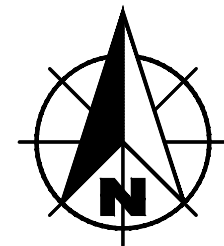


BLUCHER POOLE WWTF SCADA IMPROVEMENTS

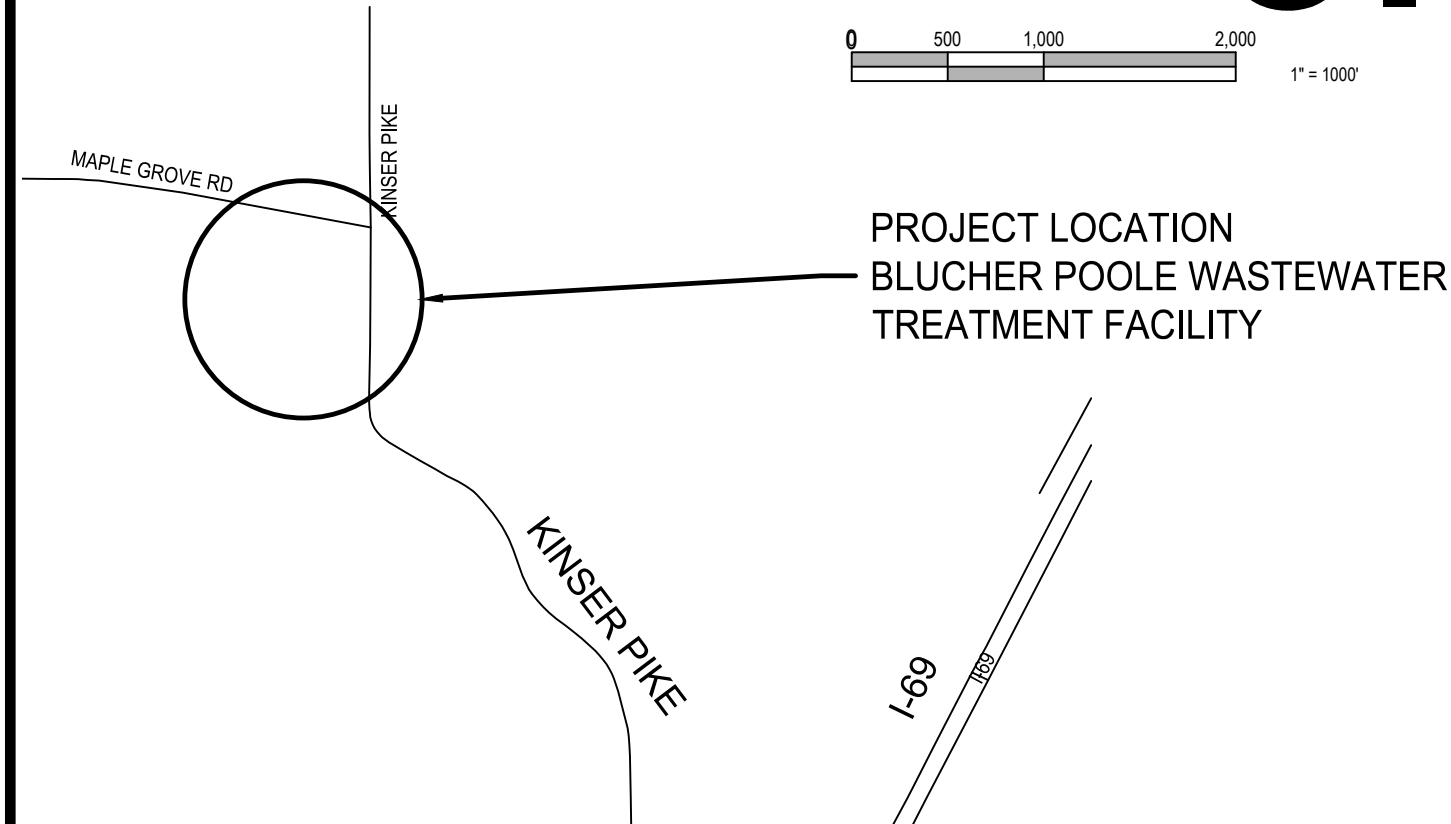
FOR THE

CITY OF BLOOMINGTON UTILITIES

BLOOMINGTON, INDIANA



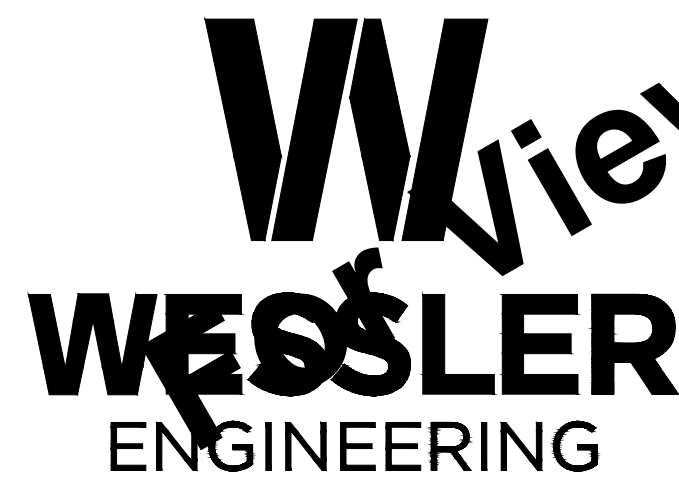
0 500 1,000 2,000
1" = 1000'



BLOOMINGTON, INDIANA
VICINITY MAP
SCALE: 1" = 1000'



STATE LOCATION MAP
SCALE: NONE



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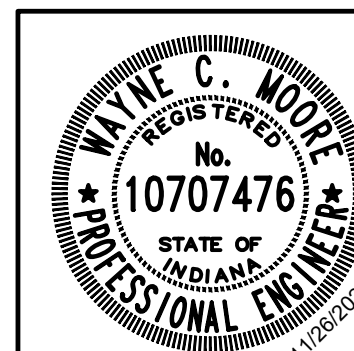
INDIANAPOLIS
6219 South East Street
Indianapolis, Indiana 46227
Phone: (317) 788-4551 - Fax: (317) 788-4553
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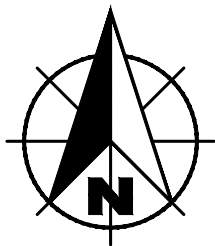
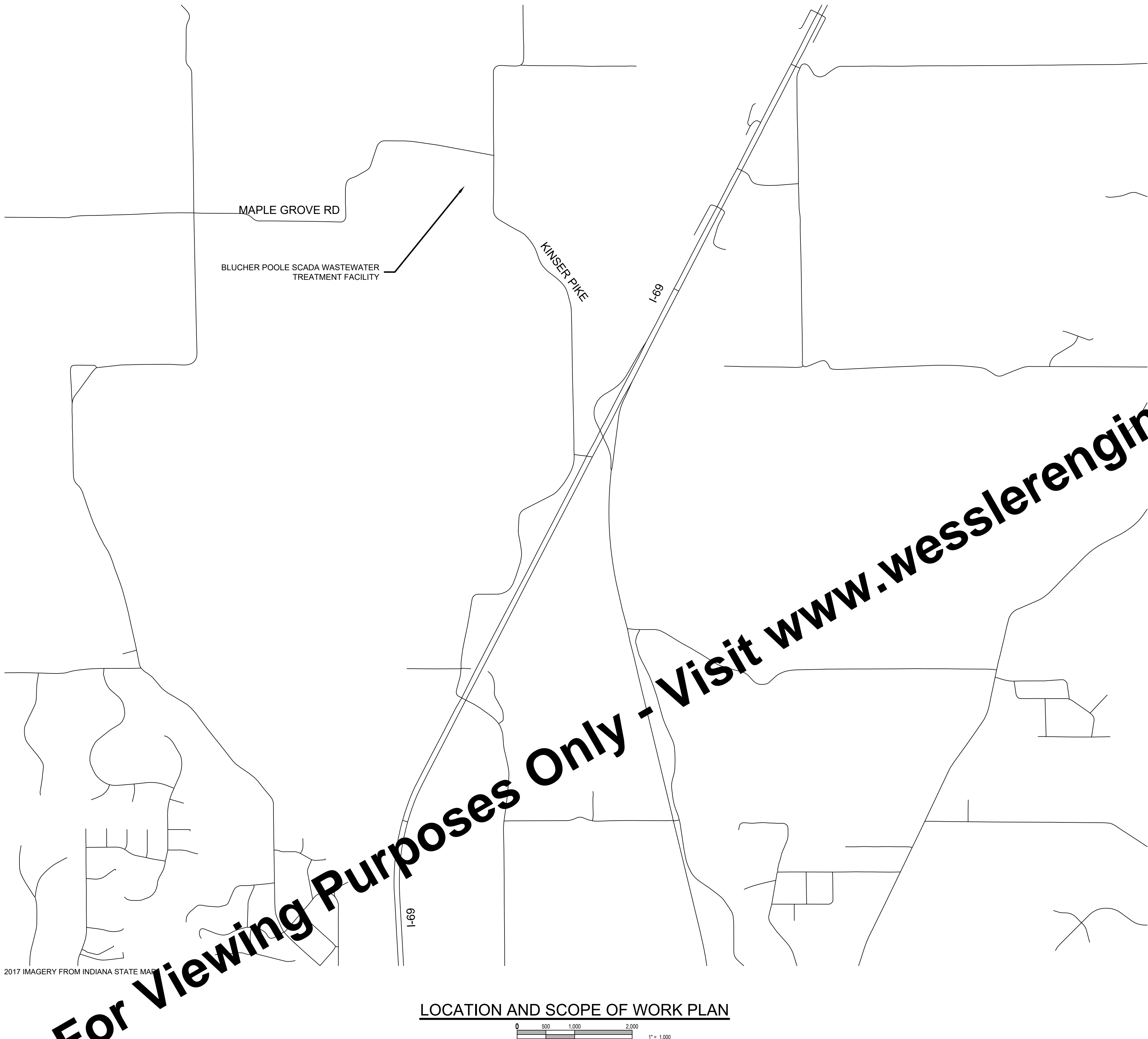
CITY OF BLOOMINGTON, UTILITIES

APRIL 2025





PROJECT ENGINEER
REGISTERED ENGINEER STATE OF INDIANA NO. 10707476

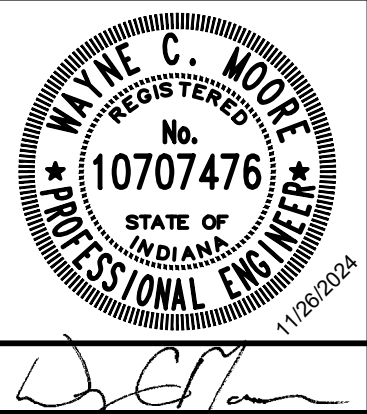
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DRAWING INDEX	
SHEET NO.	DESCRIPTION
GENERAL	
1G1	TITLE SHEET
1G2	INDEX, LOCATION PLAN, SURVEY
1G3	GENERAL SHEET
1E1	ELECTRICAL LEGEND
1I1	PROCESS AND INSTRUMENTATION LEGEND
PLAN	
2E1	ELECTRICAL SITE PLAN
2E2	ELECTRICAL IMPROVEMENTS SITE PLAN
2E3	PRIMARY CLARIFIER IMPROVEMENTS PLAN
2E4	FINAL CLARIFIER IMPROVEMENTS PLAN
2E5	BLOWER ELECTRICAL IMPROVEMENTS PLAN
2E6	INFLUENT LIFT STATION IMPROVEMENTS PLAN
2E7	RETURN PUMP STATION IMPROVEMENTS PLAN
PROCESS AND INSTRUMENTATION DIAGRAMS	
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3I2	INFLUENT PUMP P & ID
3I3	GRIT REMOVAL P & ID
3I4	GRIT HANDLING P & ID
3I5	PHOSPHORUS REMOVAL STORAGE P & ID
3I6	PHOSPHORUS REMOVAL PUMPING P & ID
3I7	POLYMER P & ID
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3I9	RETURN PUMPING P & ID
3I10	SLUDGE PUMPING P & ID
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4E3	GRIT BUILDING CONTROL PANEL LAYOUT
4E4	RETURN PUMP STATION CONTROL PANEL LAYOUT
4E5	SOLIDS HANDLING FACILITY CONTROL PANEL LAYOUT
ELECTRICAL ONE-LINE DIAGRAMS	
5E1	DEMO ONE-LINE DIAGRAM
5E2	IMPROVEMENTS ONE-LINE DIAGRAM
5E3	IMPROVEMENTS ONE-LINE DIAGRAM
5E4	POWER IMPROVEMENTS ONE-LINE DIAGRAM

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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				



BLUCHER POOLE WWTF SCADA IMPROVEMENTS	
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
INDEX, LOCATION PLAN, SURVEY	

SHEET NO.
1G2
2

EXISTING FEATURES LEGEND					
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BENCH MARK		CISTERN		EASEMENT - CONSTRUCTION/PERMANENT
	TEMPORARY BENCH MARK		ELECTRIC METER		LOT BOUNDARY
	SOIL BORING LOCATION		AIR CONDITIONING UNIT		PROPERTY BOUNDARY
	SECTION CORNER		UTILITY RISER (DEFINED BY UTILITY)		RIGHT-OF-WAY - TEMPORARY/PERMANENT
	DRILL HOLE IN CONCRETE/HARRISON MONUMENT		UTILITY PEDESTAL (DEFINED BY UTILITY)		SECTION BOUNDARY
	CONTROL POINT (SET/FOUND)		UTILITY MARKER (DEFINED BY UTILITY)		WETLANDS
	MAGNETIC NAIL (SET/FOUND)		JOINT POWER/TELEPHONE POLE		CONTOUR - INTERMEDIATE ELEVATION
	BOAT SPIKE (SET/FOUND)		LIGHT POLE		CONTOUR - INDEX ELEVATION
	PK NAIL (SET/FOUND)		LIGHT ON POWER POLE		OVERHEAD ELECTRIC
	RAILROAD SPIKE (SET/FOUND)		LIGHT ON JOINT POLE		OVERHEAD CABLE TV
	R/W MARKER - CONCRETE/GRANITE/STONE		POWER POLE		OVERHEAD TELEPHONE
	IRON PIPE/IRON PIN/REBAR (WITH DIAMETER)		TELEPHONE POLE		UNDERGROUND CABLE TV
	BRASS PLUG		LAMP POST		UNDERGROUND ELECTRIC
	CABLE TV MANHOLE		GUY ANCHOR		UNDERGROUND FIBER OPTIC
	ELECTRIC MANHOLE		GUY POLE OR STUB		GAS MAIN
	GAS MANHOLE		CONTROLLER CABINET		DIGESTER GAS
	OTHER MANHOLE		FLAG POLE		PETROLEUM MAIN
	TELEPHONE MANHOLE		POST		UNDERGROUND TELEPHONE
	TELEPHONE VAULT		GROUND LIGHT		WATER MAIN
	TRAFFIC MANHOLE		MAILBOX		WATER SERVICE
	TRAFFIC HANDHOLE		DOUBLE/MULTIPLE MAILBOX		FORCEMAIN
	WATER MANHOLE		MAST ARM POLE		GRAVITY SEWER PIPE
	AIR RELEASE VALVE		TRAFFIC SIGNAL STRAIN POLE		PLANT CHLORINE PIPE
	SANITARY SEWER MANHOLE		SIGNAL LOOP DETECTOR BOX		TOP OF BANK/TOE OF SLOPE
	DRAINAGE/STORM SEWER MANHOLE		SIGNAL LOOP DETECTOR LOOP		CENTERLINE OF DITCH/SWALE/STREAM
	SANITARY SEWER CLEANOUT		SIGN - SINGLE POST		FENCE - FIELD
	SEPTIC TANK		SIGN - DOUBLE POST		FENCE - METAL
	VALVE VAULT		SIGN - RAILROAD SIGNAL		FENCE - WOOD
	BEEHIVE INLET		SIGN - RAILROAD CROSSING		GUARDRAIL
	CURB INLET		BUSH		STREAM
	DROP INLET		STUMP		TREE/BRUSH LINE
	CATCH BASIN		TREE - CONIFEROUS		
	DOWNSPOUT		TREE - DECIDUOUS		
	GAS METER		ROCK OUTCROP		
	GAS VALVE		SATELLITE		
	GAS SERVICE VALVE		SPRINKLER CONTROL VALVE		
	PETROLEUM VALVE		WATER METER		
	PETROLEUM SHUTOFF VALVE		WATER VALVE		
	GAS STATION MONITORING WELL		WATER SERVICE VALVE		
	GAS STATION FILL CAP		WET WELL		
	NATURAL GAS WELL/STORAGE WELL		WET WELL		
	SPRINKLER HEAD		HYDRANT		
	YARD HYDRANT		PROCESS VALVE		

TABLE OF ABBREVIATIONS			
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR	IPS	IRON PIPE SIZE
ALUM	ALUMINUM	ISPC	INDIANA STATE PLANE COORDINATE
APP	APPARENT	LB	POUND(S)
APPROX	APPROXIMATE(LY)	LF	LINEAR FEET
ASPH	ASPHALT	LN	LANE
ASSOC	ASSOCIATES	LS	LIFT STATION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MA EX	MATCH EXISTING
AVE	AVENUE	MJ	MECHANICAL JOINT
AVG	AVERAGE	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLVD	BOULEVARD	MH	MANHOLE
BM	BENCHMARK	MIN	MINIMUM
CO	CLEANOUT	MISC	MISCELLANEOUS
CI	CAST IRON	MNFR	MANUFACTURER
CL	CENTER LINE	N	NORTHING, NORTH
CMA	COLD MIX ASPHALT	NGS	NATIONAL GEODETIC SURVEY
CMP	CORRUGATED METAL PIPE	NO.	NUMBER
CMU	CONCRETE MASONRY UNIT	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONT	CONTINUOUS	PC	POINT OF CURVE (BEGIN CURVE)
CNR	CORNER	POLY	POLYETHYLENE
CP	CONTROL POINT	PI	POINT OF INTERSECTION
CPP	CORRUGATED PLASTIC PIPE	POT	POINT ON TANGENT
CR STN	CRUSHED STONE	PT	POINT OF TANGENT (END OF CURVE)
CYD	CUBIC YARD	PSI	POUNDS PER SQUARE INCH
D	DEPTH	PT	POINT
DI	DUCTILE IRON	PVC	POLYVINYL CHLORIDE
DI MJ	DUCTILE IRON MECHANICAL JOINT	R	RAILROAD
DBL	DOUBLE	ROW	RIGHT-OF-WAY
DIA	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE	RD	ROAD
DIPS	DUCTILE IRON PIPE SIZE	S	SOUTH
DR	DRIVE	SR	STATE ROUTE
E	EASTING, EAST	SST	STAINLESS STEEL
EF	EACH FACE	SVA	SERVICE VALVE ASSEMBLY
EW	EACH WAY	SB	SOIL BORING
EA	EACH	SCHED	SCHEDULE
EJ	EAST JAW IRON WORKS	SDR	STANDARD DIMENSION RATIO
EL	ELEVATION	SECT	SECTION
EX	EXISTING	SF	SQUARE FEET
EXP	EXPANSION	SHT	SHEET
FF	FINISH FLOOR ELEVATION	SPECS	SPECIFICATION(S)
FM	FORCE MAIN	SQ	SQUARE
FND	FOUND	SRF	STATE REVOLVING FUND
FT	FEET	ST	STREET
FTG	FOOTING	STA	STATION
GALV	GALVANIZED	SYD	SQUARE YARD
GPS	GLOBAL POSITIONING SYSTEM	TBM	TEMPORARY BENCHMARK
HMA	HOT MIX ASPHALT	TC	TOP OF CASTING
HDPE	HIGH DENSITY POLYETHYLENE	TYP	TYPICAL
HORIZ	HORIZONTAL	UNO	UNLESS NOTED OTHERWISE
ID	INSIDE DIAMETER	USGS	US GEOLOGICAL SURVEY
IE	INVERT ELEVATION	VERT	VERTICAL
INC	INCORPORATED	VLV	VALVE
INDOT	INDIANA DEPARTMENT OF TRANSPORTATION	W	WIDTH, WEST
INSTR	INSTRUMENT	WSE	WATER SURFACE ELEVATION
INV	INVERT	YR	YEAR

*NOTE: THIS TABLE IS A LISTING OF TYPICAL ABBREVIATIONS AND MAY NOT INCLUDE ALL ABBREVIATIONS FOUND WITHIN THIS PLAN SET. IF A QUESTION ARISES ON THE MEANING OF AN ABBREVIATION NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION.

UTILITY CONTACTS

WATER
CITY OF BLOOMINGTON UTILITIES
600 E MILLER DR
BLOOMINGTON, IN 47401
(812) 349-3632
ATTN: DAN HUDSON

ELECTRIC
DUKE ENERGY
1100 W 2ND ST
BLOOMINGTON, IN 47403
(800) 521-2232
(812) 337-3033

MCCSC
315 E. NORTH DRIVE
BLOOMINGTON, IN 47401
(812) 330-7700

GAS
VECTREN (ENGINEERING)
1800 W 26TH ST
MUNCIE, IN
(765) 287-2119

VECTREN (CONSTRUCTION)
205 S MADISON
BLOOMINGTON, IN
(812) 330-4061


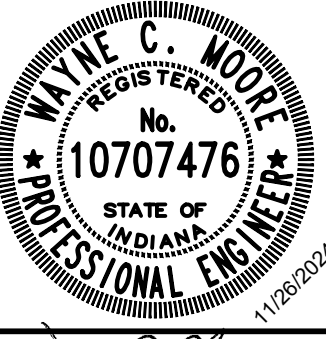

TELEPHONE/FIBER/CABLE
AT&T DISTRIBUTION
4517 E INDIANA BELL CT
BLOOMINGTON, IN 47408
(812) 334-4629
ATTN: RUSS OWEN

COMCAST
(812) 360-3090
ATTN: STEVE MCARTER

STREET
MONROE HIGHWAY DEPARTMENT
501 N MORTON ST
STE 216
BLOOMINGTON, IN 47404
(812) 349-2554

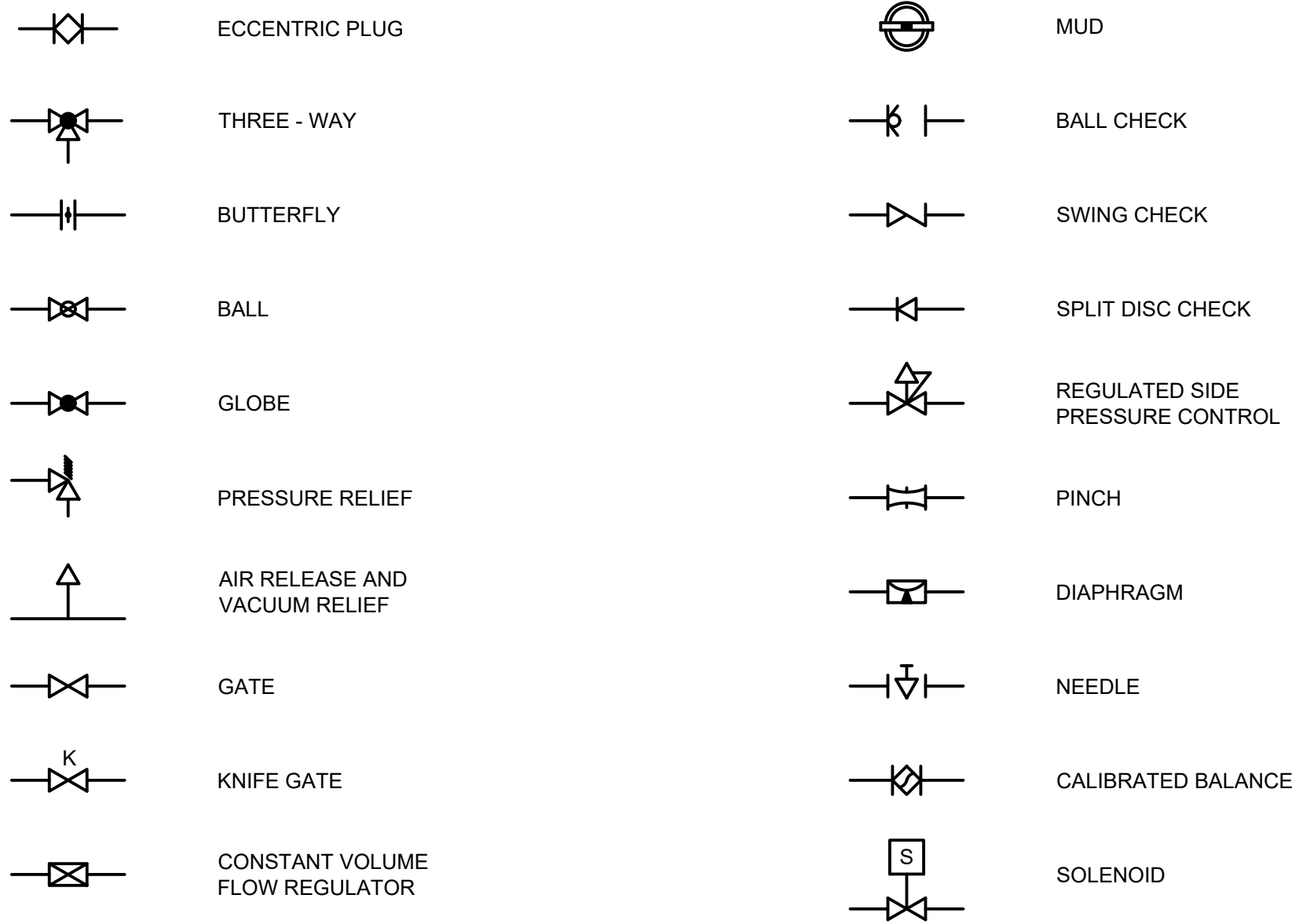
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- GENERAL NOTES:
1. NOTIFY THE ENGINEER IF ANY CONFLICTING INFORMATION BECOMES APPARENT IN THE CONTRACT DOCUMENTS AS SOON AS POSSIBLE AND PRIOR TO THE COMMENCEMENT OF ANY WORK IN THE VICINITY OF OR RELATIVE TO THE APPARENT CONFLICT SO THAT CLARIFICATION MAY OCCUR PRIOR TO CONSTRUCTION.
 2. ANY ALTERATIONS TO THESE DRAWINGS NOT AUTHORIZED BY WESSLER ENGINEERING AND NOT IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND RECORDS ON FILE AT WESSLER ENGINEERING SHALL RELIEVE WESSLER ENGINEERING OF ANY RESPONSIBILITY FOR THE ACCURACY OF THE DRAWINGS.
 3. USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO STATE, COUNTY, MUNICIPAL, AND PRIVATE PROPERTY. REPAIR ALL DAMAGES AS A RESULT OF OPERATIONS, INCLUDING DAMAGE TO DRAINAGE STRUCTURES, FIELD TILES, PUBLIC/PRIVATE ROADS, AND LANDSCAPING (INCLUDING FENCING). REPAIR AND REPLACE DAMAGED ITEMS AT NO ADDITIONAL COST TO THE OWNER. PERFORM ALL REPAIR AND REPLACEMENT WORK TO THE SATISFACTION OF THE PERMITTING AGENCY, THE OWNER AND THE ENGINEER.
 4. TAKE CARE TO AVOID DAMAGE TO PAVED AREAS WHICH ARE NOT SPECIFICALLY CALLED OUT FOR REPAIR OR REPLACEMENT. REPAIR, OR REPLACE ALL SUCH PAVEMENTS WHICH ARE DAMAGED BY CONSTRUCTION ACTIVITIES AND CONSTRUCTION TRAFFIC AT NO ADDITIONAL COST TO THE OWNER.
 5. OBTAIN ALL TEMPORARY EASEMENTS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT AT NO ADDITIONAL COST TO THE OWNER.
 6. COMPLY WITH ALL APPLICABLE PERMITS AND REGULATIONS. APPLICABLE PERMITS ISSUED TO THE OWNER WILL BE MADE AVAILABLE TO THE CONTRACTOR. CONTACT ALL APPLICABLE PERMITTING AGENCIES WITHIN THE TIME PERIOD SPECIFIED BY THAT AGENCY PRIOR TO BEGINNING OF CONSTRUCTION.
 7. ALL PRIVATE WELL LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. FIELD VERIFY AND DETERMINE EXACT LOCATIONS OF ALL PRIVATE WELLS IN THE PROJECT AREA.
 8. ALL EXISTING AND NEW UTILITY INFORMATION, INCLUDING BUT NOT LIMITED TO LOCATION, SIZE AND INVERT ELEVATION, IS SHOWN BASED UPON AVAILABLE INFORMATION. THE ENGINEER DOES NOT GUARANTEE OR ASSUME SUCH INFORMATION TO BE TRUE OR CORRECT. IT IS ALL INCLUSIVE OR EVEN APPROXIMATE. CONTACT THE INDIANA UNDERGROUND PLANT PROTECTION SERVICE (IUPPS) AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY. CONTACT NON-MEMBER UTILITIES DIRECTLY.
 9. DETERMINE WHICH UTILITIES MAY CONFLICT WITH WORK AND VERIFY THEIR LOCATION, SIZE AND ELEVATION PRIOR TO CONSTRUCTION AND DETERMINE IF THERE ARE ANY DISCREPANCIES OR CONFLICTS. IF ANY DISCREPANCIES OR CONFLICTS ARE DISCOVERED, NOTIFY THE ENGINEER AS SOON AS POSSIBLE.
 10. EXISTING UTILITY SERVICE LINES TO INDIVIDUAL CUSTOMERS MAY NOT BE SHOWN ON THE DRAWINGS. ASSUME THAT ALL UNDERGROUND SERVICE LINES FOR ALL UTILITIES EXIST TO EACH PROPERTY ALONG THE ROUTE OF THE PLANNED IMPROVEMENTS.
 11. COORDINATE ALL WORK WITH THE RESPECTIVE UTILITIES. SCHEDULE WORK ACCORDINGLY, AND NOTIFY ALL UTILITIES WITHIN A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF ANY CONSTRUCTION ACTIVITY.
 12. COORDINATE PLANNED UTILITY SERVICE INTERRUPTIONS WITH THE RESPECTIVE UTILITIES AND THE UTILITIES' AFFECTED CUSTOMERS. SERVICE INTERRUPTIONS SHOULD NOT LAST MORE THAN FOUR (4) HOURS. GIVE WRITTEN NOTICE TO ALL AFFECTED UTILITY CUSTOMERS AND PROPERTY OWNERS AT LEAST TWENTY-FOUR (24) HOURS BUT NOT MORE THAN SEVENTY-TWO (72) HOURS PRIOR TO ANY PLANNED INTERRUPTION OF UTILITY SERVICE.
 13. USE CAUTION DURING THE EXECUTION OF WORK TO PREVENT DAMAGE TO EXISTING UTILITIES. REPAIR OR REPLACE ALL PUBLIC AND PRIVATE FACILITIES DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS. BRACE AND PROTECT ALL UTILITY POLES AND EXISTING STRUCTURES ADJACENT TO NEW EXCAVATIONS. UTILITY POLE BRACING SHALL BE AS DIRECTED BY THE GOVERNING UTILITY.
 15. MAINTAIN EXISTING STORMWATER DRAINAGE FOR THE ENTIRE DURATION OF THE PROJECT.
 16. DO NOT DISTURB EXISTING MANHOLES OR INLETS, UNLESS NOTED OTHERWISE.
 17. ALL EQUIPMENT, APPURTENANCES AND PIPING REMOVED AS PART OF THE DEMOLITION SHALL FIRST BE OFFERED TO THE OWNER FOR SALVAGE. DELIVER SALVAGED ITEMS SELECTED BY OWNER TO A LOCATION DESIGNATED BY THE OWNER OR ENGINEER. IN THE EVENT THE OWNER DOES NOT ELECT TO KEEP THE REMOVED ITEMS, REMOVE SUCH ITEMS FROM THE SITE AND DISPOSE OF AT A LOCATION APPROVED FOR SUCH DISPOSAL AT THE CONTRACTOR'S EXPENSE.
 18. COORDINATE STAGING AREA LOCATIONS WITH THE OWNER.
 19. ALL CONSTRUCTION TRAFFIC SHALL USE MAJOR ROADS. NO CONSTRUCTION TRAFFIC SHALL USE LOCAL STREETS FOR INDIRECT ACCESS.
 20. TO CONTROL DUST, REMOVE SOIL FROM STREETS USED BY CONSTRUCTION TRAFFIC DAILY, VACUUM AND WATER AS NECESSARY AND/OR AS DIRECTED BY THE OWNER.
 21. ALL EXISTING PIPING MAY NOT BE SHOWN. REFERENCE EXISTING RECORD DRAWINGS ON FILE WITH THE OWNER AND WESSLER ENGINEERING FOR ADDITIONAL INFORMATION OF EXISTING PIPING AND CONDUIT THROUGHOUT THE PLANT SITE.
 22. THE WORK SHOWN ON THESE DRAWINGS IS OCCURRING ON A PLANT SITE IN WHICH BURIED ELECTRICAL CONDUIT AND SMALL PIPING MAY EXIST THROUGHOUT AND IN THE VICINITY OF THE PROJECT AND MAY NOT BE SHOWN ON THESE DRAWINGS. EXPECT TO ENCOUNTER BURIED ELECTRICAL AND COMMUNICATIONS WIRING, WITH OR WITHOUT CONDUIT, SMALL PIPING, AND FIELD TILE WHILE DIGGING ON THIS SITE.
 23. NEW PIPING CARRYING LIQUIDS SHALL HAVE MINIMUM COVER AS DEFINED IN SPEC 02660, UNLESS SPECIFIC ELEVATIONS ON THE DRAWINGS INDICATE OTHERWISE.
 24. INSPECT THE SITE PRIOR TO BIDDING TO UNDERSTAND THE EXTENT OF THE DEMOLITION WORK INVOLVED AND ADJUST BID ACCORDINGLY.
 25. COMPLETELY REMOVE UNDERGROUND PIPING THAT HAS PREVIOUSLY BEEN OR WILL BE TAKEN OUT OF SERVICE, IN CONFLICT WITH THE NEW WORK. UNLESS OTHERWISE NOTED, ABANDON IN PLACE ALL UNDERGROUND PIPING NOT IN CONFLICT WITH THE NEW WORK. DO NOT LEAVE ABANDONED PIPING LIVE. SEE SPECIFICATION SECTION 02050 FOR DEMOLITION PROCEDURES. SEE SPECIFICATION SECTION 01550 FOR PLANT OPERATIONS DURING CONSTRUCTION FOR COORDINATION OF DEMOLITION WORK AND NEW CONSTRUCTION.
 26. ALL EQUIPMENT TO BE REMOVED THAT HAS ELECTRICAL COMPONENTS, CONDUIT AND WIRING, OR SMALL PIPING CONNECTED SHALL HAVE THE ELECTRICAL COMPONENTS AND SMALL PIPING REMOVED BACK TO THE SOURCE.

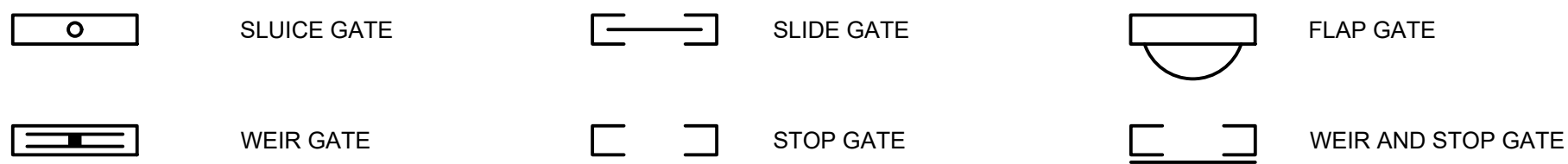
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		APPROVED BY	WCM									
		ISSUE DATE										
		PROJECT NUMBER	274124-04-001							GENERAL SHEET		3

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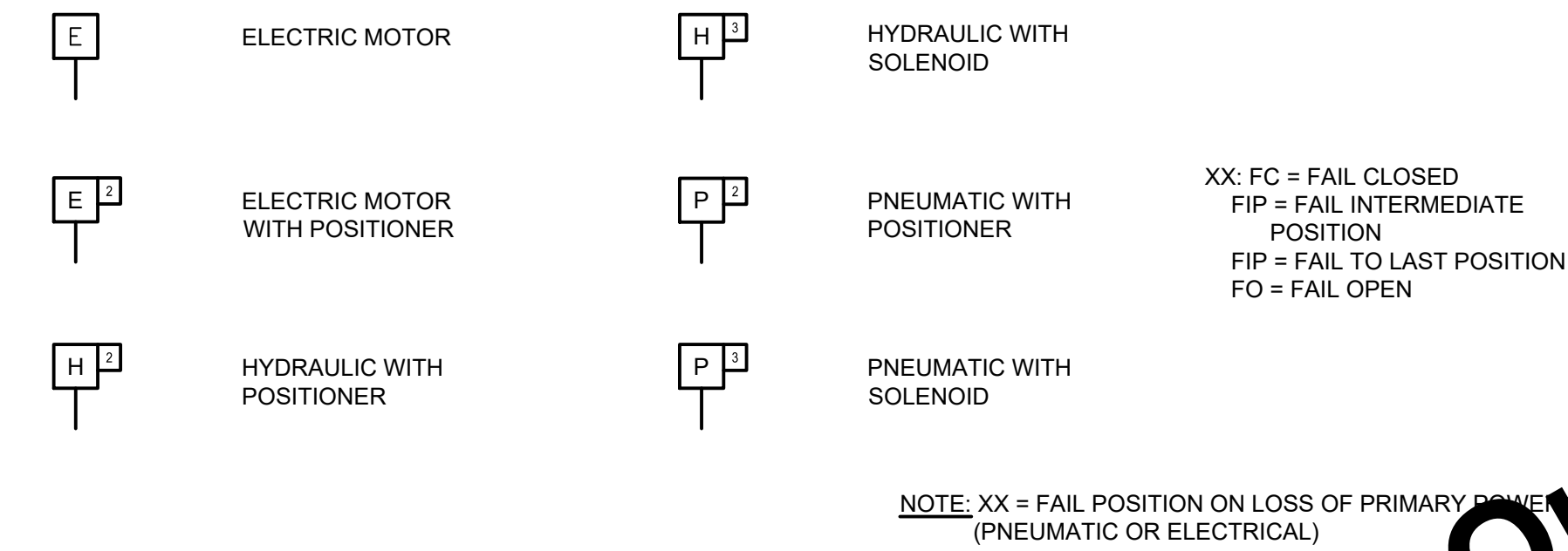
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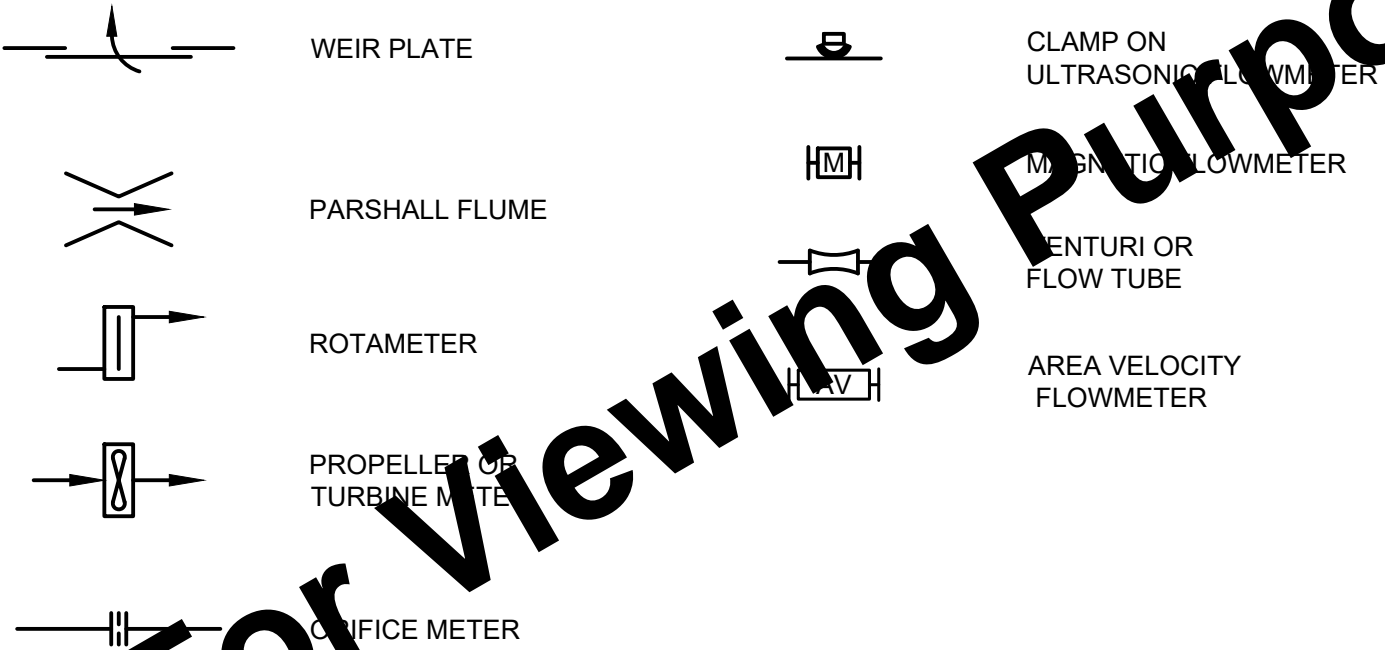
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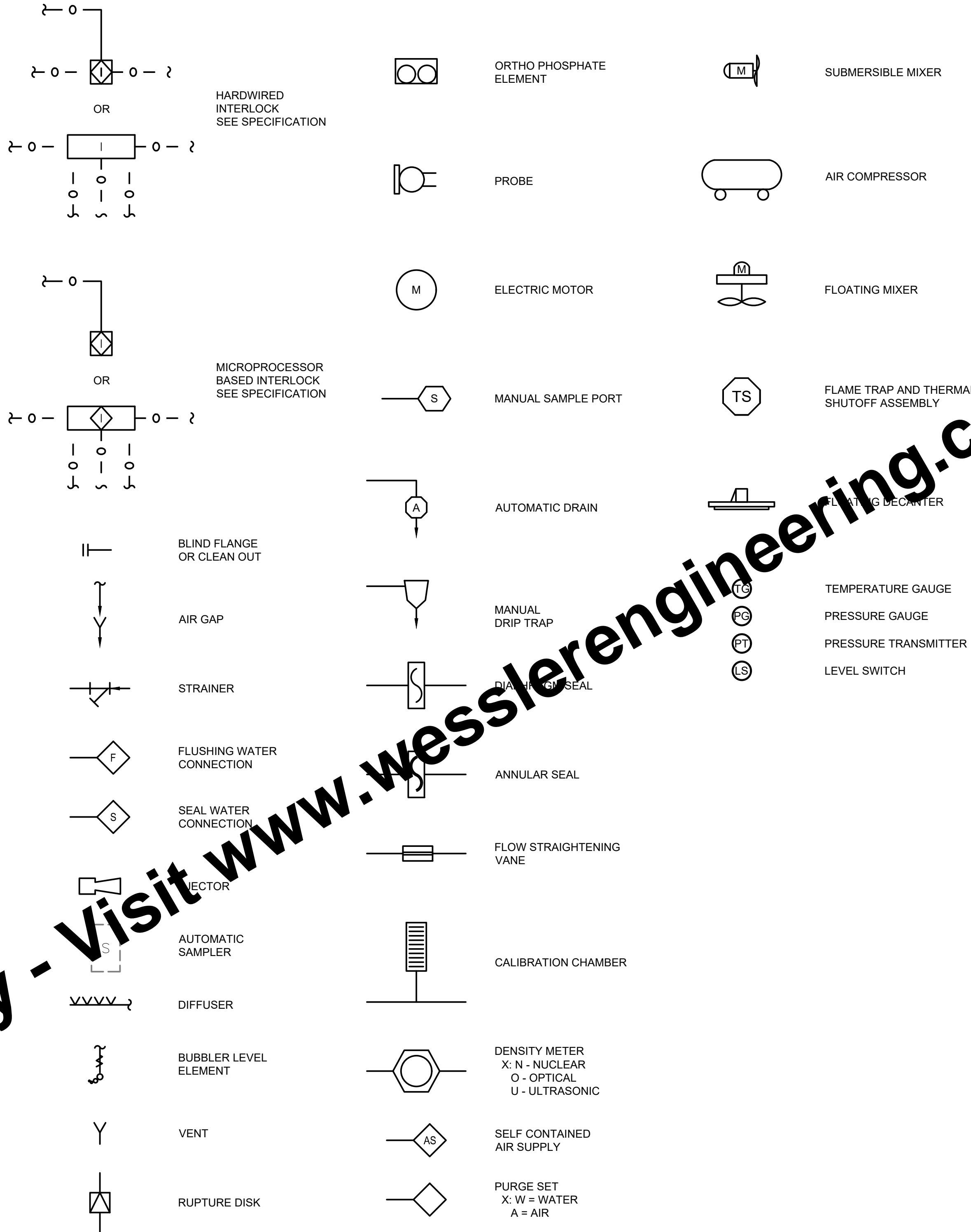
VALVE AND GATE POWER ACTUATOR SYMBOLS



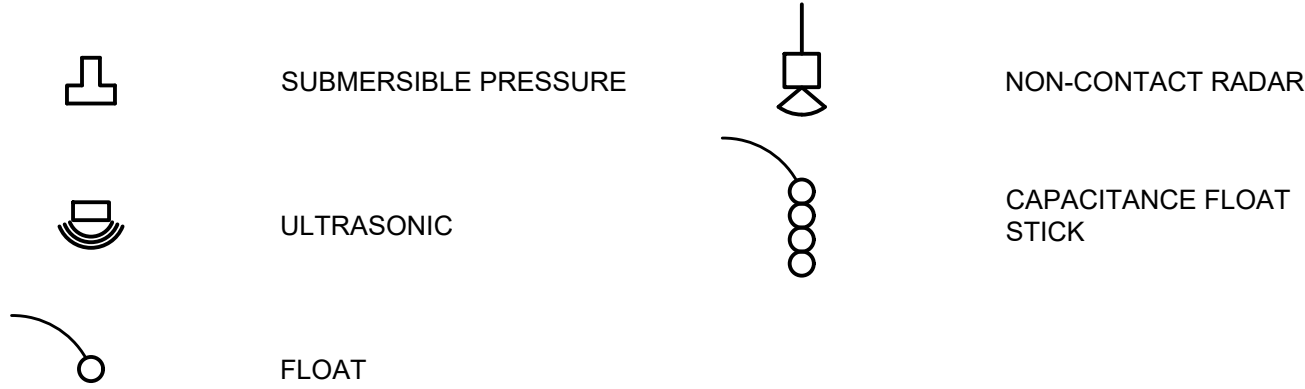
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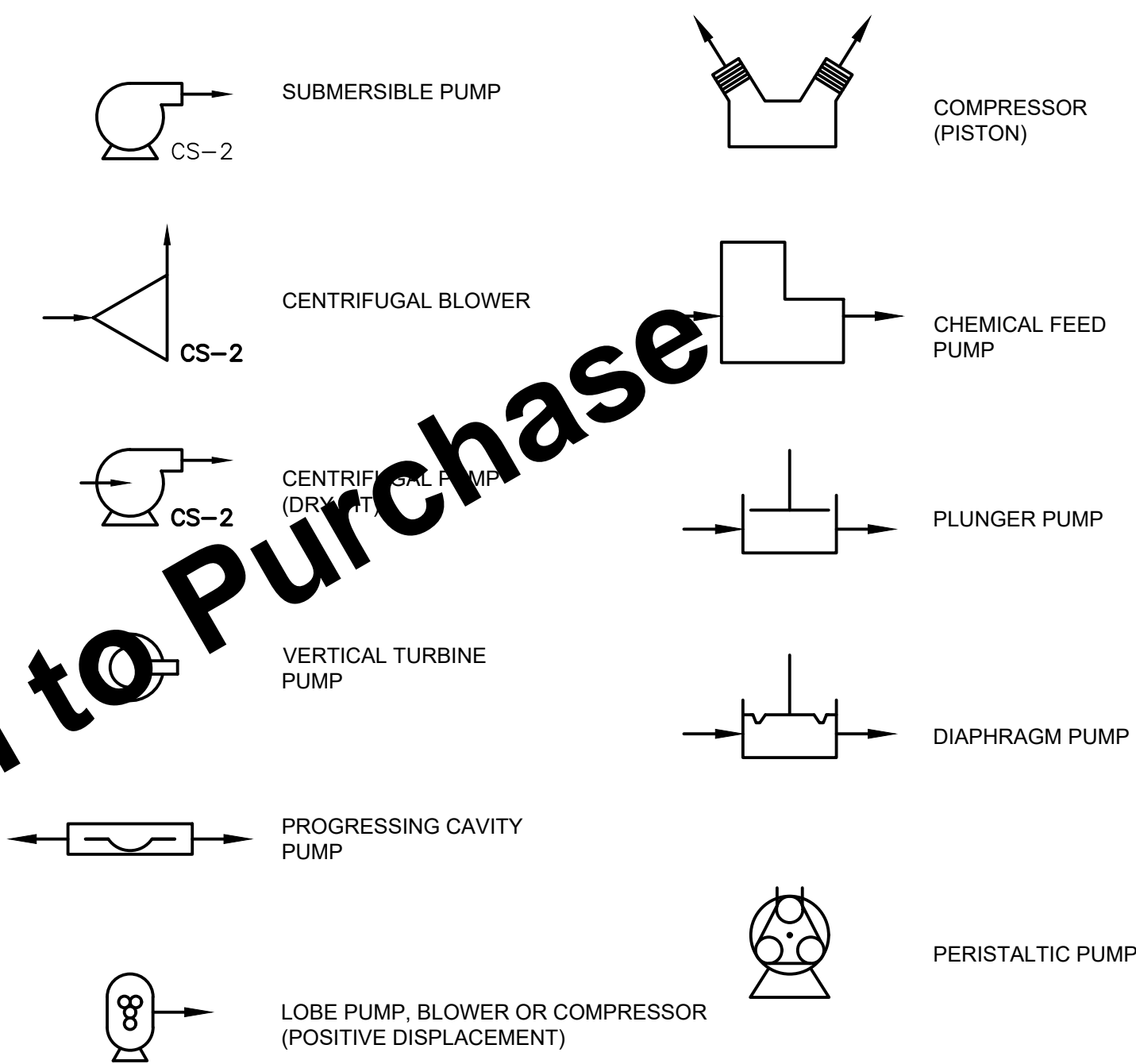
MISCELLANEOUS SYMBOLS



LEVEL ELEMENTS SYMBOLS



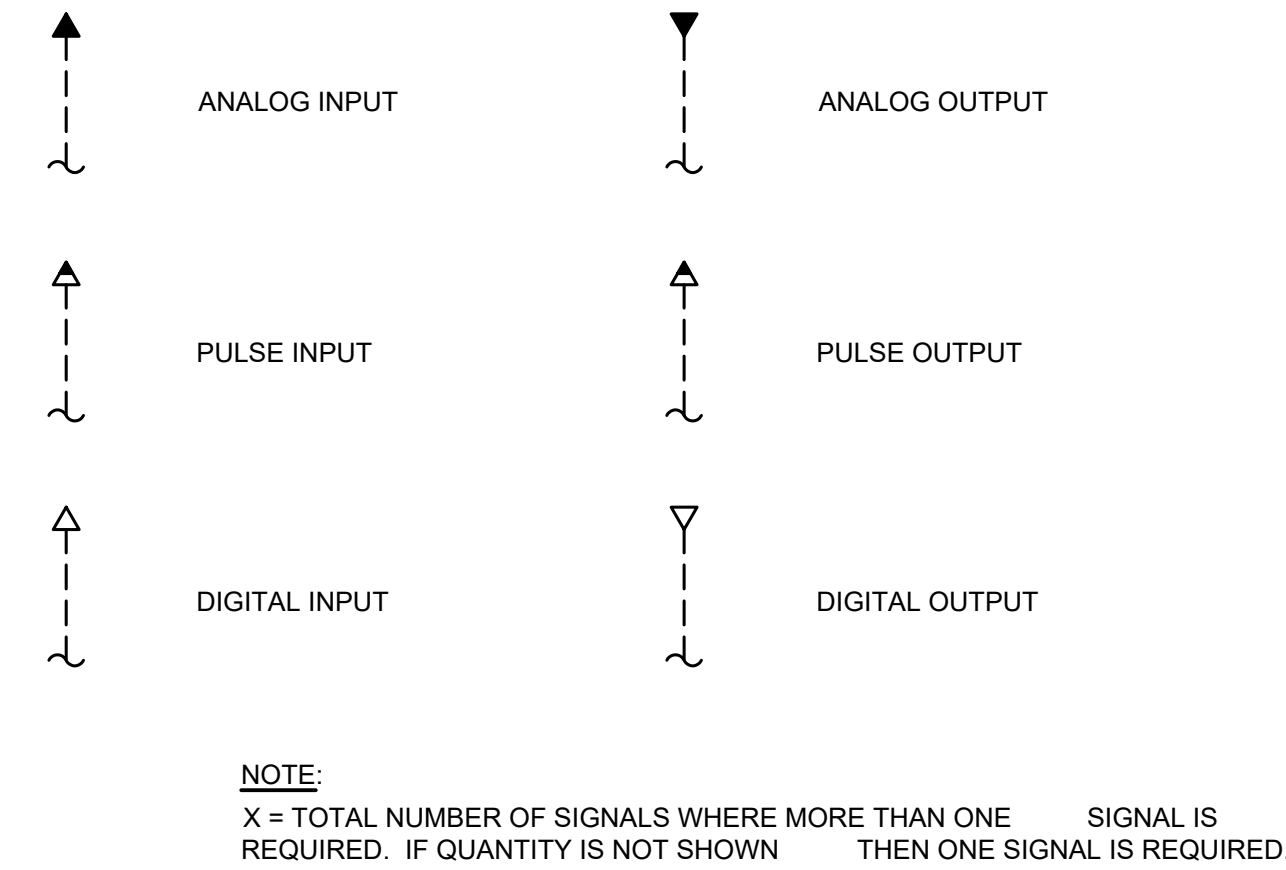
PUMP AND COMPRESSOR SYMBOLS



FLOW STREAM IDENTIFIERS

SEE PROCESS - MECHANICAL LEGEND

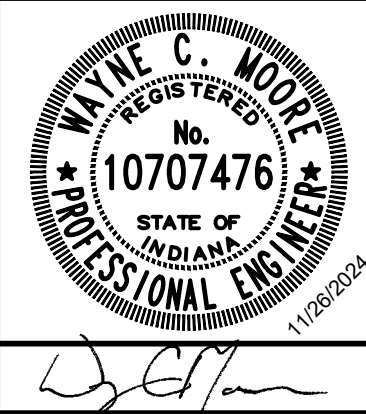
INPUTS AND OUTPUTS TO PLC OR DISTRIBUTED CONTROL



GENERAL NOTE:

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	APPROVED BY	WCM				
	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER	274124-04-001				



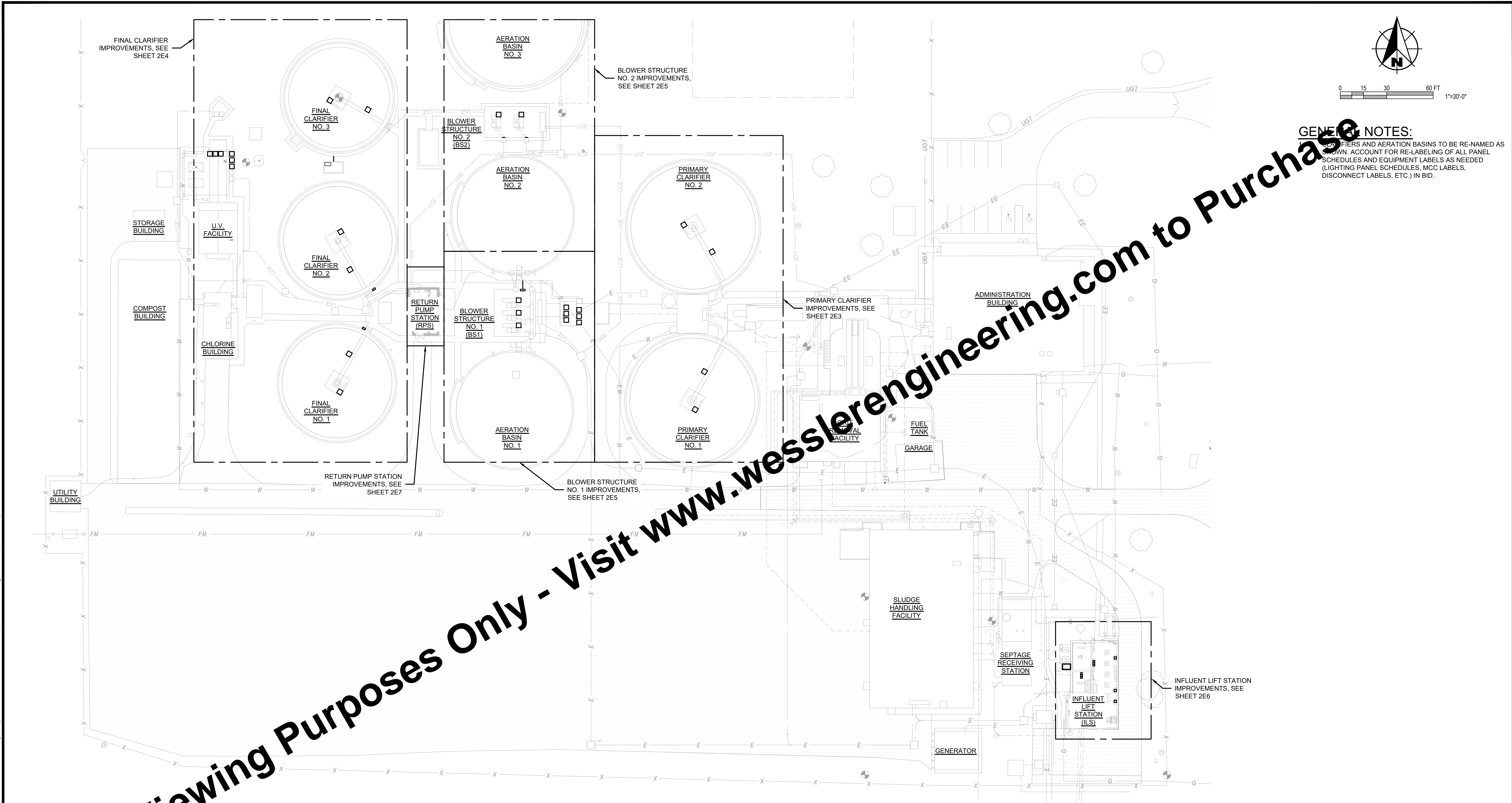
BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA
PROCESS AND INSTRUMENTATION LEGEND

SHEET NO.

111

5

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg Layout: 2E1 ELECTRICAL SITE PLAN | Plotted: 04/04/25 @ 02:45:21 | LastSavedBy: Curtis G



LEGEND
— EXISTING FEATURES
— NEW FEATURES

<div>SCALE VERIFICATION</div> <div>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</div> <div><div></div></div>	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	<div><div><div>WYKE C. MOORE</div><div>REGISTERED</div><div>No. 10707476</div><div>STATE OF INDIANA</div><div>PROFESSIONAL ENGINEER</div><div>11/28/2024</div></div><div><div>W</div><div>WESSLER</div><div>ENGINEERING</div><div>More than a Project™</div></div></div>	BLUCHER POOLE WWTF SCADA IMPROVEMENTS			SHEET NO.
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	APPROVED BY	WCM						BLOOMINGTON, INDIANA			
	ISSUE DATE							ELECTRICAL SITE PLAN			6
	APRIL 2025										
	PROJECT NUMBER										
	274124-04-001										

Drawing: X:\Bloomington\274124\Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg | Layout: 2E2 ELECTRICAL IMPROVEMENTS SITE PLAN | Plotted: 04/04/25 @ 02:45:24 | LastSavedBy: CuiHG



ELECTRICAL IMPROVEMENTS SITE PLAN
SCALE: 1/12" = 1'

- LEGEND
- EXISTING FEATURES
 - NEW FEATURES

DUCT BANK SECTION (P : "TOTAL POWER DUCT BANK SECTION CONDUITS") (C : "TOTAL CONTROLS DUCT BANK SECTION CONDUITS")	FROM	TO	POWER	CONTROLS
A (P: 2 - 2"C)(C: 4 - 1"C)				
	MCC-6 (L7)	COMPOSITE SAMPLER 3 (CS3)	1 - 2"C	
	FIT-603	PLC-RPS	1 - 1"C	
	AIT-606	PLC-RPS	1 - 1"C	
	V-633	PLC-RPS	1 - 1"C	
	UNKNOWN INST. (UI)	PLC-RPS	1 - 1"C	
SPARE	MCC-6	EHH-2	1-2"C	
B (P: 1 - 1"C)(C: 2 - 1"C)				
SPLITS FROM DUCT TO MCC GOES TO EHH-201, NEW WIRE	AA-V-641	MCC-6	1 - 1"C	
	AA-V-641, FIT-652	PLC-RPS		2 - 1"C
C (P: 1 - 1"C)(C: 2 - 1"C)				
SPLITS FROM DUCT TO MCC GOES TO EHH-201, NEW WIRE	AA-V-651	MCC-6	1 - 1"C	
	AA-V-651, FIT-652	PLC-RPS		2 - 1"C
D (P: 1 - 2"C)(C: 2 - 1"C)				
ALL BS1/2 VALVE SIGNALS	AA-V-651, AA-V-641, V-633	PLC-RPS		1 - 2"C
ALL BS2/AB3 ANALOG SIGNALS	AA-V-651, AA-V-641, V-633, AIT-606, FIT-606, UI	PLC-RPS		1 - 2"C
	FIBER LOOP	FIBER LOOP		1 - 2"C
	MCC-6 (L7)	COMPOSITE SAMPLER 3 (CS3)	1 - 2"C	
NEW WIRE	FIT-652, FIT-642	PLC-RPS		1 - 2"C
E (P: 1 - 1"C)(C: 1 - 2"C)				
RE-ROUTE WIRE	AIT-683, AIT-682, AIT-681	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 2"C
	AIT-683, AIT-682, AIT-681	L5		1 - 1"C
F (C: 1 - 2"C)				
RE-ROUTE WIRE THROUGH NEW UGE	AIT-683, AIT-682, AIT-681	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 2"C
G (P: 2 - 3/4"C)(C: 1 - 3/4"C, 2 - 1"C)				
RE-ROUTE WIRE	AIT-605, FIT-602	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 1"C
RE-ROUTE WIRE	AA-V-623	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 3/4"C, 1 - 1"C
	AIT-605, FIT-602	L5	1 - 3/4"C	
	AA-V-623	MCC-4	1 - 3/4"C	
H (P: 1 - 3/4", 2 - 1"C)(C: 1 - 3/4"C)				
	AIT-683, AIT-682, AIT-681	L5	1 - 1"C	
	AIT-604, AIT-601	L5	1 - 3/4"C	
RE-ROUTE WIRE	AA-V-613	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 3/4"C
	AA-V-613	MCC-4	1 - 3/4"C	
I (C: 2 - 1"C, 2 - 2"C)				
RE-ROUTE WIRE	AIT-604, AIT-601	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 1"C
RE-ROUTE WIRE	AA-V-613	PLC-BS1 (MOVED FROM PLC-RPS)		1 - 1"C
NEW FIBER	FOPP-BS1	FOPP-RPS		1 - 2"C
SPARE	PB-BS1D	PB-RPSA		1 - 2"C

J (P: 2 - 2"C)(C: 8 - 2"C)				
ALL OF THESE ARE TO BE RE-ROUTED TO PLC-BS1	AIT-683, AIT-682, AIT-681	PLC-RPS		1 - 2"C
	BS1 AND AERATION BASIN 1 ANALOG	PLC-RPS		1 - 2"C
	BS1 VALVES DIGITAL	PLC-RPS		1 - 2"C
	AERATION BASIN 2 ANALOG	PLC-RPS		1 - 2"C
	1 SPARE, 1 IN USE	MCC-4 (L5)	LTG/RECEPT. RPS	2 - 2"C
NEW FIBER	CP-BS1	FOPP-RPS		1 - 2"C
K (P: 2 - 2"C)(C: 1 - 2"C)				
	MCC-4	F.C. #2	1 - 2"C	
	MCC-4 (L5)	LTG/RECEPT.	1 - 2"C	
NEW WIRE RUN WITH EXISTING DISCRETE TO EMH-FC	F.C. #1 STARTER, LIT-694	PLC-RPS		1 - 2"C
L (P: 2 - 2"C)(C: 1 - 2"C)				
	MCC-4	F.C. #2	1 - 2"C	
	MCC-4 (L5)	LTG/RECEPT.	1 - 2"C	
NEW WIRE RUN WITH EXISTING DISCRETE TO EMH-FC	F.C. #2 STARTER, LIT-695	PLC-RPS		1 - 2"C
M (C: 4 - 1.5"C)				
	CS-3	PLC-RPS (VIA PB-RPSC)	1 - 1.5"C	
	F.C. #1&2 STARTERS	PLC-RPS (VIA PB-RPSC)		1 - 1.5"C
NEW WIRE RUN WITH EXISTING ANALOG	LIT-694 AND 695, AND OTHER ANALOG	PLC-RPS (VIA PB-RPSC)		2 - 1.5"C
N (C: 2 - 1"C)				
NEW WIRE AND CONDUIT	LIT-696	MAN-PLC-NPW		1 - 1"C
		SPARE		1 - 1"C

GENERAL NOTES:

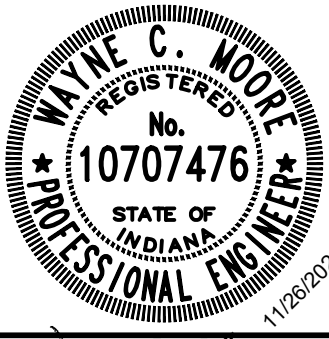
- ALL WORK ASSOCIATED WITH THE AIR FLOW METERS AT ALL BLOWERS ARE ADD. ALT NO. 1. SEE PLAN VIEWS FOR FURTHER INFORMATION ON ABOVE GROUND DUCT BANK AND OTHER CONDITIONS AFFECTING CONDUIT ROUTING AT EACH SITE.
- XXX

KEYED NOTES

- ① ADD ALT. NO. 1

BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA
ELECTRICAL IMPROVEMENTS SITE PLAN

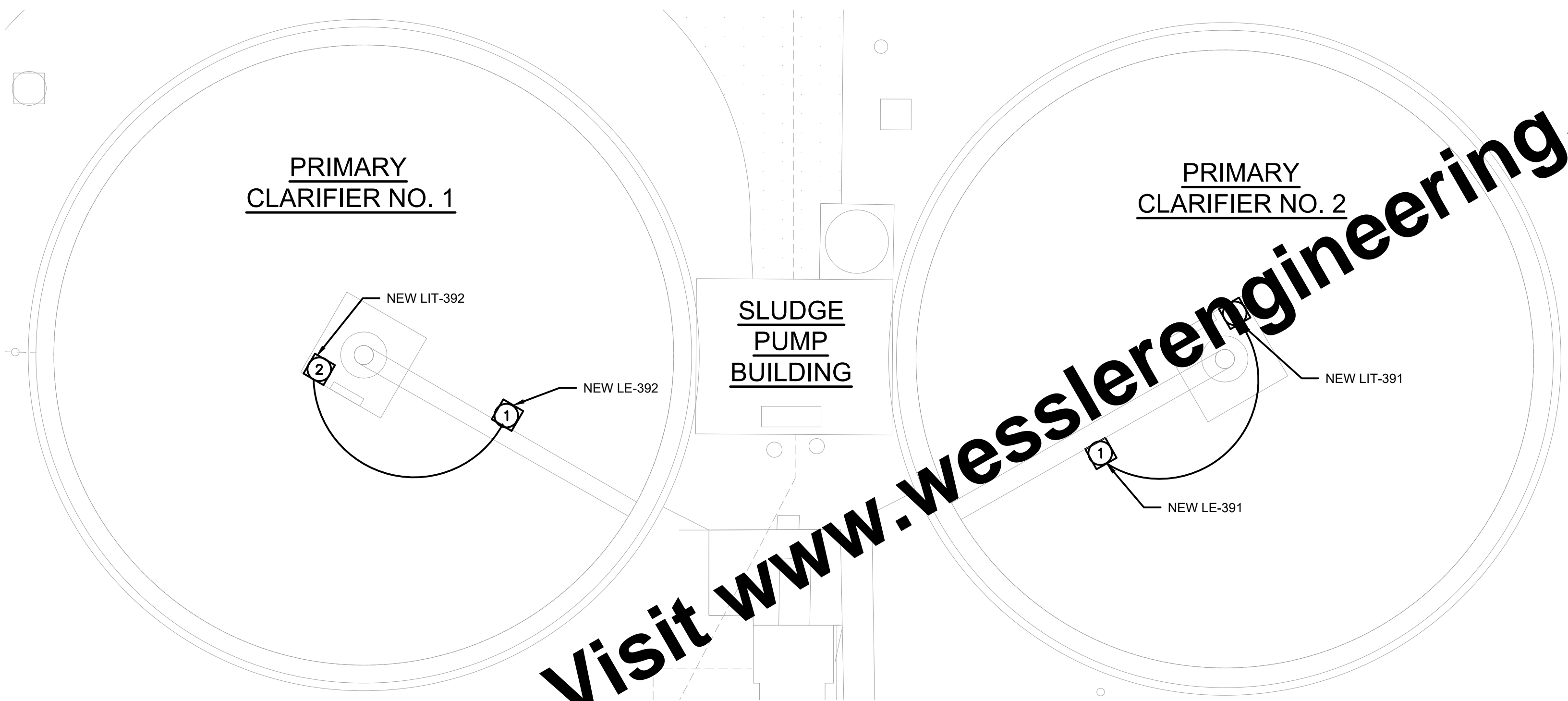
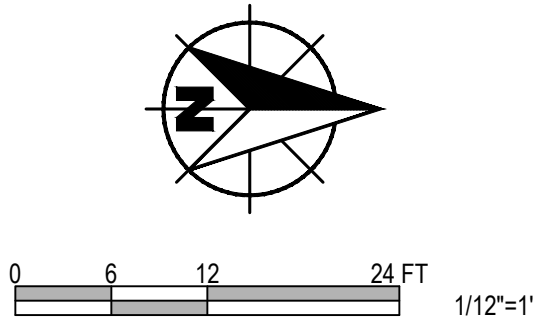
SHEET NO.
2E2
7



W
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SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BDP				
	APPROVED BY	WCM				
	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg | Layout: 2E3 PRIMARY CLARIFIER IMPROVEMENTS PLAN | Plotted: 04/04/25 @ 02:45:33 | LastSavedBy: CurtisG




KEYED NOTES (IMPROVEMENTS) ○

- 1 REPLACE LE-391, LIT-391, LE-392 AND LIT-392. USE EXISTING MOUNTING EQUIPMENT. RUN MANUFACTURER CABLE BETWEEN ELEMENTS AND TRANSMITTERS IN NEW PVC COATED ALUMINUM CONDUIT, USING SEALING FITTING AT END OF CONDUIT BY MOUNTING STRUCTURE FOR ELEMENT SO THAT CABLE MAY FLEX AS NEEDED.
- 2 MOUNT TO EXISTING HANDRAIL, SEE DETAIL SHEET 4E1.

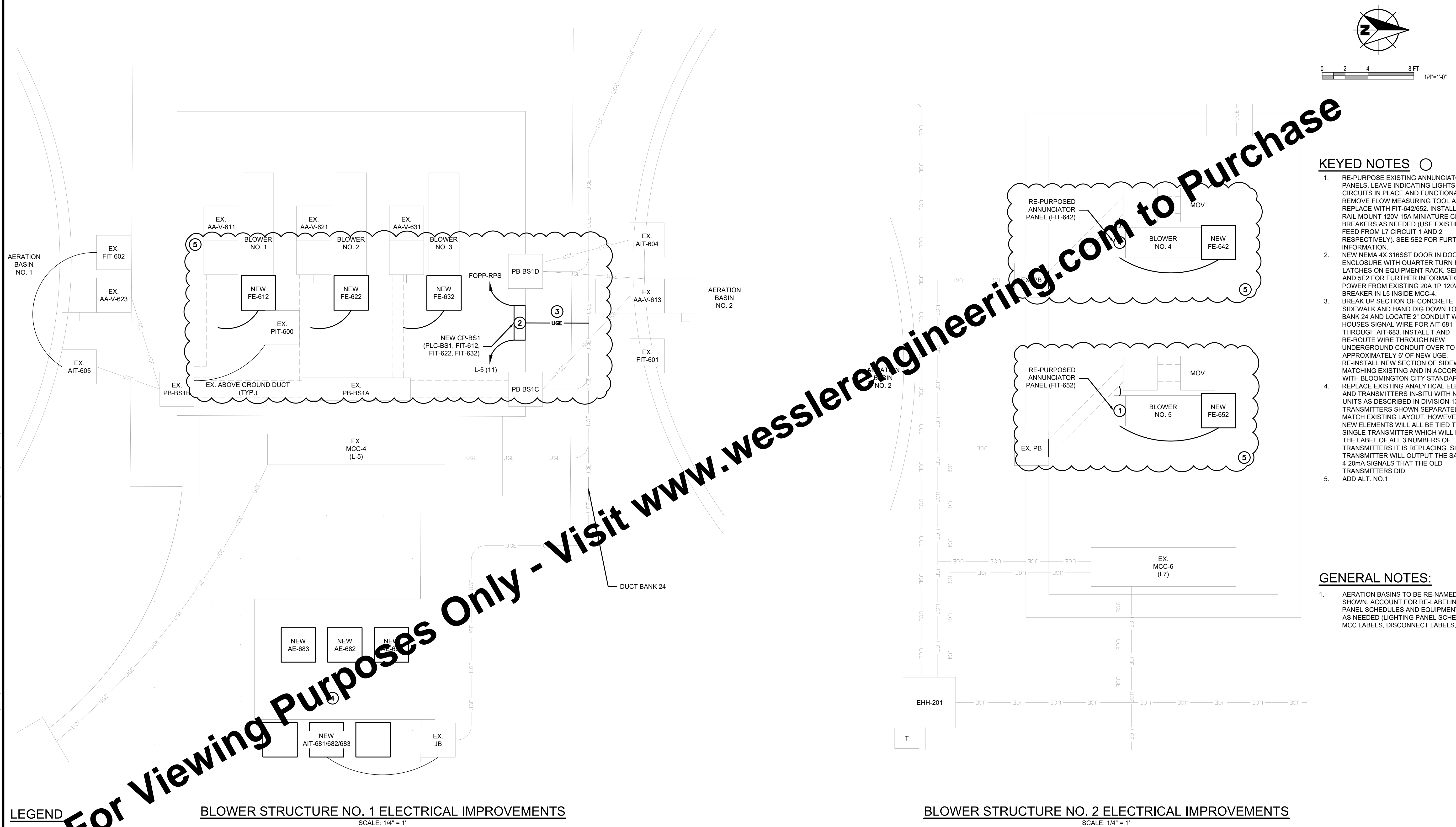
PRIMARY CLARIFIER ELECTRICAL IMPROVEMENTS
SCALE: 1/12" = 1'

LEGEND

- EXISTING FEATURES
- NEW FEATURES

	SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	 <div><div>W</div><div>WESSLER</div><div>ENGINEERING</div><div>More than a Project™</div></div>	BLUCHER POOLE WWTF SCADA IMPROVEMENTS				SHEET NO.
	BAR IS ONE INCH LONG ON ORIGINAL DRAWING <div></div>	CHECKED BY	BDP							CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	2E3		
		APPROVED BY	WCM										
		ISSUE DATE											
		APRIL 2025											
		PROJECT NUMBER											
		274124-04-001											

Drawing: X:\Bloomington\274124\Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg | Layout: 2E5 BLOWER ELECTRICAL IMPROVEMENTS PLAN | Plotted: 04/04/25 @ 02:45:43 | LastSavedBy: CurtiG



LEGEND

EXISTING FEATURES

NEW FEATURES

BLOWER STRUCTURE NO. 1 ELECTRICAL IMPROVEMENTS

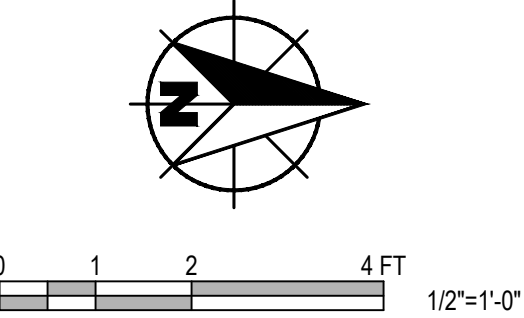
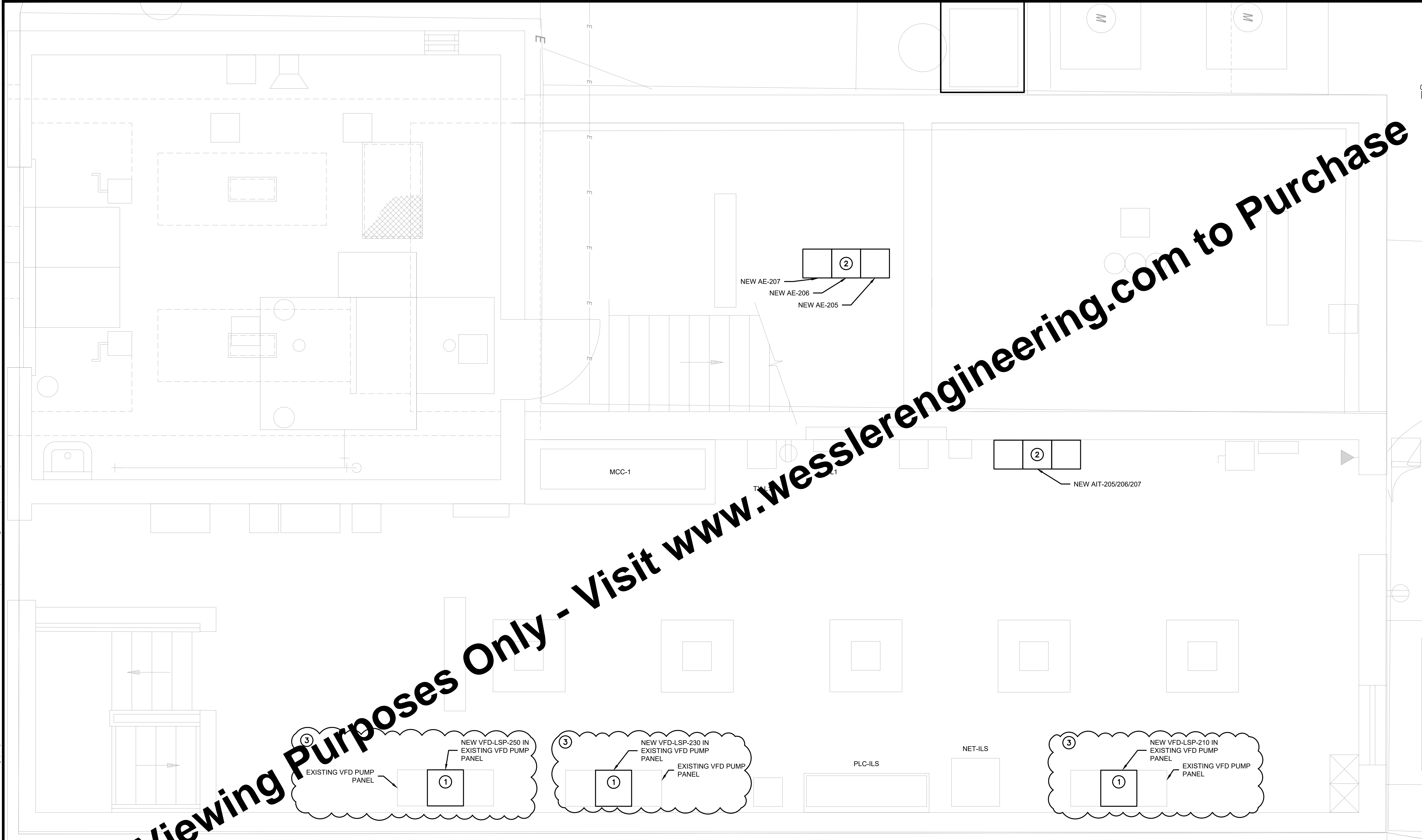
SCALE: 1/4" = 1'

BLOWER STRUCTURE NO. 2 ELECTRICAL IMPROVEMENTS

SCALE: 1/4" = 1'

<div>SCALE VERIFICATION</div> <div>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</div> <div><div></div></div>	<div>DRAWN BY</div> <div>MLW</div>	<div>NO.</div> <div></div>	<div>DATE</div> <div></div>	<div>INITIALS</div> <div></div>	<div>REVISION DESCRIPTIONS</div> <div></div> <div></div> <div></div> <div></div>	<div><div><div>WYKE C. MOORE</div><div>REGISTERED</div><div>No. 10707476</div><div>STATE OF INDIANA</div><div>PROFESSIONAL ENGINEER</div><div>11/20/2024</div></div><div><div>W</div><div>WESSLER</div><div>ENGINEERING</div><div>More than a Project™</div></div></div>	<div>BLUCHER POOLE WWTF SCADA IMPROVEMENTS</div>		<div>SHEET NO.</div> <div>2E5</div>
	<div>CHECKED BY</div> <div>BDP</div>						<div>CITY OF BLOOMINGTON UTILITIES</div> <div>BLOOMINGTON, INDIANA</div>		<div>10</div>
	<div>APPROVED BY</div> <div>WCM</div>						<div>BLOWER ELECTRICAL IMPROVEMENTS PLAN</div>		
	<div>ISSUE DATE</div> <div>APRIL 2025</div>								
	<div>PROJECT NUMBER</div> <div>274124-04-001</div>								

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg | Layout: 2E6 INFLUENT LIFT STATION IMPROVEMENTS PLAN | Picked: 04/04/25 @ 02:45:49 | LastSavedBy: CurisG



- KEYED NOTES:** ○
- 1 REPLACE EXISTING VARIABLE FREQUENCY DRIVES WITH NEW ABB ACQ580-01 VARIABLE FREQUENCY DRIVE PUMP CONTROL PANEL. INSTALL LTFMC AS NEEDED TO CONNECT EXISTING RUNS TO NEW UNITS. SEE 16111 FOR REQUIREMENTS. RE-TERMINATE EXISTING WIRE AT NEW DRIVES MATCHING EXISTING CONFIGURATION.
 - 2 REPLACE EXISTING ANALYTICAL ELEMENTS AND TRANSMITTERS IN-SITU WITH NEW UNITS AS DESCRIBED IN DIVISION 13. TRANSMITTERS SHOWN SEPARATELY TO MATCH EXISTING LAYOUT. HOWEVER, THE NEW ELEMENTS WILL ALL BE TIED TO A SINGLE TRANSMITTER WHICH WILL HAVE THE LABEL OF ALL 3 NUMBERS OF TRANSMITTERS IT IS REPLACING. SINGLE TRANSMITTER WILL OUTPUT THE SAME (3) 4-20mA SIGNALS THAT THE OLD TRANSMITTERS DID.
 - 3 ADD ALT. NO. 2




LEGEND

— EXISTING FEATURES

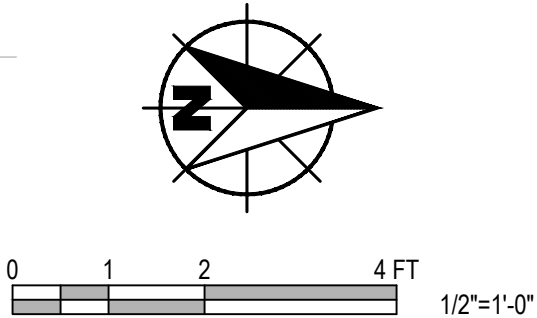
— NEW FEATURES

INFLUENT LIFT STATION IMPROVEMENTS

SCALE: 1/2" = 1'

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	BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	BDP							CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA		
		APPROVED BY	WCM									
		ISSUE DATE										
		APRIL 2025										
		PROJECT NUMBER										
		274124-04-001										
									INFLUENT LIFT STATION IMPROVEMENTS PLAN			

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-PL.dwg | Layout: 2E7 RETURN PUMP STATION IMPROVEMENTS PLAN | Plotted: 04/04/25 @ 02:45:54 | LastSavedBy: Curtis G



- KEYED NOTES:** ○
- 1 REPLACE EXISTING VARIABLE FREQUENCY DRIVES WITH NEW ABB ACQ580-01 VARIABLE FREQUENCY DRIVE PUMP CONTROL PANEL. INSTALL LTFMC AS NEEDED TO CONNECT EXISTING RUNS TO NEW UNITS. SEE 16111 FOR REQUIREMENTS. RE-TERMINATE EXISTING WIRE AT NEW DRIVES MATCHING EXISTING CONFIGURATION.
 - 2 ADD ALT. NO. 2

LEGEND

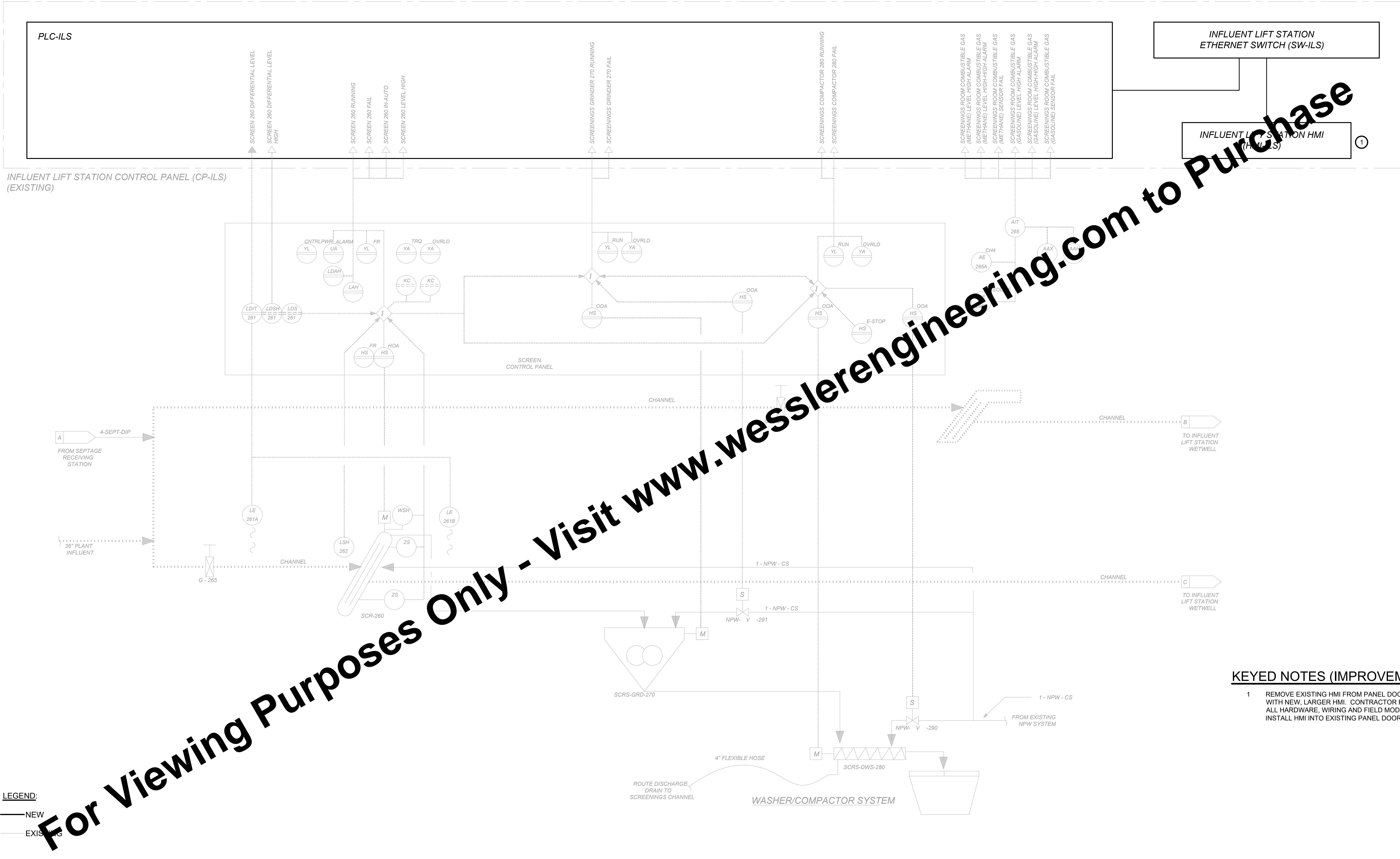
- EXISTING FEATURES
- NEW FEATURES

RETURN PUMP STATION IMPROVEMENTS

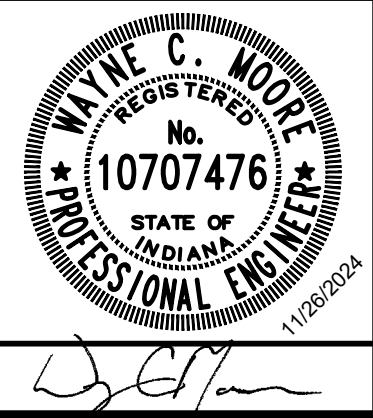
SCALE: 1/2" = 1'

<div>SCALE VERIFICATION</div> <div>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</div> <div><div></div></div>	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	<div><div><div>WYKE C. MOORE</div><div>REGISTERED</div><div>No. 10707476</div><div>STATE OF INDIANA</div><div>PROFESSIONAL ENGINEER</div><div>11/28/2024</div></div><div><div>W</div><div>WESSLER</div><div>ENGINEERING</div><div>More than a Project™</div></div></div>	BLUCHER POOLE WWTF SCADA IMPROVEMENTS		
	CHECKED BY	BDP						CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA		
	APPROVED BY	WCM						RETURN PUMP STATION IMPROVEMENTS PLAN		
	ISSUE DATE									
	APRIL 2025									
	PROJECT NUMBER									
	274124-04-001									

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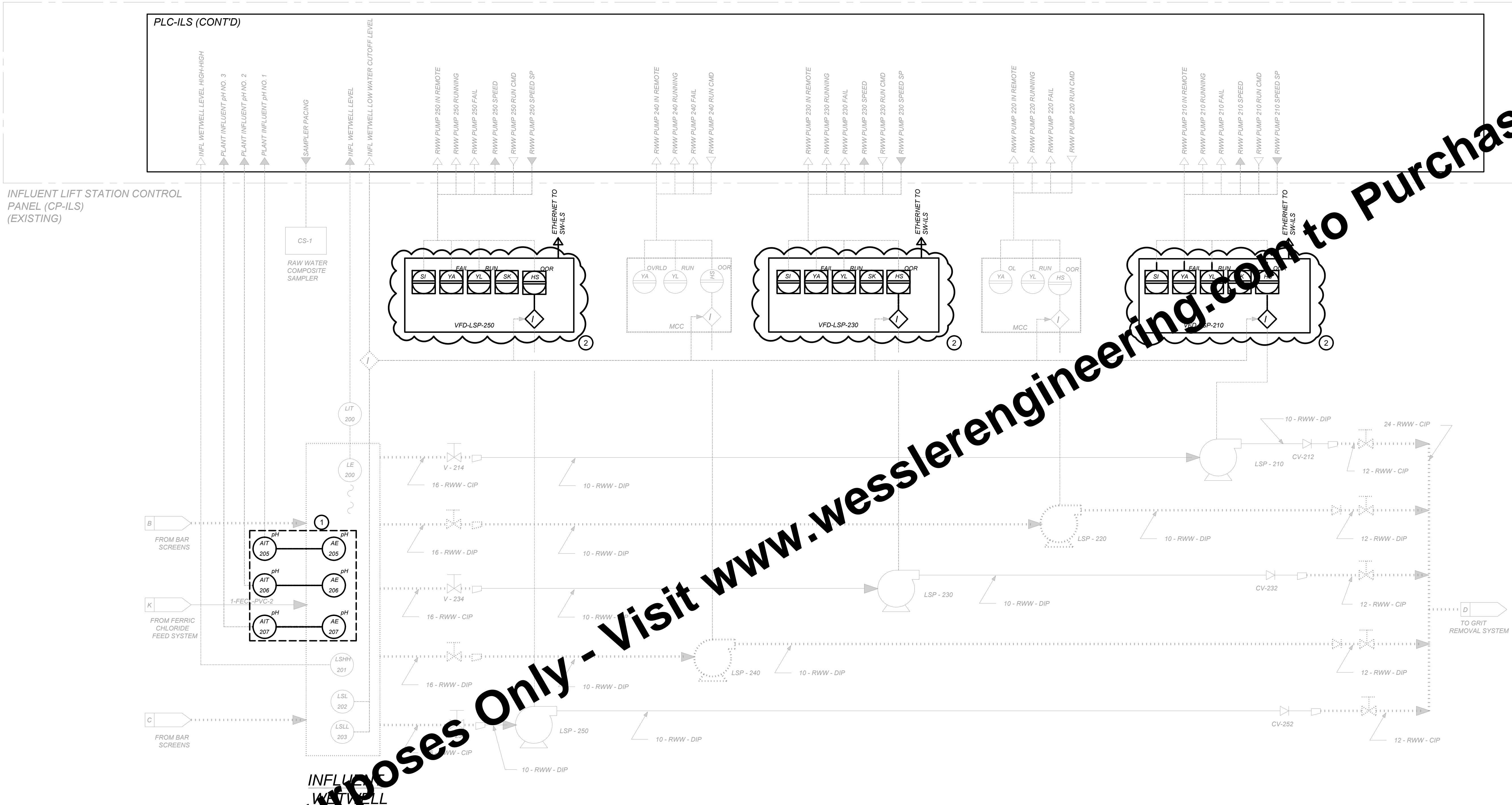
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	APPROVED BY	WCM				
	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					



BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
INFLUENT SCREEN P & ID

SHEET NO.
311
13

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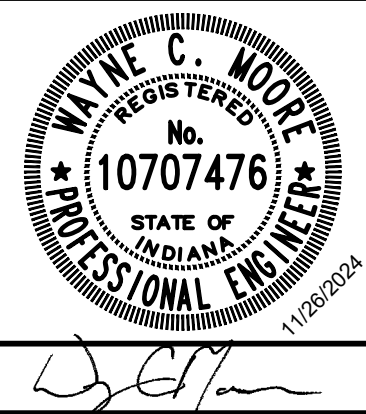
LEGEND:

- NEW
- EXISTING

KEYED NOTES (IMPROVEMENTS) ○

- 1 TRANSMITTERS SHOWN SEPARATELY TO MATCH EXISTING P&ID TEMPLATE. HOWEVER, THE NEW ELEMENTS WILL ALL BE TIED TO A SINGLE TRANSMITTER WHICH WILL HAVE THE LABEL OF ALL 3 NUMBERS OF TRANSMITTERS IT IS REPLACING. SINGLE TRANSMITTER WILL OUTPUT THE SAME (3) 4-20mA SIGNALS THAT THE OLD TRANSMITTERS DID.
- 2 ADD ALT. NO. 2

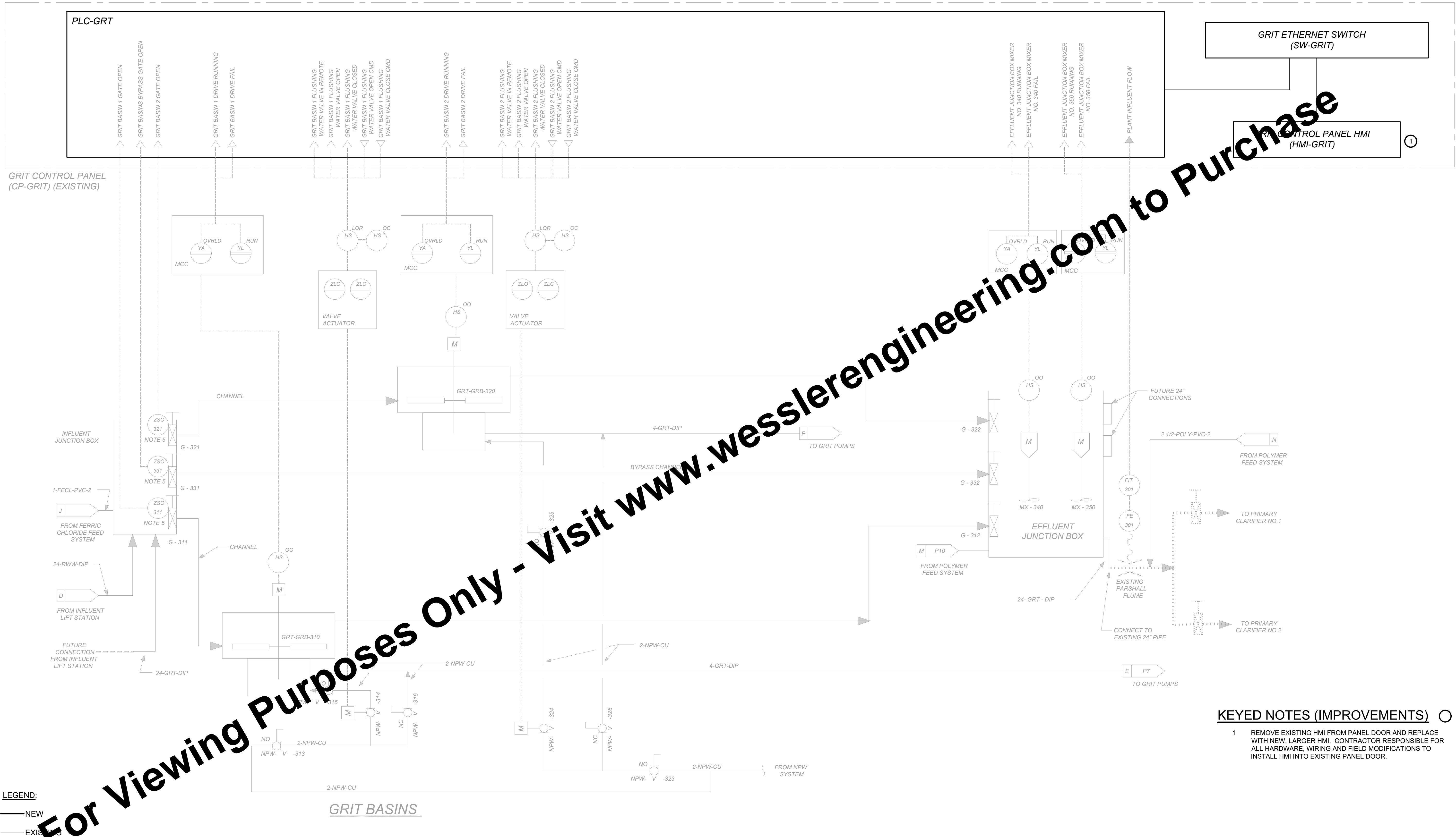
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	APPROVED BY	WCM				
	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER	274124-04-001				



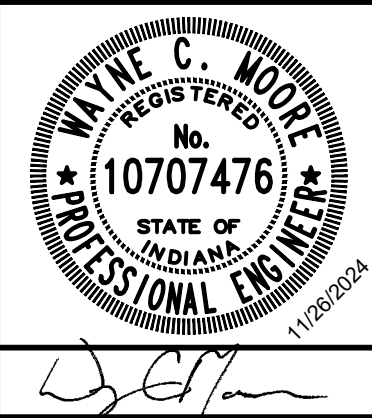
BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA
INFLUENT PUMP P & ID

SHEET NO.
312
14

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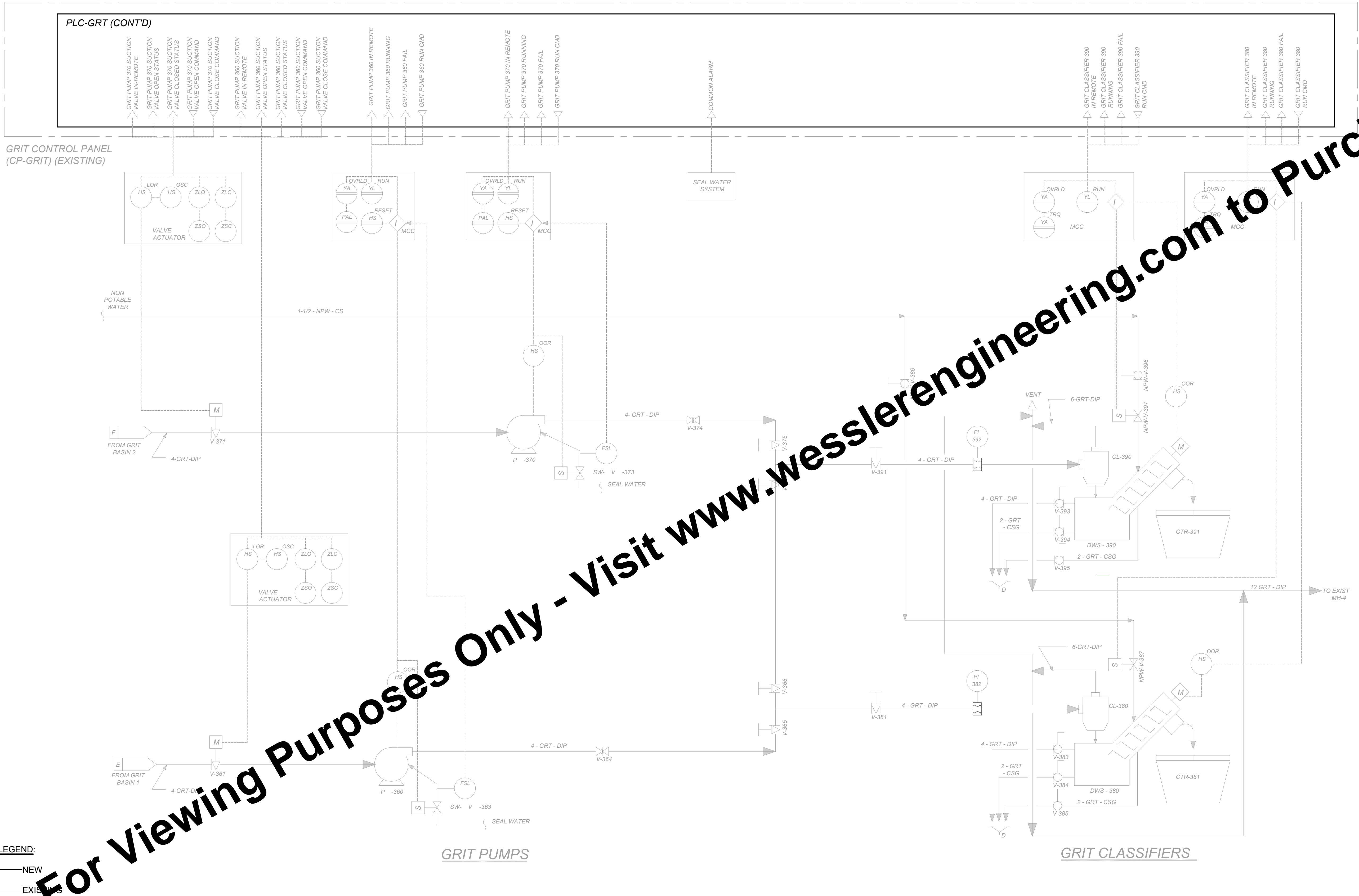


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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				




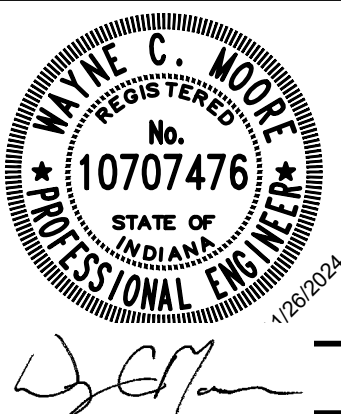
BLUCHER POOLE WWTF SCADA IMPROVEMENTS	SHEET NO.
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	313
GRIT REMOVAL P & ID	15

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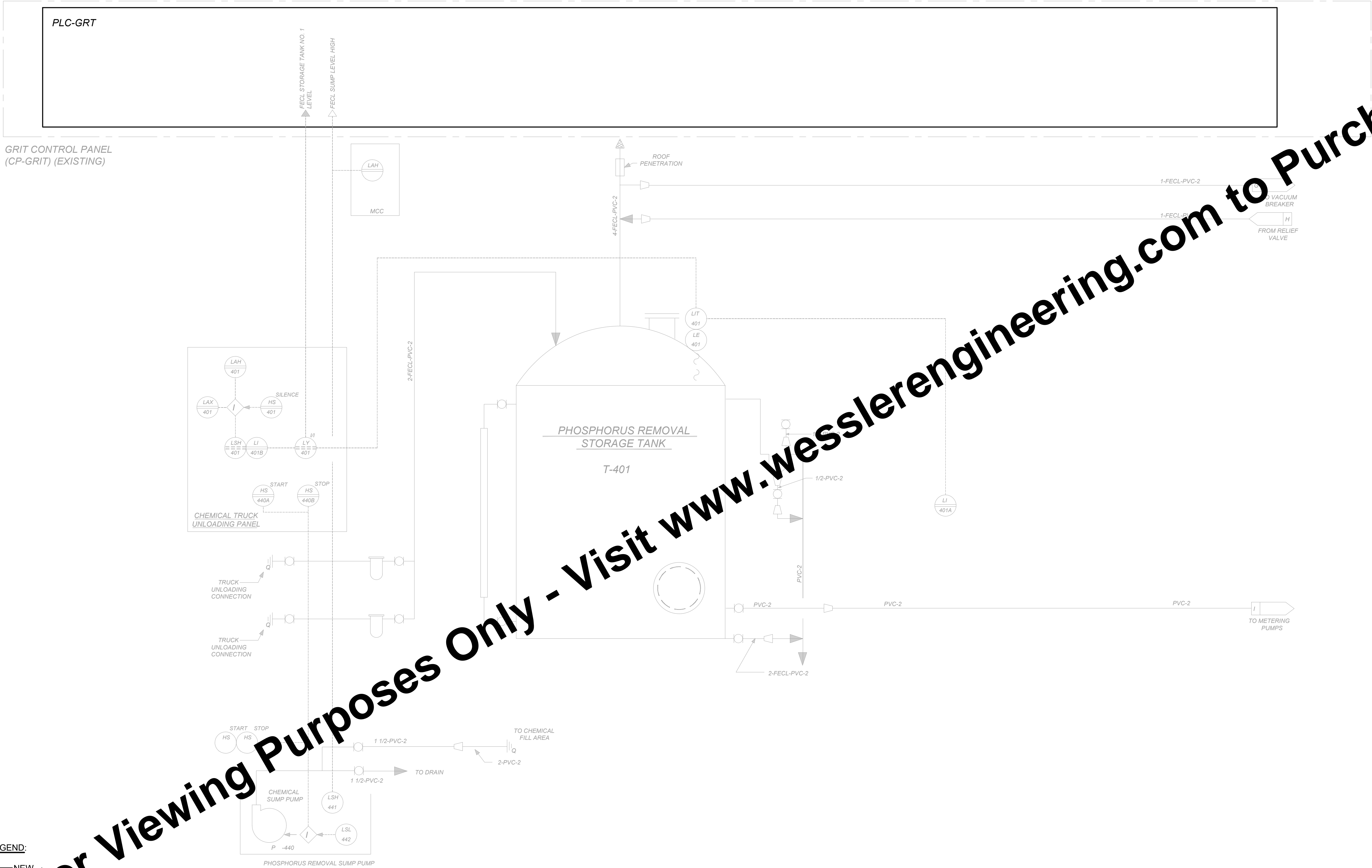
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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER	274124-04-001				



BLUCHER POOLE WWTF SCADA IMPROVEMENTS	
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
GRIT HANDLING P & ID	

SHEET NO.
314
16

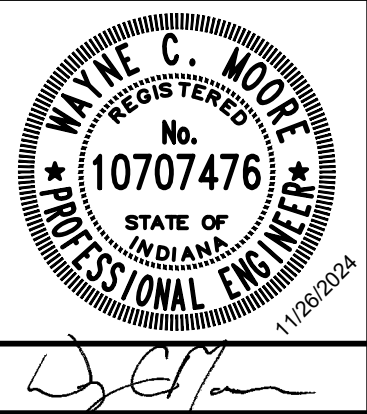
Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-IC-PL.dwg | Layout: 315 PHOSPHORUS REMOVAL STORAGE P & ID | Plotted: 04/04/25 @ 03:29:31 | LastSavedBy: CurtisG



LEGEND:

- NEW
- EXISTING

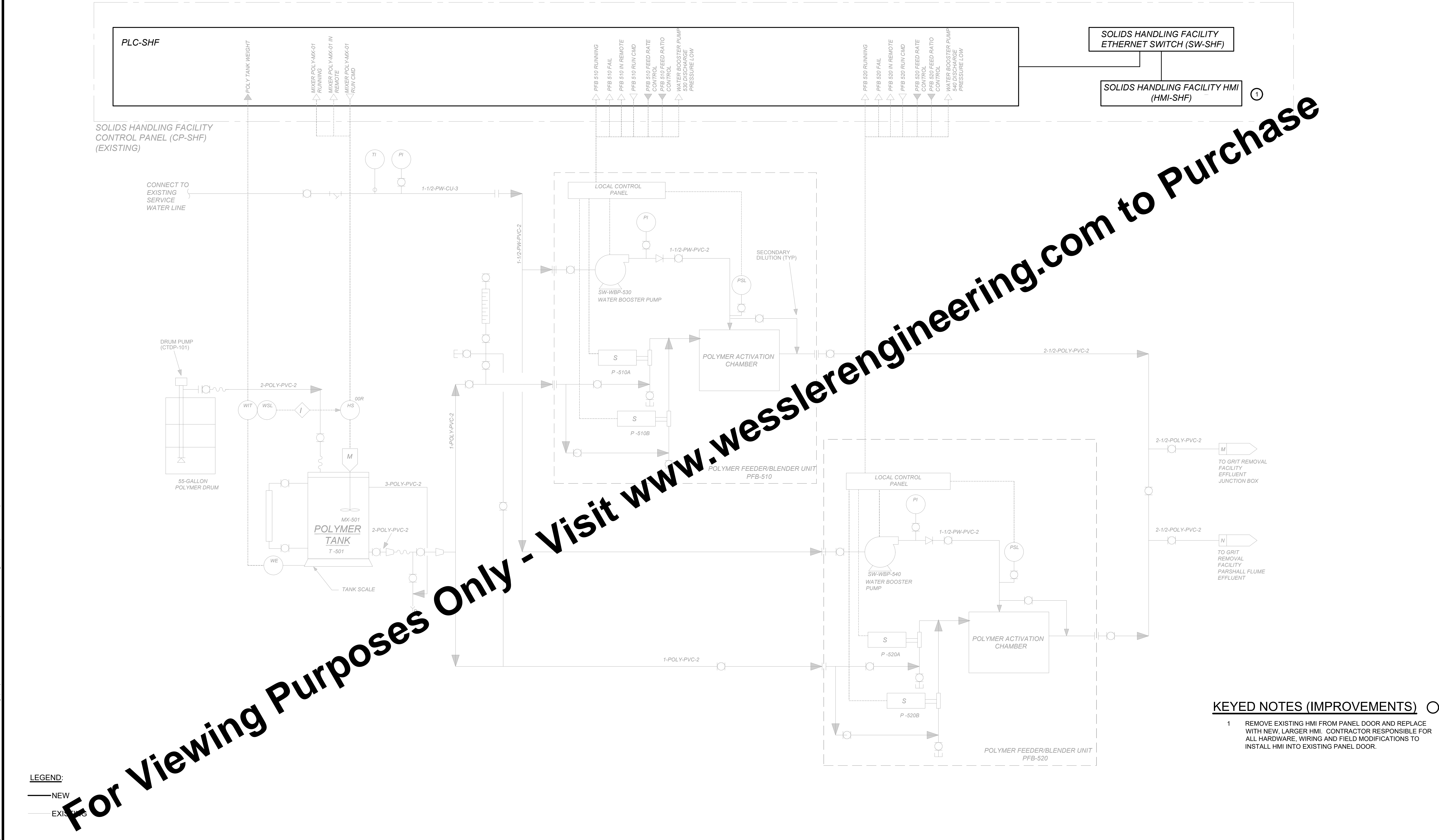
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	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					



BLUCHER POOLE WWTF SCADA IMPROVEMENTS	
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
PHOSPHORUS REMOVAL STORAGE P & ID	

SHEET NO.
315
17

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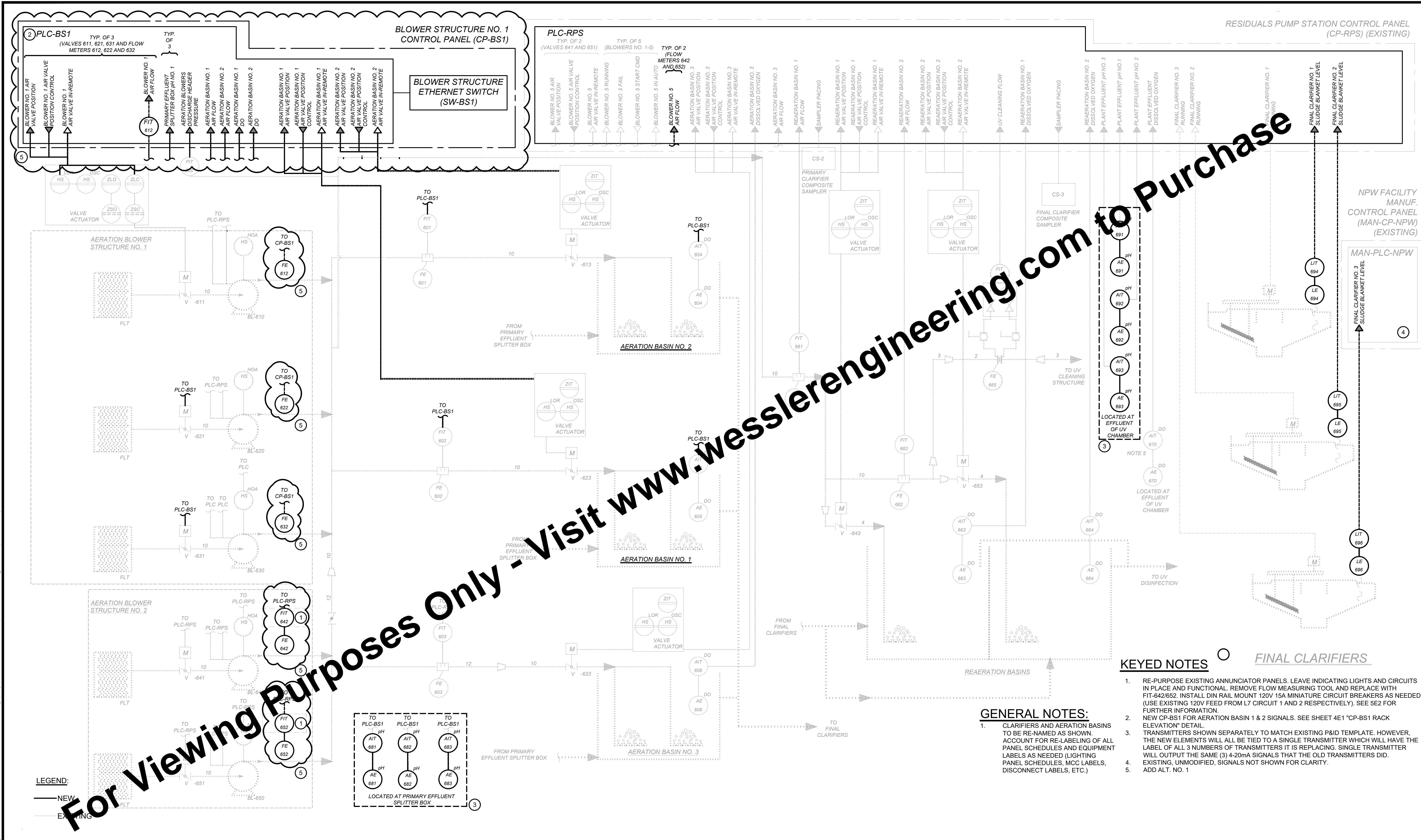
- NEW
- EXISTING

KEYED NOTES (IMPROVEMENTS)

- REMOVE EXISTING HMI FROM PANEL DOOR AND REPLACE WITH NEW, LARGER HMI. CONTRACTOR RESPONSIBLE FOR ALL HARDWARE, WIRING AND FIELD MODIFICATIONS TO INSTALL HMI INTO EXISTING PANEL DOOR.

<div>SCALE VERIFICATION</div> <div>BAR IS ONE INCH LONG ON ORIGINAL DRAWING</div>	DRAWN BY	BDP	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	<div>WYKE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 11/28/2024</div> <div>WESSLER ENGINEERING More than a Project™</div>	BLUCHER POOLE WWTF SCADA IMPROVEMENTS		SHEET NO.	
	CHECKED BY	BDP						CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA		317	
	APPROVED BY	WCM									
	ISSUE DATE										
	PROJECT NUMBER							POLYMER P & ID		19	
		274124-04-001									

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SCALE VERIFICATION	DRAWN BY	BDP	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BDP				
	APPROVED BY	WCM				
	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				

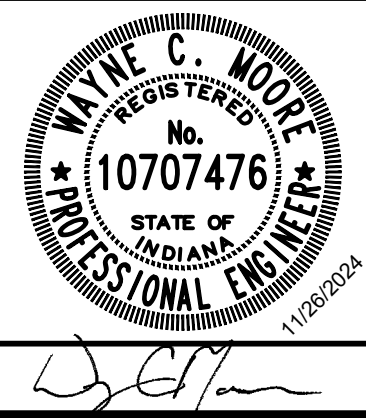
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BLUCHER POOLE WWTF SCADA IMPROVEMENTS	SHEET NO.
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	318
AERATION P & ID	20

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-IC-PLW.dwg | Layout: 319 RETURN PUMPING P & ID | Plotter: 04/04/25 @ 03:30:36 | LastSavedBy: ChrisG

LEGEND:
— NEW
— EXISTING

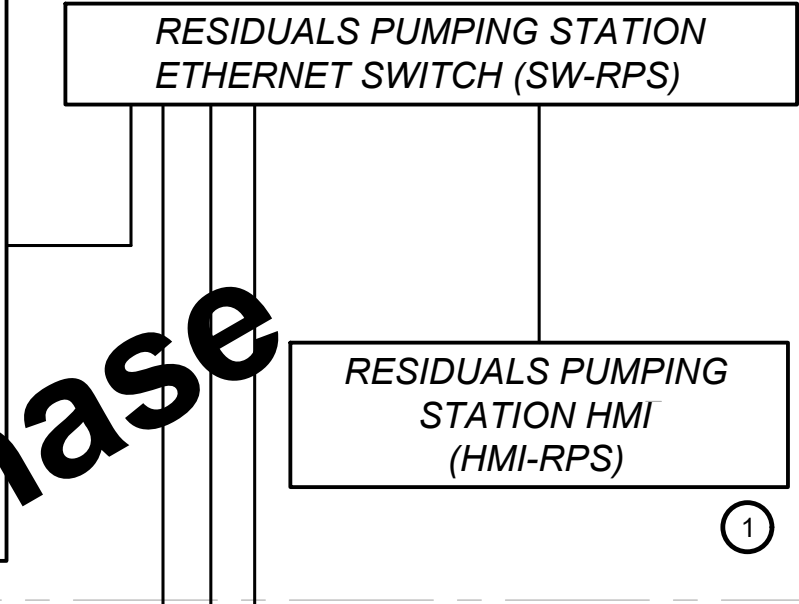
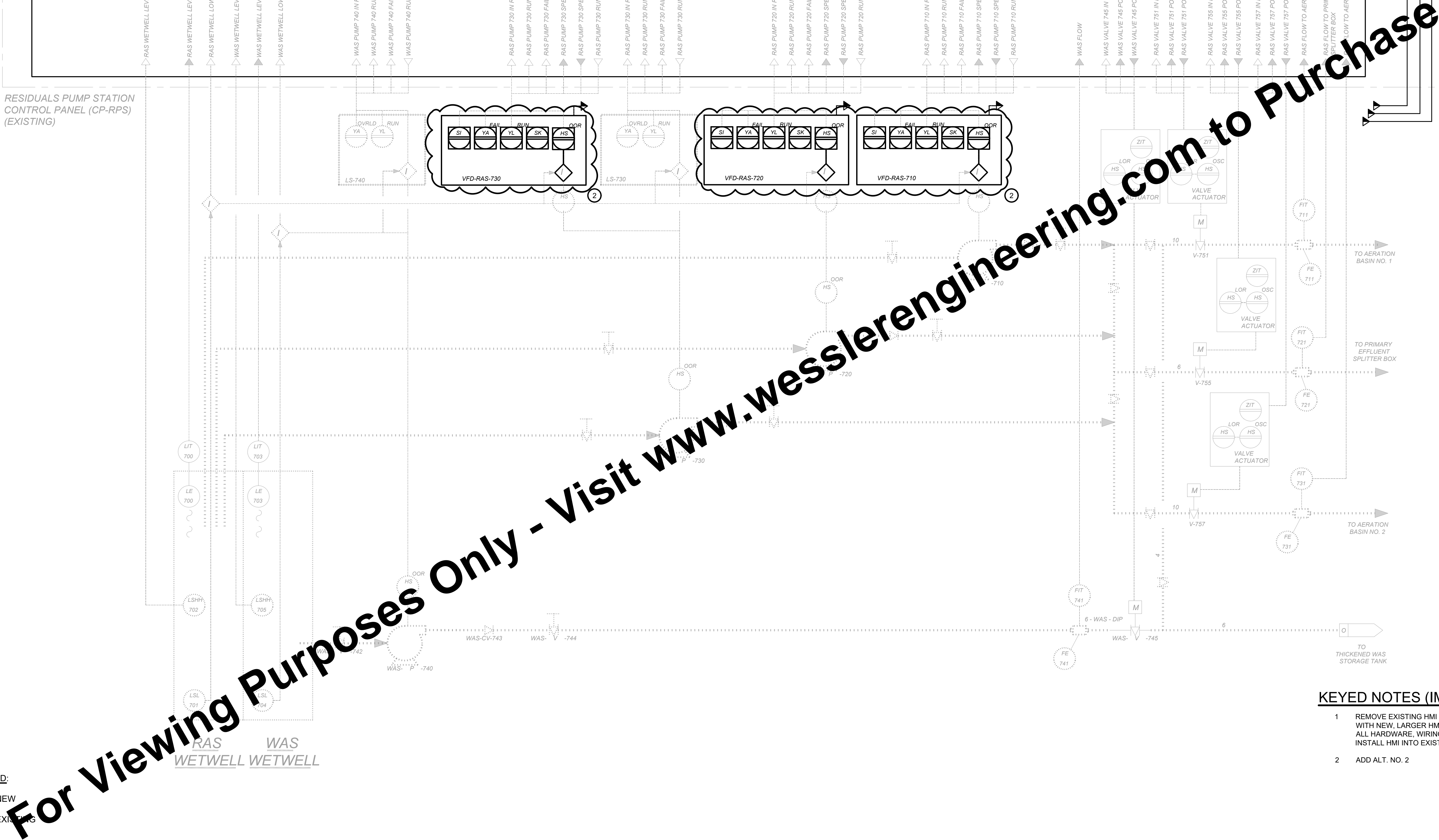
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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
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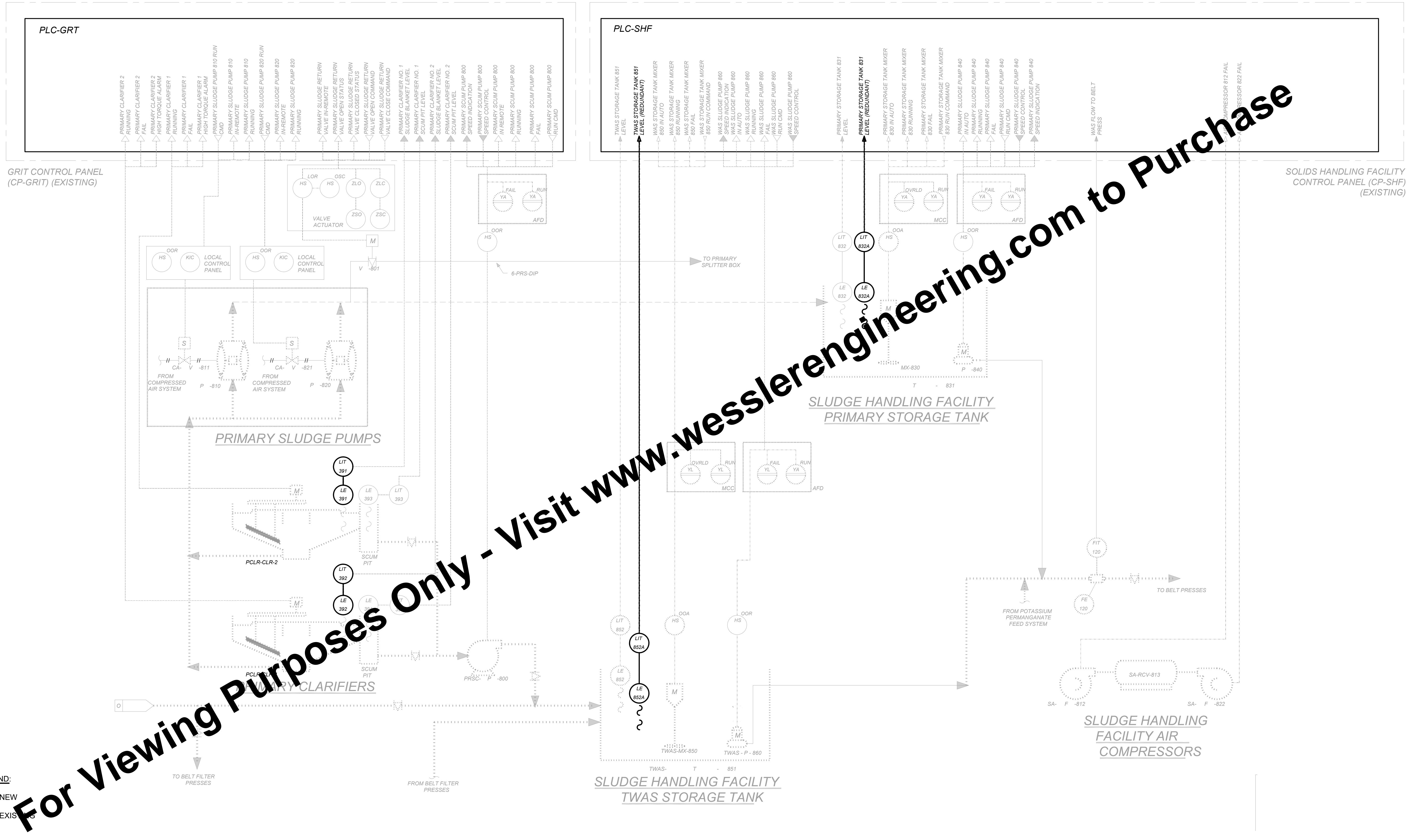
BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA
RETURN PUMPING P & ID

SHEET NO.
319
21

- KEYED NOTES (IMPROVEMENTS)** ○
- REMOVE EXISTING HMI FROM PANEL DOOR AND REPLACE WITH NEW, LARGER HMI. CONTRACTOR RESPONSIBLE FOR ALL HARDWARE, WIRING AND FIELD MODIFICATIONS TO INSTALL HMI INTO EXISTING PANEL DOOR.
 - ADD ALT. NO. 2



Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-IC-PLWg | Layout: 3110 SLUDGE PUMPING P & ID | Plotted: 04/04/25 @ 09:30:52 | LastSavedBy: CurtiSG



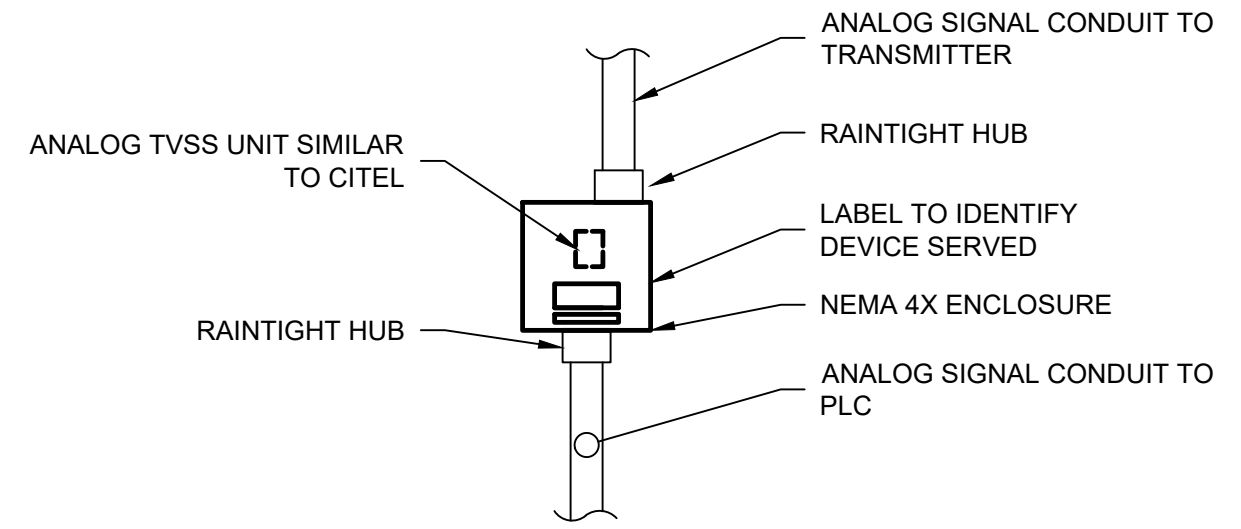
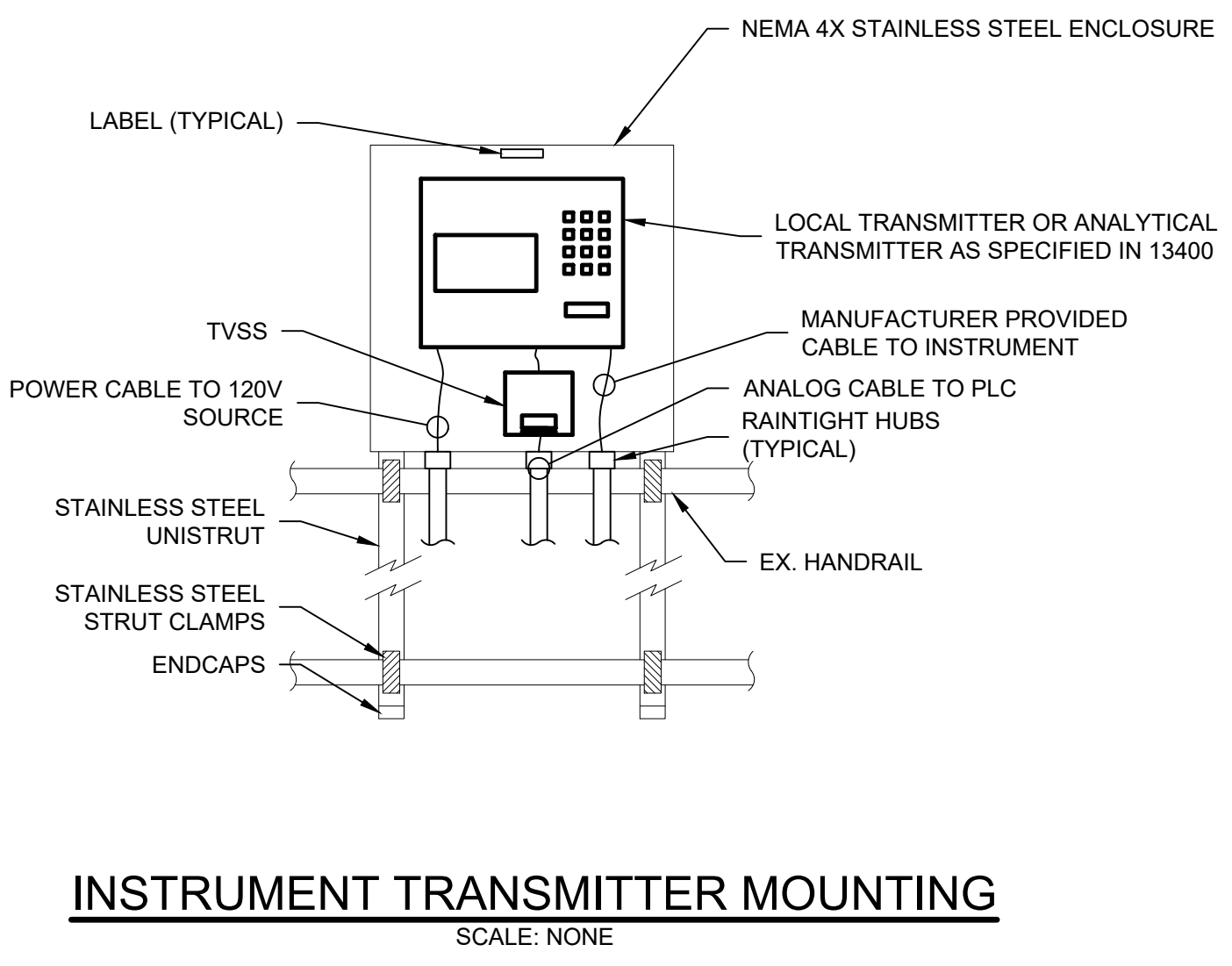
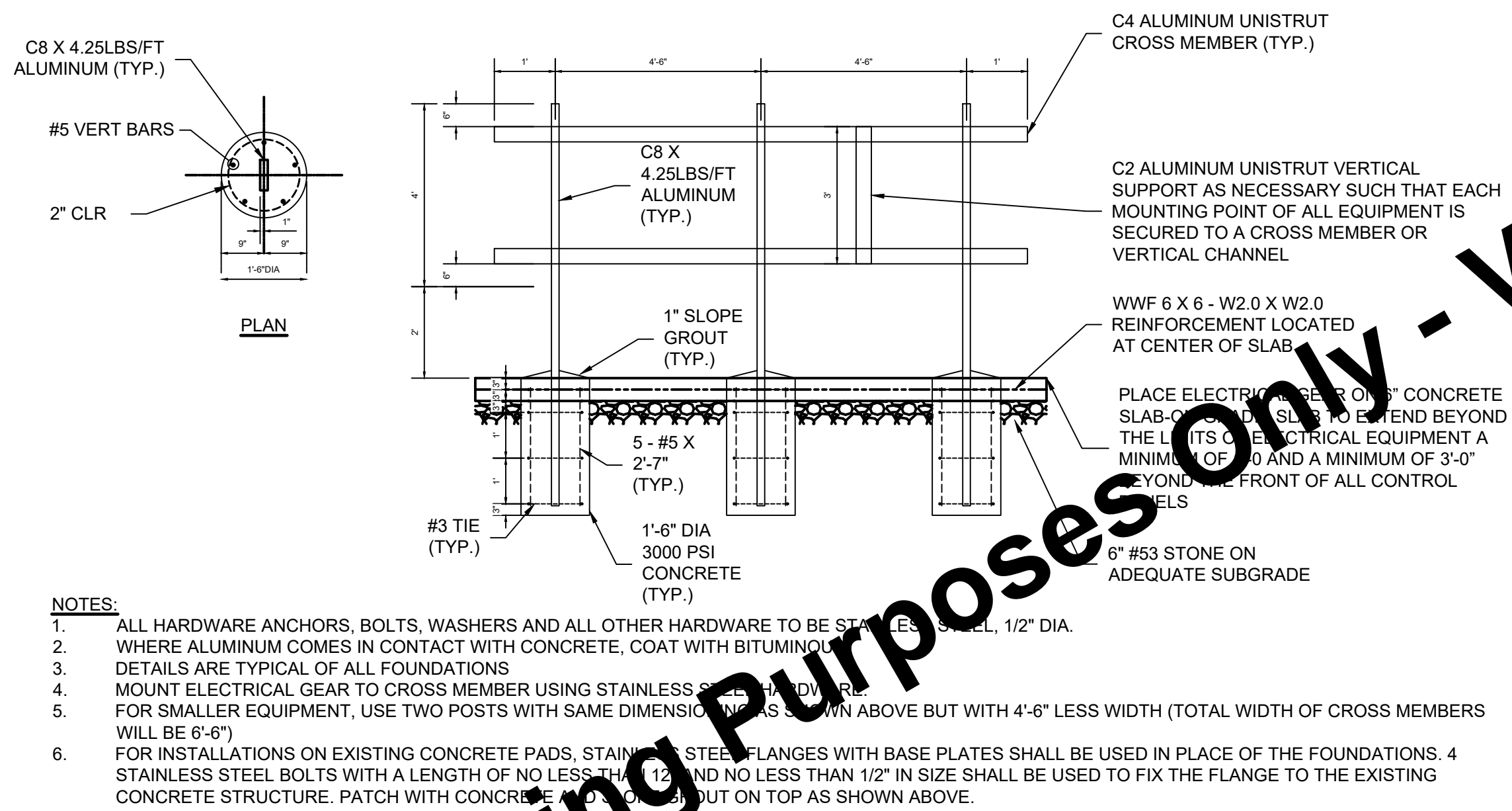
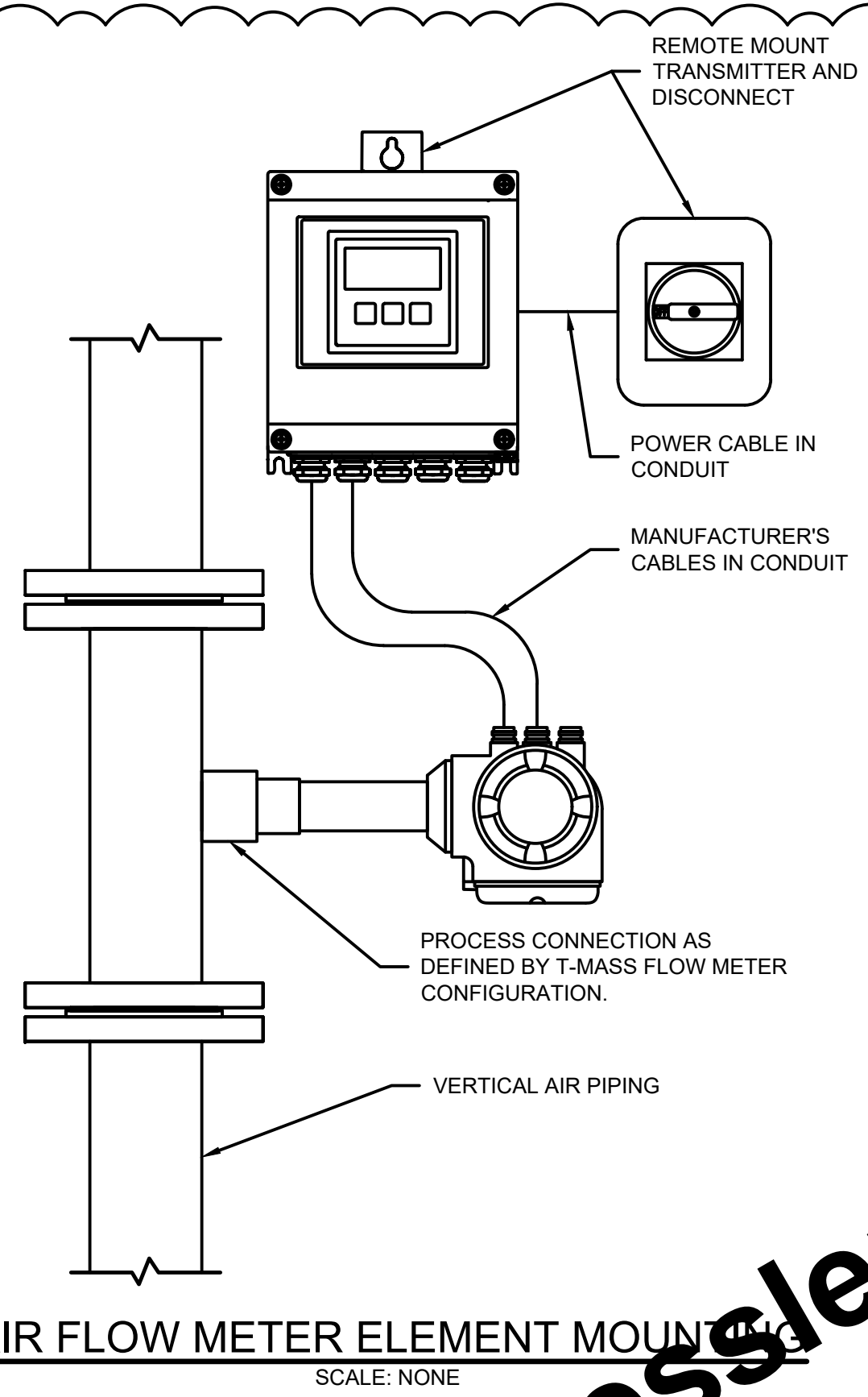
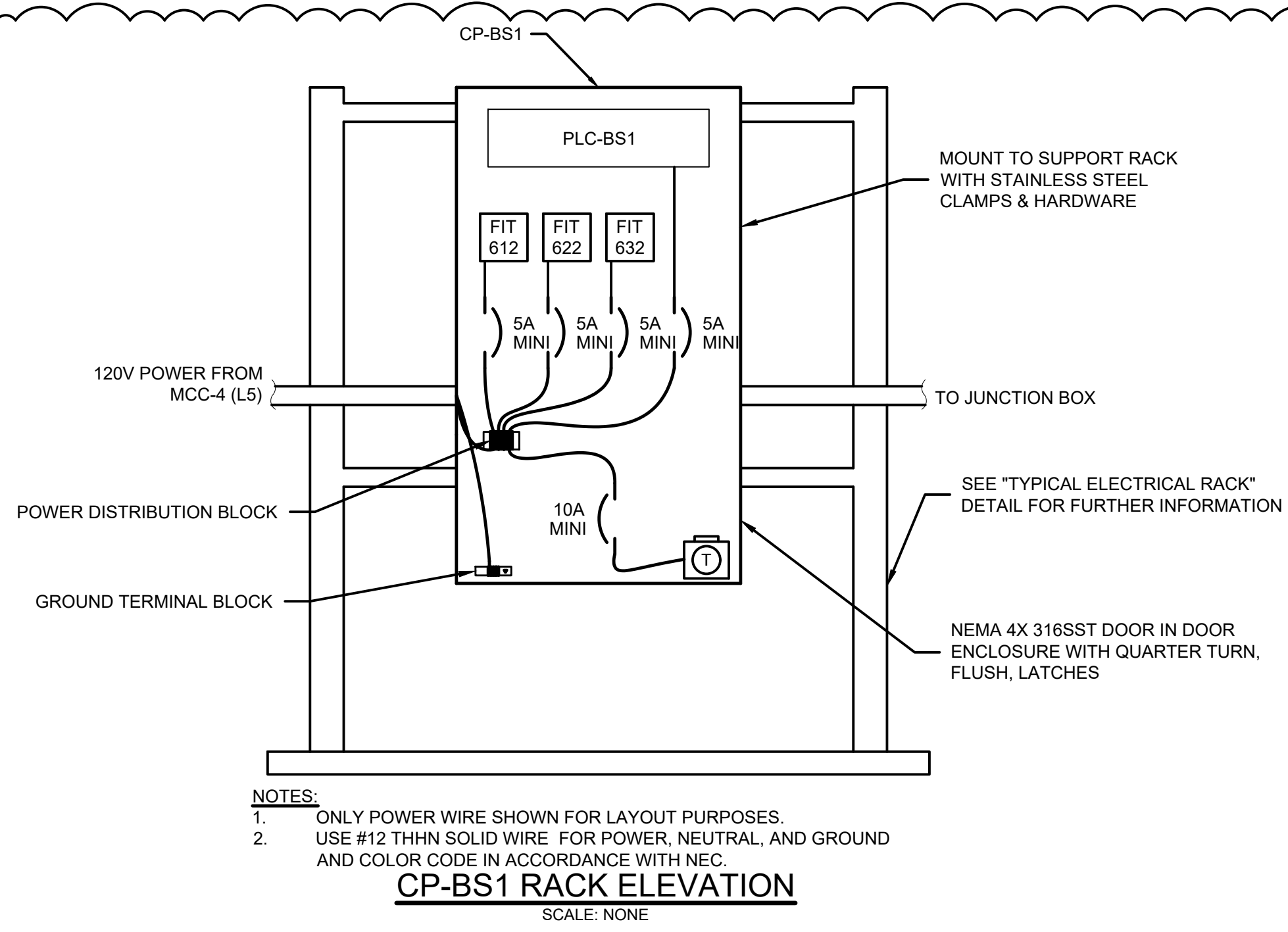
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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				

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BLUCHER POOLE WWTF SCADA IMPROVEMENTS	SHEET NO.
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	3110
SLUDGE PUMPING P & ID	22

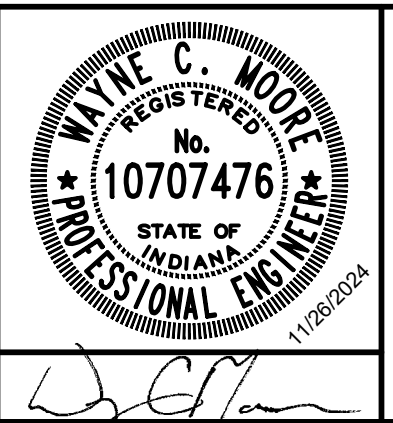
Drawing: X:\Bloomington\274124\EL-ED-DWG | Layout: 4E1 ELECTRICAL DETAILS | Plotted: 04/04/25 @ 02:55:18 | LastSavedBy: CurtiSG

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KEYED NOTES:
① ADD. ALT. NO. 1

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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				




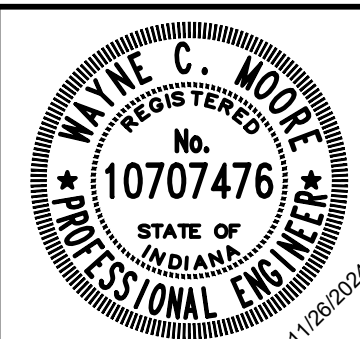
BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
ELECTRICAL DETAILS

SHEET NO.
4E1
23

GENERAL NOTES:

- 1 SEE DIVISION 13 AND DIVISION 16 FOR EQUIPMENT REQUIREMENTS.
- 2 PANEL LAYOUTS ARE INCLUDED FOR BIDDING PURPOSES ONLY AND TO INDICATE AN OVERALL SCOPE OF WORK FOR THE PANELS. LAYOUTS ARE CONCEPTUAL ONLY. CONTRACTOR TO PROVIDE THE FINAL DIMENSIONS AND PANEL SIZES. DIMENSIONS MAY VARY FROM THOSE SHOWN HEREIN) DURING SHOP DRAWING PHASE FOR ENGINEER AND OWNER APPROVAL.

SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	BDP				
	APPROVED BY	WCM				
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	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					



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BLUCHER POOLE WWTF SCADA IMPROVEMENTS	
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
INFLUENT LIFT STATION CONTROL PANEL LAYOUT	

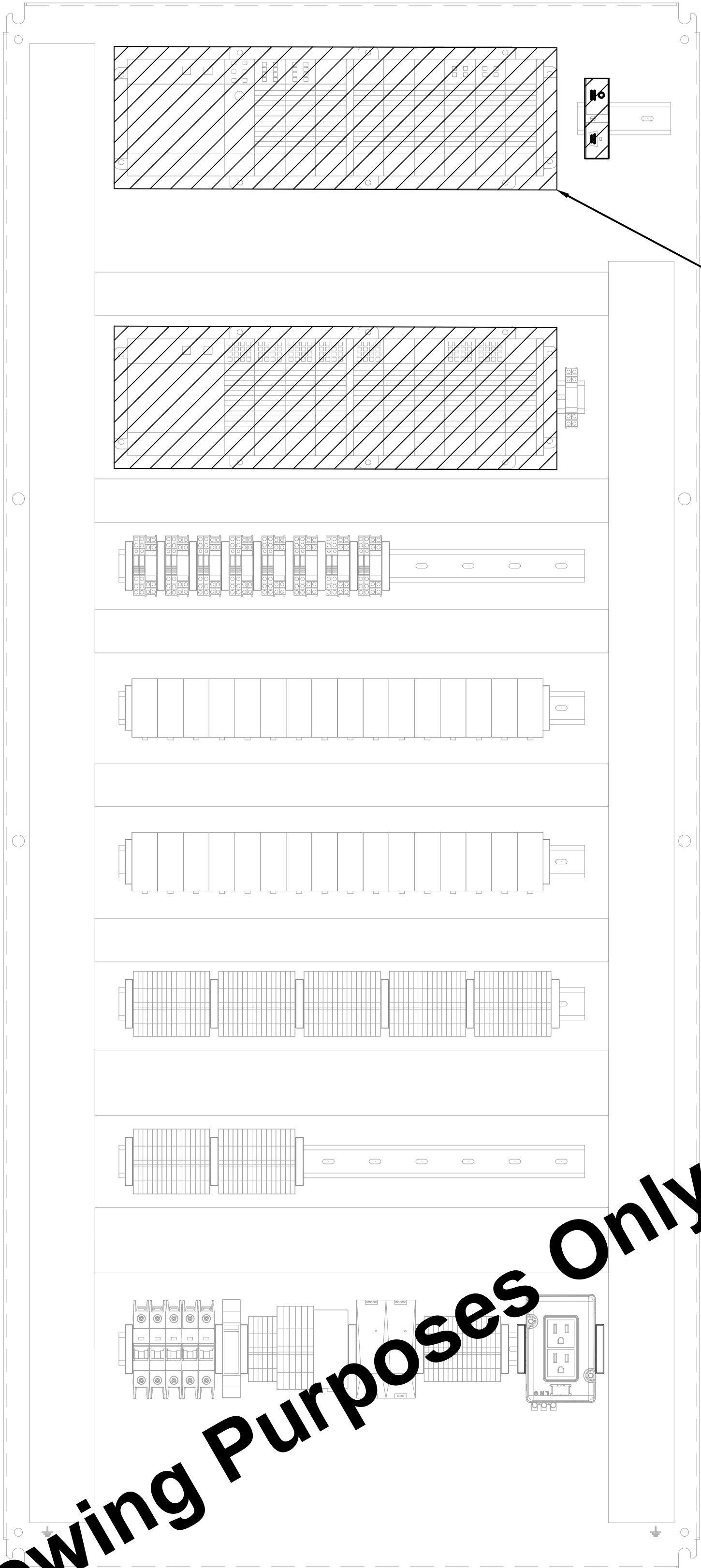
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4E2

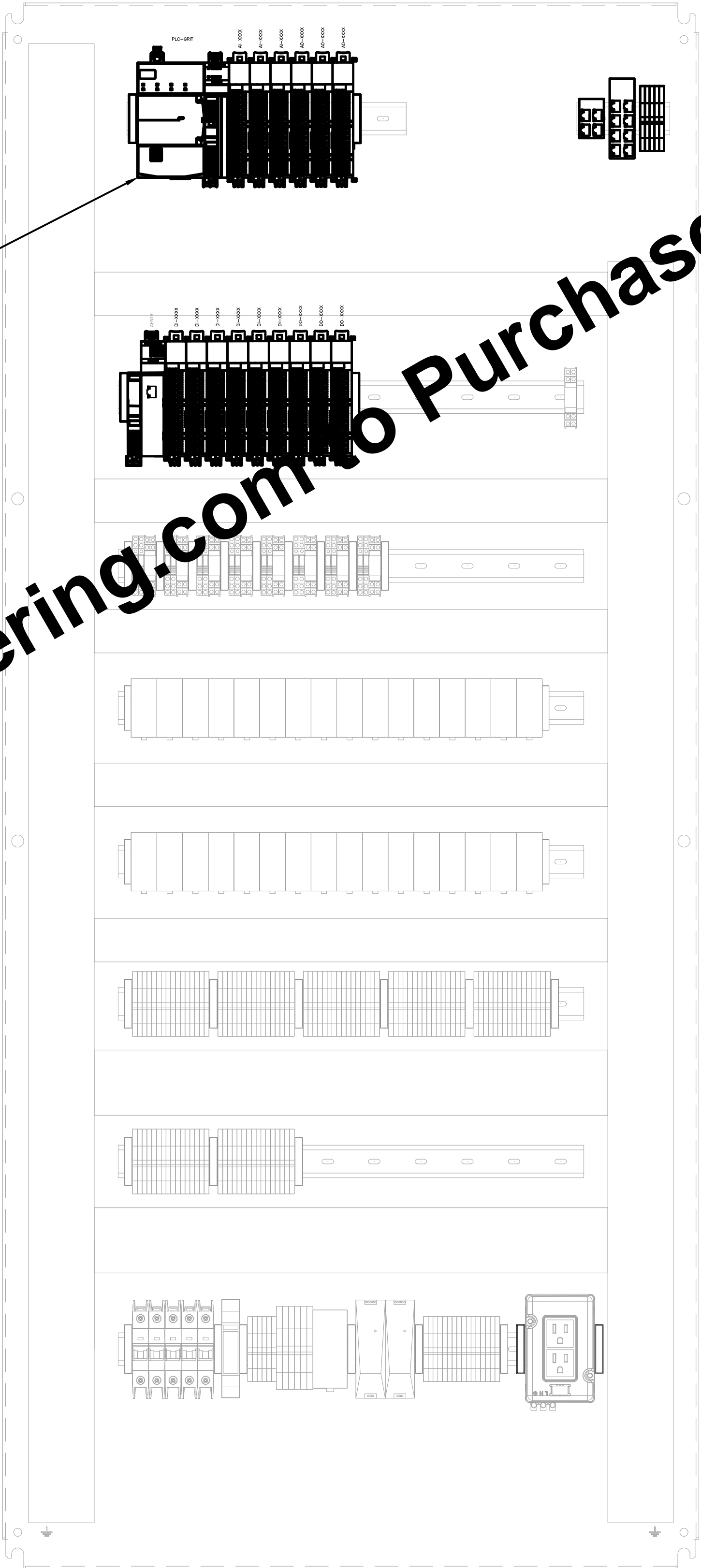
24

Drawing: X:\Bloomington\274124-Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-DD.dwg | Layout: 4E3 GRIT BUILDING CONTROL PANEL LAYOUT | Plotted: 04/04/25 @ 02:55:32 | LastSavedBy: CurtisG

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REMOVE HMI (NOT SHOWN), PLC, POWER SUPPLY, CHASSIS, I/O CARDS AND TERMINALS. REPLACE WITH NEW PLC EQUIPMENT. SEE DIVISION 13 SPECIFICATIONS FOR ADDITIONAL DETAILS. LAYOUTS ARE FOR REFERENCE ONLY. SEE GENERAL NOTES.

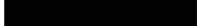


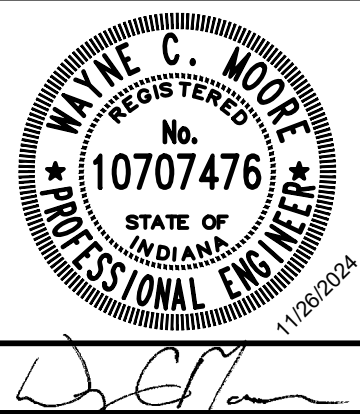
GRIT BUILDING CONTROL PANEL MODIFICATIONS (PLC-GRT)

SCALE: NONE

GENERAL NOTES:

- 1 SEE DIVISION 13 AND DIVISION 16 FOR EQUIPMENT REQUIREMENTS.
- 2 PANEL LAYOUTS ARE INCLUDED FOR BIDDING PURPOSES ONLY AND TO INDICATE AN OVERALL SCOPE OF WORK FOR THE PANELS. LAYOUTS ARE CONCEPTUAL ONLY. CONTRACTOR TO PROVIDE WIRING DIAGRAMS AND PANEL LAYOUTS (WHICH MAY VARY FROM THOSE SHOWN HEREIN) DURING SHOP DRAWING PHASE FOR ENGINEER AND OWNER APPROVAL.

SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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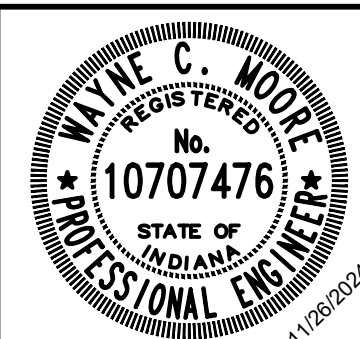
BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
GRIT BUILDING CONTROL PANEL LAYOUT

SHEET NO.
4E3
25

GENERAL NOTES:

- 1 SEE DIVISION 13 AND DIVISION 16 FOR EQUIPMENT REQUIREMENTS.
- 2 PANEL LAYOUTS ARE INCLUDED FOR BIDDING PURPOSES ONLY AND TO INDICATE AN OVERALL SCOPE OF WORK FOR THE PANELS. LAYOUTS ARE CONCEPTUAL ONLY. CONTRACTOR TO PROVIDE VOLTAGE, DISCRETE AND PANEL SCHEDULES. REQUIREMENTS VARY FROM THOSE SHOWN HEREIN) DURING SHOP DRAWING PHASE FOR ENGINEER AND OWNER APPROVAL.

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	APRIL 2025					
	PROJECT NUMBER					
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CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA

RETURN PUMP STATION CONTROL PANEL LAYOUT

SHEET NO.

4E4

26

Drawing: X:\Bloomington\274124\Bloomington Blucher Pools SCADA\DWG\Sheets\274124-EL-DD.dwg | Layout: 4E5 SOLIDS HANDLING FACILITY CONTROL PANEL LAYOUT | Plotted: 04/04/25 @ 02:55:48 | LastSavedBy: CurtHG

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REMOVE HMI (NOT SHOWN), PLC, POWER SUPPLY, CHASSIS, I/O CARDS AND TERMINALS. REPLACE WITH NEW PLC EQUIPMENT. SEE DIVISION 13 SPECIFICATIONS FOR ADDITIONAL DETAILS. LAYOUTS ARE FOR REFERENCE ONLY. SEE GENERAL NOTES.

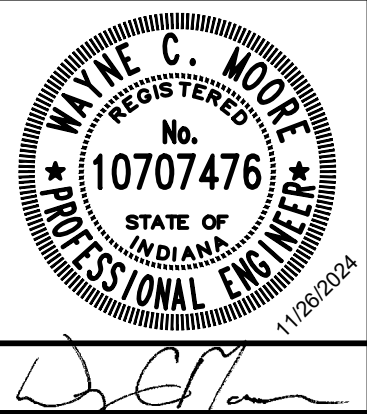
SOLIDS HANDLING FACILITY CONTROL PANEL MODIFICATIONS (PLC-SHF)

SCALE: NONE

GENERAL NOTES:

- 1 SEE DIVISION 13 AND DIVISION 16 FOR EQUIPMENT REQUIREMENTS.
- 2 PANEL LAYOUTS ARE INCLUDED FOR BIDDING PURPOSES ONLY AND TO INDICATE AN OVERALL SCOPE OF WORK FOR THE PANELS. LAYOUTS ARE CONCEPTUAL ONLY. CONTRACTOR TO PROVIDE WIRING DIAGRAMS AND PANEL LAYOUTS (WHICH MAY VARY FROM THOSE SHOWN HEREIN) DURING SHOP DRAWING PHASE FOR ENGINEER AND OWNER APPROVAL.

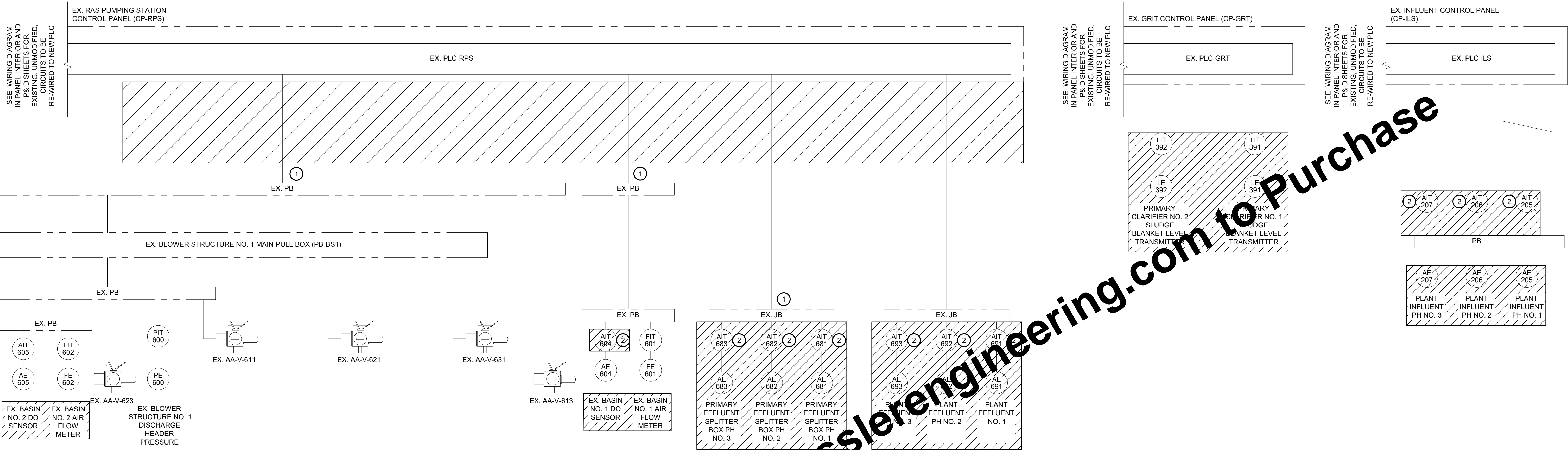
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	APRIL 2025					
	PROJECT NUMBER					
		274124-04-001				



BLUCHER POOLE WWTF SCADA IMPROVEMENTS	
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
SOLIDS HANDLING FACILITY CONTROL PANEL LAYOUT	

SHEET NO.
4E5
27

Drawing: X:\Bloomington\271124-Bloomington Blucher Pools SCADA\DWG\Sheets\271124-IC-OD.dwg | Layout: SEI DEMO ONE-LINE DIAGRAM | Plotted: 04/04/25 @ 02:57:40 | LastSavedBy: Curtis G



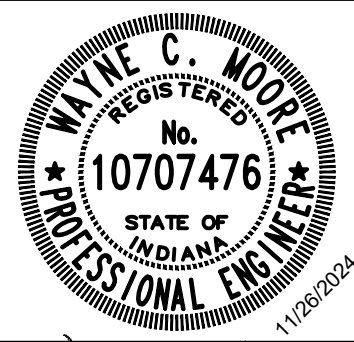
GENERAL NOTES:

- CLARIFIERS AND AERATION BASINS TO BE RE-NAMED AND RE-LABELLED. NAMES SHOWN AS DEMOLISHED HERE ARE TO BE MODIFIED. SEE SHEET 5E2 FOR NEW NAMES.
- A MAJORITY OF SIGNALS, BOTH ANALOG AND DIGITAL, ARE ON TWISTED PAIR WIRE FOR THESE DEVICES. HOWEVER, THE DIGITAL SIGNALS ARE RAN TOGETHER IN SEPARATE CONDUIT FROM THE ANALOG SIGNALS. USE CAUTION WHEN RE-WIRING AND LABEL PRIOR TO DISCONNECTION AS THE DISCRETE SIGNALS ARE 120VAC AND THE ANALOG ARE 4-20mA.
- SEE PANEL LAYOUT SHEETS FOR INFORMATION ON MODIFICATIONS INTERIOR TO THE PANELS.

KEYED NOTES:

- PULL BACK WIRE TO PULL BOXES AT BLOWER STRUCTURE 1 FOR RE-WIRING TO NEW PLC-BS1 AND NEW TRANSMITTER. LEAVE PULL WIRE IN CONDUIT AND MARK AS SPARE ONCE VACATED.
- REMOVE EXISTING SURGE PROTECTION DEVICE (SPD)/TRANSIENT VOLTAGE SURGE SUPPRESSOR (TVSS) FOR THIS DEVICE.

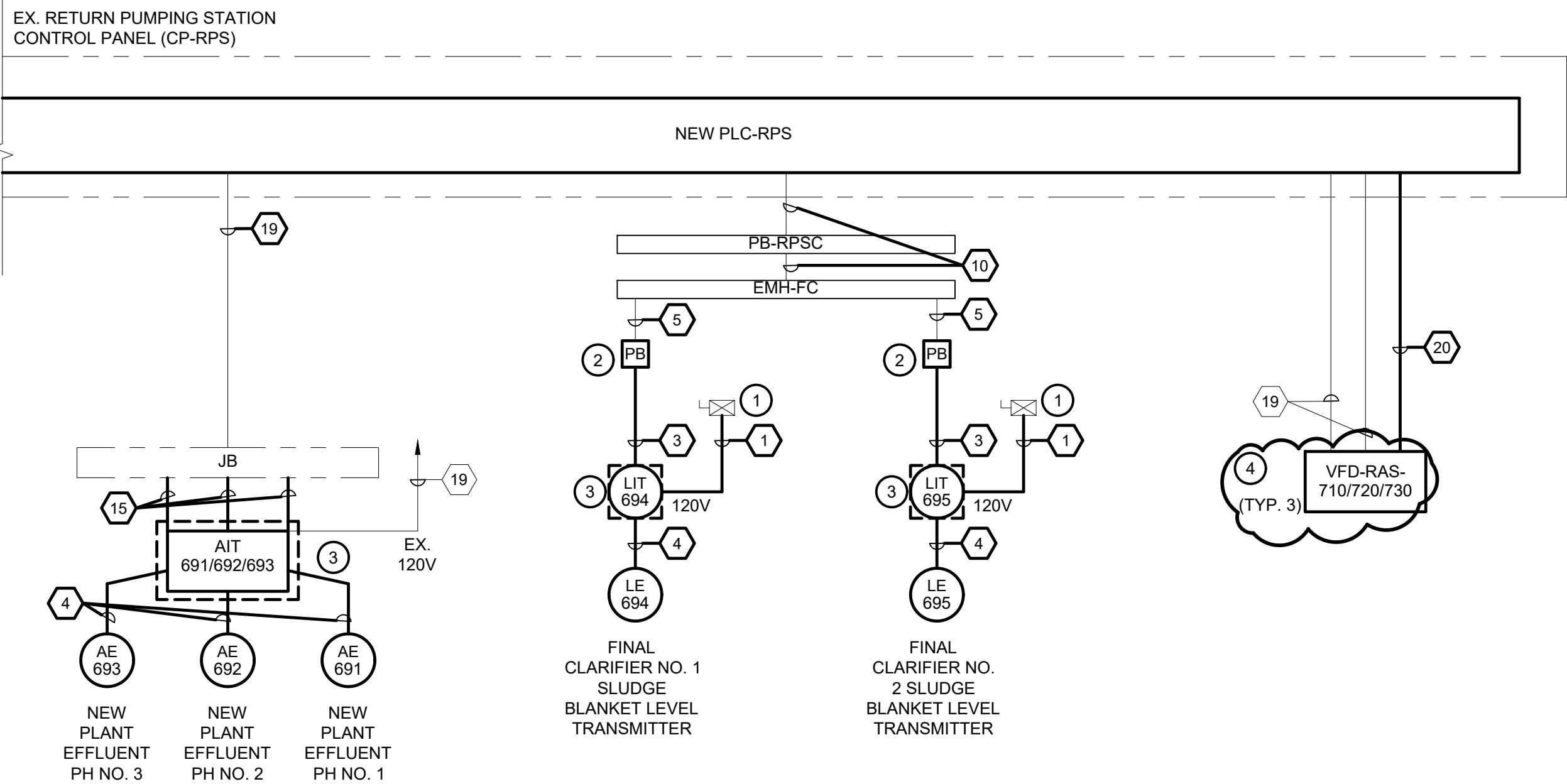
SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					



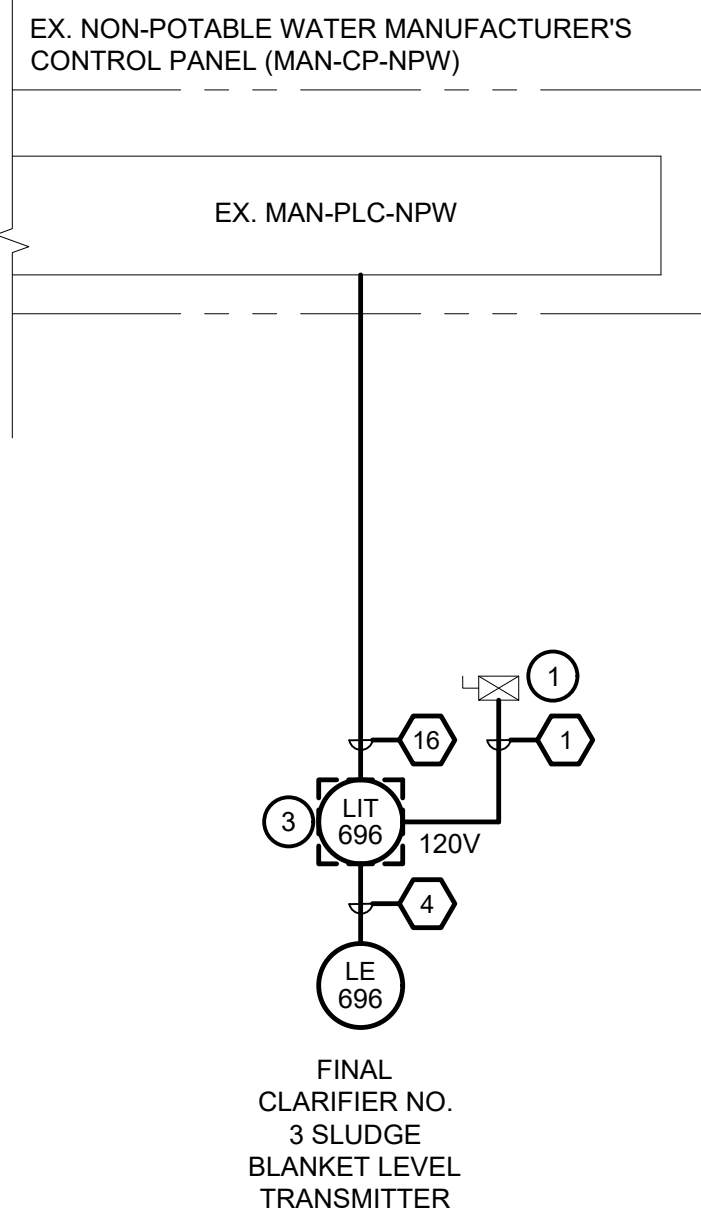
BLUCHER POOLE WWTF SCADA IMPROVEMENTS	SHEET NO. <div>5E1</div>
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA	
DEMO ONE-LINE DIAGRAM	28

Drawing: X:\Bloomington\27124\Bloomington Blucher Pools SCADA\DWG\Sheets\27124-UC-OD.dwg | Layout: 5E2 IMPROVEMENTS ONE-LINE DIAGRAM | Plotted: 04/04/25 @ 02:57:43 | LastSavedBy: CurtisG

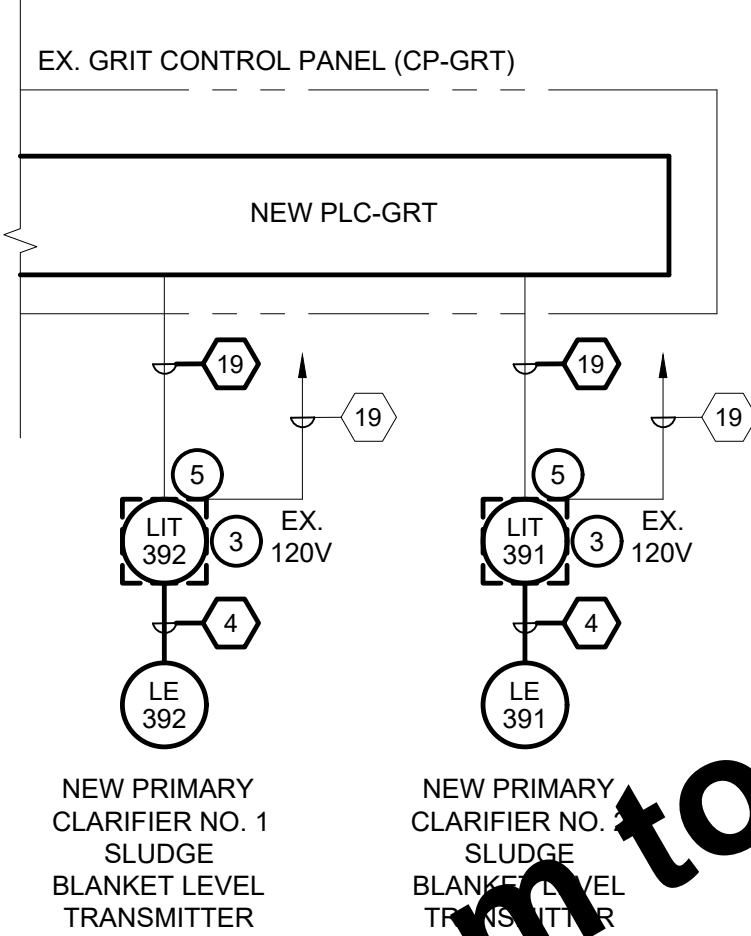
SEE WIRING DIAGRAM
IN PANEL INTERIOR AND
P&ID SHEETS FOR
EXISTING, UNMODIFIED,
CIRCUITS TO BE
RE-WIRED TO NEW PLC



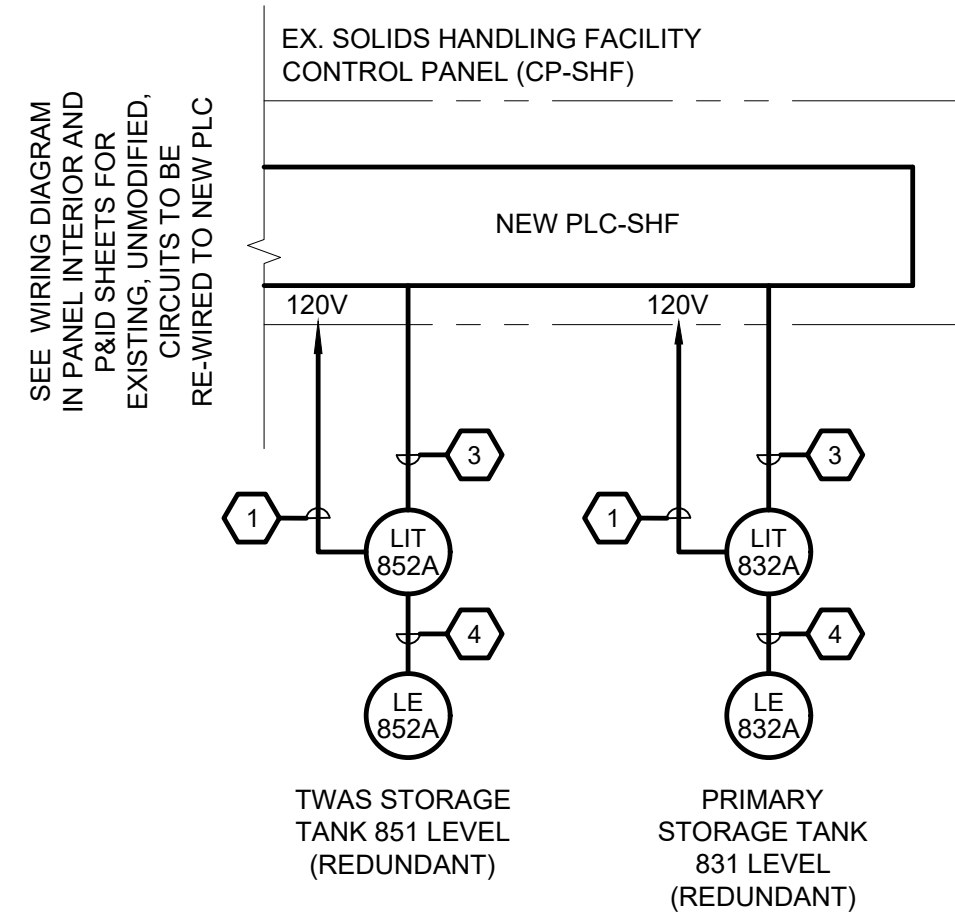
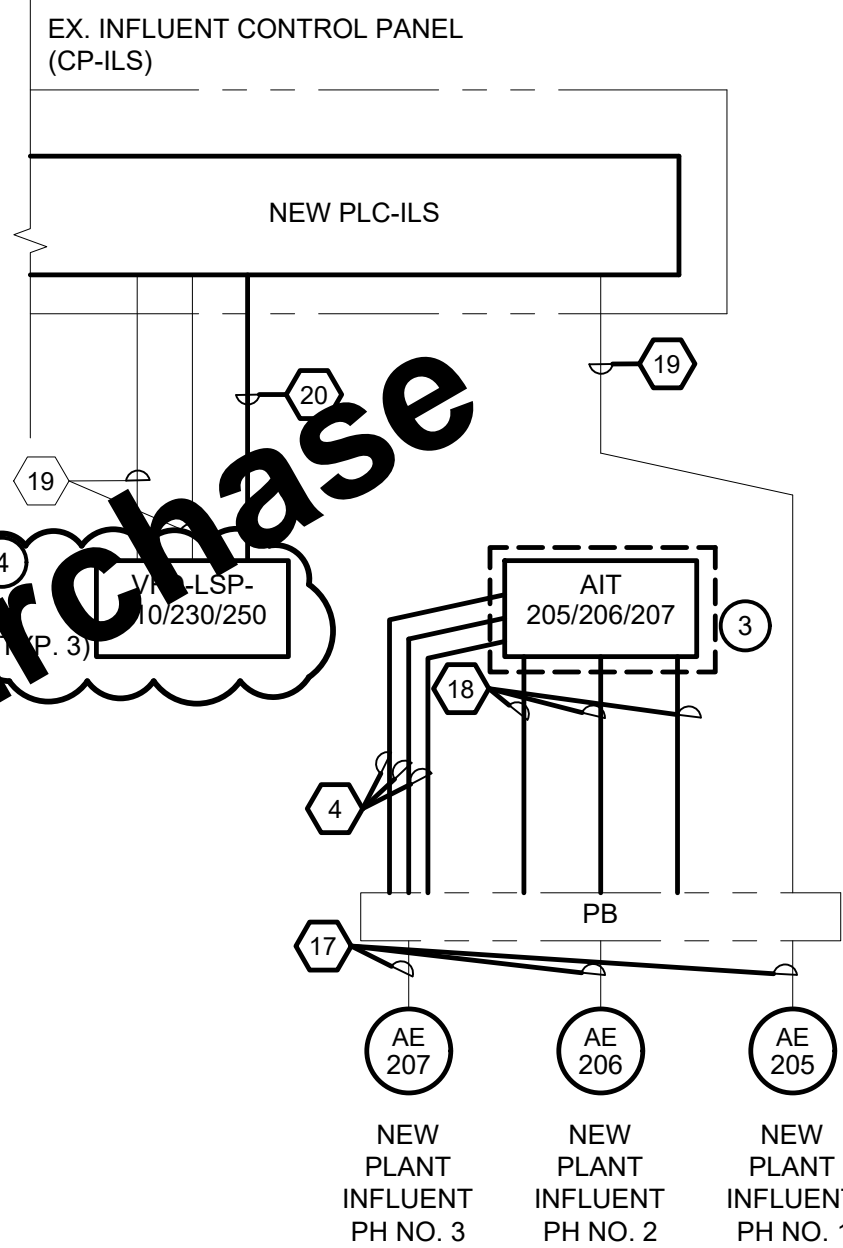
SEE WIRING DIAGRAM
IN PANEL INTERIOR
FOR EXISTING
UNMODIFIED CIRCUITS
TO BE LEFT IN PLACE



SEE WIRING DIAGRAM
IN PANEL INTERIOR AND
P&ID SHEETS FOR
EXISTING, UNMODIFIED,
CIRCUITS TO BE
RE-WIRED TO NEW PLC



SEE WIRING DIAGRAM
IN PANEL INTERIOR AND
P&ID SHEETS FOR
EXISTING, UNMODIFIED,
CIRCUITS TO BE
RE-WIRED TO NEW PLC



CONDUIT AND WIRE SCHEDULE:

- | | |
|----|---------------------------------------------------------------------|
| 1 | 3/4"C, #12, #12N, #12G |
| 2 | #12, #12N, #12G |
| 3 | 3/4"C, 2/C#16TPS |
| 4 | 3/4"C MANUFACTURER'S CABLE |
| 5 | RUN ADDITIONAL 2/C#16TPS WITH EXISTING IN EXISTING CONDUIT |
| 6 | RUN MANUFACTURER'S CABLE WITH EXISTING WIRE IN EXISTING CONDUIT |
| 7 | NEW 2 - 2"C, EXISTING WIRE |
| 8 | NEW 2"C, EXISTING WIRE |
| 9 | 2"C, 3 - 2/C#16TPS & 2"C SPARE |
| 10 | RUN ADDITIONAL 2 - 2/C#16TPS WITH EXISTING WIRE IN EXISTING CONDUIT |
| 11 | EXISTING 2"C, NEW FIBER |
| 12 | FIBER PATCH CABLE |
| 13 | ETHERNET PATCH CABLE |
| 14 | 2"C, FIBER |
| 15 | NEW 3/4"LTFTNMC, EXISTING 2/C#16TPS |
| 16 | 1"C, 2/C#16TPS, 1"C SPARE |
| 17 | EXISTING CONDUIT, NEW MANUF. CABLE |
| 18 | NEW 3/4"C, EXISTING 2/C#16TPS |
| 19 | EXISTING CONDUIT, EXISTING WIRE |
| 20 | 3/4"C, CAT6E ETHERNET |

LEGEND:

— NEW
— EXISTING

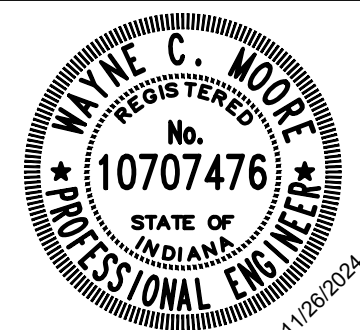
GENERAL NOTES:

- LINE TYPES AS SHOWN IN THE LEGEND ARE THE PRIMARY METHOD OF DETERMINING WHETHER AN ITEM IS NEW OR EXISTING. SOME ITEMS HAVE "NEW" OR "EX." IN FRONT OF THEIR DESIGNATION FOR CLARITY. CONTACT ENGINEER WITH ANY QUESTIONS REGARDING SCOPE.
- SEE PANEL LAYOUT SHEETS FOR INFORMATION ON MODIFICATIONS INTERIOR TO THE PANELS.

KEYED NOTES:

- NEW 120V 15A DIN RAIL MOUNT MINI CIRCUIT BREAKER IN EXISTING MOTOR STARTER TO BE POWERED FROM EXISTING 120V FEED IN PANEL.
- REPLACE EXISTING NON-METALLIC PULL BOXES IN-SITU WITH NEMA 4X STAINLESS STEEL BOXES AS DETAILED ON SHEET 2E4.
- NEMA 4X SST INSTRUMENT TRANSMITTER ENCLOSURE. SEE DETAIL SHEET 4E1.
- ADD ALT. NO. 2
- CONNECT EXISTING CONDUIT TO NEW ENCLOSURE AND CONNECT EXISTING WIRE TO NEW TRANSMITTER.

SCALE VERIFICATION	DRAWN BY	BDP	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	APPROVED BY	WCM				
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	PROJECT NUMBER					
	274124-04-001					



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CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA

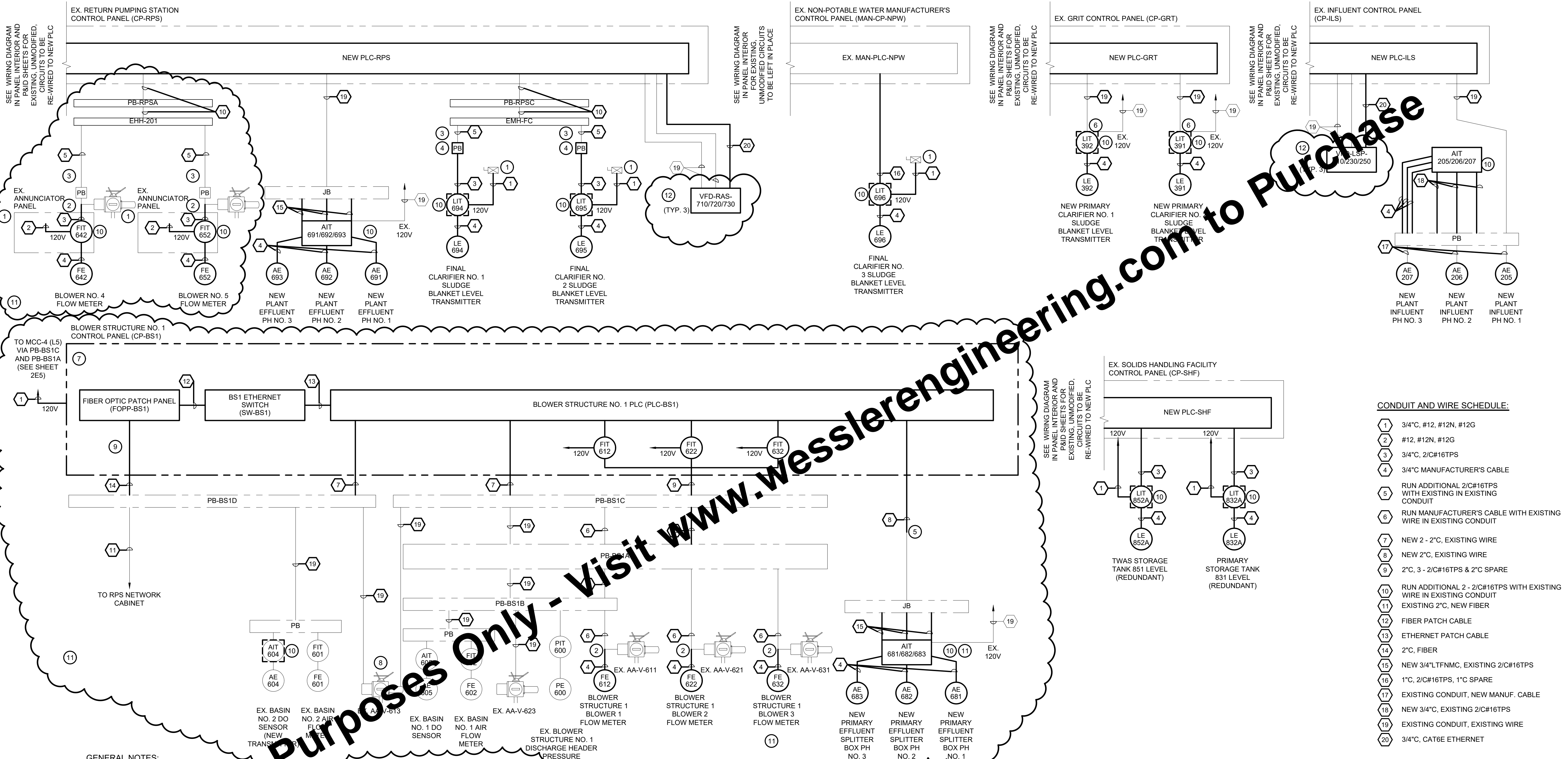
IMPROVEMENTS ONE-LINE DIAGRAM BASE BID & ADD. ALT. 2

SHEET NO.

5E2

29

Drawing: X:\Bloomington\274124\Bloomington Blucher Pools SCADA\DWG\Sheets\274124-UC-00.dwg | Layout: 5E3 IMPROVEMENTS ONE-LINE DIAGRAM | Plotted: 04/04/25 @ 02:57:47 | LastSavedBy: CurtiSG



GENERAL NOTES:

- UNMODIFIED ITEMS WHICH ARE TO BE RE-WIRED FROM EXISTING PLC'S TO NEW PLC'S AT THE SAME PANEL ARE NOT SHOWN FOR CLARITY.
- LINE TYPES AS SHOWN IN THE LEGEND ARE THE PRIMARY METHOD OF DETERMINING WHETHER AN ITEM IS NEW OR EXISTING. SOME ITEMS HAVE "NEW" OR "EX." IN FRONT OF THEIR DESIGNATION FOR CLARITY. CONTACT ENGINEER WITH ANY QUESTIONS REGARDING CLARITY.
- ANALOG SIGNALS, BOTH ANALOG AND DIGITAL, ARE ON TWISTED PAIR WIRE FOR THE DEVICES. HOWEVER, THE DIGITAL SIGNALS ARE RAN TOGETHER IN SEPARATE CONDUIT FROM THE ANALOG SIGNALS. USE CAUTION WHEN RE-WIRING AND LABEL PRIOR TO DISCONNECTION AS THE DISCRETE SIGNALS ARE 120VAC AND THE ANALOG ARE 4-20mA.
- SEE PANEL LAYOUT SHEETS FOR INFORMATION ON MODIFICATIONS INTERIOR TO THE PANELS.

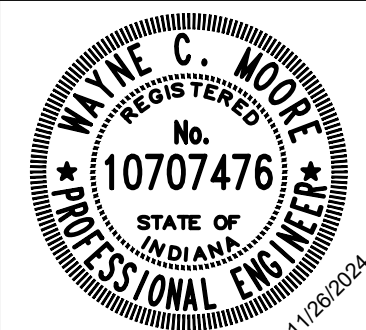
LEGEND:

— NEW
— EXISTING

KEYED NOTES:

- NEW 120V 15A DIN RAIL MOUNT MINI CIRCUIT BREAKER IN EXISTING BLOWER ANNUNCIATOR PANEL OR MOTOR STARTER TO BE POWERED FROM EXISTING 120V FEED IN PANEL.
- CONNECT EXISTING CONDUIT TO NEW USING "T"
- SEE SITE PLAN SHEET 2E1 FOR DUCT BANK INFORMATION. SUFFICIENT CONDUIT IS BELIEVED TO BE INSTALLED FROM THIS POINT TO THE CONTROL PANEL FOR THESE WIRES. USE SPARE WHERE AVAILABLE, OTHERWISE MEET THE REQUIREMENTS FOR CONDUIT FILL WHEN PULLING WITH EXISTING. CONTACT ENGINEER IF CONCERNS ARISE.
- REPLACE EXISTING NON-METALLIC PULL BOXES IN-SITU WITH NEMA 4X STAINLESS STEEL BOXES AS DETAILED ON SHEET 2E4.
- A SHORT SECTION OF NEW CONDUIT UNDERGROUND IS REQUIRED HERE TO STUB AIT-681 THROUGH AIT-683 ANALOG SIGNALS OVER TO BLOWER STRUCTURE 1 FROM DUCT BANK 24.
- CONNECT EXISTING CONDUIT TO NEW ENCLOSURE AND CONNECT EXISTING WIRE TO NEW TRANSMITTER.
- COORDINATE PATCH PANEL AND ETHERNET SWITCH TYPE WITH CITY IT. 120V IN PANEL DETAILED ON SHEET 4E1.
- DIGITAL FOR AA-V-613 GOES TO PB-BS1C, ANALOG GOES TO PB-BS1D.
- FIBER SHALL BE TERMINATED AT FOPP-BS1 AND RUN TO THE RETURN PUMPING STATION NETWORK PANEL WHERE IT IS TO BE SAFELY COILED AND LABELED FOR TERMINATION BY OTHERS.
- NEMA 4X SST INSTRUMENT TRANSMITTER ENCLOSURE. SEE DETAIL SHEET 4E1.
- ADD ALT. NO. 1
- ADD ALT. NO. 2

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		274124-04-001				



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BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
IMPROVEMENTS ONE-LINE DIAGRAM - BASE BID & ALL ALTERNATES

SHEET NO.
5E3
30

Drawing: X:\Bloomington\274124\Bloomington Blucher Pools SCADA\DWG\Sheets\274124-UC-00.dwg | Layout: 5E4 POWER IMPROVEMENTS ONE-LINE DIAGRAM | Plotted: 04/04/25 @ 02:57:49 | LastSavedBy: CurtiG

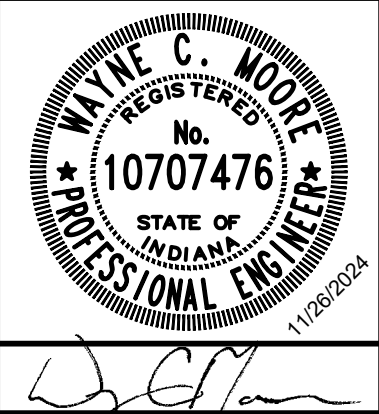
GENERAL NOTES:

1. LINE TYPES AS SHOWN IN THE LEGEND ARE THE PRIMARY METHOD OF DETERMINING WHETHER AN ITEM IS NEW OR EXISTING. SOME ITEMS HAVE "NEW" OR "EX." IN FRONT OF THEIR DESIGNATION FOR CLARITY. CONTACT ENGINEER WITH ANY QUESTIONS REGARDING SCOPE.

LEGEND:

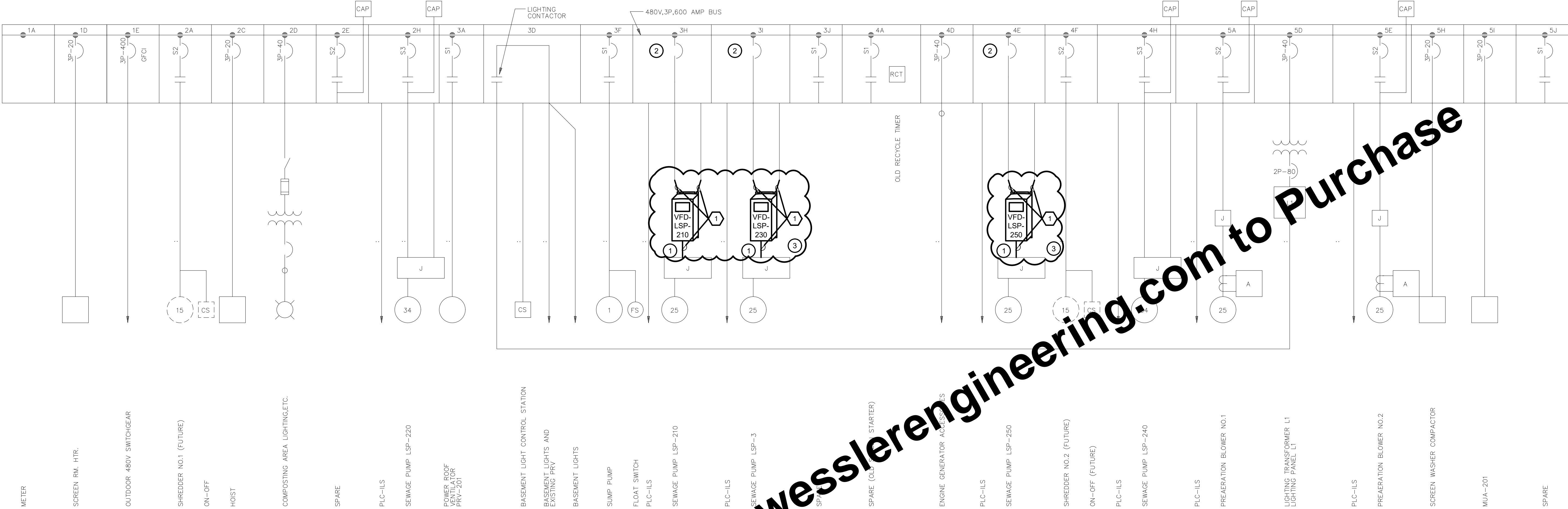
- NEW
— EXISTING

SCALE VERIFICATION	DRAWN BY	MLW	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	ISSUE DATE					
	APRIL 2025					
	PROJECT NUMBER					
	274124-04-001					

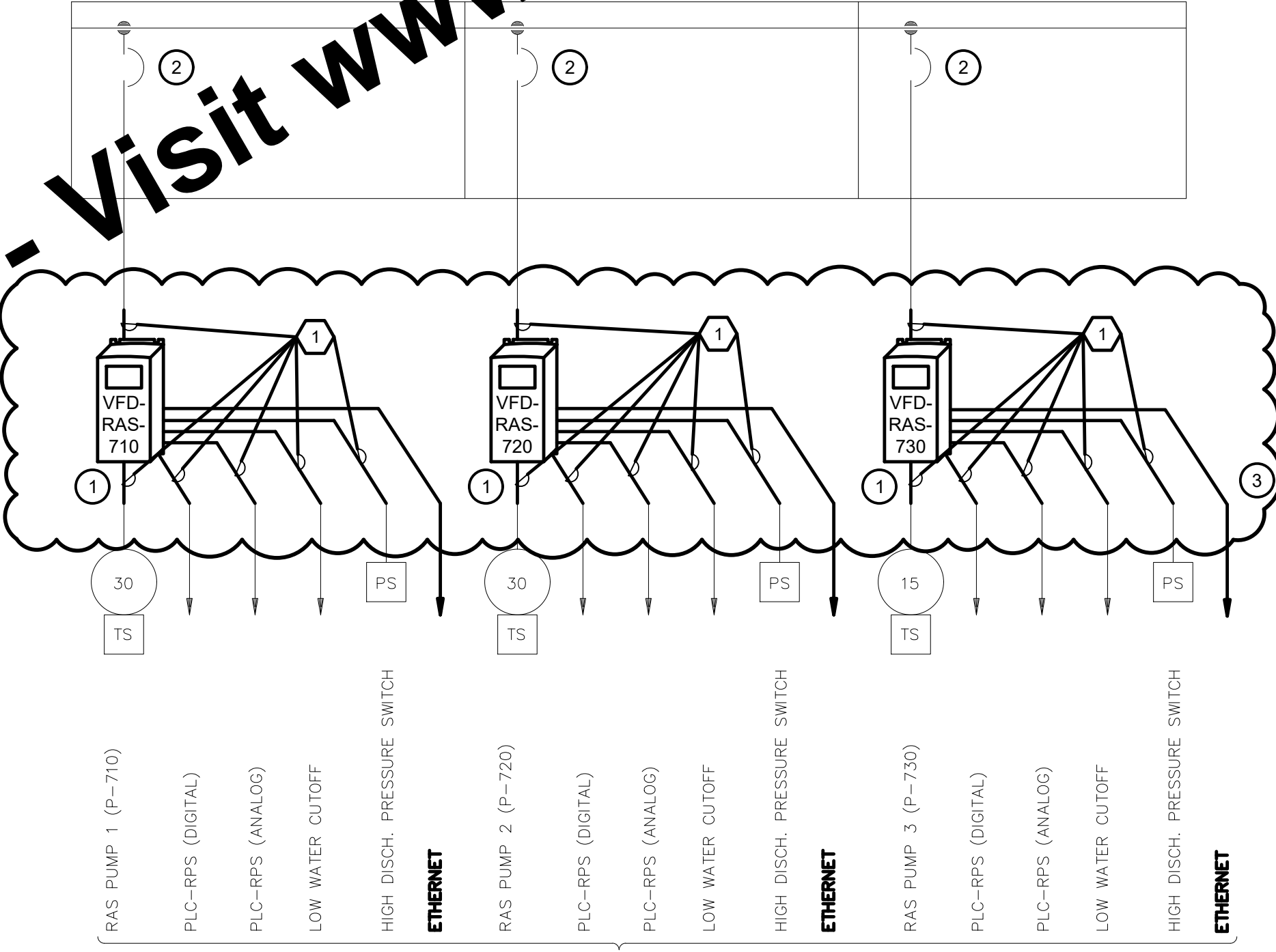


BLUCHER POOLE WWTF SCADA IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
POWER IMPROVEMENTS ONE-LINE DIAGRAM

SHEET NO.
5E4
31



MCC-1 INFLUENT LIFT STATION POWER IMPROVEMENTS ONE-LINE DIAGRAM



MCC-4 RETURN PUMP STATION POWER IMPROVEMENTS ONE-LINE DIAGRAM

KEYED NOTES:

1. REPLACE EXISTING VARIABLE FREQUENCY DRIVES WITH NEW ABB ACQ580-01 VARIABLE FREQUENCY DRIVE PUMP CONTROL PANEL. INSTALL LTFMC AS NEEDED TO CONNECT EXISTING RUNS TO NEW UNITS. SEE 16111 FOR REQUIREMENTS. RE-TERMINATE EXISTING WIRE AT NEW DRIVES MATCHING EXISTING CONFIGURATION. SEE SHEET 4E1 VFD PUMP PANEL DETAIL FOR FURTHER INFORMATION. VERIFY THAT A UNBROKEN, FULLY RATED, GROUND WIRE HAS BEEN RUN FROM THE MOTOR DIRECTLY TO THE VFD. IF ONE HAS NOT BEEN PULLED, DO SO.
2. VERIFY BREAKER SIZE, INFORM ENGINEER IF BREAKER/MCP IS NOT SIZED TO ADEQUATELY PROTECT ALL DOWNSTREAM DEVICES.
3. ADD ALT. NO. 2

CONDUIT AND WIRE SCHEDULE:

- 1 LTFMC SIZED MATCHING EXISTING, EXISTING WIRE