APPLE VALLEY UTILITIES INC. LAKE COUNTY, INDIANA

APPLE VALLEY UTILITIES EAST PWS WATER UTILITY IMPROVEMENTS DIVISION "A" WELLS AND WATER TREATMENT PLANT OCTOBER 2024

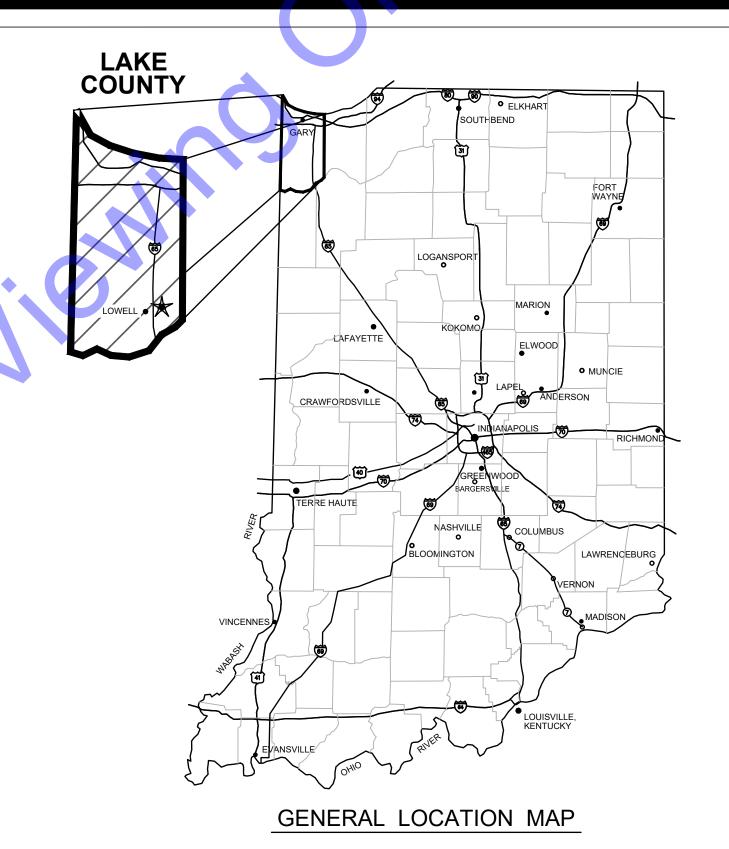
CORPORATE OFFICERS

THOMAS B. ASTBURY PRESIDENT

DANIEL T. ASTBURY SECRETARY

KATHRYN B. ASTBURY TREASURER

JONATHAN W. HUGHES.....ATTORNE





QA/QC BY: DARREN S. WELLS, P.E.,BCEE,ENV.,SP. 5-8-2024

INDIANA P.E. No. 19900094

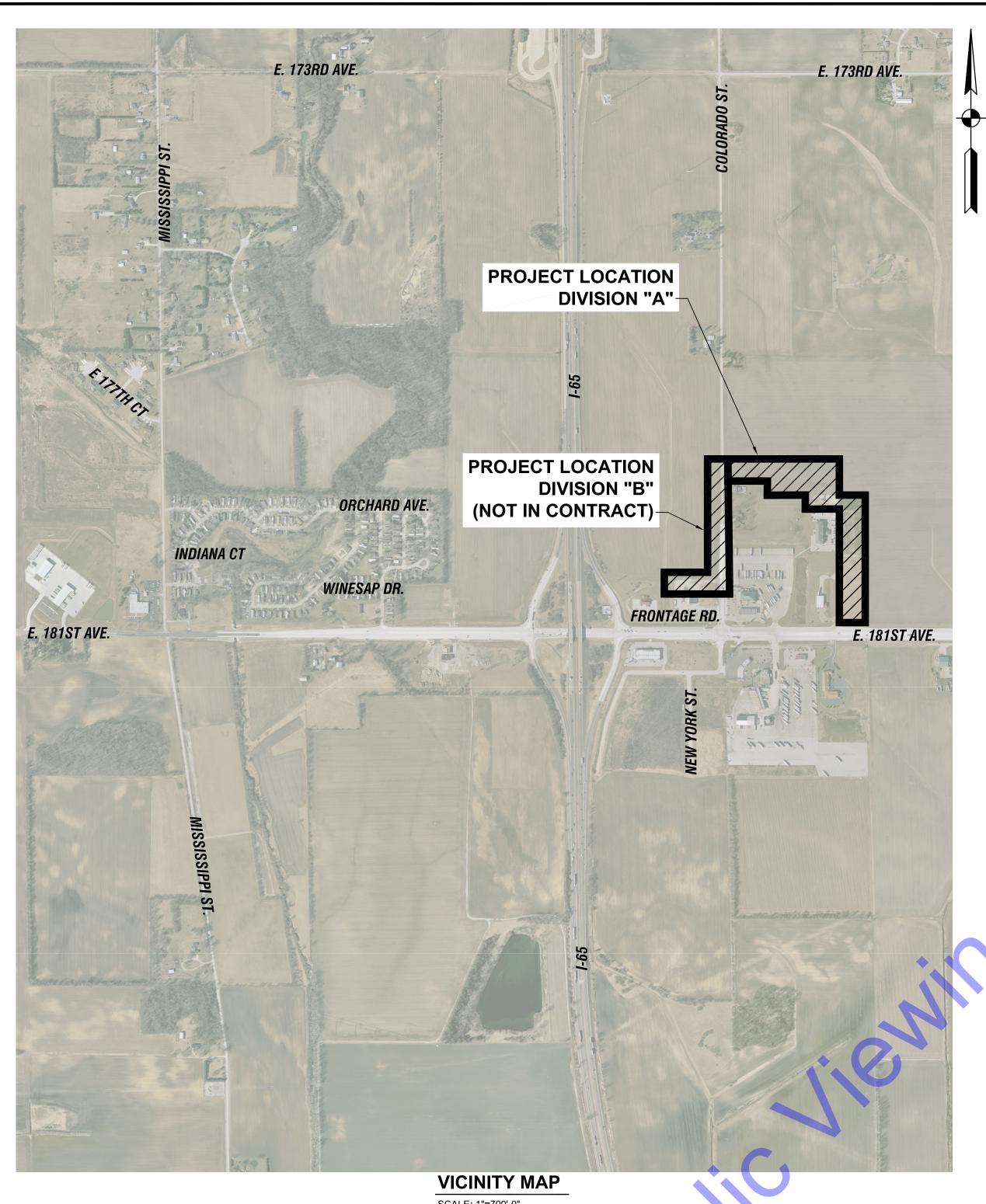
CERTIFIED BY: SHOW C. COCHRANE, P.E.

<u>10-15-2024</u> DATE : No.
19900094
STATE OF
WOLANA COMMINING

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File: Z:\SHARED\IN CLIENTS A-L\APPLE VALLEY UTILITIES\D W24026 WATER UTILI

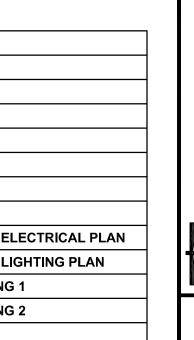
CONTRACT NO. : W24026



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Studius C. Ochrane Signature

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GENERAL ABBREVIATIONS

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

POLYETHYLENE EXP. JT.

YARD HYDRANT

HATCHING SYMBOLS

GENERAL NOTES

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

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

RECOLLECTIONS. 3. NORTHING AND EASTING COORDINATES SHOWN ON ALL MANHOLE, INLETS, ETC. ARE SHOWN FROM

UTILITY QUALITY LEVEL D - INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL

4. ALL MANHOLES THAT HAVE PIPE INVERT DIFFERENTIAL OF 2' OR GREATER, SHALL BE CONSIDERED A DROP MANHOLE. CONTRACTOR SHALL REFER TO MISCELLANEOUS DETAILS AND DETAILED SPECIFICATIONS FOR MORE INFORMATION.

- VIA "INDIANA ON-LINE" GIS SHAPE FILES.
- UNLESS OTHERWISE NOTED.

UTILITY COORDINATION AND PROJECT DIRECTION OF EXISTING SUBSURFACE UTILITY DATA:

UTILITY QUALITY LEVEL DESCRIPTIONS:

<u>UTILITY QUALITY LEVEL A</u> - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES ABOVE GROUND UTILITY FEATURES AND CORRELATING QUALITY LEVEL "D" INFORMATION.

CENTER OF STRUCTURE NOT CASTING, UNLESS OTHERWISE NOTED.

DRAWING SET LEGEND

			
QUICK DISCONNECT	ARV O—	AIR RELIEF VALVE	
FLANGED SPOOL SECTION	FM	FLOW METER	
PRESSURE REDUCER VALVE	₩	GATE VALVE	
FLANGED COUPLING ADAPTER	FCV	FLOW CONTROL VALVE	
BALL CHECK VALVE	\bowtie	VALVE	
MOTOR ACTUATOR	\triangleleft	REDUCER	
FLEXIBLE CONNECTION	\bowtie	ECCENTRIC PLUG VALVE	
FLANGE FILLER & S.S. MESH SCREEN	И	CHECK VALVE	
90° V-NOTCH WEIR	∇	INCREASER / REDUCER	
MAGNETIC FLOW METER	\sum BV	BUTTERFLY VALVE	
ULTRASONIC SENSOR	∑ -00	MECHANICAL BUTTERFLY VALVE	
SUBMERSIBLE PUMP	∃ E	PIPE THROUGH FLOOR / WALL	
BOOSTER PUMP	δ	BALL VALVE	
PRESSURE GAUGE	H-	BLIND FLANGE OR PLUG	
PRESSURE INDICATOR		HOSE BIBB	
NEW PIPING AND EQUIPMENT	<u> </u>	STOP PLATE	
EXISTING PIPING AND EQUIPMENT		WEIR	
FUTURE PIPING AND EQUIPMENT		ORIFICE	

GENERAL SCHEMATIC LEGEND

FIRE HYDRANT

NG 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	

	DRAWIN
EXOHT	EXISTING OVERHEAD TELEPHONE LIN
EXG	EXISTING GAS LINE AND VALVE
EXW EXW	EXISTING WATER LINE AND VALVE
EXF/O — EXF/O —	EXISTING FIBER OPTIC LINE
EXOHE	EXISTING OVERHEAD ELECTRIC LINE
EXBE	EXISTING BURIED ELECTRIC
— NPW—— NPW—— NPW——	EXISTING NON-POTABLE WATER LINE
— POT —— POT —— POT ——	EXISTING POTABLE WATER LINE
EXBT———	EXISTING BURIED TELEPHONE LINE
_xxxx	EXISTING FENCE
APP. R/W	APPARENT RIGHT-OF-WAY
APP. P/L	APPARENT PROPERTY LINE
	EDGE OF ROAD
=======================================	EDGE OF ROAD WITH CURB
— — — 7 85 — — —	EXISTING MAJOR CONTOUR LINE
	EXISTING MINOR CONTOUR LINE
— w —— w ——	NEW WATER LINE
785	PROPOSED MAJOR CONTOUR LINE
784	PROPOSED MINOR CONTOUR LINE

LEG	<u>END</u>		
O	AC UNIT	1	TELEPHONE MANHOLE
0	BOLLARD	\diamondsuit	TELEPHONE LINE MARKER
\Diamond	BOULDER / LARGE ROCK	®	TRAFFIC MANHOLE
⊠CL	CENTER LINE MONUMENT		WATER LINE MARKER
�	CONTROL POINT / BENCH MARK		WATER METER
\odot	DRILL HOLE	₩V	VALVE
MB	MAIL BOX	×	IRRIGATION CONTROL VALVE
D	FLAG POLE	\Diamond	FIRE HYDRANT
0	POST	F	FLUSH HYDRANT
\circ	STUMP	\varnothing	YARD HYDRANT
\$	BUSH / HEDGE	\bowtie	WALL SPIGOT
	DECIDUOUS TREE	-	EXISTING PIPE PLUG
	CONIFEROUS TREE		STORM CATCH BASIN (SQUARE)
	SIGN		STORM CATCH BASIN (ROUND)
₫	UTILITY LOCATE FLAG		STORM CURB INLET
\$	GAS LINE MARKER		STORM MANHOLE
GV	GAS VALVE	(\$)	SANITARY MANHOLE
©	GAS METER	sv ×	SANITARY VALVE
-•	GUY POLE	•	CLEANOUT
Ø	POWER POLE	X	VENT
어	LIGHT POLE	×	NEW VALVE
\leftarrow	GUY WIRE	Ø	NEW FIRE HYDRANT
EM	ELECTRIC METER	E	NEW FLUSH HYDRANT
≡≡	ELECTRIC PANEL		NEW WET SADDLE AND VALVE BODY
ET	ELECTRIC TRANSFORMER		NEW PLUG
Ô	HAND HOLE BOX	LS	NEW LINE STOP
(FIBER OPTIC MARKER		NEW CUT AND CAP

⊗ NEW SANITARY MH

TP TEL/TV PEDESTAL

STATE OF Shotrow C. Oschrane 10/15/2024

Designed By: Drawn By: Checked By ssue Date: Project No: Scale: 10-17-24 | W24026 | AS SHOWN GENERAL

> AND NOTES Drawing No: G3

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ABBREVIATIONS LEGENDS SYMBOLS



CONTROL POINT INFORMATION					
IDENTIFIER	NORTHING	EASTING	DESCRIPTION		
CP-100	2201701.38	2895132.11	CP/CAPRBR		
CP-101	2201947.66	2894606.62	CP/CAPRBR		

TEMPORARY BENCHMARK INFORMATION			
IDENTIFIER	ELEVATION	DESCRIPTION	
TBM-1	667.01	MAGNAIL	

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)

10/15/2024 Date

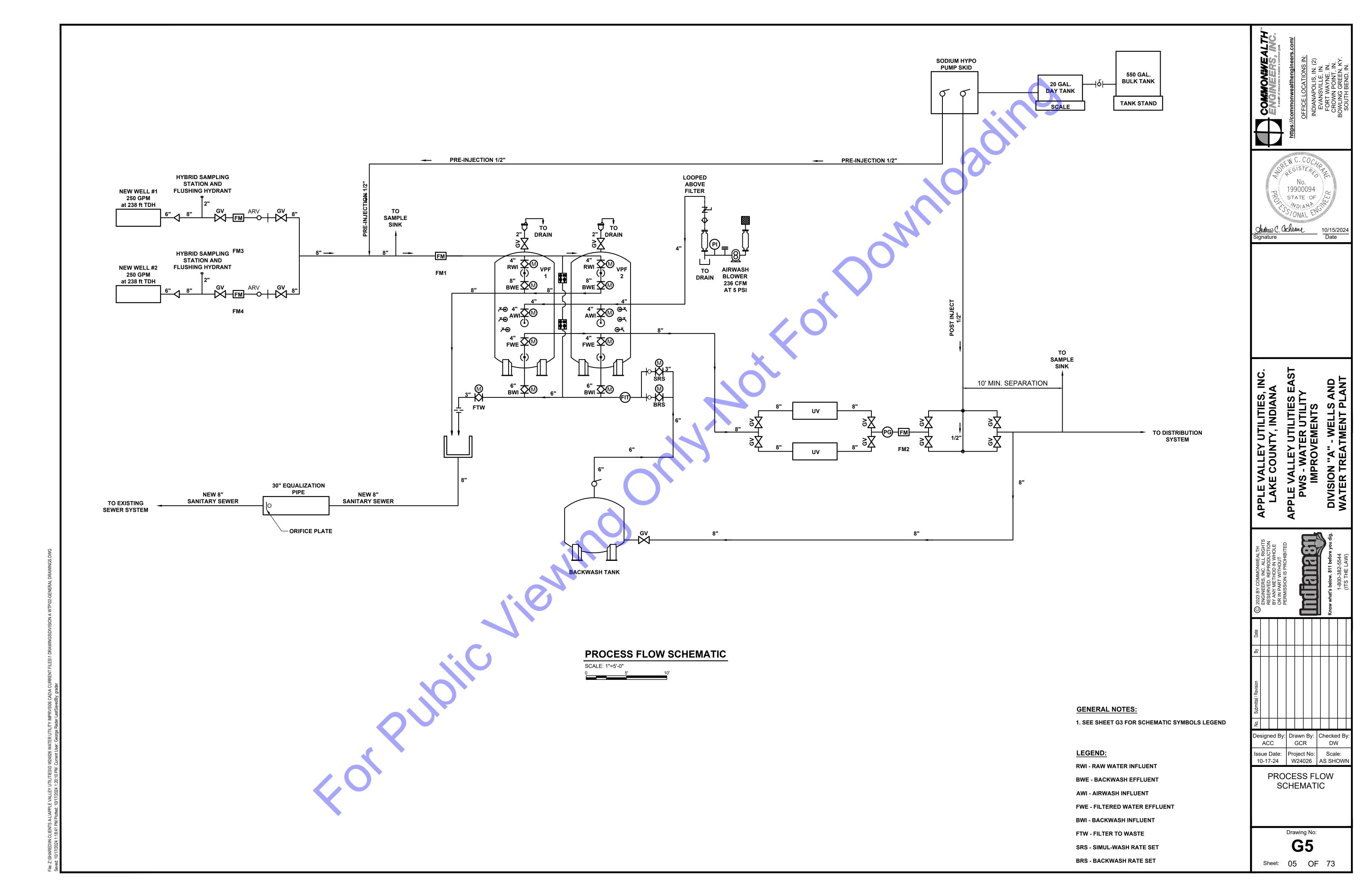
Studiuw C. Ochrane
Signature

Designed By: Drawn By: Checked By: ACC GCR DW

Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

SURVEY DATA

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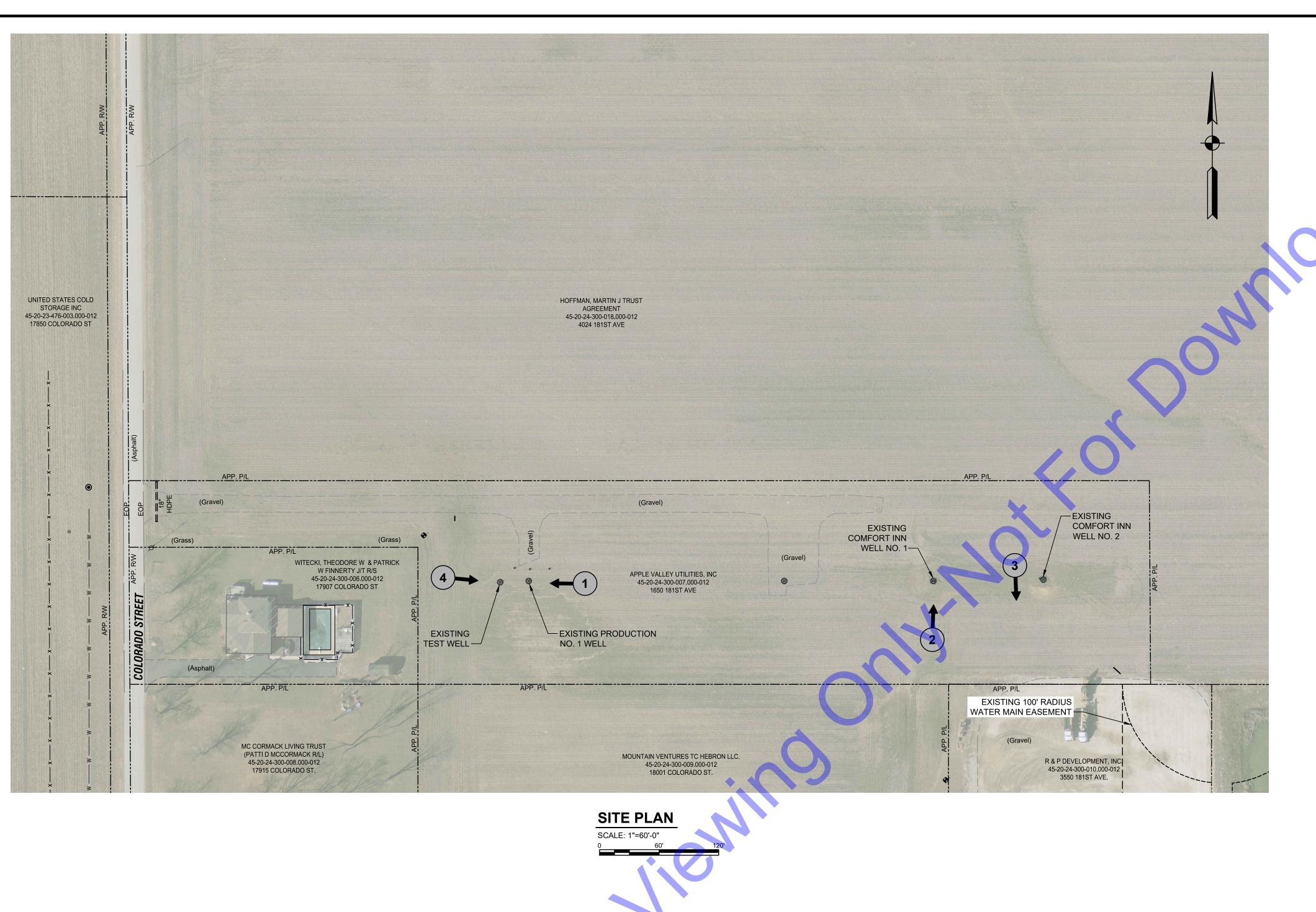




PHOTO #1



PHOTO #2





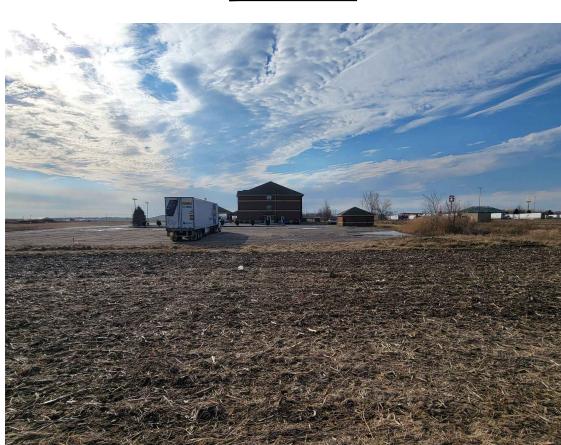


PHOTO #3



PHOTO #4

LEGEND:

INDICATES PHOTO NUMBER AND DIRECTION OF PHOTO (PHOTOS TAKEN BY COMMONWEALTH ENGINEERS, INC. IN 02-08-2024)

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Designed By: Drawn By: Checked By: ACC GCR DW

Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

OVERALL PROPERTY

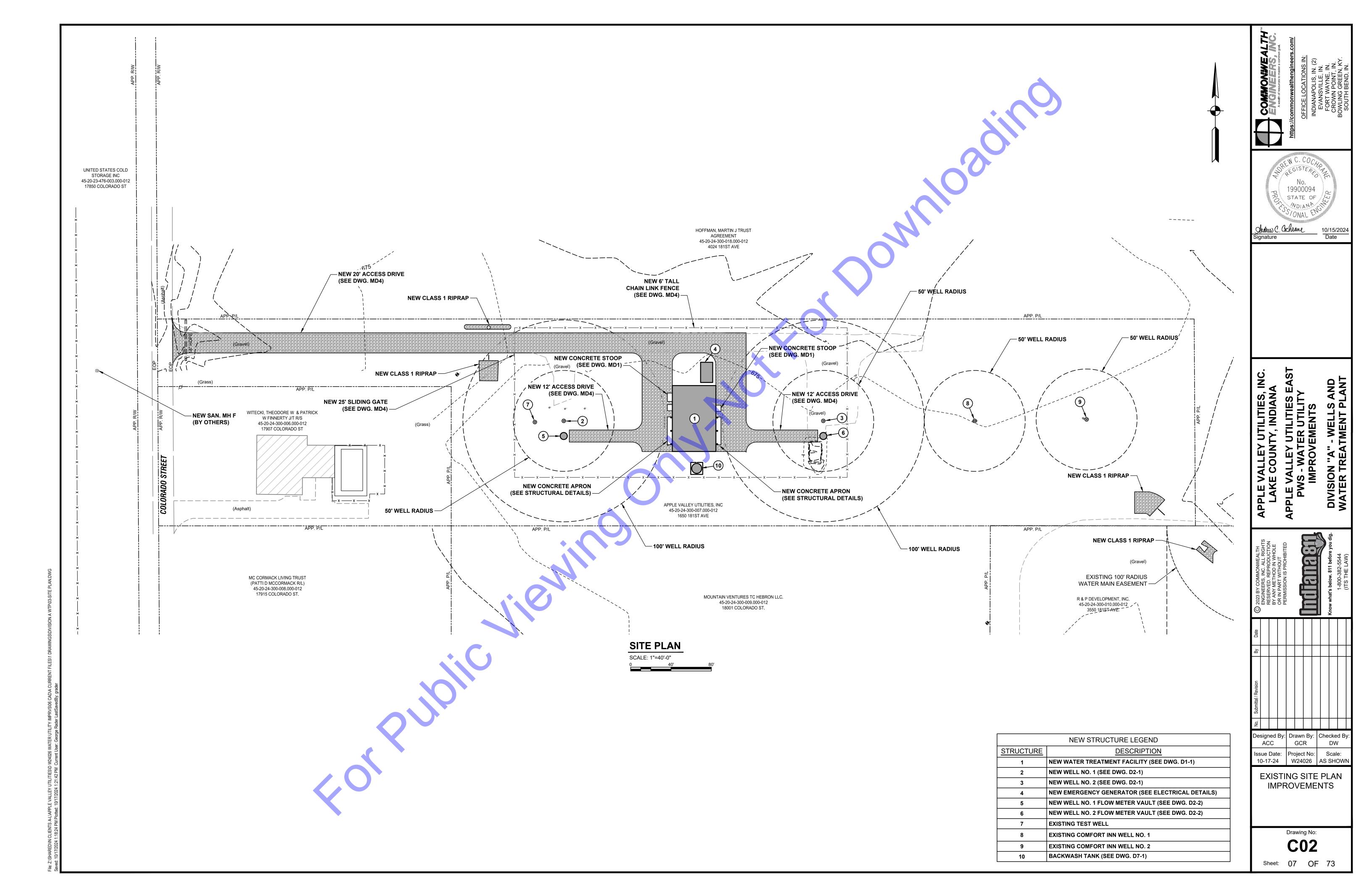
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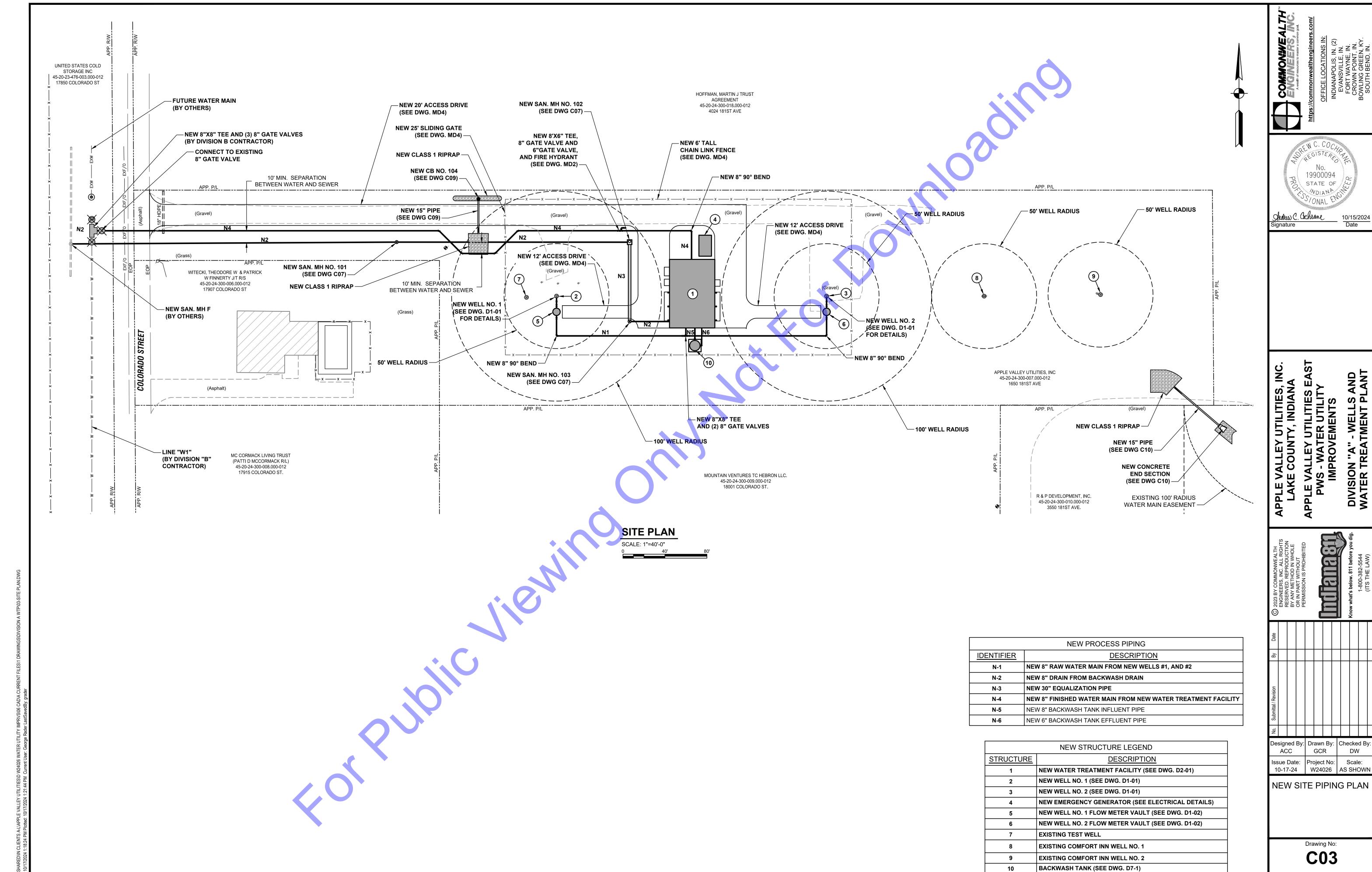
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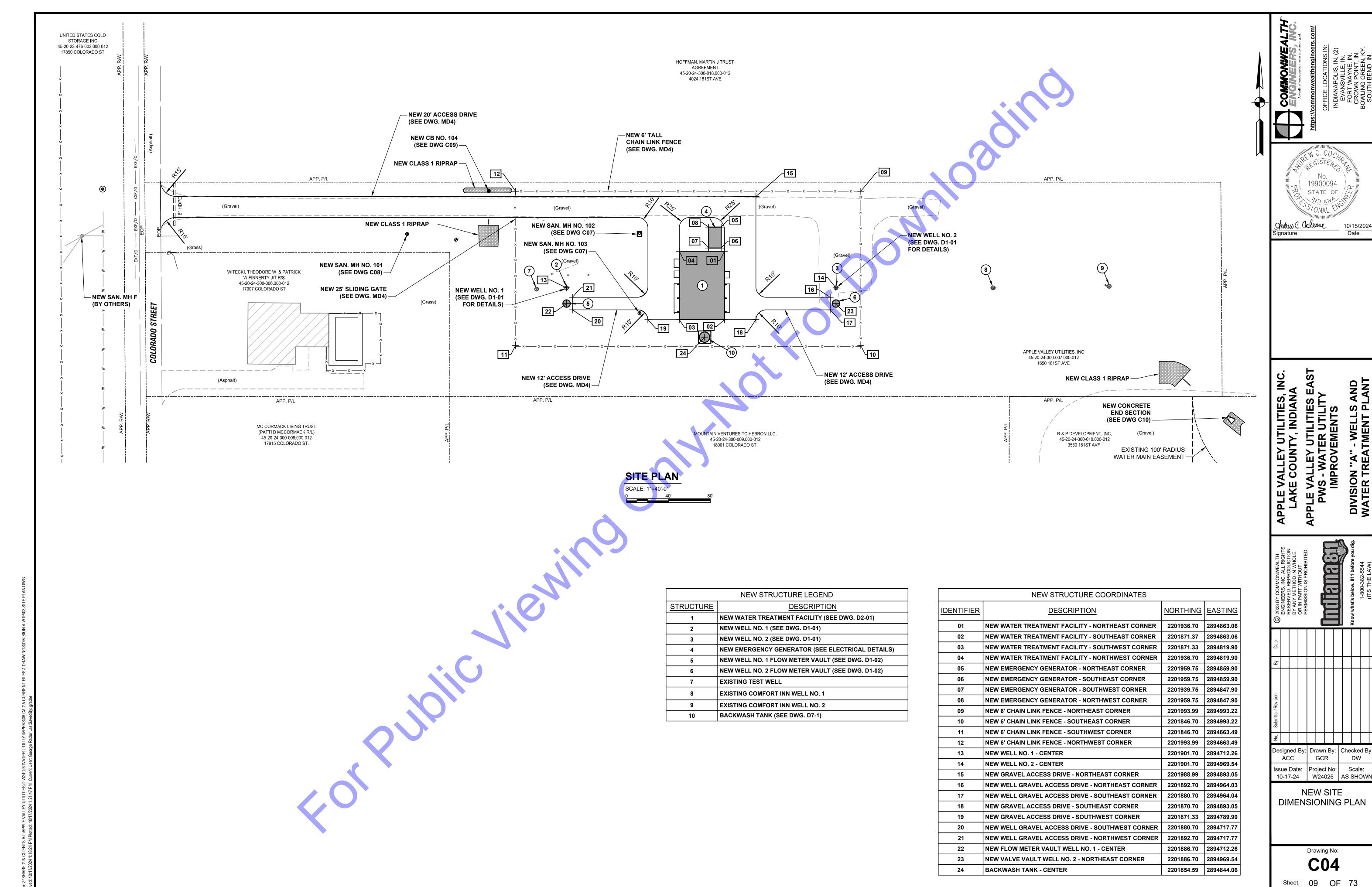
Studius C. Oschrane Signature

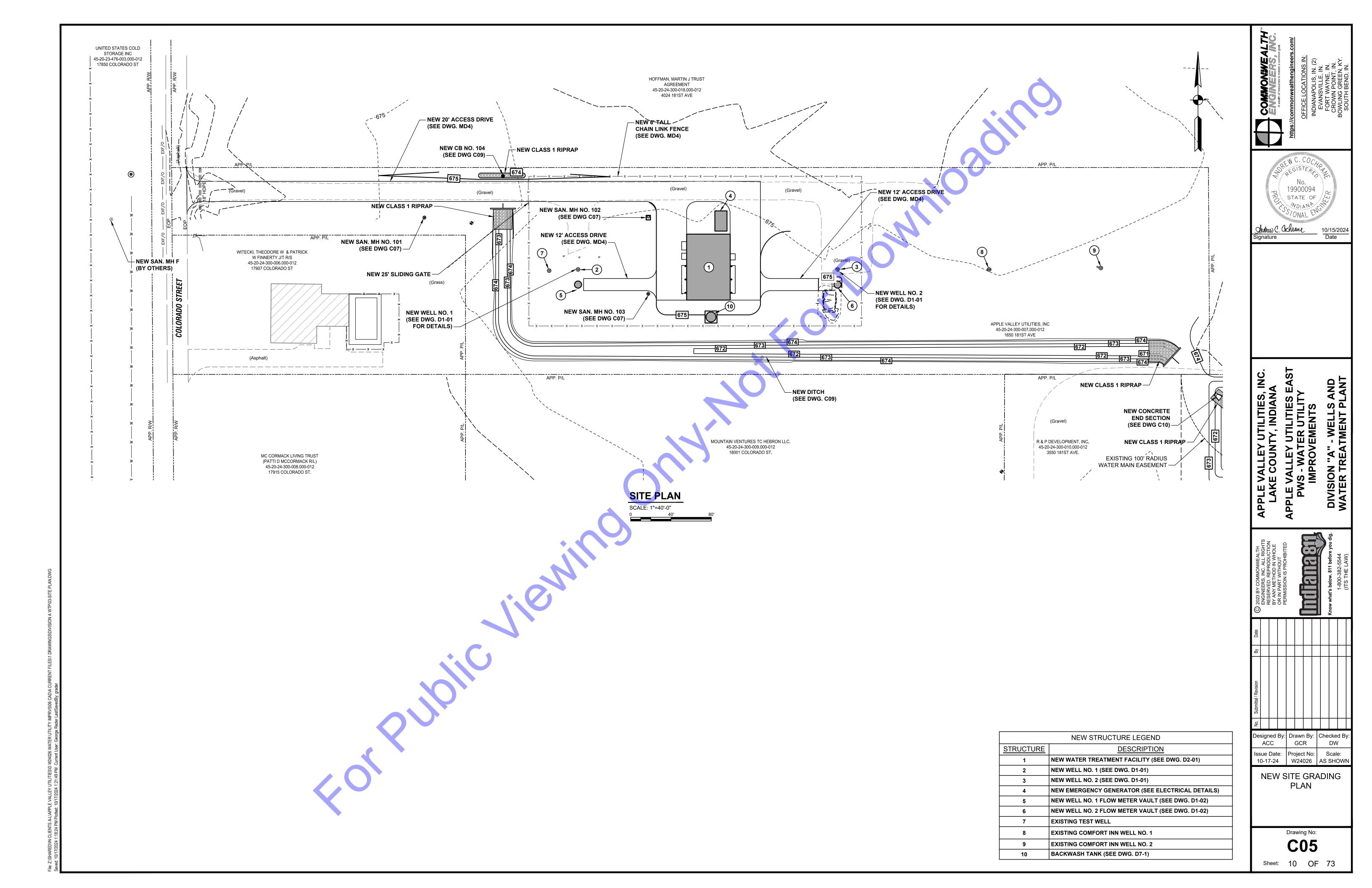
10/15/2024 Date

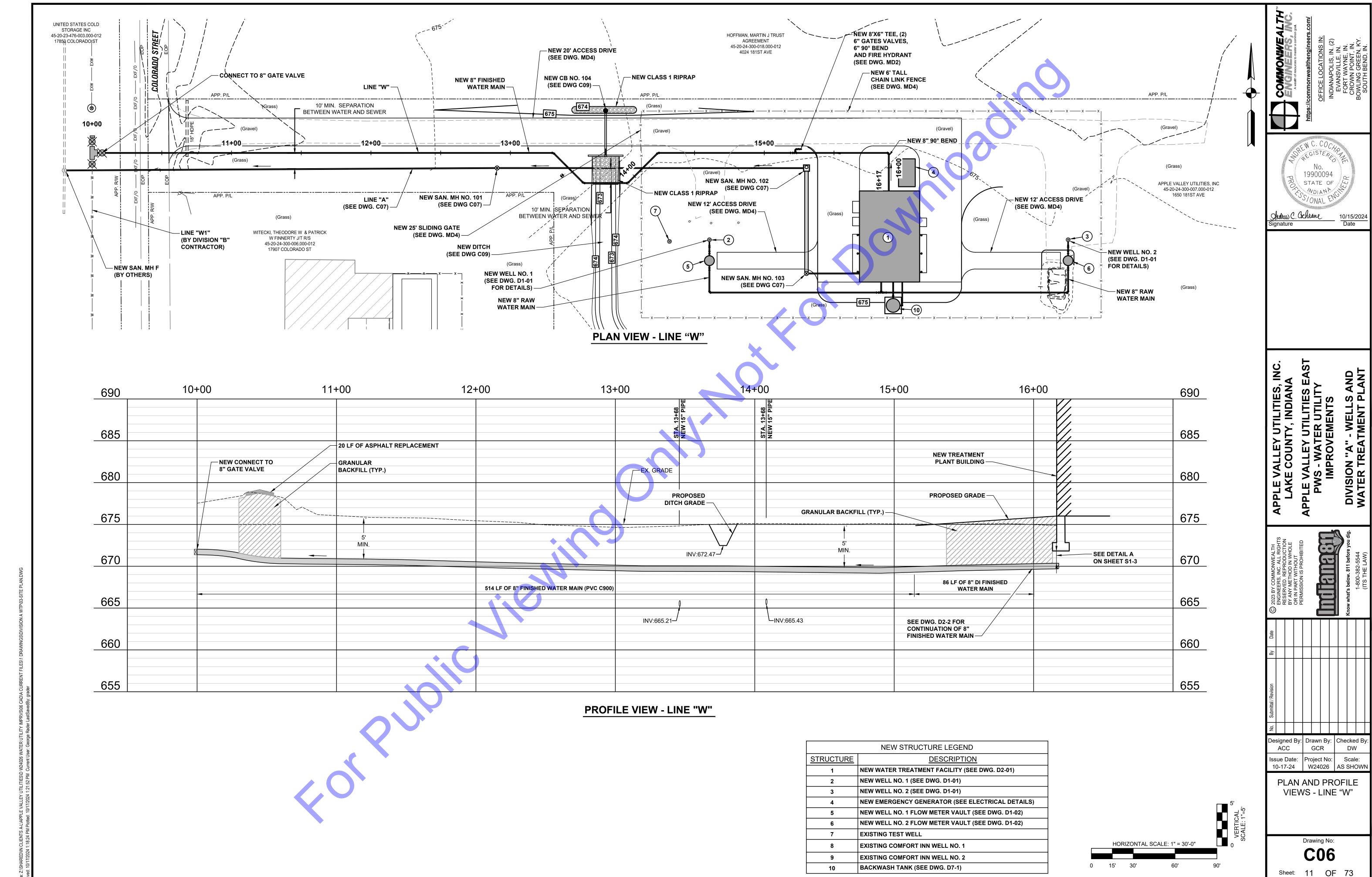


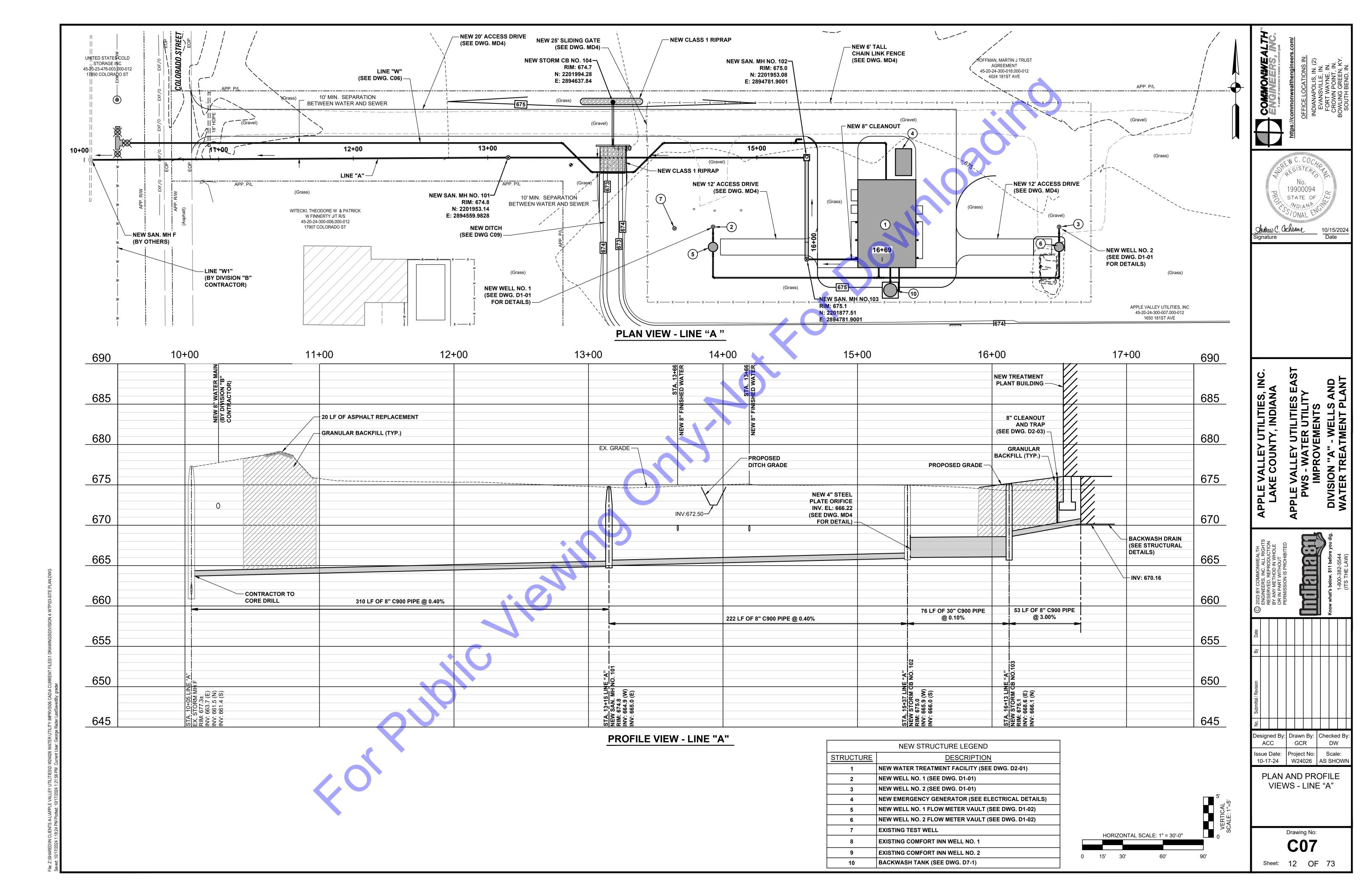


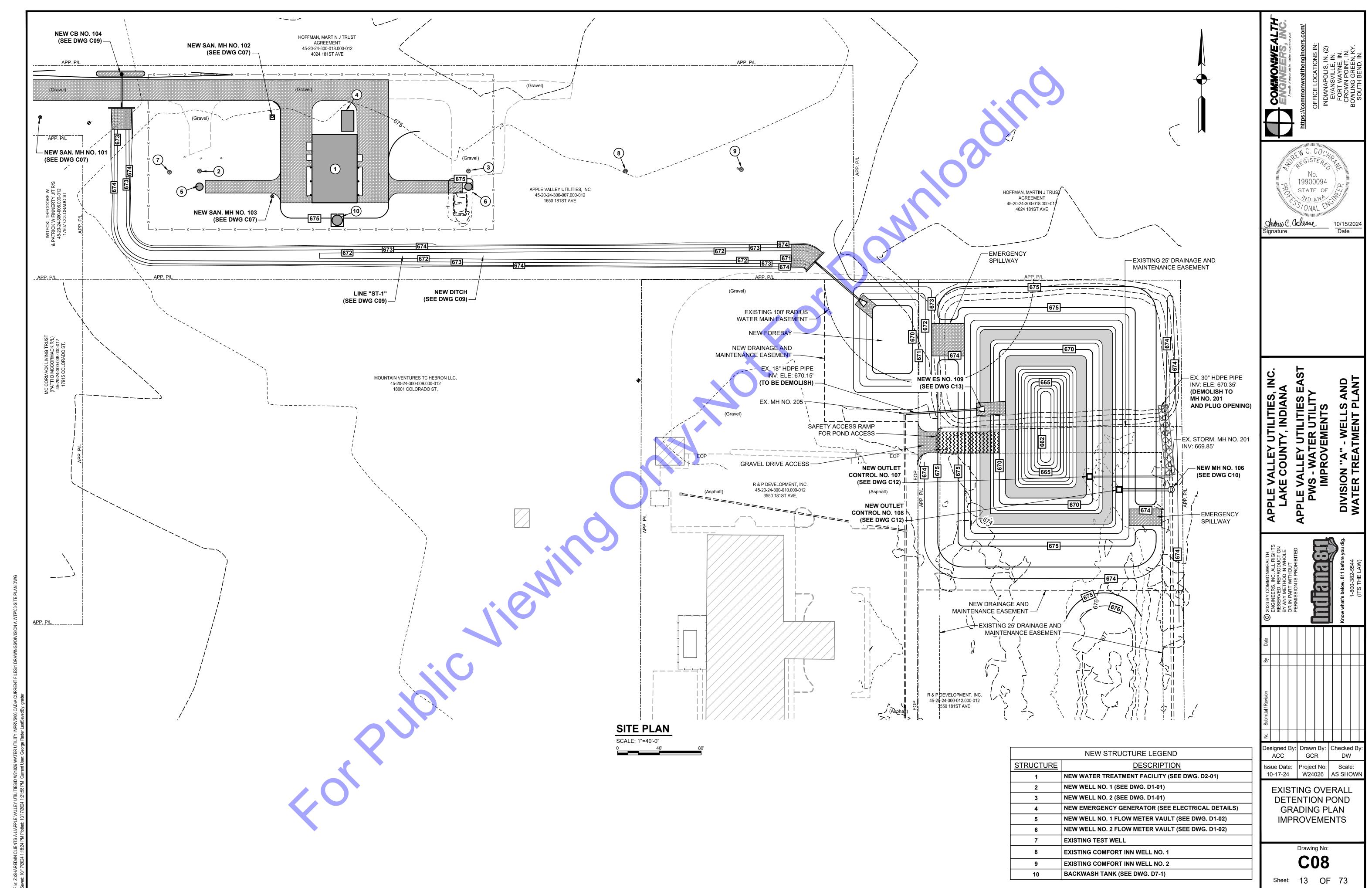
Sheet: 08 OF 73

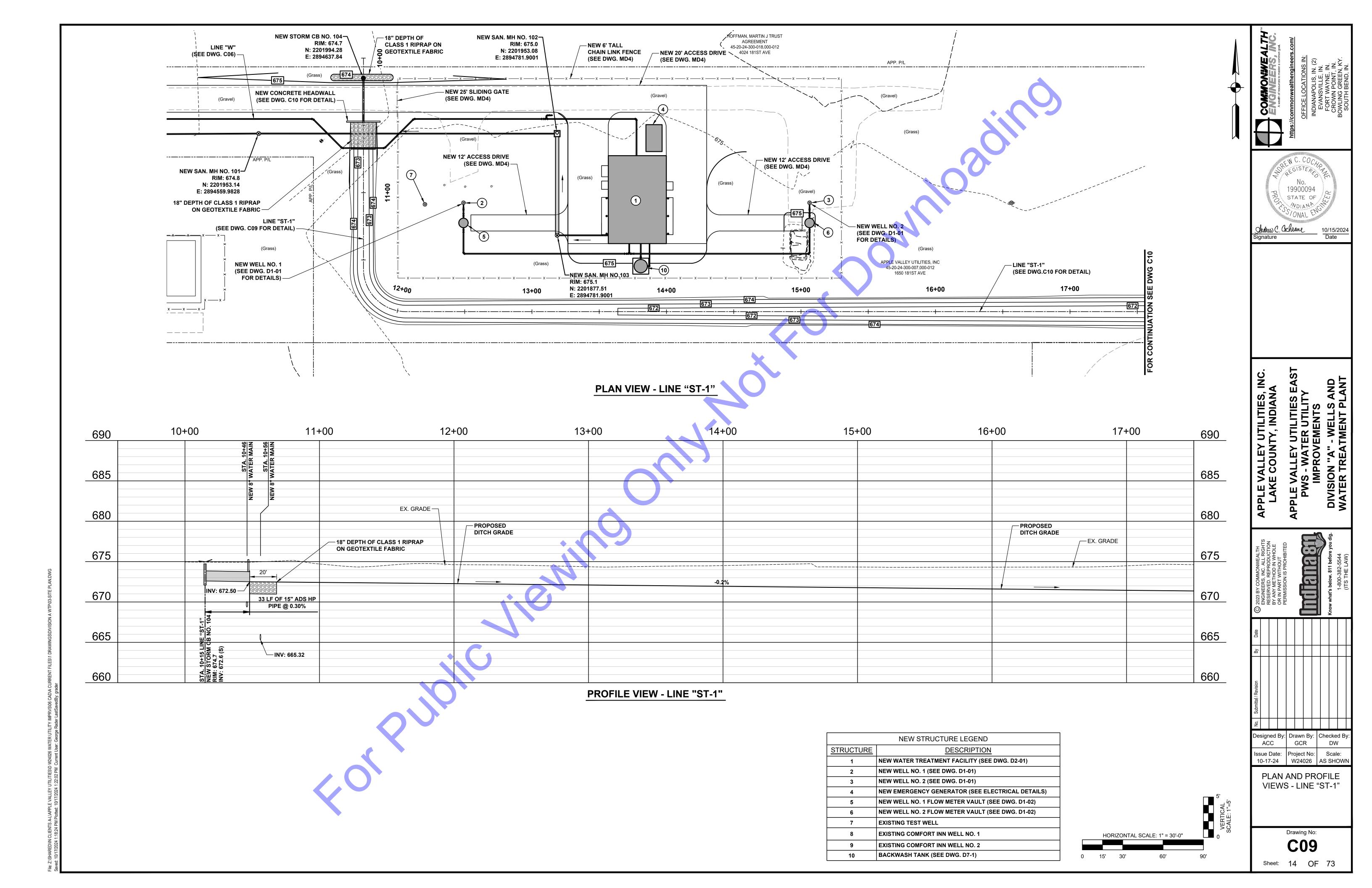


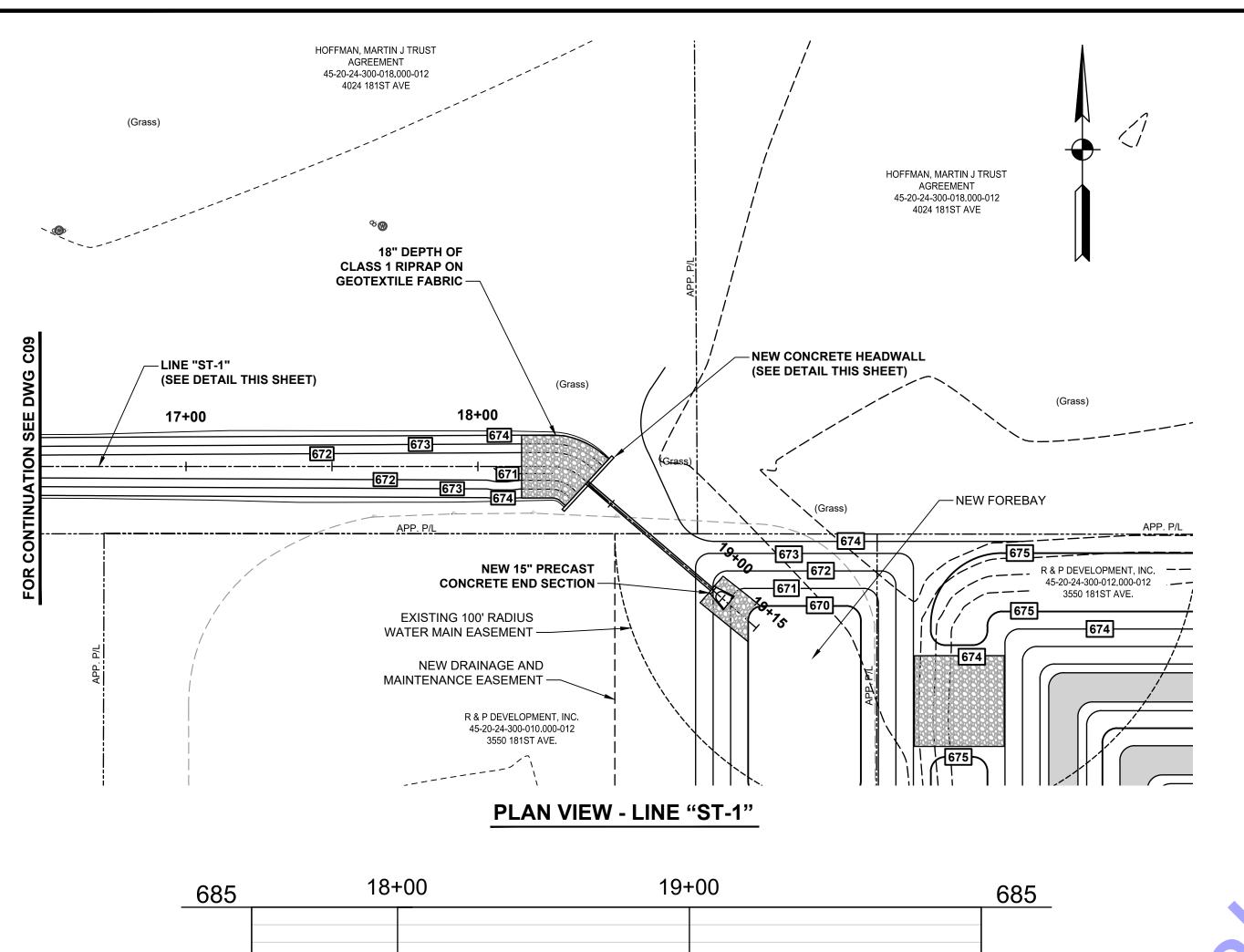


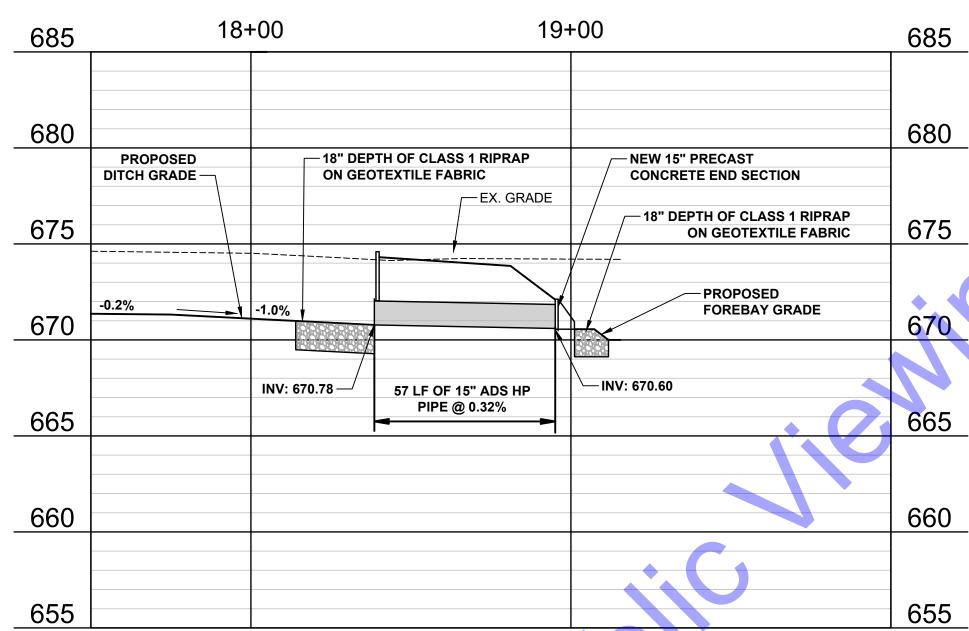








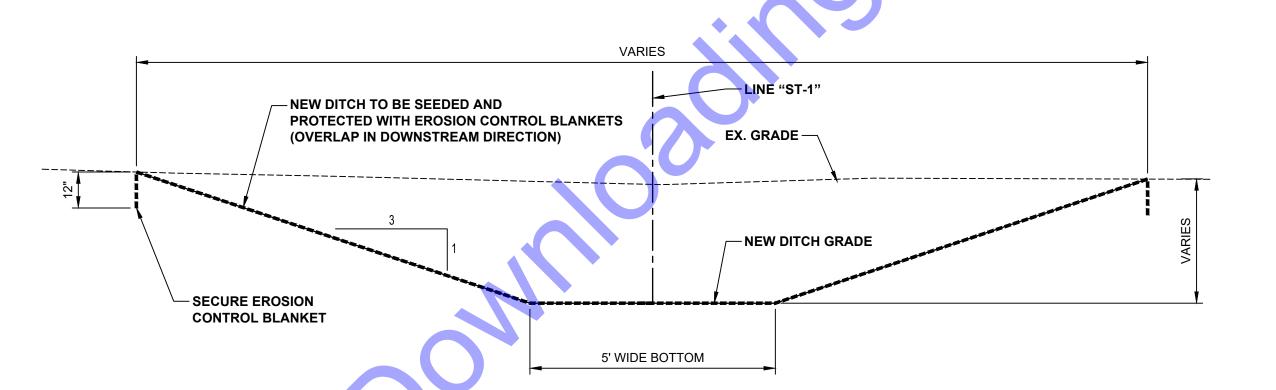




PROFILE VIEW - LINE "ST-1"

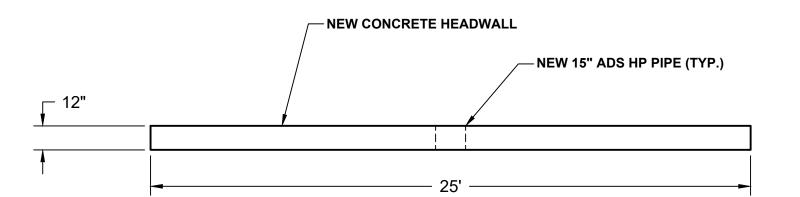


HORIZONTAL SCALE: 1" = 30'-0"



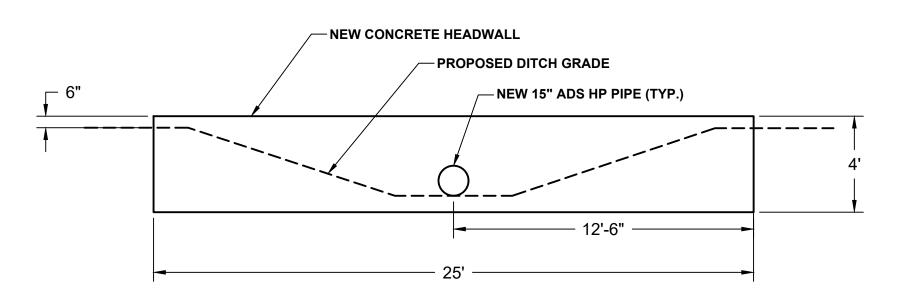
NEW DITCH TYPICAL SECTION

NOT TO SCALE



NEW CONCRETE HEADWALL TYPICAL DETAIL **PLAN VIEW**

NOT TO SCALE



NEW CONCRETE HEADWALL TYPICAL DETAIL **ELEVATION VIEW**

NOT TO SCALE

STATE OF Shotrew C. Cochrane

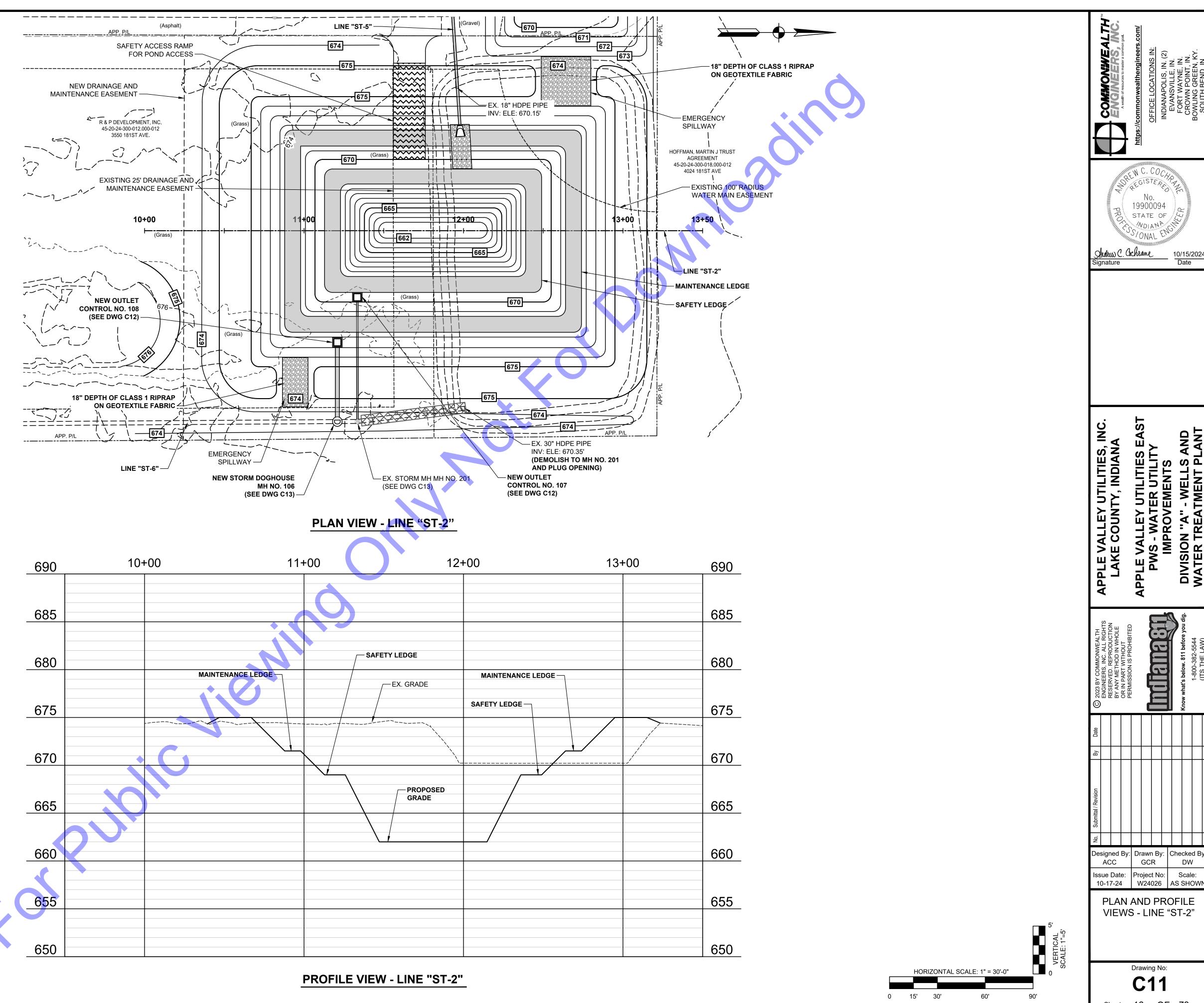
Designed By: Drawn By: Checked By

PLAN AND PROFILE VIEWS - LINE "ST-1"

GCR

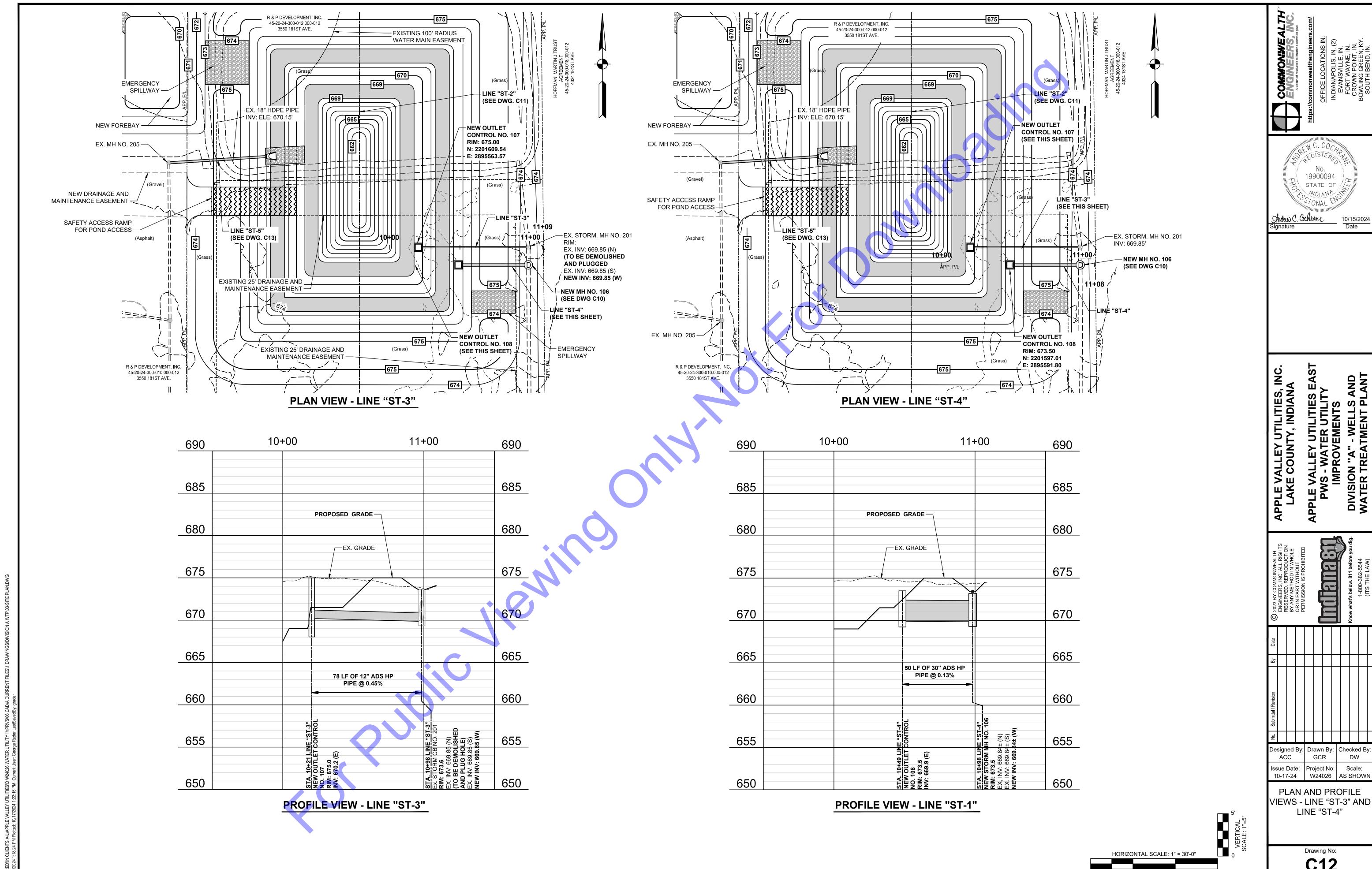
ssue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

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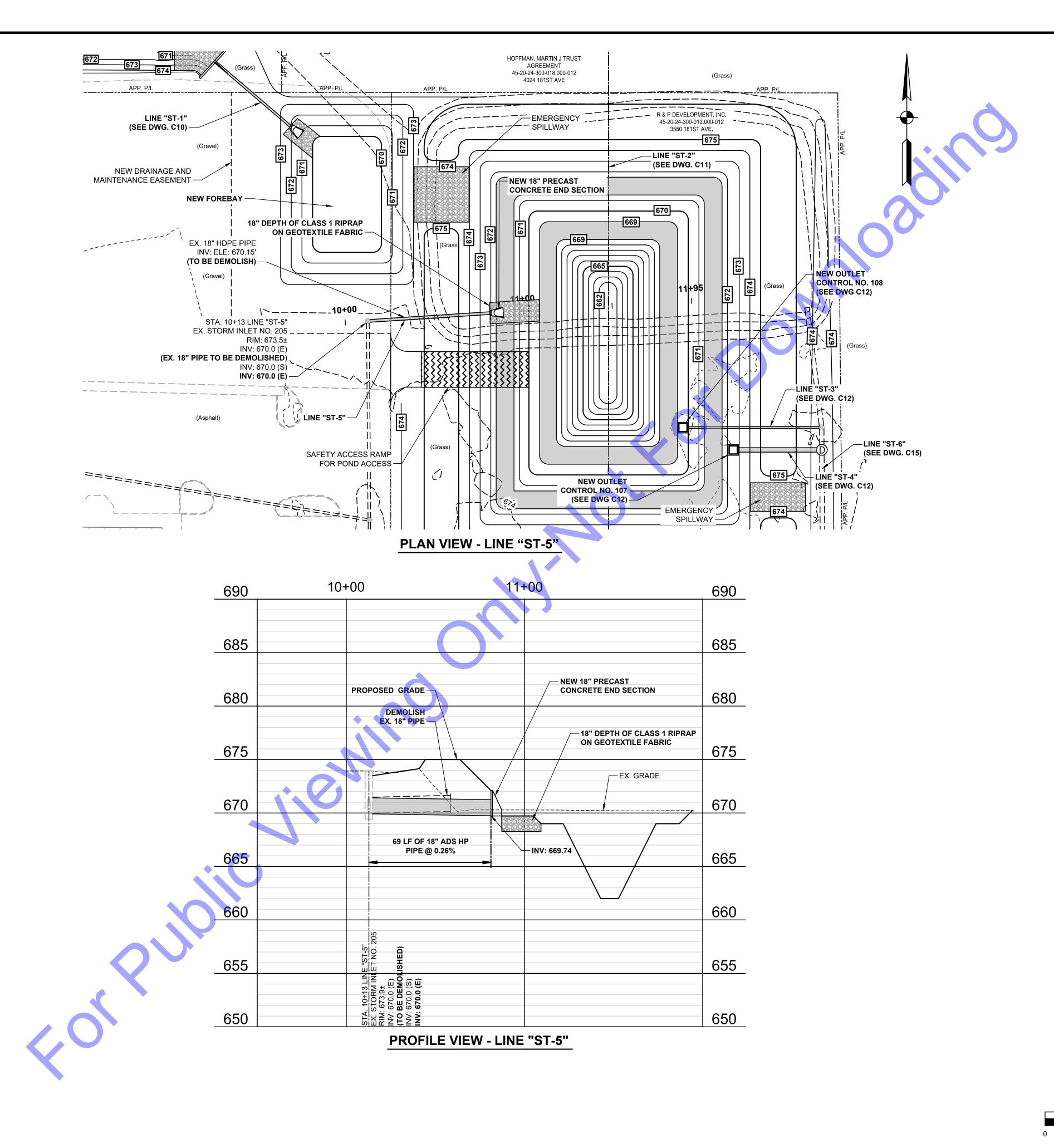


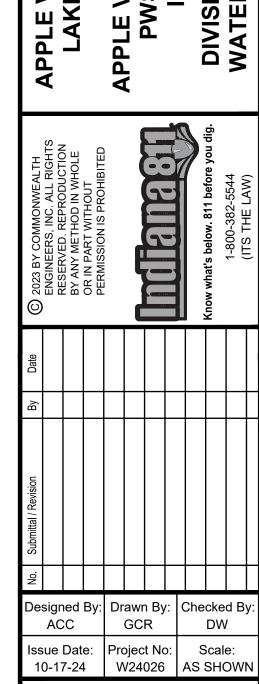
Designed By: Drawn By: Checked By

PLAN AND PROFILE

C12

Sheet: 17 OF 73





19900094 STATE OF

10/15/2024 Date

WDIANA NO WOLANA

Shotrew C. Cochrane

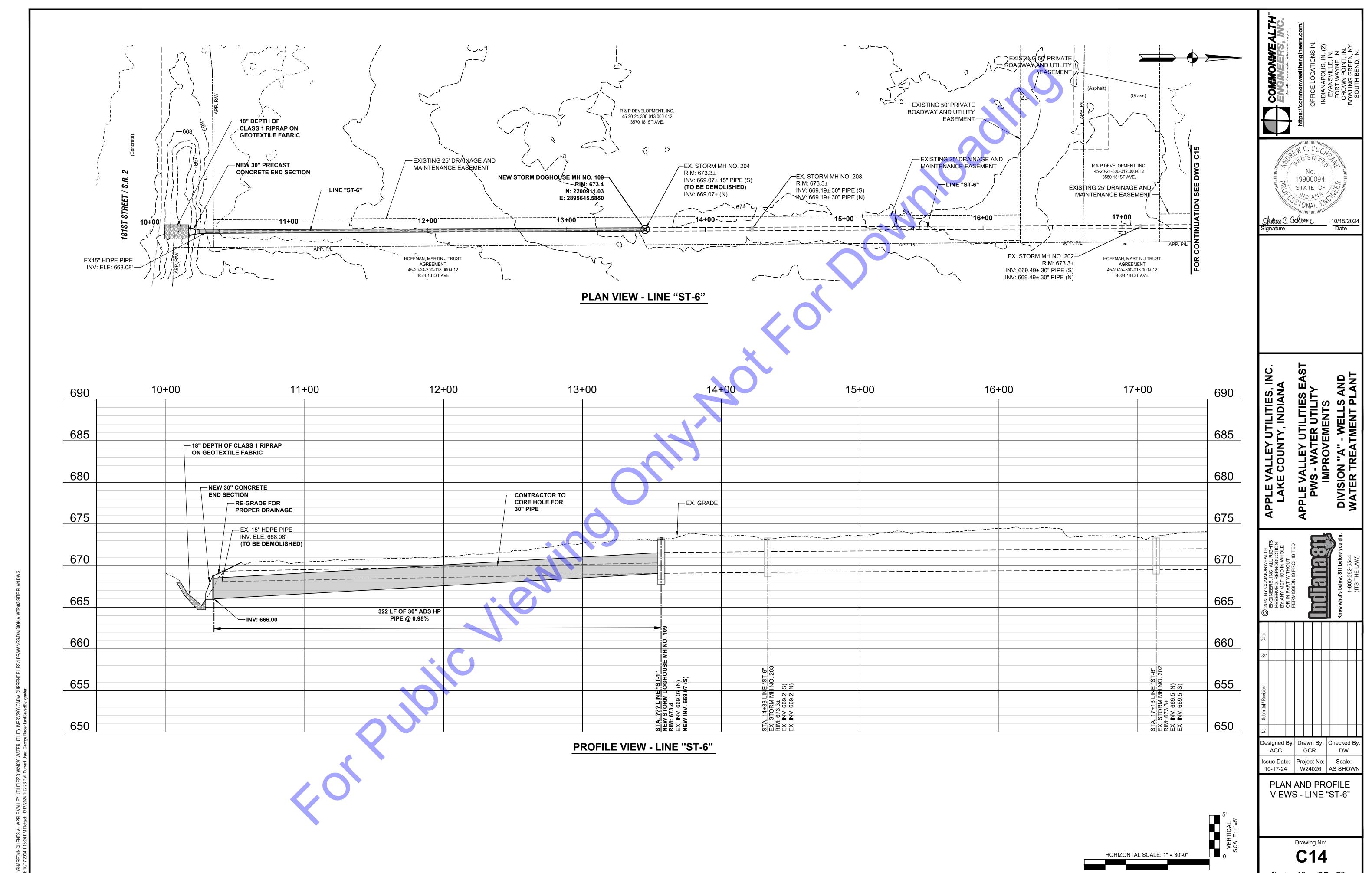
C13

HORIZONTAL SCALE: 1" = 30'-0"

PLAN AND PROFILE

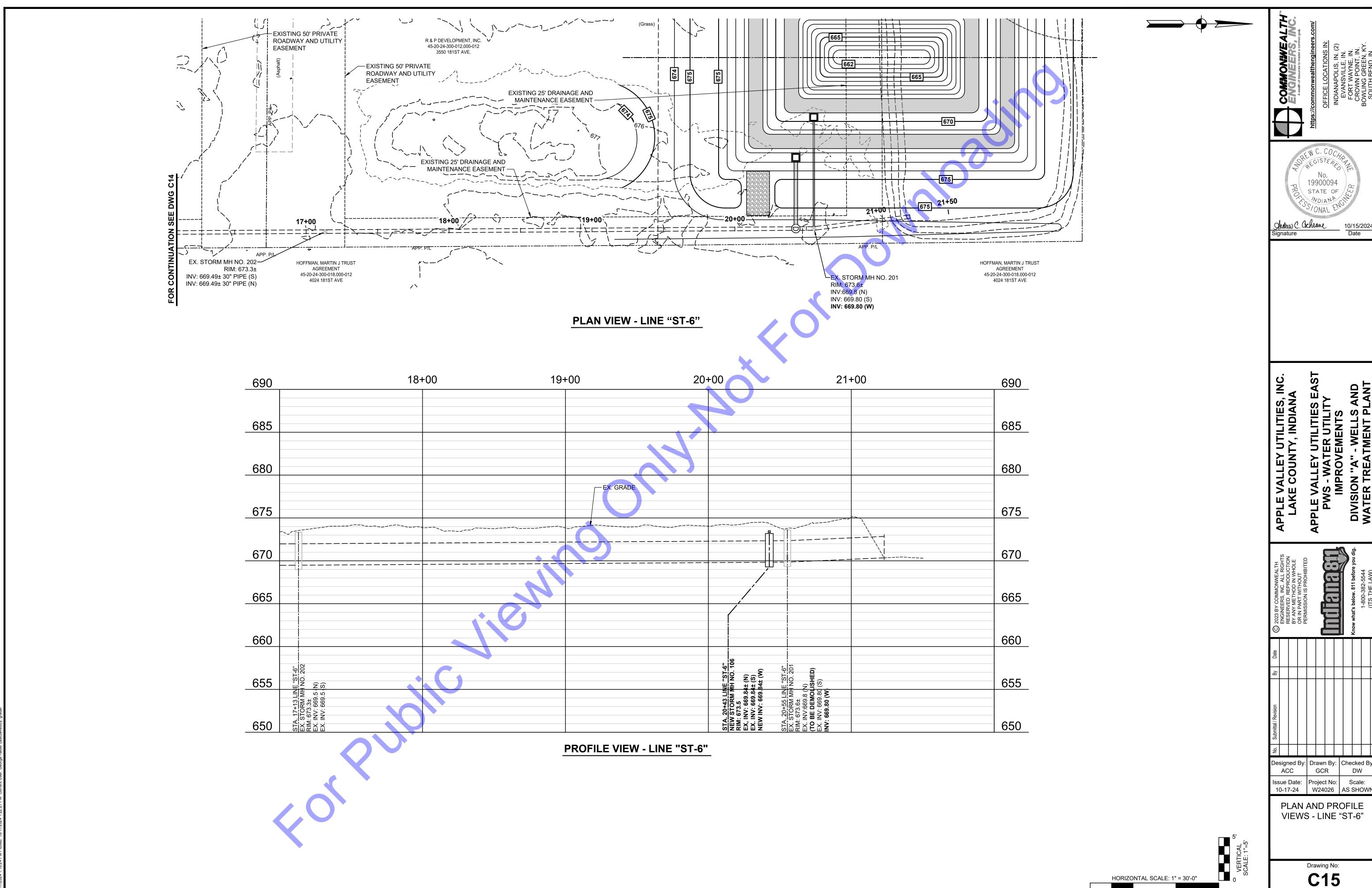
VIEWS - LINE "ST-5"

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0 15' 30'

Sheet: 19 OF 73



19900094 STATE OF Shotrew C. Cochrane 10/15/2024 Date

PLAN AND PROFILE VIEWS - LINE "ST-6"

0 15' 30'

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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:

AERIAL MAPS ILLUSTRATING THE APPROXIMATE EXTENT OF THE PROJECT IS SHOWN IN THE PLANS ON SHEET G-2 FOR BOTH DIVISIONS (A AND B).

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

THE PROPOSED PROJECT INCLUDES WATER UTILITY IMPROVEMENTS FOR APPLE VALLEY'S EAST PUBLIC WATER SYSTEM. IMPROVEMENTS IN DIVISION A INCLUDE A NEW WATER TREATMENT PLANT BUILDING, NEW EMERGENCY GENERATOR, NEW WELLS, TWO NEW FLOW METER VAULTS, AND A NEW GRAVEL ACCESS DRIVE. THE IMPROVEMENTS IN DIVISION B INCLUDE 303 LF OF A NEW 2" SERVICE LINE, 939 LF OF NEW 8" WATER MAIN, A NEW 2" FLUSHING HYDRANT, AND NEW WATER METERS.

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

THE APPROXIMATE LATITUDE AND LONGITUDE FOR THE PROJECT SITE IS 41.293177, -87.293815. THIS MARKS THE LOCATION OF THE NEW WATER TREATMENT PLANT.

A5. LEGAL DESCRIPTION OF THE PROJECT SITE:

THE PROJECT IS LOCATED IN THE DINWIDDLE UNINCORPORATED COMMUNITY, EAGLE CREEK TOWNSHIP, SECTIONS 23 & 24, T33N, R8W.

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

THE FEMA FIRM PANEL FOR THE PROJECT LOCATION IS 18089C0375E. NO WORK PROPOSED IS LOCATED WITHIN THE FLOODPLAIN. A FLOODPLAIN MAP IS SHOWN IN THE PLANS AS EXHIBIT #1.

A8. LAND USE OF ALL ADJACENT PROPERTIES:

NORTH: AGRICULTURAL SOUTH: COMMERCIAL EAST: AGRICULTURAL WEST: INDUSTRIAL

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

THE PROJECT AREA IS LOCATED WITHIN THE BRYANT DITCH-SINGLETON DITCH WATERSHED (HUC-12: 071200011305). THIS WATERSHED DOES HAVE AN ESTABLISHED KANKAKEE/IROQUOIS RIVER WATERSHED TMDL FOR E. COLI.

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

THE STORM SEWER SYSTEM WITHIN THE PROJECT AREA HAS AN ULTIMATE RECEIVING WATER BODY CALLED BRYANT 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:

BRYANT DITCH IS ON THE 303(D) LIST FOR BIOLOGICAL INTEGRITY AND E. COLI.

A12. SOILS MAP OF THE PREDOMINATE SOIL TYPES:

THE HYDRIC SOILS MAP FOR THIS PROJECT IS SHOWN ON THE PLANS AND INCLUDED AS EXHIBIT #2. THE SOILS IN THE PROJECT AREA CONSIST MAINLY OF "AL" "ALIDA LOAM," "TCB" "TRACY LOAM, 2 TO 6 PERCENT SLOPES" AND "LYA" "LYDICK LOAM, 0 TO 2 PERCENT SLOPES."

CONSTRUCTION PROJECTS ARE NOT EXPECTED TO HAVE ANY DETRIMENTAL, LONG-TERM IMPACTS ON 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 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. MOST OF THE PROJECT AREA HAS A DEPTH TO WATER TABLE WITHIN THE RANGE OF 0 TO 50 CM. WITH SOME REGIONS IN THE SOUTHWEST REACHING MORE THAN 200 CM. A DEPTH TO WATER TABLE MAP IS INCLUDED AS EXHIBIT #3.

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 A SURFACE WATERS & WETLANDS MAP IS SHOWN ON THE PLANS AND INCLUDED AS EXHIBIT #4. NO PARTS OF DIVISION A OR DIVISION B OVERLAP WITH IDENTIFIED WETLANDS OR SURFACE WATERS WITHIN THE PROJECT AREAS. AS SUCH, NO

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

IMPACTS TO KNOWN WETLANDS, LAKES, AND WATER COURSES ARE ANTICIPATED.

NO ADDITIONAL STATE OR FEDERAL WATER QUALITY PERMITS ARE REQUIRED.

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

VEGETATIVE COVER IN THE PROJECT AREA CONSISTS MOSTLY OF RESIDENTIAL LAWN AND AGRICULTURAL FIELD ALONG COLORADO ST. NO NATURAL BUFFERS EXIST WITHIN THE PROJECT AREA AS SUCH NATURAL BUFFERS WILL NOT BE IMPACTED BY THE PROPOSED PROJECT.

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

DETAILED CONTOUR LINES ARE SHOWN IN THE PLAN SHEETS TO INDICATE EXISTING DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS OF THE WATER MAIN INSTALLATION ALONG COLORADO ST FOR DIVISION B AND THE NEW WATER TREATMENT PLANT IN DIVISION A.

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

DETAILED CONTOUR LINES ARE SHOWN IN THE PLAN SHEETS TO INDICATE EXISTING DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS OF THE WATER MAIN INSTALLATION ALONG COLORADO ST FOR DIVISION B AND THE NEW WATER TREATMENT PLANT IN DIVISION A.

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

DETAILED CONTOUR LINES ARE SHOWN IN THE PLAN SHEETS TO INDICATE EXISTING DRAINAGE PATTERNS WITHIN THE CONSTRUCTION LIMITS OF THE WATER MAIN INSTALLATION ALONG COLORADO ST FOR DIVISION B AND THE NEW WATER TREATMENT PLANT IN DIVISION A.

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

THE LOCATION OF ALL EXISTING STRUCTURES IN THE PROJECT AREA CAN BE SEEN IN THE

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

TWO EXISTING DETENTION FACILITIES DESIGNED FOR STORMWATER MANAGEMENT EXIST WITHIN THE PROJECT AREA. THE FIRST IS A WET-BOTTOM DETENTION POND LOCATED ON THE WEST SIDE OF COLORADO ST, ADJACENT TO THE PROJECT AREA, AND HAS THE CAPACITY TO DETAIN RUN-OFF FROM THE UNITED STATES COLD STORAGE DEVELOPMENT. THE SECOND IS A WET-BOTTOM DETENTION POND THAT SERVES COMFORT INN AND IS LOCATED SOUTHWEST OF THE PROJECT AREA. IT WILL BE EXPANDED TO DETAIN RUNOFF FROM THE PROJECT SITE TO MEET DRAINAGE REQUIREMENTS.

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

A22. SIZE OF THE PROJECT AREA EXPRESSED IN ACRES:

THE TOTAL PROJECT AREA IS APPROXIMATELY 10 ACRES.

A23. TOTAL EXPECTED LAND DISTURBANCE EXPRESSED IN ACRES:

THE TOTAL EXPECTED LAND DISTURBANCE FOR THE PROJECT IS APPROXIMATELY 2.6 ACRES.

A24. PROPOSED FINAL TOPOGRAPHY:

THE PROPOSED SITE TOPOGRAPHY AND DRAINAGE PATTERNS ARE SEEN IN THE PLANS.

A25. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:

THE LOCATIONS AND BOUNDARIES OF ALL DISTURBED AREAS/CONSTRUCTION LIMITS ARE SEEN IN THE PLANS.

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

THE EXISTING AND PROPOSED 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 DISCHARGES WILL LEAVE THE PROJECT SITE POST-CONSTRUCTION CAN BE SEEN ON THE PLANS. NO NON-STORMWATER DISCHARGES ARE

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 LOCATIONS OF THE STOCKPILES WITH PERIMETER CONTROLS ARE SHOWN ON THE PLANS. STOCKPILES ARE REQUIRED TO BE SURROUNDED BY PERIMETER CONTROL SUCH AS SILT FENCE. STOCKPILES LEFT INACTIVE FOR SEVEN (7) DAYS OR MORE SHALL BE STABILIZED WITH TEMPORARY SEEDING. 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. CONCRETE WASHOUT SPECIFICATIONS ARE LOCATED ON SHEET EC DETAILS SHEET.

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 PROPOSED FOR THE PROJECT.

STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION COMPONENT (SECTION B)

STORMWATER POLLUTION PREVENTION MEASURES SHALL BE IN ACCORDANCE WITH THE LAKE COUNTY MS4 AND THE IDEM CSGP STANDARDS.

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 REPLACEMENT, AND DEWATERING ALL MAY RESULT IN SEDIMENT POLLUTION. REPAIR AND ALSO CREATE BITUMINOUS DEBRIS. IMPROPER VEHICLE PAVEMENT RESTORATION MAY 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 SUCH AS SILT FENCE.

3. STOCKPILES LEFT INACTIVE FOR MORE THAN SEVEN (7) DAYS MUST BE PROVIDED COVER OR APPROPRIATE TEMPORARY VEGETATIVE OR STRUCTURAL STABILIZATION TO AVOID DIRECT CONTACT WITH PRECIPITATION AND 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.

TO THE MAXIMUM EXTENT PRACTICABLE, CONTAIN AND SECURELY PROTECT STOCKPILES FROM

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.

6. 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 LOCATION IS SHOWN IN THE PLANS ON SHEET EC1 FOR DIVISION A. DUE TO THE LINEAR NATURE OF DIVISION B WORK, THE CONTRACTOR WILL BE REQUIRED TO DESIGNATE STABLE CONSTRUCTION ENTRANCE LOCATIONS PRIOR TO BEGINNING WORK. STABLE CONSTRUCTION ENTRANCE SPECIFICATIONS ARE LOCATED ON THE EC DETAIL SHEETS FOR DIVISION A AND B. 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 AND EXITS TO PRE-CONSTRUCTION CONDITIONS.

B3. SPECIFICATIONS FOR TEMPORARY AND PERMANENT STABILIZATION:

TEMPORARY AND PERMANENT SEED SURFACE STABILIZATION WILL BE UTILIZED WHERE NEEDED ON AREAS DISTURBED BY CONSTRUCTION THAT ARE NOT COVERED WITH PERMANENT IMPERVIOUS SURFACE. TEMPORARY AND PERMANENT SEEDING SPECIFICATIONS WILL BE IN ACCORDANCE WITH DS-12 TEMPORARY EROSION CONTROL AND WM-24 - SEEDING AND

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 WHEN THE AREA IS LEFT IDLE. THE STABILIZATION ACTIVITY MUST BE COMPLETED WITHIN FOURTEEN (14) DAYS AFTER INITIATION.

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.

FINAL STABILIZATION OF A SITE IS ACHIEVED WHEN ALL LAND DISTURBING ACTIVITIES HAVE BEEN COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES.

B4. SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:

PROTECTIVE MEASURES FOR AREAS OF CONCENTRATED FLOW WILL INCLUDE TEMPORARY AND PERMANENT VEGETATION, MULCHES, AND EROSION CONTROL BLANKETS AS APPLICABLE. TEMPORARY AND PERMANENT SEEDING AND MULCHING SPECIFICATIONS WILL BE IN ACCORDANCE WITH DS-09 TEMPORARY EROSION CONTROL AND WM-24 - SEEDING AND SODDING.

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 AND INLET PROTECTION, SHALL BE USED AT LOCATIONS SHOWN IN THE PLANS ON SHEETS EC-1 FOR DIVISION A AND EC-1 THROUGH EC-2 FOR DIVISION B. INLET PROTECTION IS REQUIRED FOR ALL INLETS IN THE PROJECT AREA. SPECIFICATIONS FOR THESE ITEMS ARE SHOWN ON EC DETAILS SHEETS FOR BOTH

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 WORK IS PROPOSED WITHIN WATER BODIES.

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.

INL<mark>ETS SHOUL</mark>D 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

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 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:

INSTALL CONSTRUCTION ENTRANCES.

2. INSTALL PERIMETER PROTECTION (SILT FENCE, INLET PROTECTION).

INSTALL CONCRETE WASHOUTS PRIOR TO CONCRETE INSTALLATION.

4. TEMPORARY SEED AS NEEDED PER SPECIFICATIONS.

REMOVE TEMPORARY EROSION CONTROL MEASURES AS PERMANENT MEASURES ARE

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

NOT APPLICABLE

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 AND 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 327 IAC 2-6.1. 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:

LAKE COUNTY MS4 COORDINATOR 2293 N MAIN STREET CROWN POINT, IN 46307 BUILDING 'A', 3RD FLOOR

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF LAND QUALITY

EMERGENCY RESPONSE AND SPILL REPORTING SECTION PHONE: 1-888-233-7745

LAKE COUNTY EMERGENCY MANAGEMENT & HOMELAND EMERGENCY 2900 W 93RD AVE CROWN POINT, IN 46307

PHONE: 219-755-3549

IN ADDITION TO THE AGENCIES ABOVE, 911 MAY BE CALLED IN THE EVENT OF A HAZARDOUS

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.

THE CONCRETE WASHOUT LOCATION IS SHOWN ON SHEET EC1 FOR DIVISION A. DUE TO THE LINEAR NATURE OF DIVISION B WORK, THE CONTRACTOR WILL BE REQUIRED TO DESIGNATE CONCRETE WASHOUT AREAS PRIOR TO BEGINNING WORK. SPECIFICATIONS FOR CONCRETE WASHOUTS ARE LOCATED ON THE EC DETAIL SHEETS FOR BOTH DIVISIONS.

SN ZZZZZ

19900094 STATE OF NDIANA CZ Shotrew C. Oschrane 10/15/202

Date

ILITIE: ₹0

Designed By:| Drawn By: | Checked By

STORMWATER POLLUTION PREVENTION PLAN

GCR

sue Date: Project No: Scale:

10-17-24 | W24026 | AS SHOWN

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

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

THE FINAL LAND USE IS NOT PROPOSED TO CHANGE FROM THE EXISTING. POTENTIAL POLLUTANTS FROM THIS PROJECT AFTER CONSTRUCTION IS COMPLETED INCLUDE SEDIMENT, HYDROCARBONS, AND LITTER.

FOR THIS PROJECT, SEDIMENTATION MAY OCCUR DUE TO RUNOFF FROM EXPOSED SOIL DURING CONSTRUCTION. 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 GARBAGE.

C2. DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES:

PERMANENT SEEDING IS THE ONLY POST-CONSTRUCTION STORMWATER MEASURE PROPOSED, AS THE AMOUNT OF IMPERVIOUS SURFACE BEING ADDED IS APPROXIMATELY EQUAL TO THE AMOUNT BEING REMOVED. AS SUCH, OVERALL SITE CONDITIONS AND STORMWATER RUNOFF ARE NOT ANTICIPATED TO CHANGE FROM EXISTING. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES AND NOT COVERED BY PERMANENT IMPERVIOUS SURFACE WILL BE REQUIRED TO BE RESTORED. PERMANENT SEEDING SPECIFICATIONS WILL BE IN ACCORDANCE WITH WM-24 - SEEDING AND SODDING.

C3. PLAN DETAILS FOR EACH STORMWATER QUALITY MEASURE:

PERMANENT SEEDING IS THE ONLY POST-CONSTRUCTION STORMWATER QUALITY MEASURE ANTICIPATED FOR THIS PROJECT. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES AND NOT COVERED BY PERMANENT IMPERVIOUS SURFACE WILL BE REQUIRED TO BE RESTORED. PERMANENT SEEDING SPECIFICATIONS WILL BE IN ACCORDANCE WITH WM-24 - SEEDING AND SODDING.

TEMPORARY EROSION CONTROL MEASURES WILL NOT BE REMOVED UNTIL THE PERMANENT SEEDING HAS BEEN ESTABLISHED. FINAL STABILIZATION OF A PROJECT SITE IS ACHIEVED WHEN ALL LAND DISTURBING ACTIVITIES HAVE BEEN COMPLETED AND UNIFORM (EVENLY DISTRIBUTED WITHOUT LARGE BARE AREAS), PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% HAS BEEN ESTABLISHED ON ALL UNPAVED DISTURBED AREAS AND ARE NOT COVERED BY PERMANENT STRUCTURES.

C4. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:

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

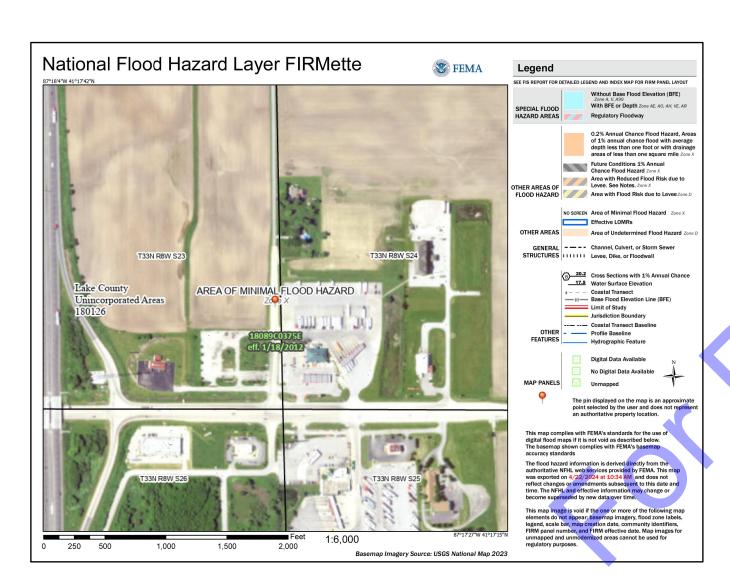
- 1. TEMPORARY PLANTINGS WILL BE PROVIDED IN CRITICAL AREAS DEVOID OF VEGETATION AND SUBJECT TO EROSION, SUCH TEMPORARY PLANTINGS MAY BE NECESSARY TO PROTECT AN AREA WHEN PREPARING FOR WINTER SHUT DOWN OR TO PROVIDE COVER WHEN PERMANENT SEEDLINGS ARE LIKELY TO FAIL DUE TO AN EXTENDED PERIOD OF HEAT OR DROUGHT.
- 2. REMOVAL AND CLEANUP OF ALL TEMPORARY EROSION CONTROL MEASURES INCLUDING SILT FENCES AND
- 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:

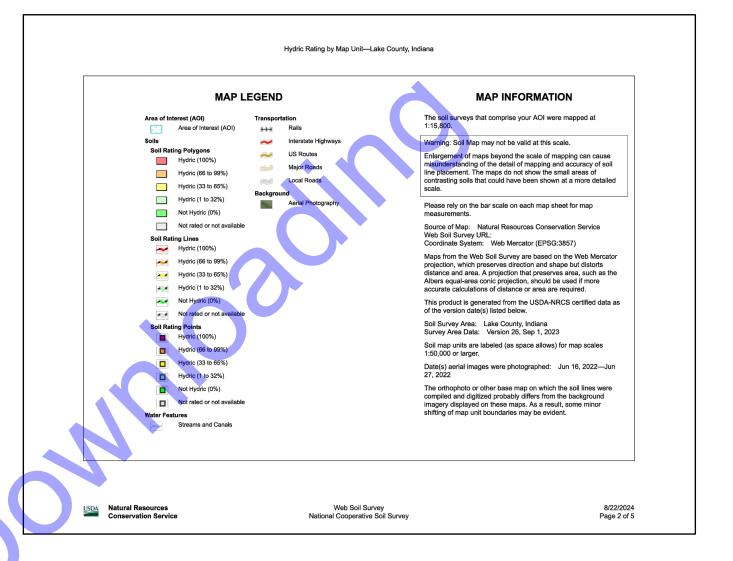
PERMANENT SEEDING IS THE ONLY ANTICIPATED POST-CONSTRUCTION STORMWATER QUALITY MEASURE. VEGETATED AREAS WITHIN THE PROJECT BOUNDARIES MUST BE MAINTAINED ON A REGULAR BASIS DURING THE ACTIVE GROWING SEASON. MAINTENANCE ACTIVITIES WILL INCLUDE INSPECTION FOR SPARSELY SEEDED AREAS AND RESEEDING AREAS WHICH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

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

THE CONTRACTOR WILL BE REQUIRED TO PROVIDE SITE INSPECTIONS AFTER RAINFALL EVENTS AND TO CORRECT ANY EROSION AND SEDIMENT CONTROL MEASURES SHOWING SIGNS OF DAMAGE OR FAILURE FOR A ONE-YEAR WARRANTY PERIOD FOLLOWING THE ISSUANCE OF A SUBSTANTIAL COMPLETION CERTIFICATE FOR THE PROJECT. THIS INCLUDES CORRECTION OF SITE STABILIZATION MEASURES AND REMOVAL OF ACCUMULATED SEDIMENT AS NEEDED. APPLE VALLEY UTILITIES WILL ULTIMATELY BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER MEASURES.

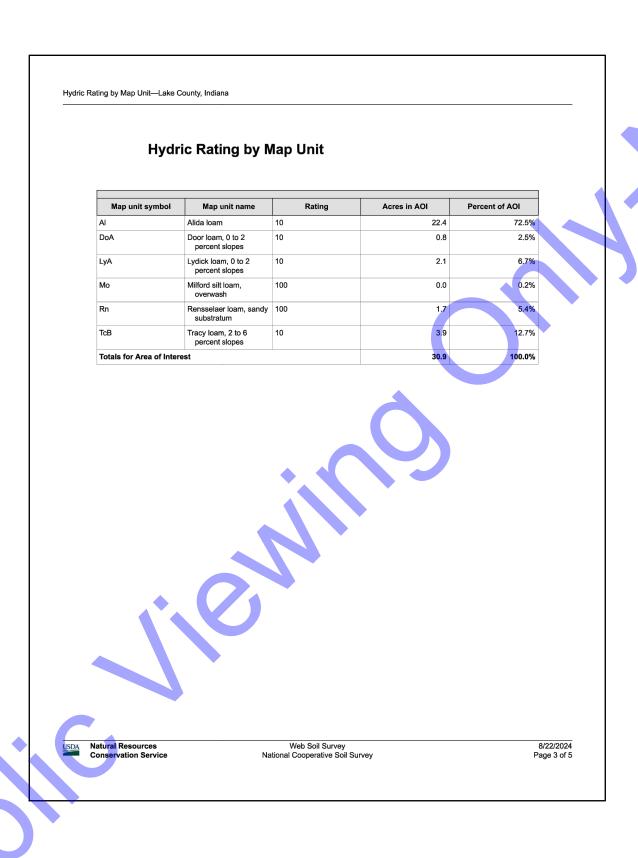


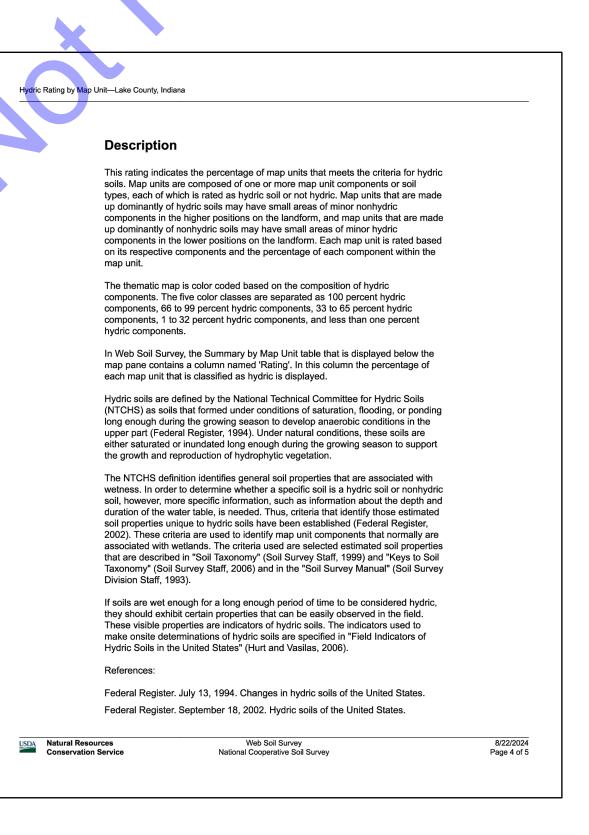


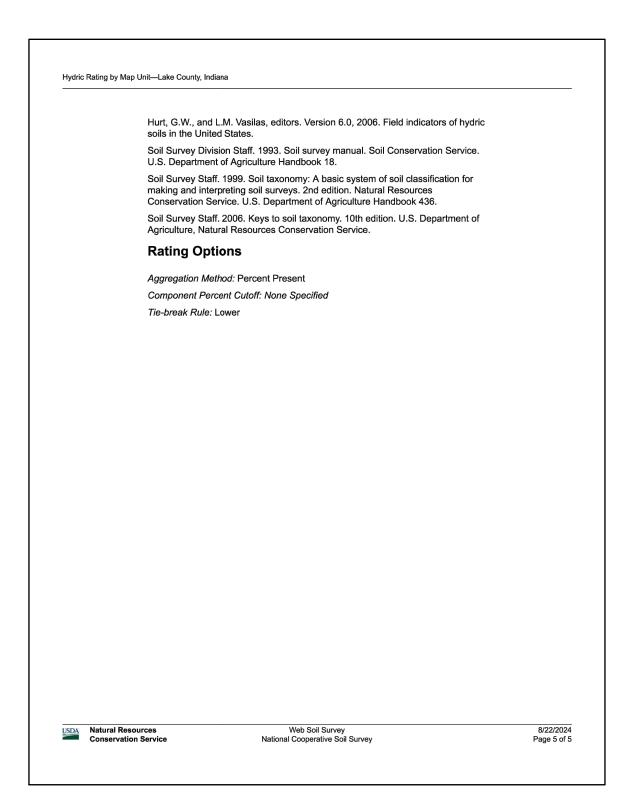


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HYDRIC SOILS LEGEND







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STORMWATER POLLUTION PREVENTION PLAN

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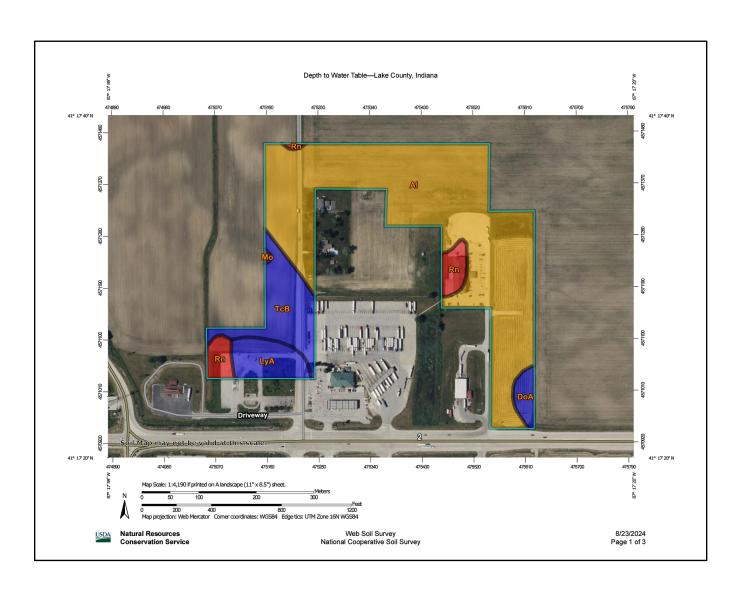
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Sheet: 22 OF 73

FLOODPLAIN MAP



Depth to Water Table—Lake County, Indiana MAP LEGEND MAP INFORMATION The soil surveys that comprise your AOI were mapped at 1:15.800. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of 0 - 25 25 - 50 Interstate Highways contrasting soils that could have been shown at a more detailed scale. 50 - 100 US Routes Please rely on the bar scale on each map sheet for map 150 - 200 Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857) Soil Rating Lines
0 - 25 Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required. **25 - 50** 50 - 100 100 - 150 This product is generated from the USDA-NRCS certified data as of the version date(s) listed below. 150 - 200 Soil Survey Area: Lake County, Indiana Survey Area Data: Version 26, Sep 1, 2023 > 200 Not rated or not available Soil map units are labeled (as space allows) for map scales 1:50,000 or larger. Soil Rating Points

0 - 25 Date(s) aerial images were photographed: Jun 16, 2022—Jun 27, 2022 25 - 50 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident. 50 - 100 100 - 150 150 - 200 > 200

> U.S. Fish and Wildlife Service
> National Wetlands Inventory Wetlands August 23, 2024 Freshwater Emergent Wetland Lake Estuarine and Marine Deepwater Freshwater Forested/Shrub Wetland Other Estuarine and Marine Wetland Freshwater Pond

Depth to Water Table—Lake County, Indiana

Depth to Water Table

"Water table" refers to a saturated zone in the soil. It occurs during specified

grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for

This attribute is actually recorded as three separate values in the database. A

low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

months. Estimates of the upper limit are based mainly on observations of the

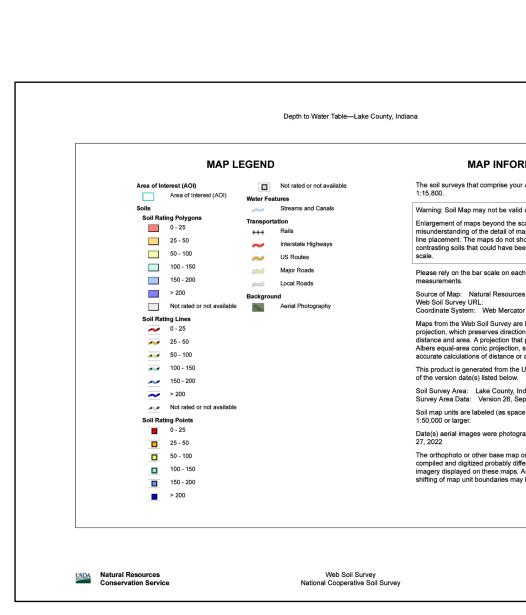
water table at selected sites and on evidence of a saturated zone, namely

less than a month is not considered a water table.

Map unit symbol Map unit name

Rating Options

SURFACE WATER AND WETLAND MAP



DEPTH TO WATER

DEPTH TO WATER LEGEND

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GCR

ssue Date: Project No: Scale: 10-17-24 | W24026 | AS SHOWN

STORMWATER

POLLUTION PREVENTION PLAN

19900094

STATE OF

WDIANA

10/15/2024

Date

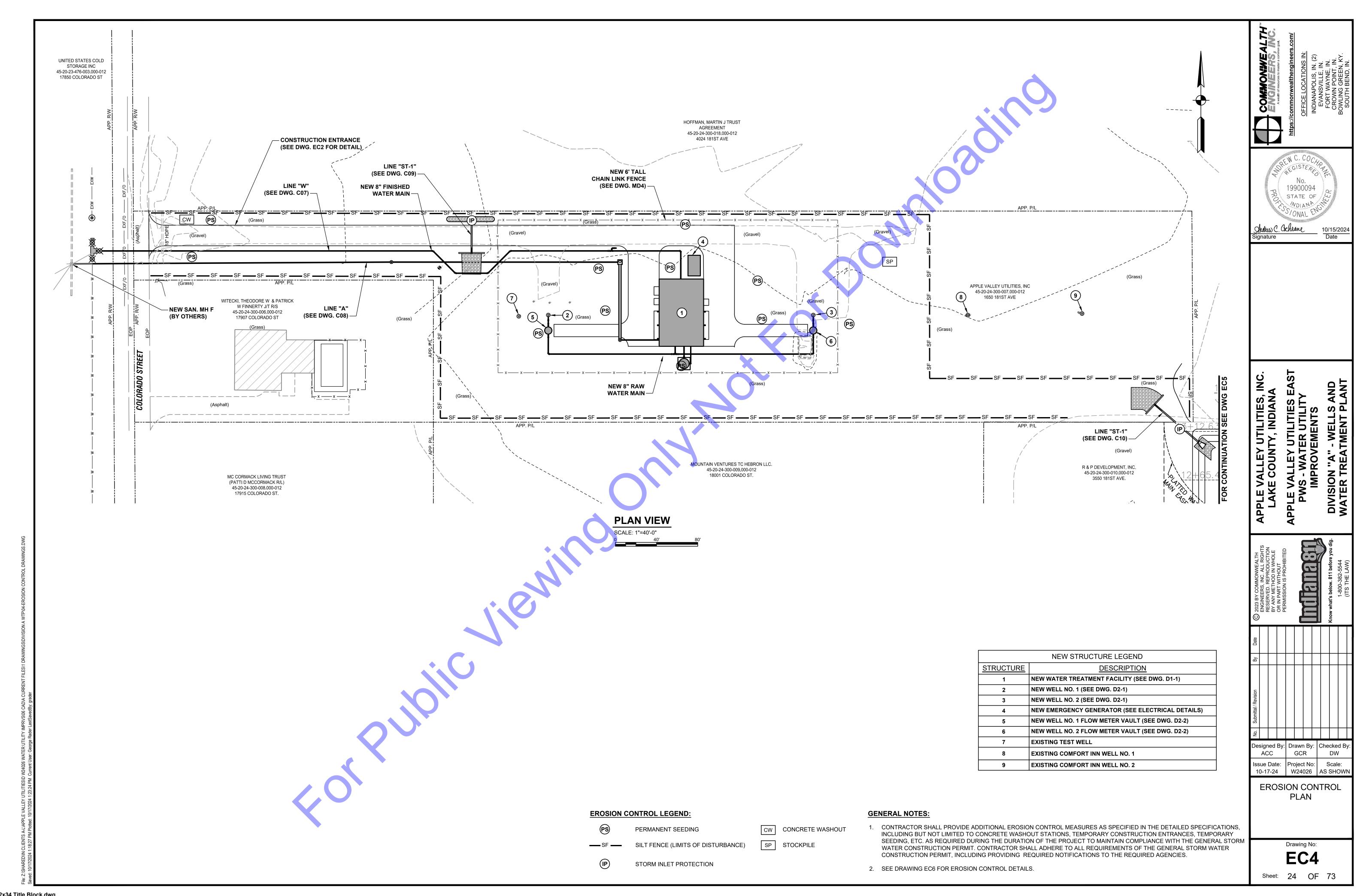
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Sheet: 23 OF 73

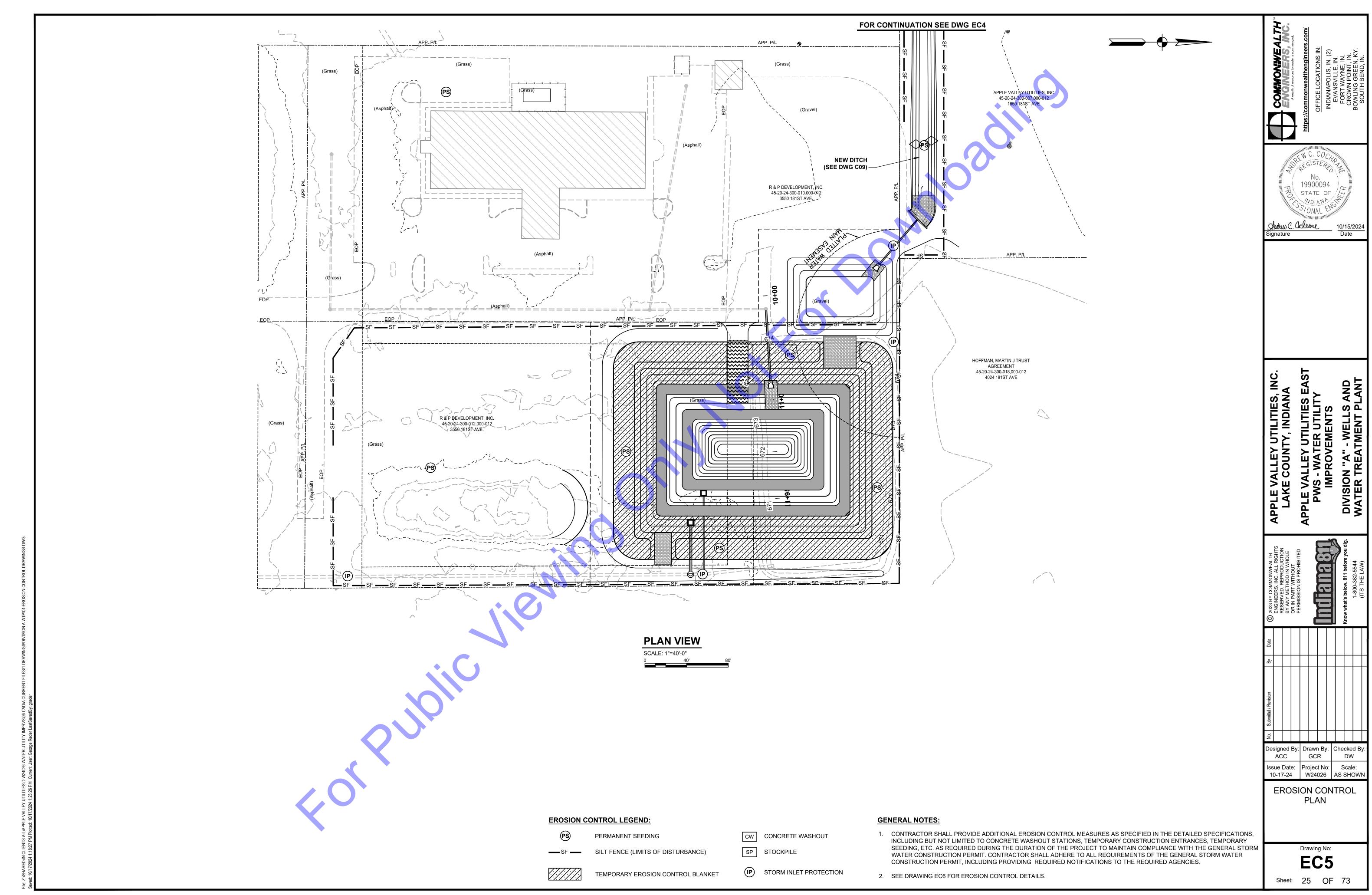
Units of Measure: centimeters Aggregation Method: Dominant Component Component Percent Cutoff: None Specified Tie-break Rule: Lower Interpret Nulls as Zero: No Beginning Month: January Ending Month: December 8/23/2024 Page 3 of 3 Web Soil Survey National Cooperative Soil Survey **DEPTH TO WATER LEGEND**

Percent of AOI

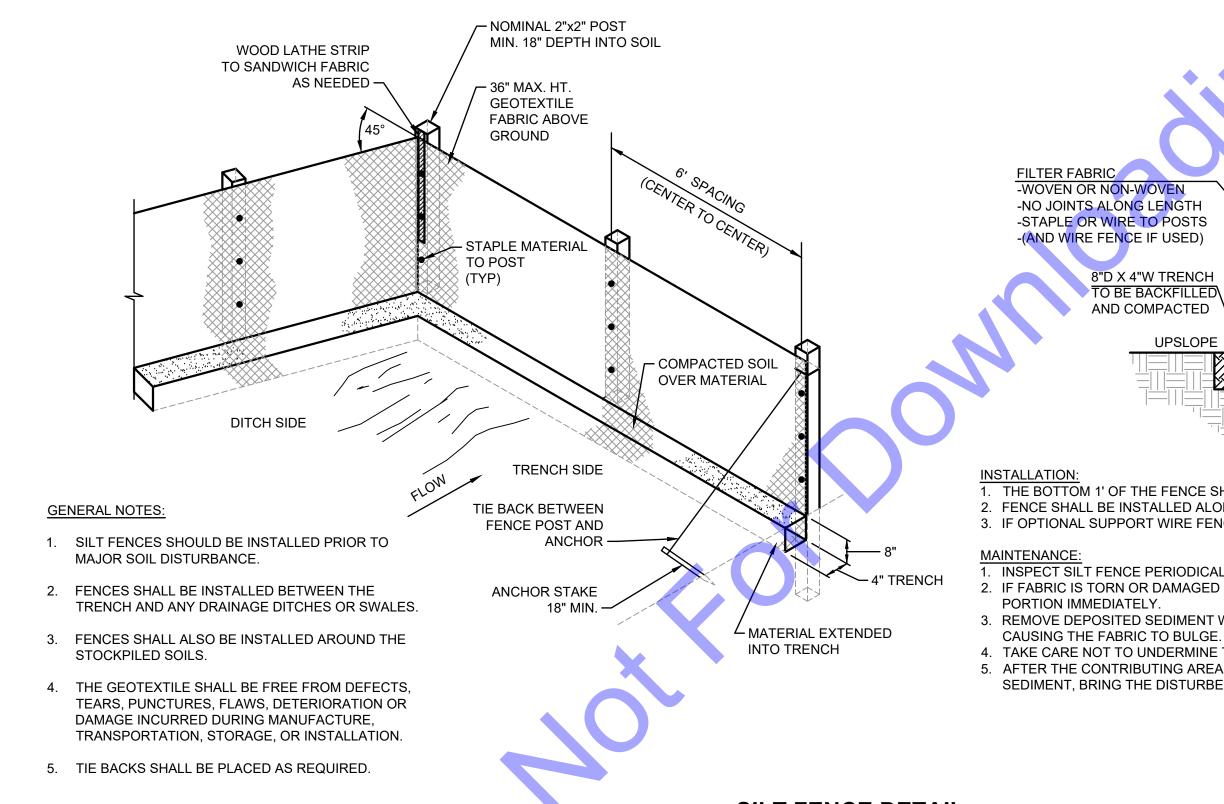
12.4% 100.0%



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DOWNSLOPE 2. FENCE SHALL BE INSTALLED ALONG LEVEL GRADES, NOT ACROSS FLOW CHANNELS.

POSTS

- 2" X 2" WOOD OR STEEL FENCE

POST W/ PROJECTION TO

FASTEN FABRIC

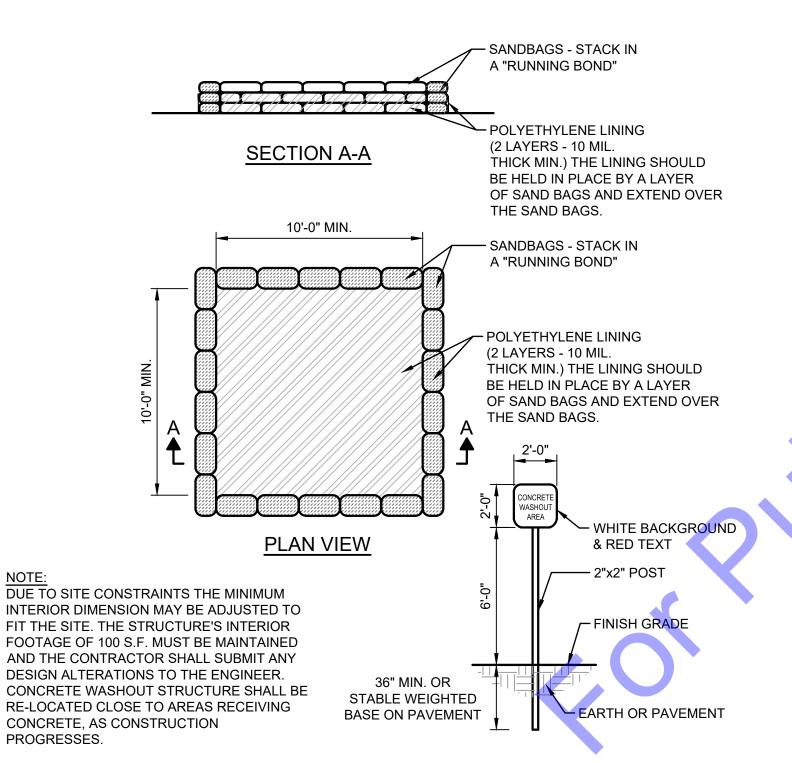
SPACING 6' O.C.

- 1. THE BOTTOM 1' OF THE FENCE SHALL BE BURIED IN THE TRENCH ON THE UPSLOPE SIDE.
- 3. IF OPTIONAL SUPPORT WIRE FENCE IS USED, POST SPACING MAY BE EXTENDED TO 8' O.C.
- 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
- 3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE, OR IT IS
- 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

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.



CONCRETE WASHOUT PIT DETAIL

STABILIZED CONSTRUCTION ENTRANCE DETAIL

150' MIN.

PLAN VIEW

SECTION VIEW

INSPECT DAILY, AND AFTER EACH STORM EVENT OR HEAVY USE.

WASHED ONTO PUBLIC ROADS BY SWEEPING OR BRUSHING. (DO

NOT FLUSH AREA WITH WATER UNLESS WATER IS CONVEYED TO

RESHAPE AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.

3. TOPDRESS WITH CLEAN STONE AS REQUIRED. MAINTAIN

4. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR

MINIMUM DEPTH THROUGHOUT CONSTRUCTION.

5. REPAIR ANY BROKEN PAVEMENT IMMEDIATELY.

3"± INDOT NO. 5 (50' ADJACENT TO ROAD)

OVER 8" (MIN.) INDOT NO. 2 -

- 8" HIGH DIVERSION RIDGE IF

PAD SLOPES TOWARDS ROAD

SCALE: 1"=5'-0"

SEDIMENT TRAP.)

− 25' MIN.

GEOTEXTILE

MAINTENANCE:

FILTER FABRIC

(MIRAFI 140NL OR

APPROVED EQUAL) —

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STATE OF

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10/15/2024

Date

Sharew C. Cochrane

EROSION CONTROL DETAILS

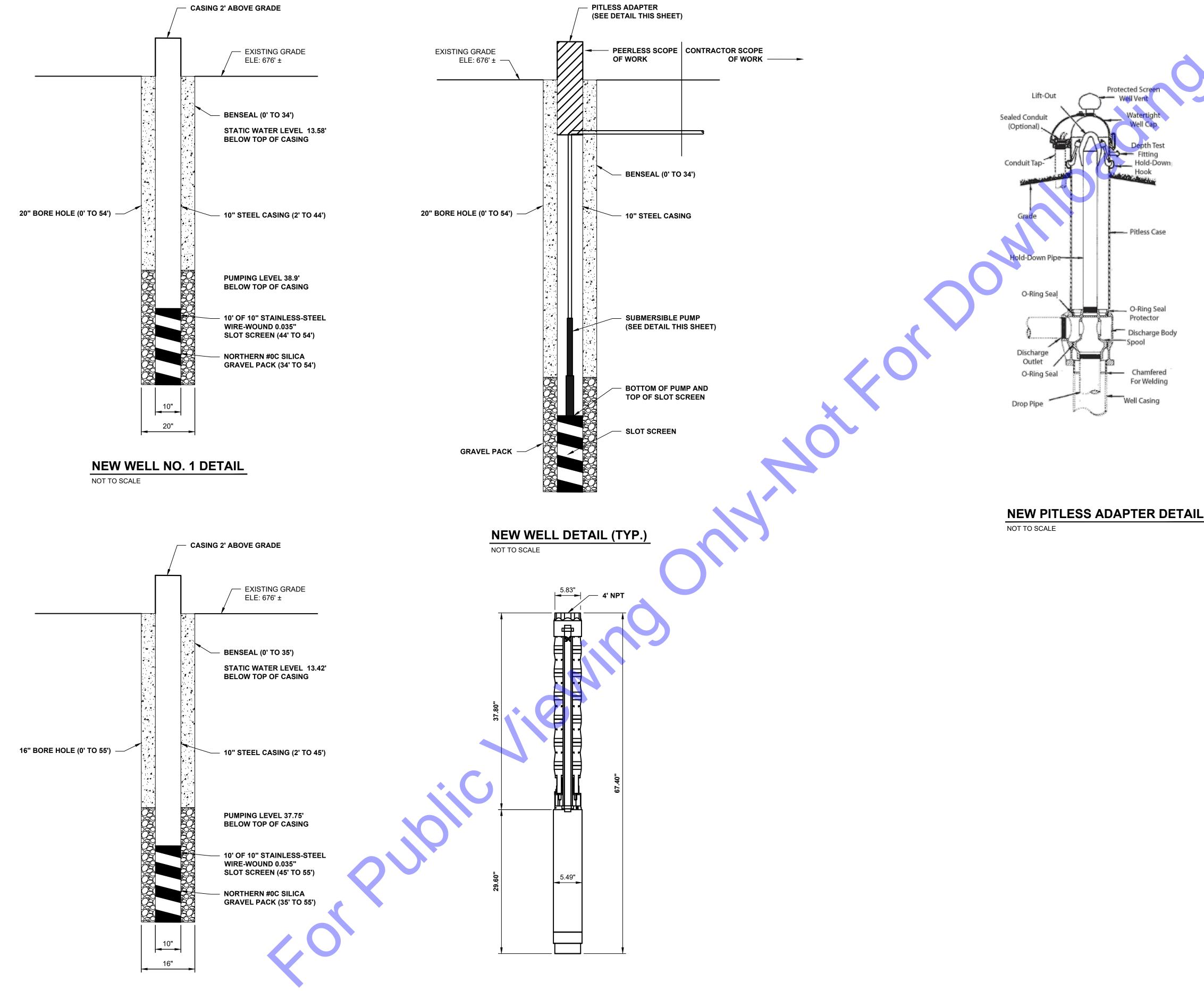
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10-17-24

Drawing No:

Sheet: 26 OF 73



NEW SUBMERSIBLE PUMP DETAIL

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NEW WELL NO. 2 DETAIL

NOT TO SCALE

DISCLAIMER NOTES:

1. THIS DRAWING WAS OBTAINED FROM WESTECH INC. AND SHALL BE USED FOR REFERENCE ONLY.

Drawing No: **D1-1**

Designed By: Drawn By: Checked By

GCR

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NEW WELL NO.1 AND

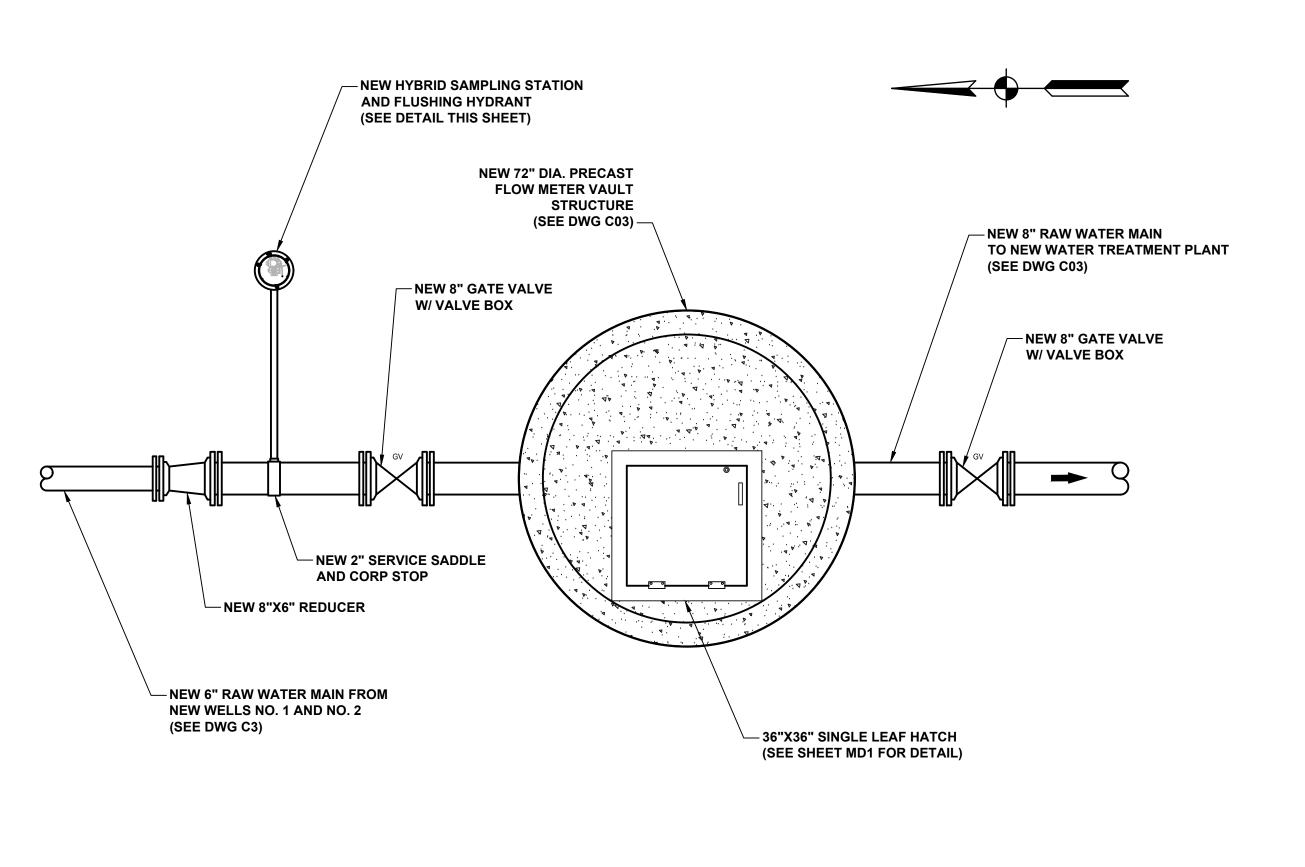
NO.2 PLAN AND SECTION VIEWS

STATE OF

10/15/2024 Date

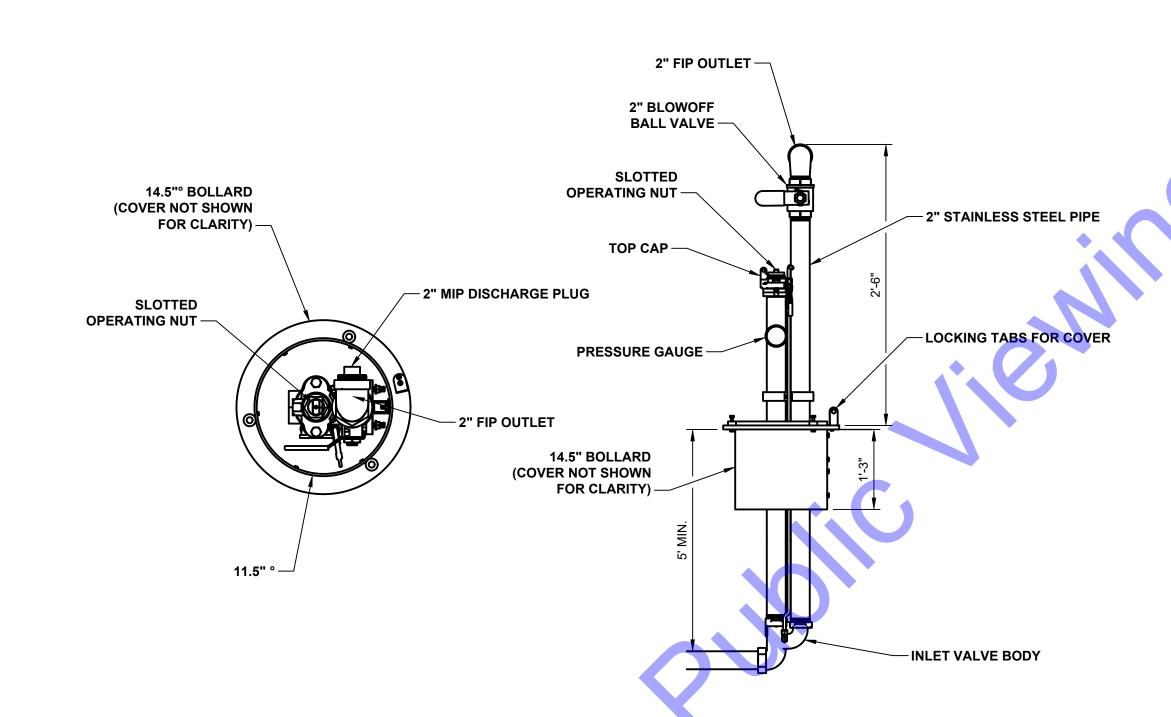
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Sheet: 27 OF 73



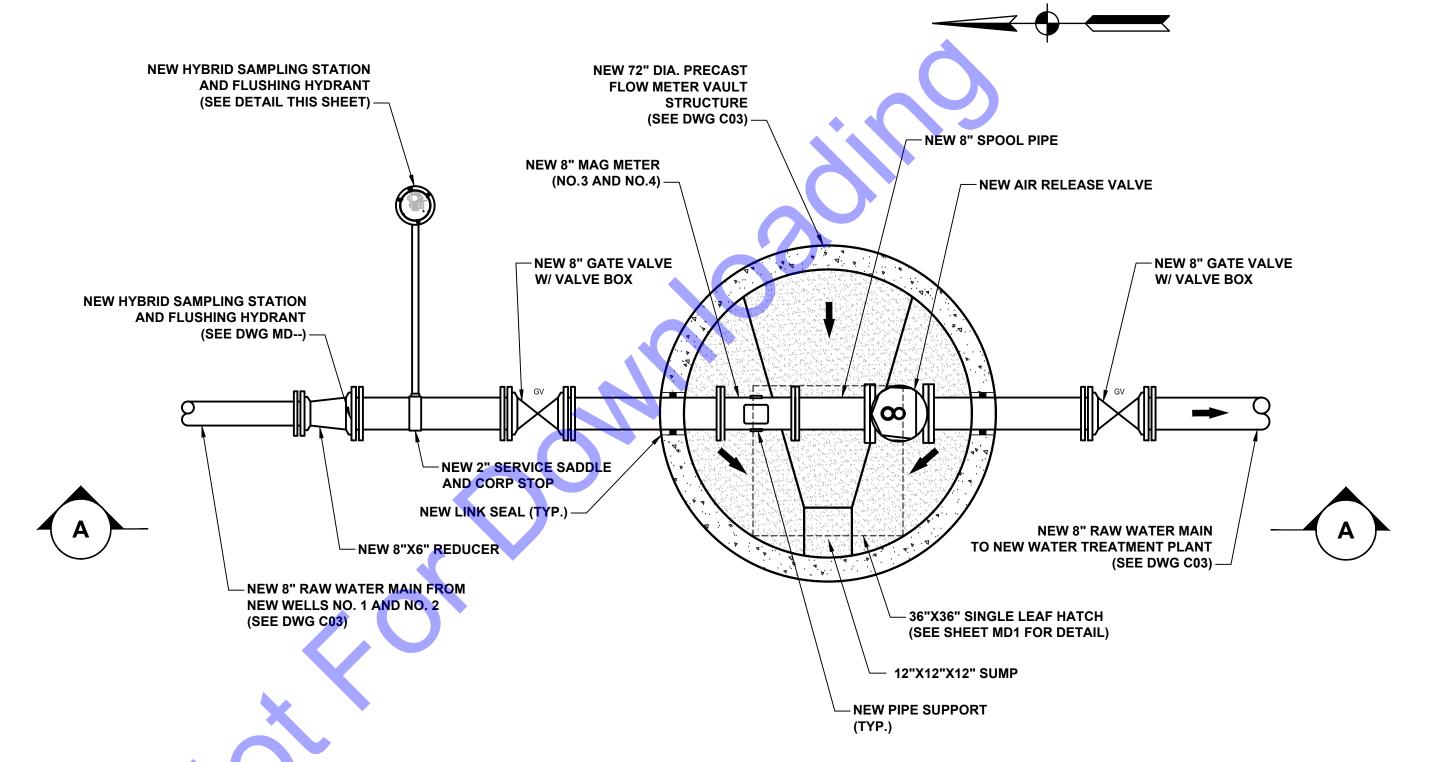
VALVE VAULT - UPPER PLAN VIEW

SCALE: 1/2"=1'-0" 0 1' 2' 4'



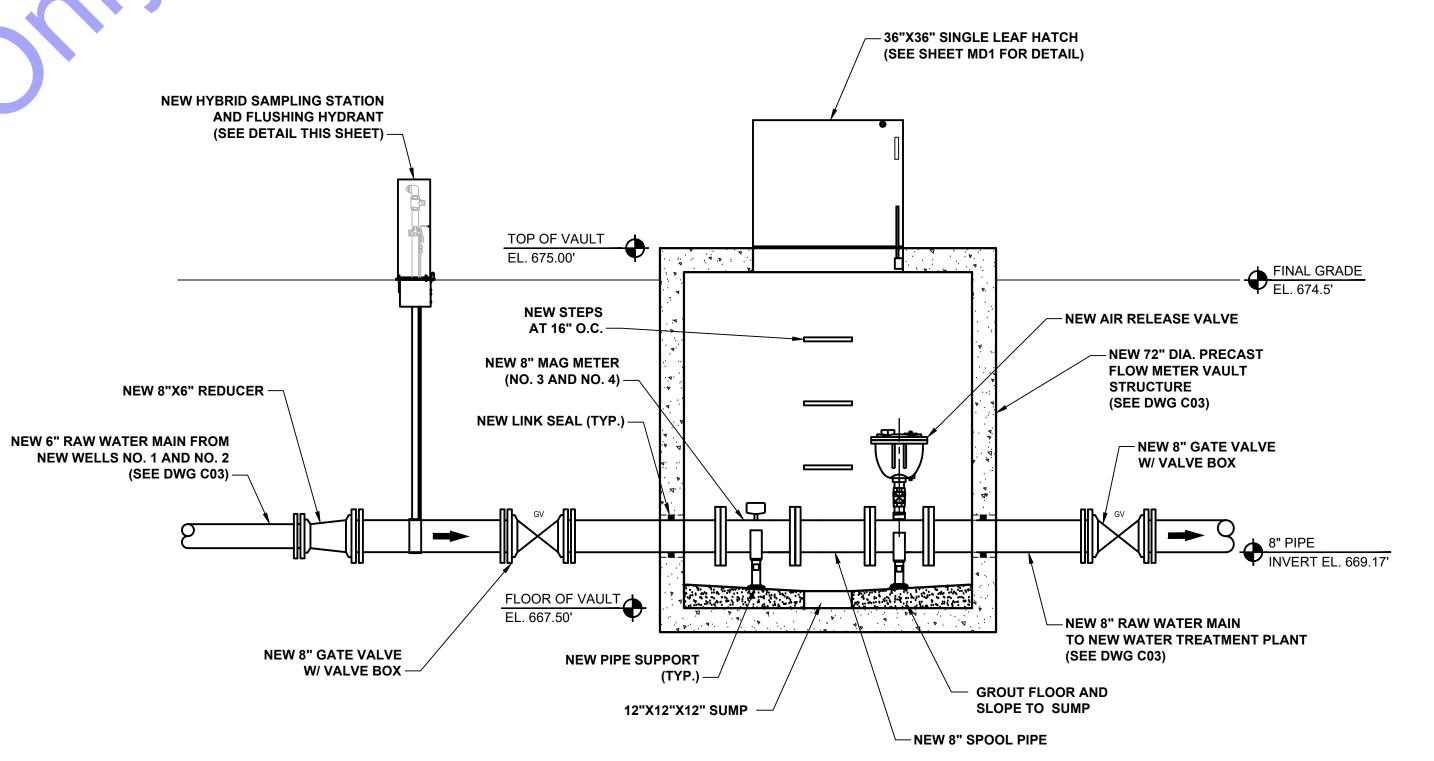
HYBRID SAMPLING STATION AND FLUSHING HYDRANT DETAIL

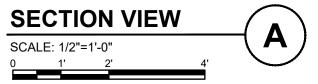
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VALVE VAULT - UPPER PLAN VIEW

SCALE: 1/2"=1'-0" 0 1' 2' 4'





PLE VALLEY UTILITIES, INC.
LAKE COUNTY, INDIANA
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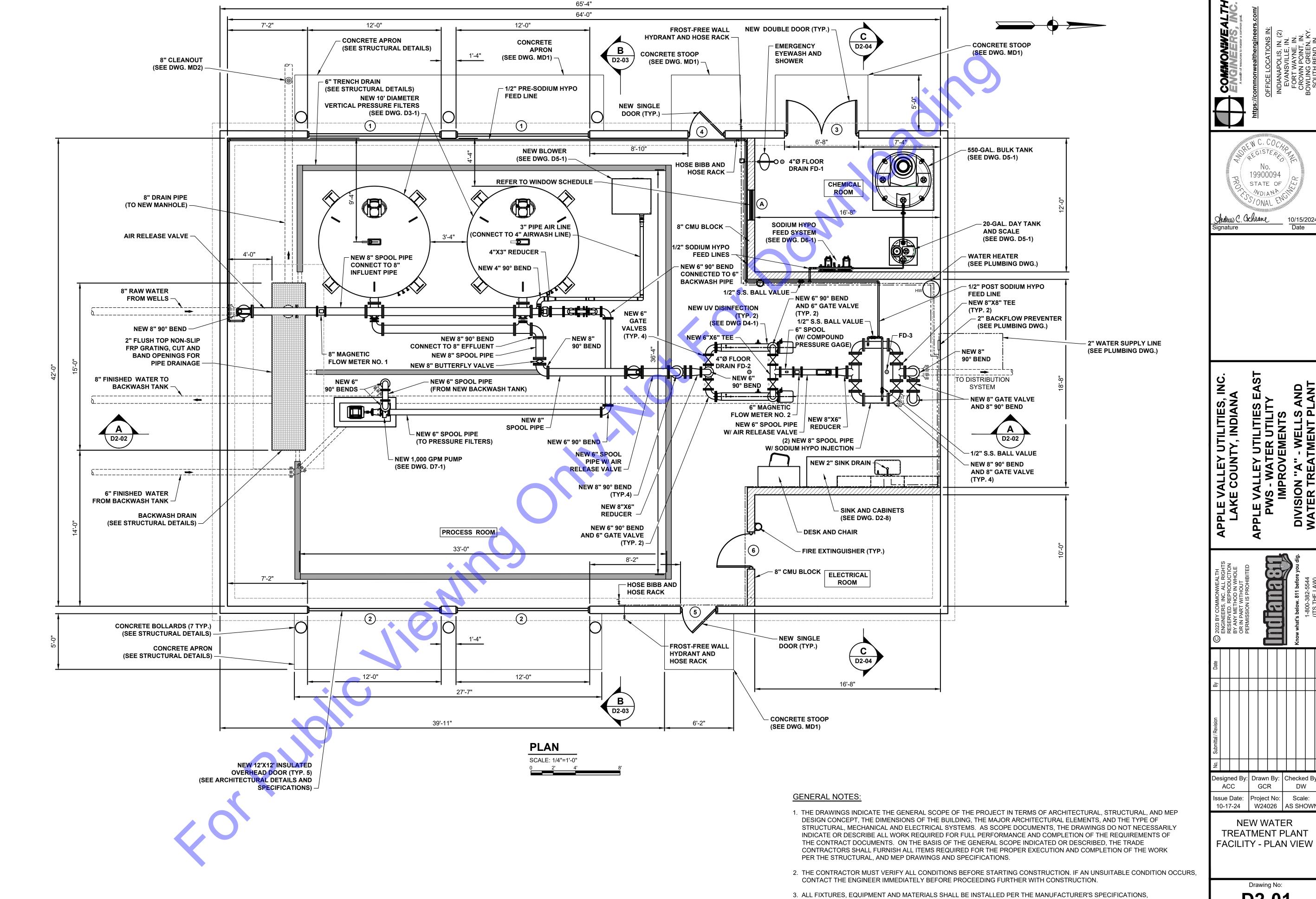
NEW WELL NO.1 AND NO.2 FLOW METER VAULT PLAN AND SECTION VIEWS

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Drawing No: **D1-2**

Sheet: 28 OF 73



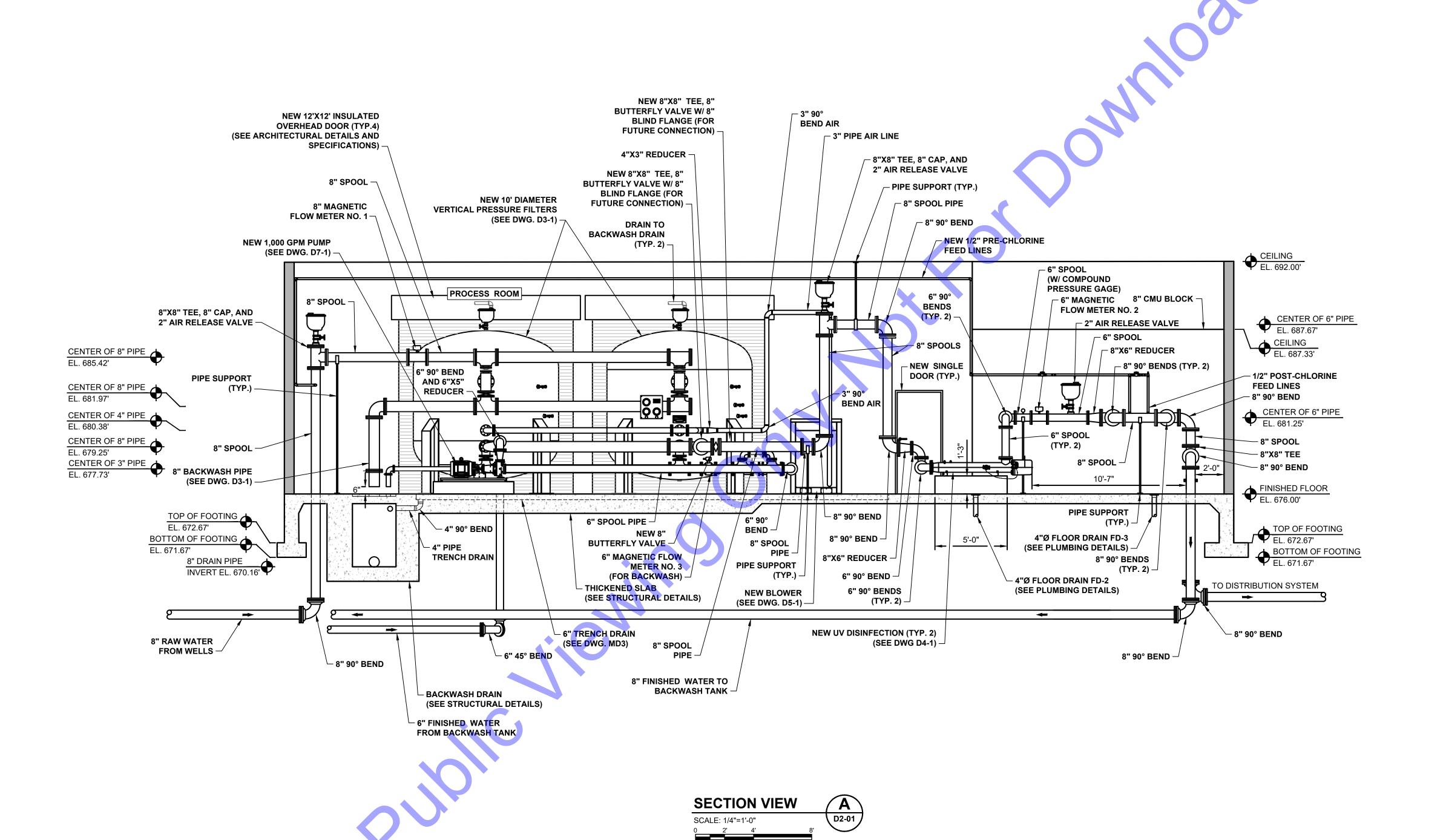
RECOMMENDATIONS AND INSTRUCTIONS.

4. DIMENSIONS ARE FROM INSIDE OF WALLS (SEE STRUCTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS).

10-17-24 | W24026 | AS SHOWN

D2-01

Sheet: 29 OF 73



APPLE VALLEY UTILITIES, INC.
LAKE COUNTY, INDIANA

APPLE VALLEY UTILITIES
PWS - WATER UTILITY
IMPROVEMENTS

STATE OF

10/15/2024

Date

Shotrow C. Oschrane

Isane Date

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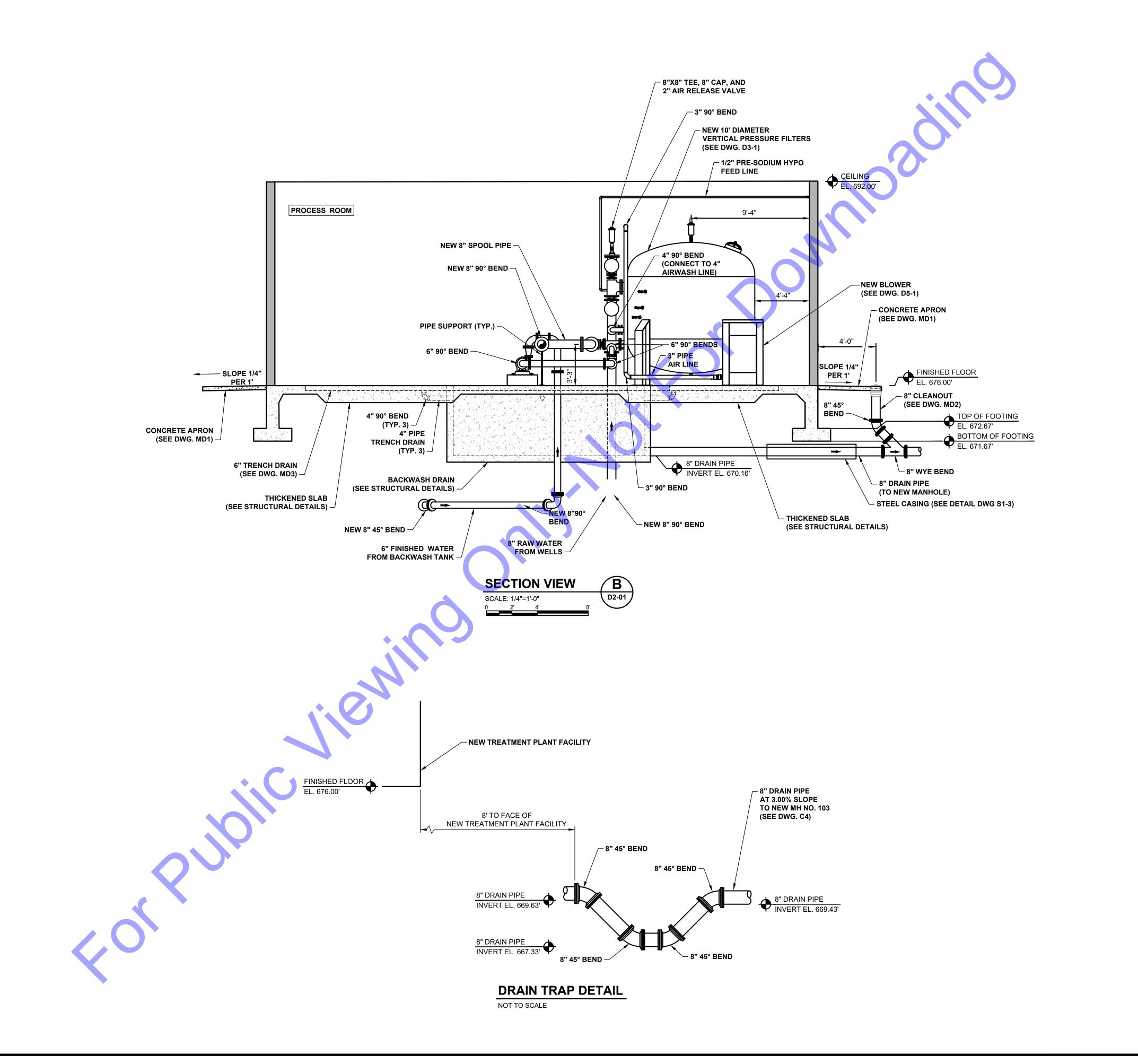
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NEW WATER
TREATMENT PLANT
FACILITY - SECTION
VIEW "A"

Drawing No: **D2-02**

Sheet: 30 OF 73



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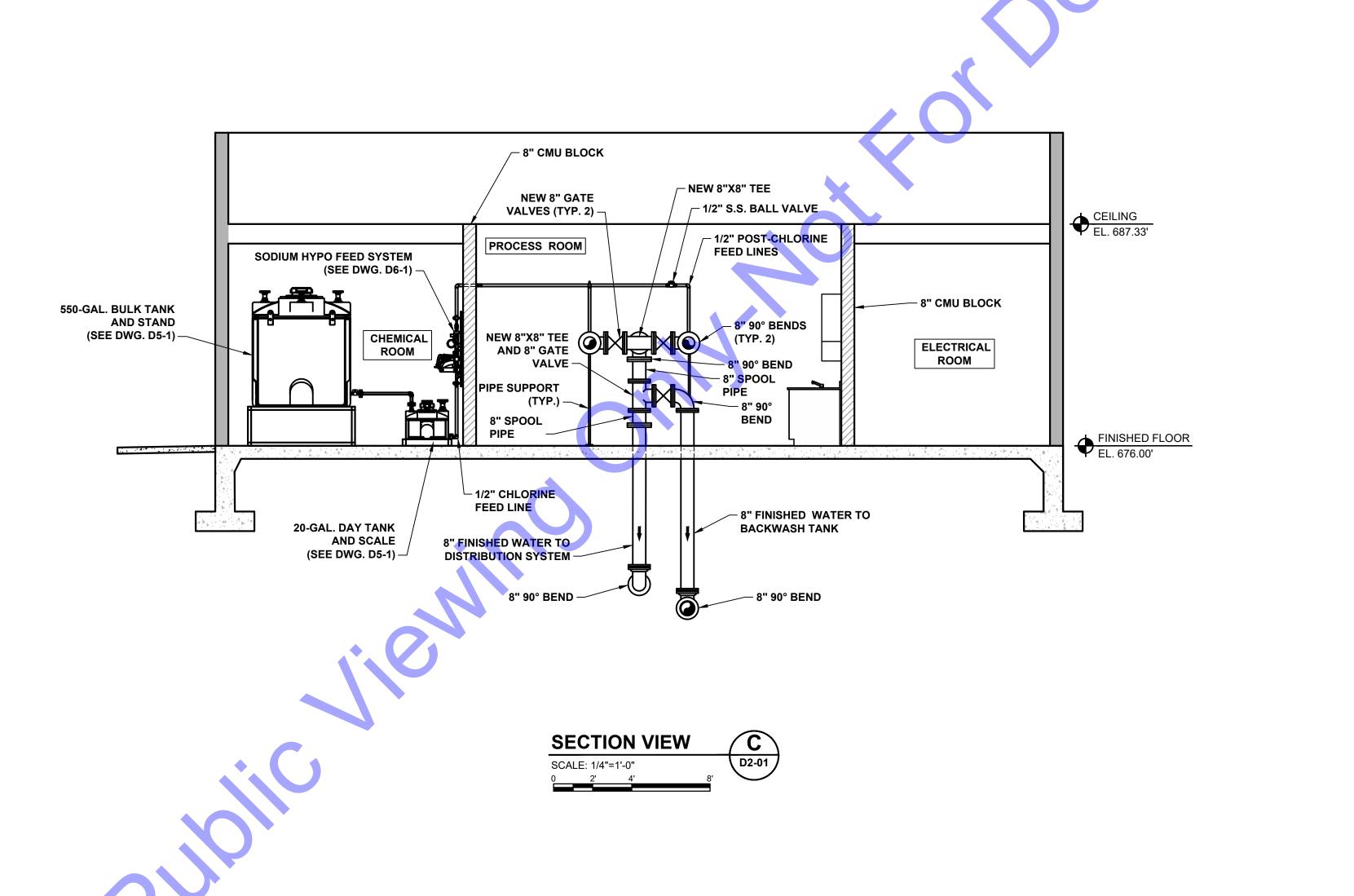
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Signature 10/15/2024 Date

Designed By: Drawn By: Checked By
ACC GCR DW Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

NEW WATER TREATMENT PLANT FACILITY - SECTION VIEW "B"

D2-03

Sheet: 31 OF 73



APPLE VALLEY UTILITIES, INC.
LAKE COUNTY, INDIANA
APPLE VALLEY UTILITIES EAST

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PWS - WATER UTILITY
IMPROVEMENTS

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> 10/15/2024 Date

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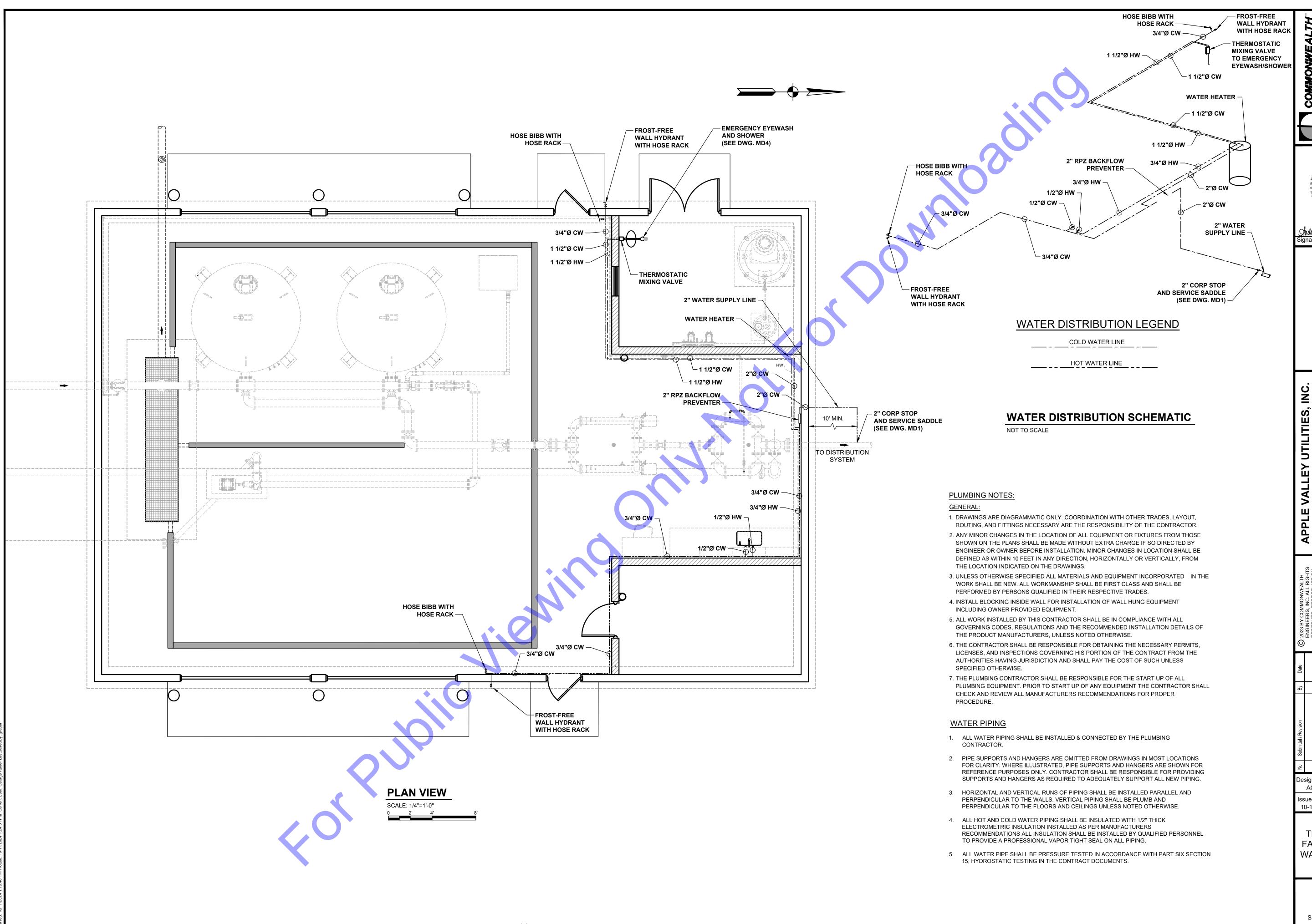
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NEW WATER
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FACILITY - SECTION
VIEW "C"

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Sheet: 32 OF 73



Signature

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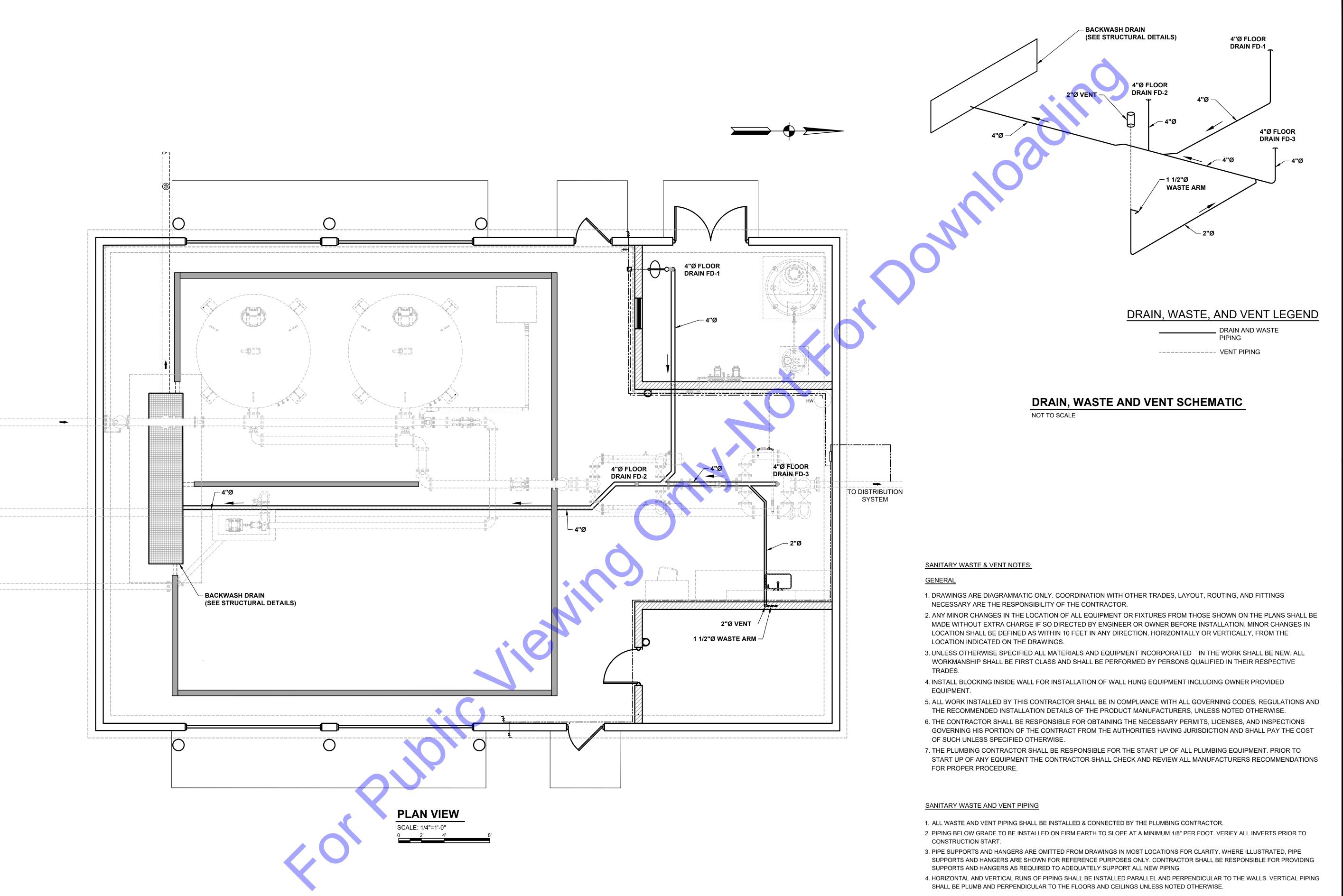
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NEW WATER
TREATMENT PLANT
FACILITY - PLUMBING
WATER DISTRIBUTION

PLAN

Drawing No: **D2-0**

Sheet: 33 OF 73



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NEW WATER TREATMENT PLANT FACILITY - PLUMBING WASTE AND VENT PLAN

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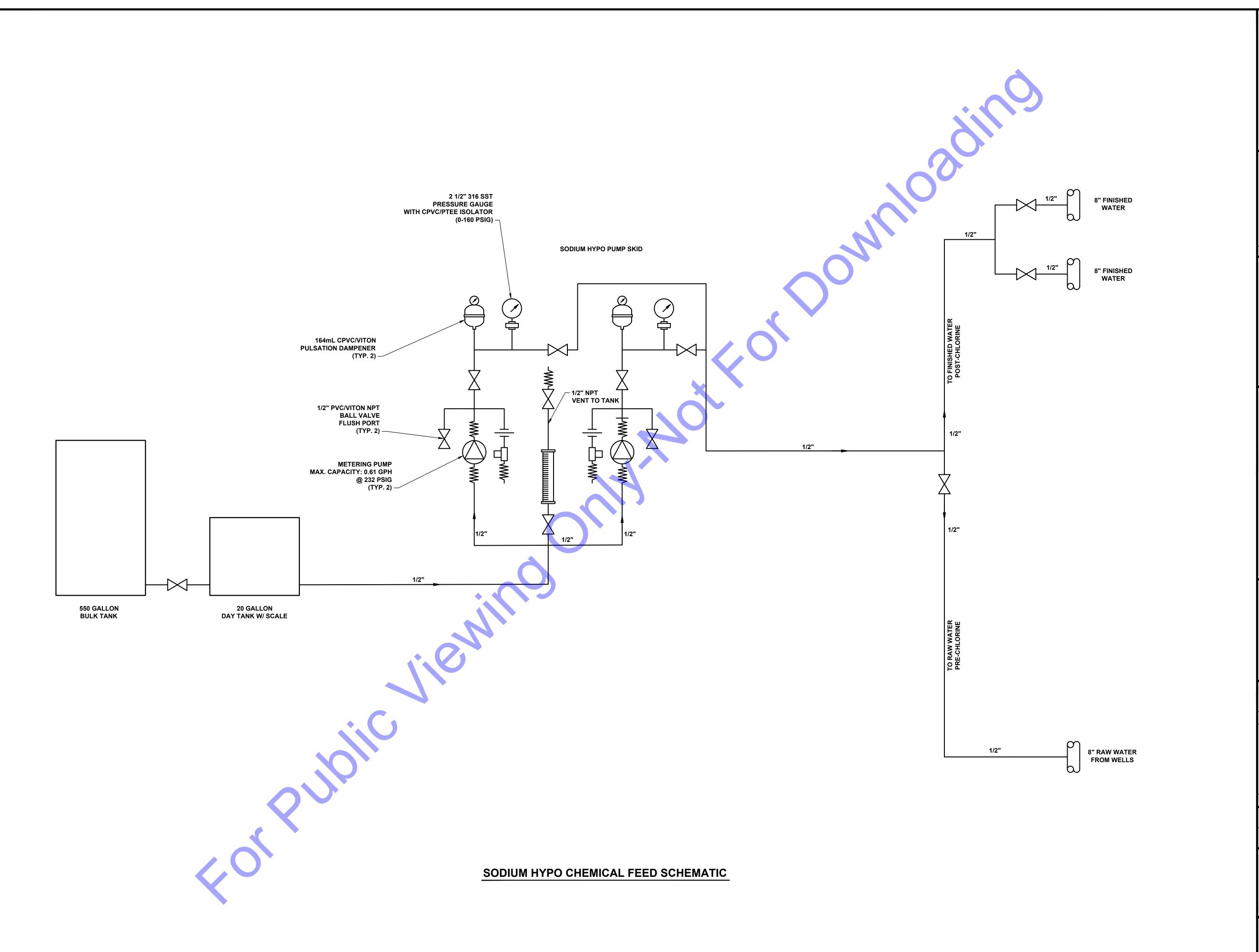
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Sheet: 34 OF 73

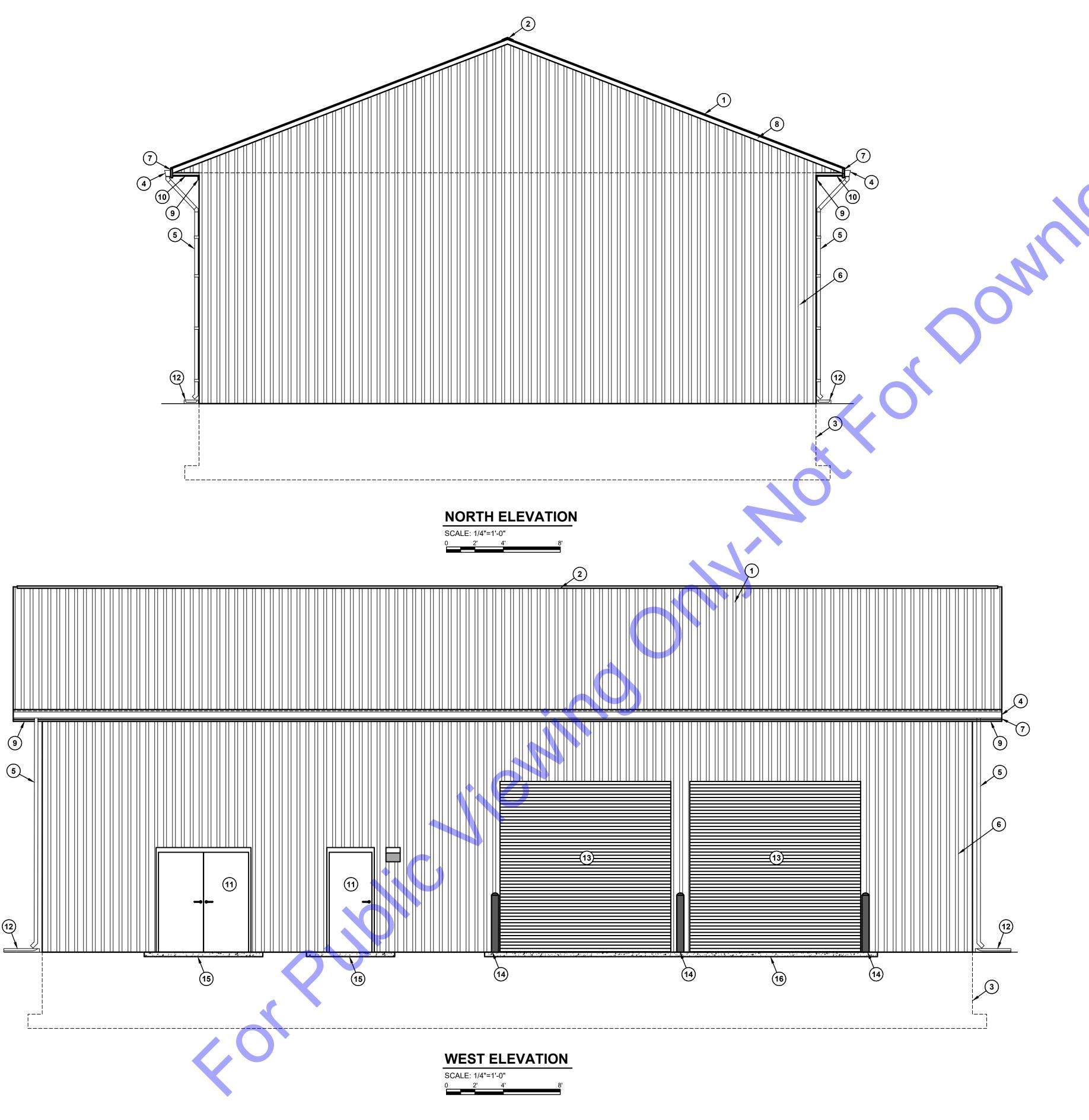


19900094 STATE OF Studiew C. Oxhrane Signature 10/15/2024 Date

Designed By: Drawn By: Checked By: ACC GCR DW Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN **NEW WATER** TREATMENT PLANT

FACILITY - SODIUM HYPO CHEMICAL FEED SCHEMATIC

Drawing No: D2-07 Sheet: 35 OF 73



ELEVATION KEYNOTES:

- 1. STANDING SEAM METAL ROOF
- 2. RIDGE VENT
- 3. FOOTING AND FOUNDATION (SEE STRUCTURAL DRAWINGS)
- 4. 5" PRE-FINISHED ALUM. GUTTER
- 5. 5" PRE-FINISHED ALUM. DOWNSPOUT
- 6. HIGH TENSILE STEEL SIDING
- 7. 2x8 TREATED WOOD FASCIA BOARD W/ PREFINISHED ALUM. TRIM
- 8. 2x6 TREATED WOOD RAKE BOARD W/ PREFINISHED ALUM. TRIM
- 9. 1x4 TREATED WOOD TRIM BOARD W/ PREFINISHED ALUM. TRIM
- 10. SOFFIT VENTS
- 11. NEW INSULATED METAL DOOR UNIT (PAINTED)
- 12. PREFABRICATED CONCRETE SPLASH BLOCK
- 13. OVERHEAD DOOR
- 14. CONCRETE BOLLARDS
- 15. CONCRETE STOOP
- 16. CONCRETE APRON

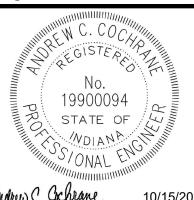
GENERAL NOTES:

- CONTRACTOR SHALL INSTALL BATT INSULATION ABOVE CEILING AND BETWEEN TRUSSES PER DETAILED SPECIFICATIONS.
- 2. CONTRACTOR SHALL ENSURE THAT PROPER GRADING IS ESTABLISHED AROUND STRUCTURES SUCH THAT ALL DRAINAGE FLOWS AWAY FROM BUILDING AND SLAB, INCLUDING DOWNSPOUT RUN-OFF WITH SPLASH BLOCK.
- 3. CONTRACTOR SHALL REFER TO DRAWING D2-9 AND D2-10 FOR ALL DOOR, WINDOW, AND ROOF FINISH SCHEDULES AND DETAILS

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w.C. Cochrane____ ture

> E VALLEY UTILITIES EAS WS - WATER UTILITY IMPROVEMENTS

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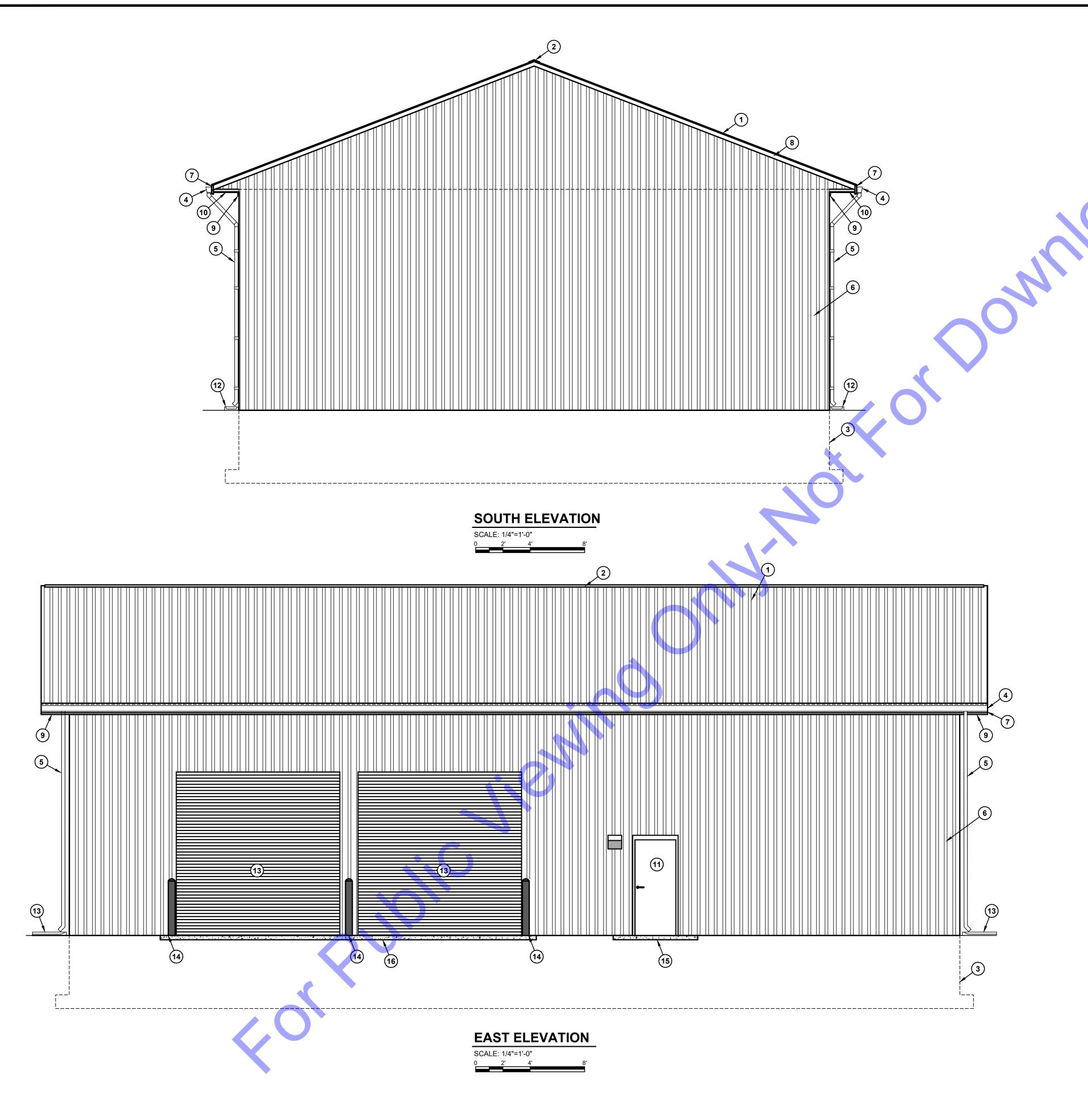
NEW WATER
TREATMENT PLANT
FACILITY - EXTERIOR
ELEVATIONS

Designed By: Drawn By: Checked By
ACC GCR DW

ssue Date: | Project No: | Scale: 10-17-24 | W24026 | AS SHOWN

Drawing No:

Sheet: 36 OF 73



ELEVATION KEYNOTES:

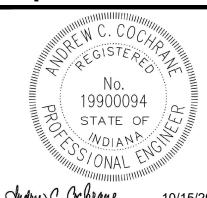
- 1. STANDING SEAM METAL ROOF
- 2. RIDGE VENT
- 3. FOOTING AND FOUNDATION (SEE STRUCTURAL DRAWINGS)
- 4. 5" PRE-FINISHED ALUM. GUTTER
- 5. 5" PRE-FINISHED ALUM. DOWNSPOUT
- 6. HIGH TENSILE STEEL SIDING
- 7. 2x8 TREATED WOOD FASCIA BOARD W/ PREFINISHED ALUM. TRIM
- 8. 2x6 TREATED WOOD RAKE BOARD W/ PREFINISHED ALUM. TRIM
- 9. 1x4 TREATED WOOD TRIM BOARD W/ PREFINISHED ALUM. TRIM
- 10. SOFFIT VENTS
- 11. NEW INSULATED METAL DOOR UNIT (PAINTED)
- 12. PREFABRICATED CONCRETE SPLASH BLOCK
- 13. OVERHEAD DOOR
- 14. CONCRETE BOLLARDS
- 15. CONCRETE STOOP
- 16. CONCRETE APRON

GENERAL NOTES:

- CONTRACTOR SHALL INSTALL BATT INSULATION ABOVE CEILING AND BETWEEN TRUSSES PER DETAILED SPECIFICATIONS.
- 2. CONTRACTOR SHALL ENSURE THAT PROPER GRADING IS ESTABLISHED AROUND STRUCTURES SUCH THAT ALL DRAINAGE FLOWS AWAY FROM BUILDING AND SLAB, INCLUDING DOWNSPOUT RUN-OFF WITH SPLASH BLOCK.
- CONTRACTOR SHALL REFER TO DRAWING D2-9 AND D2-10 FOR ALL DOOR, WINDOW, AND ROOF FINISH SCHEDULES AND DETAILS

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OFFICE LOCATIONS IN:
INDIANAPOLIS, IN. (2)



Shultuw C. Oschrane Signature

APPLE VALLEY UTILITIES EA
PWS - WATER UTILITY
IMPROVEMENTS
DIVISION "A" - WELLS AND

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NEW WATER
TREATMENT PLANT
FACILITY - EXTERIOR
ELEVATIONS

Drawing No:

neet: 37 OF 73

DOOR SCHEDULE

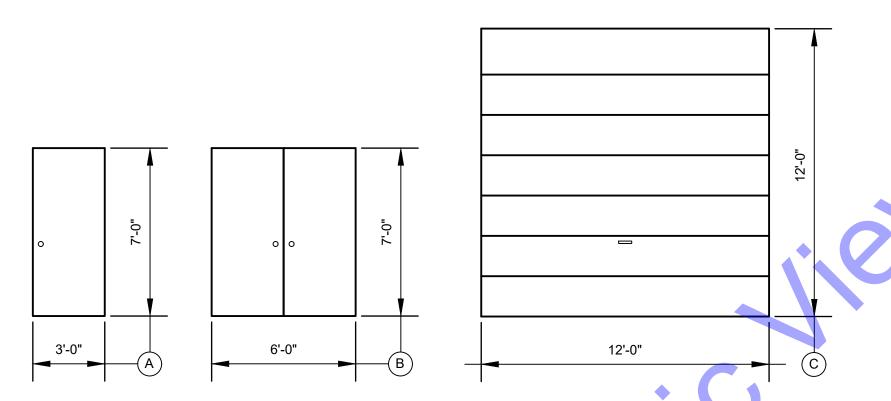
LOCATION		DOOR DATA					FRAME DATA					REMARKS							
NEW TREATMENT FACILITY	DOOR NUMBER	QUANTITY	DOOR TYPE	M.O./R.O. WIDTH	M.O./R.O. HEIGHT	MATERIAL	DOOR WIDTH	DOOR HEIGHT	THICKNESS	LOUVER	SIDE LIGHT	FRAME NUMBER	MATERIAL	ОЕРТН	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	HARDWARE SET	NOTES: 1. ALL EXTERIOR DOORS & FRAMES TO BE GALVANIZED. 2. ALL EXTERIOR DOORS SHALL BE INSULATED
WEST - OVERHEAD DOOR	1	2	С	12'-4"	12'-4"	INSULATED METAL	12'-0"	12'-0"	1"	N I	N N	С	INSULATED METAL	AS SPECIFIED	5	5	5	N/A	
EAST - OVERHEAD DOOR	2	2	С	12'-4"	12'-4"	INSULATED METAL	12'-0"	12'-0"	1"	N I	N N	С	INSULATED METAL	AS SPECIFIED	5	5	5	N/A	
CHLORINE ROOM - EXTERIOR DOOR	3	1	В	6'-4"	7'-4"	INSULATED METAL	6'-0"	7'-0"	1"	N I	N N	В	INSULATED METAL	- 5"	2	2	4	SET#1	
WEST - EXTERIOR DOOR	4	1	Α	3'-4"	7'-4"	INSULATED METAL	6'-0"	7'-0"	1"	N I	N N	А	INSULATED METAL	- 5"	2	2	4	SET#3	
EAST - EXTERIOR DOOR	5	1	А	3'-4"	7'-4"	INSULATED METAL	6'-0"	7'-0"	1"	N I	N N	А	INSULATED METAL	- 5"	2	2	4	SET #3	
ELECTRICAL ROOM - INTERIOR DOOR	6	1	Α	3'-4"	7'-4"	HOLLOW METAL	3'-0"	7'-0"	1"	N,	Y N	А	HOLLOW METAL	5"	1	1	3	SET #2	

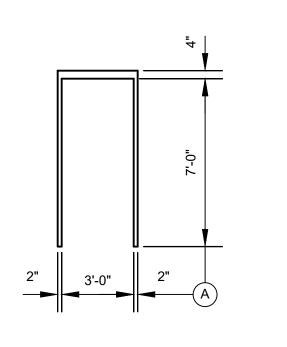
HARDWARE SETS

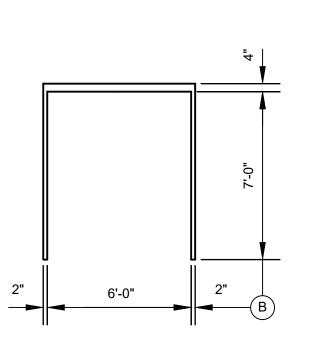
1. 6 HINGES
1 LOCK SET
2 CLOSER HYDRAULIC
2 KICK PLATES
2 EXIST BARS
2 THRESHOLDS

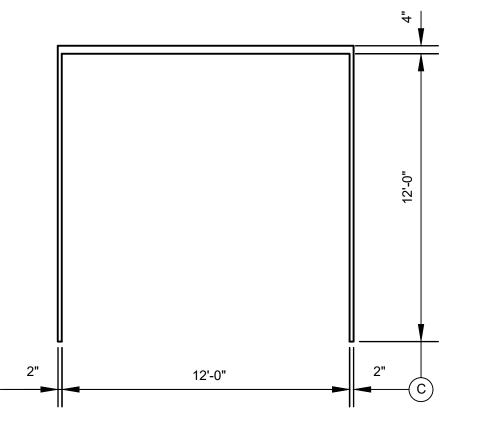
2. 3 HINGES1 CLOSER HYDRAULIC1 EXIST DEVICE

3. 3 HINGES
1 LOCK SET
2 CLOSER HYDRAULIC
1 KICK PLATES
1 EXIST BARS
1 THRESHOLDS









DOOR TYPE ELEVATION

DOOR FRAME ELEVATIONS

10/15/2024 Date

Designed By: Drawn By: Checked By: ACC GCR DW

Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN **NEW WATER**

TREATMENT PLANT FACILITY - DOOR SCHEDULES

D2-10

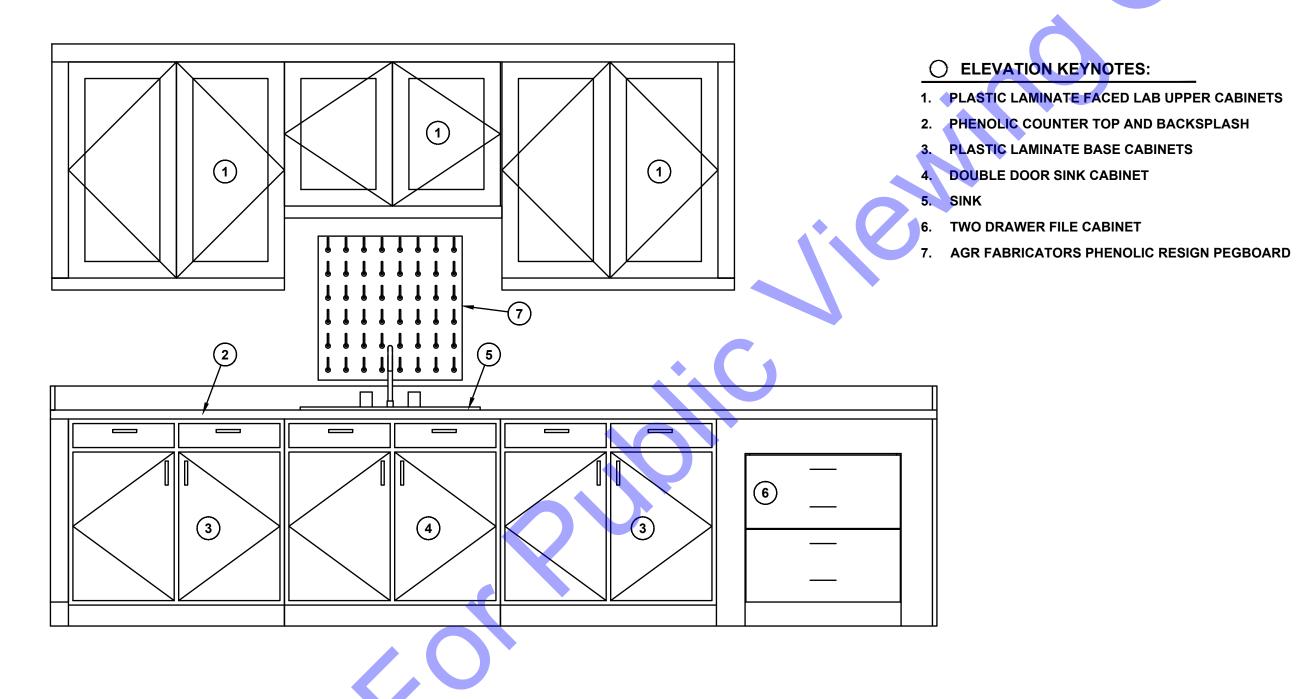
Sheet: 38 OF 73

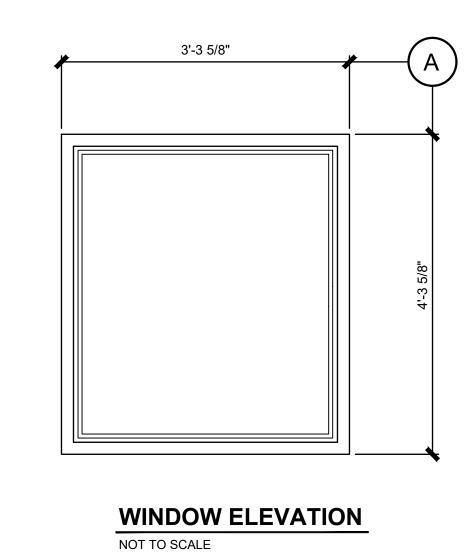
ROOM FINISH SCHEDULE

LOCATION	ROOM NAME/NUMBER	FLOOR	WALLS	WALL BASE	CEILING	CEILING HEIGHT	COATING	REMARKS
	PROCESS ROOM - 100	CONCRETE	N,S-PAINTED GYP BD E,W-PAINTED GYP BD	4" VINYL	MOISTURE RESISTANT 5/8" GYPSUM BOARD	16'-0"	F-2 FLOOR COATING	TRIM AS REQUIRED
NEW TREATMENT	CHLORINE ROOM - 101	CONCRETE	N,S-PAINTED GYP BD E,W-PAINTED GYP BD	4" VINYL	MOISTURE RESISTANT 5/8" GYPSUM BOARD	9'-4"	F-2 FLOOR COATING	TRIM AS REQUIRED
FACILITY	ELECTRICAL/MECHANICAL - 102	CONCRETE	N,S-PAINTED GYP BD E,W-PAINTED GYP BD	4" VINYL	MOISTURE RESISTANT 5/8" GYPSUM BOARD	9'-4"	F-2 FLOOR COATING	TRIM AS REQUIRED

WINDOW SCHEDULE

LOCATION		WINDOW DATA												REMARKS
	WINDOW SYMBOL	QUANTITY	WINDOW TYPE	WIDTH	НЕІСНТ	R.O. WIDTH	R.O. HEIGHT	MATERIAL	SCREEN	GLAZING TYPE	HEAD DETAIL	JAMB DETAIL	SILL	
NEW TREATMENT FACILITY	Α	1	А	3'-3 5/8"	4'-3 5/8"	3'-4"	4'-4"	VINYL CLAD	N	HIGH PER. TEMPERED	1	1		SINGLE PANEL





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

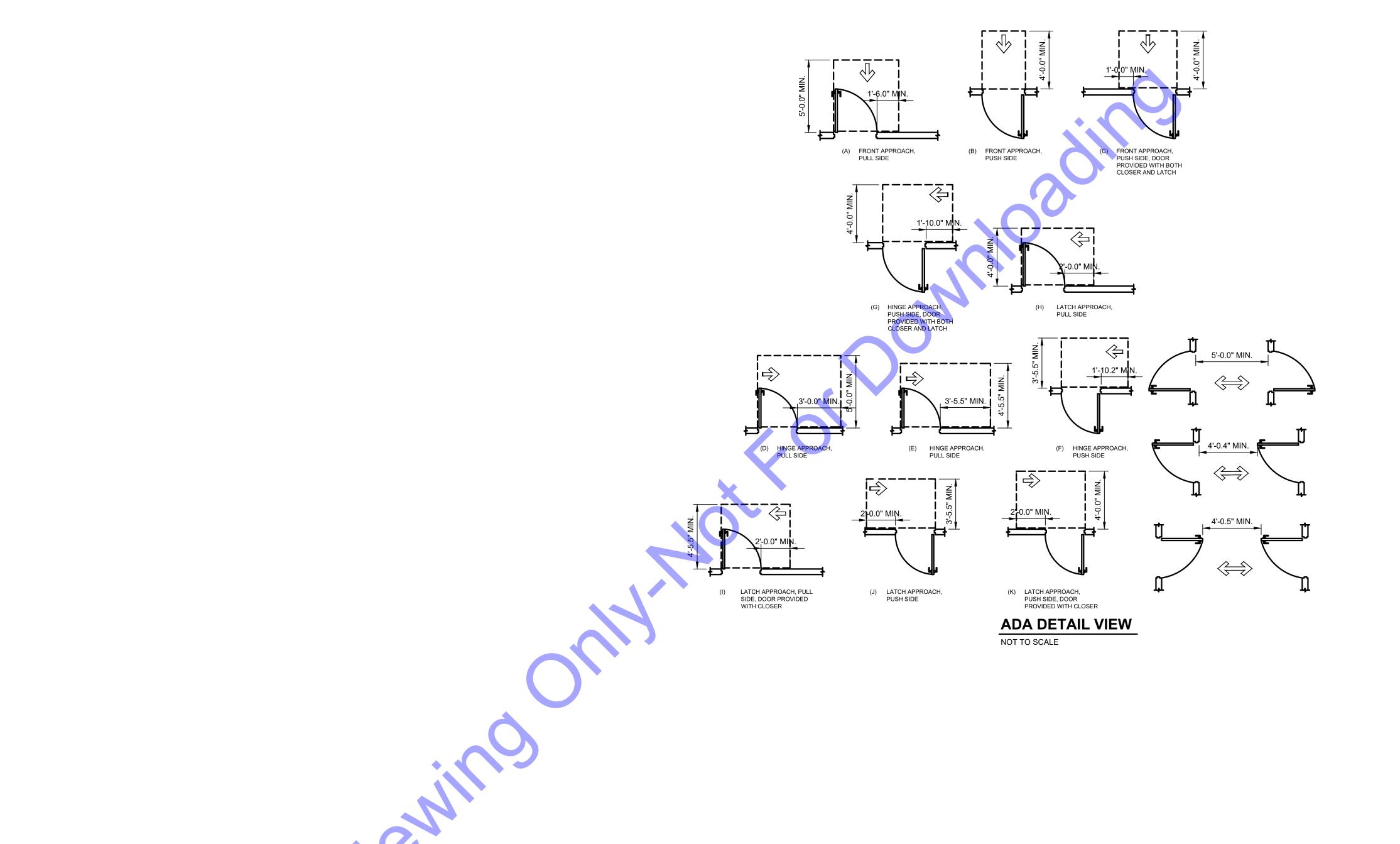
Drawing No: D2-11

Sheet: 39 OF 73

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Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

NEW WATER TREATMENT PLANT FACILITY - WINDOW AND CASEWORK SCHEDULES



APPLE VALLEY UTILITIES, INC.
LAKE COUNTY, INDIANA
APPLE VALLEY UTILITIES EAST

19900094 State of

> 10/15/2024 Date

Signature

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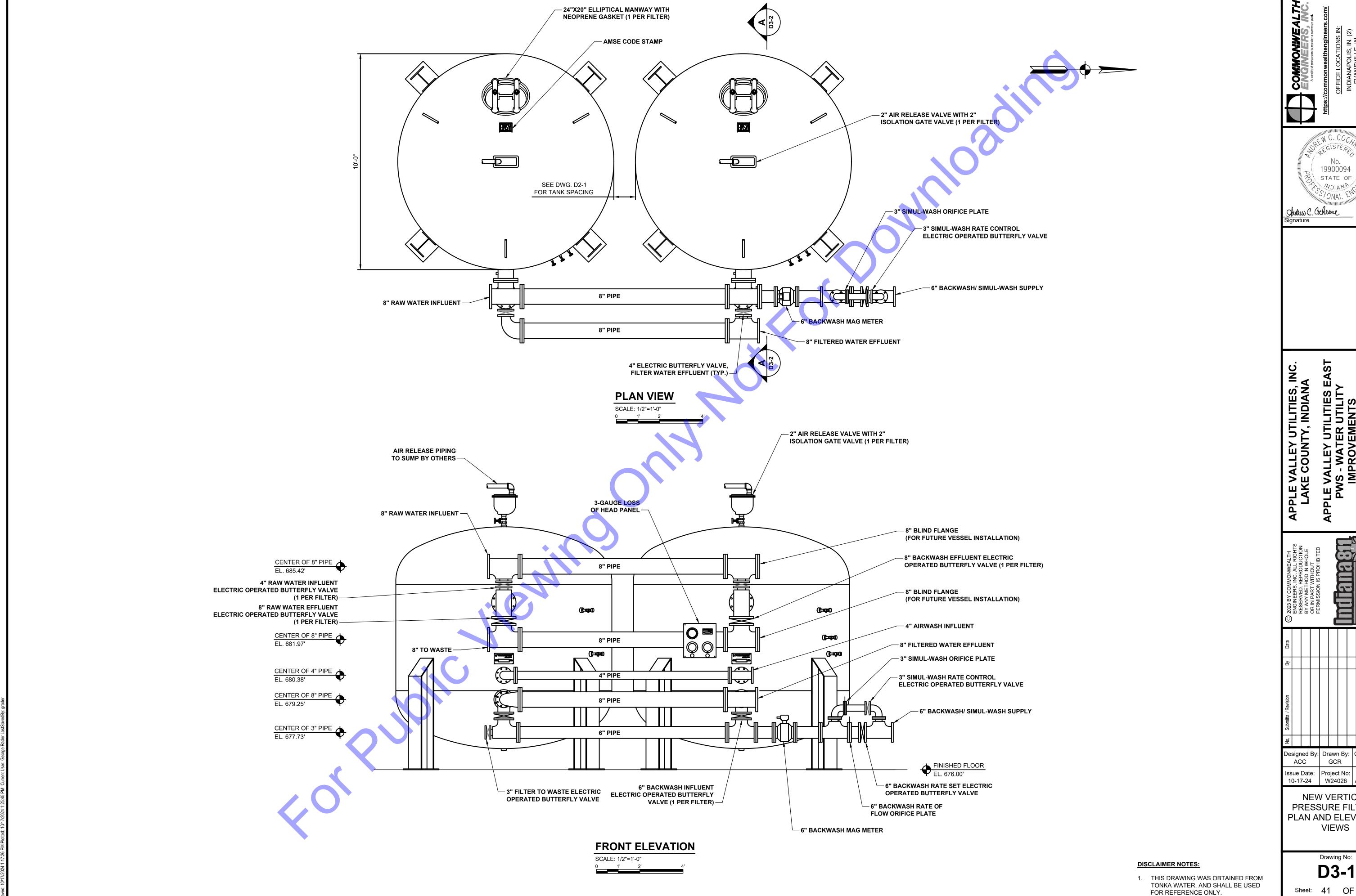
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Issue Date: Project No: Scale: AS SHOWN

NEW WATER
TREATMENT PLANT
FACILITY - ADA DETAILS

Drawing No: D2-12

Sheet: 40 OF 73

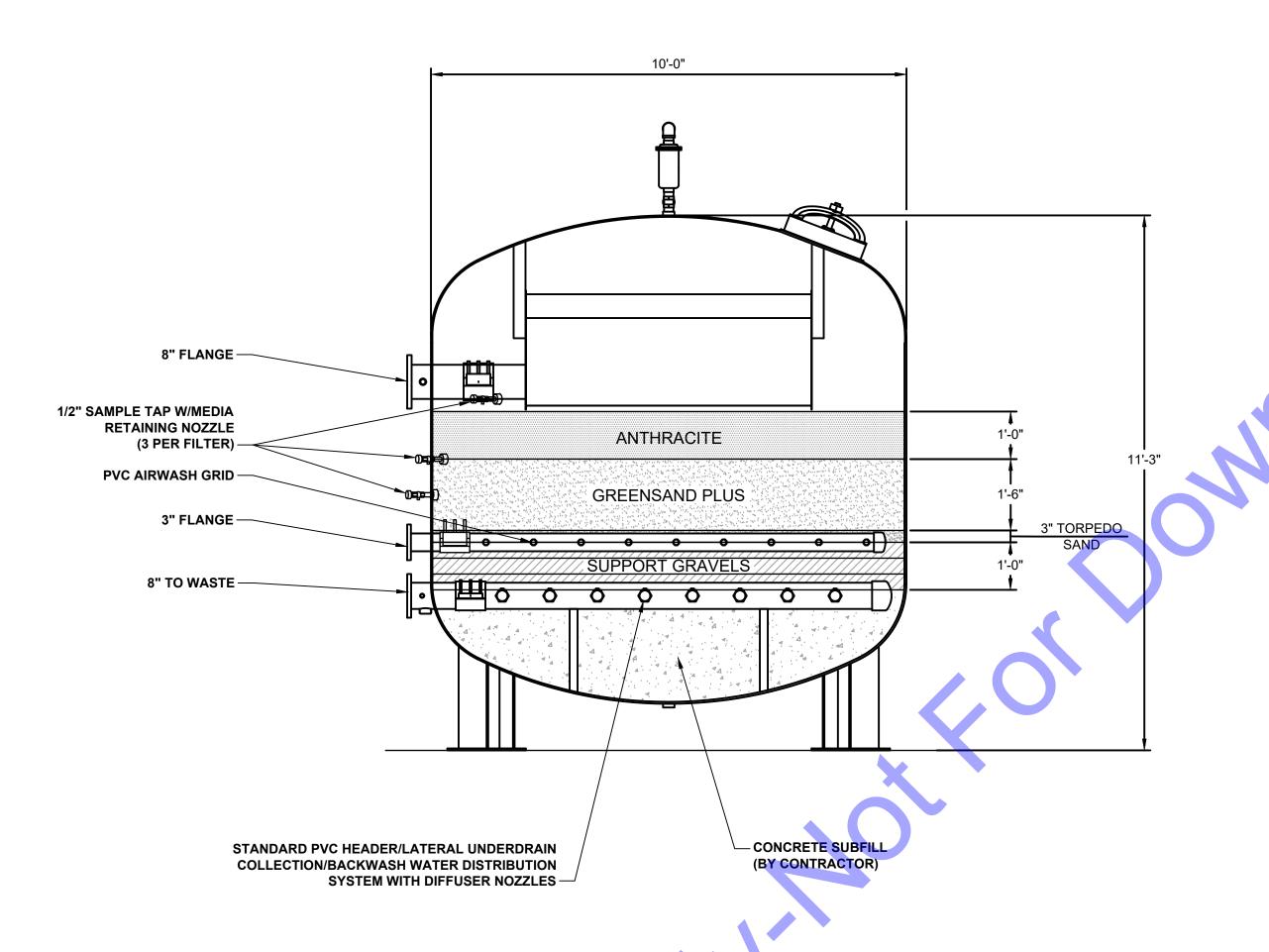


10/15/2024 Date

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NEW VERTICAL PRESSURE FILTER -PLAN AND ELEVATION **VIEWS**

Sheet: 41 OF 73



19900094 STATE OF

10/15/2024 Date

Studius C. Oschrane Signature

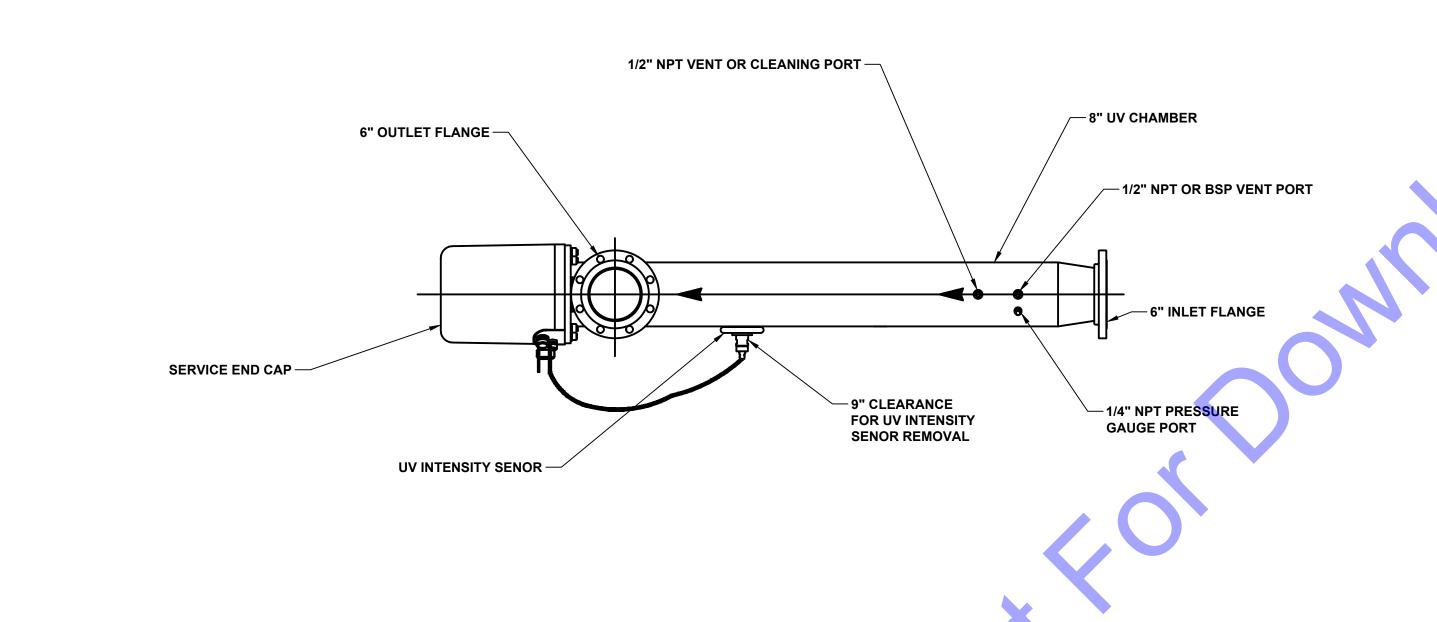
Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN NEW VERTICAL PRESSURE FILTER -TYPICAL SECTION VIEW

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DISCLAIMER NOTES:

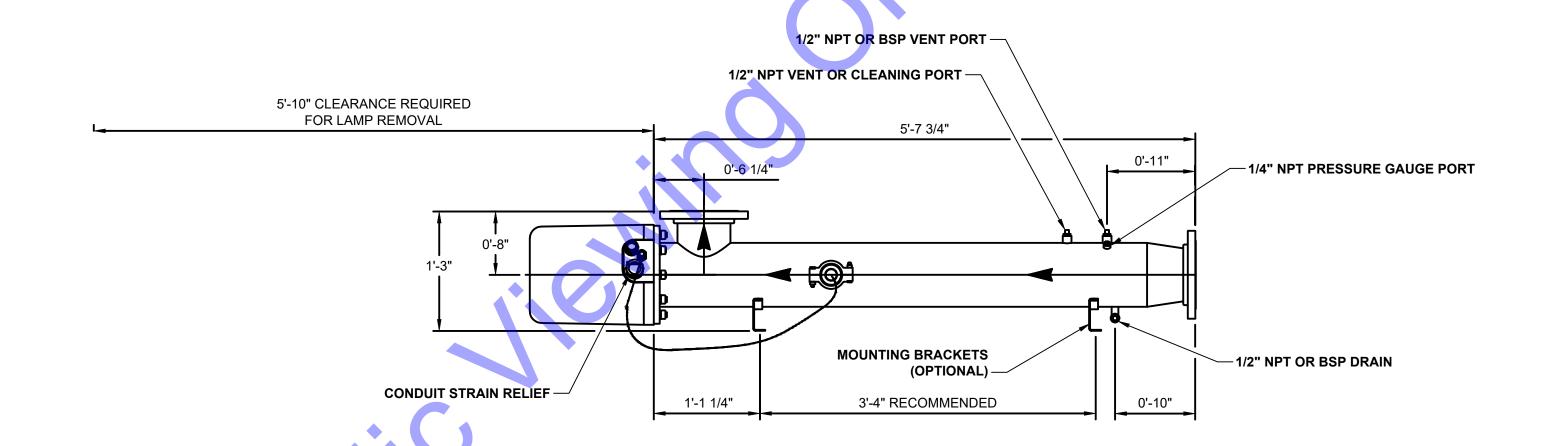
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D3-2 Sheet: 42 OF 73



PLAN VIEW

SCALE: 1"=1'-0"



FRONT ELEVATION

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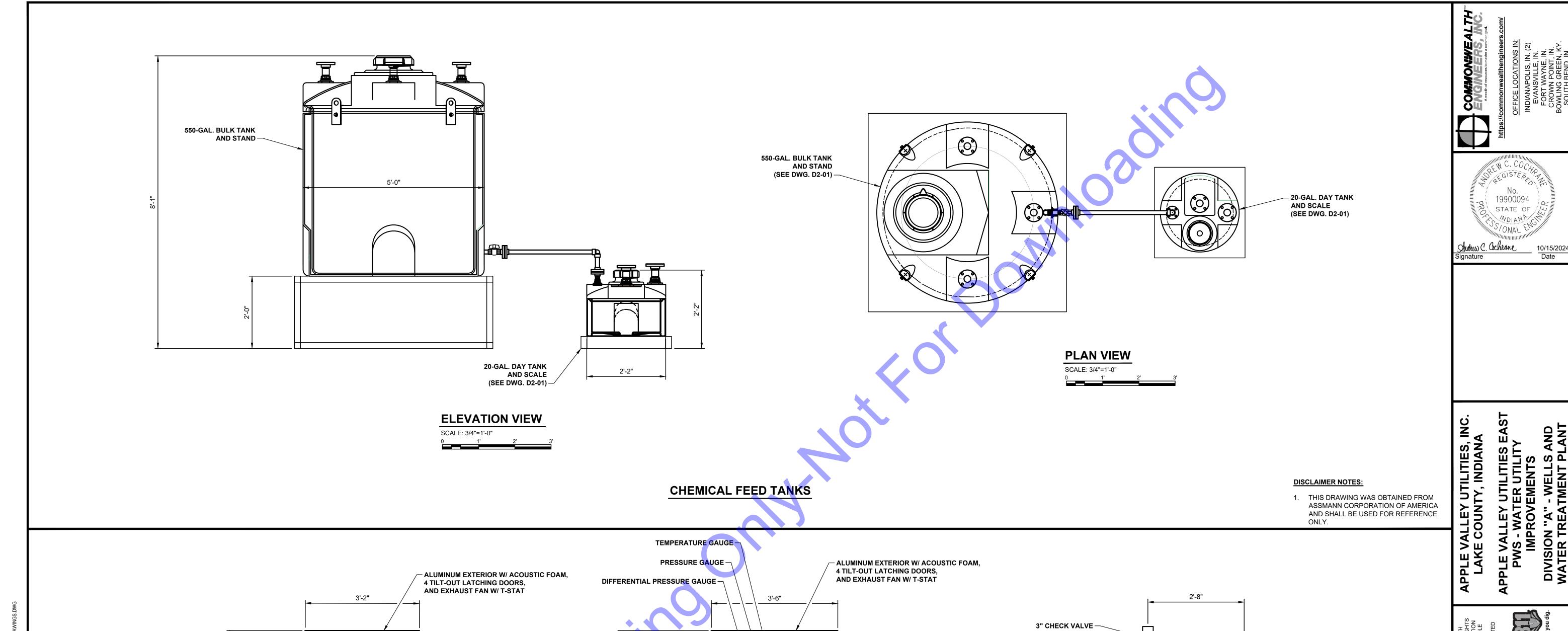
Signature C. Cichrane

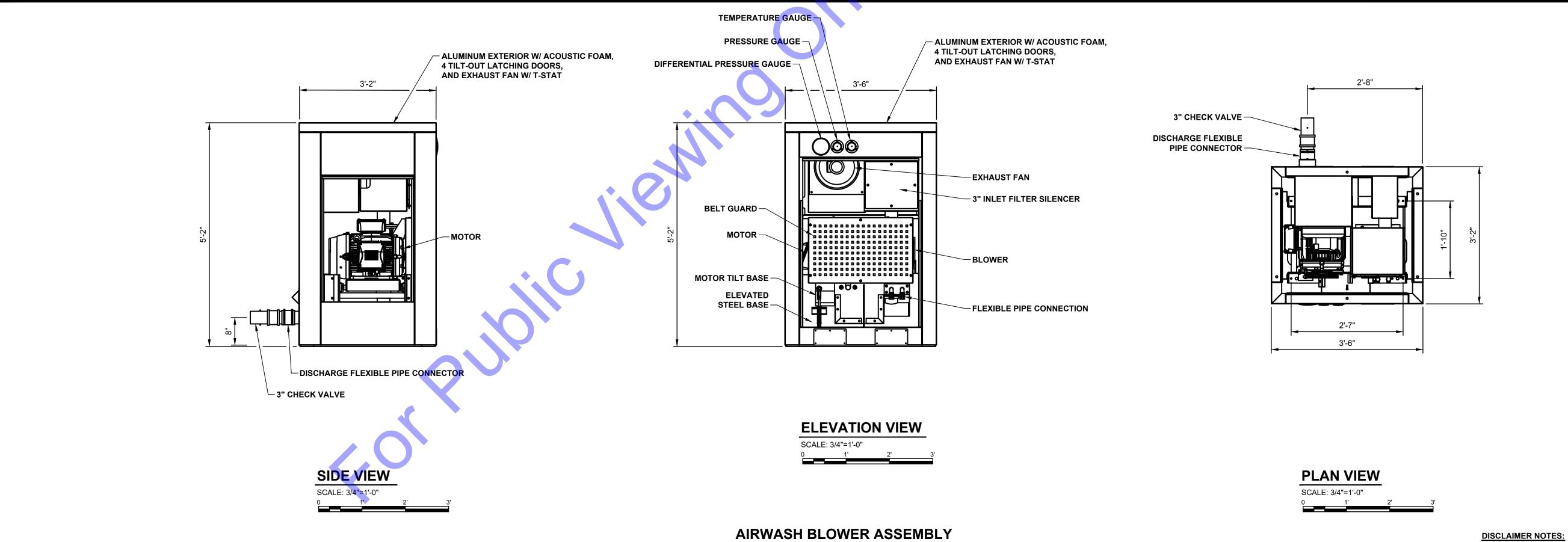
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NEW UV TREATMENT -PLAN AND ELEVATION VIEWS

D4-1

Sheet: 43 OF 73





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CHEMICAL FEED TANKS, AND AIRWASH BLOWER ASSEMBLY-PLAN AND ELEVATION **VIEWS** Drawing No:

Designed By: Drawn By: Checked By

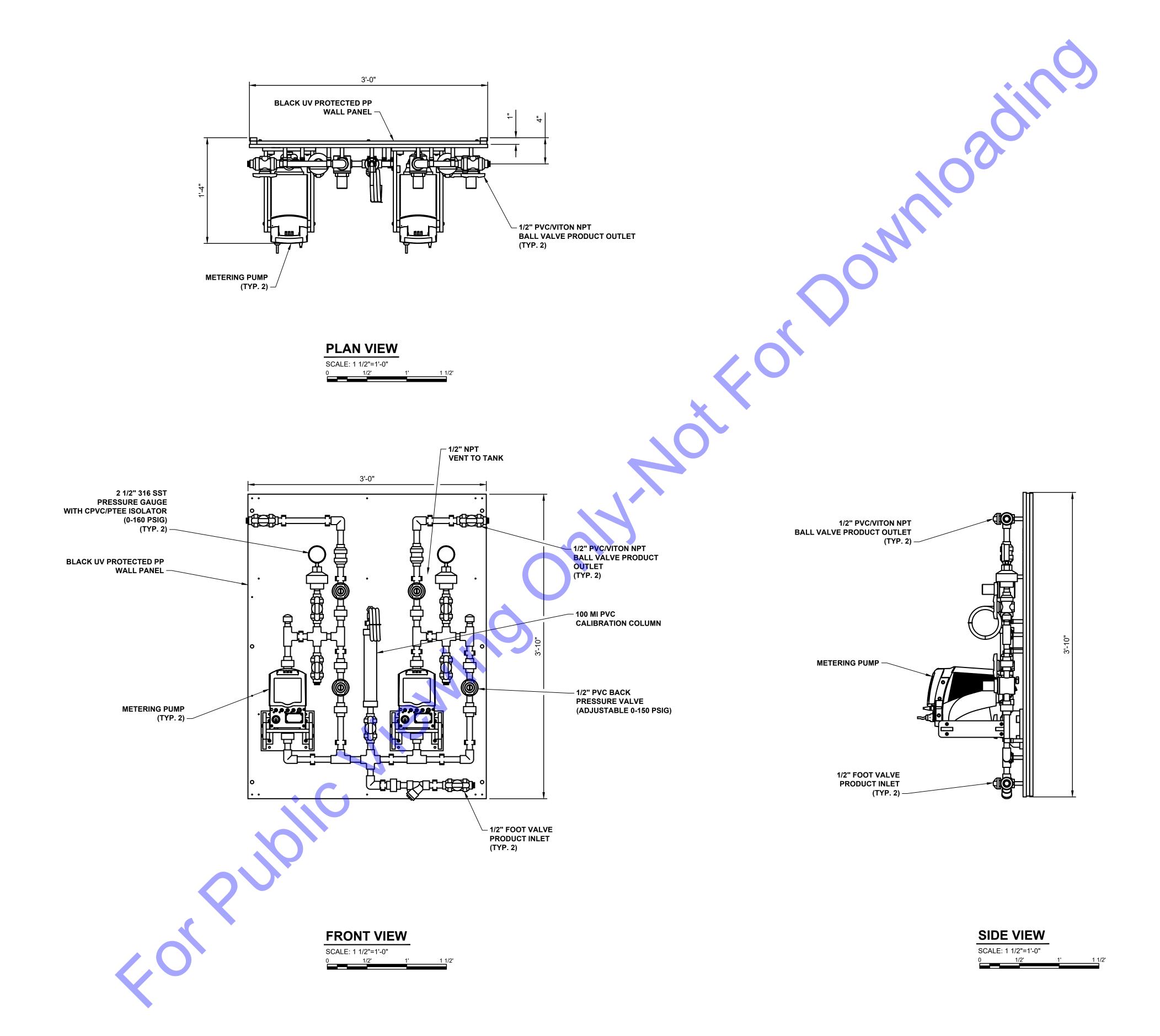
GCR

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10-17-24 | W24026 | AS SHOWN

D5-1

Sheet: 44 OF 73



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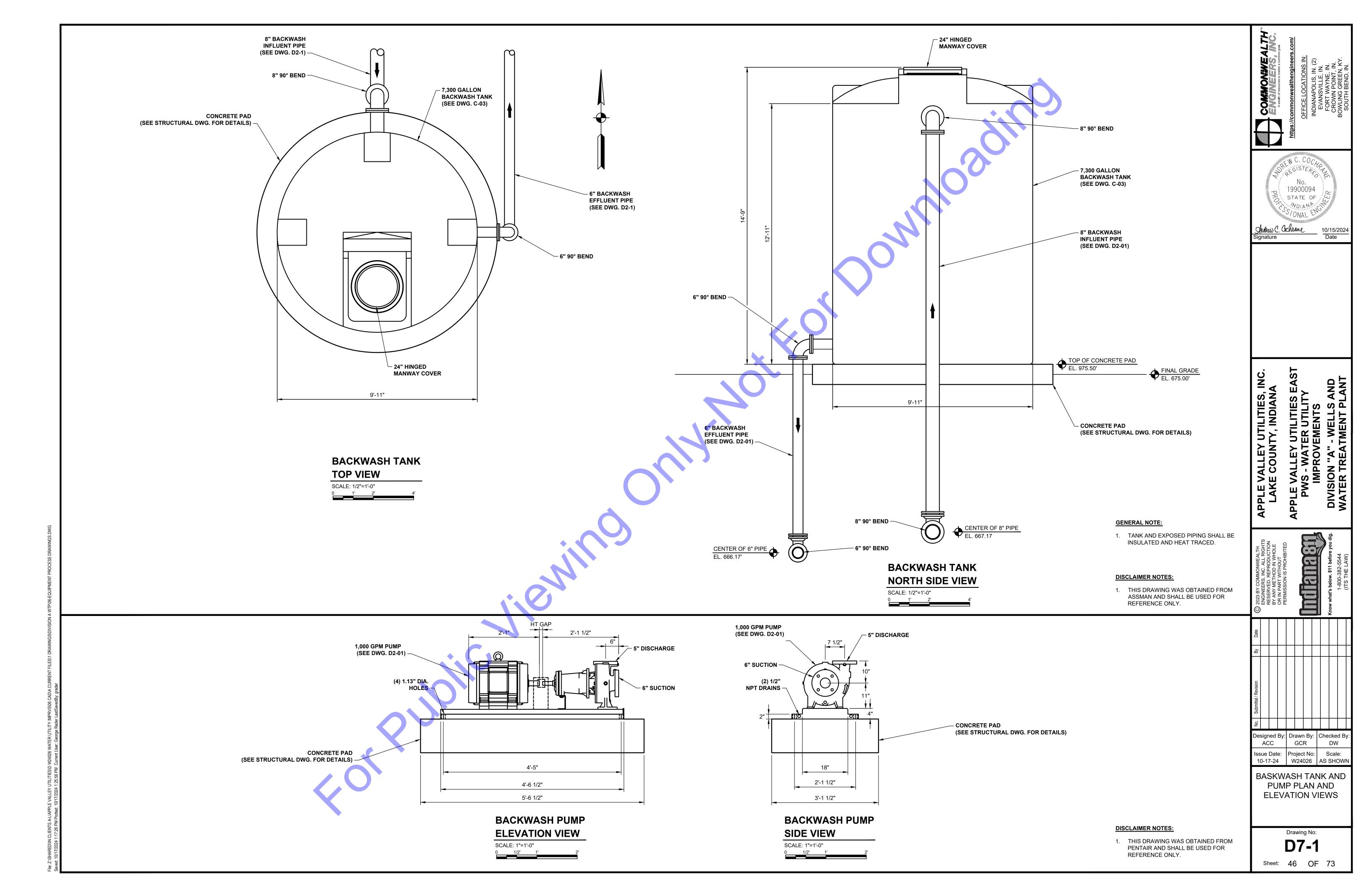
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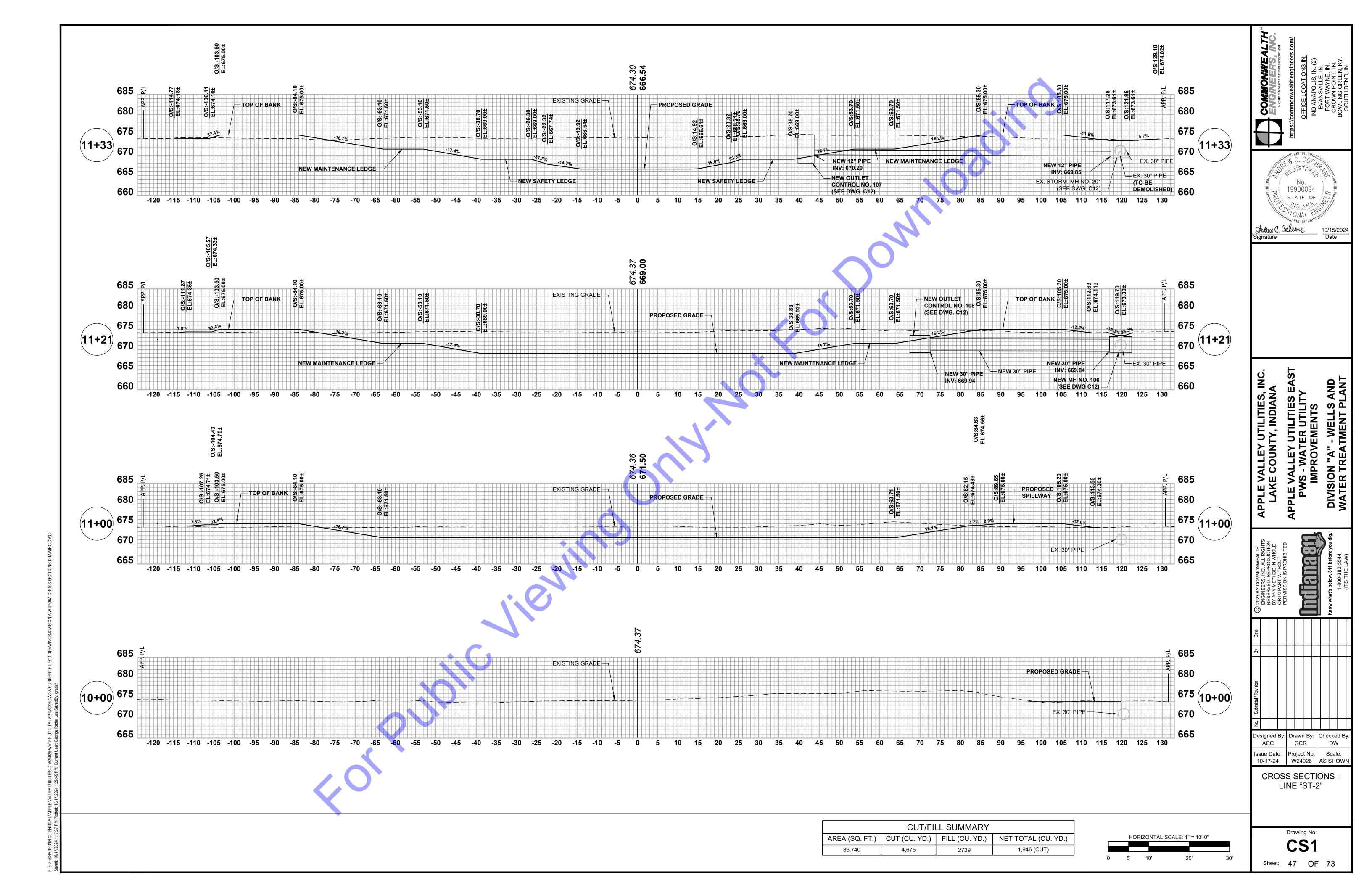
Sheet: **45** OF **73**

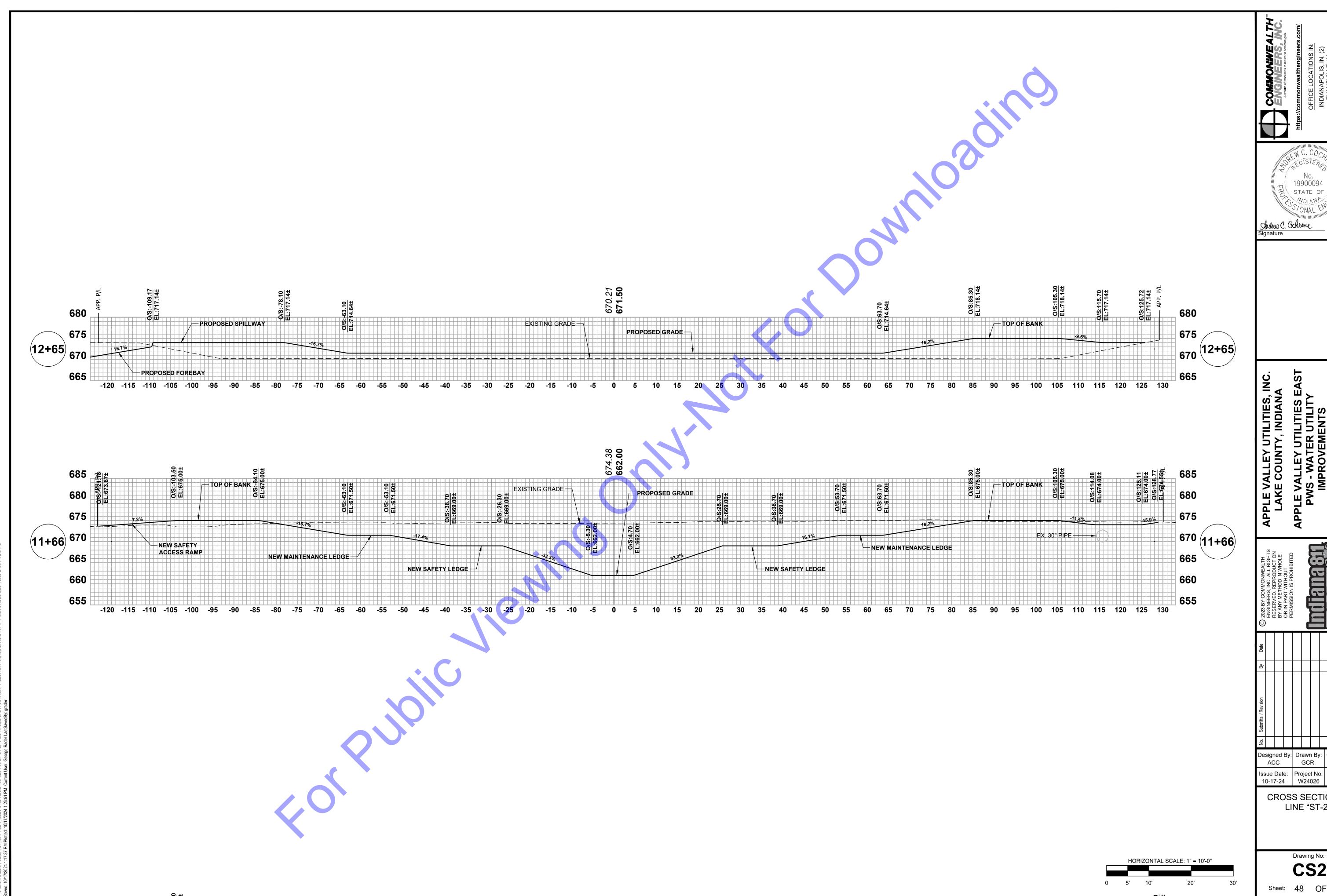
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Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

SODIUM HYPO FEED SYSTEM PLAN AND ELEVATION VIEWS







10-17-24 W24026 AS SHOWN **CROSS SECTIONS -**LINE "ST-2"

- 1. ELASTOMERIC 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

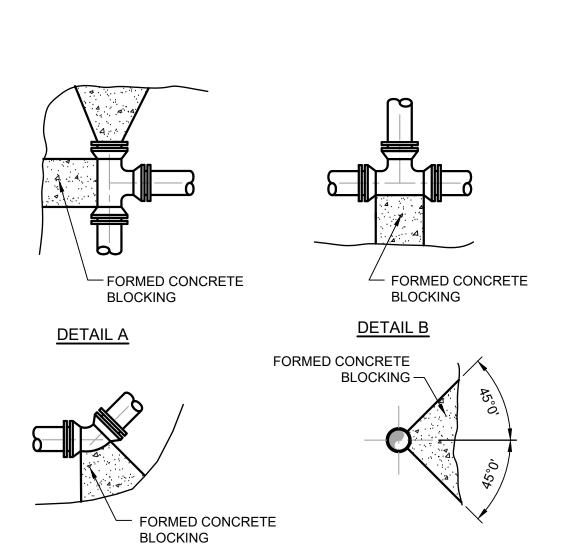


	TABLE OF DIMENSION FOR CONCRETE BLOCKING																								
SIZE	ZE TEE PLUG				90° BEND				45° BEND			22° BEND			11° BEND)							
PIPE	L	Т	W	D	L	Т	W	D	s	L	Т	W	D	L	Т	W	D	L	Т	W	D	L	Т	W	D
4"	18"	12"	12"	8"	18"	12"	18"	18"	2"	24"	12"	24"	8"	18"	8"	12"	8"	18"	8"	12"	8"	15"	8"	12"	6'
6"	18"	12"	12"	8"	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"	4 8"	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

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

DETAIL C

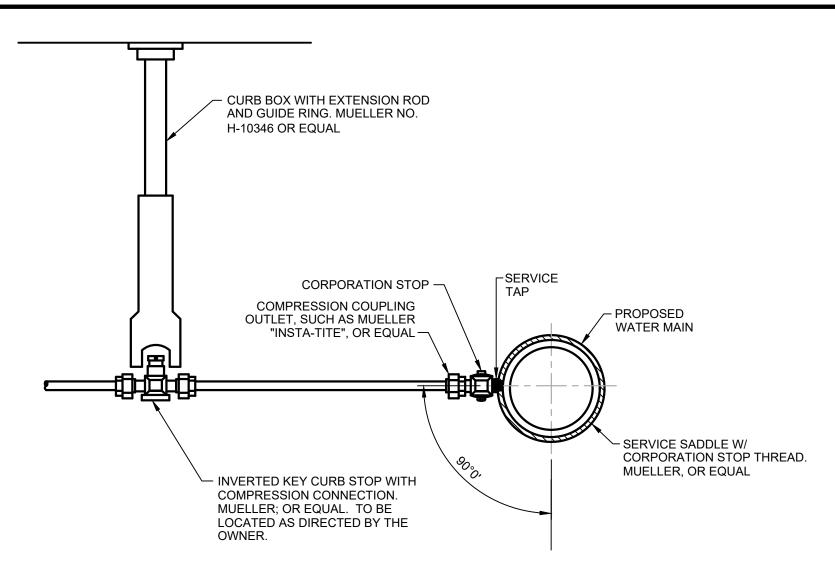
2. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN USE

TYP. PROFILE

- 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"

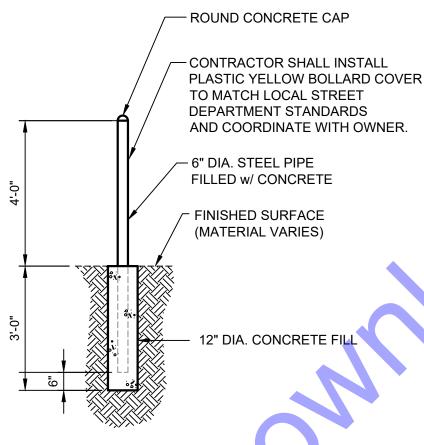
THRUST BLOCKING DETAIL

NOT TO SCALE



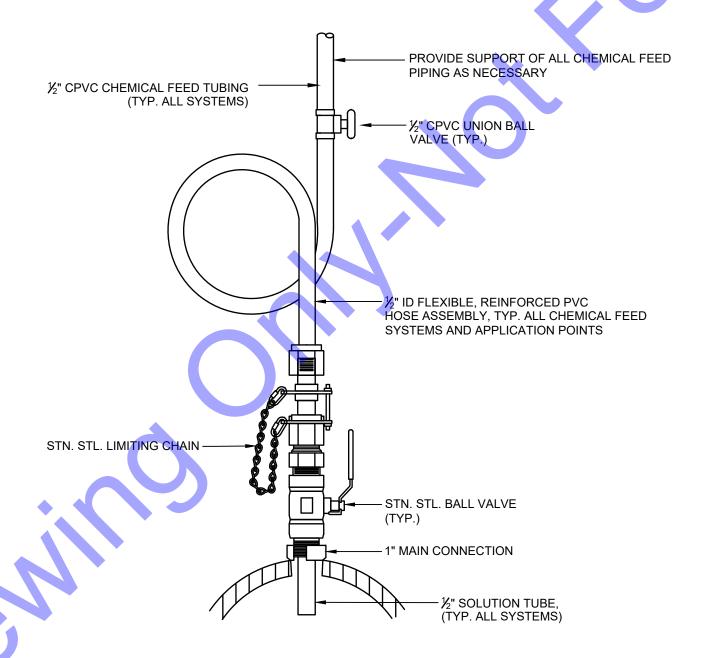
NEW SERVICE CONNECTION DETAIL

NOT TO SCALE



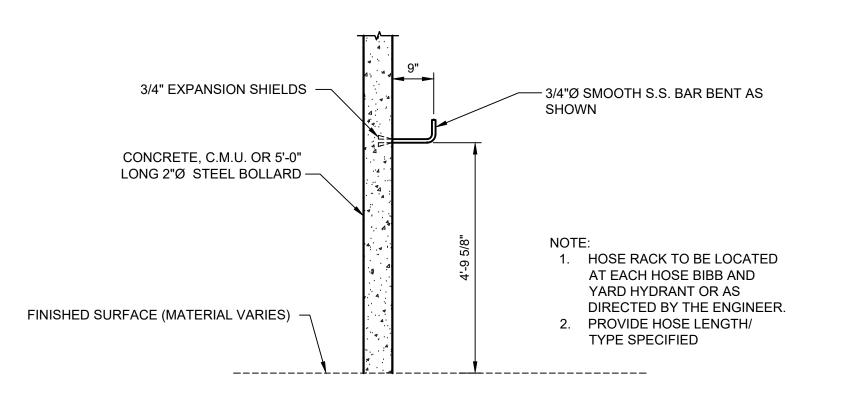
CONTRACTOR SHALL PROVIDE 1/4" NOMINAL THICKNESS POLYETHYLENE COVERS OVER ALL BOLLARDS COORDINATE COLOR WITH OWNER

BOLLARD DETAIL

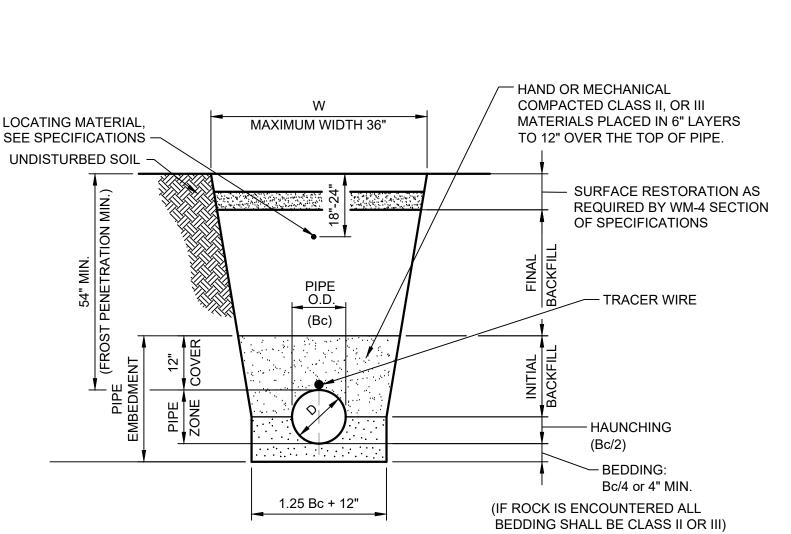


TYPICAL CHEMICAL INJECTION POINT - DETAIL

NOT TO SCALE



NOT TO SCALE



-STAINLESS STEEL

ISOLATION VALVE

0 TO 100 psig GAUGE

STAINLESS STEEL

ISOLATION VALVE

- 1/2" DIA. SCHEDULE 80

STAINLESS STEEL LINE

THREADED INTO WATER MAIN

"RED VALVE" SERIES 42 / 742 (OR EQUAL)

DIAPHRAM SEAL AND PRESSURE GAUGE

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

WATER

MAIN

NOT TO SCALE

PRESSURE GAUGE DETAIL

D = PIPE DIAMETER (INTERNAL)

Bc = PIPE DIAMETER (EXTERNAL)

<u>APPLICATION</u>	BEDDING & HUNCHING						
	INITIAL BACKFILL						
GRASSY AREA OR NEW PAVED AREAS	CLASS I, OR II MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS						
PAVEMENT AREA OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC	CLASS I, II OR III MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS						
NOTES:							
 INITIAL BACKFILL STOPS AT A POINT 12" ABOVE THE TOP OF BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDING W SPECIFICATIONS AND AS REQUIRED BY HEREIN. 							

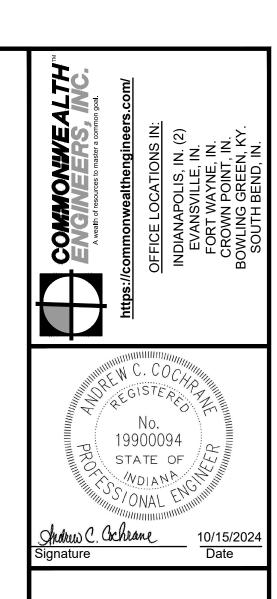
BACKFILL SELECTED EXCAVATED MATERIAL

COMPACTED GRANULAR MATERIAL

- VE THE TOP OF THE PIPE. ACCORDING WITH THE
- 2. BEDDING, HAUNCHING 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 IN. 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

NOT TO SCALE



Designed By: Drawn By: Checked By ACC GCR

MISCELLANEOUS DETAILS

ssue Date: Project No: Scale:

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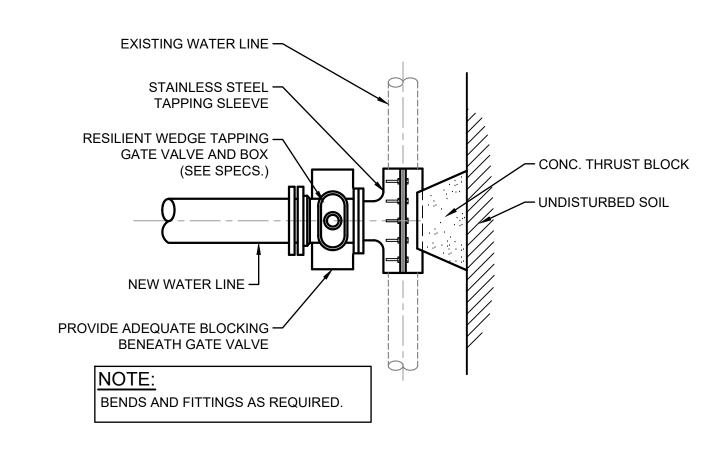
Drawing No: MD1

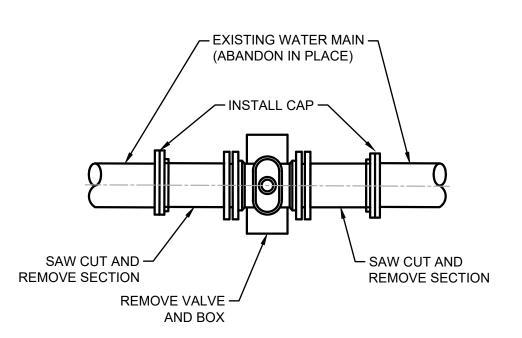
Sheet: 49 OF 73

HOSE RACK DETAIL

BURIED PLUG/GATE VALVE AND BOX DETAIL

NOT TO SCALE





CUT AND CAP WITH VALVE REMOVED DETAIL NOT TO SCALE

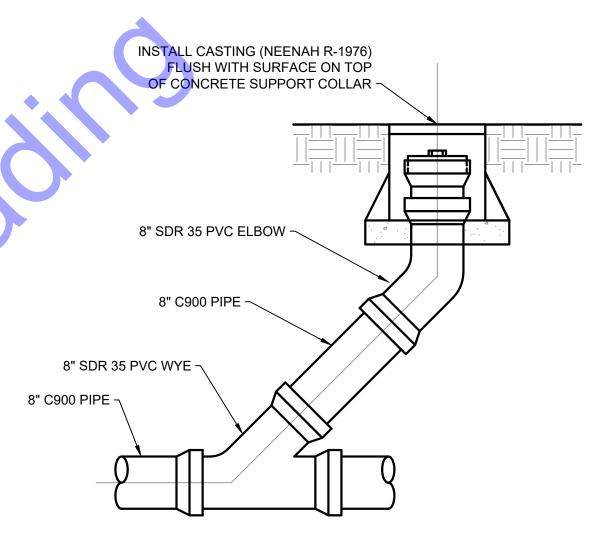
- 5 1/4" FIRE HYDRANT - FINISHED GRADE VALVE BOX -5 CUBIC FT. LOOSE STONE OR GRAVEL FOR DRAIN. (DRAINAGE POCKET SHALL BE 2'-0" D x 2'-0" W ABOVE BASE OF HYDRANT) SUPPORT VALVE BOX WITH BRICK OR BLOCK ON UNDISTURBED EARTH - CONCRETE THRUST BLOCK - CRUSHED STONE OR WELL VALVE FLANGED TO TEE TAMPED GRAVEL (SET HYDRANT ON CONCRETE BLOCK) **GATE VALVE** - D.I. ANCHORING COUPLING UNDISTURBED EARTH - CONCRETE THRUST BLOCK

FIRE HYDRANT DETAIL NOT TO SCALE

- EXISTING

GRADE

NOT TO SCALE



CLEANOUT DETAIL

NOT TO SCALE

NOT TO SCALE

HOT ASPHALT BINDER EXISTING SURFACE COMPACTED #53 STONE 12" MIN. WIDTH MIN. COMPACTED GRANULAR MATERIAL

SURFACE RESTORATION DETAIL FOR GRASS AREAS

TOP SOIL

EXCAVATED

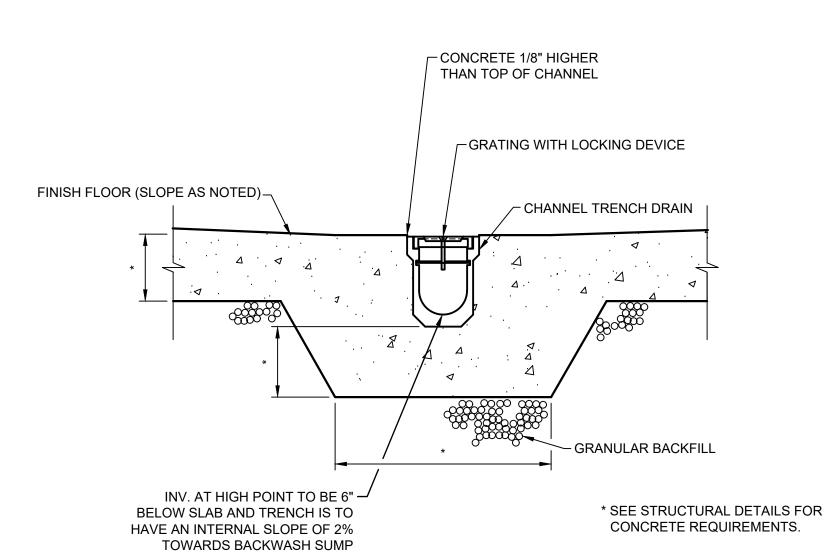
TRENCH WIDTH: MIN.

- SEED AND MULCH COVER

(AS SPECIFIED)

MATERIAL

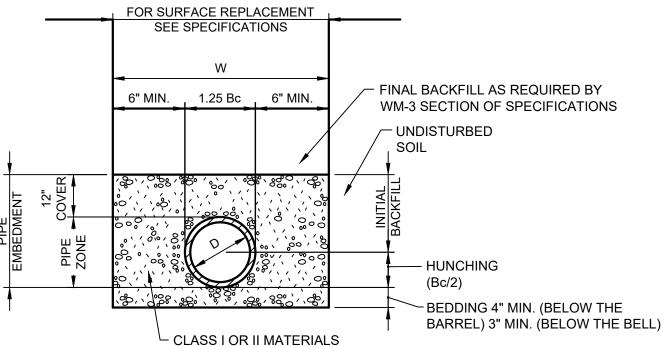
SURFACE RESTORATION DETAIL FOR ASPHALT PAVEMENT - ROAD



TRENCH DRAIN DETAIL NOT TO SCALE

TYPE "A" CONNECTION TO EXISTING WATER MAIN

NOT TO SCALE



W= MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOT SIX (6) FEET FOR 27" THROUGH 48" PIPE

D= PIPE DIAMETER (INTERNAL)
Bc= PIPE DIAMETER (EXTERNAL)

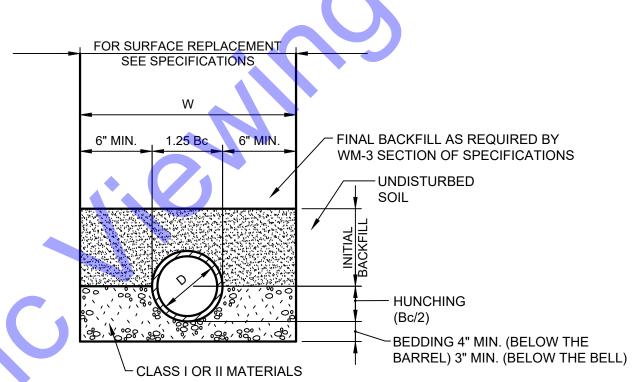
NOTES

COMPACTED INITIAL BACKFILL SHALL EXTEND A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE. FINAL BACKFILL ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.

- WHEN CLASS I MATERIAL IS USED BEDDING. HUNCHING, AND INITIAL BACKFILL COMPACTING MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING, OR BY WALKING TO A MIN,. OF 85% STANDARD PROCTOR DENSITY
 WHEN CLASS II MATERIAL IS USED FOR BEDDING HUNCHING AND INITIAL BACKFIRE COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING TO A MIN. OF 85% STANDARD PROCTOR DENSITY.
- 4. 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 21 FEET OF THE EDGE OF PAVEMENT. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE). COMPACTED GRANULAR S BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.

TRENCH DETAIL FOR FLEXIBLE CONDUITS

NOT TO SCALE



W= MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM
NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOT
SIX (6) FEET FOR 27" THROUGH 48" PIPE
D= PIPE DIAMETER (INTERNAL)

Bc= PIPE DIAMETER (EXTERNAL)

. COMPACTED BEDDING STOPS AT SPRING-LINE OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.

- WHEN CLASS I MATERIAL IS USED FOR BEDDING COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING
- 3. WHEN CLASS II MATERIAL IS USED FOR BEDDING, COMPACTION SHALL BE ACCOMPLISHED ONLY BY HAND OR MECHANICAL TAMPING TO A MIN. OF 95% STANDARD PROCTOR DENSITY.
- 4. 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. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE), COMPACTED GRANULAR BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.

TRENCH DETAIL FOR RIGID CONDUITS

NOT TO SCALE

File: Z.\SHARED\IN CLIENTS AL\APPLE VALLEY UTILITIES\D W24026 WATER UTILITY IMPRVS\06 CAD\A CURRENT FILES\1 DRAWINGS\DIVISION A WTP\07-A

APPLE VALLEY UTILITIES, INC.

LAKE COUNTY, INDIANA

BY ANY METHOD IN WHOLE
OR IN PART WITHOUT
PERMISSION IS PROHIBITED

APPLE VALLEY UTILITIES EAST
PWS - WATER UTILITY
IMPROVEMENTS

IMPROVEMENTS

DIVISION "A" - WELLS AND

19900094

STATE OF

WDIANA

10/15/2024

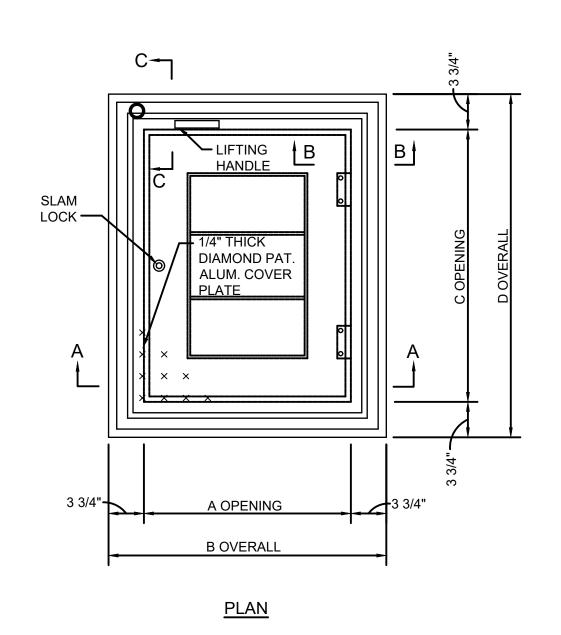
Shotrew C. Oschrane

Designated No. Submittal / Revision By Date (© 2023 BY COMMONWEAL RICERS, INC. ALL RICES Broduc By Any METHODUT PERMISSION IS PROHIBING BY ANY METHODUT PERMISSION IS

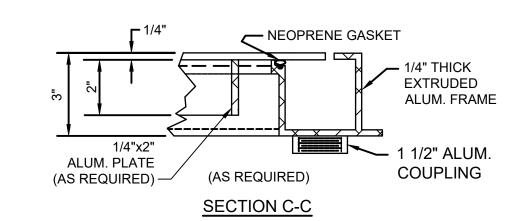
MISCELLANEOUS
DETAILS

MD2

Sheet: 50 OF 73







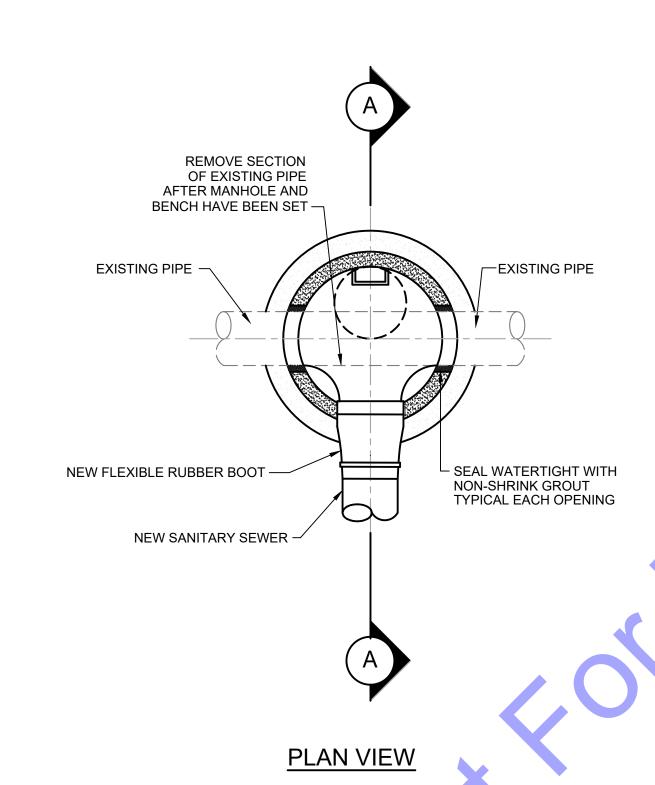
NOMINAL OPENING	DIMENS	IONS (VARY F	PER MANUFA	CTURER)
(INCHES)	Α	В	С	D
24x24	24"	31 1/2"	24"	31 1/2"
30x30	30"	37 1/2"	30"	37 1/2"
36x36	36"	43 1/2"	36"	43 1/2"
30x48	30"	37 1/2"	48"	55 1/2"
36x48	36"	43 1/2"	48"	55 1/2"

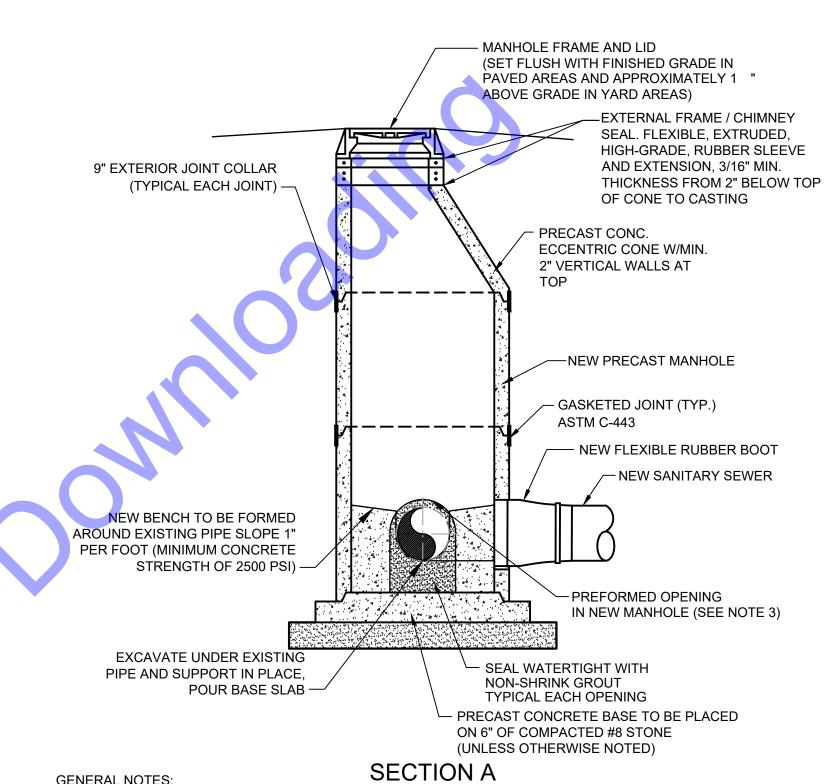
GENERAL NOTES:

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

TYPICAL SINGLE LEAF ACCESS HATCH DETAIL

NOT TO SCALE

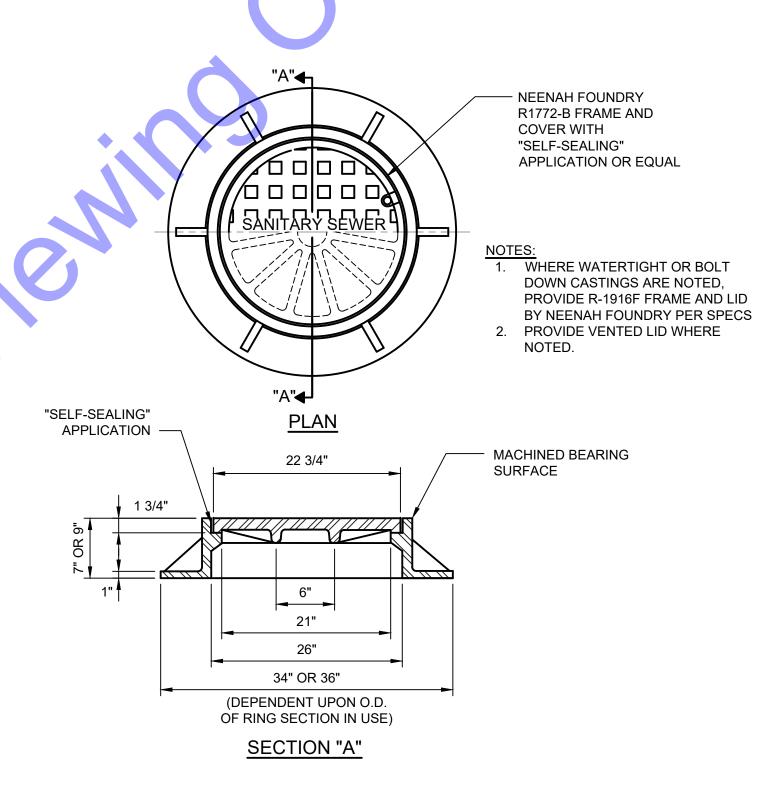




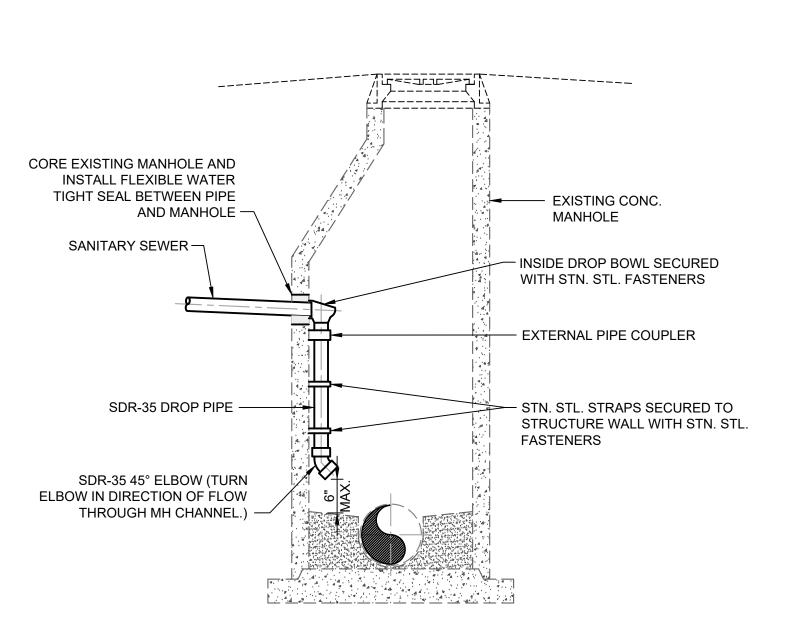
GENERAL NOTES:

- 1. NEW "DOG-HOUSE" MANHOLE SHALL BE AS SPECIFIED FOR STANDARD MANHOLES IN WM-9 "STANDARD MANHOLES"
- 2. ALL REINFORCING SHALL MEET ASTM C-478
- 3. HOLES IN PRECAST UNITS SHALL BE 4" MIN. TO 8" MAX. LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE

SANITARY MANHOLE OVER EXISTING SEWER DETAIL FOR 8" THRU 36"



SANITARY SEWER MANHOLE FRAME AND COVER - STANDARD MANHOLE - DETAIL NOT TO SCALE



NOT TO SCALE

INSIDE DROP INTO EXISTING MANHOLE - DETAIL

19900094 STATE OF MDIANA

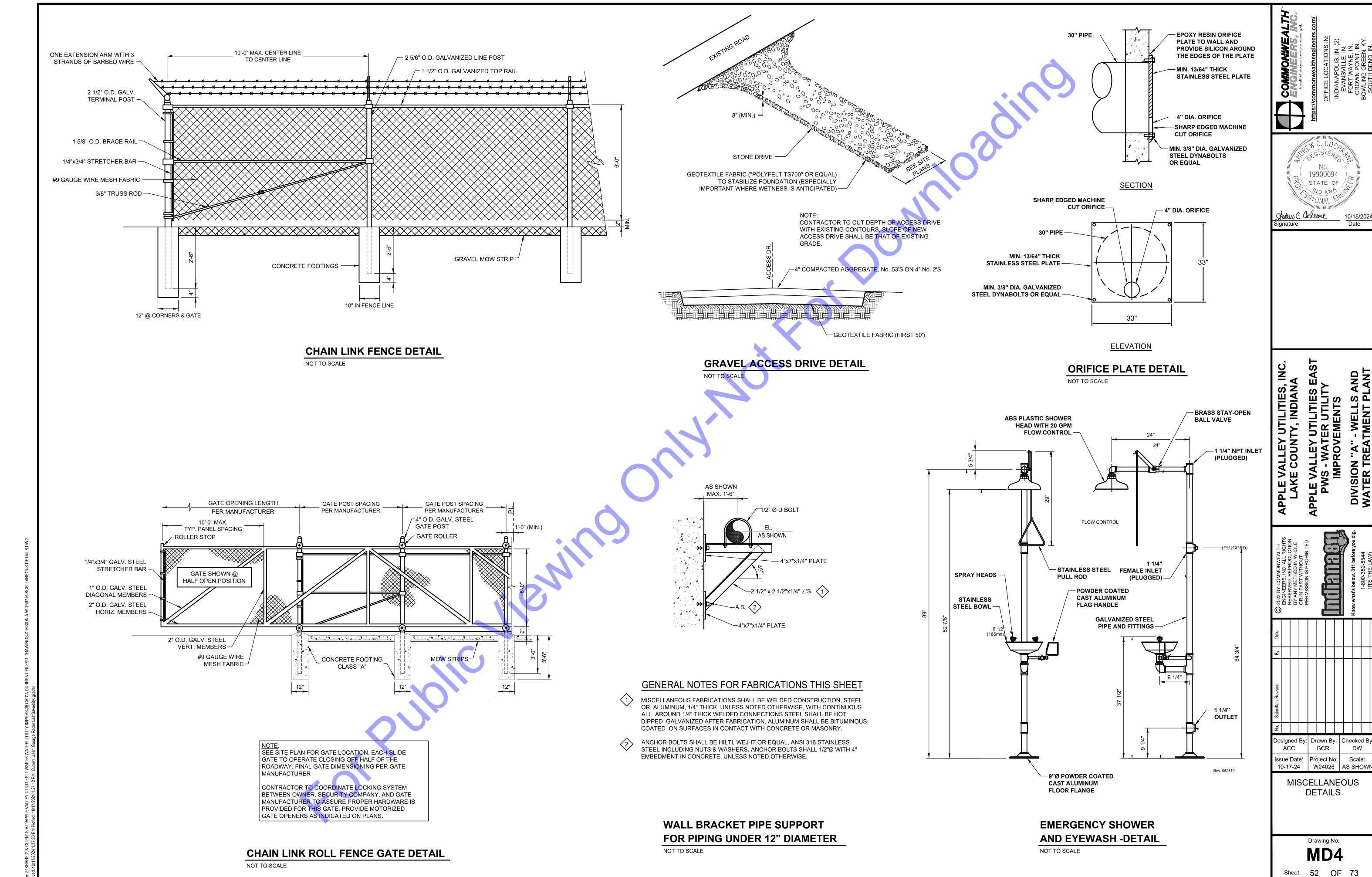
Shotrow C. Oschrane 10/15/2024 Date

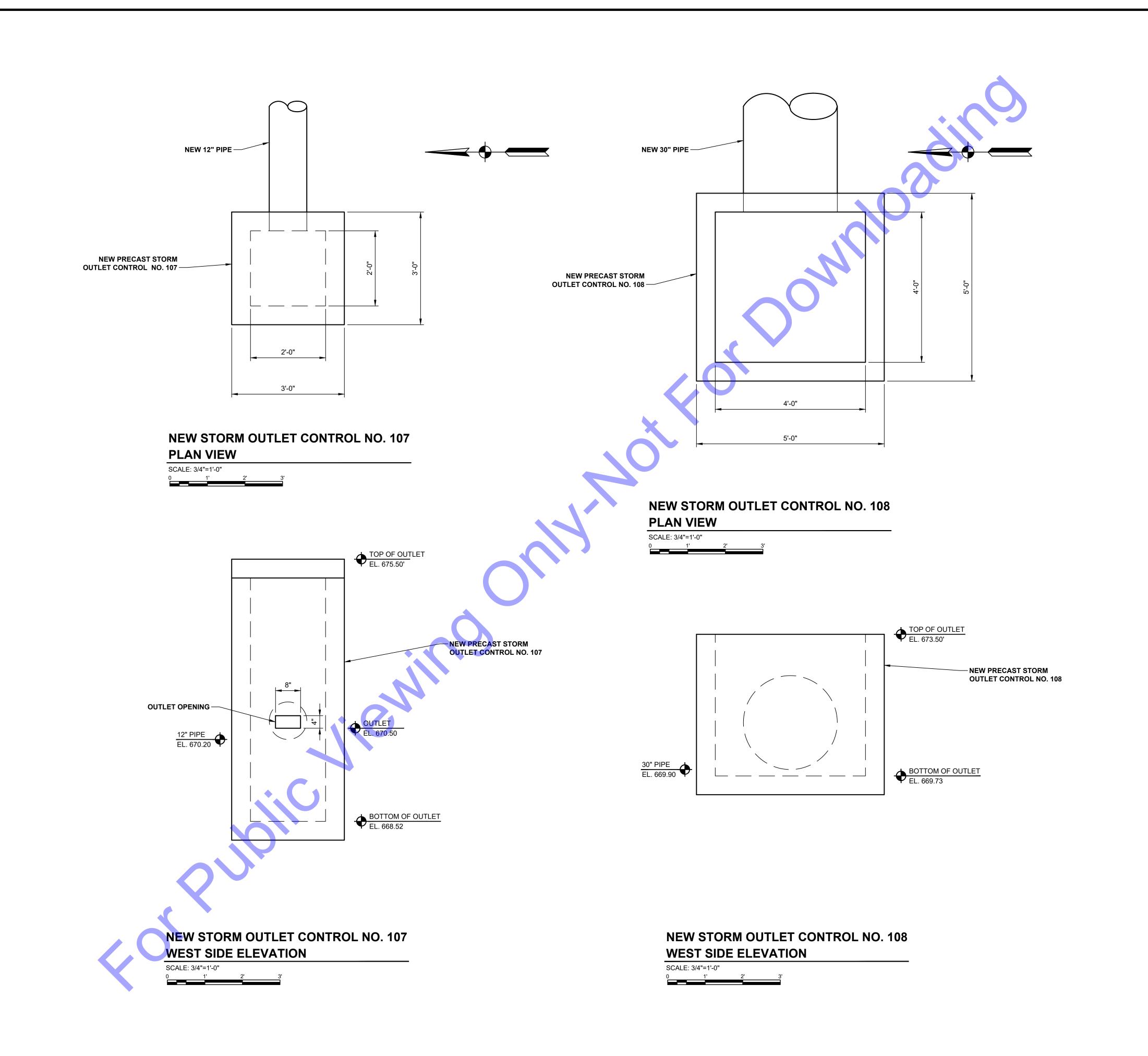
Designed By: Drawn By: Checked By ACC GCR ssue Date: Project No: Scale: 10-17-24 | W24026 | AS SHOWN

> **MISCELLANEOUS DETAILS**

> > MD3

Sheet: 51 OF 73





10/15/2024 Date

Studius C. Oschrane Signature

Designed By: Drawn By: Checked By: ACC GCR DW Issue Date: Project No: Scale: 10-17-24 W24026 AS SHOWN

MISCELLANEOUS **DETAILS**

> Drawing No: MD5

Sheet: 53 OF 73

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. 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.
- 4. 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.
- 5. 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.
- 6. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.
- . 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.
- 8. The Contractor shall relocate all utilities which interfere with the proposed construction. Service shall be maintained at all times during utility relocation unless otherwise noted.

FOUNDATIONS

- 1. Exterior footings shall bear 3'-0" minimum below finish grade and shall bear on undisturbed soil.
- Foundation excavation and all other soils related work shall be performed in accordance with the geotechnical engineering report prepared by SME (Project No. 095312.00) dated February 12, 2024 and all associated supplements.
- 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.
 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

- 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

- 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).
- 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). 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 20 percent.
- 6. Unless noted otherwise, 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 or 120. 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 not exceed 40 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.
- 3. 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 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. These test cylinders shall be laboratory cured.
- 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. 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. 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. 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.
- 15. 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.
- 16. Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.
- 17. 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.
- 18. Horizontal and vertical joints are not permitted in concrete construction except where indicated.
- 19. Construction joints and/or contraction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.
- 20. 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.
- 21. Contraction 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.
- 22. Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.
- 23. 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.
- 24. 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	ASS f'_c AIR CONTEN		MIN. CEMENT: LB/CY (SACKS/CY)	MAX. WATER/ CEMENT: RATIO	CONCRETE PLACEMENT	REMARKS						
Α	3,000 psi	optional	423 (4.5)	0.58	footings							
В	4,000 psi	<u><</u> 3%	517 (5.5)	0.48	interior slabs-on-grade	synthetic fibers (1.5 lbs/cys)						
С	4,500 psi	<u><</u> 3%	611 (6.5)	0.45	structural elevated slab							
D	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.
- 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.
- 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.

СО	NCRETE REINFORCING ST	TEEL LAP SPLICE SCHE	DULE
DAD CIZE	TENSION	SPLICE	COMPRESSION
BAR SIZE	TOP BAR	OTHER	SPLICE
#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. 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.
- 9. 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.
- 10. 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.
- 11. 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).
- Concrete masonry construction shall conform to the latest edition of the ACI Specifications for Masonry Structures (ACI 530.1/ASCE 6).
- 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
- 4. Provide standard spacers, etc. as required to prevent reinforcing steel displacement during grout placement.

ASTM C270. Portland Cement-lime without air entrainment shall be used in the mortar mix.

- 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 = 2,000 psi											
BAR SIZE	#3	#4	#5	#6	#7	#8					
8" CMU	1'-0"	1'-3"	2'-0"	3'-6"	4'-9"	7'-0"					
10" CMU	1'-0"	1'-0"	1'-6"	2'-9"	3'-6"	5'-6"					
12" CMU	1'-0"	1'-0"	1'-3"	2'-3"	3'-0"	4'-6"					

- Contractor shall coordinate wall control joint locations with the architect. Unless otherwise shown on the drawings, control joint spacing shall not exceed 25'-0" on center and shall be provided at one side of wall openings.
- 8. 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.
- 9. 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.
- 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

STRUCTURAL STEEL

- 1. Structural steel detailing, fabrication and erection shall conform to the latest editions of the AISC Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design, and the AISC Code of Standard Practice for Steel Buildings and Bridges.
- 2. Structural steel shall be shop-painted with a rust inhibiting primer. Steel which will be exposed to weather shall be hot-dip galvanized (G90 finish). All abrasions caused by handling after shop painting shall be touched-up after erection is complete.
- 3. Design connections not shown in accordance with the latest AISC Specification and Manual of Steel Construction (allowable stress design method). Design simple span non-composite beam connections not shown to support one-half the beam load capacity as given in the AISC Uniform Load Constants for Beams Laterally Supported tables. Connection angles shall be double web angles, 5/16" minimum thickness.
- 4. Unless otherwise noted, bolted connections for structural steel members shall be bearing-type using 3/4" diameter ASTM A325 high strength bolts with standard 13/16" diameter holes tightened to the snug tight condition. Bolted wind brace connections shall be slip-critical-type (SC) using 3/4" diameter ASTM A325 high strength bolts with oversized 15/16" diameter holes tightened using the turn-of-nut method unless noted otherwise.
- 5. High strength bolted connections shall conform to the latest edition of the Specification for Structural Joints Using ASTM A325 or A490 Bolts, approved by the Research Council on Structural Connections of the Engineering Foundation. Faying surfaces of slip-critical-type (SC) connections shall meet the minimum requirements for a Class A surface condition (mean slip coefficient not less than 0.33).
- 6. Welding procedures shall conform to the latest edition of the American Welding Society's (AWS) Structural Welding Codes for: Steel ANSI/AWS D1.1 and Sheet Steel ANSI/AWS D1.3, and Reinforcing Steel ANSI/AWS
- Welded connections using ASTM A572 and A992 steel as a base metal shall be made with E70XX Low Hydrogen electrodes. Unless otherwise noted, other welded connections shall be made with regular E70XX electrodes. Welding shall be performed only where shown and to the extent indicated.
- 8. Field drilled holes shall be reamed, cleaned and deburred prior to assembly of the connection.
- 9. Thermal cutting shall preferably be done by machine. Hand thermally cut edges which will be subjected to substantial stress, or which are to have weld metal deposited on them, shall be reasonably free from notches or gouges. Notches or gouges greater than 3/16" that remain from cutting shall be removed by grinding. Re-entrant corners shall be shaped notch-free to a radius of at least 1/2".
- 10. Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.
- 11. Surfaces within 2" of any field weld shall be free of materials that would prevent proper welding or produce toxic fumes while welding is being done.
- 12. Splicing of structural steel members where not detailed is prohibited without the prior approval of the Structural Engineer as to location, type of splice and connection to be made.
- 13. The minimum bearing length for all steel beams bearing on concrete or masonry shall be 8" for spans 8'-0" or less and 1'-4" for spans greater than 8'-0".
- 14. Unless otherwise noted, provide a 5/8" thick steel bearing plate with two 1/2" diameter x 0'-6" stud anchors at the ends of steel beams bearing on concrete or masonry supports.
- 15. 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
- 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
- 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.

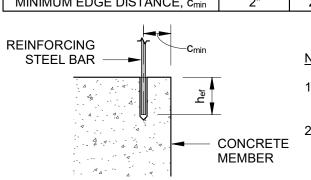
 F. Anchors shall be installed in holes drilled with the HILTI Hollow Drill Bit (TE-CD (SDS Plus) or TE-YD (SDS Max)) and HILTI VC 20/40 Vacuum (VC 20-U or VC 40-U). Follow the MPII for size and depth of holes
- required.
 G. The acceptability of certification other than the ACI/CRSI Adhesive Anchor Installer Certification shall be

the installation procedures used conform to the approved contract documents and MPII.

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

REINFORCING STEEL EPOXY DOWEL SCHEDULE										
BAR SIZE	#3	#4	#5	#6	#7	#8				
STANDED EFFECTIVE EMBED, hef	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"				
-										



EPOXY DOWELS SHALL UTILIZE HILTI HIT-HY 200
 ADHESIVE SYSTEM OR APPROVED EQUIVALENT

ON SECTIONS AND DETAILS.

ADHESIVE SYSTEM OR APPROVED EQUIVALENT

2. STANDARD EMBED DEPTH AND MIN EDGE
DISTANCES PROVIDED IN THIS SCHEDULE APPLY
AT ALL LOCATIONS UNLESS OTHERWISE NOTED

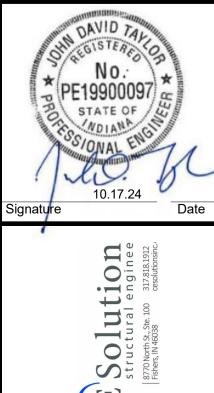
TYPICAL EPOXY DOWEL

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.
- 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.

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.



MENDER S, INC.

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APPLE VALLEY UTILITIES, INC LAKE COUNTY, INDIANA APPLE VALLEY UTILITIES EAS PWS - WATER UTILITY IMPROVEMENTS DIVISION "A" - WELLS AND WATER TREATMENT PLANT

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MRC RMS JDT

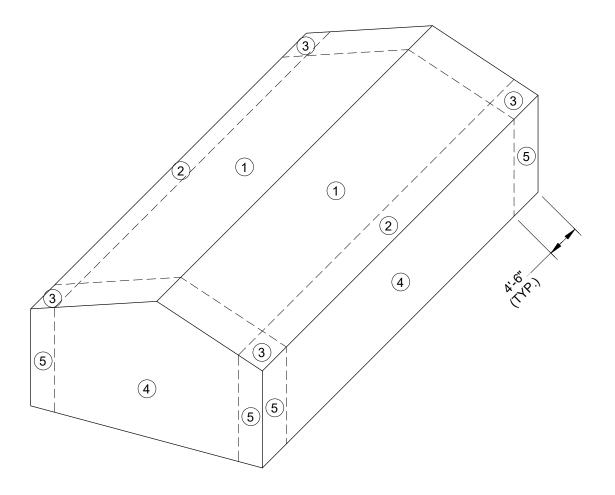
Issue Date: Project No: Scale: 10/17/24 24-107 12" = 1'-0"

GENERAL STRUCTURAL NOTES

Drawing No:

et: 54 OF 73

Saved: 10/17/2024 1:21:53 PM Current Local File: Autodesk Docs://Apple Valley Utilities Improvements/24-10



COMPONENT	& CLADDING	G DESIGN WIND	PRESSURES	(PSF)

COMIT CREAT & CEADBIRG BEGION WIND I RECOURED (I OI)										
LOCATION	ZONE	EFFECTIVE WIND AREA (SF)	POS.	NEG.						
		10	+18.2	-28.9						
	1	25	+16.1	-27.8						
	'	50	+16.0	-27.0						
		100	+16.0	-26.2						
		10	+18.2	-50.3						
ROOF	2	25	+16.1	-45.0						
KOOF	2	50	+16.0	-40.9						
		100	+16.0	-36.9						
		10	+18.2	-74.4						
	3	25	+16.1	-68.0						
		50	+16.0	-63.1						
		100	+16.0	-58.3						
		10	+31.6	-34.2						
	4	50	+28.3	-30.9						
	4	200	+25.4	-28.1						
WALLS		500	+23.5	-26.2						
VVALLS		10	+31.6	-42.3						
	5	50	+28.3	-35.7						
	5	200	+25.4	-30.0						
		500	+23.5	-26.2						

- DESIGN CRITERIA:
- IMPORTANCE FACTOR EXPOSURE **ENCLOSURE CLASSIFICATION**
- DETERMINED IN ACCORDANCE WITH INDIANA BUILDING CODE, 2014 EDITION,

28 day compressive strength (fm)

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

2. Soil information: Allowable net bearing pressure: 1500 psf Concrete: 28 day compressive strength (f'c) See Schedule 4. Masonry:

5. Reinforcing steel (deformed bars of new billet steel): ASTM A615, Grade 60 Stirrup and tie Weldable (Low-Alloy) ASTM A706, Grade 60 ASTM A615, Grade 60 Otherwise

Welded wire fabric (smooth) ASTM A185 6. Structural Steel: ASTM A500, Grade B, Fy = 46 ksi Structural tubing members ASTM A53, Type E or S, Grade B Fy = 35 ksi Structural steel pipe members ASTM A992 Fy = 50 ksi Structural steel rolled wide flange W shapes (as an alternate, ASTM A572, Grade 50 may be used) Structural steel rolled S, M, and HP shapes & channels ASTM A36 Structural steel rolled plates & angles ASTM A36 ASTM A36 All other members Connection bolts ASTM A325N

2000 psi

ASTM A36

1.0

7. Structural Lumber (surfaced dry, used at 19% moisture content), unless noted otherwise: Southern Pine, No. 2 Roof rafters Bolts/Lag Screws ANSI/ASME B18.2 FF-N-105B

8. Plywood/Performance Rated Panels, unless noted otherwise: 32/16 Span Rating Thickness Exposure

9. Non-shrink grout: 7,500 psi 28 day compressive strength

10. Live loads: 11. Live Load Deflection Limitation

Risk Category

Importance factor, lw

Seismic Design Category

Exposure

Anchor bolts

13. Snow Loads Terrain category Importance factor, Is Exposure category, Ce Thermal category, Ct Ground snow load, Pg 25 psf 15.75 psf Flat roof snow load, Pf Rain-on-snow surcharge load Design flat roof snow load 25 psf with drift considerations 14. Wind loads: Basic wind speed (3-second gust) 115 mph

15. Seismic loads: Seismic importance factor, le Mapped Spectral Response Acceleration at Short Periods, Ss Mapped Spectral Response Acceleration at 1 Second, S1 12.6% g 6.7% g Design Spectral Response Acceleration at Short Periods, Sds 13.4% g Design Spectral Response Acceleration at 1 Second, Sd1 10.7% g

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. 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.
- 4. Rough sawn timbers shall be treated and finished where specified. Ends exposed to weather shall be treated with

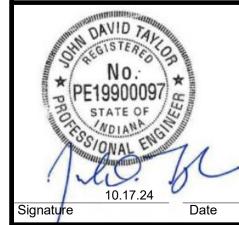
PLYWOOD/PERFORMANCE RATED PANELS

- 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).
- 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.
- 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:
- A. 6" o.c. along supported panel edges and 12" 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.

PRE-ENGINEERED POST-FRAME BUILDING

- 1. The Pre-Engineered Post-Frame Building manufacturer shall prepare detailed working or shop drawings to enable fabrication, erection and construction of all parts of the work in accordance with the drawings and specifications and shall submit copies per the specifications, including calculations, to the Structural Engineer for review prior to fabrication. These shop drawings shall show the design loads, plans, elevations, sections, connections, required bracing, attachments to other work, and details necessary for the Pre-Engineered Post-Frame Building manufacturer to fabricate, erect and construct all parts of the work. These shop drawings and calculations will be reviewed for design concepts only. The Pre-Engineered Post-Frame Building manufacturer shall be responsible for all dimensions, accuracy, and fit of work. The Pre-Engineered Post-Frame Building framing 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.
- 2. The Pre-Engineered Post-Frame Building manufacturer shall submit in a timely manner anchor bolt plans that include anchor bolt location, diameter, and projection as well as minimum column reactions for verification of the foundation design shown in the drawings.
- 3. The Contractor shall reference specification section DS-11 (PRE-ENGINEERED POST-FRAME BUILDING) for additional requirements for the pre-engineered post-frame building systems.
- 4. The Pre-Engineered Post-Frame Building Manufacturer is responsible for the design and supply of wall openings, louvers and exhaust fan support framing.

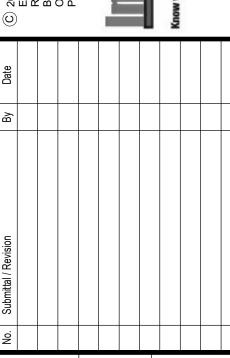






PLE VALLEY UTILITIES, IN LAKE COUNTY, INDIANA





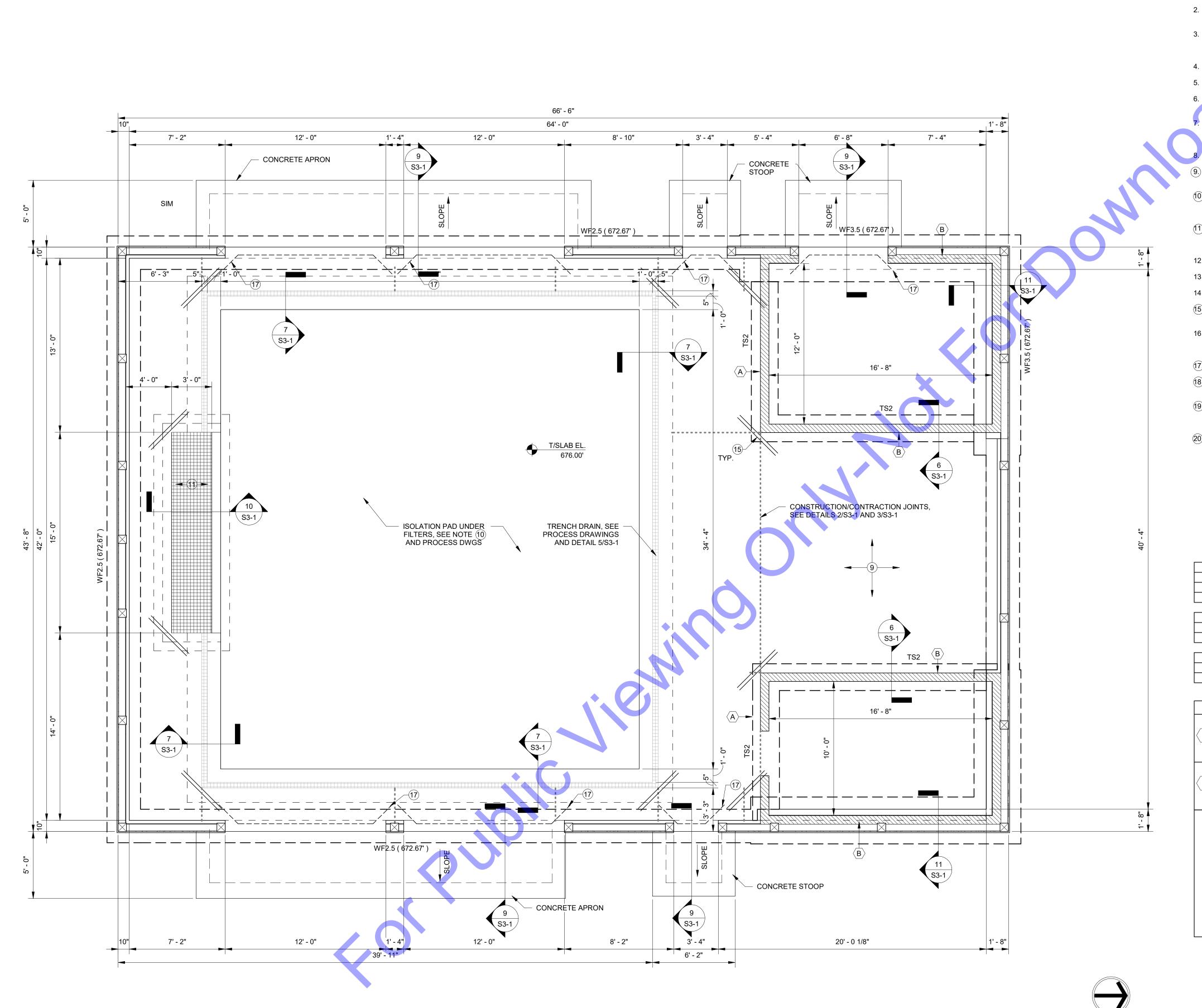
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ue	Dat	e:	Pro	ojec	t N	o:	Scale:					
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GENERAL STRUCTURAL NOTES

S1-2

NOTES:

1. DESIGN WIND PRESSURES REPRESENT THE NET PRESSURE (SUM OF THE EXTERNAL AND INTERAL PRESSURES APPLIED NORMAL TO ALL SURFACES. BASIC WIND SPEED (3-SECOND GUST) 115 MPH ENCLOSED INTERNAL PRESSURE COEF. GCpi ± 0.18 WIND PRESSURES FOR THE MAIN WIND FORCE RESISTING SYSTEMS SHOULD BE SECTION 1609 AND ASCE 7-10.



FOUNDATION PLAN NOTES

- O INDICATES NOTE REFERENCED IN PLAN
- 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. T/SLAB ELEVATION = SEE PLAN
- 6. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
- 7. GENERAL CONTRACTOR SHALL SUBMIT A CONSTRUCTION JOINT (CJ) AND CONTRACTION JOINT (CT) LOCATION PLAN TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO CONCRETE PLACEMENT.
- 8. MAINTAIN STRUCTURAL SLAB THICKNESSES AT ALL FLOOR SLOPES AND DEPRESSIONS.
- 9. FLOOR SLAB SHALL CONSIST OF A 6-INCH SLAB ON GRADE OVER 6-INCHES OF COMPACTED FILL AND A 10-MIL VAPOR RETARDER. REINFORCE SLAB WITH #4 AT 10" O.C., EACH WAY.
- (0) ISOLATION PAD SHALL CONSIST OF A 15-INCH THICK SLAB ON GRADE OVER 6-INCHES OF COMPACTED FILL AND A 10-MIL VAPOR RETARDER. REINFORCE CONCRETE PAD PER SECTION 5/S3-1.
- ① DENOTES 1 1/2"THICK MOLDED FIBER REINFORCED PLATFORM GRATING EXTENTS. SEE SPECIFICATIONS ("WM 19 -MISCELLANEOUS METALS AND ALUMINUM" AND "WM 20 -FIBERGLASS MATERIALS") FOR ADDITIONAL INFORMATION.
- 12. WFX (XXX.XX') DENOTES FOOTING MARK AND ELEVATION, SEE FOOTING SCHEDULE.
- 13. TSX DENOTES THICKENED SLAB MARK, SEE THICKENED SLAB SCHEDULE.
- 14. DENOTES MASONRY WALL TYPE, SEE SCHEDULE.
- (15) AT RE-ENTRANT SLAB CORNER CONDITIONS, PROVIDE (2) #4 x 4'-0" LONG AT 3-INCHES O.C. PLACED 2-INCHES CLEAR FROM CORNER, CENTERED IN SLAB, TYPICAL.
- 16. ALL FLOORS SLABS SHALL CONFORM TO THE FOLLOWING ACI F-NUMBER REQUIREMENTS: SPECIFIC OVERALL VALUE: Ff-50 / FI-30 MINIMUM LOCAL VALUE: Ff-25 / FI-15
- (17) AT DOOR LOCATIONS PROVIDE "C" SHAPED DOWELS PER DETAIL 4/S2-2
- (8) FULLY GROUT MASONRY JAMBS PLUS (2) VERTICAL BARS. BARS SHALL MATCH THE SIZE OF THE MASONRY WALL VERTICAL REINFORCEMENT, SEE DETAIL 2/S4-2.
- (19) GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE LOCATION OF OUTSIDE FACE OF FOUNDATION WALL WITH THE SELECTED PRE-ENGINEERED POST-FRAME BUILDING SUPPLIER.
- 20) PRE-ENGINEERED POST-FRAME BUILDING SUPPLIER SHALL PROVIDE ADEQUATE FRAMING AT ALL DOOR JAMB AND WINDOW LOCATIONS.

WALL FOOTING SCHEDULE											
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.						
WF2.5	2'-6"	CONT.	2'-6"	3 - #5	#5 AT 12" O.C.						
WF3.5	3'-6"	CONT.	2'-6"	4 - #5	#5 AT 12" O.C.						

	THICKENED SLAB SCHEDULE											
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.							
TS2	2'-0"	CONT.	1'-0"	2 - #5	#5 AT 12" O.C.							

		S	PREAD FOO	OTING SCHEDULE	
MARK	WIDTH	LENGTH	THICK.	BOTT. LONG. REINF.	BOTT. TRANS. REINF.
F4	4'-0"	4'-0"	1'-0"	5 - #5	5 - #5

	MASONRY WALL REINFORCING SCHEDULE
$\langle A \rangle$	8-INCH CMU WALL 8-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #6 BARS AT 32" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/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 32" O.C. HORIZONTAL: (2) #5 BARS AT T/BB ELEV. = T/WALL

#9 TRUSS TYPE JOINT REINF. AT 16-INCHES O.C. (8" LAP)

NOTES:

- REINFORCE ALL WALLS AS NOTED BY SCHEDULE EXCEPT AS NOTED ON PLANS AND/OR DETAILS.
- PROVIDE TOP BOND 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 DOWELS WITH 1'-0" HOOK AT BOTTOM OF WALL INTO CONCRETE SLAB. DOWELS TO MATCH VERTICALS IN SIZE AND SPACING.

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LAKE COUNTY, INDIANA
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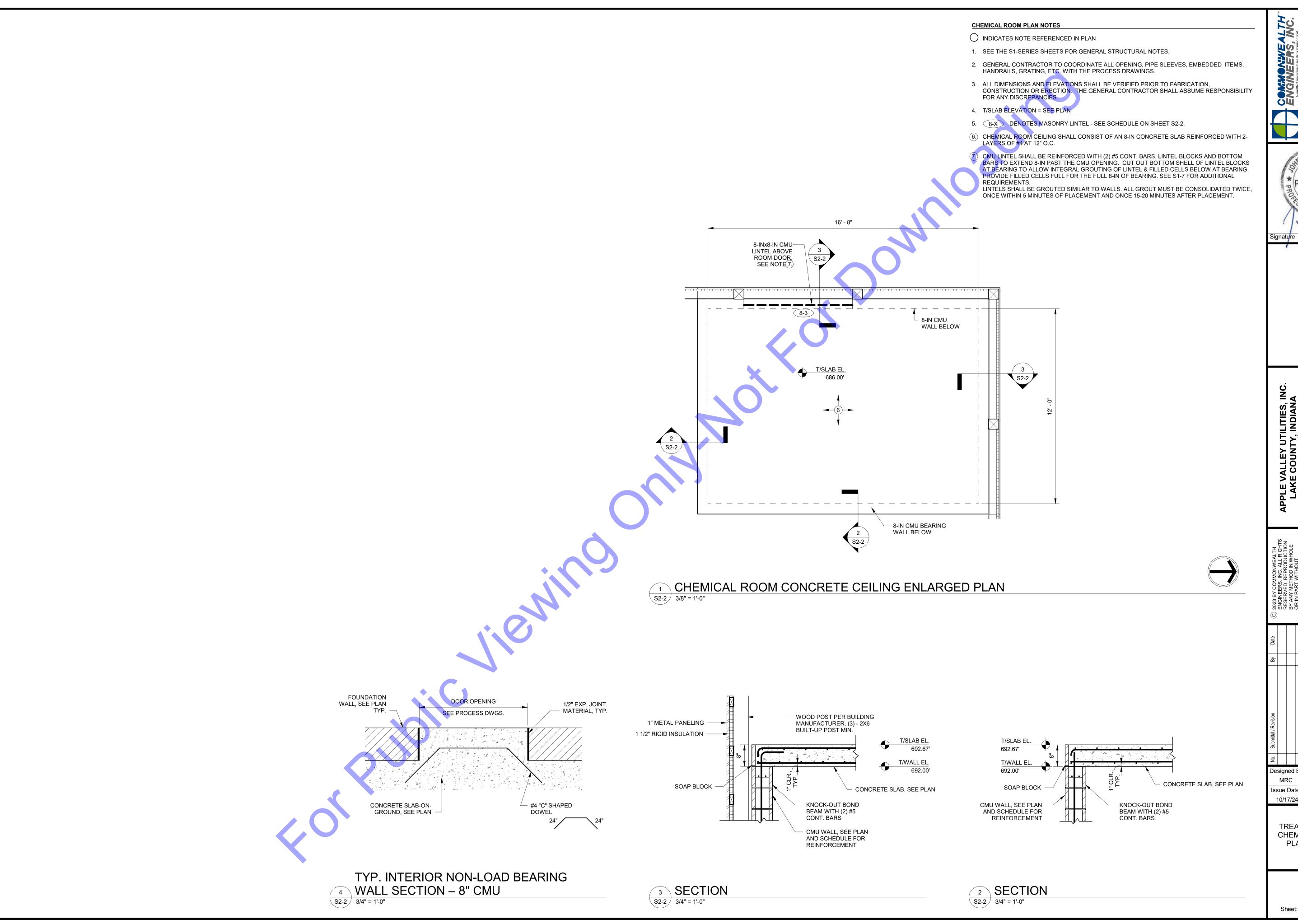
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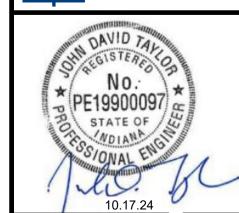
NEW WATER
TREATMENT PLANT
FACILITY - FOUNDATION
PLAN

Drawing No: **\$2-1**

1 FOUNDATION PLAN | S2-1 | 1/4" = 1'-0"

Sheet: 56 OF 73





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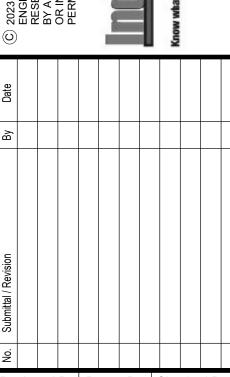
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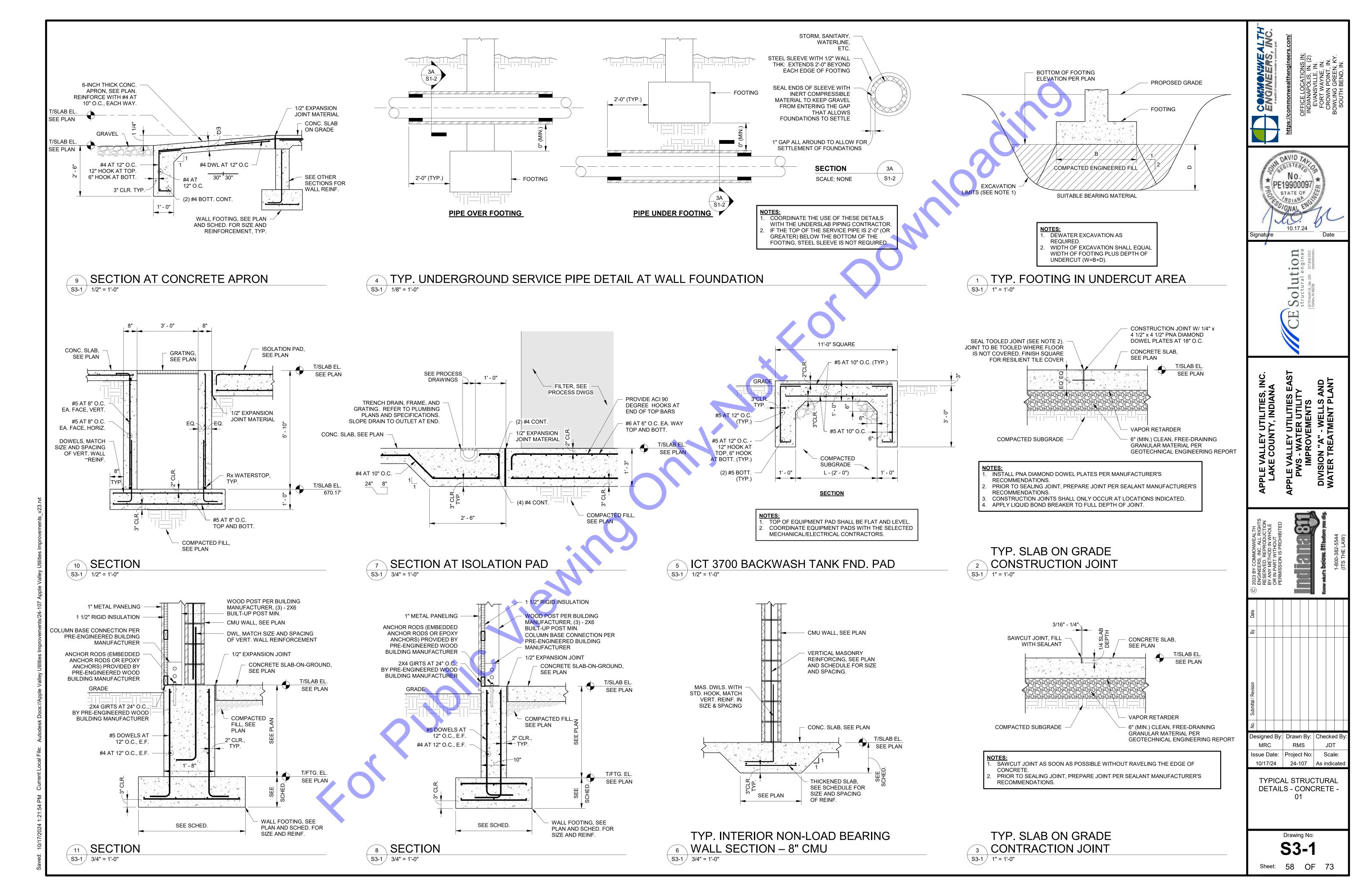


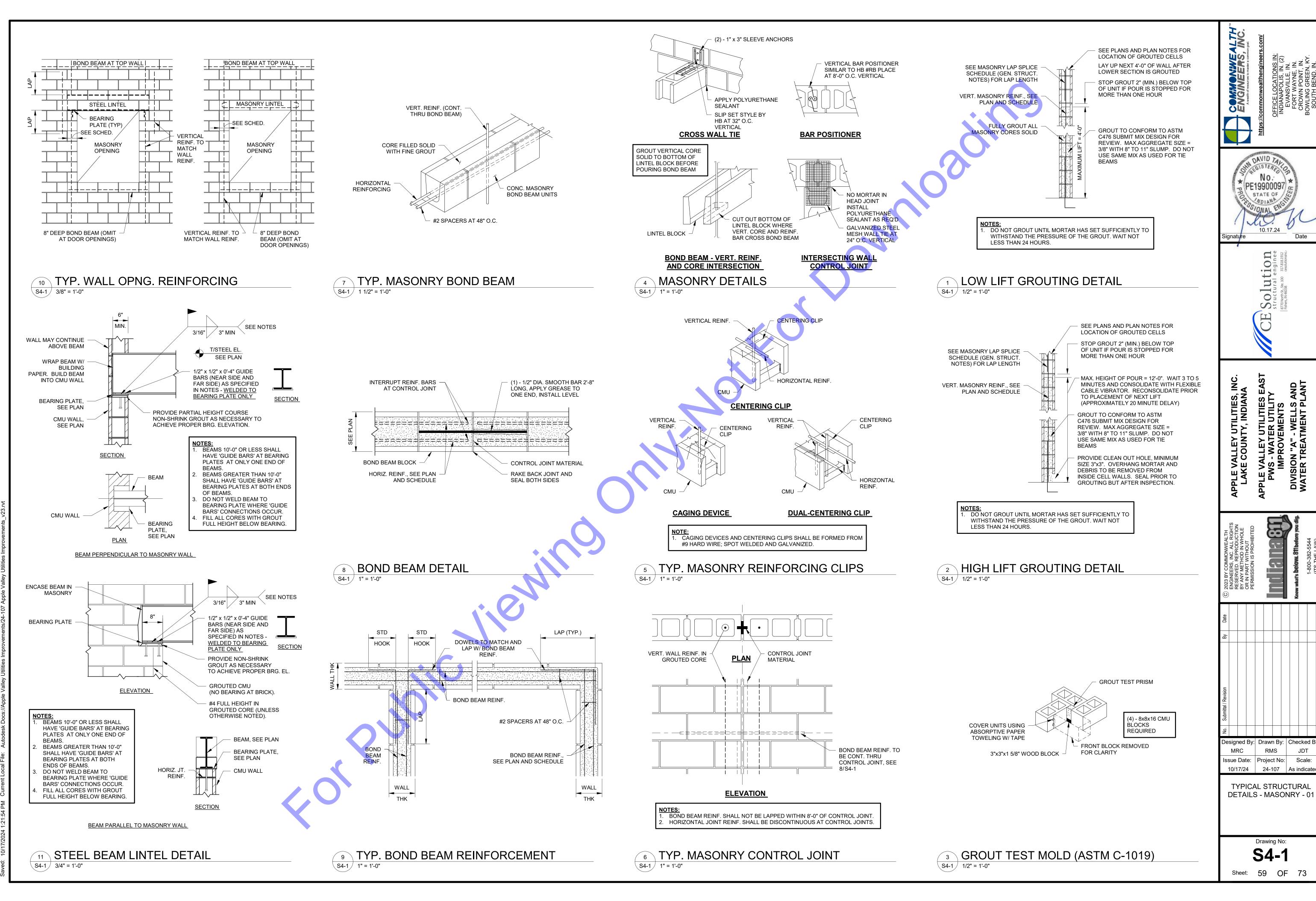
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NEW WATER
TREATMENT FACILITY CHEMICAL ROOM ROOF
PLAN AND DETAILS

Drawing No: **\$2-2**

Sheet: 57 OF 73





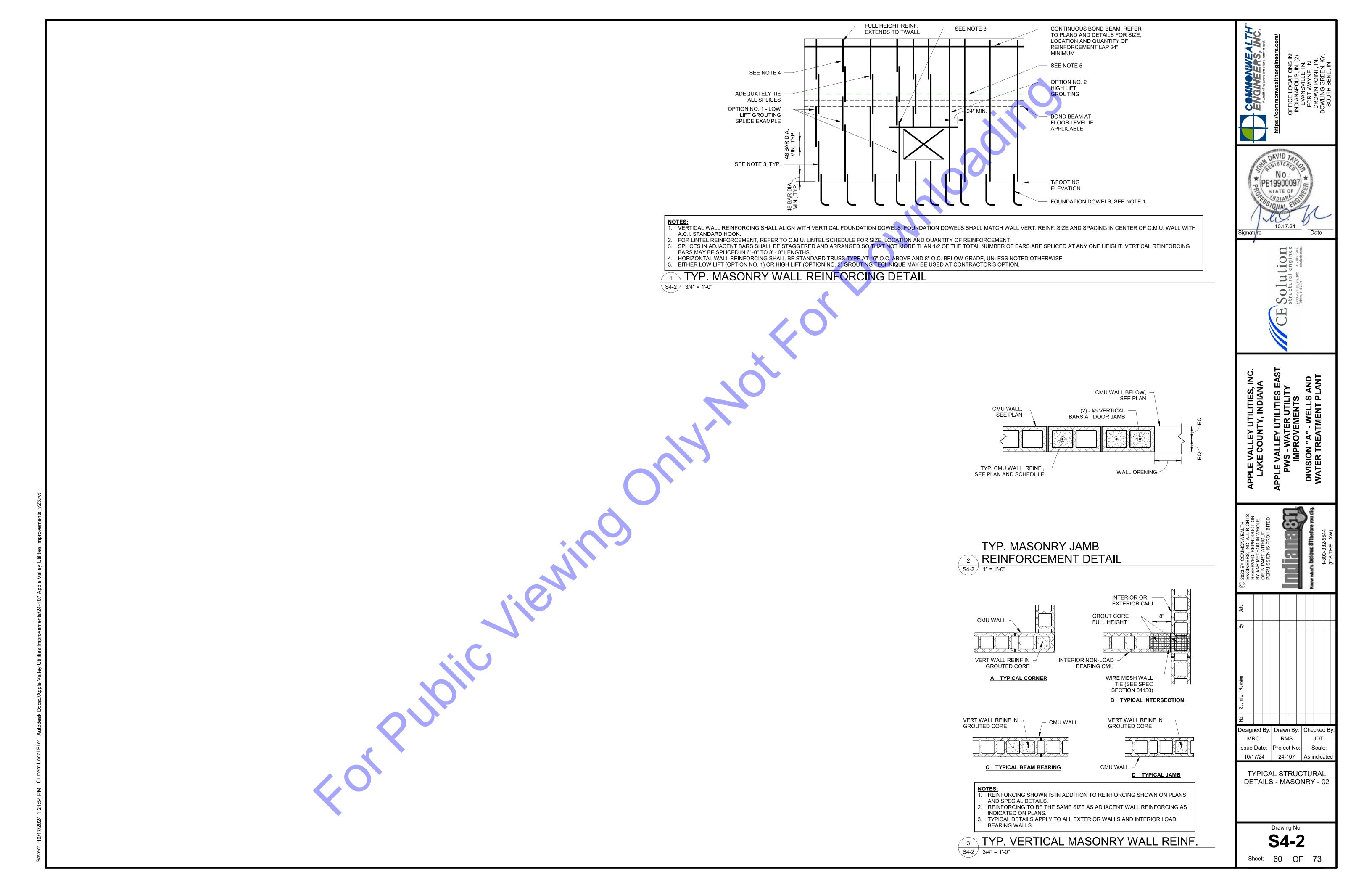
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> Drawing No: **S4-1**

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Sheet: 59 OF 73



AL LEGEND	MECHANICA		COORDINATION NOTES	LESS SPLIT SYSTEM HEAT	AT/COOL DUCTI	HE	
	PIPING		VISIT SITE AND BE INFORMED OF CONDITIONS UNDER WHICH WORK MUST BE PERFORMED.		MP UNIT	PUI	
	CHILLED WATER SUPPLY		2. GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL		ENERAL NOTES:	<u>G</u> I	
	CHILLED WATER RETURN		COORDINATE LOCATION AND PROVIDE SUPPORT FRAMING FOR ALL ROOF-MOUNTED HVAC EQUIPMENT.	ITY BASED ON 95° O.A.T. OR TEMPERATURE	1) - COOLING CAPACI AND 80°/67° INDO	(*	
⊗ FD	HOT WATER SUPPLY		GENERAL CONTRACTOR OR CONSTRUCTION MANAGER SHALL INCLUDE ADEQUATE TIME IN THE CONSTRUCTION SCHEDULE FOR THE		NIT ACCESSORIES:	UI	
⊗ s _D	HOT WATER RETURN	HWR —	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	- HEAD PRESSURE CONTROL		$\overline{1}$	
⊗ F/SD	HOT WATER REVERSE RETURN		SYSTEMS IN CONTINUOUS, STABLE OPERATION AND UNDER CONTROL. PRIOR TO STARTING THE TESTING AND BALANCING WORK, THE				
240	CONDENSER WATER SUPPLY	cws	DIVISION 23 SUBCONTRACTOR SHALL FURNISH COMPLETED SETUP AND COMMISSIONING WORKSHEETS AS LISTED IN SECTION 230800 TO	HANGEOVER	WITH AUTOMATIC CH	(2)	
150 3W (2W)	CONDENSER WATER RETURN		THE TEST AND BALANCE SUBCONTRACTOR AS EVIDENCE THAT THE SYSTEMS HAVE BEEN SETUP, CHECKED AND ARE OPERATIONALLY READY FOR BALANCING,	E KIT & OUTDOOR DRAIN PAN HEATER		$\frac{3}{4}$	
140R	STEAM SUPPLY PIPING AND IT'S PRESSURE		4. NO SUBSEQUENT ALLOWANCE WILL BE MADE BECAUSE OF ERROR OR			(5)	
150E	STEAM CONDENSATE RETURN	C.R.	FAILURE TO OBTAIN NECESSARY INFORMATION TO COMPLETELY ESTIMATE AND PERFORM ALL WORK INVOLVED.) - LINE SET COVER ANI	6	
(H) <u>*******</u>	PUMPED STEAM CONDENSATE RETURN DRAIN LINE	P.C.R.	5. CAREFULLY EXAMINE DRAWINGS AND SPECIFICATIONS TO BE THOROUGHLY FAMILIAR WITH ITEMS WHICH REQUIRE PLUMBING OR	FC-1 HP-1 ELECTRICAL ROOM	TFICATION	$\overline{}$	
<u> </u>	REFRIGERANT SUCTION		HVAC CONNECTIONS AND COORDINATION. 6. NOTIFY OTHER TRADES OF ANY DEVIATIONS OR SPECIAL CONDITIONS	TRANE/MITSUBISHI (OR EQUAL)	FACTURER		
©	REFRIGERANT LIQUID	- RI -	NECESSARY FOR INSTALLATION OF WORK.	, ,			
Θ	FINNED TUBE SUPPLY	FTS —	7. RESOLVE INTERFERENCES BETWEEN WORK OF OTHER TRADES PRIOR TO INSTALLATION.	PKA-A18HA7	NIT MODEL NO.		
<u> </u>	FINNED TUBE RETURN		8. ADVISE OTHER TRADES TO LEAVE PROPER CHASES AND OPENINGS, PLACE OUTLETS, ANCHORS, SLEEVES, AND SUPPORTS PRIOR TO	WALL MOUNT	NIT TYPE	A/C U	
	FUEL OIL SUPPLY		POURING CONCRETE OR INSTALLATION OF MASONRY WORK.	PUZ-A24NHA7 (-BS)	PUMP UNIT MODEL NO.	HEAT	
	FUEL OIL SUFFLY		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	REMOTE	PUMP UNIT TYPE	HEAT	
	EQUIPMENT VENT	FOR —	CONDITIONS WHICH WILL REQUIRE CEILING REMOVAL. INCLUDE THE COST OF THE CEILING WORK OR COORDINATE ITS REMOVAL WITH THE	ER 18.5		SEER	
<u> </u>	END OF MAIN DRIP	E.O.M.	GENERAL CONTRACTOR.	123456	ACCESSORIES	UNIT	
SP.D.		P.R.V.	■ 10. ADDITIONAL INSTALLATION COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT REQUIRING ADDITIONAL WORK ON THE PART OF THIS CONTRACTOR OR OTHER SUBCONTRACTORS TO SATISFY THE	380 (HIGH SPD, WET COIL)	CFM	COIL	
H	STEAM TRAP	П	MANUFACTURER'S INSTALLATION REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE SUBMITTING CONTRACTOR.	0	MIN. OUTSIDE AIR		
2	BALL VALVE		11. COORDINATE ALL NECESSARY POWER CONNECTIONS AS RECOMMENDED BY THE MANUFACTURERS OF INSTALLED EQUIPMENT	1A/20	ELEC MCA/MOCP	INDOOR	
2 121 [*] *	GATE VALVE	— ⋈—	WITH ELECTRICAL TRADESMEN. 12. COORDINATE WITH ELECTRICAL TRADESMEN FOR PROPER SIZING OF	18,000/19,000	COOL/HEAT CAPACITY		
	GLOBE VALVE	—-₩—	CIRCUIT BREAKERS, FUSES, SAFETY SWITCHES, CONDUIT AND WIRING FOR ALL EQUIPMENT FURNISHED BY DIVISION 23 EQUIPMENT PRIOR	208/1/60	ELEC	∃ ⊑	
T _{Press}	BUTTERFLY VALVE	—ф—	TO ROUGH-IN. 13. DO NOT ROUTE ANY PIPING DIRECTLY ABOVE OR 42 INCHES IN FRONT	11/30A	ELEC MCA/MOCP	CON	
M.B.D.	CONTROL VALVE	<u> </u>	OF ELECTRICAL SWITCHGEAR, PANELS OR TRANSFORMERS.	WIRED THERMOSTAT	RKS	REMA	
A.T.C.	STRAINER WITH HOSE END DRAIN CONNECTION		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	DES AND STANDARDS	PPLICABLE COL	ТА	
A.D.	STRAINER AND BLOWDOWN VALVE		RELOCATING OF EXISTING PIPING, DUCTWORK, RAIN WATER LEADERS, SPRINKLERS, AND CONDUIT. SURVEY THE SITE AND BE INFORMED OF				
M.L.	B&G CIRCUIT SETTER, OR EQUAL, BALANCING VALVE	, ₩	EXISTING CONDITIONS IN PARTICULAR ABOVE CEILINGS WHICH WILL REQUIRE OFFSETTING AND OR RELOCATION OF EXISTING PIPING,	I TO BE IN ACCORDANCE WITH APPLICABLE LOCAL, ES HAVING JURISDICTION. CABLE TO THIS PROJECT INCLUDE BUT ARE NOT	STATE, AND FEDERAL CODE		
▼ 50	PLUG COCK (BALANCING VALVE)	—— ∳———	DUCTWORK AND CONDUIT AND INCLUDE THE COST OF THIS WORK.	DING CODE - BASED ON IBC 2009.	LIMITED TO:		
50)	UNION			HANICAL CODE - BASED ON IMC 2009. IBING CODE - BASED ON IPC 2009. CODE - BASED ON IFC 2009	C. OPC; 2011 INDIANA PLUM		
S _D	COMPANION FLANGE			CODE - BASED ON IFC 2009 IAL ENERGY CONSERVATION CODE. 2007 ENERGY STANDARDS FOR BUILDINGS EXCEPT	E. IECC; 2009 INTERNATION		
<u></u>	CHECK VALVE			BUILDINGS. R SYSTEM INSTALLATION.	LOW-RISE RESIDENTIAL I G. NFPA 13: 2010 SPRINKLEI		
A.F.F.	GUIDE	+		ELECTRIC CODE.(NEC)	H. NFPA 14: 2010 STANDPIPII. NFPA 70. 2011 NATIONALJ. NFPA 72. 2010 FIRE ALAR		
A.F.R.	ANCHOR			DE A117.1	K. ANSI HANDICAPPED COD L. AGA: AMERICAN GAS ASS		
<u> </u>	GAUGE & GAUGE COCK	O N			N. ANSI: AMERICAN NATION		
-	THERMOMETER			CIETY OF HEATING REFRIGERATION AND AIR			
	MOTORIZED VALVE	— ₩		TY OF MECHANICAL ENGINEERS. TY FOR TESTING AND MATERIALS.	Q. ASME: AMERICAN SOCIETE. ASTM: AMERICAN SOCIETE.		
				STANDARDIZATION SOCIETY OF THE VALVE AND	FITTING INDUSTRY.		
					U. NFPA: NATIONAL FIRE PR		
				TEMS. BORATORIES, INC.	AIR-CONDITIONING SYST W. UL: UNDERWRITER'S LAB		
				PROPER AUTHORITIES NECESSARY CONTRACT	SUBMIT AND/OR FILE WITH F	3. 4.	
	MOTORIZED VALVE	<u> </u>		ITY OF MECHANICAL ENGINEERS. TY FOR TESTING AND MATERIALS. STANDARDIZATION SOCIETY OF THE VALVE AND RIC MANUFACTURER'S ASSOCIATION. ROTECTION ASSOCIATION. CONSTRUCTION FOR VENTILATING AND TEMS. BORATORIES, INC. ST CONFORMITY WITH APPLICABLE CODES.	R. ASTM: AMERICAN SOCIE'S MSS: MANUFACTURER'S FITTING INDUSTRY. T. NEMA: NATIONAL FIRE PR V. SMACNA: SHEET METAL AIR-CONDITIONING SYST W. UL: UNDERWRITER'S LAB INSTALL ALL WORK IN STRIC SUBMIT AND/OR FILE WITH F		

	MECHANIC	AL LEGEND		LIVAC CENEDAL NOTES:
	PIPING		DUCTWORK	HVAC GENERAL NOTES:
CHS	CHILLED WATER SUPPLY	\boxtimes	SUPPLY DUCTWORK	DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE APPROXIMATE ROUTING OF PIPING AND
CHR	CHILLED WATER RETURN		RETURN OR EXHAUST DUCTWORK	DUCTWORK. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID
HWS	HOT WATER SUPPLY	⊗ FD	FIRE DAMPER	CONFLICTS AND DELAYS. MINOR OFFSETS AND
HWR ———	HOT WATER RETURN	⊗ sd	SMOKE DAMPER	ADJUSTMENTS SHALL BE PROVIDED WHERE REQUIRED AT NO ADDITIONAL COST TO THE
HWRR ———	HOT WATER REVERSE RETURN	⊗ F/SD	COMBINATION FIRE & SMOKE DAMPER	OWNER. 2. <u>COORDINATE</u> LOCATIONS OF EQUIPMENT WITH
cws	CONDENSER WATER SUPPLY	240	SUPPLY DIFFUSER & AIR QUANTITY (INDICATES 4-WAY BLOW)	OTHER TRADES. AND WITH STRUCTURAL AND
CWR	CONDENSER WATER RETURN	150 3W (2W)	SUPPLY DIFFUSER & AIR QUANTITY INDICATES 3-WAY BLOW (2-WAY BLOW)	ARCHITECTURAL ELEMENTS. 3. ALL EXHAUST FANS, SUPPLY FANS, DAMPERS,
STM.(PSI) ———	STEAM SUPPLY PIPING AND IT'S PRESSURE	✓ 140R	RETURN AIR GRILLE & AIR QUANTITY	AND RELIEF VENTS SHALL BE MOUNTED 18" BELOW CEILING HEIGHT. COORDINATE FINAL
C.R	STEAM CONDENSATE RETURN	☐ 150E	EXHAUST AIR GRILLE & AIR QUANTITY	HEIGHT LOCATIONS WITH OWNER/RPR.
P.C.R. —	PUMPED STEAM CONDENSATE RETURN	- ►	REDUCER/TRANSITION	DUCT DIMENSIONS INDICATED ON THE DRAWINGS ARE NET AIRSIDE DIMENSIONS.
D	DRAIN LINE	H	STEAM HUMIDIFIER	5. <u>DUCTWORK</u> SHALL BE FABRICATED OF FIBERGLASS (UNLESS NOTED OTHERWISE) AND
RS	REFRIGERANT SUCTION	Ō	THERMOSTAT (ADJUSTABLE)	INSTALLED IN ACCORDANCE WITH SMACNA
RL	REFRIGERANT LIQUID	10	THERMOSTAT (CONCEALED / KEY OPER.)	STANDARDS. SEAL ALL DUCTS, JOINTS, AND SEAMS IN DUCTWORK TO INSURE AGAINST
——— FTS ————	FINNED TUBE SUPPLY	Θ	HUMIDISTAT	LEAKAGE. 6. PENETRATIONS OF THE WALLS AND FLOORS
—— FTR ———	FINNED TUBE RETURN	₹I_R_I_}	RISE IN DUCTWORK	SHALL BE FLASHED WITH ALUMINUM SHEET
FOS	FUEL OIL SUPPLY	₹I <u>₽</u> I	DROP IN DUCT	ANGLES AND SEALED WITH INSULATING FOAM PER SMACNA ARCHITECTURAL SHEETMETAL DETAILS
——— FOR ————	FUEL OIL RETURN	Ľ Þ	CONICAL TEE	STANDARDS.
v	EQUIPMENT VENT		BELLMOUTH CONNECTION	7. <u>ELECTRIC MOTORS FOR EQUIPMENT</u> SHALL BE TEFC, SELECTED FOR NON-OVERLOADING
E.O.M.	END OF MAIN DRIP	E	DUCT WITH INTERNAL SOUND LINER	OPERATION. MOTORS SHALL NOT OPERATE IN THEIR SERVICE FACTOR.
P.R.V.	PRESSURE REDUCING VALVE	SP.D.	SPLITTER DAMPER	GRILLES AND DIFFUSERS SHALL BE TITUS OR EQUAL ALUMINUM SIDE WALL GRILLES. RETURN
T	STEAM TRAP	TI II	REHEAT COIL	REGISTER SHALL BE TITUS OR EQUAL ALUMINUM
	BALL VALVE	2	ELECTRIC REHEAT BOX, CLEARANCE SPACE AND IDENTIFICATION	LOUVERED SURFACE MOUNT. PROVIDE STANDARD WHITE PAINTED FACE.
——₩——	GATE VALVE	2 121 * *	ASTERISK WITH REHEAT BOX INDICATES 3-WAY HOT WATER CONTROL VALVE	9. ALL MECHANICAL CONTROL AND POWER WIRING
—	GLOBE VALVE		HOT WATER REHEAT BOX AND IDENTIFICATION	SHALL BE RAN IN CONDUIT MEETING ELECTRICAL SPECIFICATION REQUIREMENTS.
——Ф——	BUTTERFLY VALVE	T _{Ext}	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 5	INDICATES DIRECTION & QUANTITY OF ROOM AIR PRESSURIZATION.	
——————————————————————————————————————	COMPANION FLANGE	S _D	DUCT MOUNTED SMOKE DETECTOR	
	CHECK VALVE	⑤→	DUCT MOUNTED STATIC PRESSURE CONTROLLER	
_		I		

ABOVE FINISHED FLOOR

ABOVE FINISHED ROOF

MANUAL BALANCING DAMPER

PRESSURE INDICATOR (GAUGE)

												FA	N SCH	IEDULE								
GENERAL NOTES	<u>S:</u>							<u> </u>	BBREVIATIONS:													
(1) - HIGH EFFICII	HIGH EFFICIENCY MOTOR (3) - UPBLAST DISCHARGE PRE - POWER ROOF EXHAUST FAN				OF EXHAUST FAN			SWSI - SINGL	E WIDTH, SINGI	LE INLET		BVS - BELTED	/ENT SET		PWE - POW	ERED WALL EXHAUST FAN						
(2) - INCL. WEIGH	NCL. WEIGHT OF INERTIA BASE (4) - TOP HORIZONTAL DISCHARGE PRS - POWER ROOF SUPPLY FAN						OF SUPPLY FAN			DWDI - DOUB	LE WIDTH, DOU	BLE INLET		C.T CONTRO	TRANSFORMER	R	E.P EMER	GENCY POWER				
UNIT ACCESSOR	IT ACCESSORIES:									·					•			STARTER A	CCESSORIES:			
1 - INLET SCREEN								CTOR			16 - DISCHARGE MIN. 7'0" A.F.R. 21 - WEATHERPROOF HOUSING/TEFC						/TEFC	A - COMBIN	ATION MAG-X-LINE			
2 - MOTORIZED II	MOTORIZED INLET VANES 7 - OUTLET GRAVITY DAMPERS 12 - 24" HIGH ROOF CURB							OF CURB			17 - U.L. 762 L	ISTED			22 - 2 SPEED, 2	WINDING MOTO	R	B - AUTO. TI	RANSFORMER			
3 - MOTORIZED II	MOTORIZED INLET DAMPERS 8 - INERTIA BASE 13 - ACCESS DOOR & DRAIN							R & DRAIN			18 - EXPLOSION PROOF MOTOR 23 - 3¢ DISC. SWITCH IN HOUSING						IG	C - MANUAL MOTOR STARTER				
4 - INLET GRAVIT	NLET GRAVITY DAMPERS 9 - SPRING ISOLATORS 14 - 2" WASHABLE FILTERS							FILTERS			19 - THERMAL	OVERLOAD PF	ROTECTION		24 - PRE-WIRE	DISC. SWITCH		D - VFD WIT	H LINE REACTOR AND DISC	CONNECT		
5 - OUTLET SCRE	UTLET SCREEN 10 - BELT GUA		BELT GUARD 15 - FAN SAFETY CAGE/WALL SLEEVE									20 - SOLID ST	ATE SPEED CO	NTROLLER		25 - DOOR LIM	T SWITCH		E - HAND/OF	F/AUTO SWITCH/PILOT LIG	HT/120V XFMR	
UNIT ID	SYSTEM	TYPE	MANUFACTURER	MODEL NO.	CFM	S.P.	MAX.	ROOF/WAI	UNIT L WEIGHT	FAN ACCESSORIES		MOTOR (1)		STA	ARTER						
5,111,12					0	5	SONES	OPENING	(LBS)	77117100233611120	MIN. H.F	P. RPM	V/ø/Hz	LOCATION	TYPE	DISC. TYPE	ACCESSORIES					NOTES:
EF-1,2	FILTER ROOM	PWE	GREENHECK (OR EQUAL MEETING BABA REQUIREMNTS)	CUE-160-VG	2300	0.4"	11.4	18"X18"	74	4,5	1/2	981	120/1/60									NOTE 1:
EF-3	CHEMICAL ROOM	PWE	GREENHECK (OR EQUAL MEETING BABA REQUIREMNTS)	CUE-95-VG	250	0.4"	5.8	15"X15"	33	4,5	1/6	1203	120/1/60									NOTE 1:
									•													

			•								ELE	CTRI	C UNIT	HEATER	R SCH	IEDUL	E.							
MARK	LOCATION	CONFIGURATION	AIRFLOW	V FAN DATA						HEATER DATA						ELECTRICAL DATA ACC				ACCESSORIES FILTER DATA			MANUSACTURED WITH MODEL ANNURED	
MARK	LOCATION		SUPPLY CFM	TYPE	VOLTAGE	RPM	FLA		KW	МВН	TEMP RISE				FLA	VOLTS	PH	MOUNTIN BRACKE	NG I	DISCONNECT SWITCH	TYPE	EFF	MANUFACTURER WITH MODEL NUMBER	NOTES
EUH-1	FILTER ROOM	HORIZONTAL	700						5.0	17.0	24				8.0	480	3	YES		YES			INDEECO 234-U11N-0050U OPTION CODES C, D AND V (OR EQUAL MEETING BABA REQUIRMENTS)	1, 3
JH-2,3,4	FILTER ROOM	HORIZONTAL	700						5.0	17.0	24				8.0	480	3	YES		YES			INDEECO 234-U11N-0050U OPTION CODES C, D, AND T (OR EQUAL MEETING BABA REQUIREMENTS)	2, 3
EUH-5	CHEMICAL ROOM	HORIZONTAL	700						2.0	17.0	9				10.0	277	1	YES		YES			INDEECO 234-U11R-0020N OPTION CODES C, D, AND T (OR EQUAL MEETING BABA REQUIREMENTS)	2, 3
1.	OPTION V: 120 VOLT CO	ONTROL CIRCUIT, PROV	IDE INDEECO 1004328 NEMA	4X REMOTE THER	MOSTAT.																			

File: Z:\SHARED\IN CLIENTS A-L\APPLE VALLEY UTILITIES\D W24026 WATER UTILITY IMPRVS\06 CAD\K MECH-ELECT\1 DRAWINGS\ELECTRICAL_DRAWINGS.DWG

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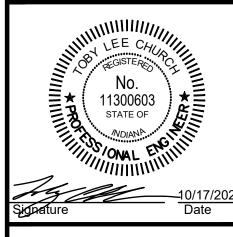
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APPLE VALLEY UTILITIES, INC.
LAKE COUNTY, INDIANA
APPLE VALLEY UTILITIES EAST
PWS - WATER UTILITY
IMPROVEMENTS
DIVISION "A" - WELLS AND
WATER TREATMENT PLANT

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MECHANICAL LEGENDS
AND SCHEDULES

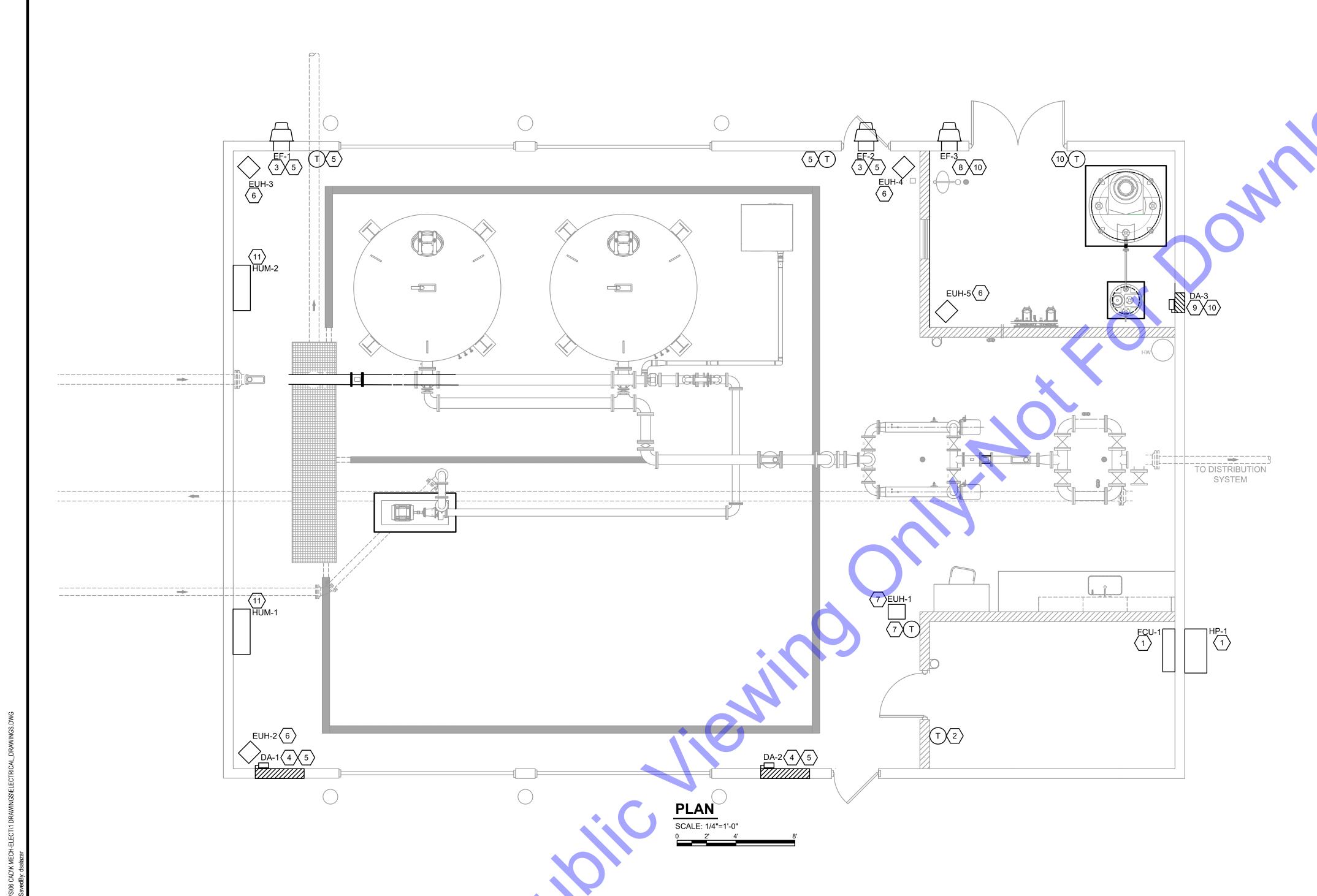
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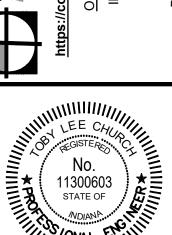




MECHANICAL NOTES:

- THE CONTRACTOR SHALL FURNISH AND INSTALL FAN COIL AND HEAT PUMP SYSTEM. MOUNT FAN COIL (FCU-1) ON WALL NEAR CEILING WHERE SHOWN AND HEAT PUMP (HP-1) ABOVE SNOW LEVEL. FURNISH AND INSTALL FACTORY REFRIGERANT LINES. PIPE DRAIN THROUGH CONTROL ROOM TO 1' ABOVE GRADE AT GRAVEL OR GRASS LOCATION. DRAIN LINE SHALL BE 1/2" SCHEDULE 40 PVC. REFER TO MECHANICAL SCHEDULES FOR FAN COIL AND HEAT PUMP SPECIFICATIONS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL LOCKABLE HEAT/COOL THERMOSTAT HONEYWELL (OR EQUAL) WITH AUTOMATIC SWITCHOVER BETWEEN HEATING AND COOLING.
- 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 FANS 18" BELOW CEILINGS.
- $\langle 4 \rangle$ THE CONTRACTOR SHALL FURNISH AND INSTALL TWO (2) GREENHECK EAD-635 40" X 24" 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.
- 5 THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 4X THERMOSTATS, (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.
- $\langle 6 \rangle$ THE CONTRACTOR SHALL FURNISH AND INSTALL INDEECO (OR EQUAL) ELECTRIC UNIT HEATERS (EUH-2,3,4,5). REFER TO MECHANICAL SCHEDULES FOR ELECTRIC UNIT HEATER
- THE CONTRCTOR SHALL FURNISH AND INSTALL INDEECO (OR EQUAL) ELECTRIC UNIT HEATER (EUH-1) WITH REMOTE INDEECO THERMOSTAT. REFER TO MECHANICAL SCHEDULES FOR ELECTRIC HEATER SPECIFICATIONS.
- 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.
- 9 THE CONTRACTOR SHALL FURNISH AND INSTALL GREENHECK EAD-635 16" X 16" MOTORIZED INTAKE DAMPER (OR EQUAL) WITH BIRD SCREEN. DAMPER ACTUATORS (DA-3) SHALL BE BELIMO (OR EQUAL). MOUNT INTAKE LOUVER/DAMPER 18" ABOVE FINISHED GRADE.
- THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 4X THERMOSTAT, (HONEYWELL OR EQUAL). WIRE EXHAUST FAN EF-3 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.
- (11) CONTRACTOR SHALL FURNISH AND INSTALL HI-E DRY-195 (OR EQUAL MEETING BABA REQUIREMENTS) 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.
- ALL MECHANICAL CONTROL AND POWER WIRING SHALL BE RAN IN CONDUIT MEETING ELECTRICAL SPECIFICATION REQUIREMENTS.





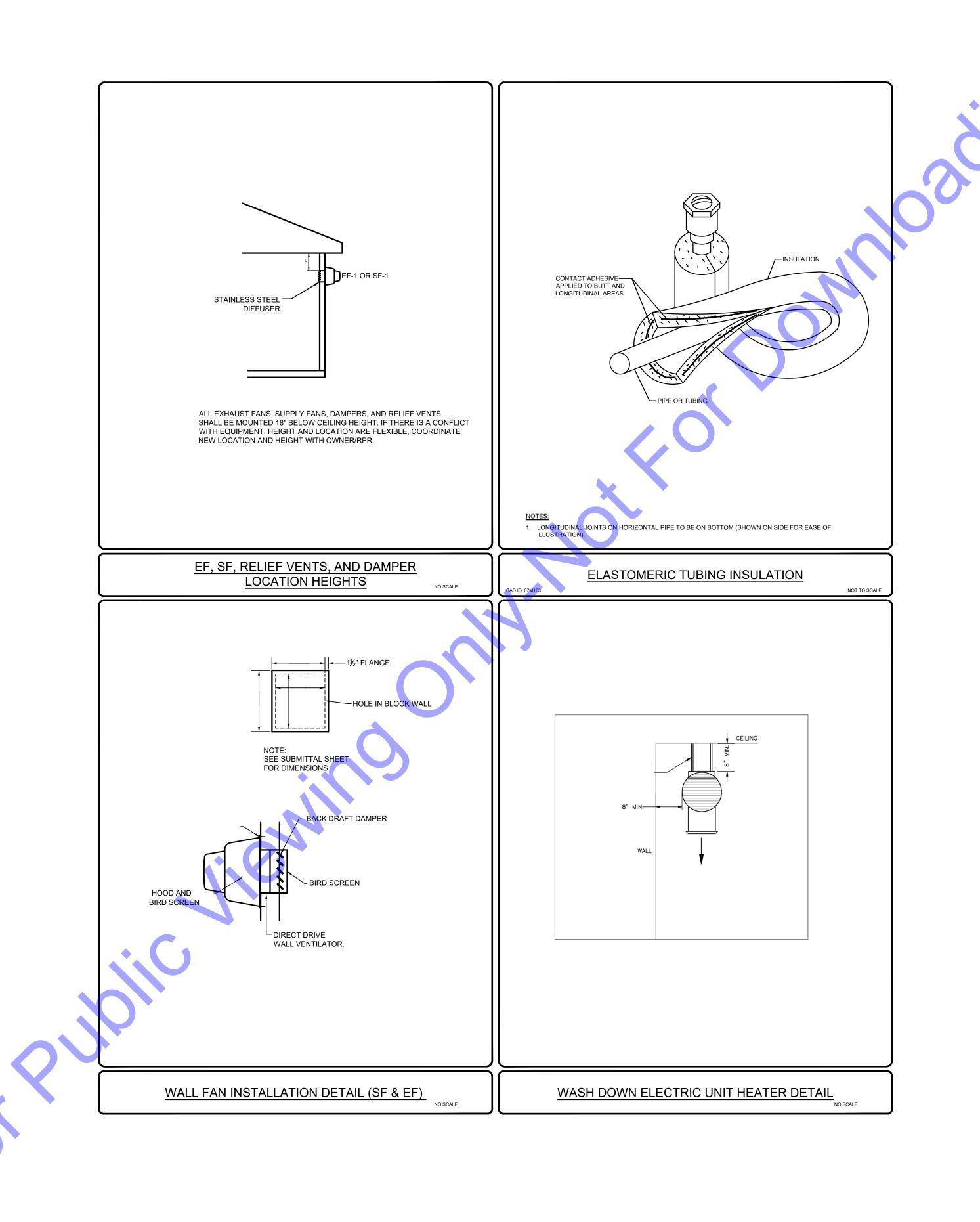
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MECHANICAL PLAN

W24026 AS SHOWN

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PANCHING GRAND POLICE TO CANNON POLICE T

AKE COUNTY, INDIANA
LE VALLEY UTILITIES EAST

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MECHANICAL DETAILS

M2-0

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TAG FUNCTION ABBREVIATIONS

- ALT ALTERNATE
- CLOSED(C) CM COMPUTER-MANUAL
- DIFF DIFFERENCE OR DIFFERENTIAL
- DO DISSOLVED OXYGEN
- 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) 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)
- FWD FOWARD REV REVERSE F/R FOWARD/REVERSE(MOTOR STARTER COILS)

SUM SUMMMATION

X MULTIPLY

OA OFF-AUTOMATIC

SP SPEED POT

SS START-STOP

SQRT SQUARE ROOT

SSA START-STOP-AUTOMATIC

SSL START-STOP-LOCK

OCA OPEN-CLOSE-AUTOMATIC(MAINTAINED CONTACT)

OSC OPEN-STOP-CLOSE(MOMENTARY CONTACT SPRING

(LOCKABLE IN "STOP" POSITION. MOMENTARY CONTACT)

OC OPEN-CLOSE(D)(MAINTAINED CONTACT)

OOA ON-OFF-AUTOMATIC (MAINTAINED CONTACT) OOR ON-OFF-REMOTE(MAINTAINED CONTACT)

RETURN TO CENTER POSITION)

SBL SLUDGE BLANKET INTERFACE LEVEL

00 ON-OFF(MAINTAINED CONTACT)

- ESTP ESTOP(EMERGENCY STOP) SPD (SPEED POT) SUSP SUSPEND ALRT ALERT
- RSET RESET STRT START

TAG SYMBOLS

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.

INSTRUMENT TAG IDENTIFICATION

AREA 035D: BUILDING OR PROCESS AREA NUMBER

TAG TYPE P: FIRST LETTER, SEE ISA TABLE BELOW

A: DEVICE LETTER IF MULTIPLE DEVICES

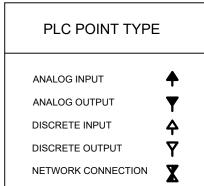
AH: SUCCEEDING LETTERS, SEE ISA TABLE BELOW

COMPONENT S LISTING AT RIGHT DESIGNATOR

3: LOOP NUMBER

4: EQUIPMENT NUMBER

COMPONENT DESIGNATOR



HORIZONTAL BAR SYMBOLS FOR PHYSICAL MOUNTING OF DEVICE CONTROL AND I/O DEVICES SINGLE FUNCTION DISPLAY MULTI FUNCTION SINGLE/MULTI I/O DEVICE NON-CONFIGURABLE [ADD APPROPRIATE HORZ. BAR(S)] PROGRAMMABLE DEVICE NON-PROGRAMMABLE FIELD MOUNTED NON-DISPLAYED NON-DISPLAYED CONFIGURABLE DEVICE PROGRAMMABLE DEVICE MAIN CONTROL ROOM (SEMI-PROGRAMMABLE) (ie: PLC) PANEL NORMALLY BEHIND MAIN CONTROL PANEL NOT NORMALLY ACCESSIBLE DISPLAYED DISPLAYED CONFIGURABLE DEVICE PROGRAMMABLE DEVICE (SEMI-PROGRAMMABLE) NORMALLY ACCESSIBLE

	•	INSTRUMENT SOCIETY C	F AMERICA TABLE		
	FIRST LETTER	R(S)		SUCCEEDING LETTER(S)	
LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
Α	ANALYSIS		ALARM(W. LOGGING)	ANNUNCIATE	
В	BURNER COMBUSTION		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
С	USERS CHOICE(*)			CONTROL	CLOSE
D	USERS CHOICE(*)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			FEEDBACK
G	USERS CHOICE(*)		GLASS		
Н	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(PÌLOT)		LOW
M	MOTOR	MOMENTARY			MONITORING
N	USERS CHOICE(*)		USERS CHOICE(*)	USERS CHOICE(*)	USERS CHOICE(*)
0	USERS CHOICE(*)		ORIFICE	Ì	
Р	PRESSURE OR VACUUM		POINT TEST CONNECTION		
Q	QUANTITY	INTEGRATE			
R	RADIATION		RECORD, TREND, LOG		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
Т	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	ì	RELAY OR COMPUTE(*)	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

NORMALLY ACCESSIBLE

 $(\mbox{\ensuremath{^{'}}})$ 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.

318 AND BE ENGINEER APPROVED.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT ABOVE GRADE OUTDOORS.

RIGID ALUMINUM OR PVC COATED RGS CONDUIT IN CLASSIFIED AND CORROSIVE

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

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.

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

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

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

DISCRETE SIGNALS MAY BE COMBINED.

INSTRUMENT POWER

DISPLAYED

PROGRAMMABLE POINT (HMI TOUCH SCREEN OR SCADA SOFTWARE)

INSTRUMENTS REQUIRING 120 VAC:

MAGNETIC FLOW METERS

ORP TRANSMITTERS

TURBIDITY TRANSMITTERS pH TRANSMITTERS

DO TRANSMITTERS

i. ULTRASONIC LEVEL TRANSMITTERS 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.

SYMBOL MAGNETIC FLOW METER SONIC FLOW METER CENTRIFUGAL PUMP LOBE PUMP PERISTALTIC PUMP SUBMERSIBLE PUMP

PUMP AND METER LEGEND

ELECTRICAL GENERAL NOTES

(GENERAL NOTES APPLICABLE TO ALL ELECTRICAL SHEETS)

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.

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

WHEN SUBSTITUTING OTHER EQUIPMENT, MATERIALS, AND PRODUCTS THAN SPECIFIED IN

TO THE PROJECT (ALL DIVISIONS) WHICH WILL RESULT FROM USE OF THE SUBSTITUTED

AND CONTROL WORK WITH THE WORK OF OTHER DISCIPLINES TO AVOID CONFLICTS AND

PDATED DIRECTORY WITHIN DOOR OF EACH AFFECTED PANELBOARD. LEAVE "SPARE"

G6. PROVIDE LIGHTING FIXTURES COMPATIBLE WITH CEILING CONSTRUCTION. COORDINATE WITH

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.

IN ELECTRICAL AND MECHANICAL EQUIPMENT SPACES, COORDINATE EXACT LOCATIONS OF LIGHTING FIXTURES WITH CONDUIT BANKS, DUCTWORK, PIPING, STRUCTURE,

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

G11. DO NOT INSTALL OUTLET BOXES BACK-TO-BACK IN NON-RATED PARTITIONS. OFFSET AND

LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION TO AVOID CONFLICTS
AND TO GUARANTEE REQUIRED CLEARANCE AND ACCESSIBILITY OF ELECTRICAL AND

SEAL, SIMILAR TO REQUIREMENTS FOR RATED PARTITIONS, TO MINIMIZE SOUND

G12. COORDINATE ROUTING OF ALL LARGE CONDUITS (2" DIA AND LARGER) AND PULL BOX

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

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

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 CO

G15. INCLUDE GREEN-INSULATED GROUNDING CONDUCTOR SIZED PER 2002 NEC TABLE 250-122 WIT

EDITION ADOPTED BY INDIANA, THE INDIANA CODE AMENDMENT, LOCAL/MUNICIPAL CODE,

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"

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

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

DRAWINGS. SINGLE PHASE BRANCH CIRCUIT HOMERUNS MAY BE COMBINED AT THE CONTRACTORS DISCRETION NOT GREATER THAN (3) PHASE CONDUCTORS, NEUTRAL

G26. ALL MOUNTING HARDWARE INCLUDING NUTS, BOLTS, SCREWS, WASHERS, ETC. SHALL BE

G27. MOUNT JUNCTION BOXES AND DISCONNECT SWITCHES ON STAINLESS STEEL UNISTRUT.

G29. DO NOT MIX CONTROL AND POWER CONDUCTORS IN THE SAME CONDUIT. DO NOT MIX DISCRETE AND ANALOG CONTROL CONDUCTORS IN THE SAME CONDUIT. G30. ADJUSTABLE SPEED DRIVES (ASD) LINE AND LOAD WIRE SHALL BE RUN IN SEPARATE

G32. ALL MECHANICAL CONTROL AND POWER WIRING SHALL BE RAN IN CONDUIT MEETING

G28. ALL UNISTRUT, MOUNTING BRACKETS AND SUPPORTING STRUCTURES SHALL BE STAINLESS

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

ALL BRANCH CIRCUIT CONDUCTORS SERVING LIGHTING FIXTURES, RECEPTACLES, MECHANIC.

VERIFY REQUIRED NEMA CONFIGURATION OF ALL SUCH OUTLETS.

OR OTHER DEVICES INSTALLED AT OR BELOW 8'-0".

AND THE AUTHORITIES HAVING JURISDICTION.

G20. ALL CABLE SIZES SHALL UTILIZE COPPER CONDUCTORS.

SHALL BE SIZED AS INDICATED ON THE LINE DIAGRAM.

ONDUCTORS, AND A GROUNDING CONDUCTOR.

G31. ALL HEAT TRACE IS REQUIRED TO BE GFI PROTECTED.

ELECTRICAL SPECIFICATION REQUIREMENTS.

GRINDER PUMP

ALL PENETRATIONS BELOW GRADE SHALL USE LINK SEALS.

IN LENGTH.

MATERIAL.

RACEWAYS.

G10. CONNECT BATTERY-OPERATED EMERGENCY LIGHTING UNITS AND EXIT SIGNS HAVING

SUPPORTS, AND OTHER OBSTRUCTIONS. LOCATE FIXTURES SUCH THAT DIALS, GAUGES,

BATTERY BACK-UP TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND NEC SUCH THAT FAILURE OF CIRCUIT

SFERS UNIT FROM NORMAL TO EMERGENCY MODE, CAUSING LAMPS TO RE-ENERGIZE.

G3. REVIEW THE CONTRACT DOCUMENTS OF OTHER DIVISIONS. AND COORDINATE ELECTRICAL

G4. UPON COMPLETION OF THE WORK REQUIRED UNDER THIS CONTRACT, PROVIDE TYPED

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

BREAKERS IN "OFF" POSITION.

ARCHITECTURAL ROOM FINISH SCHEDULES.

METERS, ETC. ARE PROPERLY ILLUMINATED.

PARTICULAR FIXTURE.

LIGHTING LEGEND											
SYMBOL	DESCRIPTION										
0	FIXTURE WITH STANDARD BALLAST.										
•	FIXTURE WITH STANDARD BALLAST AND EMERGENCY BALLAST.										

	LEGEND	MTC LICT 15
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	
<u> </u>	POWER), UON: FIXTURE TYPE DETERMINES MOUNTING.	
<u> </u>	BATTERY POWERED EMERGENCY LIGHTING UNIT EXIT SIGN: ARROWS DENOTE DIRECTIONAL INDICATING CHEVRON	7'-6"
<u>⊗</u> e ⊗	RQMTS, SHADING DENOTES FACE(S) ORIENTATION.	
•	WALLWASH OR OTHER DIRECTIONALLY ADJUSTABLE/AIMABLE FIXTURE: OPEN SIDE DENOTES ORIENTATION. TYPE DETERMINES MOUNTING.	
$\nabla \nabla \nabla$	TRACK LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	
<u> </u>	POLE-MOUNTED SITE LIGHTING FIXTURE: TYPE DETERMINES MTG.	
⋖	FLOOD LIGHTING FIXTURE: TYPE DETERMINES MOUNTING.	-
PC	PHOTO-CELL	
\otimes	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"
6	DUAL TECHNOLOGY, WALL MNTD OCCUPANCY SENSOR WITH MANUAL OVERRIDE SWITCH	3'-10"
 	DUAL TECHNOLOGY, CEILING MNTD OCCUPANCY SENSOR WITH REMOTE MANUAL OVERRIDE SWITCH	
Sor S	SINGLE-POLE REMOTE OVERRIDE SWITCH FOR CEILING MNTD	3'-10"
Sp	OCCUPANCY SENSOR DIMMER SWITCH	3'-10"
Sp ³	THREE-WAY DIMMER SWITCH	3'-10"
SP	SINGLE-POLE TOGGLE SWITCH WITH PILOT LIGHT	3'-10"
SM	SINGLE-POLE MOTOR-RATED TOGGLE SWITCH DISCONNECT	3'-10"
ST	SINGLE-POLE OR DOUBLE-POLE MANUAL MOTOR STARTER WITH MELTING ALLOY ELEMENTS FOR THERMAL OVERLOAD PROTECTION	3'-10"
SIR	OCCUPANCY SENSOR SWITCH	3'-10"
SIT	INTERVAL TIMER RESET AND CONTROL SWITCH	3'-10"
SJ	JOG SWITCH	3'-10"
•	MUSHROOM HEAD TYPE PUSHBUTTON STATION	5'-0"
Р	AUTO DOOR CONTROL PUSHPLATE	
Sv	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	3'-10"
<u> </u>	LIGHT-INSTALLED BY ELECTRICAL CONTRACTOR 120V DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT	1'-6"
-	120V DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT	ABOVE COUNT
— <u> </u>	INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	
-	120V QUADRUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT 120V QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT	1'-6"
-	INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED 120V SINGLE RECEPTACLE, AMP RATING (IF OTHER THAN 20A)	ABOVE COUNT
-	SHOWN: STANDARD MOUNTING HEIGHT, OR OTHER HEIGHT AS NOTED	1'-6", UON
GFCI	120V GFCI DUPLEX RECEPTACLE, STANDARD MOUNTING HEIGHT 120V GFCI QUADRUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT	1'-6"
	INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED 120V GFCI DUPLEX RECEPTACLE, SPECIAL MOUNTING HEIGHT	ABOVE COUNT
O -	INSTALL AT SAME HEIGHT AS SWITCHES IF NO HEIGHT IS INDICATED	ABOVE COUNT
€	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	
Н	HALON DUMP STATION	
F	FIRE ALARM MANUAL PULL STATION	3'-10"
FK	FIRE ALARM MANUAL PULL STATION, KEY-OPERATED	3'-10"
	FIRE ALARM CEILING-MOUNTED SMOKE DETECTOR	
<u>⊕</u>	FIRE ALARM CEILING-MOUNTED SMOKE DETECTOR FIRE ALARM CEILING-MOUNTED HEAT DETECTOR	
Ds	FIRE ALARM SUPPLY AIR DUCT-MOUNTED SMOKE DETECTOR	
	FIRE ALARM RETURN AIR DUCT-MOUNTED SMOKE DETECTOR	
	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - RECEIVER	AS NOTED
<u>□</u>	FIRE ALARM PROJECTED BEAM SMOKE DETECTOR - TRANSMITTER	AS NOTED
Y	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM VALVE STATUS SWITCH (TAMPER SWITCH)	ļ
FS	FIRE ALARM CONNECTION TO SPRINKLER SYSTEM WATER FLOW SWITCH	
FO	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 HS	FIRE ALARM SPEAKER: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
FHQ	FIRE ALARM HORN, WALL-MOUNTED	AS NOTED
	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
RI HRI	DUCT SMOKE DETECTOR ALARM REMOTE INDICATOR LIGHT AND TEST SWITCH: CEILING-MOUNTED, WALL-MOUNTED	6'-8"
RI HRI SAI HSAI	I OTTITOTI. OLILING-IVIOUNTED, WALL-IVIUUNTED	+
	FIRE ALARM ZONE ADDRESSABLE MODULE	
SAI HSAI		
SAI HSAI	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE	
SAI HSAI Z II	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER	6'-4"
SAI HSAI Z II FR	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER FIRE RELAY	
SAI HSAI Z I FR D	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER	6'-4"
SAI HSAI Z I FR D W	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER FIRE RELAY	6'-4"
SAI HSAI Z I FR D	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER FIRE RELAY DESK MOUNTED INTERCOM	6'-4"
SAI HSAI Z I FR D W	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER FIRE RELAY DESK MOUNTED INTERCOM WALL MOUNTED INTERCOM	6'-4"
SAI HSAI Z II FR D \$\$x\$	FIRE ALARM INDIVIDUAL ADDRESSABLE MODULE FIRE ALARM ELECTRO-MAGNETIC DOOR HOLDER FIRE RELAY DESK MOUNTED INTERCOM WALL MOUNTED INTERCOM EXPLOSION PROOF SWITCH	6'-4" 3'-10"

\$WP NEMA 4X SWITCH

ACLG ABOVE BFC BELOW C CRITICA RED DE CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR	FINISHED FLOOR FINISHED CEILING FINISHED CEILING L BRANCH OR EMERG PWR- //CE & PLATE, UONLINE -MOUNTED MAKER	MON MTG MV MW NEC OCPD OFCI OFE	ISOLATED GROUND MONITOR MOUNTING MULTI-VIEWER MICROWAVE OVEN NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-INSTALLED	
AFF ABOVE ACLG ABOVE BFC BELOW C CRITICA RED DE CL CENTEF CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR	FINISHED CEILING FINISHED CEILING L BRANCH OR EMERG PWR- //ICE & PLATE, UONLINE -MOUNTED MAKER	MON MTG MV MW NEC OCPD OFCI	MONITOR MOUNTING MULTI-VIEWER MICROWAVE OVEN NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
ACLG ABOVE BFC BELOW C CRITICARED DE CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI	FINISHED CEILING FINISHED CEILING L BRANCH OR EMERG PWR- //ICE & PLATE, UONLINE -MOUNTED MAKER	MTG MV MW NEC OCPD OFCI	MOUNTING MULTI-VIEWER MICROWAVE OVEN NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
BFC BELOW C CRITICA RED DE CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI	FINISHED CEILING L BRANCH OR EMERG PWR- //CE & PLATE, UON. -LINE -MOUNTED MAKER	MV MW NEC OCPD OFCI	MULTI-VIEWER MICROWAVE OVEN NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
C CRITICARED DE CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR	L BRANCH OR EMERG PWR- //ICE & PLATE, UONLINE -MOUNTED MAKER	MW NEC OCPD OFCI	MICROWAVE OVEN NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
RED DE CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI	/ICE & PLATE, UONLINE -MOUNTED MAKER	NEC OCPD OFCI	NATIONAL ELECTRICAL CODE OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
CL CENTER CLG CEILING COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI	-LINE -MOUNTED MAKER	OCPD OFCI	OVERCURRENT PROTECTIVE DEVICE OWNER-FURNISHED-CONTRACTOR-	
COF COFFEE COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR	MAKER	OFCI	OWNER-FURNISHED-CONTRACTOR-	
COP COPIER CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR				
CTR COUNTE ECB ENCLOS EMER EMERGI EWC ELECTR	R	OFE		
ECB ENCLOSE EMER EMERGI EWC ELECTR	R		OWNER-FURNISHED EQUIPMENT	
EMER EMERGING EWC ELECTR		PRT	PRINTER	
EWC ELECTR	ED CIRCUIT BREAKER	PTS	PNEUMATIC TUBE STATION	
	ENCY	Q	EQUIP BRANCH OR EMERG PWR- RED DEVICE & PLATE, UON.	
EWH ELECTR	IC WATER COOLER	REF	REFRIGERATOR	
LWII LLLCIII	IC WATER HEATER	RQMTS	S REQUIREMENTS	
FAX FACSIM	LE MACHINE	WP	WEATHERPROOF	
FBO FURNIS	HED BY OTHERS	Т	TAMPERPROOF DEVICE	
	FAULT CIRCUIT INTERRUPT- RSONNEL PROTECTION	UON	UNLESS OTHERWISE NOTED	
GEI GROUN	FAULT INTERRUPTING - ENT PROTECTION	UCR	UNDER-COUNTER REFRIGERATOR	
HGT HEIGHT				
FDMB I	PER MANUFACTURE'S MENDATIONS			

		TO CL, OON
	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.	
Ŷ	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	
\odot	JUNCTION BOX	AS NOTED
	ENCLOSED BREAKER	
	FUSIBLE SAFETY SWITCH (AMP RATING, POLES, FUSE SIZE, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	
Ó	NON-FUSIBLE SAFETY SWITCH (AMP RATING, POLES, AND NEMA ENCLOSURE TYPE IF OTHER THAN 1 NOTED)	
⊠₁	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)	
Ø	MOTOR	
}	FLEXIBLE CONDUIT CONNECTION	
	SURFACE- OR FLUSH-MOUNTED LIGHTING/RECEPTACLE PANELBOARD	
	POWER DISTRIBUTION PANELBOARD	
ТТ	DRY TYPE TRANSFORMER	
XXX	MISCELLANEOUS SYSTEMS PANEL OR CABINET: REFER TO ABBREVIATIONS.	
NOTE!! A	LL ABBREVIATIONS, NOTES, AND SYMBOLS SHOWN ON THIS DRAWING DO NOT	

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 ADDIV

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				
М	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		
мѕ	ACROSS THE LINE MOTOR STARTER		
ss	SOFT STARTER		
VFD	VARIABLE FREQUENCY DRIVE		
ACROSS THE LINE MOTOR STARTER WITH INTEGRAL DISCONNECT			
SS SOFT STARTER WITH INTEGRAL DISCONNECT			
VFD	VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT		

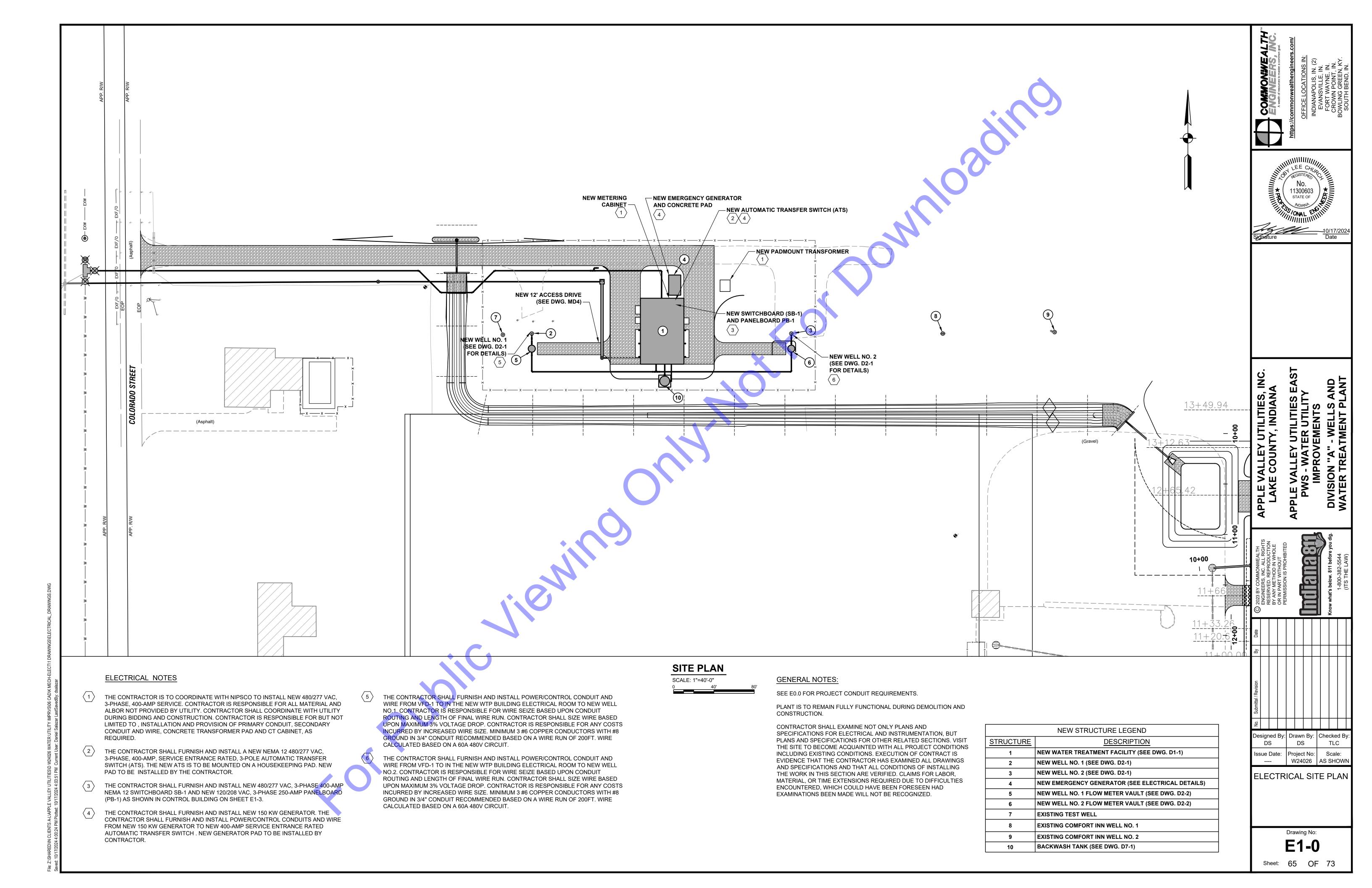
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Designed By: Drawn By: Checked B DS DS

W24026 AS SHOWN ELECTRICAL LEGENDS AND SCHEDULES

Issue Date: Project No: Scale:



GENERATOR

RISER DIAGRAM

MINIMUM RATED CAPACITY: 150kW

BASIS OF DESIGN: MANUFACTURER: CUMMINS

MODEL: CUMMINS C150D6D OR EQUAL

INTERLOCK CONTROL

WIRING TO ATS

└─ 20 #12's IN (2) 1" CONDUITS

CONNECT TO GROUNDING SYSTEM

INSTALL ON REINFORCED CONCRETE PAD,

6" ABOVE GRADE.

GENERATOR DETAIL

36" LARGER THAN BASE IN EACH DIMENSION,

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE

ENCLOSURE RATING: SEE SPECIFICATIONS

FUEL TYPE: DIESEL

FUEL TANK CAPACITY: 24 HOURS

GENERATOR ACCESSORY POWER

NEMA 4X REMOTE ANNUNCIATOR

(LOCATE ADJACENT TO ATS)

REMOTE STOP EPO INSTALLED

CONNECT COMPLETE

CONNECTION TO FCP-1

20 #12's IN (2) 1" CONDUITS -

FOR REMOTE ALARM

ADJACENT TO TRANSFER SWITCH

SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

PLAN NOTES

- THE CONTRACTOR IS TO COORDINATE WITH NIPSCO TO INSTALL NEW 480/277 VAC, 3-PHASE, 400-AMP SERVICE. CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL AND ALBOR NOT PROVIDED BY UTILITY. CONTRACTOR SHALL COORDINATE WITH UTILITY DURING BIDDING AND CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR BUT NOT LIMITED TO , INSTALLATION AND PROVISION OF PRIMARY CONDUIT, SECONDARY CONDUIT AND WIRE, CONCRETE TRANSFORMER PAD AND CT CABINET, AS REQUIRED.
- (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.
- PROVIDE GENERATOR INTEGRAL CIRCUIT BREAKER TO PROVIDE MEANS OF CURRENT PROTECTION AND DISCONNECTION AT THE GENERATOR.
- \langle 4 \rangle PROVIDE TRIAD GROUNDING SYSTEM.
- COORDINATE WITH GENERATOR AND ATS SUPPLIER/MANUFACTURER FOR WIRING REQUIREMENTS DURING BIDDING AND CONSTRUCTION.
- 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.
- ATS SHALL BE DESIGNED FOR FRONT ACCESS AND LIMITED TO ONE SIDE ACCESS. REFER TO NOTE ON SHEET E3-0 REQUIRING THE CONTRACTOR TO SUBMIT ELECTRICAL ROOM LAYOUT.
- (8) IT IS THE RESPONSIBILTY OF THE CONTRACTOR TO COORDINATE WITH THE GENERATOR SUPPLIER/MANUFACTURER FOR POWER REQUIREMENTS TO THE ANCILLARY DEVICES. ANCILLARY POWER REQUIREMENTS VARY BETWEEN GENERATOR MANUFACTURES. ALL COSTS ASSOCIATED WITH PROVIDING ANCILLARY POWER TO THE GENERATOR SHALL BE BY THE
- COORDINATE WITH UTILITY DURING BIDDING AND CONSTRUCTION ON TRANSFORMER TYPE (POLE MOUNTED TRANSFORMERS OR PAD MOUNT TRANSFORMER) FOR NEW UTILITY FEED.

AUTOMATIC TRANSFER SWITCH

TRANSFER SWITCH TYPE: AUTOMATIC

CURRENT RATING: 400A

OF POLES: 3

RATED VOLTAGE: 480/277 3-PHASE/4-WIRE

IN-SYNC TRANSFER: YES

MAIN CIRCUIT BREAKER: 400A

SERVICE ENTRANCE RATED: YES

NEUTRAL CONFIGURATION: SOLID

GROUND FAULT ON MAIN: NO

REMOTE ANNUNCIATION: YES

BY-PASS/ISOLATION: NO

KAIC: 37 NEC LOAD BRANCH: 702

SEE SPECIFICATIONS FOR ADDITIONAL FEATURES

NEMA RATING: 12 CYCLE RATING: 3

GENERAL NOTES:

SEE E0-0 FOR PROJECT CONDUIT REQUIREMENTS.

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. CLAIMS FOR LABOR, MATERIAL, OR TIME EXTENSIONS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATIONS BEEN MADE WILL NOT BE RECOGNIZED.

FEEDER SCHEDULE					
	COPPER WIRE			SERVICE	
YPE NO.	QUANTITIES & WIRE SIZE	CONDUIT	W/O NEUTRAL	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</td><td>4"</td><td>3 1/2"</td><td>#3/0</td></tr></tbody></table>				

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

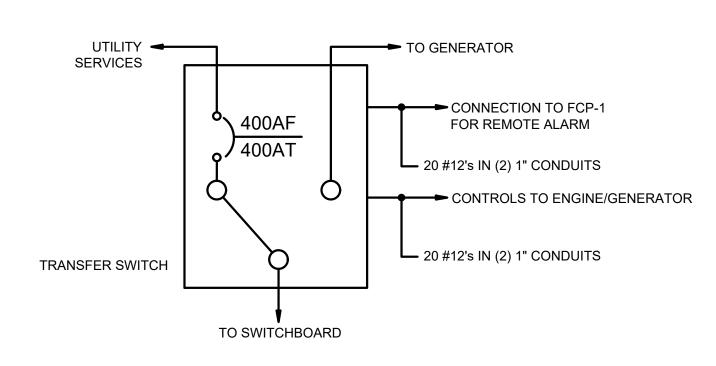
FEEDER KEY IS AS FOLLOWS (PARENTHESIS DENOTES SUBSCRIPT):

= 3 PHASES AND NEUTRAL WITH GROUND

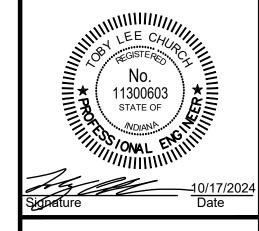
###(N) = 3 PHASES, NO NEUTRAL WITH GROUND

###(2) = 2 PHASES AND NEUTRAL WITH GROUND

ALL CIRCUITS SHALL BE RUN IN PVC BELOW GROUND/PVC COATED RIGID ABOVE GROUND



AUTOMATIC TRANSFER SWITCH



Designed By: Drawn By: Checked By DS

> W24026 AS SHOWN RISER DIAGRAM

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E2-0

GENERAL NOTES:

REFER TO E0.0 FOR PROJECT CONDUIT REQUIREMENTS.

THE CONTRACTOR SHALL EXAMINE NOT ONLY PLANS AND SPECIFICATIONS FOR ELECTRICAL AND INSTRUMENTATION, BUT PLANS AND SPECIFICATIONS FOR OTHER RELATED SECTIONS. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME ACQUAINTED WITH ALL PROJECT CONDITIONS INCLUDING EXISTING CONDITIONS. EXECUTION OF THE 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. CLAIMS FOR LABOR, MATERIAL, OR TIME EXTENSIONS REQUIRED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATIONS BEEN MADE WILL NOT BE RECOGNIZED.

THE CONTRACTOR IS RESPONSIBLE FOR WIRE SIZE BASED UPON CONDUIT ROUTING AND LENGTH OF FINAL WIRE RUN. THE CONTRACTOR SHALL SIZE WIRE BASED ON A MAXIMUM 3% VOLTAGE DROP. THE CONTRACTOR IS RESPONSIBLE FOR ANY COSTS INCURRED BY INCREASED WIRE SIZE.

PLAN NOTES

NEW 3Ø 480V, 400A SERVICE FROM ELECTRIC UTILITY TRANSFORMER.

LOCAL UTILITY FOR NEW POWER

400A NEMA 12 3-POLE SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH

ONE LINE DIAGRAM

(ATS-1)

NEW CT CABINET

 $3P_{0}$ 400AF 400AT

CONTRACTOR TO COORDINATE WITH

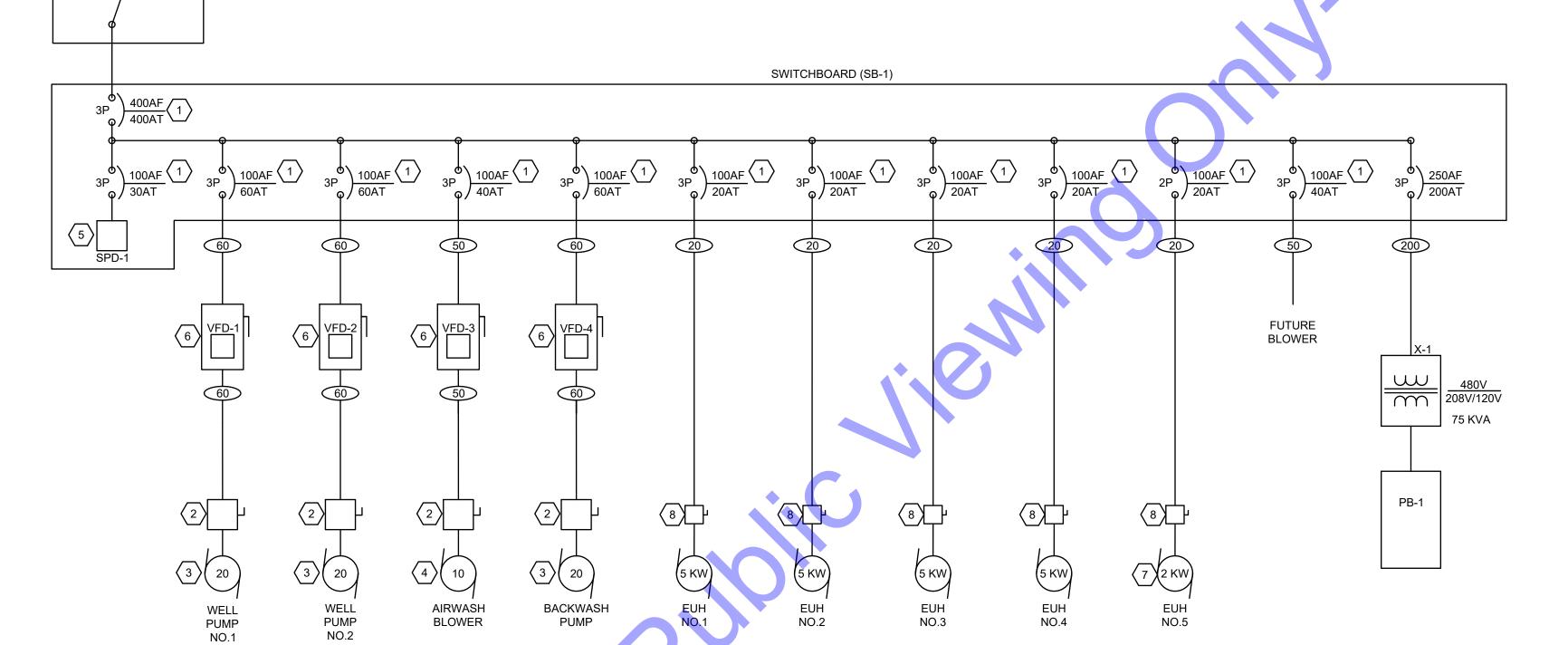
(кwн)

NEW 400A 3Ø, METER.

COORDINATE WITH

UTILITY ON METER REQUIREMENTS.

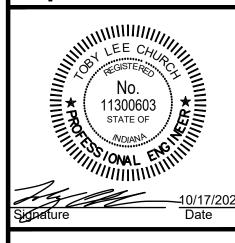
- COORDINATE WITH THE CONTRACTOR AND EQUIPMENT SUPPLIERS WHEN SELECTING THE CIRCUIT BREAKER SIZES TO ENSURE PROPER SIZING. PROVIDE BREAKERS WITH THE MEANS FOR LOCKOUT/TAGOUT.
- NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC. PROVIDE DISCONNECT WITH AUXILIARY CONTACTS TO INTERRUPT VFD CONTROL CIRCUIT TO STOP VFD WHEN DISCONNECT IS OPEN.
- WIRE PUMP SAFETIES AS REQUIRED. REFERENCE SPECIFICATIONS AND COORDINATE WITH MANUFACTURER REPRESENTATIVE DURING BIDDING AND CONSTRUCTION. PROVIDE PUMP SAFETY PANEL AS REQUIRED. REFER TO DETAIL ON SHEET E5-0.
- WIRE BLOWER SAFETIES AS REQUIRED. REFERENCE SPECIFICATIONS AND COORDINATE WITH MANUFACTURER REPRESENTATIVE DURING BIDDING AND CONSTRUCTION. PROVIDE BLOWER SAFETY PANEL AS REQUIRED. REFER TO DETAIL ON SHEET E5-0.
- SURGE PROTECTION DEVICE, REFERENCE SPECIFICATIONS AND COORDINATE WITH MANUFACTURER REPRESENTATIVE DURING BIDDING AND CONSTRUCTION. PROVIDE GROUNDING AND INSTALLATION PER MANUFACTURERS RECOMMENDATIONS. SIZE BREAKER PER MANUFACTURERS REQUIREMENTS.
- 6 NEMA 12 WALL MOUNTED 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.
- $\overline{7}$ EUH-5 277 VAC/1-PHASE HEATER.
- 8 NEMA 4X STAINLESS STEEL DISCONNECT SIZED AS REQUIRED FOR THE LOAD PER NEC.



Load Wir	ing 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"

nel Name: PB-1 Panel Amperage		erage:	250A			
Voltage & Phase: 120/208V 3-Phase		Pan	Panel A.I.C. Rating: 22kAIC			
Mounting: Surface		Other: MCB/250A		B/250/	4	
Description	Brk	Р	has	se	Brk	Description
EMERGENCY LIGHTING	20	1	Α	2	20	CHEMICAL ROOM INTERIOR LIGHITNG
WATER TREATMENT BUILDING EXTERIOR LIGHTING	20	3	В	4	20	CHEMICAL ROOM RECEPTACLES
WATER TREATMENT BUILDING EXTERIOR RECEPTACLES	30	5	С	6	20	ELECTRICAL ROOM INTERIOR LIGHTING
EMERGENCY EXIT LIGHITNG	20	7	Α	8	20	ELECTRICAL ROOM RECEPTACLES
PROCESS ROOMINTERIOR LIGHTING 1	20	9	В	10	20	OVERHEAD DOOR 1 (OHD-1)
PROCESS ROOM RECEPTACLES 1	20	11	С	12	-	OVERHEAD DOOR 1 (OHD-1)
PROCESS ROOM RECEPTACLES 2	20	13	Α	14	20	OVERHEAD DOOR 2 (OHD-2)
PROCESS ROOM RECEPTACLES 3	20	15	В	16	-	OVERHEAD DOOR 2 (OHD-2)
PROCESS ROOM RECEPTACLES 4	20	17	С	18	20	OVERHEAD DOOR 3 (OHD-3)
WATER HEATER (HW)	30	19	Α	20	-	OVERHEAD DOOR 3 (OHD-3)
WATER HEATER (HW)	-	21	В	22	20	OVERHEAD DOOR 4 (OHD-4)
FLOW METER NO.1, NO.2, & NO.3	20	23	С	24	_	OVERHEAD DOOR 4 (OHD-4)
WELL NO.1: FLOW METER NO.4	20	25	Α	26	20	MCP-1
WELL NO.2: FLOW METER NO.5	20	27	В	28	20	FCP-1
SCALE CONTROLLER	20	29	С	30	20	CHLORINE ALALYZER
CHLORINATION PUMP SKID	30	31	Α	32	20	GENERATOR ACCESSORIES
UV-1 CONTROL PANEL	20	33	В	34	20	GENERATOR ACCESSORIES
UV-1 CONTROL PANEL	-	35	С	36	20	GENERATOR ACCESSORIES
CELL NO.1: RW, FEW, BW, BWE, & AW	20	37	Α	38	20	MISSION CELLULAR
CELL NO.2: RW, FEW, BW, BWE, & AW	20	39	В	40	20	FCU-1
VALVES: FTW, SRS, & BRS	20	41	С	42	-	FCU-1
BUILK FILL PANEL	20	43	Α	44	30	HP-1
DHMU-1	20	45	В	46	-	HP-1
DHMU-2	20	47	С	48	20	EF-1/DA-1
PROCESS ROOM INTERIOR LIGHTING 2	20	49	Α	50	20	EF-2/DA-2
UV-2 CONTROL PANEL	20	51	В	52	20	EF-3/DA-3
UV-2 CONTROL PANEL	-	53	С	54	20	BLOWER EXHAUST FAN
HEAT TRACE	20	55	Α	56	20	TFCP-1
HEAT TRACE	20	57	В	58	20	SPARE
HEAT TRACE	20	59	С	60	20	SPARE
SPARE	20	61	Α	62	20	SPARE
SPARE	20	63	В	64	20	SPARE
SPARE	20	65	С	66	20	SPARE





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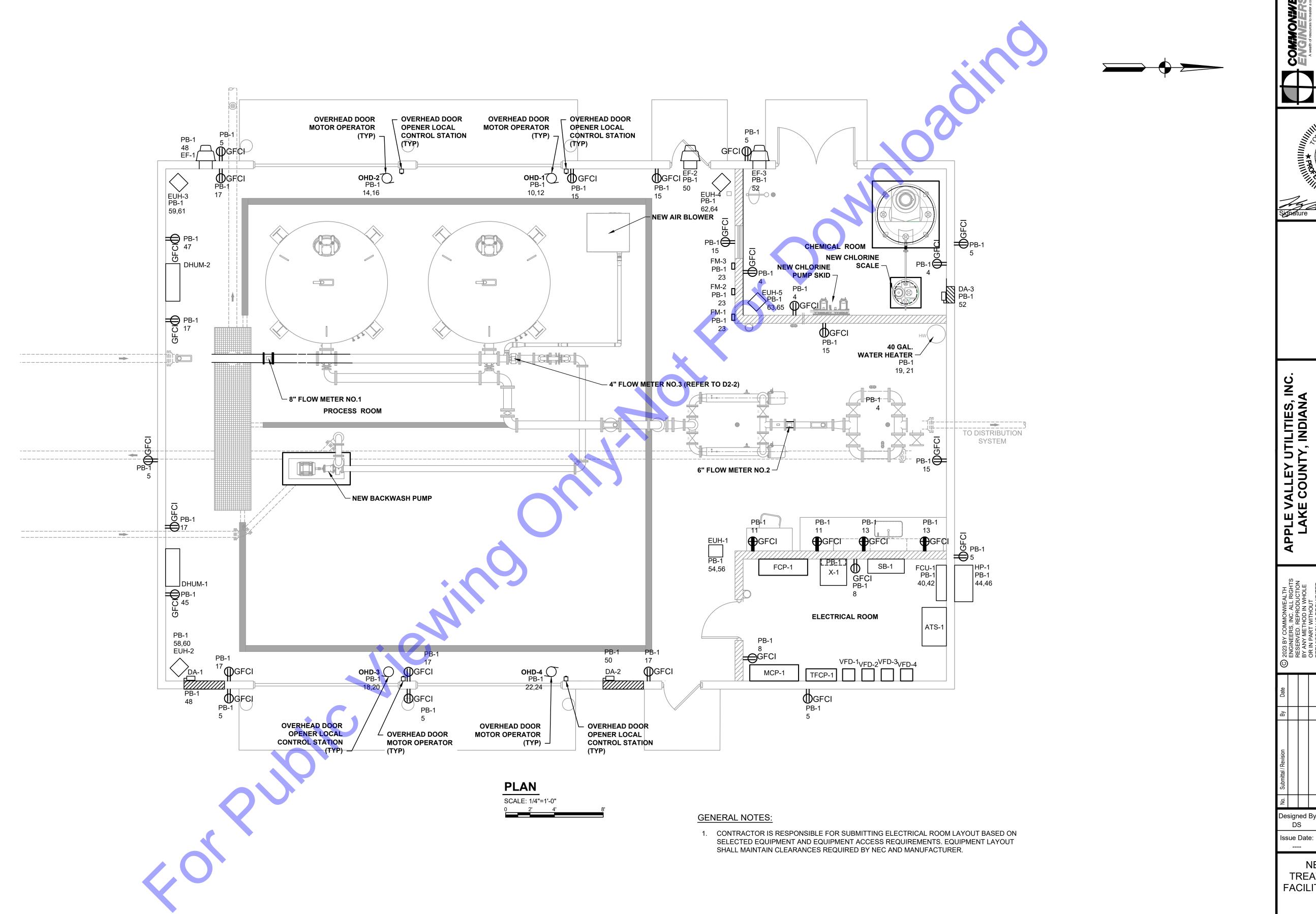
ONE LINE DIAGRAM

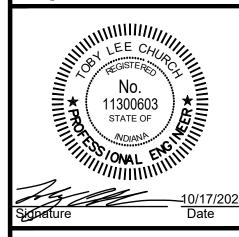
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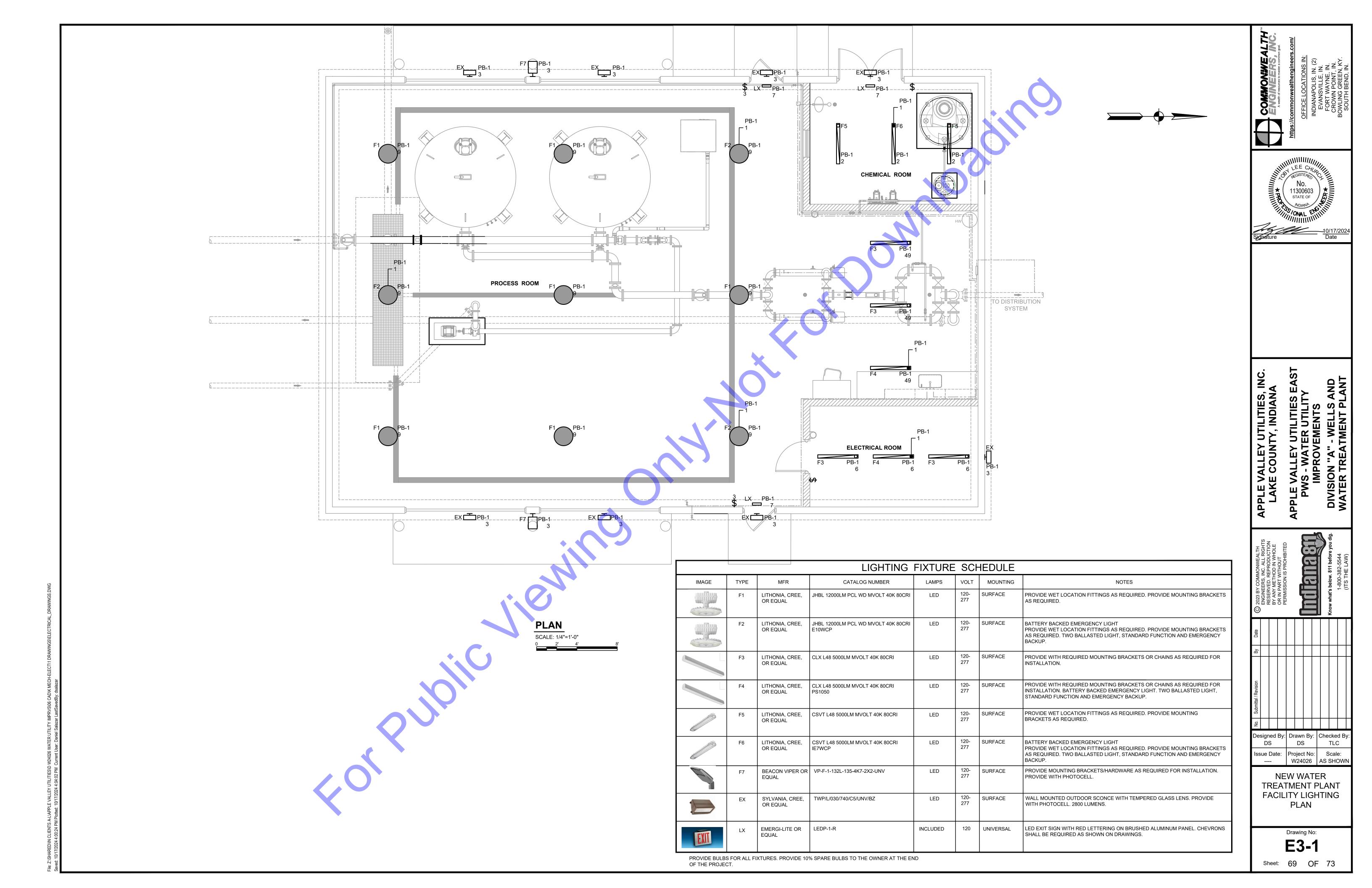
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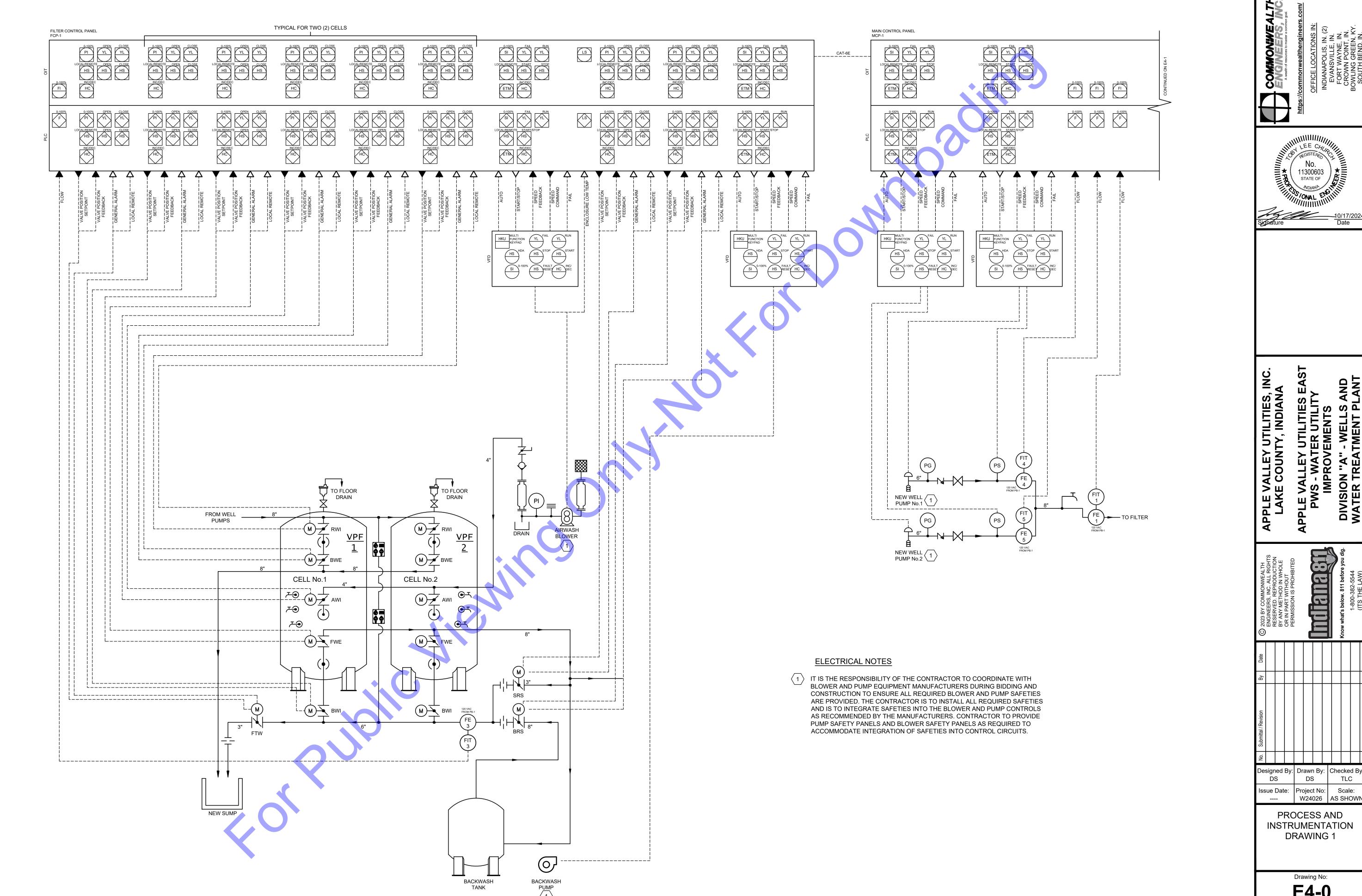
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NEW WATER TREATMENT PLANT **FACILITY ELECTRICAL** PLAN

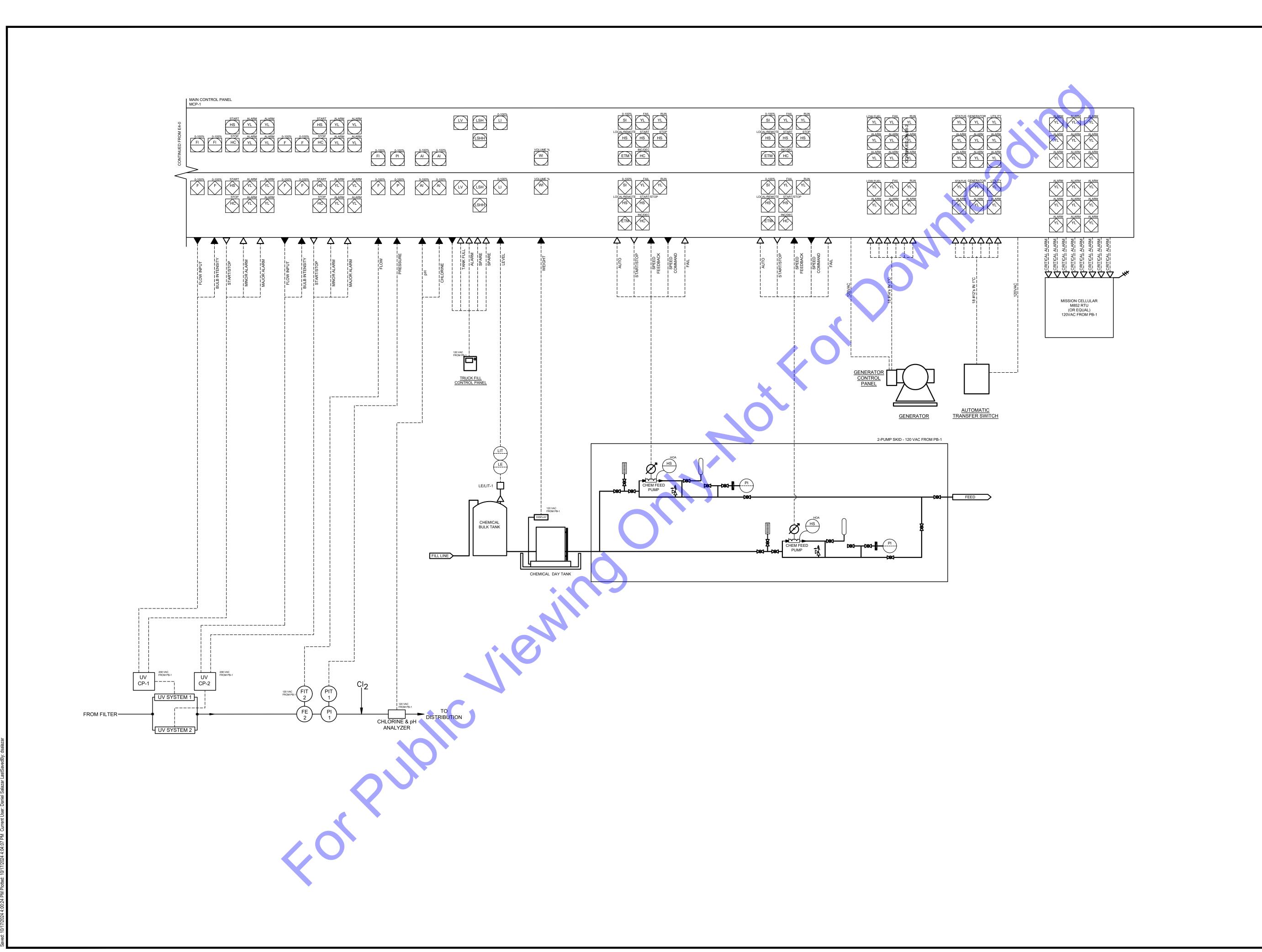
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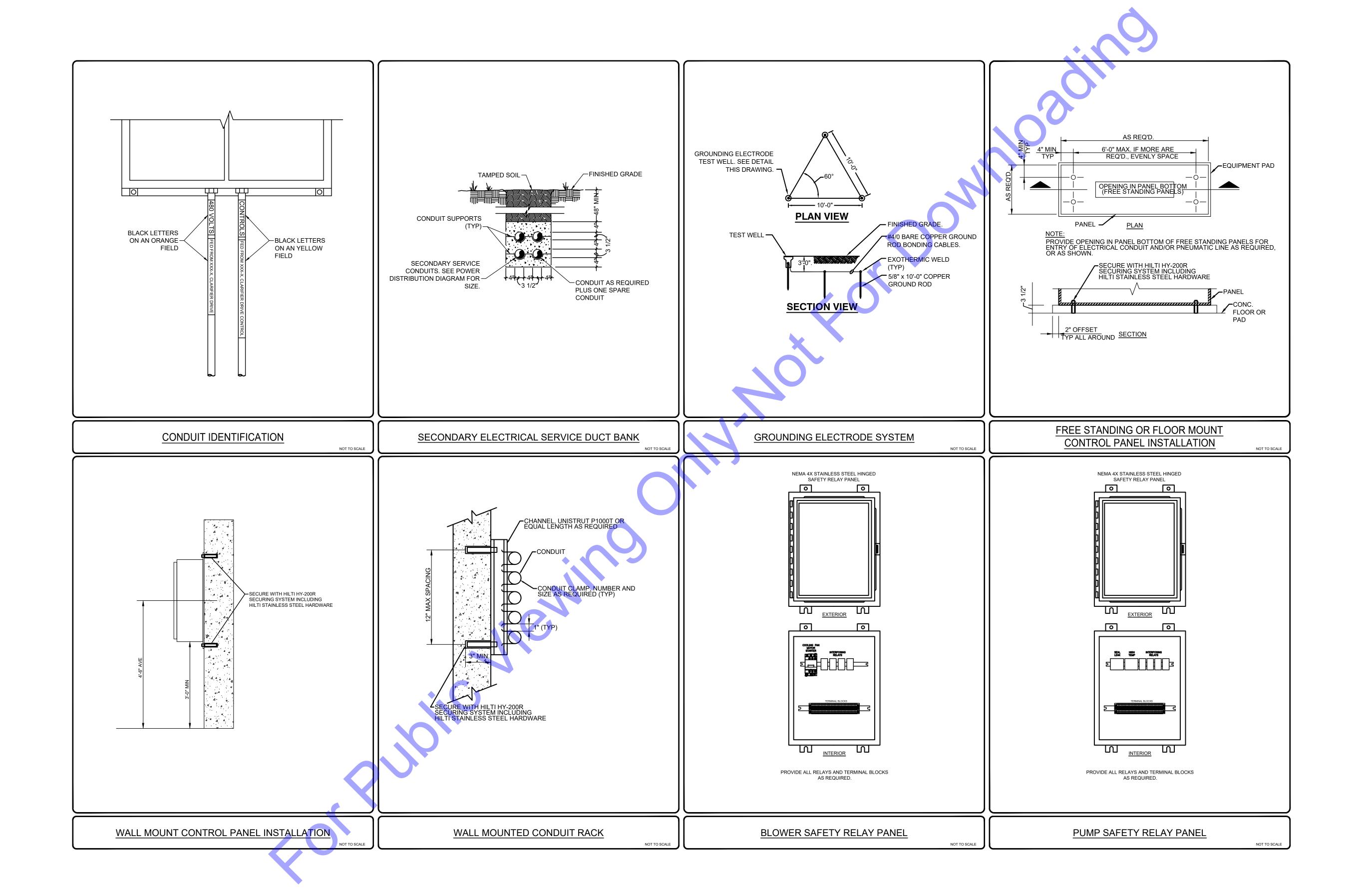
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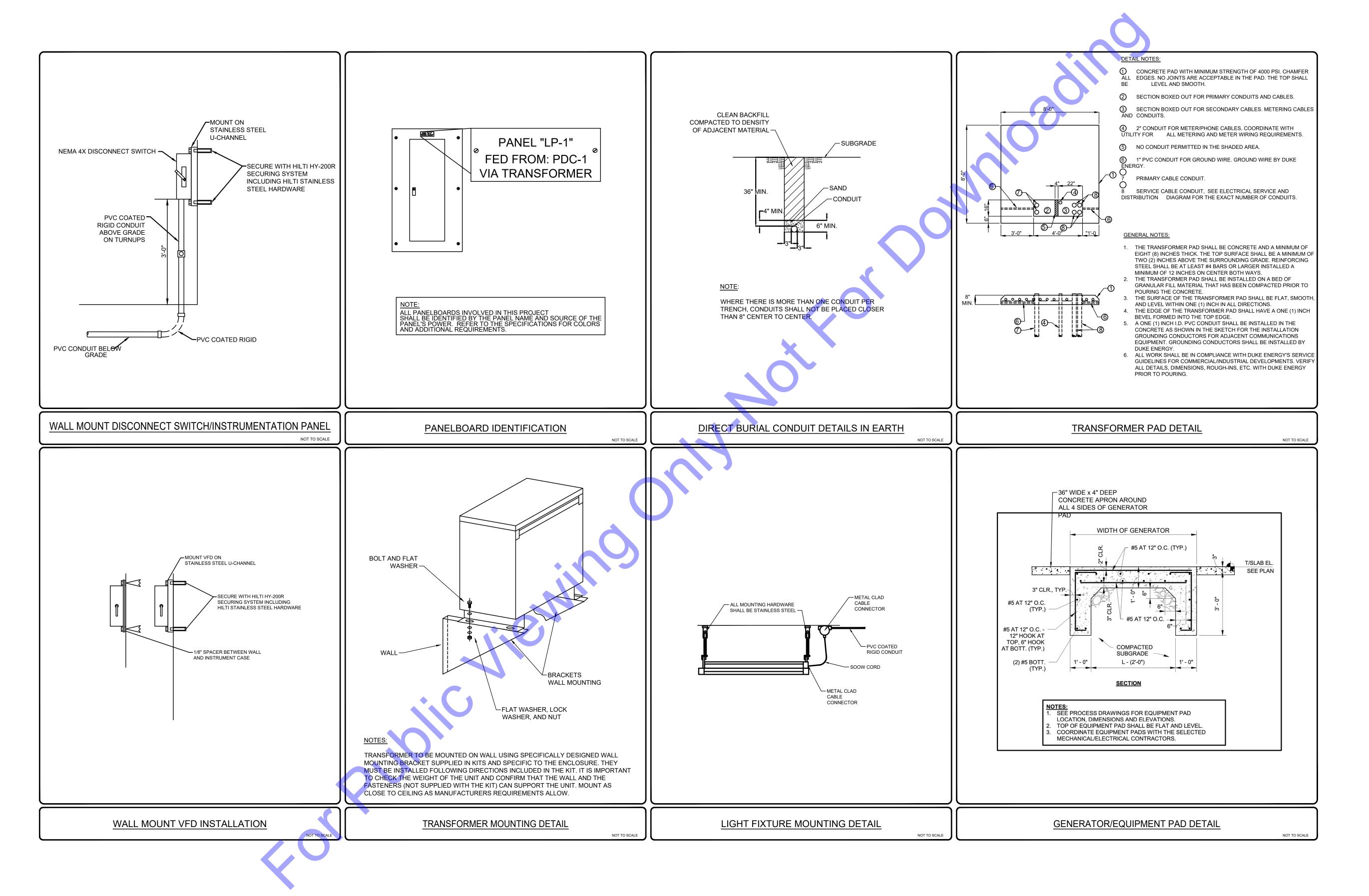
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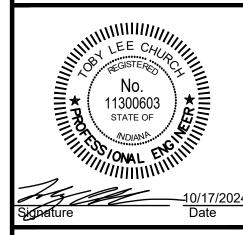
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ELECTRICAL DETAILS

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