SET NO.

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA

WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT
AND WELLS IMPROVEMENTS
DECEMBER 2023

TOWN COUNCIL

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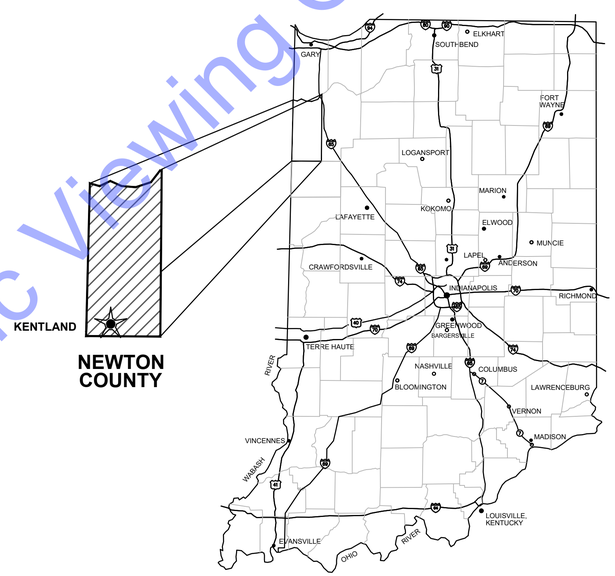

GENERAL LOCATION MAP

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QA/QC BY : _____ 1-22-24
DATE :

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CHRIS A. LIMCACO, P.E.
INDIANA P.E. No. 19700338
DATE :

CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER

CONTRACT NO. : W20065

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPRVS\06 CAD\A CURRENT FILES\1 DRAWINGS\01 - TITLE SHEET.DWG
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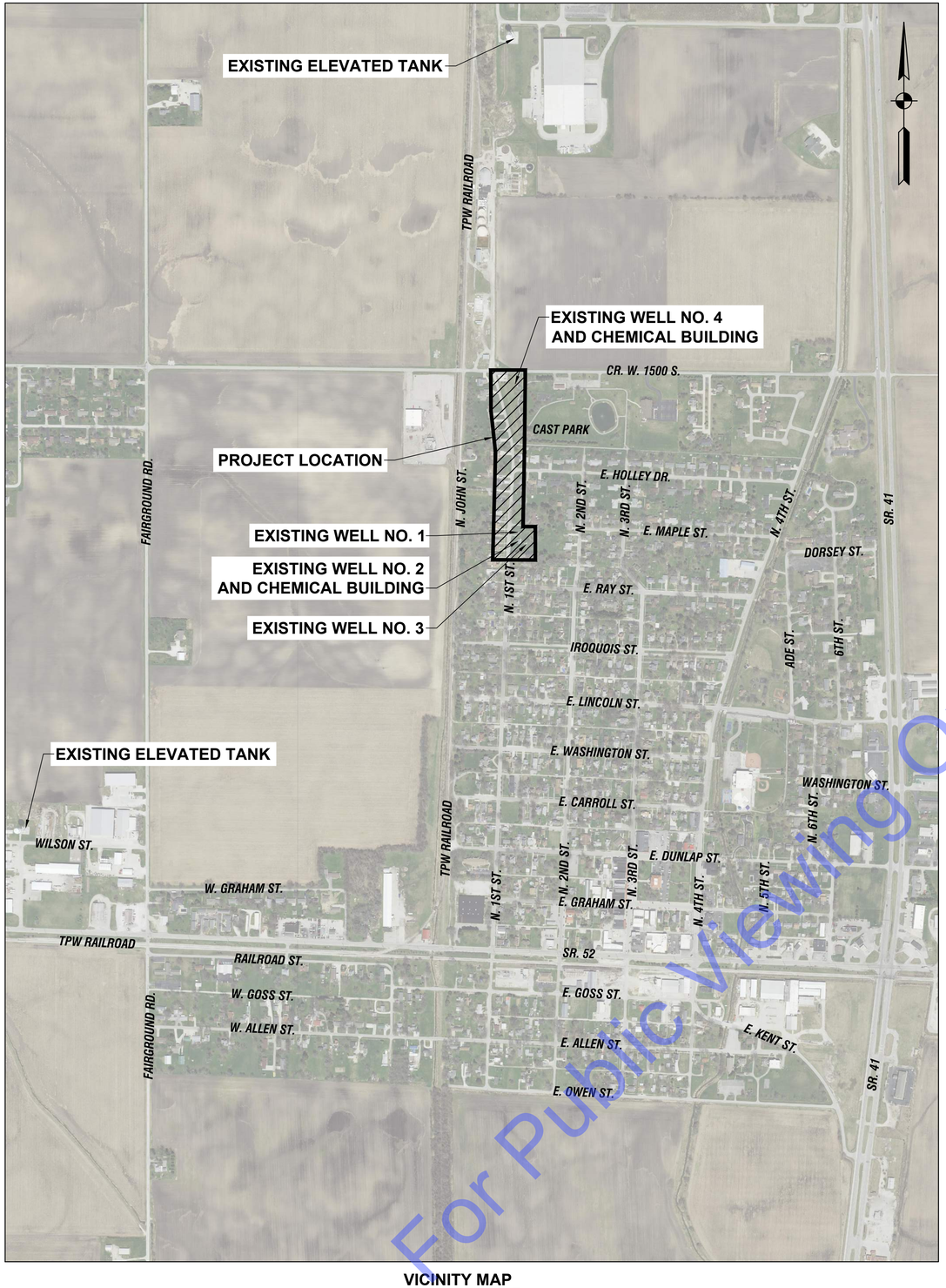

VICINITY MAP

SCALE: 1"=500'-0"

0 500' 1,000'

DRAWING SET INDEX

SHEET NO.	DRAWING NO.	SHEET TITLE
GENERAL DRAWINGS		
01	G1	TITLE SHEET
02	G2	VICINITY MAP AND DRAWING INDEX
03	G3	GENERAL ABBREVIATIONS, LEGENDS, SYMBOLS, AND NOTES
04	G4	SURVEY DATA AND DRAWING INDEX MAP
05	G5	PROCESS FLOW SCHEMATIC
SITE PLAN DRAWINGS		
06	C1-1	OVERALL PROPERTY PLAN AND PHOTO LOG INDEX
07	C1-2	PHOTO LOG
08	C1-3	EXISTING SITE AND DEMOLITION PLAN
09	C1-4	EXISTING SITE PLAN IMPROVEMENTS
10	C1-5	NEW SITE PIPING PLAN
11	C1-6	NEW SITE DIMENSIONING PLAN
12	C1-7	NEW SITE GRADING PLAN
13	C1-8	PLAN AND PROFILE VIEWS - LINE "A"
14	C1-9	PLAN AND PROFILE VIEWS - LINE "TRAIL"
15	C2-1	EXISTING WELL FIELD SITE AND DEMOLITION PLAN
PLAN AND PLAN DRAWINGS		
16	C3-1	PLAN VIEW - LINE "N-1"
17	C3-2	PLAN VIEW - LINE "N-1"
EROSION CONTROL DRAWINGS		
18	EC1	STORMWATER POLLUTION PREVENTION PLAN
19	EC2	STORMWATER POLLUTION PREVENTION PLAN
20	EC3	STORMWATER POLLUTION PREVENTION PLAN
21	EC4	NEW SITE PLAN - EROSION CONTROL PLAN
22	EC5	EXISTING WELL FIELD SITE PLAN - EROSION CONTROL PLAN
23	EC6	EROSION CONTROL PLAN - LINE "N-1"
24	EC7	EROSION CONTROL PLAN - LINE "N-1"
25	EC8	EROSION CONTROL DETAILS
26	EC9	EROSION CONTROL DETAILS
PROCESS DRAWINGS		
27	D1-1	NEW AERATOR - PLAN AND ELEVATIOIN VIEWS
28	D1-2	NEW DETENTION TANK - UPPER PLAN AND SECTION VIEWS
29	D1-3	NEW DETENTION TANK - ELEVATION VIEWS
30	D2-1	NEW WATER TREATMENT PLANT FACILITY - PLAN VIEW
31	D2-2	NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "A"
32	D2-3	NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "B"
33	D2-4	NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "C"
34	D2-5	NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "D"
35	D2-6	NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "E"
36	D2-7	NEW WATER TREATMENT PLANT FACILITY - WATER DISTRIBUATION PLAN AND SCHEMATIC
37	D2-8	NEW WATER TREATMENT PLANT FACILITY - PLUMBING DISTRUBUTION PLAN AND SCHEMATIC
38	D2-9	NEW WATER TREATMENT PLANT FACILITY - CHLORINE CHEMICAL FEED SCHEMATIC
39	D3-1	NEW HORIZONTAL PRESSURE FILTER - PLAN AND ELEVATION VIEWS
40	D3-2	NEW HORIZONTAL PRESSURE FILTER - TYPICAL SECTION VIEW
41	D4-1	NEW BACKWASH TANK - UPPER AND LOWER PLAN VIEWS
42	D4-2	NEW BACKWASH TANK - SECTION VIEW
43	D5-1	NEW GAS SCRUBBER - PLAN AND SECTION VIEWS
44	D6-1	NEW AIR BLOWER AND PUMP - PLAN AND ELEVATION VIEWS
45	D7-1	FLUORIDE FEED SYSTEM PLAN AND ELEVATION VIEWS
46	D8-1	NEW PHOSPHATE BULK AND DAY TANK - PLAN AND ELEVATION VIEWS
MISCELLANEOUS DETAIL DRAWINGS		
47	MD1	MISCELLANEOUS DETAILS
48	MD2	MISCELLANEOUS DETAILS
49	MD3	MISCELLANEOUS DETAILS
50	MD4	MISCELLANEOUS DETAILS
51	MD5	MISCELLANEOUS DETAILS
52	MD6	MISCELLANEOUS DETAILS
ARCHITECTURAL DRAWINGS		
53	A0-01	NEW WATER TREATMENT PLANT FACILITY LIFE SAFETY PLAN
54	A1-01	NEW WATER TREATMENT PLANT FACILITY FLOOR PLAN
55	A1-02	NEW WATER TREATMENT PLANT FACILITY CEILING PLAN
56	A1-03	NEW WATER TREATMENT PLANT FACILITY ROOF PLAN
57	A1-04	NEW WATER TREATMENT PLANT FACILITY EXTERIOR ELEVATIONS
58	A1-05	NEW WATER TREATMENT PLANT FACILITY EXTERIOR ELEVATIONS
59	A1-06	NEW WATER TREATMENT PLANT FACILITY BUILDING SECTIONS
60	A1-07	NEW WATER TREATMENT PLANT FACILITY INTERIOR DETAILS
61	A1-08	NEW WATER TREATMENT PLANT FACILITY DOOR SCHEDULE AND DETAILS

STRUCTURAL DRAWINGS		
62	S1-1	GENERAL STRUCTURAL NOTES - 01
63	S1-2	GENERAL STRUCTURAL NOTES - 02
64	S1-3	TYPICAL STRUCTURAL DETAILS - CONCRETE - 01
65	S1-4	TYPICAL STRUCTURAL DETAILS - CONCRETE - 02
66	S1-5	TYPICAL STRUCTURAL DETAILS - CONCRETE - 03
67	S1-6	TYPICAL STRUCTURAL DETAILS - MASONRY - 01
68	S1-7	TYPICAL STRUCTURAL DETAILS - MASONRY - 02
69	S2-1	NEW WATER TREATMENT PLANT FACILITY - FOUNDATION PLAN
70	S2-2	NEW WATER TREATMENT PLANT FACILITY - ROOF FRAMING PLAN
71	S3-1	NEW DETENTION TANK FOUNDATION AND UPPER LEVEL PLAN
72	S3-2	NEW DETENTION TANK SECTIONS AND DETAILS
73	S4-1	NEW BACKWASH TANK FOUNDATION & TOP SLAB PLAN
74	S4-2	NEW BACKWASH TANK SECTIONS AND DETAILS
ELECTRICAL DRAWINGS		
75	M0-0	MECHANICAL LEGENDS AND SCHEDULES
76	M0-1	MECHANICAL LEGENDS AND SCHEDULES
77	M1-0	MECHANICAL SITE PLAN
78	M1-1	MECHANICAL EQUIPMENT PLAN
79	M2-0	MECHANICAL SCHEDULES
80	E0-0	ELECTRICAL LEGENDS AND SCHEDULES
81	E1-0	ELECTRICAL SITE PLAN
82	E2-0	ELECTRICAL RISER DIAGRAM
83	E2-1	ELECTRICAL ONE-LINE DIAGRAM
84	E3-0	NEW WATER TREATMENT PLANT FACILITY ELECTRICAL PLAN
85	E3-1	NEW WATER TREATMENT PLANT FACILITY LIGHTING PLAN
86	E4-0	CHLORINE ELECTRICAL IMPROVEMENTS
87	E5-0	ELECTRICAL - WELL HOUSES 1, 2, AND 3
88	E6-0	ELECTRICAL - ELEVATED TANKS IMPROVEMENT PLAN
89	E7-0	ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS
90	E7-1	ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS
91	E7-2	ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS
92	E8-0	ELECTRICAL - DETAILS
93	E8-1	ELECTRICAL - DETAILS

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Designed By:	Drawn By:	Checked By:
GCR	GCR	CAL
Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

VICINITY MAP AND DRAWING INDEX

Drawing No: **G2**

Sheet: 02 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPROVS\06 CADD CURRENT FILES\1 DRAWINGS\02 - GENERAL DRAWINGS.DWG
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GENERAL ABBREVIATIONS

A	AIR
AB	ANCHOR BOLT
AFF	ABOVE FINISH FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
@	AT
APP.	APPARENT
ATT	AERATION TANK TRANSFER
AUTO	AUTOMATIC
AVG	AVERAGE
B	BAFFLE
BLDG	BUILDING
BM	BENCH MARK
BOT	BOTTOM
BRG	BEARING
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CO	CLEAN OUT
COL/C	COLUMN
CONC	CONCRETE
COP	COPPER
CJ	CONSTRUCTION JOINT
CW	COLD WATER
CY	CUBIC YARD
D	DRAIN
DEC	DECANT
DIA	DIAMETER
DIM	DIMENSION
DI	DUCTILE IRON PIPE
DL	DEAD LOAD
DSPT	DOWN SPOUT
DWG	DRAWING
E	ELECTRICAL CONDUIT
EA	EACH
EF	EACH FACE
EFFL	EFFLUENT
EL	ELEVATION
EW	EACH WAY
EX	EXISTING
EXF	EXHAUST FAN
EXP JP	EXPANSION JOINT
F	FILTER
FCAR	FLANGED COUPLING ADAPTER, RESTRAINED
FD	FLOOR DRAIN
FDN	FOUNDATION
FH	FIRE HYDRANT
FLD	FILTRATE DRAIN
FLG	FLANGE
FL	FLUSHING LINE
FLR	FLOOR
FM	FORCE MAIN
FRP	FIBER REINFORCED PLASTIC
FT	FEET OR FOOT
FTG	FOOTING
FW	FINISHED WATER
G	GAS
GALV	GALVANIZED
GEN	GENERAL
GRD	GROUND OR GRADE
HB	HOSE BIBB
HORIZ	HORIZONTAL
HP	HORSEPOWER
HW	HOT WATER
ID	INSIDE DIAMETER
IJ	ISOLATION JOINT
INV	INVERT
IP	IRON PIN
LAV	LAVATORY
LB	POUND
LL	LIVE LOAD
LLV	LONG LEG VERTICAL
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MGD	MILLIONS GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MJ	MECHANICAL JOINT
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTACT
NO	NORMALLY OPEN
NO.	NUMBER
NPW	NON-POTABLE WATER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPG	OPENING
OPP	OPPOSITE
PB	PULL BOX
PE	POLYETHYLENE EXP. JT.
	MATERIAL
P/L	PROPERTY LINE
POJ	PUSH ON JOINT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
R	RECIRULCATION
RAD	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REINF	REINFORCING
REQ'D	REQUIRED
R/W (ROW)	RIGHT-OF-WAY
SAN	SANITARY
SAS	SANITARY SEWER
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FEET
SHT	SHEET
SL	SAMPLE LINE
SOS	STORM SEWER
SP	STOP PLATE
SQ	SQUARE
STD	STANDARD
S STL, SS	STAINLESS STEEL
STL	STEEL
SUP	SUPERNATANT
SY	SQUARE YARD
TOS	TOP OF SLAB
TOW	TOP OF WALL
TW	TERTIARY WATER
TYP	TYPICAL
V	VACUUM OR VALVE
VAR	VARIES
VERT	VERTICAL
W	WEIR
W/	WITH
W/O	WITHOUT
WAS	WASTE ACTIVATED SLUDGE
WC	WATER CLOSET
WH	WATER HEATER
WL	WATER LINE
WWF	WELDED WIRE FABRIC
YH	YARD HYDRANT

GENERAL NOTES

1. ALL PROPERTY AND RIGHT-OF-WAY LINES INFORMATION SHOWN IN DRAWING SET ARE APPARENT AND SHALL NOT BE DEEMED EXACT LOCATIONS, UNLESS OTHERWISE NOTED. INFORMATION WAS OBTAINED VIA "INDIANA ON-LINE" GIS WEBSITE.
2. EXISTING UTILITY INFORMATION SHOWN IN DRAWING SET, MEETS "ASCE 36-02" QUALITY LEVEL **"C"**, UNLESS OTHERWISE NOTED.

   UTILITY COORDINATION AND PROJECT DIRECTION OF EXISTING SUBSURFACE UTILITY DATA:

   UTILITY QUALITY LEVEL DESCRIPTIONS:

   UTILITY QUALITY LEVEL A - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATIONS OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. ACCURACY OF LOCATION MATCHES PROJECT SURVEY TOLERANCE.

   UTILITY QUALITY LEVEL B - INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION SUBSURFACE UTILITIES. THE RELIABILITY OF THIS INFORMATION IS SURVEYED TO PROJECT CONTROL AND SUBJECT TO ACCURACY LEVELS OF THE GEOPHYSICAL TOLERANCE DEFINED BY THE PROJECT.

   UTILITY QUALITY LEVEL C - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND CORRELATING QUALITY LEVEL "D" INFORMATION.

   UTILITY QUALITY LEVEL D - INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.
3. NORTHING AND EASTING COORDINATES SHOWN ON ALL MANHOLE, INLETS, ETC. ARE SHOWN FROM CENTER OF STRUCTURE NOT CASTING, UNLESS OTHERWISE NOTED.
4. CONTRACTOR SHALL MAINTAIN 10'-0" HORIZONTAL AND 1'-6" VERTICAL SEPARATION BETWEEN SEWERS (INCLUDING SERVICE LATERALS) & WATER MAINS IN ACCORDANCE WITH IDEM REQUIREMENTS, UNLESS SPECIFICALLY NOTED IN THE PLANS OTHERWISE. MANHOLES AND WATER MAINS SHALL HAVE MIN. 8'-0" SEPARATION, UNLESS OTHERWISE NOTED IN PLANS.
5. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING LOCATIONS OF ALL EXISTING UTILITIES NEAR ALL PROPOSED WORK ACTIVITIES. IF UTILITY CONFLICTS OCCUR, CONTRACTOR SHALL NOTIFY RPR PRIOR TO PROCEEDING WITH WORK.
6. ALL EXPOSED PROCESS PIPING (EXCLUDING AIR PIPING) SHALL BE HEAT TRACED AND INSTALLED. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS.

GENERAL SCHEMATIC LEGEND

- QUICK DISCONNECT
- FLANGED SPOOL SECTION
- PRV — PRESSURE REDUCER VALVE
- FLANGED COUPLING ADAPTER
- BALL CHECK VALVE
- M — MOTOR ACTUATOR
- FLEXIBLE CONNECTION
- SCR — FLANGE FILLER & S.S. MESH SCREEN
- W V90 — 90° V-NOTCH WEIR
- M — MAGNETIC FLOW METER
- ULTRASONIC SENSOR
- SUBMERSIBLE PUMP
- HOSE BIBB
- STOP PLATE
- W — WEIR
- NEW PIPING AND EQUIPMENT
- EXISTING PIPING AND EQUIPMENT
- FUTURE PIPING AND EQUIPMENT
- BOOSTER PUMP
- ARV — AIR RELIEF VALVE
- FM — FLOW METER
- PT — PRESSURE TRANSDUCER
- PG — PRESSURE GAUGE
- BP — BOOSTER PUMP
- GV — GATE VALVE
- FCV — FLOW CONTROL VALVE
- VALVE
- ECCENTRIC PLUG VALVE
- CV — CHECK VALVE
- INCREASER / REDUCER
- BV — BUTTERFLY VALVE
- PIPE THROUGH FLOOR / WALL
- BALL VALVE
- BLIND FLANGE OR PLUG

HATCHING SYMBOLS

- -CMU WALL (PLAN VIEW) -GRANULAR BACKFILL (PROFILE VIEW)
- -DEMOLITION (CONTRACTOR SHALL REFER TO DETAILED SPECIFICATIONS)
- - GROUT
- - CONCRETE
- - STEEL
- - COMPACTED GRANULAR BACKFILL OR COMPACTED FOUNDATION
- - ABANDONED IN PLACE

DRAWING SET LEGEND

- EXOHT — EXISTING OVERHEAD TELEPHONE LINE
- EXG — EXISTING GAS LINE AND VALVE
- EXW — EXISTING WATER LINE AND VALVE
- EXF/O — EXISTING FIBER OPTIC LINE
- EXOHE — EXISTING OVERHEAD ELECTRIC LINE
- EXBE — EXISTING BURIED ELECTRIC
- NPW — EXISTING NON-POTABLE WATER LINE
- POT — EXISTING POTABLE WATER LINE
- EXBT — EXISTING BURIED TELEPHONE LINE
- X — EXISTING FENCE
- APP. R/W — APPARENT RIGHT-OF-WAY
- APP. P/L — APPARENT PROPERTY LINE
- EDGE OF ROAD
- EDGE OF ROAD WITH CURB
- 785 — EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- W — **NEW WATER LINE**
- 785 — **PROPOSED MAJOR CONTOUR LINE**
- 784 — **PROPOSED MINOR CONTOUR LINE**
- AC UNIT
- BOLLARD
- BOULDER / LARGE ROCK
- CL — CENTER LINE MONUMENT
- CONTROL POINT / BENCH MARK
- DRILL HOLE
- MB — MAIL BOX
- FLAG POLE
- POST
- STUMP
- BUSH / HEDGE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- UTILITY LOCATE FLAG
- GAS LINE MARKER
- GV — GAS VALVE
- GAS METER
- GUY POLE
- POWER POLE
- LIGHT POLE
- GUY WIRE
- EM — ELECTRIC METER
- ELECTRIC PANEL
- ET — ELECTRIC TRANSFORMER
- HAND HOLE BOX
- FIBER OPTIC MARKER
- TP — TEL/TV PEDESTAL
- T — TELEPHONE MANHOLE
- TELEPHONE LINE MARKER
- FR — TRAFFIC MANHOLE
- WATER LINE MARKER
- W — WATER METER
- WV — VALVE
- IV — IRRIGATION CONTROL VALVE
- FIRE HYDRANT
- FLUSH HYDRANT
- YARD HYDRANT
- WALL SPIGOT
- EXISTING PIPE PLUG
- STORM CATCH BASIN (SQUARE)
- STORM CATCH BASIN (ROUND)
- STORM CURB INLET
- D — STORM MANHOLE
- S — SANITARY MANHOLE
- SV — SANITARY VALVE
- CLEANOUT
- VENT
- **NEW VALVE**
- **NEW FIRE HYDRANT**
- **NEW FLUSH HYDRANT**
- **NEW WET SADDLE AND VALVE BODY**
- **NEW PLUG**
- LS — **NEW LINE STOP**
- **NEW CUT AND CAP**
- **NEW SANITARY MH**

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CHRIS A. LIMCACO — REGISTERED — No. 19700338 — STATE OF INDIANA — PROFESSIONAL ENGINEER

Signature 12-07-23 Date

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NEWTON COUNTY, INDIANA
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PLANT AND WELLS
IMPROVEMENTS

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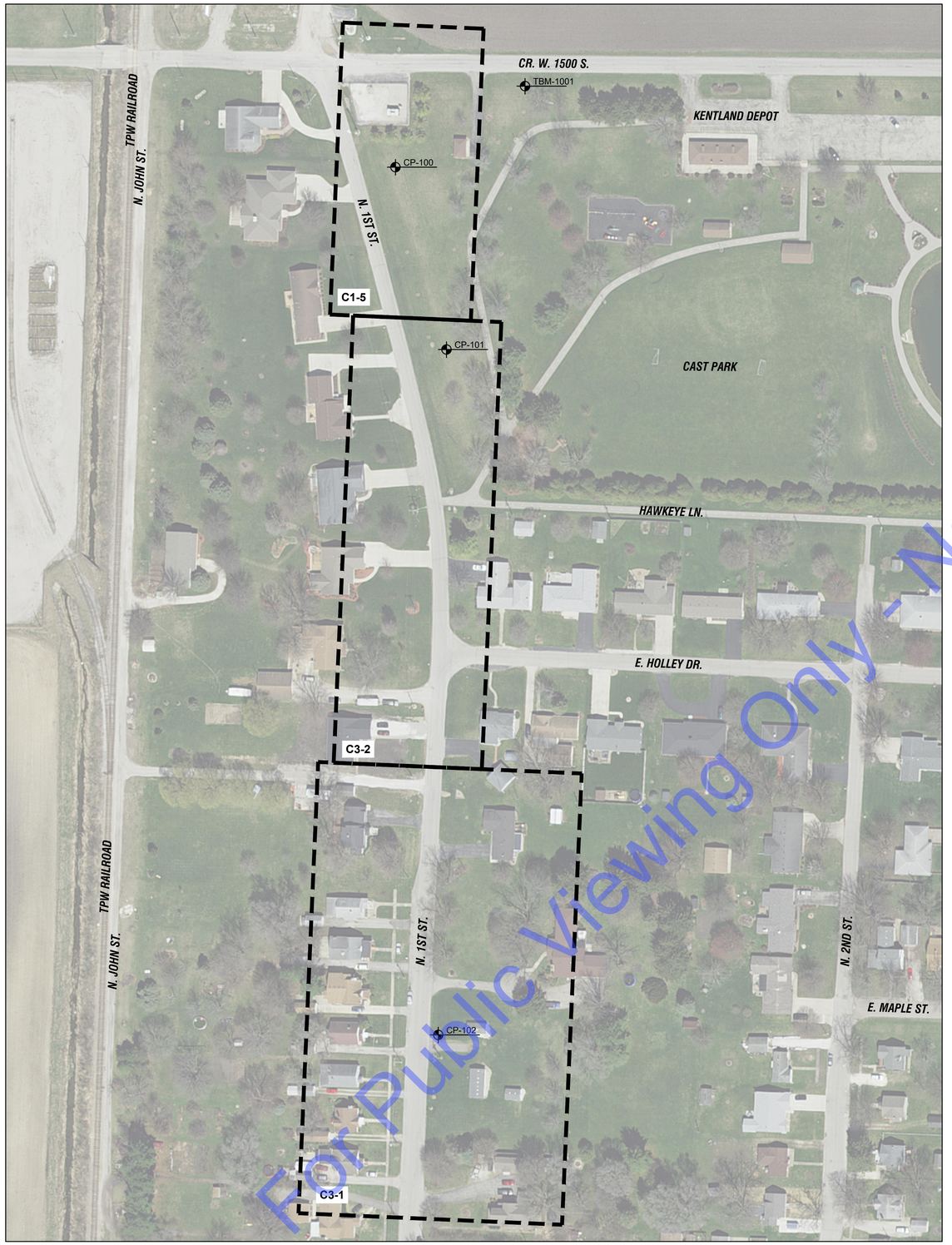
GENERAL ABBREVIATIONS, LEGENDS, SYMBOLS, AND NOTES

Drawing No: **G3**

Sheet: 03 OF 93



PLAN VIEW

SCALE: 1"=80'-0"

0 80' 160'

CONTROL POINT INFORMATION			
IDENTIFIER	NORTHING	EASTING	DESCRIPTION
CP-100	2015006.79	2851574.35	CAPPED REBAR
CP-101	2014775.44	2851639.07	CAPPED REBAR
CP-102	2013905.87	2851628.60	CAPPED REBAR

TEMPORARY BENCHMARK INFORMATION		
IDENTIFIER	ELEVATION	DESCRIPTION
TBM-1001	668.30	CUT "X" SW BONNET BOLT TOP FLANGE FIRE HYDRANT

Project coordinates are based on the following:
HORIZONTAL-US State plane coordinates: NAD83 *(North American Datum)* Indiana West Zone (1302)
VERTICAL- USGS 1988 NAVD (North American Vertical Datum)-per GPS observations (Not verified by physical location of published USGS monuments)

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SURVEY DATA AND DRAWING INDEX MAP

Drawing No:
G4
Sheet: 04 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W\20065 WATER UTILITY IMPR\SV06 CADA CURRENT FILES\11 DRAWINGS\02 - GENERAL DRAWINGS.DWG
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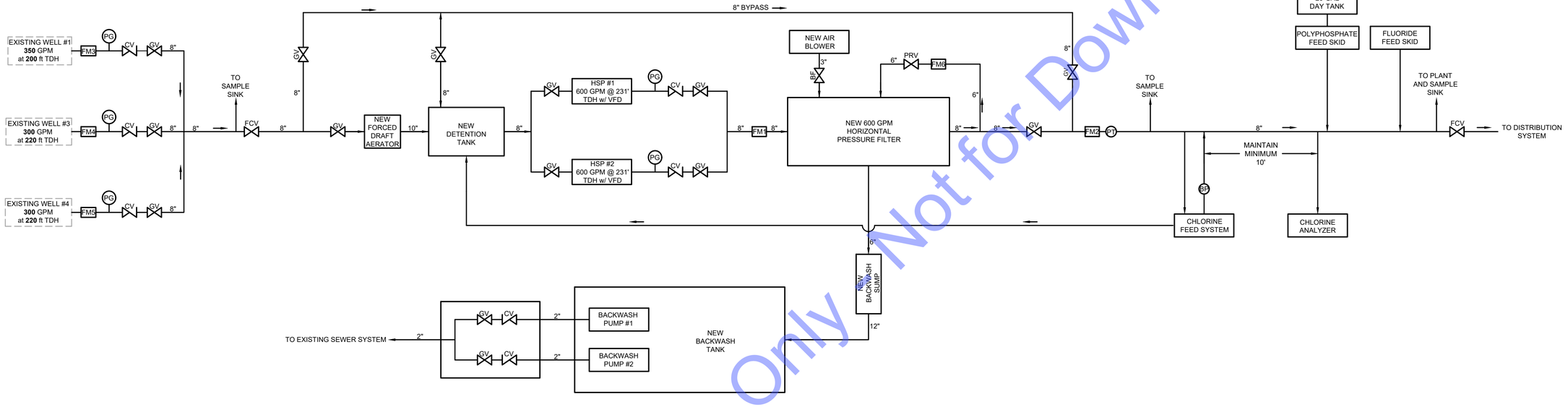

PROCESS FLOW SCHEMATIC

SCALE: 1"=5'-0"

0 5' 10'

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4-3-24	W20065	AS SHOWN

PROCESS FLOW SCHEMATIC

Drawing No:
G5
Sheet: 05 OF 93

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SITE PLAN

SCALE: 1"=40'-0"

0 40' 80'

LEGEND:

INDICATES PHOTO NUMBER AND DIRECTION OF PHOTO (PHOTOS TAKEN BY COMMONWEALTH ENGINEERS, INC. IN 07-20-20)

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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OVERALL PROPERTY PLAN AND PHOTO LOG INDEX

Drawing No: **C1-1**

Sheet: 06 OF 93

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PHOTO #1

PHOTO #2

PHOTO #3

PHOTO #4

PHOTO #5

PHOTO #6

PHOTO #7

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PHOTO LOG

Drawing No:
C1-2
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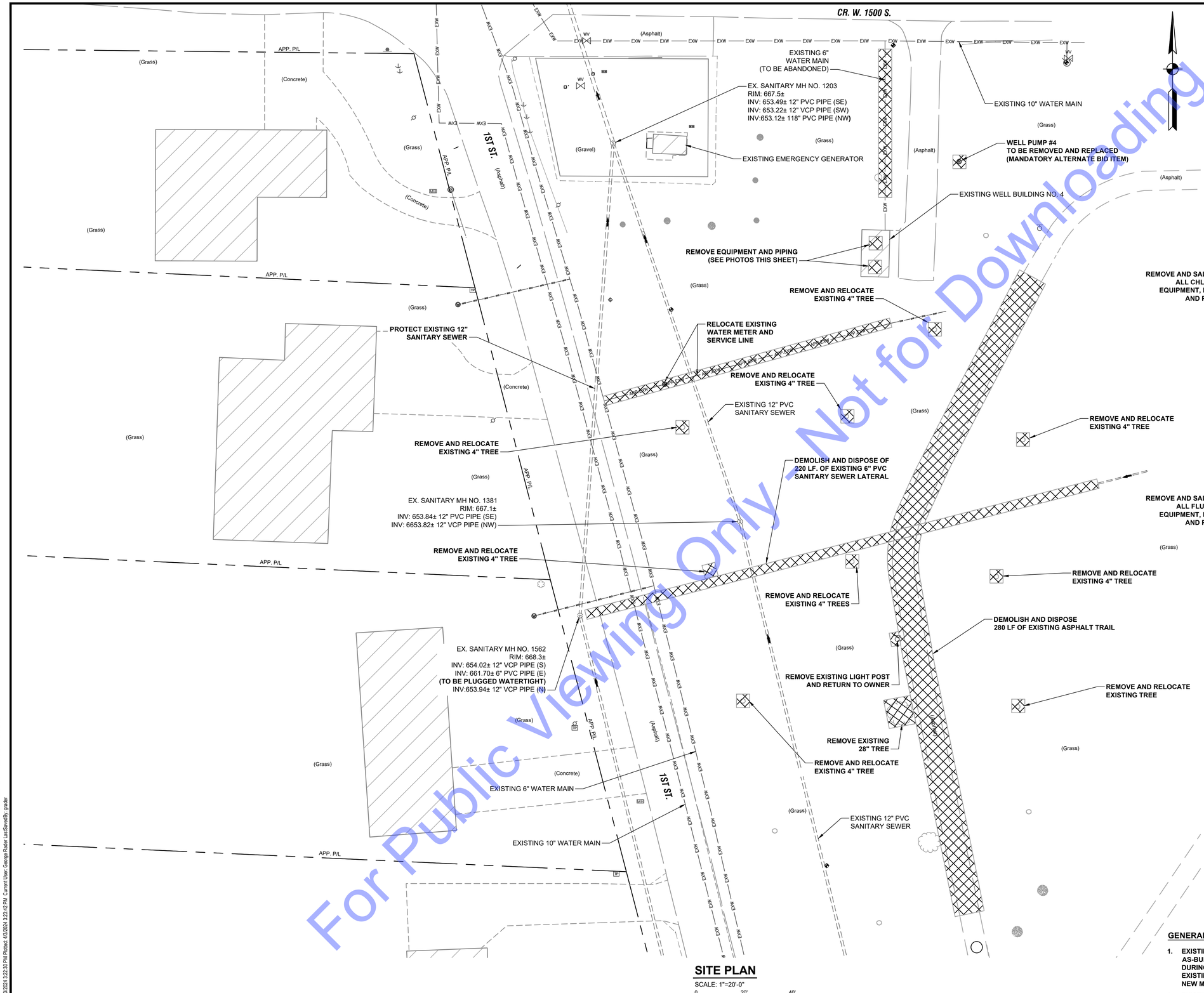

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

GENERAL NOTES:

1. EXISTING PIPE MATERIALS SHOWN ON THE PLANS WERE OBTAINED VIA AS-BUILT INFORMATION AND SHALL BE USED FOR REFERENCE ONLY DURING BIDDING. CONTRACTOR SHALL LOCATE AND VERIFY ANY EXISTING PIPING THAT WE ARE CONNECTING TO, PRIOR TO ORDERING NEW MATERIALS.
2. EXISTING SERVICE LINE LOCATIONS ARE SHOWN FOR REPRESENTATION PURPOSE ONLY. CONTRACTOR TO FIELD LOCATE.

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EXISTING SITE AND DEMOLITION PLAN

Drawing No: **C1-3**

Sheet: 08 OF 93

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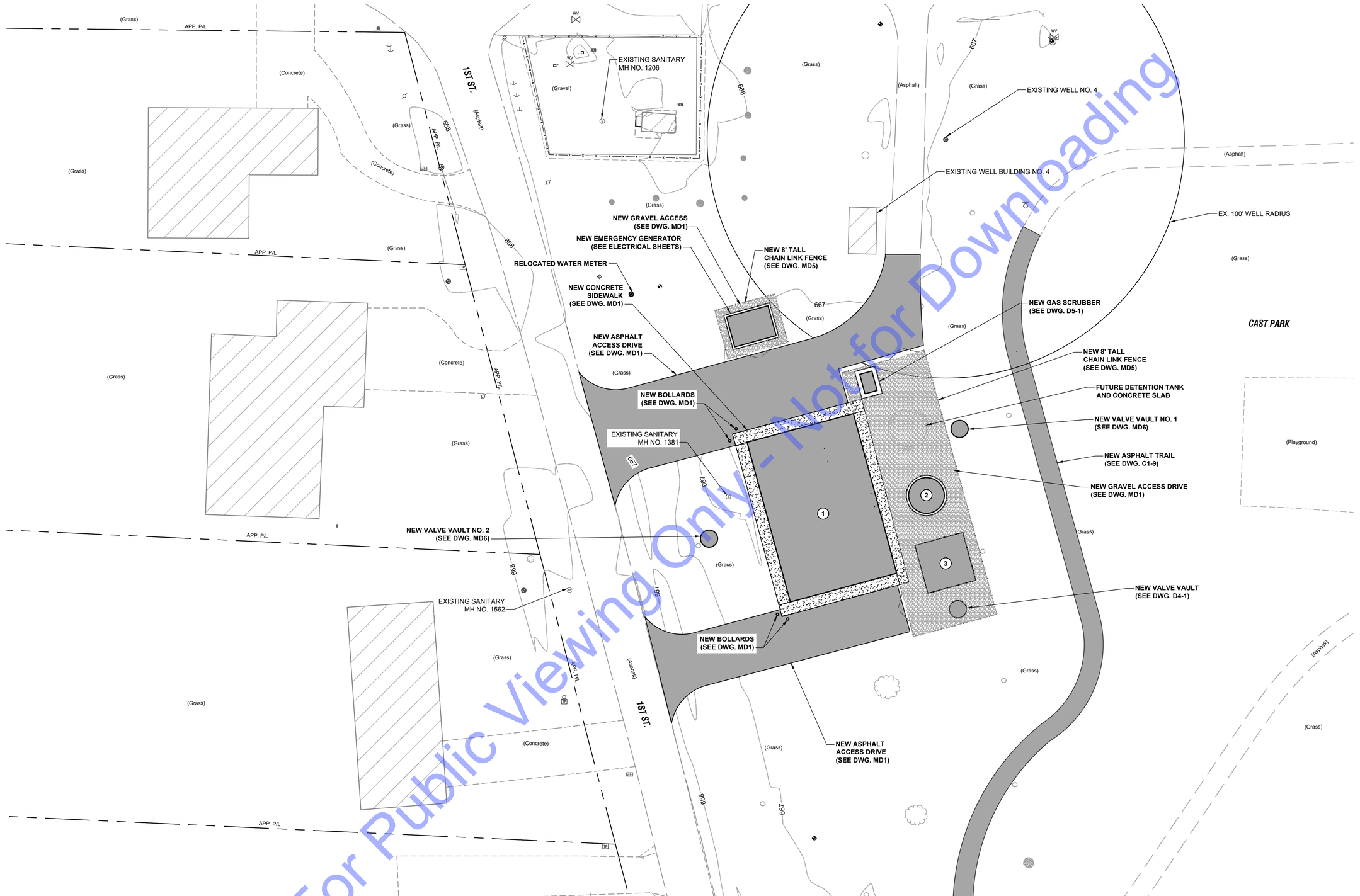

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)
2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

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EXISTING SITE PLAN IMPROVEMENTS

Drawing No: **C1-4**

Sheet: 09 OF 93

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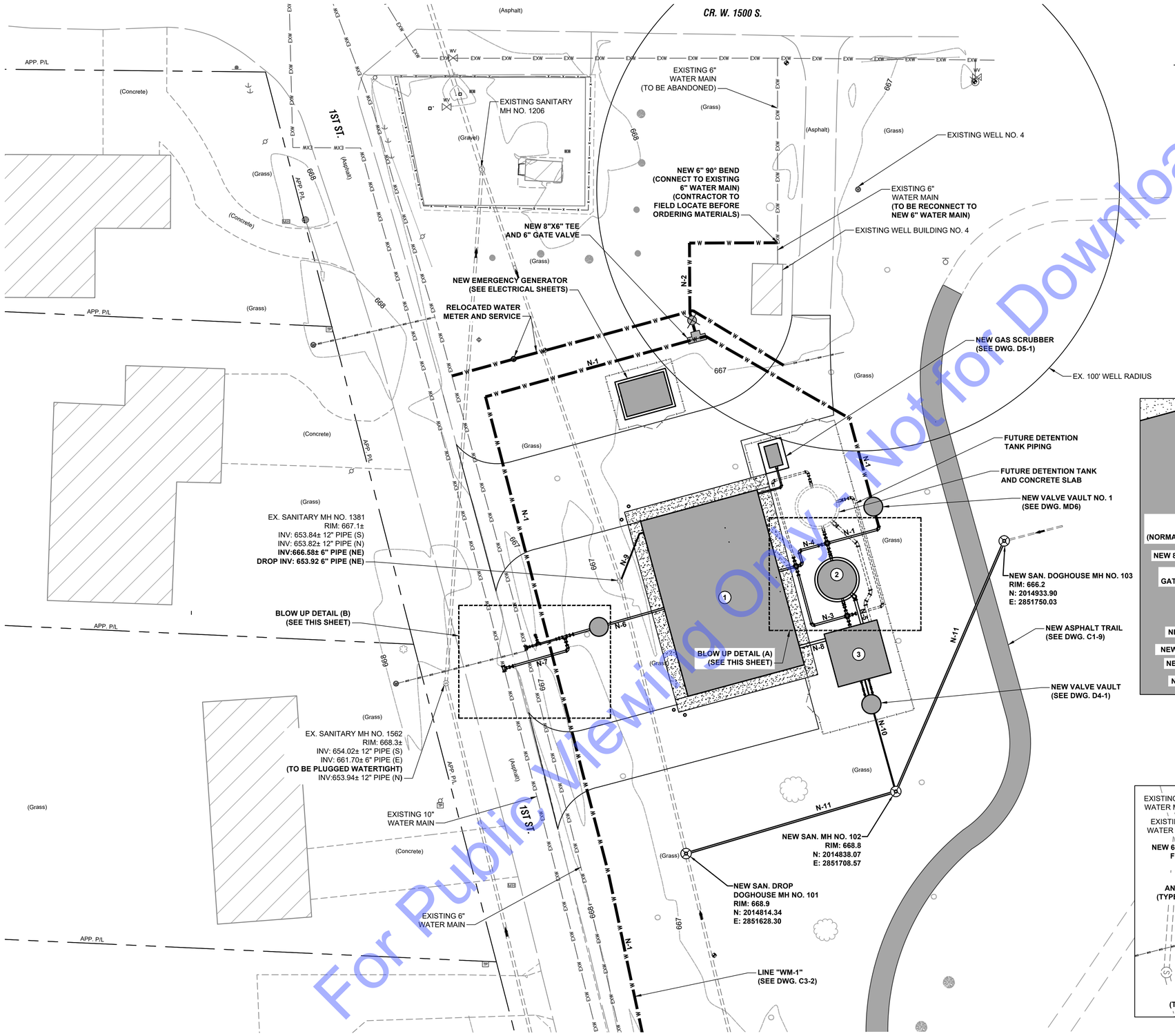
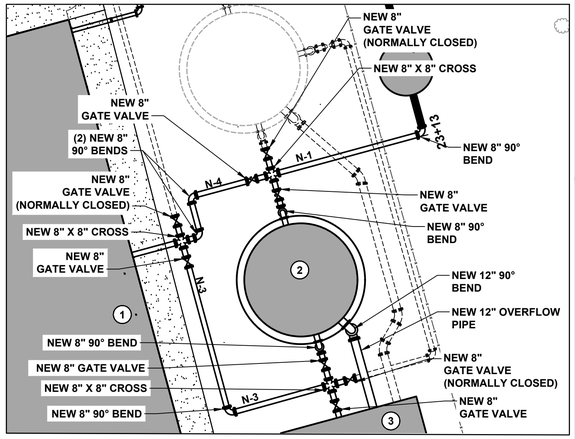


SITE PLAN

SCALE: 1"=20'-0"

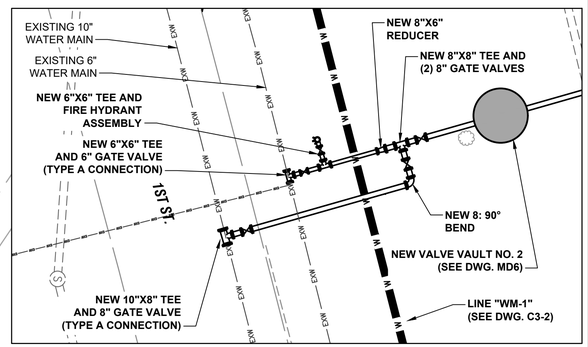
0 20' 40'



BLOW UP DETAIL (A)

SCALE: 1"=10'-0"

0 10' 20'



BLOW UP DETAIL (B)

SCALE: 1"=10'-0"

0 10' 20'

NEW PROCESS PIPING	
IDENTIFIER	DESCRIPTION
N-1	NEW 8" WATER MAIN FROM EXISTING WELLS #1, AND #3 - Line "WM-1"
N-2	NEW 8" WATER MAIN FROM EXISTING WELL #4
N-3	NEW 8" WATER MAIN FROM DETENTION TANK
N-4	NEW 8" MAIN DETENTION TANK BYPASS
N-5	NEW 12" DRAIN FROM DETENTION TANK TO BACKWASH
N-6	NEW 8" WATER MAIN FROM NEW WATER TREATMENT FACILITY
N-7	NEW 8" WATER MAIN FROM NEW WATER TREATMENT FACILITY
N-8	NEW 12" BACKWASH DRAIN
N-9	NEW 4" SEWER LATERAL TO EXISTING SANITARY SEWER MANHOLE
N-10	NEW 3" FORCE MAIN TO NEW SANITARY SEWER MANHOLE
N-11	NEW 8" SEWER TO NEW SANITARY MANHOLE

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
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2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

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NEW SITE PIPING PLAN

Drawing No: **C1-5**

Sheet: 10 OF 93

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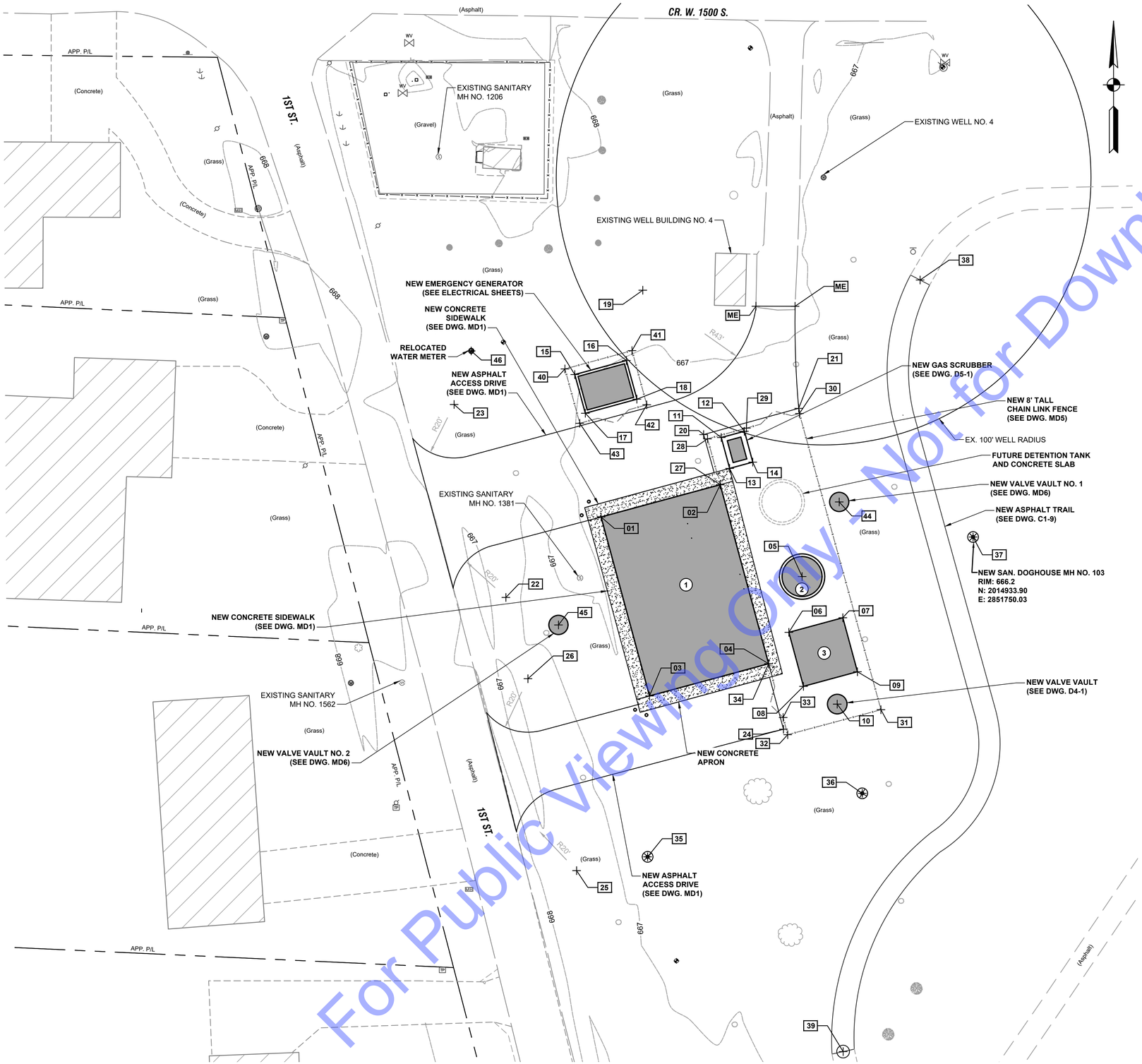

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE COORDINATES			
IDENTIFIER	DESCRIPTION	NORTHING	EASTING
01	NEW WATER TREATMENT FACILITY - NORTHWEST CORNER	2014941.40	2851610.90
02	NEW WATER TREATMENT FACILITY - NORTHEAST CORNER	2014953.46	2851655.44
03	NEW WATER TREATMENT FACILITY - SOUTHWEST CORNER	2014874.49	2851629.01
04	NEW WATER TREATMENT FACILITY - SOUTHEAST CORNER	2014886.55	2851673.56
05	NEW DETENTION TANK - CENTER	2014919.11	2851686.08
06	NEW BACKWASH TANK - NORTHWEST CORNER	2014898.26	2851681.12
07	NEW BACKWASH TANK - NORTHEAST CORNER	2014903.73	2851701.31
08	NEW BACKWASH TANK - SOUTHWEST CORNER	2014878.08	2851686.59
09	NEW BACKWASH TANK - SOUTHEAST CORNER	2014883.54	2851706.78
10	NEW VALVE VAULT - CENTER	2014871.44	2851699.22
11	NEW GAS SCRUBBER - NORTHWEST CORNER	2014971.10	2851655.85
12	NEW GAS SCRUBBER - NORTHEAST CORNER	2014973.44	2851664.50
13	NEW GAS SCRUBBER - SOUTHWEST CORNER	2014959.56	2851658.97
14	NEW GAS SCRUBBER - SOUTHEAST CORNER	2014961.91	2851667.62
15	NEW GENERATOR PAD - NORTHWEST CORNER	2014994.64	2851601.06
16	NEW GENERATOR PAD - NORTHEAST CORNER	2014999.90	2851620.35
17	NEW GENERATOR PAD - SOUTHWEST CORNER	2014980.17	2851605.01
18	NEW GENERATOR PAD - SOUTHEAST CORNER	2014985.43	2851624.30
19	NEW ASPHALT ACCESS DRIVE - NORTHEAST RADIUS	2015026.18	2851626.49
20	NEW ASPHALT ACCESS DRIVE - NORTHWEST CORNER	2014972.21	2851649.25
21	NEW ASPHALT ACCESS DRIVE - NORTHEAST CORNER	2014982.01	2851684.80
22	NEW ASPHALT ACCESS DRIVE - SOUTHWEST RADIUS	2014911.32	2851575.30
23	NEW ASPHALT ACCESS DRIVE - NORTHWEST RADIUS	2014983.45	2851555.92
24	NEW ASPHALT DRIVE - NORTHWEST CORNER	2014862.05	2851679.11
25	NEW ASPHALT ACCESS DRIVE - SOUTHWEST RADIUS	2014809.18	2851601.75
26	NEW ASPHALT ACCESS DRIVE - NORTHWEST RADIUS	2014880.94	2851583.54
27	NEW 8' CHAIN LINK FENCE - SOUTHEAST GATE POST	2014953.46	2851655.44
28	NEW 8' CHAIN LINK FENCE - NORTHWEST GATE POST	2014970.61	2851650.71
29	NEW 8' CHAIN LINK FENCE - NORTHWEST CORNER	2014974.62	2851665.26
30	NEW 8' CHAIN LINK FENCE - NORTHEAST CORNER	2014980.08	2851685.05
31	NEW 8' CHAIN LINK FENCE - SOUTHEAST CORNER	2014858.69	2851718.45
32	NEW 8' CHAIN LINK FENCE - SOUTHWEST CORNER	2014841.40	2851634.18
33	NEW 8' CHAIN LINK FENCE - SOUTHEAST GATE POST	2014862.64	2851679.97
34	NEW 8' CHAIN LINK FENCE - NORTHWEST GATE POST	2014886.55	2851673.56
35	NEW SANITARY MH NO. 101	2014814.34	2851628.30
36	NEW SANITARY MH NO. 102	2014838.07	2851708.57
37	NEW SANITARY MH NO. 103	2014933.90	2851750.03
38	NEW 8' WIDE ASPHALT TRAIL LIMIT	2015029.98	2851730.21
39	NEW 8' WIDE ASPHALT TRAIL LIMIT	2014741.53	2851701.43
40	NEW 8' CHAIN LINK FENCE - NORTHWEST CORNER	2014996.74	2851597.37
41	NEW 8' CHAIN LINK FENCE - NORTHEAST CORNER	2015003.59	2851622.46
42	NEW 8' CHAIN LINK FENCE - SOUTHWEST CORNER	2014976.43	2851602.92
43	NEW 8' CHAIN LINK FENCE - SOUTHEAST CORNER	2014983.34	2851627.98
44	NEW 72" DIAMETER PRECAST VALVE VAULT NO. 1	2014947.02	2851699.96
45	NEW 72" DIAMETER PRECAST VALVE VAULT NO. 2	2014901.03	2851594.96
46	NEW WATER METER	2015003.48	2851562.36

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)
2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

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STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND NEWTON COUNTY, INDIANA
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NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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NEW SITE DIMENSIONING PLAN

Drawing No: **C1-6**

Sheet: 11 OF 93

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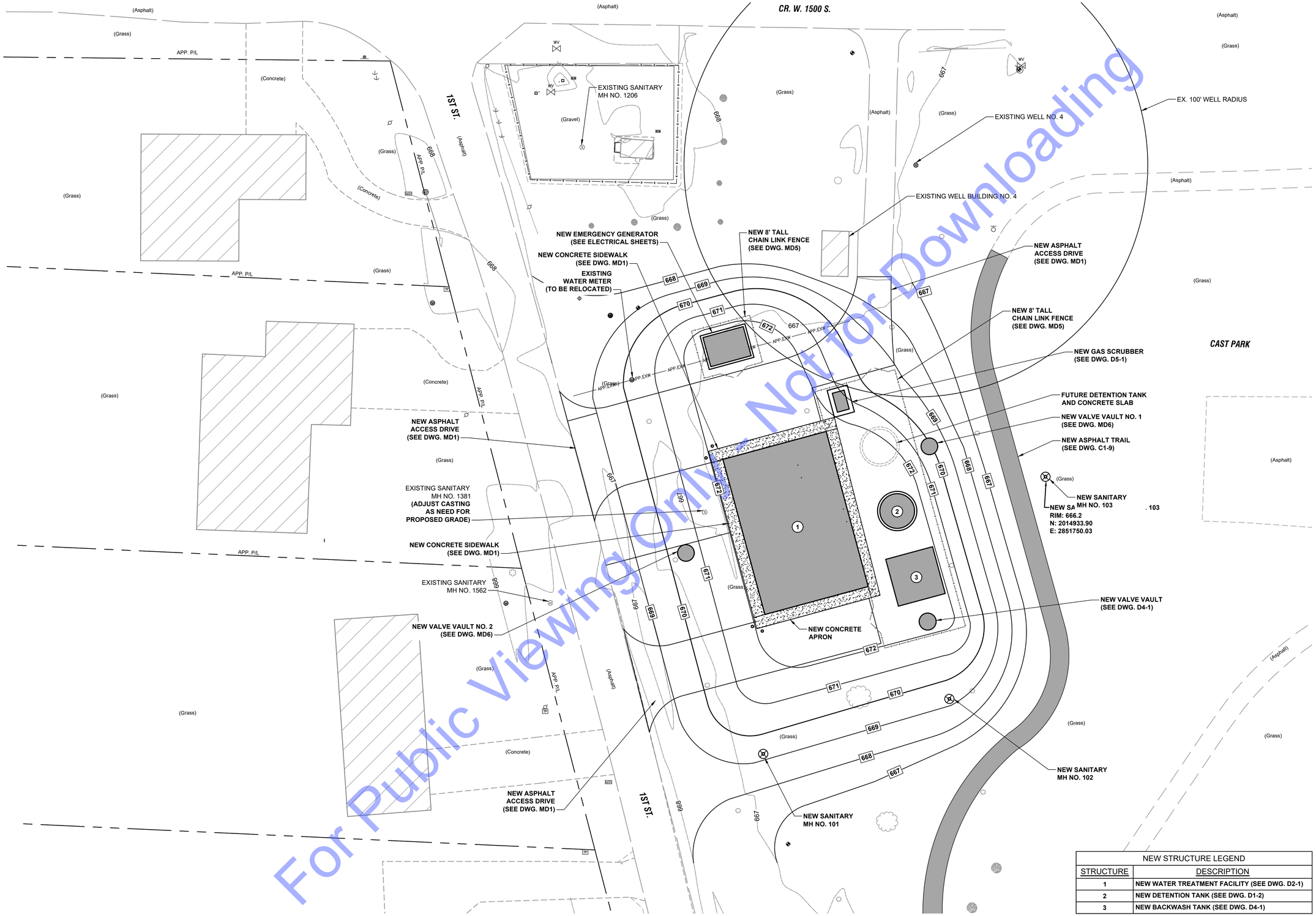

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3	NEW BACKWASH TANK (SEE DWG. D4-1)

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

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NEW SITE GRADING PLAN

Drawing No: **C1-7**

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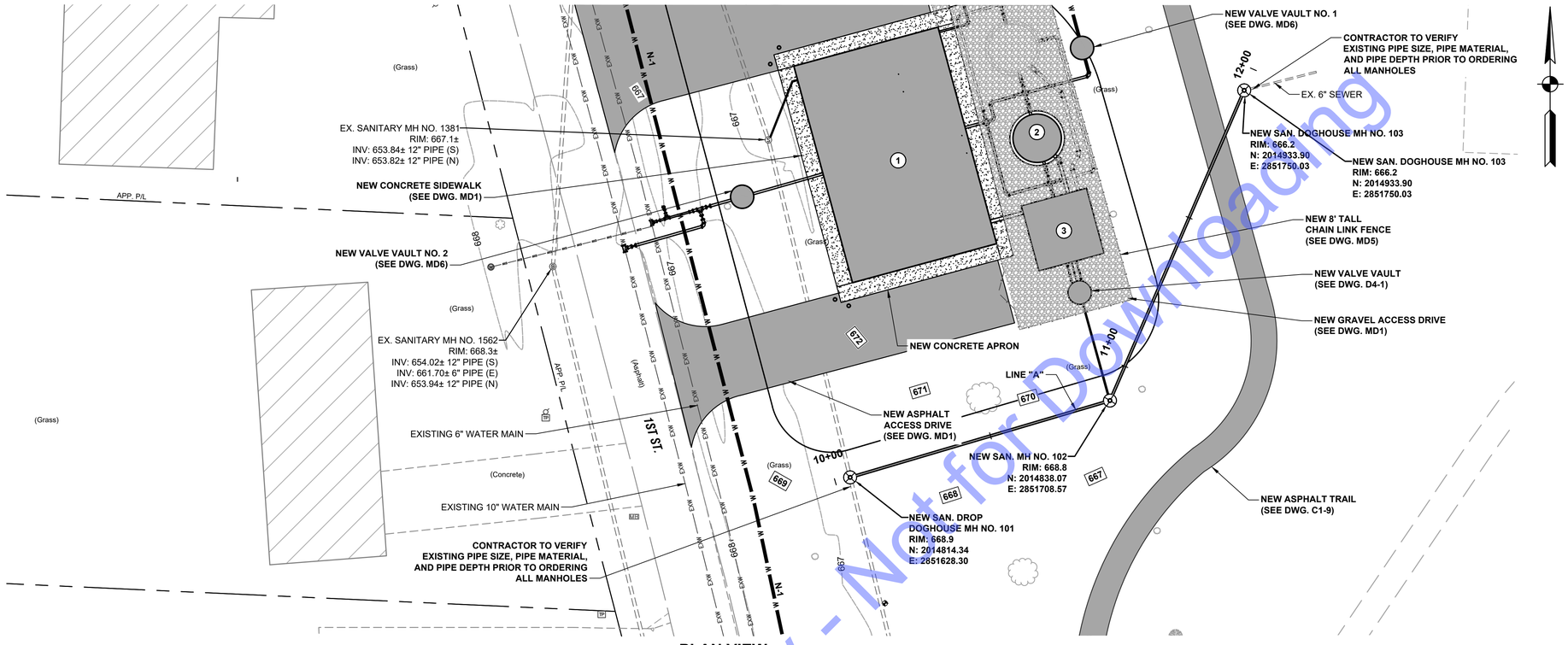
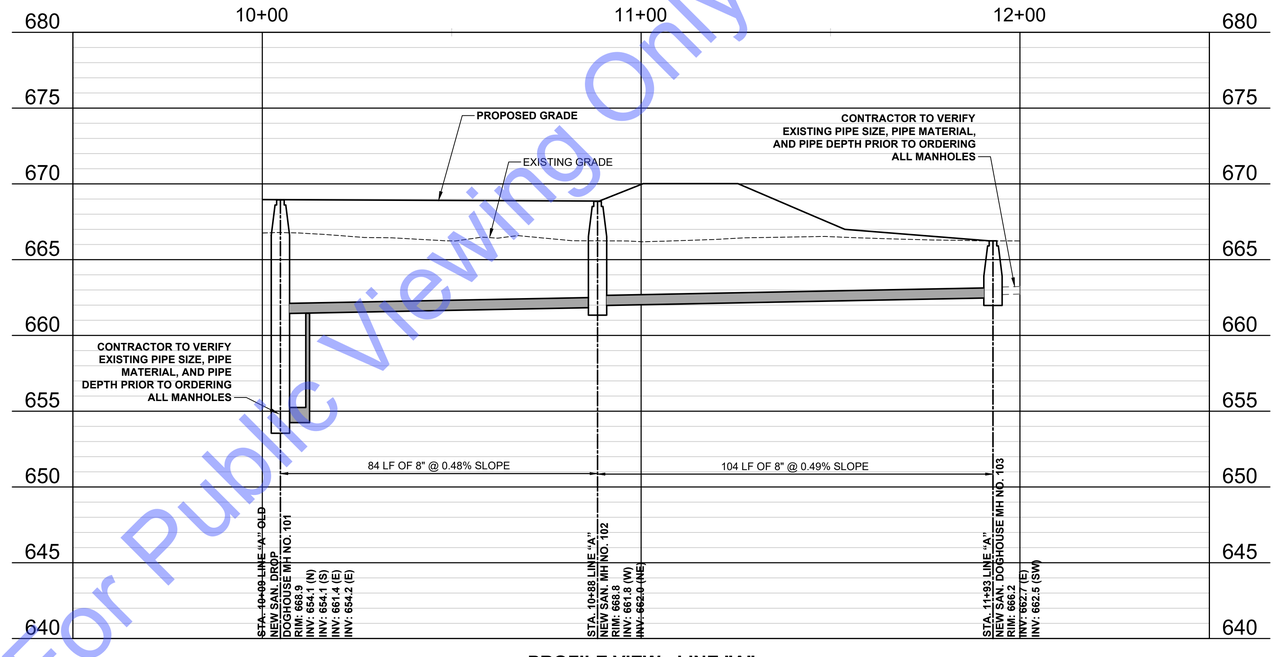


PLAN VIEW



PROFILE VIEW - LINE "A"

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)
2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
5' 0

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PLAN AND PROFILE VIEWS - LINE "A"

Drawing No: C1-8

Sheet: 13 OF 93

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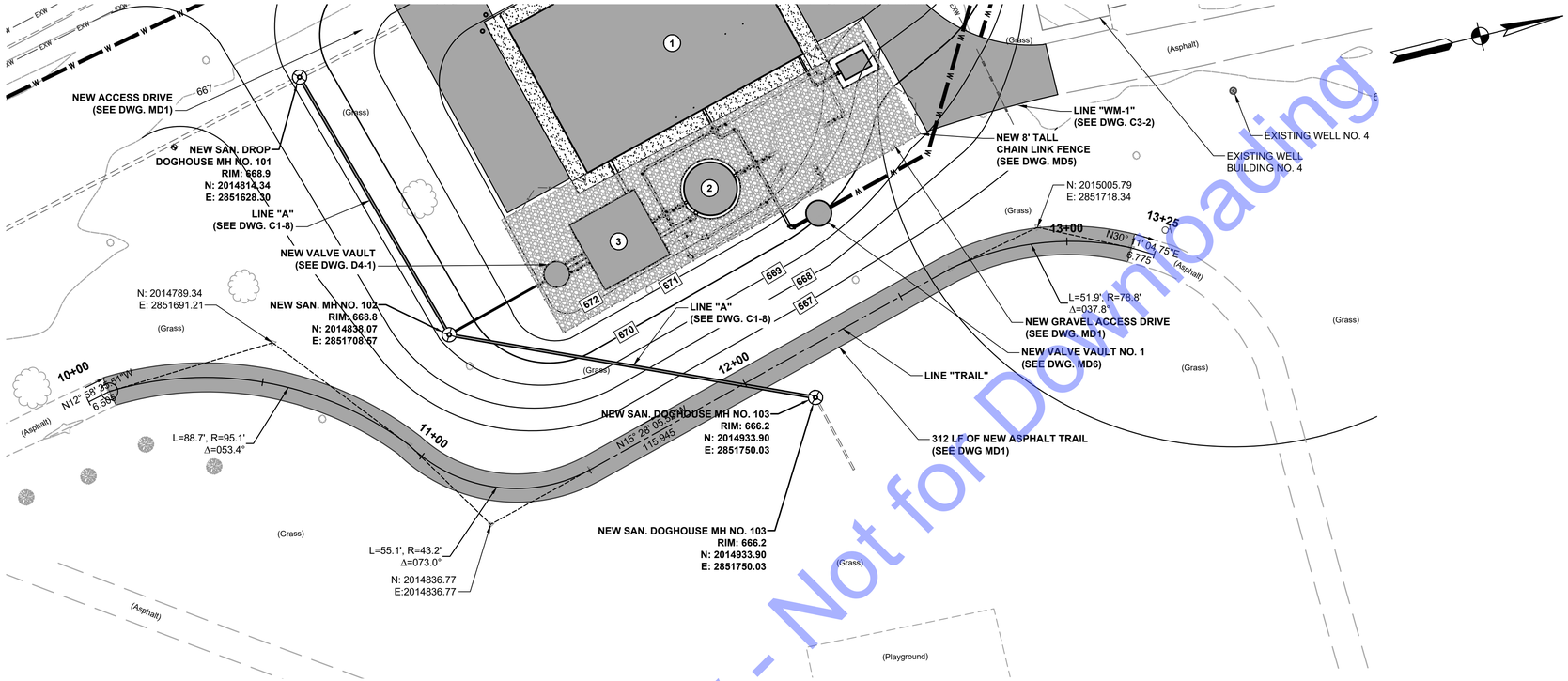
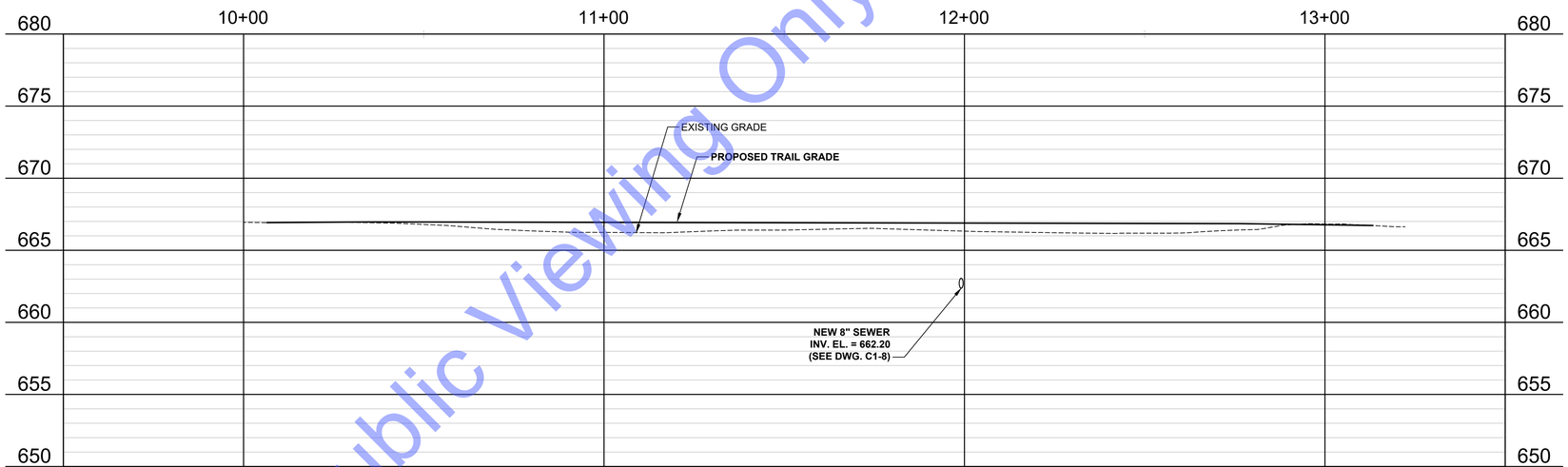


PLAN VIEW



PROFILE VIEW - LINE "TRAIL"

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)
2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

HORIZONTAL SCALE: 1" = 20'-0"
0 10' 20' 40' 60'
VERTICAL SCALE: 1"=5'
0 5'

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PLAN AND PROFILE VIEWS - LINE "TRAIL"

Drawing No: **C1-9**

Sheet: 14 OF 93

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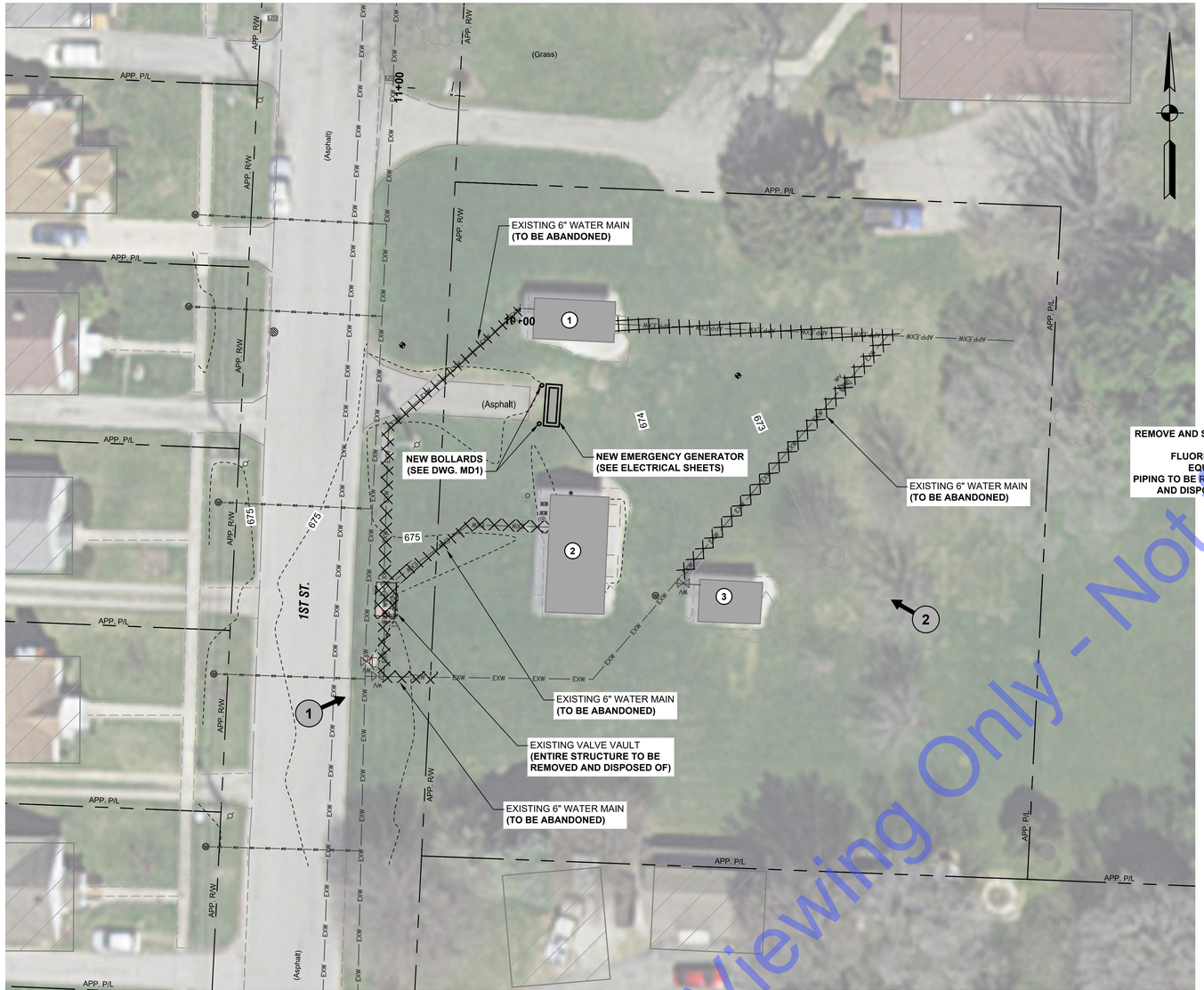


SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

EXISTING STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	EXISTING WELL NO. 1
2	EXISTING WELL NO. 2 (TO BE ABANDONED) AND CHEMICAL BUILDING
3	EXISTING WELL NO. 3

PHOTO #1

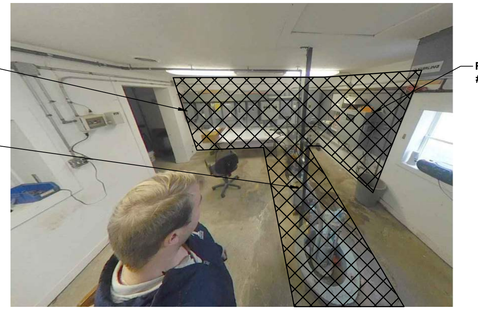
PHOTO #2

REMOVE AND SALVAGE WELL #1 FLUORIDE FEED EQUIPMENT. PIPING TO BE REMOVED AND DISPOSED OF.

WELLS #1

REMOVE AND DISPOSE OF EXISTING WELL PUMP, CLEAN WELL, AND INSTALL NEW WELL PUMP. EXISTING DISCHARGE PIPING AND VALVES TO REMAIN. MANDATORY ALTERNATE BID ITEM.

WELLS #1



REMOVE AND DISPOSE OF WELL #2 ELECTRICAL EQUIPMENT

REMOVE WELL #2, ALL EQUIPMENT, AND PIPING, AND ABANDON WELL

REMOVE AND DISPOSE OF WELL #2 ELECTRICAL EQUIPMENT

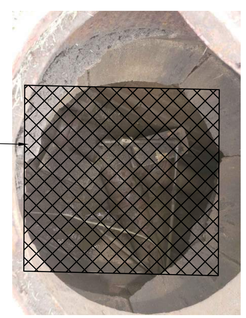
WELL #2

REMOVE AND SALVAGE WELL #2 CHLORINE EQUIPMENT AND SCALES

REMOVE AND DISPOSE OF ALL VALVES, EQUIPMENT AND PIPING IN VALVE PIT AND CONCRETE VALVE VAULT

REMOVE AND SALVAGE WELL #2 BOOSTER PUMP REMOVE AND DISPOSE OF PIPING

WELL #2



VALVE VAULT

REMOVE AND DISPOSE OF EXISTING WELL PUMP, CLEAN WELL, AND INSTALL NEW WELL PUMP. EXISTING DISCHARGE PIPING AND VALVES TO REMAIN. (MANDATORY ALTERNATE BID ITEM)

WELL #3

LEGEND:

INDICATES PHOTO NUMBER AND DIRECTION OF PHOTO (PHOTOS TAKEN BY COMMONWEALTH ENGINEERS, INC. IN 07-20-20)

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CROWN POINT, IN.
BOWLING GREEN, KY.
SOUTH BEND, IN.

CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY
IMPROVEMENTS PROJECT
NEW WATER TREATMENT
PLANT AND WELLS
IMPROVEMENTS

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GCR	GCR	CAL
Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

EXISTING WELL FIELD SITE AND DEMOLITION PLAN

Drawing No: **C2-1**

Sheet: 15 OF 93

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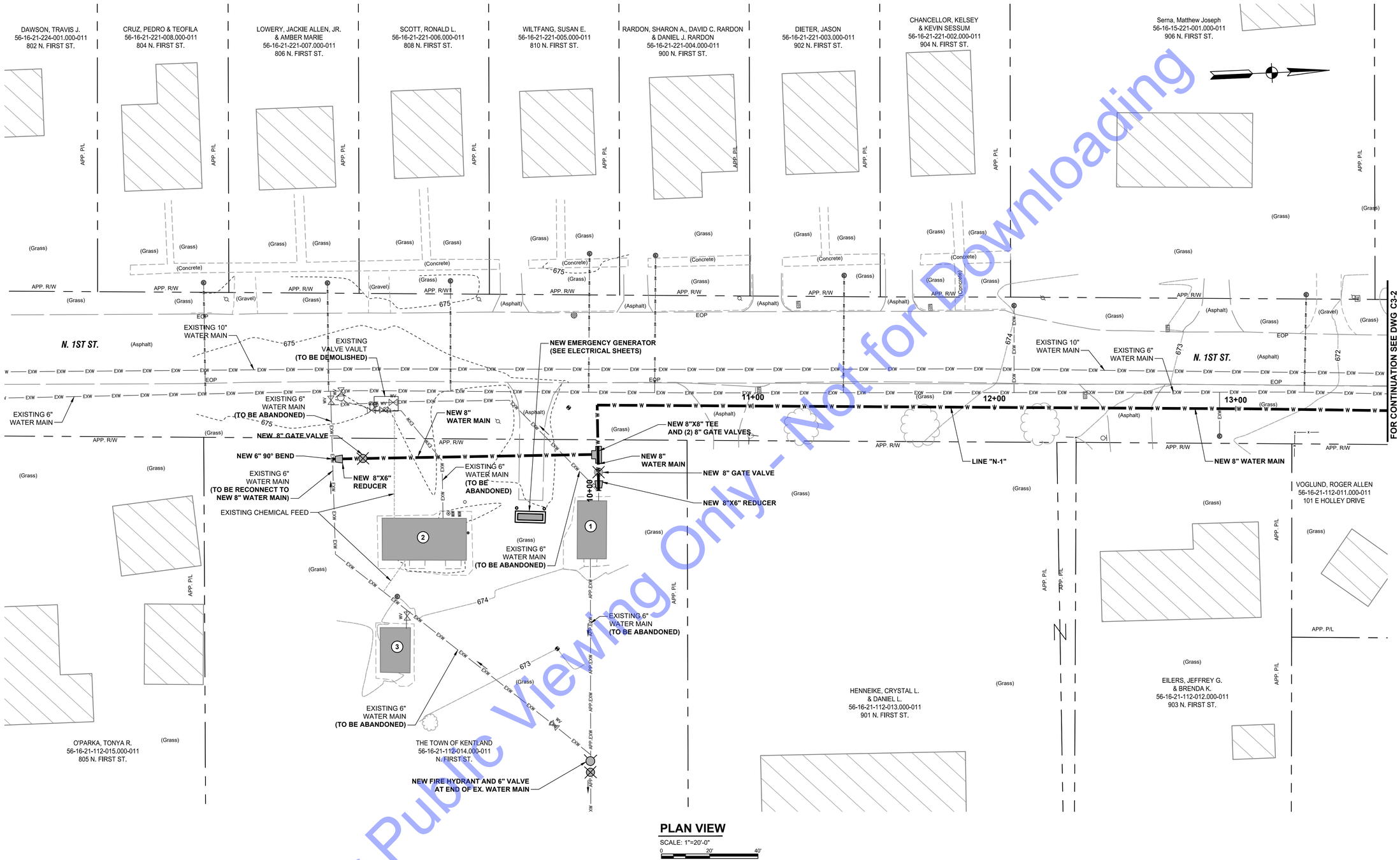

PLAN VIEW

SCALE: 1"=20'-0"

0 20' 40'

GENERAL NOTES:

1. **EXISTING PIPE MATERIALS SHOWN ON THE PLANS WERE OBTAINED VIA AS-BUILT INFORMATION AND SHALL BE USED FOR REFERENCE ONLY DURING BIDDING. CONTRACTOR SHALL LOCATE AND VERIFY ANY EXISTING PIPING THAT WE ARE CONNECTING TO, PRIOR TO ORDERING NEW MATERIALS.**
2. **EXISTING SERVICE LINE LOCATIONS ARE SHOWN FOR REPRESENTATION PURPOSE ONLY. CONTRACTOR TO FIELD LOCATE.**

EXISTING STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	EXISTING WELL NO. 1
2	EXISTING WELL NO. 2 (ABANDONED) AND CHEMICAL BUILDING
3	EXISTING WELL NO. 3

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REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

PLAN VIEW - LINE "N-1"

Drawing No: **C3-1**

Sheet: 16 OF 93

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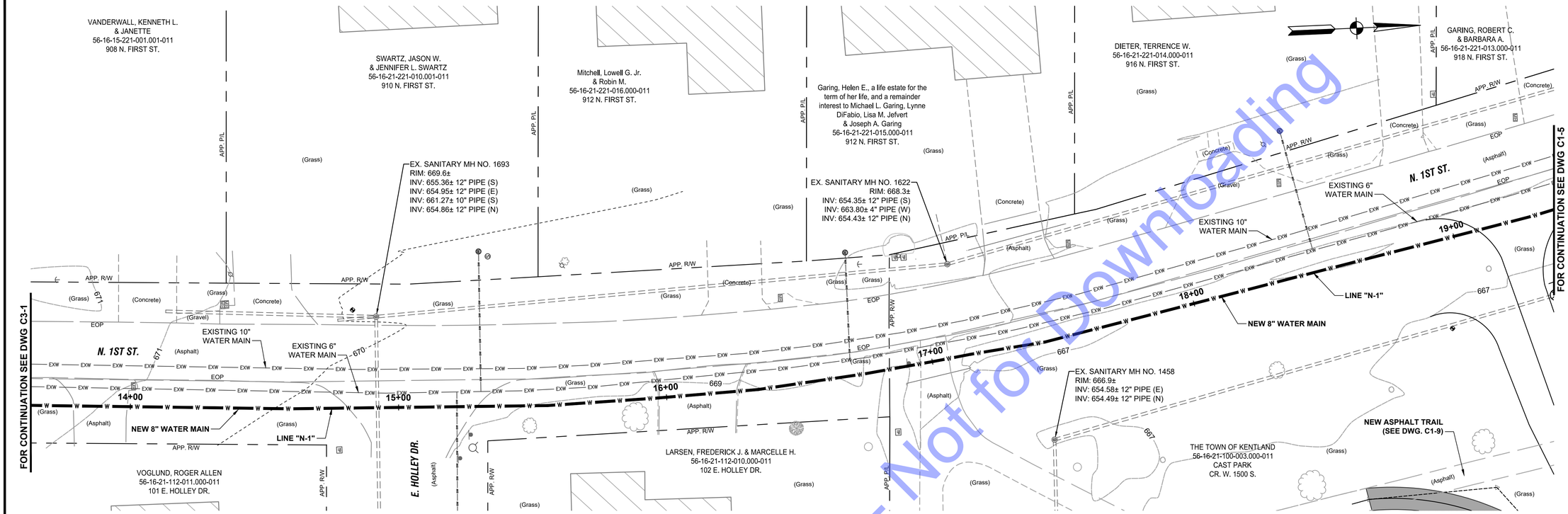

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0 20' 40'

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No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

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TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

PLAN VIEW - LINE "N-1"

Drawing No:
C3-2
Sheet: 17 OF 93

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CONSTRUCTION PLAN - GENERAL PLAN COMPONENTS (SECTION A)

A1. INDEX OF THE LOCATION OF REQUIRED PLAN ELEMENTS IN THE CONSTRUCTION PLAN:

THIS DOCUMENT REPRESENTS THE PLAN INDEX.

A2. A VICINITY MAP DEPICTING THE PROJECT SITE LOCATION IN RELATIONSHIP TO RECOGNIZABLE LOCAL LANDMARKS, TOWNS, AND MAJOR ROADS:

AN AERIAL MAP ILLUSTRATING THE APPROXIMATE EXTENT OF THE PROJECT IS SHOWN IN THE PLANS.

A3. NARRATIVE OF THE NATURE AND PURPOSE OF THE PROJECT:

THE TOWN OF KENTLAND HAS EXPERIENCED LOW WATER DEMAND IN RECENT YEARS WHICH HAS LED TO LOW FLOWS IN THE WATER MAINS, LEADING TO DISCOLORATION, TASTE, AND ODOR DISCREPANCIES DUE TO MINERALS BEING SEQUESTERED IN THE WATER AND NOT REMOVED. TO ADDRESS THIS ISSUE, THE TOWN PLANS TO BUILD A NEW AERATION-FILTRATION TREATMENT PLANT. IN ADDITION TO THE NEW WTP, EXISTING FACILITIES WILL BE REHABILITATED AND CENTRALIZED.

A4. LATITUDE AND LONGITUDE TO THE NEAREST FIFTEEN (15) SECONDS:

THIS APPROXIMATE LATITUDE AND LONGITUDE FOR THE PROJECT SITE IS 40.779715°, -87.448503.

A5. LEGAL DESCRIPTION OF THE PROJECT SITE:

THE PROJECT IS LOCATED IN THE TOWN OF KENTLAND, JEFFERSON TOWNSHIP, NEWTON COUNTY, IN SECTIONS 21, T27N, R9W.

A6. 11X 17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES:

ALL LOT BOUNDARIES AND ROAD NAMES ARE SHOWN ON THE PLANS.

A7. BOUNDARIES OF THE ONE HUNDRED (100) YEAR FLOODPLAINS, FLOODWAY FRINGES, AND FLOODWAYS:

THE FEMA FIRM PANEL IS 18111C0265D. THE NEW WATER TREATMENT PLANT AND WELL NO. 4 ARE LOCATED WITHIN FEMA ZONE A. THIS IS SHOWN IN **EXHIBIT #1**.

A8. LAND USE OF ALL ADJACENT PROPERTIES:

LAND USE ADJACENT TO THE PROJECT AREA INCLUDES DEVELOPED SPACE TO THE WEST, SOUTH, AND EAST WITH CULTIVATED CROPS TO THE NORTH.

A9. IDENTIFICATION OF A U.S. EPA APPROVED OR ESTABLISHED TMDL:

THE PROJECT AREA IS LOCATED WITHIN THE KENT DITCH - MONTGOMERY DITCH (HUC-12: 071200020505) WATERSHED, A SUB-WATERSHED OF THE KANKAKEE/IROQUOIS WATERSHED. THE KANKAKEE/IROQUOIS WATERSHED HAS AN APPROVED TMDL FOR *E. COLI*.

A10. NAME(S) OF THE RECEIVING WATER(S):

THE RECEIVING WATER BODIES IN THE PROJECT AREA ARE KENT DITCH AND MONTGOMERY DITCH.

A11. IDENTIFICATION OF DISCHARGES TO A WATER ON THE CURRENT 303(D) LIST OF IMPAIRED WATERS AND THE POLLUTANT FOR WHICH IT IS IMPAIRED:

THE KENT DITCH IS LISTED ON THE CURRENT 303(D) LIST FOR IMPAIRED WATERS FOR *E. COLI* AND BIOLOGICAL INTEGRITY.

A12. SOILS MAP OF THE PREDOMINATE SOIL TYPES:

THE SOILS MAP FOR THIS PROJECT IS SHOWN IN **EXHIBIT #2A-C**. THE SOILS IN THE PROJECT AREAS CONSIST ENTIRELY OF "DGA" "DARROCH LOAM, 0 TO 2 PERCENT SLOPES," "ONA" "ONARGA FINE SANDY LOAM, MODERATELY WET, 0 TO 2 PERCENT SLOPES," AND "SK" "SELMA SILTY CLAY LOAM, TILL SUBSTRATUM."

CONSTRUCTION PROJECTS ARE NOT EXPECTED TO HAVE ANY DETRIMENTAL, LONG-TERM IMPACTS ON THE SOILS. SHORT TERM IMPACTS WILL RELATE ONLY TO EXCAVATION ACTIVITIES FOR THE PROPOSED SYSTEM IMPROVEMENTS AND WILL BE MINIMAL. THESE IMPACTS CAN BE MITIGATED USING APPROPRIATE TECHNIQUES FOR EROSION CONTROL AND SURFACE RESTORATION DURING AND AFTER CONSTRUCTION.

SEASONAL WETNESS IS LIKELY TO BE THE MAIN LIMITATION OF THE SOILS IN THE CONSTRUCTION AREA. FOR THIS PROJECT, CONSTRUCTION PROBLEMS ASSOCIATED WITH WET SOILS WILL BE BEST OVERCOME BY COMPLETING OPEN EXCAVATION WORK DURING FAVORABLE CONDITIONS AND COORDINATING WORK ACTIVITIES BASED UPON WEATHER AND SOIL CONDITIONS. UNDER SEVERE SOIL WETNESS CONDITIONS, QUICKLIME MAY BE USED TO HELP DRY WET SOILS FOR SITE ACCESS PURPOSES AND TO REDUCE DOWNTIME.

A13. IDENTIFICATION AND LOCATION OF ALL KNOWN WETLANDS, LAKES, AND WATER COURSES ON OR ADJACENT TO THE PROJECT SITE (CONSTRUCTION PLAN, EXISTING LAYOUT):

ALL WETLANDS, LAKES, AND WATER COURSES LOCATED WITHIN AND NEARBY THE PROJECT AREA HAVE BEEN IDENTIFIED AND ARE SHOWN IN **EXHIBITS #3 AND #4**. THERE IS A STREAM/RIVER FLOWLINE SHOWN NEAR THE LIMITS OF THE PROJECT AREA, BUT IT WILL NOT BE IMPACTED.

A14. IDENTIFICATION OF ANY OTHER STATE OR FEDERAL WATER QUALITY PERMITS OR AUTHORIZATIONS THAT ARE REQUIRED FOR CONSTRUCTION ACTIVITIES:

THE PROJECT WILL REQUIRE A DNR CIF PERMIT FOR NEW STRUCTURES IN THE FLOODWAY.

A15. IDENTIFICATION AND DELINEATION OF EXISTING VEGETATIVE COVER, INCLUDING NATURAL BUFFERS:

EXISTING VEGETATIVE COVER IS PRIMARILY TURF GRASS. NO NATURAL BUFFER AREAS ARE ANTICIPATED TO BE IMPACTED IS FOR THIS PROJECT.

A16. EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO SHOW DETAILED DRAINAGE PATTERNS:

DETAILED CONTOUR LINES ARE SHOWN ON THE PLAN SHEETS TO INDICATE DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS.

A17. LOCATION(S) WHERE RUN-OFF ENTERS THE PROJECT SITE:

DETAILED CONTOUR LINES ARE SHOWN ON PLAN SHEETS TO INDICATE DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS.

A18. LOCATION(S) WHERE RUN-OFF DISCHARGES FROM THE PROJECT SITE PRIOR TO LAND DISTURBANCE:

DETAILED CONTOUR LINES ARE SHOWN ON PLAN SHEETS TO INDICATE DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS.

A19. LOCATION OF ALL EXISTING STRUCTURES ON THE PROJECT SITE:

THE LOCATION OF ALL EXISTING STRUCTURES ON THE PROJECT SITE CAN BE SEEN IN THE PLANS.

A20. EXISTING PERMANENT RETENTION OR DETENTION FACILITIES, INCLUDING MANMADE WETLANDS, DESIGNED FOR THE PURPOSE OF STORMWATER MANAGEMENT:

THERE ARE NO EXISTING PERMANENT RETENTION OR DETENTION FACILITIES USED FOR STORMWATER MANAGEMENT WITHIN THE PROJECT AREA.

A21. LOCATIONS WHERE STORMWATER MAY BE DIRECTLY DISCHARGED INTO GROUND WATER, SUCH AS ABANDONED WELLS, SINKHOLES, OR KARST FEATURES:

THERE ARE NO ABANDONED WELLS, SINKHOLES, OR KARST FEATURES LOCATED WITHIN THE PROJECT AREA.

A22. SIZE OF THE PROJECT AREA EXPRESSED IN ACRES:

THE TOTAL PROJECT AREA IS APPROXIMATELY 8.77 ACRES.

A23. TOTAL EXPECTED LAND DISTURBANCE EXPRESSED IN ACRES:

THE TOTAL EXPECTED LAND DISTURBANCE FOR THE PROJECT IS APPROXIMATELY 2.44 ACRES.

A24. PROPOSED FINAL TOPOGRAPHY:

THE PLANS SHOW PROPOSED SITE TOPOGRAPHY AND DRAINAGE PATTERNS.

A25. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:

THE PLANS SHOW THE LOCATIONS AND BOUNDARIES OF ALL DISTURBED AREAS/CONSTRUCTION LIMITS.

A26. LOCATIONS, SIZE AND DIMENSIONS OF ALL STORMWATER DRAINAGE SYSTEMS SUCH AS CULVERTS, STORMWATER SEWER, AND CONVEYANCE CHANNEL:

THE EXISTING STORMWATER DRAINAGE SYSTEMS ARE SHOWN ON THE PLANS. ALL EXISTING STORMWATER SYSTEMS WILL BE PROTECTED AND MAINTAINED DURING CONSTRUCTION. IF DURING CONSTRUCTION ANY DAMAGE IS DONE TO AN EXISTING STORMWATER SYSTEM, DAMAGED STRUCTURES WILL BE EITHER REPAIRED OR REPLACED TO EQUAL OR BETTER CONDITION THAN EXISTING.

A27. LOCATIONS OF SPECIFIC POINTS WHERE STORMWATER AND NON-STORMWATER DISCHARGES WILL LEAVE THE PROJECT SITE:

LOCATIONS WHERE STORMWATER AND NON-STORMWATER DISCHARGES WILL LEAVE THE PROJECT SITE CAN BE SEEN ON THE PLANS.

A28. LOCATION OF ALL PROPOSED SITE IMPROVEMENTS, INCLUDING ROADS, UTILITIES, LOT DELINEATION AND IDENTIFICATION, PROPOSED STRUCTURES, AND COMMON AREAS:

LOCATIONS OF ALL PROPOSED SITE IMPROVEMENTS, INCLUDING PROPOSED UTILITIES, STRUCTURES, AND LOT BOUNDARIES, ARE SHOWN ON THE PLANS. NO OFF-SITE CONSTRUCTION IS ANTICIPATED FOR THIS PROJECT.

A29. LOCATIONS OF ALL ON-SITE AND OFF-SITE SOIL STOCKPILES AND BORROW AREAS:

THE LOCATION OF THE STOCKPILE IS SHOWN ON THE PLANS. STOCKPILES LEFT INACTIVE FOR SEVEN (7) DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY SEED AND SURROUNDED BY SILT FENCE OR OTHER PERIMETER CONTROLS. ALL STOCKPILES AND BORROW AREAS WILL BE LOCATED ON-SITE AND THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PERMIT OR RELEASE FOR PROPER DISPOSAL OF EXCAVATED MATERIALS.

A30. CONSTRUCTION SUPPORT ACTIVITIES THAT ARE EXPECTED TO BE PART OF THE PROJECT:

STAGING AREAS, MATERIAL STORAGE, AND CONCRETE WASHOUT LOCATIONS ARE SHOWN ON THE PLANS.

A31. LOCATION OF ANY IN-STREAM ACTIVITIES THAT ARE PLANNED FOR THE PROJECT INCLUDING, BUT NOT LIMITED TO, STREAM CROSSINGS AND PUMP AROUNDS:

NO IN-STREAM ACTIVITIES ARE PLANNED FOR THE PROJECT.

STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION COMPONENT (SECTION B)

STORMWATER POLLUTION PREVENTION MEASURES SHALL BE IN ACCORDANCE WITH THE LOCAL REGULATORY AUTHORITY AND THE APPLICABLE IDEM CSGP REQUIREMENTS.

B1 DESCRIPTION OF THE POTENTIAL POLLUTANT GENERATING SOURCES AND POLLUTANTS, INCLUDING ALL POTENTIAL NON-STORMWATER DISCHARGES:

WITHOUT THE USE OF PROPER BMPS, CLEARING, GRADING, EXCAVATING, STOCKPILING, PAVING REPAIR, AND DEWATERING ALL MAY RESULT IN SEDIMENT POLLUTION. PAVEMENT RESTORATION MAY ALSO CREATE BITUMINOUS DEBRIS. IMPROPER VEHICLE FUELING AND MAINTENANCE ON-SITE MAY RESULT IN SPILLS OF OIL, GREASE, AND FUEL. GENERAL CONSTRUCTION ACTIVITY CAN LEAD TO TRASH ACCUMULATION AND POLLUTION FROM SANITATION CHEMICALS.

EXCAVATION, STOCKPILING, AND GRADING:

STOCKPILE MANAGEMENT PROCEDURES AND PRACTICES WILL BE IMPLEMENTED TO MINIMIZE OR ELIMINATE THE DISCHARGE OF STOCKPILED MATERIAL (SOIL, TOPSOIL, BASE MATERIAL) FROM ENTERING DRAINAGE SYSTEMS OR SURFACE WATERS.

FOR ANY STOCKPILES OR LAND CLEARING DEBRIS COMPOSED, IN WHOLE OR IN PART, OF SEDIMENT OR SOIL, THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. LOCATE PILES WITHIN THE DESIGNATED LIMITS OF DISTURBANCE.
2. PROTECT FROM CONTACT WITH STORMWATER USING A TEMPORARY PERIMETER SEDIMENT BARRIER.
3. WHERE PRACTICABLE, PROVIDE COVER OR APPROPRIATE TEMPORARY VEGETATIVE OR STRUCTURAL STABILIZATION TO AVOID DIRECT CONTACT WITH PRECIPITATION OR TO MINIMIZE THE DISCHARGE OF SEDIMENTS.
4. NEVER HOSE DOWN OR SWEEP SOIL OR SEDIMENT ACCUMULATED ON PAVEMENT OR OTHER IMPERVIOUS SURFACES INTO ANY STORMWATER CONVEYANCE, STORM DRAIN INLET, OR SURFACE WATER.
5. TO THE MAXIMUM EXTENT PRACTICABLE, CONTAIN AND SECURELY PROTECT STOCKPILES FROM WIND.

DEWATERING:

EQUIPMENT OPERATORS ARE PROHIBITED FROM DISCHARGING GROUNDWATER OR ACCUMULATED STORMWATER THAT IS REMOVED FROM EXCAVATIONS, TRENCHES, VAULTS, OR OTHER SIMILAR POINTS OF ACCUMULATION, UNLESS SUCH WATERS ARE FIRST EFFECTIVELY MANAGED BY APPROPRIATE CONTROL MEASURES.

EXAMPLES OF APPROPRIATE CONTROL MEASURES INCLUDE TEMPORARY SEDIMENT BASINS OR SEDIMENT TRAPS, SEDIMENT SOCKS, DEWATERING TANKS AND BAGS, OR FILTRATION SYSTEMS (E.G., BAG OR SAND FILTERS) THAT ARE DESIGNED TO REMOVE SEDIMENT. UNCONTAMINATED, NON-TURBID DEWATERING WATER CAN BE DISCHARGED WITHOUT BEING ROUTED TO A CONTROL.

VEHICLE FUELING:

VEHICLE FUELING SHALL NOT TAKE PLACE WITHIN REGULATED DRAIN AREAS WETLANDS OR BUFFER ZONE AREAS, OR WITHIN 50-FEET OF THE STORM DRAIN SYSTEM. VEHICLE MAINTENANCE AND WASHING SHALL OCCUR OFF-SITE, OR IN DESIGNATED AREAS DEPICTED ON THE PLANS OR APPROVED OF BY THE SITE OWNER. MAINTENANCE AREAS SHALL BE CLEARLY DESIGNATED, AND BARRIERS SHALL BE USED AROUND THE PERIMETER OF THE MAINTENANCE AREA TO PREVENT STORMWATER CONTAMINATION.

CONSTRUCTION VEHICLES SHALL BE INSPECTED FREQUENTLY FOR LEAKS. REPAIRS SHALL TAKE PLACE IMMEDIATELY. DISPOSAL OF ALL USED OIL, ANTIFREEZE, SOLVENTS, AND OTHER AUTOMOTIVE-RELATED CHEMICALS SHALL BE ACCORDING TO APPLICABLE REGULATIONS; AT NO TIME SHALL ANY MATERIAL BE WASHED DOWN THE STORM DRAIN OR INTO ANY ENVIRONMENTALLY SENSITIVE AREA.

B2 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:

THE STABLE CONSTRUCTION ENTRANCE FOR THE NEW WTP WILL BE LOCATED OFF W 1500 S AS SHOWN ON THE PLANS. THE STABLE CONSTRUCTION ENTRANCE FOR THE EXISTING WELLFIELD WILL BE LOCATED OFF N 1ST STREET AS SHOWN ON THE PLANS. UPON COMPLETION OF CONSTRUCTION ALL SURFACES SHALL BE RESTORED TO MATCH PRE-CONSTRUCTION CONDITIONS. LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE WILL BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. AT THE END OF CONSTRUCTION, THE CONTRACTOR SHALL RESTORE EXISTING SURFACES ACTING AS CONSTRUCTION ENTRANCES/EXITS TO PRE-CONSTRUCTION CONDITIONS. REFER TO DS-09, "TEMPORARY EROSION AND SEDIMENT CONTROL."

B3 SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:

TEMPORARY AND PERMANENT SEED SURFACE STABILIZATION WILL BE UTILIZED WHERE NEEDED. SEE DS-09, "TEMPORARY EROSION AND SEDIMENT CONTROL" AND WM-24 "SEEDING AND SODDING."

UNVEGETATED AREAS THAT ARE LEFT IDLE OR SCHEDULED TO BE LEFT INACTIVE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITH MEASURES APPROPRIATE FOR THE SEASON. STABILIZATION MUST BE INITIATED BY THE END OF THE SEVENTH DAY THE AREA IS LEFT IDLE. THE STABILIZATION ACTIVITY MUST BE COMPLETED WITHIN FOURTEEN (14) DAYS AFTER INITIATION.

STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION COMPONENT (SECTION B) (CONTINUED)

INITIATION OF STABILIZATION INCLUDES SEEDING AND APPLYING MULCH OR OTHER TEMPORARY SURFACE STABILIZATION METHODS WHERE APPROPRIATE. BIODEGRADABLE MATTING OR NETTING MAY BE USED TO STABILIZE SOILS ON SLOPED AREAS AND SOME RECENTLY PLANTED AREAS TO PROTECT SEEDLINGS UNTIL THEY HAVE BECOME ESTABLISHED. TEMPORARY SEEDING OR EROSION CONTROL MATS ARE TO BE USED TO STABILIZE EXPOSED SURFACES IF FINAL GRADING AND SEEDING MUST BE DELAYED.

B4 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:

PROTECTIVE MEASURES FOR AREAS OF CONCENTRATED FLOW WILL INCLUDE TEMPORARY AND PERMANENT VEGETATION, MULCHES, AND/OR EROSION CONTROL MATTING. REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL."

B5 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:

ALL DISTURBED AREAS, WHERE RUNOFF WILL BE IN SHEET FLOW CONDITION AND WHICH ARE NOT TO BE DISTURBED FOR SEVEN (7) DAYS OR MORE, SHALL RECEIVE TEMPORARY SEEDING. DISTURBED AREAS SHALL BE PERMANENTLY SEEDED IMMEDIATELY AFTER LAND DISTURBANCE ACTIVITIES ARE COMPLETED.

PERIMETER PROTECTION, INCLUDING SILT FENCE, SHALL BE USED AT LOCATIONS SHOWN IN THE PLANS. INLET PROTECTION IS REQUIRED FOR ALL INLETS IN THE PROJECT AREAS. REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL."

B6 RUNOFF CONTROL MEASURES:

DIVERSION DITCHES, CHECK DAMS, SLOPE DRAINS, OR OTHER SIMILAR STRUCTURES FOR RUNOFF CONTROL ARE NOT ANTICIPATED FOR THIS PROJECT.

B7 STORMWATER OUTLET PROTECTION SPECIFICATIONS:

STORMWATER OUTLET PROTECTION IS NOT ANTICIPATED FOR THIS PROJECT.

B8 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:

GRADE STABILIZATION STRUCTURES ARE NOT ANTICIPATED FOR THIS PROJECT.

B9 DEWATERING APPLICATIONS AND MANAGEMENT METHODS:

AT A MINIMUM, THE FOLLOWING DISCHARGE REQUIREMENTS MUST BE MET FOR DEWATERING ACTIVITIES:

1. ALLOW NO DISCHARGE OF VISIBLE SEDIMENT OR SOLIDS. THIS INCLUDES DISCHARGE WATER WITH A VISIBLE SHEEN.
2. AT ALL POINTS WHERE DEWATERING WATER IS DISCHARGED, UTILIZE VELOCITY DISSIPATION DEVICES.
3. DEWATERING PRACTICES MUST INVOLVE THE IMPLEMENTATION OF APPROPRIATE CONTROL MEASURES AS APPLICABLE (I.E., CONTAINMENT AREAS FOR DEWATERING EARTH MATERIALS, PORTABLE SEDIMENT TANKS AND BAGS, PUMPING SETTLING BASINS, AND PUMP INTAKE PROTECTION).

B10 MEASURES UTILIZED FOR WORK WITHIN WATERBODIES:

NO IN-STREAM ACTIVITIES ARE PLANNED FOR THE PROJECT.

B11 MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE:

THROUGHOUT CONSTRUCTION, THE CONTRACTOR SHALL MONITOR AND MANAGE PROJECT CONSTRUCTION AND STORMWATER ACTIVITIES THROUGH THE ADMINISTRATION OF A SMP. A TRAINED INDIVIDUAL SHALL SUBMIT WEEKLY SMP REPORTS, AND EVENT INSPECTION REPORTS AS REQUIRED WITHIN 24 HOURS OF EVERY ½" RAIN EVENT. INSPECTION WILL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL STRUCTURES TO ENSURE INTEGRITY AND EFFECTIVENESS. INSPECTIONS WILL ALSO BE PROVIDED FOR ALL DISTURBED AREAS THAT HAVE NOT ACHIEVED FINAL STABILIZATION, AND AT ALL POINTS OF DISCHARGE FROM THE CONSTRUCTION SITE.

CONSTRUCTION ENTRANCES SHOULD BE INSPECTED DAILY. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. TOP DRESS WITH AGGREGATE AS NEEDED. REMOVE MUD AND SEDIMENT TRACKED ONTO PUBLIC ROADS. FLUSHING SHOULD ONLY BE USED IF WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.

INSPECT SILT FENCES WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST WEEKLY. FABRIC TEARS, POST FAILURES, VEHICLE DAMAGE, OR UNDERMINING OF THE SILT FENCE ARE TO BE REPAIRED IMMEDIATELY. SEDIMENT BUILDUP ALONG SILT FENCES WILL BE REMOVED IF IT REACHES 1/2 THE HEIGHT OF THE SILT FENCE ABOVE THE GROUND ELEVATION.

INLETS SHOULD BE INSPECTED DAILY. INLETS SHALL BE CLEARED OF SEDIMENT AT LEAST WEEKLY, AFTER STORM EVENTS, AND AS NEEDED. REPLACE OR CLEAN GEOTEXTILE FABRIC AS NEEDED.

INSPECT CONCRETE WASHOUTS DAILY AND AFTER EACH STORM EVENT. MAINTAIN CONCRETE WASHOUTS TO PROVIDE ADEQUATE HOLDING AND CAPACITY WITH MINIMUM FREEBOARD OF 12 INCHES.

REFER TO DS-09 "TEMPORARY EROSION AND SEDIMENT CONTROL" FOR ADDITIONAL INFORMATION ON PROPOSED STORMWATER QUALITY MEASURES.

B12 PLANNED CONSTRUCTION SEQUENCE THAT DESCRIBES THE IMPLEMENTATION OF STORMWATER QUALITY MEASURES IN RELATION TO LAND DISTURBANCE:

A PRE-CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION AND ANY LAND DISTURBANCE ACTIVITY. ATTENDEES TO THE PRE-CONSTRUCTION MEETING WILL INCLUDE REPRESENTATIVES OF THE CONTRACTOR, OWNER, ENGINEER. THE IDEM OFFICE OF WATER QUALITY (OWQ) SHALL BE PROVIDED WITH A 48-HOUR NOTICE PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY.

THE NOTICE OF INTENT (NOI) AND THE LOCATION OF THE SWPPP WILL BE POSTED AT THE JOB SITE. THERE WILL BE FUEL CONTAINMENT AND CONCRETE WASHOUT PROVIDED ON-SITE, IF APPLICABLE.

PROJECT SEQUENCING WILL GENERALLY FOLLOW THE FOLLOWING STEPS:

1. INSTALL CONSTRUCTION ENTRANCES.
2. INSTALL PERIMETER PROTECTION (SILT FENCE, INLET PROTECTION).
3. INSTALL CONCRETE WASHOUTS PRIOR TO CONCRETE INSTALLATION.
4. TEMPORARY SEED AS NEEDED PER SPECIFICATIONS.
5. REMOVE TEMPORARY EROSION CONTROL MEASURES AS PERMANENT MEASURES ARE ESTABLISHED.

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA

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STORMWATER POLLUTION PREVENTION PLAN

Drawing No: **EC1**

Sheet: 18 OF 93

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STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION COMPONENT (SECTION B) (CONTINUED)

B13 PROVISIONS FOR EROSION AND SEDIMENT CONTROL ON INDIVIDUAL BUILDING LOTS REGULATED UNDER THE PROPOSED PROJECT:

THE PROJECT AREA AND INDIVIDUAL AREA EROSION CONTROL IS DEPICTED IN PLANS.

B14 MATERIAL HANDLING AND SPILL PREVENTION AND SPILL RESPONSE PLAN MEETING THE REQUIREMENTS IN 327 IAC 2-6.1:

THE CONTRACTOR WILL BE REQUIRED TO INSPECT EQUIPMENT REGULARLY TO AVOID UNNECESSARY LEAKS OR SPILLS. THE CONTRACTOR WILL ALSO BE REQUIRED TO PROVIDE SPILL KITS AND EQUIPMENT TO CONTAIN AND CLEAN UP ANY PETROLEUM PRODUCTS OR OTHER UNDESIRABLE SPILLS WHICH MAY OCCUR DURING CONSTRUCTION.

IF A SPILL DOES OCCUR, SPILL REPORTING AND NOTIFICATION REQUIREMENTS WILL BE UNDERTAKEN IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND STATE REQUIREMENTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE RESPONSE PROCEDURES THAT WILL MINIMIZE GROUNDWATER AND SURFACE WATER IMPACTS.

CONTACT INFORMATION FOR LOCAL AND STATE AGENCIES TO BE CONTACTED IN THE EVENT OF A SPILL ARE AS FOLLOWS:

TOWN OF KENTLAND
200 N THIRD ST.
KENTLAND, IN 47951
PHONE: 219-474-5062

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND QUALITY
EMERGENCY RESPONSE AND SPILL REPORTING SECTION
PHONE: 1-888-233-7745

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER QUALITY
INDIANA GOVERNMENT CENTER NORTH
100 N. SENATE AVENUE, ROOM N1255
INDIANAPOLIS, INDIANA 46204
PHONE: 1-888-233-7745

INDIANA DEPARTMENT OF NATURAL RESOURCES
DISTRICT 10 HEADQUARTERS
PHONE: 219-879-5710

INDIANA DEPARTMENT OF TRANSPORTATION
TRAFFIC MANAGEMENT CENTER
PHONE: 317-899-8690

B15 MATERIAL HANDLING AND STORAGE PROCEDURES ASSOCIATED WITH CONSTRUCTION ACTIVITY:

FUELS, OILS, GREASE, OR OTHER PETROLEUM PRODUCTS MUST BE STORED IN APPROPRIATE AND APPROVED AREAS. PREVENTATIVE MAINTENANCE WILL BE REQUIRED FOR ON-SITE EQUIPMENT. HAZARDOUS MATERIALS WILL BE REQUIRED TO BE STORED IN A FIELD TRAILER TO AVOID ANY OUTSIDE STORAGE.

ALL FUEL IS TO BE CONTAINED IN A MOBILE SERVICE TRUCK OR IN THE CONSTRUCTION EQUIPMENT OPERATING ON SITE. SMALL CONTAINERS OF OILS, GREASE, AND RELATED PRODUCTS MAY BE STORED IN THE CONTRACTOR'S CONSTRUCTION TRAILER. THESE ITEMS WILL BE REQUIRED TO BE INSPECTED REGULARLY TO INSURE PROPER STORAGE AND HANDLING AND TO GUARD AGAINST LEAKAGE. DEFECTIVE CONTAINERS WILL BE REMOVED FROM THE PROJECT SITE IMMEDIATELY.

CONCRETE WASHOUT LOCATIONS ARE SHOWN ON THE PROJECT PLANS.

STORMWATER POLLUTION PREVENTION PLAN - POST-CONSTRUCTION COMPONENT (SECTION C)

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:

THE FINAL LAND USE WILL CHANGE FROM ITS EXISTING PARK OPEN SPACE USE TO AN ACCESSED CONTROL WATER TREATMENT PLANT FACILITY. POTENTIAL POLLUTANTS FROM THIS PROJECT AFTER CONSTRUCTION IS COMPLETED INCLUDE SEDIMENT, HYDROCARBONS, AND LITTER.

SEDIMENT POLLUTION IS A RESULT OF EROSION WHICH CAN BE TRIGGERED BY NATURAL CAUSES OR HUMAN ACTIVITY. FOR THIS PROJECT, SEDIMENTATION MAY OCCUR DUE TO RUNOFF FROM EXCAVATED AREAS. SEDIMENT POLLUTION MAY ALSO BE CAUSED BY ON-SITE STORAGE OF EXCAVATED MATERIALS, BACKFILL MATERIALS, AND CONSTRUCTION SPOIL AREAS. HYDROCARBON POLLUTION MAY OCCUR DUE TO LEAKAGE AND SPILLS FROM ITEMS SUCH AS GASOLINE, OIL, GREASE, VEHICLE BRAKE AND TRANSMISSION FLUIDS, ANTIFREEZE, AND COOLANTS. LITTER MAY OCCUR IN PROJECT AREAS DUE TO HUMAN ACTIVITIES AND INCLUDES PLASTIC BAGS, BOTTLES, ALUMINUM CANS, AND OTHER GENERAL GARBAGE.

C2 DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES:

PERMANENT SEEDING IS THE ONLY POST CONSTRUCTION STORMWATER QUALITY MEASURES THAT ARE ANTICIPATED TO BE NEEDED. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WILL BE REQUIRED TO BE RESTORED. REQUIREMENTS FOR PERMANENT SEEDING ARE REFERENCED IN WM-24 - SEEDING AND SODDING.

POST-CONSTRUCTION STORMWATER QUALITY MEASURES MUST BE SIZED TO TREAT EXCESS STORM WATER RUNOFF AFTER DEVELOPMENT DUE TO THE ADDITION OF IMPERVIOUS SURFACE. THE TOWN DOES NOT HAVE CURRENT TECHNICAL STANDARDS, SO CALCULATIONS OF PRE-AND POST-CONSTRUCTION RUNOFF RATES WERE COMPLETED IN ACCORDANCE WITH THE WATER QUALITY VOLUME (WQV).

WQV = WATER QUALITY VOLUME (ACRE-FEET)
WQV = RV X A X P

RV = RUNOFF COEFFICIENT
RV = 0.05 + 0.9I

A = DRAINAGE AREA (ACRES)
P = PRECIPITATION DEPTH OF 1-INCH OVER 24 HOURS (INCHES)
I = PERCENTAGE OF IMPERVIOUS SURFACE

PRE-CONSTRUCTION WQV:
I = 0.045
RV = 0.05 +0.9(0.045) = 0.0905
WQV = 0.0905 X 2.44 ACRES X 1.0 INCH = 0.22 ACRE-FEET

POST-CONSTRUCTION WQV:
I = 0.193
RV = 0.05 +0.9(0.193) = 0.2237
WQV = 0.2237 X 2.44 ACRES X 1.0 INCH = 0.546 ACRE-FEET

THERE IS AN INCREASE IN IMPERVIOUS SURFACE AT THE WTP OF 0.36 ACRES. DUE TO THIS MINIMAL AMOUNT OF IMPERVIOUS SURFACE BEING ADDED THE RUNOFF TO NEARBY STREAMS IS NOT ANTICIPATED TO INCREASE.

C3 PLAN DETAILS FOR EACH STORMWATER QUALITY MEASURE:

PERMANENT SEEDING IS THE ONLY POST-CONSTRUCTION STORMWATER QUALITY MEASURE ANTICIPATED FOR THIS PROJECT. PERMANENT SEEDING WILL BE PROVIDED FOR ALL PORTIONS OF THE PROJECT WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES, AND WHICH ARE NOT COVERED BY PERMANENT IMPERVIOUS SURFACE. TEMPORARY EROSION CONTROL MEASURES WILL NOT BE REMOVED UNTIL THE PERMANENT SEEDING HAS BEEN ESTABLISHED. REFER TO DS-09 - TEMPORARY EROSION AND SEDIMENT CONTROL AND WM-24 - SEEDING AND SODDING.

C4 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:

POST-CONSTRUCTION SEQUENCING MEASURES FOR THIS PROJECT WILL BE AS FOLLOWS:

1. TEMPORARY PLANTINGS WILL BE PROVIDED IN CRITICAL AREAS DEVOID OF VEGETATION AND SUBJECT TO EROSION. SUCH TEMPORARY PLANTINGS MAY BE NECESSARY TO PROTECT AN AREA WHEN PREPARING FOR WINTER SHUT DOWN OR TO PROVIDE COVER WHEN PERMANENT SEEDLINGS ARE LIKELY TO FAIL DUE TO AN EXTENDED PERIOD OF HEAT OR DROUGHT.

2. REMOVAL AND CLEANUP OF ALL TEMPORARY EROSION CONTROL MEASURES INCLUDING SILT FENCES AND INLET PROTECTION.

3. THE ENTIRE CONSTRUCTION AREA IS TO BE INSPECTED AND CLEANED, INCLUDING THE COLLECTION AND DISPOSAL OF CONSTRUCTION TRASH AND DEBRIS.

4. PERMANENT SEEDING AND MULCHING WILL BE INSTALLED IMMEDIATELY AFTER ACHIEVING FINAL GRADE OR WITHIN SEVEN (7) DAYS OF INACTIVITY. IF NECESSARY, A TEMPORARY STABILIZATION PRACTICE WILL BE EMPLOYED UNTIL THE NEXT PRIME SEEDING PERIOD.

5. A FINAL SITE INSPECTION WILL TAKE PLACE TO ASSURE THAT ALL REQUIREMENTS OF THE SWPPP, CONSTRUCTION DRAWINGS, AND SUPPORTING DOCUMENTS HAVE BEEN FULFILLED.

C5 MAINTENANCE GUIDELINES FOR PROPOSED POST-CONSTRUCTION WATER QUALITY MEASURES:

PERMANENT SEEDING IS THE ONLY ANTICIPATED POST-CONSTRUCTION STORMWATER QUALITY MEASURE. VEGETATED AREAS WITHIN THE PROJECT BOUNDARIES MUST BE MAINTAINED ON A REGULAR BASIS DURING THE ACTIVE GROWING SEASON. MAINTENANCE ACTIVITIES WILL INCLUDE INSPECTION FOR SPARSELY SEEDED AREAS, AND RESEEDING AREAS WHICH HAVE BEEN DAMAGED OR WHICH HAVE NOT EXHIBITED A SUCCESSFUL AND HARDY STAND OF VEGETAL COVER. FERTILIZATION AND WATERING REQUIREMENTS ARE PROVIDED IN WM-24 - SEEDING AND SODDING.

C6 ENTITY RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE POST-CONSTRUCTION STORMWATER MEASURES:

THE TOWN OF KENTLAND WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER MEASURES AFTER THE NOTICE OF TERMINATION (NOT) HAS BEEN RECEIVED BY THE IDEM AND THE LOCAL REGULATORY AUTHORITY.

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Signature 12-07-23 Date

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WATER UTILITY
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STORMWATER POLLUTION PREVENTION PLAN

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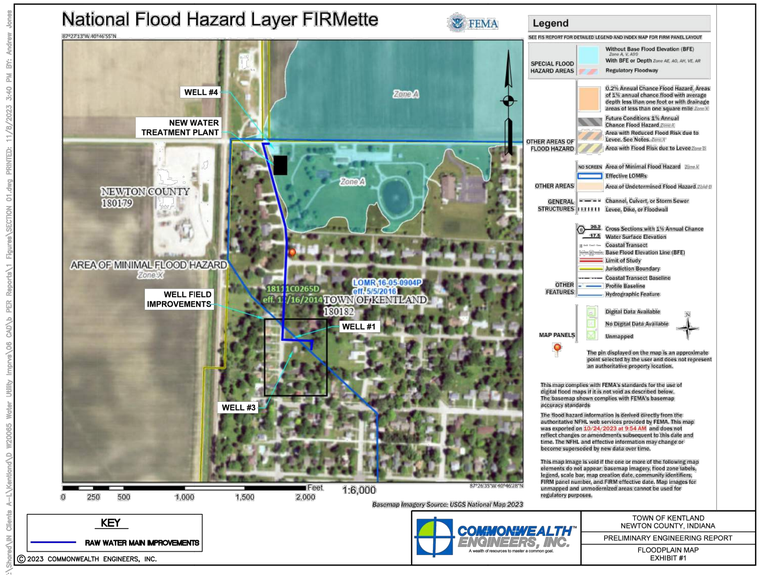
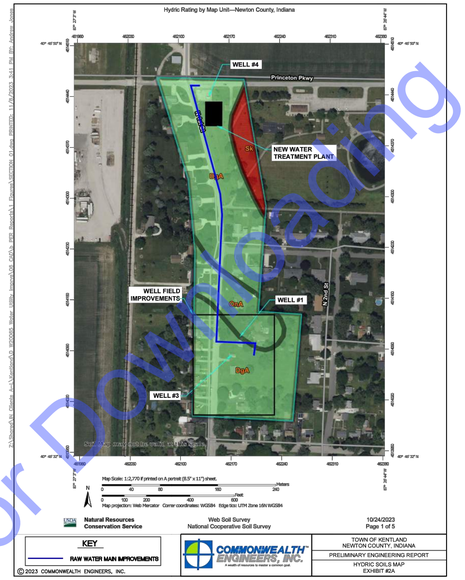
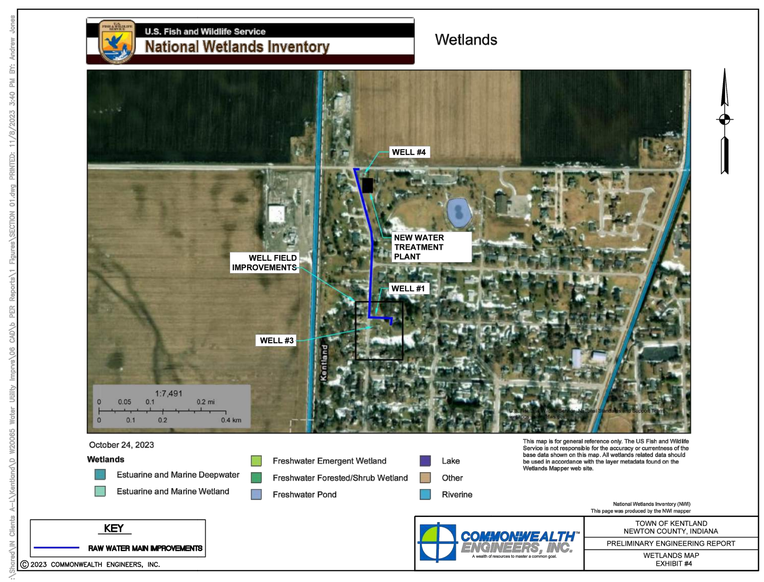


FLOODPLAIN MAP



HYDRIC SOILS MAP

SURFACE WATERS MAP



WETLANDS MAP

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WATER UTILITY IMPROVEMENTS PROJECT

NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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STORMWATER POLLUTION PREVENTION PLAN

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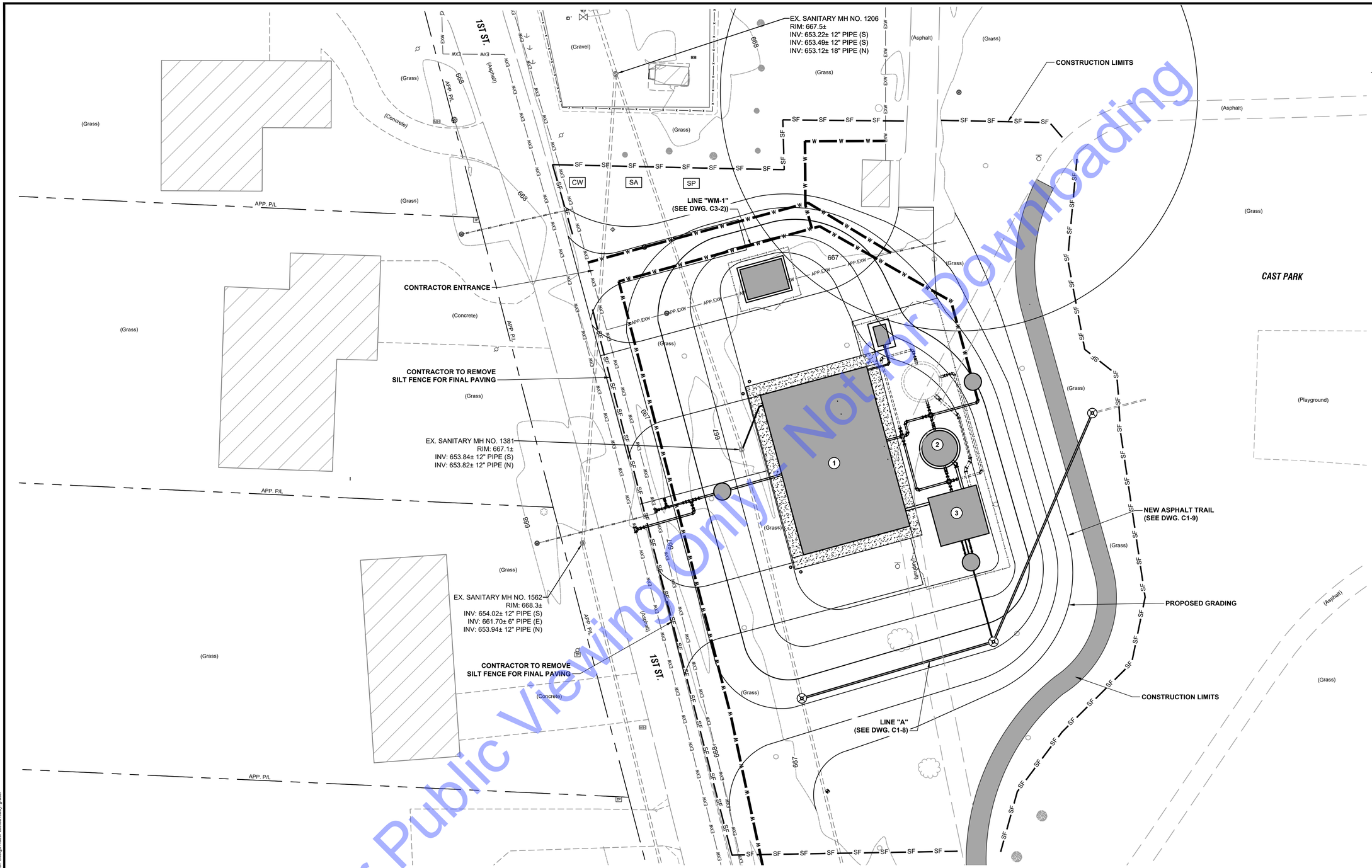

LEGEND:

IP	STORM INLET PROTECTION
PS	PERMANENT SEEDING
SF	SILT FENCE
CW	CONCRETE WASHOUT STATION
SA	STAGING AREA
SP	STOCKPILE

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS SPECIFIED IN THE DETAILED SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO CONCRETE WASHOUT STATIONS, TEMPORARY CONSTRUCTION ENTRANCES, TEMPORARY SEEDING, ETC. AS REQUIRED DURING THE DURATION OF THE PROJECT TO MAINTAIN COMPLIANCE WITH THE GENERAL STORM WATER CONSTRUCTION PERMIT. CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE GENERAL STORM WATER CONSTRUCTION PERMIT, INCLUDING PROVIDING REQUIRED NOTIFICATIONS TO THE REQUIRED AGENCIES.
2. SEE SHEETS EC8 & EC9 FOR EROSION CONTROL DETAILS.

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY
2	NEW DETENTION TANK
3	NEW BACKWASH TANK

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NEW SITE PLAN - EROSION CONTROL PLAN

Drawing No: **EC4**

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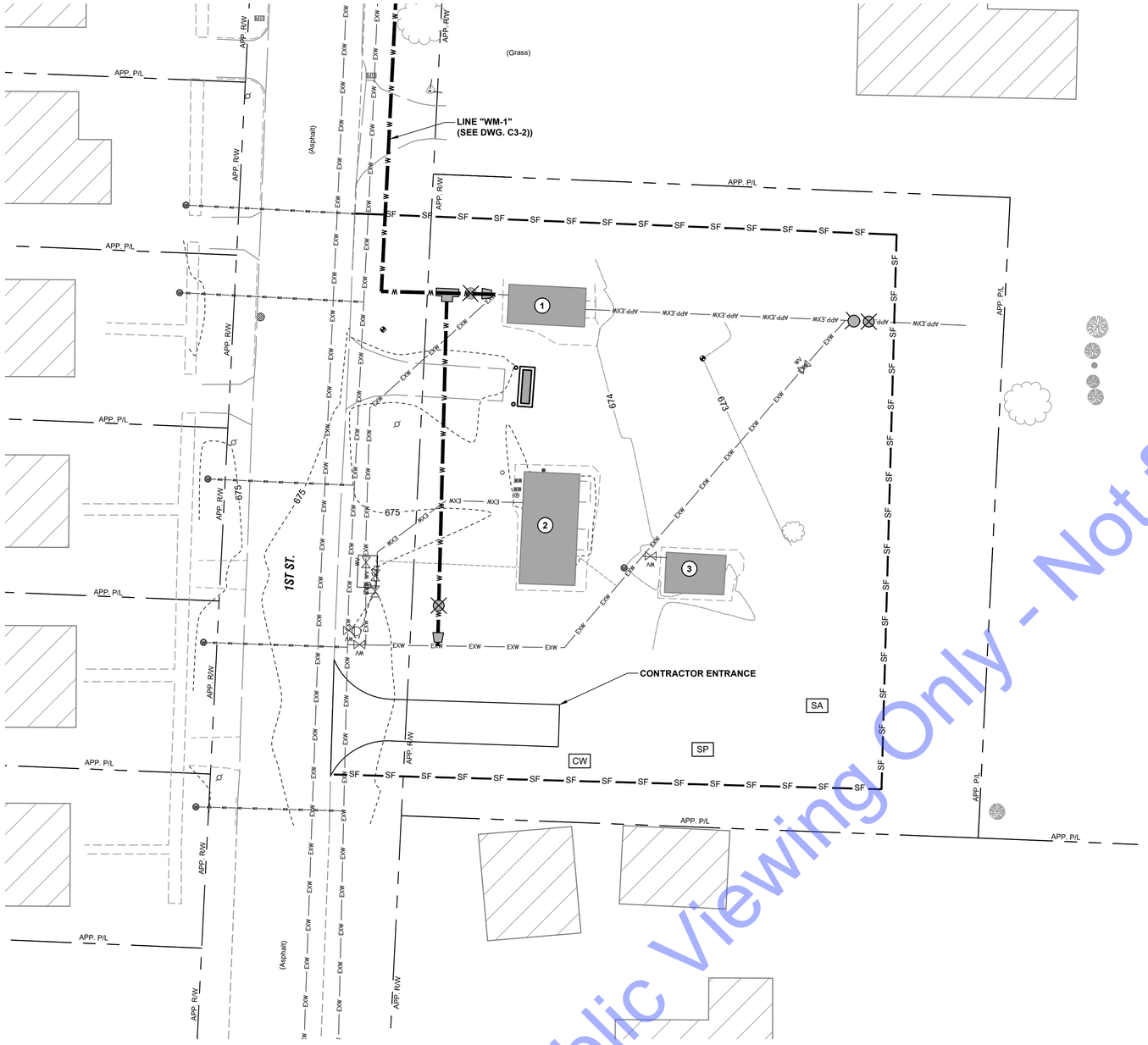

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	**EXISTING WELL NO. 1**
2	**EXISTING WELL NO. 2 (ABANDONED) AND CHEMICAL BUILDING**
3	**EXISTING WELL NO. 3**

LEGEND:

- (IP) STORM INLET PROTECTION
- (PS) PERMANENT SEEDING
- SF SILT FENCE
- CW CONCRETE WASHOUT STATION
- SA STAGING AREA
- SP STOCKPILE

GENERAL NOTES:

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2. SEE SHEETS EC8 & EC9 FOR EROSION CONTROL DETAILS.

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EXISTING WELL FIELD SITE PLAN - EROSION CONTROL PLAN

Drawing No: **EC5**

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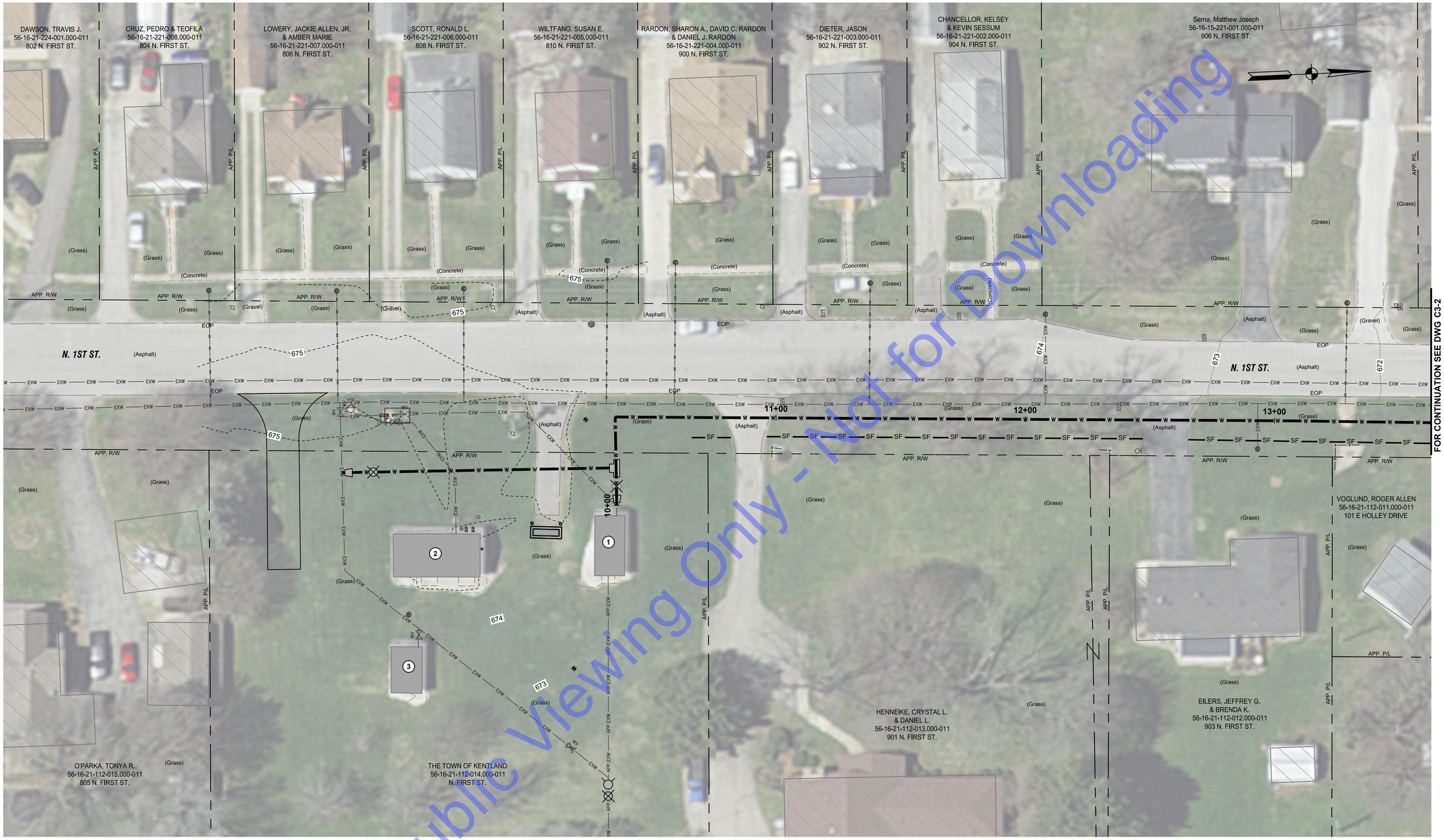

PLAN VIEW

SCALE: 1"=20'-0"

0 20' 40'

LEGEND:

(IP)	STORM INLET PROTECTION
(PS)	PERMANENT SEEDING
—SF—	SILT FENCE
CW	CONCRETE WASHOUT STATION
SA	STAGING AREA
SP	STOCKPILE

GENERAL NOTES:

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2. SEE SHEETS EC8 & EC9 FOR EROSION CONTROL DETAILS.

EXISTING STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	EXISTING WELL NO. 1
2	EXISTING WELL NO. 2 (ABANDONED) AND CHEMICAL BUILDING
3	EXISTING WELL NO. 3

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EROSION CONTROL PLAN - LINE "N-1"

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Sheet: 23 OF 93

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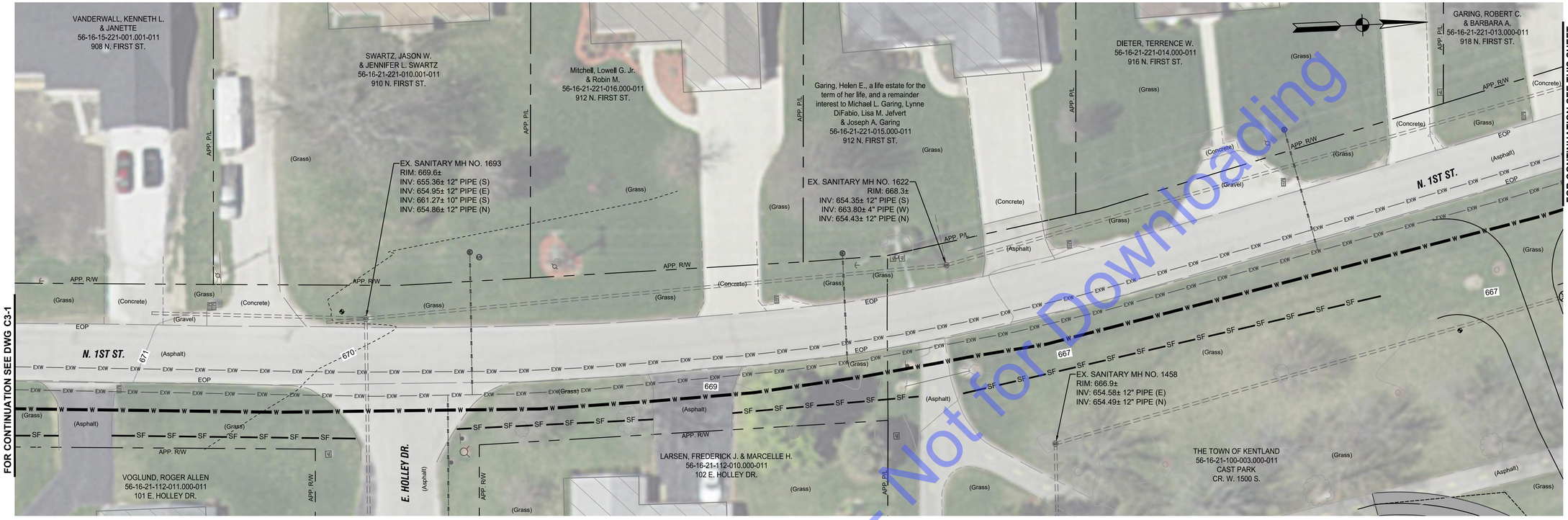
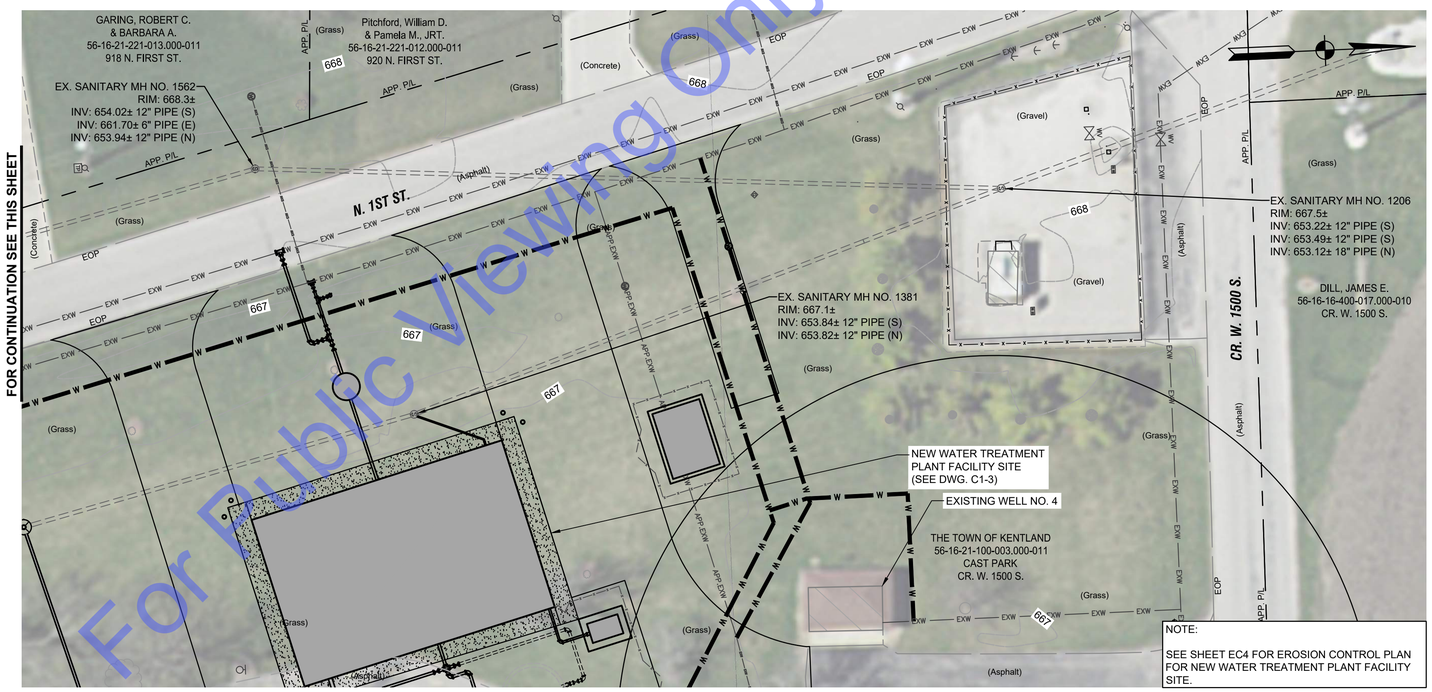


PLAN VIEW

SCALE: 1"=20'-0"

0 20' 40'



PLAN VIEW

SCALE: 1"=20'-0"

0 20' 40'

NOTE:

SEE SHEET EC4 FOR EROSION CONTROL PLAN FOR NEW WATER TREATMENT PLANT FACILITY SITE.

LEGEND:

IP	STORM INLET PROTECTION
PS	PERMANENT SEEDING
SF	SILT FENCE
CW	CONCRETE WASHOUT STATION
SA	STAGING AREA
SP	STOCKPILE

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS SPECIFIED IN THE DETAILED SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO CONCRETE WASHOUT STATIONS, TEMPORARY CONSTRUCTION ENTRANCES, TEMPORARY SEEDING, ETC. AS REQUIRED DURING THE DURATION OF THE PROJECT TO MAINTAIN COMPLIANCE WITH THE GENERAL STORM WATER CONSTRUCTION PERMIT. CONTRACTOR SHALL ADHERE TO ALL REQUIREMENTS OF THE GENERAL STORM WATER CONSTRUCTION PERMIT, INCLUDING PROVIDING REQUIRED NOTIFICATIONS TO THE REQUIRED AGENCIES.
2. SEE SHEETS EC8 & EC9 FOR EROSION CONTROL DETAILS.

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
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WATER UTILITY
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EROSION CONTROL PLAN - LINE "N-1"

Drawing No: **EC7**

Sheet: 24 OF 93

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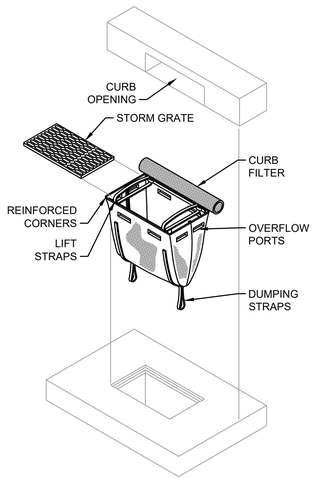
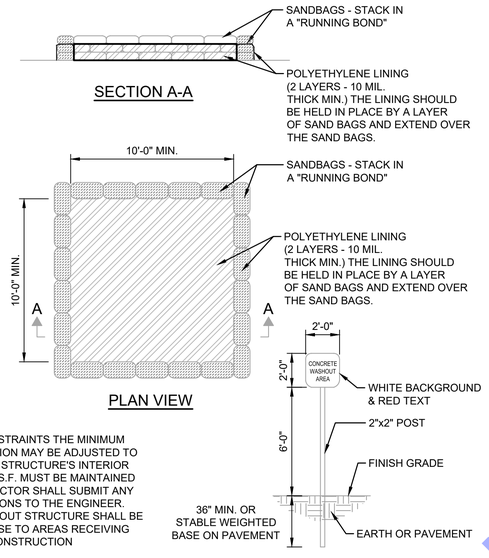


INSERT (BASKET) CURB INLET PROTECTION DETAIL

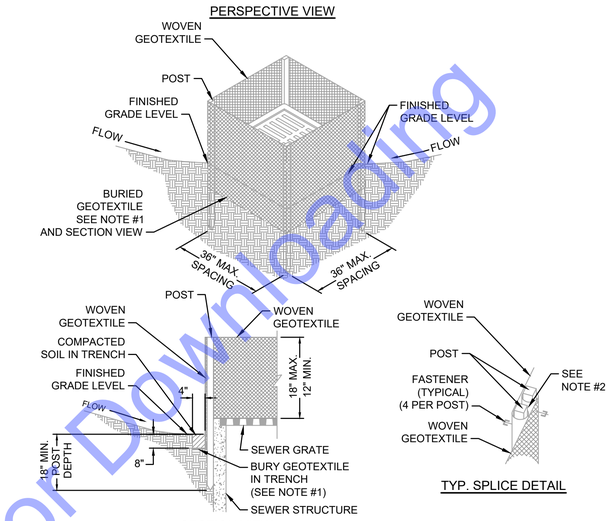
NOT TO SCALE



NOTE:
DUE TO SITE CONSTRAINTS THE MINIMUM INTERIOR DIMENSION MAY BE ADJUSTED TO FIT THE SITE. THE STRUCTURE'S INTERIOR FOOTAGE OF 100 S.F. MUST BE MAINTAINED AND THE CONTRACTOR SHALL SUBMIT ANY DESIGN ALTERATIONS TO THE ENGINEER. CONCRETE WASHOUT STRUCTURE SHALL BE RE-LOCATED CLOSE TO AREAS RECEIVING CONCRETE, AS CONSTRUCTION PROGRESSES.

CONCRETE WASHOUT PIT DETAIL

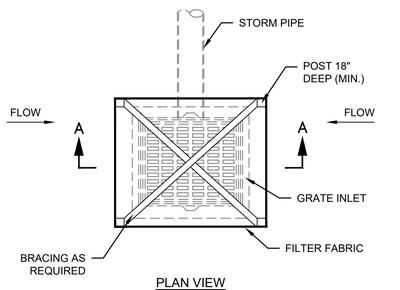
NOT TO SCALE



NOTES:
1. GEOTEXTILE FABRIC LAID ON DOWN-SLOPE SIDE AND BOTTOM OF TRENCH ALONG FULL PERIMETER OF SEWER STRUCTURE. DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS.
2. IF SPLICING IS NECESSARY, FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO CREATE A SEAMLESS JOINT AND PREVENT SILT-LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.
3. PREFABRICATED UNITS MAY BE USED WITH PRIOR APPROVAL FROM PROJECT ENGINEER.

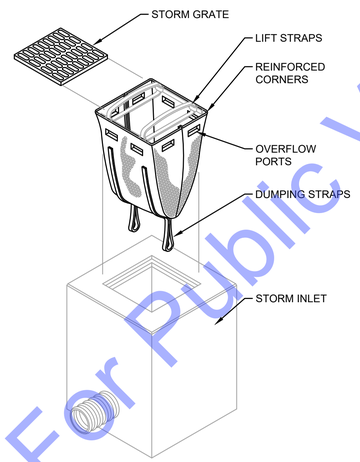
YARD INLET PROTECTION DETAIL

NOT TO SCALE



STORM INLET WITH SILT FENCE EROSION DETAIL

NOT TO SCALE



INSERT (BASKET) INLET PROTECTION DETAIL

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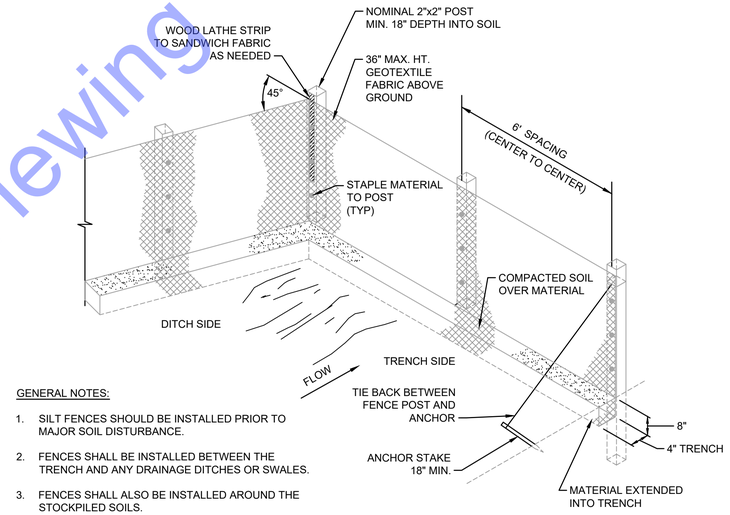
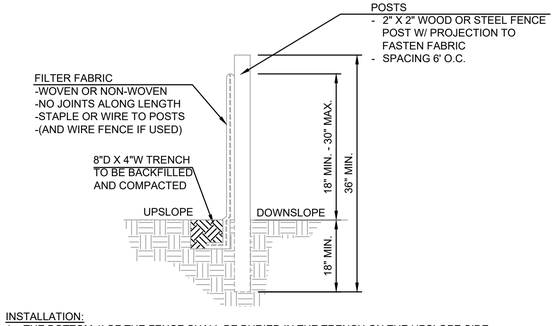


GENERAL NOTES:

1. SILT FENCES SHOULD BE INSTALLED PRIOR TO MAJOR SOIL DISTURBANCE.
2. FENCES SHALL BE INSTALLED BETWEEN THE TRENCH AND ANY DRAINAGE DITCHES OR SWALES.
3. FENCES SHALL ALSO BE INSTALLED AROUND THE STOCKPILED SOILS.
4. THE GEOTEXTILE SHALL BE FREE FROM DEFECTS, TEARS, PUNCTURES, FLAWS, DETERIORATION OR DAMAGE INCURRED DURING MANUFACTURE, TRANSPORTATION, STORAGE, OR INSTALLATION.
5. TIE BACKS SHALL BE PLACED AS REQUIRED.



INSTALLATION:
1. THE BOTTOM 1' OF THE FENCE SHALL BE BURIED IN THE TRENCH ON THE UPSLOPE SIDE.
2. FENCE SHALL BE INSTALLED ALONG LEVEL GRADES, NOT ACROSS FLOW CHANNELS.
3. IF OPTIONAL SUPPORT WIRE FENCE IS USED, POST SPACING MAY BE EXTENDED TO 8' O.C.

MAINTENANCE:
1. INSPECT SILT FENCE PERIODICALLY (WEEKLY) AND AFTER EACH STORM EVENT.
2. IF FABRIC IS TORN OR DAMAGED OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE, OR IT IS CAUSING THE FABRIC TO BULGE.
4. TAKE CARE NOT TO UNDERMINE THE FENCE DURING SEDIMENT REMOVAL.
5. AFTER THE CONTRIBUTING AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND REMAINING SEDIMENT, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.

SILT FENCE DETAIL

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EROSION CONTROL DETAILS

Drawing No: **EC8**

Sheet: 25 OF 93

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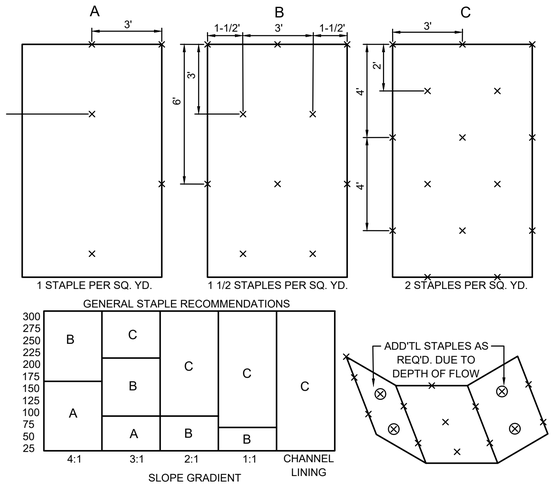


SPECIFICATIONS

EFFECTIVE LIFE

- THE FUNCTIONAL LIFE OF AN EROSION CONTROL BLANKET IS DEPENDENT ON THE MATERIALS USED.

ANCHORING

- STAPLES, PINS OR STAKES USED TO PREVENT MOVEMENT OR DISPLACEMENT OF BLANKET. (FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR SPECIFIC APPLICATIONS.)

MATERIALS

- ORGANIC (STRAW, EXCELSIOR, WOVEN PAPER, COCONUT FIBER, ETC.) OR SYNTHETIC MULCH INCORPORATED WITH A POLYPROPYLENE, NATURAL FIBER OR SIMILAR NETTING MATERIAL. (THE NETTING MAY BE BIODEGRADABLE, PHOTODEGRADABLE OR PERMANENT.)

  NOTE: SOME EROSION CONTROL BLANKET NETTINGS MAY POSE A THREAT TO CERTAIN SPECIES OF WILDLIFE IF THEY BECOME ENTANGLED IN THE NETTING MATRIX.

- SIX TO 12-INCH STAPLES, PINS, OR STAKES.

INSTALLATION

1. SELECT THE TYPE AND WEIGHT OF EROSION CONTROL BLANKET TO FIT THE SITE CONDITIONS (E.G., SLOPE, CHANNEL, FLOW VELOCITY) PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PREPARE THE SEEDBED, ADD SOIL AMENDMENTS, AND PERMANENTLY SEED THE AREA IMMEDIATELY FOLLOWING SEEDBED PREPARATION.
3. LAY EROSION CONTROL BLANKETS ON THE SEEDED AREA SO THAT THEY ARE IN CONTINUOUS CONTACT WITH THE SOIL WITH EACH UP-SLOPE OR UP-STREAM BLANKET OVERLAPPING THE DOWN-SLOPE OR DOWN-STREAM BLANKET BY AT LEAST EIGHT INCHES, OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
4. TUCK THE UPPERMOST EDGE OF THE UPPER BLANKETS INTO A CHECK SLOT (SLIT TRENCH), BACKFILL WITH SOIL AND TAMP DOWN. IN CERTAIN APPLICATIONS, THE MANUFACTURER MAY REQUIRE ADDITION CHECK SLOTS AT SPECIFIC LOCATIONS DOWN SLOPE FROM THE UPPERMOST EDGE OF THE UPPER BLANKETS.
5. ANCHOR THE BLANKETS IN PLACE BY DRIVING STAPLES, PINS, OR STAKES THROUGH THE BLANKET AND INTO THE UNDERLYING SOIL. FOLLOW AN ANCHORING PATTERN APPROPRIATE FOR THE SITE CONDITIONS AND AS RECOMMENDED BY THE MANUFACTURER.

MAINTENANCE

- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR DISPLACEMENT OF THE BLANKET.
- IF ANY AREA SHOWS EROSION, PULL BACK THAT PORTION OF THE BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA, REPLACE AND STAPLE THE BLANKET.

NOTES

CHANNEL LININGS UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.

STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL.

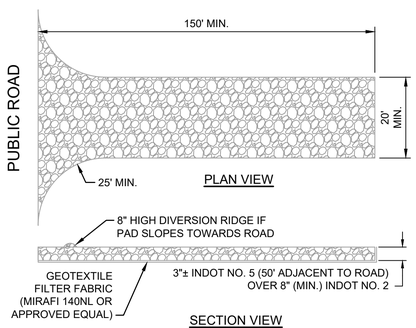
AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.

EROSION CONTROL BLANKET

NOT TO SCALE

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE INDIANA STORM WATER QUALITY MANUAL FROM THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND LOCAL EROSION AND SEDIMENT CONTROL ORDINANCE, OR SWCD.
2. THE NOTICE OF INTENT (NOI) AND PUBLIC NOTICE FOR THE PROJECT SHALL BE POSTED ON A SIGN INSTALLED AT OR NEAR THE SITE CONSTRUCTION TRAILER. THE NOI SHALL LIST THE CONTACT INFORMATION FOR THE SITE CONTACT PERSON. THE SIGN AND INFORMATION SHALL BE MAINTAINED AND REMAIN LEGIBLE THROUGHOUT CONSTRUCTION.
3. A COPY OF THIS EROSION AND SEDIMENT CONTROL PLAN AND THE EROSION AND SEDIMENT CONTROL REPORT SHALL BE AVAILABLE AT THE PROJECT SITE THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
4. THE CONTRACTOR SHALL CONTROL WASTE, GARBAGE, DEBRIS, WASTEWATER, AND OTHER SUBSTANCES ON THE SITE SO THEY WILL NOT BE TRANSPORTED FROM THE SITE BY THE ACTION OF WIND, STORM WATER RUNOFF, OR OTHER FORCES. PROPER DISPOSAL OR MANAGEMENT OF ALL WASTES AND UNUSED BUILDING MATERIAL APPROPRIATE TO THE NATURE OF THE WASTE OR MATERIAL IS REQUIRED.
5. PUBLIC OR PRIVATE ROADWAYS SHALL BE KEPT CLEAR OF ACCUMULATED SEDIMENT. ALL SEDIMENT THAT IS CLEARED MUST BE RETURNED TO THE LIKELY POINT OF ORIGIN OR OTHER SUITABLE LOCATION. CLEARING OF LARGE AMOUNTS OF SEDIMENT SHALL NOT INCLUDE FLUSHING THE AREA WITH WATER.
6. MINIMIZE THE EXPOSURE OF BARE EARTH BY LIMITING THE WORK AREA TO THAT NECESSARY TO PERFORM THE WORK, AND BY PROPER SCHEDULING OF MANPOWER AND EQUIPMENT.
7. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED, CLEANED, AND MAINTAINED FOLLOWING EACH STORM EVENT.
8. WHEREVER POSSIBLE, MAINTAIN EXISTING VEGETATIVE COVER. USE NON-VEGETATIVE MATERIAL INCLUDING MULCH, EROSION BLANKETS, OR STONE TO CONTROL EROSION FROM DISTURBED AREAS.
9. A LOG SHALL BE MAINTAINED OF ALL INSPECTIONS (WEEKLY, AND FOLLOWING STORM EVENTS), MAINTENANCE AND REPAIR OF EROSION AND SEDIMENT CONTROL MEASURES. THE LOG SHALL BE MAINTAINED ON SITE AND BE AVAILABLE UPON REQUEST TO THE OWNERS REPRESENTATIVES AND THE OPERATING AUTHORITIES HAVING JURISDICTION OVER THE SITE.

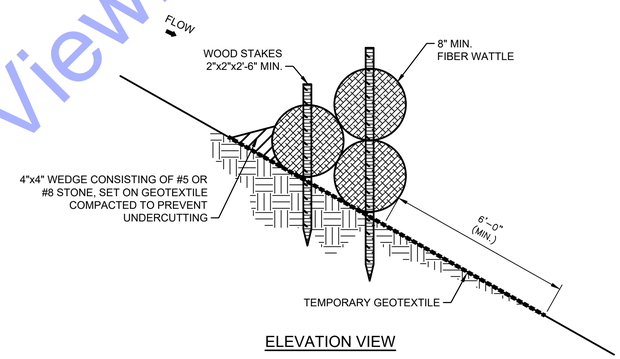


MAINTENANCE:

1. INSPECT DAILY, AND AFTER EACH STORM EVENT OR HEAVY USE.
2. RESHAPE AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN STONE AS REQUIRED. MAINTAIN MINIMUM DEPTH THROUGHOUT CONSTRUCTION.
4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY SWEEPING OR BRUSHING. (DO NOT FLUSH AREA WITH WATER UNLESS WATER IS CONVEYED TO SEDIMENT TRAP.)
5. REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

NO SCALE



ROLLED EROSION CONTROL PRODUCT DETAIL

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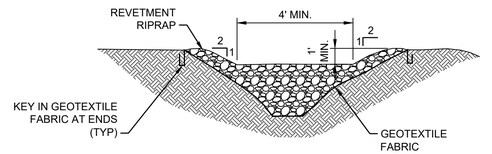

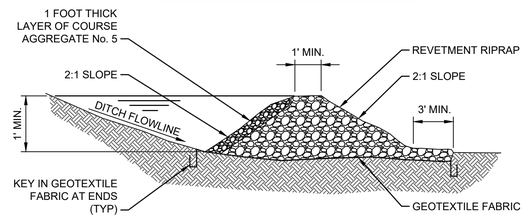

GENERAL NOTES:

1. RIPRAP DITCH CHECK DAMS SHALL BE PLACED SUCH THAT THE TOP OF THE DOWNSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE TOE OF THE ADJACENT UPSTREAM CHECK DAM.
2. AFTER COMPLETION OF CONTRACT, OR AS REQUESTED BY OWNER, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL ITEMS, REMOVE ALL ACCUMULATED DEPOSITS AND, AS REQUIRED, SEED AND MULCH OR SOD AS REQUIRED TO ESTABLISH AREA TO CONDITION PRIOR TO CONSTRUCTION.

ROCK CHECK DAM DETAIL

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EROSION CONTROL DETAILS

Drawing No: EC9

Sheet: 26 OF 93

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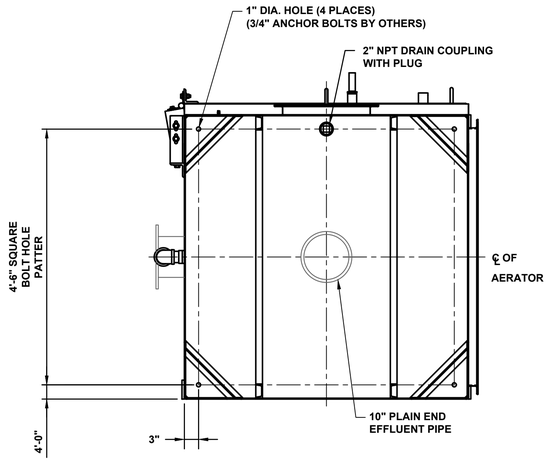
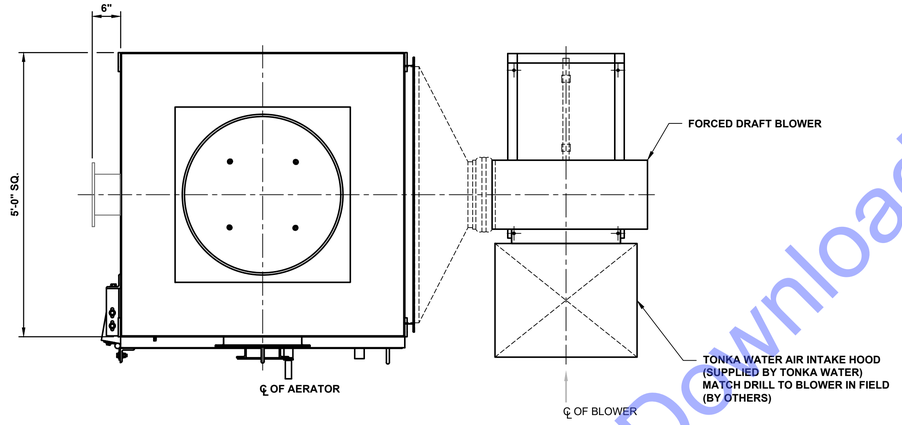


BOTTOM VIEW
BLOWER NOT SHOWN

SCALE: 3/4"=1'-0"

0 1' 2' 3'



PLAN VIEW

SCALE: 3/4"=1'-0"

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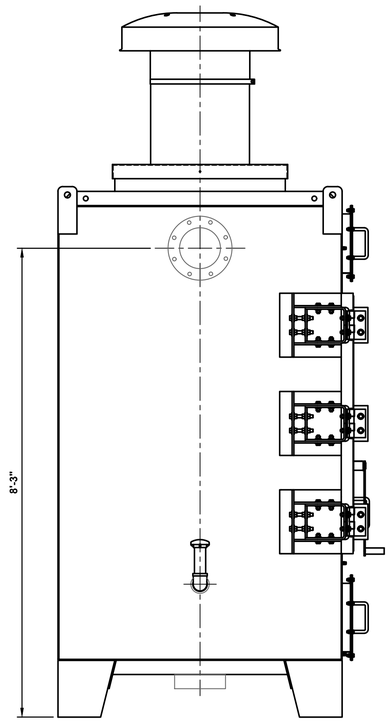

LEFT SIDE ELEVATION

SCALE: 3/4"=1'-0"

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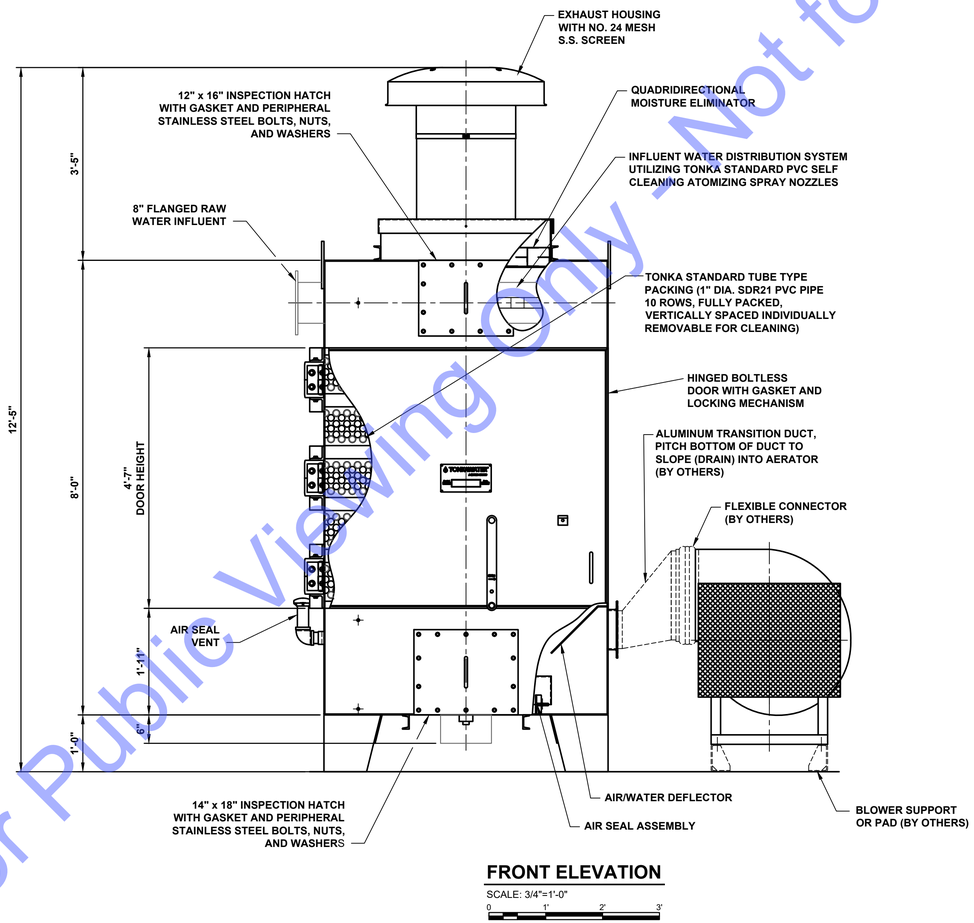

FRONT ELEVATION

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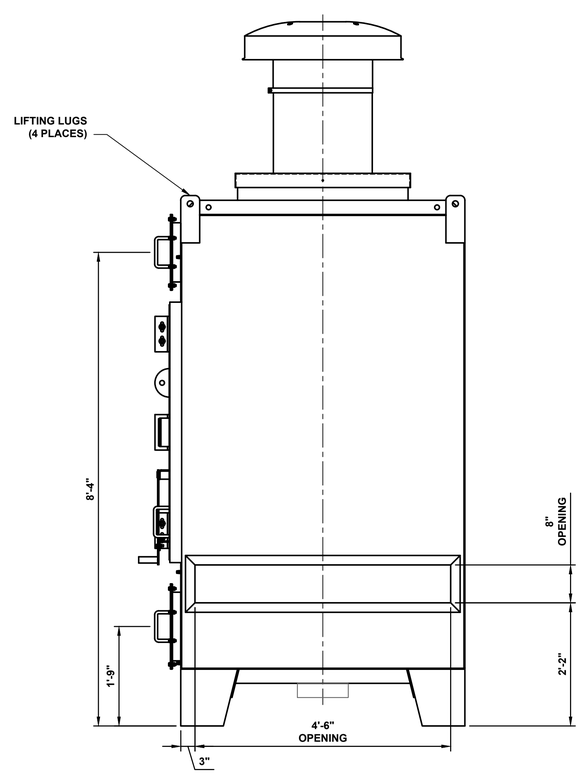

RIGHT SIDE ELEVATION

SCALE: 3/4"=1'-0"

0 1' 2' 3'

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Drawing No:
D1-1
Sheet: 27 OF 93

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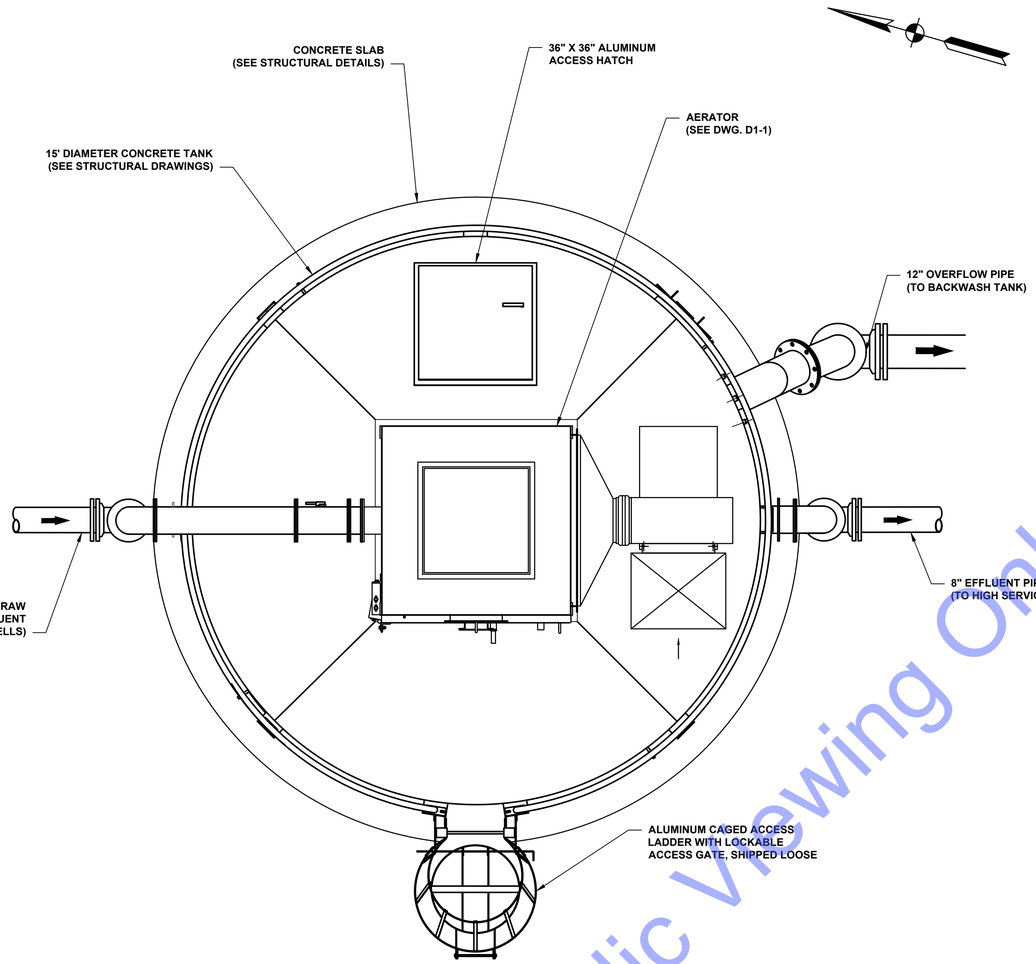
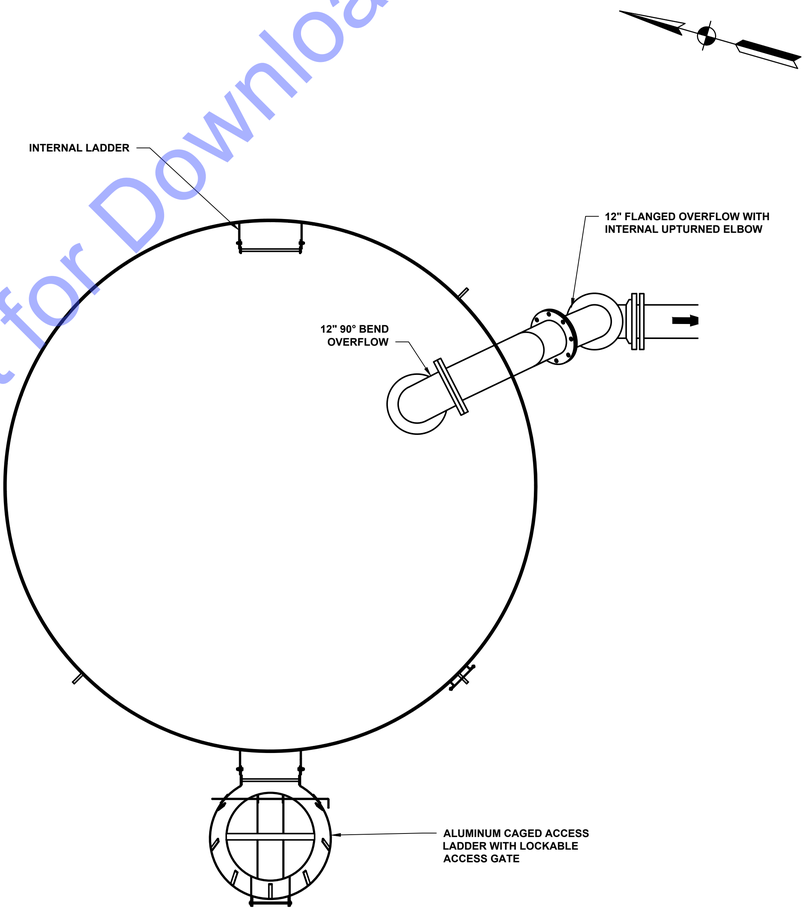


UPPER PLAN VIEW

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

0 1' 2' 4'



SECTION VIEW

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

0 1' 2' 4'

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CHRIS A. LIMCACO
REGISTERED
No. 19700338
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 12-07-23 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY
IMPROVEMENTS PROJECT
NEW WATER TREATMENT
PLANT AND WELLS
IMPROVEMENTS

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4-3-24	W20065	AS SHOWN

NEW DETENTION TANK - UPPER PLAN AND SECTION VIEWS

Drawing No:

D1-2

Sheet: 28 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPR\DWGS\08 CADA CURRENT FILES\1 DRAWINGS\08-PROCESS EQUIPMENT DRAWINGS.DWG
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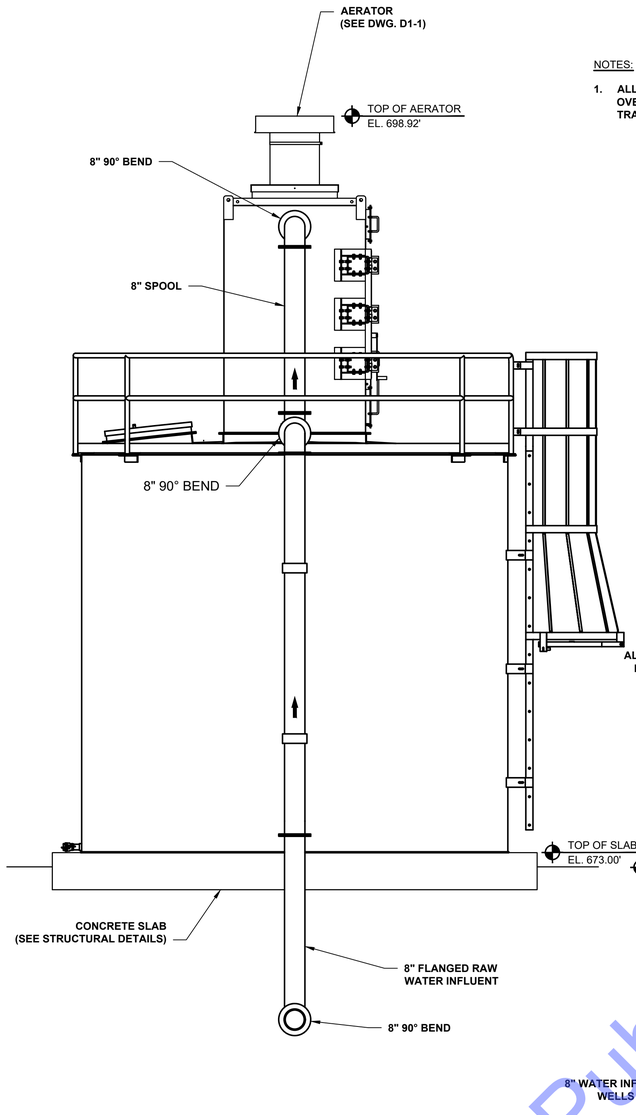
NOTES:

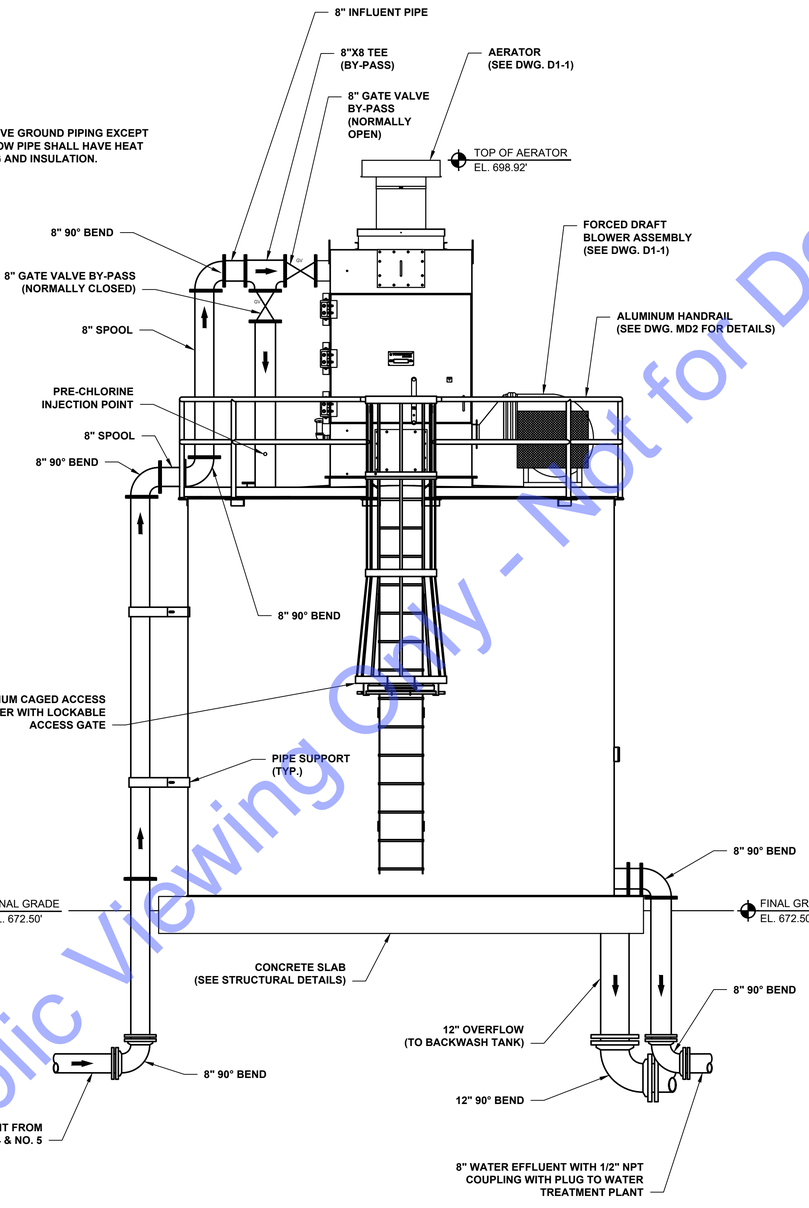
1. ALL ABOVE GROUND PIPING EXCEPT OVERFLOW PIPE SHALL HAVE HEAT TRACING AND INSULATION.



LEFT SIDE ELEVATION

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

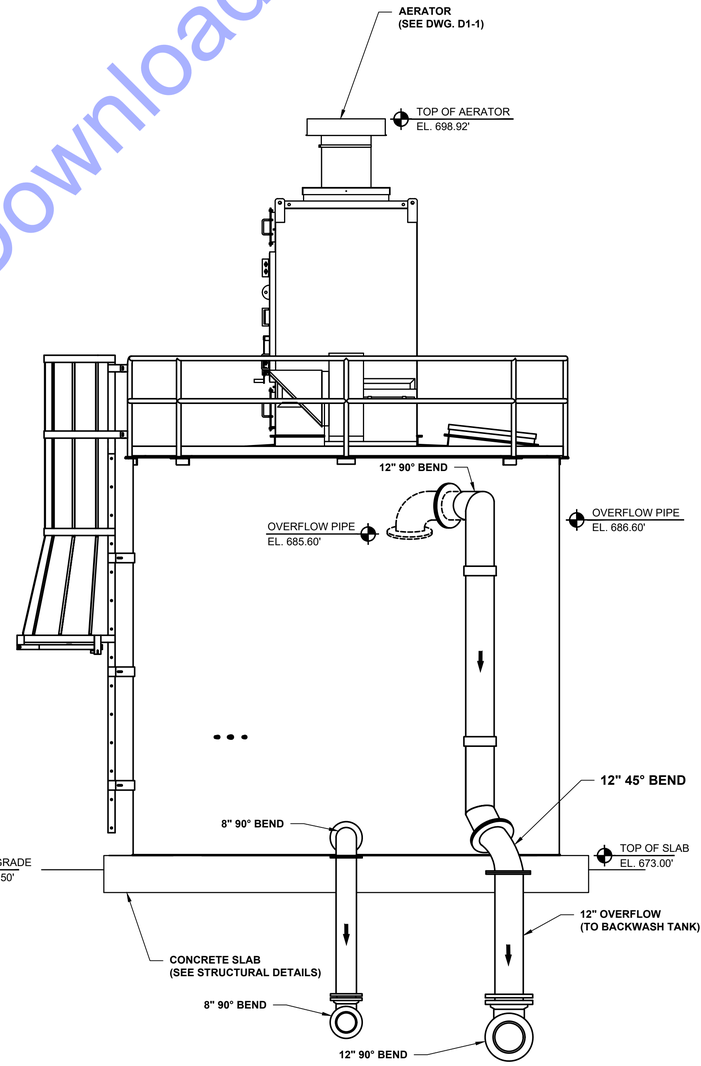
0 2' 4' 6'



FRONT ELEVATION

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

0 2' 4' 6'



RIGHT SIDE ELEVATION

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

0 2' 4' 6'

DISCLAIMER NOTES:

1. DETAILS ON THIS DRAWING WERE OBTAINED FROM TONKA WATER AND SHALL BE USED FOR REFERENCE ONLY.

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NEW DETENTION TANK
- ELEVATION VIEWS

Drawing No:
D1-3
Sheet: 29 OF 93

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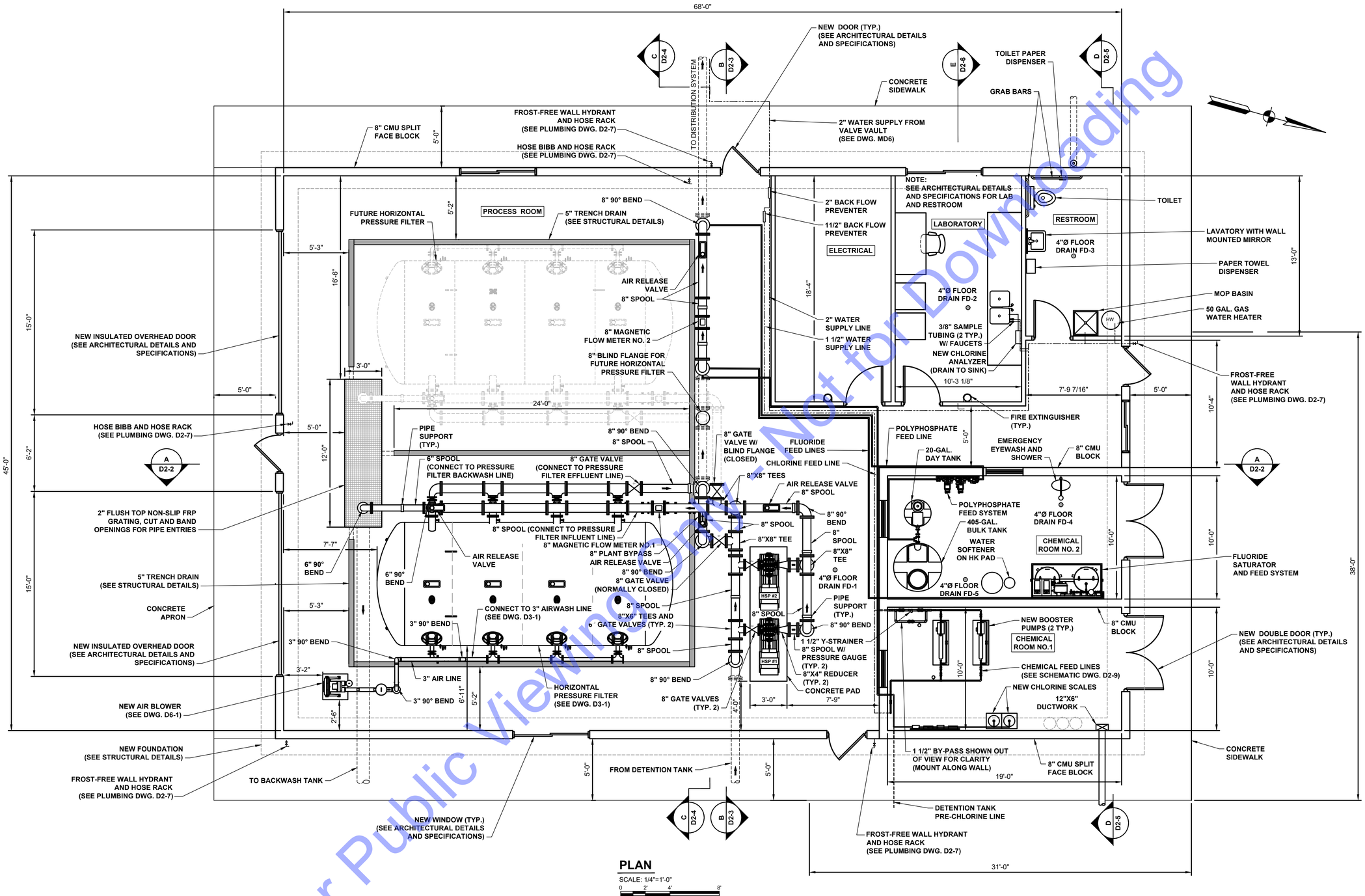

PLAN

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

0 2' 4' 8'

GENERAL NOTES:

1. THE DRAWINGS INDICATE THE GENERAL SCOPE OF THE PROJECT IN TERMS OF ARCHITECTURAL, STRUCTURAL, AND MEP DESIGN CONCEPT, THE DIMENSIONS OF THE BUILDING, THE MAJOR ARCHITECTURAL ELEMENTS, AND THE TYPE OF STRUCTURAL, MECHANICAL AND ELECTRICAL SYSTEMS. AS SCOPE DOCUMENTS, THE DRAWINGS DO NOT NECESSARILY INDICATE OR DESCRIBE ALL WORK REQUIRED FOR FULL PERFORMANCE AND COMPLETION OF THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. ON THE BASIS OF THE GENERAL SCOPE INDICATED OR DESCRIBED, THE TRADE CONTRACTORS SHALL FURNISH ALL ITEMS REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK PER THE ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AND SPECIFICATIONS.
2. THE CONTRACTOR MUST VERIFY ALL CONDITIONS BEFORE STARTING CONSTRUCTION. IF AN UNSUITABLE CONDITION OCCURS, CONTACT THE ENGINEER IMMEDIATELY BEFORE PROCEEDING FURTHER WITH CONSTRUCTION.
3. ALL FIXTURES, EQUIPMENT AND MATERIALS SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS, RECOMMENDATIONS AND INSTRUCTIONS.
4. DIMENSIONS ARE FROM INSIDE OF WALLS (SEE STRUCTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS).

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NEW WATER TREATMENT PLANT FACILITY - PLAN VIEW

Drawing No: **D2-1**

Sheet: 30 OF 93

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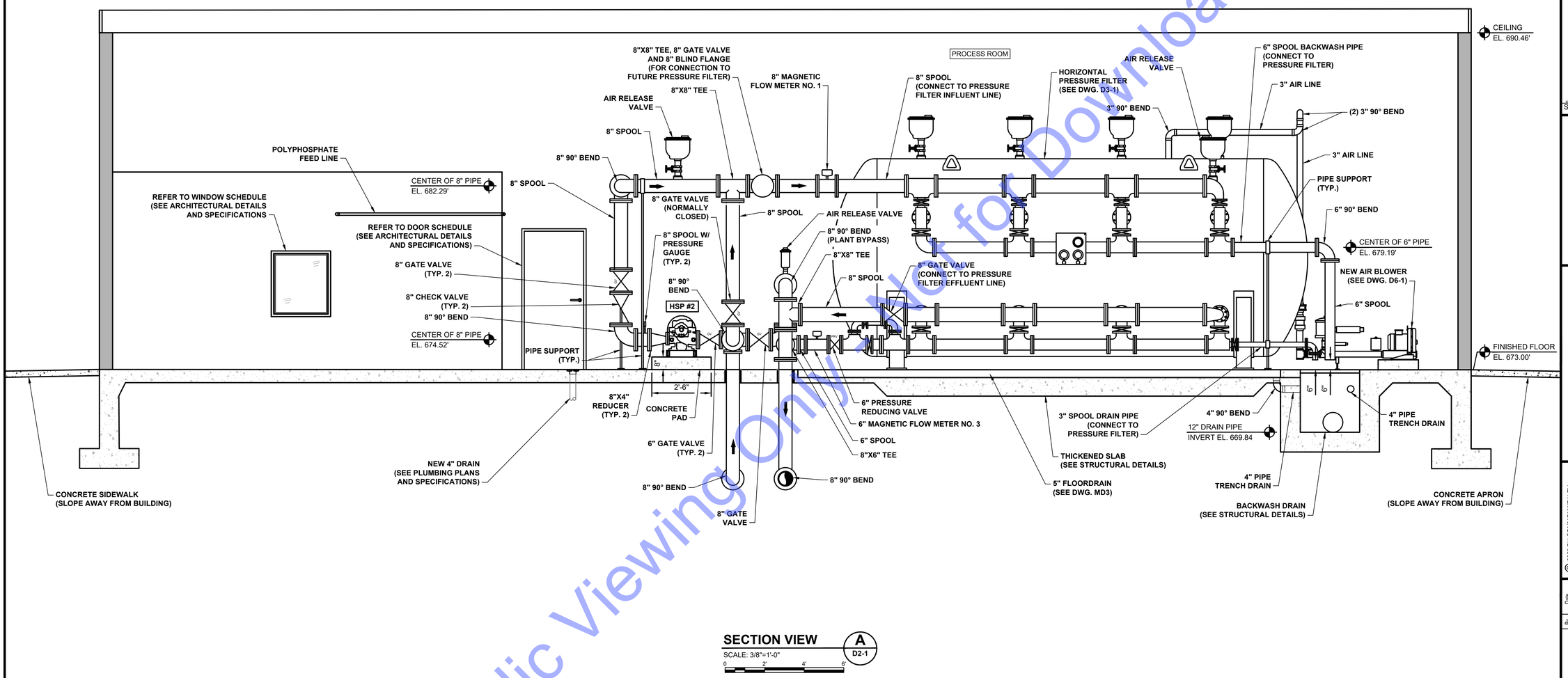

SECTION VIEW A

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

0 2' 4' 6'

D2-1

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NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "A"

Drawing No: **D2-2**

Sheet: 31 OF 93

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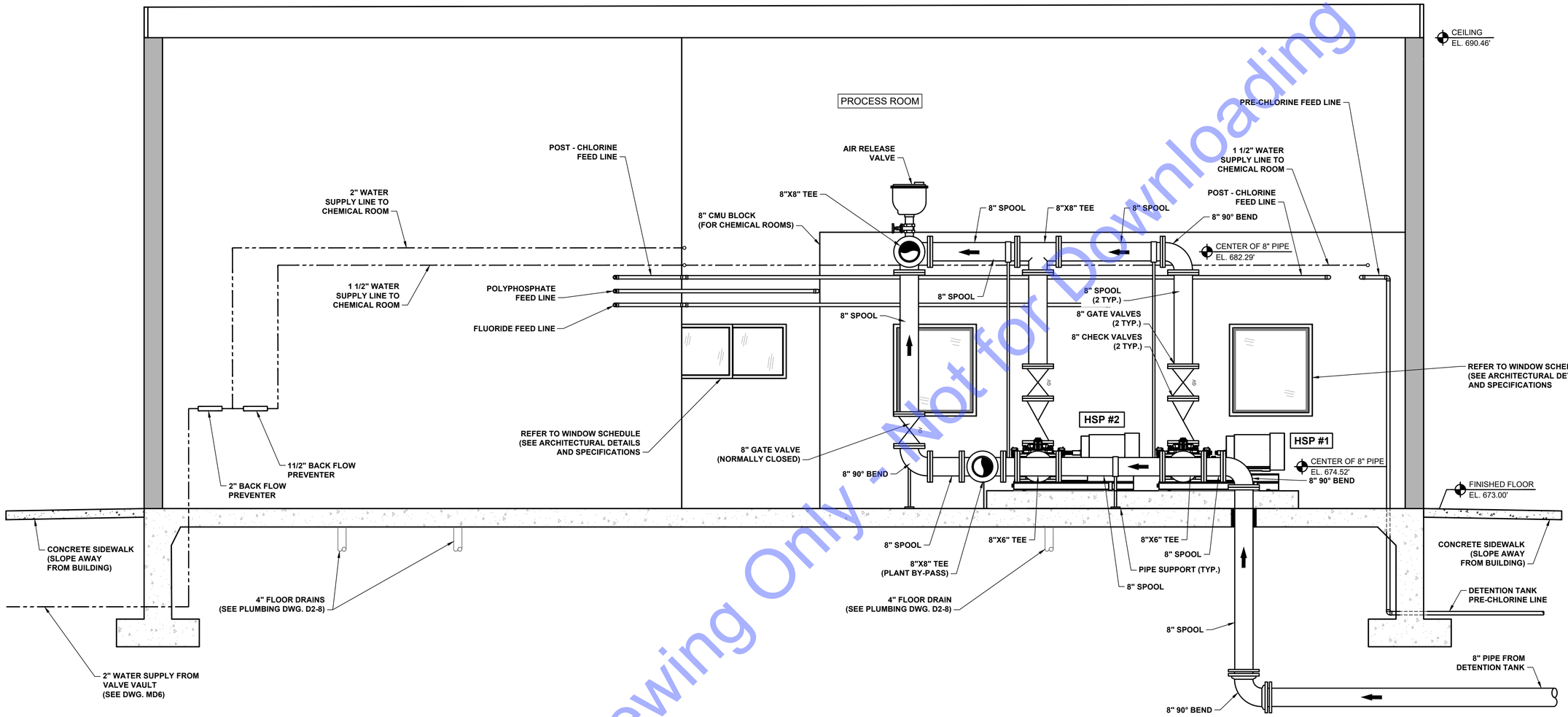

SECTION VIEW B (D2-1)

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

0 1' 2' 4'

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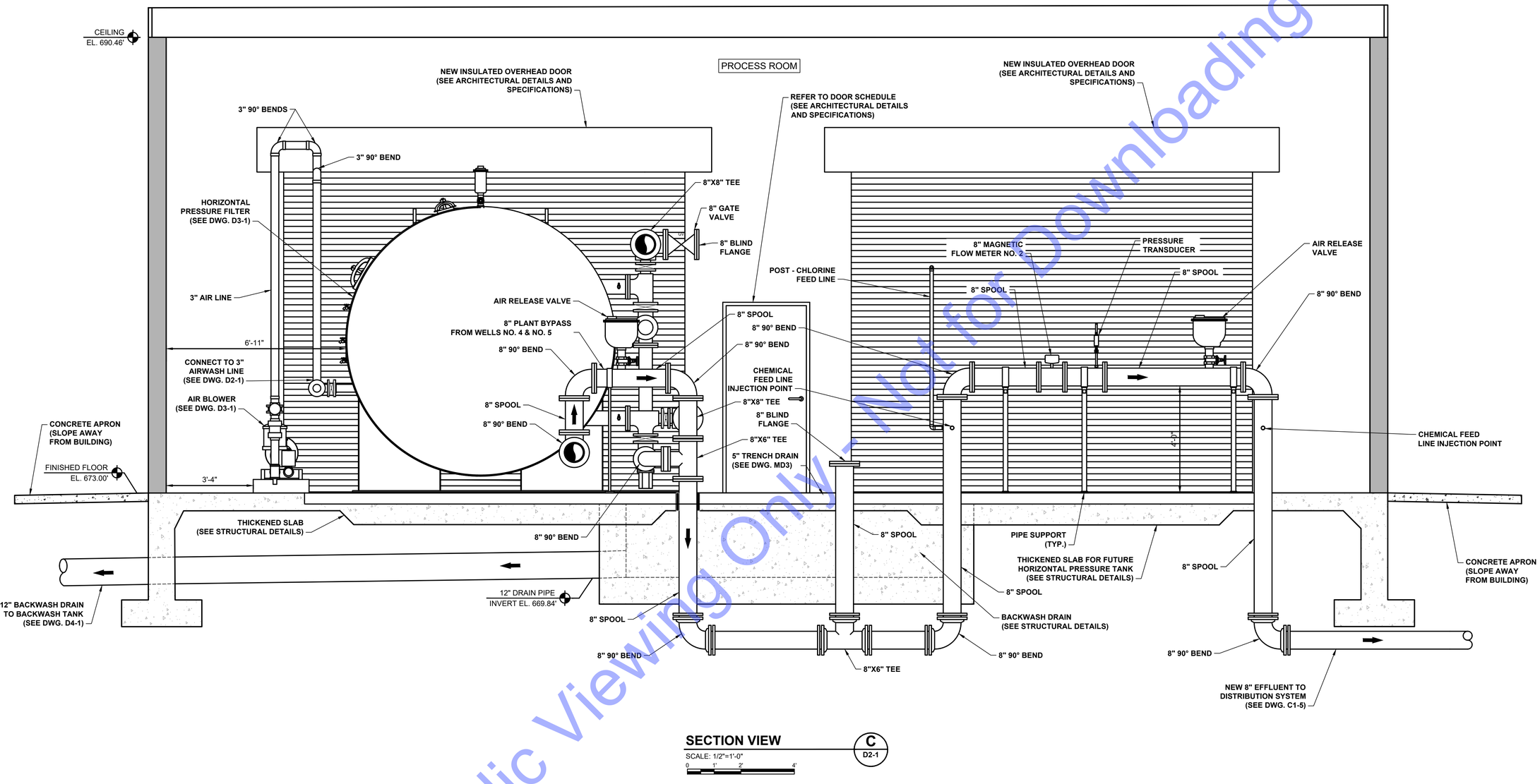
NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "B"

Drawing No: **D2-3**

Sheet: 32 OF 93



SECTION VIEW C

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

0 1' 2' 4'

D2-1

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NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "C"

Drawing No:
D2-4
Sheet: 33 OF 93

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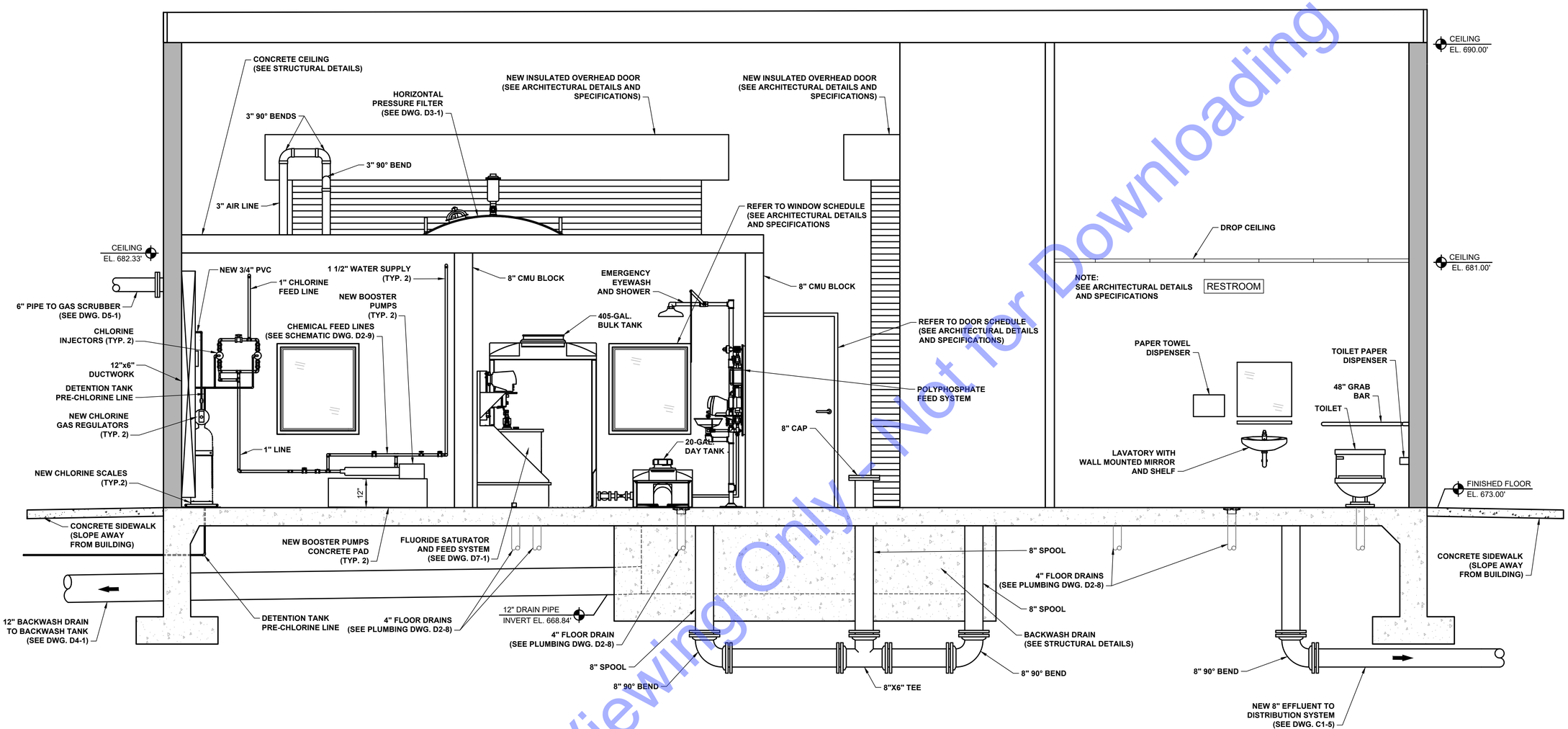

SECTION VIEW D

D2-1

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

0 1' 2' 4'

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NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "D"

Drawing No:

D2-5

Sheet: 34 OF 93

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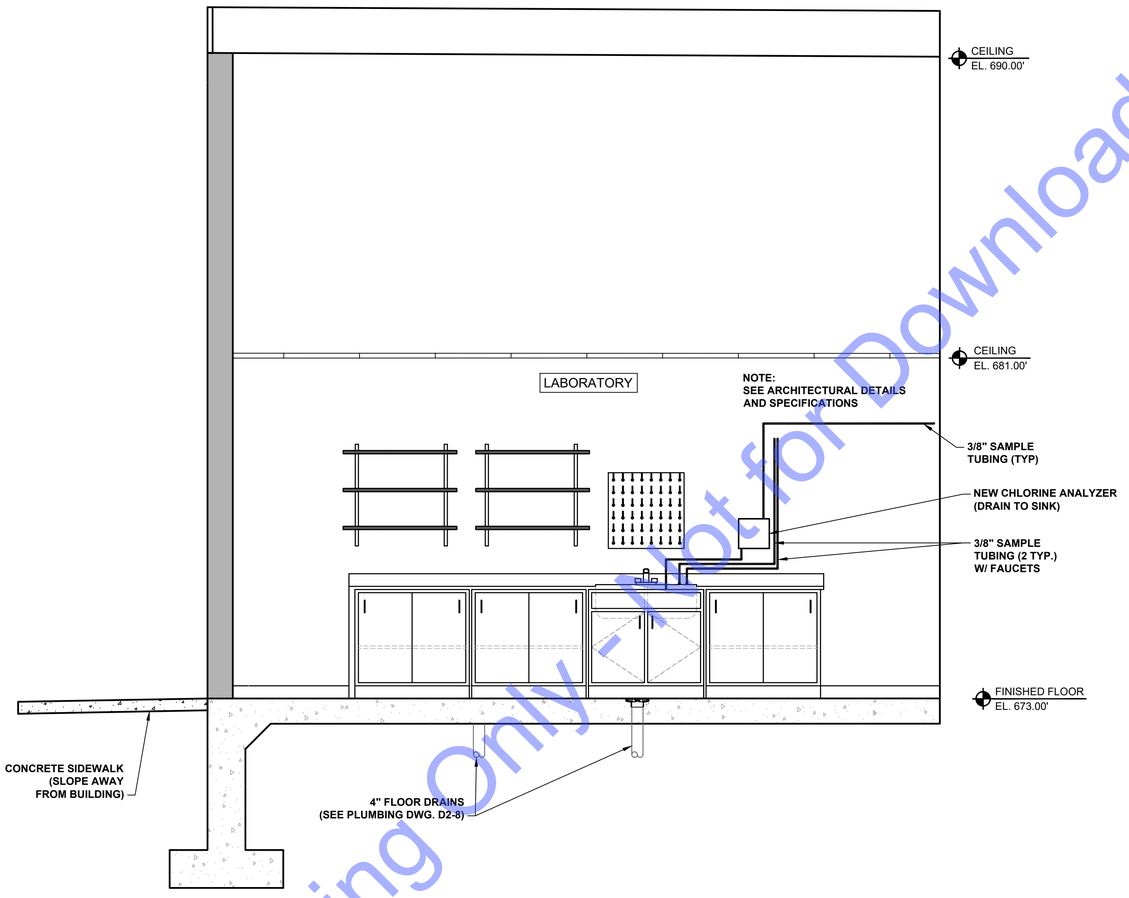

SECTION VIEW E

D2-1

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

0 1' 2' 4'

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NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "E"

Drawing No:
D2-6
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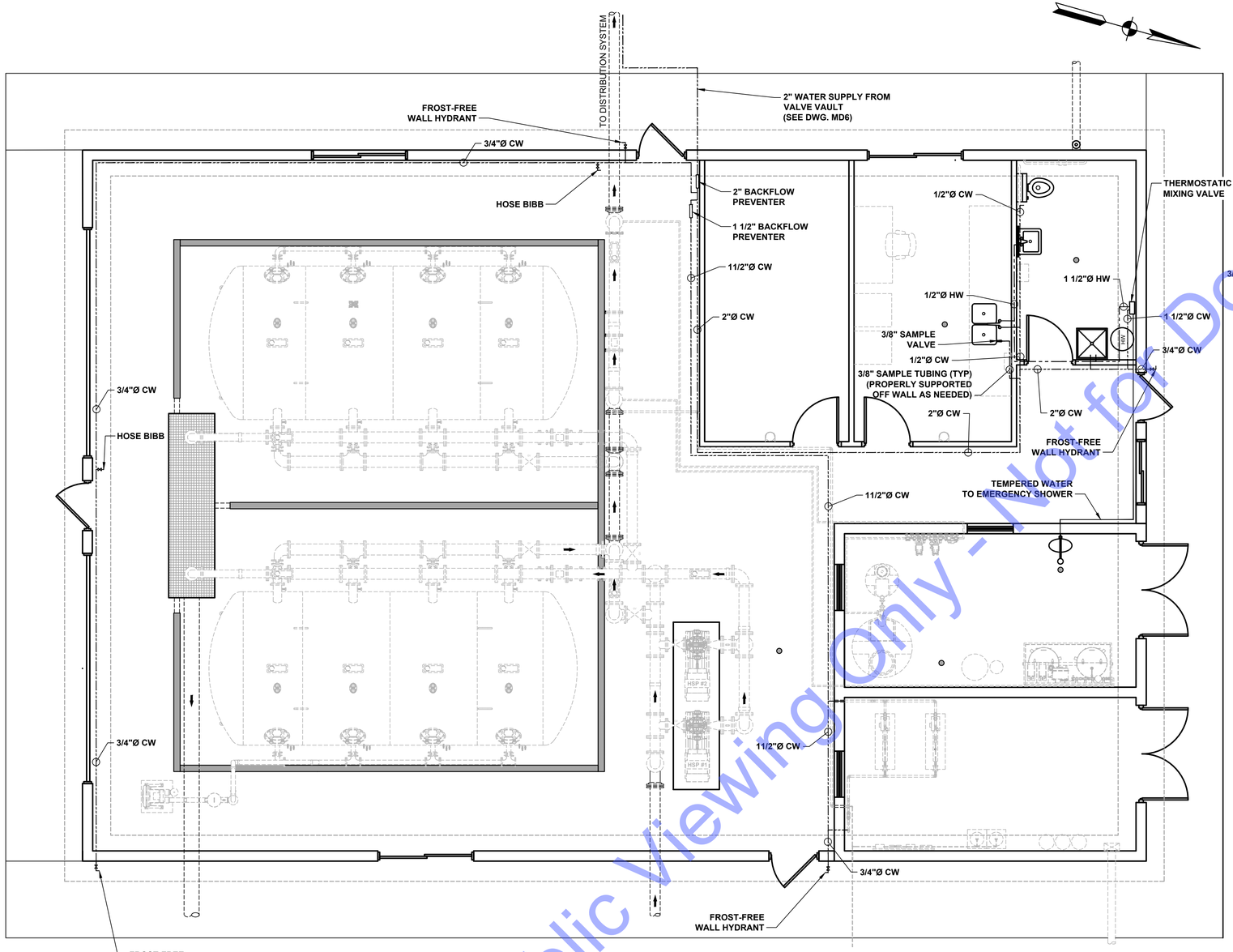
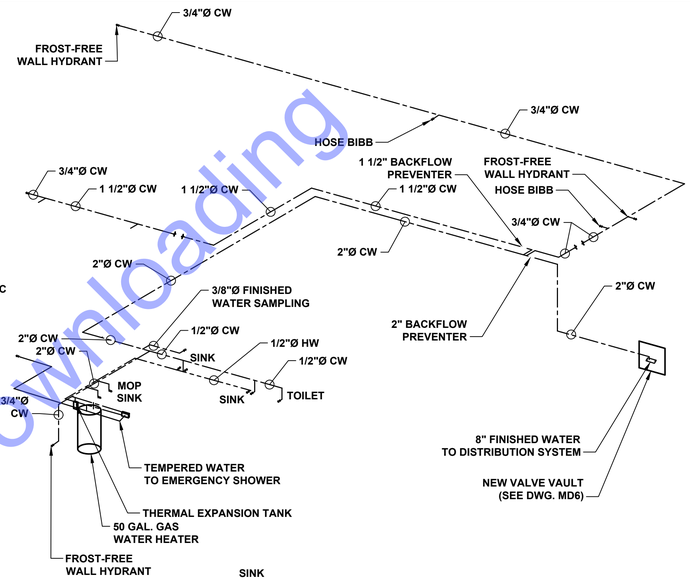


PLAN

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

0 2' 4' 8'



WATER DISTRIBUTION LEGEND

COLD WATER LINE

HOT WATER LINE

WATER DISTRIBUTION SCHEMATIC

NOT TO SCALE

WATER DISTRIBUTION NOTES:

GENERAL

1. UNLESS OTHERWISE SPECIFIED ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW. ALL WORKMANSHIP SHALL BE FIRST CLASS AND SHALL BE PERFORMED BY PERSONS QUALIFIED IN THEIR RESPECTIVE TRADES.
2. ALL WORK INSTALLED BY THIS CONTRACTOR SHALL BE IN COMPLIANCE WITH ALL GOVERNING CODES, REGULATIONS AND THE RECOMMENDED INSTALLATION DETAILS OF THE PRODUCT MANUFACTURERS, UNLESS NOTED OTHERWISE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS, LICENSES, AND INSPECTIONS GOVERNING HIS PORTION OF THE CONTRACT FROM THE AUTHORITIES HAVING JURISDICTION, AND SHALL PAY THE COST OF SUCH UNLESS SPECIFIED OTHERWISE.
4. DRAWINGS ARE DIAGRAMMATIC ONLY. COORDINATION WITH OTHER TRADES, LAYOUT, ROUTING, AND FITTINGS NECESSARY ARE THE RESPONSIBILITY OF THE CONTRACTOR.
5. ANY MINOR CHANGES IN THE LOCATION OF ALL EQUIPMENT OR FIXTURES FROM THOSE SHOWN ON THE PLANS SHALL BE MADE WITHOUT EXTRA CHARGE IF SO DIRECTED BY ENGINEER OR OWNER BEFORE INSTALLATION. MINOR CHANGES IN LOCATION SHALL BE DEFINED AS WITHIN 5 FEET IN ANY DIRECTION, HORIZONTALLY OR VERTICALLY, FROM THE LOCATION INDICATED ON THE DRAWINGS.

START-UP

1. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE START UP OF ALL PLUMBING EQUIPMENT. PRIOR TO START UP OF ANY EQUIPMENT THE CONTRACTOR SHALL CHECK AND REVIEW ALL MANUFACTURERS RECOMMENDATIONS FOR PROPER PROCEDURE.

WATER PIPING

1. ALL WATER PIPING SHALL BE INSTALLED & CONNECTED BY THE PLUMBING CONTRACTOR.
2. ALL WATER PIPING SHALL BE SUPPORTED @ MAX. 8'-0" INTERVALS AND AT ALL CHANGES IN DIRECTION USING STANDARD CLAMPS AND HANGERS AS REQUIRED AS PER MANUFACTURERS RECOMMENDATIONS.
3. HORIZONTAL AND VERTICAL RUNS OF PIPING SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO THE WALLS. VERTICAL PIPING SHALL BE PLUMB AND PERPENDICULAR TO THE FLOORS AND CEILINGS UNLESS NOTED OTHERWISE.

PIPE INSULATION

1. ALL HOT AND COLD WATER PIPING SHALL BE INSULATED WITH 1/2" THICK ELECTROMETRIC INSULATION INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS ALL INSULATION SHALL BE INSTALLED BY QUALIFIED PERSONNEL TO PROVIDE A PROFESSIONAL VAPOR TIGHT SEAL ON ALL PIPING.

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TOBY LEE CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 01/29/24 Date

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NEW WATER TREATMENT PLANT FACILITY - WATER DISTRIBUATION PLAN AND SCHEMATIC

Drawing No: **D2-7**

Sheet: 36 OF 93

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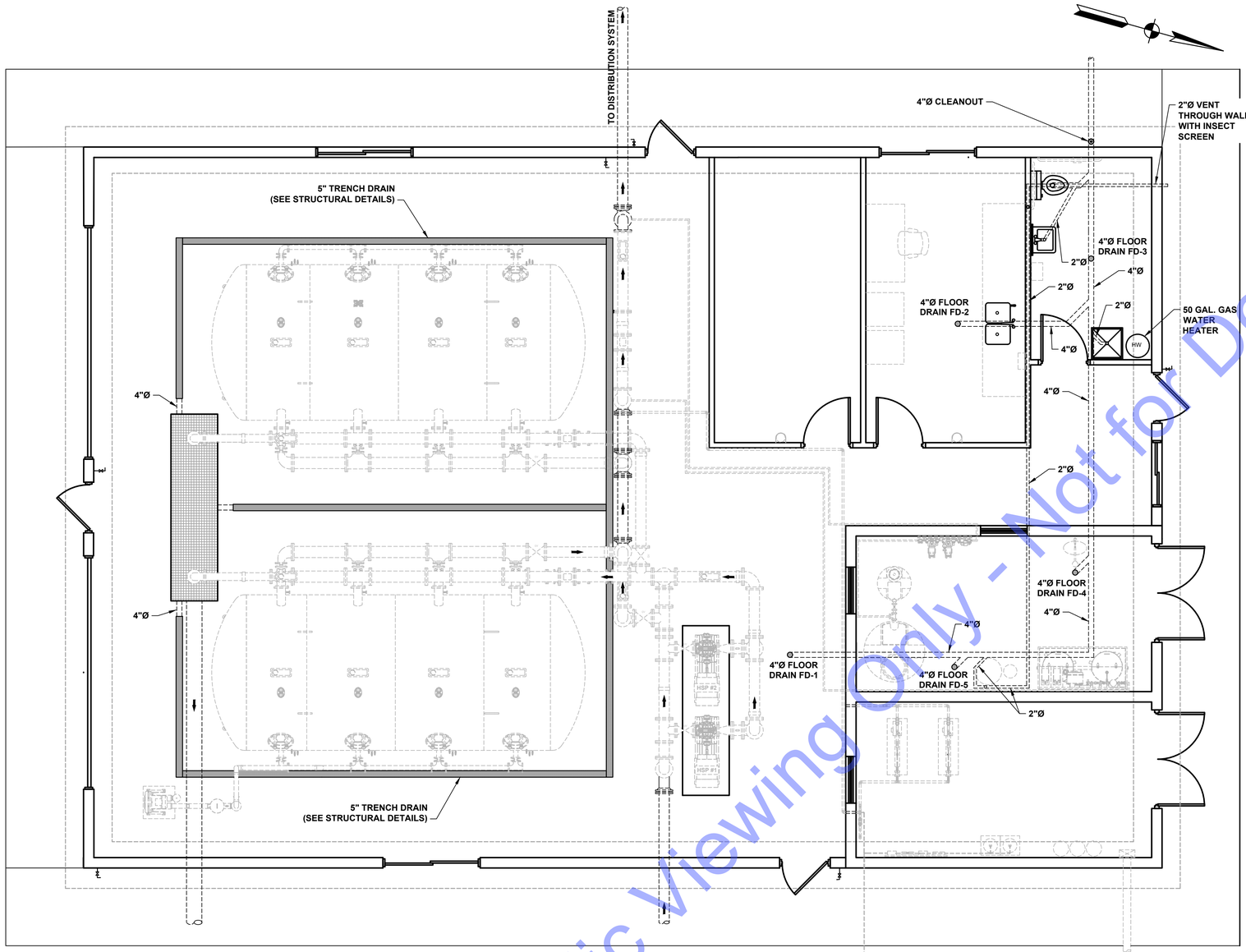
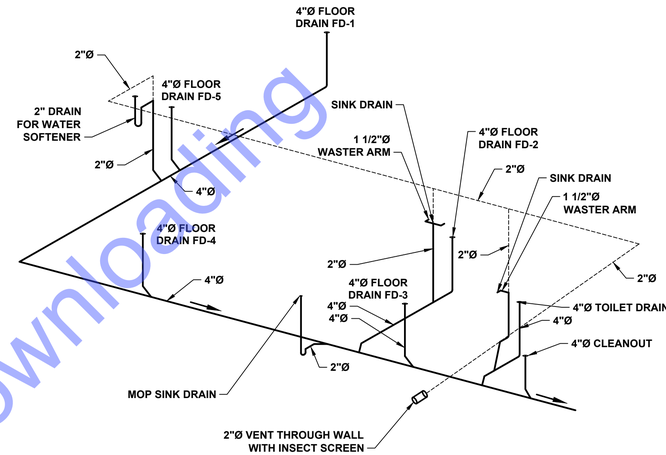


PLAN

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

0 2' 4' 8'



NOTE:

VENT PIPE IN WALL SHALL BE OFFSET TO AVOID DISTURBANCE OF BOND BEAM.

DRAIN, WASTE, AND VENT LEGEND

DRAIN AND WASTE PIPING

VENT PIPING

DRAIN, WASTE AND VENT SCHEMATIC

NOT TO SCALE

SANITARY WASTE & VENT NOTES:

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SANITARY WASTE AND VENT PIPING

1. ALL SANITARY WASTE AND VENT PIPING ABOVE AND BELOW GRADE SHALL BE PVC DWV SCH. 40, SOLVENT JOINT PIPING AND FITTINGS.
2. ALL PIPING TO BE INSTALLED ON FIRM EARTH TO SLOPE AT A MINIMUM 1/8" PER FOOT. VERIFY ALL INVERTS PRIOR TO CONSTRUCTION START. PROVIDE STANDPIPE AS PER THE BOCA PLUMBING CODE.
3. NO SANITARY WASTE PIPING SMALLER THAN 2"Ø SHALL BE INSTALLED UNDER SLABS.

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TOBY LEE CHURCH
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No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 01/29/24 Date

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NEW WATER TREATMENT PLANT FACILITY - PLUMBING DISTRUBUTION PLAN AND SCHEMATIC

Drawing No:

D2-8

Sheet: 37 OF 93

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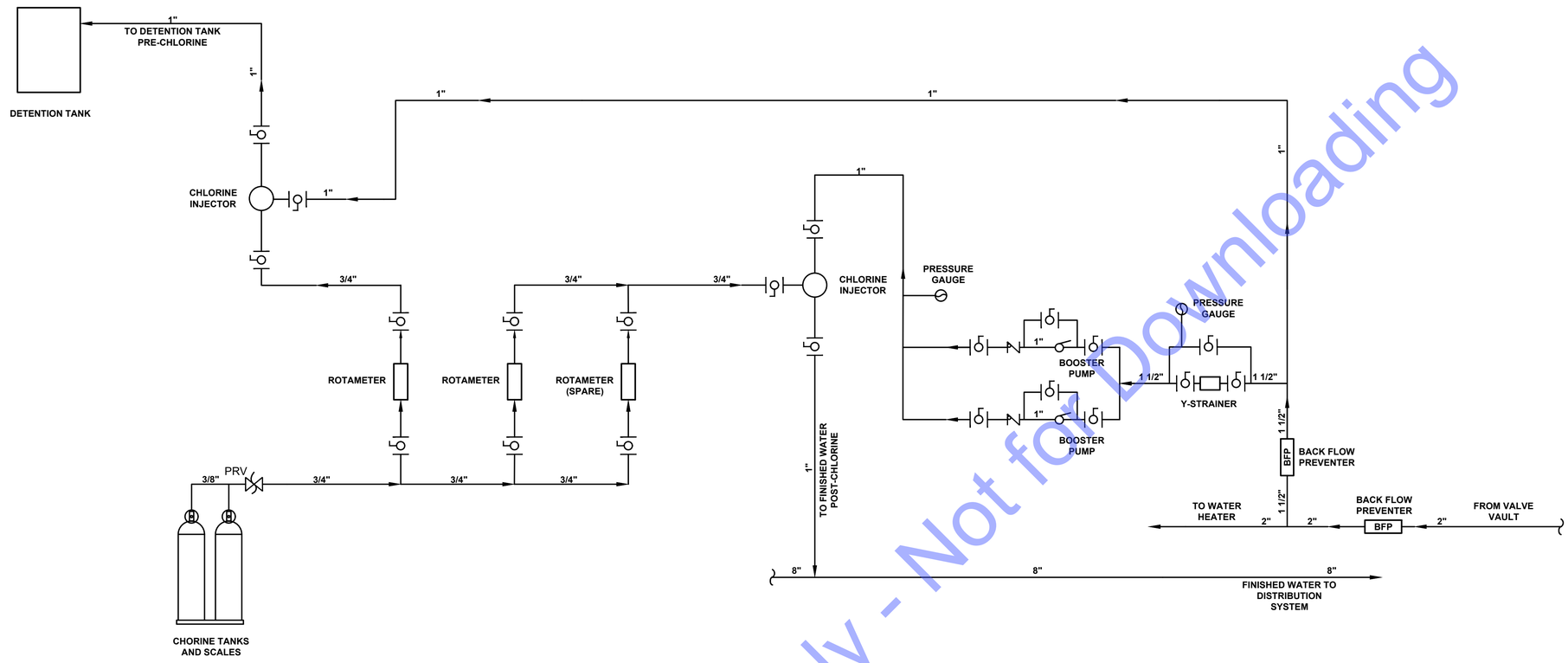

CHLORINE CHEMICAL FEED SCHEMATIC

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NEW WATER TREATMENT PLANT FACILITY - CHLORINE CHEMICAL FEED SCHEMATIC

Drawing No:
D2-9
Sheet: 38 OF 93

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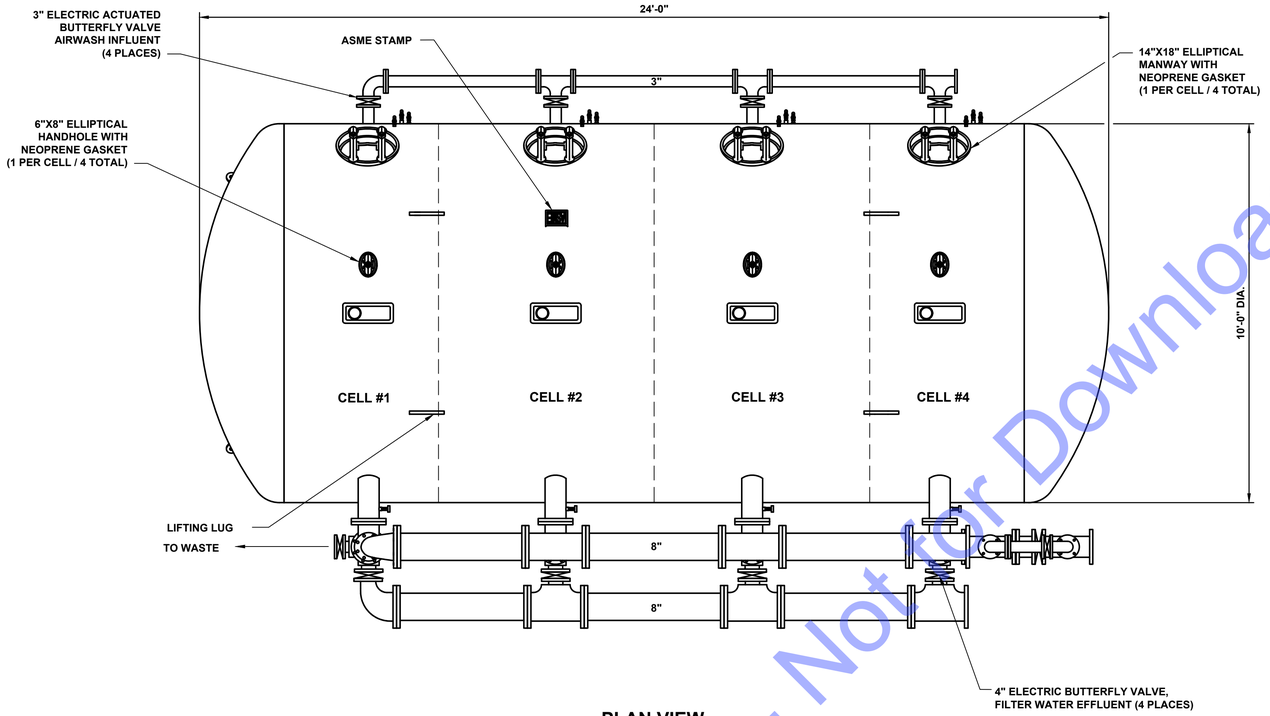
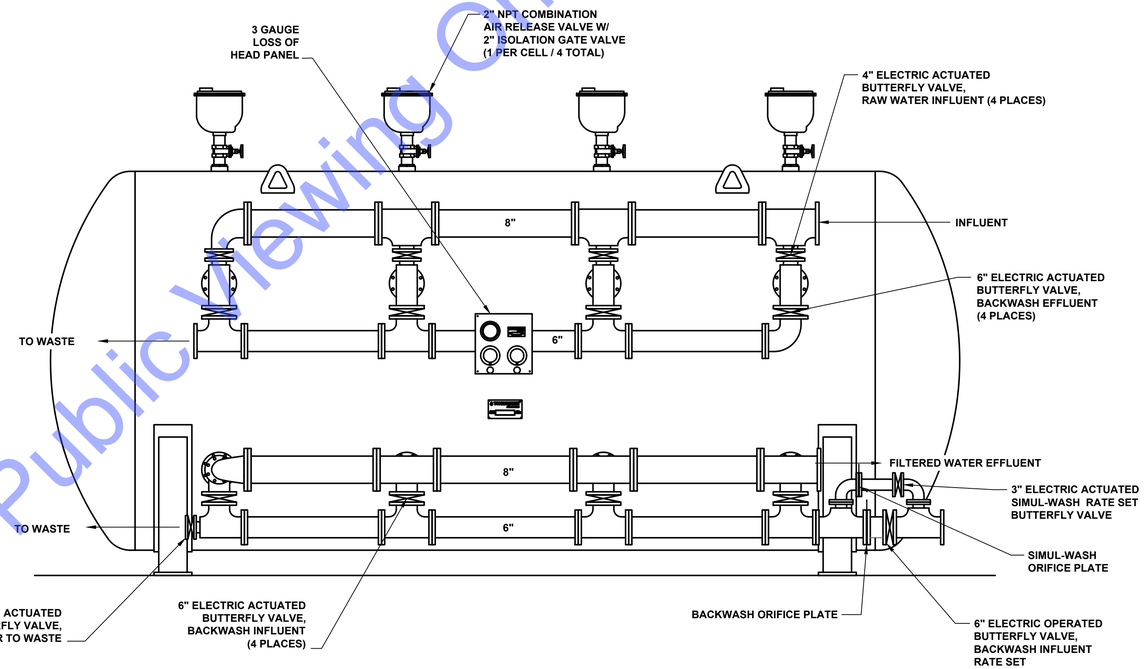


PLAN VIEW

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

0 1' 2' 4'



FRONT ELEVATION

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

0 1' 2' 4'

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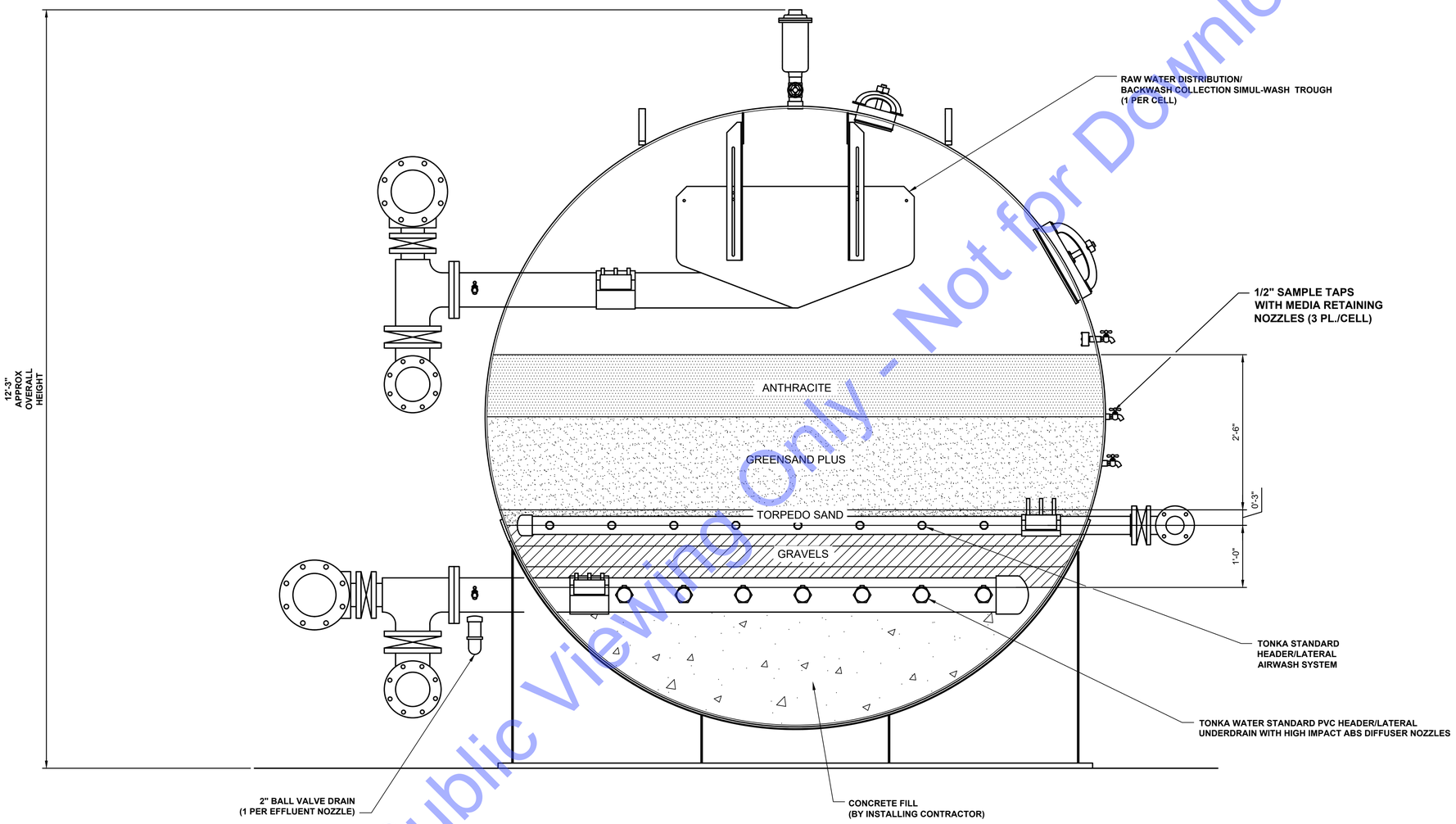
NEW HORIZONTAL PRESSURE FILTER - PLAN AND ELEVATION VIEWS

Drawing No: **D3-1**

Sheet: 39 OF 93



TYP. SECTION/END VIEW

SCALE: 1"=1'-0"

0 1/2" 1" 2"

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NEW HORIZONTAL PRESSURE FILTER - TYPICAL SECTION VIEW

Drawing No: **D3-2**

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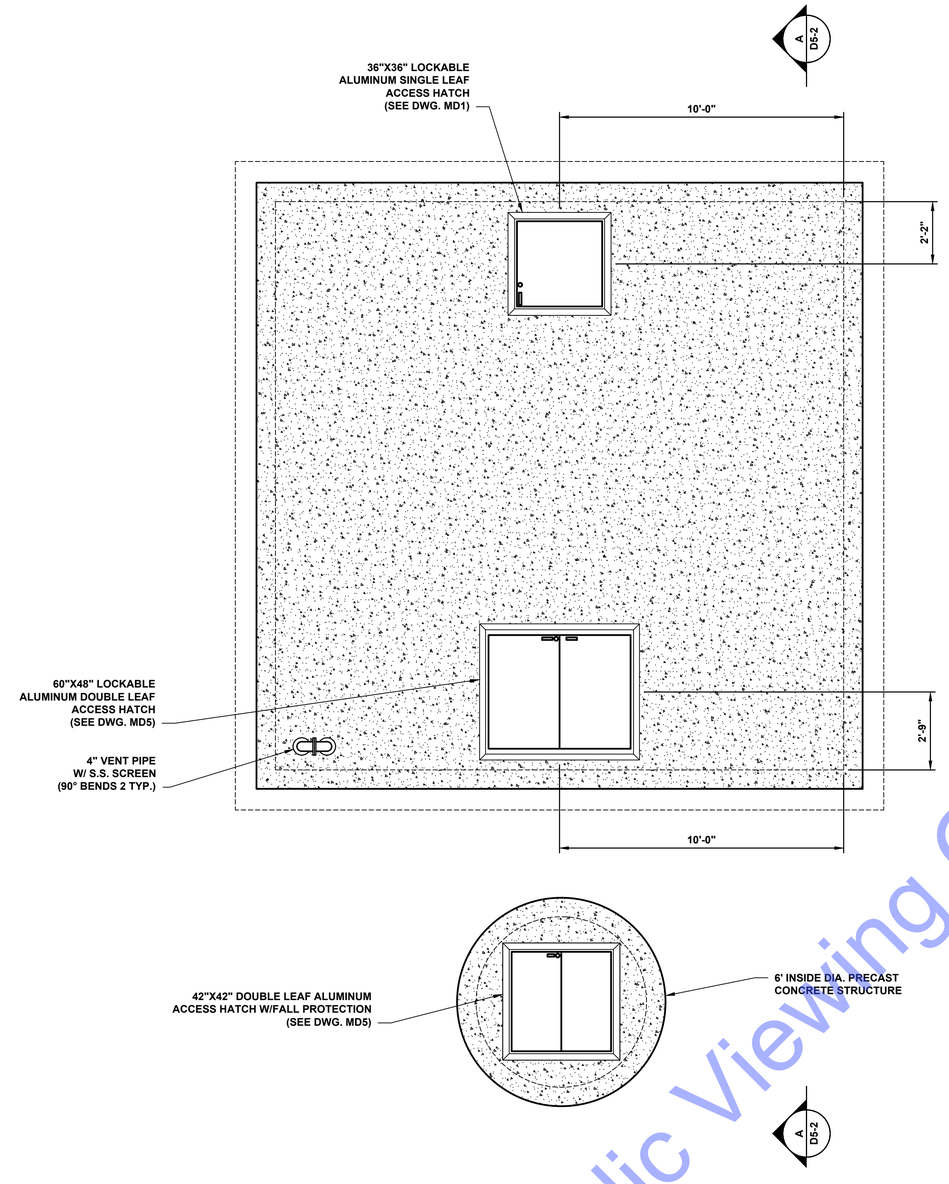
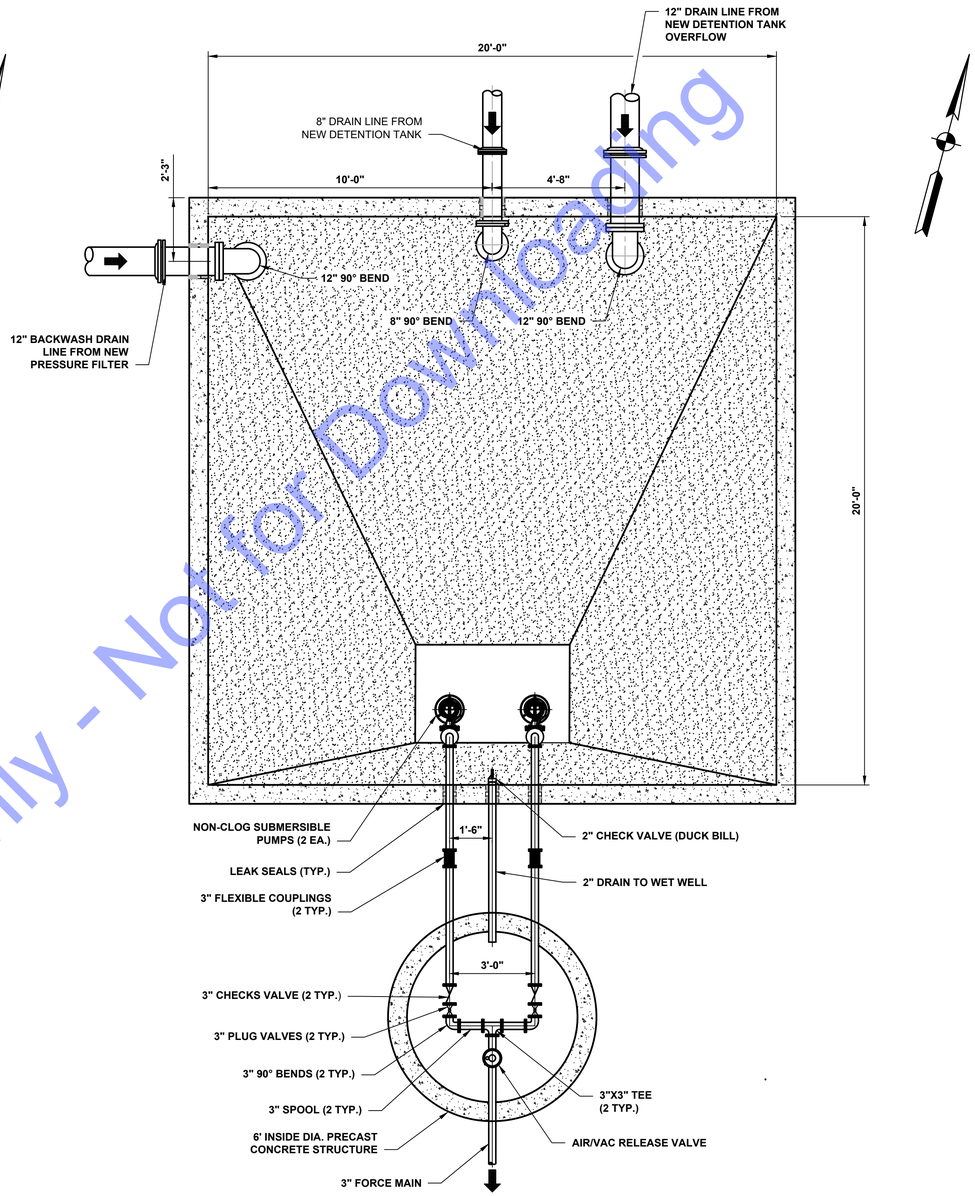


UPPER PLAN VIEW

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

0 2' 4' 6'



LOWER PLAN VIEW

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

0 2' 4' 6'

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NEW BACKWASH TANK - UPPER AND LOWER PLAN VIEWS

Drawing No:
D4-1
Sheet: 41 OF 93

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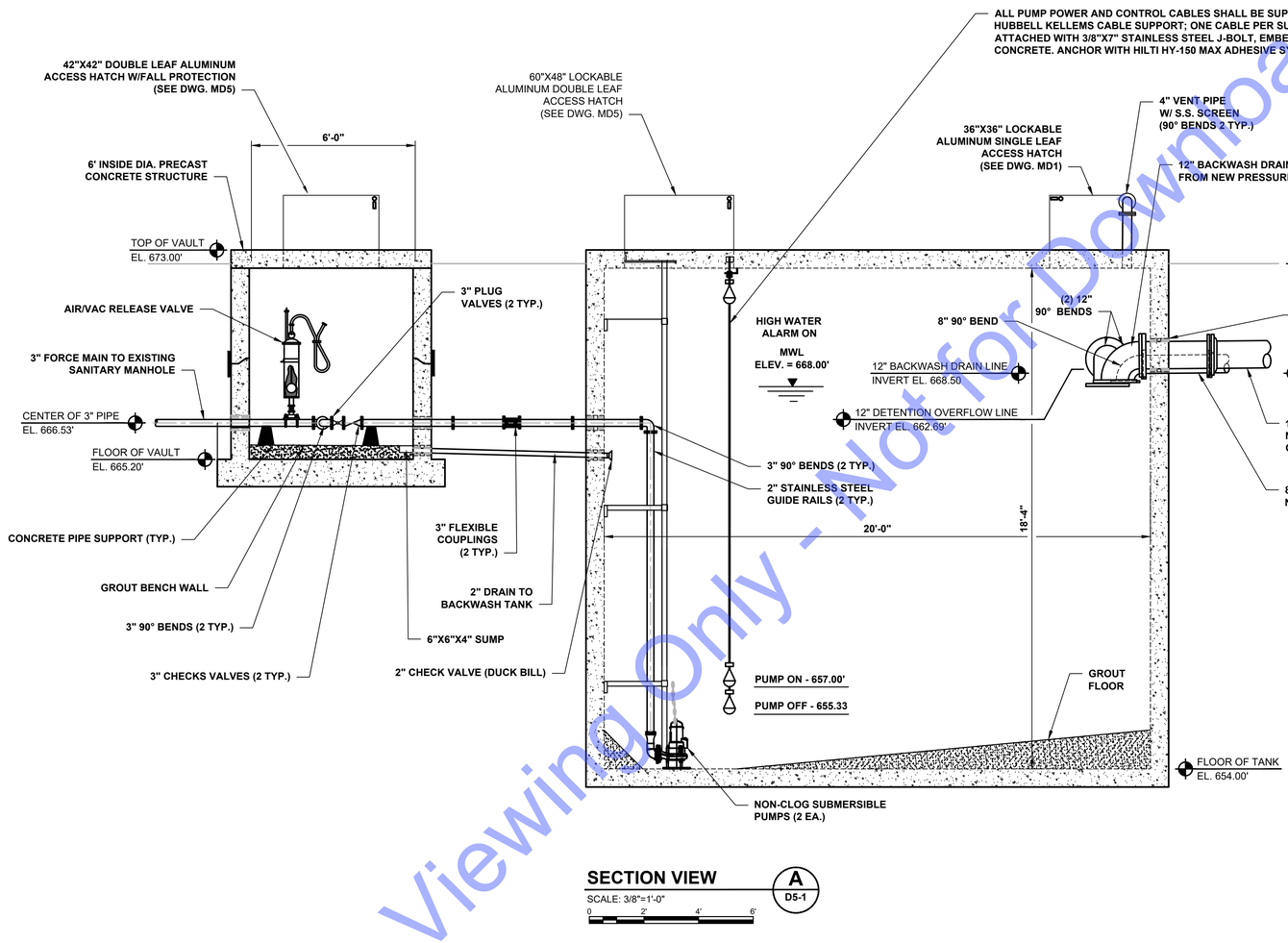

SECTION VIEW

A
D5-1

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

0 2' 4' 6'

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NEW BACKWASH TANK - SECTION VIEW

Drawing No:
D4-2
Sheet: 42 OF 93

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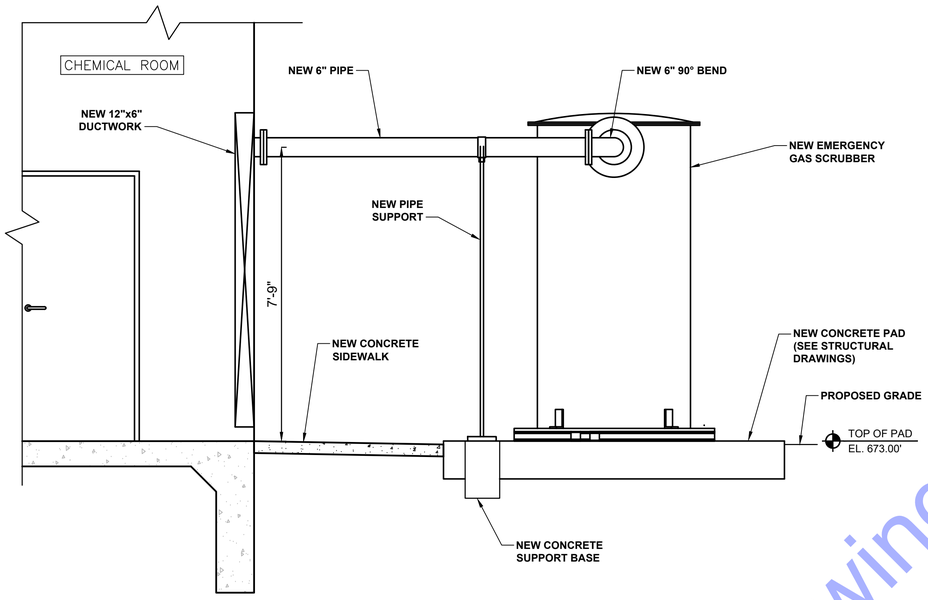
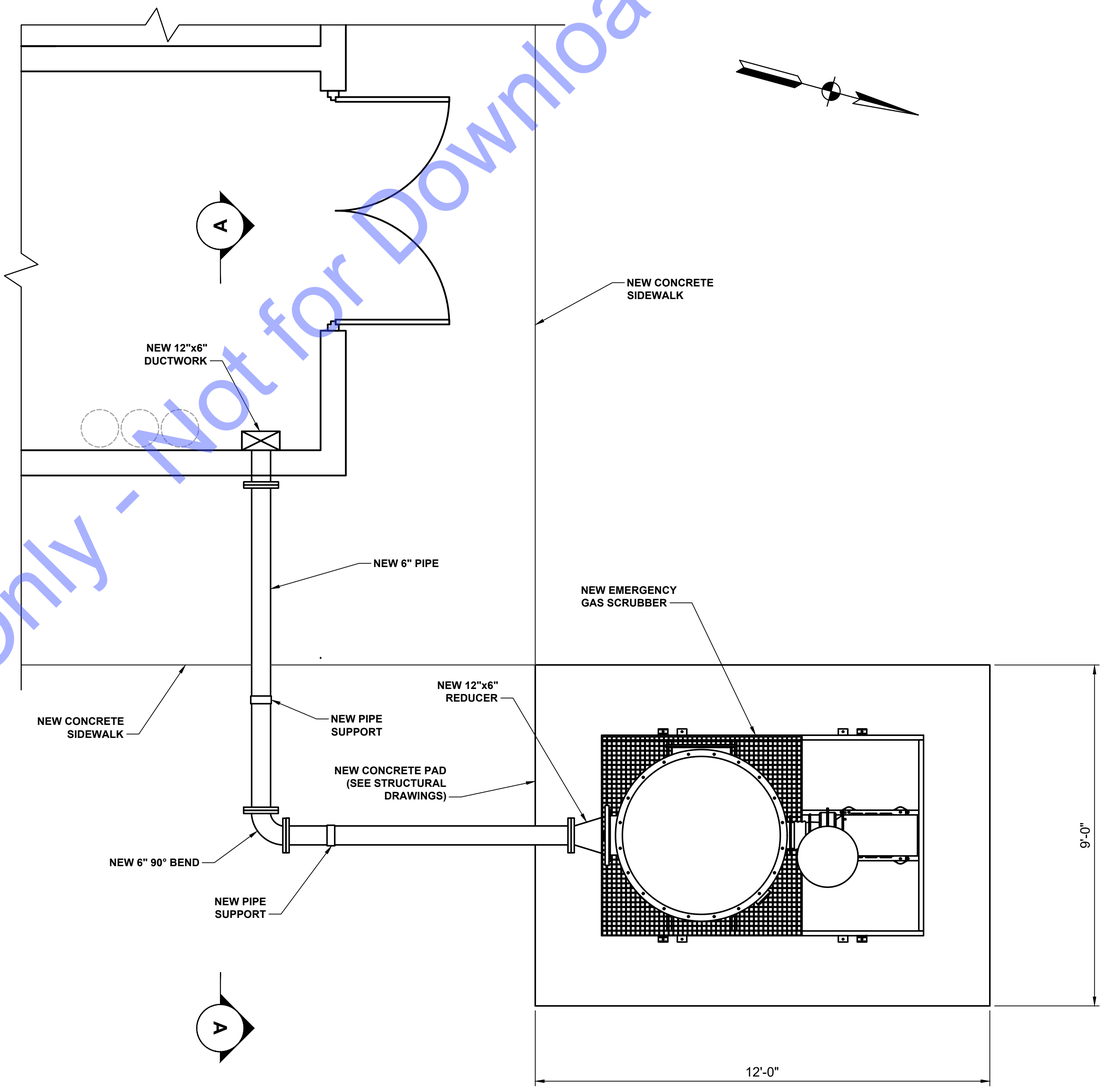


SECTION VIEW **A**

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

0 1' 2' 4'



PLAN VIEW

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

0 1' 2' 4'

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NEW GAS SCRUBBER - PLAN AND SECTION VIEWS

Drawing No:

D5-1

Sheet: 43 OF 93

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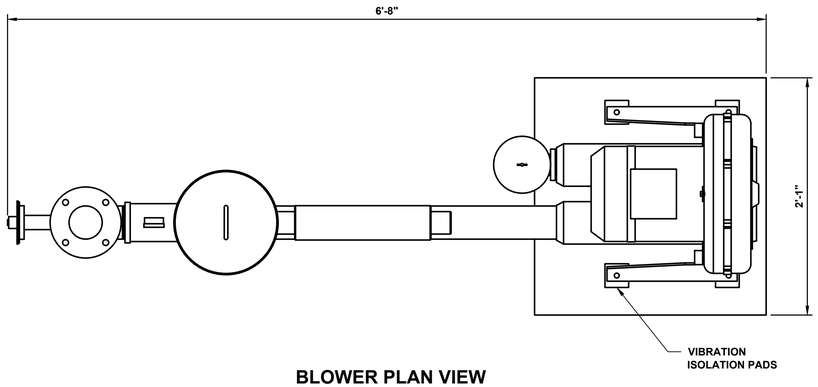
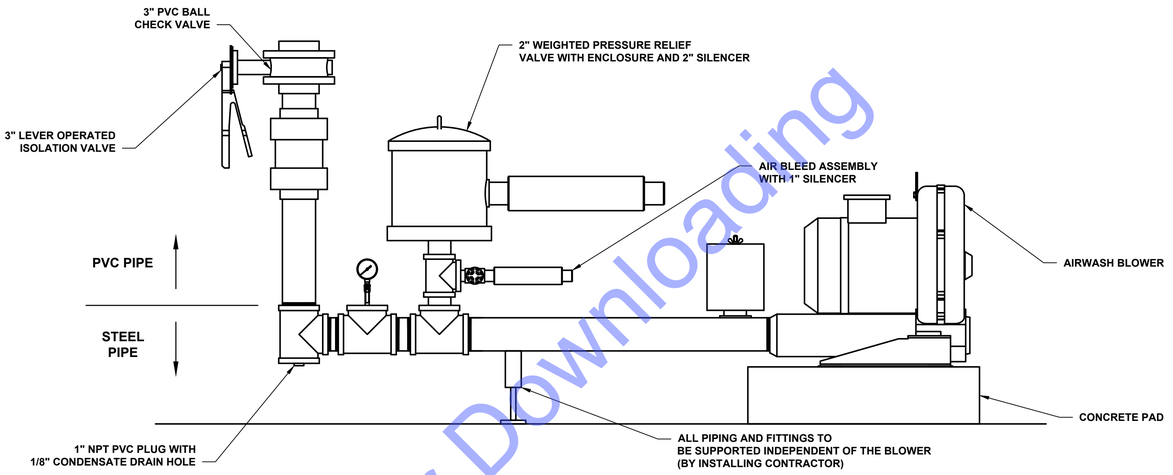


BLOWER PLAN VIEW

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

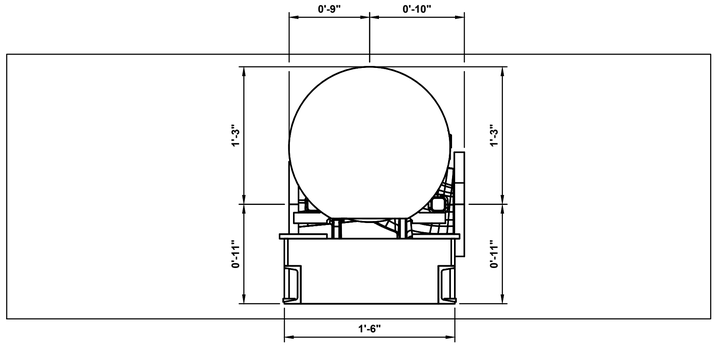
0 1/2" 1' 1 1/2"



BLOWER RIGHT ELEVATION

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

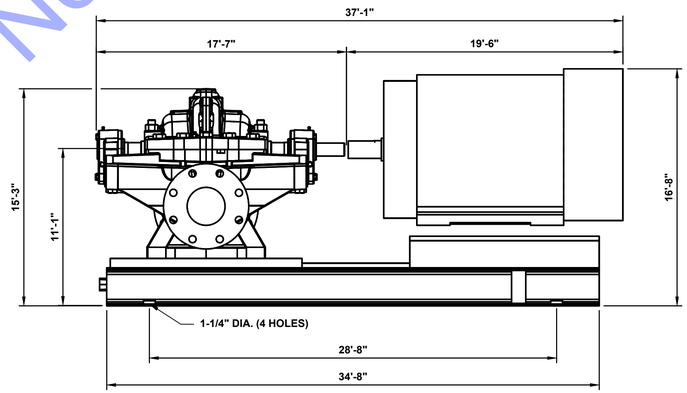
0 1/2" 1' 1 1/2"



PUMP FRONT ELEVATION

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

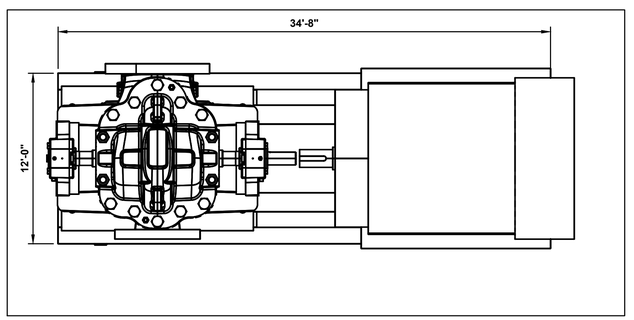
0 1/2" 1' 1 1/2"



PUMP RIGHT ELEVATION

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

0 1/2" 1' 1 1/2"



PUMP PLAN VIEW

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

0 1/2" 1' 1 1/2"

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NEW AIR BLOWER AND PUMP - PLAN AND ELEVATION VIEWS

Drawing No:

D6-1

Sheet: 44 OF 93

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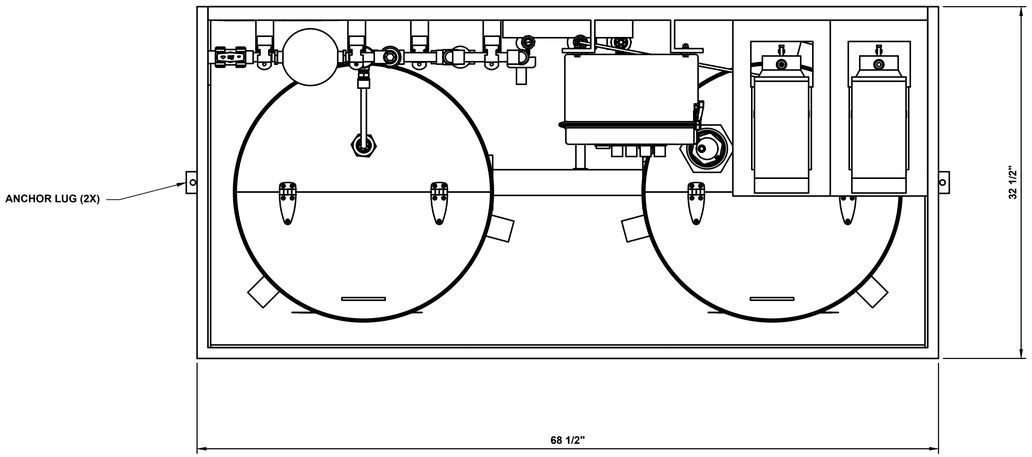
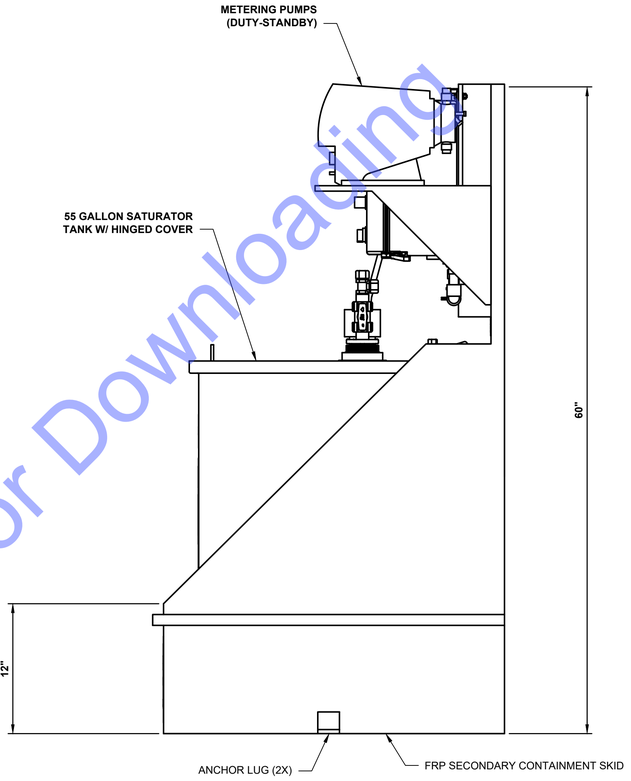
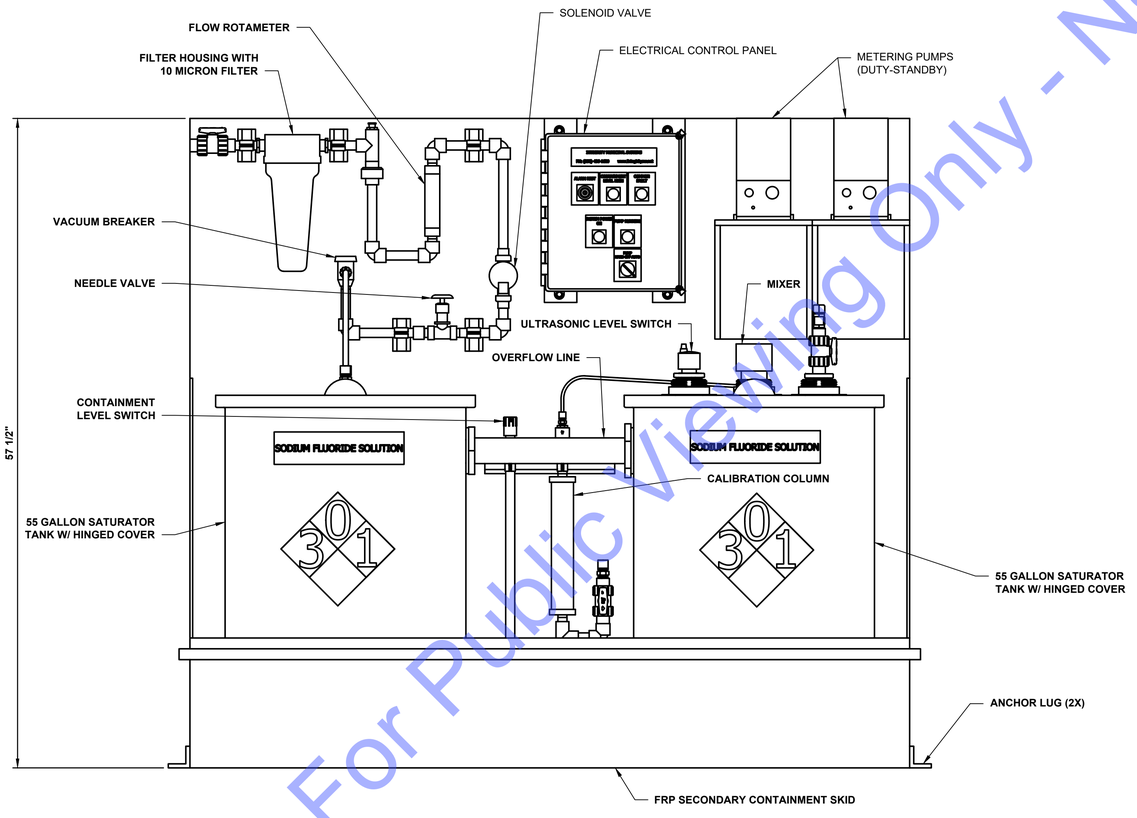


PLAN VIEW
NOT TO SCALE



END VIEW
NOT TO SCALE



ELEVATION VIEW
NOT TO SCALE

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FLUORIDE FEED SYSTEM PLAN AND ELEVATION VIEWS

Drawing No:
D7-1
Sheet: 45 OF 93

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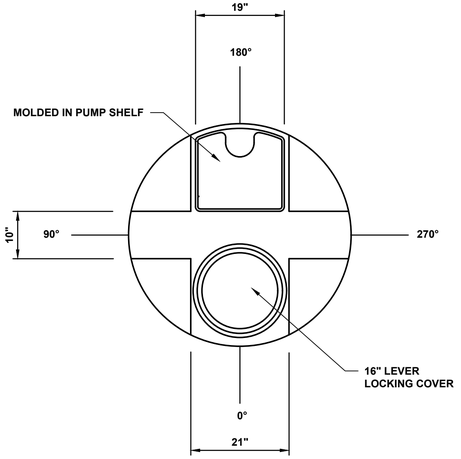
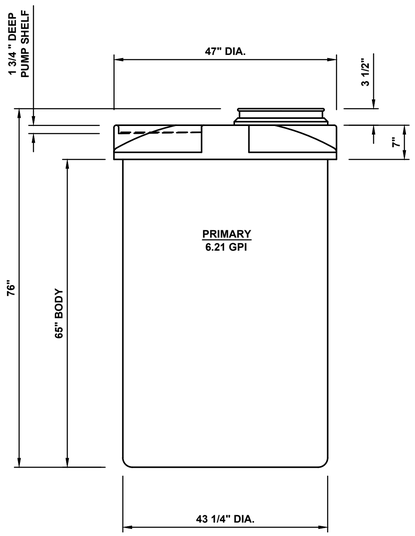
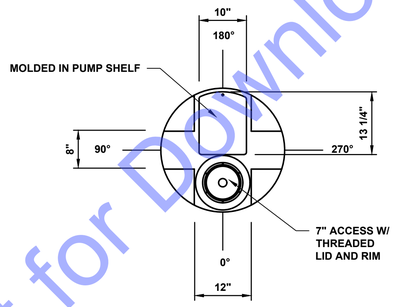


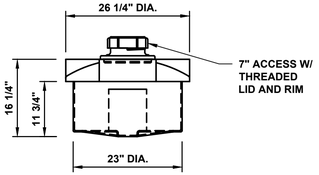
TOP VIEW



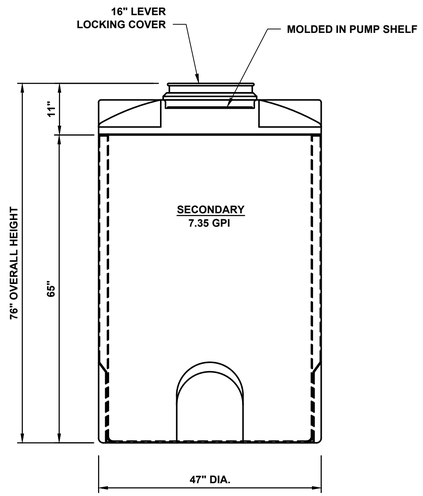
SIDE ELEVATION



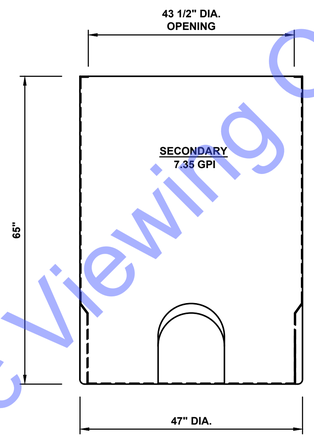
TOP VIEW



SIDE ELEVATION



SIDE ELEVATION

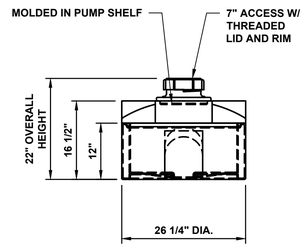


SIDE ELEVATION

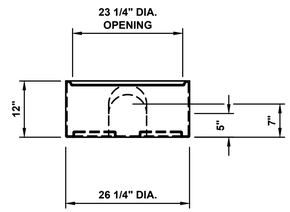
405 GALLON BULK TANK - DETAIL

SCALE: 3/4"=1'-0"

0 1' 2' 3'



SIDE VIEW



SIDE ELEVATION

20 GALLON DAY TANK - DETAIL

SCALE: 3/4"=1'-0"

0 1' 2' 3'

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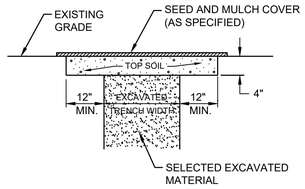
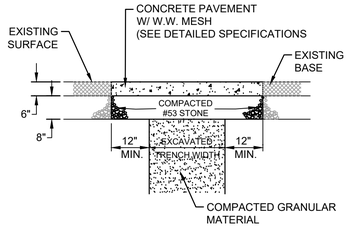
NEW PHOSPHATE BULK AND DAY TANK - PLAN AND ELEVATION VIEWS

Drawing No:
D8-1
Sheet: 46 OF 93



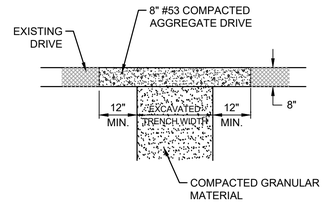
SURFACE RESTORATION DETAIL FOR GRASS AREAS

NOT TO SCALE



SURFACE RESTORATION DETAIL FOR CONCRETE PAVEMENT - DRIVE

NOT TO SCALE



SURFACE RESTORATION DETAIL FOR GRAVEL PAVEMENT - ROAD

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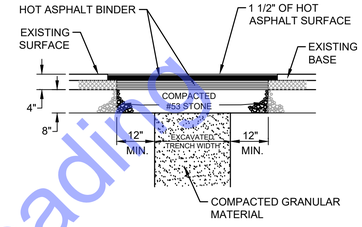
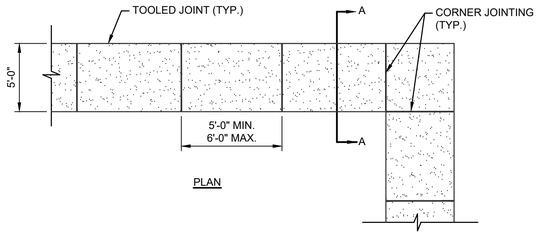


SURFACE RESTORATION DETAIL FOR ASPHALT PAVEMENT - ROAD

NOT TO SCALE

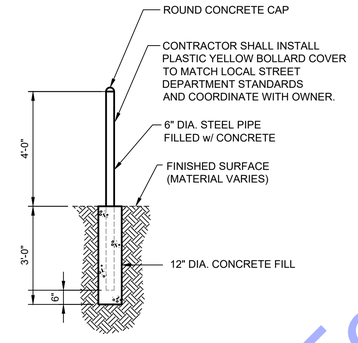


GENERAL NOTES:

1. TRANSVERSE JOINTS SHALL BE CUT WITH A JOINTER HAVING A RADIUS OF ½" AT SPACING AT A MINIMUM OF 6'-0"
2. SIDEWALK SHALL BE 6" THICK WITH 8" OF COMPACTED AGGREGATE NO. 53 AT ALL DRIVEWAY CROSSINGS
2. APRONS SHALL BE 6" THICK WITH 8" OF COMPACTED AGGREGATE NO. 53 AT ALL OVERHEAD DOORS.
3. SIDE SLOPE SHALL BE ¼" / FT.

CONCRETE SIDEWALK DETAIL

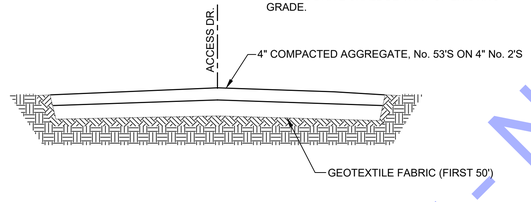
NOT TO SCALE



NOTE:
CONTRACTOR SHALL PROVIDE 1/4" NOMINAL THICKNESS POLYETHYLENE COVERS OVER ALL BOLLARDS COORDINATE COLOR WITH OWNER

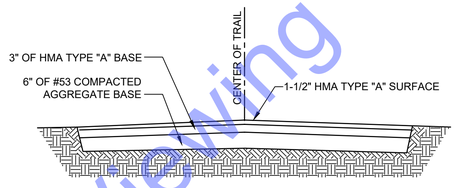
BOLLARD DETAIL

NOT TO SCALE



GRAVEL ACCESS DRIVE DETAIL

NOT TO SCALE



ASPHALT TRAIL DETAIL

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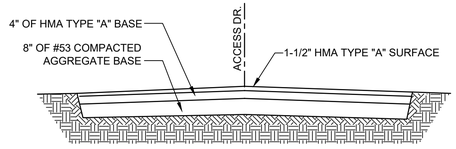

ASPHALT ACCESS DRIVE DETAIL

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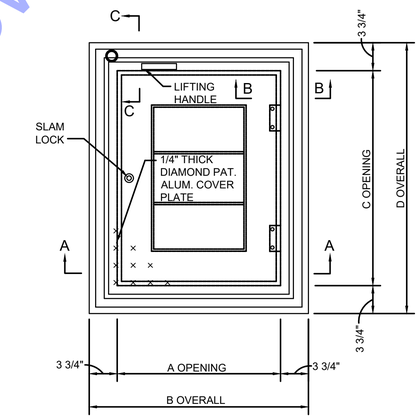

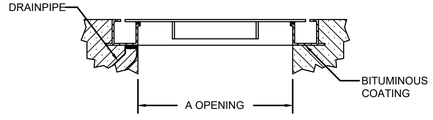

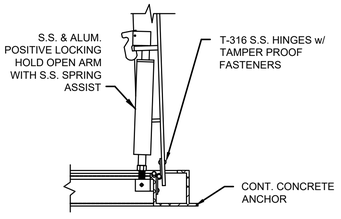

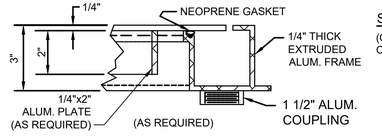

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
24x24	24"	31 1/2"	24"	31 1/2"
30x30	30"	37 1/2"	30"	37 1/2"
36x36	36"	43 1/2"	36"	43 1/2"
30x48	30"	37 1/2"	48"	55 1/2"
36x48	36"	43 1/2"	48"	55 1/2"

TYPICAL SINGLE LEAF ACCESS HATCH DETAIL

NOT TO SCALE

NOTE:

CONTRACTOR SHALL PIPE DRAIN TO EXTERIOR OF STRUCTURE (REFER TO PROCESS DRAWINGS AND SPECIFICATIONS FOR MORE DETAILS).

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CHRIS A. LIMCACO REGISTERED No. 19700338 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 12-07-23 Date

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NEWTON COUNTY, INDIANA
WATER UTILITY
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MISCELLANEOUS DETAILS

Drawing No: **MD1**

Sheet: 47 OF 93

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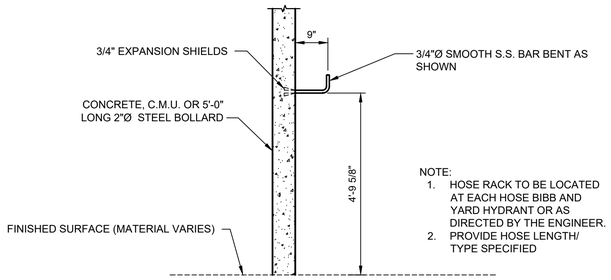

HOSE RACK DETAIL

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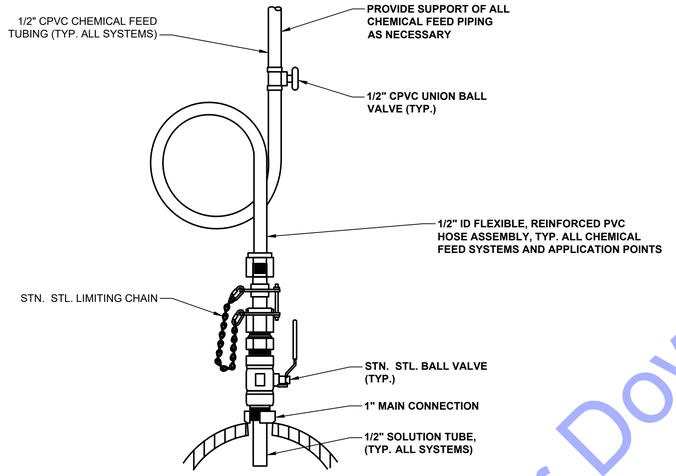
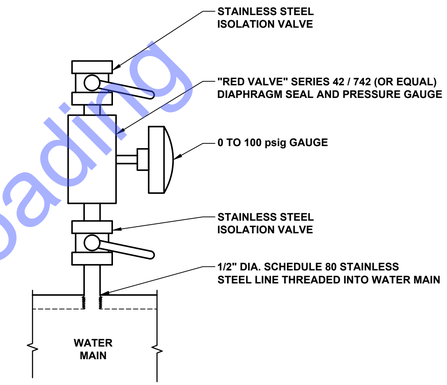


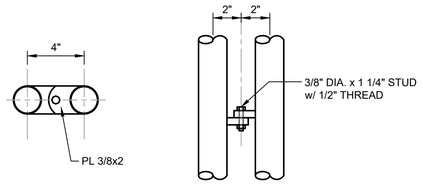
TYPICAL CHEMICAL INJECTION POINT DETAIL

NOT TO SCALE

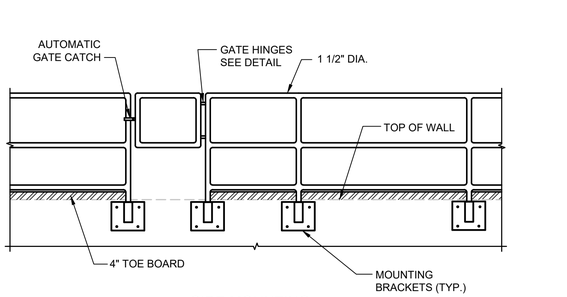


PRESSURE GAUGE DETAIL

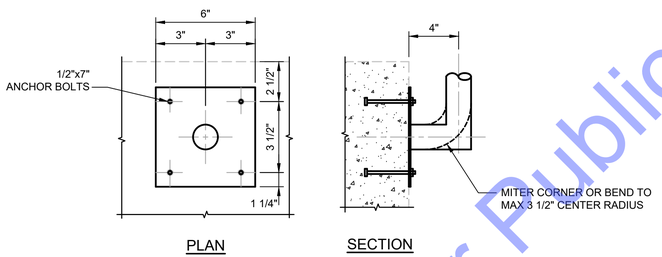
NOT TO SCALE



GATE HINGE



SIDE MOUNTING

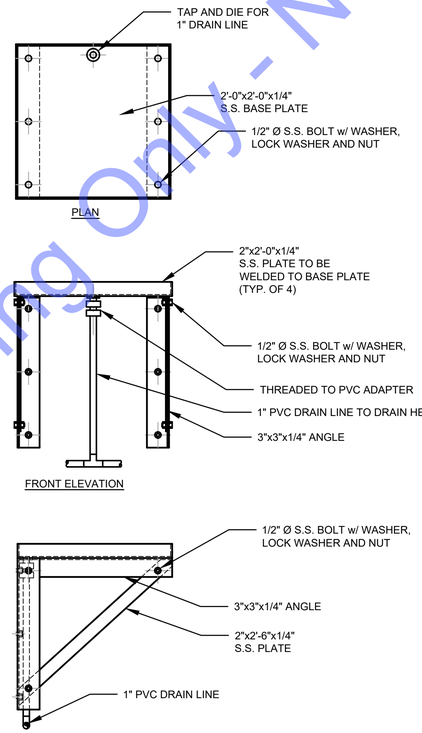


PLAN SECTION

SIDE MOUNTING PLATE

HANDRAIL-SIDE MOUNT DETAILS

NOT TO SCALE



FLUORIDE PUMP SHELF WITH DRAIN

NOT TO SCALE

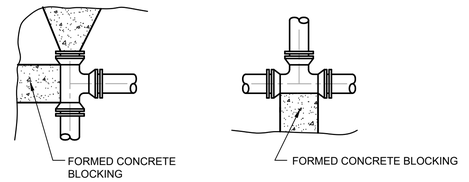


TABLE OF DIMENSION FOR CONCRETE BLOCKING

SIZE	TEE				PLUG					90° BEND				45° BEND				22° BEND				11° BEND			
PIPE	L	T	W	D	L	T	W	D	s	L	T	W	D	L	T	W	D	L	T	W	D	L	T	W	D
4"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	12"	24"	8"	18"	8"	12"	8"	18"	8"	12"	8"	15"	8"	12"	6"
6"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	15"	24"	8"	18"	10"	12"	8"	18"	10"	12"	8"	18"	10"	18"	6"
8"	30"	12"	24"	8"	30"	18"	30"	24"	4"	36"	16"	30"	8"	24"	12"	18"	8"	24"	18"	18"	8"	24"	12"	18"	8"
10"	36"	18"	30"	10"	36"	18"	36"	24"	4"	48"	20"	36"	10"	30"	14"	24"	10"	30"	14"	24"	10"	24"	14"	18"	8"
12"	48"	18"	36"	10"	42"	18"	42"	24"	4"	54"	24"	48"	10"	36"	16"	30"	10"	36"	16"	30"	10"	30"	16"	24"	10"
14"	54"	24"	42"	12"	48"	18"	48"	30"	6"	60"	28"	60"	12"	42"	16"	42"	12"	42"	16"	42"	12"	33"	16"	27"	12"
16"	60"	24"	48"	12"	54"	18"	54"	30"	6"	66"	32"	63"	12"	48"	18"	48"	12"	48"	18"	48"	12"	36"	18"	30"	12"
18"	66"	30"	60"	14"	60"	24"	60"	36"	6"	66"	36"	66"	14"	54"	18"	54"	14"	54"	18"	54"	14"	39"	18"	33"	14"
20"	72"	30"	60"	14"	66"	24"	66"	36"	8"	72"	40"	69"	14"	60"	20"	60"	14"	60"	20"	60"	14"	42"	20"	36"	14"
24"	84"	36"	72"	18"	78"	30"	78"	42"	8"	84"	48"	75"	18"	72"	22"	72"	18"	72"	22"	72"	18"	48"	22"	42"	18"
30"	96"	42"	78"	24"	96"	36"	78"	48"	10"	108"	54"	96"	24"	84"	24"	72"	24"	72"	26"	72"	24"	54"	26"	48"	24"
42"	144"	48"	96"	36"	144"	42"	96"	60"	10"	180"	66"	144"	36"	120"	36"	96"	36"	84"	34"	72"	36"	60"	34"	48"	36"

NOTES:
1. FOR TEE WITH BRANCH UNEQUAL TO RUN USE TEE TYPE KICKER WITH D, L, AND W DIMENSIONS THE SAME AS THOSE FOR PLUG WITH SAME DIAMETER AS BRANCH OF TEE, SELECT "T" DIMENSIONS FROM TEE TABLE UNDER COLUMN HEADED BY THE SIZE OF THE BRANCH
2. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN USE NEXT LARGER SIZE
3. DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH OR ROCK
4. CONCRETE BLOCKING SHALL BE CLASS "B"

THRUST BLOCKING DETAIL

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MISCELLANEOUS DETAILS

Drawing No: **MD2**

Sheet: 48 OF 93

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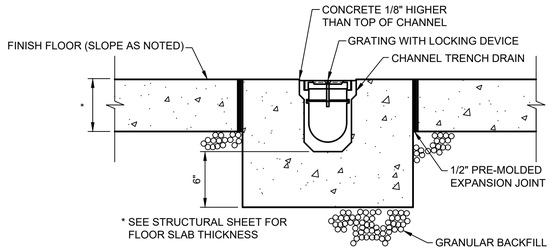

TRENCH DRAIN DETAIL

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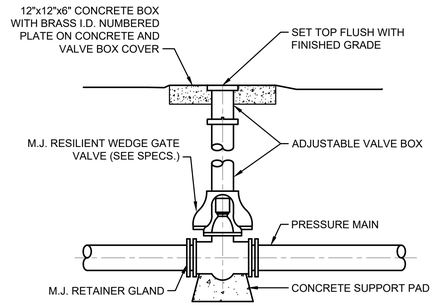
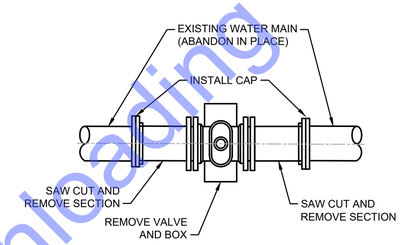


BURIED PLUG/GATE VALVE AND BOX DETAIL

NOT TO SCALE



CUT AND CAP WITH VALVE REMOVAL DETAIL

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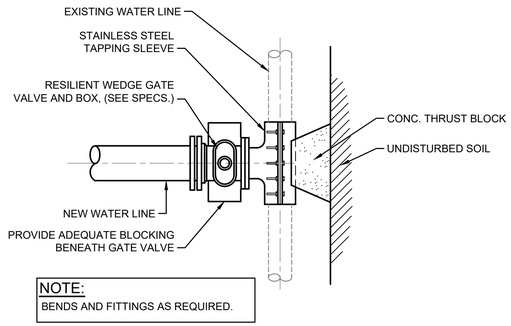
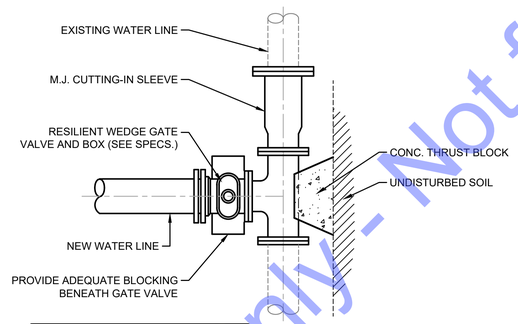


NOTE:
BENDS AND FITTINGS AS REQUIRED.

TYPE "A" CONNECTION TO EXISTING WATER MAIN

NOT TO SCALE



NOTE:
BENDS AND FITTINGS AS REQUIRED.

TYPE "B" CONNECTION TO EXISTING WATER MAIN

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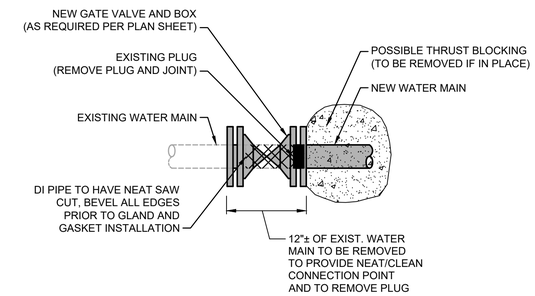
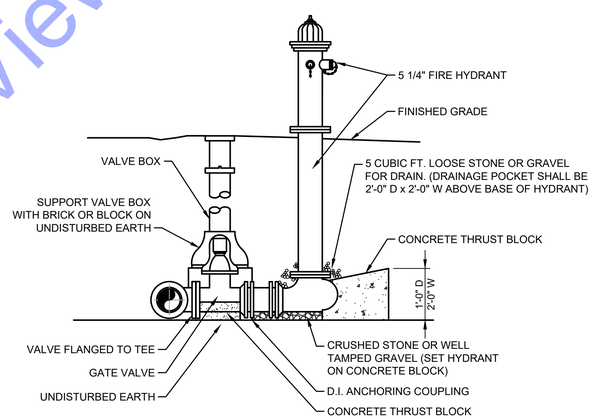


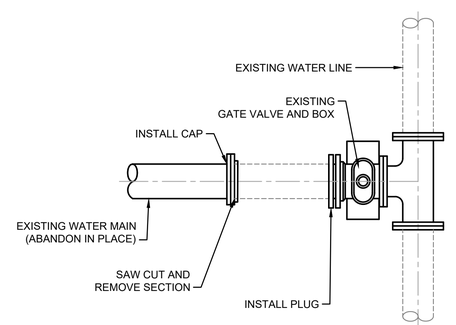
TYPE "C" CONNECTION TO EXISTING WATER MAIN

NOT TO SCALE



FIRE HYDRANT DETAIL

NOT TO SCALE



CUT AND CAP/PLUG DETAIL

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STATE OF INDIANA
PROFESSIONAL ENGINEER

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MISCELLANEOUS DETAILS

Drawing No: **MD3**

Sheet: 49 OF 93

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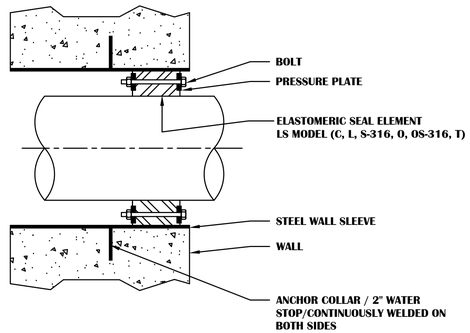

LS Model	Seal Element	Bolts/Nuts	Pressure Plate
C	EPDM (Black)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
L	EPDM (Blue)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
O	Nitrile	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
T	Silicone	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Steel Zinc Dichromate
(C,L,O)+S-316	(see model options)	316 Stainless Steel	Reinforced Nylon Polymer

Sleeve Model	Description	Material
CS	Century-Line Sleeve	HDPE
WS	Steel Wall Sleeve	Steel

For more Material Property Information, see literature at www.linkseal.com

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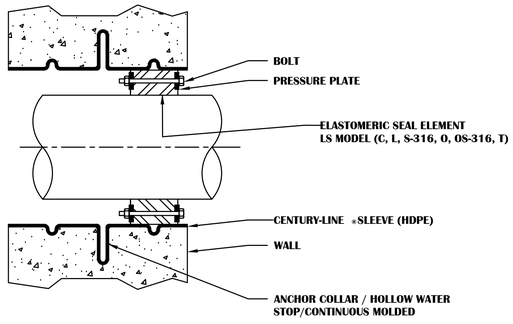

LS Model	Seal Element	Bolts/Nuts	Pressure Plate
C	EPDM (Black)	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
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O	Nitrile	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Reinforced Nylon Polymer
T	Silicone	Zinc Dichromate/Organic Coated Carbon Steel Bolt	Steel Zinc Dichromate
(C,L,O)+S-316	(see model options)	316 Stainless Steel	Reinforced Nylon Polymer

Sleeve Model	Description	Material
CS	Century-Line Sleeve	HDPE
WS	Steel Wall Sleeve	Steel

For more Material Property Information, see literature at www.linkseal.com

LINK SEAL WITH WALL SLEEVE

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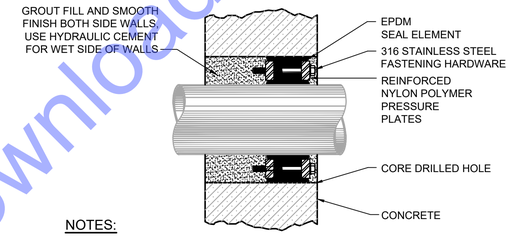


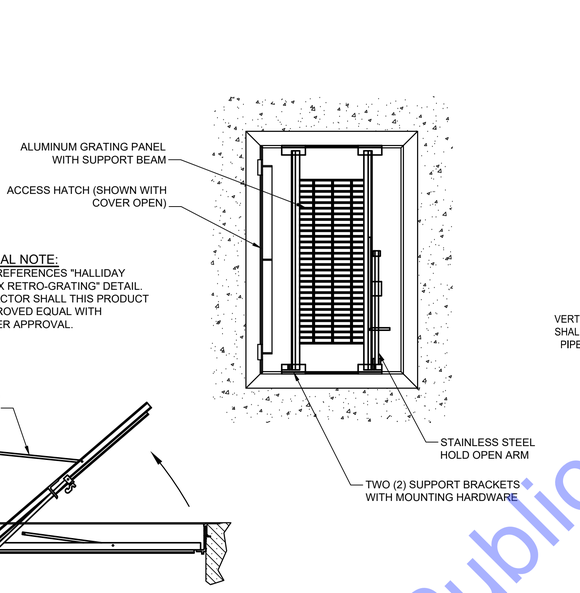
NOTES:

1. ELECTROMETRIC ELEMENT AND LINK-SEAL APPARATUS REQUIRED COMPATIBLE FOR HIGH TEMPERATURE APPLICATIONS - FOR ALL LINES

2. ALL WALL PENETRATIONS (EXISTING WALLS) CONVEYING PIPE SHALL UTILIZE A LINK-SEAL EQUIVALENT, SHALL BE GROUTED SMOOTH, AND SHALL HAVE A BONDING AGENT APPLIED

LINK-SEAL WITH CORE DRILLED HOLE DETAIL

NOT TO SCALE

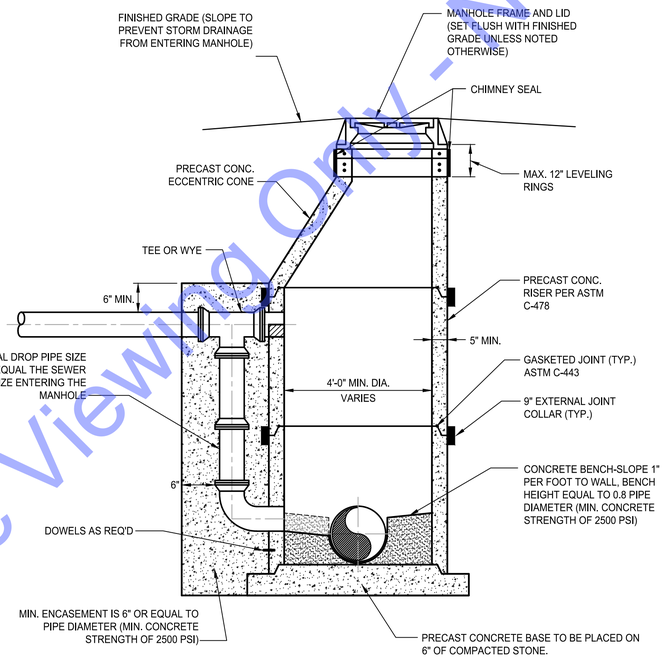


GENERAL NOTE:
DETAIL REFERENCES "HALLIDAY SERIES X RETRO-GRATING" DETAIL. CONTRACTOR SHALL THIS PRODUCT OR APPROVED EQUAL WITH ENGINEER APPROVAL.

GENERAL NOTE:
THE SERIES X RETRO-GRATE IS A HINGED ALUMINUM GRATING PANEL THAT IS EASILY INSTALLED BENEATH EXISTING ACCESS COVERS REGARDLESS OF THE ORIGINAL COVER MANUFACTURER. THE RETRO-GRATE PROVIDES ADDITIONAL PROTECTION AGAINST FALL THROUGH ACCIDENTS WHEN THE COVER IS LEFT IN THE OPEN POSITION. THE UNIT IS LOCKABLE BY AN OWNER SUPPLIED PADLOCK AND INCORPORATES A SPRING ASSISTED LIFTING HANDLE THAT POSITIONS THE HANDLE NEAR THE SLAB LEVEL. THE UNIT IS SUPPLIED WITH T-316 STAINLESS STEEL MOUNTING HARDWARE AND AN AUTOMATIC HOLD OPEN ARM WITH ALUMINUM RELEASE LATCH. THE RETRO-GRATE IS DESIGNED TO BE INSTALLED BY MOUNTING THE SUPPORT BRACKETS TO EITHER THE EXISTING FRAMEWORK OR TO THE CONCRETE SLAB BELOW THE FRAMEWORK.

ACCESS HATCH "FALL PROTECTION GRATING" DETAIL

NOT TO SCALE



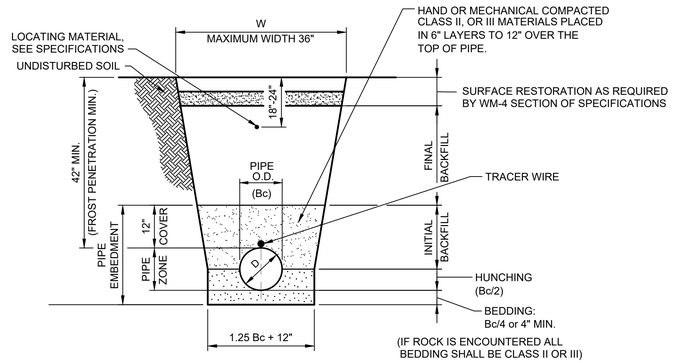
NOTE :
1. FOR ALL MANHOLES 6'-0" OR LESS IN DEPTH - PROVIDE RISER WITH FLAT TOP IN LIEU OF ECCENTRIC CONE IN ACCORDANCE WITH ASTM C-478

2. THE CROWN OF THE INFLUENT PIPE SHALL BE AT OR ABOVE THE CROWN OF THE OUTLET PIPE

3. DROP MANHOLES SHALL BE USED WHENEVER THE DISTANCE FROM THE INVERT OF THE INCOMING LINE AND BOTTOM OF MANHOLE IS GREATER THAN TWO FEET.

PRECAST DROP MANHOLE DETAIL

NOT TO SCALE



W = MAX. ALLOWABLE TRENCH WIDTH FOR PIPE SHALL NOT TO EXCEED 30 INCHES FOR 4" THROUGH 8" PIPE, 36" FOR 8" THROUGH 12" PIPE.

D = PIPE DIAMETER (INTERNAL)

Bc = PIPE DIAMETER (EXTERNAL)

APPLICATION	BEDDING & HUNCHING INITIAL BACKFILL	FINAL BACKFILL
GRASSY AREA OR NEW PAVED AREAS	CLASS I, OR II MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	SELECTED EXCAVATED MATERIAL
PAVEMENT AREA OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC	CLASS I, II OR III MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	COMPACTED GRANULAR MATERIAL

NOTES:

1. INITIAL BACKFILL STOPS AT A POINT 12" ABOVE THE TOP OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDING WITH THE SPECIFICATIONS AND AS REQUIRED BY HEREIN.

2. BEDDING, HUNCHING AND INITIAL BACKFILL SHALL BE CLASS I, II, OR III MATERIALS ACCORDING TO THE WORKMANSHIP AND MATERIALS SPECIFICATIONS.

3. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT.

4. WORK NOT FALLING UNDER THE JURISDICTION OF INDIANA DEPT. OF TRANSPORTATION SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 5 FEET OF THE EDGE OF PAVEMENT.

TRENCH DETAIL FOR WATER MAIN

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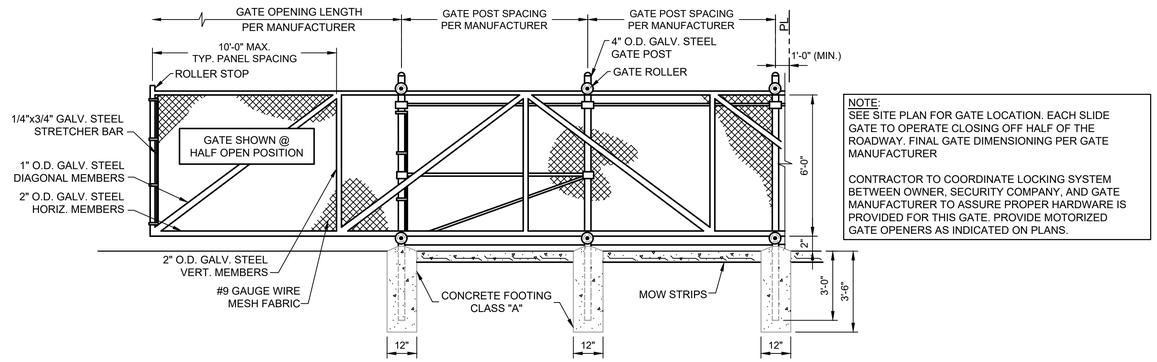
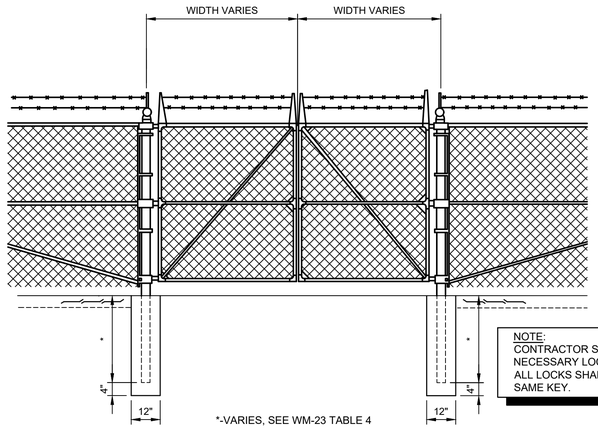


NOTE:
SEE SITE PLAN FOR GATE LOCATION. EACH SLIDE GATE TO OPERATE CLOSING OFF HALF OF THE ROADWAY. FINAL GATE DIMENSIONING PER GATE MANUFACTURER

CONTRACTOR TO COORDINATE LOCKING SYSTEM BETWEEN OWNER, SECURITY COMPANY, AND GATE MANUFACTURER TO ASSURE PROPER HARDWARE IS PROVIDED FOR THIS GATE. PROVIDE MOTORIZED GATE OPENERS AS INDICATED ON PLANS.

CHAIN LINK ROLL FENCE GATE DETAIL

NOT TO SCALE



NOTE:
CONTRACTOR SHALL PROVIDE ALL NECESSARY LOCK MECHANISMS, AND ALL LOCKS SHALL OPERATE WITH THE SAME KEY.

CHAIN LINK SWING GATE FENCE DETAIL

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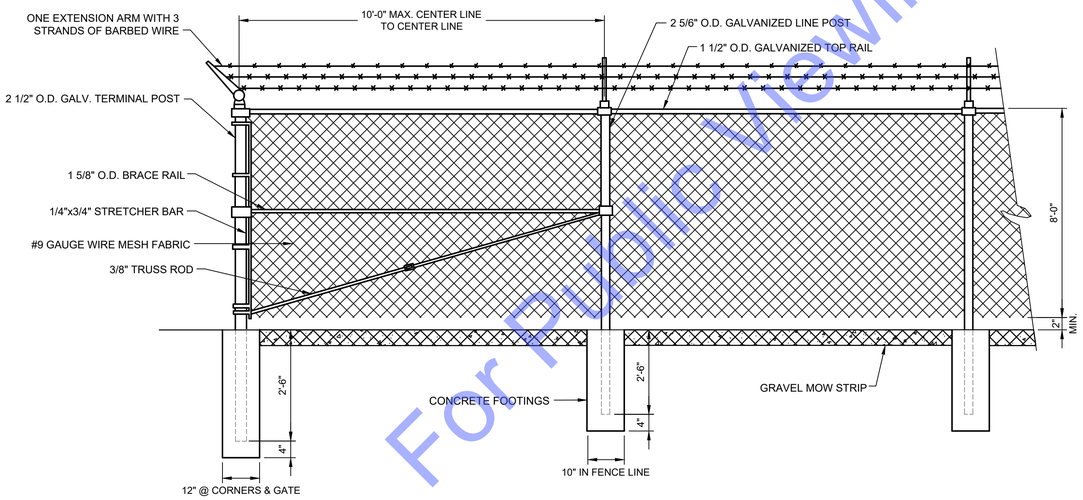
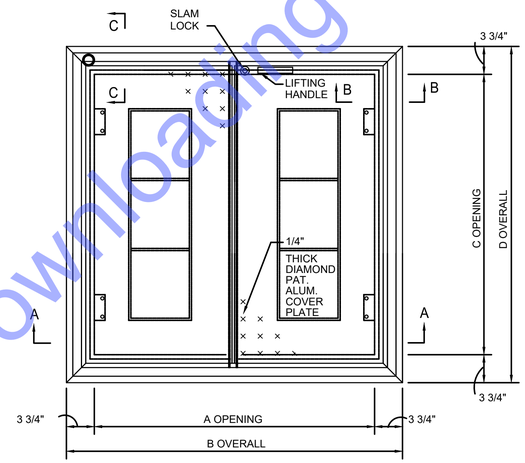
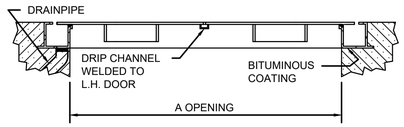


CHAIN LINK FENCE DETAIL

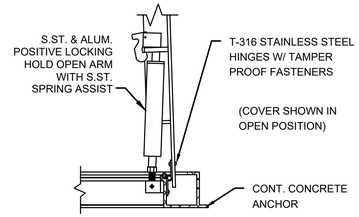
NOT TO SCALE



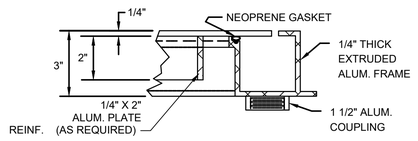
PLAN



SECTION A-A



SECTION B-B



SECTION C-C

NOMINAL OPENING (INCHES)	DIMENSIONS (VARY PER MANUFACTURER)			
	A	B	C	D
42x42	42"	49 1/2"	42"	49 1/2"
48x48	48"	55 1/2"	48"	55 1/2"
48x60	60"	67 1/2"	48"	55 1/2"
72x48	72"	79 1/2"	48"	55 1/2"
60x60	60"	67 1/2"	60"	67 1/2"
72x60	72"	79 1/2"	60"	67 1/2"

TYPICAL DOUBLE LEAF ACCESS HATCH DETAIL

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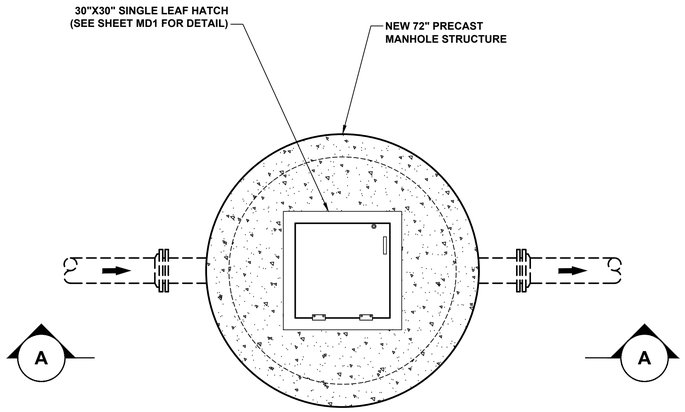
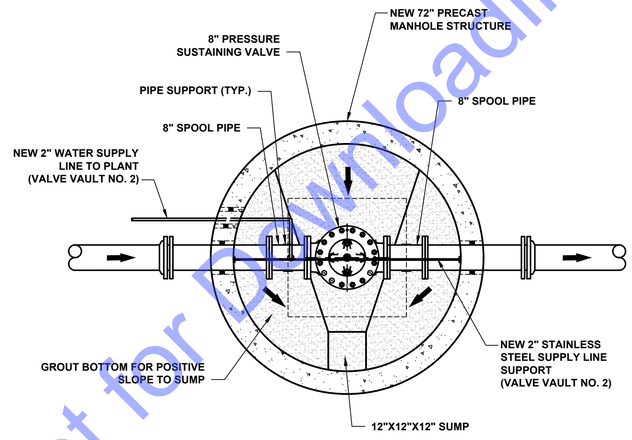


VALVE VAULT NO. 1 AND NO. 2 - UPPER PLAN VIEW

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

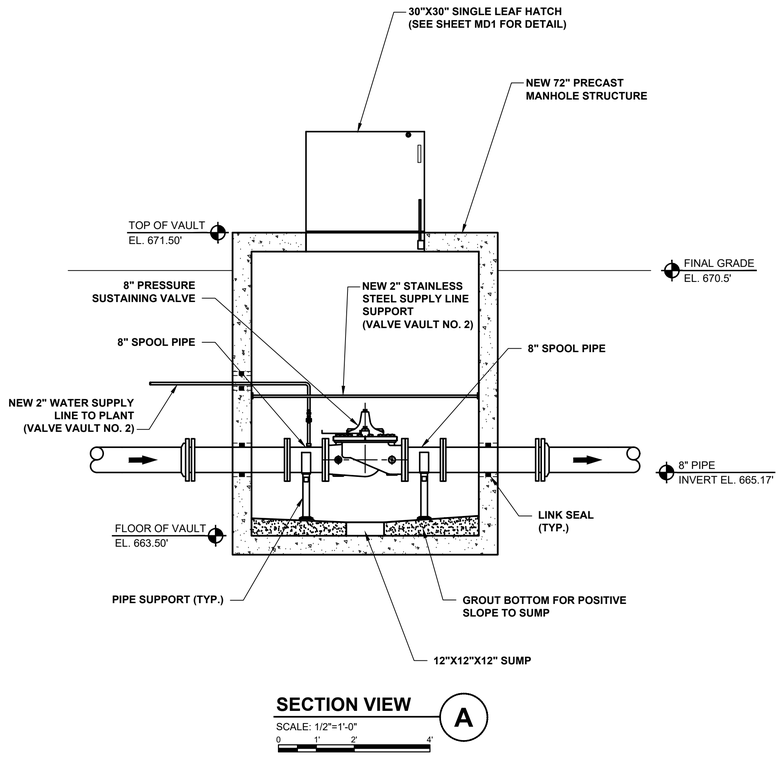
0 1' 2' 4'



VALVE VAULT NO. 1 AND NO. 2 - LOWER PLAN VIEW

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

0 1' 2' 4'



SECTION VIEW A

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

0 1' 2' 4'

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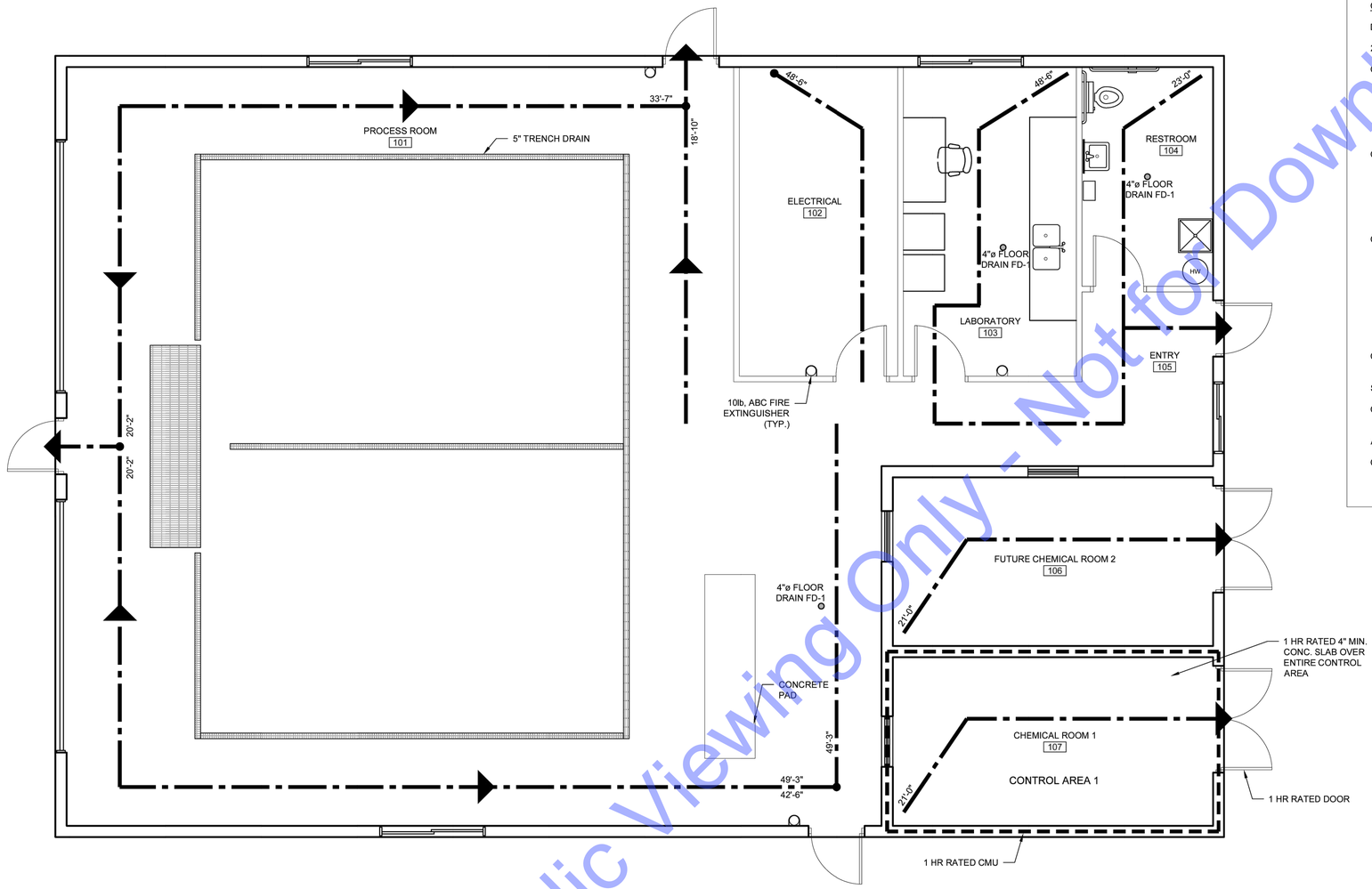

CODE REVIEW:

DESCRIPTION: CONTROL BUILDING

2012 INTERNATIONAL BUILDING CODE WITH 2014 INDIANA AMENDMENTS

CHAPTER 3: OCCUPANCY - MIXED-USE
B GROUP
F-1 GROUP
CONTROL AREA 1 WILL CONTAIN (3) 50 lb SELF-CONTAINED CANISTERS OF CHLORINE GAS

TABLE 307.1 (2) TOXIC HAZARD — ALLOWABLE 810 CUBIC FT. / ACTUAL 807 CUBIC FT.

CHAPTER 4
A REPORT INDICATING QUANTITIES OF HAZARD MATERIALS TO BE STORED WILL BE SUBMITTED TO THE LOCAL BUILDING OFFICIAL (414.1.3)

TABLE 414.2.2, SINGLE CONTROL AREA IS ON FLOOR LEVEL 1 ABOVE GRADE, CONTAINS 99.6% < 100% ALLOWED QUANTITY AND REQUIRES 1 HOUR HORIZONTAL AND VERTICAL FIRE RESISTANCE

CHAPTER 5: BUILDING HEIGHT/AREA
SECTION 508.3.2 NON-SEPARATED OCCUPANCIES
TABLE 503 - TYPE VB

ALLOWABLE HEIGHT	40 FT
ACTUAL HEIGHT	26 FT
STORIES PERMITTED	1 STORY (F-1)
ACTUAL STORIES	1 STORY
ALLOWABLE AREA	8,500 SF
ACTUAL AREA	3,060 SF

TABLE 508.4 - NO SEPARATION REQUIRED BETWEEN F-1 AND B OCCUPANCIES

CHAPTER 6: BUILDING CONSTRUCTION TYPE - VB
TABLE 601 - FIRE RESISTIVE RATING NOT REQUIRED
TABLE 602 - LOCATION GREATER THAN 10'-0" FROM ANOTHER F-1 STRUCTURE, FIRE RESISTIVE CONSTRUCTION NOT REQUIRED FOR EXTERIOR

CHAPTER 9: FIRE PROTECTION SYSTEMS
AUTOMATIC SPRINKLER SYSTEM IS NOT REQUIRED PER SECTION 903.2.4.
PORTABLE FIRE EXTINGUISHERS WILL BE INSTALLED IN EACH ROOM OR AREA WITH THE EXCEPTION OF THE RESTROOM PER SECTION 906

CHAPTER 10: MEANS OF EGRESS

OCCUPANT LOAD	31
REQUIRED EXITS	1
ACTUAL EXITS	5

LIFE SAFETY PLAN

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

0 2' 4' 8'

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NEW WATER TREATMENT PLANT FACILITY LIFE SAFETY PLAN

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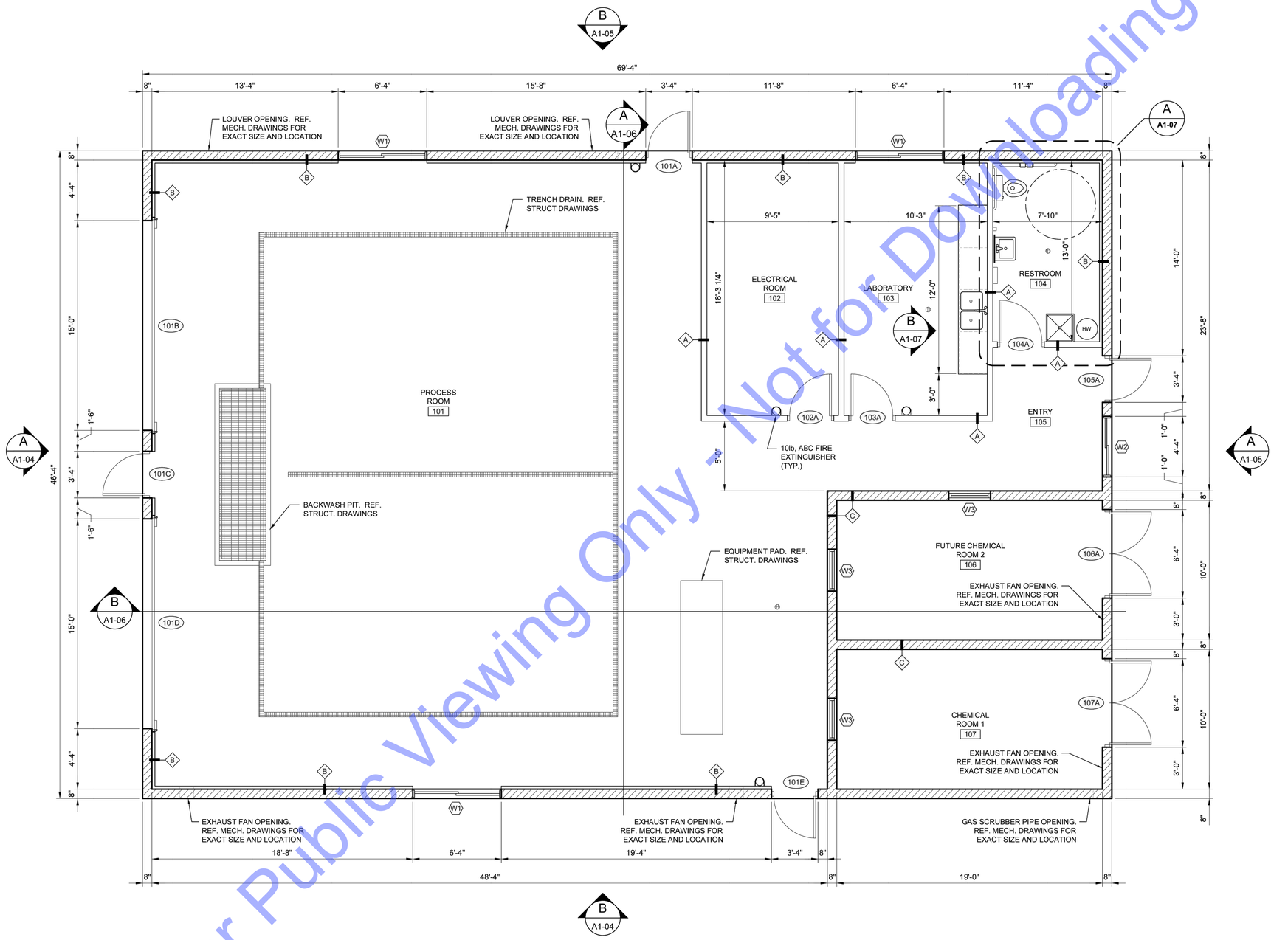

FLOOR PLAN

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

0 2' 4' 8'

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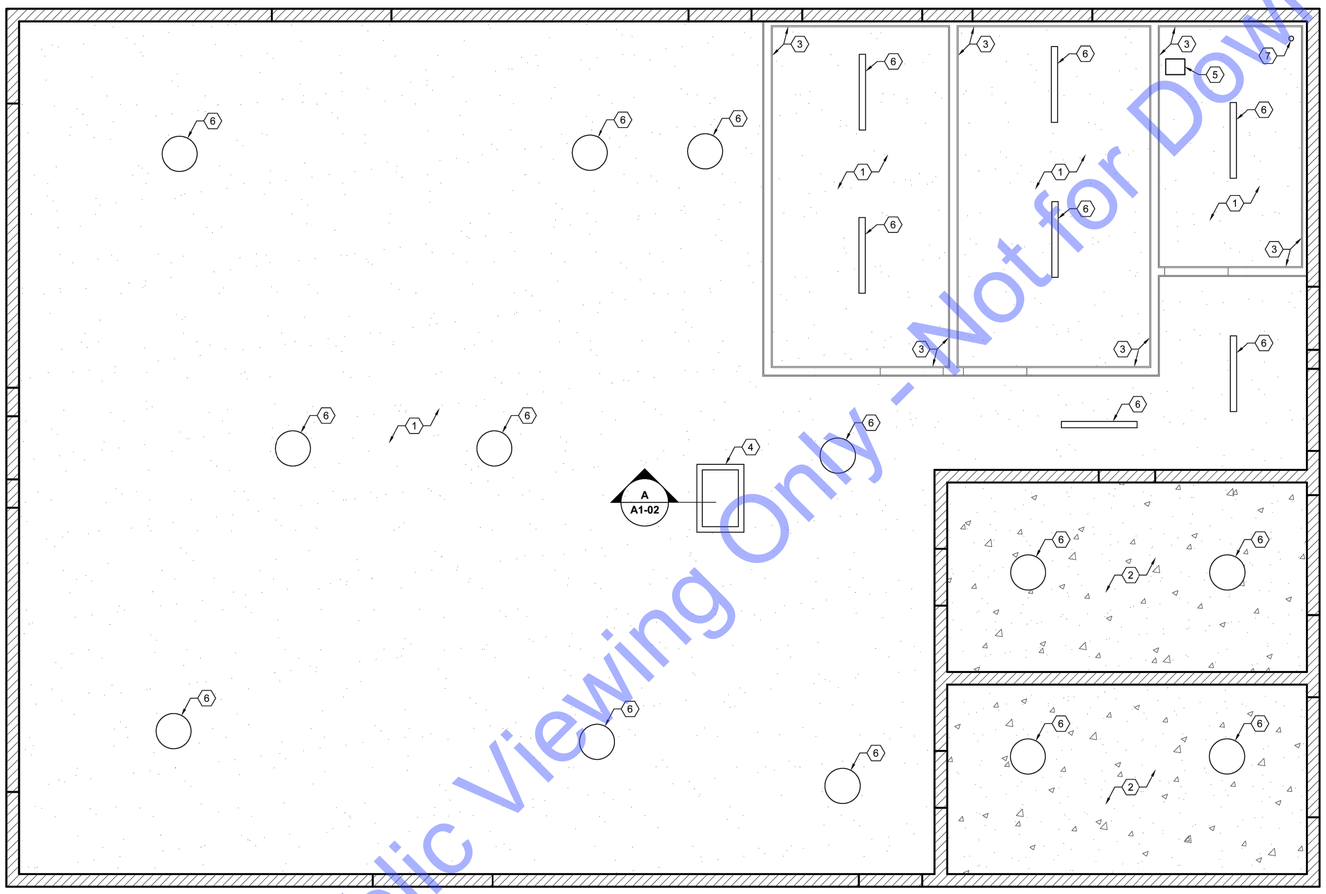
NEW WATER TREATMENT PLANT FACILITY FLOOR PLAN

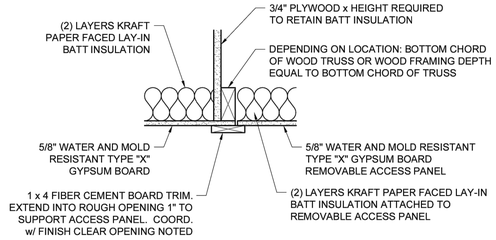
Drawing No:
A1-01
Sheet: 54 OF 93



REFLECTED CEILING PLAN

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

0 2' 4' 8'



ATTIC ACCESS DETAIL (A)

NOT TO SCALE

KEY NOTES:

1. 5/8" WATER AND MOLD RESISTANT TYPE "X" GYPSUM CEILING THROUGHOUT ROOM
2. CONCRETE CEILING. REF. STRUCTURAL DRAWINGS
3. NOM. 1 x 4 FIBER CEMENT BOARD TRIM w/ BEAD SEALANT AT JOINTS
4. ATTIC ACCESS PANEL
5. EXHAUST FAN. REF. MECHANICAL DRAWINGS
6. LIGHT FIXTURE. REF. ELECTRICAL DRAWINGS
7. SANITARY VENT. REF. PLUMBING DRAWINGS
8. ELECTRICAL UNIT HEATER. REF. MECHANICAL DRAWINGS

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NEW WATER TREATMENT PLANT FACILITY CEILING PLAN

Drawing No:

A1-02

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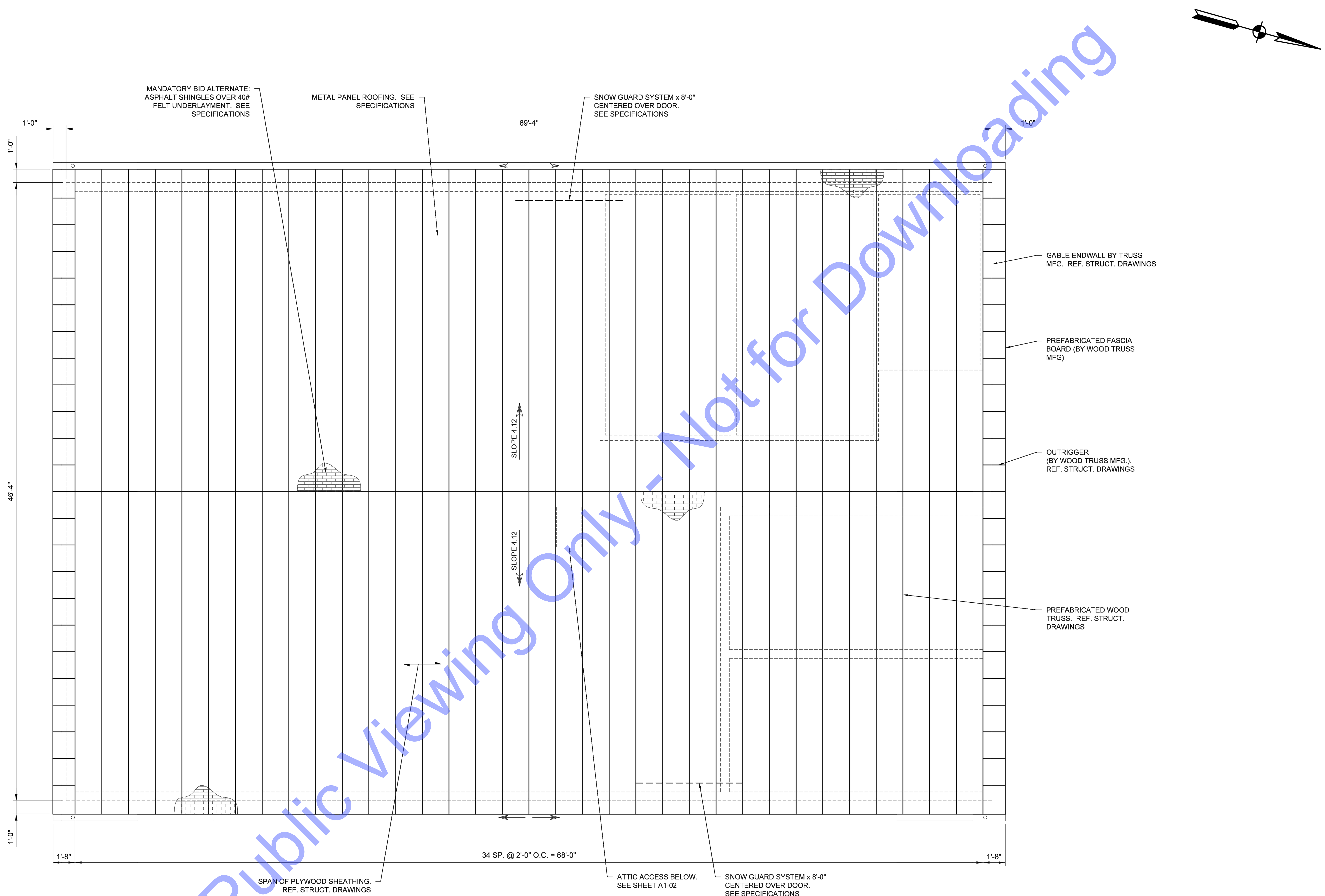

ROOF PLAN

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

0 2' 4' 8'

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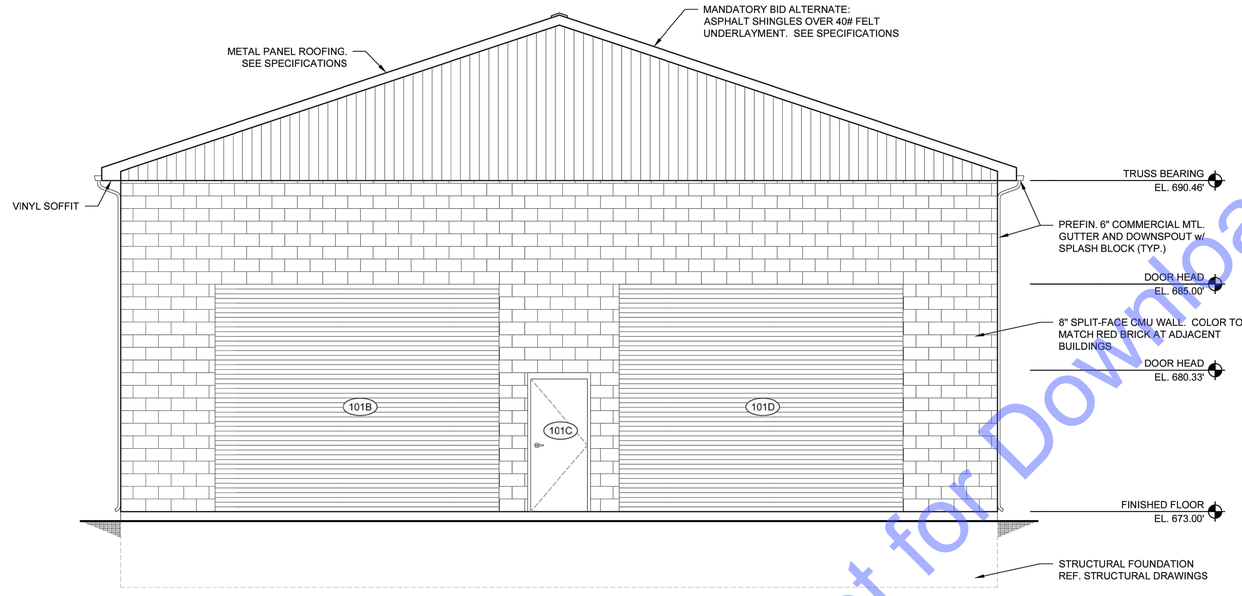
NEW WATER TREATMENT PLANT FACILITY ROOF PLAN

Drawing No:

A1-03

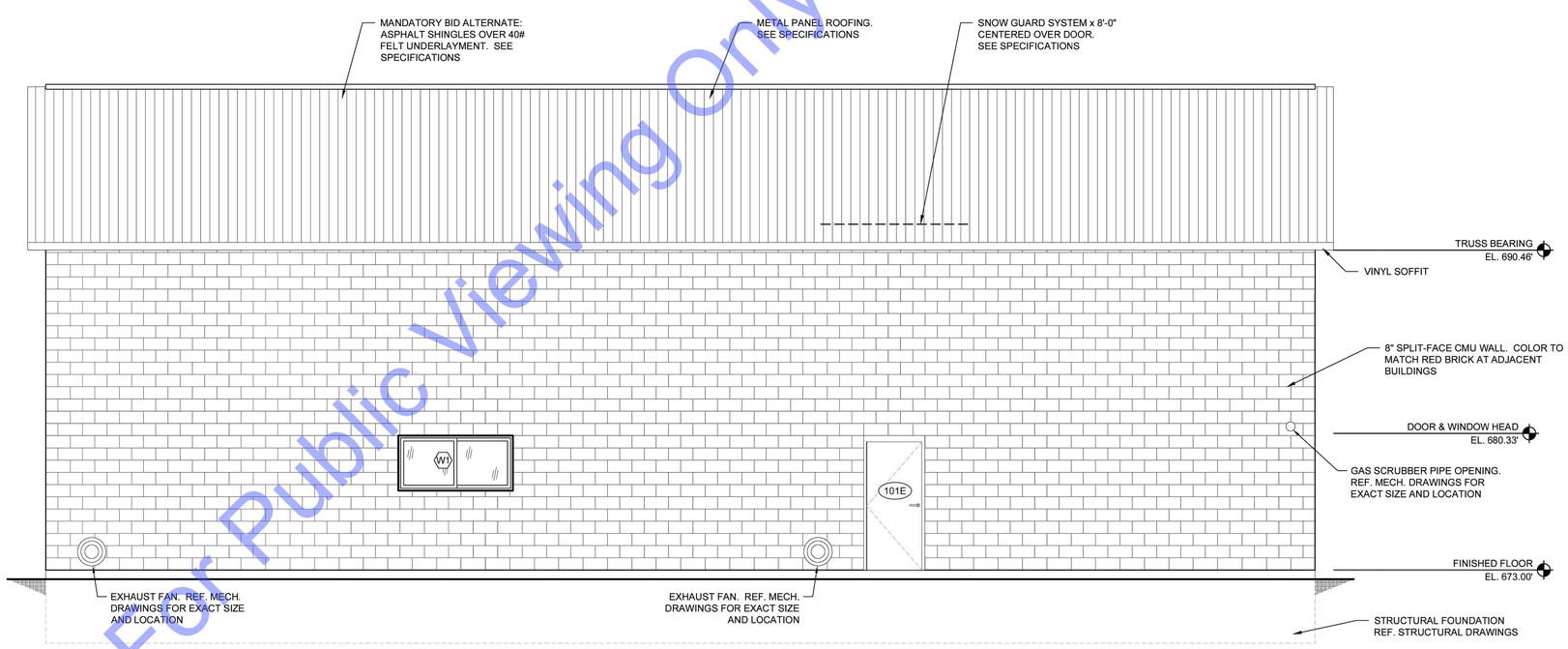
Sheet: 56 OF 93



SOUTH ELEVATION (A)

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

0 2' 4' 8'



EAST ELEVATION (B)

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

0 2' 4' 8'

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DAVID K. STEINER
REGISTERED
No. 10200106
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 1/29/2024 Date

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WATER UTILITY IMPROVEMENTS PROJECT

NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
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Issue Date: 1/29/2024	Project No: S22145	Scale: AS SHOWN

NEW WATER TREATMENT PLANT FACILITY EXTERIOR ELEVATIONS

Drawing No:

A1-04

Sheet: 57 OF 93

File: C:\USERS\STENGER\FIRST ELECTRIC SUPPLY\CMID - PROJECTS 2022-2026\2023\23-0361 - COMMONWEALTH KENTLAND NEW CONTROL ROOM\CAD\ARCH\A1-04.DWG
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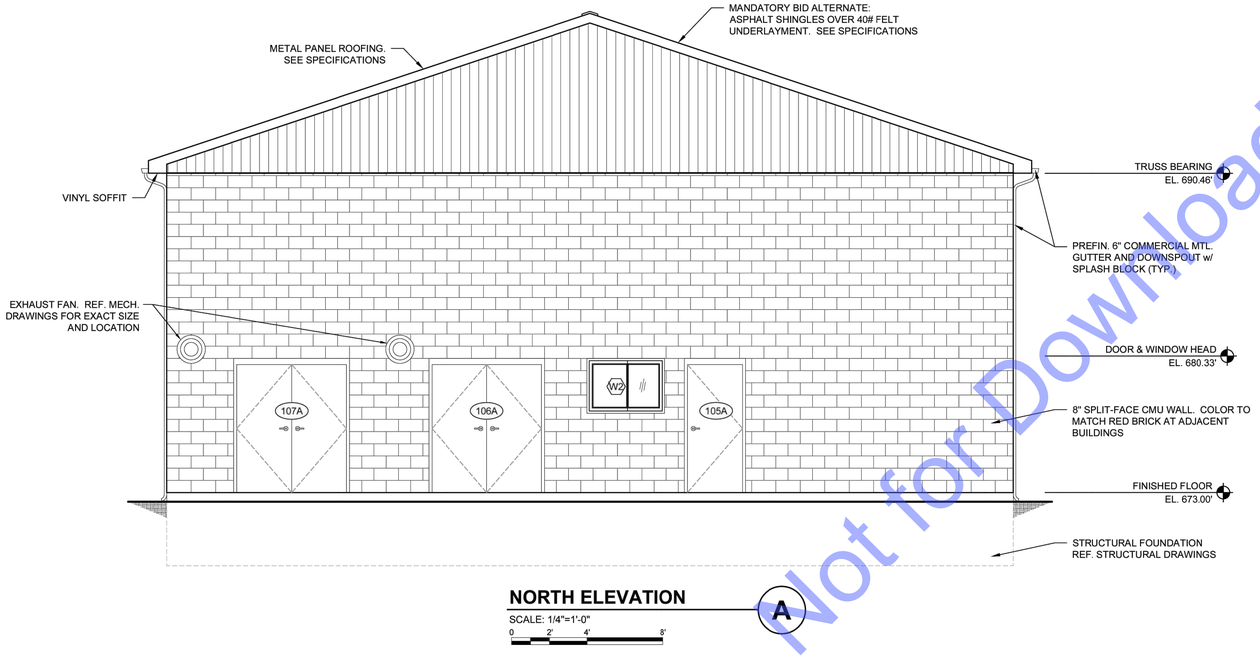
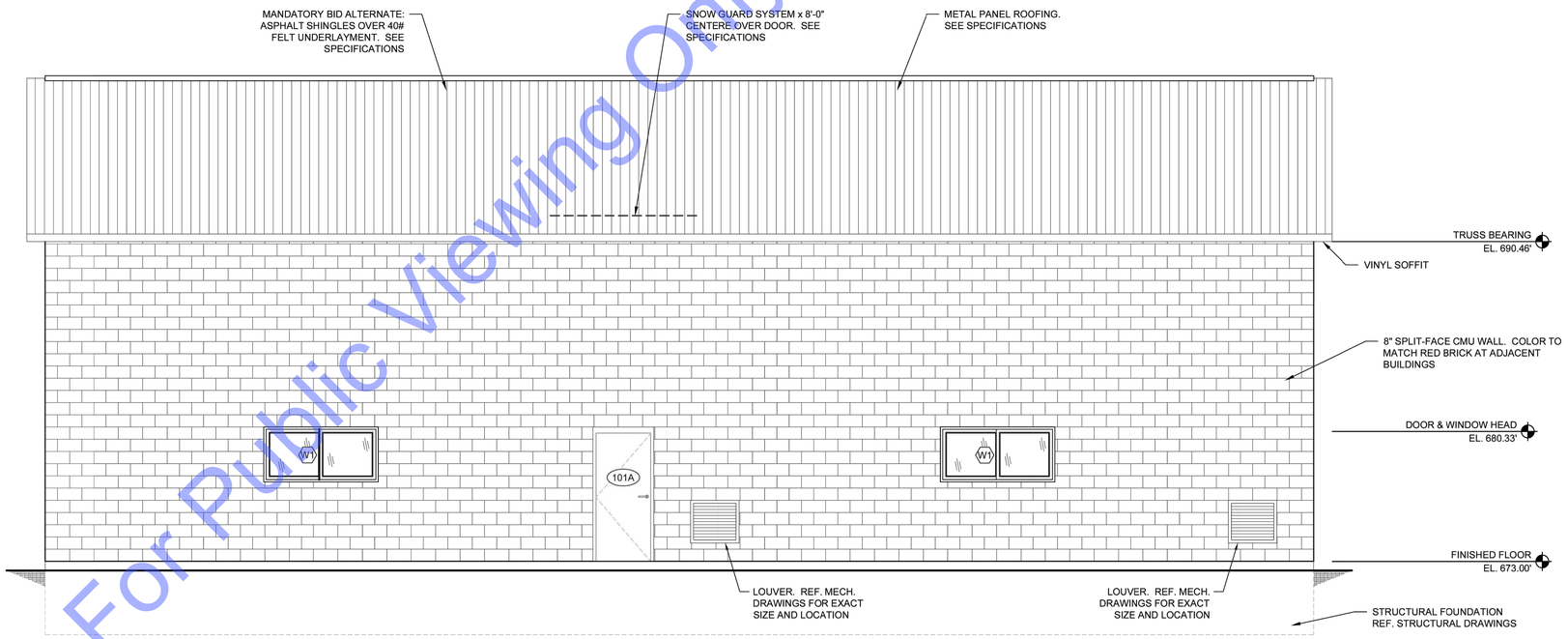


NORTH ELEVATION — **A**

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

0 2' 4' 8'



WEST ELEVATION — **B**

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

0 2' 4' 8'

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PROFESSIONAL ENGINEER

1/29/2024

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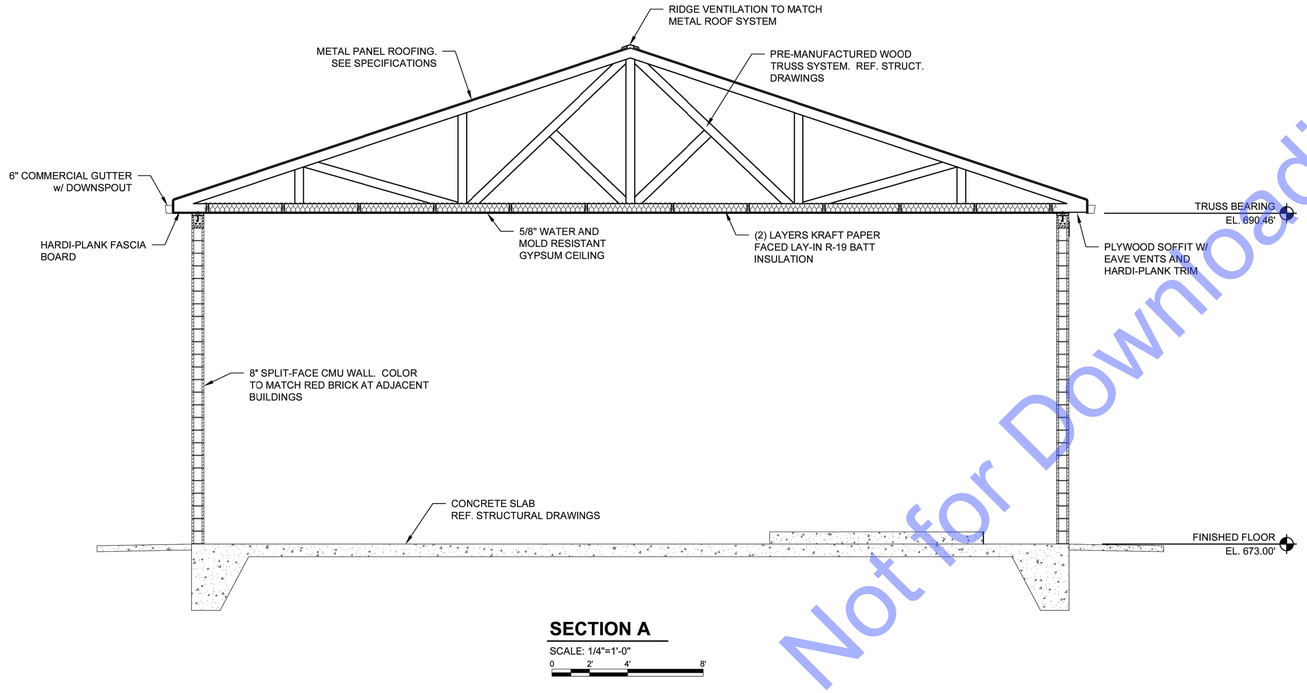
1/29/2024	S22145	AS SHOWN

NEW WATER TREATMENT PLANT FACILITY EXTERIOR ELEVATIONS

Drawing No:
A1-05
Sheet: 58 OF 93



SECTION A

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

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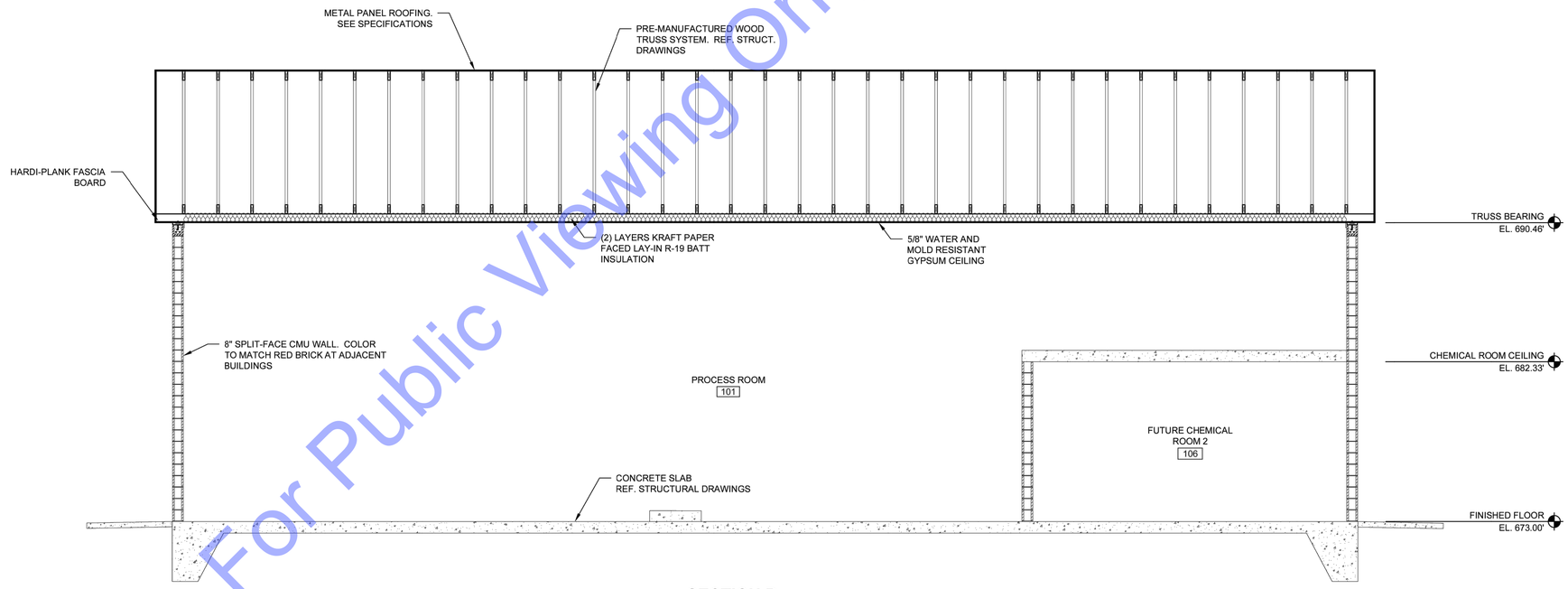

SECTION B

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

0 2' 4' 8'

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NEW WATER TREATMENT PLANT FACILITY BUILDING SECTIONS

Drawing No:

A1-06

Sheet: 59 OF 93

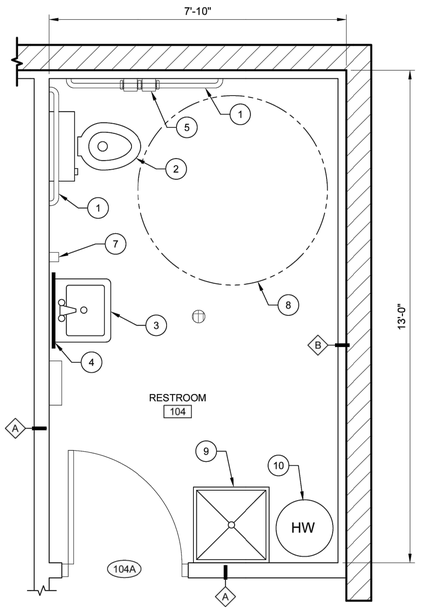
ROOM FINISH SCHEDULE:

ROOM NUMBER	ROOM NAME	FLOOR	BASE	WALLS				CEILING	CEILING HT	REMARKS
				EAST	WEST	NORTH	SOUTH			
101	PROCESS ROOM	SC	-	PD	PD	PD	PD	PD	-	
102	ELECTRICAL ROOM	SC	VB	PD	PD	PD	PD	PD	9'-0"	
103	LABORATORY	SC	VB	PD	PD	PD	PD	PD	9'-0"	
104	RESTROOM	SC	VB	PD	PD	PD	PD	PD	9'-0"	
105	ENTRY	SC	VB	PB	PD	PB	PB	PD	9'-0"	
106	FUTURE CHEMICAL ROOM 1	SC	-	PB	PB	PB	PB	PC	9'-0"	
107	CHEMICAL ROOM 1	SC	-	PB	PB	PB	PB	PC	9'-0"	

KEYNOTES:

1. HC GRAB BARS INSTALLED PER ICC A117.1-2009 SECTION 608 AND 609 & MANUF. STANDARD DETAILS
2. TOILET (REF. PLUMBING DRAWINGS)
3. WALL MOUNTED SINK (REF. PLUMBING DRAWINGS)
4. MIRROR (REF. SPECS)
5. TOILET PAPER HOLDER (REF. SPECS)
6. PAPER TOWEL DISPENSER (REF. SPECS)
7. SOAP DISPENSER (REF. SPECS)
8. 5'-0" DIAMETER HANDICAP TURNING RADIUS
9. MOP BASIN (REF. PLUMBING DRAWINGS)
10. WATER HEATER (REF. PLUMBING DRAWINGS)

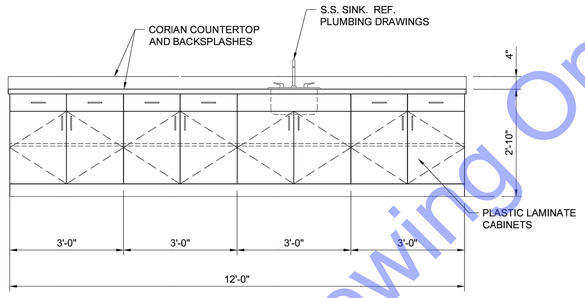
FINISH LEGEND	
FLOOR	
SC	SEALED CONCRETE
BASE	
VB	VINYL COVE BASE
WALLS	
PD	PAINTED DRYWALL
PB	PAINTED BLOCK
CEILING	
PD	PAINTED DRYWALL
PC	PAINTED CONCRETE



ENLARGED PLAN A

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

0 1' 2' 4'



INTERIOR ELEVATION B

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

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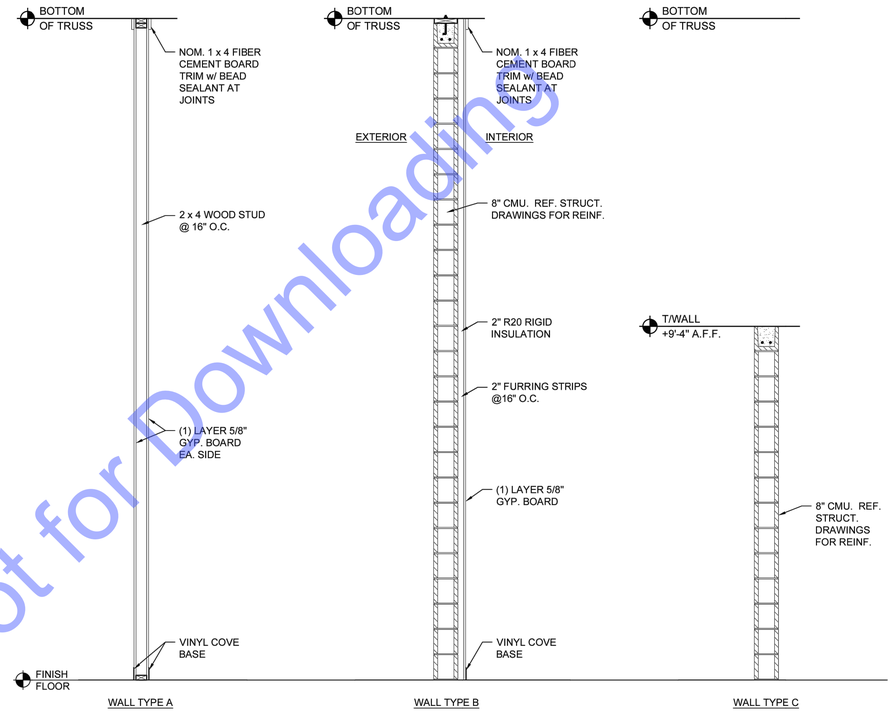
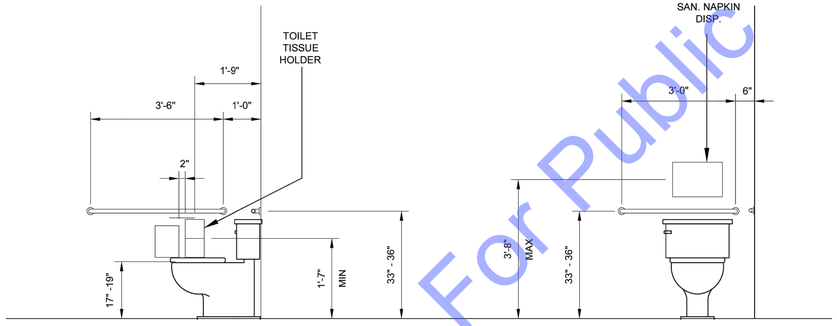
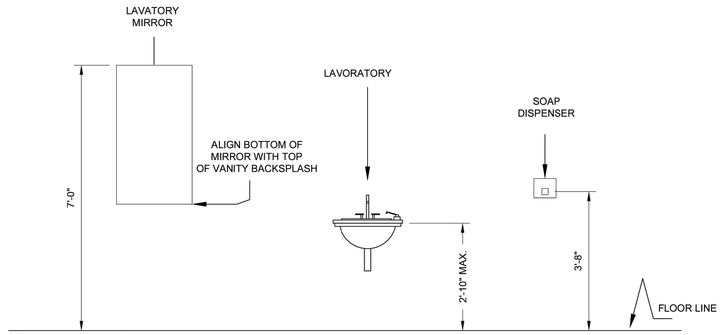


WALL TYPES

NOT TO SCALE





TYPICAL MOUNTING HEIGHTS

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NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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Issue Date: 1/29/2024	Project No: S22145	Scale: AS SHOWN

NEW WATER TREATMENT PLANT FACILITY INTERIOR DETAILS

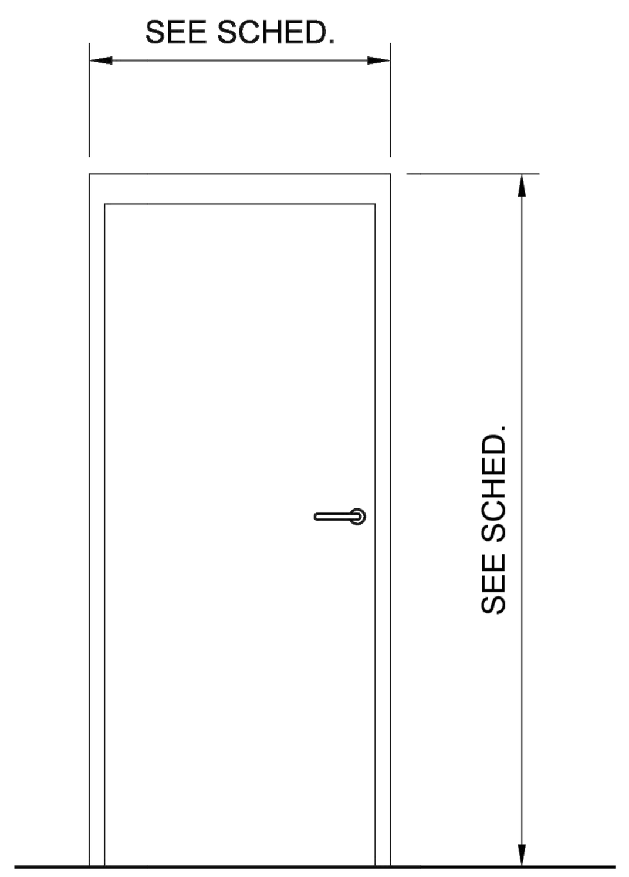
Drawing No:

A1-07

Sheet: 60 OF 93

DOOR, WINDOW AND FRAME SCHEDULE

DOOR		DOOR/WINDOW						FRAME					HDWE	REMARKS
NO.	DESC	TYPE	SIZE			MAT'L	GLASS	MAT'L	DETAILS			TYPE	SET NO.	
			W	H	T				HEAD	JAMB	SILL			
101A	SINGLE	1	3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
102A	SINGLE	1	3'-0"	7'-0"	1-3/4"	H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
103A	SINGLE	1	3'-0"	7'-0"	1-3/4"	H.M. STEEL	-	H.M. STEEL	F	G	-	AA	SEE SPECS.	
104A	SINGLE	1	3'-0"	7'-0"	1-3/4"	H.M. STEEL	-	H.M. STEEL	F	G	-	AA	SEE SPECS.	
105A	SINGLE	1	3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
106A	SINGLE	1	(2)3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
107A	SINGLE	1	(2)3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
101B	OVERHEAD	2	15'-0"	12'-0"	1-3/4"	STEEL	-	STEEL	D	E	-	BB	SEE SPECS.	
101C	SINGLE	1	3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
101D	OVERHEAD	2	15'-0"	12'-0"	1-3/4"	STEEL	-	STEEL	D	E	-	BB	SEE SPECS.	
101E	SINGLE	1	3'-0"	7'-0"	1-3/4"	INSUL. H.M. STEEL	-	H.M. STEEL	A	B	C	AA	SEE SPECS.	
W1	WINDOW	-	6'-3"	3'-0"	1-3/4"	ALUM.	SLIDING	ALUM.	H	-	I	DD	-	7'-4" A.F.F.
W2	WINDOW	-	4'-3"	3'-0"	1-3/4"	ALUM.	SLIDING	ALUM.	H	-	I	DD	-	7'-4" A.F.F.
W3	WINDOW	-	3'-0"	3'-0"	1-3/4"	ALUM.	FIXED	ALUM.	H	-	I	CC	-	7'-4" A.F.F.



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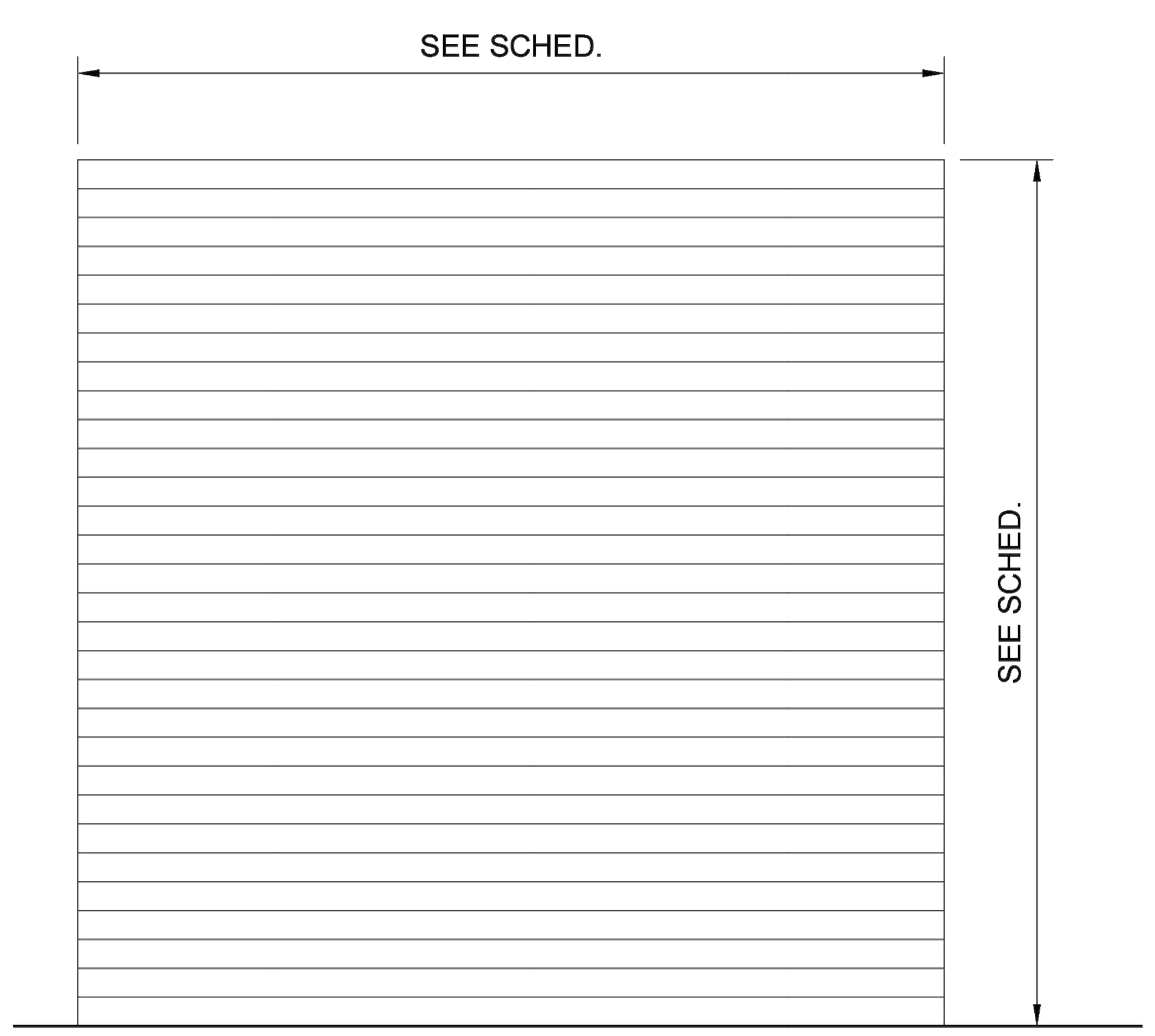

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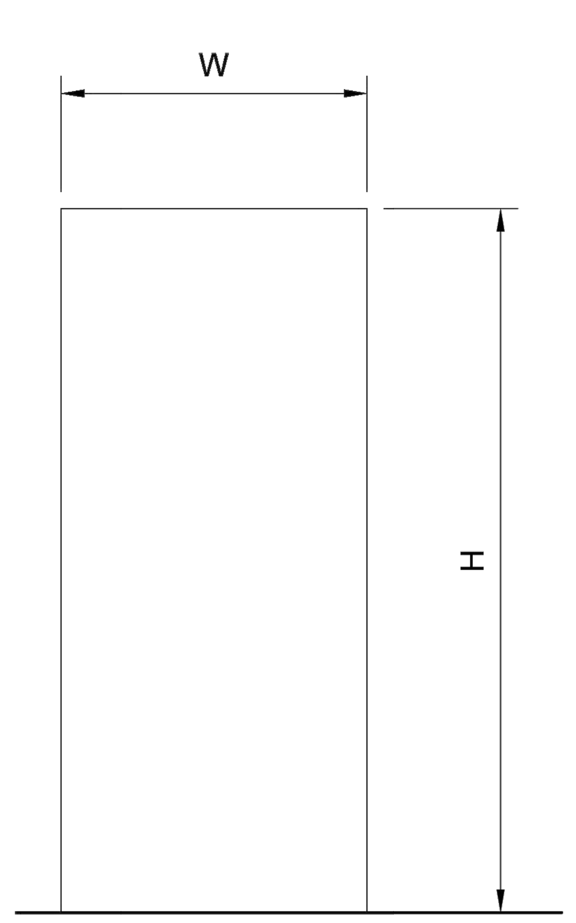

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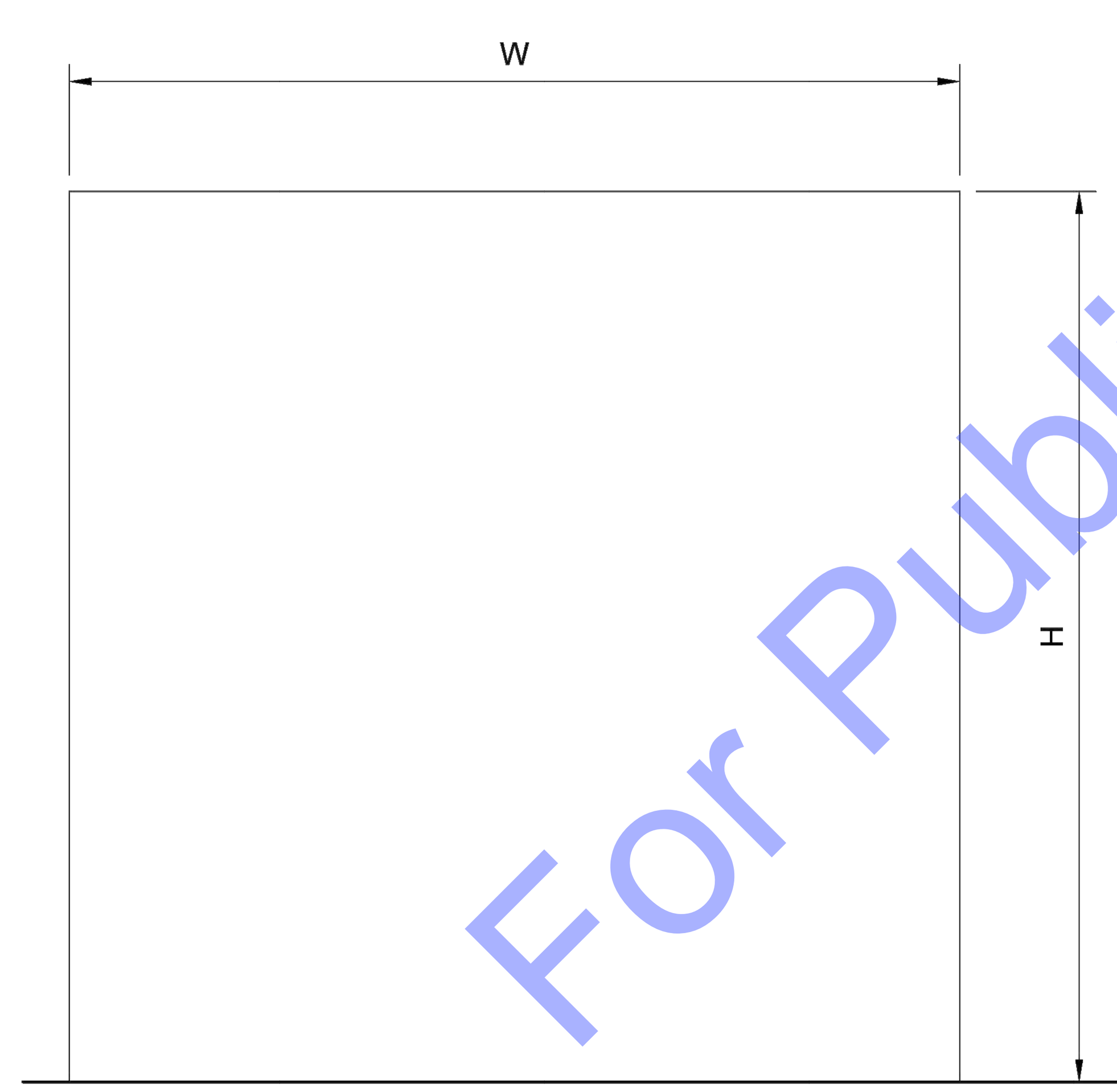
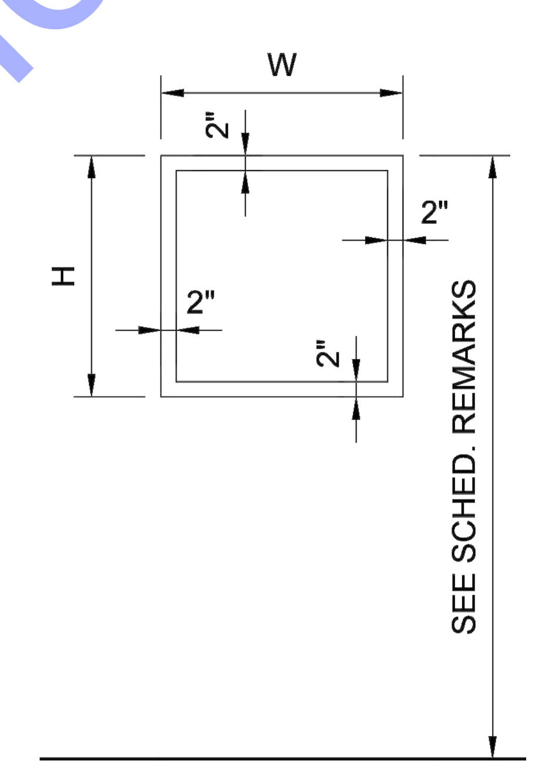
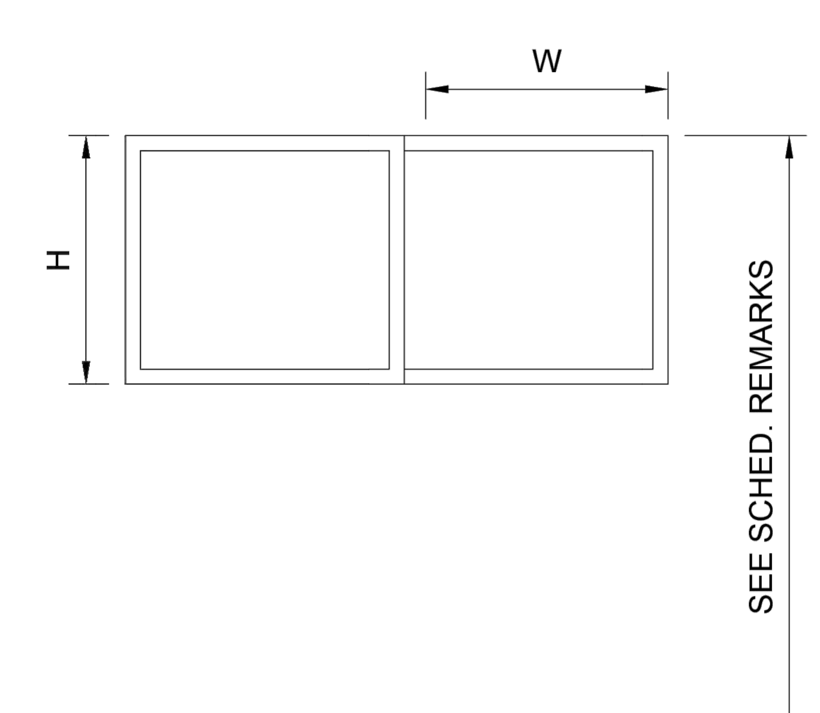


BB



CC



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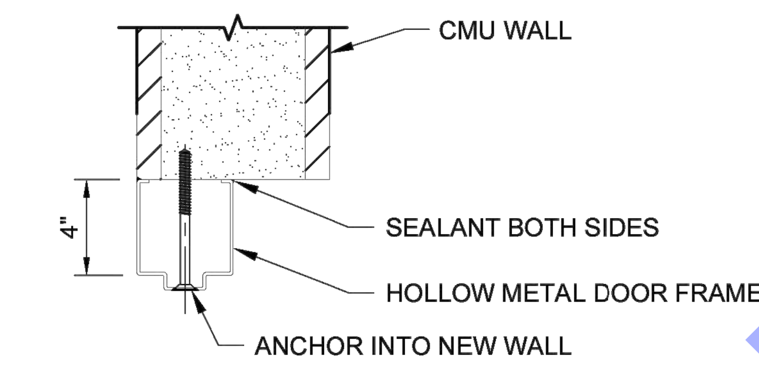
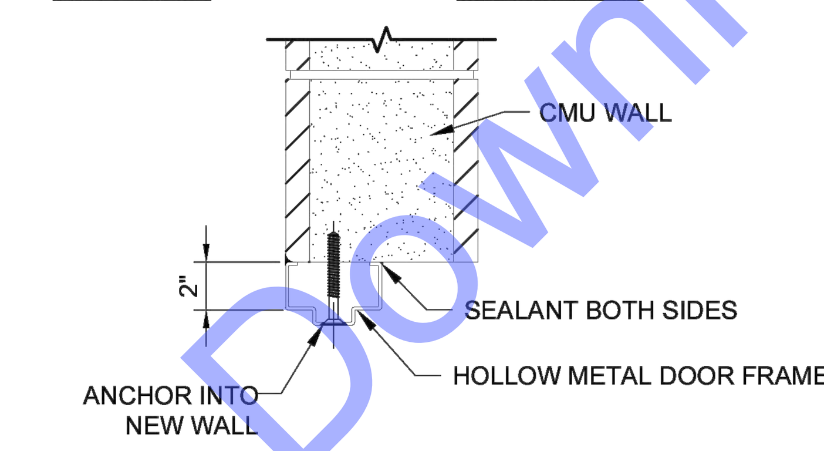


TYPICAL DOOR HEAD DETAIL (A)

NOT TO SCALE



TYPICAL DOOR JAMB DETAIL (B)

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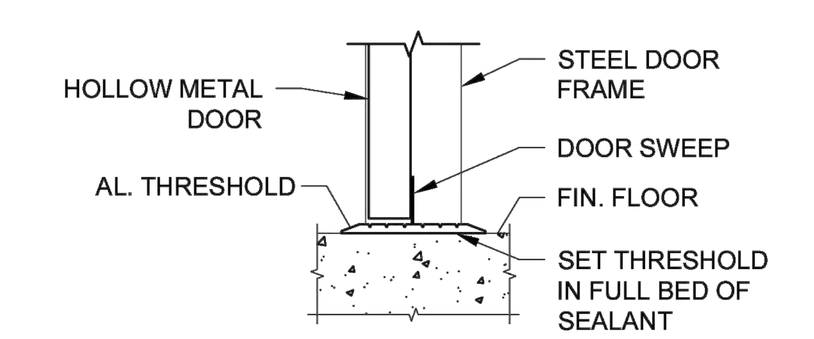

TYPICAL DOOR SILL DETAIL (C)

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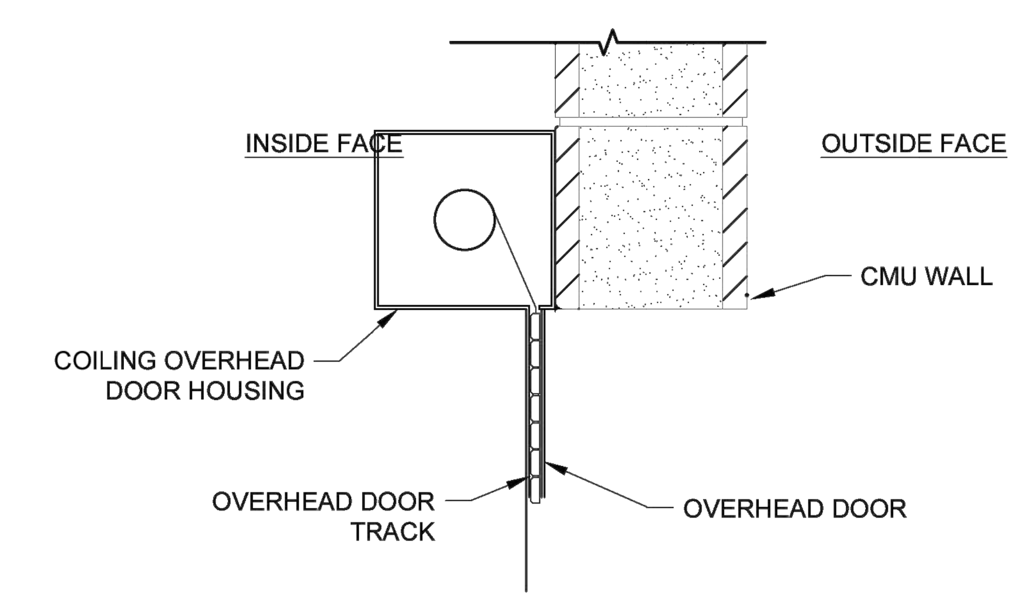

TYPICAL OVERHEAD DOOR HEAD DETAIL (D)

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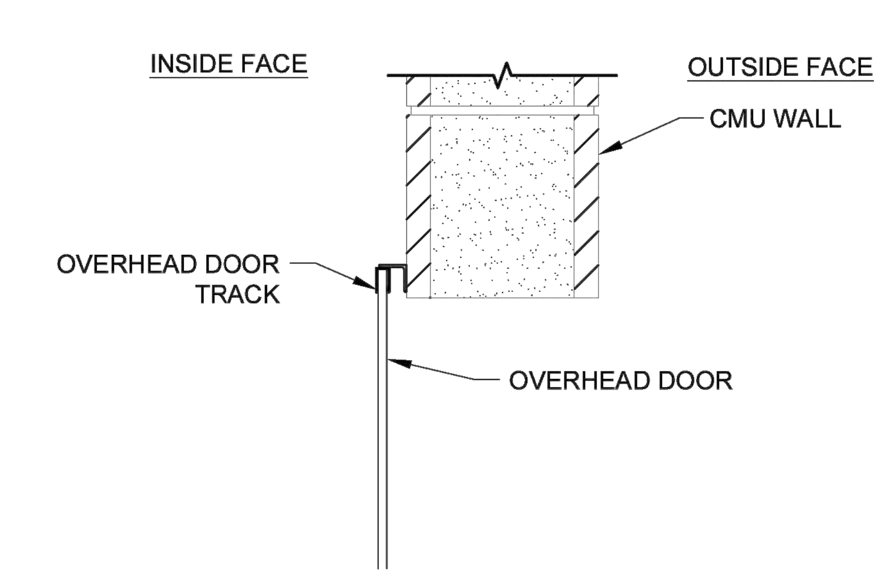

TYPICAL OVERHEAD DOOR JAMB DETAIL (E)

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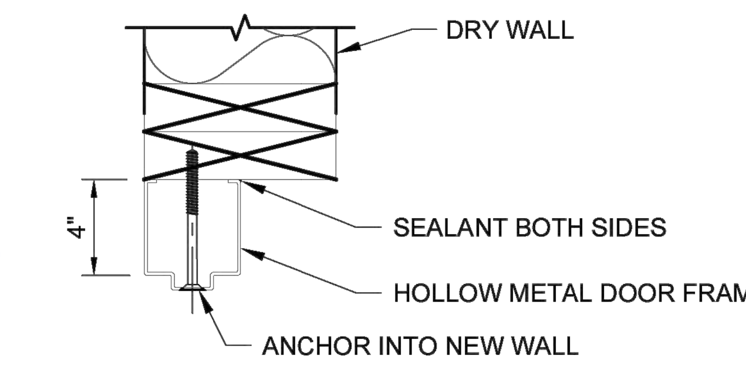

TYPICAL DOOR HEAD DETAIL (F)

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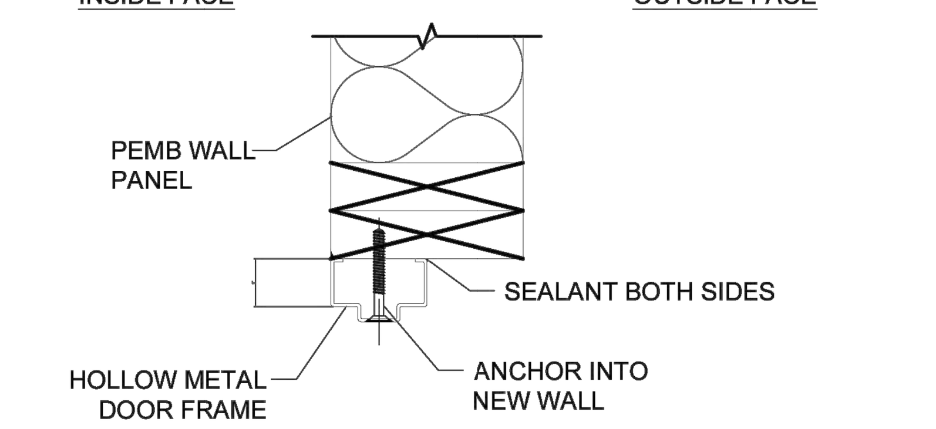

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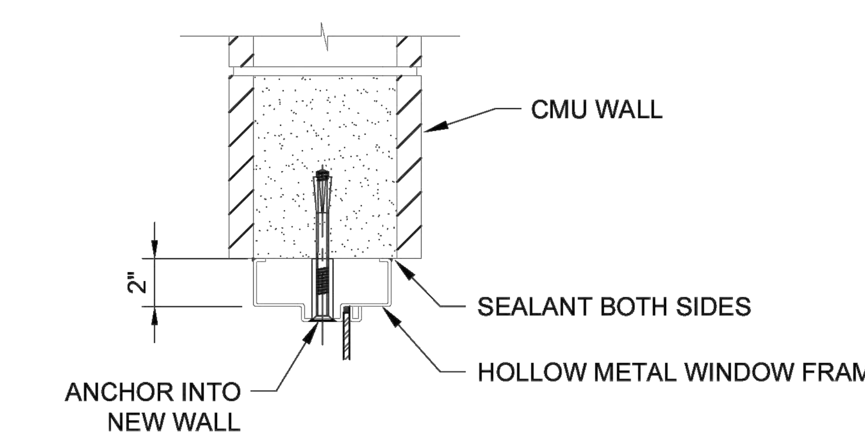

TYPICAL WINDOW HEAD DETAIL (H)

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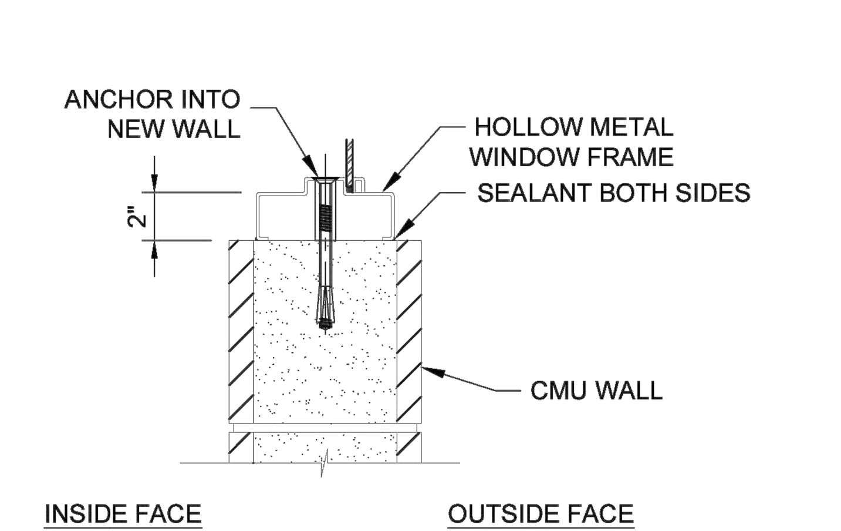

TYPICAL WINDOW SILL DETAIL (I)

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WATER UTILITY IMPROVEMENTS PROJECT

NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
DKS	JAS	DKS
Issue Date: 1/29/2024	Project No: S22145	Scale: AS SHOWN

NEW WATER TREATMENT PLANT FACILITY DOOR SCHEDULE AND DETAILS

Drawing No:

A1-08

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GENERAL

1. The structure has been designed for the in-service loads only. The methods, procedures, and sequences of construction are the responsibility of the Contractor. Supporting formwork for the concrete construction shall not be removed before the concrete has gained sufficient strength to safely support the dead and superimposed loads which will be subsequently applied. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction.
2. All work shall be performed in accordance with the Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
3. Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members.
4. Do not determine dimensions by "scaling" off the plans. The Contractor shall accept all risk associated with "scaling" and shall be responsible for all inadequate work resulting therefrom. Questions regarding missing or conflicting dimensions shall be directed, in writing, to the Structural Engineer.
5. Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.
6. All work shall be performed without damage to adjacent retained work. Adequate protection of areas nearby work against dust, dirt and debris accumulation shall be maintained at all times.
7. Principal openings in the structure are indicated on the structural drawings. Refer to the architectural, mechanical, electrical, and plumbing drawings for sleeves, curbs, inserts, etc. not herein indicated. Openings in slabs with a maximum side dimension or diameter of 10 inches or less shall not require additional framing or reinforcement, unless noted otherwise. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
8. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
9. The Contractor shall relocate all mechanical piping, ducts, equipment, electrical conduits, wiring and plumbing that interfere with the proposed construction. Service shall be maintained to all equipment that is served by mechanical, electrical or plumbing conduit being relocated.

FOUNDATIONS

1. Exterior footings shall bear 3'-0" minimum below finish grade and shall bear on undisturbed soil.
2. The Contractor shall have a qualified Geotechnical Engineer verify that the allowable soil bearing pressure meets or exceeds that assumed for the foundation design. if the underlying soils are found to be unacceptable, one of the following procedures shall be followed:
   A. Removed the unacceptable soil and backfill with an engineered structural fill as directed by the inspecting Geotechnical Engineer.
   B. Lower the footing to an acceptable soil. Contract the Structural Engineer for potential modiifcations to the foundation system.
3. Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.
4. Foundation excavations shall be made to plan elevations. The soil conditions beneath foundations shall then be inspected by a qualified Geotechnical Engineer. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:
   A. Remove the unacceptable soil and backfill with an engineered structural fill in accordance with the geotechnical engineering report or inspecting Geotechnical Engineer.
   B. Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.
5. Subgrade structural elements subjected to differential lateral soil pressure shall be adequately braced until the structural elements which provide lateral restraint have been placed and allowed to cure for a minimum of 7 days.
6. Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Surface runoff shall not be allowed to enter the excavation.
7. Foundation conditions noted during construction, which differ from those described in the geotechnical report shall be reported to the Structural Engineer and Geotechnical Engineer before further construction is attempted.
8. Center all column and wall footings under the column or wall above unless otherwise indicated.

CONCRETE

1. Reinforced concrete has been designed in accordance with the latest editions of the Building Code Requirements for Reinforced Concrete (ACI 318) and Environmental Engineering Concrete Structures (ACI 350R) by the American Concrete Institute (ACI).
2. Slabs-on-grade shall be constructed in accordance with the latest edition of the Guide for Concrete Floor and Slab Construction (ACI 302.1R).
3. Mixing, transporting, and placing of concrete shall conform to the latest edition of the Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete (ACI 211.1) and the Standard Specifications for Structural Concrete (ACI 301). The special provisions of ACI 211.1 Appendix 5 (Mass Concrete Mix Proportioning) shall be used in proportioning the concrete mixture for the mat foundation to control temperature rise during hydration. In addition, the provisions of ACI 207.1R (Mass Concrete) shall apply. Concrete curing shall conform to the latest editions of the Standard Practice for Concrete Curing (ACI 308) and the Standard Specification for Curing Concrete (ACI 308.1). In case of a discrepancy, the plans and specifications shall govern.
4. Unless noted otherwise, concrete shall have natural sand fine aggregate and normal weight coarse aggregates conforming to ASTM C33, and Type I or III Portland Cement conforming to ASTM C150. Type III Portland Cement shall not be used in mass concrete. The Contractor shall submit a mix design for each proposed class of concrete. Mix designs shall indicate proportions by weight, water-cement ratio, slump, air content, synthetic fiber size and quantity, sieve analyses of fine and coarse aggregates, standard deviation analysis, and required average strength and documentation of average strength verifying compliance with ACI 318. The Contractor shall not vary from the mix design without approval from the Structural Engineer.
5. Unless noted otherwise, fly ash may be used as a pozzolan to replace a portion of the Portland Cement in a concrete mix. Fly ash, when used, shall conform to ASTM C618, Type C (except in mass concrete, ASTM C618, Type F shall be used). Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 25 percent.
6. For mass concrete, ground granulated blast-furnace slag (GGBFS) may be used to replace a portion of the Type I Portland Cement in a concrete mix. Ground granulated blast-furnace slag, when used, shall conform to ASTM C989, Grade 100. Concrete mixes using GGBFS shall be proportioned to account for the properties of the specific GGBFS used and to account for the specific properties of the GGBFS concrete thus resulting. The ratio of the amount of the GGBFS to the total amount of GGBFS plus cement in the mix shall be between 65 and 70 percent (except for concrete exposed to deicing chemicals the maximum ratio shall be 50 percent).
7. Water-reducing admixtures conforming to ASTM C494 may be used in the concrete mix design. Maximum slump shall be 5 inches for mixes containing water-reducing admixtures and 5 to 8 inches for mixes containing high range water-reducing admixtures.
8. Concrete compressive strength tests shall be performed in accordance with ASTM C39. Copies of the test results shall be forwarded to the Structural Engineer. One set of specimens shall be taken for each day's pour of appreciable size and for each 50 cubic yards (100 cubic yards for mass concrete) in accordance with the latest edition of ASTM C31. Each set shall include one specimen tested at 7 days, 2 specimens tested at 28 days and one specimen retained in reserve. Two additional reserve specimens shall be retained for all mass concrete pours. These test cylinders shall be laboratory cured. For mass concrete pours, these test cylinders shall remain on-site for 48 hours before being transported to the testing lab.
9. When the ambient temperature is expected to fall below 40 degrees during the course of a concrete pour or subsequent curing period, it shall be placed and cured in accordance with the latest edition of Cold Weather Concreting (ACI 306R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.
10. Concrete mixed, transported, placed, and cured under conditions of high ambient temperature, low humidity, solar radiation, or high winds shall conform to the latest edition of Hot Weather Concreting (ACI 305R) and an additional set of concrete test cylinders shall be made. For mass concrete, this set of additional test cylinders shall consist of four specimens for each 200 cubic yards of concrete placed. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.
11. Slump tests shall be made prior to and following the addition of plasticizers. Where concrete is placed by pumping methods, concrete for test cylinders and slump tests shall be taken at the point of final placement.
12. Water shall not be added to the concrete at the job site. The Contractor is responsible for coordinating a pumpable and workable mix without the addition of water at the job site. The use of plasticizers, retardants and other additives shall be at the option of the Contractor subject to the approval of the Structural Engineer. Follow the recommendations of the manufacturer for the proper use of additives. Use of calcium chloride or other chloride bearing salts is prohibited.
13. Place concrete in a manner so as to prevent segregation of the mix. Delay floating and troweling operations until the concrete has lost surface water sheen or all free water. Do not sprinkle free cement on the slab surface. Finishing of slab surfaces shall conform to the latest editions of ACI 302.1R and ACI 304R (Guide for Measuring, Mixing, Transporting and Placing Concrete).
14. Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive (ACI 503.2).
15. Maintain concrete in a moist condition for at least 5 days at ambient temperatures above 70 degrees, and at least 7 days at ambient temperatures above 50 degrees. Curing compounds or moisture retention covers shall be used for all non-formed surfaces. Formed surfaces shall be cured by leaving forms in place. During hot, dry weather, keep forms moist by sprinkling. When forms are removed prior to the end of the curing period, apply curing compound to the exposed surfaces.
16. All interior slabs shall receive a hard "troweled finish". Exterior slabs, sidewalks, and stoops shall receive a "broom (or other type of slip resistant) finish". All formed surfaces not exposed to public view shall receive a "rough form finish", exposed surfaces shall receive a "smooth form finish". Concrete finishes shall be as defined in ACI 301.
17. Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.
18. Protect the concrete surface between finishing operations on hot, dry days or any time plastic shrinkage cracks could develop by using wet burlap, plastic membranes or fogging.
19. Horizontal and vertical joints are not permitted in concrete construction except where indicated.
20. Construction joints and/or contraction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.
21. Construction joints shall be prepared by roughening the contact surface in an approved manner to a full amplitude of approximately 1/4 inch leaving the contact surface clean and free of laitance.
22. Control joints shall be made in concrete slabs-on-grade at major column centerlines, at points of discontinuity, at reentrant corners, and at other locations shown on the plans.
23. Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.
24. The Contractor shall verify the location of sleeves, openings, embedded items, etc. and shall ensure that they are in place prior to the placement of the concrete.
25. Earth cuts shall not be used as forms ("bank forming") for vertical or sloping surfaces unless otherwise approved by the Structural Engineer. Where bank forming is permitted, the concrete element shall be increased at least 3 inches on all sides exposed to earth to account for possible soil contamination during concrete placement.

CONCRETE SCHEDULE

CONCRETE SCHEDULE

CLASS	f'_c	AIR CONTENT	MIN. CEMENT: LB/CY (SACKS/CY)	MAX. WATER/ CEMENT: RATIO	CONCRETE PLACEMENT	REMARKS
A	3,000 psi	optional	423 (4.5)	0.58	footings, grade beams	
B	4,000 psi	optional	517 (5.5)	0.48	mat foundation	crystalline waterproofing admixture
C	4,000 psi	optional	517 (5.5)	0.48	pedestals, foundation walls, basement walls	crystalline waterproofing admixture
D	4,000 psi	optional	517 (5.5)	0.48	interior slabs-on-grade	synthetic fibers (1.5 lbs/cys)
E	4,500 psi	6% ± 1.5%	611 (6.5)	0.45	retaining walls, tank structural elevated slabs, columns, beams, walls	crystalline waterproofing admixture
F	4,500 psi	6% ± 1.5%	611 (6.5)	0.40	exterior slabs-on-grade, stoops, curbs, & sidewalks exposed to de-icers	synthetic fibers (1.5 lbs/cys)

REINFORCING STEEL

1. Reinforcing bar detailing, fabricating, and placing shall conform to the latest edition of the following standards: Specifications for Structural Concrete for Buildings (ACI 301), ACI Detailing Manual (SP66). The latest editions of Concrete Reinforcing Steel Institute's Reinforcing Bar Detailing and Placing Reinforcing Bars may also be used.
2. Provide standard bar chairs, slab bolsters, spacers, etc. as required to maintain concrete protection specified. Reinforcing steel shall be tied to prevent displacement during concrete placement.
3. Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.
4. Welding of reinforcement bars, when approved by the Structural Engineer, shall conform to the latest edition of American Welding Society Standard D1.4. Electrodes for shop and field welding of reinforcement bars shall conform to ASTM A233, Class E90XX.
5. Synthetic fibers shall be used for temperature and shrinkage reinforcement in concrete slabs-on-grade. Synthetic fibers shall be virgin (non-recycled) nylon or polypropylene fibers conforming to ASTM C1116, Type III. Fibers shall be introduced into the mix at the plant in accordance with the manufacturer's recommendations. The Contractor shall submit the mix design, including the fiber size and quantity, to the Structural Engineer for approval prior to construction. The Contractor shall take adequate measures to manage any difficulty in concrete finishing associated with the use of the fibers.
6. Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest editions of ACI 318 and ACI 350 with the most stringent requirements governing.
7. Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318. Where the length of lap is not indicated, provide a Class "B" lap at tension splices or 30 bar diameter compression laps at compression splices. If the splice type is not defined as tension or compression, provide the splice type that produces the greatest length.

CONCRETE REINFORCING STEEL LAP SPLICE SCHEDULE

BAR SIZE	TENSION SPLICE		COMPRESSION SPLICE
	TOP BAR	OTHER	
#3	21"	16"	12"
#4	28"	24"	15"
#5	35"	30"	19"
#6	42"	36"	23"
#7	49"	42"	26"
#8	56"	48"	30"
#9	63"	57"	34"
#10	76"	66"	38"
#11	93"	72"	42"

8. Horizontal bars in walls, masonry bond beams, and continuous wall footings shall be bent at corners and intersections in such a way that continuity is provided through the joint. Separate corner bars of the same size and spacing as the horizontal reinforcing may be substituted for the bent portion of the continuous bars.
9. Unless noted otherwise, provide 2-#5 bars (one each face) around unframed openings and diagonally at reentrant corners of vertical height offsets in concrete walls. Place bars parallel to the sides of the opening and extend 24 inches beyond corners.
10. The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

MASONRY

1. Engineered concrete masonry has been designed in accordance with the latest edition of the ACI Building Code Requirements for Masonry Structures (ACI 530/ASCE 5).
2. Concrete masonry construction shall conform to the latest edition of the ACI Specifications for Masonry Structures (ACI 530.1/ASCE 6).
3. Mortar shall be type N for interior non-load bearing walls. For exterior and load bearing walls, mortar shall be type M below grade and type S above grade. Mortar shall conform to the requirements of the latest edition of ASTM C270. Portland Cement-lime without air entrainment shall be used in the mortar mix.
4. Provide standard spacers, etc. as required to prevent reinforcing steel displacement during grout placement.
5. Provide reinforcing steel in vertical cores as indicated. In addition, provide reinforcing steel in vertical cores on each side of all openings and each corner of all walls. Grout cores with reinforcing steel solid.
6. Reinforcing steel lap splices in concrete masonry shall be as indicated in the following table. All splices shall be wired together.

MASONRY REINFORCING STEEL LAP SPLICE SCHEDULE

f'm = 2,500 psi

BAR SIZE	#3	#4	#5	#6	#7	#8
8" CMU	1'-0"	1'-3"	1'-9"	3'-0"	4'-0"	6'-3"
10" CMU	1'-0"	1'-0"	1'-6"	2'-6"	3'-3"	5'-0"
12" CMU	1'-0"	1'-0"	1'-3"	2'-0"	2'-9"	4'-0"

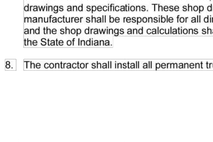
7. Masonry cores (where specified) and bond beams shall be filled with coarse grout conforming to the requirements of the latest edition of ASTM C476 and having a minimum 28-day compressive strength of 3,000 psi, 3/4 inch maximum aggregate, and an 8 to 11 inch maximum slump.
8. Bearings for beams, lintels, joists, etc. shall be bond beams or hollow masonry units with cores filled solid with grout. The minimum bearing length shall be 8 inches unless otherwise indicated.
9. The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

POST-INSTALLED EXPANSION/ADHESIVE ANCHORS

1. Post-installed anchors shall only be used where specified on the Construction Documents. The Contractor shall obtain approval from the Structural Engineer prior to installing the post-installed anchors in place of missing or misplaced cast-in-placed anchors.
2. Care shall be taken in placing post-installed anchors to avoid conflicts with existing reinforcing steel.
3. Post-installed anchors shall be installed by qualified personnel in accordance with the drawings and specifications.
4. Post-installed anchors shall be installed by qualified personnel in accordance with the Manufacturer's Printed Installation Instructions (MPII), the drawings and specifications. Installation of adhesive anchors shall be performed by personnel trained to install adhesive anchors. Contractor shall submit installer training cards with anchor package.
5. Post-installed anchors shall be HILTI type as manufactured by HILTI Fastening Systems or approved equivalent. Substitution requests must be submitted by the Contractor to the Structural Engineer for review. Provide back-up technical data that demonstrates that the substituted product is capable of achieving the equivalent performance values (minimum) of the specified products using the appropriate design procedure and/or standard(s) as required by the building code.
6. Masonry cores receiving post-installed anchors shall be filled with course grout. Grout must comply with IBC Section 2103.12 or IRC Section R609.1.1, as applicable. Alternatively, the grout must have a minimum compressive strength, when tested in accordance with ASTM C1019, equal to its specified strength, but not less than 2,000 psi. Post-installed anchors shall not be installed in a masonry mortar joints.
7. The Contractor shall inspect the masonry or concrete surface at each proposed post-installed anchor location prior to installation. If the anchor locations align with mortar joints or the masonry or concrete is honeycombed, cracked or otherwise unsound, the post-installed anchors shall be repositioned so as to be located in sound material and be in accordance with the manufacturer's minimum spacing and edge distance requirements.
8. Adhesive anchors shall be subject to the following additional requirements:
   A. Anchors shall meet the requirements of ACI 355.2 (mechanical anchors) and ACI 355.4 (adhesive anchors).
   B. Proof loading of adhesive anchors is not required.
   C. Anchors shall not be installed in concrete cured less than 21-days
   D. Anchors shall not be installed until the concrete has reached a minimum compressive strength of 2,500 psi.
   E. Concrete temperature must be greater than 50 °F and less than 80 °F prior to installation of the anchors unless otherwise permitted by the MPII.
   F. Anchors shall be installed in holes drilled with the HILTI Hollow Drill Bit (TE-CD (SDS Plus) or TE-YD (SDS Max)) and HILTI VC 20/40 Vacuum (VC 20-U or VC 40-U). Follow the MPII for size and depth of holes required.
   G. The acceptability of certification other than the ACI/CRSI Adhesive Anchor Installer Certification shall be the responsibility of the Structural Engineer.
   H. Adhesive anchors installed in horizontal or upwardly inclined orientations to resist sustained tension loads shall be continuously inspected during installation by an inspector specially approved for that purpose by the building official. The special inspector shall furnish a report to the licensed design professional and building official that the work covered by the report has been performed and that the materials used and the installation procedures used conform to the approved contract documents and MPII.

REINFORCING STEEL EPOXY DOWEL SCHEDULE

BAR SIZE	#3	#4	#5	#6	#7	#8
STANDED EFFECTIVE EMBED, h_{ef}	3-3/8"	4-1/2"	5-5/8"	6-3/4"	7-7/8"	9"
MINIMUM EDGE DISTANCE, c_{min}	2"	2-1/2"	3-1/8"	3-3/4"	4-3/8"	5"



TYPICAL EPOXY DOWEL

NOTES:

1. EPOXY DOWELS SHALL UTILIZE HILTI HIT-HY 200 ADHESIVE SYSTEM OR APPROVED EQIVALENT
2. STANDARD EMBED DEPTH AND MIN EDGE DISTANCES PROVIDED IN THIS SCHEDULE APPLY AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON SECTIONS AND DETAILS.

NON-SHRINK GROUT

1. Grout shall be a high early strength, non-metallic, shrinkage resistant (when tested in accordance with the latest edition of ASTM C827 or CRD-C621), premixed, non-corrosive, non-staining product conforming to the requirements of the latest edition of ASTM C1107 and containing Portland Cement, silica sands, shrinkage compensating agents and fluidity improving compounds.
2. Grout compressive strength tests shall be performed in accordance with the latest edition of ASTM C109, with a restraining plate placed over the molds.
3. Grout shall be installed in accordance with the manufacturer's instructions.
4. Grout shall be placed in a non-sag flowable state and shall have forms built around it for confinement. Grout shall be cured according to manufacturer's recommendations.

METAL-PLATE-CONNECTED WOOD TRUSSES

1. Prefabricated wood trusses shall be detailed, fabricated and erected in accordance with the latest editions of the Timber Construction Manual by the American Institute of Timber Construction (AITC) and the National Design Specification for Wood Construction by the American Forest & Paper Association (ANSI/NFoPA NDS) and the latest criteria established by the Truss Plate Institute (TPI) and the Wood Truss Council of America (WTCA).
2. Temporary and permanent bracing of wood trusses shall be in accordance with the latest edition of the Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses (HIB) by the TPI.
3. Wood roof trusses shall be designed to support the following superimposed loads in addition to the weight of the trusses:
   Top Chord Dead Load.....12 psf
   Top Chord Live Load.....25 psf
   Bottom Chord Dead Load.....10 psf
   Bottom Chord Live Load.....20 psf
   Wind Load (horizontal).....15 psf Indiana Building Code, 2014 Edition Section 1609
   Wind Load (vertical).....32 psf Indiana Building Code, 2014 Edition Section 1609
4. Deflection due to live load shall be limited to 1/360 of the truss span. For truss cantilevers, the deflection due to live load at the end of the cantilever shall be limited to 1/180 of the cantilever dimension.
5. Truss plates shall be galvanized steel and shall be applied to both faces of the members being connected.
6. Trusses shall conform to the geometry shown. Minimum lumber size for top and bottom chord members shall be 2"x 4" (nominal). Web member size and configuration shall be the option of the fabricator.
7. The truss manufacturer shall prepare detailed working or shop drawings and shall submit one reproducible copy and one blue line copy, including calculations, to the Structural Engineer for review prior to fabrication. These drawings and calculations shall show the design forces in the truss members, the sizes of the truss plates; the lumber species, commercial grade and normal duration design values; required bracing and details necessary to enable the truss manufacturer to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications. These shop drawings will be reviewed for design concepts only. The truss manufacturer shall be responsible for all dimensions, accuracy, and fit of work. The trusses shall be designed by, and the shop drawings and calculations shall bear the seal and signature of, a registered professional engineer in the State of Indiana.
8. The contractor shall install all permanent truss bracing as shown on the truss manufacturer's shop drawings.

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JACOB JAMES ULOM — REGISTERED — No. PE12000743 — STATE OF INDIANA — PROFESSIONAL ENGINEER

Signature 1-30-24 Date

CE Solutions structural engineers
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Issue Date:	Project No:	Scale:
01/30/24	23-189	12" = 1'-0"

GENERAL STRUCTURAL NOTES - 01

Drawing No: **S1-1**

Sheet: 62 OF 93

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STRUCTURAL LUMBER

1. Structural lumber shall be detailed, fabricated and erected in accordance with the latest editions of the Timber Construction Manual by the American Institute of Timber Construction (AITC) and the National Design Specification for Wood Construction by the American Forest & Paper Association (ANSI/NFoPA NDS).
2. Bolts, lag screws, nails and other wood fastenings, unless otherwise noted, shall conform to the latest edition of the National Design Specification for Wood Construction. Standard cut washers shall be used between the wood and bolt head and the wood and nut.
3. Joist hangers and connection plates shall be as manufactured by Simpson Strong-Tie Company, Inc. or approved equivalent. Hardware used with PPT wood to be hot-dip galvanized or stainless steel.
4. Except where epoxy injection is specified; bolted, lag screwed, or nailed wood member connections shall be glued using adhesives conforming to APA Specification AFG-01 (PL-400) in accordance with the manufacturer's recommendations.
5. Structural load bearing wall studs, not otherwise continuously braced on both sides by gypsum board, plywood/performance rated panel sheathing, hardboard panel siding, or other Indiana Building Code (IBC) approved sheathing; shall be braced at third points with horizontal solid wood blocking in accordance with Chapter 23 of the IBC (Section 2308.9.9) not less than 2 inches (nominal) in thickness and of the same width as the studs fitted snugly and nailed thereto to provide adequate lateral support.
6. Wood members that are in contact with concrete or masonry or exposed to weather shall be pressure treated with a water borne treatment to a net retention level of 0.3 pcf in accordance with applicable American Wood Preservers' Association latest requirements.
7. Rough sawn timbers shall be treated and finished where specified. Ends exposed to weather shall be treated with CCA.
8. Connections not specifically detailed herein shall be per Table 2304.9.1 of the 2012 International Building Code.

PLYWOOD/PERFORMANCE RATED PANELS

1. Plywood and performance rated panels (oriented strand board) shall be detailed, fabricated and erected in accordance with the latest criteria established by the American Plywood Association (APA) including their latest edition of the Plywood Design Specification (and its Supplements).
2. Plywood panels shall be identified with the appropriate trademark of the APA and shall meet the requirements of the latest edition of the U.S. Product Standard PS 1 for Construction and Industrial Plywood. Performance rated panels shall be identified with the appropriate trademark of the APA and shall meet the requirements of the latest edition of the APA PRP-108 Performance Standards and Policies for Structural-Use Panels, or the U.S. Product Standard PS 2 for Wood-Based Structural-Use Panels.
3. Roof panels shall be installed with the long dimension (face grain) across the supports with panels continuous over 2 or more supports (minimum 3 span condition).
4. Stagger panel end joints. End joints shall only occur over a support. Unless recommended otherwise by the panel manufacturer, provide a 1/8" gap between panel ends and edges. Panel edges shall be tongue-and-groove or supported on 2" (nominal) lumber blocking installed between joists.
5. Unless otherwise noted, panels shall be fastened to their supports as follows:

   Roof panels (APA Performance Rated Sheathing):

   6" o.c. along supported panel edges and 6" o.c. at intermediate supports. Use 6d galvanized common nails for panels 1/2" thick and less and 8d galvanized common nails for panels of greater thickness with 1 1/2" minimum penetration into supporting framing members. Galvanized nails shall be hot-dipped or tumbled.
6. For field-glued floors, adhesives conforming to APA Specification AFG-01 (PL-400) shall be used and applied in accordance with the manufacturer's recommendations. If non-veneer panels with sealed surfaces and edges are used, only solvent-based glues shall be used unless recommended otherwise by the manufacturer. Apply a continuous line of glue on the joists and a intermittent line of glue in the groove of tongue-and-groove panels. Use 6d ring- or screw-shank nails spaced 12" o.c. at panel ends and at intermediate supports. 8d common nails may be substituted for ring- or screw-shank nails if they are not available.

COORDINATION WITH OTHER TRADES

1. The Contractor shall coordinate and check all dimensions relating to architectural finishes, structural framing, mechanical openings, equipment, etc. The Structural Engineer shall be notified of any discrepancies before proceeding with work in an area under question.

DESIGN

1. Building Code: Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).
2. Soil information:

Allowable net bearing pressure:	
Spread Footings	2000 psf (assumed)
Continuous Wall Footings	2000 psf (assumed)
Mat Foundation (Backwash Tank)	3000 psf (assumed)
Mat Foundation (Detention Tank)	1500 psf (assumed)
Unit weight of soil	125 pcf (assumed)
Equivalent fluid pressure on tank walls	90 psf / ft (assumed)
Coefficient of friction between soil and concrete footing	0.30 (assumed)

3. Concrete:

28 day compressive strength (f'c)	See Schedule

4. Masonry:

28 day compressive strength (f'm)	2500 psi

5. Reinforcing steel (deformed bars of new billet steel):

Stirrup and tie	ASTM A615, Grade 60
Weldable (Low-Alloy)	ASTM A706, Grade 60
Otherwise	ASTM A615, Grade 60
Welded wire fabric (smooth)	ASTM A185

6. Structural Steel:

Structural steel rolled plates & angles	ASTM A36

7. Structural Lumber (surface dry, used at 19% moisture content), unless noted otherwise:

All members	Sothern Pine, No 2 or better
Bolts/Lag Screws	ANSI/ASME B18.2
Nails	FF-N-105B

8. Plywood/Performance Rated Panels, unless noted otherwise:

Roof:	
Span Rating	40/20
Thickness	5/8"
Exposure	1

9. Non-shrink grout:

28 day compressive strength	5,000 psi

10. Live loads:

Roof:	25 psf with drift considerations
Floor:	40 psf

11. Live Load Deflection Limitation:

Roof	L/360

12. Wind loads:

Basic wind speed (3-second gust)	120 mph
Importance factor, Iw	1.00
Exposure	C

13. Seismic loads:

Seismic importance factor, Ie	1.25
Mapped Spectral Response Acceleration at Short Periods, Ss	13.6% g
Mapped Spectral Response Acceleration at 1 Second, S1	7.6% g
Site Class	D (assumed)
Design Spectral Response Acceleration at Short Periods, Sds	14.5% g
Design Spectral Response Acceleration at 1 Second, Sd1	12.1% g
Seismic Design Category	B

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JACOB JAMES ULOM
REGISTERED
No. PE12000743
STATE OF INDIANA
PROFESSIONAL ENGINEER
1-30-24
Signature Date

CE Solutions structural engineers
8774 North St., Ste. 300 317.818.1352
Fishers, IN 46038 mail@cesolutions.com

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01/30/24	23-189	12" = 1'-0"

GENERAL STRUCTURAL NOTES - 02

Drawing No: **S1-2**

Sheet: 63 OF 93

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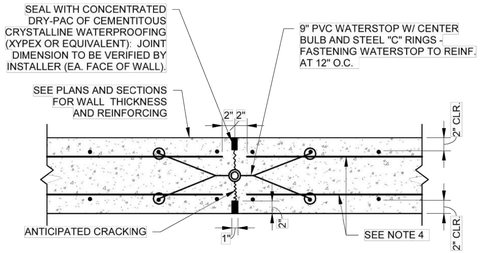
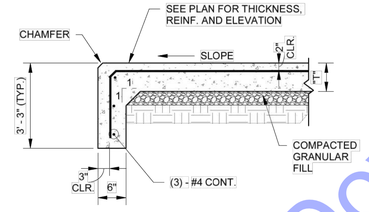
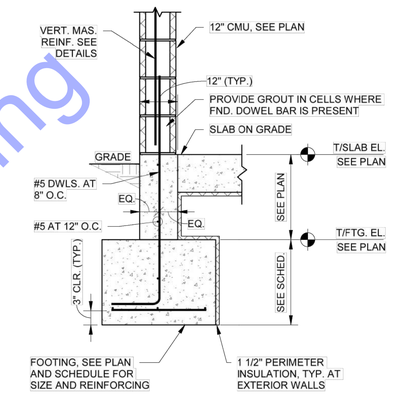


NOTES:
1. CONTRACTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CT.
2. WATERSTOPS AND DRY-PAC REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONTRACTION JOINT SPACING NOT TO EXCEED 25 FEET.
4. 50% OF THE HORIZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONTRACTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

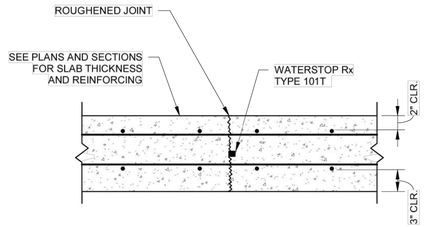
7 S1-3 TYP. WALL CONTRACTION JOINT
1" = 1'-0"



4 S1-3 TURN-DOWN SLAB
3/4" = 1'-0"

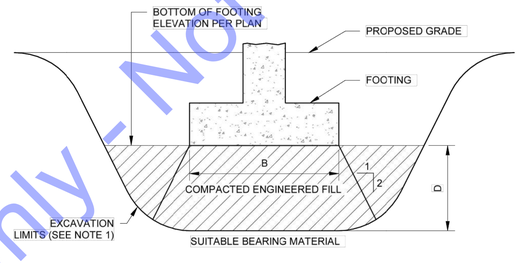


1 S1-3 TYPICAL FOUNDATION SECTION
3/4" = 1'-0"



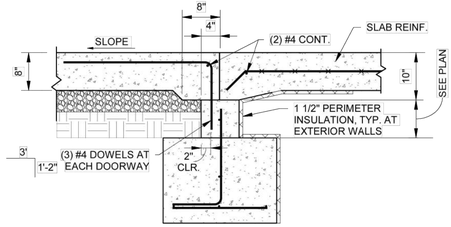
NOTES:
1. ALL REINFORCING TO BE CONTINUOUS THRU JOINT.
2. CONSTRUCTION JOINT SPACING NOT TO EXCEED 75'-0".
3. SEE SOIL REPORT FOR UNDERSLAB PREPARATION AND COMPACTION.
4. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

8 S1-3 TYP. BASE SLAB CONSTRUCTION JT.
1" = 1'-0"

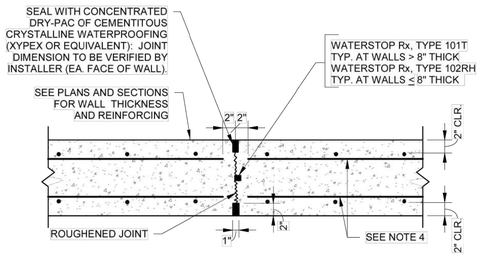


NOTES:
1. DEWATER EXCAVATION AS REQUIRED.
2. WIDTH OF EXCAVATION SHALL EQUAL WIDTH OF FOOTING PLUS DEPTH OF UNDERCUT (W=B+D).

5 S1-3 TYP. FOOTING IN UNDERCUT AREA
1" = 1'-0"

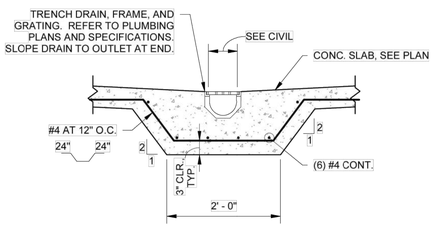


2 S1-3 TYP. REINFORCING AT DOORWAY
3/4" = 1'-0"



NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CJ.
2. WATERSTOPS AND DRY-PAC REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONSTRUCTION JOINT SPACING NOT TO EXCEED 75 FEET.
4. 50% OF THE HORIZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.

6 S1-3 TYP. WALL CONSTRUCTION JOINT
1" = 1'-0"



3 S1-3 TYP. TRENCH DRAIN DETAIL
3/4" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - CONCRETE - 01

Drawing No: **S1-3**

Sheet: 64 OF 93

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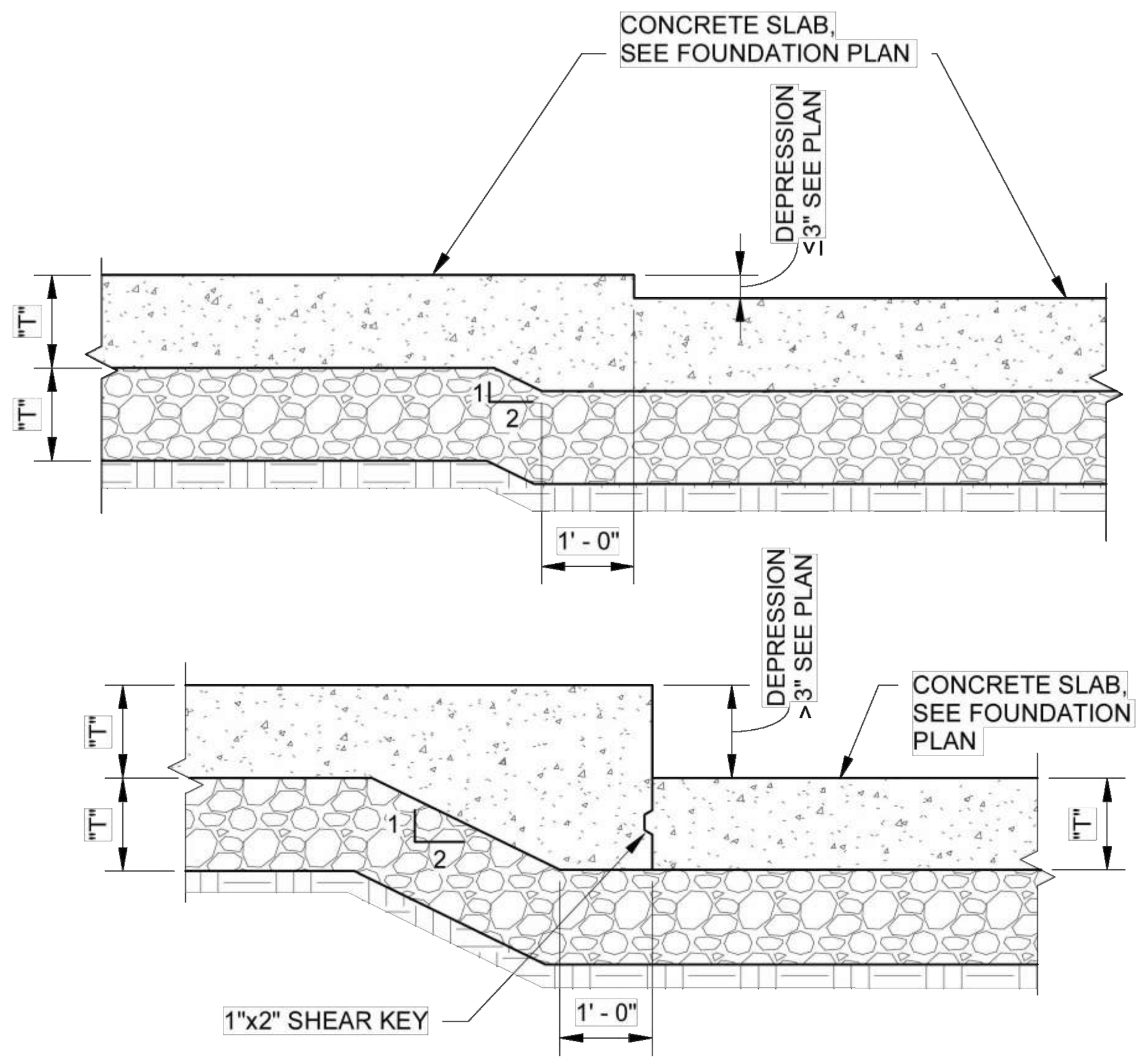
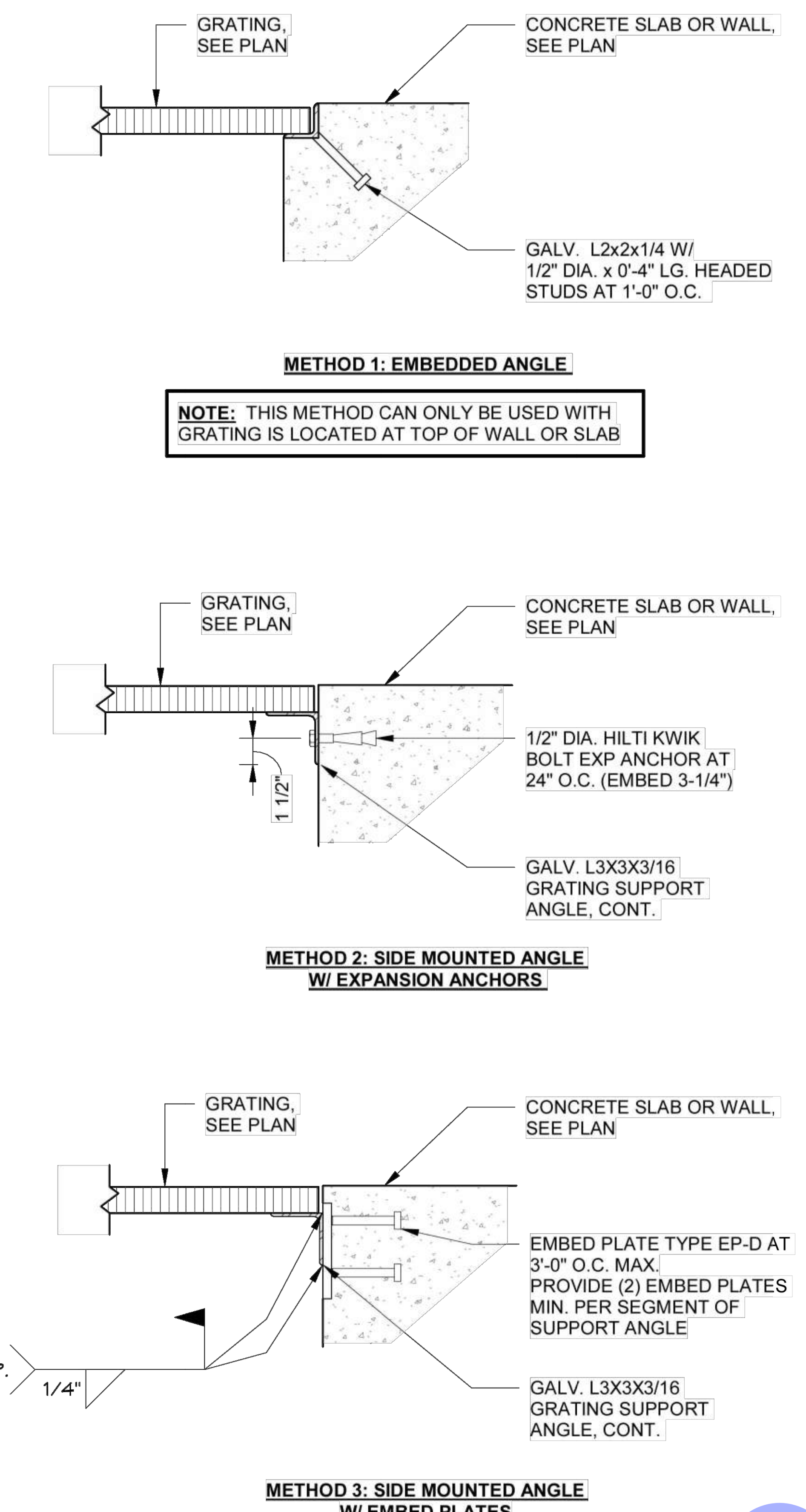


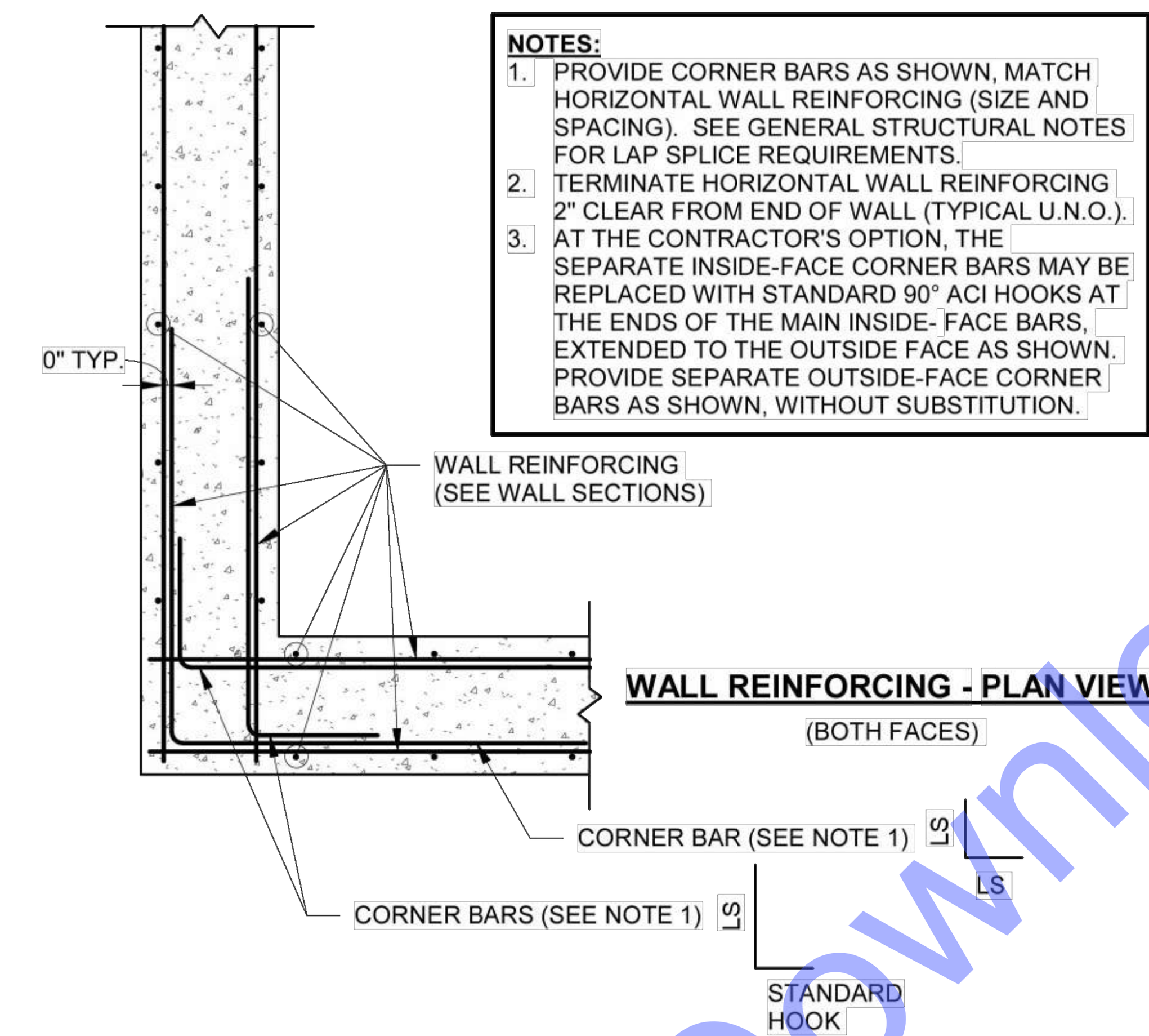
7 / S1-4
SLAB DEPRESSION DETAIL
1/2" = 1'-0"



NOTE: THIS METHOD CAN ONLY BE USED WITH GRATING IS LOCATED AT TOP OF WALL OR SLAB

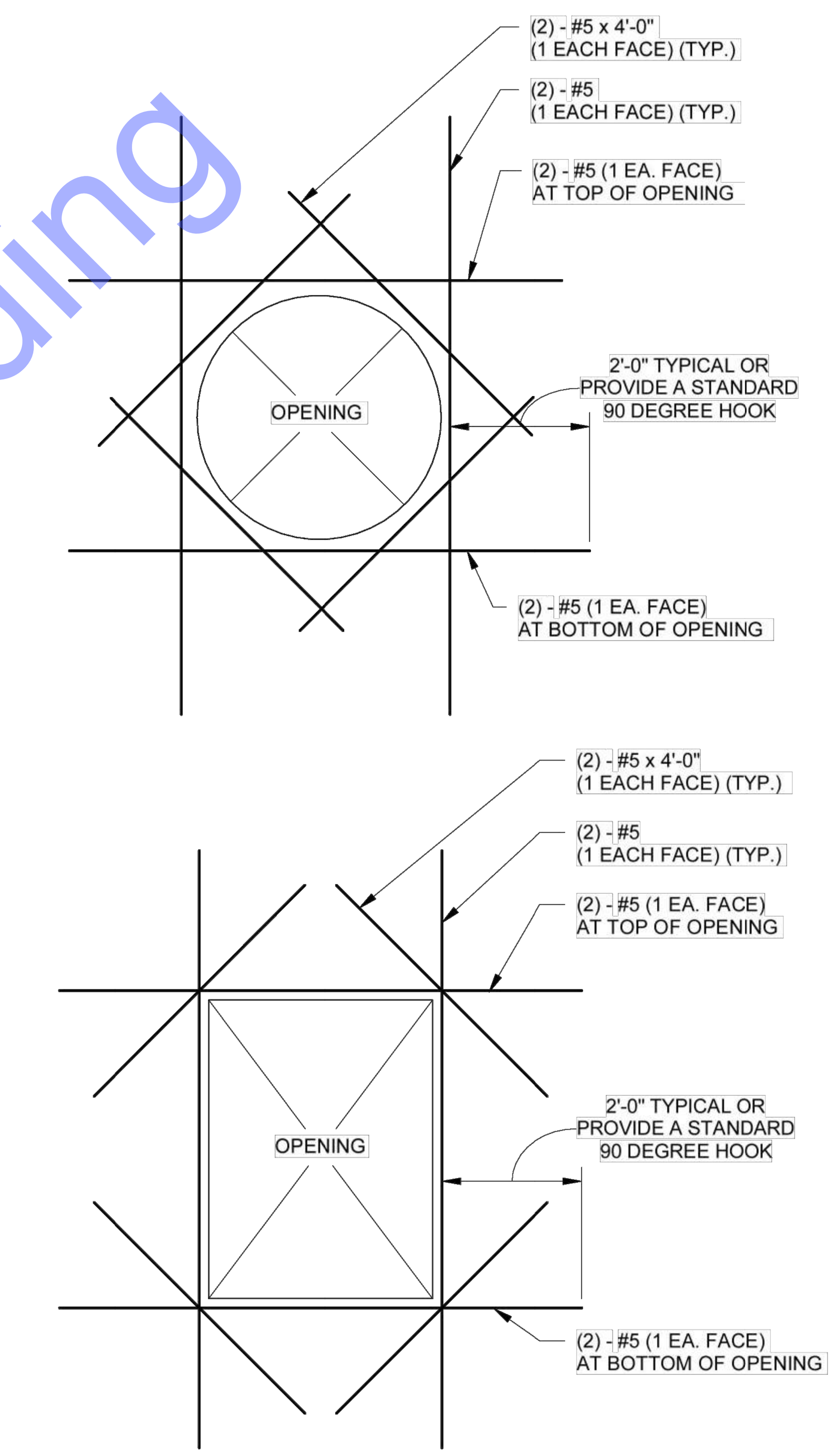
NOTE:
1. CONTRACTOR'S OPTION: UNLESS OTHERWISE NOTED ON PLANS, GRATING SUPPORT CAN BE PROVIDED BY ANY ONE OF THESE THREE METHODS WHERE GRATING EDGE IS SUPPORTED BY CONCRETE SLAB OR WALL.
2. SEE PROCESS DRAWINGS FOR LIMITS OF GRATING SUPPORT

5 / S1-4
TYP. GRATING SUPPORT AT CONCRETE SLAB OR WALL
1 1/2" = 1'-0"



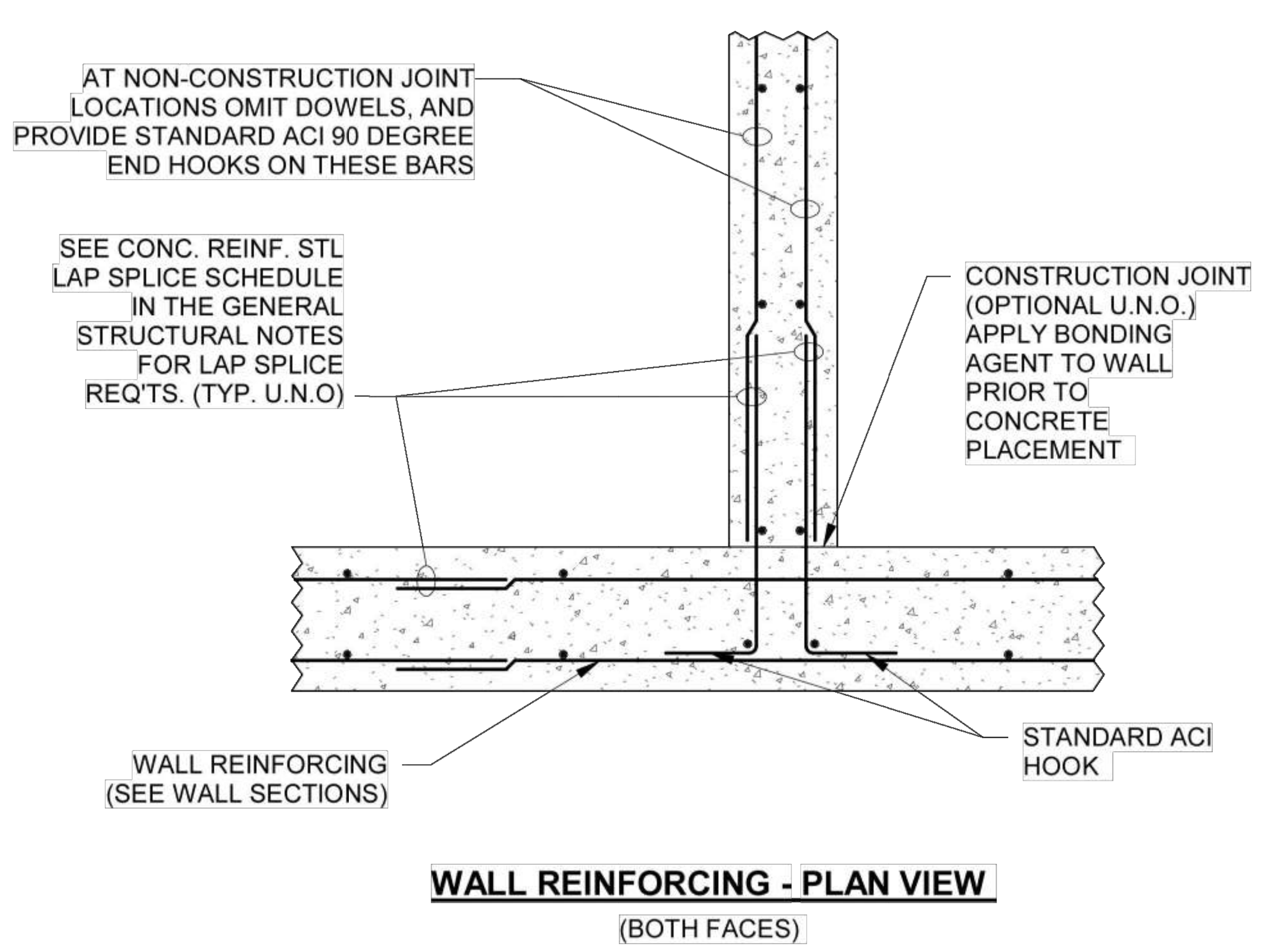
NOTES:
1. PROVIDE CORNER BARS AS SHOWN, MATCH HORIZONTAL WALL REINFORCING (SIZE AND SPACING). SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS.
2. TERMINATE HORIZONTAL WALL REINFORCING 2" CLEAR FROM END OF WALL (TYPICAL U.N.O.).
3. AT THE CONTRACTOR'S OPTION, THE SEPARATE INSIDE-FACE CORNER BARS MAY BE REPLACED WITH STANDARD 90° ACI HOOKS AT THE ENDS OF THE MAIN INSIDE- FACE BARS, EXTENDED TO THE OUTSIDE FACE AS SHOWN. PROVIDE SEPARATE OUTSIDE-FACE CORNER BARS AS SHOWN, WITHOUT SUBSTITUTION.

3 / S1-4
TYPICAL CONCRETE WALL CORNER REINFORCEMENT - PLAN VIEW
3/4" = 1'-0"

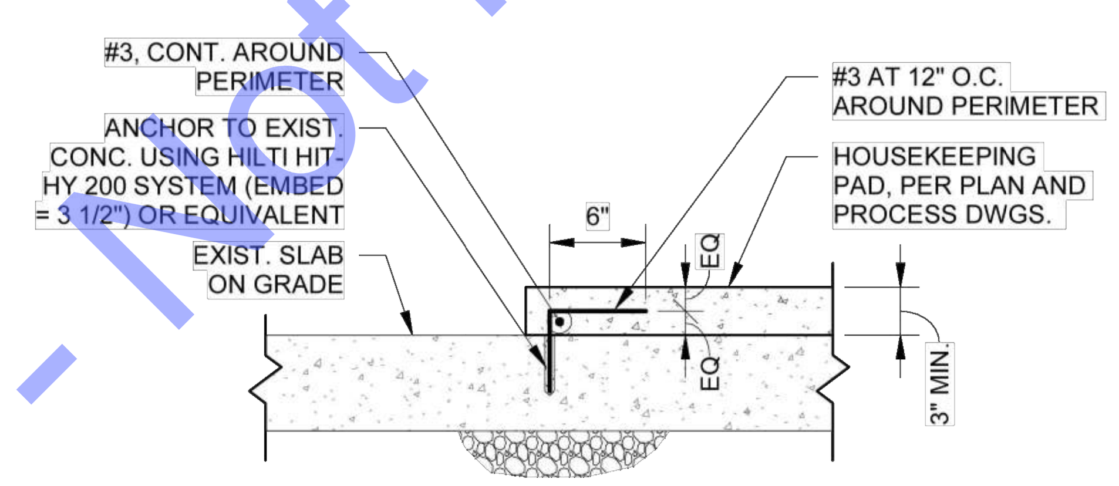


NOTES:
1. WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, ONE HALF OF THE INTERRUPTED STEEL SHALL BE ADDED TO EACH SIDE OF THE OPENING. USE FULL LENGTH BARS.
2. THIS DETAIL APPLIES TO ALL OPENINGS IN CONCRETE WALLS UNLESS DETAILED OTHERWISE ON THE PLANS.

1 / S1-4
TYP. OPENING IN CONCRETE WALL
1/8" = 1'-0"

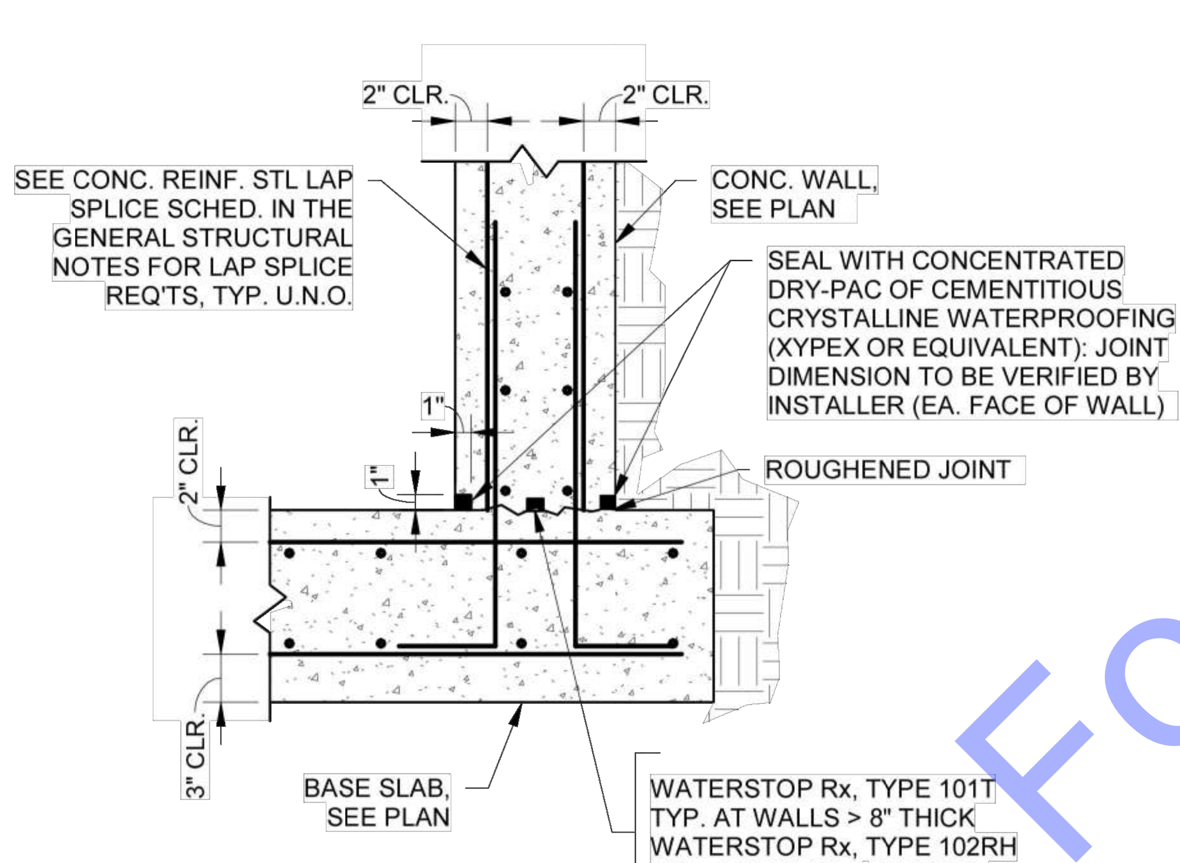


8 / S1-4
TYP. CONC. WALL INTERSECTION
1/8" = 1'-0"

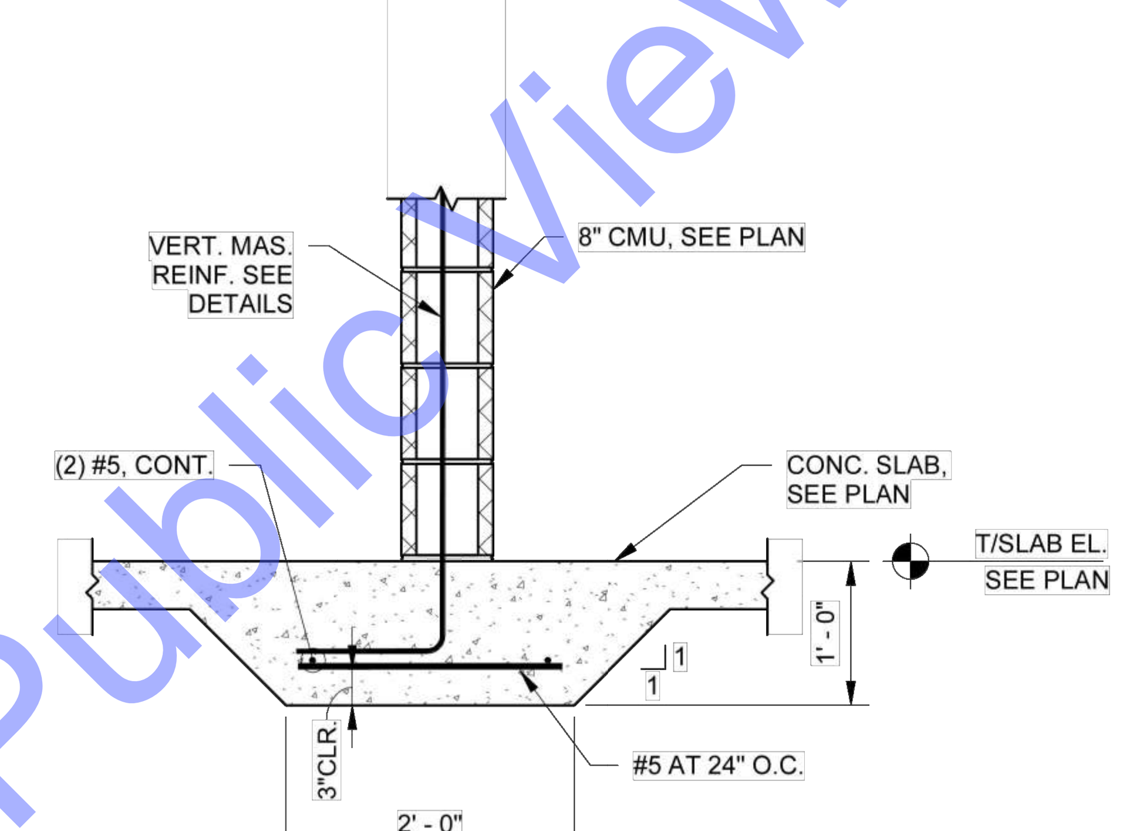


NOTES:
1. CONTRACTOR - VERIFY LOCATION OF THE HOUSEKEEPING PADS WITH THE PROCESS DRAWINGS PRIOR TO POURING CONCRETE.
2. CONTRACTOR - VERIFY REQUIRED SIZE AND HEIGHT OF THE HOUSEKEEPING PADS WITH THE SELECTED EQUIPMENT MANUFACTURER PRIOR TO POURING CONCRETE.

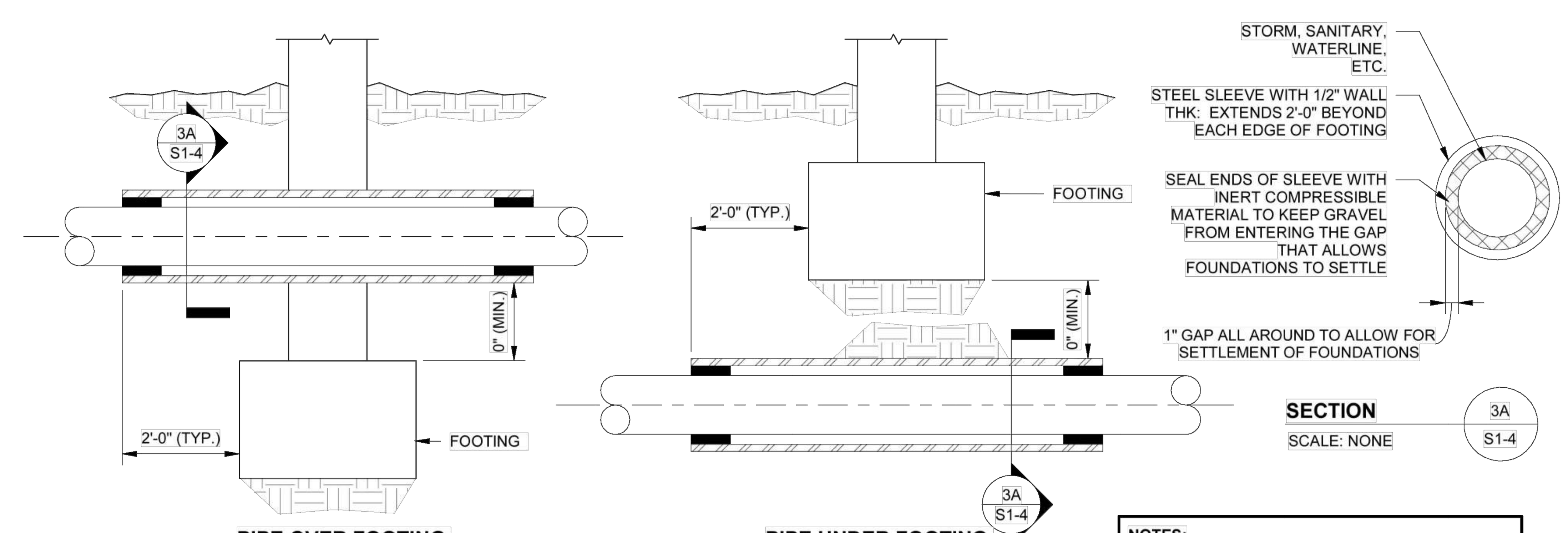
4 / S1-4
TYP. HOUSEKEEPING PAD
1" = 1'-0"



9 / S1-4
TYP. WALL TO BASE SLAB
1" = 1'-0"



6 / S1-4
TYP. THICKENED SLAB
3/4" = 1'-0"



NOTES:
1. COORDINATE THE USE OF THESE DETAILS WITH THE UNDERSLAB PIPING CONTRACTOR.
2. IF THE TOP OF THE SERVICE PIPE IS 2'-0" (OR GREATER) BELOW THE BOTTOM OF THE FOOTING, STEEL SLEEVE IS NOT REQUIRED.

2 / S1-4
TYP. UNDERGROUND SERVICE PIPE DETAIL AT WALL FOUNDATION
1/8" = 1'-0"

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NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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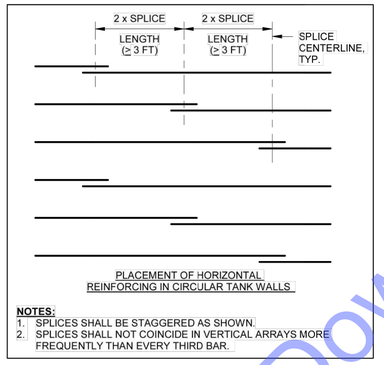
TYPICAL STRUCTURAL DETAILS - CONCRETE - 02

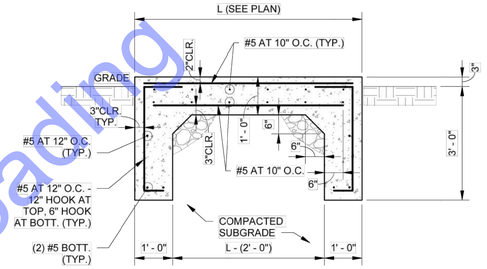
Drawing No:
S1-4



PLACEMENT OF HORIZONTAL REINFORCING IN CIRCULAR TANK WALLS

NOTES:
1. SPLICES SHALL BE STAGGERED AS SHOWN.
2. SPLICES SHALL NOT COINCIDE IN VERTICAL ARRAYS MORE FREQUENTLY THAN EVERY THIRD BAR.

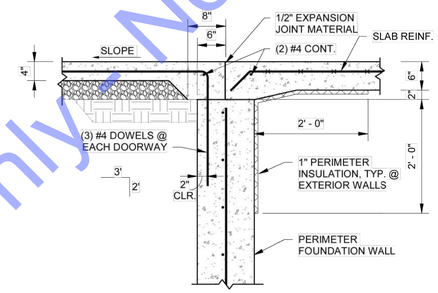
4 S1-5 HORIZONTAL BAR SPLICE DETAIL
1" = 1'-0"



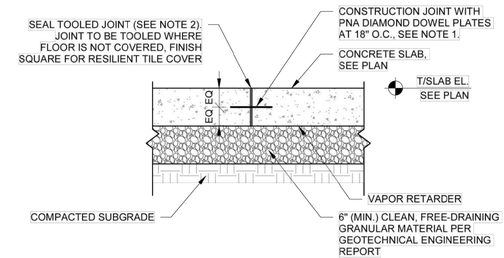
SECTION

NOTES:
1. TOP OF EQUIPMENT PAD SHALL BE FLAT AND LEVEL.
2. COORDINATE EQUIPMENT PADS WITH THE SELECTED MECHANICAL/ELECTRICAL CONTRACTORS.

1 S1-5 TYP. GENERATOR PAD
1/2" = 1'-0"

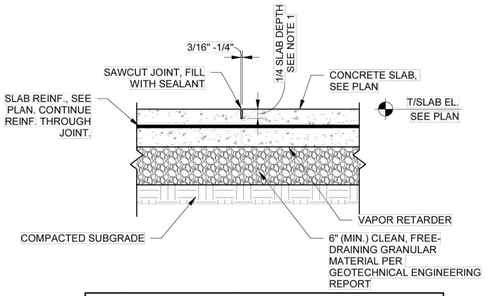


5 S1-5 TYP. REINFORCING AT DOORWAY
3/4" = 1'-0"



NOTES:
1. PNA DIAMOND DWL PLATES 1/4" x 4 1/2" x 4 1/2" AT SLABS < 10", PROVIDE 3/8" x 4 1/2" x 4 1/2" PLATES AT SLABS 10" AND GREATER. INSTALL PNA DIAMOND DOWEL PLATES PER MANUFACTURER'S RECOMMENDATIONS.
2. PRIOR TO SEALING JOINT, PREPARE JOINT PER SEALANT MANUFACTURER'S RECOMMENDATIONS.
3. CONSTRUCTION JOINTS SHALL ONLY OCCUR AT LOCATIONS INDICATED.
4. APPLY LIQUID BOND BREAKER TO FULL DEPTH OF JOINT.
5. SLAB REINF. NOT SHOWN FOR CLAIRITY, SEE PLAN FOR REQUIREMENTS.

2 S1-5 TYP. SLAB ON GRADE CONSTRUCTION JT.
1" = 1'-0"



NOTES:
1. SAWCUT JOINT AS SOON AS POSSIBLE WITHOUT RAVELING THE EDGE OF CONCRETE. USE 1 1/2" +/- DEEP JOINT FOR ULTRA EARLY ENTRY SAWN CONTRACTION JOINTS (SOFF-CUT JOINT SYSTEM OR APPROVED EQUIVALENT)
2. PRIOR TO SEALING JOINT, PREPARE JOINT PER SEALANT MANUFACTURER'S RECOMMENDATIONS.

3 S1-5 TYP. SLAB ON GRADE CONTRACTION JT.
1" = 1'-0"

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TYPICAL STRUCTURAL DETAILS - CONCRETE - 03

Drawing No: **S1-5**

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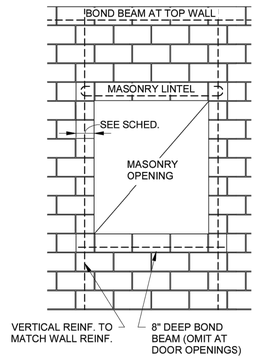
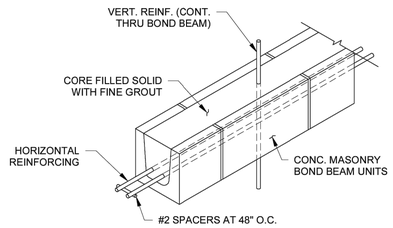
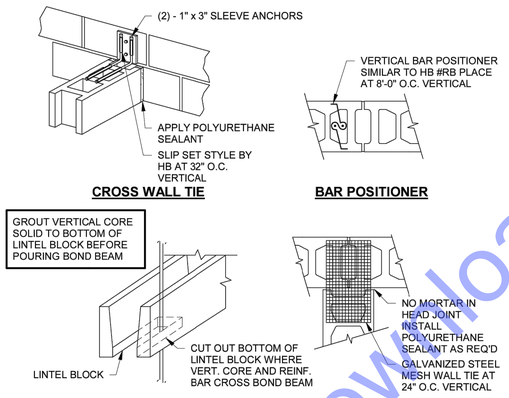


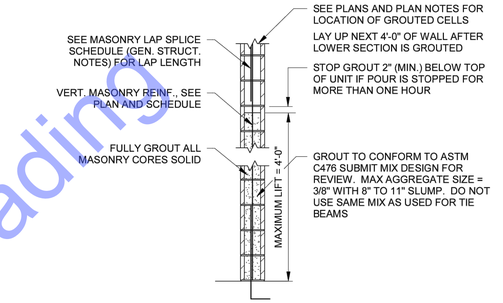
10 S1-6 TYP. WALL OPNG. REINFORCING
3/8" = 1'-0"



7 S1-6 TYP. MASONRY BOND BEAM
1 1/2" = 1'-0"

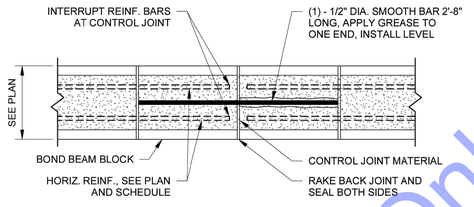


4 S1-6 MASONRY DETAILS
1" = 1'-0"

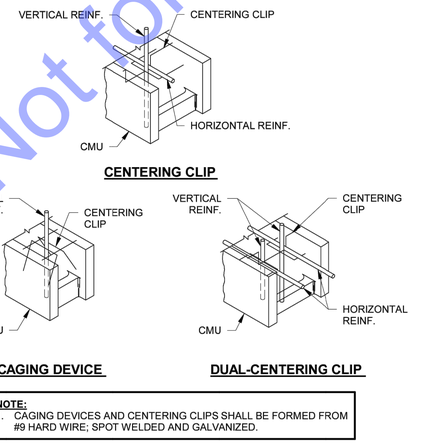


NOTES:
1. DO NOT GROUT UNTIL MORTAR HAS SET SUFFICIENTLY TO WITHSTAND THE PRESSURE OF THE GROUT. WAIT NOT LESS THAN 24 HOURS.

1 S1-6 LOW LIFT GROUTING DETAIL
1/2" = 1'-0"

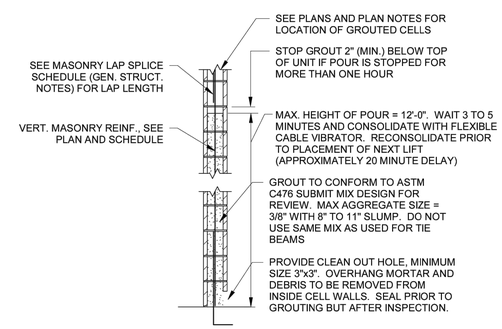


8 S1-6 BOND BEAM DETAIL
1" = 1'-0"



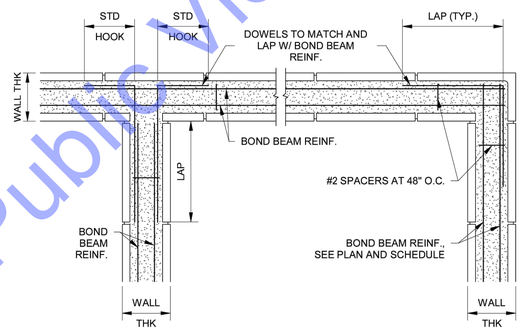
NOTE:
1. CAGING DEVICES AND CENTERING CLIPS SHALL BE FORMED FROM #9 HARD WIRE; SPOT WELDED AND GALVANIZED.

5 S1-6 TYP. MASONRY REINFORCING CLIPS
1" = 1'-0"

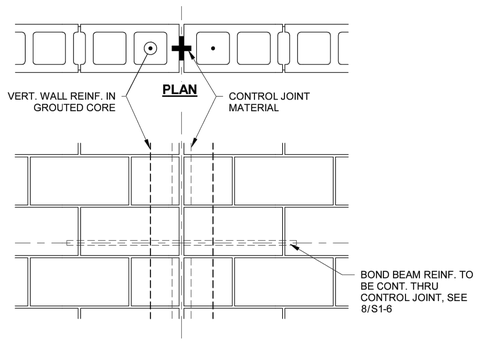


NOTES:
1. DO NOT GROUT UNTIL MORTAR HAS SET SUFFICIENTLY TO WITHSTAND THE PRESSURE OF THE GROUT. WAIT NOT LESS THAN 24 HOURS.

2 S1-6 HIGH LIFT GROUTING DETAIL
1/2" = 1'-0"

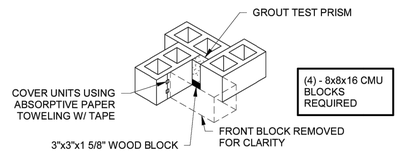


9 S1-6 TYP. BOND BEAM REINFORCEMENT
1" = 1'-0"



NOTES:
1. BOND BEAM REINF. SHALL NOT BE LAPPED WITHIN 8'-0" OF CONTROL JOINT.
2. HORIZONTAL JOINT REINF. SHALL BE DISCONTINUOUS AT CONTROL JOINTS.

6 S1-6 TYP. MASONRY CONTROL JOINT
1" = 1'-0"



3 S1-6 GROUT TEST MOLD (ASTM C-1019)
1/2" = 1'-0"

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NEWTON COUNTY, INDIANA
WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JJU	RMS	JAB
Issue Date:	Project No:	Scale:
01/30/24	23-189	As indicated

TYPICAL STRUCTURAL DETAILS - MASONRY - 01

Drawing No:
S1-6
Sheet: 67 OF 93

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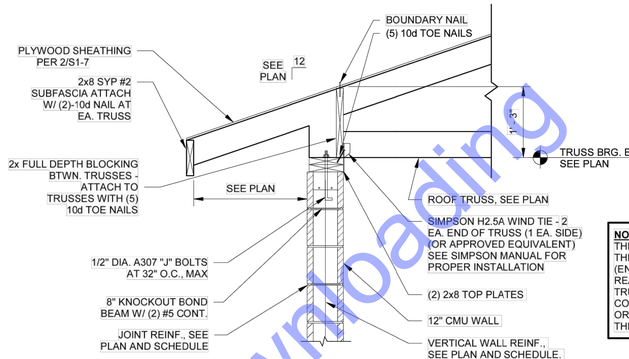
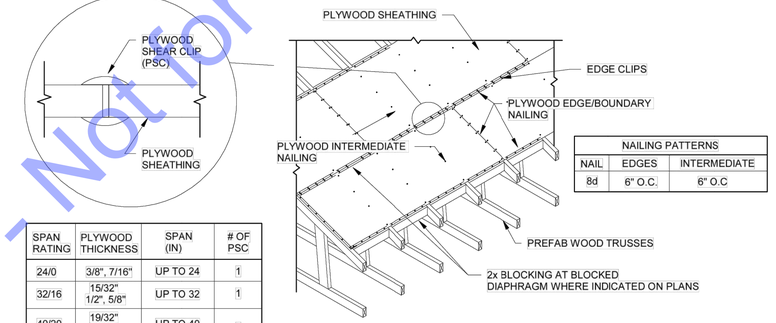


NOTE:
THE GENERAL CONTRACTOR SHALL REVIEW THE TRUSS MANUFACTURERS CALCULATIONS (ENGINEERING DATA SHEETS) FOR UPLIFT REACTIONS AT EACH SUPPORT AT EACH TRUSS AND VERIFY THAT THE TRUSS CONNECTORS CALLED OUT ON PLANS MEET OR EXCEED THE UPLIFT REACTIONS FROM THE TRUSS MANUFACTURER.

1 S1-7 WALL SECTION

3/4" = 1'-0"

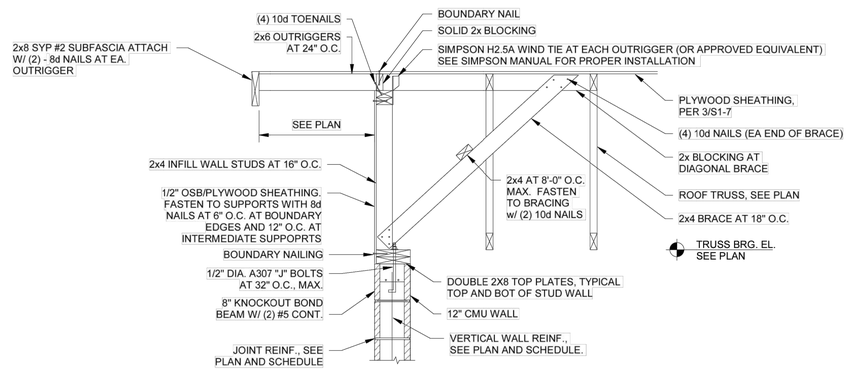


NAILING PATTERNS		
NAIL	EDGES	INTERMEDIATE
8d	6" O.C.	6" O.C

SPAN RATING	PLYWOOD THICKNESS	SPAN (IN)	# OF PSC
24/0	3/8", 7/16"	UP TO 24	1
32/16	15/32" 1/2", 5/8"	UP TO 32	1
40/20	19/32" 5/8", 3/4"	UP TO 40	1
48/24	3/4"	UP TO 48	2

2 S1-7 ROOF SHEATHING DETAIL

1/2" = 1'-0"



3 S1-7 WALL SECTION

3/4" = 1'-0"

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SOUTH BEND, IN.

JACOB JAMES ULLOM
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1-30-24
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TYPICAL STRUCTURAL DETAILS - MASONRY - 02

Drawing No: **S1-7**

Sheet: 68 OF 93

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FOUNDATION PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S1-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL OPENING, PIPE SLEEVES, EMBEDDED ITEMS, HANDRAILS, GRATING, ETC. WITH THE PROCESS DRAWINGS.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
8. SEE PROCESS AND MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT PADS.
9. FLOOR SLAB SHALL CONSIST OF A 8-INCH CONCRETE SLAB-ON-GRADE OVER 6-INCHES OF COMPACTED AGGREGATE FILL AND A 10-MIL VAPOR RETARDER. REINFORCE SLAB WITH ONE LAYER OF #5 AT 10" O.C. EACH WAY.
10. AT RE-ENTRANT SLAB CORNER CONDITIONS, PROVIDE (2) #4x4'-0" LONG AT 3-INCHES O.C. PLACED 2-INCHES CLEAR FROM CORNER, CENTERED IN SLAB, TYPICAL.
11. SAW CUT OR WET CUT CONTRACTION JOINTS IN SLABS AS SHOWN ON PLANS. WET CUTS ARE TO BE MADE AFTER FLOATING WHILE CONCRETE IS STILL PLIABLE. SAW CUTS ARE TO BE MADE AS SOON AS PRACTICAL AFTER FINAL HARD TROWELLING BYT MUST BE COMPELTED WITHIN 2-HOURS OF FINAL TROWELING.
12. ALL FLOORS SLABS SHALL CONFORM TO THE FOLLOWING ACI F-NUMBER REQUIREMENTS:

    SPECIFIC OVERALL VALUE: Ff-30 / Fl-20
    MINIMUM LOCAL VALUE: Ff-15 / Fl-10

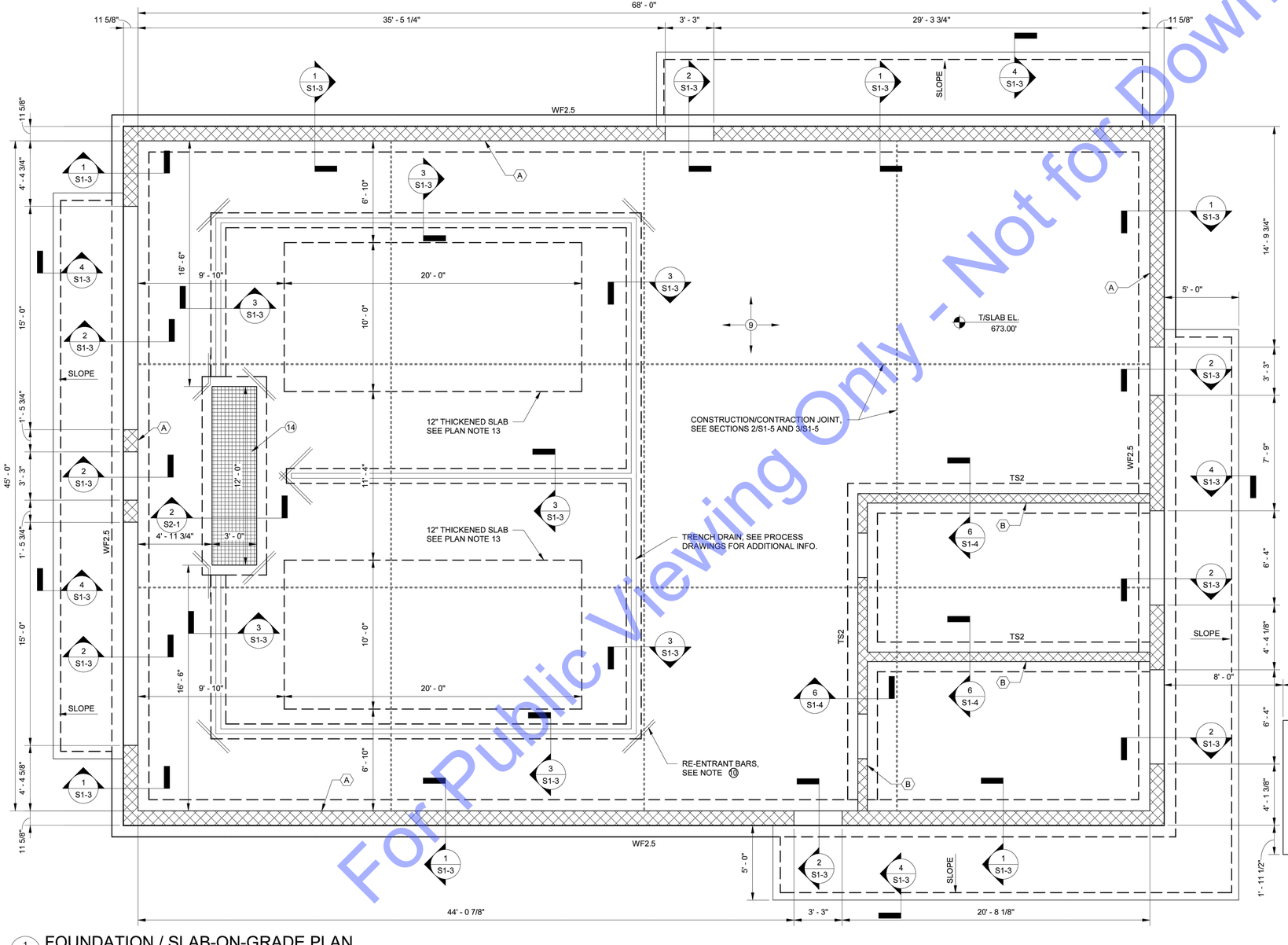
13. PROVIDE 2 LAYS OF #5 AT 10" O.C. EACH THICKENED SLAB. BOTTOM LAYER SHALL HAVE A MIN. OF 3" OF COVER. TOP LAYER SHALL HAVE A MIN. OF 3/4" OF COVER.
14. 1 ½" GRATING, UNLESS NOTED OTHERWISE. SEE SPECIFICATION SECTIONS 'WM 19 - MISCELLANEOUS METALS AND ALUMINUM' AND 'WM 20 - FIBERGLASS MATERIALS' FOR ADDITIONAL INFORMATION.

MASONRY WALL REINFORCING SCHEDULE

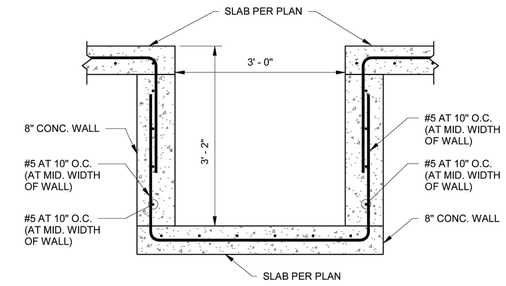
A	12-INCH CMU WALL 12-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #5 BARS AT 24" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/WALL (2) #5 BARS AT MID HEIGHT OF WALL #9 TRUSS TYPE JOINT REINF. AT 16-INCHES O.C. (8" LAP)
B	8-INCH CMU WALL 8-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #5 BARS AT 48" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/WALL #9 TRUSS TYPE JOINT REINF. AT 32-INCHES O.C. (8" LAP)

NOTES:

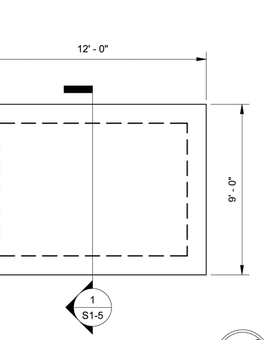
1. REINFORCE ALL WALLS AS NOTED BY SCHEDULE EXCEPT AS NOTED ON PLANS AND/OR DETAILS.
2. PROVIDE TOP BAND BEAM (BB) TO ALL WALLS. WHEN WALL COURSING DOES NOT FINISH ON A FULL BLOCK, TOP BB DEPTH SHALL BE THE LAST FULL BLOCK PLUS THE PARTIAL DEPTH OF THE REMAINING BLOCK AT TOP OF THE WALL.
3. PROVIDE A 1'-0" HOOK AT TOP OF ALL VERTICAL BARS.
4. PROVIDE #5 DOWELS WITH 1'-0" HOOK AT BOTTOM OF WALL INTO CONCRETE SLAB.
5. INSULATE EXTERIOR CMU WALLS USING KORFIL IN-CORE INSULATION OR APPROVED EQUAL. MASONRY CORE INSULATION IS TO BE PLACED AT ALL NON-REINFORCED/NON-GROUTED CMU CORES. MASONRY CORE INSULATION IS NOT PERMITTED AT REINFORCED/GROUTED CMU CORES.



1 S2-1 FOUNDATION / SLAB-ON-GRADE PLAN
1/4" = 1'-0"



2 S2-1 TYPICAL PIT SECTION
3/4" = 1'-0"



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JACOB JAMES ULLOM — REGISTERED — No. PE12000743 — STATE OF INDIANA — PROFESSIONAL ENGINEER
Signature 1 - 30 - 24 Date

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NEW WATER TREATMENT PLANT FACILITY - FOUNDATION PLAN

Drawing No: **S2-1**
Sheet: 69 OF 93

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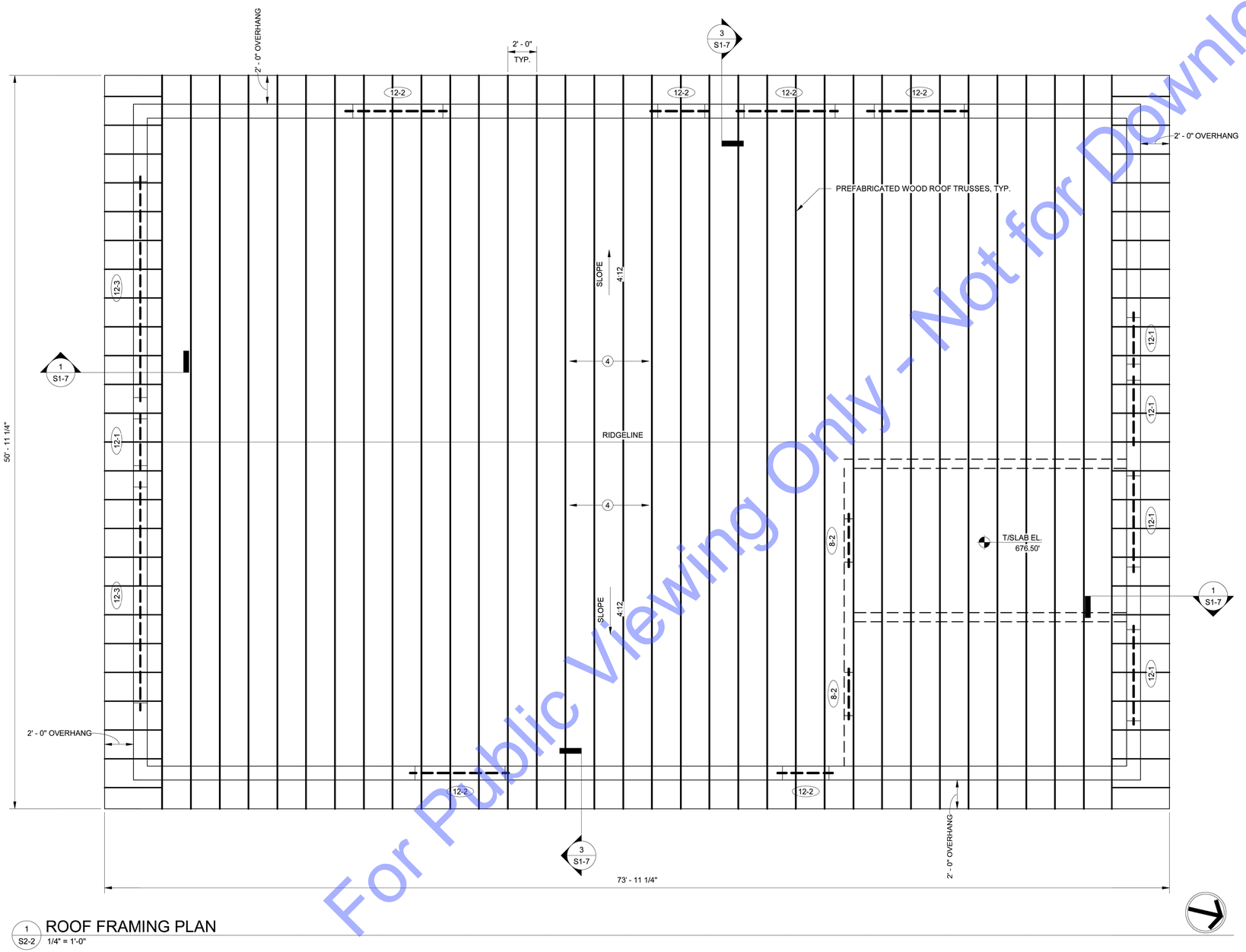


1 S2-2 ROOF FRAMING PLAN
1/4" = 1'-0"

ROOF FRAMING PLAN NOTES

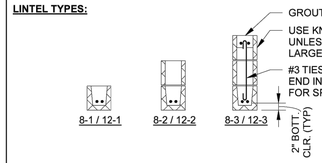
◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S1-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
2. GENERAL CONTRACTOR TO COORDINATE ALL GUTTERS AND ROOF FINISHES WITH THE PROCESS DRAWINGS.
3. TRUSS BEARING ELEVATION = 690.0' U.N.O.
4. (4) ROOF DECK SHALL BE APA 40/20 SPAN RATED SHEATHING, 5/8-INCH NOMINAL THICKNESS, EXPOSURE 1. ATTACH WITH 8d COMMON NAILS AT 6-INCHES O.C. IN FIELD AND 6-INCHES O.C. AT EDGES AND DIAPHRAGM BOUNDARIES, UNLESS NOTED OTHERWISE ON PLANS. PROVIDE SHEATHING SUPPORT CLIPS BETWEEN TRUSSES AT UNBLOCKED PANEL EDGES (SIMPSON PSCL OR EQUAL).
5. PREFABRICATED WOOD ROOF TRUSSES SHALL BE DESIGNED TO SUPPORT LOADING AS SPECIFIED IN GENERAL STRUCURAL NOTES SHEET S1-1.
6. ALL STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED.
7. (8-X) DENOTES MASONRY LINTEL - SEE SCHEDULE ON THIS SHEET.

CMU LINTEL SCHEDULE

MARK	SIZE	BOTT. BARS	TOP BARS	EXTEND PAST OPNG.	TIES	SPAN
8-2	8" x 16"	2 - #5	-	16"	-	SEE PLAN
12-1	12" x 8"	2 - #5	-	8"	-	SEE PLAN
12-2	12" x 16"	2 - #5	-	16"	-	SEE PLAN
12-3	12" x 24"	2 - #5	2 - #5	16"	#3 AT 8" O.C.	SEE PLAN

LINTEL TYPES:



NOTES:

1. LINTEL BLOCKS AND BOTTOM BARS TO EXTEND PAST CMU OPENING TO WIDTHS INDICATED IN SCHEDULE. CUT OUT BOTTOM SHELL OF LINTEL BLOCKS AT BEARING TO ALLOW INTEGRAL GROUTING OF LINTEL & FILLED CELLS BELOW AT BEARING. PROVIDE FILLED CELLS FULL WIDTH OF BEARINGS INDICATED WITH VERTICAL IN EACH CELL EXTENDING FROM FLOOR TO FLOOR TO ROOF. USE BAR SIZE INDICATED FOR WALL THICKNESS/TYPE.
2. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 2" OF THE ENDS OF THE LINTEL BEARINGS.
3. LINTELS SHALL BE GROUTED SIMILAR TO WALLS. ALL GROUT MUST BE CONSOLIDATED TWICE, ONCE WITHIN 5 MINUTES OF PLACEMENT AND ONCE 15-20 MINUTES AFTER PLACEMENT.

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Signature
1 - 30 - 24
Date

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NEW WATER TREATMENT PLANT FACILITY - ROOF FRAMING PLAN

Drawing No:
S2-2
Sheet: 70 OF 93

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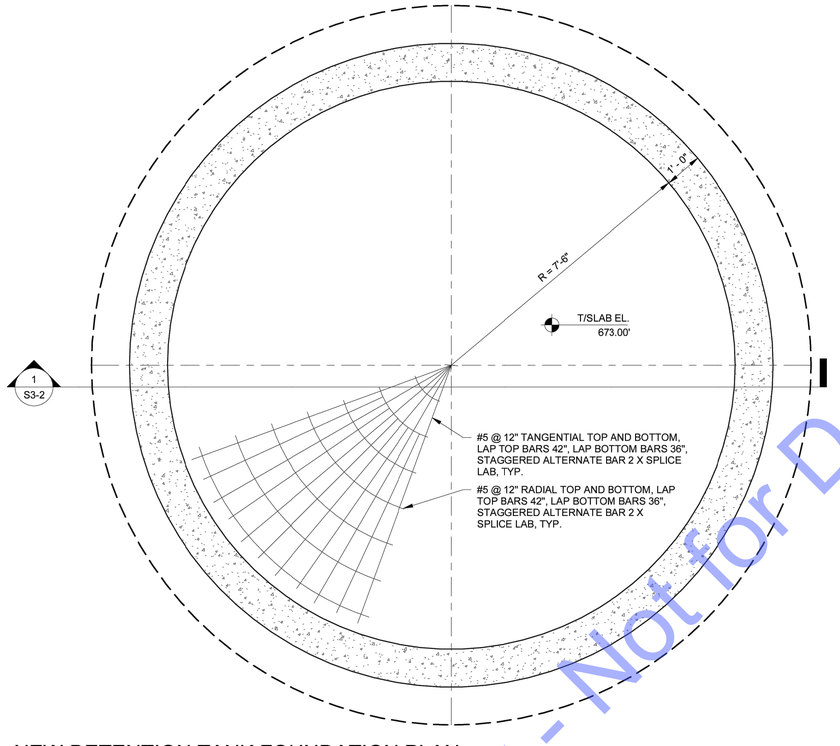
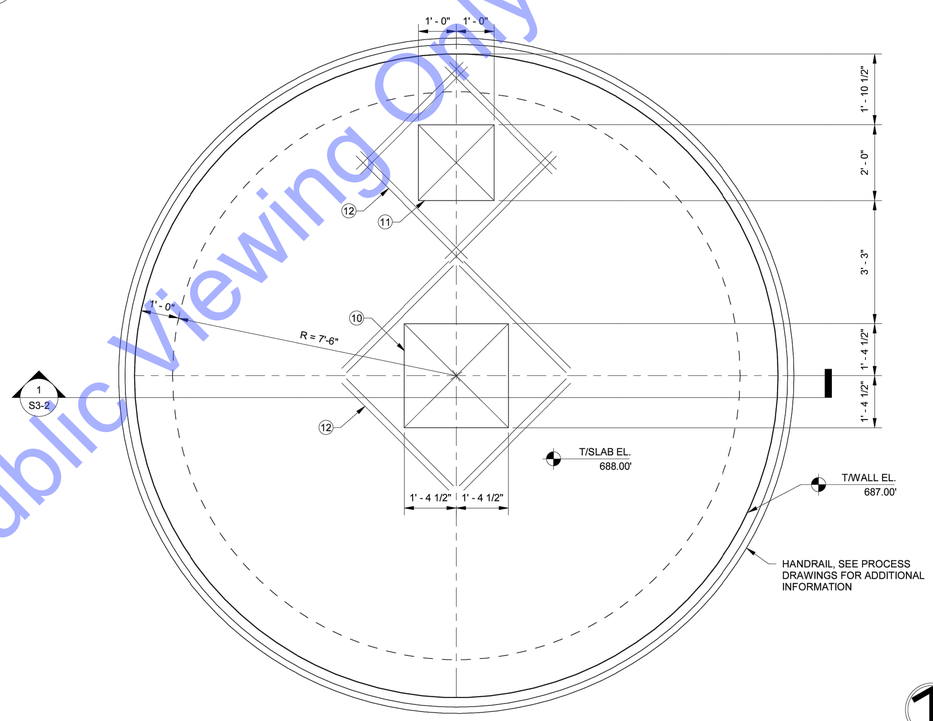


1 S3-1 NEW DETENTION TANK FOUNDATION PLAN
1/2" = 1'-0"



2 S3-1 NEW DETENTION TANK UPPER LEVEL PLAN
1/2" = 1'-0"

PLAN NOTES

◯ INDICATES NOTE REFERENCED IN PLAN

1. SEE THE S1-SERIES SHEETS FOR GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS.
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4. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
5. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. SEE DETAILS 6/S1-3 AND 7/S1-3 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. SEE PROCESS AND MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT PADS.
10. 2'-9" x 2'-9" OPENING TOP SLAB FOR PIPE PENETRATION. FINAL SIZE OF THE OPENING SHALL BE VERIFIED WITH SELECTED EQUIPMENT SUPPLIER, SEE PROCESS DRAWINGS FOR MORE INFORMATION.
11. 2'-0" x 2'-0" ACCESS HATCH, SEE PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.
12. PROVIDE (2) - #5 BARS T&B x 4'-0" AT ALL RE-ENTRANT CORNERS. SEE DETAIL 1/S4-1 FOR ADDITIONAL INFORMATION.

NOTE:

1. IF THE RESERVOIR WILL BE TESTED FOR WATER LEAKS WITHOUT THE TOP SLAB, THEN THE WALLS SHALL HAVE TEMPORARY BRACING.

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NEW DETENTION TANK FOUNDATION AND UPPER LEVEL PLAN

Drawing No:
S3-1
Sheet: 71 OF 93

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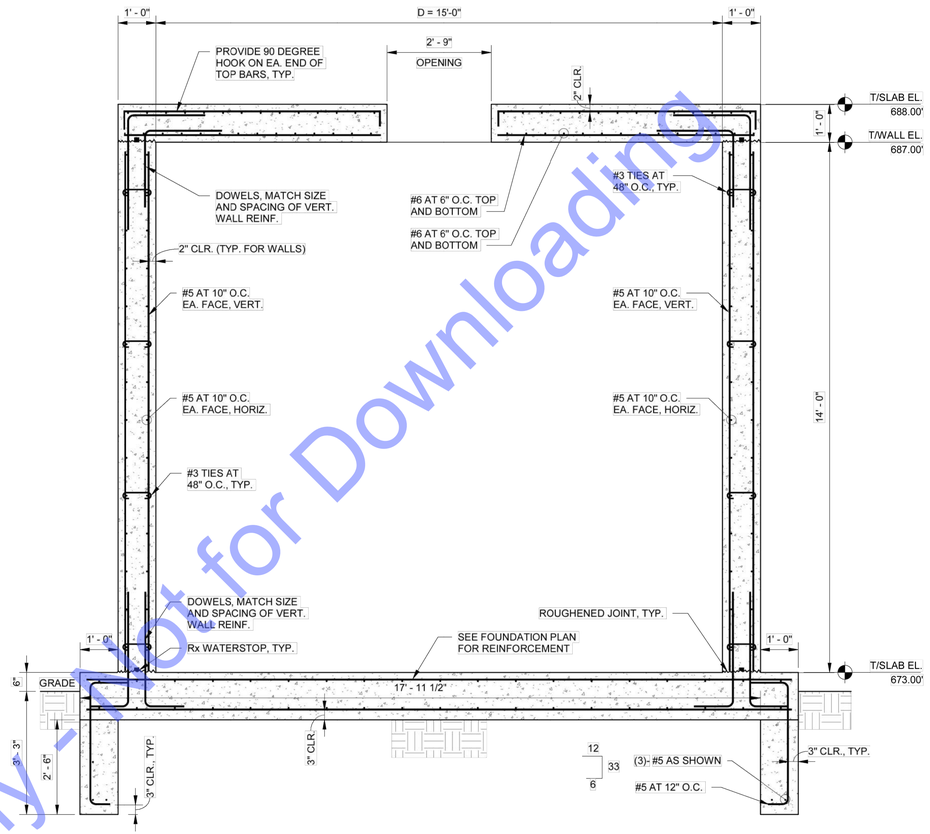

1 S3-2 TYPICAL TANK SECTION
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NEW DETENTION TANK SECTIONS AND DETAILS

Drawing No:
S3-2
Sheet: 72 OF 93

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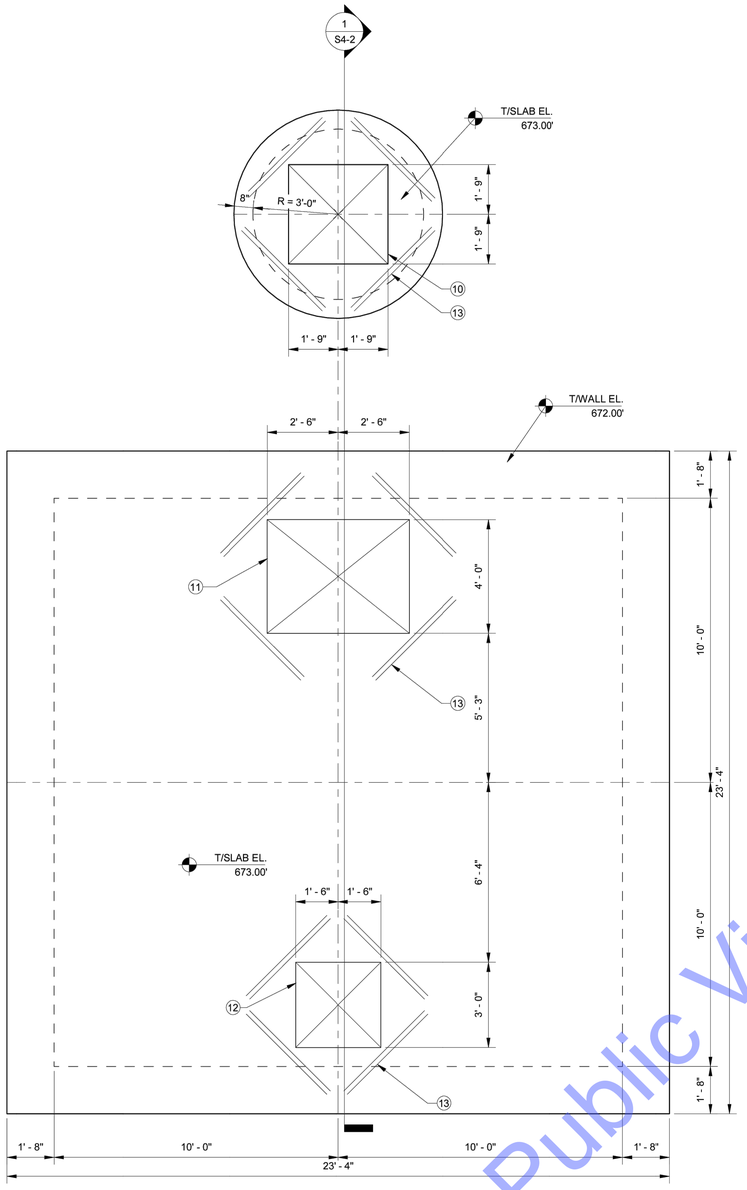
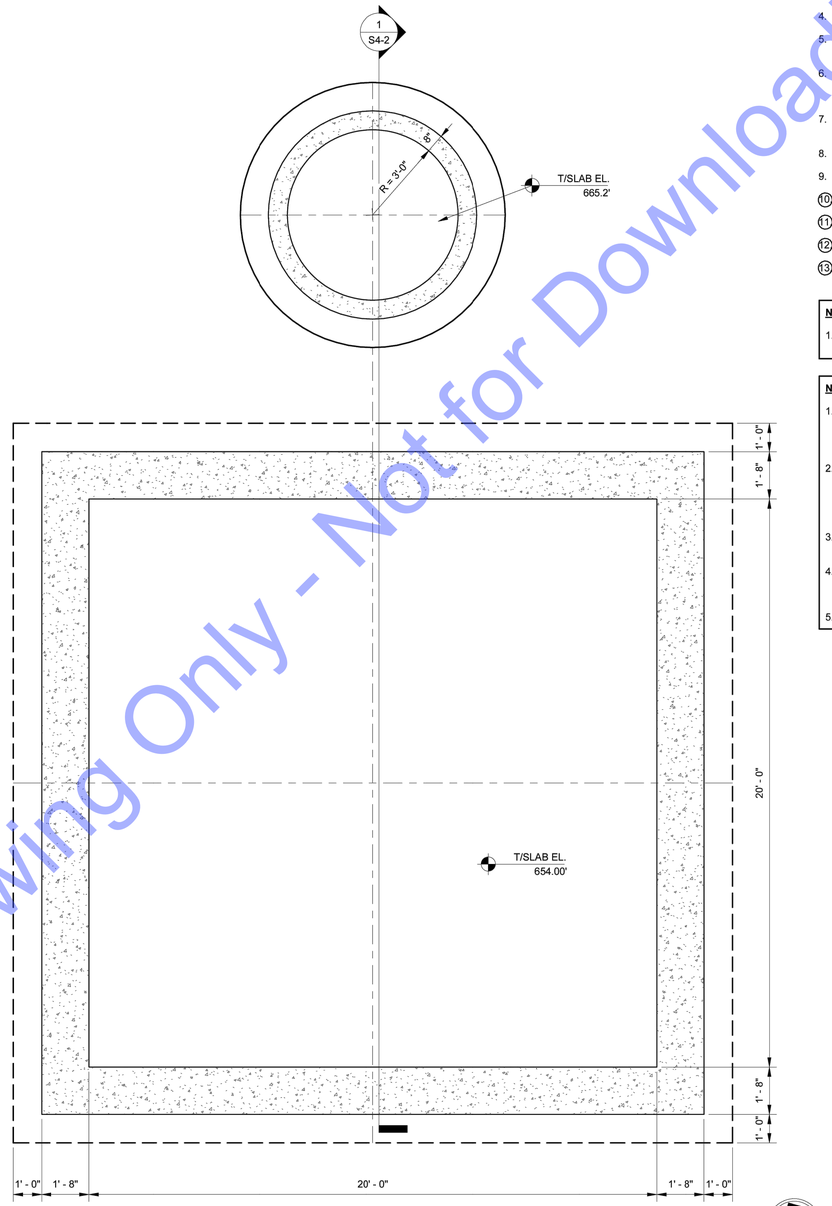


2 S4-1 NEW BACKWASH TANK - TOP SLAB PLAN

3/8" = 1'-0"



1 S4-1 NEW BACKWASH TANK - FOUNDATION PLAN

3/8" = 1'-0"

PLAN NOTES

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6. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
7. SEE DETAILS 6/S1-3 AND 7/S1-3 FOR WALL CONSTRUCTION JOINT AND WALL CONTRACTION JOINT REQUIREMENTS.
8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
9. SEE PROCESS AND MECHANICAL DRAWINGS FOR LOCATION OF EQUIPMENT PADS.
10. 3'-6" x 3'-6" OPENING IN TOP SLAB, SEE PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.
11. 5'-0" x 4'-0" OPENING IN TOP SLAB, SEE PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.
12. 3'-0" x 3'-0" OPENING IN TOP SLAB, SEE PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.
13. PROVIDE (2) - #5 BARS T&B x 4'-0" AT ALL RE-ENTRANT CORNERS. SEE DETAIL 1/S4-1 FOR ADDITIONAL INFORMATION.

NOTE:

1. IF THE RESERVOIR WILL BE TESTED FOR WATER LEAKS WITHOUT THE TOP SLAB, THEN THE WALLS SHALL HAVE TEMPORARY BRACING.

NOTE - BACKFILL BEHIND CONCRETE WALLS:

1. THE MAXIMUM PERMISSIBLE HEIGHT THE CONCRETE WALLS CAN BE BACKFILLED WITHOUT BRACING BEFORE THE TOP SLAB IS IN PLACE SHALL BE 6-FT. THE CONCRETE WALLS SHALL BE ALLOWED TO CURE AT LEAST 7 DAYS WITH A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI.
2. THE TOP SLAB SHALL BE IN PLACE PRIOR TO FINISHING THE REST OF THE BACKFILLING BEHIND WALLS ABOVE THE 6-FT LIMIT UNLESS WALL BRACING IS PROVIDED. THE CONCRETE WALLS SHALL HAVE ATTAINED THE DESIGN MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 3,000 PSI PRIOR TO FINISHING THE REST OF THE BACKFILLING ABOVE THE 6-FT LIMIT.
3. AFTER THE TOP SLAB IS IN PLACE, BACKFILL SHALL BE PLACED SIMULTANEOUSLY ON OPPOSING SIDES OF THE RESERVOIR STRUCTURE WHILE BACKFILLING.
4. WALL BACKFILL SHALL BE FREE DRAINING GRANULAR MATERIAL EXTENDING FROM THE BASE OF THE WALL AT A 45-DEGREE ANGLE FROM VERTICAL TO FINISHED GRADE.
5. SEE THE GEOTECHNICAL REPORT FOR BACKFILL COMPACTION REQUIREMENTS.

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IMPROVEMENTS PROJECT
NEW WATER
TREATMENT PLANT AND
WELLS IMPROVEMENTS

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Issue Date:	Project No:	Scale:
01/30/24	23-189	As indicated

NEW BACKWASH TANK FOUNDATION & TOP SLAB PLAN

Drawing No:
S4-1
Sheet: 73 OF 93

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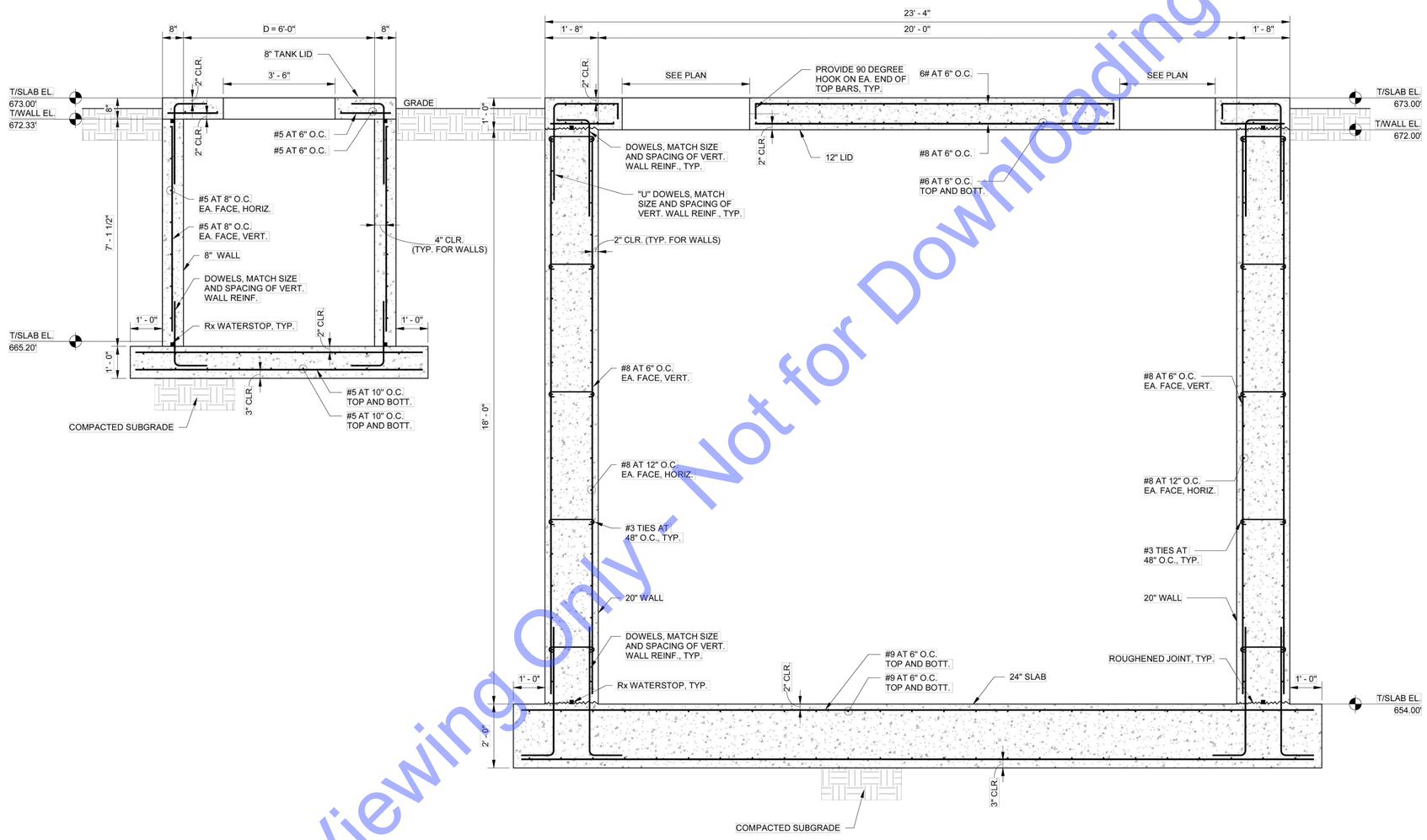

1 S4-2 TYPICAL TANK SECTION

1/2" = 1'-0"

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JACOB JAMES ULLOM
REGISTERED
No. PE12000743
STATE OF INDIANA
PROFESSIONAL ENGINEER
1-30-24
Signature Date

CE Solutions structural engineers
8774 North St., Ste. 300 317.818.1052
Fishers, IN 46038 www.cesolutions.com

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01/30/24	23-189	1/2" = 1'-0"

NEW BACKWASH TANK
SECTIONS AND DETAILS

Drawing No:
S4-2
Sheet: 74 OF 93

HEAT/COOL DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT

GENERAL NOTES:

(1) - COOLING CAPACITY BASED ON 95° O.A.T. AND 80°/67° INDOOR TEMPERATURE

UNIT ACCESSORIES:

1. OPERATION TO -20° HEAD PRESSURE CONTROL
2. WALL MOUNTED T'STAT WITH SUBBASE-HEATING/COOLING WITH AUTOMATIC CHANGEOVER
3. CONDENSATE PUMP
4. COLD TEMPERATURE KIT & OUTDOOR DRAIN PAN HEATER
5. HEAT PUMP WALL MOUNT BRACKET
6. LINE SET COVER AND WALL SLEEVE

IDENTIFICATION		FC-1 HP-1 LABORATORY/OFFICE
MANUFACTURER		TRANE/MITSUBISHI (OR EQUAL)
A/C UNIT MODEL NO.		PKA-12HA7
A/C UNIT TYPE		WALL MOUNT
HEAT PUMP UNIT MODEL NO.		PUZ-A12NKA7 (-BS)
HEAT PUMP UNIT TYPE		REMOTE
SEER		20.8
UNIT ACCESSORIES		1 2 3 4 5 6
INDOOR COIL	CFM	380 (HIGH SPD, WET COIL)
	MIN. OUTSIDE AIR	0
	ELEC MCA/MOCP	1A/20
	COOL/HEAT CAPACITY	12,000/14,000
COND. UNIT	ELEC	240/1/60
	ELEC MCA/MOCP	11/30A
REMARKS		WIRED THERMOSTAT

HEAT/COOL DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT

GENERAL NOTES:

(1) - COOLING CAPACITY BASED ON 95° O.A.T. AND 80°/67° INDOOR TEMPERATURE

UNIT ACCESSORIES:

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4. COLD TEMPERATURE KIT & OUTDOOR DRAIN PAN HEATER
5. HEAT PUMP WALL MOUNT BRACKET
6. LINE SET COVER AND WALL SLEEVE

IDENTIFICATION		FC-2 HP-2 ELECTRIC ROOM
MANUFACTURER		TRANE/MITSUBISHI (OR EQUAL)
A/C UNIT MODEL NO.		PLA-A24EA7
A/C UNIT TYPE		CEILING CASSETTE
HEAT PUMP UNIT MODEL NO.		PUZ-A24NHA7 (-BS)
HEAT PUMP UNIT TYPE		REMOTE
SEER		24.2
UNIT ACCESSORIES		1 2 3 4 5 6
INDOOR COIL	CFM	770 (HIGH SPD, WET COIL)
	MIN. OUTSIDE AIR	0
	ELEC MCA/MOCP	1A/20
	COOL/HEAT CAPACITY	24,000/26,000
COND. UNIT	ELEC	240/1/60
	ELEC MCA/MOCP	19/30A
REMARKS		WIRED THERMOSTAT

APPLICABLE CODES AND STANDARDS

1. MECHANICAL INSTALLATION TO BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL CODES HAVING JURISDICTION.
2. CODES CONSIDERED APPLICABLE TO THIS PROJECT INCLUDE BUT ARE NOT LIMITED TO:
   - A. OBC; 2011 INDIANA BUILDING CODE - BASED ON IBC 2009.
   - B. OMC; 2011 INDIANA MECHANICAL CODE - BASED ON IMC 2009.
   - C. OPC; 2011 INDIANA PLUMBING CODE - BASED ON IPC 2009.
   - D. OFC; 2011 INDIANA FIRE CODE - BASED ON IFC 2009
   - E. IECC; 2009 INTERNATIONAL ENERGY CONSERVATION CODE.
   - F. ASHRAE STANDARD 90.1 2007 ENERGY STANDARDS FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS.
   - G. NFPA 13; 2010 SPRINKLER SYSTEM INSTALLATION.
   - H. NFPA 14; 2010 STANDPIPE AND HOSE SYSTEMS.
   - I. NFPA 70, 2011 NATIONAL ELECTRIC CODE.(NEC)
   - J. NFPA 72, 2010 FIRE ALARM AND SIGNALING CODE.
   - K. ANSI HANDICAPPED CODE A117.1
   - L. AGA; AMERICAN GAS ASSOCIATION.
   - M. AMCA; AIR MOVING AND CONDITIONING ASSOCIATIONS, INC.
   - N. ANSI; AMERICAN NATIONAL STANDARDS INSTITUTE.
   - O. ARI; AMERICAN REFRIGERATION INSTITUTE.
   - P. ASHRAE; AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS.
   - Q. ASME; AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
   - R. ASTM; AMERICAN SOCIETY FOR TESTING AND MATERIALS.
   - S. MSS; MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTING INDUSTRY.
   - T. NEMA; NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION.
   - U. NFPA; NATIONAL FIRE PROTECTION ASSOCIATION.
   - V. SMACNA; SHEET METAL CONSTRUCTION FOR VENTILATING AND AIR-CONDITIONING SYSTEMS.
   - W. UL; UNDERWRITER'S LABORATORIES, INC.
3. INSTALL ALL WORK IN STRICT CONFORMITY WITH APPLICABLE CODES.
4. SUBMIT AND/OR FILE WITH PROPER AUTHORITIES NECESSARY CONTRACT DOCUMENTS AS REQUIRED BY GOVERNING AUTHORITIES.

COORDINATION NOTES

1. VISIT SITE AND BE INFORMED OF CONDITIONS UNDER WHICH WORK MUST BE PERFORMED.
2. GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL COORDINATE LOCATION AND PROVIDE SUPPORT FRAMING FOR ALL ROOF-MOUNTED HVAC EQUIPMENT.
3. GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL INCLUDE ADEQUATE TIME IN THE CONSTRUCTION SCHEDULE FOR THE TEST & BALANCE SUBCONTRACTOR TO COMPLETE THE SETUP AND BALANCE OF ALL AIR AND WATER FLOW SYSTEMS IN THE PROJECT AFTER THE MECHANICAL SUBCONTRACTOR HAS ALL AIR AND WATER SYSTEMS IN CONTINUOUS, STABLE OPERATION AND UNDER CONTROL. PRIOR TO STARTING THE TESTING AND BALANCING WORK, THE DIVISION 23 SUBCONTRACTOR SHALL FURNISH COMPLETED SETUP AND COMMISSIONING WORKSHEETS AS LISTED IN SECTION 230800 TO THE TEST AND BALANCE SUBCONTRACTOR AS EVIDENCE THAT THE SYSTEMS HAVE BEEN SETUP, CHECKED AND ARE OPERATIONALLY READY FOR BALANCING.
4. NO SUBSEQUENT ALLOWANCE WILL BE MADE BECAUSE OF ERROR OR FAILURE TO OBTAIN NECESSARY INFORMATION TO COMPLETELY ESTIMATE AND PERFORM ALL WORK INVOLVED.
5. CAREFULLY EXAMINE DRAWINGS AND SPECIFICATIONS TO BE THOROUGHLY FAMILIAR WITH ITEMS WHICH REQUIRE PLUMBING OR HVAC CONNECTIONS AND COORDINATION.
6. NOTIFY OTHER TRADES OF ANY DEVIATIONS OR SPECIAL CONDITIONS NECESSARY FOR INSTALLATION OF WORK.
7. RESOLVE INTERFERENCES BETWEEN WORK OF OTHER TRADES PRIOR TO INSTALLATION.
8. ADVISE OTHER TRADES TO LEAVE PROPER CHASES AND OPENINGS, PLACE OUTLETS, ANCHORS, SLEEVES, AND SUPPORTS PRIOR TO POURING CONCRETE OR INSTALLATION OF MASONRY WORK.
9. IN AREAS OF RENOVATION, INSTALLATION OF NEW PIPING, DUCTWORK, AND EQUIPMENT WILL REQUIRE REMOVAL OF THE EXISTING CEILING AND GRID. SURVEY THE SITE AND BE INFORMED OF EXISTING CONDITIONS WHICH WILL REQUIRE CEILING REMOVAL. INCLUDE THE COST OF THE CEILING WORK OR COORDINATE ITS REMOVAL WITH THE GENERAL CONTRACTOR.
10. ADDITIONAL INSTALLATION COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT REQUIRING ADDITIONAL WORK ON THE PART OF THIS CONTRACTOR OR OTHER SUBCONTRACTORS TO SATISFY THE MANUFACTURER'S INSTALLATION REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE SUBMITTING CONTRACTOR.
11. COORDINATE ALL NECESSARY POWER CONNECTIONS AS RECOMMENDED BY THE MANUFACTURERS OF INSTALLED EQUIPMENT WITH ELECTRICAL TRADESMEN.
12. COORDINATE WITH ELECTRICAL TRADESMEN FOR PROPER SIZING OF CIRCUIT BREAKERS, FUSES, SAFETY SWITCHES, CONDUIT AND WIRING FOR ALL EQUIPMENT FURNISHED BY DIVISION 23 EQUIPMENT PRIOR TO ROUGH-IN.
13. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR 42 INCHES IN FRONT OF ELECTRICAL SWITCHGEAR, PANELS OR TRANSFORMERS.
14. IN CERTAIN AREAS OF RENOVATION, INSTALLATION OF NEW PIPING, DUCTWORK, AND EQUIPMENT AS WELL AS HIGHER CEILING HEIGHTS WILL REQUIRE OFFSETTING, RAISING AND IN SOME INSTANCES RELOCATING OF EXISTING PIPING, DUCTWORK, RAIN WATER LEADERS, SPRINKLERS, AND CONDUIT. SURVEY THE SITE AND BE INFORMED OF EXISTING CONDITIONS IN PARTICULAR ABOVE CEILINGS WHICH WILL REQUIRE OFFSETTING AND OR RELOCATION OF EXISTING PIPING, DUCTWORK AND CONDUIT AND INCLUDE THE COST OF THIS WORK.

MECHANICAL LEGEND

PIPING		DUCTWORK	
CHS	CHILLED WATER SUPPLY		SUPPLY DUCTWORK
CHR	CHILLED WATER RETURN		RETURN OR EXHAUST DUCTWORK
HWS	HOT WATER SUPPLY	FD	FIRE DAMPER
HWR	HOT WATER RETURN	SD	SMOKE DAMPER
HWRR	HOT WATER REVERSE RETURN	F/SD	COMBINATION FIRE & SMOKE DAMPER
CWS	CONDENSER WATER SUPPLY	240	SUPPLY DIFFUSER & AIR QUANTITY (INDICATES 4-WAY BLOW)
CWR	CONDENSER WATER RETURN	150 3W (2W)	SUPPLY DIFFUSER & AIR QUANTITY, INDICATES 3-WAY BLOW (2-WAY BLOW)
STM.(PSI)	STEAM SUPPLY PIPING AND IT'S PRESSURE	140R	RETURN AIR GRILLE & AIR QUANTITY
C.R.	STEAM CONDENSATE RETURN	150E	EXHAUST AIR GRILLE & AIR QUANTITY
P.C.R.	PUMPED STEAM CONDENSATE RETURN		REDUCER/TRANSITION
D	DRAIN LINE	H	STEAM HUMIDIFIER
RS	REFRIGERANT SUCTION	T	THERMOSTAT (ADJUSTABLE)
RL	REFRIGERANT LIQUID	TD	THERMOSTAT (CONCEALED / KEY OPER.)
FTS	FINNED TUBE SUPPLY	H	HUMIDISTAT
FTR	FINNED TUBE RETURN	R	RISE IN DUCTWORK
FOS	FUEL OIL SUPPLY	D	DROP IN DUCT
FOR	FUEL OIL RETURN		CONICAL TEE
V	EQUIPMENT VENT		BELLMOUTH CONNECTION
E.O.M.	END OF MAIN DRIP		DUCT WITH INTERNAL SOUND LINER
P.R.V.	PRESSURE REDUCING VALVE	SP.D.	SPLITTER DAMPER
T	STEAM TRAP		REHEAT COIL
	BALL VALVE		ELECTRIC REHEAT BOX, CLEARANCE SPACE AND IDENTIFICATION
	GATE VALVE	#	ASTERISK WITH REHEAT BOX INDICATES 3-WAY HOT WATER CONTROL VALVE
	GLOBE VALVE	#	HOT WATER REHEAT BOX AND IDENTIFICATION
	BUTTERFLY VALVE		SQUARE ELBOW WITH TURNING VANES
	CONTROL VALVE	M.B.D.	MANUAL BALANCE DAMPER
	STRAINER WITH HOSE END DRAIN CONNECTION	A.T.C.	AUTOMATIC TEMP. CONTROL PANEL
	STRAINER AND BLOWDOWN VALVE	A.D.	ACCESS DOOR
	B&G CIRCUIT SETTER, OR EQUAL, BALANCING VALVE	M.L.	MARINE LIGHT
	PLUG COCK (BALANCING VALVE)	50	INDICATES 3/4" DOOR UNDERCUT. DIRECTION & QUAN. OF ROOM AIR PRESS.
	UNION	50	INDICATES DIRECTION & QUANTITY OF ROOM AIR PRESSURIZATION.
	COMPANION FLANGE	S	DUCT MOUNTED SMOKE DETECTOR
	CHECK VALVE	SP	DUCT MOUNTED STATIC PRESSURE CONTROLLER
	GUIDE	A.F.F.	ABOVE FINISHED FLOOR
	ANCHOR	A.F.R.	ABOVE FINISHED ROOF
	GAUGE & GAUGE COCK		MANUAL BALANCING DAMPER
	THERMOMETER	PI	PRESSURE INDICATOR (GAUGE)
M	MOTORIZED VALVE		

HVAC GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE APPROXIMATE ROUTING OF PIPING AND DUCTWORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS AND DELAYS. MINOR OFFSETS AND ADJUSTMENTS SHALL BE PROVIDED WHERE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE LOCATIONS OF EQUIPMENT WITH OTHER TRADES, AND WITH STRUCTURAL AND ARCHITECTURAL ELEMENTS.
3. ALL EXHAUST FANS, SUPPLY FANS, DAMPERS, AND RELIEF VENTS SHALL BE MOUNTED 18" BELOW CEILING HEIGHT. COORDINATE FINAL HEIGHT LOCATIONS WITH OWNER/RPR.
4. DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE NET AIRSIDE DIMENSIONS.
5. DUCTWORK SHALL BE FABRICATED OF FIBERGLASS (UNLESS NOTED OTHERWISE) AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. SEAL ALL DUCTS, JOINTS, AND SEAMS IN DUCTWORK TO INSURE AGAINST LEAKAGE.
6. PENETRATIONS OF THE WALLS AND FLOORS SHALL BE FLASHED WITH ALUMINUM SHEET ANGLES AND SEALED WITH INSULATING FOAM PER SMACNA ARCHITECTURAL SHEETMETAL DETAILS STANDARDS.
7. ELECTRIC MOTORS FOR EQUIPMENT SHALL BE TEFC, SELECTED FOR NON-OVERLOADING OPERATION. MOTORS SHALL NOT OPERATE IN THEIR SERVICE FACTOR.
8. GRILLES AND DIFFUSERS SHALL BE TITUS OR EQUAL ALUMINUM SIDE WALL GRILLES. RETURN REGISTER SHALL BE TITUS OR EQUAL ALUMINUM LOUVERED SURFACE MOUNT. PROVIDE STANDARD WHITE PAINTED FACE.

FAN SCHEDULE

GENERAL NOTES:
(1) - HIGH EFFICIENCY MOTOR
(2) - INCL. WEIGHT OF INERTIA BASE
(3) - UPBLAST DISCHARGE
(4) - TOP HORIZONTAL DISCHARGE

ABBREVIATIONS:
PRE - POWER ROOF EXHAUST FAN
PRS - POWER ROOF SUPPLY FAN
SWSI - SINGLE WIDTH, SINGLE INLET
DWDI - DOUBLE WIDTH, DOUBLE INLET
BVS - BELTED VENT SET
C.T. - CONTROL TRANSFORMER
PWE - POWERED WALL EXHAUST FAN
E.P. - EMERGENCY POWER

UNIT ACCESSORIES:
1 - INLET SCREEN
2 - MOTORIZED INLET VANES
3 - MOTORIZED INLET DAMPERS
4 - INLET GRAVITY DAMPERS
5 - OUTLET SCREEN
6 - MOTORIZED OUTLET DAMPERS
7 - OUTLET GRAVITY DAMPERS
8 - INERTIA BASE
9 - SPRING ISOLATORS
10 - BELT GUARD
11 - SMOKE DETECTOR
12 - 24" HIGH ROOF CURB
13 - ACCESS DOOR & DRAIN
14 - 2" WASHABLE FILTERS
15 - FAN SAFETY CAGE/WALL SLEEVE
16 - DISCHARGE MIN. 7'0" A.F.R.
17 - U.L. 762 LISTED
18 - EXPLOSION PROOF MOTOR
19 - THERMAL OVERLOAD PROTECTION
20 - SOLID STATE SPEED CONTROLLER
21 - WEATHERPROOF HOUSING/TEFC
22 - 2 SPEED, 2 WINDING MOTOR
23 - 3φ DISC. SWITCH IN HOUSING
24 - PRE-WIRED DISC. SWITCH
25 - DOOR LIMIT SWITCH

STARTER ACCESSORIES:
A - COMBINATION MAG-X-LINE
B - AUTO. TRANSFORMER
C - MANUAL MOTOR STARTER
D - VFD WITH LINE REACTOR AND DISCONNECT
E - HAND/OFF/AUTO SWITCH/PILOT LIGHT/120V XFMR

UNIT ID	SYSTEM	TYPE	MANUFACTURER	MODEL NO.	CFM	S.P.	MAX. SONES	ROOF/WALL OPENING	UNIT WEIGHT (LBS)	FAN ACCESSORIES	MOTOR (1) MIN. H.P.	MOTOR (1) RPM	MOTOR (1) V/φ/Hz	STARTER LOCATION	STARTER TYPE	STARTER DISC. TYPE	STARTER ACCESSORIES	NOTES:
EF-1,2	FILTER ROOM	PWE	GREENHECK (OR EQUAL MEETING BABA REQUIREMNTS)	CUE-160-VG	2200	0.35"	10.6	18"X18"	74	4,5	1/2	932	120/1/60					NOTE 1:
EF-3	CHEMICAL ROOM 2	PWE	GREENHECK (OR EQUAL MEETING BABA REQUIREMNTS)	CUE-95-VG	220	0.3"	4.6	15"X15"	33	4,5	1/6	1044	120/1/60					NOTE 1:
EF-4	CHEMICAL ROOM 1	PWE	GREENHECK (OR EQUAL MEETING BABA REQUIREMNTS)	CUE-160-VG	2200	0.45"	11.1	18"X18"	74	4,5	1/2	976	120/1/60					

NOTE 1: ENTIRE UNIT INCLUDING FAN CURB SHALL BE COATED WITH HI-PROZ (OR EQUIVELANT PERFORMANCE) COATING FOR CORROSSION PROTECTION.

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TOBY LEE CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA

WATER UTILITY
IMPROVEMENTS PROJECT

NEW WATER TREATMENT
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Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

MECHANICAL LEGENDS AND SCHEDULES

Drawing No: **M0-0**

Sheet: 75 OF 93

ELECTRIC UNIT HEATER SCHEDULE

MARK	LOCATION	CONFIGURATION	AIRFLOW		FAN DATA					HEATER DATA						ELECTRICAL DATA			ACCESSORIES		FILTER DATA		MANUFACTURER WITH MODEL NUMBER	NOTES
			SUPPLY CFM		TYPE	VOLTAGE	RPM	FLA		KW	MBH	TEMP RISE				FLA	VOLTS	PH	MOUNTING BRACKET	DISCONNECT SWITCH	TYPE	EFF		
EUH-1	CHEMICAL ROOM 1	HORIZONTAL	700							2	6.8	9				12.0	208	1	YES	YES			INDEECO 234-U11R-0020C OPTION CODES C, D, AND T (OR EQUAL MEETING BABA REQUIREMENTS)	1
EUH-2	CHEMICAL ROOM 2	HORIZONTAL	700							2	6.8	9				12.0	208	1	YES	YES			INDEECO 234-U11R-0020C OPTION CODES C, D, AND T (OR EQUAL MEETING BABA REQUIREMENTS)	1
EWH-1	RESTROOM	WALL	80							2	6.8	80				9.8	208	1					INDEECO 932U0200C-R2 (OR EQUAL MEETING BABA REQUIREMENTS)	2

NOTES:

1. OPTION T: THERMOSTAT FACTORY INSTALLED AND PRE-WIRED TO THE CONTROL ENCLOSURE. 50 TO 90 DEGREE F - SET AT 65 F.
2. PROVIDE 932-124500 SURFACE MOUNTING BOX

GAS UNIT HEATER SCHEDULE

MARK	LOCATION	CONFIGURATION	AIRFLOW		FAN DATA					BURNER DATA						ELECTRICAL DATA			ACCESSORIES		FILTER DATA		MANUFACTURER WITH MODEL NUMBER	NOTES
			SUPPLY CFM		TYPE	ESP	RPM	BHP	HP	FUEL TYPE	INLET PRESS.	TRAIN SIZE	INPUT MBH	MIN EAT	TEMP RISE	MCA	VOLTS	PH		DISCON. SWITCH	TYPE	EFF		
GUH-1,2	PROCESS ROOM	HORIZONTAL	725		PSC		1550		1/15	NAT GAS	7"	1/2"	45		46		120	1		NO			MODINE HDS45SS0111SBAN (OR EQUAL MEETING BABA REQUIREMENTS)	1,2

NOTES:

1. HEAT EXCHANGER TO BE 409 STAINLESS-STEEL.
2. PROVIDE CONCENTRIC VENT KITS FOR VENTING.

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TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 04/02/2024 Date

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NEWTON COUNTY, INDIANA
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MECHANICAL LEGENDS AND SCHEDULES

Drawing No: **M0-1**

Sheet: 76 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPR\S\06 CADK MECH-ELECT\MECHANICAL_DRAWINGS.DWG
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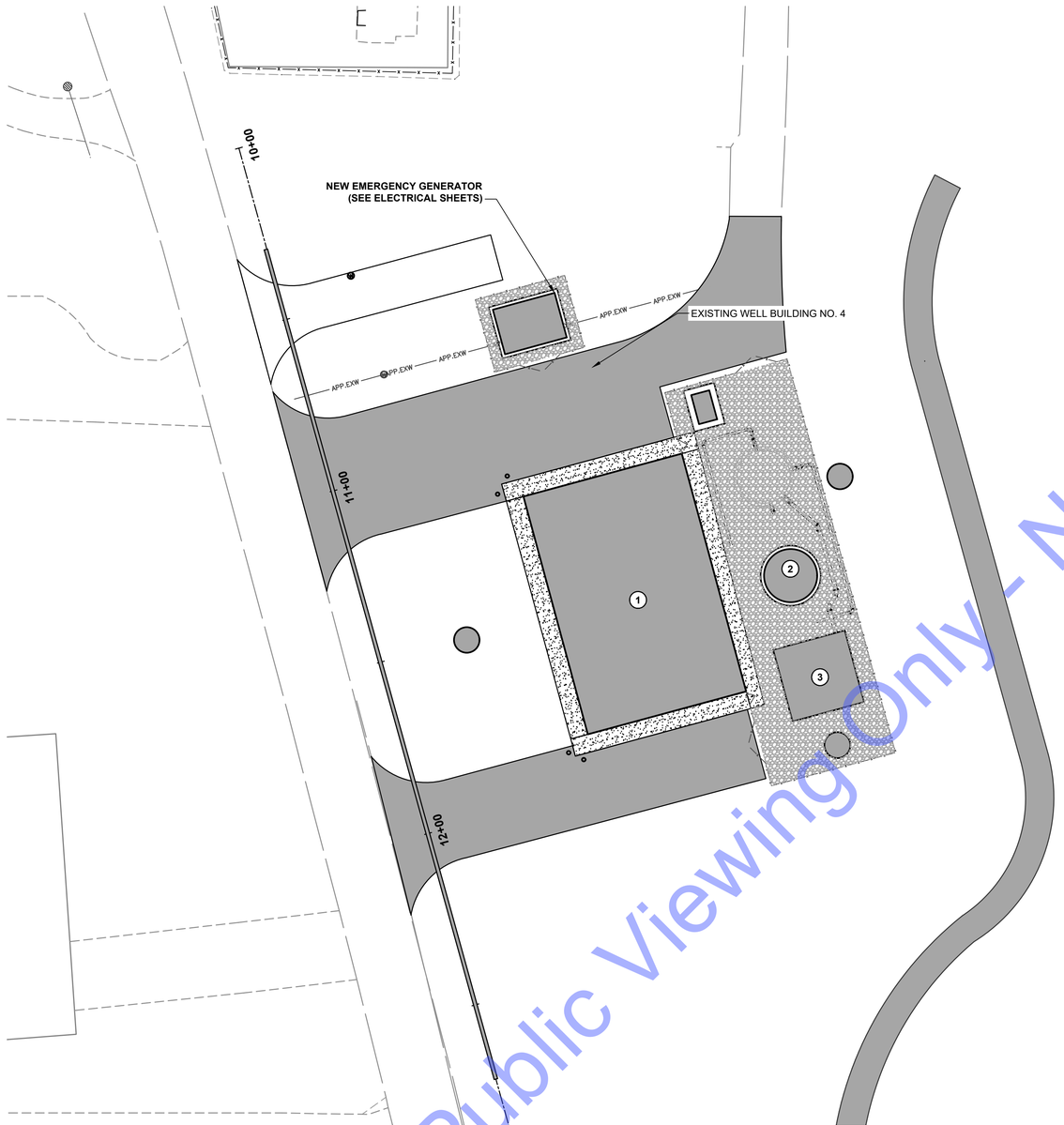

SITE PLAN

SCALE: 1"=20'-0"

0 20' 40'

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)
2	NEW DETENTION TANK (SEE DWG. D1-2)
3	NEW BACKWASH TANK (SEE DWG. D4-1)

MECHANICAL NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH THE NATURAL GAS UTILITY TO PROVIDE NEW NATURAL GAS SERVICE TO THE NEW WATER TREATMENT PLANT. FOR BIDDING PURPOSES CONTRACTOR SHALL ESTIMATE NATURAL GAS PIPING FROM LOCATION SHOWN TO LOCATION OF NEW NATURAL GAS METER. THE CONTRACTOR SHALL ESTIMATE 200 LINEAR FEET OF 2 PSI , 1.25 INCH NATURAL GAS PIPING. GAS UNIT HEATERS 1 AND 2 ARE SHOWN ON MECHANICAL DRAWING M1-1. NATURAL GAS EQUIPMENT LOAD FOR GUH-1&2 IS SHOWN ON MECHANICAL SCHEDULE ON MECHANICAL DRAWING MO-1. NATURAL GAS WATER HEATER IS 60,000 BTU/HR. INPUT.

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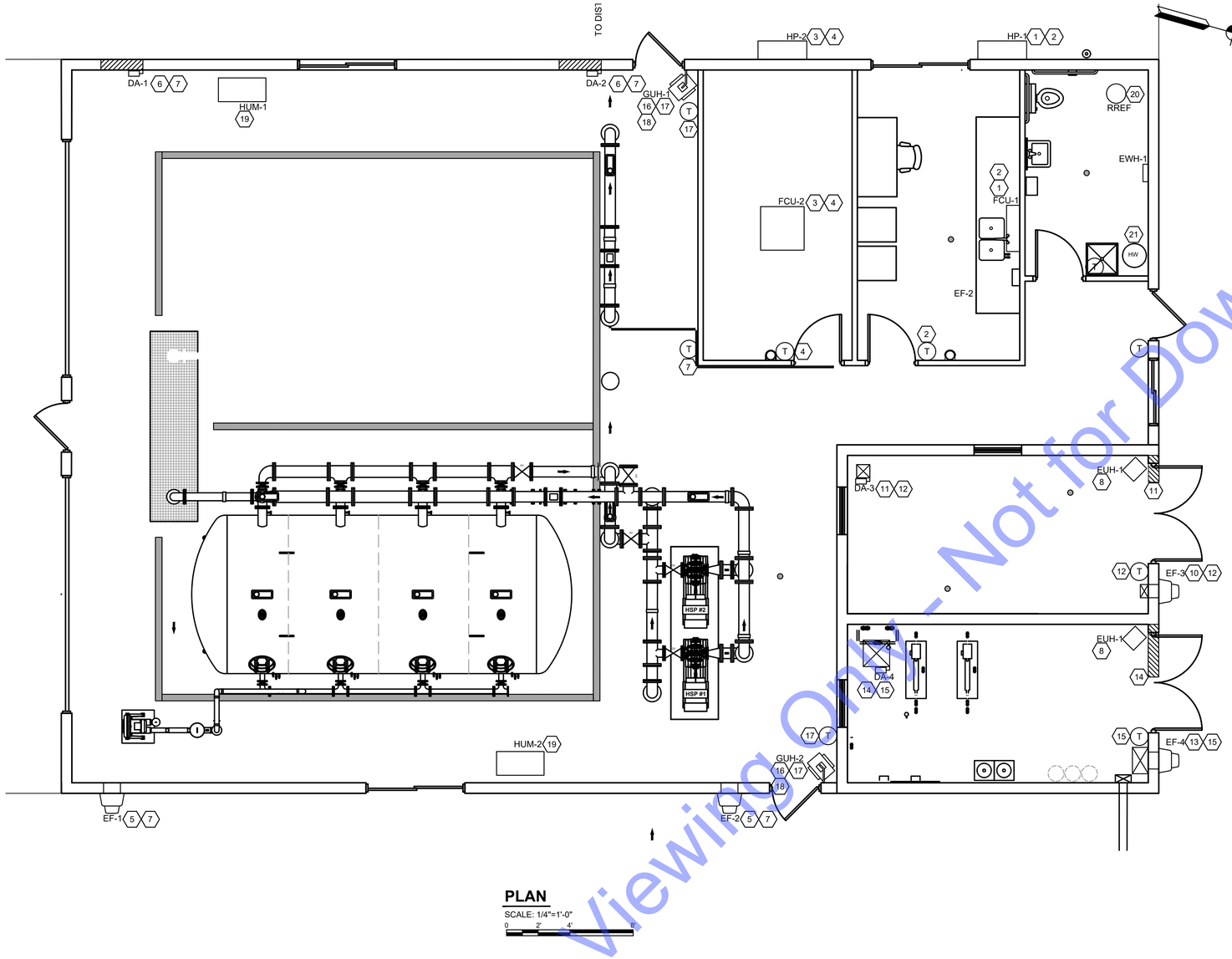
MECHANICAL SITE PLAN

Drawing No: **M1-0**

Sheet: 77 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPROVS\06 CAD\K MECH-ELEC\MECHANICAL_DRAWINGS.DWG
Saved: 4/3/2024 10:16:55 AM Plotted: 4/3/2024 11:28:20 AM Current User: Jack Sizemore LastSavedBy: jsizemore



PLAN

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

0 2' 4' 8'

MECHANICAL NOTES:

1. THE CONTRACTOR SHALL FURNISH AND INSTALL FAN COIL AND HEAT PUMP SYSTEM. MOUNT FAN COIL (FCU-2) ON WALL NEAR CEILING WHERE SHOWN AND HEAT PUMP (HP-2) ABOVE SNOW LEVEL. FURNISH AND INSTALL FACTORY REFRIGERANT LINES. PIPE DRAIN THROUGH CONTROL ROOM TO 1' ABOVE GRADE. ROUTE DRAIN TO GRASS OR GRAVEL AREA. DRAIN LINE SHALL BE 1/2" SCHEDULE 40 PVC. REFER TO MECHANICAL SCHEDULES FOR FAN COIL AND HEAT PUMP SPECIFICATIONS.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL PROGRAMMABLE WITH LOCKABLE HEAT/COOL THERMOSTAT HONEYWELL (OR EQUAL) WITH AUTOMATIC SWITCHOVER BETWEEN HEATING AND COOLING.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL FAN COIL AND HEAT PUMP SYSTEM. MOUNT FAN COIL (FCU-1) WHERE SHOWN AND HEAT PUMP (HP-1) ABOVE SNOW LEVEL. FURNISH AND INSTALL FACTORY REFRIGERANT LINES. PIPE INDIVIDUAL DRAINS IN INTERIOR SPACE TO 1' ABOVE GRADE. ROUTE DRAIN TO GRASS OR GRAVEL AREA. DRAIN LINES SHALL BE 1/2" SCHEDULE 40 PVC. REFER TO MECHANICAL SCHEDULES FOR FAN COIL AND HEAT PUMP SPECIFICATIONS.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL LOCKABLE HEAT/COOL THERMOSTAT HONEYWELL (OR EQUAL) WITH AUTOMATIC SWITCHOVER BETWEEN HEATING AND COOLING.
5. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK (OR EQUAL) EXHAUST FANS (EF-1&2). EXHAUST FANS SHALL OPERATE FROM THERMOSTAT IN AUTOMATIC OPERATION AND SHALL OPERATE FROM A MANUAL SWITCH FOR MANUAL OPERATION. REFER TO MECHANICAL SCHEDULES FOR EXHAUST FAN SPECIFICATIONS. INSTALL EXHAUST FAN AT 12' AFF.
6. THE CONTRACTOR SHALL FURNISH AND INSTALL TWO (2) GREENHECK EAD-635 32" X 28" MOTORIZED INTAKE DAMPERS (OR EQUAL) WITH BIRD SCREEN. DAMPER ACTUATORS (DA-1&2) SHALL BE BELIMO (OR EQUAL). MOUNT INTAKE LOUVER/DAMPER 18" ABOVE FINISHED GRADE.
7. THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 4X THERMOSTAT, (HONEYWELL OR EQUAL). WIRE EXHAUST FAN EF-1&2 TO START ON A TEMPERATURE RISE ABOVE SET-POINT. INTERLOCK DAMPERS DA-1&2 TO OPEN WITH EXHAUST FAN OPERATION. DA-1&2 SHALL OPEN 90% BEFORE EXHAUST FANS START. PROVIDE ALL CONDUIT, WIRING AND RELAYS REQUIRED FOR PROPER OPERATION. THERMOSTAT SHALL HAVE LOCKABLE SET-POINT.
8. THE CONTRACTOR SHALL FURNISH AND INSTALL INDEECO (OR EQUAL) ELECTRIC UNIT HEATER (EUH-1&2). REFER TO MECHANICAL DRAWING M0-1 FOR ELECTRIC UNIT HEATER SPECIFICATIONS.
9. THE CONTRCTOR SHALL FURNISH AND INSTALL INDEECO (OR EQUAL) ELECTRIC WALL HEATER (EWH-1). THE CONTRACTOR SHALL FURNISH AND INSTALL HONEYWELL (OR EQUAL) THERMOSTAT PROGRAMMABLE WITH LOCKABLE SETPOINT. REFER TO MECHANICAL DRAWING M0-1 FOR ELECTRIC HEATER SPECIFICATIONS.
10. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK (OR EQUAL) EXHAUST FAN (EF-3). EF-3 SHALL OPERATE FROM THERMOSTAT IN AUTOMATIC OPERATION AND SHALL OPERATE FROM A MANUAL SWITCH FOR MANUAL OPERATION. REFER TO MECHANICAL SCHEDULES FOR EXHAUST FAN SPECIFICATIONS. INSTALL EXHAUST FAN 18" BELOW CEILING IN CHEMICAL ROOM. INSTALL 6" X 10" FRP DUCT TO 6" AFF.
11. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK SED-501 20" X 12" STATIONARY LOUVER (OR EQUAL) WITH BIRD SCREEN. MOUNT INTAKE LOUVER/DAMPER 2' ABOVE CHEMICAL ROOM CEILING IN EXTERIOR WALL. INSTALL 10" X 10" FRP DUCT WORK THROUGH CEILING OF CHEMICAL ROOM WHERE SHOWN. INSTALL FRP DAMPER AND GRILL 12" BELOW CHEMICAL ROOM CEILING WITH MOTORIZED ACTUATOR. DAMPER ACTUATOR (DA-3) SHALL BE BELIMO (OR EQUAL). REFER TO CHEMICAL ROOM DETAIL ON M2-0.
12. THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 4X THERMOSTAT, (HONEYWELL OR EQUAL). WIRE EXHAUST FAN EF-1 TO START ON A TEMPERATURE RISE ABOVE SET-POINT. INTERLOCK DAMPER DA-3 TO OPEN WITH EXHAUST FAN OPERATION. DA-3 SHALL OPEN 90% BEFORE EXHAUST FAN STARTS. PROVIDE ALL CONDUIT, WIRING AND RELAYS REQUIRED FOR PROPER OPERATION. THERMOSTAT SHALL HAVE LOCKABLE SET-POINT.
13. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK (OR EQUAL) EXHAUST FAN (EF-4). EF-4K SHALL OPERATE FROM THERMOSTAT IN AUTOMATIC OPERATION AND SHALL OPERATE FROM A MANUAL SWITCH FOR MANUAL OPERATION. REFER TO MECHANICAL SCHEDULES FOR EXHAUST FAN SPECIFICATIONS. INSTALL EXHAUST FAN 18" BELOW CEILING IN CHEMICAL ROOM. INSTALL 12" X 20" FRP DUCT TO 6" AFF.
14. THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK ESD-435 40" X 26" STATIONARY LOUVER (OR EQUAL) WITH BIRD SCREEN. MOUNT INTAKE LOUVER/DAMPER 2' ABOVE CHEMICAL ROOM CEILING IN EXTERIOR WALL. INSTALL 20" X 20" FRP DUCT WORK THROUGH CEILING OF CHEMICAL ROOM WHERE SHOWN. INSTALL FRP DAMPER AND GRILL 12" BELOW CHEMICAL ROOM CEILING WITH MOTORIZED ACTUATOR. DAMPER ACTUATOR (DA-4) SHALL BE BELIMO (OR EQUAL). REFER TO CHEMICAL ROOM DETAIL ON M2-0.
15. THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 4X THERMOSTAT, (HONEYWELL OR EQUAL). WIRE EXHAUST FAN EF-1 TO START ON A TEMPERATURE RISE ABOVE SET-POINT. INTERLOCK DAMPER DA-3 TO OPEN WITH EXHAUST FAN OPERATION. DA-3 SHALL OPEN 90% BEFORE EXHAUST FAN STARTS. PROVIDE ALL CONDUIT, WIRING AND RELAYS REQUIRED FOR PROPER OPERATION. THERMOSTAT SHALL HAVE LOCKABLE SET-POINT.
16. THE CONTRACTOR SHALL FURNISH AND INSTALL MODINE (OR EQUAL) SEALED COMBUSTION CHAMBER NATURAL GAS UNIT HEATERS WHERE SHOWN ON DRAWINGS. MOUNT UNIT HEATERS AT 10' AFF. FURNISH AND INSTALL CONCENTRIC VENT KITS FOR UNIT HEATERS. GUH-1 AND GUH-2 SHALL VENT THROUGH WALL.
17. THE CONTRACTOR SHALL FURNISH AND INSTALL THERMOSTAT, (HONEYWELL OR EQUAL). PROGRAMMABLE THERMOSTATS WITH LOCKABLE SETPOINTS FOR OPERATION OF GUH-1 AND GUH-2 ON A DROP IN TEMPERATURE BELOW THERMOSTAT SETPOINT.
18. THE CONTRACTOR SHALL FURNISH AND INSTALL NATURAL GAS PIPING TO NATURAL GAS EQUIPMENT SHOWN. THE CONTRACTOR SHALL SIZE NATURAL GAS PIPING PER THE CF/HR LOAD OF EQUIPMENT SELECTED. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED ACCESSORIES FOR A COMPLETE, FULLY FUNCTIONAL SYSTEMS, INCLUDING BUT NOT LIMITED TO PRESSURE REDUCING VALVES, SHUT OFF VALVES, DRIP TRAPS, PIPING SUPPORTS. NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE. PIPING SHALL BE SUPPORTED WITH CLEVIS HANGERS ATTACHED TO 3/8" STEEL ALL THREAD RODS ATTACHED TO BUILDING STRUCTURE.
19. CONTRACTOR SHALL FURNISH AND INSTALL HI-E DRY-195 PORTABLE DEHUMIDIFIER (HUM-1&2), 192 PINTS/DAY @ 80°F/60%; 115V-1Ø, 12A, 540 CFM BLOWER, MERV 8 FILTER, INTERNAL CONDENSATE PUMP. MODEL No. 4030060. ROUTE CONDENSATE TO NEAREST DRAIN.
20. THE CONTRACTOR SHALL FURNISH AND INSTALL BROAN 110K (OR EQUAL) EXHAUST FAN FOR RESTROOM EXHAUST. EXHAUST FANS SHALL BE INTERLOCKED WITH RESTROOM LIGHT SWITCH. THE CONTRACTOR SHALL FURNISH AND INSTALL ALUMINUM ROUND DUCT FROM EXHAUST FAN THROUGH EXTERIOR WALL. INSTALL EXHAUST GRILL WITH BACK DRAFT DAMPER ON EXTERIOR WALL.
21. THE CONTRACTOR SHALL FURNISH AND INSTALL AO SMITH BT-60 (OR EQUAL) 55 GALLON, 60,000 BTU INPUT NATURAL GAS WATER HEATER. THE CONTRACTOR SHALL FURNISH AND INSTALL VENTING THROUGH TREATMENT PLANT ROOF PER MANUFACTURERS REQUIREMENTS.

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BOWLING GREEN, KY.
SOUTH BEND, IN.

TOBY LEE CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER

Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY
IMPROVEMENTS PROJECT
NEW WATER TREATMENT
PLANT AND WELLS
IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JS	JS	TLC
Issue Date:	**Project No:**	**Scale:**
4-3-24	W20065	AS SHOWN

MECHANICAL EQUIPMENT PLAN

Drawing No: **M1-1**

Sheet: 78 OF 93

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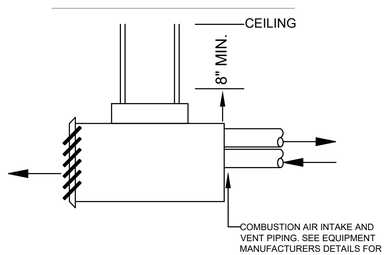
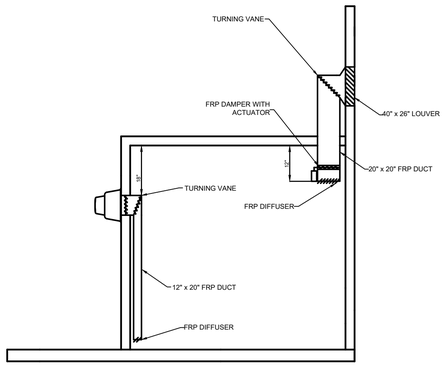


NOTE:
INSTALL PER MANUFACTURERS INSTRUCTIONS.
PROVIDE MOUNTING BRACKET AND HARDWARE TO ANCHOR TO CEILING AS REQUIRED. PROVIDE WALL MOUNT BRACKET FOR WALL MOUNTING AT MECHANICAL CONTRACTORS DISCRETION.

CEILING MOUNTED GAS UNIT HEATER

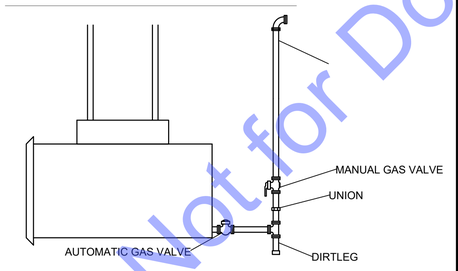
NO SCALE



MOUNT EXHAUST FAN (EF-4) 18" BELOW CEILING IN CHEMICAL ROOM. INSTALL 12" X 20" FRP DUCTWORK WITH FRP GRILL TO 6" AFF.
INSTALL LOUVER 24" ABOVE CHEMICAL ROOM CEILING.
INSTALL 20" X 20" FRP DUCTWORK TO 12" BELOW CEILING IN CHEMICAL ROOM WITH MOTORIZED FRP DAMPER AND GRILL.

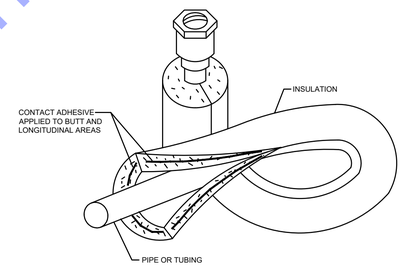
CHEMICAL ROOM 1 EXHAUST/AIR INTAKE DETAILS

NO SCALE



UNIT HEATER GAS PIPING DETAIL

NO SCALE

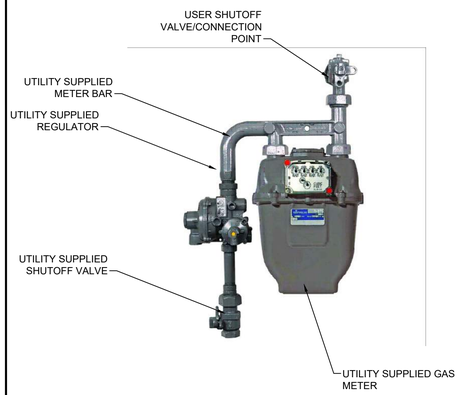


NOTES:
1. LONGITUDINAL JOINTS ON HORIZONTAL PIPE TO BE ON BOTTOM (SHOWN ON SIDE FOR EASE OF ILLUSTRATION).

ELASTOMERIC TUBING INSULATION

CAD ID: 07M103

NOT TO SCALE

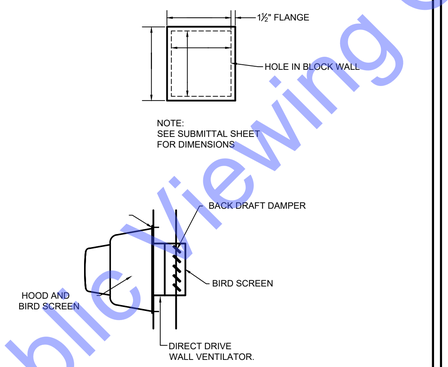


NOTES:

1. COORDINATE WITH LOCAL GAS UTILITY ON EXACT MOUNTING/PIPING REQUIREMENTS.
2. INSTALL GAS PIPING PER NATIONAL AND LOCAL CODES.

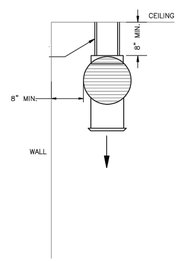
NATURAL GAS METER DETAIL

NO SCALE



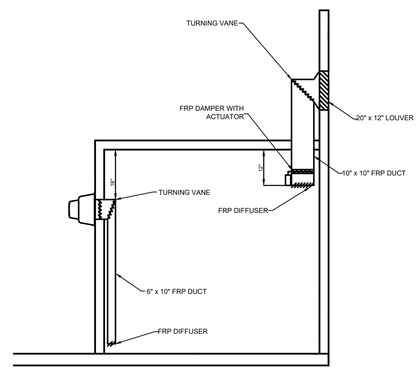
WALL FAN INSTALLATION DETAIL (SF & EF)

NO SCALE



WASH DOWN ELECTRIC UNIT HEATER DETAIL

NO SCALE



MOUNT EXHAUST FAN (EF-3) 18" BELOW CEILING IN CHEMICAL ROOM. INSTALL 6" X 10" FRP DUCTWORK WITH FRP GRILL TO 6" AFF.
INSTALL LOUVER 24" ABOVE CHEMICAL ROOM CEILING.
INSTALL 10" X 10" FRP DUCTWORK TO 12" BELOW CEILING IN CHEMICAL ROOM WITH MOTORIZED FRP DAMPER AND GRILL.

CHEMICAL ROOM 2 EXHAUST/AIR INTAKE DETAILS

NO SCALE

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BOWLING GREEN, KY.
SOUTH BEND, IN.

TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JS	JS	TLC
Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

MECHANICAL SCHEDULES

Drawing No:
M2-0
Sheet: 79 OF 93

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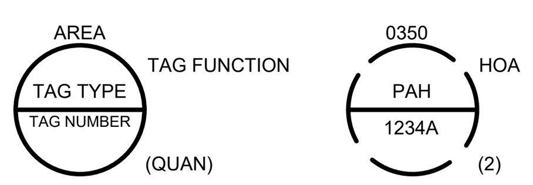
PROCESS AND INSTRUMENTATION DIAGRAM LEGEND

INSTRUMENT TAG IDENTIFICATION



COMPONENT DESIGNATOR

AREA 035D: BUILDING OR PROCESS AREA NUMBER

TAG TYPE P: FIRST LETTER, SEE ISA TABLE BELOW
AH: SUCCEEDING LETTERS, SEE ISA TABLE BELOW

TAG NUMBER 12: P&ID NUMBER
3: LOOP NUMBER
4: EQUIPMENT NUMBER
A: DEVICE LETTER IF MULTIPLE DEVICES

TAG FUNCTION HOA: TAG FUNCTION ABBREVIATION, SEE LISTING AT RIGHT

(QUANTITY) (2): TOTAL NUMBER OF DEVICES WHERE MORE THAN ONE DEVICE IS REQUIRED. DEVICE NUMBERS ARE SEQUENTIAL BEGINNING WITH THE TAG NUMBER SHOWN. IF QUANTITY IS NOT SHOWN, THEN ONE DEVICE ONLY IS REQUIRED.

COMPONENT DESIGNATOR SEE LISTING AT RIGHT

PLC POINT TYPE

ANALOG INPUT	▲
ANALOG OUTPUT	▼
DISCRETE INPUT	△
DISCRETE OUTPUT	▽

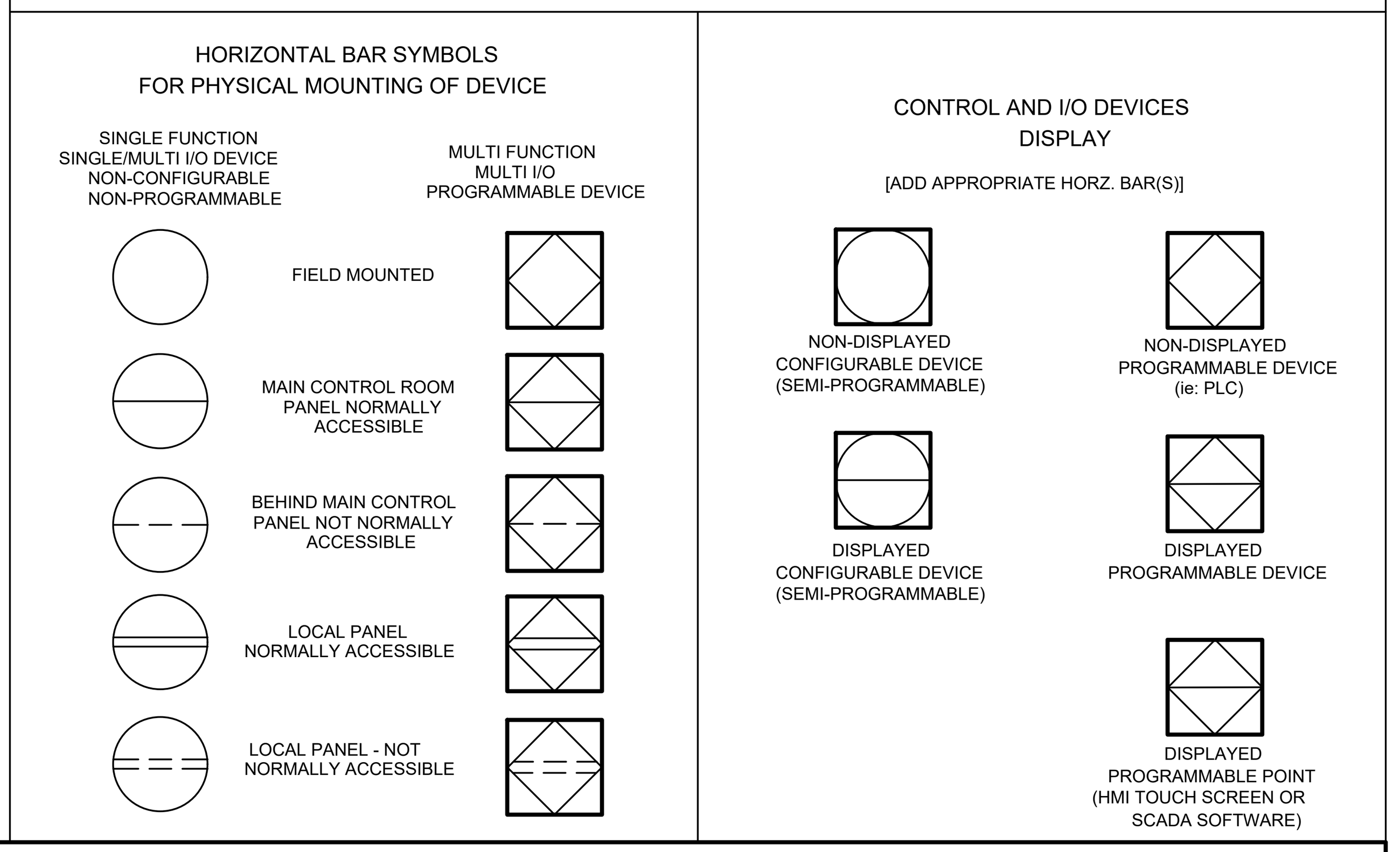
TAG FUNCTION ABBREVIATIONS

ALT ALTERNATE
C CLOSED(C)
CM COMPUTER-MANUAL
DIFF DIFFERENCE OR DIFFERENTIAL
DO DISSOLVED OXYGEN
F FAIL
F(X) CHARACTERIZED
FOR FOWARD-STOP(OFF)-REVERSE(MAINTAINED CONTACT)
FSR FOWARD-STOP-REVERSE(MOMENTARY CONTACT)
HOA HAND-OFF-AUTOMATIC(MAINTAINED CONTACT)
HOR HAND-OFF-REMOTE(MAINTAINED CONTACT)
II CURRENT TO CURRENT
IP CURRENT TO PNEUMATIC
LL LEAD-LAG(MAINTAINED CONTACT)
LOE LOSS OF ECHO(ULTRASONIC SENSOR FAILURE)
LOR LOCAL-OFF-REMOTE(MAINTAINED CONTACT)
LOS LOCKOUT STOP(LOCKABLE IN "STOP" POSITION MOMENTARY CONTACT)
L/R LOCAL/REMOTE(MAINTAINED CONTACT)
MA MANUAL-AUTOMATIC(MAINTAINED CONTACT)
MOA MANUAL-OFF-AUTOMATIC(MAINTAINED CONTACT)

O OPEN
OA OFF-AUTOMATIC
OCA OPEN-CLOSE-AUTOMATIC(MAINTAINED CONTACT)
OC OPEN-CLOSE(D)(MAINTAINED CONTACT)
OSC OPEN-STOP-CLOSE(MOMENTARY CONTACT SPRING RETURN TO CENTER POSITION)
00 ON-OFF(MAINTAINED CONTACT)
OOA ON-OFF-AUTOMATIC(MAINTAINED CONTACT)
OOR ON-OFF-REMOTE(MAINTAINED CONTACT)
R RUN
SBL SLUDGE BLANKET INTERFACE LEVEL
SP SPEED POT
SQRT SQUARE ROOT
SS START-STOP
SSA START-STOP-AUTOMATIC
SSL START-STOP-LOCK (LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)
SUM SUMMMATION
VIB VIBRATION
X MULTIPLY

FWD FOWARD
REV REVERSE
F/R FOWARD/REVERSE(MOTOR STARTER COILS)
ESTP ESTOP(EMERGENCY STOP)
SPD (SPEED POT)
SUSP SUSPEND
ALRT ALERT
RSET RESET
STRT START

TAG SYMBOLS



INSTRUMENT SOCIETY OF AMERICA TABLE

LETTER	FIRST LETTER(S)		SUCCEEDING LETTER(S)		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM(W. LOGGING)	ANNUNCIATE	
B	BURNER COMBUSTION		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
C	USERS CHOICE(*)			CONTROL	CLOSE
D	USERS CHOICE(*)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			FEEDBACK
G	USERS CHOICE(*)		GLASS		
H	HAND (MANUAL)				HIGH
I	CURRENT		INDICATE		
J	POWER	SCAN			
K	TIME OR SCHEDULE	TIME RATE OF CHANGE	KEYPAD(DATA ENTRY)	CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTOR	MOMENTARY			MONITORING
N	USERS CHOICE(*)		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
O	USERS CHOICE(*)		ORIFICE		
P	PRESSURE OR VACUUM		POINT TEST CONNECTION		
Q	QUANTITY	INTEGRATE			
R	RADIATION		RECORD, TREND, LOG		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSIT	
U	UNIVERSAL/MULTIVARIABLE(*)		MULTIFUNCTION(*)	MULTIFUNCTION(*)	MULTIFUNCTION(*)
V	VIBRATION		VALUE	VALVE	
W	WEIGHT, FORCE, TORQUE		WELL	W	
X	UNCLASSIFIED(*)	X AXIS	UNCLASSIFIED(*)	UNCLASSIFIED(*)	UNCLASSIFIED(*)
Y	EVENT, STATE	Y AXIS		RELAY OR COMPUTE(*)	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL

SPECIAL CASES:
ETM - ELAPSED TIME METER
JBX - JUNCTION BOX
NDX - INDEX #
MS - MOTOR STARTER
MOR - MOTOR OVERLOAD RELAY
MPR - MOTOR PROTECTION RELAY

CONDUIT NOTES

PVC SCHEDULE 40 BELOW GRADE.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT ABOVE GRADE OUTDOORS.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT IN CLASSIFIED AND CORROSIVE SPACES.

NO CONDUIT SHALL BE RAN ON TOP OF A DECK, ON A WALKWAY, OR IN AN AREA THAT MAY POSE A TRIP HAZARD. NO CONDUIT SHALL BE RAN ABOVE A DECK, ABOVE A WALKWAY, OR IN AN AREA THAT IS COMMONLY TRAVELED. ALL CONDUIT IN SUCH AREAS SHALL BE COORDINATED WITH THE CONTRACTOR AND SHALL BE RAN BELOW GRADE OR IN THE CONCRETE DECKING OR PAD. CONDUIT RAN IN CONCRETE DECKING OR PAD SHALL BE AVOIDED WHEN POSSIBLE. IF CONDUIT IS TO BE ROUTED IN A STRUCTURAL CONCRETE DECK, PAD, WALL, ETC. IT SHALL BE COORDINATED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. CONDUIT RAN IN CONCRETE CAN IMPACT THE STRUCTURAL INTEGRITY OF CONCRETE. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFORM TO ANY REQUIREMENTS REQUIRED OF THE STRUCTURAL ENGINEER TO ACCOMMODATE THE INTEGRITY OF THE INSTALLATION AT NO COST TO THE OWNER. FOR A CONDUIT EMBEDDED IN SOLUTION TO BE CONSIDERED IT MUST BE THE ONLY REASONABLE SOLUTION. ALL PROPOSED INSTALLATIONS MUST COMPLY WITH ACI 318 AND BE ENGINEER APPROVED.

ALL UNDERGROUND CONDUITS SHALL BE SEALED AT BOTH ENDS.

NO CONDUIT PENETRATIONS ON THE TOP OF ANY OUTDOOR PANELS/ENCLOSURES.

CONTROL WIRING REQUIREMENTS

EACH ANALOG INPUT REQUIRES AN 18/2 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH ANALOG OUTPUT REQUIRES AN 18/2 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH DISCRETE INPUT REQUIRES 2 #14's IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

EACH DISCRETE OUTPUT REQUIRES 2 #14's IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

CONTROL WIRING OF THE SAME TYPE MAY BE COMBINED INTO THE SAME CONDUIT. EXAMPLES: TWO 4-20MA ANALOG SIGNALS MAY BE COMBINED, TWO 24VDC DISCRETE SIGNALS MAY BE COMBINED, AND TWO 120VAC DISCRETE SIGNALS MAY BE COMBINED.

NOTE: INSTRUMENTS AND CABLE SHALL BE AS REQUIRED BY THE INSTRUMENT MANUFACTURER.

INSTRUMENT POWER

INSTRUMENTS REQUIRING 120 VAC:

1. MAGNETIC FLOW METERS
2. TURBIDITY TRANSMITTERS
3. pH TRANSMITTERS
4. ORP TRANSMITTERS
5. DO TRANSMITTERS
6. ULTRASONIC LEVEL TRANSMITTERS
7. ULTRASONIC FLOW TRANSMITTERS
8. INFLUENT AND EFFLUENT SAMPLERS

NOTE: THIS LIST IS PROVIDED AS A REFERENCE AND IS NOT ALL INCLUSIVE. COORDINATE WITH THE GENERAL CONTRACTOR AND THE EQUIPMENT SUPPLIERS FOR DETAILED WIRING REQUIREMENTS OF INSTRUMENTS, SENSORS, AND EQUIPMENT.

ELECTRICAL GENERAL NOTES

(GENERAL NOTES APPLICABLE TO ALL ELECTRICAL SHEETS)

G0. CONTRACTOR SHALL EXAMINE NOT ONLY PLANS AND SPECIFICATIONS FOR ELECTRICAL AND INSTRUMENTATION, BUT PLANS AND SPECIFICATIONS FOR OTHER RELATED SECTIONS. VISIT THE SITE TO BECOME ACQUAINTED WITH ALL PROJECT CONDITIONS INCLUDING EXISTING CONDITIONS. EXECUTION OF CONTRACT IS EVIDENCE THAT THE CONTRACTOR HAS EXAMINED ALL DRAWINGS AND SPECIFICATIONS AND THAT ALL CONDITIONS OF INSTALLING THE WORK IN THIS SECTION ARE VERIFIED. LATE CLAIMS FOR LABOR AND MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATIONS BEEN MADE WILL NOT BE RECOGNIZED.

G1. THE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO INCLUDE EVERY DETAIL OF REQUIRED CONSTRUCTION, EQUIPMENT, AND MATERIALS. PROVIDE ALL MATERIALS AND WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS BUT WHICH ARE NECESSARY TO FULLY COMPLETE THE WORK.

G2. WHEN SUBSTITUTING OTHER EQUIPMENT, MATERIALS, AND PRODUCTS THAN SPECIFIED IN THE CONTRACT DOCUMENTS, INCLUDE IN PRICING ALL COSTS FOR OTHER DESIGN CHANGES TO THE PROJECT (ALL DIVISIONS) WHICH WILL RESULT FROM USE OF THE SUBSTITUTED ITEM(S).

G3. REVIEW THE CONTRACT DOCUMENTS OF OTHER DIVISIONS, AND COORDINATE ELECTRICAL AND CONTROL WORK WITH THE WORK OF OTHER DISCIPLINES TO AVOID CONFLICTS AND INTERFERENCE.

G4. UPON COMPLETION OF THE WORK REQUIRED UNDER THIS CONTRACT, PROVIDE TYPED UPDATED DIRECTORY WITHIN DOOR OF EACH AFFECTED PANELBOARD. LEAVE "SPARE" BREAKERS IN "OFF" POSITION.

G5. ALL MOUNTING HEIGHTS INDICATED ON DRAWINGS ARE TO CENTERLINE, UON.

G6. PROVIDE LIGHTING FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION. COORDINATE WITH ARCHITECTURAL ROOM FINISH SCHEDULES.

G7. IN AREAS HAVING FINISHED CEILINGS, LOCATE CEILING-MOUNTED ELECTRICAL DEVICES AND FIXTURES ACCORDING TO ARCHITECTURAL REFLECTED CEILING PLAN. DO NOT INSTALL CEILING-MOUNTED SMOKE DETECTORS WITHIN 4 FEET OF HVAC SUPPLY DIFFUSERS.

G8. IN ELECTRICAL AND MECHANICAL EQUIPMENT SPACES, COORDINATE EXACT LOCATIONS OF LIGHTING FIXTURES WITH CONDUIT BANKS, DUCTWORK, PIPING, STRUCTURE, SUPPORTS, AND OTHER OBSTRUCTIONS. LOCATE FIXTURES SUCH THAT DIALS, GAUGES, METERS, ETC. ARE PROPERLY ILLUMINATED.

G9. DO NOT USE ANY LIGHTING FIXTURE AS A RACEWAY FOR CONDUCTORS NOT SERVING THAT PARTICULAR FIXTURE.

G10. CONNECT BATTERY-OPERATED EMERGENCY LIGHTING UNITS AND EXIT SIGNS HAVING BATTERY BACK-UP TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND NEC SUCH THAT FAILURE OF CIRCUIT TRANSFERS UNIT FROM NORMAL TO EMERGENCY MODE, CAUSING LAMPS TO RE-ENERGIZE.

G11. DO NOT INSTALL OUTLET BOXES BACK-TO-BACK IN NON-RATED PARTITIONS. OFFSET AND SEAL, SIMILAR TO REQUIREMENTS FOR RATED PARTITIONS, TO MINIMIZE SOUND TRANSMISSION.

G12. COORDINATE ROUTING OF ALL LARGE CONDUITS (2" DIA AND LARGER) AND PULL BOX LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION TO AVOID CONFLICTS AND TO GUARANTEE REQUIRED CLEARANCE AND ACCESSIBILITY OF ELECTRICAL AND OTHER SYSTEMS.

G13. COORDINATE WITH OWNER OR OWNER'S SELECTED VENDOR PRIOR TO ROUGH-IN FOR EXACT LOCATIONS OF SPECIAL PURPOSE OUTLETS DEDICATED TO SPECIFIC EQUIPMENT. VERIFY REQUIRED NEMA CONFIGURATION OF ALL SUCH OUTLETS.

G14. PROVIDE APPROPRIATE PULL WIRE IN EACH EMPTY SYSTEMS CONDUIT INCLUDED IN THIS PROJECT.

G15. INCLUDE GREEN-INSULATED GROUNDING CONDUCTOR SIZED PER 2002 NEC TABLE 250-122 WITH ALL BRANCH CIRCUIT CONDUCTORS SERVING LIGHTING FIXTURES, RECEPTACLES, MECHANICAL OR OTHER DEVICES INSTALLED AT OR BELOW 8'-0".

G16. MATCH A.I.C. RATINGS AND OTHER CHARACTERISTICS OF EXISTING DEVICES IN PANELBOARD WHEN ADDING BREAKERS TO EXISTING PANELBOARDS.

G17. ALL WORK SHALL BE IN CONFORMANCE WITH THE NATIONAL ELECTRICAL CODE - LASTEST EDITION ADOPTED BY INDIANA, THE INDIANA CODE AMENDMENT, LOCAL/MUNICIPAL CODE, AND THE AUTHORITIES HAVING JURISDICTION.

G18. ALL CONNECTIONS TO EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT, NOT LESS THAN 12" IN LENGTH, NOR GREATER THAN 36" IN LENGTH.

G19. ALL CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROPRIATE CONDUIT SEALING MATERIAL.

G20. ALL CABLE SIZES SHALL UTILIZE COPPER CONDUCTORS.

G21. FIELD VERIFY LOCATIONS OF BUILDING EXPANSION JOINTS WHEN ROUTING CONDUIT. ALL CONDUITS CROSSING EXPANSION JOINTS SHALL BE INSTALLED WITH THE EXPANSION FITTINGS. EXPANSION FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND MANUFACTURERS WRITTEN RECOMMENDATIONS.

G22. FEEDERS FROM PANELBOARDS BACK TO MAIN SWITCHBOARD, BETWEEN AUTO TRANSFER SWITCHES AND THEIR SOURCES/LOADS, BETWEEN DRY TRANSFORMERS AND THEIR SOURCES/LOADS ARE NOT INDICATED. FEEDERS ARE PART OF THE WORK, AND SHALL BE SIZED AS INDICATED ON THE LINE DIAGRAM.

G23. HOMERUNS SHALL NOT BE COMBINED IN A RACEWAY UNLESS SHOWN ON THE CONTRACT DRAWINGS. SINGLE PHASE BRANCH CIRCUIT HOMERUNS MAY BE COMBINED AT THE CONTRACTORS DISCRETION NOT GREATER THAN (3) PHASE CONDUCTORS, NEUTRAL CONDUCTORS, AND A GROUNDING CONDUCTOR.

G24. EACH SINGLE PHASE BRANCH CONDUCTOR SHALL HAVE A DEDICATED NEUTRAL BACK TO THE PANEL.

G25. ALL PENETRATIONS BELOW GRADE SHALL USE LINK SEALS.

G26. WHERE LOW VOLTAGE (CONTROL) CABLING IS ALLOWED TO BE INSTALLED WITHOUT A RACEWAY, IT SHALL BE SUPPORTED NOT EXCEEDING INTERVALS OF 48", AND NOT MORE THAN 6" FROM THE CABINETS, BOXES, FITTINGS, OUTLETS, RACKS, FRAMES AND TERMINALS.

G27. ALL MOUNTING HARDWARE INCLUDING NUTS, BOLTS, SCREWS, WASHERS, ETC. SHALL BE STAINLESS STEEL.

G28. MOUNT JUNCTION BOXES AND DISCONNECT SWITCHES ON STAINLESS STEEL UNISTRUT.

G29. ALL UNISTRUT, MOUNTING BRACKETS AND SUPPORTING STRUCTURES SHALL BE STAINLESS STEEL.

G30. DO NOT MIX CONTROL AND POWER CONDUCTORS IN THE SAME CONDUIT. DO NOT MIX DISCRETE AND ANALOG CONTROL CONDUCTORS IN THE SAME CONDUIT.

G31. ADJUSTABLE SPEED DRIVES (ASD) LINE AND LOAD WIRE SHALL BE RUN IN SEPARATE RACEWAYS.

G32. ALL HEAT TRACE IS REQUIRED TO BE GFI PROTECTED.

PUMP AND METER LEGEND

SYMBOL	DESCRIPTION
M	MAGNETIC FLOW METER
	SONIC FLOW METER
	CENTRIFUGAL PUMP
	LOBE PUMP
	PERISTALTIC PUMP
	SUBMERSIBLE PUMP
	GRINDER PUMP

LIGHTING LEGEND

SYMBOL	DESCRIPTION
	FIXTURE WITH STANDARD BALLAST.
	FIXTURE WITH STANDARD BALLAST AND EMERGENCY BALLAST.

LEGEND

SYMBOL	DESCRIPTION	MTG HGT AFF TO CL, UON
	OPEN LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO NORMAL POWER: FIXTURE TYPE DETERMINES MOUNTING.	-----
	SINGLE DIAGONAL LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO CRITICAL OR EQUIPMENT BRANCH (OR EMERGENCY POWER), UON: FIXTURE TYPE DETERMINES MOUNTING.	-----
	DOUBLE DIAGONAL LIGHTING FIXTURE SYMBOLOGY DENOTING FIXTURES CONNECTED TO LIFE SAFETY BRANCH (OR EMERGENCY POWER), UON: FIXTURE TYPE DETERMINES MOUNTING.	-----
	BATTERY POWERED EMERGENCY LIGHTING UNIT	7'-6"
	EXIT SIGN: ARROWS DENOTE DIRECTIONAL INDICATING CHEVRON RQMTS, SHADING DENOTES FACE(S) ORIENTATION.	-----
	WALLWASH OR OTHER DIRECTIONALLY ADJUSTABLE/AIMABLE FIXTURE: OPEN SIDE DENOTES ORIENTATION. TYPE DETERMINES MOUNTING.	-----
	TRACK LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	-----
	POLE-MOUNTED SITE LIGHTING FIXTURE: TYPE DETERMINES MTG.	-----
	FLOOD LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	-----
PC	PHOTO-CELL	-----
XX	ALL FIXTURES IN THIS SPACE SHALL BE SAME TYPE INDICATED, U.O.N.	
S	SINGLE-POLE TOGGLE SWITCH	3'-10"
$	SINGLE-POLE TOGGLE SWITCH: SLASH DENOTES ESSENTIAL POWER SYSTEM CONNECTION - TYPICAL FOR ALL SWITCHES.	3'-10"
OS_W	DUAL TECHNOLOGY, WALL MNTD OCCUPANCY SENSOR WITH MANUAL OVERRIDE SWITCH	3'-10"
OS_C	DUAL TECHNOLOGY, CEILING MNTD OCCUPANCY SENSOR WITH REMOTE MANUAL OVERRIDE SWITCH	
S_{OR}	SINGLE-POLE REMOTE OVERRIDE SWITCH FOR CEILING MNTD OCCUPANCY SENSOR	3'-10"
S_D	DIMMER SWITCH	3'-10"
$S_D{}^3$	THREE-WAY DIMMER SWITCH	3'-10"
S_P	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	3'-10"
S_M	SINGLE-POLE MOTOR-RATED TOGGLE SWITCH DISCONNECT	3'-10"
S_T	SINGLE-POLE OR DOUBLE-POLE MANUAL MOTOR STARTER WITH MELTING ALLOY ELEMENTS FOR THERMAL OVERLOAD PROTECTION	3'-10"
S_{IR}	OCCUPANCY SENSOR SWITCH	3'-10"
S_{IT}	INTERVAL TIMER RESET AND CONTROL SWITCH	3'-10"
S_J	JOG SWITCH	3'-10"
	MUSHROOM HEAD TYPE PUSHBUTTON STATION	5'-0"
P	AUTO DOOR CONTROL PUSHPLATE	-----
S_V	VARIABLE INTENSITY CONTROLLER INCLUDED WITH OWNER-FURNISHED-CONTRACTOR-INSTALLED SURGICAL LIGHTING FIXTURE	5'-0"
S_{LV}	LOW VOLTAGE CONTROL SWITCH	3'-10"
WS	FACTORY SUPPLIED WALL CONTROLLER FOR CEILING MOUNTED LIGHT-INSTALLED BY ELECTRICAL CONTRACTOR	3'-10"
	120V DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V QUADRUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V SINGLE RECEPTACLE, AMP RATING (IF OTHER THAN 20A) SHOWN: STANDARD MOUNTING HEIGHT, OR OTHER HEIGHT AS NOTED	1'-6", UON
GFCI	120V GFCI DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
	120V GFCI QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	120V GFCI DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNTER
	SINGLE RECEPTACLE (OTHER THAN 120V), VOLTAGE, AMP RATING, NEMA CONFIGURATION, AND MOUNTING HEIGHT AS NOTED	-----
	RECPTACLE OR J-BOX CONNECTION FOR X-RAY VIEWER: VERIFY CONNECTION RQMTS WITH UNIT FURNISHED PRIOR TO ROUGH-IN	-----
	120V DUPLEX RECEPTACLE IN FLUSH FLOOR-MOUNTED BOX	-----
TP	TELE-POWER POLE	-----
H	HALON DUMP STATION	-----
F	FIRE ALARM MANUAL PULL STATION	3'-10"
FK	FIRE ALARM MANUAL PULL STATION, KEY-OPERATED	3'-10"
D	FIRE ALARM CEILING-MOUNTED SMOKE DETECTOR	-----
H	FIRE ALARM CEILING-MOUNTED HEAT DETECTOR	-----
D_S	FIRE ALARM SUPPLY AIR DUCT-MOUNTED SMOKE DETECTOR	-----
D_R	FIRE ALARM RETURN AIR DUCT-MOUNTED SMOKE DETECTOR	-----
DR	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - RECEIVER	AS NOTED
DT	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - TRANSMITTER	AS NOTED
Y	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM VALVE STATUS SWITCH (TAMPER SWITCH)	-----
FS	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM WATER FLOW SWITCH	-----
F	FIRE ALARM AUDIO/VISUAL NOTIFICATION DEVICE-CHIME & STROBE	6'-8"
F	FIRE ALARM AUDIO/VISIUAL NOTIFICATION DEVICE-HORN & STROBE	6'-8"
F	FIRE ALARM VISUAL ONLY NOTIFICATION DEVICE - STROBE LIGHT	6'-8"
FS FS	FIRE ALARM SPEAKER: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
FH	FIRE ALARM HORN, WALL-MOUNTED	AS NOTED
RI RI	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
SAI SAI	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT AND TEST SWITCH: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
Z	FIRE ALARM ZONE ADDRESSABLE MODULE	-----
I	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE	-----
	FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER	6'-4"
FR	FIRE RELAY	-----
ID	DESK MOUNTED INTERCOM	-----
IW	WALL MOUNTED INTERCOM	-----
$\$_X$	EXPLOSION PROOF SWITCH	3'-10"
$\$_3$	3 WAY SWITCH	3'-10"
$\$_4$	4 WAY SWITCH	3'-10"
$\$_{WP}$	NEMA 4X SWITCH	3'-10"

LEGEND

ABBREVIATIONS

ABV	ABOVE	IG	ISOLATED GROUND
AFF	ABOVE FINISHED FLOOR	MON	MONITOR
ACLG	ABOVE FINISHED CEILING	MTG	MOUNTING
BFC	BELOW FINISHED CEILING	MV	MULTI-VIEWER
C	CRITICAL BRANCH OR EMERG PWR-RED DEVICE & PLATE, UON.	MW	MICROWAVE OVEN
CL	CENTER-LINE	NEC	NATIONAL ELECTRICAL CODE
CLG	CEILING-MOUNTED	OCPD	OVERCURRENT PROTECTIVE DEVICE
COF	COFFEE MAKER	OFCI	OWNER-FURNISHED-CONTRACTOR-INSTALLED
COP	COPIER	OFE	OWNER-FURNISHED EQUIPMENT
CTR	COUNTER	PRT	PRINTER
ECB	ENCLOSED CIRCUIT BREAKER	PTS	PNEUMATIC TUBE STATION
EMER	EMERGENCY	Q	EQUIP BRANCH OR EMERG PWR-RED DEVICE & PLATE, UON.
EWC	ELECTRIC WATER COOLER	REF	REFRIGERATOR
EWH	ELECTRIC WATER HEATER	RQMTS	REQUIREMENTS
FAX	FACSIMILE MACHINE	WP	WEATHERPROOF
FBO	FURNISHED BY OTHERS	T	TAMPERPROOF DEVICE
GFCI	GROUND FAULT CIRCUIT INTERRUPT-ING - PERSONNEL PROTECTION	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTING - EQUIPMENT PROTECTION	UCR	UNDER-COUNTER REFRIGERATOR
HGT	HEIGHT		
FPMR	FUSED PER MANUFACTURE'S RECOMMENDATIONS		

SYMBOL	DESCRIPTION	MTG HGT AFF TO CL, UON
	EXPOSED RACEWAY	-----
	RACEWAY CONCEALED IN OR ABOVE CEILINGS AND WITHIN WALLS	-----
	BRANCH CIRCUIT RACEWAY CONCEALED IN OR BELOW FLOOR SLAB OR BELOW GRADE	-----
	FEEDER RACEWAY CONCEALED BELOW FLOOR SLAB OR BELOW GRADE	-----
	LIGHTNING PROTECTION CABLING	-----
	HOMERUN RACEWAY: NUMBER OF ARROWHEADS DENOTES NUMBER OF CIRCUITS.	-----
	RACEWAY TURNING UP AS VIEWED FROM THE LOAD	-----
	RACEWAY TURNING DOWN AS VIEWED FROM THE LOAD	-----
	RACEWAY VERTICAL RISER WITH HORIZONTAL CONTINUATION AT TWO LEVELS SHOWN	-----
	CAPPED RACEWAY	-----
	GENERAL LIGHTING OR OUTLET CIRCUIT - MAY BE DAISY CHAINED	
J	JUNCTION BOX	AS NOTED
	ENCLOSED BREAKER	
	FUSIBLE SAFETY SWITCH (AMP RATING, POLES, FUSE SIZE, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	-----
	NON-FUSIBLE SAFETY SWITCH (AMP RATING, POLES, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	-----
	COMBINATION MAGNETIC ACROSS-THE-LINE STARTER WITH MOTOR CIRCUIT PROTECTOR (NEMA STARTER SIZE NOTED)	-----
	CONTROL PANEL FURNISHED INTEGRAL TO EQUIPMENT (SINGLE-POINT ELECTRICAL CONNECTION REQUIRED)	-----
	MOTOR	-----
	FLEXIBLE CONDUIT CONNECTION	-----
	SURFACE- OR FLUSH-MOUNTED LIGHTING/RECEPTACLE PANELBOARD	-----
	POWER DISTRIBUTION PANELBOARD	-----
T T	DRY TYPE TRANSFORMER	-----
XXX	MISCELLANEOUS SYSTEMS PANEL OR CABINET: REFER TO ABBREVIATIONS.	-----

NOTE !! ALL ABBREVIATIONS, NOTES, AND SYMBOLS SHOWN ON THIS DRAWING DO NOT NECESSARILY APPEAR IN THIS SET OF CONTRACT DOCUMENTS. REFER ONLY TO THOSE THAT APPLY.

ABBREVIATIONS

ABBREVIATION	MEANING
GFI	GROUND FAULT INTERRUPTER
WP	WEATHER PROOF
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
FPMR	FUSE PER MANUFACTURERS RECOMMENDATIONS
IG	ISOLATED GROUND-ORANGE RECEPTACLE
M	MONITOR RECEPTACLE- CRITICAL POWER- RED RECEPTACLE- 60"A.F.F. (UNO) (UNLESS VENDOR DRAWINGS REQUIRE DIFFERENT HEIGHT)
TSP	TWISTED SHIELDED PAIR

MOTOR CONTROLLER LEGEND

SYMBOL	DESCRIPTION
MS	ACROSS THE LINE MOTOR STARTER
SS	SOFT STARTER
VFD	VARIABLE FREQUENCY DRIVE
MS	ACROSS THE LINE MOTOR STARTER WITH INTEGRAL DISCONNECT
SS	SOFT STARTER WITH INTEGRAL DISCONNECT
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT

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TOBY LEE CHURCH REGISTERED No. 11300603 STATE OF INDIANA PROFESSIONAL ENGINEER
Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY
IMPROVEMENTS PROJECT
NEW WATER TREATMENT
PLANT AND WELLS
IMPROVEMENTS

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JS	JS	TLC
Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

ELECTRICAL LEGENDS AND SCHEDULES

Drawing No:
E0-0

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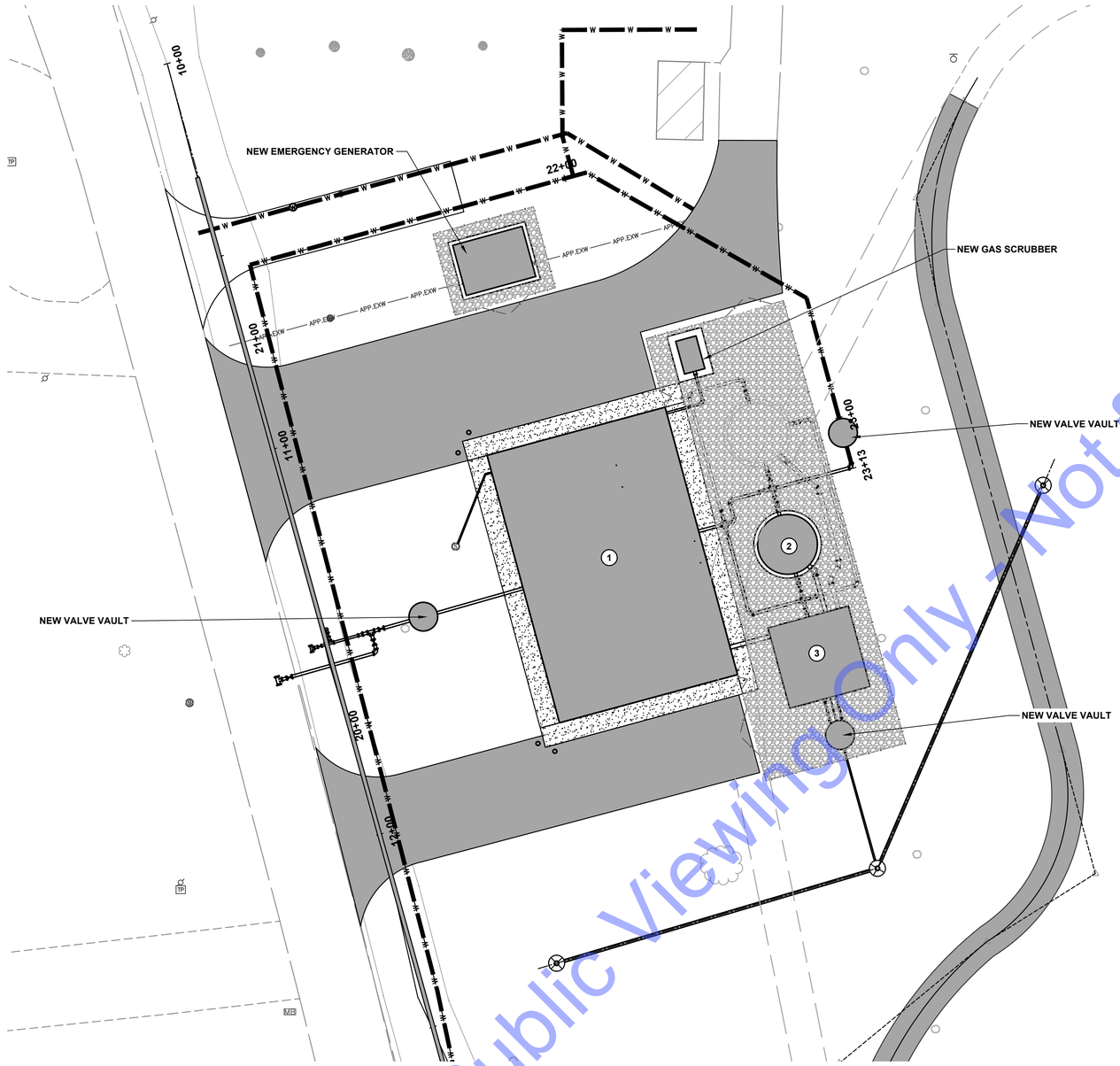

PLAN NOTES

1. THE CONTRACTOR IS TO COORDINATE WITH NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO) TO INSTALL NEW 480/277 VAC, 3-PHASE, 400-AMP SERVICE. CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT REQUIRED AND CT CABINET.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW NEMA 12 480/277 VAC, 3-PHASE, 400-AMP, SERVICE ENTRANCE RATED, 3-POLE AUTOMATIC TRANSFER SWITCH (ATS). THE NEW ATS IS TO BE MOUNTED ON A HOUSEKEEPING PAD. NEW PAD TO BE INSTALLED BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL NEW 480/277 VAC, 3-PHASE 400-AMP NEMA 12 SWITCHBOARD SB-1 AND NEW 120/208 VAC, 3-PHASE 250-AMP PANELBOARD PB-1 AS SHOWN IN CONTROL BUILDING ON SHEET E1-3.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUITS AND WIRE FROM NEW 200 KW GENERATOR TO NEW 400-AMP SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH .
5. THE CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE FROM SB-1 IN THE NEW WTP BUILDING ELECTRICAL ROOM TO NEW VFD-3 IN NEW WELL HOUSE NO.4. CONTRACTOR TO SIZE CONDUITS AND WIRE TO LIMIT VOLTAGE DROP TO LESS THAN 3%.
6. THE CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE FROM PB-1 IN THE NEW WTP BUILDING ELECTRICAL ROOM TO NEW LIGHTING, MECHANICAL, ETC. EQUIPMENT IN NEW WELL HOUSE NO.4. CONTRACTOR TO SIZE CONDUITS AND WIRE TO LIMIT VOLTAGE DROP TO LESS THAN 3%.

GENERAL NOTES:

SEE E0.0 FOR PROJECT CONDUIT REQUIREMENTS.

ALL EXPOSED PROCESS PIPING (EXCLUDING AIR PIPING) SHALL BE HEAT TRACED. HEAT TRACING AND ALL POWER CIRCUITS FOR IT ARE TO BE PROVIDED PER THE HEAT TRACE MANUFACTURER CALCULATIONS. HEAT TRACING TO BE POWERED FROM PB-1 12 AS DETAILED ON THE PANELBOARD SCHEDULE ON ELECTRICAL SHEET E2-1. REFER TO GENERAL NOTE ON PROCESS DRAWINGS FOR ADDITIONAL INFORMATION.

NEW STRUCTURE LEGEND	
STRUCTURE	DESCRIPTION
1	**NEW WATER TREATMENT FACILITY (SEE DWG. D2-1)**
2	**NEW DETENTION TANK (SEE DWG. D1-2)**
3	**NEW BACKWASH TANK (SEE DWG. D4-1)**

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SOUTH BEND, IN.

TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
WATER UTILITY
IMPROVEMENTS PROJECT
NEW WATER TREATMENT
PLANT AND WELLS
IMPROVEMENTS

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No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JS	JS	TLC
Issue Date: 4-3-24	Project No: W20065	Scale: AS SHOWN

ELECTRICAL SITE PLAN

Drawing No:
E1-0
Sheet: 81 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPR\SV06 CAD\K MECH-ELEC\TE\ELECTRICAL_DRAWINGS.DWG
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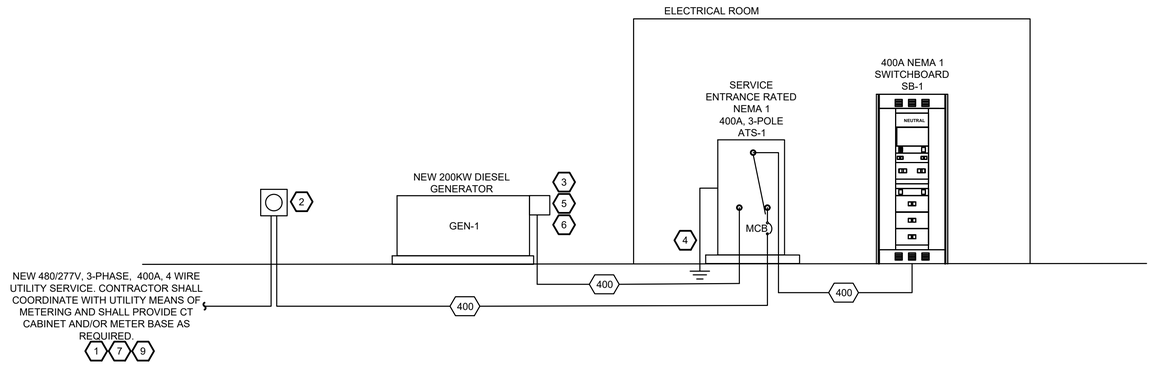


RISER DIAGRAM
SCALE: NTS

ELECTRICAL NOTES

1. THE CONTRACTOR IS TO COORDINATE WITH NORTHERN INDIANA PUBLIC SERVICE COMPANY (NIPSCO) TO INSTALL NEW 480/277 VAC, 3-PHASE, 400-AMP SERVICE. CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT REQUIRED AND CT CABINET.
2. ELECTRICAL CONTRACTOR TO PROVIDE METER BASE AND MOUNTING AS REQUIRED BY LOCAL UTILITY. COORDINATE DURING BIDDING AND CONSTRUCTION. PROVIDE CT CABINETS AS REQUIRED BY UTILITY.
3. PROVIDE GENERATOR INTEGRAL CIRCUIT BREAKER TO PROVIDE MEANS OF CURRENT PROTECTION AND DISCONNECTION AT THE GENERATOR.
4. PROVIDE TRIAD GROUNDING SYSTEM.
5. COORDINATE WITH GENERATOR AND ATS SUPPLIER/MANUFACTURER FOR WIRING REQUIREMENTS DURING BIDDING AND CONSTRUCTION.
6. DO NOT BOND NEUTRAL TO GROUND AT GENERATOR. VERIFY THAT THE NEUTRAL TO GROUND IS NOT BONDED AT GENERATOR BY THE GENERATOR MANUFACTURER. NEUTRAL TO BE BONDED TO GROUND AT AUTOMATIC TRANSFER SWITCH ONLY.
7. ATS SHALL BE DESIGNED FOR FRONT ACCESS ONLY AND LIMITED TO ONE SIDE ACCESS. REFER TO NOTE ON SHEET E3-0 REQUIRING THE CONTACT TO SUBMIT ELECTRICAL ROOM LAYOUT.
8. CONTRACTOR TO COORDINATE WITH THE GENERATOR SUPPLIER/MANUFACTURER FOR POWER REQUIREMENTS TO THE ANCILLARY DEVICES. ANCILLARY POWER REQUIREMENTS VARY BETWEEN GENERATOR MANUFACTURERS. CONTRACTOR MAY ELECT TO DEVIATE FROM NOTED 240V, 3-PHASE. ALL COSTS ASSOCIATED WITH PROVIDING ANCILLARY POWER TO THE GENERATOR SHALL BE BY THE CONTRACTOR.
9. COORDINATE WITH UTILITY DURING BIDDING AND CONSTRUCTION ON TRANSFORMER TYPE (POLE MOUNTED TRANSFORMERS OR PAD MOUNT TRANSFORMER) FOR NEW UTILITY FEED.
10. CONTRACTOR SHALL COORDINATE AND ENSURE THAT THE NEW GENERATOR MATCHES THE EXISTING GENERATOR.

GENERAL NOTES:

SEE E0-0 FOR PROJECT CONDUIT REQUIREMENTS.

FEEDER SCHEDULE

TYPE NO.	COPPER WIRE QUANTITIES & WIRE SIZE	CONDUIT	W/O NEUTRAL	SERVICE GROUND
15	4#12 & #12 GROUND	3/4"	3/4"	#8
20	4#12 & #12 GROUND	3/4"	3/4"	#8
30	4#10 & #10 GROUND	3/4"	3/4"	#8
50	4#8 & #10 GROUND	1"	1"	#8
65	4#6 & #8 GROUND	1-1/4"	1-1/4"	#8
85	4#4 & #8 GROUND	1-1/4"	1-1/4"	#8
100	4#3 & #8 GROUND	1-1/2"	1-1/4"	#8
115	4#2 & #6 GROUND	1-1/2"	1-1/2"	#8
130	4#1 & #6 GROUND	2"	1-1/2"	#6
150	4#1/0 & #6 GROUND	2"	2"	#6
175	4#2/0 & #6 GROUND	2"	2"	#4
200	4#3/0 & #6 GROUND	2-1/2"	2"	#4
225	4#4/0 & #4 GROUND	2-1/2"	2-1/2"	#2
250	4#250MCM & #4 GROUND	3"	2-1/2"	#2
300	4#350MCM & #3 GROUND	3"	3"	#2
380	4#500MCM & #3 GROUND	4"	4"	#1/0
420	4#600MCM & #2 GROUND	4"	4"	#1/0
460	(2 SETS)4#4/0 & #2 GROUND	2-1/2"	2-1/2"	#1/0
500	(2 SETS)4#250MCM & #2 GROUND	4"	3"	#1/0
600	(2 SETS)4#350MCM & #1 GROUND	4"	3"	#2/0
700	(2 SETS)4#500MCM & #1/0 GND	4"	4"	#2/0
800	(3 SETS)4#300MCM & #1/0 GND	3"	3"	#2/0
1000	(3 SETS) 4#500MCM & #2/0 GND	4"	4"	#3/0
1200	(4 SETS) 4#350 MCM & 33/0 GND	4"	4"	#3/0
1600	(5 SETS) 4#600 MCM & #3/0 GND	4"	3 1/2"	#3/0
2000	(6 SETS) 4#600MCM &# 3/0 GND	4"	3 1/2"	#3/0

ALL FEEDERS ARE ASSUMED TO BE 4 CURRENT CARRYING CONDUCTORS (3 PHASE CONDUCTORS AND 1 NEUTRAL) UNLESS NOTED OTHERWISE.

FEEDER KEY IS AS FOLLOWS (PARENTHESIS DENOTES SUBSCRIPT):
= 3 PHASES AND NEUTRAL WITH GROUND
###(N) = 3 PHASES, NO NEUTRAL WITH GROUND
###(2) = 2 PHASES AND NEUTRAL WITH GROUND
ALL CIRCUITS SHALL BE RUN IN PVC BELOW GROUND/PVC COATED RIGID ABOVE GROUND

GENERATOR

MINIMUM RATED CAPACITY: 200kW

BASIS OF DESIGN: MANUFACTURER: CATERPILLAR (10)

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE
ENCLOSURE RATING: SEE SPECIFICATIONS FUEL TYPE: DIESEL

FUEL TANK CAPACITY: 24 HOURS

SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

AUTOMATIC TRANSFER SWITCH

TRANSFER SWITCH TYPE: AUTOMATIC CURRENT RATING: 400A

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE # OF POLES: 3

NEUTRAL CONFIGURATION: SOLID IN-SYNC TRANSFER: YES

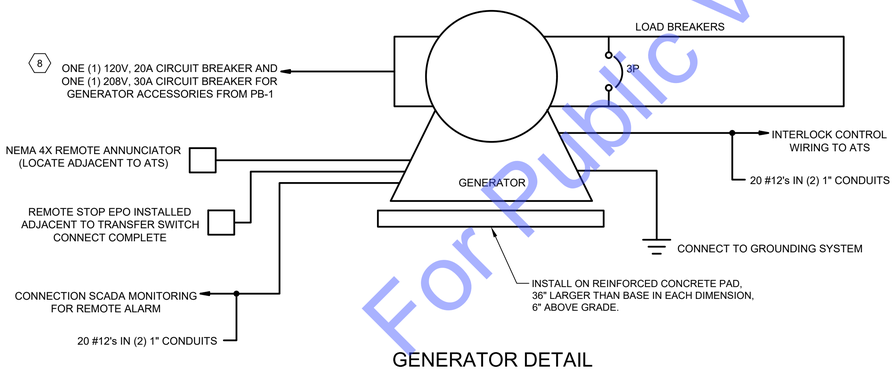
MAIN CIRCUIT BREAKER: 600A GROUND FAULT ON MAIN: NO

SERVICE ENTRANCE RATED: YES REMOTE ANNUNCIATION: YES

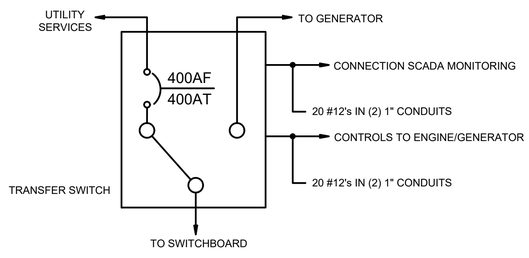
BY-PASS/ISOLATION: NO NEC LOAD BRANCH: 702 KAIC: 42

SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

NEMA RATING: 12 CYCLE RATING: 3



GENERATOR DETAIL



AUTOMATIC TRANSFER SWITCH

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REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER
Signature 04/02/2024 Date

TOWN OF KENTLAND
NEWTON COUNTY, INDIANA
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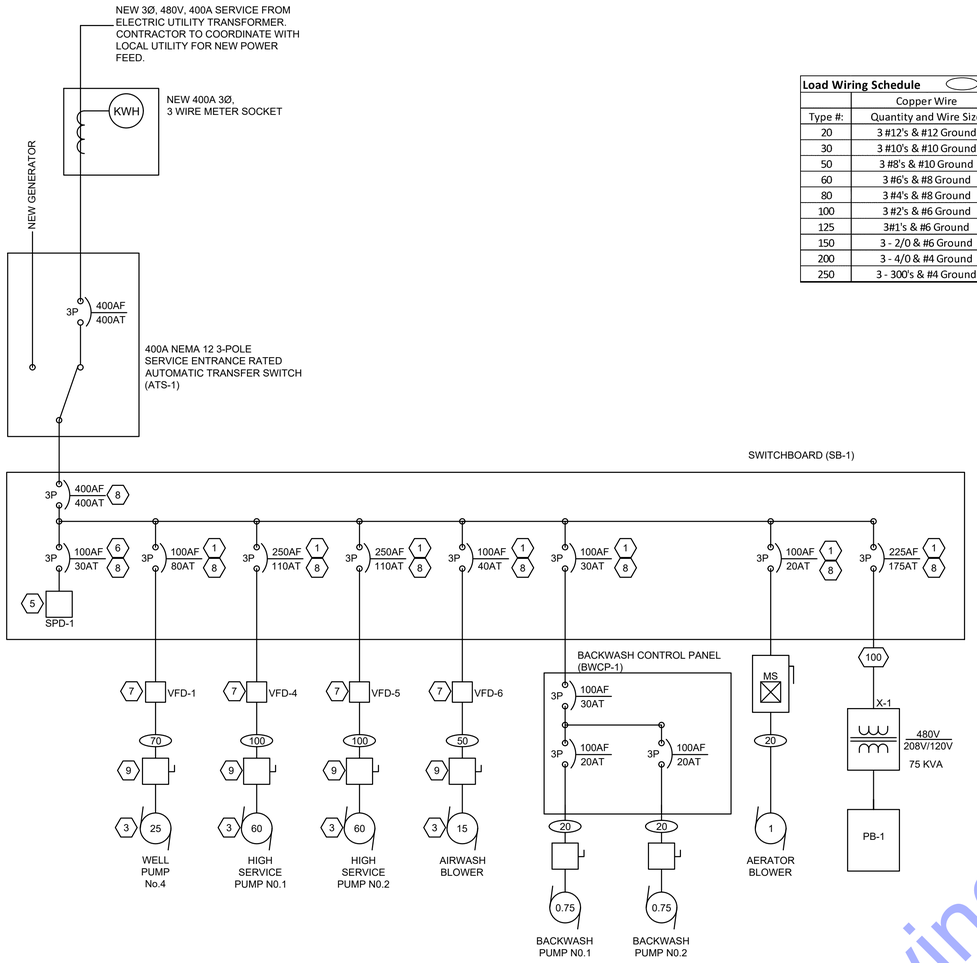
ELECTRICAL RISER DIAGRAM

Drawing No: **E2-0**

Sheet: 82 OF 93



ONE LINE DIAGRAM

Load Wiring Schedule		
	Copper Wire	
Type #:	Quantity and Wire Size	Conduit
20	3 #12's & #12 Ground	3/4"
30	3 #10's & #10 Ground	3/4"
50	3 #8's & #10 Ground	3/4"
60	3 #6's & #8 Ground	3/4"
80	3 #4's & #8 Ground	1"
100	3 #2's & #6 Ground	1.5"
125	3#1's & #6 Ground	1.5"
150	3 - 2/0 & #6 Ground	2"
200	3 - 4/0 & #4 Ground	2.5"
250	3 - 300's & #4 Ground	3"

Single Phase Load Conduit and Wire Schedule	
Circuit Description	Description
1 Pole 20A	3/4" Conduit with 2 #12 Conductors and 1 #12 Ground Conductor
2 Pole 20A	3/4" Conduit with 3 #12 Conductors and 1 #12 Ground Conductor
1 Pole 30A	3/4" Conduit with 2 #10 Conductors and 1 #10 Ground Conductor
2 Pole 30A	3/4" Conduit with 3 #10 Conductors and 1 #10 Ground Conductor
1 Pole 40A	3/4" Conduit with 2 #8 Conductors and 1 #10 Ground Conductor
2 Pole 40A	1" Conduit with 3 #8 Conductors and 1 #10 Ground Conductor
1 Pole 50A	3/4" Conduit with 2 #6 Conductors and 1 #10 Ground Conductor
2 Pole 50A	1" Conduit with 3 #6 Conductors and 1 #10 Ground Conductor
1 Pole 60A	1" Conduit with 2 #4 Conductors and 1 #8 Ground Conductor
2 Pole 60A	1-1/4" Conduit with 3 #4 Conductors and 1 #8 Ground Conductor
1 Pole 80A	1" Conduit with 2 #3 Conductors and 1 #8 Ground Conductor
2 Pole 80A	1-1/4" Conduit with 3 #3 Conductors and 1 #8 Ground Conductor
1 Pole 100A	1-1/4" Conduit with 2 #2 Conductors and 1 #6 Ground Conductor
2 Pole 100A	1-1/2" Conduit with 3 #2 Conductors and 1 #6 Ground Conductor
1 Pole 125A	1-1/2" Conduit with 2 #1 Conductors and 1 #6 Ground Conductor
2 Pole 125A	1-1/2" Conduit with 3 #1 Conductors and 1 #6 Ground Conductor
1 Pole 150A	2" Conduit with 2 - 1/0 Conductors and 1 #6 Ground Conductor
2 Pole 150A	2" Conduit with 3 - 1/0 Conductors and 1 #6 Ground Conductor
1 Pole 200A	2" Conduit with 2 - 3/0 Conductors and 1 #6 Ground Conductor
2 Pole 200A	2-1/2" Conduit with 3 - 3/0 Conductors and 1 #6 Ground Conductor
2 Pole 250A	2-1/2" Conduit with 3 - 250 MCM Conductors and 1 #3 Ground Conductor

Panel Name: PB-1					Panel Amperage: 200A	
Voltage & Phase: 120/208V 3-Phase					Panel A.I.C. Rating: 22kAIC	
Mounting: Surface					Other: MCB/150A	
Description	Brk	Phase		Brk	Description	
EMERGENCY LIGHTING	20	1	A	2	20	PROCESS ROOM INTERIOR LIGHTING
WATER TREATMENT BUILDING EXTERIOR RECEPTACLES	20	3	B	4	20	PROCESS ROOM RECEPTACLES 1
WATER TREATMENT BUILDING EXTERIOR LIGHTING	30	5	C	6	20	PROCESS ROOM RECEPTACLES 2
EMERGENCY EXIT LIGHTING	20	7	A	8	20	POLYPHOSPHATE FEED
LAB/RESTROOM INTERIOR LIGHTING	20	9	B	10	20	FLUORIDE FEED
LAB RECEPTACLES 1	20	11	C	12	20	HEAT TRACING
LAB RECEPTACLES 2	20	13	A	14	20	SPARE
LAB/RESTROOM RECEPTACLES	20	15	B	16	20	SPARE
ELECTRICAL ROOM INTERIOR LIGHTING	20	17	C	18	20	SPARE
ELECTRICAL ROOM RECEPTACLES	20	19	A	20	20	EUH-1
CHEMICAL ROOM INTERIOR LIGHTING	20	21	B	22	-	EUH-1
CHEMICAL ROOM RECEPTACLES	20	23	C	24	20	HP-1
WATER HEATER	30	25	A	26	-	HP-1
WATER HEATER	-	27	B	28	20	HP-2
GENERATOR ACCESSORIES 1	20	29	C	30	-	HP-2
GENERATOR ACCESSORIES 2	20	31	A	32	20	FCU-1
GENERATOR ACCESSORIES 3	20	33	B	34	-	FCU-1
OVERHEAD DOOR 1 (OHD-1)	20	35	C	36	20	FCU-2
OVERHEAD DOOR 1 (OHD-1)	-	37	A	38	-	FCU-2
OVERHEAD DOOR 2 (OHD-2)	20	39	B	40	20	EF-1/DA-1
OVERHEAD DOOR 2 (OHD-2)	-	41	C	42	20	EF-2/DA-2
FLOW METER NO.1	20	43	A	44	20	EF-3/DA-3
FLOW METERS NO.2 & NO.3	20	45	B	46	20	EF-4/DA-4
GAS DETECTOR	20	47	C	48	20	EUH-2
SCALE CONTROLLER	20	49	A	50	-	EUH-2
HALOGEN VALVE SHUTOFF	20	51	B	52	20	EWH-1
SFC-SC CHLORINATION PANEL	20	53	C	54	20	GUH-1
CELL NO.1: RWI, BWE, AWI, & FWE	20	55	A	56	20	GUH-2
CELL NO.2: RWI, BWE, AWI, & FWE	20	57	B	58	20	HMU-1 RECEPTACLE
CELL NO.3: RWI, BWE, AWI, & FWE	20	59	C	60	20	HMU-2 RECEPTACLE
CELL NO.4: RWI, BWE, AWI, & FWE	20	61	A	62	20	SPARE
VALVES: SRS, BRS, & FTW	20	63	B	64	20	SPARE
FILTER CONTROL PANEL (FCP-1)	20	65	C	66	20	SPARE
SPARE	20	67	A	68	20	SPARE
SPARE	20	69	B	70	20	SPARE
SPARE	20	71	C	72	20	SPARE

PLAN NOTES

1. COORDINATE WITH THE CONTRACTOR AND EQUIPMENT SUPPLIERS WHEN SELECTING THE CIRCUIT BREAKER SIZES TO ENSURE PROPER SIZING.
2. NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC.
3. WIRE PUMP SAFETIES AS REQUIRED. REFERENCE DS SPECIFICATIONS AND COORDINATE WITH CONTRACTOR DURING BIDDING AND CONSTRUCTION.
4. WIRE BLOWER SAFETIES AS REQUIRED. REFERENCE DS SPECIFICATIONS AND COORDINATE WITH CONTRACTOR DURING BIDDING AND CONSTRUCTION.
5. SURGE PROTECTION DEVICE, SEE SPECIFICATIONS FOR DETAILS. PROVIDE GROUNDING AND INSTALLATION PER MANUFACTURERS RECOMMENDATIONS. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL SURGE PROTECTION DEVICE AT SB-1.
6. SIZE BREAKER PER SURGE PROTECTION DEVICE MANUFACTURER RECOMMENDATION.
7. NEMA 1 WALL MOUNTED VFD SIZED AS REQUIRED FOR THE LOAD PER NEC.
8. BREAKER SHALL HAVE THE CAPABILITY FOR A MEANS OF LOCKOUT/TAG OUT.
9. NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC. PROVIDE DISCONNECT WITH AUXILIARY CONTACTS TO INTERRUPT VFD CONTROL CIRCUIT TO STOP VFD WHEN DISCONNECT IS OPEN.
10. WALL MOUNTED NEMA 12 VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC. DISCONNECT SHALL HAVE THE CAPABILITY FOR A MEANS OF LOCKOUT/TAG OUT.
11. NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC.

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PROFESSIONAL ENGINEER
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ELECTRICAL ONE-LINE DIAGRAM

Drawing No: **E2-1**

Sheet: 83 OF 93

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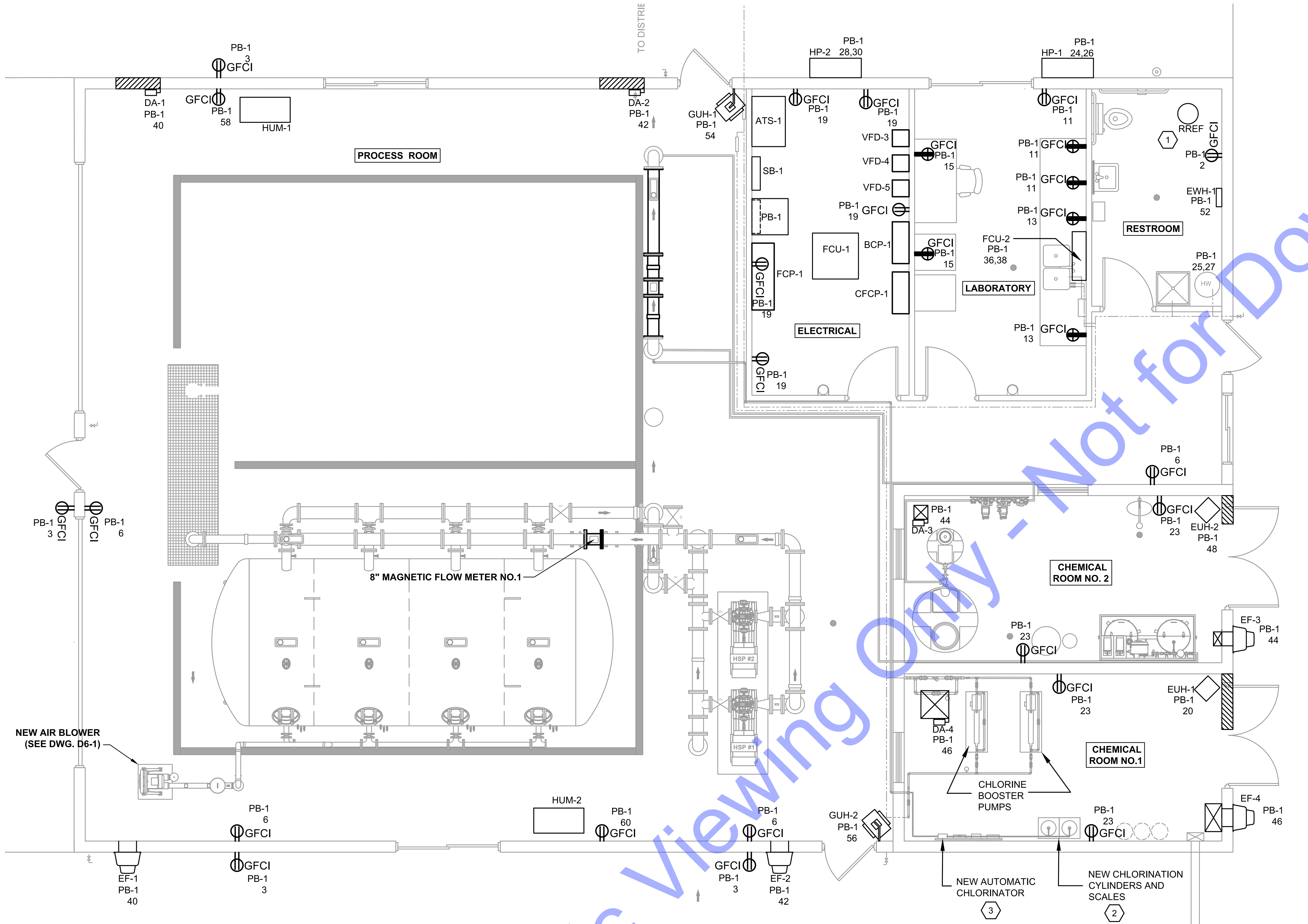

PLAN

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

ELECTRICAL NOTES:

1. INTERLOCK RESTROOM EXHAUST FAN WITH RESTROOM LIGHT SWITCH.
2. CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE TO NEW CHLORINATORS FROM CHLORINE GAS CONTROL PANEL. COORDINATE WITH CHLORINE EQUIPMENT SUPPLIER FOR DETAILED WIRING REQUIREMENTS.
3. CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE FOR DUAL CYLINDER SCALES.

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NEWTON COUNTY, INDIANA

WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

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NEW WATER TREATMENT PLANT FACILITY ELECTRICAL PLAN

Drawing No:
E3-0

Sheet: 84 OF 93

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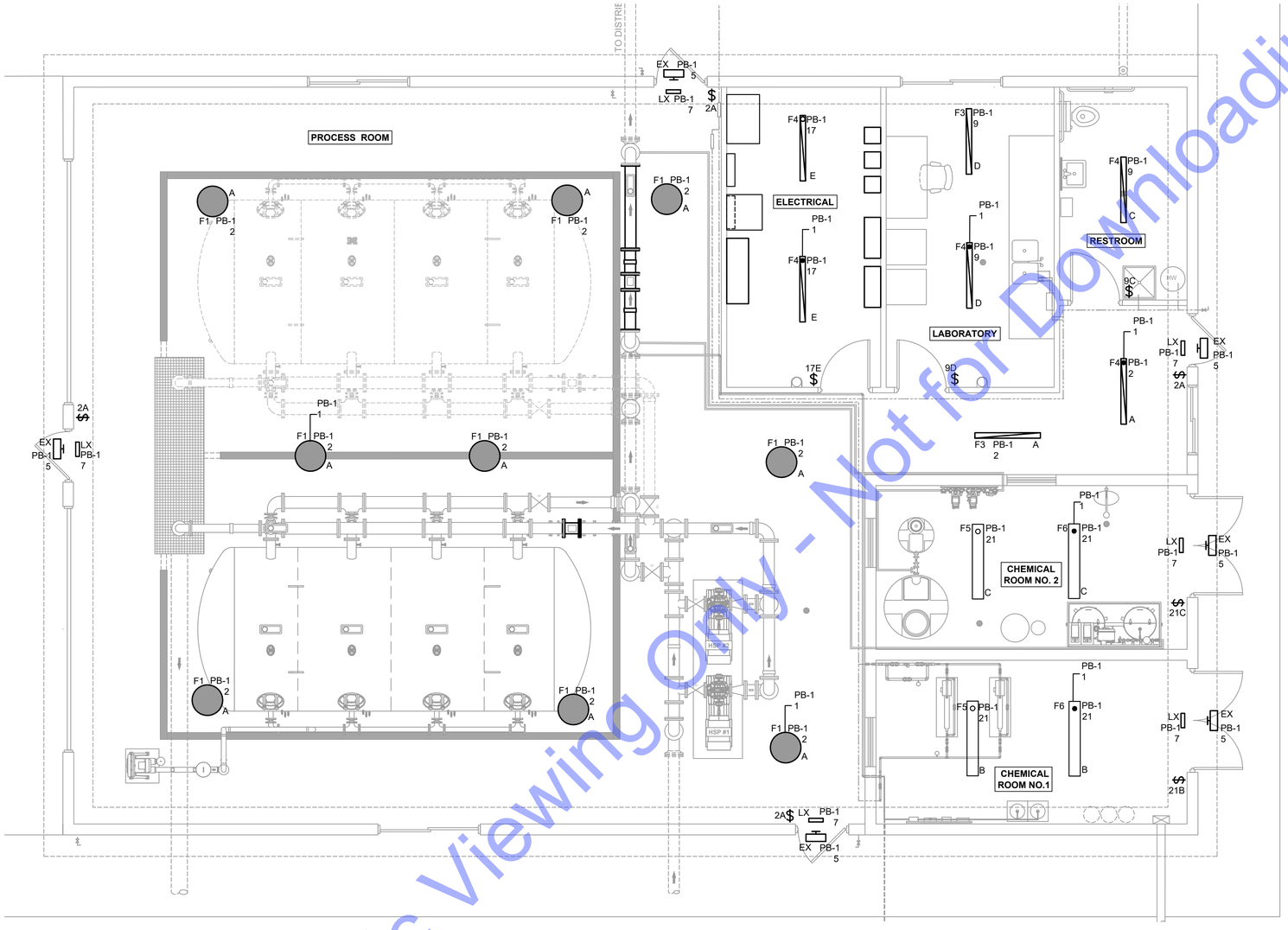

LIGHTING FIXTURE SCHEDULE

IMAGE	TYPE	MFR	CATALOG NUMBER	LAMPS	VOLT	MOUNTING	NOTES
	F1	LITHONIA, CREE, OR EQUAL	JHBL 12000LM PCL WD MVOLT 40K 80CRI	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED.
	F2	LITHONIA, CREE, OR EQUAL	JHBL 12000LM PCL WD MVOLT 40K 80CRI E10WCP	LED	120-277	SURFACE	BATTERY BACKED EMERGENCY LIGHT PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED. TWO BALLASTED LIGHT, STANDARD FUNCTION AND EMERGENCY BACKUP.
	F3	LITHONIA, CREE, OR EQUAL	CLX L48 5000LM MVOLT 40K 80CRI	LED	120-277	SURFACE	PROVIDE WITH REQUIRED MOUNTING BRACKETS OR CHAINS AS REQUIRED FOR INSTALLATION.
	F4	LITHONIA, CREE, OR EQUAL	CLX L48 5000LM MVOLT 40K 80CRI PS1050	LED	120-277	SURFACE	PROVIDE WITH REQUIRED MOUNTING BRACKETS OR CHAINS AS REQUIRED FOR INSTALLATION. BATTERY BACKED EMERGENCY LIGHT. TWO BALLASTED LIGHT, STANDARD FUNCTION AND EMERGENCY BACKUP.
	F5	LITHONIA, CREE, OR EQUAL	VAP 6000LM 79LED SYM	LED	120-277	SURFACE	PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED.
	F6	LITHONIA, CREE, OR EQUAL	VAP 6000LM 79LED SYM BSL722C	LED	120-277	SURFACE	BATTERY BACKED EMERGENCY LIGHT PROVIDE WET LOCATION FITTINGS AS REQUIRED. PROVIDE MOUNTING BRACKETS AS REQUIRED. LED, STANDARD FUNCTION AND EMERGENCY BACKUP.
	EX	SYLVANIA, CREE, OR EQUAL	TWP/L/030/740/C5/UNV/BZ	LED	120-277	SURFACE	WALL MOUNTED OUTDOOR SCONCE WITH TEMPERED GLASS LENS. PROVIDE WITH PHOTOCELL. 2800 LUMENS.
EXIT	LX	EMERGI-LITE OR EQUAL	LEDP-1-R	INCLUDED	120	UNIVERSAL	LED EXIT SIGN WITH RED LETTERING ON BRUSHED ALUMINUM PANEL. CHEVRONS SHALL BE REQUIRED AS SHOWN ON DRAWINGS.

PROVIDE BULBS FOR ALL FIXTURES. PROVIDE 10% SPARE BULBS TO THE OWNER AT THE END OF THE PROJECT.

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NEW WATER TREATMENT PLANT FACILITY LIGHTING PLAN

Drawing No:
E3-1
Sheet: 85 OF 93

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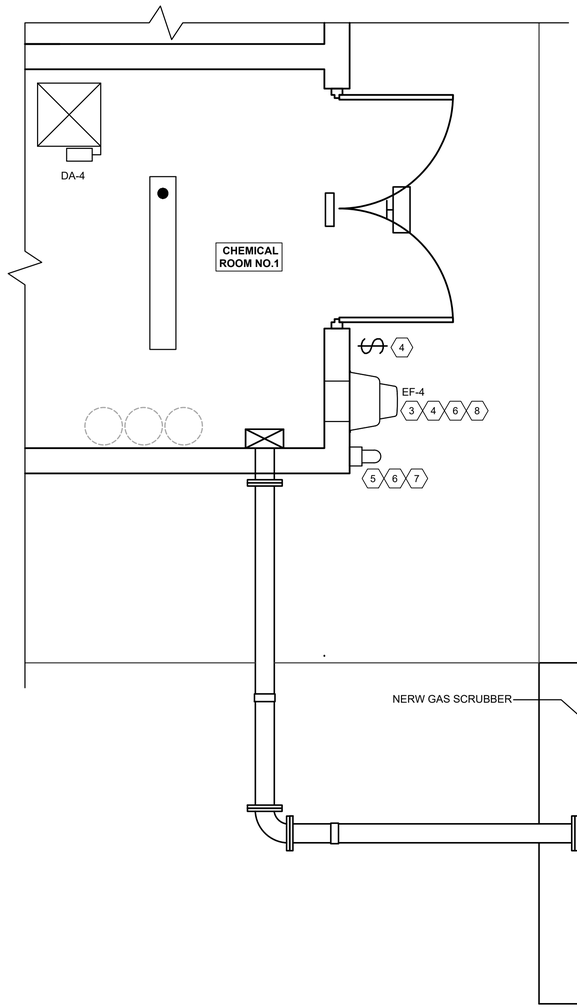
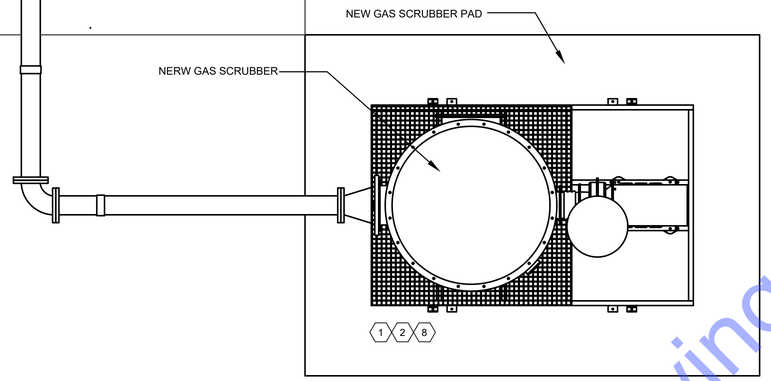
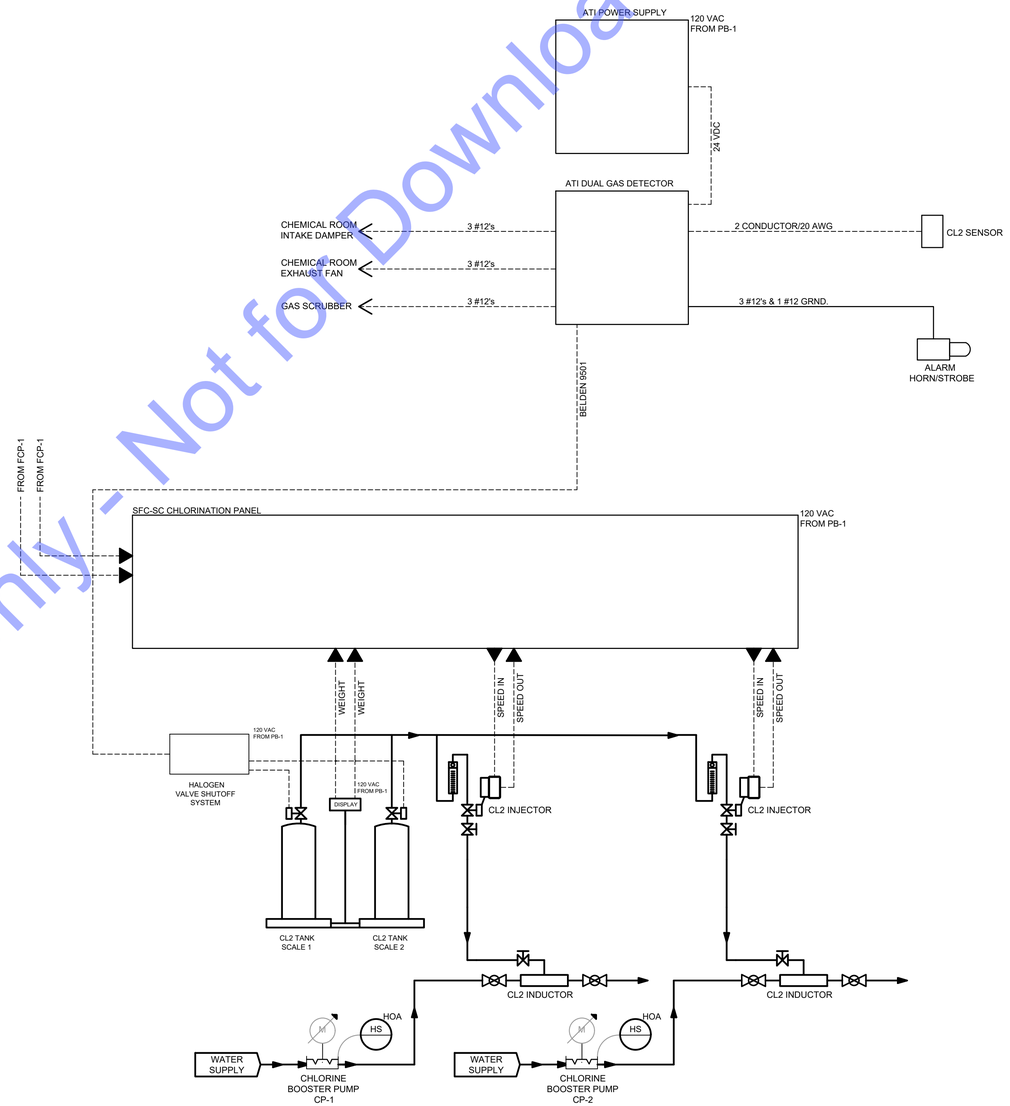




GENERAL NOTES:

CHLORINATION WIRING DIAGRAM IS BASED UPON INFORMATION PROVIDED BY THE EQUIPMENT SUPPLIER AT THE TIME OF DESIGN AND IS GENERIC IN NATURE. WIRING DIAGRAM IS PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EQUIPMENT SUPPLIER DURING BIDDING AND CONSTRUCTION TO ENSURE A COMPLETE AND FUNCTIONING CHLORINATION SYSTEM WITH ALARMING IS PROVIDED. ALL REQUIRED CONDUIT AND WIRING SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THE BASE BID.



ELECTRICAL NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE TO NEW CHLORINE GAS SCRUBBER. SCRUBBER HP WILL BE 7.5 HP MAXIMUM. NEMA 4X CONTROL PANEL WITH INTEGRAL CIRCUIT BREAKER FURNISHED BY MANUFACTURER, INSTALLED BY CONTRACTOR. CONTRACTOR TO FURNISH AND INSTALL ALL POWER/CONTROL CONDUIT AND WIRING BETWEEN CONTROL PANEL, MOTOR AND ANY SCRUBBER ELECTRICAL CONTROL OR EQUIPMENT.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT AND WIRE BETWEEN SCRUBBER CONTROL PANEL AND FILTER CONTROL PANEL FOR CONNECTION OF ALARMS TO SCADA SYSTEM.
3. CONTRACTOR TO FURNISH AND INSTALL CONDUIT AND WIRING TO INTERLOCK CHLORINE ROOM INTAKE DAMPER TO OPEN, EXHAUST FAN TO START WHEN DOOR IS OPEN THROUGH DOOR CONTACT SWITCH. SWITCH TO BE ALLEN BRADLEY SERIES 801 OR EQUAL. INTERIOR OCCUPANCY SWITCH SHALL KEEP EXHAUST FAN OPERATING WHEN CHLORINE ROOM IS OCCUPIED.
4. CONTRACTOR SHALL PROVIDE AND INSTALL MANUAL HAND SWITCH ON EXTERIOR WALL NEAR DOOR TO OPEN INTAKE DAMPER AND START EXHAUST FAN WHEN SWITCH IS MANUAL POSITION, ALLOWING OPERATOR TO VENTILATE ROOM BEFORE ENTERING.
5. CONTRACTOR SHALL FURNISH AND INSTALL ALARM HORN/STROBE LIGHT TO OPERATE WHEN CHLORINE GAS ALARM PANEL SENSES INCREASE IN CHLORINE GAS LEVELS.
6. STROBE LIGHT SHALL OPERATE ON CHLORINE GAS WARNING. HORN SHALL OPERATE ON CHLORINE GAS ALARM. INTAKE DAMPER AND EXHAUST FAN SHALL START WHEN CHLORINE GAS REACHES THE RESPECTIVE WARNING SET-POINT. COORDINATE WITH THE EQUIPMENT SUPPLIER/MANUFACTURER FOR WARNING AND HIGH ALARM SET-POINT FOR CHLORINE GAS.
7. CONTRACTOR SHALL FURNISH AND INSTALL HORN MUTE PUSH BUTTON TO SILENCE HORN. STROBE LIGHT SHALL REMAIN ON UNTIL CHLORINE GAS LEVELS ARE BELOW CHLORINE GAS WARNING SET-POINT. COORDINATE WITH CHLORINE EQUIPMENT MANUFACTURER FOR CHLORINE GAS ALARM SET-POINTS.
8. CONTRACTOR SHALL FURNISH AND INSTALL POWER/CONTROL CONDUIT AND WIRE TO CHLORINE GAS ALARM PANEL. HIGH CHLORINE GAS ALARM SHALL STOP CHLORINE ROOM EXHAUST FAN IF OPERATING AND CLOSE INTAKE DAMPER DURING A HIGH CHLORINE GAS ALARM. HIGH CHLORINE GAS ALARM SHALL START EMERGENCY CHLORINE GAS SCRUBBER SYSTEM.

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TOWN OF KENTLAND NEWTON COUNTY, INDIANA
WATER UTILITY IMPROVEMENTS PROJECT
NEW WATER TREATMENT PLANT AND WELLS IMPROVEMENTS

Indiana 811 Know what's below. 811 before you dig. 1-800-382-5544 (ITS THE LAW)

No.	Submittal / Revision	By	Date

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4-3-24	W20065	AS SHOWN

CHLORINE ELECTRICAL IMPROVEMENTS

Drawing No:
E4-0
Sheet: 86 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPR\SV06 CAD\K MECH-ELEC\ELECTRICAL_DRAWINGS.DWG
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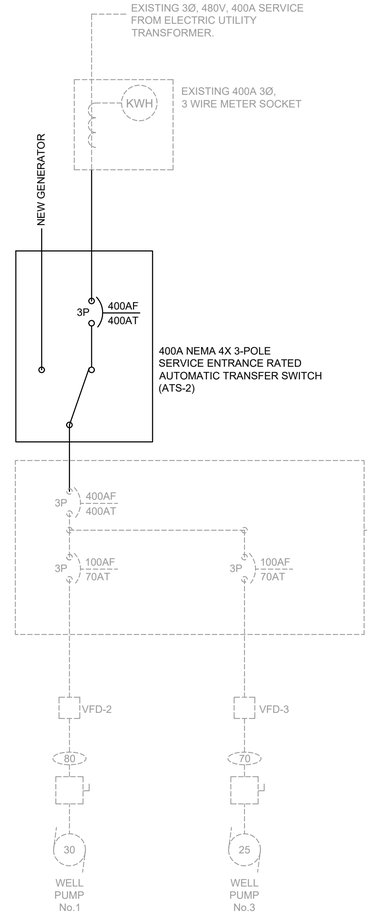
MANDATORY ALTERNATE (MA-1)



ELECTRICAL NOTES:

1. WELL PUMPS 1 AND 3 SHALL REMAIN ON THE EXISTING 480/277 VAC, 3-PHASE, 400-AMP SERVICE. CONTRACTOR SHALL DEMO WELL PUMP 2 LOCATED IN WELL HOUSE 2 AND FURNISH TO OWNER.
2. CONTRACTOR TO DEMO EXISTING MOTOR STARTERS LOCATED IN WELL HOUSE 2 AND FURNISH TO OWNER. NEW VARIABLE FREQUENCY DRIVES SHALL BE INSTALLED FOR WELL PUMP 1 AND WELL PUMP 3.
3. THE SI IS RESPONSIBLE FOR PROVIDING ALL HARDWARE, ANTENNA, AND ANTENNA CABLING AS REQUIRED TO ESTABLISH TANK LEVEL TRANSMISSION FROM THE ELEVATED TANKS TO THE WATER TREATMENT PLANT. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AS DIRECTED BY THE SI.

MANDATORY ALTERNATE MA-1:

THE CONTRACTOR SHALL FURNISH AND INSTALL A NEW 60KW CATERPILLAR GENERATOR FOR BACK-UP POWER TO WELLS 1 AND 3. CONTRACTOR TO DEMO EXISTING TRANSFER SWITCH AND FURNISH TO OWNER. A NEMA 4X 400A SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH SHALL BE INSTALLED.

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TOBY LEE CHURCH
REGISTERED
No. 11300603
STATE OF INDIANA
PROFESSIONAL ENGINEER

Signature 04/02/2024 Date

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NEWTON COUNTY, INDIANA
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ELECTRICAL - WELL HOUSES 1, 2, AND 3

Drawing No:
E5-0
Sheet: 87 OF 93

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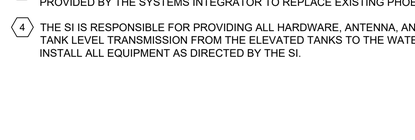
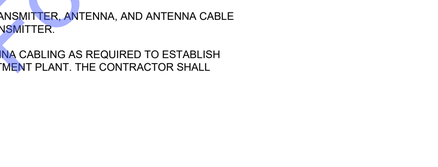
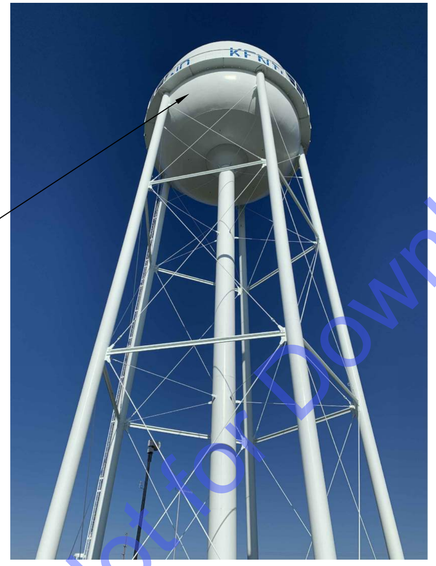
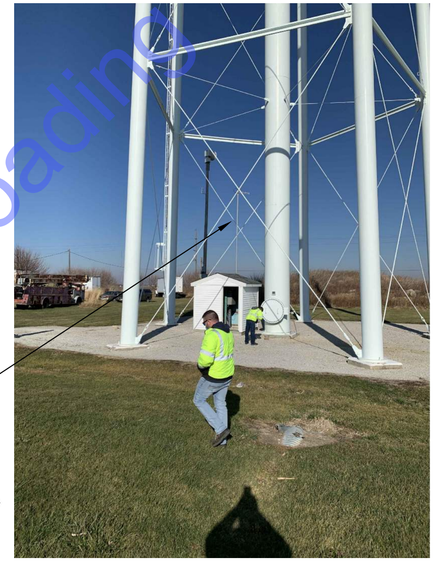
NORTH ELEVATED TANK PHOTOS:





SOUTH ELEVATED TANK PHOTOS:





ELECTRICAL NOTES:

1. ESTIMATED 175 FT HEIGHT TO TOP OF TANK FROM THE ELEVATED TANK CONTROLS BUILDING.
2. EXISTING ELEVATED STORAGE TANK PANEL.
3. CONTRACTOR SHALL FURNISH AND INSTALL NEW PHOENIX CONTACT RADIO TRANSMITTER, ANTENNA, AND ANTENNA CABLE PROVIDED BY THE SYSTEMS INTEGRATOR TO REPLACE EXISTING PHOENIX TRANSMITTER.
4. THE SI IS RESPONSIBLE FOR PROVIDING ALL HARDWARE, ANTENNA, AND ANTENNA CABLING AS REQUIRED TO ESTABLISH TANK LEVEL TRANSMISSION FROM THE ELEVATED TANKS TO THE WATER TREATMENT PLANT. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AS DIRECTED BY THE SI.

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ELECTRICAL - ELEVATED TANKS IMPROVEMENT PLAN

Drawing No: **E6-0**

Sheet: 88 OF 93

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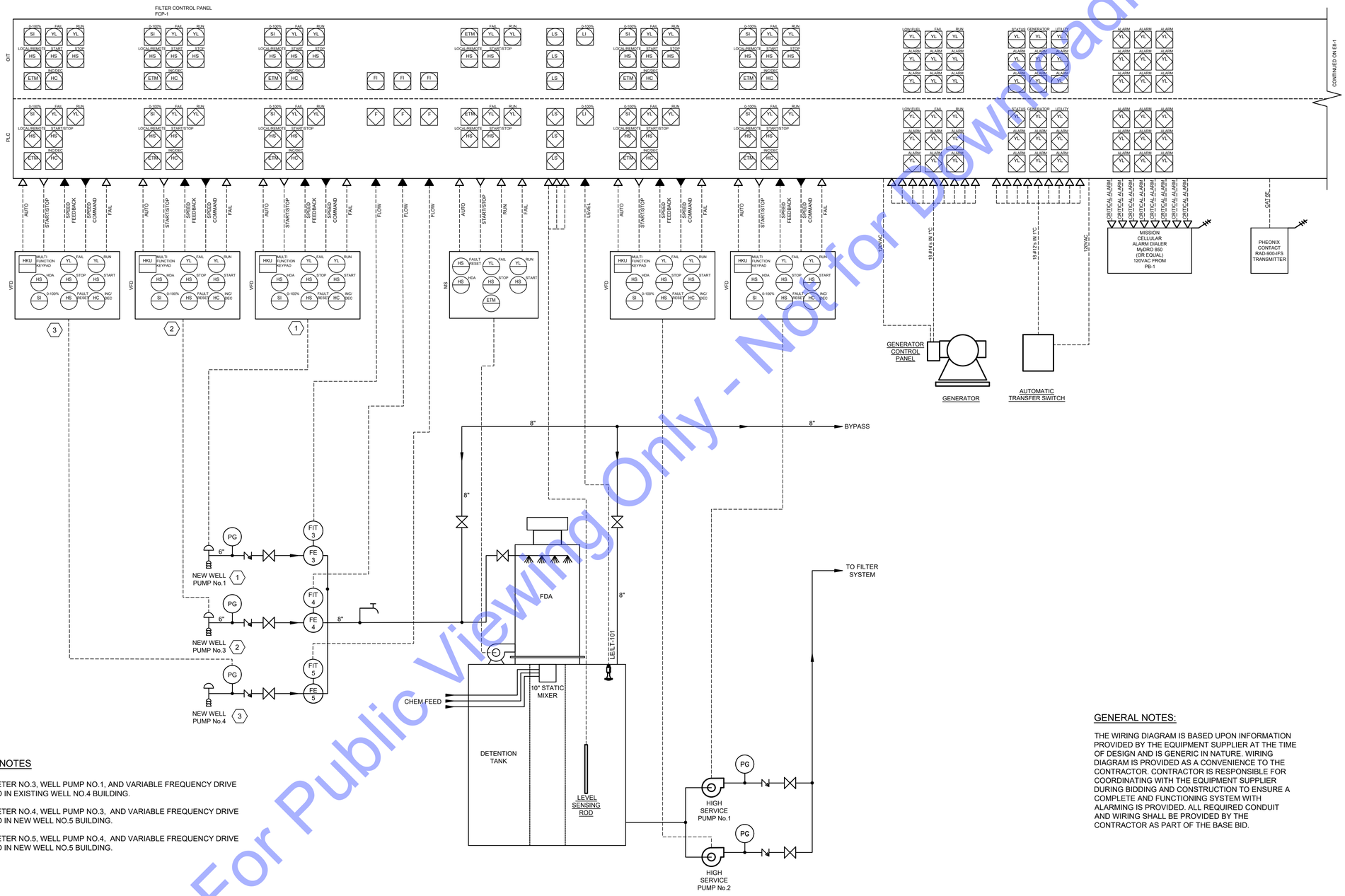

PLAN NOTES

1. FLOW METER NO.3, WELL PUMP NO.1, AND VARIABLE FREQUENCY DRIVE LOCATED IN EXISTING WELL NO.4 BUILDING.
2. FLOW METER NO.4, WELL PUMP NO.3, AND VARIABLE FREQUENCY DRIVE LOCATED IN NEW WELL NO.5 BUILDING.
3. FLOW METER NO.5, WELL PUMP NO.4, AND VARIABLE FREQUENCY DRIVE LOCATED IN NEW WELL NO.5 BUILDING.

GENERAL NOTES:

THE WIRING DIAGRAM IS BASED UPON INFORMATION PROVIDED BY THE EQUIPMENT SUPPLIER AT THE TIME OF DESIGN AND IS GENERIC IN NATURE. WIRING DIAGRAM IS PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE EQUIPMENT SUPPLIER DURING BIDDING AND CONSTRUCTION TO ENSURE A COMPLETE AND FUNCTIONING SYSTEM WITH ALARMING IS PROVIDED. ALL REQUIRED CONDUIT AND WIRING SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THE BASE BID.

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ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS

Drawing No: **E7-0**

Sheet: 89 OF 93

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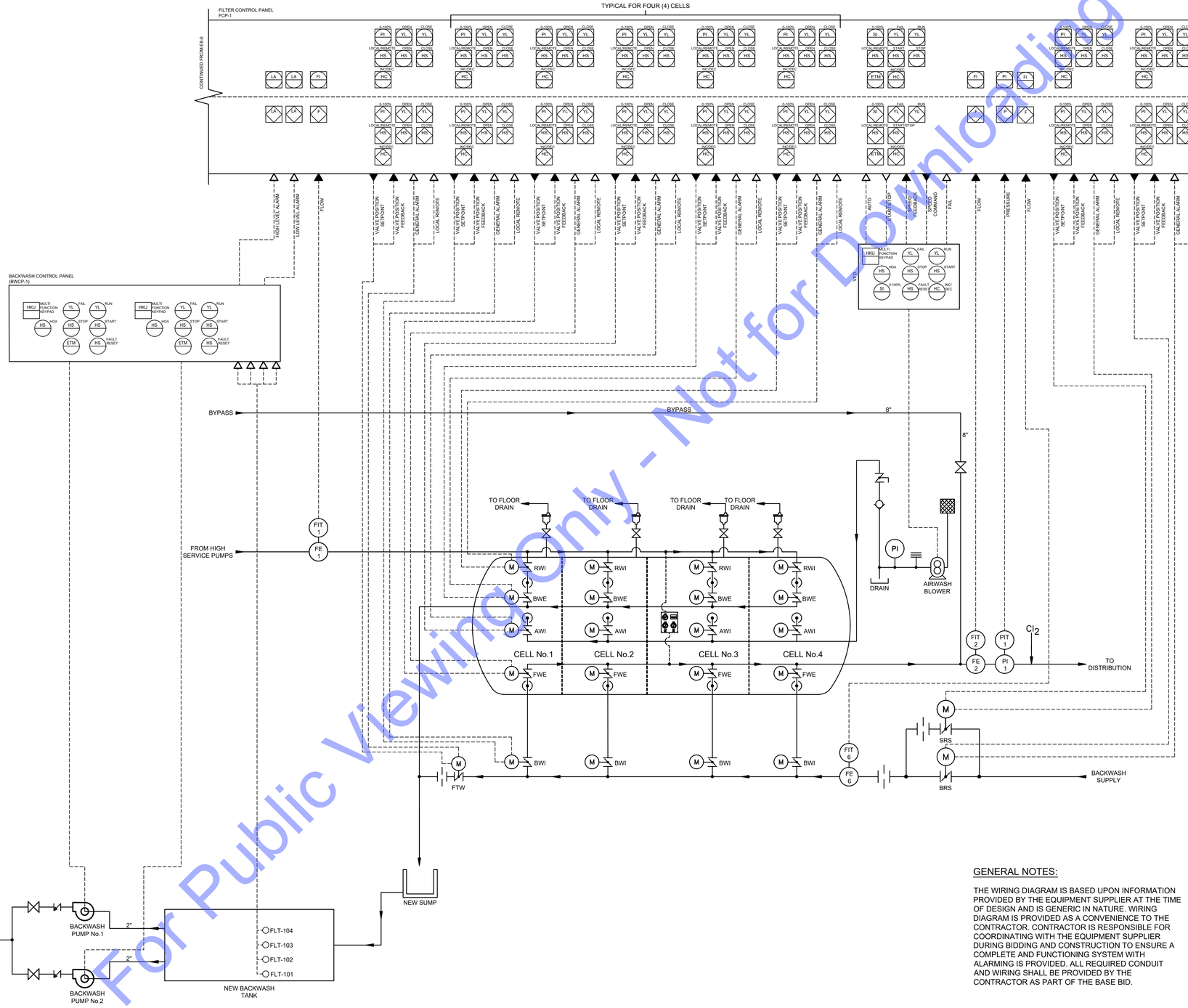

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ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS

Drawing No:
E7-1
Sheet: 90 OF 93

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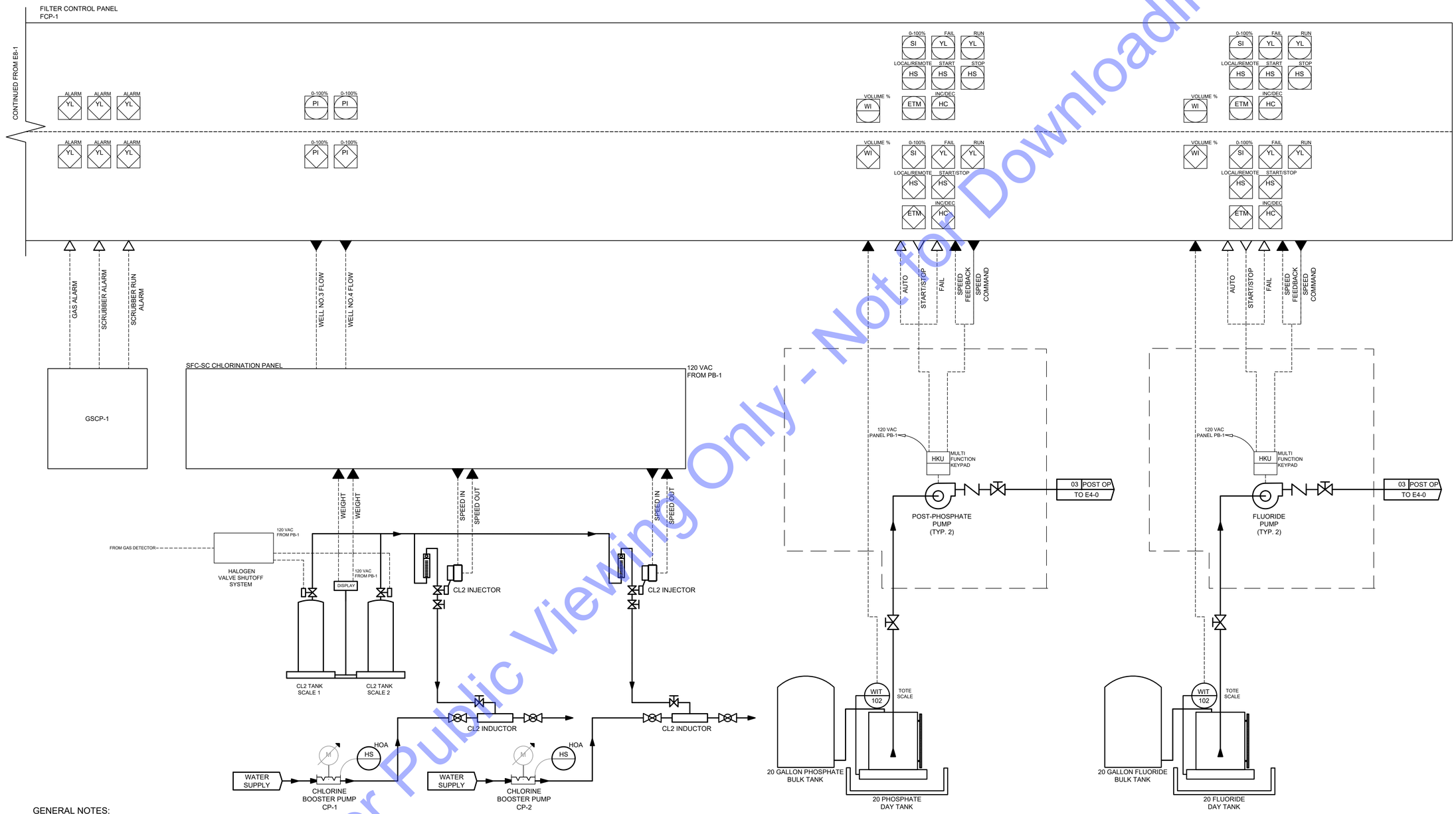

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ELECTRICAL - PROCESS & INSTRUMENTATION DRAWINGS

Drawing No:
E7-2
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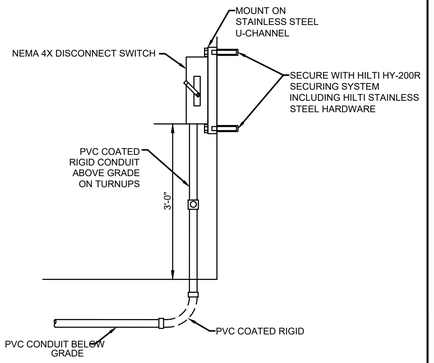
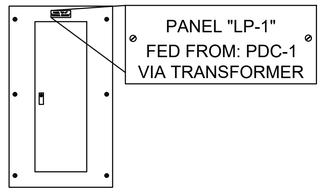


WALL MOUNT DISCONNECT SWITCH/INSTRUMENTATION PANEL

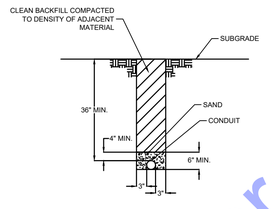
NOT TO SCALE



NOTE:
ALL PANELBOARDS INVOLVED IN THIS PROJECT SHALL BE IDENTIFIED BY THE PANEL NAME AND SOURCE OF THE PANELS POWER. REFER TO THE SPECIFICATIONS FOR COLORS AND ADDITIONAL REQUIREMENTS.

PANELBOARD IDENTIFICATION

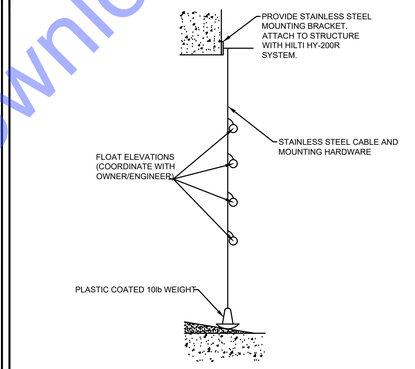
NOT TO SCALE



NOTE:
WHERE THERE IS MORE THAN ONE CONDUIT PER TRENCH, CONDUITS SHALL NOT BE PLACED CLOSER THAN 8" CENTER TO CENTER.

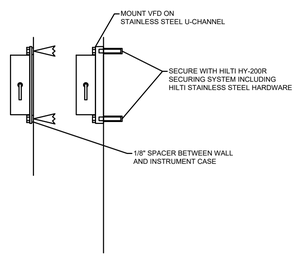
DIRECT BURIAL CONDUIT DETAILS IN EARTH

NOT TO SCALE



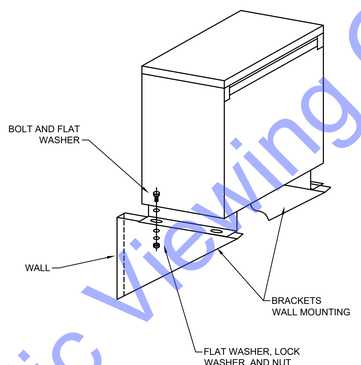
FLOAT MOUNTING DETAIL

NOT TO SCALE



WALL MOUNT VFD INSTALLATION

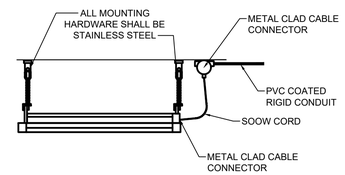
NOT TO SCALE



NOTES:
TRANSFORMER TO BE MOUNTED ON WALL USING SPECIFICALLY DESIGNED WALL MOUNTING BRACKET SUPPLIED IN KITS AND SPECIFIC TO THE ENCLOSURE. THEY MUST BE INSTALLED FOLLOWING DIRECTIONS INCLUDED IN THE KIT. IT IS IMPORTANT TO CHECK THE WEIGHT OF THE UNIT AND CONFIRM THAT THE WALL AND THE FASTENERS (NOT SUPPLIED WITH THE KIT) CAN SUPPORT THE UNIT. MOUNT AS CLOSE TO CEILING AS MANUFACTURERS REQUIREMENTS ALLOW.

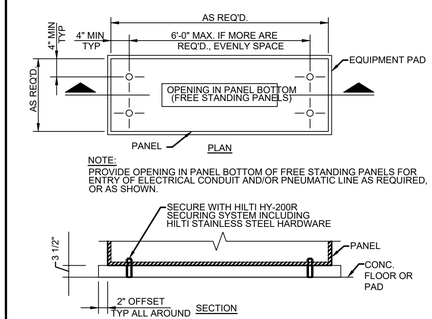
TRANSFORMER MOUNTING DETAIL

NOT TO SCALE



LIGHT FIXTURE MOUNTING DETAIL

NOT TO SCALE



NOTE:
PROVIDE OPENING IN PANEL BOTTOM OF FREE STANDING PANELS FOR ENTRY OF ELECTRICAL CONDUIT AND/OR PNEUMATIC LINE AS REQUIRED, OR AS SHOWN.

FREE STANDING OR FLOOR MOUNT
CONTROL PANEL INSTALLATION

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ELECTRICAL - DETAILS

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Sheet: 92 OF 93

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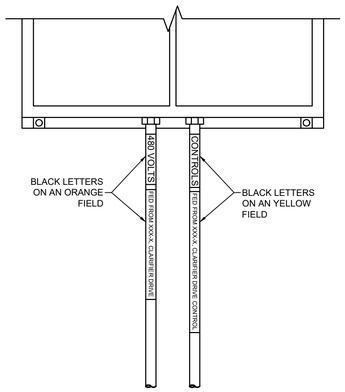
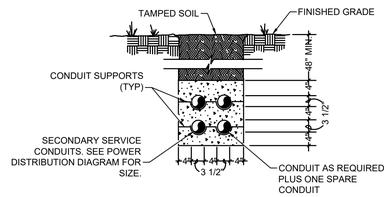


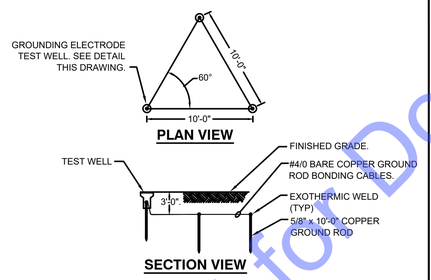
CONDUIT IDENTIFICATION

NOT TO SCALE



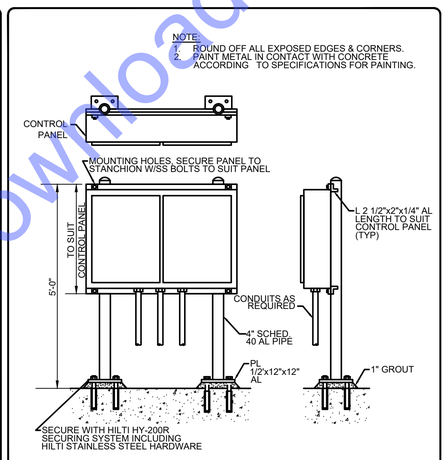
SECONDARY ELECTRICAL SERVICE DUCT BANK

NOT TO SCALE



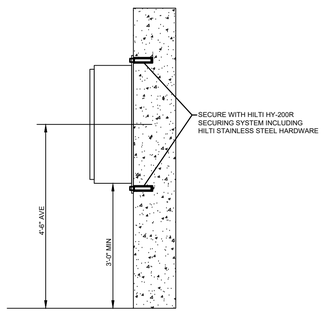
GROUNDING ELECTRODE SYSTEM

NOT TO SCALE



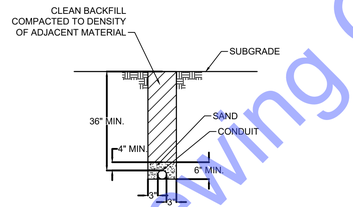
DOUBLE POST STANCHION MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



WALL MOUNT CONTROL PANEL INSTALLATION

NOT TO SCALE



NOTE:

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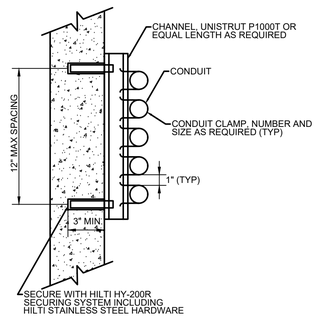
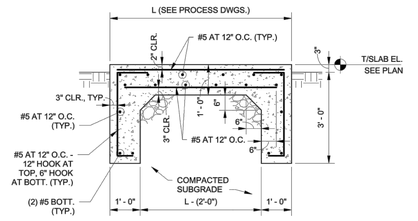
DIRECT BURIAL CONDUIT DETAILS IN EARTH

NOT TO SCALE



WALL MOUNTED CONDUIT RACK

NOT TO SCALE



SECTION

NOTES:
1. SEE PROCESS DRAWINGS FOR EQUIPMENT PAD LOCATION, DIMENSIONS AND ELEVATIONS.
2. TOP OF EQUIPMENT PAD SHALL BE FLAT AND LEVEL.
3. COORDINATE EQUIPMENT PADS WITH THE SELECTED MECHANICAL/ELECTRICAL CONTRACTORS.

GENERATOR PAD DETAIL (GENERIC)

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PLANT AND WELLS
IMPROVEMENTS

Indiana 811 Know what's below. 811 before you dig. 1-800-382-5544 (ITS THE LAW)

No.	Submittal / Revision	By	Date

Designed By:	Drawn By:	Checked By:
JS	JS	TLC
Issue Date:	**Project No:**	**Scale:**
4-3-24	W20065	AS SHOWN

ELECTRICAL - DETAILS

Drawing No:
E8-1
Sheet: 93 OF 93

File: Z:\SHARED\IN CLIENTS A-L\KENTLAND\D W20065 WATER UTILITY IMPRV\SHS\06 CAD\K MECH-ELEC\ELECTRICAL_DRAWINGS.DWG
Saved: 4/3/2024 11:19:51 AM Plotted: 4/3/2024 11:29:16 AM Current User: Jack Sizemore LastSavedBy: jsizemore