4. APPROVED EQUAL
   - MECHANICAL ANCHORS USE:
     1. HILTI KWIK BOLT-1 EXPANSION ANCHOR
     2. HILTI KWIK BOLT-TZ2 EXPANSION ANCHOR
     3. HILTI KH-EZ, KH-EZ CRC, KH-EZ SS316, KH-EZ C, AND KH-EZ P SCREW ANCHORS
     4. SIMPSON STRONG-BOLT 2 WEDGE ANCHOR
     5. SIMPSON WEDGE-ALL WEDGE ANCHOR
     6. APPROVED EQUAL

c. ANCHORAGE TO HOLLOW / MULTI-WYTHE MASONRY:
   - ADHESIVE ANCHORS USE:
     1. HILTI HIT-HY 270 SAFE SET SYSTEM INSTALLED USING THE APPROPRIATE SIZE SCREEN TUBE PER THE ADHESIVE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND A HILTI HOLLOW DRILL BIT AND VACUUM WITH HILTI HAS CONTINUOUSLY THREADEDED ROD OR DEFORMED REBAR.
        SIMPSON SET-XP THE APPROPRIATE SIZE SCREEN TUBE PER THE ADHESIVE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS WITH ASTM A36 THREADED ROD
     2. SIMPSON SET-XP INSTALLED USING SIMPSON SPEED CLEAN DXS SYSTEM WITH ASTM A36 THREADED ROD

d. APPROVED EQUAL

HELICAL PILES:

1. HELICAL PILES SHALL BE INSTALLED TO MEET THE MINIMUM TORQUE REQUIRED TO PROVIDE THE LOAD CAPACITIES SHOWN ON THE PLANS. THE MINIMUM TORQUE SHALL BE ENOUGH TO ACHIEVE THE REQUIRED BEARING CAPACITY, INCLUDING A SAFETY FACTOR OF 2. INSTALLATION TORQUE SHALL BE MONITORED THROUGHOUT THE INSTALLATION PROCESS.

2. HELICAL PILES ARE TO BE DESIGNED AND MANUFACTURED TO RESIST THE STRESSES INDUCED BY THE INSTALLATION OF THE HELICAL PILES INTO THE SOILS AND RESULTING FROM THE APPLIED LOADS.

3. HELICAL PILES ARE TO BE DESIGNED AND MANUFACTURED TO MEET THE CURRENT INTERNATIONAL BUILDING CODE (IBC) USED BY THE STATE IN WHICH THE PROJECT RESIDES. HELICAL PILES SHALL COMPLY WITH 2018 IBC SECTION 1810 AND ARE TO BE DESIGNED AND MANUFACTURED TO RESIST THE STRESSES INDUCED BY THE INSTALLATION OF THE HELICAL PILES AND RESULTING FROM THE APPLIED LOADS.

4. HELICAL PILES MANUFACTURE SHALL POSSES ICC ESR REPORT SHOWING THE HELICAL PILES MEET THE REQUIREMNTS OF THE INTERNATIONAL BUILDING CODE. HELICAL PILES SHALL CONFORM TO ICC-AC358 ACCEPTANCE CRITERIA FOR HELICAL FOUNDATION SYSTEMS.

5. SHOP DRAWINGS SHALL BE SUBMITTED TO THE AOR AND EOR FOR REVIEW 14 DAYS PRIOR TO INSTALLIOIN DATE FOR REVIEW. SHOP DRAWINGS ARE TO BE SUBMITTED WITH STAMPED AND SIGNED CALCULATIONS BY AN ENGINEER IN THE STATE OF THE PROJECT. SUBMITTAL SHALL INCLUDE, BUT IS NOT LIMITED TO, HELICAL PILE PLAN SHOWING LOCATIONS OF PILES, SHAFT SIZES, CONNECTIONS BETWEEN PILE SHAFTS, PLATE BEARING VALUES AND CAPACITIES, HELICAL PILE DESIGN LOADS (COMPRESSION, TENSION, LATERAL, BENDINGS), TYPE AND DIMENSIONS OF CENTRAL STEEL SHAFT, DIMENSIONS OF THE SHAFT, QUANTITY, SIZE, THICKNESS, AND SPACING OF THE HELICAL PLATES, MATERIAL TYPE AND STRENGTH, PROTECTION FROM CORROSION , EMBEDMENT DEPTHS, AND MINIMUM AND MAXIMUM TORGUE CAPACITIES.

6. LOCATIONS OF HELICAL PILES MAY NOT BE CHANGED WITHOUT WRITTEN APPROVAL FROM THE EOR.

7. ALL HELICAL PILES, PLATES AND CONNECTIONS MUST BE CORROSION PROTECTED BY HOT DIP GALVANIZATION PER ASTM A123.

8. SPECIAL INSPECTIONS OF THE HELICAL PILE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1705.9 OF THE 2018 IBC UNLESS EXCEPTIONS NOTED IN SECTION 1704.2 OF IBC ARE MET. THE SPECIAL INSPECTOR SHALL RECORD THE FOLLOWING:
   A. INSTALLATION DATE.
   B. PILE MANUFACTURER.
   C. ALLOWABLE AND ULTIMATE CAPACITY NOTED ON THE SHOP DRAWINGS FOR EACH PILE TYPE INSTALLATION CONTRACTOR.
   D. MINIMUM & MAXIMUM ALLOWABLE INSTALLATION TORQUES, AND ACTUAL TORQUE ACHIEVED DURING INSTALLIZATION.
   E. SHAFT DIAMETER AND THE CONFIGURATION OF HELICAL PLATES ON EACH PILE.
   F. ACTUAL EMBEDMENT OF EACH PILE.

9. SEE BOOK SPECIFICATION FOR ADDITIONAL INFORMATION AND SPECIFICATIONS.

10. GENERAL CONTRACTOR SHALL COORDINATE ALL UTILITIES, UNDERGROUND HAZARDS, AND OBSTRUCTIONS. ENGINEER/DESIGNER DOES NOT HAVE INFORMATION TO LOCATE / COORDINATE OBSTRUCTIONS AND DOES NOT TAKE RESPONSIBILITY FOR ANY UTILITY, UNDERGROUND HAZARD, OR OBSTRUCTION.

11. ALLOWABLE TOLERANCES: CENTERLINE OF HELICAL PILES SHALL NOT BE MORE THAN 3 INCHES FROM INDICATED PLAN LOCATION, HELICAL PILE PLUMBNESS SHALL BE WITHIN 2 DEGREES OF DESIGN ALIGNMENT, AND THE TOP ELEVATION OF HELICAL PILE SHALL BE WITHIN +1 INCH TO –2 INCHES OF THE DESIGN VERTICAL ELEVATION.

SPECIAL INSPECTIONS:
PER THE IBC SECTION 1705, SPECIAL INSPECTIONS ARE REQUIRED FOR THE FOLLOWING ITEMS:

1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:
   a. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK DESIGNATED TO ASSURE IT IS CONSTRUCTED IN CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
   b. THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION REPORTS AND TESTS TO THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.
   c. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK.
   d. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS OR TESTS, SHALL BE SUBMITTED WITHIN THE AGREED UPON TIME TO THE BUILDING OFFICIAL PRIOR TO THE START ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
   e. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A STATEMENT OF RESPONSIBILITY ACKNOWLEDGING THE AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.

2. CONCRETE:
   a. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT. (PERIODIC)
   b. REINFORCING BAR WELDING:
      - VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706. (PERIODIC)
      - INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16" (PERIODIC)
      - INSPECT ALL OTHER WELDS (CONTINUOUS)
   c. INSPECT ANCHORS CAST IN CONCRETE (PERIODIC)
   d. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS:
      - ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. (CONTINOUS)
      - MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED ABOVE. (PERIODIC)
   e. VERIFY USE OF REQUIRED MIX DESIGN. (PERIODIC)
   f. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE. (CONTINUOUS)
   g. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES. (CONTINUOUS)
   h. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES. (PERIODIC)
   i. INSPECT PRESTRESSED CONCRETE FOR:
      - APPLICATION OF PRESTRESSING FORCES. (CONTINUOUS)
      - GROUTING OF BONDED PRESTRESSING TENDONS. (CONTINUOUS)
   j. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS. (PERIODIC)
   k. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS. (PERIODIC).
   l. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED. (PERIODIC).
   m. NO INSPECTION IS REQUIRED FOR SLABS-ON-GRADE.

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

4. SOILS:
   a. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY. (PERIODIC)
   b. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL. (PERIODIC)
   c. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS. (PERIODIC)
   d. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL. (CONTINUOUS)
   e. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PROPERLY PREPARED. (PERIODIC)

5. HELICAL PILE FOUNDATIONS:
   a. VERIFY INSTALLATION EQUIPMENT USED, PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH, FINAL INSTALLTION TORQUE (CONTINUOUS)
   b. VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS. (CONTINUOUS)
   c. DETERMINE THE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED. (CONTINUOUS)
   d. INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT. (CONTINUOUS)
   e. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS. DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT. (CONTINUOUS)

STRUCTURAL DRAWING ABBREVIATIONS

ADDL	ADDITIONAL
ADJ	ADJACENT
ALT	ALTERNATE
&	AND
APPROX	APPROXIMATELY
ARCH	ARCHITECT or ARCHITECTURAL
@	AT or SPACING
B/	BOTTOM OF
BL	BUILDING LINE
BLDG	BUILDING
BM	BEAM
BRG	BEARING
BTWN	BETWEEN
BOT	BOTTOM
CL	CENTERLINE
CLR	CLEAR
CTR	CENTER
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CJ	CONTROL/CONSTRUCTION JOINT
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CUFT	CUBIC FEET
CY	CUBIC YARDS
DEMO	DEMOLITION
DIAG	DIAGONAL
DIA or ø	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDDED, EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EX	EXISTING
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE
FDN	FOUNDATION
FIN	FINISH
FLG	FLANGE
FLR	FLOOR
FS	FARSIDE
FT	FOOT, FEET
FTG	FOOTING
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERAL
GLB	GLUE LAMINATED BEAM
GR	GRADE
GYP BD	GYPSUM BOARD
HC	HOLLOW CORE
HORIZ	HORIZONTAL
HT	HEIGHT
HVY	HEAVY
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFO	INFORMATION
INT	INTERIOR
INV	INVERT
JST	JOIST
JT	JOINT
K	KIPS
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LBS	POUNDS
LF	LINEAL FEET
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MK	MARK
MO	MASONRY OPENING
MTL	METAL
NO or #	NUMBER
NOM	NOMINAL
NS	NEARSIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG	OPENING
PC	PRECAST
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAL FOOT
PLYWD	PLY WOOD
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
RAD	RADIUS
REF	REFERENCE
REINF	REINFORCEMENT, REINFORCING, REINFORCED
REQD	REQUIRED
SCHED	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SOG	SLAB-ON-GRADE
SPA	SPACING
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
STD	STANDARD
STL	STEEL
STR	STRUCTURAL
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
T	TOP
T/	TOP OF
T&B	TOP AND BOTTOM
TEMP	TEMPERATURE STEEL
THRU	THROUGH
TRANS	TRANSVERSE
TYP	TYPICAL
UN or UNO	UNLESS NOTED (OTHERWISE)
VERT	VERTICAL
VIF	VERIFY IN FIELD
w/	WITH
w/o	WITHOUT
WP	WORKPOINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

STATE OF OHIO
BRAD A. FRONEK
E-84405
REGISTERED
PROFESSIONAL ENGINEER
10/30/24

consultants
engineers • architects • planners
a verdantas company

NO	REVISION	DATE

SCALE: AS SHOWN
DATE: 10/30/2024
DESIGNED BY: BF
DRAWN BY: BW
CHECKED BY: BF

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
LAKE COUNTY
MENTOR, OHIO

CHLORINE FEED BUILDING
GENERAL NOTES

PROJECT NO: 232515
DRAWING NAME: SD-02
SHEET: 12 OF: 17

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS OF CONCRETE CONSTRUCTION

REQUIRED	TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
X	1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	-	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
X	2. REINFORCING BAR WELDING:				
X	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	-	X	AWS D1.4 ACI 318: 26.6.4	-
X	b. INSPECT SINGLE-PASS FILLET WELDS, MAZIMUM 5/16"; AND		X		
X	c. INSPECT ALL OTHER WELDS	X			
X	3. INSPECT ANCHORS CAST INTO CONCRETE.	-	X	ACI 318: 17.8.2	-
X	4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.[b]				
X	a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X		ACI 318: 17.8.2.4	-
X	b. MECHANICAL ANCHORS AND ASHESIVE ANCHORS NOT DEFINED IN 4.a.		X	ACI 318: 17.8.2	
X	5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
X	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
X	7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
X	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
X	9. INSPECT PRESTRESSED CONCRETE FOR:				
X	a. APPLICATION OF PRESTRESSING FORCES; AND	X	-	ACI 318: 2610	-
X	b. GROUTING OF BONDED PRESTRESSING TENDONS.	X	-		
X	10. INSPECT ERECTION OF PRESCAST CONCRETE MEMBERS.	-	X	ACI 318: CH. 26.8	-
X	11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11.2	-
X	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: CH. 26.11.2(b)	-

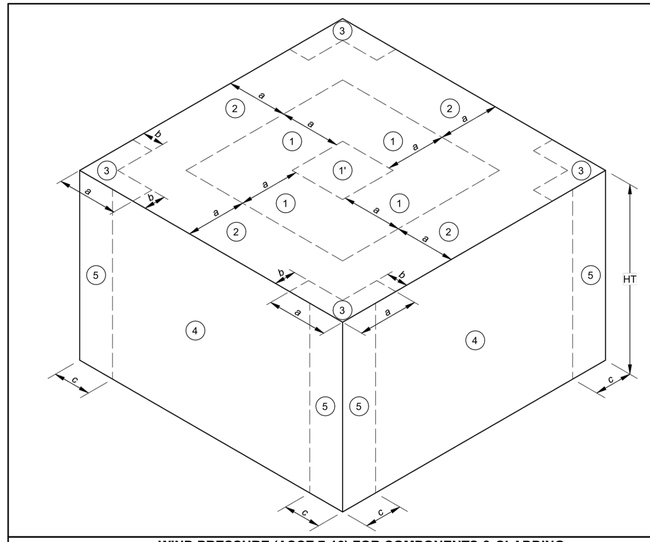
MINIMUM TESTS

VERIFICATION OF f'_m AND f'_{AAC} IN ACCORDANCE WITH SPECIFICATOIN ARTICLE 1.4 B PRIOR TO CONSTRUCTION AND FOR EVERY 5,000 SQ. FT (465 SQ. M) DURING CONSTRUCTION

VERIFICATION OF PROPORTIONS OF MATERIALS IN PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT, AS DELIVIERD TO THE PROJECT SITE

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERD TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1.b.3 FOR SELF-CONSOLIDATING GROUT

REQUIRED	INSPECTION TASK	FREQUENCY		REFERENCE FOR CRITERIA	
		CONTINUOUS	PERIODIC	TMS 402/ ACI 530/ ASCE 5	TMS 602/ ACI 530.1/ ASCE 6
X	1. VERIFY COMPLIANCE WITH APPROVED SUBMITTAL	-	X	-	ART. 1.5
X	2. VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
X	a. PROPORTIONS OF SITE-MIXED MORTAR, GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X	-	ART. 2.1, 2.6 A, 2.6 B, 2.6 C, 2.4 G 1.b
X	b. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	X	SEC. 6.1	ART. 2.4, 3.4
X	c. PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS	-	X	-	ART. 3.3 B
X	d. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES	X	-	SEC. 6.1, 6.2.1, 6.2.6, 6.2.7	ART. 3.2 E, 3.4, 3.6 A
X	e. GROUT SPACE PRIOR TO GROUTING	X	-	-	ART. 3.2 D, 3.2 F
X	f. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	X	-	-	ART. 3.5, 3.6 C
X	g. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	X	-	ART. 3.3 F
X	h. TYPE, SIZE, AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	X	-	SEC. 1.2.1(e), 6.1.4.3, 6.2.1	-
X	i. WELDING OF REINFORCEMENT	X	-	SEC. 8.1.6.7.2, 9.3.3.4 (c), 11.3.3.4(b)	-
X	j. PREPARATION, CONSTRUCTION, AND PRTOECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEG F (4.4 DEG C)) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEG F (32.2 DEG C))	-	X	-	ART. 1.8 C, 1.8 D
X	k. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	-	-	ART. 3.6 B
X	l. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	-	-	ART. 3.3 B.9, 3.3 F.1.b
X	m. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	-	-	ART. 2.1 C.1
X	3. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	X	-	-	ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4



WIND PRESSURE (ASCE 7-16) FOR COMPONENTS & CLADDING

EFFECTIVE AREA OF OPENINGS, A (S.F.)	ZONE 1		ZONE 1'		ZONE 2		ZONE 3		ZONE 4		ZONE 5	
	PRESSURE (PSF)	SUCTION (PSF)	PRESSURE (PSF)	SUCTION (PSF)	PRESSURE (PSF)	SUCTION (PSF)	PRESSURE (PSF)	SUCTION (PSF)	PRESSURE (PSF)	SUCTION (PSF)	PRESSURE (PSF)	SUCTION (PSF)
A ≤ 10	16.00	-50.10	16.00	-28.80	16.00	-66.10	16.00	-90.00	28.80	-31.20	28.80	-38.40
10 < A ≤ 20	16.00	-46.80	16.00	-28.80	16.00	-61.80	16.00	-81.50	27.50	-29.90	27.50	-35.80
20 < A ≤ 50	16.00	-42.40	16.00	-28.80	16.00	-56.20	16.00	-70.30	25.80	-28.20	25.80	-32.40
50 < A ≤ 100	16.00	-39.10	16.00	-28.80	16.00	-51.90	16.00	-61.80	24.50	-26.90	24.50	-29.90

NOTES:
1. VALUES LISTED IN THE ABOVE TABLE ARE BASED UPON AN ENCLOSED BUILDING USING THE SPECIFIED WIND LOADING AS INDICATED IN THE 'DESIGN LOADS' SECTION OF THE GENERAL NOTES.
2. PRESSURE (POSITIVE) AND SUCTION (NEGATIVE) VALUES SIGNIFY LOADING ACTING TOWARDS AND AWAY FROM THE BUILDING SURFACES, RESPECTIVELY (FULL HEIGHT, UNLESS NOTED.)
3. VALUES LISTED IN THE ABOVE TABLE ARE ULTIMATE WIND PRESSURES. TO OBTAIN ALLOWABLE STRESS DESIGN WIND VALUES, MULTIPLY THE VALUES SHOWN IN THE ABOVE TABLE BY 0.6.
4. EFFECTIVE WIND AREAS, UNLESS NOTED OTHERWISE:
   "a" = 0.6h
   "b" = 0.2h
   "c" = 0.4h (3'-0" MIN)
5. SUCTION VALUES LISTED IN ROOF ZONES 1, 1', 2 & 3 INDICATE GROSS UPLIFT PRESSURES.

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DATE: 10/30/2024
DESIGNED BY: BF
DRAWN BY: BW
CHECKED BY: BF

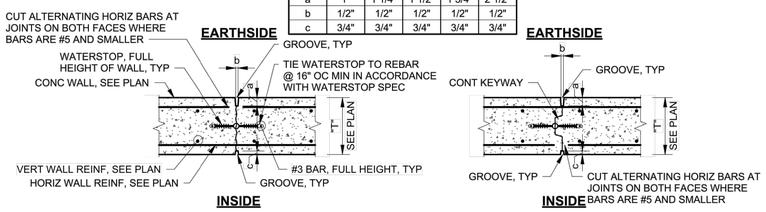
THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR; OHIO
LAKE COUNTY

CHLORINE FEED BUILDING

GENERAL NOTES

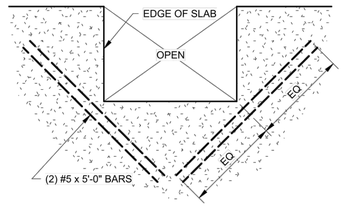
PROJECT NO:
232515
DRAWING NAME
SD-03
SHEET 13 OF 17

GROOVE DIMENSIONS					
DIM	"T" WALL THICKNESS				
	6"	8"	10"	12"	18"
a	1"	1 1/4"	1 1/2"	1 3/4"	2 1/2"
b	1/2"	1/2"	1/2"	1/2"	1/2"
c	3/4"	3/4"	3/4"	3/4"	3/4"



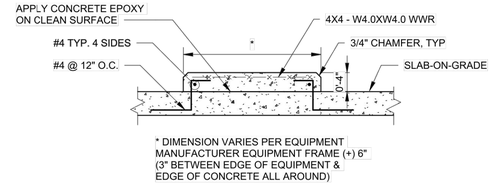
TYPICAL VERTICAL CONTRACTION AND CONSTRUCTION JOINTS IN CONCRETE WALL DETAIL

3/4" = 1'-0"



TYPICAL FLOOR SLAB REINF AT RE-ENTRANT CORNERS DETAIL

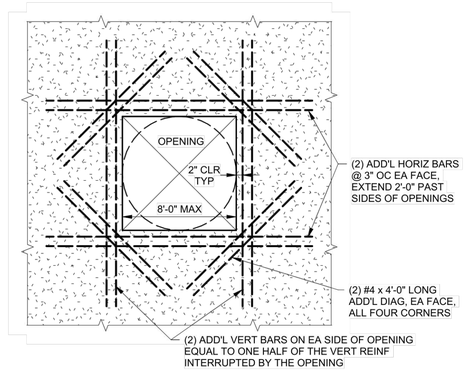
1/2" = 1'-0"



* DIMENSION VARIES PER EQUIPMENT MANUFACTURER EQUIPMENT FRAME (+) 6" (3" BETWEEN EDGE OF EQUIPMENT & EDGE OF CONCRETE ALL AROUND)

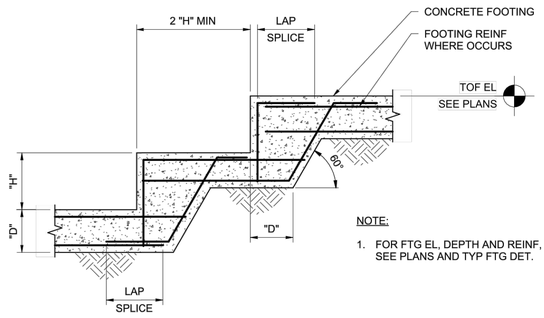
HOUSE KEEPING PAD ON SOG

3/4" = 1'-0"



TYPICAL REINFORCING AT OPENINGS IN CONCRETE WALL DETAIL

1/2" = 1'-0"

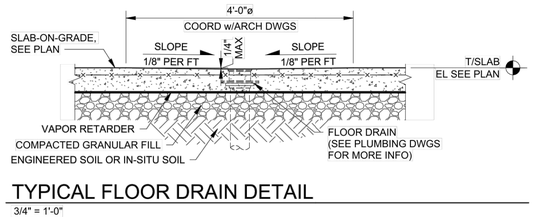


NOTE:

1. FOR FTG EL, DEPTH AND REINF, SEE PLANS AND TYP FTG DET.

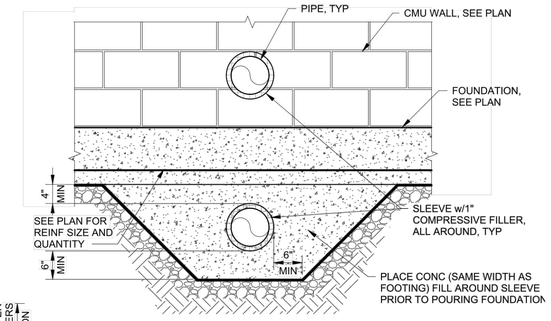
TYPICAL STEPPED FOOTING DETAIL

3/4" = 1'-0"

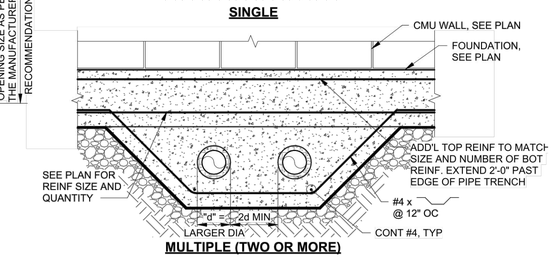


TYPICAL FLOOR DRAIN DETAIL

3/4" = 1'-0"



SINGLE



MULTIPLE (TWO OR MORE)

TYPICAL PIPE PENETRATION DETAIL

3/4" = 1'-0"

LAP TABLE (f'_c = 4,000 PSI)					
BAR SIZE	LAP CLASS	UNCOATED BARS			
		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2
#3	A	19	28	15	22
	B	24	36	19	28
#4	A	25	37	19	29
	B	32	48	25	37
#5	A	31	47	24	36
	B	40	60	31	47
#6	A	37	56	29	43
	B	48	72	37	56
#7	A	54	81	42	63
	B	70	106	54	81
#8	A	62	93	48	71
	B	80	121	62	93

NOTES:

1. TABULATED VALUES ARE BASED ON A MINIMUM YIELD STRENGTH OF 60,000 PSI. LENGTHS ARE IN INCHES.
2. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND OC SPACING OF THE BARS ARE DEFINED AS:
   BEAMS AND COLUMNS
   - CASE 1: CONCRETE COVER AT LEAST 1.0d_b AND OC SPACING AT LEAST 2.0 d_b
   - CASE 2: CONCRETE COVER LESS THAN 1.0d_b OR OC SPACING AT LESS THAN 2.0 d_b

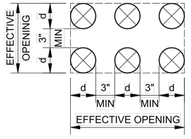
   OTHER BARS
   - CASE 1: CONCRETE COVER AT LEAST 1.0d_b AND OC SPACING AT LEAST 3.0 d_b
   - CASE 2: CONCRETE COVER LESS THAN 1.0d_b OR OC SPACING AT LESS THAN 3.0 d_b
3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.

LAP TABLE (f'_c = 4,500 PSI)					
BAR SIZE	LAP CLASS	UNCOATED BARS			
		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2
#3	A	18	26	14	20
	B	23	34	18	26
#4	A	23	35	18	27
	B	30	45	23	35
#5	A	29	44	23	34
	B	38	56	29	44
#6	A	35	53	27	40
	B	45	68	35	53
#7	A	51	87	39	59
	B	66	100	51	77
#8	A	58	88	45	67
	B	76	114	58	88

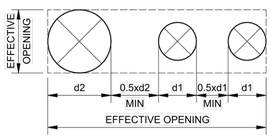
NOTES:

1. TABULATED VALUES ARE BASED ON A MINIMUM YIELD STRENGTH OF 60,000 PSI. LENGTHS ARE IN INCHES.
2. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL MEMBER, CONCRETE COVER, AND OC SPACING OF THE BARS ARE DEFINED AS:
   BEAMS AND COLUMNS
   - CASE 1: CONCRETE COVER AT LEAST 1.0d_b AND OC SPACING AT LEAST 2.0 d_b
   - CASE 2: CONCRETE COVER LESS THAN 1.0d_b OR OC SPACING AT LESS THAN 2.0 d_b

   OTHER BARS
   - CASE 1: CONCRETE COVER AT LEAST 1.0d_b AND OC SPACING AT LEAST 3.0 d_b
   - CASE 2: CONCRETE COVER LESS THAN 1.0d_b OR OC SPACING AT LESS THAN 3.0 d_b
3. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.



MULTIPLE SLEEVES < 8" DIA



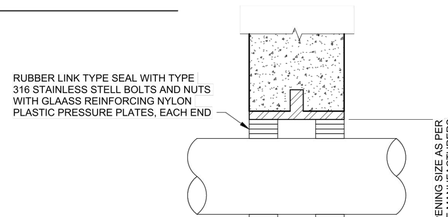
MULTIPLE SLEEVES > 8" DIA

NOTES:

1. OPENINGS SMALLER THAN 16"x16" AND INDIVIDUAL PIPE SLEEVES ≤ 16"ø REQUIRE NO ADDITIONAL REINFORCING STEEL. WORK THE REINF STEEL AROUND THE SLEEVES.
2. RECTANGULAR OPENING SHOWN; ADDITIONAL REINFORCING STEEL AROUND INDIVIDUAL ROUND OPENINGS > 16"ø SIMILAR.
3. SPACE GROUPED SLEEVES PER DETAILS "1" & "2" ABOVE AND TREAT AS A SINGLE EFFECTIVE RECTANGULAR OPENING. PROVIDE ADDITIONAL REINFORCING STEEL AROUND EFFECTIVE OPENING (AS SHOWN FOR SINGLE OPNG) AND INSTALL REQUIRED HORIZONTAL AND VERT REINF STEEL UNINTERRUPTED BETWEEN SLEEVES.
4. COORDINATE ALL OPENING SIZE & LOCATION WITH ARCH, MECH, ELEC & PLUMBING REQUIREMENTS.

TYPICAL OPENINGS IN CONCRETE WALL WITH MULTIPLE SLEEVES

1" = 1'-0"

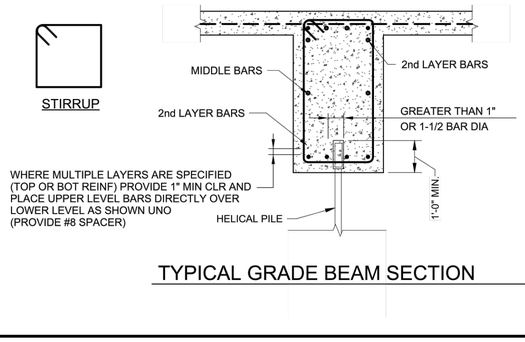


NOTE:
FOR EXISTING CONCRETE, PROVIDE CORED HOLE IN LIEU OF SLEEVE. DO NOT CORE THROUGH EXISTING REINFORCING

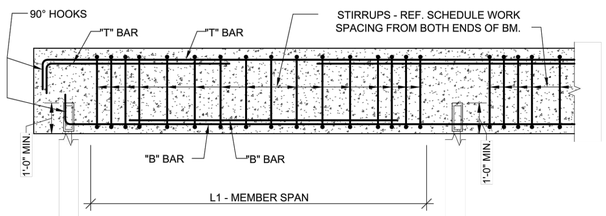
COMPRESSIVE RUBBER LINK TYPE

TYPICAL PIPE SLEEVE THRU CONCRETE WALL DETAIL

3/4" = 1'-0"



TYPICAL GRADE BEAM SECTION



TYPICAL GRADE BEAM ELEVATION

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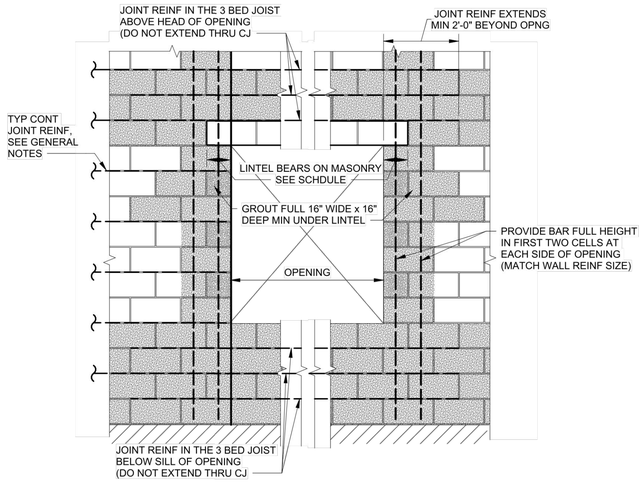
DATE: 10/30/2024
DESIGNED BY: BF
DRAWN BY: BW
CHECKED BY: BF

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

STANDARD DETAILS
SECTIONS AND TYPICAL DETAILS

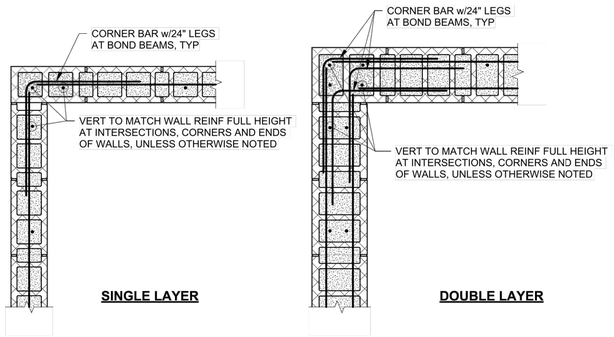
PROJECT NO: 232515
DRAWING NAME: SD-04
SHEET 14 OF 17

H:\2023\23251\DWG\SHEETS\S_232515 - SECTIONS AND TYPICAL DETAILS.DWG - SECTIONS AND TYPICAL DETAILS - 10/30/2024 2:16:03 PM - VINCENT PETRO



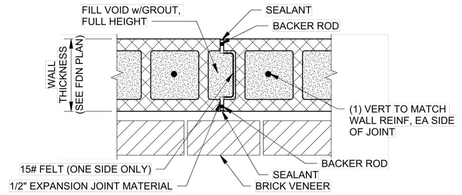
TYPICAL MASONRY OPENING DETAIL

1/2" = 1'-0"



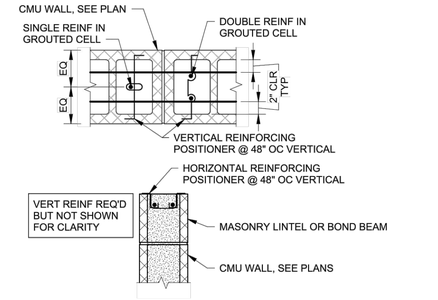
TYPICAL WALL CORNER DETAILS

3/4" = 1'-0"



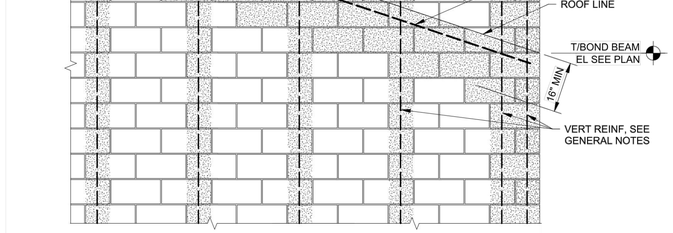
TYPICAL MASONRY CONTROL JOINT DETAIL

1 1/2" = 1'-0"



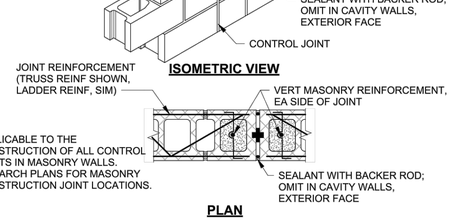
TYPICAL CMU REINF POSITIONERS DETAIL

1" = 1'-0"



TYPICAL SLOPED WALL BOND BEAM DETAIL

1/2" = 1'-0"



TYPICAL VERTICAL CMU CONSTRUCTION JOINT DETAIL

1" = 1'-0"

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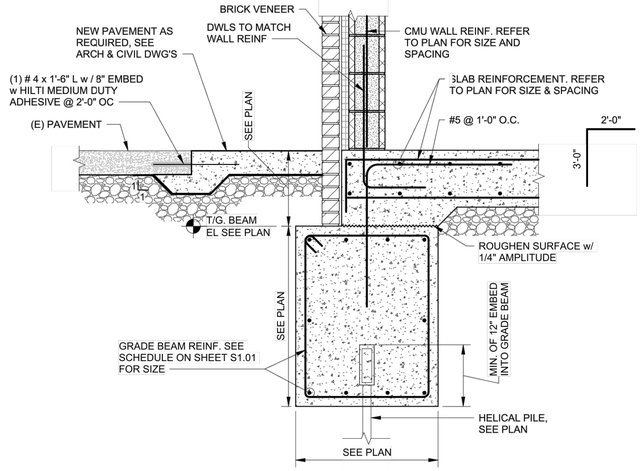
STANDARD DETAILS

SECTIONS AND TYPICAL DETAILS

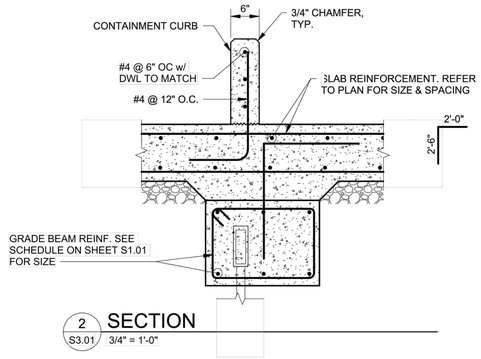
PROJECT NO: 232515

DRAWING NAME: SD-05

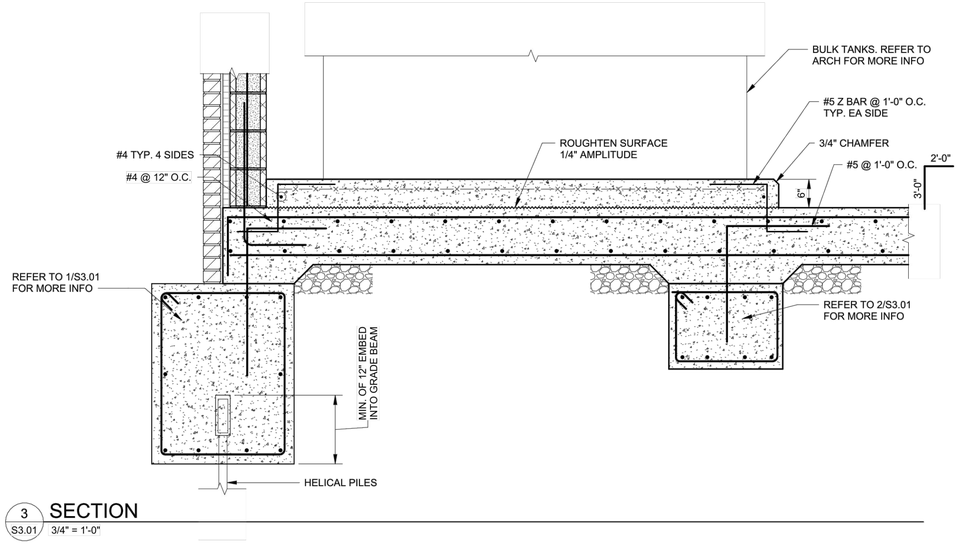
SHEET 15 OF 17



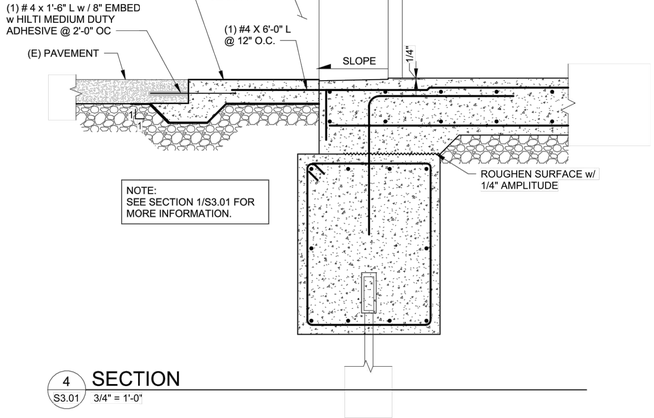
1 SECTION
S3.01 3/4" = 1'-0"



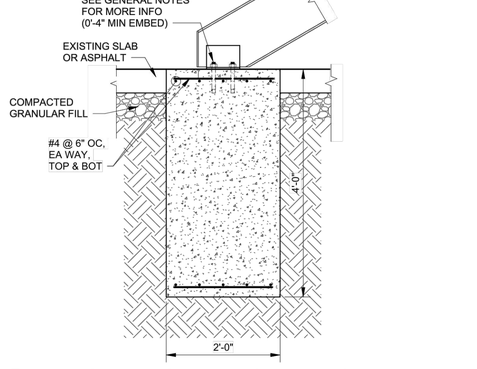
2 SECTION
S3.01 3/4" = 1'-0"



3 SECTION
S3.01 3/4" = 1'-0"



4 SECTION
S3.01 3/4" = 1'-0"



5 TYPICAL THICKENED SLAB AT STAIR DETAIL
S3.01 3/4" = 1'-0"

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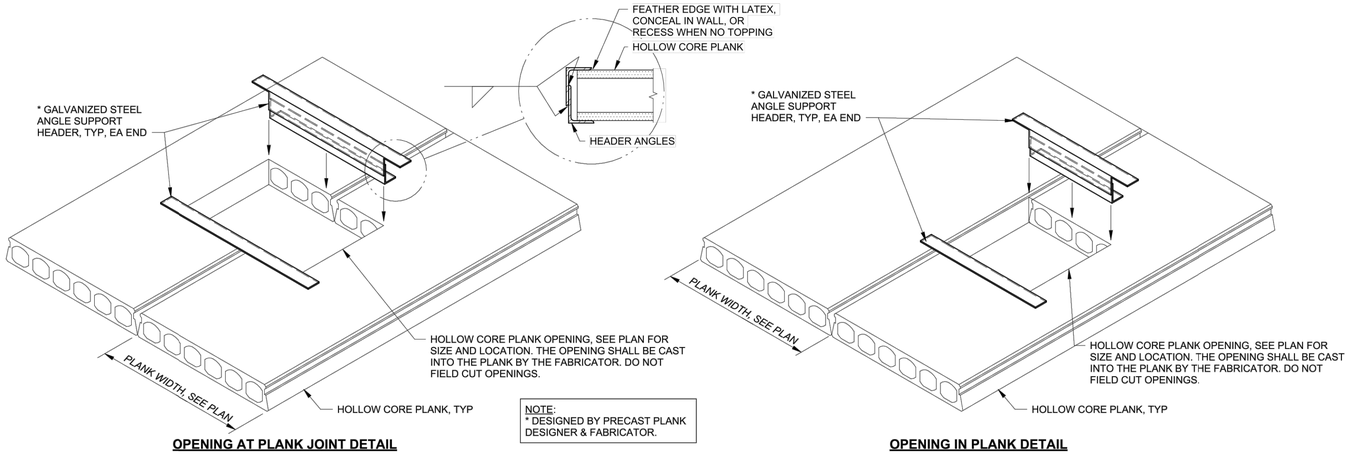
DRAWN BY: BW
CHECKED BY: BF

THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

STANDARD DETAILS

SECTIONS AND TYPICAL DETAILS

PROJECT NO: 232515
DRAWING NAME: SD-06
SHEET 16 OF 17

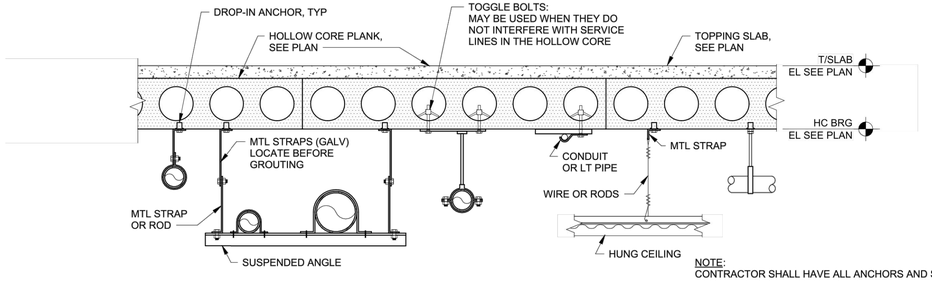


OPENING AT PLANK JOINT DETAIL

OPENING IN PLANK DETAIL

TYPICAL HEADER SUPPORT DETAIL FOR HOLLOW CORE PLANK DETAIL

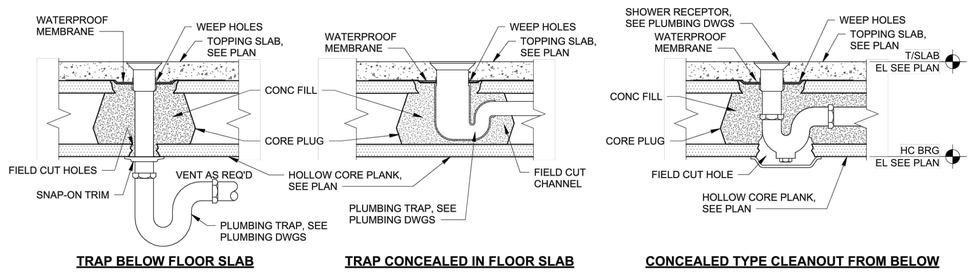
1/2" = 1'-0"



NOTE:
CONTRACTOR SHALL HAVE ALL ANCHORS AND SUPPORTS ENGINEERED BY A LICENSED ENGINEER IN THE STATE OF THE PROJECT. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR ANCHORS AND SUPPORTS TO THE EOR FOR REVIEW .

TYPICAL HUNG CONNECTIONS AT HOLLOW CORE SLAB

1" = 1'-0"



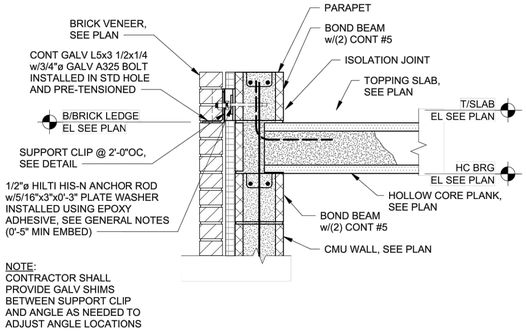
TRAP BELOW FLOOR SLAB

TRAP CONCEALED IN FLOOR SLAB

CONCEALED TYPE CLEANOUT FROM BELOW

TYPICAL PLUMBING OPENINGS IN HOLLOW CORE SLAB

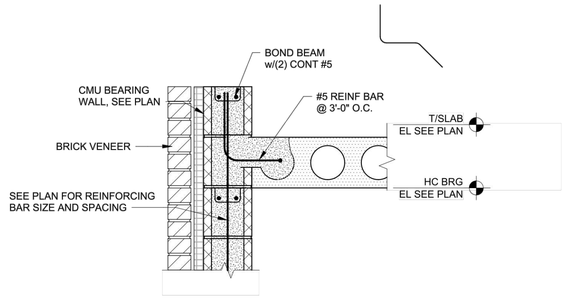
1 1/2" = 1'-0"



NOTE:
CONTRACTOR SHALL PROVIDE GALV SHIMS BETWEEN SUPPORT CLIP AND ANGLE AS NEEDED TO ADJUST ANGLE LOCATIONS

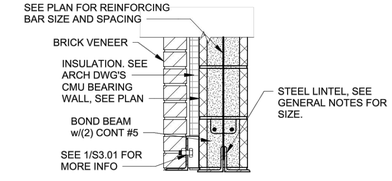
1 SECTION

S3.02 1" = 1'-0"



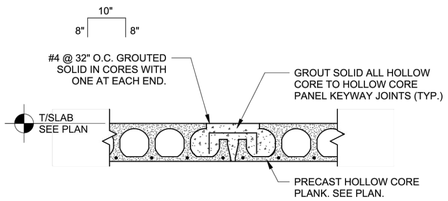
2 SECTION

S3.02 1" = 1'-0"



3 SECTION

S3.02 1" = 1'-0"



4 SECTION DETAIL

S3.02 3/4" = 1'-0"

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THE CITY OF PAINESVILLE
WATER TREATMENT PLANT
CHLORINE BUILDING
MENTOR, OHIO
LAKE COUNTY

STANDARD DETAILS

SECTIONS AND TYPICAL DETAILS

PROJECT NO: 232515
DRAWING NAME: SD-07
SHEET: 17 OF: 17