

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	N	NORTHING, NORTH
CL	CENTER LINE	NGS	NATIONAL GEODETIC SURVEY
CMA	COLD MIX ASPHALT	NO.	NUMBER
CMP	CORRUGATED METAL PIPE	OC	ON CENTER
CMU	CONCRETE MASONRY UNIT	OD	OUTSIDE DIAMETER
CONC	CONCRETE	PC	POINT OF CURVE (BEGIN CURVE)
CONT	CONTINUOUS	POLY	POLYETHYLENE
CNR	CORNER	PI	POINT OF INTERSECTION
CP	CONTROL POINT	POT	POINT ON TANGENT
CPP	CORRUGATED PLASTIC PIPE	PT	POINT OF TANGENT (END CURVE)
CR STN	CRUSHED STONE	PSI	POUNDS PER SQUARE INCH
CYD	CUBIC YARD	PT	POINT
D	DEPTH	PVC	POLYVINYL CHLORIDE
DI	DUCTILE IRON	R	RADIUS
DI MJ	DUCTILE IRON MECHANICAL JOINT	ROW	RIGHT-OF-WAY
DBL	DOUBLE	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	RD	ROAD
DIP	DUCTILE IRON PIPE	S	SOUTH
DIPS	DUCTILE IRON PIPE SIZE	SR	STATE ROUTE
DR	DRIVE	SST	STAINLESS STEEL
E	EASTING, EAST	SVA	SERVICE VALVE ASSEMBLY
EF	EACH FACE	SB	SOIL BORING
EW	EACH WAY	SCHED	SCHEDULE
EA	EACH	SDR	STANDARD DIMENSION RATIO
EJ	EAST JORDAN IRON WORKS	SECT	SECTION
EL	ELEVATION	SF	SQUARE FEET
EX	EXISTING	SHT	SHEET
EXP	EXPANSION	SPECS	SPECIFICATION(S)
FFE	FINISH FLOOR ELEVATION	SQ	SQUARE
FM	FORCE MAIN	SRF	STATE REVOLVING FUND
FND	FOUND	ST	STREET
FT	FEET	STA	STATION
FTG	FOOTING	SYD	SQUARE YARD
GALV	GALVANIZED	TBM	TEMPORARY BENCHMARK
GPS	GLOBAL POSITIONING SYSTEM	TC	TOP OF CASTING
HMA	HOT MIX ASPHALT	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE	USGS	US GEOLOGICAL SURVEY
HORIZ	HORIZONTAL	VERT	VERTICAL
ID	INSIDE DIAMETER	VLV	VALVE
IE	INVERT ELEVATION	W	WIDTH, WEST
INC	INCORPORATED	WSE	WATER SURFACE ELEVATION
INDOT	INDIANA DEPARTMENT OF TRANSPORTATION	YR	YEAR
INSTR	INSTRUMENT		
INV	INVERT		

GENERAL NOTES:

- 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.
- 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.
- 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.
- 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 CONSTRUCTION.
- 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, ACCURATE, 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.
- 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.
- DO NOT DISTURB EXISTING MANHOLES OR INLETS, UNLESS NOTED OTHERWISE.
- COORDINATE STAGING AREA LOCATIONS WITH THE OWNER.
- ALL CONSTRUCTION TRAFFIC SHALL USE MAJOR ROADS. NO CONSTRUCTION TRAFFIC SHALL USE LOCAL STREETS FOR INDIRECT ACCESS.
- TO CONTROL DUST, REMOVE SOIL FROM STREETS USED BY CONSTRUCTION TRAFFIC DAILY, VACUUM AND WATER AS NECESSARY AND/OR AS DIRECTED BY THE OWNER.
- 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.
- 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. IT SHALL 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.
- NEW PIPING CARRYING LIQUIDS SHALL HAVE MINIMUM COVER AS DEFINED IN THE MESSAGES AND SITE DETAILS, UNLESS SPECIFIC ELEVATIONS ON THE DRAWINGS INDICATE OTHERWISE.
- INSPECT THE SITE PRIOR TO BIDDING TO UNDERSTAND THE EXTENT OF THE DEPTH OF WORK INVOLVED AND ADJUST BID ACCORDINGLY.
- 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.

DRAWING INDEX		
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GENERAL		
		TITLE SHEET
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3	G2	FILTER PIPING FLOW DIAGRAM
SITE		
4	Y1	SITE PLAN
CIVIL		
STRUCTURE NO. 1		
5	C1	FILTER BUILDING - PERSPECTIVE VIEWS
6	C2	FILTER PIPING GALLERY DEMOLITION AT ELEVATION 620.00
7	C3	FILTER PIPING GALLERY DEMOLITION AT ELEVATION 643.00
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9	C5	FILTER BUILDING - DEMOLITION SECTIONS
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12	C8	FILTER BUILDING - SECTIONS
13	C9	FILTER BUILDING - SECTIONS
ELECTRICAL		
14	E1	ELECTRICAL FILTER PIPING GALLERY
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16	E3	ELECTRICAL OPERATING GALLERY LEVEL
17	E4	FILTER BUILDING - SECTIONS
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19	E6	ONE-LINE DIAGRAM AND SCHEMATIC
20	E7	ONE-LINE DIAGRAM, SCHEMATIC AND PANEL SCHEDULE
21	E8	CONTROL ONE-LINE DIAGRAM

VALVE SCHEDULE								
VALVE NO.	SIZE	TYPE	FITTINGS	FILTER SERVICED	SERVICE	OPERATOR	ACCESSORIES	REMARKS
SW-23	6"	BUTTERFLY	FLANGE	FILTER NO. 1	SURFACE WASH	HANDWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
SW-24	6"	BUTTERFLY	FLANGE	FILTER NO. 3	SURFACE WASH	HANDWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
SW-25	6"	BUTTERFLY	FLANGE	FILTER NO. 2	SURFACE WASH	HANDWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
SW-26	6"	BUTTERFLY	FLANGE	FILTER NO. 4	SURFACE WASH	HANDWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-1	24"	BUTTERFLY	FLANGE	FILTER NO. 1	FILTER EFFLUENT	HANDWHEEL	ELECTRIC ACTUATOR; MODULATING	
LV-2	24"	BUTTERFLY	FLANGE	FILTER NO. 2	FILTER EFFLUENT	HANDWHEEL	ELECTRIC ACTUATOR; MODULATING	
LV-3	24"	BUTTERFLY	FLANGE	FILTER NO. 3	FILTER EFFLUENT	HANDWHEEL	ELECTRIC ACTUATOR; MODULATING	
LV-4	24"	BUTTERFLY	FLANGE	FILTER NO. 4	FILTER EFFLUENT	HANDWHEEL	ELECTRIC ACTUATOR; MODULATING	
LV-5	30"	BUTTERFLY	FLANGE	FILTER NO. 1	FILTER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-6	30"	BUTTERFLY	FLANGE	FILTER NO. 2	FILTER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-7	30"	BUTTERFLY	FLANGE	FILTER NO. 3	FILTER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-8	30"	BUTTERFLY	FLANGE	FILTER NO. 4	FILTER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-9	30"	BUTTERFLY	FLANGE	FILTER NO. 1	WASH WATER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-10	36"	BUTTERFLY	FLANGE	FILTER NO. 2	WASH WATER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-11	36"	BUTTERFLY	FLANGE	FILTER NO. 3	WASH WATER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-12	36"	BUTTERFLY	FLANGE	FILTER NO. 4	WASH WATER INFLUENT	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
LV-13	36"	BUTTERFLY	FLANGE	N/A	WASH WATER SUPPLY CONTROL	CHAINWHEEL	ELECTRIC ACTUATOR; MODULATING	REPLACE ONLY ACTUATOR
DV-301	36"	BUTTERFLY	FLANGE	FILTER NO. 1	WASHWATER DRAIN	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
DV-302	36"	BUTTERFLY	FLANGE	FILTER NO. 2	WASHWATER DRAIN	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
DV-303	36"	BUTTERFLY	FLANGE	FILTER NO. 3	WASHWATER DRAIN	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	
DV-304	36"	BUTTERFLY	FLANGE	FILTER NO. 4	WASHWATER DRAIN	CHAINWHEEL	ELECTRIC ACTUATOR; OPEN/CLOSE	

NOTES: 1. THIS SCHEDULE ONLY INCLUDES VALVES MODIFIED AS PART OF THE SCOPE OF THIS PROJECT. ADDITIONAL VALVES LISTED ON CONTRACT DRAWING SHEETS ARE SHOWN TO FACILITATE COORDINATION WITH SPECIFICATIONS OR PLANT OPERATIONS.

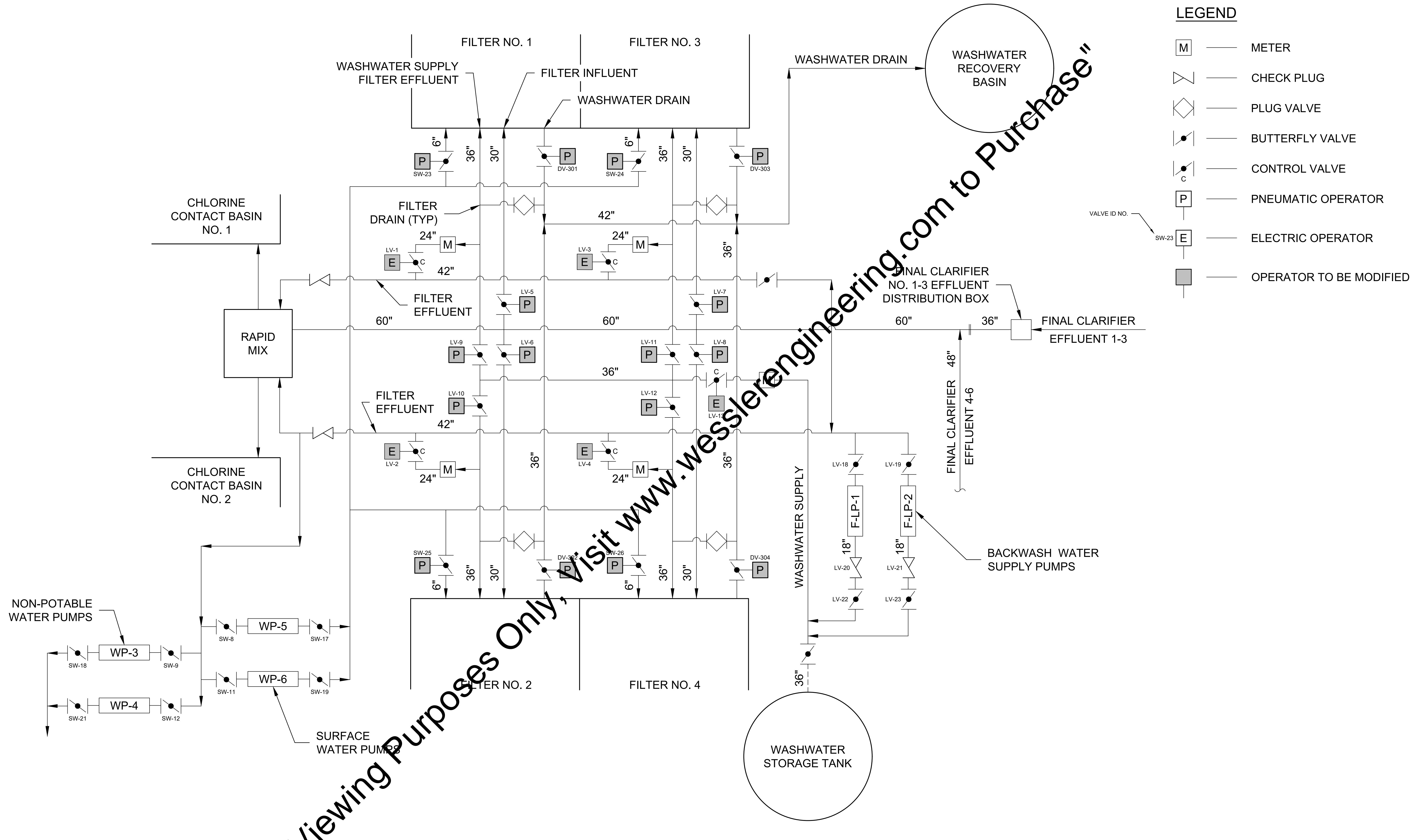
*NOTE: THIS TABLE IS A LISTING OF TYPICAL ABBREVIATIONS AND MAY NOT INCLUDE ALL ABBREVIATIONS FOUND WITHIN THIS PLAN SET. IF A QUESTION ARISES ON THE MEANING OF AN ABBREVIATION NOT LISTED IN THIS TABLE, PLEASE CONTACT THE ENGINEER FOR CLARIFICATION.

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SCALE VERIFICATION BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	DRAWN BY CHECKED BY APPROVED BY ISSUE DATE AUGUST 2017 PROJECT NUMBER 196117-04-002	DLT ALT RWH	NO. DATE INITIALS REVISION DESCRIPTIONS		<p>WESSLER ENGINEERING More than a Project™</p>	<p>DILLMAN ROAD WWTP EFFLUENT FILTER IMPROVEMENTS</p> <p>CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA</p> <p>PLAN NOTES, ABBREVIATIONS AND DRAWING INDEX</p>	SHEET NO. <h1 style="font-size: 2em;">G1</h1> PAGE NO. <h1 style="font-size: 2em;">2</h1>
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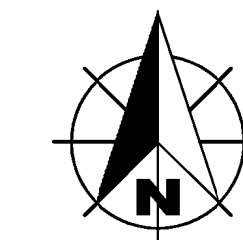



LEGEND


	METER
	CHECK PLUG
	PLUG VALVE
	BUTTERFLY VALVE
	CONTROL VALVE
	PNEUMATIC OPERATOR
	ELECTRIC OPERATOR
	OPERATOR TO BE MODIFIED

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	APPROVED BY	RWH							PAGE NO.	
	ISSUE DATE AUGUST 2017 PROJECT NUMBER 196117-04-002								CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA FILTER PIPING FLOW DIAGRAM	3



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ROBERT W. HOLDEN
REGISTERED PROFESSIONAL ENGINEER
No. 10000096
STATE OF INDIANA
08/19/2017



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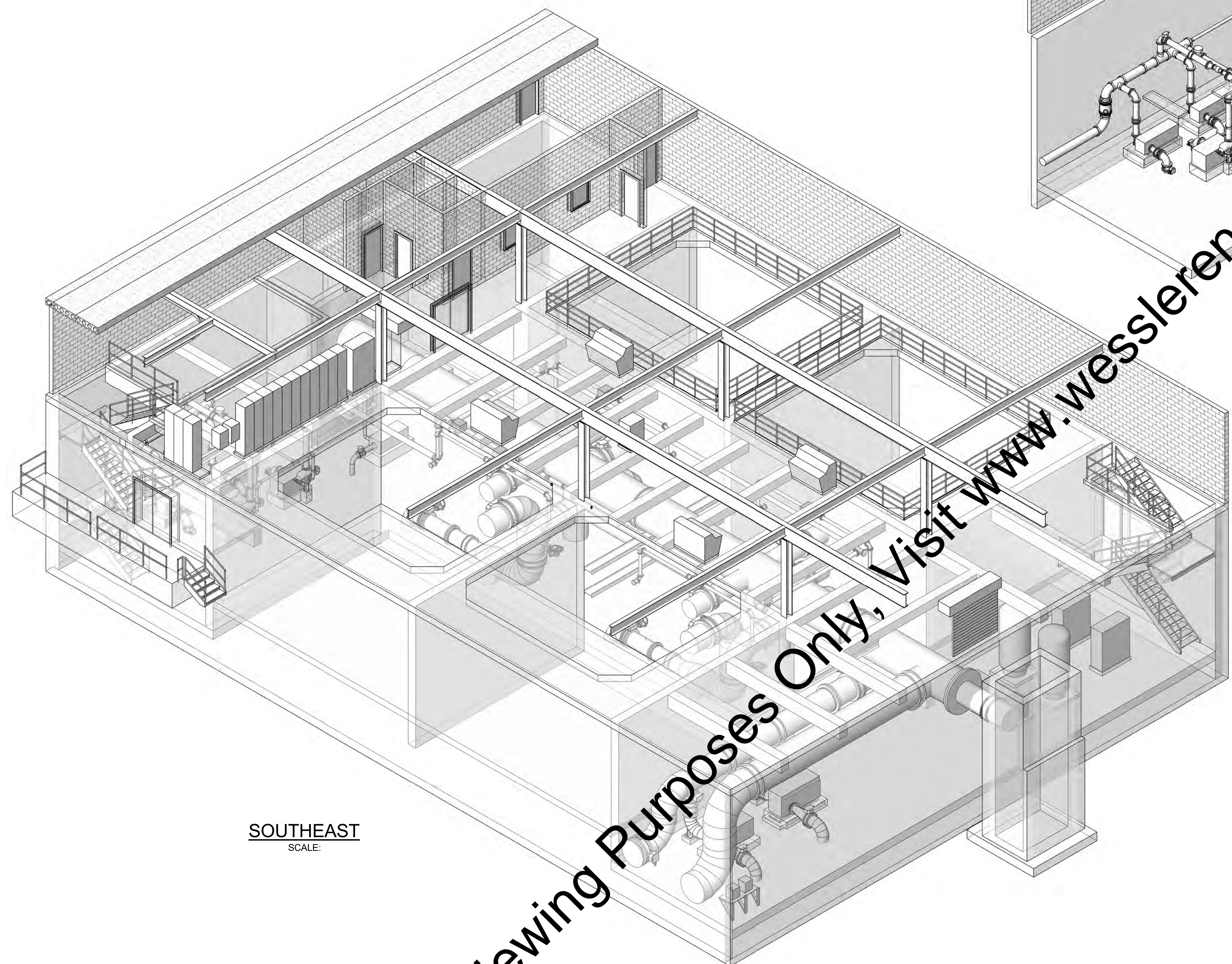
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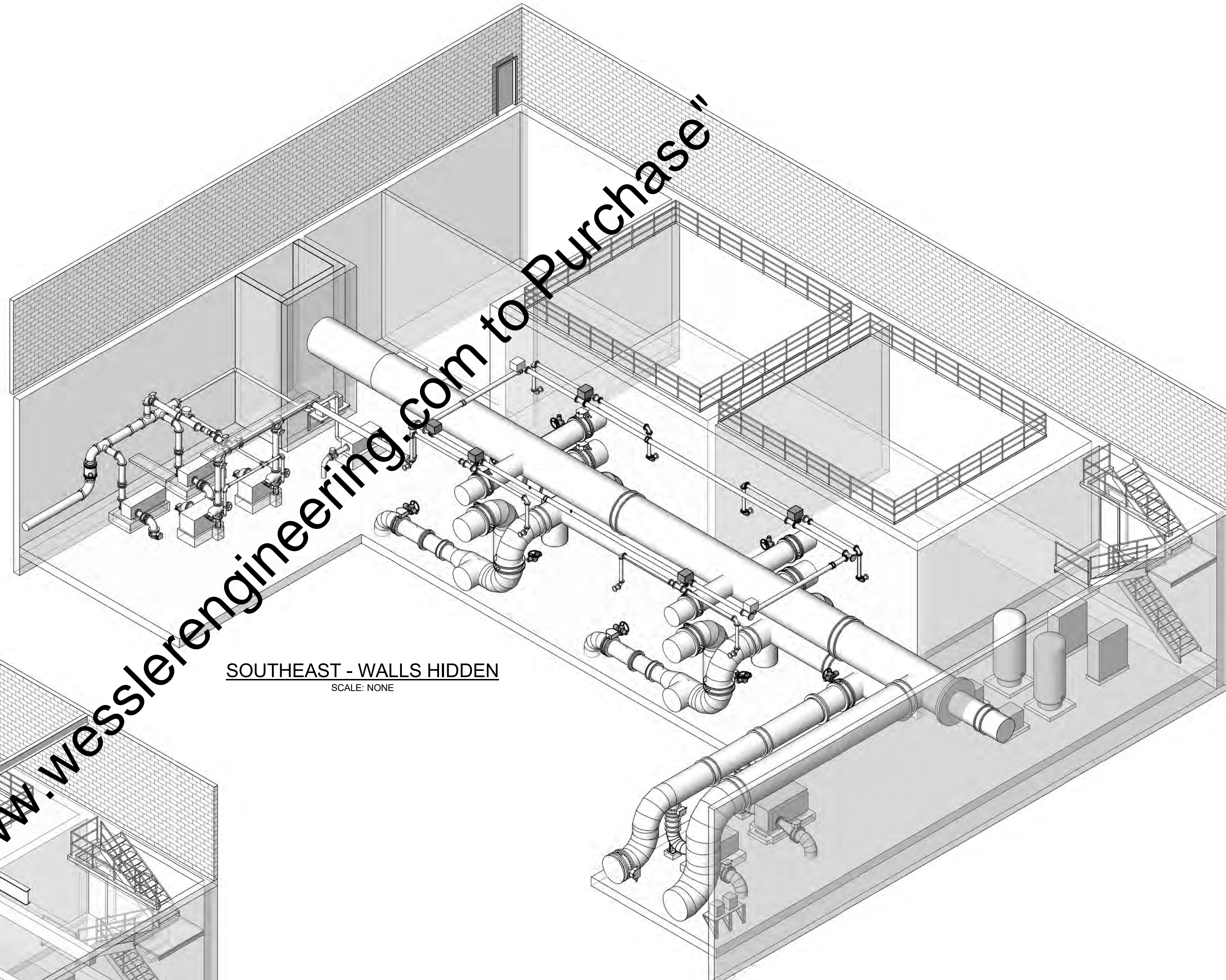
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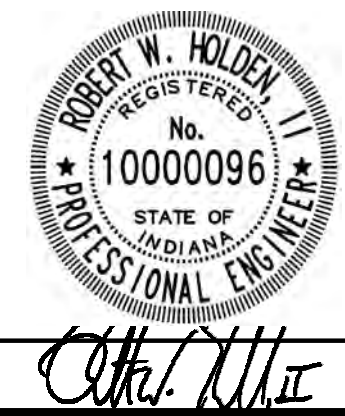
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SCALE:



SOUTHEAST - WALLS HIDDEN
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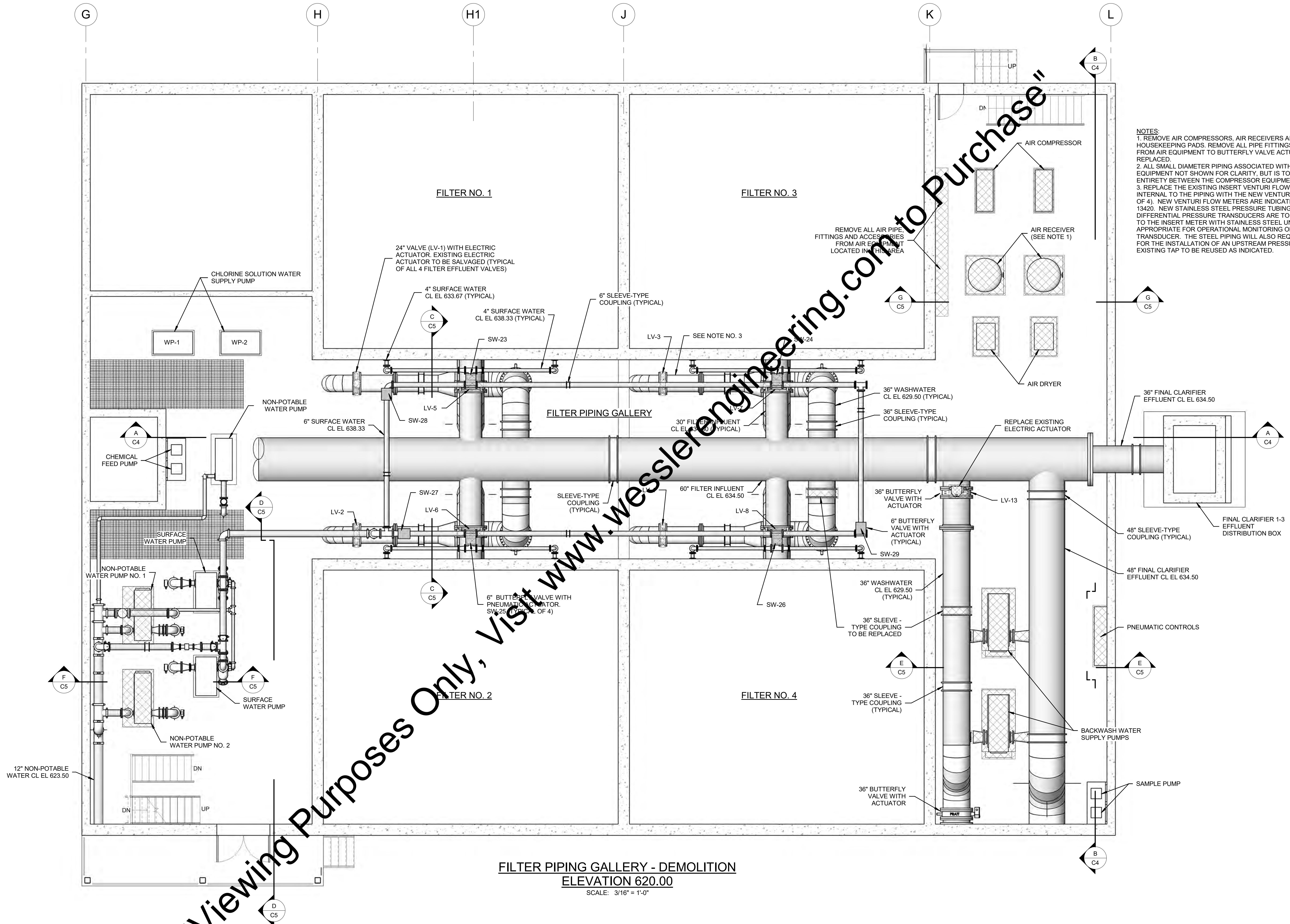
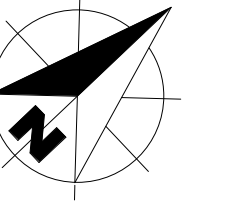
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CITY OF BLOOMINGTON UTILITIES BLOOMINGTON, INDIANA
FILTER BUILDING - PERSPECTIVE VIEWS

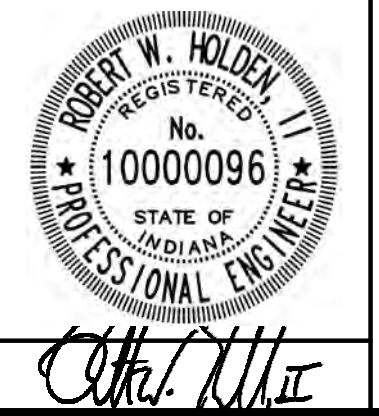
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PAGE NO. 5



- NOTES:
1. REMOVE AIR COMPRESSORS, AIR RECEIVERS AIR DRYERS INCLUDING HOUSEKEEPING PADS. REMOVE ALL PIPE FITTINGS AND ACCESSORIES FROM AIR EQUIPMENT TO BUTTERFLY VALVE ACTUATORS BEING REPLACED.
 2. ALL SMALL DIAMETER PIPING ASSOCIATED WITH THE AIR COMPRESSOR EQUIPMENT NOT SHOWN FOR CLARITY, BUT IS TO BE DEMOLISHED IN ITS ENTIRETY BETWEEN THE COMPRESSOR EQUIPMENT AND THE ACTUATORS.
 3. REPLACE THE EXISTING INSERT VENTURI FLOW METER LOCATED INTERNAL TO THE PIPING WITH THE NEW VENTURI FLOW METER (TYPICAL OF 4). NEW VENTURI FLOW METERS ARE INDICATED IN SPECIFICATION 13420. NEW STAINLESS STEEL PRESSURE TUBING, BALL VALVES, AND DIFFERENTIAL PRESSURE TRANSDUCERS ARE TO BE MOUNTED PROXIMATE TO THE INSERT METER WITH STAINLESS STEEL UNISTRUT AT A HEIGHT APPROPRIATE FOR OPERATIONAL MONITORING OF THE PRESSURE TRANSDUCER. THE STEEL PIPING WILL ALSO REQUIRE AN ADDITIONAL TAP FOR THE INSTALLATION OF AN UPSTREAM PRESSURE SENSING LINE. EXISTING TAP TO BE REUSED AS INDICATED.

FILTER PIPING GALLERY - DEMOLITION
 ELEVATION 620.00
 SCALE: 3/16" = 1'-0"

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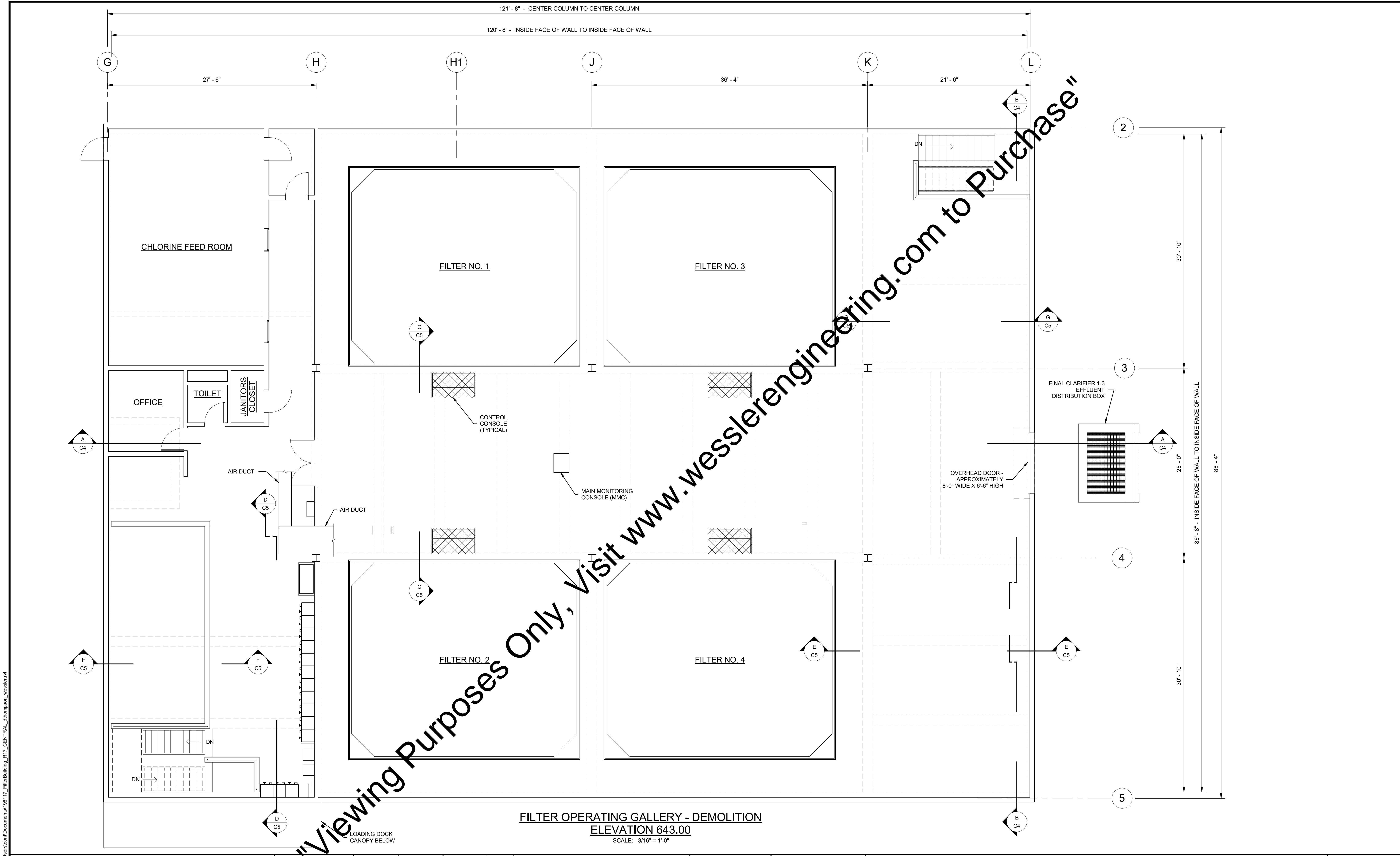


DILLMAN ROAD WWTFF EFFLUENT FILTER IMPROVEMENTS

CITY OF BLOOMINGTON UTILITIES
 BLOOMINGTON, INDIANA

FILTER PIPING GALLERY DEMOLITION AT ELEVATION 620.00

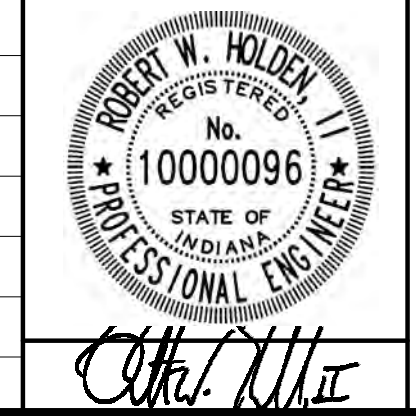
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FILTER OPERATING GALLERY - DEMOLITION
ELEVATION 643.00
SCALE: 3/16" = 1'-0"

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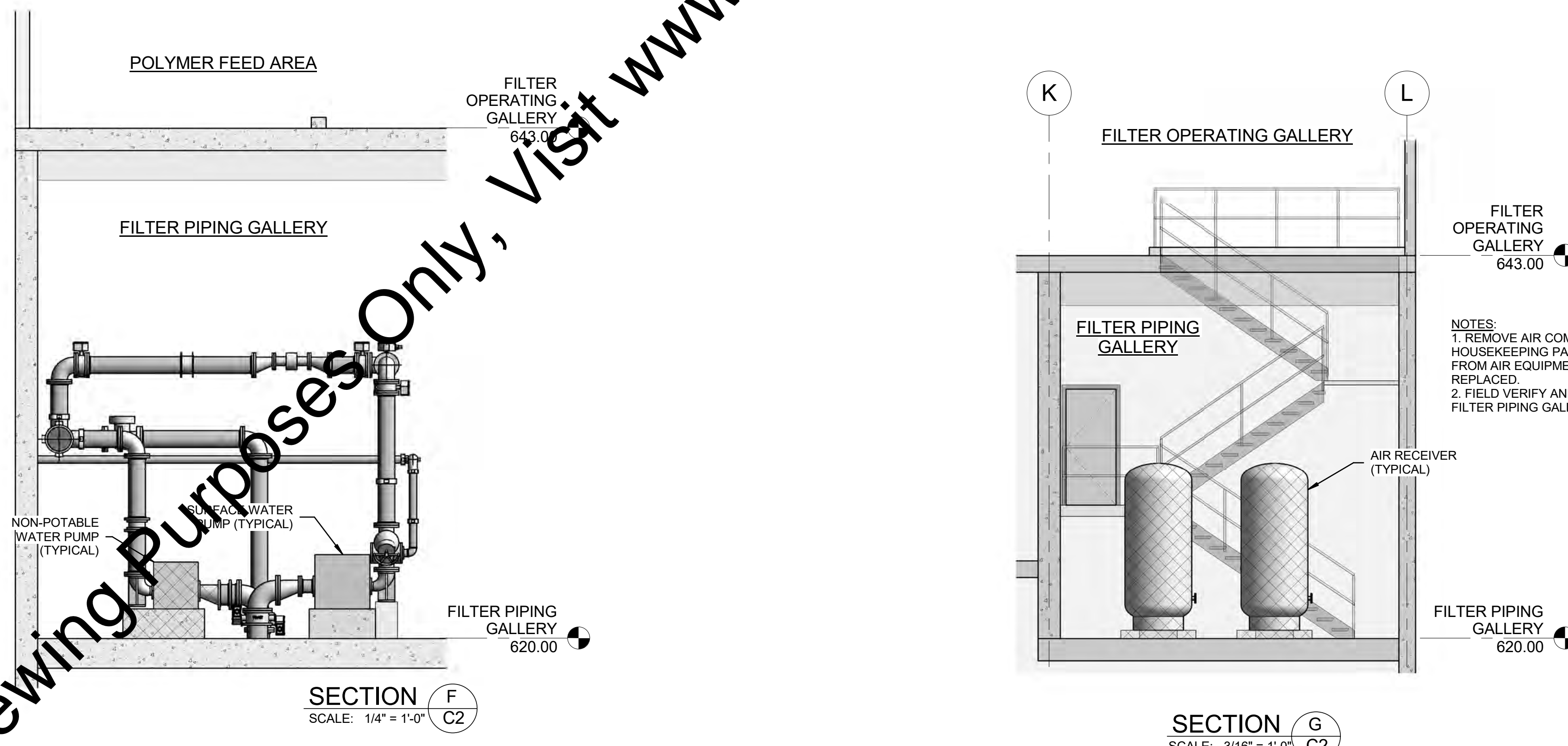
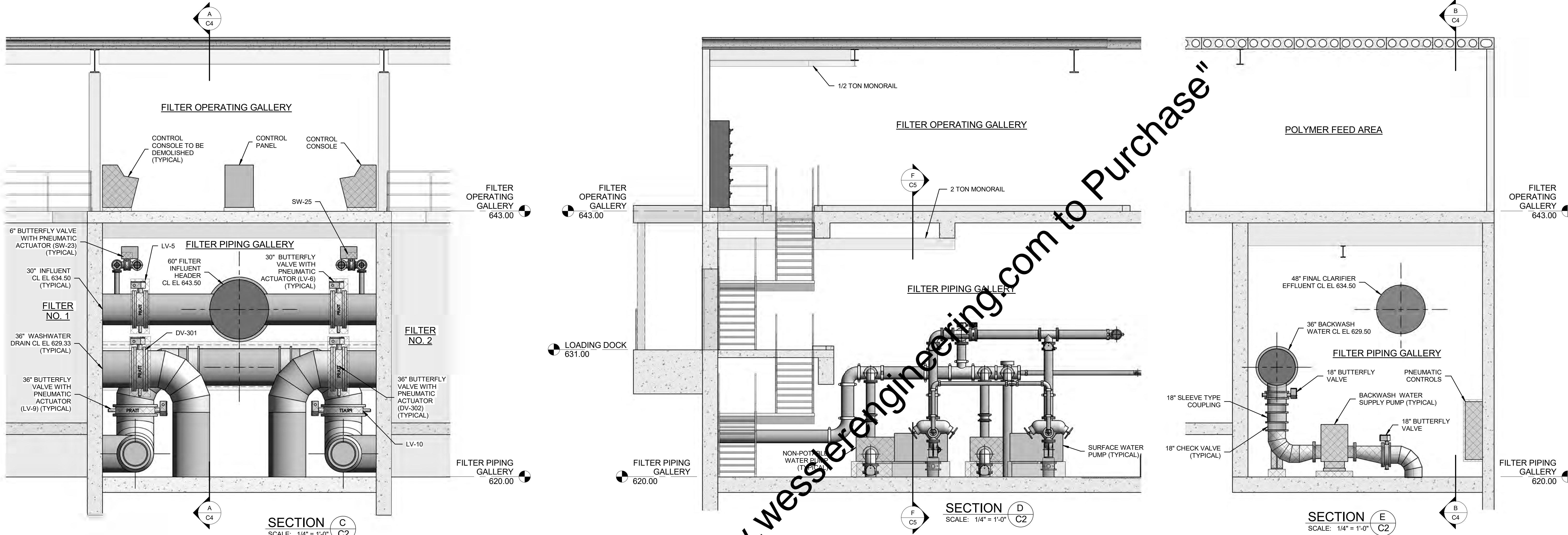
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FILTER OPERATING GALLERY DEMOLITION AT ELEVATION 643.00

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NOTES:
 1. REMOVE AIR COMPRESSORS, AIR RECEIVERS AIR DRYERS INCLUDING HOUSEKEEPING PADS. REMOVE ALL PIPE FITTINGS AND ACCESSORIES FROM AIR EQUIPMENT TO BUTTERFLY VALVE ACTUATORS BEING REPLACED.
 2. FIELD VERIFY AND REMOVE ALL SMALL DIAMETER AIR PIPING IN THE FILTER PIPING GALLERY.

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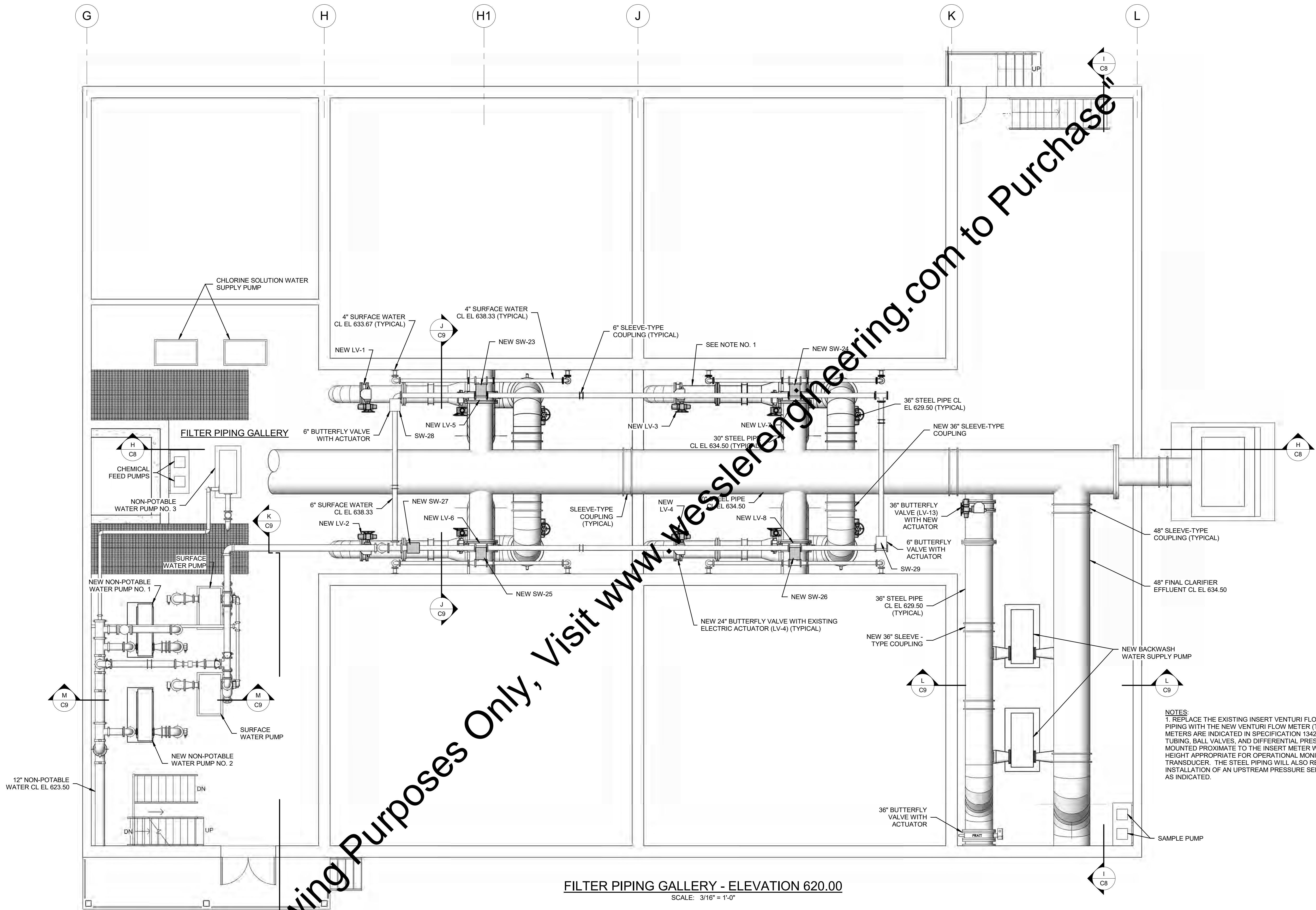
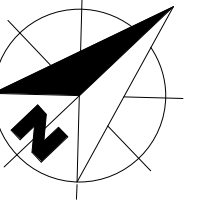
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FILTER BUILDING - DEMOLITION SECTIONS

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FILTER PIPING GALLERY - ELEVATION 620.00

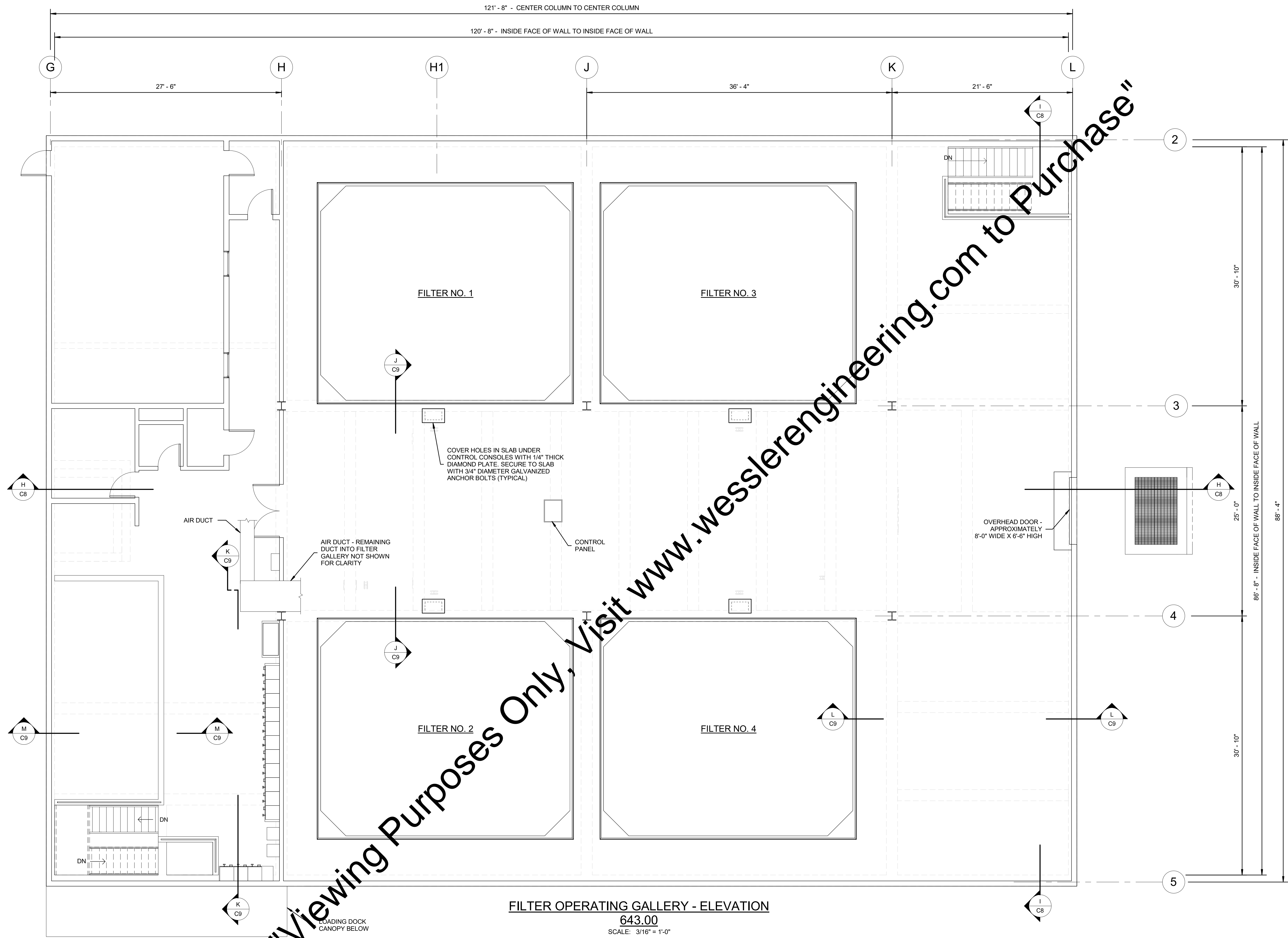
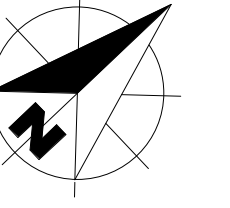
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NOTES:
 1. REPLACE THE EXISTING INSERT VENTURI FLOW METER LOCATED INTERNAL TO THE PIPING WITH THE NEW VENTURI FLOW METER (TYPICAL OF 4). NEW VENTURI FLOW METERS ARE INDICATED IN SPECIFICATION 13420. NEW STAINLESS STEEL PRESSURE TUBING, BALL VALVES, AND DIFFERENTIAL PRESSURE TRANSDUCERS ARE TO BE MOUNTED PROXIMATE TO THE INSERT METER WITH STAINLESS STEEL UNISTRUT AT A HEIGHT APPROPRIATE FOR OPERATIONAL MONITORING OF THE PRESSURE TRANSDUCER. THE STEEL PIPING WILL ALSO REQUIRE AN ADDITIONAL TAP FOR THE INSTALLATION OF AN UPSTREAM PRESSURE SENSING LINE. EXISTING TAP TO BE REUSED AS INDICATED.

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FILTER OPERATING GALLERY - ELEVATION

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	ISSUE DATE	AUGUST 2017				
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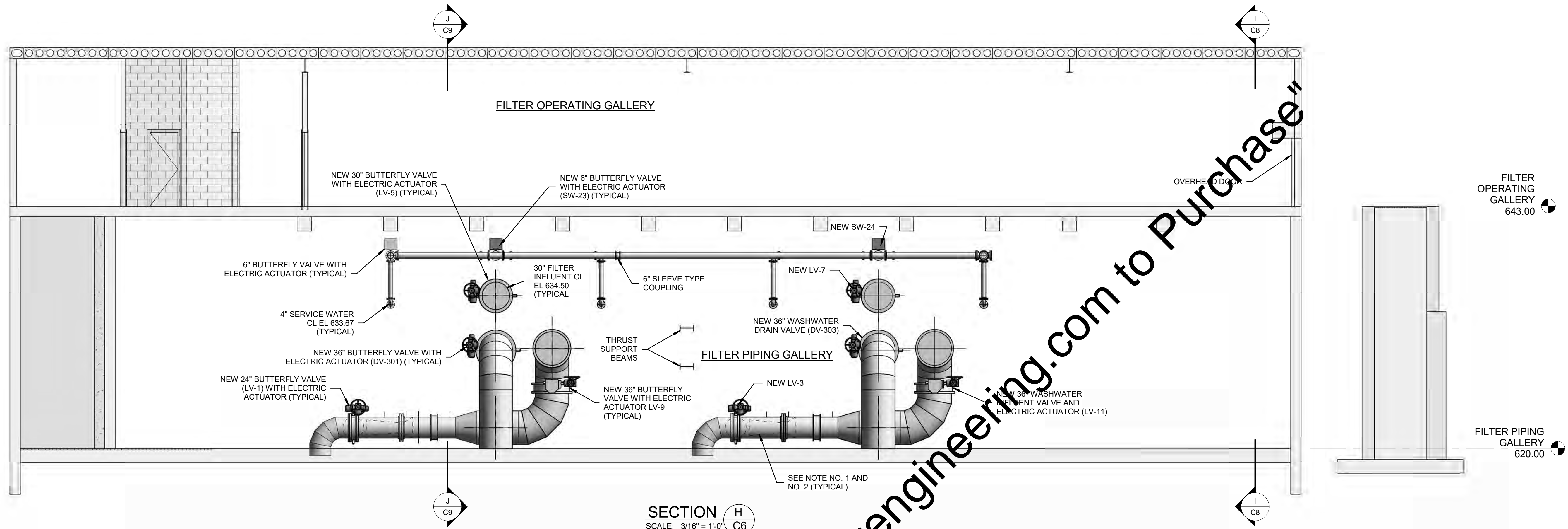


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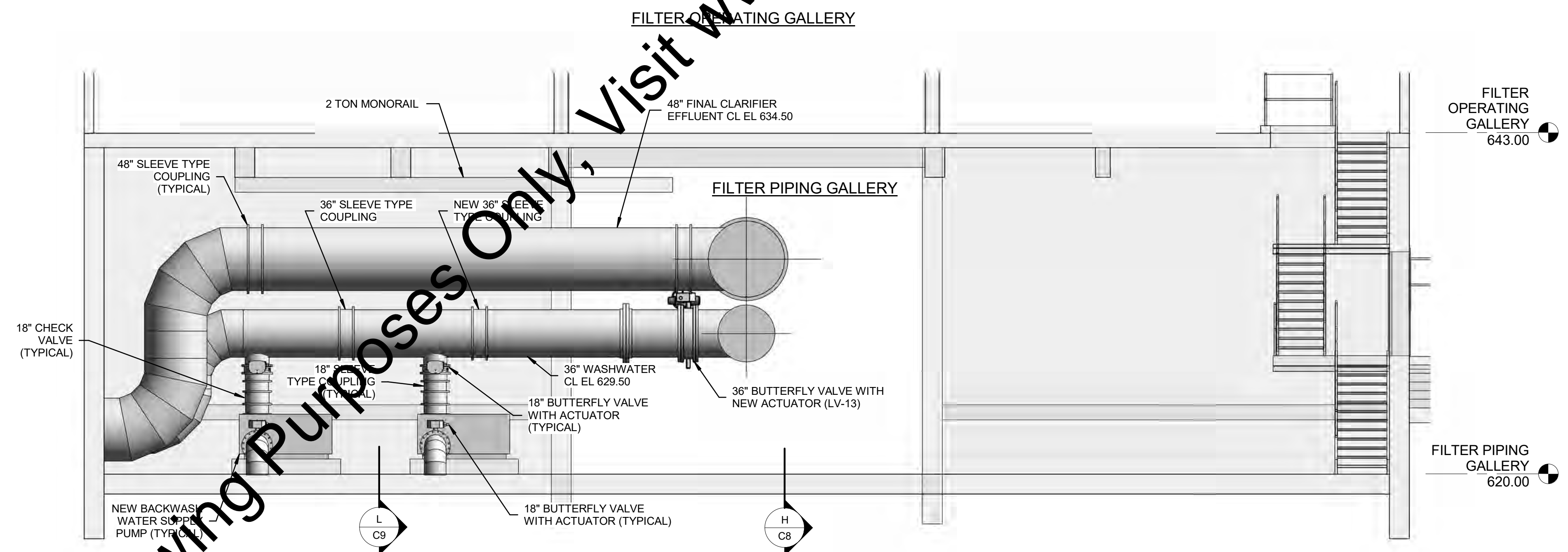
DILLMAN ROAD WWTP EFFLUENT FILTER IMPROVEMENTS
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA

FILTER OPERATING GALLERY AT ELEVATION 643.00

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SECTION H
SCALE: 3/16" = 1'-0" C6



SECTION I
SCALE: 3/16" = 1'-0" C6

NOTES:
1. REPLACE THE EXISTING INSERT VENTURI FLOW METER LOCATED INTERNAL TO THE PIPING WITH THE NEW VENTURI FLOW METER (TYPICAL OF 4). NEW VENTURI FLOW METERS ARE INDICATED IN SPECIFICATION 13420. NEW STAINLESS STEEL PRESSURE TUBING, BALL VALVES, AND DIFFERENTIAL PRESSURE TRANSDUCERS ARE TO BE MOUNTED PROXIMATE TO THE INSERT METER WITH STAINLESS STEEL UNISTRUT AT A HEIGHT APPROPRIATE FOR OPERATIONAL MONITORING OF THE PRESSURE TRANSDUCER. THE STEEL PIPING WILL ALSO REQUIRE AN ADDITIONAL TAP FOR THE INSTALLATION OF AN UPSTREAM PRESSURE SENSING LINE. EXISTING TAP TO BE REUSED AS INDICATED.

SCALE VERIFICATION	DRAWN BY	DLT	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	ALT				
	APPROVED BY	RWH				
	ISSUE DATE	AUGUST 2017				
	PROJECT NUMBER	197117-04-002				

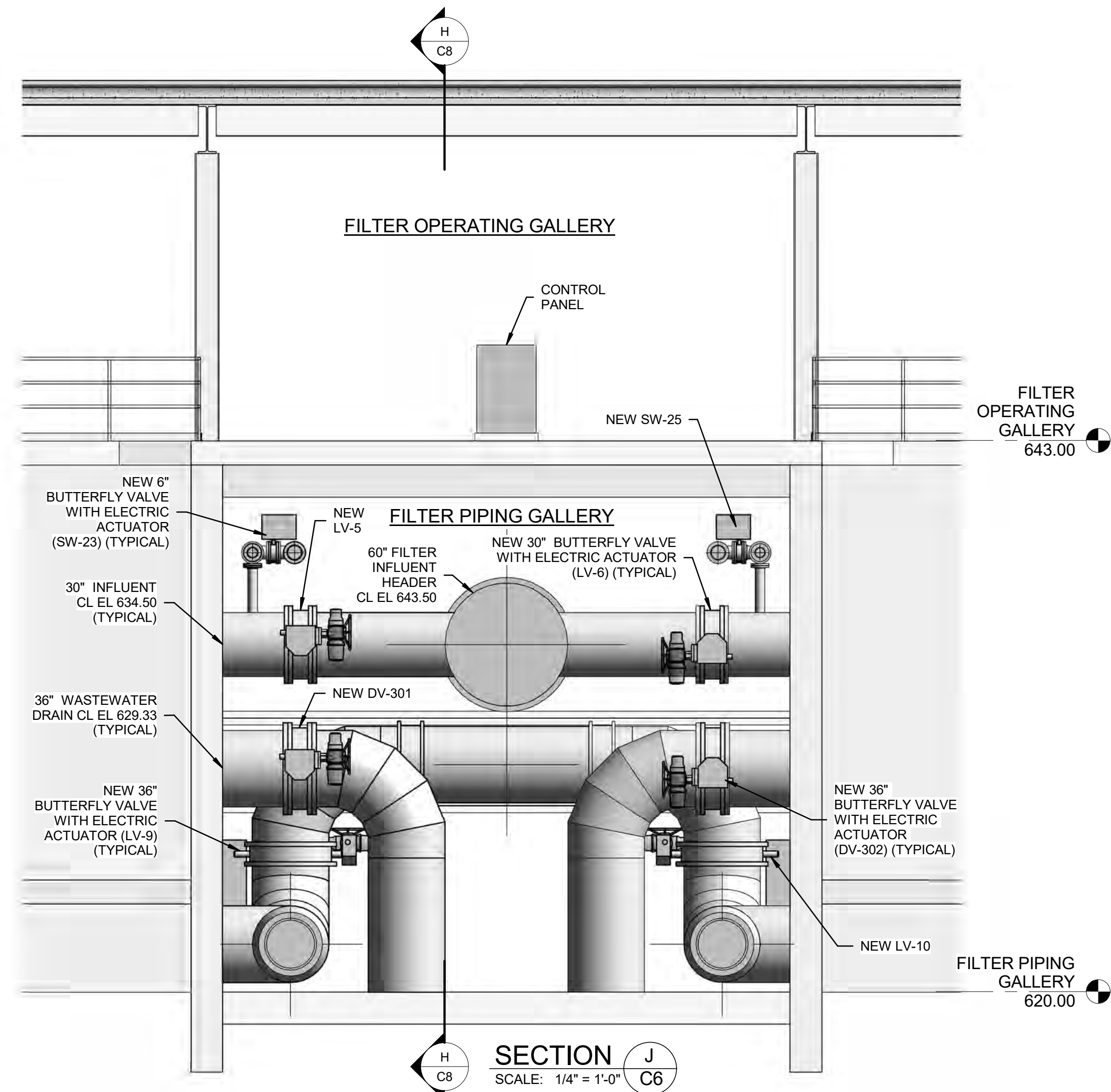


DILLMAN ROAD WWTP EFFLUENT FILTER IMPROVEMENTS

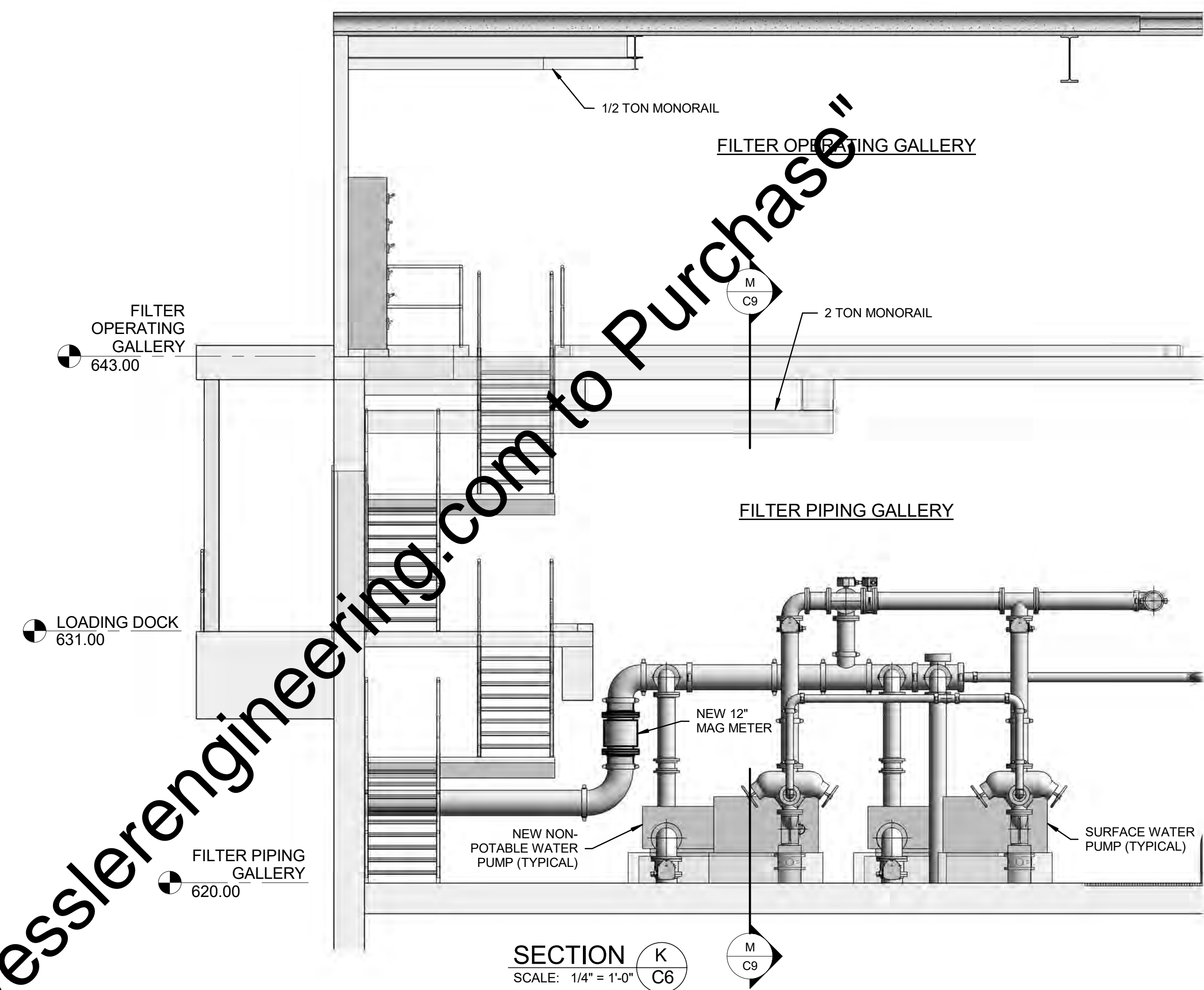
CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA

FILTER BUILDING - SECTIONS

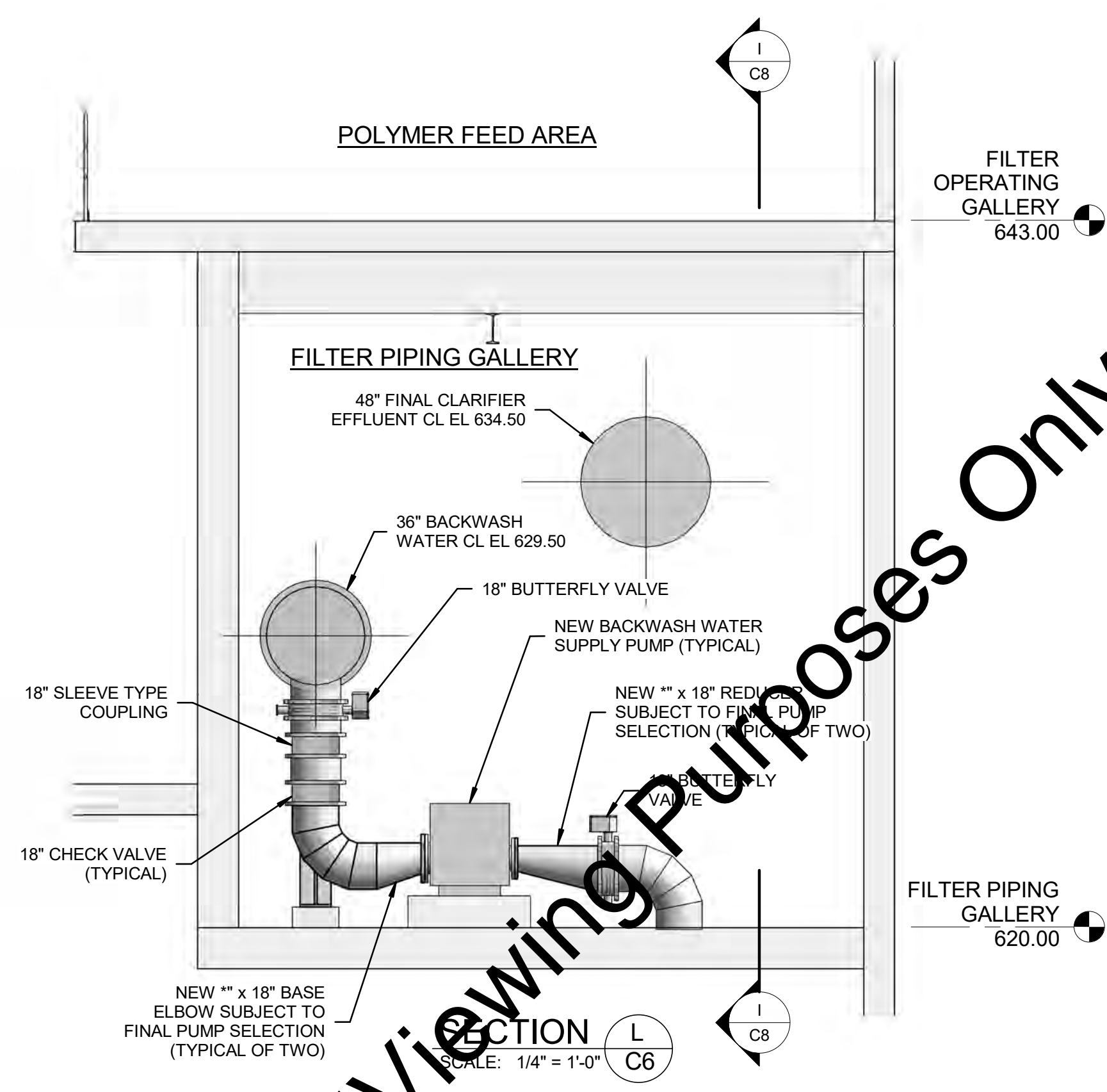
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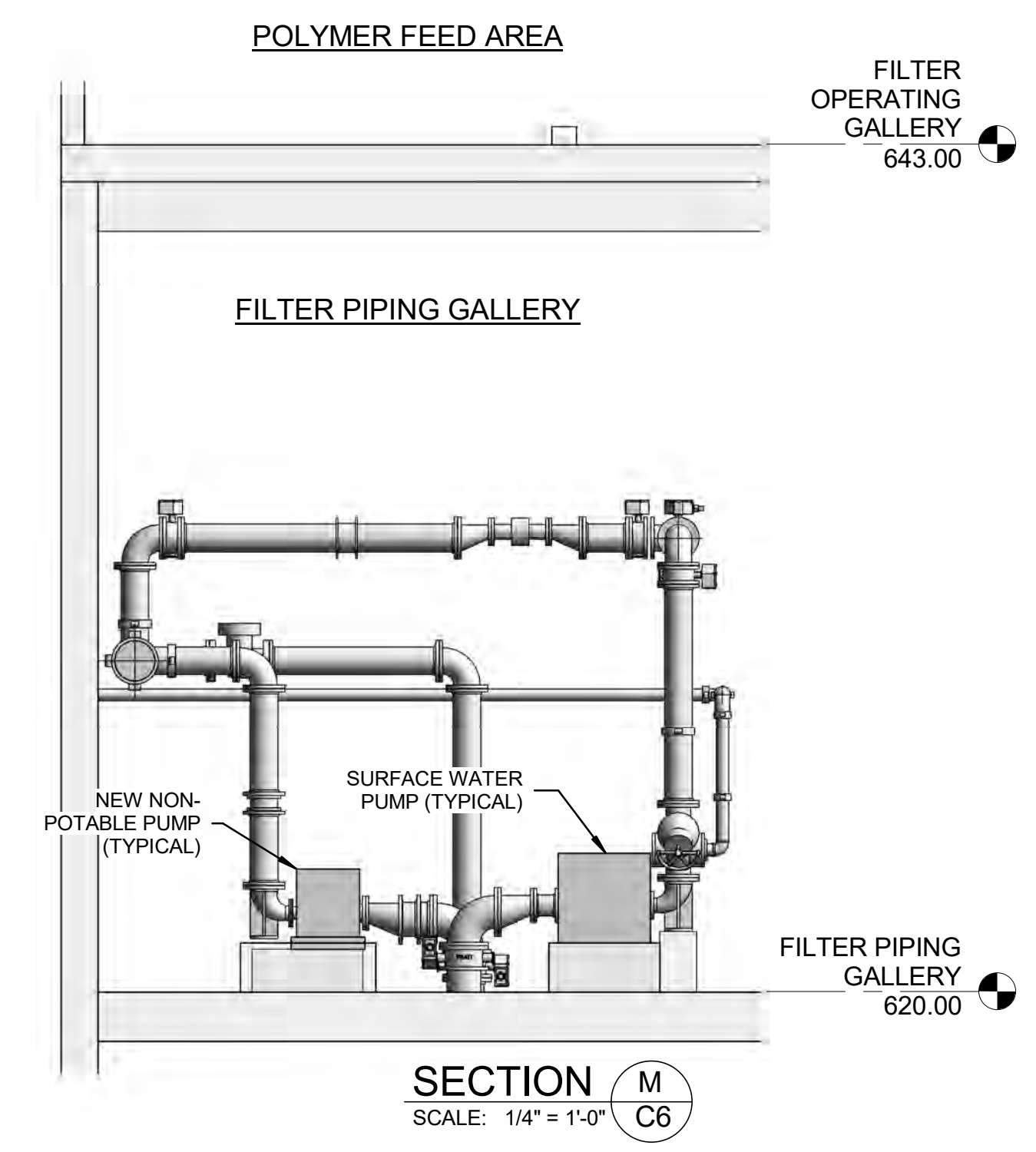
SECTION J
SCALE: 1/4" = 1'-0"
C6



SECTION K
SCALE: 1/4" = 1'-0"
C6

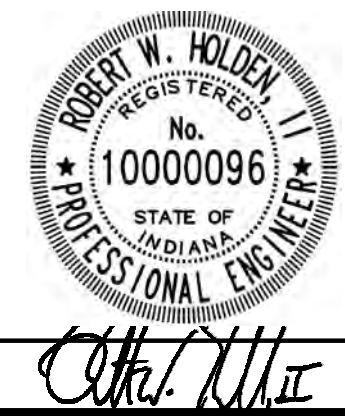


SECTION L
SCALE: 1/4" = 1'-0"
C6



SECTION M
SCALE: 1/4" = 1'-0"
C6

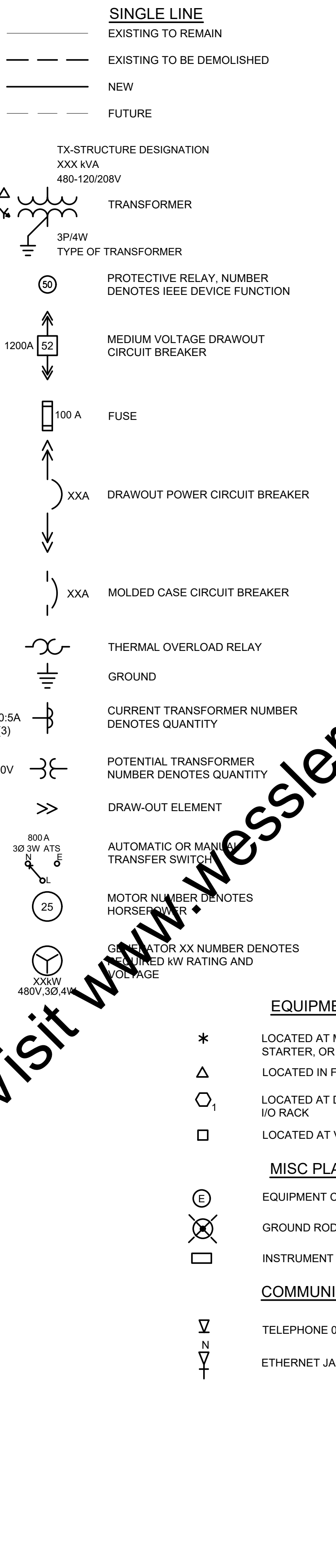
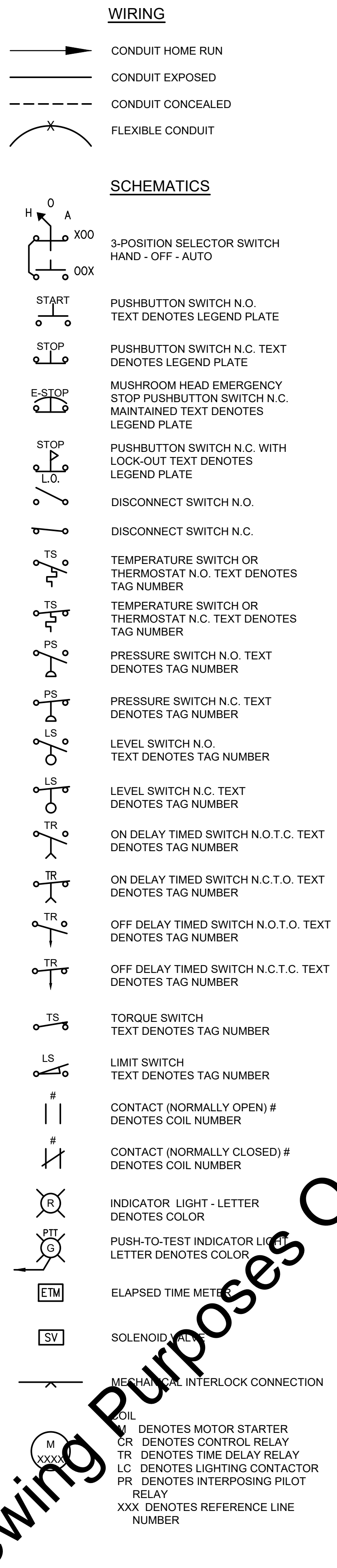
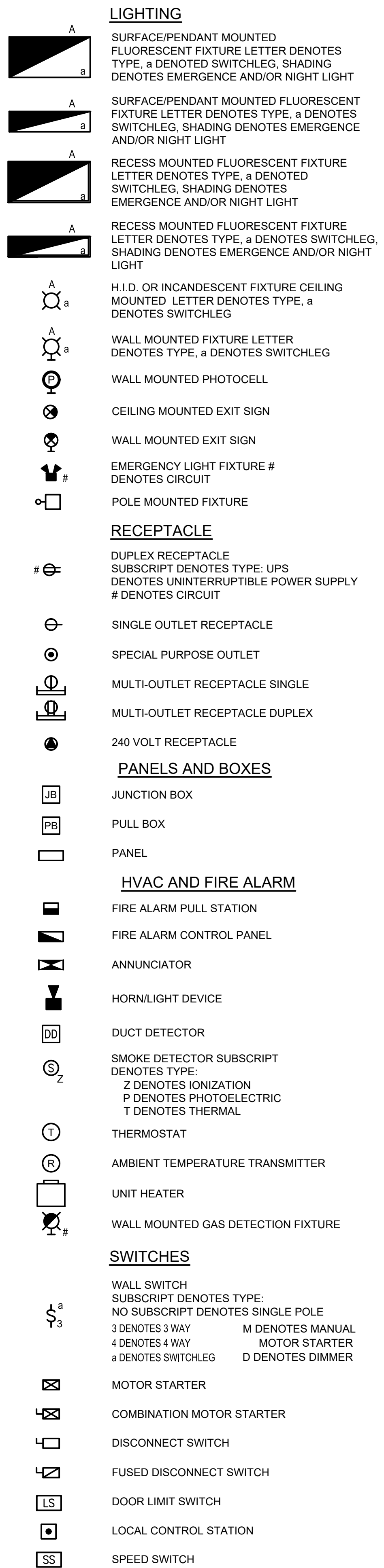
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	APPROVED BY	RWH				
	ISSUE DATE	AUGUST 2017				
	PROJECT NUMBER	197117-04-002				



DILLMAN ROAD WWTFF EFFLUENT FILTER IMPROVEMENTS
 CITY OF BLOOMINGTON UTILITIES
 BLOOMINGTON, INDIANA
FILTER BUILDING - SECTIONS

SHEET NO.
C9
 PAGE NO.
13

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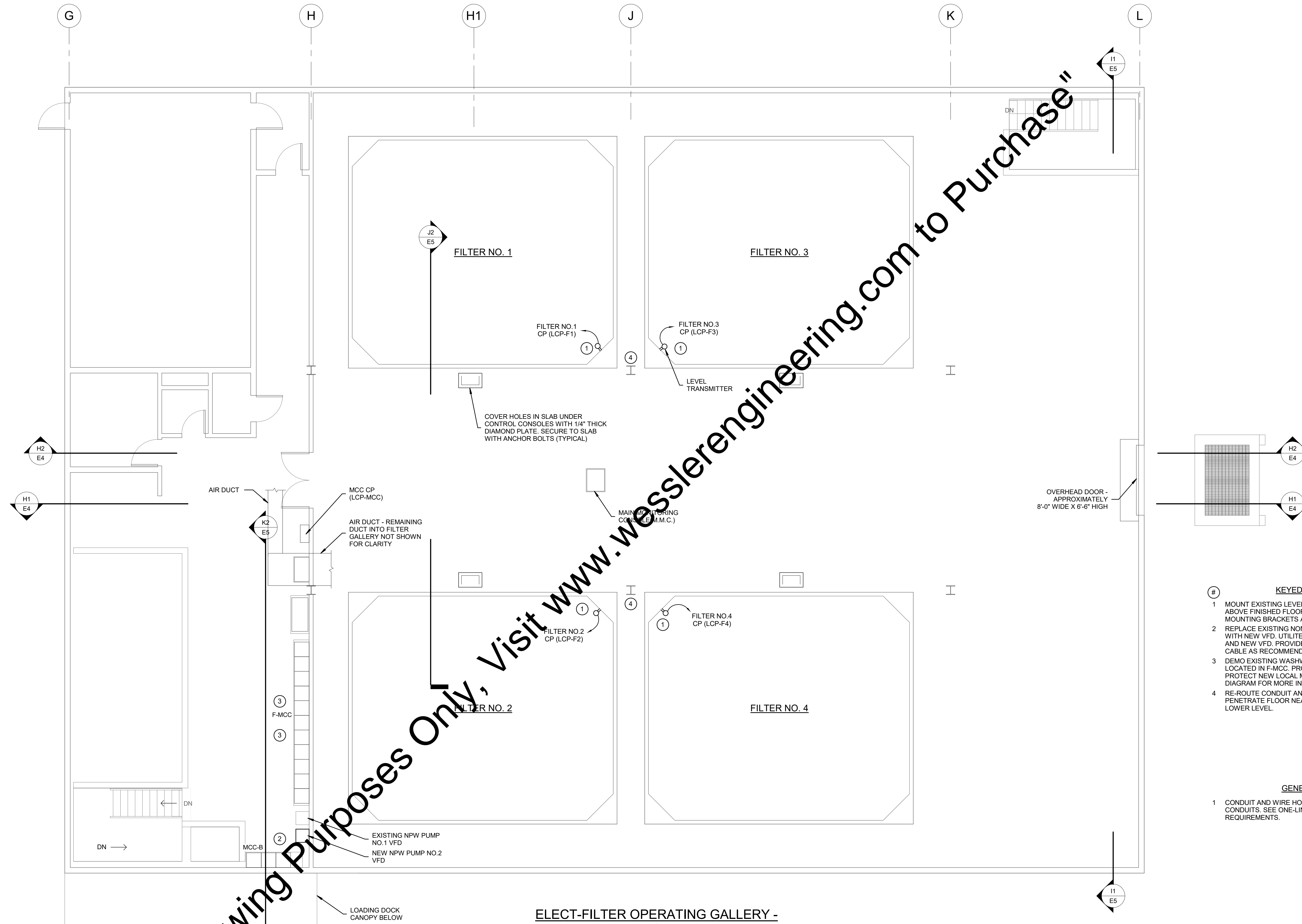
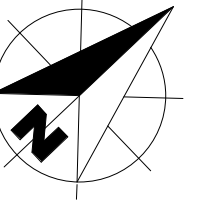
ABBREVIATIONS

A	AMPERE(S)	MAU	MAKEUP AIR UNIT
AE	ANALYTICAL SENSOR	MCC	MOTOR CONTROL CENTER
AFF	ABOVE FINISHED FLOOR	MH	MANHOLE
AHU	AIR HANDLING UNIT	MOL	MOTOR OPERATED LOUVER
AIT	ANALYTICAL INDICATOR TRANSMITTER	N	NEUTRAL
AM	AMMETER	N/A	NOT APPLICABLE
AMP	AMPERE(S)	N.C.	NORMALLY CLOSED
ATS	AUTOMATIC TRANSFER SWITCH	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAUGE	NF	NON-FUSED
BKR	BREAKER	N.O.	NORMALLY OPEN
BLDG	BUILDING	NTS	NOT TO SCALE
C	CONDUIT	OL	OVERLOAD
CB	CIRCUIT BREAKER	PB	PUSHBUTTON
CKT	CIRCUIT	PLC	PROGRAMMABLE LOGIC CONTROLLER
CR	CORROSION RESISTANT	PM	POWER METER/MONITOR
CU	COPPER	PNL	PANEL
DISC	DISCONNECT	RCPT	RECEPTACLE
EF	EXHAUST FAN	RGS	RIGID GALVANIZED STEEL
ELEV	ELEVATION	R/S	RING SWITCH
EMT	ELECTRICAL METALLIC TUBING	SF	SUPPLY FAN
EQUIP	EQUIPMENT	SHLD	SHIELDED
EWC	ELECTRICAL WATER COOLER	SP	SINGLE POLE
EXP	EXPLOSION PROOF	SPD	SURGE PROTECTIVE DEVICE
F	FUSED OR FUSE	SST	STAINLESS STEEL
FE	FLOW SENSOR	STR	STARTER
FIT	FLOW INDICATOR TRANSMITTER	SW	SWITCH
FLA	FULL LOAD AMPS	SWBD	SWITCHBOARD
G	GROUND	SWGR	SWITCHGEAR
GF	GROUND FAULT	TB	TERMINAL BOX
GFI	GROUND FAULT INTERRUPTER	TPS	TWISTED PAIR SHIELDED
HOA	HAND-OFF-AUTOMATIC	TYP	TYPICAL
HOR	HAND-OFF-REMOTE	UGE	UNDERGROUND ELECTRICAL
HP	HORSEPOWER	UGT	UNDERGROUND SIGNAL
HPS	HIGH PRESSURE SODIUM	UH	UNIT HEATER
JB	JUNCTION BOX	UL	UNDERWRITERS LABORATORIES
KV	KILOVOLTS	UNO	UNLESS NOTED OTHERWISE
KVA	KILOVOLTS AMPS	V	VOLTS
KVAR	KILOVAR	VFD	VARIABLE FREQUENCY DRIVE
KW	KILOWATTS	VM	VOLTMETER
LCP	LOCAL CONTROL PANEL	VS	VOLTMETER SWITCH
LE	LEVEL SENSOR	W	WIRE/WATT
LIT	LEVEL INDICATING TRANSMITTER	WH	WATER HEATER
LOR	LOCAL-OFF-REMOTE	WP	WEATHERPROOF
LTG	LIGHTING	XFMR	TRANSFORMER

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	ISSUE DATE		AUGUST 2017		PROJECT NUMBER				196117-04-002				




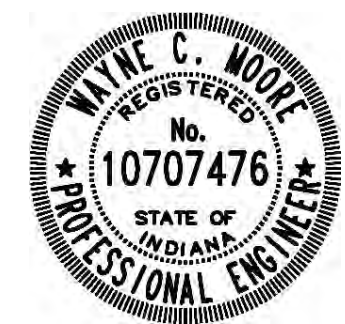
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ELEVATION 643.00
SCALE: 3/16" = 1'-0"

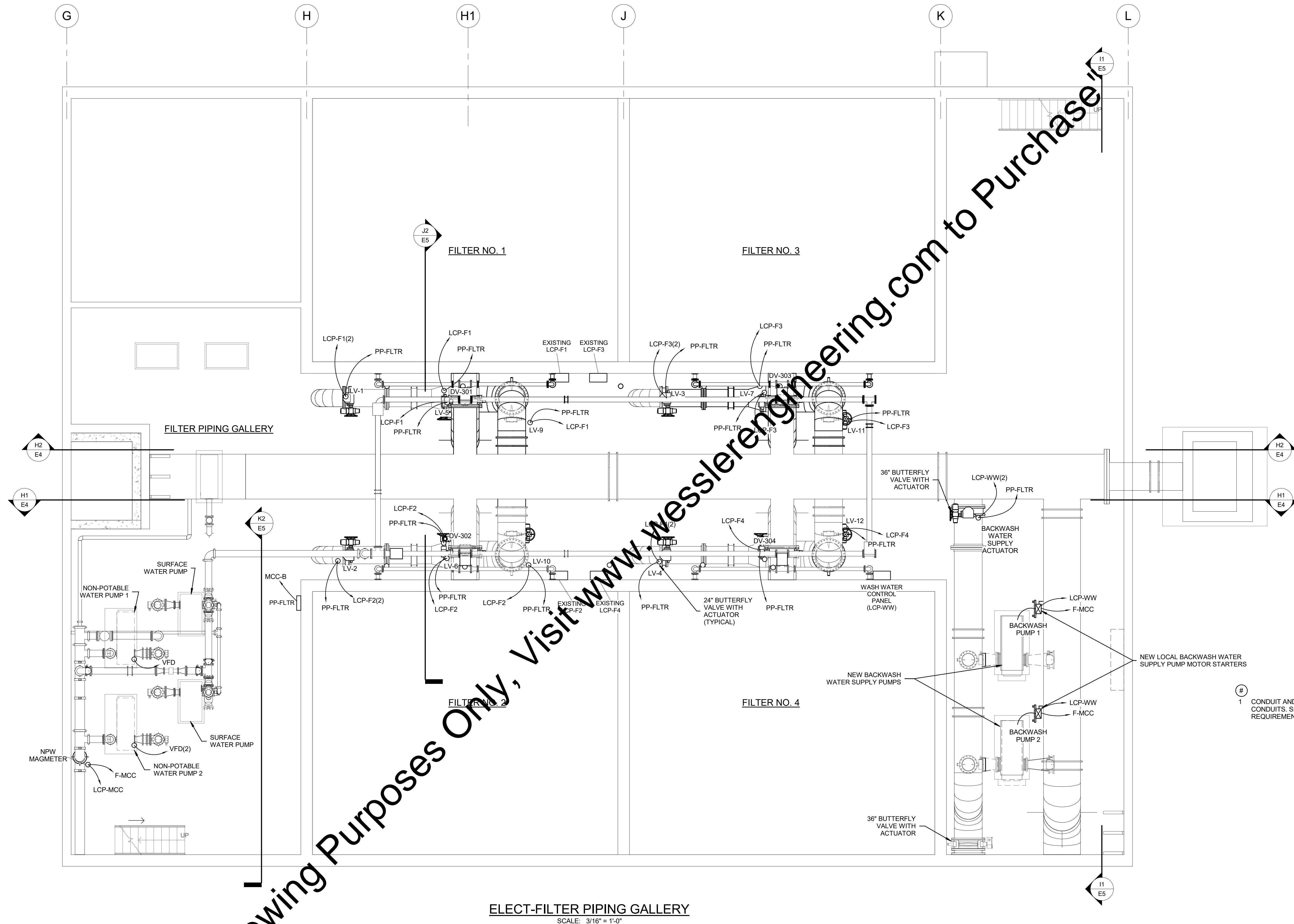
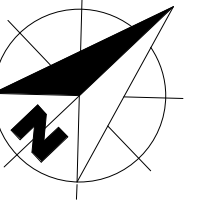
- KEYED NOTES - E2**
- MOUNT EXISTING LEVEL TRANSMITTER A MINIMUM OF 12" ABOVE FINISHED FLOOR. PROVIDE NEW STAINLESS STEEL MOUNTING BRACKETS AND HARDWARE AS REQUIRED.
 - REPLACE EXISTING NON-POTABLE WATER PUMP NO.2 VFD WITH NEW VFD. UTILIZE EXISTING CABLE BETWEEN CB AND NEW VFD. PROVIDE NEW VFD RATED SHIELDED CABLE AS RECOMMENDED BY VFD MANUFACTURER.
 - DEMO EXISTING WASHWATER PUMP MOTOR STARTERS LOCATED IN F-MCC. PROVIDE NEW CIRCUIT BREAKER TO PROTECT NEW LOCAL MOTOR STARTER. SEE ONE-LINE DIAGRAM FOR MORE INFORMATION.
 - RE-ROUTE CONDUIT AND WIRE FROM FLOOR TO CEILING. PENETRATE FLOOR NEAR STEEL BEAM FOR ACCESS TO LOWER LEVEL.

- GENERAL NOTE**
- CONDUIT AND WIRE HOMERUNS WITH (2) INDICATE 2 CONDUITS. SEE ONE-LINE DIAGRAMS FOR SIZE AND WIRE REQUIREMENTS.

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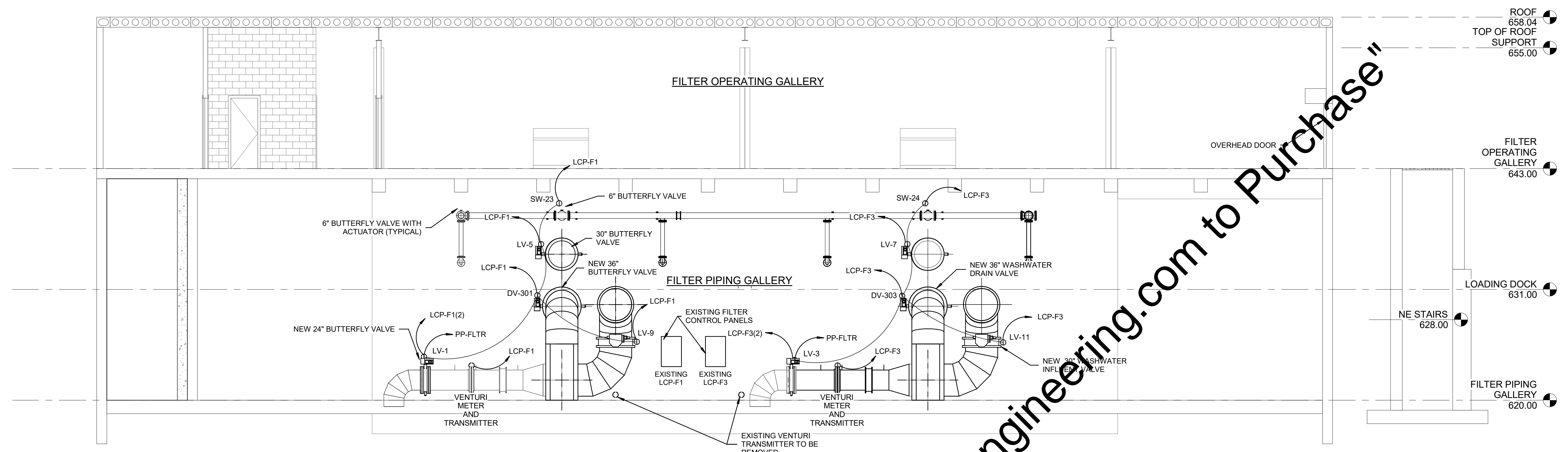
ELECT-FILTER PIPING GALLERY
SCALE: 3/16" = 1'-0"

GENERAL NOTE
#1 CONDUIT AND WIRE HOMERUNS WITH (2) INDICATE 2 CONDUITS. SEE ONE-LINE DIAGRAMS FOR SIZE AND WIRE REQUIREMENTS.

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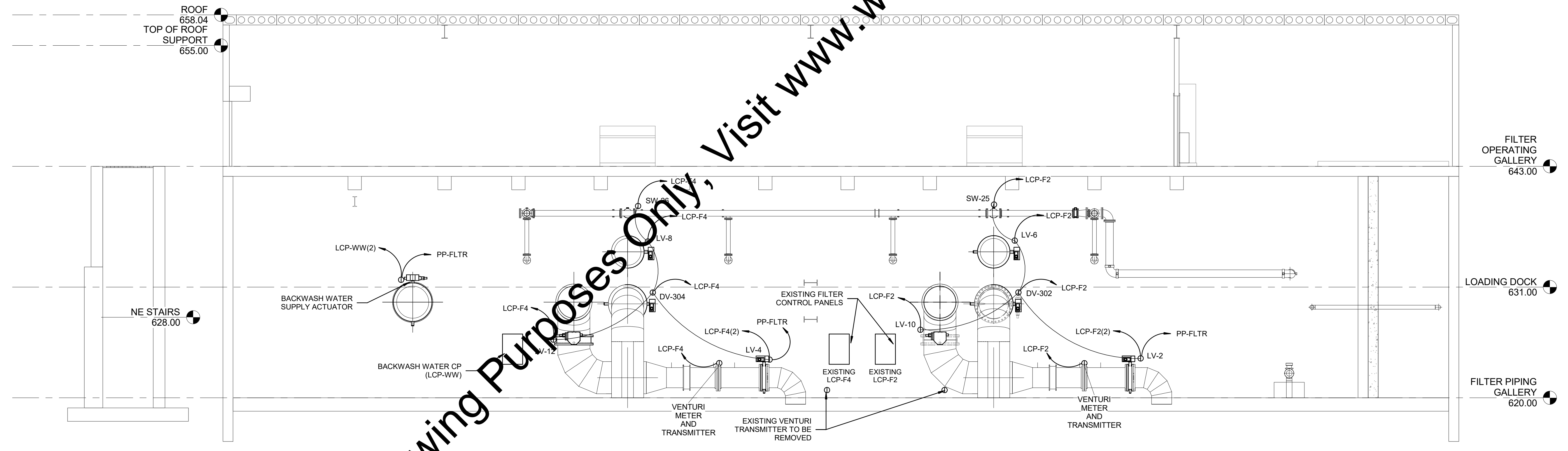
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	CHECKED BY	BMS							PAGE NO.	16
	APPROVED BY	WCM								
	ISSUE DATE	AUGUST 2017								
PROJECT NUMBER	197117-04-002									



SECTION H2
SCALE: 3/16" = 1'-0" E2

GENERAL NOTE
1 CONDUIT AND WIRE HOMERUNS WITH (2) INDICATE 2 CONDUITS. SEE ONE-LINE DIAGRAMS FOR SIZE AND WIRE REQUIREMENTS.



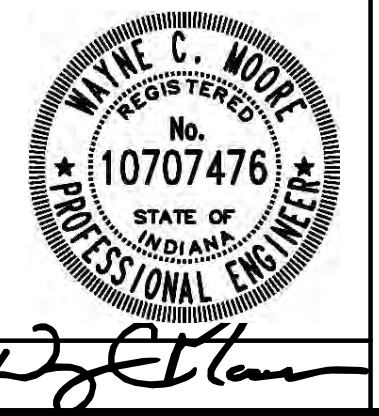
SECTION H1
SCALE: 3/16" = 1'-0" E2

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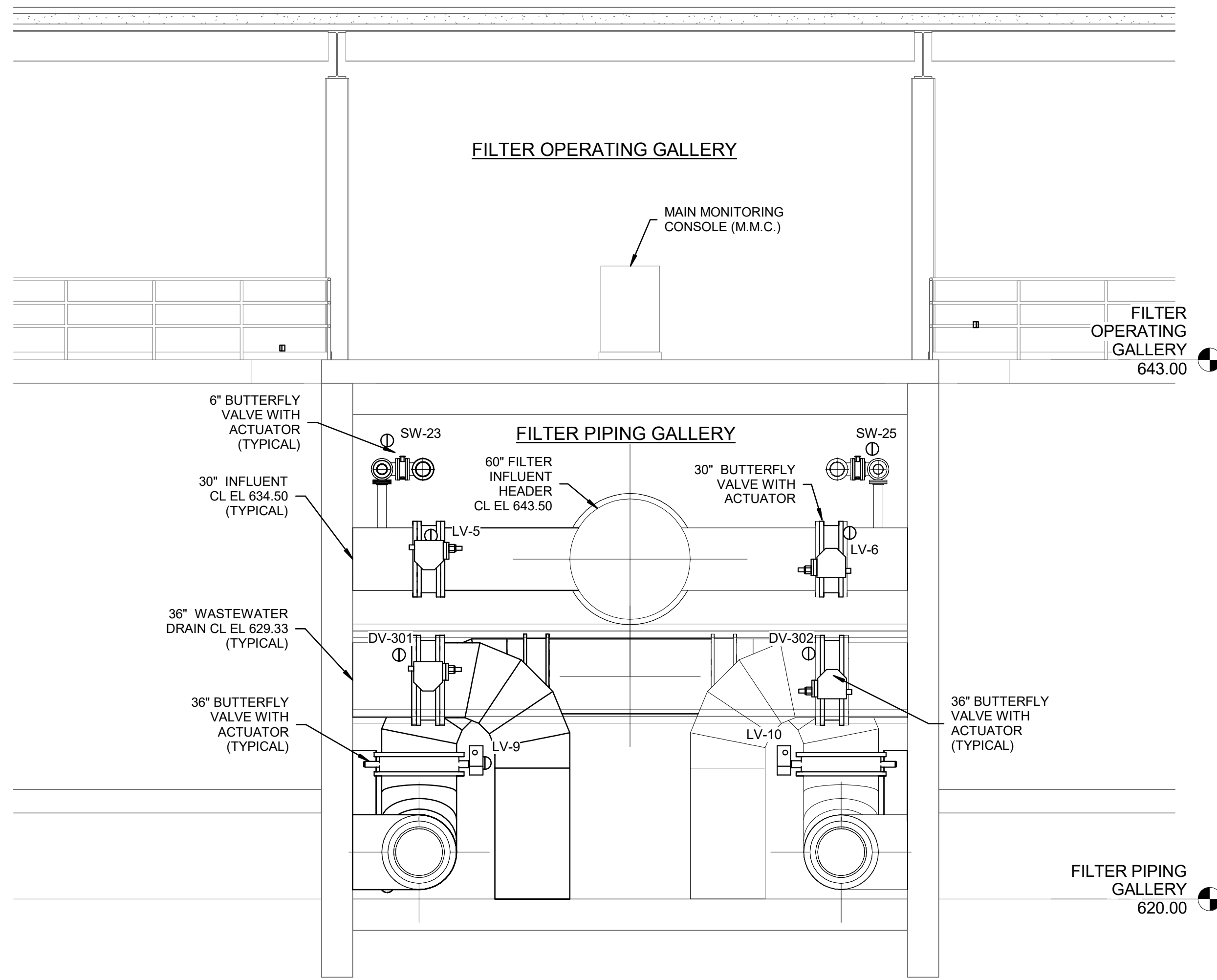
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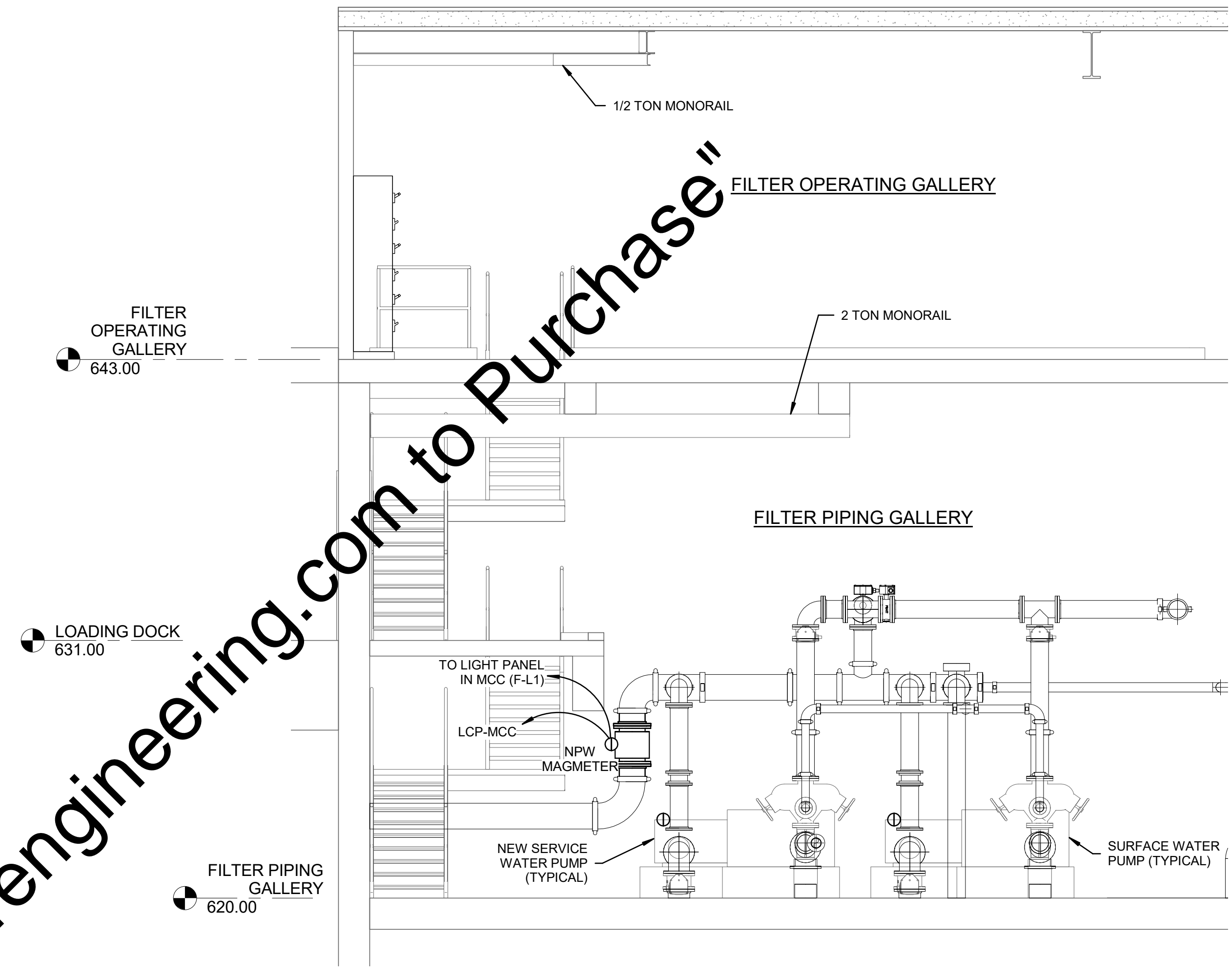


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CITY OF BLOOMINGTON UTILITIES
BLOOMINGTON, INDIANA

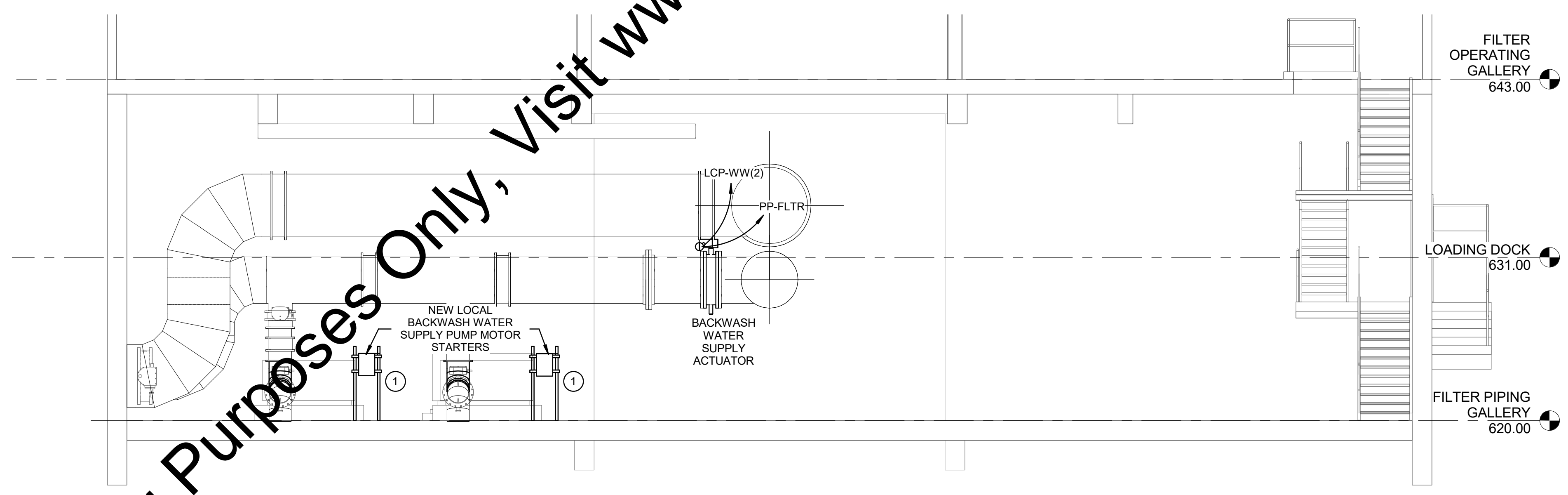
ELECTRICAL OPERATING GALLERY - SECTIONS



SECTION J2
SCALE: 1/4" = 1'-0"
E2




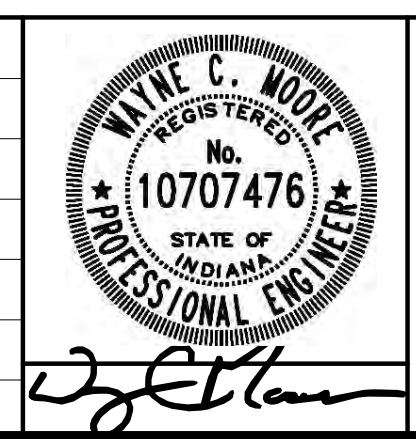
SECTION K2
SCALE: 1/4" = 1'-0"
E2



SECTION I1
SCALE: 3/16" = 1'-0"
E2

KEYED NOTES - E5
1 PROVIDE UNISTRUT SUPPORTS AS REQUIRED TO MOUNT BACKWASH PUMP MOTOR STARTER.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING 	CHECKED BY	BMS				
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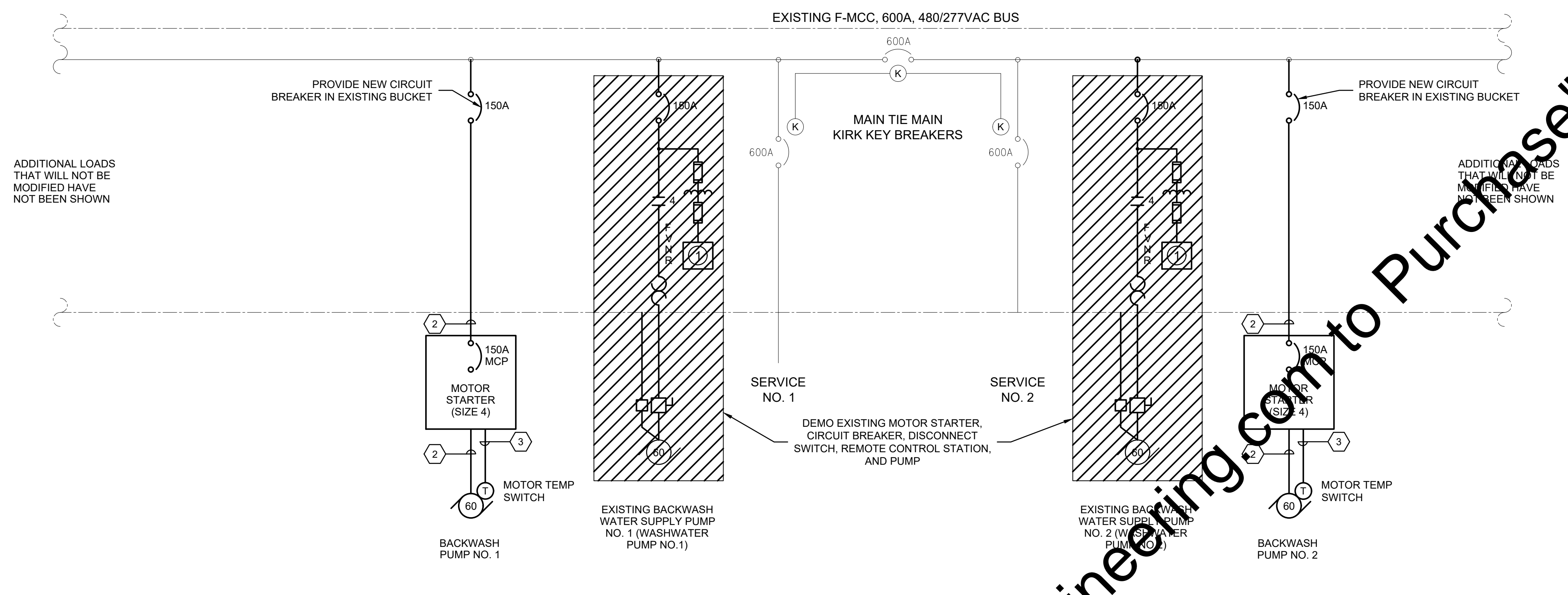


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 BLOOMINGTON, INDIANA

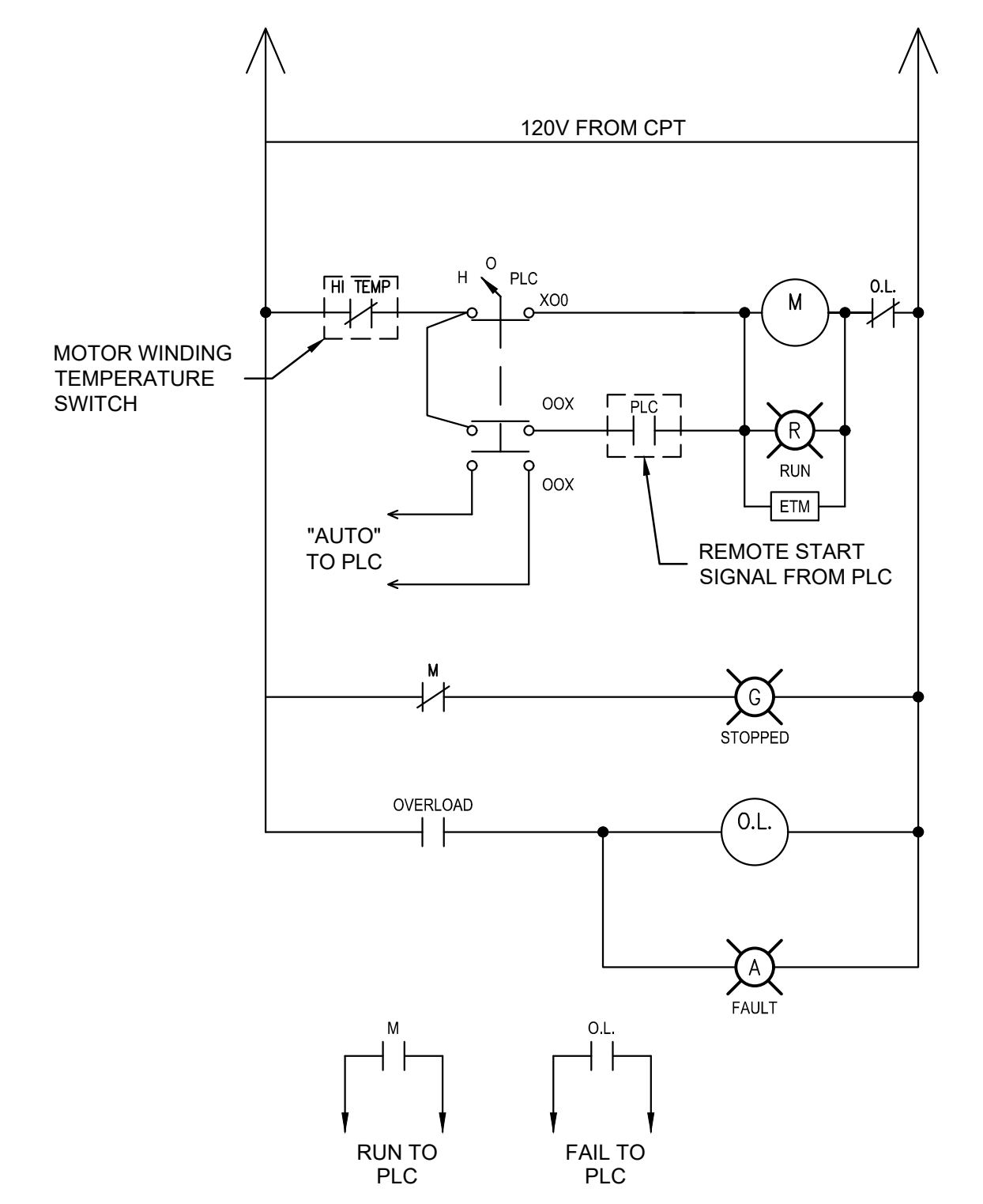
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SHEET NO.
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PAGE NO.
18

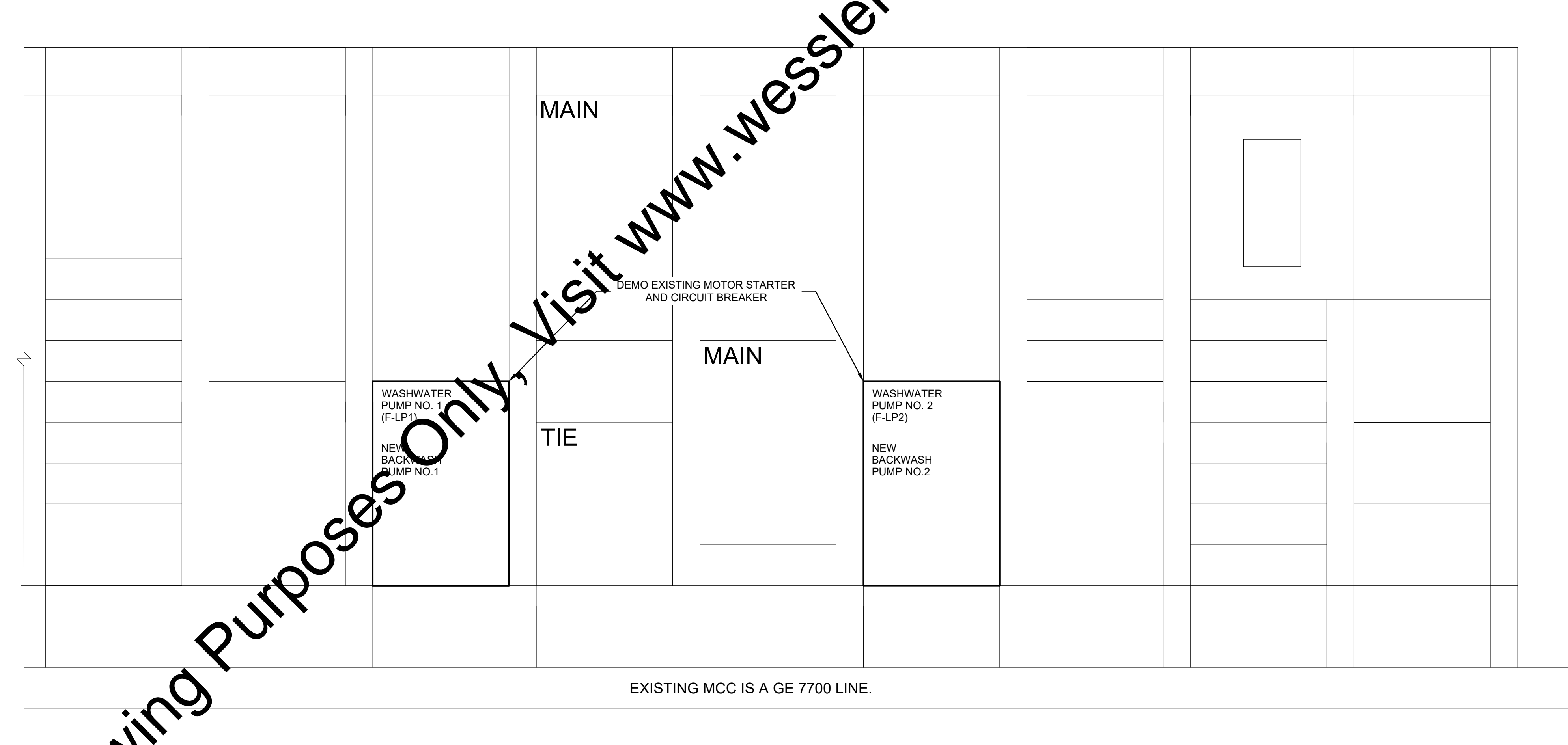
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F-MCC MODIFIED ONE-LINE DIAGRAM



WASHWATER PUMP STARTER SCHEMATIC



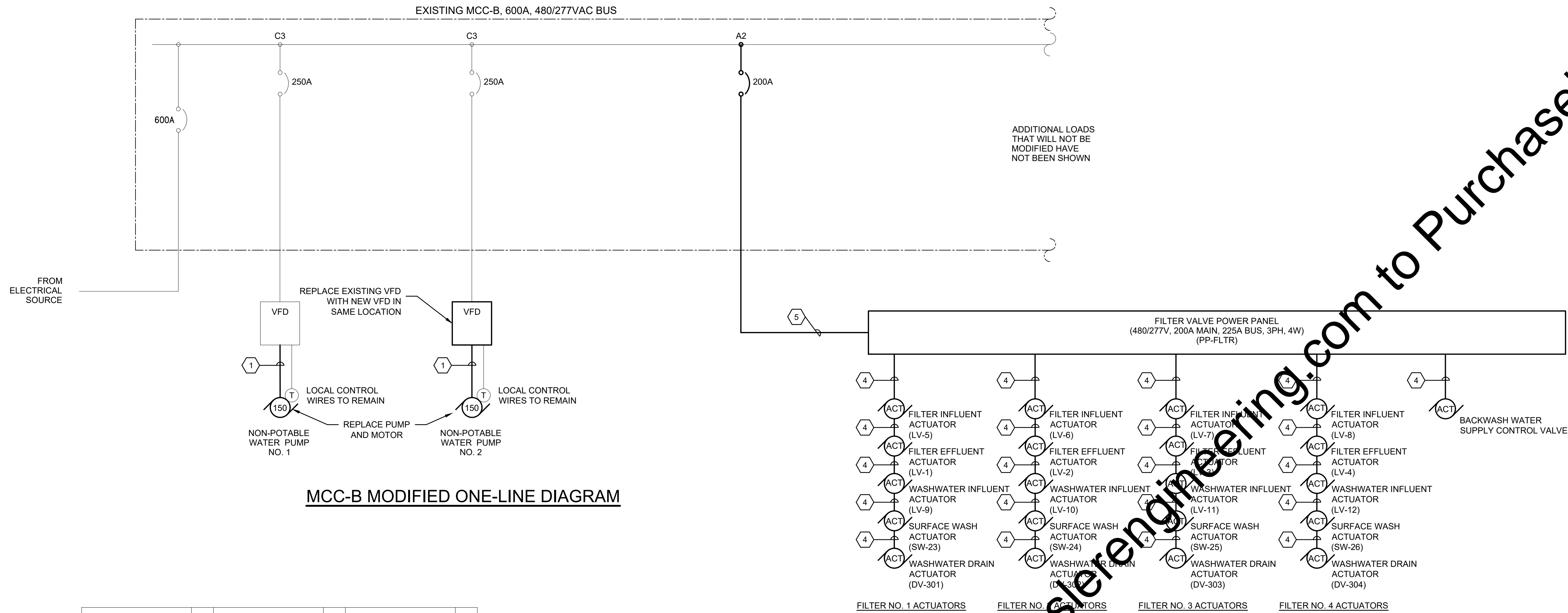
F-MCC PARTIAL ELEVATION MODIFICATIONS

CONDUIT AND WIRE SCHEDULE:

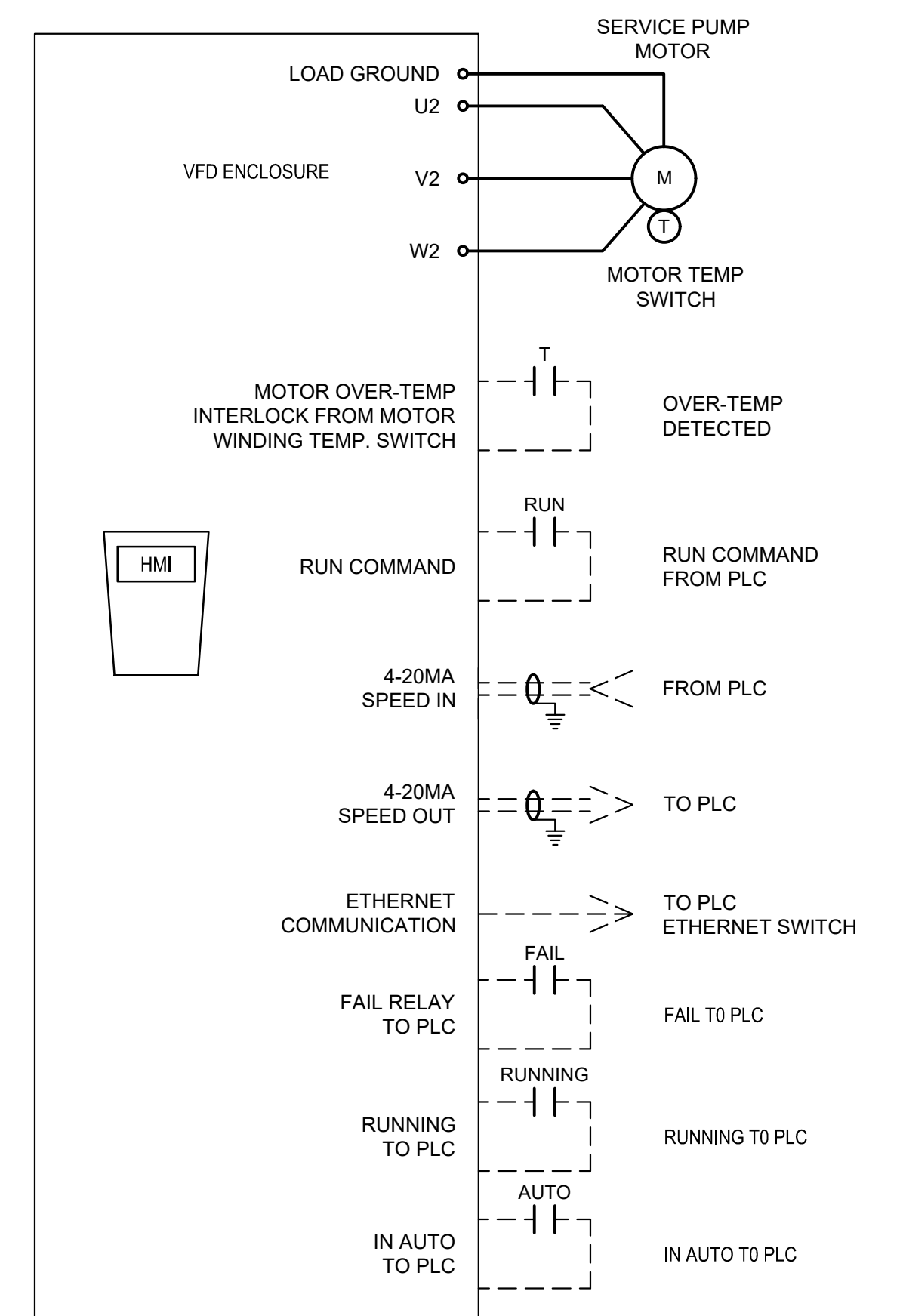
1	4" C, 3# 300, #4G
2	2" C, 3# 2/0, #6G
3	3/4" C, 2#14

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	CHECKED BY	BMS							E6
	APPROVED BY	WCM							PAGE NO.
	ISSUE DATE	AUGUST 2017							19
	PROJECT NUMBER	196117-04-002							



MCC-B MODIFIED ONE-LINE DIAGRAM



SERVICE WATER PUMP VFD SCHEMATIC

A	B	C
A1	B1L B1R	C1
A2	B2L B2R	C2
A3	B3	
A4	B4	C3
A5		

EXISTING MCC IS A CUTLER-HAMMER ADVANTAGE SERIES 2100.

MCC-B ELEVATION MODIFICATIONS

DESIGNATION: PANEL "PP-FLTR"
 LOCATION: PIPE GALLERY ROOM
 TAG: 480/277V VOLT
 PHASE: 3 PHASE, 4 WIRE

MAINS: 200 AMP MAIN CIRCUIT BREAKER
 BUS SIZE: 225 AMP BUS
 PANEL MOUNTING: SURFACE
 ALL BREAKERS: 14,000 A.I.C. (MINIMUM)

CKT. NO.	LOAD DESCRIPTION	#	KVA	CKT. BKR.			KVA	#	LOAD DESCRIPTION	CKT. NO.
				AMPS	POLE					
1	FILTER NO. 1 ACTUATORS (5)	5	3.00	30	3	6.00	30	3	3.00	8
2	"	5	3.00	30	3	6.00	30	3	3.00	9
3	"	5	3.00	30	3	6.00	30	3	3.00	10
7	FILTER NO. 2 ACTUATORS (5)	5	3.00	30	3	6.00	30	3	3.00	8
8	"	5	3.00	30	3	6.00	30	3	3.00	9
9	"	5	3.00	30	3	6.00	30	3	3.00	10
13	BACKWASH WATER SUPPLY ACTUATOR	1	3.00	30	3	3.00	30	3		14
15	SPARE	3	0.00	30	3	0.00	30	3		20
25	SPARE	3	0.00	30	3	0.00	30	3		26
31	SPARE	3	0.00	30	3	0.00	30	3		32
37	SPARE	3	0.00	30	3	0.00	60	3		38
TOTAL CONNECTED LOAD:				15.00	15.00	15.00	TOTAL =		45.00	KVA

ONE (1) OR TWO (2) DIGIT NUMBERS REFER TO PANELBOARD BRANCH CIRCUIT CONDUIT AND CABLE SCHEDULE ON THIS SHEET.

- CONDUIT AND WIRE SCHEDULE:
- ① 4"C, 3# 300, #4G, MANUFACTURER RECOMMENDED VFD CABLE
 - ② 2"C, 3#1, #8G
 - ③ 3/4"C, 2#14
 - ④ REFER TO PANELBOARD BRANCH CIRCUIT SHEET
 - ⑤ 4"C, 3#4/0, #4/0 N, #8G

PANELBOARD BRANCH CIRCUIT CONDUIT & CABLE SCHEDULE

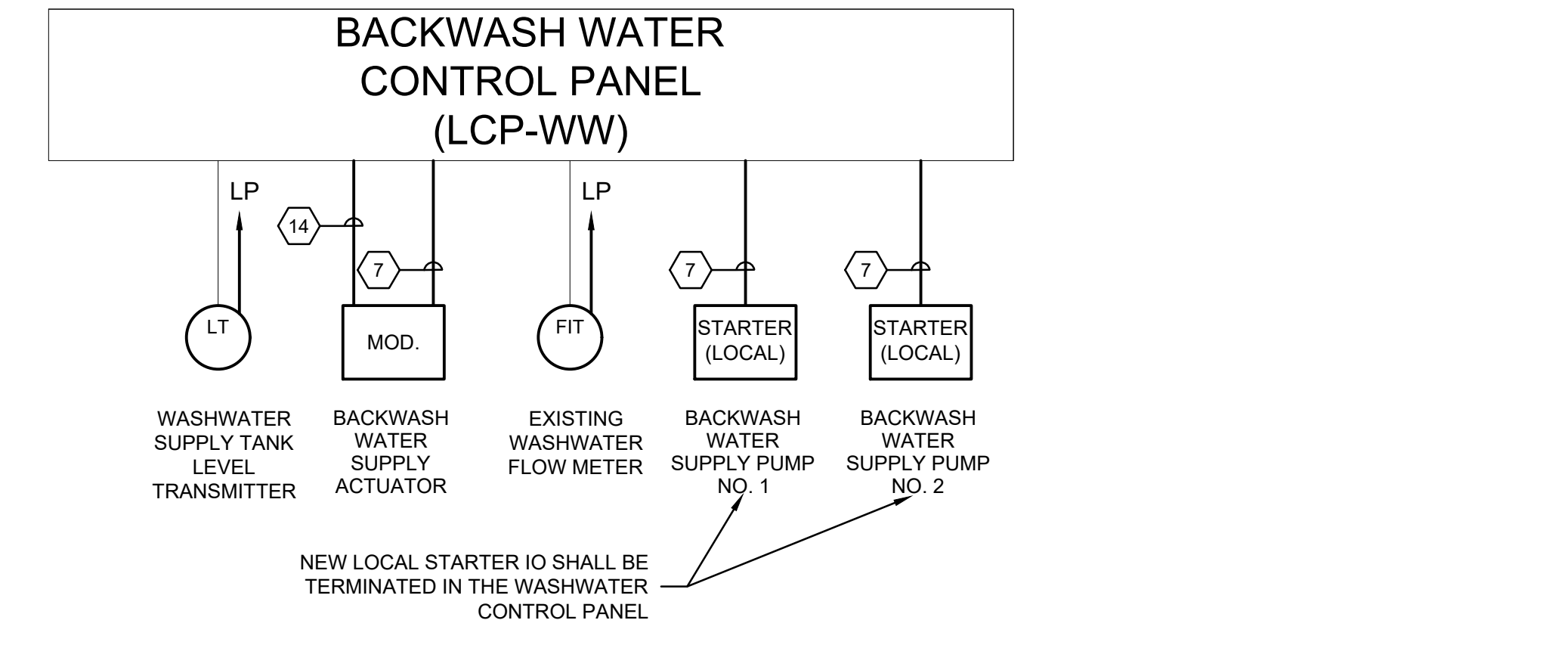
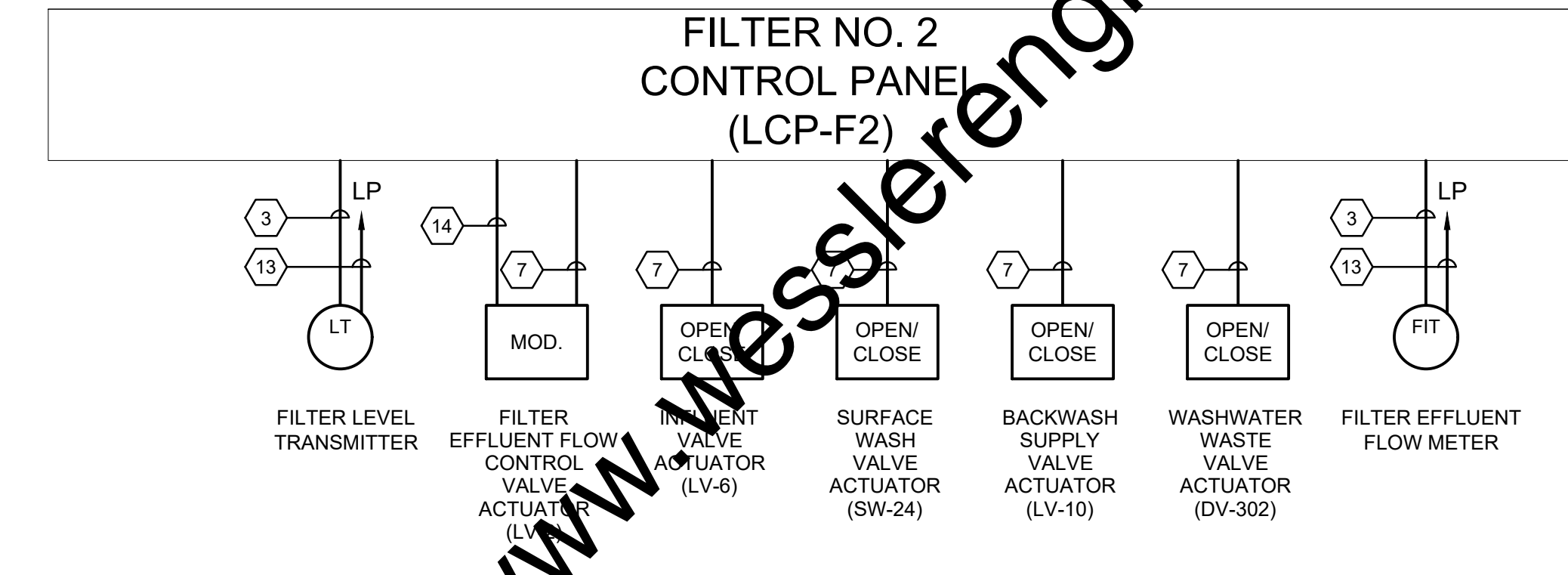
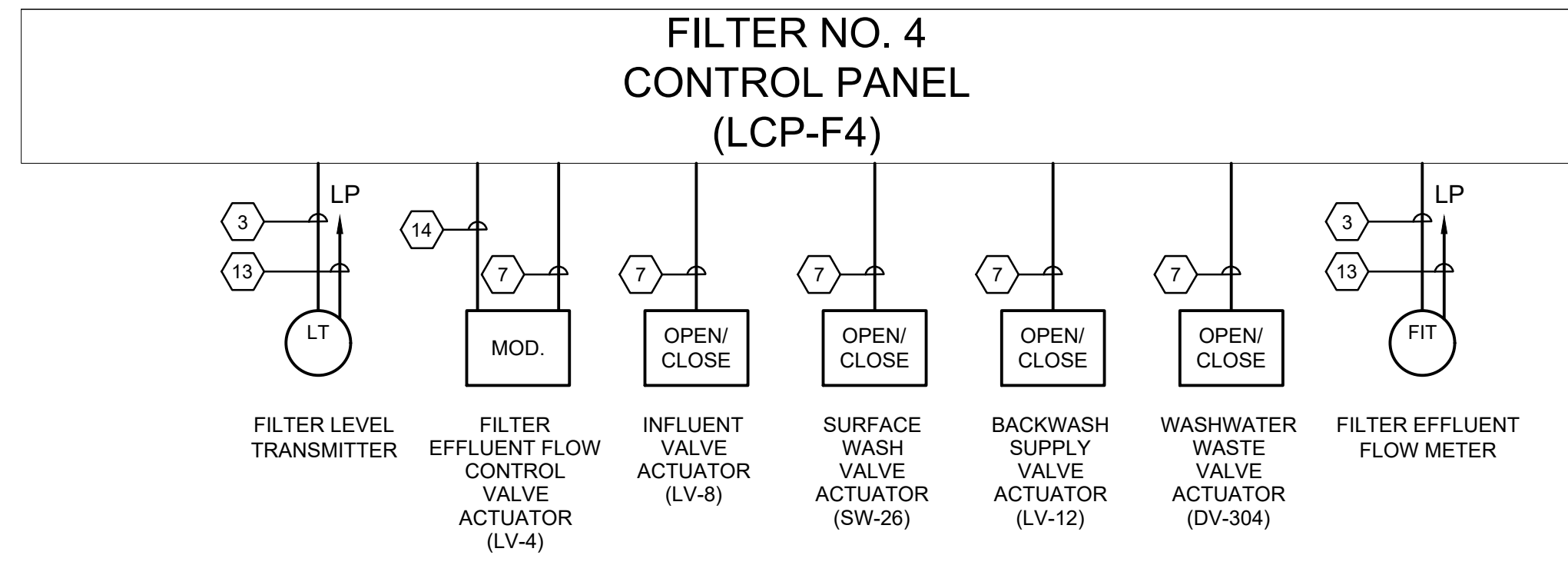
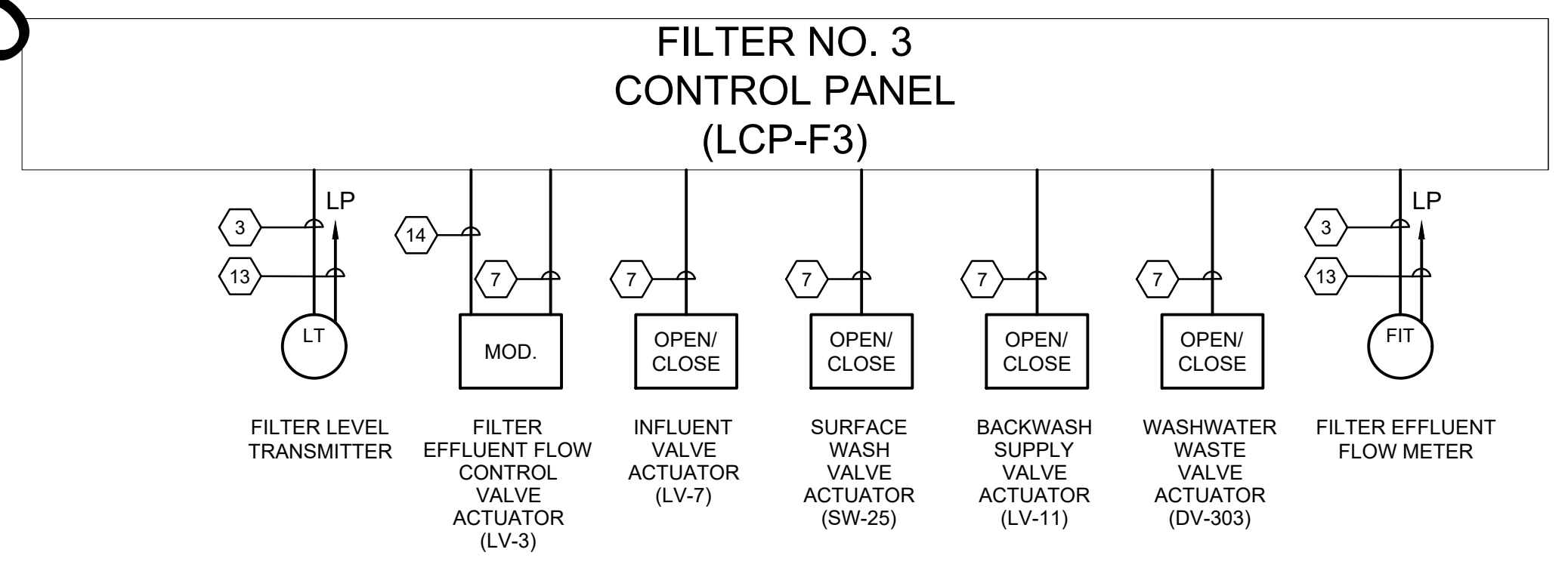
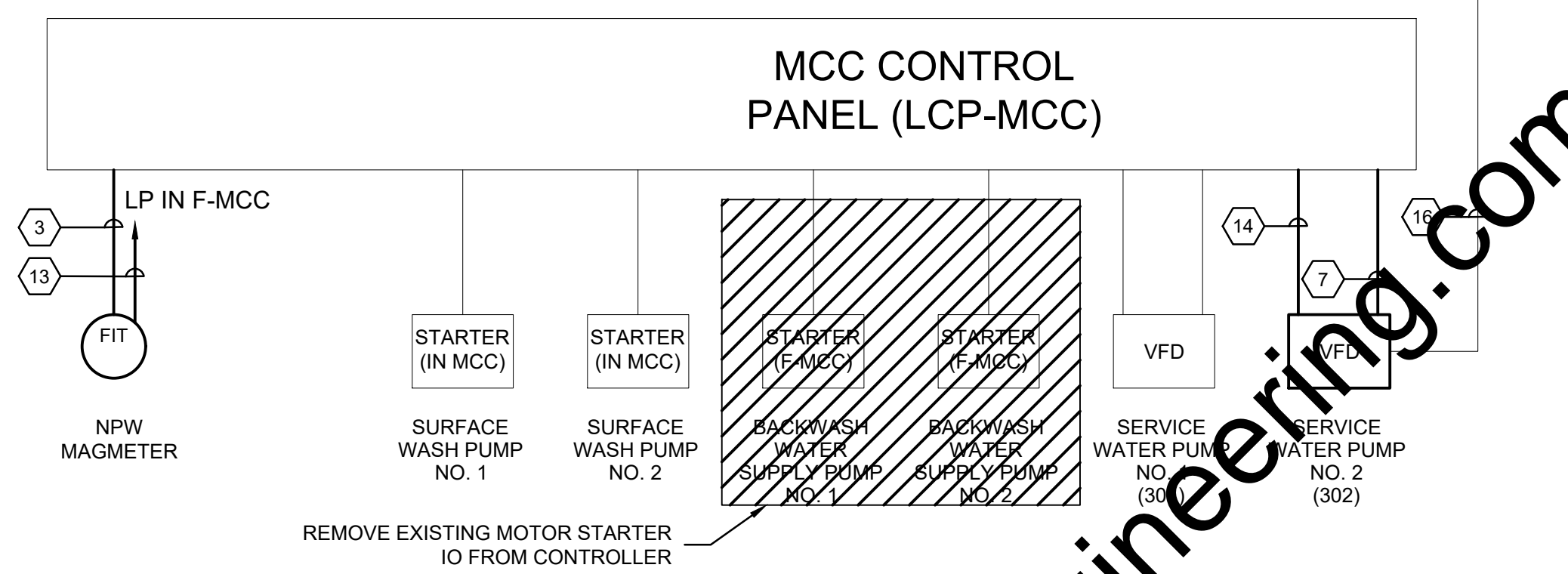
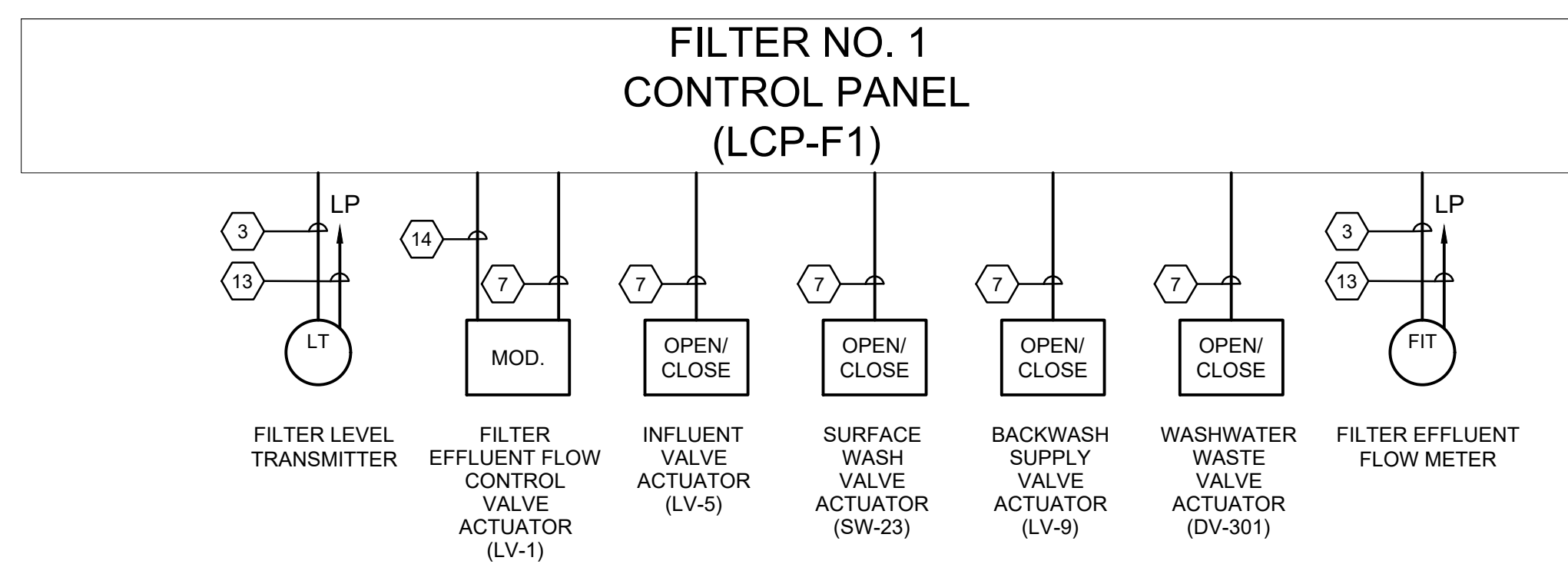
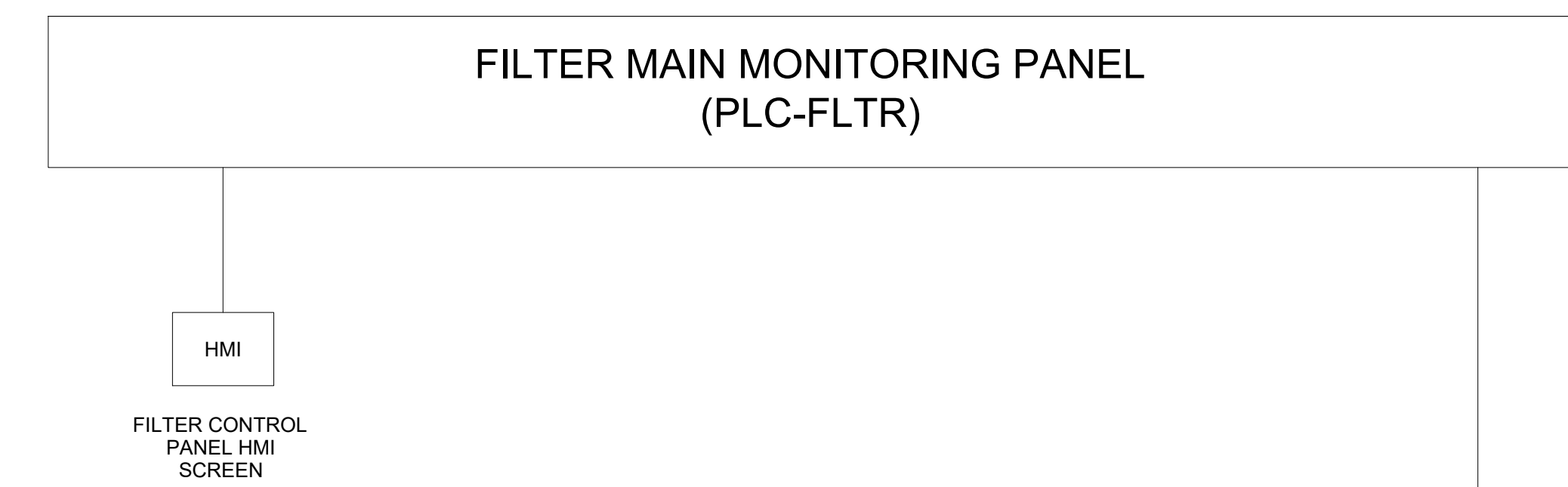
#	DESCRIPTION
1	3/4" CONDUIT WITH 2 #12 CONDUCTORS AND 1 #12 GROUND CONDUCTOR.
2	3/4" CONDUIT WITH 3 #12 CONDUCTORS AND 1 #12 GROUND CONDUCTOR.
3	3/4" CONDUIT WITH 4 #12 CONDUCTORS AND 1 #12 GROUND CONDUCTOR.
4	3/4" CONDUIT WITH 2 #10 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
5	3/4" CONDUIT WITH 3 #10 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
6	3/4" CONDUIT WITH 4 #10 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
7	3/4" CONDUIT WITH 2 #8 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
8	1" CONDUIT WITH 3 #8 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
9	1" CONDUIT WITH 4 #8 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
10	3/4" CONDUIT WITH 2 #6 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
11	1" CONDUIT WITH 3 #6 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
12	2" CONDUIT WITH 3 #4 CONDUCTORS AND 1 #10 GROUND CONDUCTOR.
13	SEE SINGLE LINES FOR CONDUIT AND WIRE

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PROJECT NUMBER	196117-04-002	ONE-LINE DIAGRAM, SCHEMATIC, AND PANEL SCHEDULE			PAGE NO.					
										20

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CONDUIT AND WIRE SCHEDULE:

1	1" C, 60#14	12	1" C, 2#8, #12G
2	3/4" C, WIRE BY MANUFACTURER	13	1" C, 2#12, #12G
3	3/4" C, 2/C#16TPS	14	3/4" C 2-2/C#16TPS
4	1/2" C, 3#14	15	1" C SPARE
5	3/4" C, 8#14	16	EXISTING TWISTED PAIR
6	3/4" C, 7#14	17	2" C, 60#14
7	3/4" C, 10#14	18	2" C, FIBER
8	3/4" C, 6#14	19	REFER TO MANUFACTURER WIRING DIAGRAMS.
9	1" C, 12#14	20	3/4" C, 4-2/C#16TPS
10	3/4" C, ETHERNET	21	1" C, COAX CABLE
11	3/4" C, 4#14		

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CONTROL ONE-LINE DIAGRAM

SHEET NO.
E8

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