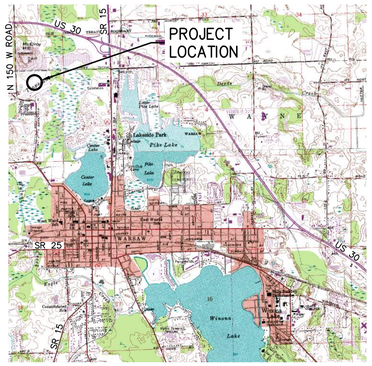
WASTEWATER TREATMENT PLANT EXPANSION - 2017

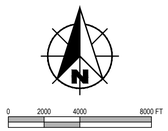
FOR THE

CITY OF WARSAW, INDIANA

VOLUME 1



WARSAW
VICINITY MAP
SCALE: 1" = 4000'



STATE LOCATION MAP
SCALE: NONE

HONORABLE JOSEPH M. THALLEMER, MAYOR

BOARD OF PUBLIC WORKS AND SAFETY

HONORABLE JOSEPH M. THALLEMER, PRESIDENT
JEFF GROSE
GEORGE CLEMENS

JAMES EMANS, P.E., CITY ENGINEER

BRIAN DAVISON, UTILITY MANAGER
LARRY HYDEN, ASSISTANT UTILITY MANAGER
JEFF KROTKE, ASSISTANT OPERATIONS MANAGER

WESSLER ENGINEERING
More than a Project™
6219 South East Street
Indianapolis, Indiana 46227
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PROJECT NO. 162813-04-003

NO.	DATE	INITIALS	DESCRIPTION

GARY L. RUSTON
REGISTERED
No. 19500302
STATE OF INDIANA
PROFESSIONAL ENGINEER
09/04/2018

GARY L. RUSTON
REGISTERED ENGINEER STATE OF INDIANA NO. 19500302

SEPTEMBER 4, 2018

INDEX TO DRAWINGS

VOLUME 1

VOLUME 2

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

GARY L. RUSSIN REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

INDEX TO DRAWINGS

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PAGE NO. 2

GENERAL PROJECT NOTES:

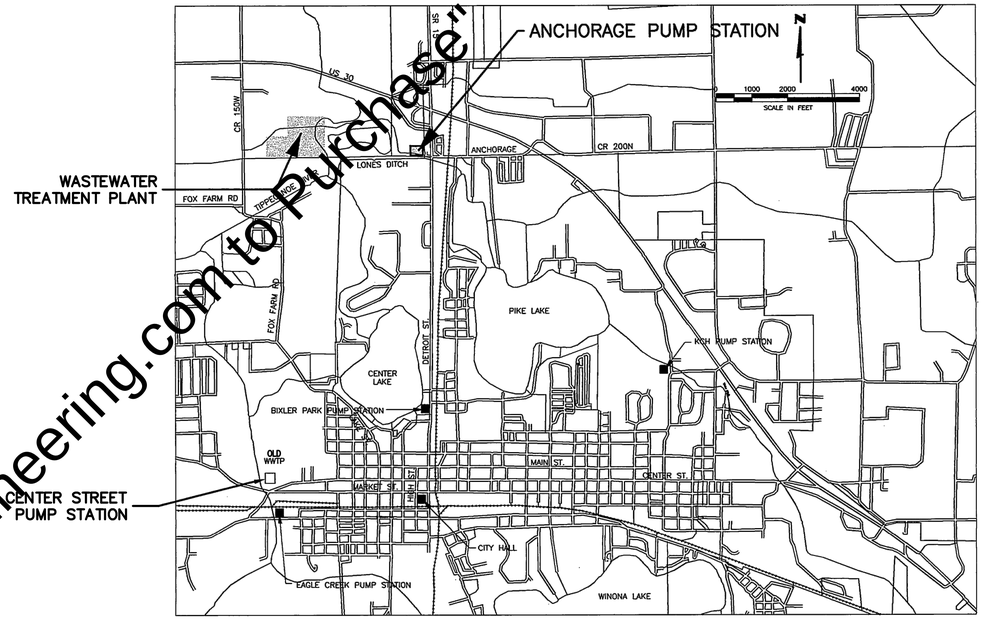
1. THE CONTRACTOR SHALL NOTE THAT THE WORK SHOWN ON THESE DRAWINGS IS OCCURRING ON A PLANT SITE IN WHICH BURIED ELECTRICAL CONDUITS AND SMALL PIPING MAY EXIST THROUGHOUT, ALL OF WHICH IN THE VICINITY OF THIS PROJECT MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL EXPECT TO ENCOUNTER BURIED ELECTRICAL AND COMMUNICATION WIRING, WITH OR WITHOUT CONDUITS, SMALL PIPING, AND FIELD TILE WHILE DIGGING ON THIS SITE; AND SHALL INCLUDE COSTS IN THE BID TO REPLACE, REPAIR OR RELOCATE SUCH WIRING, CONDUITS, TILE, AND PIPING WHICH ARE DAMAGED OR IN CONFLICT WITH NEW WORK.
2. ALL LOCATIONS, SIZES AND INVERTS OF EXISTING UTILITIES AND YARD PIPING ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. HOWEVER, WESSLER ENGINEERING DOES NOT GUARANTEE OR ASSURE THAT SUCH INFORMATION IS TRUE OR EVEN APPROXIMATE. THE CONTRACTOR SHALL DETERMINE WHICH UTILITIES MAY CONFLICT WITH HIS WORK AND VERIFY, AT A MINIMUM BUT NOT LIMITED TO, THE LOCATIONS, MATERIALS, SIZES, AND INVERTS. THE CONTRACTOR SHALL ADJUST HIS WORK ACCORDINGLY, AND NOTIFY WESSLER ENGINEERING OF ANY SUCH CONFLICTS AND RESOLUTION. THE CONTRACTOR SHALL REFER TO APPLICABLE SECTIONS OF THE SPECIFICATIONS RELATIVE TO THE ABOVE.
3. THE CONTRACTOR SHALL VERIFY THE LOCATION, MATERIAL AND SIZE OF EACH EXISTING UTILITY SERVICE PROVIDED TO THE SITE WITH THE RESPECTIVE UTILITY COMPANIES, AND ADJUST HIS WORK ACCORDINGLY. THE CONTRACTOR SHALL PROVIDE WESSLER ENGINEERING RECORD DRAWING INFORMATION OF EACH EXISTING UTILITY SERVICE LOCATED.
4. COMPLETELY REMOVE UNDERGROUND PIPING, THAT HAS PREVIOUSLY BEEN TAKEN OUT OF SERVICE OR IS BEING TAKEN OUT OF SERVICE UNDER THIS CONTRACT, IN CONFLICT WITH NEW WORK. UNLESS OTHERWISE NOTED ON THE DRAWINGS, ABANDONED UNDERGROUND PIPING NOT IN CONFLICT WITH NEW WORK MAY BE LEFT IN PLACE. DO NOT LEAVE PIPING ABANDONED UNDER THIS CONTRACT LIVE. SEE SPECIFICATION SECTION 02050 FOR DEMOLITION PROCEDURES. SEE SECTION 01550 FOR PLANT OPERATIONS DURING CONSTRUCTION FOR COORDINATION OF DEMOLITION WORK AND NEW CONSTRUCTION.
5. ALL EXISTING PIPING MAY NOT BE SHOWN. THE CONTRACTOR SHALL REFERENCE EXISTING RECORD DRAWINGS ON FILE WITH THE OWNER AND WESSLER ENGINEERING FOR ADDITIONAL INFORMATION OF EXISTING PIPING AND CONDUIT THROUGHOUT THE PLANT SITE.
6. NEW PIPING CARRYING LIQUIDS SHALL HAVE MINIMUM COVER AS DEFINED IN THE MISCELLANEOUS SITE DETAILS, UNLESS SPECIFIC ELEVATIONS ON THE DRAWINGS INDICATE OTHERWISE.
7. ALL EQUIPMENT TO BE REMOVED THAT HAS ELECTRICAL COMPONENTS, CONDUIT AND WIRING, AND/OR SMALL PIPING CONNECTED TO IT SHALL HAVE THE ELECTRICAL COMPONENTS AND SMALL PIPING REMOVED BACK TO THE SOURCE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRACING AND/OR PROTECTING ALL UTILITY POLES AND EXISTING STRUCTURES ADJACENT TO NEW EXCAVATIONS. UTILITY POLE BRACING SHALL BE AS DIRECTED BY THE GOVERNING UTILITY COMPANIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING, RESTORING, OR REPLACING ALL PAVEMENT IN STREETS AND DRIVES OUTSIDE AND WITHIN THE CONSTRUCTION LIMITS WHICH IS DAMAGED BY CONSTRUCTION ACTIVITIES AND TRAFFIC, AND SHALL INCLUDE ALL SUCH COSTS IN HIS BID.
10. THE CONTRACTOR SHALL INSPECT THE SITE PRIOR TO BIDDING THE PROJECT TO SEE THE EXTENT OF THE DEMOLITION WORK INVOLVED AND TO INCLUDE THE NECESSARY WORK IN HIS BID.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING EACH PERMIT ISSUING AGENCIES WITHIN THE TIME PERIOD SPECIFIED BY THAT AGENCY PRIOR TO BEGINNING CONSTRUCTION.
12. THE CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 02101 FOR EROSION AND DUST CONTROL DURING CONSTRUCTION.
13. THIS PROJECT REQUIRES THE REMOVAL OF EQUIPMENT, SOME OF WHICH HAVE ASSOCIATED MERCURY FILLED COMPONENTS INCLUDING, BUT NOT LIMITED TO, GAUGES AND CONTROLS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF ALL MERCURY FILLED COMPONENTS DESIGNATED FOR REMOVAL WITHIN FEDERAL, STATE AND LOCAL REGULATIONS.
14. THE CONTRACTOR SHALL PROTECT ALL BUILDING SUMP PUMPS FROM CONTRUCTION DEBRIS THROUGHOUT THE COURSE OF CONSTRUCTION.
15. THE CONTRACTOR SHALL COMPLETELY CLEAN ALL FLOOR DRAINS AND DRAIN PIPING, IN EACH EXISTING BUILDING THAT HAS HAD CONSTRUCTION ACTIVITY, TO REMOVE ALL CONSTRUCTION DEBRIS. CONSTRUCTION DEBRIS IN DRAIN PIPING SHALL BE FLUSHED TO THE NEAREST SITE MANHOLE, THEN COMPLETELY REMOVED.

Wastewater Treatment Plant Design Summary

Warsaw Wastewater Treatment Plant — **NPDES Permit No. IN0060917**

Component	Description	Design Parameters
Influent Characteristics	Average Daily Flow (ADF)	6.00 MGD
	Peak Hourly Flow (PHF)	18.00 MGD
	CBOD5	220 mg/L
	TSS	220 mg/L
	NH3-N	25.0 mg/L
	Phosphorus	5.0 mg/L
Influent Screening	Mechanical Cylindrical	Two (2) @ 0.25-inch bar spacing:
	Fine Screens (existing)	12.0 MGD peak capacity, each
	Manual Bypass Bar	1.75-inch O.C. bar spacing
Grit Removal	Aerated Grit	20.0 MGD with Air Lift Grit Transport
		Two (2) @ 21-ft x 21-ft, 14-ft SWD
Primary Clarifiers	Number and Size	Two (2) at 85-ft diameter, 12-ft SWD
	Surface Area	5,675 sq.ft. per clarifier
	Surface Overflow Rate	529 gpd/sf @ ADF
		1,586 gpd/sf @ PHF
Oxidation Ditch (existing)	Volume	Two (2) @ 1,460,000 gallons each
	Detention Time	11.7 hours at ADF
		3.89 Hours at PDF
	Organic Loading	18.3 lb BOD/1,000 cu.ft.
	Solids Retention Time	11.4 days
	Aeration Blowers	Two (2) at 4,600 scfm each (Turbo)
		One (1) at 1,400 scfm (Centrifugal)
Sludge Pump Station #1 (existing)	RAS Pumps	Two (2) at 2,800 gpm each
	WAS Pumps	Two (2) at 370 gpm each
	Scum Pump	One (1) at 150 gpm
Sludge Pump Station #2	RAS Pumps	Two (2) at 2,800 gpm each
	Scum Pump	One (1) at 150 gpm
Final Clarifiers (2 existing)	Number and Size	Three (3) at 90-ft diameter, 14-ft SWD
	Surface Area	6,362 sq.ft. per clarifier
	Surface Overflow Rate	314 gpd/sq.ft. @ ADF
		943 gpd/sq.ft. @ PHF
Disinfection	Type	Ultraviolet
	Channel Size	23.00-ft x 2.00-ft x 5.42-ft max WSE
	UV Transmittance	65% UVT
	Level Control	Serpentine weir
Post-Aeration (existing)	Post-Aeration Basins	Four (4) 5-Hp Surface Aerators
	Post-Aeration Cascade	4-step cascade

Component	Description	Design Parameters
Receiving Stream	Name	Tippecanoe River
	Tributary to	Wabash River
	Stream Uses	Full Body Contact Recreation
	7-day, 1-in-10 year low flow	3.1 cfs
	100-Yr Flood Elevation	810.00-ft
Phosphorus Removal	Anaerobic Selector Tanks	Two (2) at 39.5-ft x 42.5-ft x 13.5-ft SWD
Biological		One (1) at 35-ft x 35-ft x 13.5-ft SWD
	Total Volume	283,000 gallons
	Detention Time @ ADF	69 minutes
Chemical	Chemical	Alum
	Design Dosage	5.5 ppm
	Peristaltic Feed Pumps	Three (3) at 52 gph each
	Storage Tanks	Two (2) at 4,050 gallons each
	Secondary Containment	11,380 gallons
	Application Points	Grit Effluent Box &
		Oxidation Ditch #1 & #2 Effluent Boxes
Anaerobic Digestion	Number and Size	Two (2) at 60-ft dia. x 21-ft SWD
	Volume	472,000 gallons each
	Organic Loading	62.2 lb VS/day/1000 cu.ft.
	Detention Time	26.4 days
Sludge Holding Tanks	WAS	45-ft x 22.5-ft SWD, 267,670 Gal
	Digested Sludge	45-ft x 22.5-ft SWD, 267,670 Gal
	Septage	45-ft x 22.5-ft SWD, 267,670 Gal
Gravity Belt Thickener (existing)	Number and Capacity	One (1): 470 gpm, 930 lb/hr
Volute Press Dewatering	Number and Capacity	One (1): 260 gpm, 2,650 lb/hr
Stand-by Generator (existing)	Number and Size	One (1) 900-kW
Flow Meters	Raw Sewage:	
	- Center Street LS	20" MagMeter
	- Anchorage FM	18" MagMeter
	- Danek FM	10" MagMeter
	Effluent	2.0' Parshall Flume
	Primary Sludge	6" MagMeter
	RAS	Two (2) 12" MagMeters
	WAS	4" MagMeter
	Digester Sludge	Two (2) 4" MagMeters
	Digested Sludge	6" MagMeter
	Gravity Belt Thickener Feed	6" Mag Meter
	TWAS	4" MagMeter
	Volute Press Feed	4" Mag Meter



PROJECT LOCATION PLAN
SCALE: 1"=2000'

UTILITY CONTACTS

ELECTRIC
KOSCIUSKO REMC
370 SOUTH 250 EAST
WARSAW, IN 46582
800-790-7362
ATTN: RYAN MILLER

GAS
NIPSCO
801 E. 86TH AVE.
MERRILVILLE, IN 46410
219-647-5311
ATTN: DOUG BENDA

WATER
INDIANA-AMERICAN WATER COMPANY, INC
555 E. COUNTY LINE RD., STE 201
GREENWOOD, IN 46143
317-885-2447
ATTN: EZAT NAYEN

WARSAW UTILITIES
2056 N. 150 W
WARSAW, IN 46580
574-372-9562
ATTN: BRIAN DAVISON

ELECTRIC
NIPSCO
801 E. 86TH AVE.
MERRILVILLE, IN 46410
219-647-5036
ATTN: ROCKY YBARRA

FIBER OPTIC/TELEPHONE
CENTURY LINK
213 W. LAPORTE ST
PLYMOUTH, IN 46563
574-935-1247
ATTN: BRUCE EMERICK

NOTE:
IN THE EVENT OF WATER CONFLICT, CONTACT EZAT NAYEN AT INDIANA-AMERICAN WATER COMPANY TO COORDINATE WORK

WARSAW ENGINEERING
102 S. BUFFALO ST.
WARSAW, IN 46580
574-372-9548
ATTN: JAMES EMANS

Indiana 811
Know what's below.
Call before you dig.

SCALE VERIFICATION	DRAWN BY	WBJ
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

PROJECT LOCATION MAP, GENERAL NOTES AND WASTEWATER TREATMENT PLANT DESIGN SUMMARY

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TABLE OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A/E	ARCHITECT/ENGINEER
ABAN	ABANDON
ABC	AGGREGATE BASE COURSE
ACI	AMERICAN CONCRETE INSTITUTE
ADA	AMERICANS WITH DISABILITIES ACT
ADC	AIR DIFFUSION COUNCIL
ADDL	ADDITIONAL
ADDM	ADDENDUM
ADJ	ADJACENT / ADJOINING / ADJUSTABLE
ADMIN	ADMINISTRATION
AGGR	AGGREGATE
AHU	AIR HANDLING UNIT
AIA	AMERICAN INSTITUTE OF ARCHITECTS
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALM	ALARM
ALNMT	ALIGNMENT
ALT	ALTERNATE
ALUM.	ALUMINUM
AMT	AMOUNT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APA	ENGINEERED WOOD ASSOCIATION, THE
APP	APPARENT
APPROX	APPROXIMATE/APPROXIMATELY
ARI	AMERICAN REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
ASLA	AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPH	ASPHALT
ASSOC	ASSOCIATES
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATS	AUTOMATIC TRANSFER SWITCH
AVE	AVENUE
AVG	AVERAGE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BHMA	BUILDER'S HARDWARE MANUFACTURER'S ASSOCIATION
BIA	BRICK INDUSTRY ASSOCIATION
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCHMARK
BRG	BEARING
BTWN	BETWEEN
BV	BALL VALVE
C	CONDUIT
CABO	COUNCIL OF AMERICAN BUILDING OFFICIALS
CB	CATCH BASIN
CCW	COUNTERCLOCKWISE
CF	CUBIC FEET
CHKV	CHECK VALVE
CI	CAST IRON
CI	CURB INLET
CIP	CAST-IN-PLACE
CISP	CAST IRON SOIL PIPE
CISPI	CAST IRON SOIL PIPE INSTITUTE
CMA	COLD MIX ASPHALT
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNR	CORNER
CO	CLEANOUT
CO	COMPANY
COAX	COAXIAL CABLE
CONC	CONCRETE
CONT	CONTINUOUS
CONTR	CONTRACTOR
CP	CONTROL POINT
CPP	CORRUGATED PLASTIC PIPE
CR STN	CRUSHED STONE
CU	COPPER
CW	CITY WATER
CYD	CUBIC YARD
℄	CENTERLINE
D	DEEP
DBL	DOUBLE
DHI	DOOR AND HARDWARE INSTITUTE
DI	DUCTILE IRON
DI MJ	DUCTILE IRON MECHANICAL JOINT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DIPS	DUCTILE IRON PIPE SIZE
DISC	DISCONNECT
DNR	DEPARTMENT OF NATURAL RESOURCES
D.O.	DISSOLVED OXYGEN
DOH	DEPARTMENT OF HEALTH
DOT	DEPARTMENT OF TRANSPORTATION
DR	DRIVE
D&UE	DRAINAGE AND UTILITY EASEMENT
DWG	DRAWING
E	EASTING, EAST
EA	EACH
EF	EACH FACE
EFFL	EFFLUENT
EJ	EAST JORDAN IRON WORKS
EL	ELEVATION
EMER	EMERGENCY
EPA	US ENVIRONMENTAL PROTECTION AGENCY
EQUIP	EQUIPMENT
ETM	ELAPSED TIME METER
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EX	EXISTING
EX GR	EXISTING GRADE
EXH FN	EXHAUST FAN
EXP	EXPANSION
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FE	FLOW SENSOR
FF EL	FINISH FLOOR ELEVATION
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FIN GR	FINISH GRADE
FM	FORCE MAIN
FMC	FLEXIBLE METALLIC CONDUIT
FND	FOUND
FPT	FEMALE PIPE THREAD
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FEDERAL SPECIFICATIONS
FT	FOOT/FEET
FTG	FOOTING
FUT	FUTURE
GA	GAGE/GUAGE
GAL	GALLON
GALV	GALVANIZED
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GPS	GLOBAL POSITIONING SYSTEM
GRS	GALVANIZED RIGID STEEL
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE OR HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HMA	HOT MIX ASPHALT
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM (LTG)
HPU	HYDRAULIC POWER UNIT
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
ID	INSIDE DIAMETER
IDEM	INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
IE	INVERT ELEVATION
IN	INCH
INC	INCORPORATED
INDOT	INDIANA DEPARTMENT OF TRANSPORTATION
INF	INFLUENT
ISPC	INDIANA STATE PLUMBING CODE
INSTR	INSTRUMENT
ISPC	INDIANA STATE PLANE COORDINATE
KFV	KNIFE GATE VALVE
LB	POUND(S)
LCP	LOCAL CONTROL PANEL
LE	LEVEL SENSOR
LF	LINEAR FEET (FOOT)
LIT	LEVEL INDICATING TRANSMITTER
LN	LANE
LOR	LOCAL_OFF_REMOTE
LP	LIGHTING PANEL
LS	LIFT STATION
LTG	LIGHTING
MA EX	MATCH EXISTING
MAG	MAGNETIC
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MB	MAIL BOX
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIL	MILITARY SPECIFICATIONS
MIL STD	MILITARY STANDARD
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MNTR	MONITOR
MO	MASONRY OPENING
MPT	MALE PIPE THREAD
MS4	MUNICIPAL SEPARATE STORM SEWER SYSTEM
MSS	MANUFACTURER'S STANDARDIZATION SOCIETY
N	NORTHING, NORTH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE (ANSI/NFPA-70)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NGS	NATIONAL GEODETIC SURVEY
NIST	NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
NO	NORMALLY OPEN
NO.	NUMBER
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NSF	NATIONAL SANITATION FOUNDATION
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PB	PUSHBUTTON
PC	BEGINNING OF CURVE (POINT OF CURVATURE)
PCI	PRECAST/PRESTRESSED CONCRETE INSTITUTE
PDC	POWER DISTRIBUTION CABINET
PDI	PLUMBING AND DRAINAGE INSTITUTE
PFI	PIPE FABRICATORS INSTITUTE
PI	TANGENT/TANGENT INTERSECTION (POINT OF INTERSECTION)
PL	PROPERTY LINE
PNL	PANEL
POLY	POLYETHYLENE
POT	POINT ON TANGENT
PP	POWER PANEL
PPU	POSITIVE PRESSURE UNIT
PRI	PRIMARY
PSI	POUNDS PER SQUARE INCH
PT	CURVE/TANGENT INTERSECTION (POINT OF TANGENCY)
PT	POINT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDT	ROTATING DRUM THICKENER
RECIRC	RECIRCULATION
RECPT	RECEPTACLE[S]
RED	REDUCER
RGS	RIGID GALVANIZED STEEL
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
S	SECOND
S	SOUTH
SAE	SOCIETY OF AUTOMOTIVE ENGINEERS
SB	SOIL BORING
SCHED	SCHEDULE
SDR	STANDARD DIMENSION RATIO
SEC	SECONDARY
SECT	SECTION
SF	SQUARE FOOT (FEET)
SF	SUPPLY FAN
SHT	SHEET
SLDG	SLUDGE
SPEC	SPECIFICATION(S)
SQ	SQUARE
SR	STATE ROAD/STATE ROUTE
SRF	STATE REVOLVING FUND
SSPC	SOCIETY FOR PROTECTIVE COATINGS, THE
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STI	STEEL TANK INSTITUTE
STR	STARTER
SVA	SERVICE VALVE ASSEMBLY
SW	STORMWATER
SW	SWITCH
SWBD	SWITCHBOARD
SWCD	SOIL AND WATER CONSERVATION DISTRICT
SWGR	SWITCHGEAR
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
SYD	SQUARE YARD(S)
TB	TERMINAL BLOCK
TBM	TEMPORARY BENCHMARK
TC	TOP OF CASTING
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
USACE	U.S. ARMY CORPS OF ENGINEERS
USBR	U.S. BUREAU OF RECLAMATION
USGS	U.S. GEOLOGICAL SURVEY
UV	ULTRAVIOLET
V	VOLT(S)
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE
VSD	VARIABLE SPEED DRIVE
W	WATT
W	WEST
W	WIDE/WIDTH
WAS	WASTE ACTIVATED SLUDGE
WEF	WATER ENVIRONMENT FEDERATION
WH	WATER HEATER
WL	WATER LINE
WM	WATER METER
WP	WEATHERPROOF
WSE	WATER SURFACE ELEVATION
WTR	WATER
XFER	TRANSFER
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.

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CITY OF WARSAW, INDIANA

TYPICAL ABBREVIATIONS

SHEET NO. **AG03**

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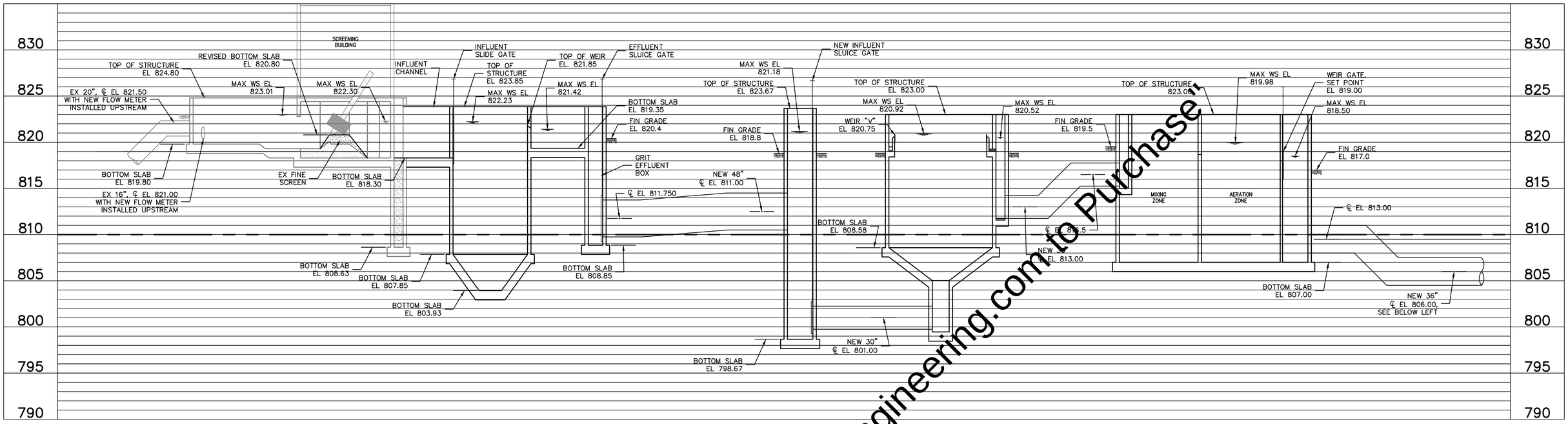

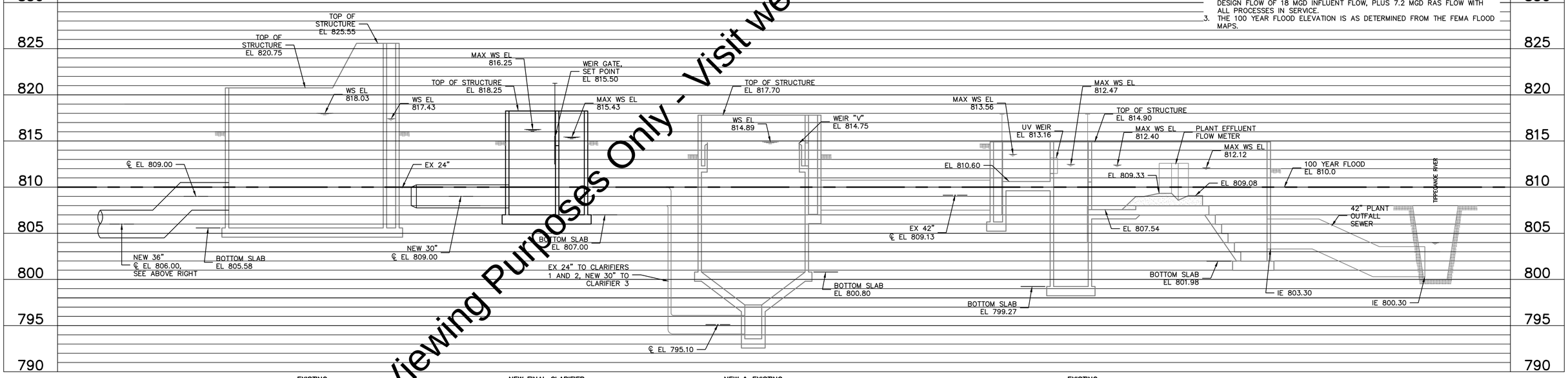

PROFILE NOTES:
1. ELEVATIONS SHOWN HERE ARE BASED ON TOP OF STRUCTURE ELEVATIONS AS DETERMINED FROM THE WESSLER ENGINEERING SITE SURVEY. THESE DIFFER FROM THE ELEVATIONS SHOWN ON THE ORIGINAL DESIGN DRAWINGS.
2. THE MAXIMUM WATER SURFACE ELEVATIONS ARE SHOWN AT A PEAK HOURLY DESIGN FLOW OF 18 MGD INFLUENT FLOW, PLUS 7.2 MGD RAS FLOW WITH ALL PROCESSES IN SERVICE.
3. THE 100 YEAR FLOOD ELEVATION IS AS DETERMINED FROM THE FEMA FLOOD MAPS.

HYDRAULIC PROFILE

HORZ. SCALE: NONE
VERT. SCALE: 1" = 5'

			NO.	DATE	INITIALS	REVISION DESCRIPTIONS
SCALE VERIFICATION	DRAWN BY	WBJ				
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUISTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 04/2018

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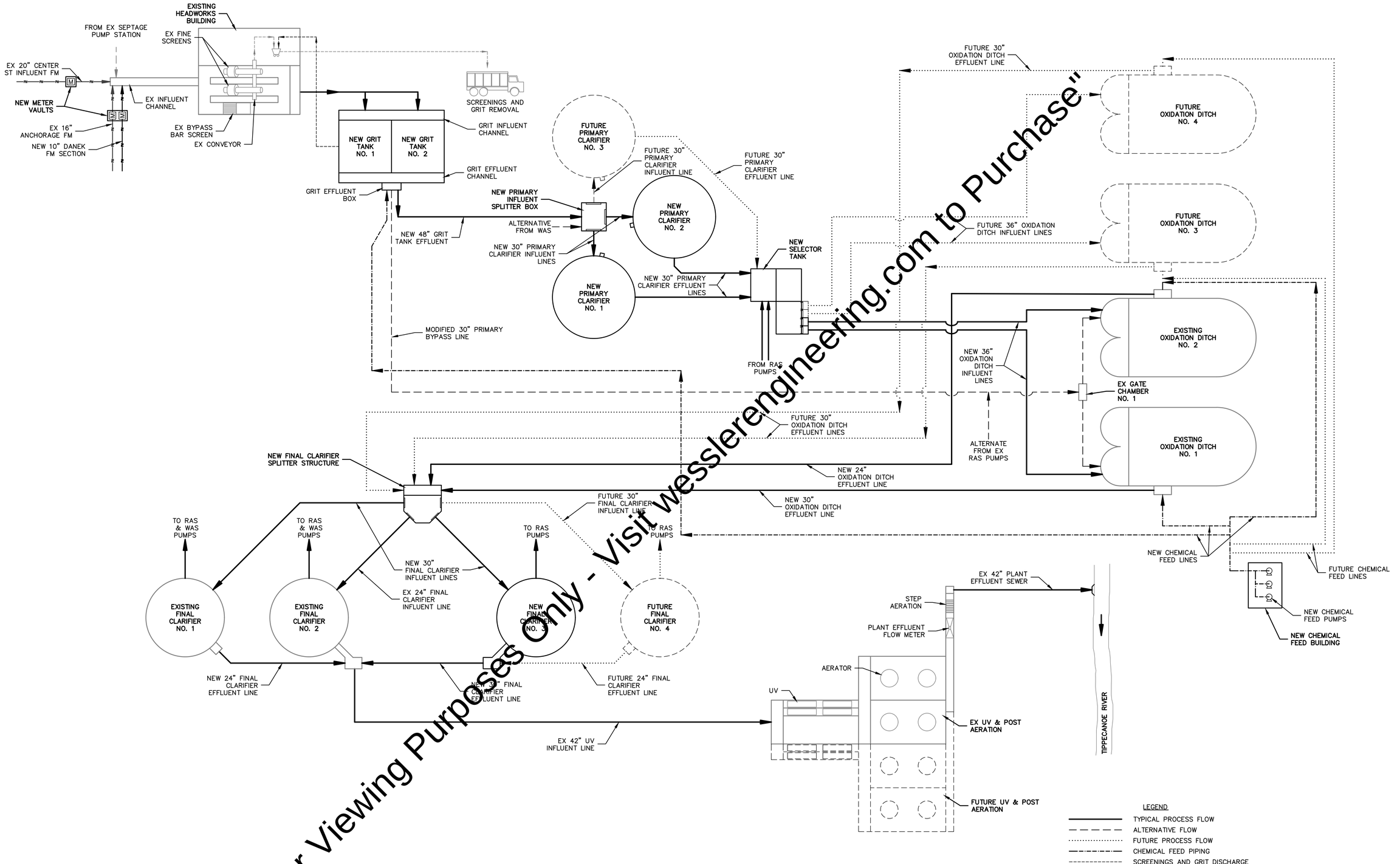
CITY OF WARSAW, INDIANA

HYDRAULIC PROFILE

SHEET NO. **AG04**

PAGE NO. 5

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWGS\Sheets\162813-HydProf.dwg | Layout: AG04 | Plotted: 09/04/18 @ 09:00:28 | LastSavedBy: DonT



PROCESS FLOW DIAGRAM

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	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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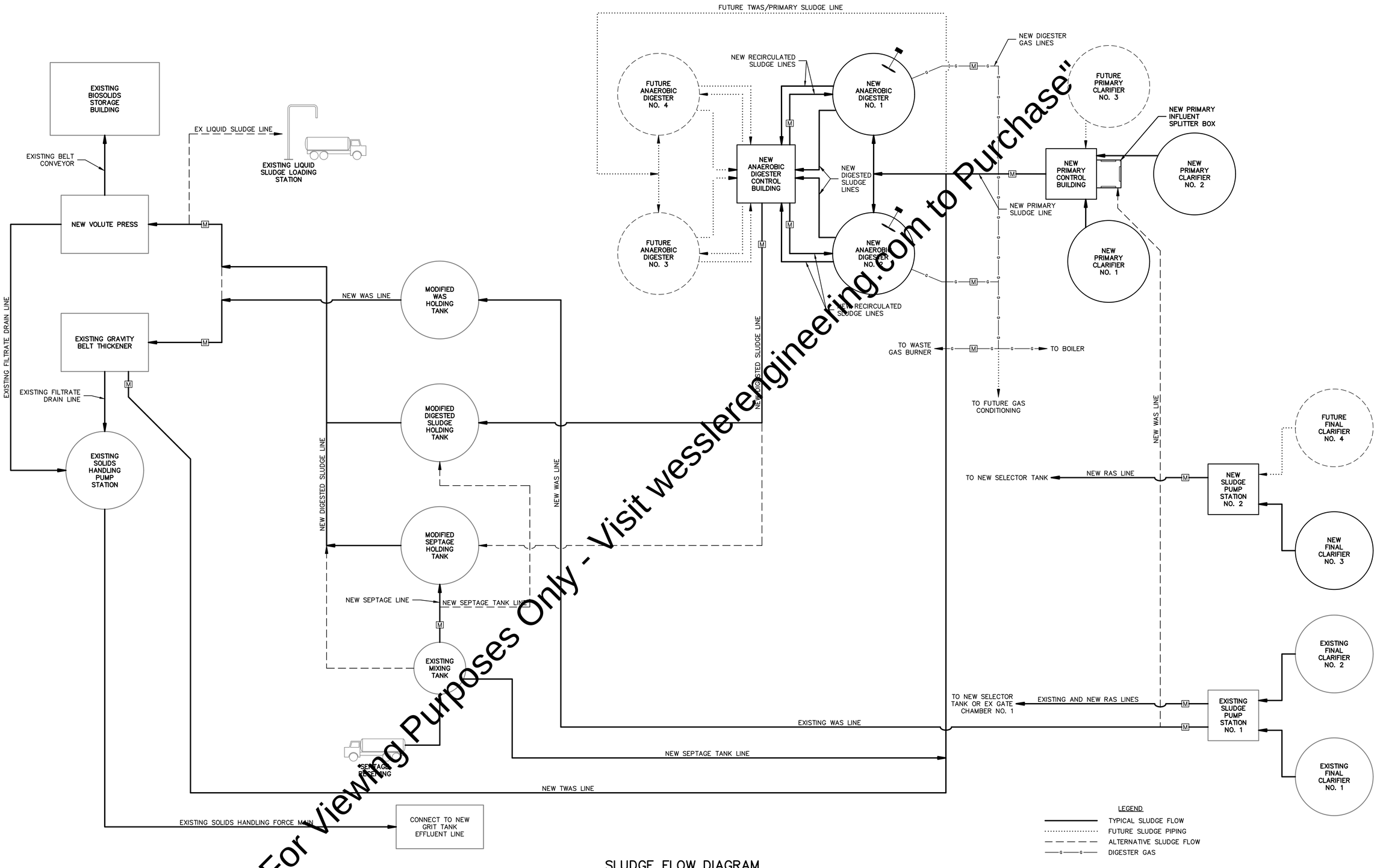
PROCESS FLOW DIAGRAM

SHEET NO. **AG05**

PAGE NO. 6



SLUDGE FLOW DIAGRAM

NO SCALE

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	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

GARY L. RUSSIN REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 9/4/2018

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SLUDGE FLOW DIAGRAM

SHEET NO.
AG06
PAGE NO.
7

GENERAL STRUCTURAL NOTES

All notes hereafter are typically applicable unless otherwise noted on plans, sections or details.

GENERAL

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.

Refer to the architectural, civil, and process drawings for additional information.

All work shall be performed in accordance with the Indiana Building Code, 2014 Edition (2012 International Building Code, first printing, with Indiana Amendments).

Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members. The Contractor shall be responsible for the correctness and fit of the new parts to the old parts.

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.

Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.

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.

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.

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.

The shoring and/or re–shoring design is the responsibility of the Contractor. Temporary shoring for slabs, beams, and girders shall be adequate to carry the total weight of the slab–beam–girder system and any temporary construction loads to be imposed on the structural system. Shoring for a level shall not be removed until the concrete at that level has attained the specified 28 day compressive strength (f'c). Removal of shoring and/or reshoring shall not cause overstress in any structural element.

Opening dimensions shown on the plans and elevation views are nominal rough openings. It shall be the Contractor's responsibility to coordinate the specific clear opening dimension with the selected door manufacturer and door installer. Clear opening dimension shall account for any shimming and construction tolerances needed by the Contractor to complete their work. Refer to the Architectural plans for door locations and sizes.

FOUNDATIONS

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 Earth Exploration, Inc. dated December 4, 2017 and all associated supplements.

Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.

Foundation excavations shall be made to plan elevations. The Contractor shall have a qualified Geotechnical Engineer verify that the allowable soil bearing pressure meets or exceeds that assumed for the foundation design. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:

- Remove the unacceptable soil and backfill with an engineered structural fill as directed by the inspecting Geotechnical Engineer.
- Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.

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, or until the concrete has achieved 75% of its specified compressive strength, whichever is more unless noted otherwise.

Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Surface runoff shall not be allowed to enter the excavation.

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.

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 edition[s] of the Building Code Requirements for Reinforced Concrete (ACI 318) and Environmental Engineering Concrete Structures (ACI 350) 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).

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.

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. 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.

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. Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 25 percent.

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.

Concrete compressive strength tests shall be performed in accordance with ASTM C39. The tests shall be performed by an independent testing company at the Contractor's expense. 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.

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.

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.

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.

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.

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).

Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi–Component Epoxy Adhesive (ACI 503.2).

Maintain concrete in a moist condition for at least 3 days at ambient temperatures above 70 degrees, and at least 5 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 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. It shall be the Contractor's responsibility to provide a curing compound compatible with other project requirements.

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.

Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.

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.

Construction joints at locations shall be submitted to the Structural Engineer for approval.

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.

Control joints shall be made in concrete slabs–on–grade at major column centerlines, at points of discontinuity, at reentrant corners, and at other locations shown on the plans.

Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.

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.

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

CLASS	28 DAY COMPRESSIVE STRENGTH	AIR CONTENT	MIN. CEMENT LB/CY (SACKS/CY)	MAX. WATER/CEMENT RATIO	CONCRETE LOCATION	REMARKS
A	4,500 psi	6% ± 1%	611 (6..5)	0.45	Foundation Walls, Spread Footings Wall Walls	
B	4,000 psi	≤ 3%	517 (5.5)	0.48	Interior Slabs on Grade	
C	4,500 psi	6% ± 1%	611 (6.5)	0.42	Retaining Walls, Basement Walls, Tank Mat Foundations, Tank Structural Slabs, Tank Walls, Base Slabs, Slab floor systems	Crystalline Waterproofing Admixture
D	4,500 psi	6% ± 1%	611 (6.5)	0.40	Exterior Slabs on Grade, Stoops, & Sidewalks	Synthetic Fibers (1.5 lbs/cyds)
E	5,000 psi	6% ± 1%	658 (7.0)	0.48	High Volume Grout	Synthetic Fibers (1.5 lbs/cyds)

REINFORCING STEEL

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. Pulling up of welded wire fabric in slabs–on–grade on a metal deck is not permitted.

Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.

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.

Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest edition[s] of ACI 318 and ACI 350 with the most stringent requirements governing.

Welded wire fabric in slabs–on–grade shall be placed 2" down from the top of the slab unless otherwise noted. Welded wire fabric in slabs on metal deck shall be placed anywhere from 3/4" to 1 1/4" down from the top of the slab unless otherwise noted.

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.

CONCRETE REINFORCING STEEL LAP SPLICE SCHEDULE

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

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.

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.

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

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).

Structural masonry construction shall inspected by a qualified independent "special inspector" in accordance with Section 1704.5 of the 2006 International Building Code, third printing. In the absence of an Owner's special inspection program, costs of inspection shall be borne by the Contractor.

Mortar shall be type N for interior non–load bearing walls. For exterior and load bearing walls, mortar shall be type M below grade and type S above grade. Mortar shall conform to the requirements of the latest edition of ASTM C270. Portland Cement–lime without air entrainment shall be used in the mortar mix.

Provide standard spacers, etc. as required to prevent reinforcing steel displacement during grout placement.

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.

Reinforcing steel lap splices in concrete masonry shall be 60 bar diameters (minimum) unless otherwise noted. All splices shall be wired together.

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.

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.

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 REINFORCING STEEL LAP SPLICE SCHEDULE

f'm = 2,000 psi

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

STRUCTURAL STEEL

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.

Erector shall maintain minimum temporary bracing at each bay in each direction until the roof diaphragm and permanent lateral load resisting system construction are complete.

Structural steel shall be shop–painted with a rust inhibiting primer. Steel which will be exposed to weather shall receive one additional finish coat. Steel that will be normally visible to the building's occupants or exposed to weather shall receive a field applied finish coat matching the existing surrounding surfaces. All abrasions caused by handling after shop painting shall be touched–up after erection is complete.

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.

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.

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.

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.

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.

Field drilled holes shall be reamed, cleaned and deburred prior to assembly of the connection.

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".

Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.

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.

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.

Beams with specified camber shall be cambered upward. Beams without specified camber shall be fabricated so that after erection any minor camber due to rolling or shop assembly is upward.

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.

Continuous beam cantilevers and other beams framing over the top of a column shall have a full height 3/8" web stiffener on each side of the beam, centered above the supporting column. The beam–to–column connection shall contain no less than 4 bolts (2 each side of beam).

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

Post–installed anchors shall be installed by qualified personnel in accordance with the drawings and specifications.

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.

Post–installed anchors shall be as manufactured by Hilti Fastening Systems or approved equivalent.

Masonry cores receiving post–installed anchors shall be filled with course grout conforming to the requirements specified herein. Anchors shall not be installed in a masonry mortar joint.

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 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.

Adhesive anchors shall be subject to the following additional requirements:

Anchors shall meet the requirements of ACI 355.4.

Proof loading of adhesive anchors is not required.

Anchors shall not be installed in concrete cured less than 21–days

Anchors shall not be installed until the concrete has reached a minimum compressive strength of 2,500 psi.

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.

Anchors shall be installed in holes drilled with a rotary or rock drill. Follow the MPII for size and depth of holes required.

The acceptability of certification other than the ACI/CRSI Adhesive Anchor Installer Certification shall be the responsibility of the Structural Engineer. Adhesive anchors installed in horizontal or upwardly inclined orientations to resist sustained tension loads shall be continuously inspected during installation by an inspector specially approved for that purpose by the building official. The special inspector shall furnish a report to the licensed design professional and building official that the work covered by the report has been performed and that the materials used and the installation procedures used conform to the approved contract documents and MPII.

Installation of anchors shall be inspected in accordance with ACI 318–11, Section 1.3 and the Indiana Building Code.

NON–SHRINK GROUT

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.

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.

Grout shall be pumped into place and shall have forms built around it for confinement.

CE Solutions
structural engineers
10 Shoshone Drive 317.818.1912
Carmel, IN 46032 cesolutionsinc.com

SCALE VERIFICATION
BAR IS ONE INCH LONG ON ORIGINAL DRAWING

DRAWN BY	MAS
CHECKED BY	CEB
APPROVED BY	CEB
ISSUE DATE	SEPTEMBER 4, 2018
PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

CARL E. BRADWAY REGISTERED No. 10200054 STATE OF INDIANA PROFESSIONAL ENGINEER 08/04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

GENERAL STRUCTURAL NOTES PART 1

SHEET NO.
AS01
PAGE NO.
8

GENERAL STRUCTURAL NOTES (CONTINUED)

All notes hereafter are typically applicable unless otherwise noted on plans, sections or details.

STRUCTURAL LUMBER

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).

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.

Wood construction connectors plates shall be as manufactured by Simpson Strong–Tie Company, Inc. or approved equivalent.

Except where epoxy injection is specified; bolted, lag screwed, or nailed wood member connections shall be glued using adhesives conforming to APA Specification AFG–01 (PL–400) in accordance with the manufacturer's recommendations.

Structural load bearing wall studs, not otherwise continuously braced on both sides by gypsum board, plywood/performance rated panel sheathing, hardboard panel siding, or other Indiana Building Code (IBC) approved sheathing; shall be braced at third points with horizontal solid wood blocking not less than 2 inches (nominal) in thickness and of the same width as the studs fitted snugly and nailed thereto to provide adequate lateral support.

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.

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

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 two or more supports (minimum 3 span condition).

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. Shear wall panel edges shall be supported on 2" (nominal) lumber blocking installed between studs.

METAL–PLATE–CONNECTED WOOD TRUSSES

Prefabricated wood trusses shall be detailed, fabricated and erected in accordance with the latest editions of the Timber Construction Manual by the American Institute of Timber Construction (AITC) and the National Design Specification for Wood Construction by the American Forest & Paper Association (ANSI/NFoPA NDS) and the latest criteria established by the Truss Plate Institute (TPI) and the Wood Truss Council of America (WTCA).

Temporary and permanent bracing of wood trusses shall be in accordance with the latest edition of the Commentary and Recommendations for Handling, Installing and Bracing Metal Plate Connected Wood Trusses (HIB) by the TPI.

Wood roof trusses shall be designed to support the following superimposed loads in addition to the weight of the trusses:

Top Chord Dead Load	10 psf
Top Chord Live Load	25 psf
Bottom Chord Dead Load	7 psf
Bottom Chord Live Load	0 psf
Wind Load (horizontal)	per code
Wind Load (net vertical)	per code

Deflection due to live load shall be limited to 1/360 of the truss span. For truss cantilevers, the deflection due to live load at the end of the cantilever shall be limited to 1/180 of the cantilever dimension.

Truss plates shall be galvanized steel and shall be applied to both faces of the members being connected.

Trusses shall conform to the geometry shown. Minimum lumber size for top and bottom chord members shall be 2"x 6" (nominal). Web member size and configuration shall be the option of the fabricator.

The truss manufacturer shall prepare detailed working or shop drawings and shall submit one reproducible copy and one blue line copy, including calculations, to the Structural Engineer for review prior to fabrication. Truss drawings and calculations shall show the design forces in the truss members, the sizes of the truss plates; the lumber species, commercial grade and normal duration design values; required bracing and details necessary to enable the truss manufacturer to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications. These shop drawings will be reviewed for design concepts only. The truss manufacturer shall be responsible for all dimensions, accuracy, and fit of work. The trusses shall be designed by, and the shop drawings and calculations shall bear the seal and signature of, a registered professional engineer in the State of Indiana.

The contractor shall install all permanent truss bracing as shown on the truss manufacturer's shop drawings.

COORDINATION WITH OTHER TRADES

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.

SPECIAL NOTES TO THE OWNER

Under normal conditions and for conventional buildings/structures such as the subject structure, reinforced concrete will develop cracks. The cracks are due to inherent shrinkage of the concrete, creep, ambient temperature variation, and restraining effects of vertical and other structural elements.

The cracks formed are normally cosmetic. The concrete maintains its serviceability and strength requirements. It is possible that a number of hairline cracks, which would normally spread over a wide area, will integrate into a single crack with a width exceeding 0.01 inch. It is emphasized that although special effort is made to reduce the potential causes and number of such cracks, it is not practical to provide total articulation and thereby achieve complete inhibition of all cracks.

The majority of these cracks develop within the first three years of service. Cracks which are wider than 0.01 inch may require sealing or epoxy injection.

The object of the joints provided in the structure is to allow movement. Movements due to creep and shrinkage may be noticeable at joints up to two years after construction, beyond which movements due to variations in temperature will persist.

DESIGN

Building Code:
Indiana Building Code, 2014 Edition (2012 International Building Code, with Indiana Amendments)

Soil information:

Allowable net bearing pressure:	2,500 psf
Unit weight of soil	125 pcf
Effective Fluid Pressure	90 pcf
Coefficient of friction between soil and concrete footing	0.30 (assumed)
Subgrade Modulus	175 pci

Concrete:
28 day compressive strength (f'c) see schedule

Masonry:
28 day compressive strength (f'm) 1,500 psi

Reinforcing steel (deformed bars of new billet steel):

Stirrup and tie	ASTM A615, Grade 60
Welded wire fabric (smooth)	ASTM A185

Plywood/Performance Rated Panels:

Roof:	
Span Rating	24/16
Thickness	1/2"
Exposure	1

Non–shrink grout:
28 day compressive strength 5,000 psi

Live loads:
Roof: 25 psf with drift considerations

Floors:

Slab on Grade	100 psf
Tank Walkways	100 psf

Live Load Deflection Limitation:
Roof L/360

Wind loads:

Basic wind speed (3–second gust)	120 mph
Occupancy Risk Category	III
Exposure	C

Seismic loads:

Occupancy Risk Category	III
MCE Seismic Spectral Response Acceleration at Short Periods,	Ss 10.2% g
MCE Seismic Spectral Response Acceleration at 1 Second,	S1 6.0% g
Importance factor, IE	1.25
Site Class	D
Seismic Design Category	B

Structural Lumber (surfaced dry, used at 19% moisture content):

All members	Southern Pine, No. 2 (U.O.N)
Bolts/Lag Screws	ANSI/ASME B18.2
Nails	FF–N–105B

Laminated Veneer Lumber (LVL) (as manufactured by Weyerhauser):

Allowable Bending Stress	2,600 psi
Allowable Shear Stress	285 psi
Modulus of Elasticity (10^6 psi)	2.0E
Specific Gravity	0.50

CE Solutions structural engineers
10 Shoshone Drive Carmel, IN 46032 317.818.1912 cesolutionsinc.com

BAR IS ONE INCH LONG ON ORIGINAL DRAWING

SCALE VERIFICATION	
DRAWN BY	MAS
CHECKED BY	CEB
APPROVED BY	CEB
ISSUE DATE	SEPTEMBER 4, 2018
PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

CARL E. BRADWAY REGISTERED No. 10200054 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

GENERAL STRUCTURAL NOTES PART 2

SHEET NO. AS02

PAGE NO. 9

LIGHTING

- SURFACE/PENDANT MOUNTED LIGHT FIXTURE LETTER DENOTES TYPE, # DENOTED CIRCUIT, SHADING DENOTES EMERGENCY AND/OR NIGHT LIGHT
- SURFACE/PENDANT MOUNTED LIGHT FIXTURE LETTER DENOTES TYPE, # DENOTES CIRCUIT, SHADING DENOTES EMERGENCY AND/OR NIGHT LIGHT
- RECESS MOUNTED LIGHT FIXTURE LETTER DENOTES TYPE, # DENOTED CIRCUIT, SHADING DENOTES EMERGENCY AND/OR NIGHT LIGHT
- RECESS MOUNTED LIGHT FIXTURE LETTER DENOTES TYPE, # DENOTES CIRCUIT, SHADING DENOTES EMERGENCY AND/OR NIGHT LIGHT
- LIGHT FIXTURE CEILING MOUNTED LETTER DENOTES TYPE, # DENOTES CIRCUIT
- WALL MOUNTED FIXTURE LETTER DENOTES TYPE, # DENOTES CIRCUIT
- WALL MOUNTED PHOTOCELL
- CEILING MOUNTED EXIT SIGN
- WALL MOUNTED EXIT SIGN
- EMERGENCY LIGHT FIXTURE # DENOTES CIRCUIT
- POLE MOUNTED FIXTURE

RECEPTACLE

- DUPLEX RECEPTACLE
  SUBSCRIPT DENOTES TYPE: UPS DENOTES UNINTERRUPTIBLE POWER SUPPLY
  # DENOTES CIRCUIT
- SINGLE OUTLET RECEPTACLE
- SPECIAL PURPOSE OUTLET
- MULTI-OUTLET RECEPTACLE SINGLE
- MULTI-OUTLET RECEPTACLE DUPLEX
- 240 VOLT RECEPTACLE

PANELS AND BOXES

- JB — JUNCTION BOX
- PB — PULL BOX
- PANEL

HVAC AND FIRE ALARM

- FIRE ALARM PULL STATION
- FIRE ALARM CONTROL PANEL
- ANNUNCIATOR
- HORN/LIGHT DEVICE
- DD — DUCT DETECTOR
- SMOKE DETECTOR SUBSCRIPT DENOTES TYPE:
  Z DENOTES IONIZATION
  P DENOTES PHOTOELECTRIC
  T DENOTES THERMAL
- THERMOSTAT
- AMBIENT TEMPERATURE TRANSMITTER
- UNIT HEATER
- WALL MOUNTED GAS DETECTION FIXTURE

SWITCHES

- WALL SWITCH
  SUBSCRIPT DENOTES TYPE:
  NO SUBSCRIPT DENOTES SINGLE POLE
  3 DENOTES 3 WAY
  4 DENOTES 4 WAY
  M DENOTES MANUAL MOTOR STARTER
  D DENOTES DIMMER
- MOTOR STARTER
- COMBINATION MOTOR STARTER
- DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- LS — DOOR LIMIT SWITCH
- LOCAL CONTROL STATION
- SS — SPEED SWITCH

WIRING

- CONDUIT HOME RUN
- CONDUIT EXPOSED
- CONDUIT CONCEALIGHT
- FLEXIBLE CONDUIT

SCHEMATICS

- 3-POSITION SELECTOR SWITCH HAND - OFF - AUTO
- START — PUSHBUTTON SWITCH N.O. TEXT DENOTES LEGEND PLATE
- STOP — PUSHBUTTON SWITCH N.C. TEXT DENOTES LEGEND PLATE
- E-STOP — MUSHROOM HEAD EMERGENCY STOP PUSHBUTTON SWITCH N.C. MAINTAINED TEXT DENOTES LEGEND PLATE
- STOP / L.O. — PUSHBUTTON SWITCH N.C. WITH LOCK-OUT TEXT DENOTES LEGEND PLATE
- DISCONNECT SWITCH N.O.
- DISCONNECT SWITCH N.C.
- TS — TEMPERATURE SWITCH OR THERMOSTAT N.O. TEXT DENOTES TAG NUMBER
- TS — TEMPERATURE SWITCH OR THERMOSTAT N.C. TEXT DENOTES TAG NUMBER
- PS — PRESSURE SWITCH N.O. TEXT DENOTES TAG NUMBER
- PS — PRESSURE SWITCH N.C. TEXT DENOTES TAG NUMBER
- LS — LEVEL SWITCH N.O. TEXT DENOTES TAG NUMBER
- LS — LEVEL SWITCH N.C. TEXT DENOTES TAG NUMBER
- TR — ON DELAY TIMED SWITCH N.O.T.C. TEXT DENOTES TAG NUMBER
- TR — ON DELAY TIMED SWITCH N.C.T.O. TEXT DENOTES TAG NUMBER
- TR — OFF DELAY TIMED SWITCH N.O.T.O. TEXT DENOTES TAG NUMBER
- TR — OFF DELAY TIMED SWITCH N.C.T.C. TEXT DENOTES TAG NUMBER
- TS — TORQUE SWITCH TEXT DENOTES TAG NUMBER
- LS — LIMIT SWITCH TEXT DENOTES TAG NUMBER
- # — CONTACT (NORMALLY OPEN) # DENOTES COIL NUMBER
- # — CONTACT (NORMALLY CLOSED) # DENOTES COIL NUMBER
- R — INDICATOR LIGHT - LETTER DENOTES COLOR
- PTT / G — PUSH-TO-TEST INDICATOR LIGHT LETTER DENOTES COLOR
- ETM — ELAPSED TIME METER
- SV — SOLENOID VALVE
- MECHANICAL INTERLOCK CONNECTION
- M XXX — COIL
  M DENOTES MOTOR STARTER
  CR DENOTES CONTROL RELAY
  TR DENOTES TIME DELAY RELAY
  LC DENOTES LIGHTING CONTACTOR
  PR DENOTES INTERPOSING PILOT RELAY
  XXX DENOTES REFERENCE LINE NUMBER

SINGLE LINE

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW
- FUTURE
- TX-STRUCTURE DESIGNATION
  XXX kVA
  480-120/208V
  3P/4W
  TYPE OF TRANSFORMER
- 50 — PROTECTIVE RELAY, NUMBER DENOTES IEEE DEVICE FUNCTION
- 1200A 52 — MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER
- 100 A — FUSE
- XXA — DRAWOUT POWER CIRCUIT BREAKER
- XXA — MOLDED CASE CIRCUIT BREAKER
- THERMAL OVERLOAD RELAY
- GROUND
- 600:5A (3) — CURRENT TRANSFORMER NUMBER DENOTES QUANTITY
- 480-120V (3) — POTENTIAL TRANSFORMER NUMBER DENOTES QUANTITY
- DRAW-OUT ELEMENT
- 800A 3Ø 3W ATS — AUTOMATIC OR MANUAL TRANSFER SWITCH
- 25 — MOTOR NUMBER DENOTES HORSEPOWER
- XXkW 480V,3Ø,4W — GENERATOR XX NUMBER DENOTES REQUIRED kW RATING AND VOLTAGE

EQUIPMENT/DEVICE LOCATION SYMBOLS

- LOCATED AT MCC, COMBINATION STARTER, OR BYPASS STARTER
- LOCATED IN FIELD
- LOCATED AT DCU 1A REMOTE I/O RACK
- LOCATED AT VFD

MISC PLAN VIEW SYMBOLS

- E — EQUIPMENT CONNECTION
- GROUND ROD
- INSTRUMENT TRANSMITTER

COMMUNICATIONS

- TELEPHONE OR NETWORK DROP
- N — ETHERNET JACK

SINGLE LINE, CONT'D.

- X% — LINE REACTOR
  X% NUMBER DENOTES PERCENT IMPEDANCE
- CAPACITOR
- V VS — VOLTMETER AND SWITCH
- ST — SHUNT TRIP
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSOR
- LIGHTNING ARRESTOR
- K — KIRK-KEY INTERLOCK
- LP–# — COMBINATION POWER UNIT
- 100A
  X% — VARIABLE FREQUENCY DRIVE
  X% DENOTES LINE REACTOR PERCENT IMPENDENCE
  VFD

SITE DUCTBANKS

- UGC — UNDERGROUND CONTROL
- UGE — UNDERGROUND ELECTRICAL
- UGF — UNDERGROUND FIBER

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 CLOSED
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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	PROJECT NUMBER	162813-04-003					

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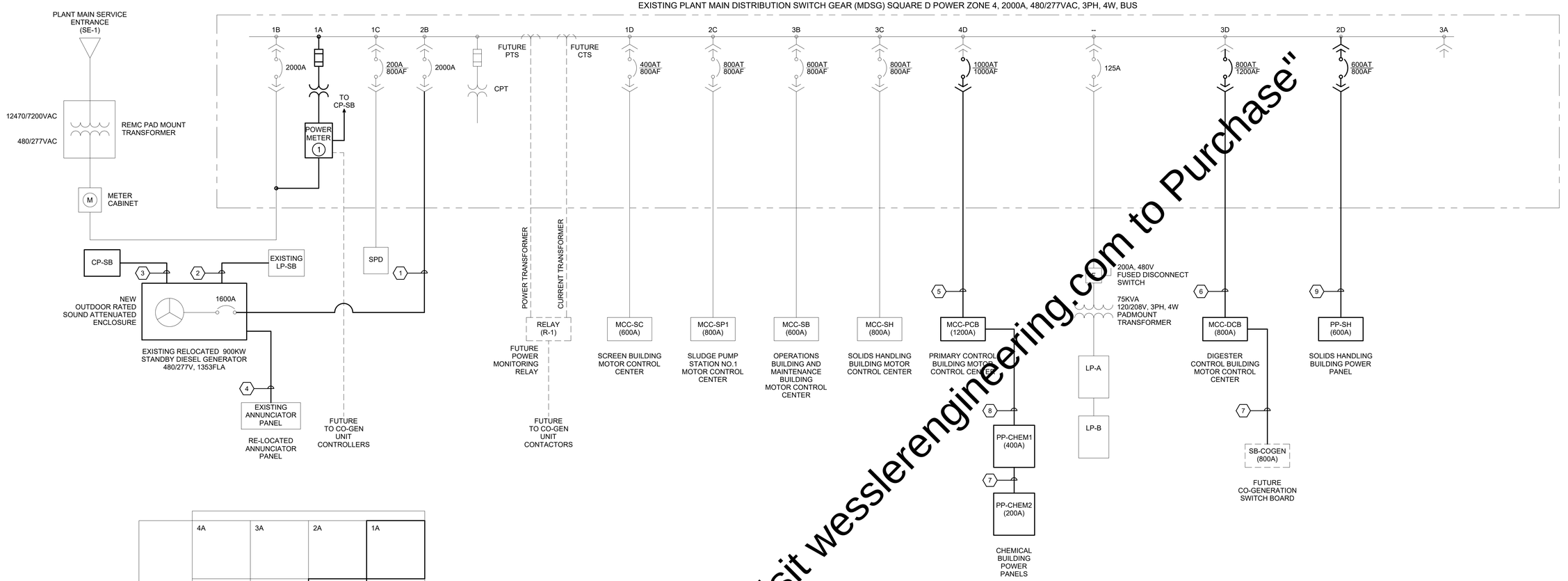
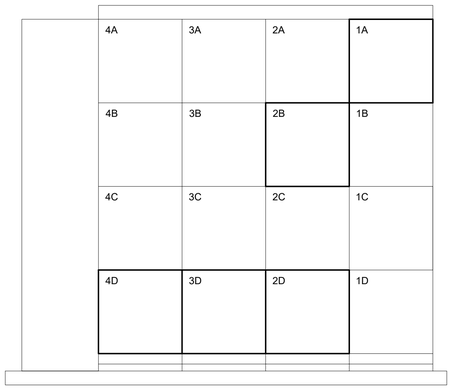
ELECTRICAL LEGEND

SHEET NO. **AE01**

PAGE NO. 10

EXISTING PLANT MAIN DISTRIBUTION SWITCH GEAR (MDSG) SQUARE D POWER ZONE 4, 2000A, 480/277VAC, 3PH, 4W, BUS





PLANT MAIN DISTRIBUTION SWITCHGEAR (MDSG)
ELEVATION
SCALE: NONE

PLANT MAIN DISTRIBUTION SWITCHGEAR (MDSG)
ONE-LINE DIAGRAM
SCALE: NONE

NOTES:

1. EXISTING SWITCH BOARD IS A SQUARE D POWER-ZONE 4.
2. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

KEYED NOTES:

(1) REPLACE EXISTING POWER METER WITH NEW POWER METER. SEE DIVISION 16 MOTOR CONTROL CONTROLS SPECIFICATION FOR APPROVED POWER METERS

CONDUIT AND WIRE SCHEDULE:

1	4 - (4"C, 3#600, #4/0G)
2	2"C, 2#6, #6N, #10G
3	1"C, 8#14
4	1"C, 2/C#16 TPS
5	3 - (4"C, 3#600, #3/0G)
6	2 - (4"C, 3#600, #1/0G)
7	SEE INDIVIDUAL ONE-LINE DIAGRAM
8	2 - (4"C, 3#4/0, #3G)
9	2 - (4"C, 3#500, #1G)
10	SEE CONTROL ONE-LINE DIAGRAM

✱-PANEL PROVIDED BY MANUFACTURER

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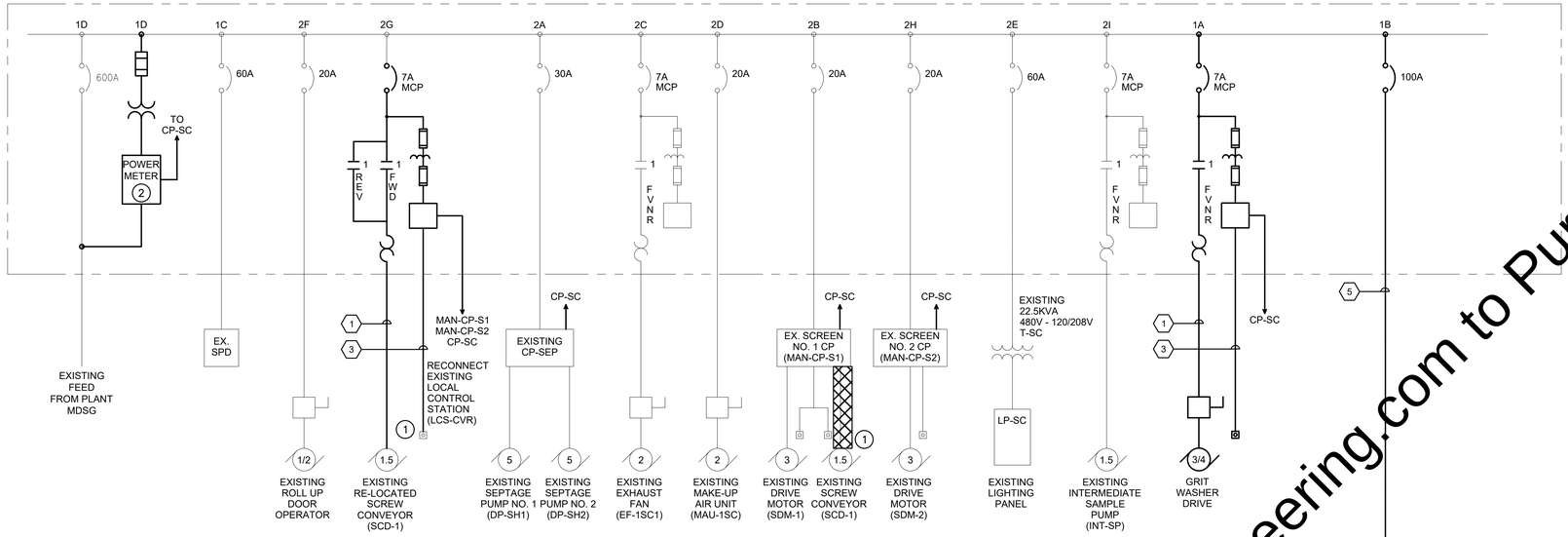
PLANT MAIN DISTRUBUTION SWITCHGEAR ONE-LINE DIAGRAM AND ELEVATION

SHEET NO.
AE02
PAGE NO.
11

EXISTING SQUARE D MODEL 6 SCREEN BUILDING MOTOR CONTROL CENTER (MCC-SC), 600A, 480VAC, 3PH, 3W, BUS



SCREEN BUILDING MCC (MCC-SC) ONE-LINE DIAGRAM

SCALE: NONE

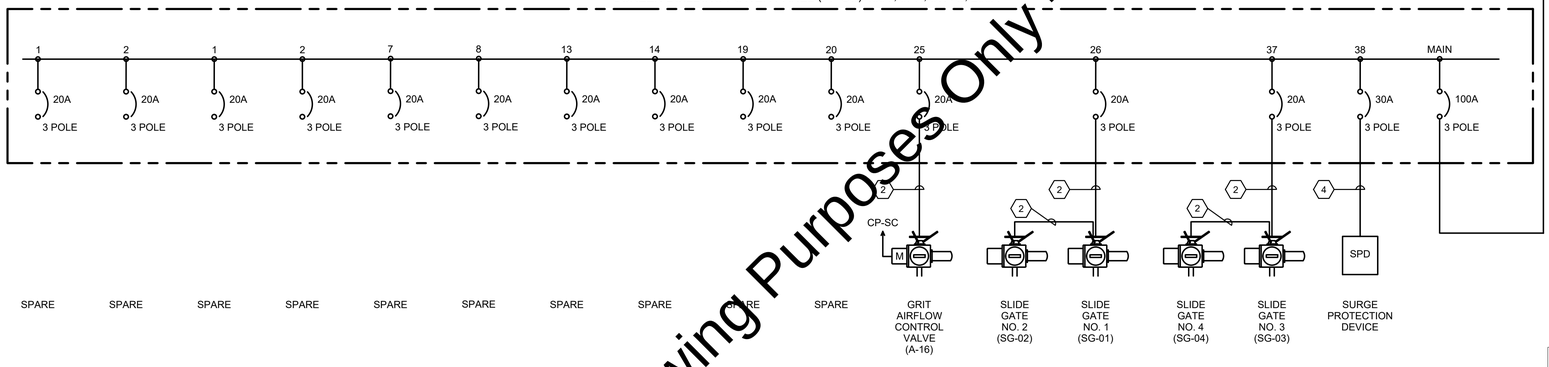
KEYED NOTES:

1. DISCONNECT EXISTING SCREW CONVEYOR FROM MOTOR STARTER IN CP-SC1 AND PROVIDE NEW STARTER IN MCC-SC. RE-CONNECT EXISTING LOCAL CONTROL STATION TO NEW STARTER IN MCC.
2. REPLACE EXISTING POWER METER WITH NEW POWER METER. DIVISION 16 MOTOR CONTROL CENTER SPEC. FOR ACCEPTABLE POWER METERS.

NOTES:

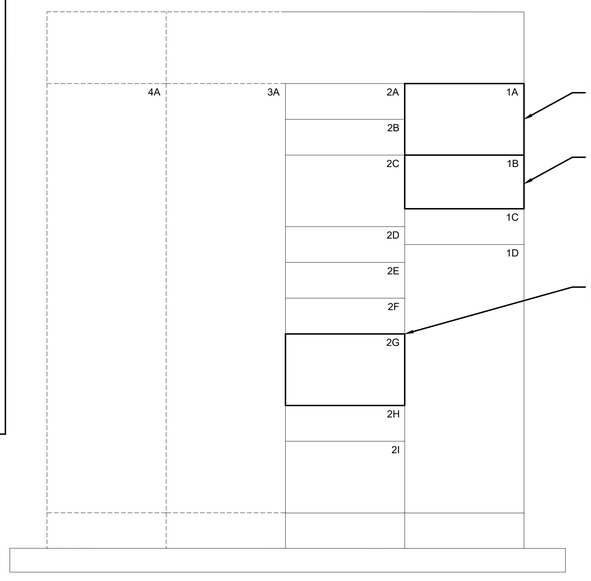
1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

SCREEN BUILDING POWER PANEL (PP-SC) 480V, 3PH, 3W+G, 200A



SCREEN BUILDING POWER PANEL (PP-SC) ONE-LINE DIAGRAM

SCALE: NONE



EXISTING MOTOR CONTROL CENTER (MCC-SC)

NONE

CONDUIT AND WIRE SCHEDULE:

1. 1"C, 3#12, #12G
2. 1"C, 3#10, #12G
3. REFER TO CONTROL ONE LINE DIAGRAM
4. 1"C, 3#10, #10G
5. 2"C, 3#1/0, #1/0N, #6G

✳ PANEL PROVIDED BY MANUFACTURER

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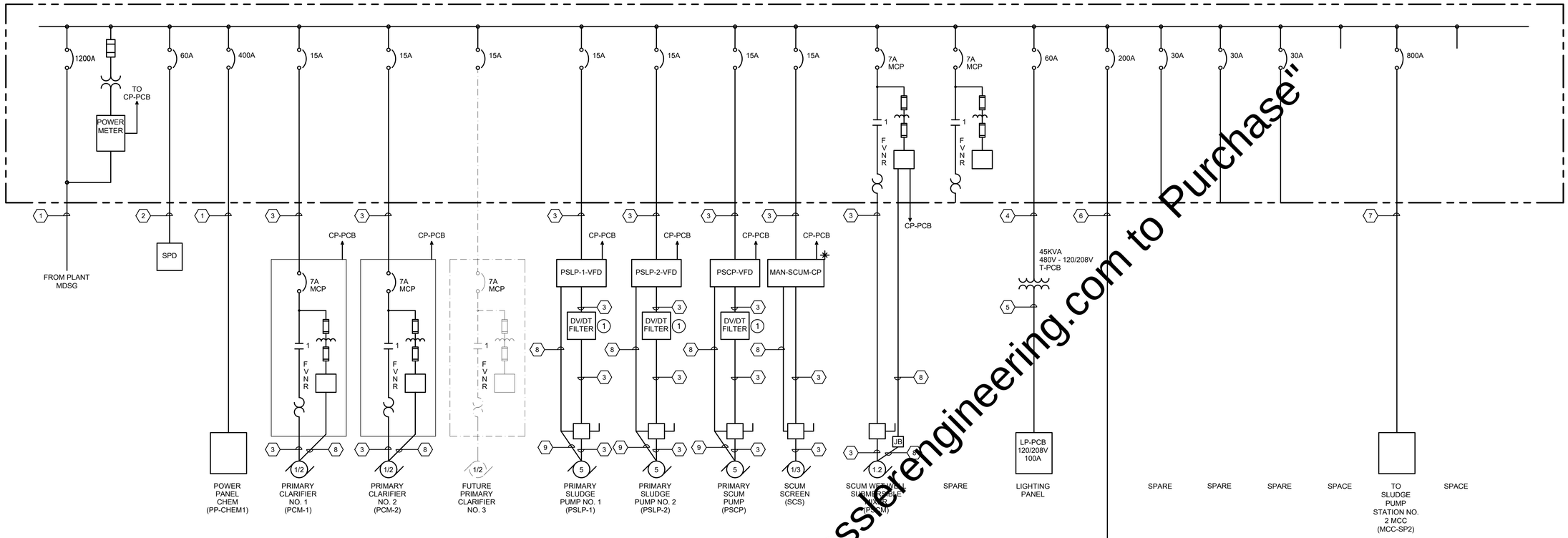
SCREEN BUILDING MCC
ONE-LINE DIAGRAM AND ELEVATION

SHEET NO.
AE03
PAGE NO.
12

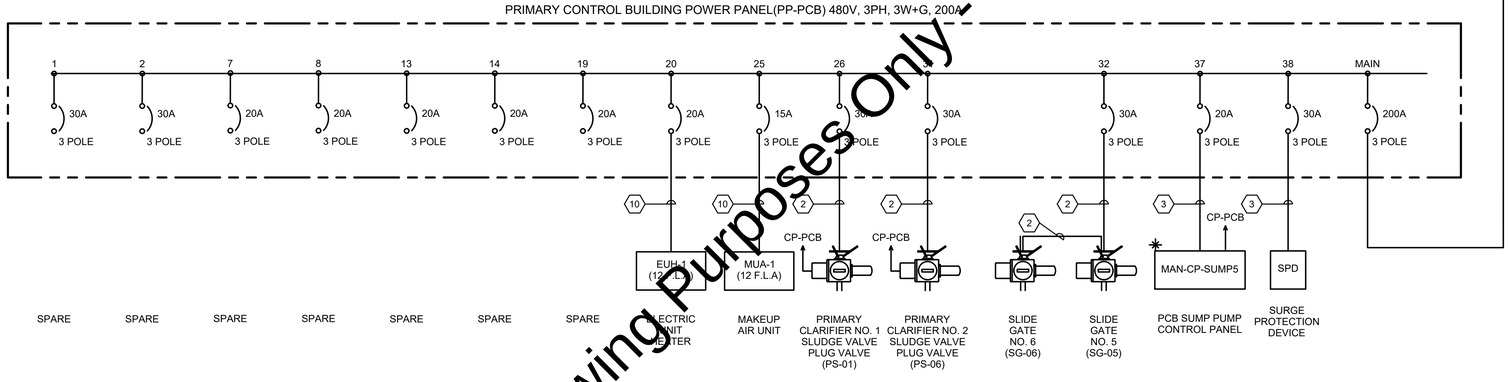
PRIMARY CONTROL BUILDING MOTOR CONTROL CENTER (MCC-PCB), 1200A, 480VAC, 3PH, 3W, BUS



PRIMARY CONTROL BUILDING MCC (MCC–PCB) ONE–LINE DIAGRAM

SCALE: NONE

PRIMARY CONTROL BUILDING POWER PANEL(PP-PCB) 480V, 3PH, 3W+G, 200A



PRIMARY CONTROL BUILDING POWER PANEL (PP–PCB) ONE–LINE DIAGRAM

SCALE: NONE

NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

KEYED NOTES:

(1) MOUNT DV/DT FILTERS ABOVE OR BELOW VFD TO CONSERVE WALL SPACE.

CONDUIT AND WIRE SCHEDULE:

1	REFER TO PLANT MDSG ONE-LINE DIAGRAM
2	1"C, 3#6, #10G
3	2"C, 3#10, #12G
4	2"C, 3#6, #10G
5	2"C, 3#2, #2N, #8G
6	3"C, 3#4/0, #6G
7	2 - (4"C, 3#600, #1G)
8	REFER TO CONTROL ONE LINE DIAGRAMS
9	3/4"C, 2#14
10	1"C, 3#12, #12G

✳ PANEL PROVIDED BY MANUFACTURER

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

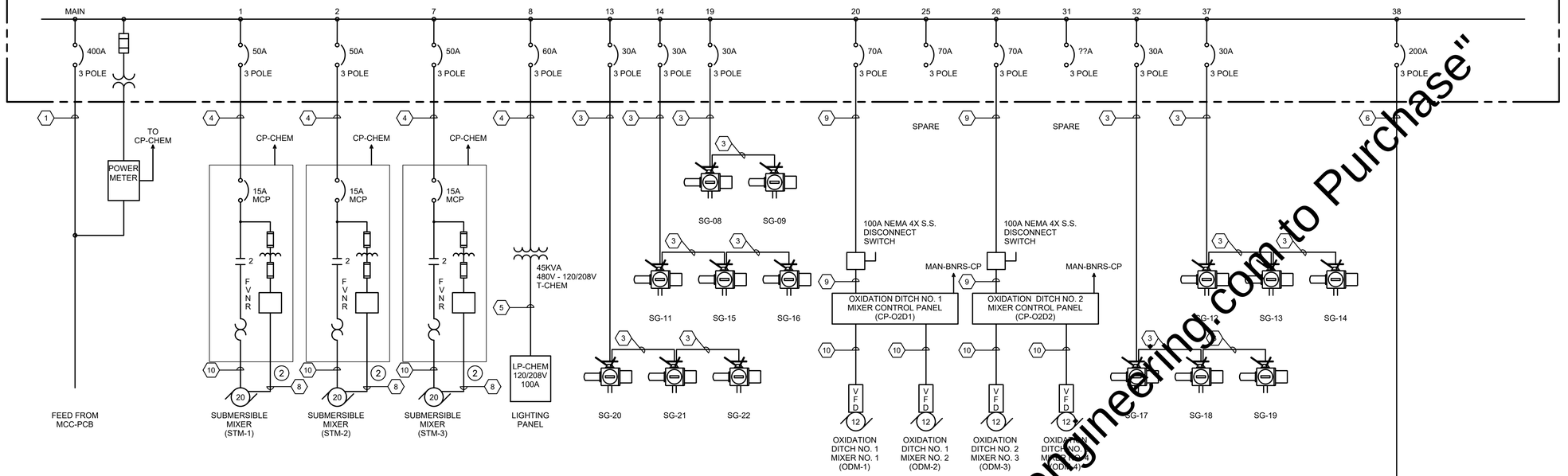
CITY OF WARSAW, INDIANA

PRIMARY CONTROL BUILDING MCC ONE-LINE DIAGRAM

SHEET NO. **AE04**

PAGE NO. 13

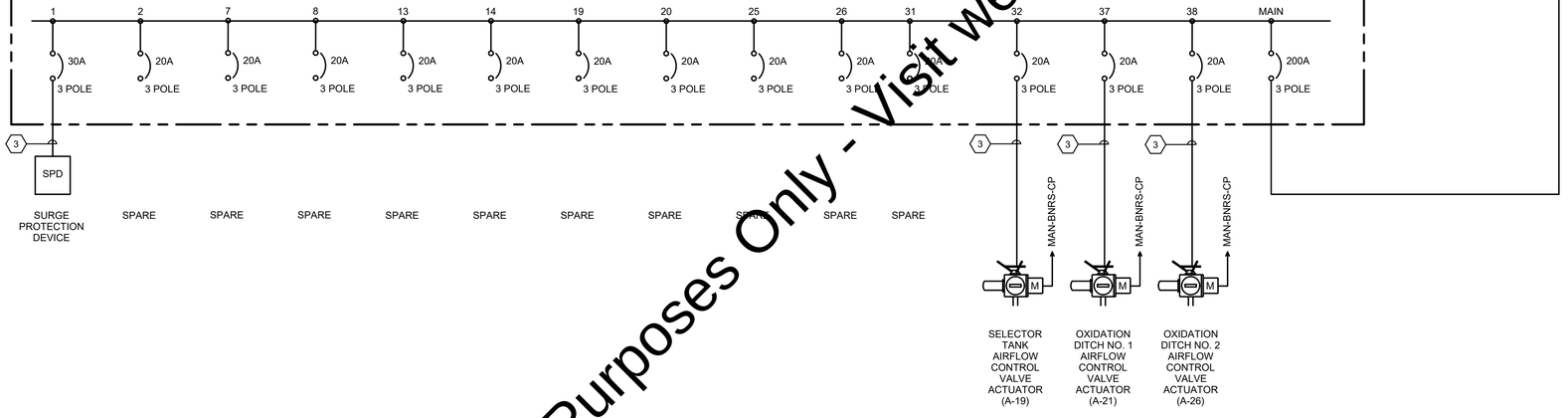
CHEMICAL BUILDING POWER PANEL 1 (PP-CHEM1), 480V, 3PH, 3W+G, 400A



CHEMICAL BUILDING POWER PANEL (PP–CHEM1) ONE–LINE DIAGRAM

SCALE: NONE

CHEMICAL BUILDING POWER PANEL 2 (PP-CHEM2), 480V, 3PH, 3W+G, 200A



CHEMICAL BUILDING POWER PANEL (PP–CHEM2) ONE–LINE DIAGRAM

SCALE: NONE

NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

KEYED NOTES:

(1) PROVIDE WIRING FROM HIGH LEVEL SWITCH LOCATED ON CLASSIFIER TO THE AIR LIFT SOLENOID MCC BUCKET.

(2) PLACE OVER TEMP / LEAK DETECTION CONTROLLER IN MOTOR STARTER ENCLOSURE.

CONDUIT AND WIRE SCHEDULE:

1	REFER TO PLANT MDSG ONE-LINE DIAGRAM
2	1"C, 3#6, #10G
3	2"C, 3#10, #12G
4	2"C, 3#6, #10G
5	2"C, 3#2, #2N, #8G
6	3"C, 3#4/0, #6G
7	2 - (3#600, #1G)
8	REFER TO CONTROL ONE LINE DIAGRAMS
9	2"C, 3#4, #8G
10	2"C, MANUFACTURERS CABLE
11	1"C, 3#12, #12G

✳ PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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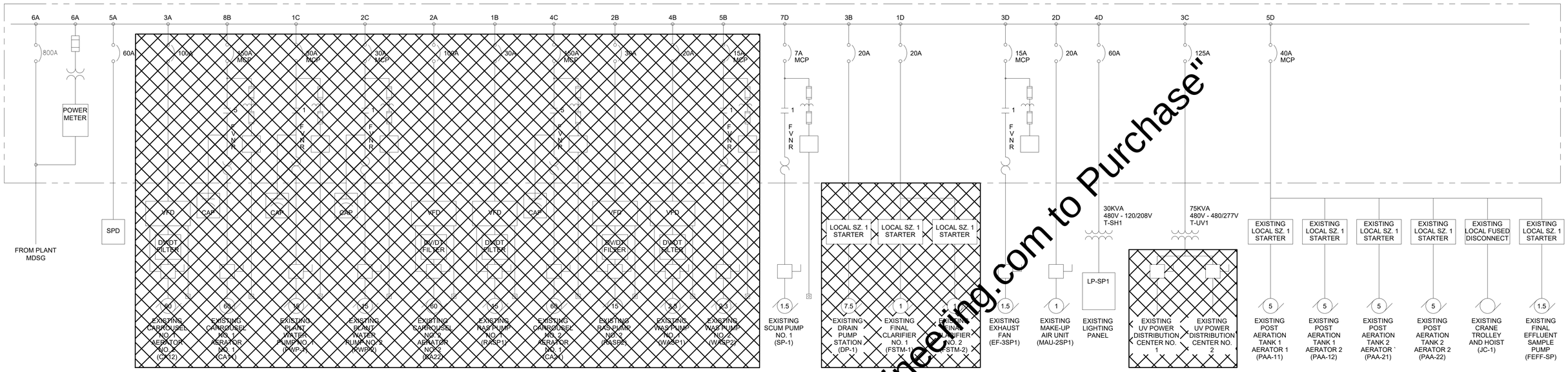
CITY OF WARSAW, INDIANA

CHEMICAL BUILDING POWER PANEL ONE-LINE DIAGRAM

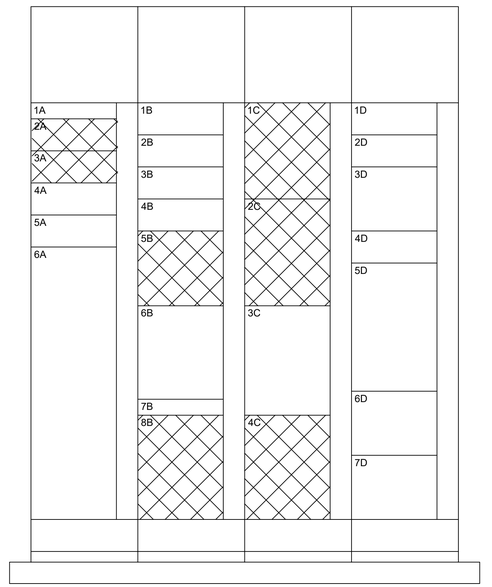
SHEET NO. **AE05**

PAGE NO. 14



SLUDGE PUMP STATION NO. 1 MCC (MCC-SP1) ONE-LINE DIAGRAM

SCALE: NONE



SLUDGE PUMP STATION NO. 1 MCC (MCC-SP1) ELEVATION

SCALE: NONE

✱ PANEL PROVIDED BY MANUFACTURER

KEYED NOTES:

1. DEMO EXISTING PLANT WATER PUMPS, DISCONNECTS, STARTERS, AND CAPACITORS.
2. DEMO EXISTING UV SYSTEM.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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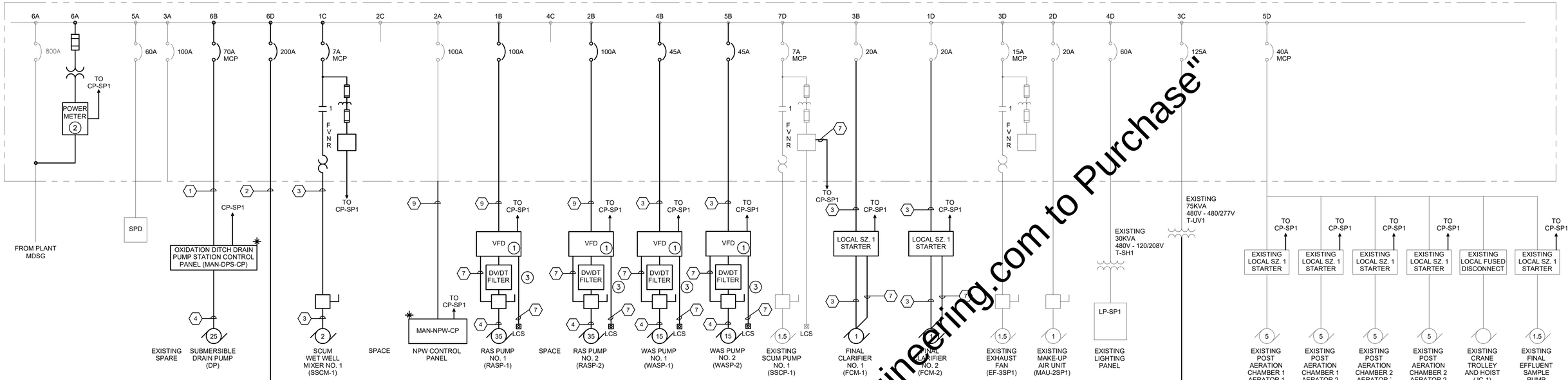
CITY OF WARSAW, INDIANA

SLUDGE PUMP STATION NO. 1 MCC DEMO ONE-LINE DIAGRAM AND ELEVATION

SHEET NO. **AE06**

PAGE NO. 15

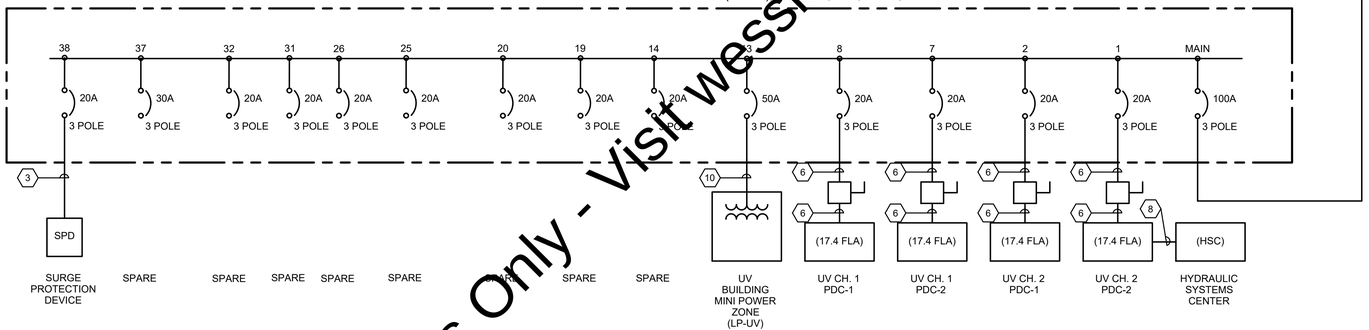
EXISTING SLUDGE PUMP STATION NO. 1 MOTOR CONTROL CENTER (MCC-SP1) SQUARE D MODEL 6, 800A, 480VAC, 3PH, 3W, BUS



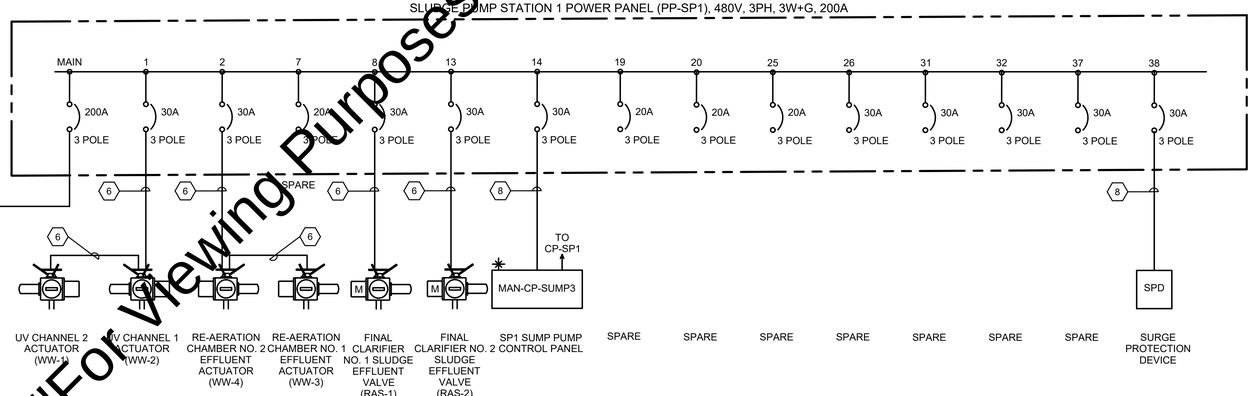
SLUDGE PUMP STATION NO. 1 MCC (MCC-SP1) ONE-LINE DIAGRAM

SCALE: NONE

UV SYSTEM POWER PANEL (PP-UV), 480/277V, 3PH, 4W+G, 100A



SLUDGE PUMP STATION 1 POWER PANEL (PP-SP1), 480V, 3PH, 3W+G, 200A



KEYED NOTES:

1. USE SAME SIZE CABLE SHOWN ABOVE VFD FOR CONNECTIONS BETWEEN DV/DT FILTER AND DISCONNECT.
2. REPLACE EXISTING POWER METER WITH NEW POWER METER. DIVISION 16 MOTOR CONTROL CENTER SPEC. FOR ACCEPTABLE POWER METERS.
3. MOUNT DV/DT FILTER ABOVE OR BELOW VFD TO CONSERVE WALL SPACE.

NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

CONDUIT AND WIRE SCHEDULE:

1	2"C, 3#4, #8G
2	3"C, 3#4/0, #6G
3	2"C, 3#12, #12G
4	MANUFACTURER'S SUPPLIED CABLE
5	2"C, 3#1/0, #1/0N, #6G
6	2"C, 3#10, #10N, #12G
7	REFER TO CONTROL ONE-LINE DIAGRAMS
8	2"C, 3#10, #12G
9	2"C, 3#3, #8G
10	2"C 3#8, #10G

SLUDGE PUMP STATION NO. 1 MCC (MCC-SP1) ELEVATION

SCALE: NONE

✱-PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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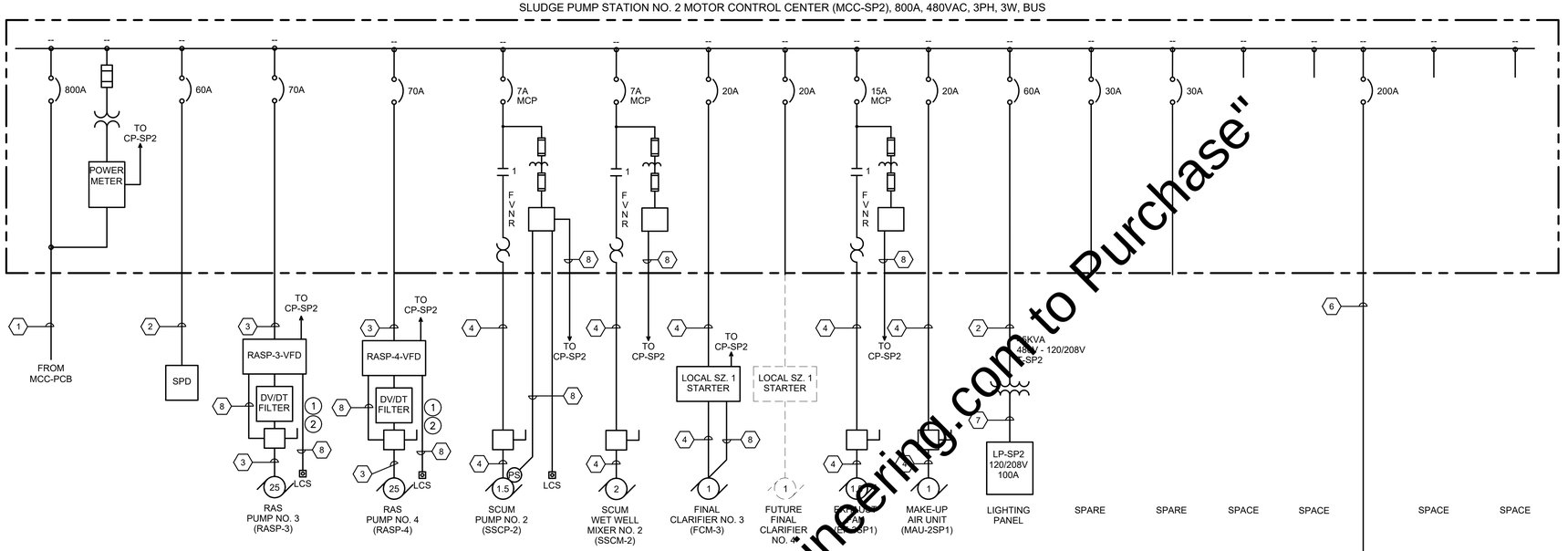
CITY OF WARSAW, INDIANA

SLUDGE PUMP STATION NO. 1 MCC ONE-LINE DIAGRAM AND ELEVATION

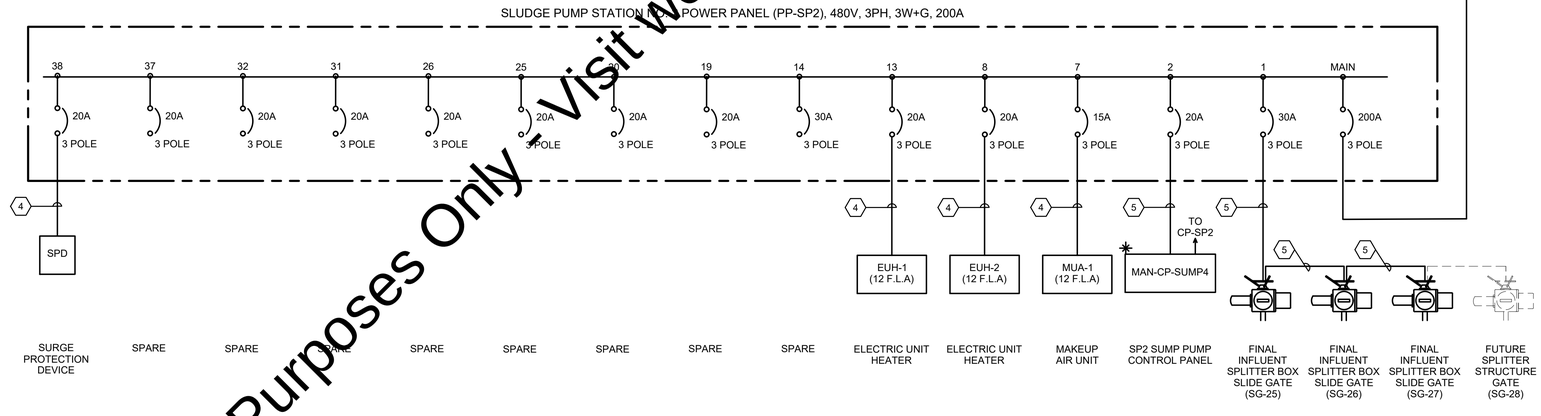
SHEET NO. **AE07**

PAGE NO. 16



SLUDGE PUMP STATION NO. 2 MCC (MCC-SP2) ONE-LINE DIAGRAM

SCALE: NONE



SLUDGE PUMP STATION NO. 2 POWER PANEL (PP-SP2) ONE-LINE DIAGRAM

SCALE: NONE

NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

KEYED NOTES:

(1) USE SAME SIZE CABLE SHOWN ABOVE VFD FOR CONNECTIONS BETWEEN DV/DT FILTER AND DISCONNECT.

(2) MOUNT DV/DT FILTER ABOVE OR BELOW VFD TO CONSERVE WALL SPACE.

CONDUIT AND WIRE SCHEDULE:

1. REFER TO PLANT MDSG ONE-LINE DIAGRAM
2. 2"C, 3#6, #10G
3. 2"C, 3#4, #8G
4. 2"C, 3#12, #12G
5. 2"C, 3#10, #12G
6. 3"C, 3#4/0, #6G
7. 3"C, 3#2, #2N, #8G
8. REFER TO CONTROL ONE-LINE DIAGRAMS

✱ PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
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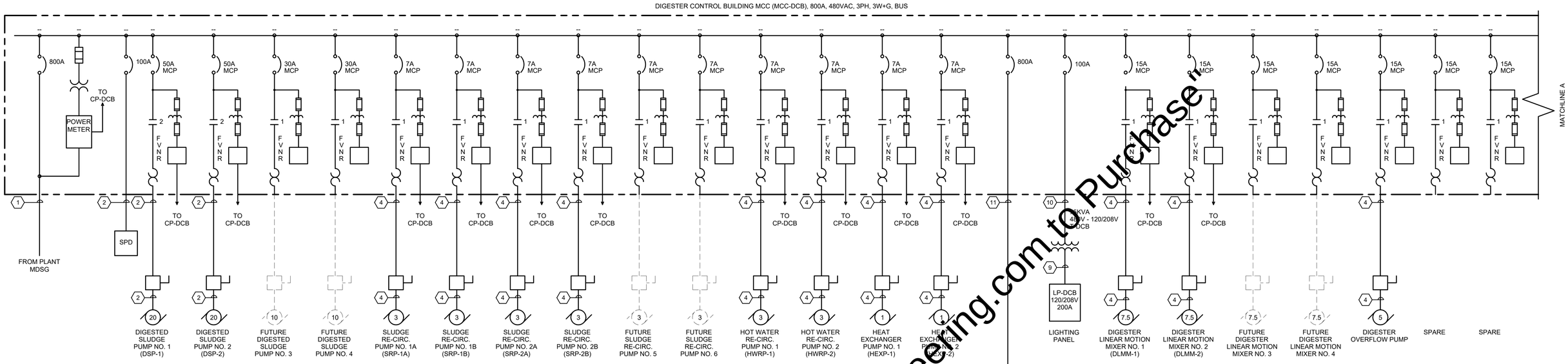
SLUDGE PUMP STATION NO. 2 MCC ONE-LINE DIAGRAM

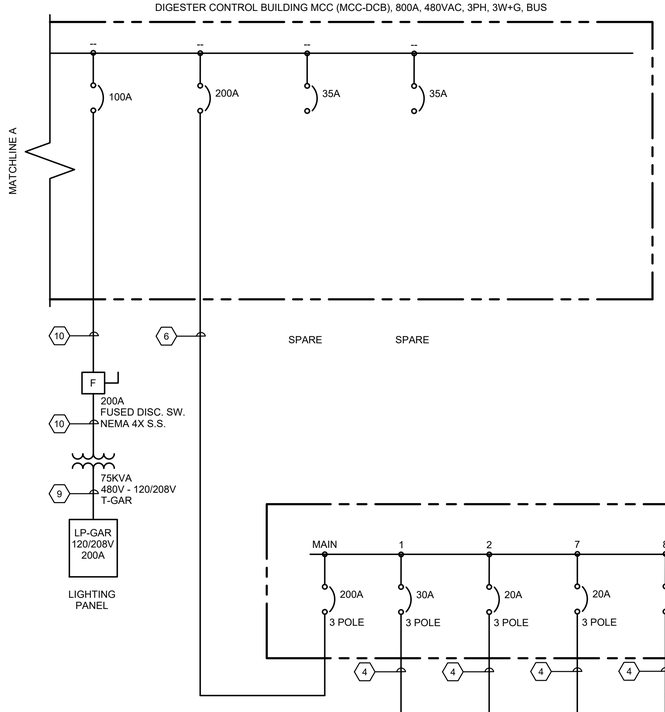
SHEET NO. **AE08**

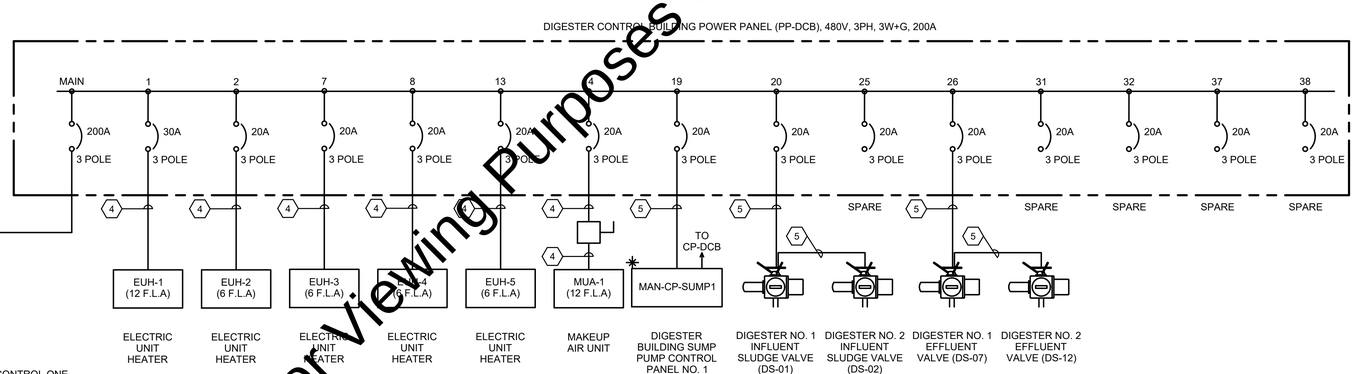
PAGE NO. 17

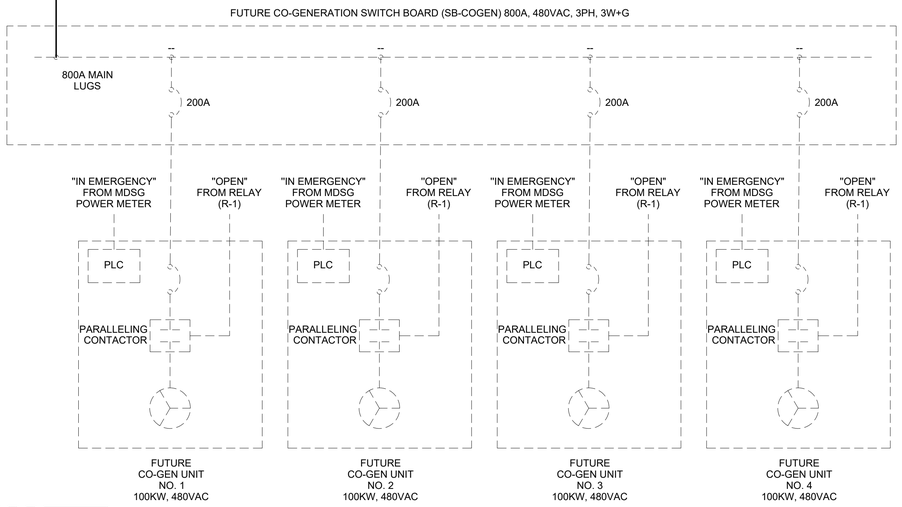


DIGESTER CONTROL BUILDING MCC (MCC-DCB) ONE-LINE DIAGRAM

SCALE: NONE







NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

CONDUIT AND WIRE SCHEDULE:

1. REFER TO PLANT MDSG ONE-LINE DIAGRAM
2. 2"C, 3#6, #10G
3. 2"C, 3#4, #8G
4. 2"C, 3#12, #12G
5. 2"C, 3#10, #12G
6. 3"C, 3#4/0, #6G
7. 3"C, 3#2, #2N, #8G
8. REFER TO CONTROL ONE-LINE DIAGRAMS
9. 3"C, 3#4/0, #4/0N, #6G
10. 2"C, 3#2, #8G
11. 2 - (4"C, 3#600, #1/0G)

✱ PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	APPROVED BY	WCM				
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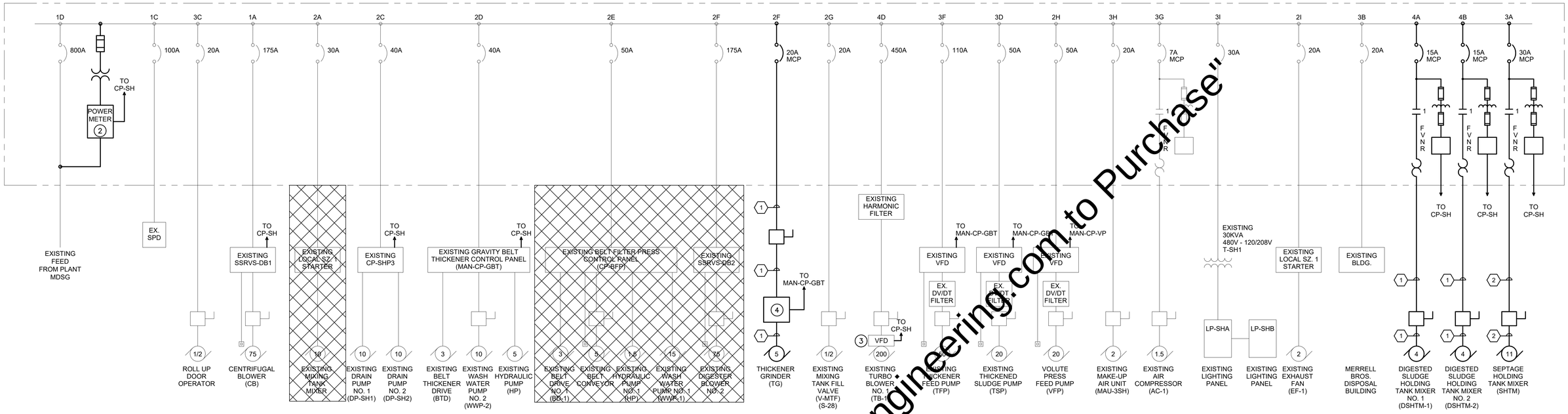
DIGESTER CONTROL BUILDING MCC ONE-LINE DIAGRAM CO-GENERATION SWITCHBOARD

SHEET NO. **AE09**

PAGE NO. 18

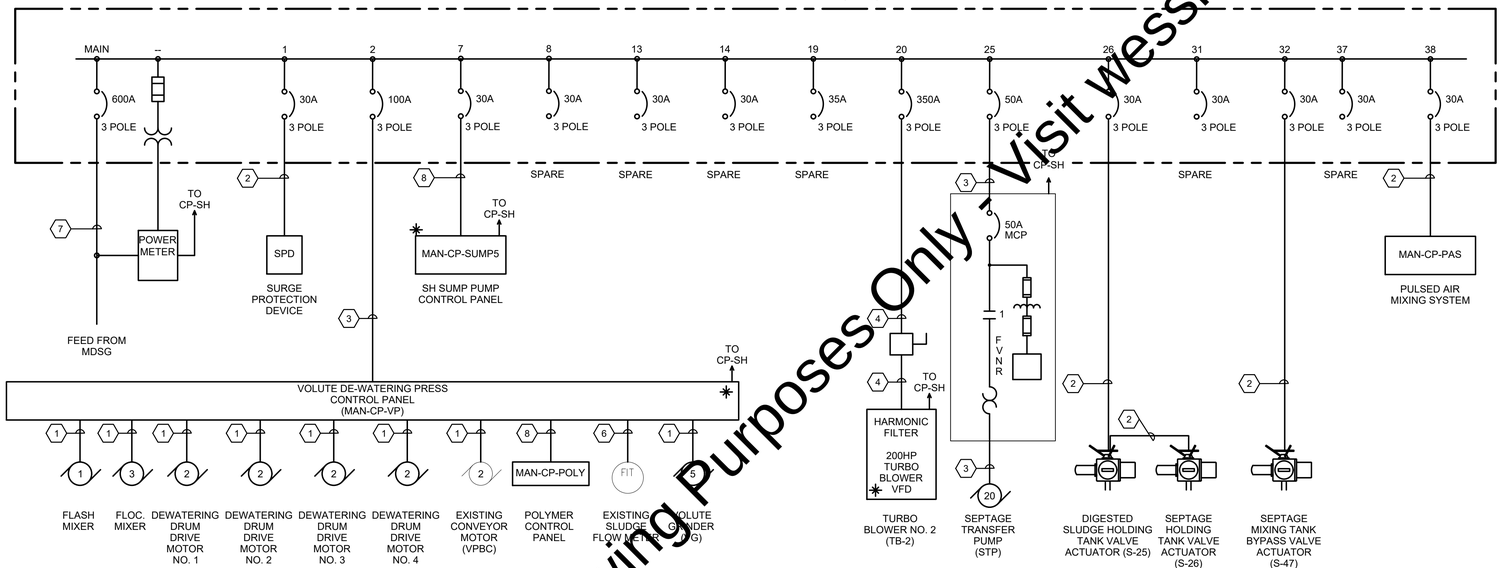
EXISTING SOLIDS HANDLING BUILDING MOTOR CONTROL CENTER (MCC-SH) SQUARE D MODEL 6, 800A, 480VAC, 3PH, 3W, BUS

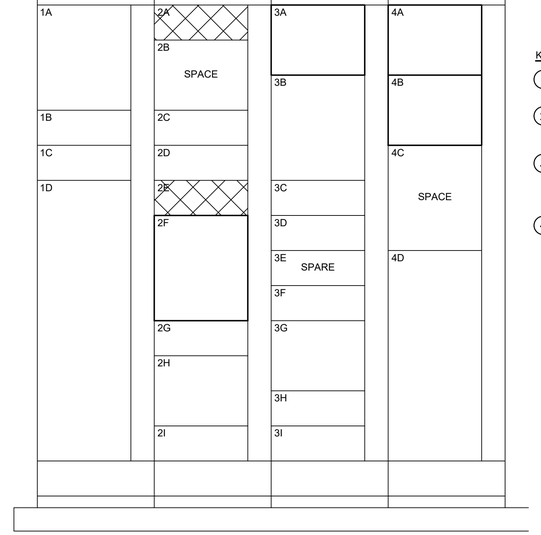


SOLIDS HANDLING BUILDING MCC (MCC-SH) ONE-LINE DIAGRAM

SCALE: NONE

SOLIDS HANDLING BUILDING POWER PANEL (PP-SH), 480V, 3PH, 3W+G, 600A





SOLIDS HANDLING BUILDING MCC (MCC-SH) ONE-LINE DIAGRAM

SCALE: NONE

KEYED NOTES:

1. USE SAME SIZE CABLE SHOWN ABOVE VFD FOR CONNECTIONS BETWEEN DV/DT FILTER AND DISCONNECT.
2. REPLACE EXISTING POWER METER WITH NEW POWER METER. DIVISION 16 MOTOR CONTROL CENTER SPEC. FOR ACCEPTABLE POWER METERS.
3. EXISTING TURBO BLOWER'S HMI IS MOUNTED REMOTELY IN THE SOLIDS HANDLING ELECTRICAL ROOM. HMI SHALL BE MOVED BACK INTO THE EXISTING TURBO BLOWER AND RECONNECTED.
4. THICKENER GRINDER CONTROL PANEL PROVIDED BY MANUFACTURER.

CONDUIT AND WIRE SCHEDULE:

1. 2"C, 3#12, #12G
2. 2"C, 3#10, #12G
3. 2"C, 3#2, #6G
4. 4"C, 3#500, #3G
5. 3"C, 3#8, #10G
6. 1"C, 2#12, #12G
7. REFER TO PLANT MDSG ONE-LINE DIAGRAM
8. REFER TO CONTROL ONE-LINE DIAGRAMS

✳ PANEL PROVIDED BY MANUFACTURER

NOTES:

1. FOR WIRING GOING TO CONTROL PANELS SEE CONTROL ONE LINE DIAGRAMS.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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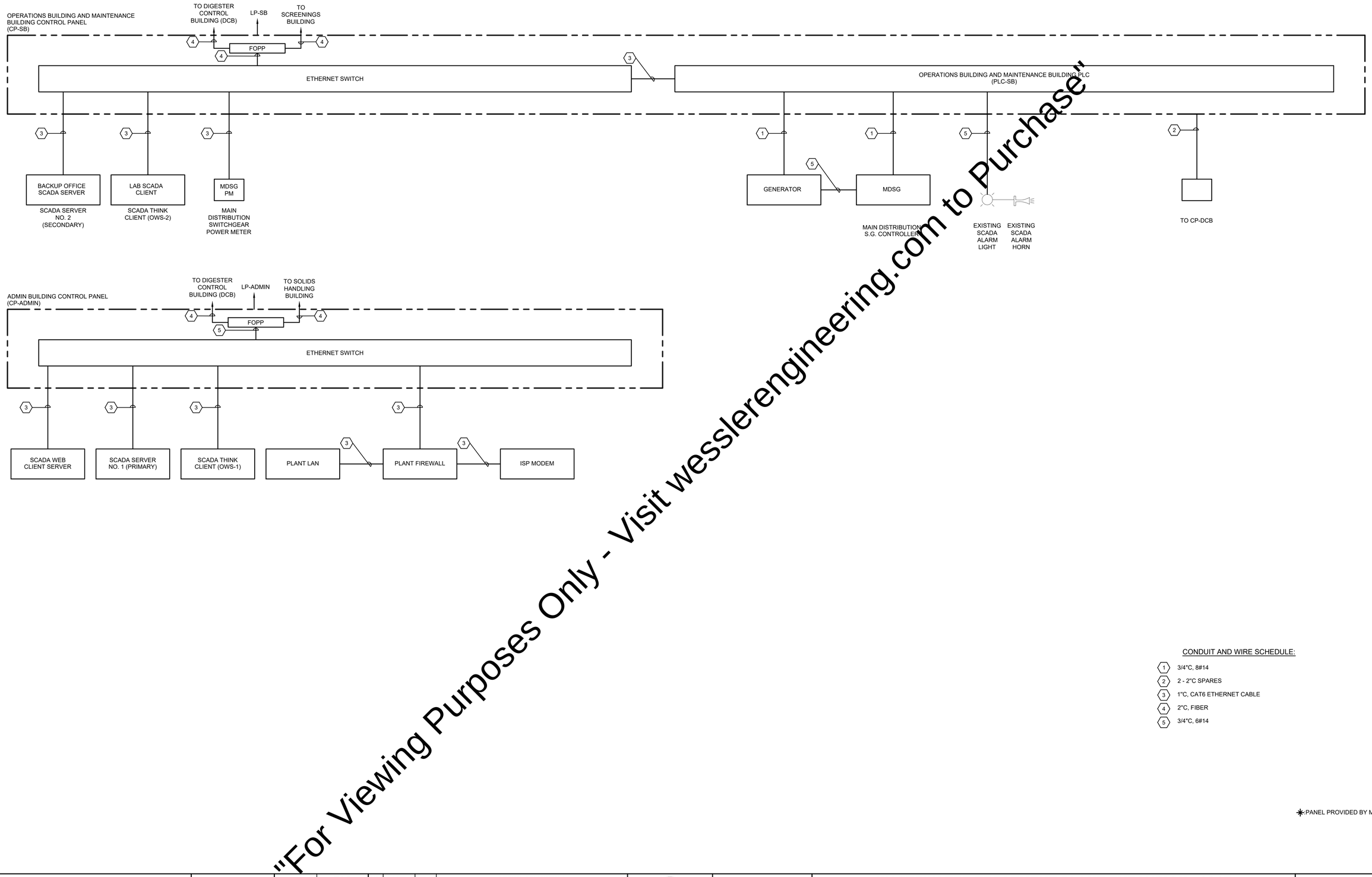
CITY OF WARSAW, INDIANA

SOLIDS HANDLING BUILDING ONE-LINE DIAGRAM AND ELEVATION

SHEET NO. **AE10**

PAGE NO. 19



CONDUIT AND WIRE SCHEDULE:

1. 3/4"C, 8#14
2. 2 - 2"C SPARES
3. 1"C, CAT6 ETHERNET CABLE
4. 2"C, FIBER
5. 3/4"C, 6#14

*-PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
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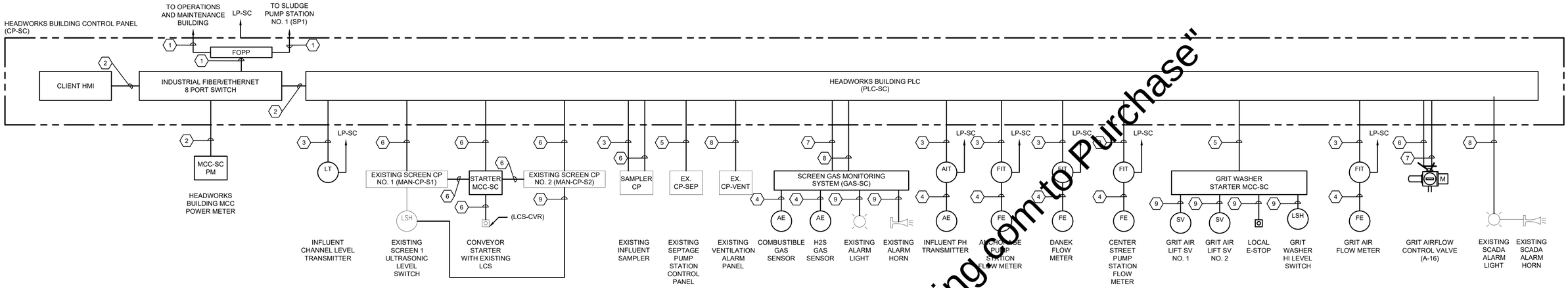
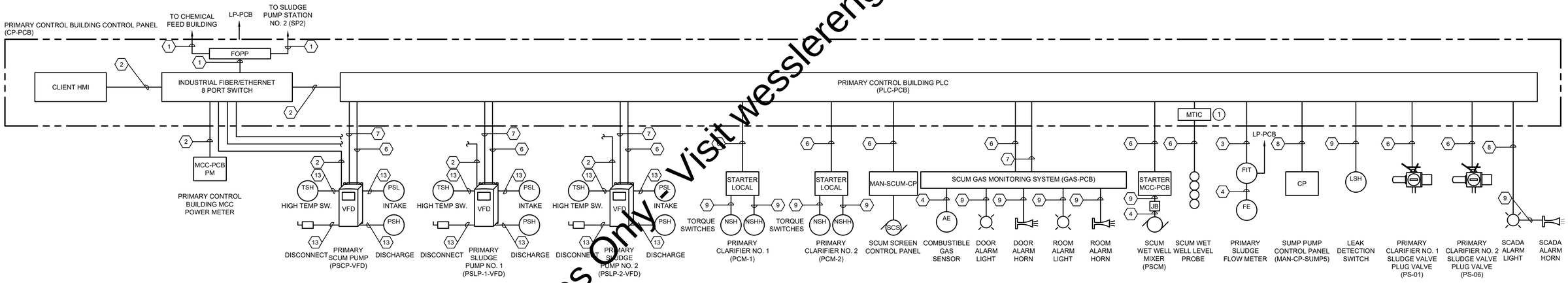
CONTROL ONE-LINE DIAGRAMS

SHEET NO.
AE11
PAGE NO.
20

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-00\1DWG\Sheets\Elec\162813-E-SLD.dwg | Layout: AE11 | Plotted: 09/04/18 @ 09:07:57 | LastSavedBy: JohnH





NOTES:

1. FOR POWER PANEL (PP) AND OTHER POWER CONDUCTORS SEE POWER ONE LINE DIAGRAMS.
2. FOR LIGHTING PANEL LOADS (LP) SEE LIGHTING PANEL SCHEDULES.

KEYED NOTES:

(1) MOUNT PROBE CONTROLLER IN CONTROL PANEL.

CONDUIT AND WIRE SCHEDULE:

(1)	2"C, FIBER	(8)	3/4"C, 6#14
(2)	3/4"C, CAT6 ETHERNET CABLE	(9)	3/4"C, 3#14
(3)	3/4"C, 2/C #16TPS	(10)	3/4"C, SPARE
(4)	3/4"C, MANUFACTURERS CABLE	(11)	3/4"C, 5 - 2/C#16TPS
(5)	1"C, 14#14	(12)	3/4"C, 3 - 2/C#16TPS
(6)	3/4"C, 8#14	(13)	3/4"C, 2#14
(7)	3/4"C, 2 - 2/C#16TPS		

✱-PANEL PROVIDED BY MANUFACTURER

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
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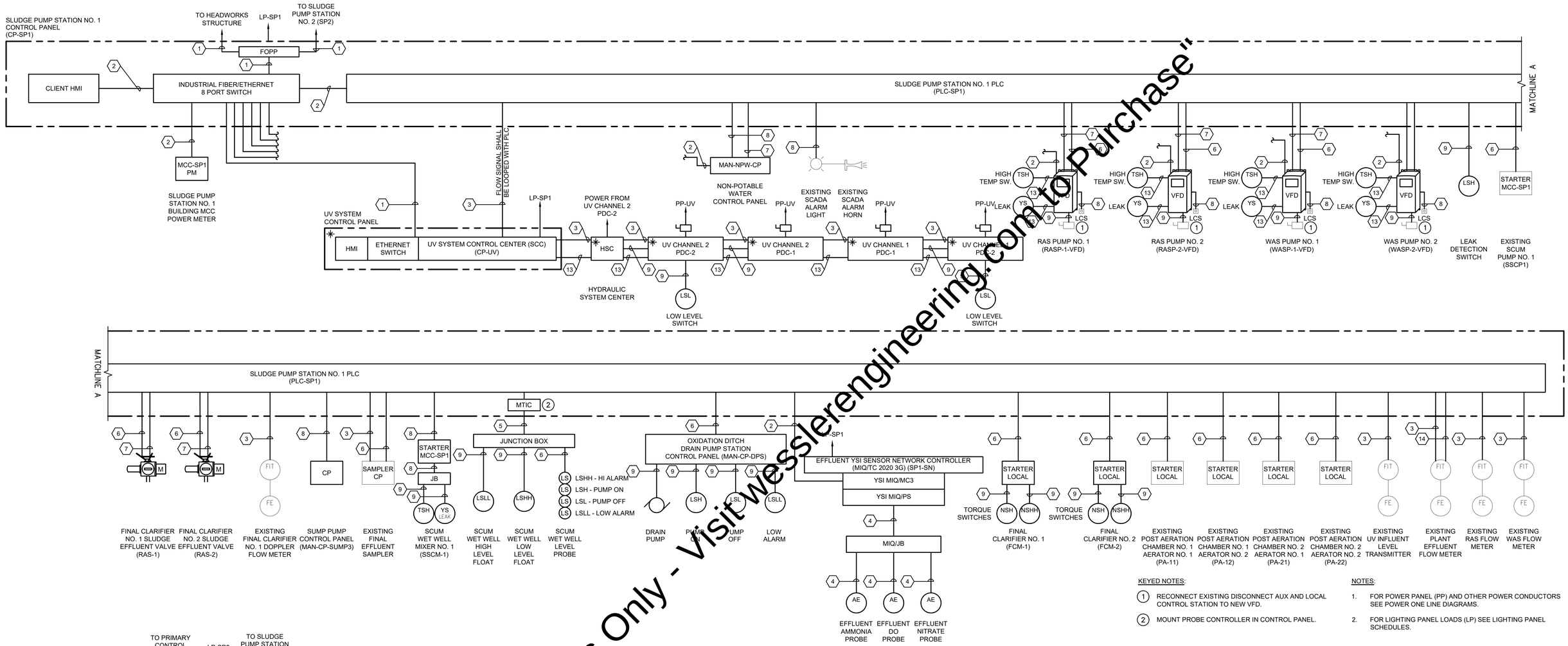
CONTROL ONE-LINE DIAGRAMS

SHEET NO. **AE12**

PAGE NO. 21



KEYED NOTES:

1. RECONNECT EXISTING DISCONNECT AUX AND LOCAL CONTROL STATION TO NEW VFD.
2. MOUNT PROBE CONTROLLER IN CONTROL PANEL.

NOTES:

1. FOR POWER PANEL (PP) AND OTHER POWER CONDUCTORS SEE POWER ONE LINE DIAGRAMS.
2. FOR LIGHTING PANEL LOADS (LP) SEE LIGHTING PANEL SCHEDULES.

CONDUIT AND WIRE SCHEDULE:

1. 2"C, FIBER
2. 3/4"C, CAT6 ETHERNET CABLE
3. 3/4"C, 2/C #16TPS
4. 3/4"C, MANUFACTURERS CABLE
5. 1"C, 14#14
6. 3/4"C, 8#14
7. 3/4"C, 2 - 2/C#16TPS
8. 3/4"C, 6#14
9. 3/4"C, 3#14
10. 3/4"C, SPARE
11. 3/4"C, 5 - 2/C#16TPS
12. 3/4"C, 3 - 2/C#16TPS
13. UV GROUND LINK
14. 3/4"C, 4#14

SCALE VERIFICATION	DRAWN BY	EAS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS	
	APPROVED BY	WCM	
	ISSUE DATE	SEPTEMBER 4, 2018	
	PROJECT NUMBER	162813-04-003	

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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CITY OF WARSAW, INDIANA

CONTROL ONE-LINE DIAGRAMS

SHEET NO.
AE13
PAGE NO.
22

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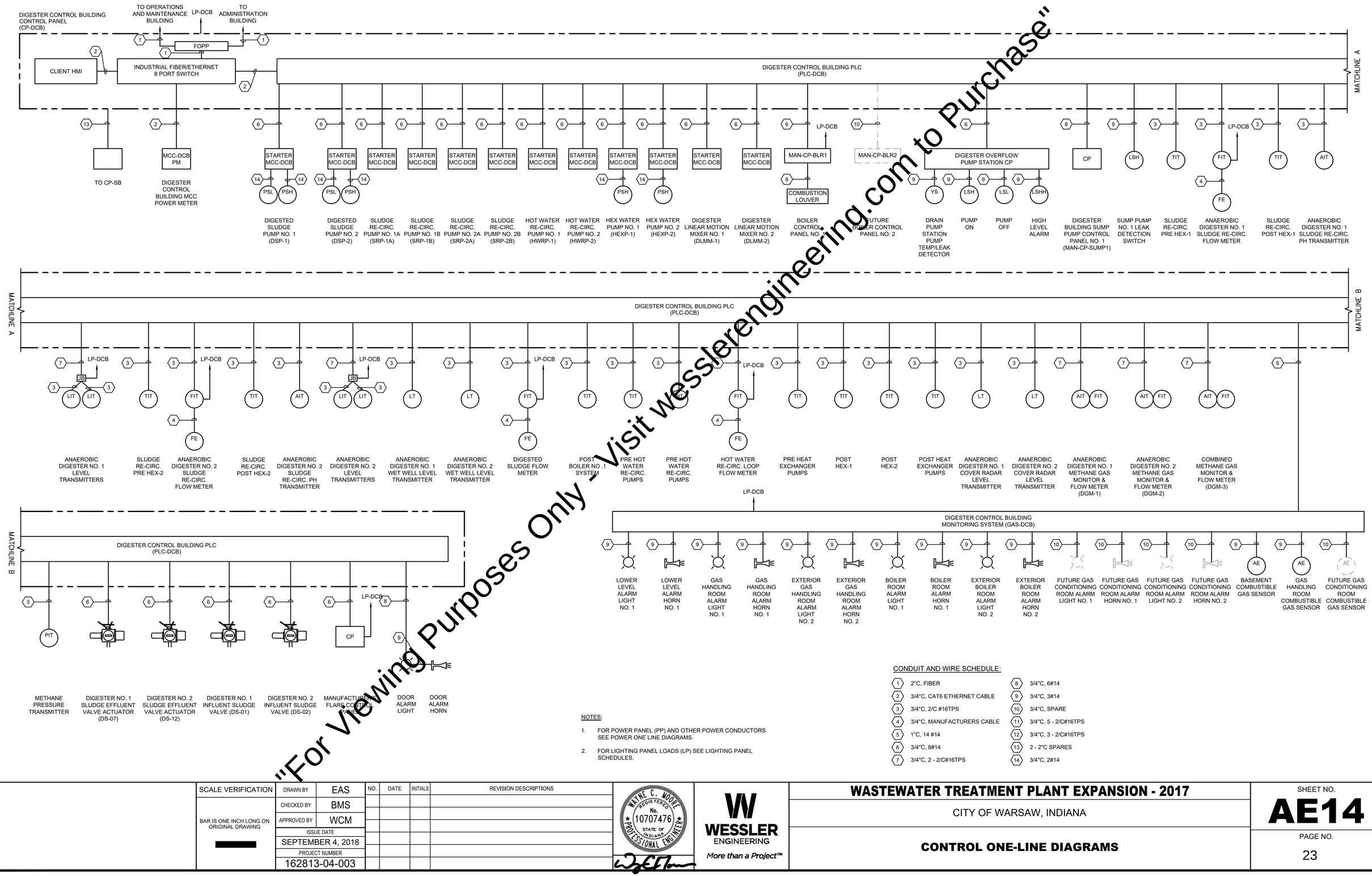

NOTES:

1. FOR POWER PANEL (PP) AND OTHER POWER CONDUCTORS SEE POWER ONE LINE DIAGRAMS.
2. FOR LIGHTING PANEL LOADS (LP) SEE LIGHTING PANEL SCHEDULES.

CONDUIT AND WIRE SCHEDULE:

1	2"C, FIBER	8	3/4"C, 6#14
2	3/4"C, CAT6 ETHERNET CABLE	9	3/4"C, 3#14
3	3/4"C, 2/C #16TPS	10	3/4"C, SPARE
4	3/4"C, MANUFACTURERS CABLE	11	3/4"C, 5 - 2/C#16TPS
5	1"C, 14 #14	12	3/4"C, 3 - 2/C#16TPS
6	3/4"C, 8#14	13	2 - 2"C SPARES
7	3/4"C, 2 - 2/C#16TPS	14	3/4"C, 2#14

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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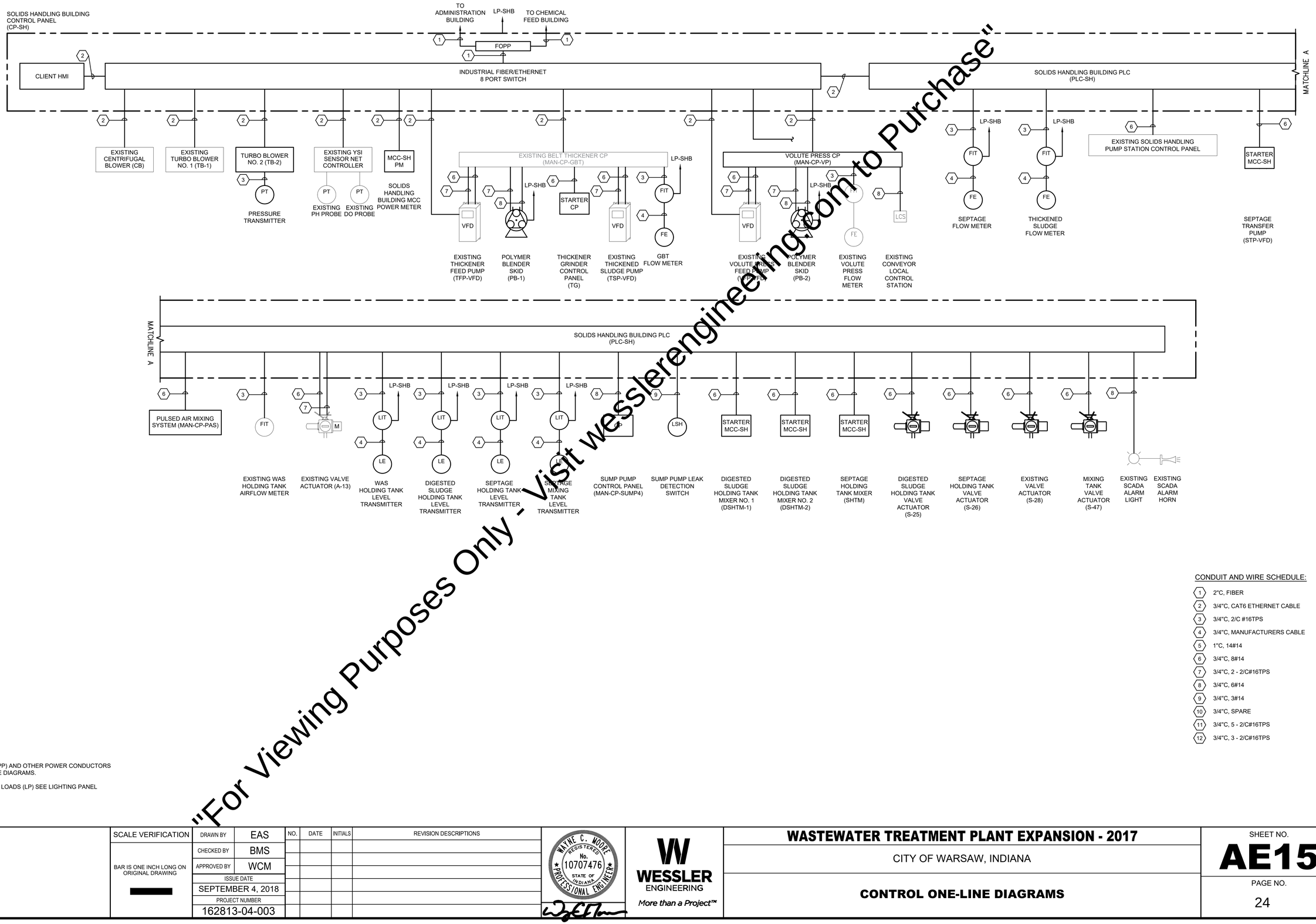
CONTROL ONE-LINE DIAGRAMS

SHEET NO.
AE14
PAGE NO.
23



CONDUIT AND WIRE SCHEDULE:

1	2"C, FIBER
2	3/4"C, CAT6 ETHERNET CABLE
3	3/4"C, 2/C #16TPS
4	3/4"C, MANUFACTURERS CABLE
5	1"C, 14#14
6	3/4"C, 8#14
7	3/4"C, 2 - 2/C#16TPS
8	3/4"C, 6#14
9	3/4"C, 3#14
10	3/4"C, SPARE
11	3/4"C, 5 - 2/C#16TPS
12	3/4"C, 3 - 2/C#16TPS

NOTES:

1. FOR POWER PANEL (PP) AND OTHER POWER CONDUCTORS SEE POWER ONE LINE DIAGRAMS.
2. FOR LIGHTING PANEL LOADS (LP) SEE LIGHTING PANEL SCHEDULES.

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	PROJECT NUMBER	162813-04-003				

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CITY OF WARSAW, INDIANA

CONTROL ONE-LINE DIAGRAMS

SHEET NO. **AE15**

PAGE NO. 24

MANUFACTURER'S BIOLOGICAL NUTRIENT REMOVAL SYSTEM CONTROL PANEL
(MAN-BNRS-CP)

MAN-BNRS HMI

MANUFACTURER'S BIOLOGICAL NUTRIENT REMOVAL SYSTEM
ETHERNET SWITCH (MAN-BNRS-SW)

MANUFACTURER'S BIOLOGICAL NUTRIENT REMOVAL SYSTEM
CONTROL PANEL PLC
(MAN-BNRS-PLC)

SELECTOR TANK YSI SENSOR NETWORK CONTROLLER (MIQ/TC 2020 3G)
YSI MIQ/MC3
YSI MIQ/PS
MIQ/JB
MIQ/JB
MIQ/JB
AE
CELL 2 ORP PROBE
CELL 2 DO PROBE
CELL 1 ORP PROBE
CELL 1 DO PROBE
CELL 3 ORP PROBE
CELL 3 DO PROBE

OXIDATION DITCH NO. 1 YSI SENSOR NETWORK CONTROLLER (MIQ/TC 2020 3G)
YSI MIQ/MC3
YSI MIQ/PS
MIQ/JB
MIQ/JB
AE
AERATION ZONE DO PROBE
AERATION ZONE AMMONIA PROBE
ANOXIC ZONE DO PROBE
ANOXIC ZONE ORP PROBE

OXIDATION DITCH NO. 2 YSI SENSOR NETWORK CONTROLLER (MIQ/TC 2020 3G)
YSI MIQ/MC3
YSI MIQ/PS
MIQ/JB
MIQ/JB
AE
AERATION ZONE DO PROBE
AERATION ZONE AMMONIA PROBE
ANOXIC ZONE DO PROBE
ANOXIC ZONE ORP PROBE

LP-CHEM
PP-CHEM1

OXIDATION DITCH NO. 1 MIXER CONTROL PANEL (CP-O2D1)
OXIDATION DITCH NO. 2 MIXER CONTROL PANEL (CP-O2D2)
VFD
OXIDATION DITCH NO. 1 MIXER NO. 1 (ODM-1)
OXIDATION DITCH NO. 1 MIXER NO. 2 (ODM-2)
OXIDATION DITCH NO. 2 MIXER NO. 3 (ODM-3)
OXIDATION DITCH NO. 2 MIXER NO. 4 (ODM-4)

SELECTOR TANK AIRFLOW CONTROL VALVE ACTUATOR (A-19)
SELECTOR TANK AIRFLOW METER
OXIDATION DITCH NO. 1 AIRFLOW CONTROL VALVE ACTUATOR (A-21)
OXIDATION DITCH NO. 1 (O2D1) AIRFLOW METER
OXIDATION DITCH NO. 2 AIRFLOW CONTROL VALVE ACTUATOR (A-26)
OXIDATION DITCH NO. 2 (O2D2) AIRFLOW METER
OXIDATION DITCH NO. 2 (O2D2) BNRS PRESSURE TRANSMITTER

CHEMICAL BUILDING CONTROL PANEL
(CP-CHEM)

TO SOLIDS HANDLING BUILDING
LP-CHEM
TO PRIMARY CONTROL BUILDING
FOPP

CLIENT HMI
INDUSTRIAL FIBER/ETHERNET 8 PORT SWITCH
CHEMICAL BUILDING PLC
(PLC-CHEM)

MCC-CHEM PM
CHEMICAL BUILDING MCC POWER METER

FILL STATION CONTROL PANEL
ALARM LIGHT (ON PANEL)
ALARM HORN (ON PANEL)

LT
LEVEL TRANSMITTER NO. 1
LEVEL TRANSMITTER NO. 2

CHEMICAL FEED PUMP 1 (CFP-1)
CHEMICAL FEED PUMP 2 (CFP-2)
CHEMICAL FEED PUMP 3 (CFP-3)
SUMP PIT LEAK DETECTION SWITCH
LSH
STARTER LOCAL
SUBMERSIBLE MIXER (STM-1)
SUBMERSIBLE MIXER (STM-2)
SUBMERSIBLE MIXER (STM-3)
SCADA ALARM LIGHT
SCADA ALARM HORN

NOTES:

1. FOR POWER PANEL (PP) AND OTHER POWER CONDUCTORS SEE POWER ONE LINE DIAGRAMS.
2. FOR LIGHTING PANEL LOADS (LP) SEE LIGHTING PANEL SCHEDULES.

CONDUIT AND WIRE SCHEDULE:

1. 2"C, FIBER
2. 3/4"C, CAT6 ETHERNET CABLE
3. 3/4"C, 2/C #16TPS
4. 3/4"C, MANUFACTURERS CABLE
5. 1"C, 14#14
6. 3/4"C, 8#14
7. 3/4"C, 2 - 2/C#16TPS
8. 3/4"C, 6#14
9. 3/4"C, 3#14
10. 3/4"C, SPARE
11. 3/4"C, 5 - 2/C#16TPS
12. 3/4"C, 2#14
13. 3/4"C, FIBER PATCH CABLE (SIZE AS REQUIRED)
14. 2"C, FIBER PATCH CABLE (SIZE AS REQUIRED)

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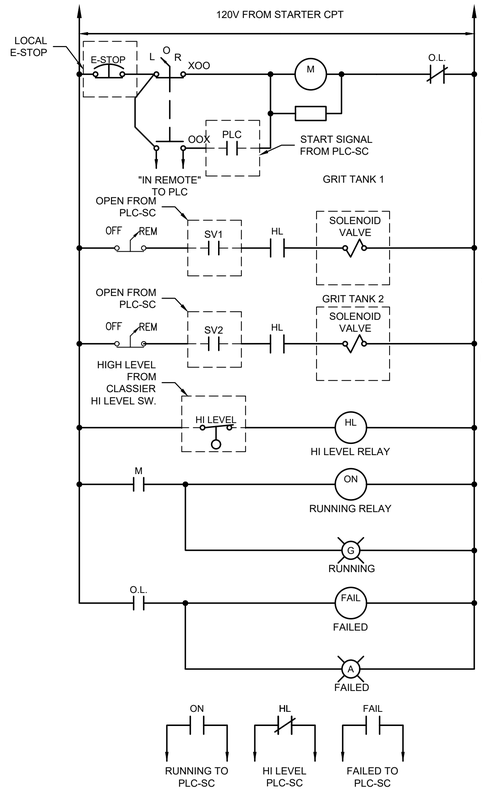
CITY OF WARSAW, INDIANA

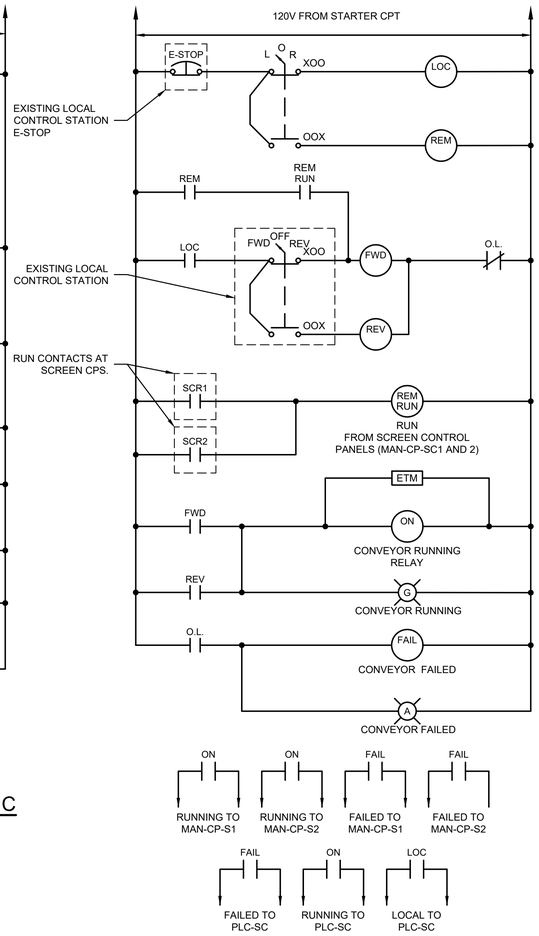
CONTROL ONE-LINE DIAGRAMS

SHEET NO. **AE16**

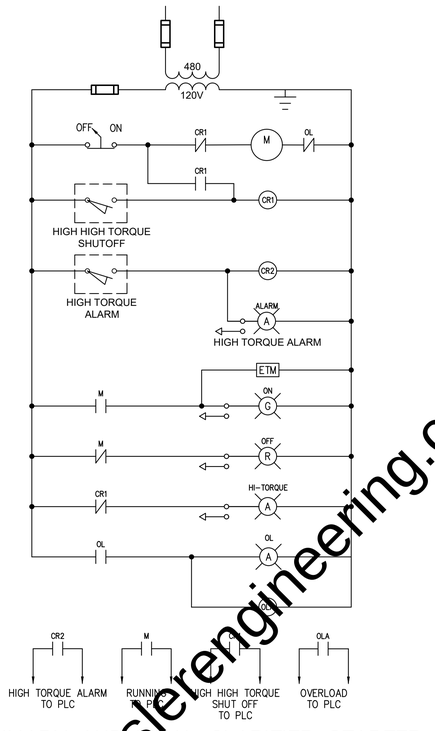
PAGE NO. 25



GRIT WASHER FVNR STARTER SCHEMATIC

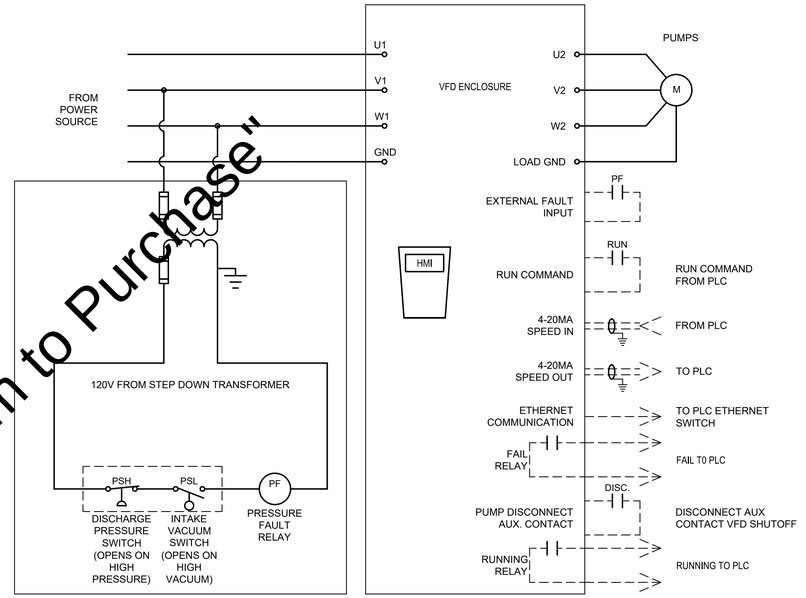


SCREEN CONVEYOR FVR STARTER SCHEMATIC



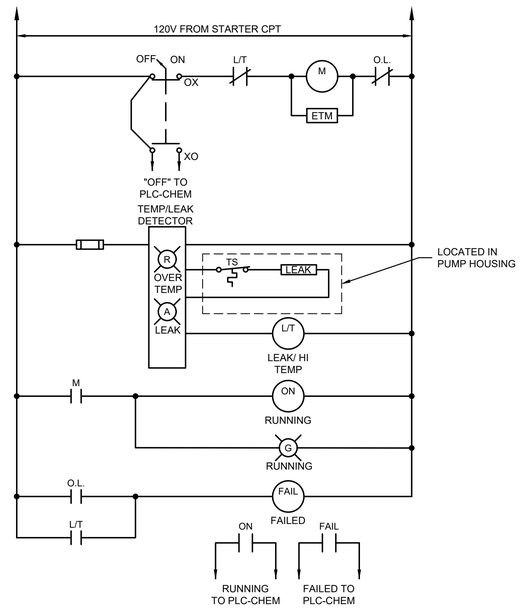
PRIMARY AND FINAL CLARIFIER STARTER WIRING SCHEMATIC

SCALE: NONE

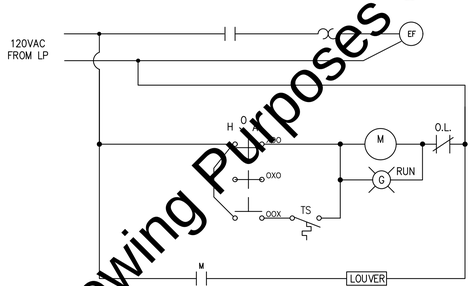


PRESSURE FAULT RELAY ENCLOSURE

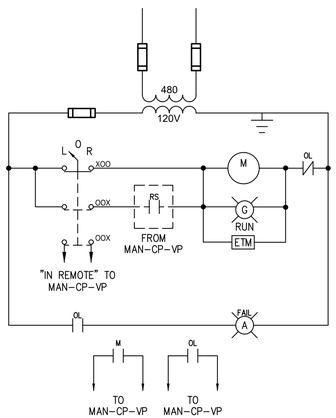
SLUDGE/PRIMARY SCUM PUMP WIRING SCHEMATIC



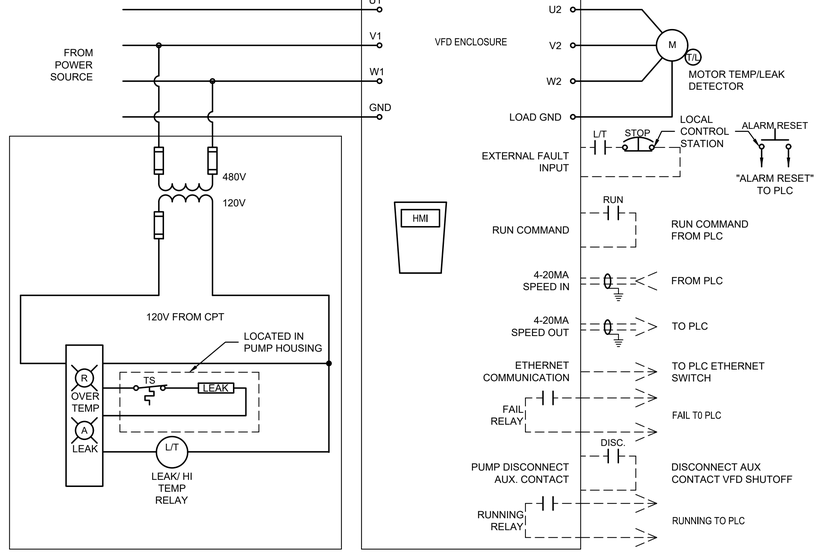
SELECTOR STRUCTURE MIXER STARTER SCHEMATIC



EXHAUST FAN (NON-CLASSIFIED) SCHEMATIC WIRING DIAGRAM



SLUDGE GRINDER WIRING SCHEMATIC



LEAK/OVERTEMP CONTROLLER ENCLOSURE

RAS/WAS PUMP VFD SCHEMATIC WIRING DIAGRAM

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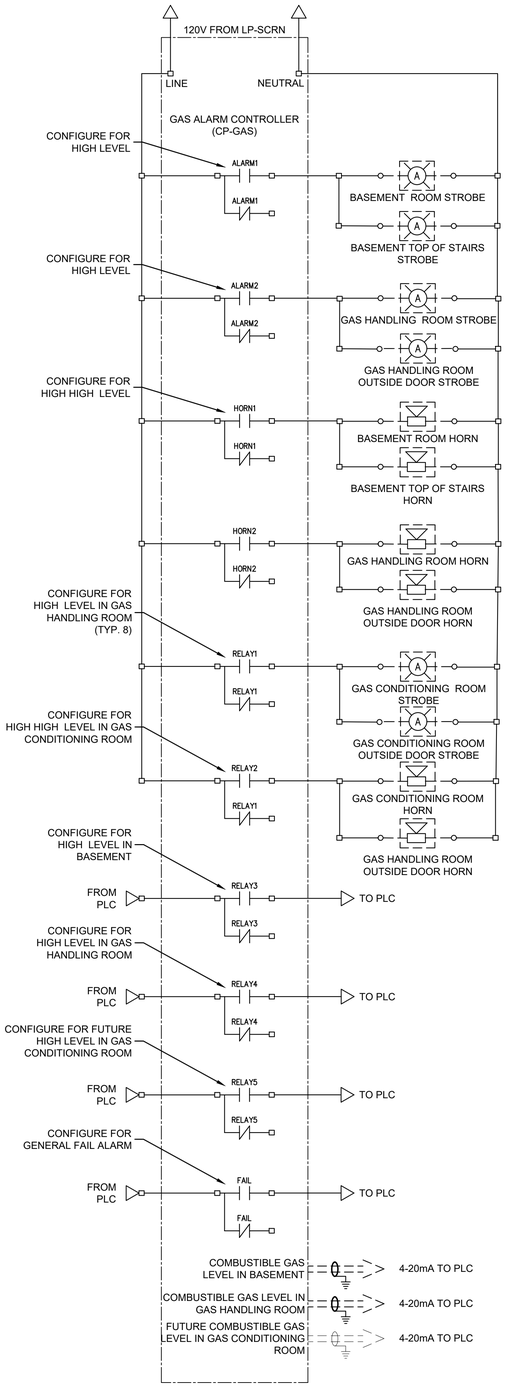
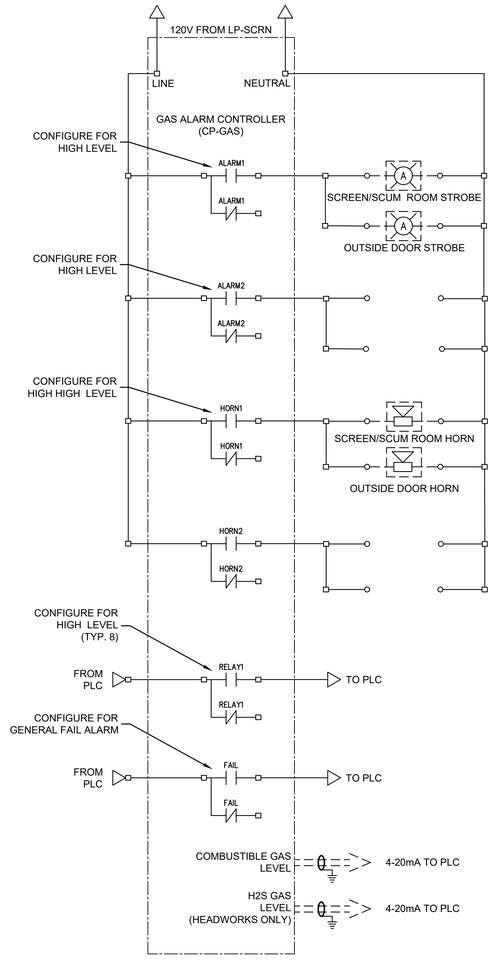
ELECTRICAL SCHEMATICS

SHEET NO. **AE17**

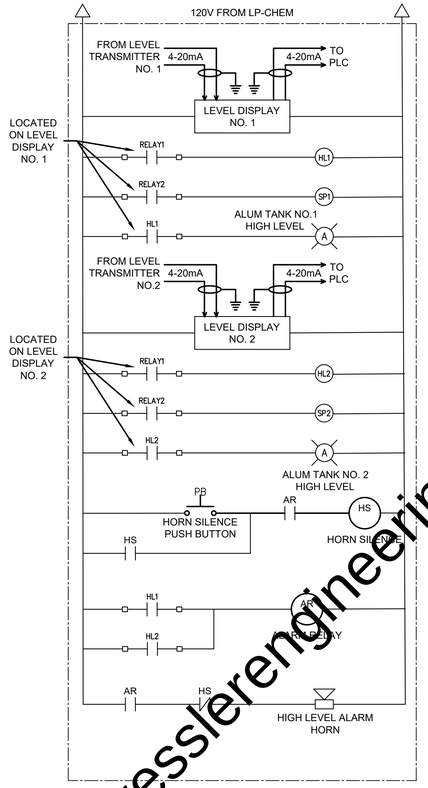
PAGE NO. 26



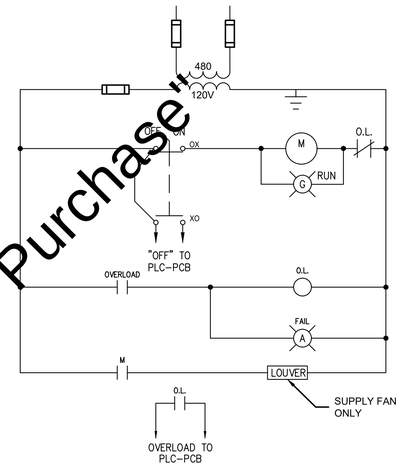
DIGESTER CONTROL BUILDING GAS DETECTION SCHEMATIC



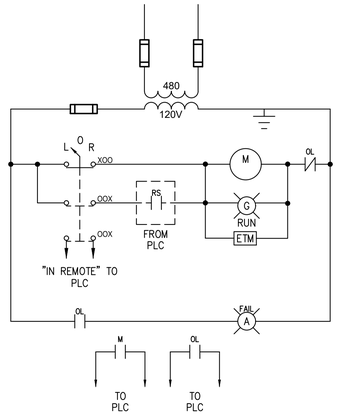
HEADWORKS AND SCUM SCREEN GAS DETECTION SCHEMATIC



FIRE STATION ALARM PANEL WIRING SCHEMATIC



SCUM SCREEN ROOM EXHAUST/SUPPLY FAN SCHEMATIC WIRING DIAGRAM



SCUM MIXER WIRING SCHEMATIC

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ELECTRICAL SCHEMATICS

SHEET NO. **AE18**

PAGE NO. 27

VALVE SYMBOLS

- ECCENTRIC PLUG
- THREE - WAY
- BUTTERFLY
- BALL
- GLOBE
- PRESSURE RELIEF
- AIR RELEASE AND VACUUM RELIEF
- GATE
- KNIFE GATE
- CONSTANT VOLUME FLOW REGULATOR
- MUD
- BALL CHECK
- SWING CHECK
- SPLIT DISC CHECK
- REGULATED SIDE PRESSURE CONTROL
- PINCH
- DIAPHRAGM
- NEEDLE
- CALIBRATED BALANCE
- SOLENOID

GATE SYMBOLS

- SLUICE GATE
- SLIDE GATE
- FLAP GATE
- WEIR GATE
- STOP GATE
- WEIR AND STOP GATE

VALVE AND GATE POWER ACTUATOR SYMBOLS

- E XX — ELECTRIC MOTOR
- E 2 XX — ELECTRIC MOTOR WITH POSITIONER
- H 2 XX — HYDRAULIC WITH POSITIONER
- H 3 XX — HYDRAULIC WITH SOLENOID
- P 2 XX — PNEUMATIC WITH POSITIONER
- P 3 XX — PNEUMATIC WITH SOLENOID

XX: FC = FAIL CLOSED
FIP = FAIL INTERMEDIATE POSITION
FIP = FAIL TO LAST POSITION
FO = FAIL OPEN

NOTE: XX = FAIL POSITION ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRICAL)

FLOW ELEMENTS SYMBOLS

- WEIR PLATE
- PARSHALL FLUME
- ROTAMETER
- PROPELLER OR TURBINE METER
- ORIFICE METER
- CLAMP ON ULTRASONIC FLOWMETER
- MAGNETIC FLOWMETER
- VENTURI OR FLOW TUBE
- AREA VELOCITY FLOWMETER

MISCELLANEOUS SYMBOLS

- HARDWIRED INTERLOCK SEE SPECIFICATION
- MICROPROCESSOR BASED INTERLOCK SEE SPECIFICATION
- BLIND FLANGE OR CLEAN OUT
- AIR GAP
- STRAINER
- FLUSHING WATER CONNECTION
- SEAL WATER CONNECTION
- EJECTOR
- AUTOMATIC SAMPLER
- DIFFUSER
- BUBBLER LEVEL ELEMENT
- VENT
- RUPTURE DISK
- ORTHO PHOSPHATE ELEMENT
- PROBE
- ELECTRIC MOTOR
- MANUAL SAMPLE PORT
- AUTOMATIC DRAIN
- MANUAL GRAB SAMPLE
- DIAPHRAGM SEAL
- ANNULAR SEAL
- FLOW STRAIGHTENING VANE
- CALIBRATION CHAMBER
- DENSITY METER X: N - NUCLEAR O - OPTICAL U - ULTRASONIC
- SELF CONTAINED AIR SUPPLY
- PURGE SET X: W = WATER A = AIR
- SUBMERSIBLE MIXER
- AIR COMPRESSOR
- FLOATING MIXER
- FLAME TRAP AND THERMAL SHUTOFF ASSEMBLY
- FLOATING DECANTER
- TEMPERATURE GAUGE
- PRESSURE GAUGE GAUGE
- PRESSURE TRANSMITTER
- LEVEL SWITCH/FLOAT

LEVEL ELEMENTS SYMBOLS

- SUBMERSIBLE PRESSURE
- ULTRASONIC
- FLOAT
- NON-CONTACT RADAR
- CAPACITANCE FLOAT STICK

PUMP AND COMPRESSOR SYMBOLS

- SUBMERSIBLE PUMP
- CENTRIFUGAL BLOWER (CS-2)
- CENTRIFUGAL PUMP (DRY PIT) (CS-2)
- VERTICAL TURBINE PUMP (XX)
- PROGRESSING CAVITY PUMP
- LOBE PUMP, BLOWER OR COMPRESSOR (POSITIVE DISPLACEMENT) (XX)
- COMPRESSOR (PISTON)
- CHEMICAL FEED PUMP
- PLUNGER PUMP
- DIAPHRAGM PUMP
- PERISTALTIC PUMP

FLOW STREAM IDENTIFIERS

SEE PROCESS – MECHANICAL LEGEND

INPUTS AND OUTPUTS TO PLC OR DISTRIBUTED CONTROL

- ANALOG INPUT (X)
- ANALOG OUTPUT (X)
- PULSE INPUT (X)
- PULSE OUTPUT (X)
- DIGITAL INPUT (X)
- DIGITAL OUTPUT (X)

NOTE:
X = TOTAL NUMBER OF SIGNALS WHERE MORE THAN ONE SIGNAL IS REQUIRED. IF QUANTITY IS NOT SHOWN THEN ONE SIGNAL IS REQUIRED.

GENERAL NOTE:

1. THIS IS A STANDARD LEGEND. NOT ALL THE INFORMATION SHOWN ON THIS LEGEND IS USED IN THESE CONTRACT DRAWINGS.

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PID DIAGRAM LEGEND

SHEET NO. **AN01**

PAGE NO. 28

PLC REFERENCE NUMBER
1 PLC-SC
2 PLC-PCB
3 PLC- SP1
4 PLC-SP2
5 PLC-CHEM
6 PLC-DCB
7 PLC-UV
8 PLC-SH
9 PLC-OPS
10 NO CONNECTION TO SCADA
11 MAN-BNRS-CP
12 VOLUTE PRESS CONTROL PANEL
13 GRAVITY BELT THICKENER CONTROL PANEL
PLC-SC
PUMP 1 RUN
PUMP 2 RUN
PUMP 1 FAIL
PUMP 2 FAIL
HI LEVEL
LOW LEVEL
EX. SEPTAGE PUMP STATION CP
SEP-1
SEP-2
ST-1
ST-2
ST-3
ST-4
HI LEVEL ALARM
LAG PUMP ON
LEAD PUMP ON
PUMPS OFF
LOW LEVEL ALARM
LSHH
LSH
LSM
LSL
LSLL
EXISTING SEPTAGE PUMP STATION
NEW METER VAULT
CENTER STREET PUMP STATION
FM-05
FM-06
CENTER STREET PUMP STATION FLOW METER
FIT
FLOW
FM-04
FM-03
FM-02
FM-01
ANCHORAGE FORCE MAIN
DANEK FORCE MAIN
AIT
PH
SAMPLER
INFLUENT SAMPLER
PUMP FAIL
SAMPLING
LEVEL
LT
LSH
HI LEVEL 1
HI LEVEL 2
LE
EXISTING
MAN-CP-SC1
MAN-CP-SC2
EXISTING LEVEL TRANS.
RUN
IN REMOTE
FAIL
RUNNING
EX. SCREEN CP NO. 2 (MAN-CP-S2)
EX. SCREEN CP NO. 1 (MAN-CP-S1)
STARTER
EX. SCREENING CONVEYOR DISCHARGE (SDC)
WW-3
EX. FINE SCREEN NO. 2 (FS-2)
WW-1
EX. FINE SCREEN NO. 1 (FS-1)
WW-2
BYPASS SCREEN (BS)
HI LEVEL
M-???
GRIT WASHER (GW)
GRIT AIR FLOW METER
AIR
A-16
AN10
FROM TURBO BLOWER
FROM SOLIDS HANDLING PUMP STATION/HOLDING TANK OVERFLOW
OPEN
SV
A-18
A-17
GRIT TANK NO. 2
GRIT TANK NO. 1
SG-01
SG-02
SG-03
SG-04
AN03
TO PRIMARY CLARIFIERS
TO EXISTING GATE CHAMBER NO. 1
AN06
FROM CHEMICAL FEED BUILDING
HI LEVEL
HI HI LEVEL
COMBUST. %
H2S %
SCREEN GAS MONITORING SYSTEM (GAS-SC)
AE
COMBUSTIBLE GAS SENSOR
H2S GAS SENSOR
EXISTING ALARM LIGHT
EXISTING ALARM HORN
VENT. SYS. FAIL
EXISTING SCREEN BUILDING VENTILATION ALARM PANEL
OPENED
CLOSED
OPEN
CLOSE
% OPEN FDBK
% OPEN CMD
SPEED FDBK
SPEED CMD
VFD
TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O
TYPICAL MODULATING VALVE I/O
TYPICAL VFD I/O
TYPICAL MOTOR STARTER I/O

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CITY OF WARSAW, INDIANA

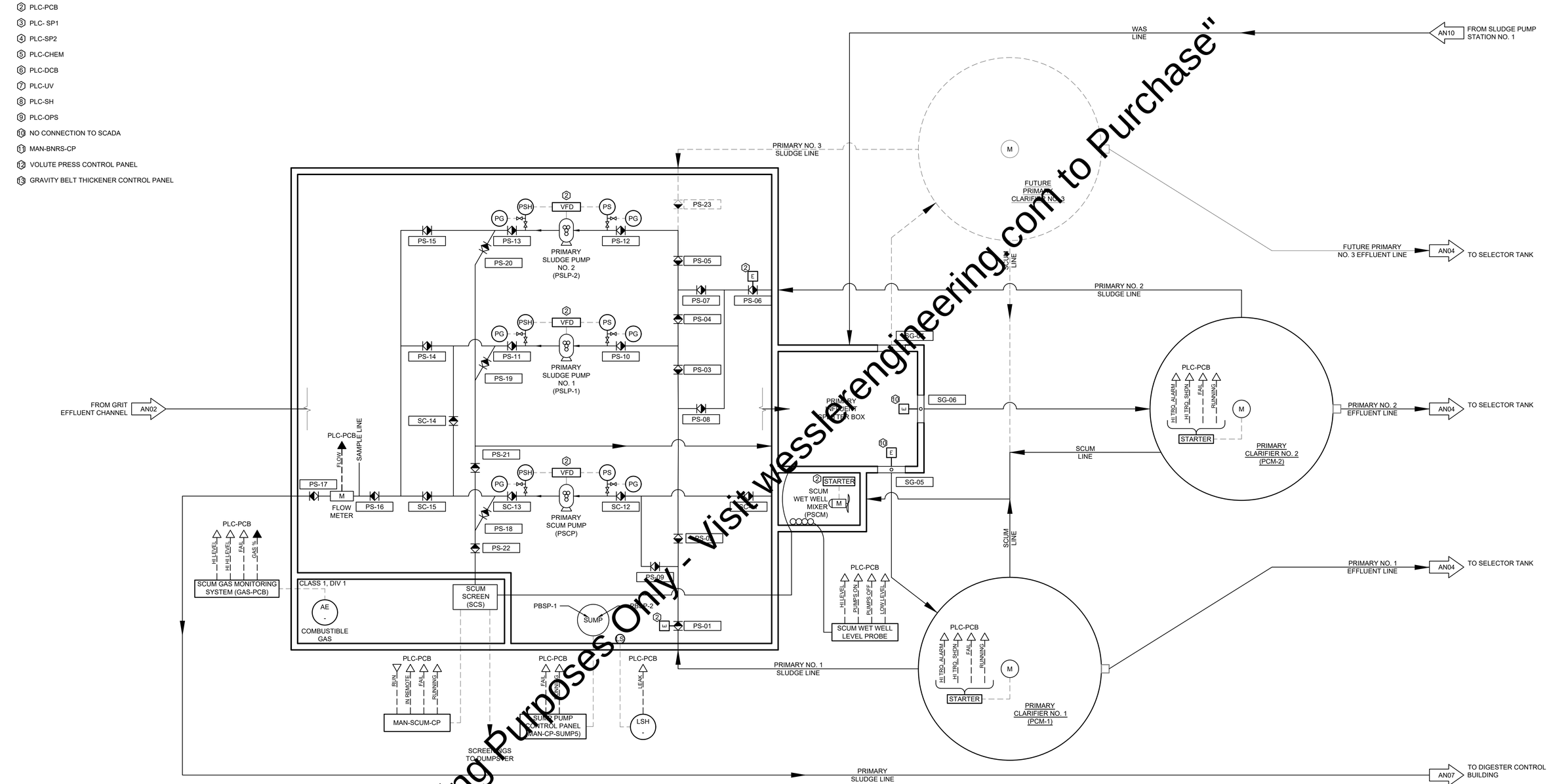
SCREENINGS AND GRIT PID DIAGRAM

SHEET NO. **AN02**

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\PID\162813-E-PID-AN12.dwg | Layout: AN02 | Plotted: 09/04/18 @ 09:09:03 | LastSavedBy: JohnH

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL



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Shawn Perkins

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PRIMARY CLARIFIERS PID DIAGRAM

SHEET NO.

AN03

PAGE NO.

30

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL

RAS LINE FROM SLUDGE PUMP STATION NO. 1

RAS LINE FROM SLUDGE PUMP STATION NO. 2

AN05 FROM SLUDGE PUMP STATION NO. 1

AN05 FROM SLUDGE PUMP STATION NO. 2

AN05 TO FINAL CLARIFIER SPLITTER STRUCTURE

FUTURE OXIDATION DITCH NO. 4

FUTURE OXIDATION DITCH NO. 3

AN05 TO FINAL INFLUENT SPLITTER BOX

AN06 FROM CHEMICAL FEED BUILDING

AN05 TO FINAL INFLUENT SPLITTER BOX

OXIDATION DITCH NO. 2

OXIDATION DITCH NO. 1

AN05 TO FINAL CLARIFIER SPLITTER STRUCTURE

AN06 FROM CHEMICAL FEED BUILDING

BYPASS CHANNEL

SG-17 SG-18 SG-19 SG-20 SG-21 SG-22 SG-23 SG-24

SG-16 SG-15 SG-14 SG-13 SG-12 SG-11 SG-10 SG-09 SG-08

CELL NO. 2

CELL NO. 3

CELL NO. 1

SELECTOR TANK

PLC-CHEM (IN OFF, FAIL, RUNNING)

STARTER

SUBMERSIBLE MIXER (STM-2)

SUBMERSIBLE MIXER (STM-3)

SUBMERSIBLE MIXER (STM-1)

ORP DO

RAS-32 RAS-31

FROM FUTURE PRIMARY CLARIFIER NO. 3 AN03 — FUTURE PRIMARY NO. 3 EFFLUENT LINE

FROM PRIMARY CLARIFIER NO. 2 AN03 — PRIMARY NO. 2 EFFLUENT LINE

FROM PRIMARY CLARIFIER NO. 1 AN03 — PRIMARY NO. 1 EFFLUENT LINE

FROM PRIMARY BYPASS LINE IN GRIT CHANNEL AN02

FROM TURBO BLOWER AN10 — AIR

FLOW METER M AIR A-20 A-19 A-26 A-27 A-21 A-22

BNRS PRESSURE TRANSMITTER PT

FIT FLOW

MAN-BNRS-CP

SENSOR NETWORK CONTROLLER (BNRS-SN1)

SENSOR NETWORK CONTROLLER (BNRS-SN3)

ORP-CELL 1 DO-CELL 1 ORP-CELL 2 DO-CELL 2 ORP-CELL 3 DO-CELL 3

DO ORP AMMONIA

VFD ODM-4 ODM-3 ODM-2 ODM-1

NH3 DO

GATE CHAMBER NO. 1

DRAIN PUMP STATION LINE

DP

OXIDATION DITCH DRAIN PUMP STATION

LSH PUMP RUN

LSL PUMP OFF

LSLL LOW LEVEL ALARM

PLC-SP1 PUMP RUN PUMP FAIL

OXIDATION DITCH DRAIN PUMP STATION CONTROL PANEL (MAN-CP-DPS)

TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O — IN REMOTE, OPENED, CLOSED, OPEN, CLOSE

TYPICAL MODULATING VALVE I/O — IN REMOTE, OPENED, CLOSED, % OPEN FDBK, % OPEN CMD

TYPICAL VFD I/O — RUN, IN REMOTE, FAIL, RUNNING, SPEED FDBK, SPEED CMD

TYPICAL MOTOR STARTER I/O — RUN, IN REMOTE, FAIL, RUNNING

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	RSP				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

SHAWN PERKINS REGISTERED No. 19500091 STATE OF INDIANA PROFESSIONAL ENGINEER

Shawn Perkins

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

SELECTOR TANK AND OXIDATION DITCHES PID DIAGRAM

SHEET NO. **AN04**

PAGE NO. 31

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL

TO SELECTOR TANK AN04

RAS TO SELECTOR TANK

PLC-SP2 LOW LEVEL FAIL HIGH LEVEL FAIL HI LEVEL PUMPS ON PUMPS OFF LOW LEVEL

SCUM WET WELL LEVEL PROBE

LSLL - LSHH -

4 STARTER

M SCUM WET WELL MIXER NO. 2 (SSCM-2)

LS LS

PI PSL SC-16 SCUM PUMP NO. 2 (SSCP-2) PSH PI SC-19

4 STARTER

RAS-30

PLC-SP2 FAIL RUNNING LEAK

SPSP-3 SUMP SPSP-4 SP2 SUMP PUMP CONTROL PANEL (MAN-CP-SUMP4) LSH -

LS

PLC-SP2 RAS FLOW FIT -

M FUTURE FINAL CLARIFIER NO. 4

SG-32

RAS-22 RAS-25 PI 4 VFD PI RAS PUMP NO. 4 (RASP-4)

RAS-23

RAS-21 RAS-24 PI 4 VFD PI RAS PUMP NO. 3 (RASP-3)

NEW SLUDGE PUMP STATION NO. 2

PLC-SP2 HI HI TORQUE HI TORQUE FAIL RUNNING

STARTER

M FINAL CLARIFIER NO. 3 (FCM-3)

SG-31

FINAL CLARIFIER EFFLUENT

TO U.V./POST-AERATION CHAMBER AN06

FROM FUTURE OXIDATION DITCH NO. 4 AN04

FROM FUTURE OXIDATION DITCH NO. 3 AN04

FROM OXIDATION DITCH NO. 2 AN04

FROM OXIDATION DITCH NO. 1 AN04

SG-28

SG-27 E 10

FINAL INFLUENT SPLITTER BOX

SG-26 E 10

10 E

SG-25

PLC-SP1 HI HI TORQUE HI TORQUE FAIL RUNNING

STARTER

M FINAL CLARIFIER NO. 2 (FCM-2)

SG-30

SG-29

PLC-SP1 HI HI TORQUE HI TORQUE FAIL RUNNING

STARTER

M FINAL CLARIFIER NO. 1 (FCM-1)

E RAS-2 RAS-5 3 VFD RAS PUMP NO. 2 (RASP-2) RAS-3 WAS-2 3 VFD WAS PUMP NO. 2 (WASP-2) RAS-4 WAS-1 3 VFD WAS PUMP NO. 1 (WASP-1) RAS-1 3 VFD RAS PUMP NO. 1 (RASP-1)

PLC-SP1 WAS FLOW FIT - M

PLC-SP1 RAS FLOW FIT - M

PLC-SP1 WAS FLOW FIT - LS

PLC-SP1 FAIL RUNNING LEAK

SPSP-1 SUMP SPSP-2 SP1 SUMP PUMP CONTROL PANEL (MAN-CP-SUMP3) LSH -

LS

TO WAS HOLDING TANK / PRIMARY INFLUENT SPLITTER BOX AN10

WAS-7

PLC-SP1 PRESSURE FAIL RUNNING

NPW CONTROL PANEL (CP-NPW)

NPWP-1 1 NPWP-2 2 NPWP-3 3 NON-POTABLE WATER PUMP SKID

NPW NON-POTABLE WATER SYSTEM

EXISTING SLUDGE PUMP STATION NO. 1

PLC-SP1 LOW LEVEL FAIL HIGH LEVEL FAIL HI LEVEL PUMPS ON PUMPS OFF LOW LEVEL

SCUM WET WELL FLOAT PROBE

LSLL - LSHH -

3 STARTER

M SCUM WET WELL MIXER NO. 1 (SSCM-1)

LS LS

PI PSL SC-1 SCUM PUMP NO. 1 (SSCP-1) PSH PI SC-5 SC-4

3 STARTER

RAS-10

IN REMOTE OPENED CLOSED OPEN CLOSE E TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O

IN REMOTE OPENED CLOSED % OPEN FDBK % OPEN CMD E TYPICAL MODULATING VALVE I/O

RUN IN REMOTE FAIL RUNNING SPEED FDBK SPEED CMD VFD TYPICAL VFD I/O

RUN IN REMOTE FAIL RUNNING STARTER TYPICAL MOTOR STARTER I/O

TO SELECTOR TANK AN04

RAS TO SELECTOR TANK

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS					
	APPROVED BY	RSP					
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

CLARIFIER SPLITTER STRUCTURE, FINAL CLARIFIERS AND SLUDGE PUMP STATIONS PID DIAGRAM

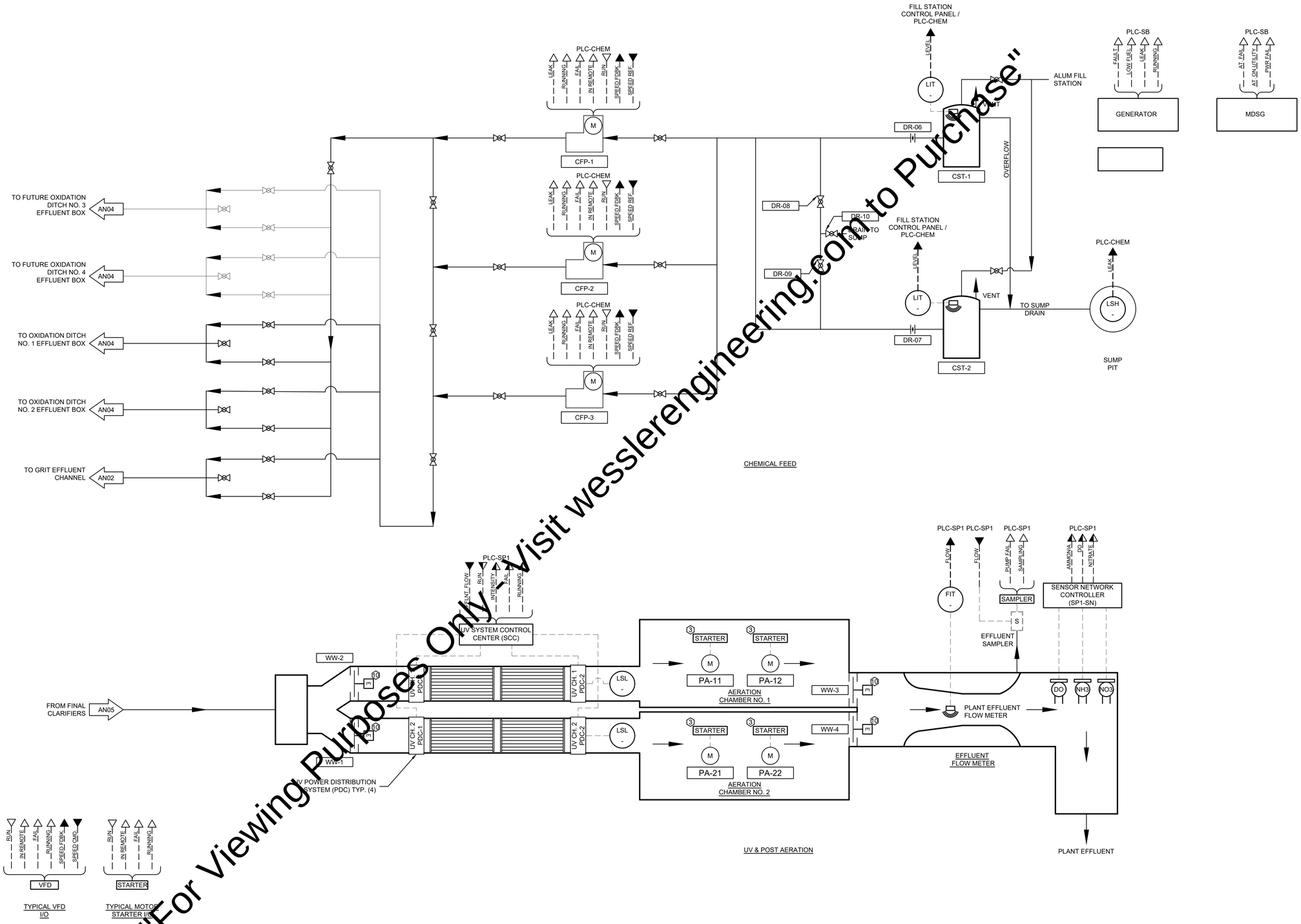
SHEET NO. **AN05**

PAGE NO. 32

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-01\GWSIheets\PID\162813-E-PID-AN17.dwg | Layout: AN05 | Plotted: 09/04/18 @ 09:09:17 | LastSavedBy: JohnH

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL



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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

UV, POST AERATION, CHEMICAL FEED, GENERATOR, AND MDSG PID DIAGRAM

SHEET NO.
AN06
PAGE NO.
33

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL

DIGESTER OVERFLOW LINE

PLC-DCB (RUNNING, FAIL) — DIGESTER OVERFLOW PUMP STATION CP

TO HOLDING TANK OVERFLOW LINE — AN10

LSH — PUMP ON

LSL — PUMP OFF

LSLL — HIGH LEVEL ALARM

DIGESTER OVERFLOW PUMP STATION

SUMP — SUMP PUMP CONTROL PANEL (PLC-DCB: FAIL, RUNNING) — DIGESTER BUILDING SUMP PUMP CONTROL PANEL NO. 1 (MAN-CP-SUMP1)

LS

LSH (PLC-DCB: LEAK)

SLUDGE RE-CIRC. COLD SUPPLY

STARTER — DS-25 — SLUDGE RE-CIRC. PUMP NO. 1B (SRP-1B) — DS-26 / DS-27

STARTER — DS-22 — SLUDGE RE-CIRC. PUMP NO. 1A (SRP-1A) — DS-23 / DS-24

TIT (PLC-DCB: TEMP.) — TG

HEAT EXCHANGER NO. 1 (HEX-1)

TIT (PLC-DCB: TEMP.) — DS-28

FIT (PLC-DCB: FLOW) — M

AIT (PLC-DCB: PH) — DS-29

LIT (PLC-DCB: LEVEL) — LIT

DIGESTER NO. 1 LINEAR MOTION MIXER — M — STARTER

ANAEROBIC DIGESTER NO. 1

DIGESTER GAS (DG) — AN08

SLUDGE RE-CIRC. RETURN

DS-04

DS-06

WET WELL NO. 1

LT (PLC-DCB: LEVEL)

TO BOILER NO. 1 — AN08 — COOL WATER RETURN (HW)

FROM BOILER NO. 1 — AN08 — HOT WATER SUPPLY (HW)

FROM PRIMARY CONTROL BUILDING — AN03

PRIMARY SLUDGE LINE (PS)

DS-01

DS-02

PRIMARY AND TWAS SLUDGE (TWAS-PS)

FROM SOLIDS HANDLING BUILDING — AN10

T-WAS LINE (TWAS)

DS-07

STARTER — PS — PG — DS-14 — DIGESTED SLUDGE PUMP NO. 1 (DSP-1) — DS-15 — DS-16

PLC-DCB (FLOW) — FIT — DS-38 — M — DIGESTED SLUDGE FLOW METER — AN10 — TO MODIFIED DS HOLDING TANK

DS-21 — DS-13

STARTER — PS — PG — DS-17 — DIGESTED SLUDGE PUMP NO. 2 (DSP-2) — DS-18 — DS-19

DS-12 — DS-20

PLC-DCB (LEVEL) — LT

DS-11 — WETWELL NO. 2

DS-09

FROM BOILER NO. 1 — AN08 — HOT WATER SUPPLY (HW)

TO BOILER NO. 1 — AN08 — COOL WATER RETURN (HW)

PLC-DCB (TEMP.) — TIT — TG — HEAT EXCHANGER NO. 2 (HEX-2)

PLC-DCB (TEMP.) — TIT — DS-36

PLC-DCB (FLOW) — FIT — M

PLC-DCB (PH) — AIT — DS-37

SLUDGE RE-CIRC. RETURN

STARTER — DS-34 / DS-35 — SLUDGE RE-CIRC. PUMP NO. 2B (SRP-2B) — DS-33

STARTER — DS-31 / DS-32 — SLUDGE RE-CIRC. PUMP NO. 2A (SRP-2A) — DS-30

SLUDGE RE-CIRC.. SUPPLY

PLC-DCB (LEVEL) — LIT — LIT

DIGESTER NO. 2 LINEAR MOTION MIXER — M — STARTER

ANAEROBIC DIGESTER NO. 2

DIGESTER GAS (DG) — AN08

DIGESTER OVERFLOW LINE

TYPICAL VFD I/O

RUN, IN REMOTE, FAIL, RUNNING, SPEED FDBK, SPEED CMD — VFD

TYPICAL MOTOR STARTER I/O

RUN, IN REMOTE, FAIL, RUNNING — STARTER

TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O

IN REMOTE, OPENED, CLOSED, OPEN, CLOSE — E

TYPICAL MODULATING VALVE I/O

IN REMOTE, OPENED, CLOSED, % OPEN FDBK, % OPEN CMD — E

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	APPROVED BY	RSP				
	ISSUE DATE	SEPTEMBER 4, 2018				
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

ANAEROBIC DIGESTER SLUDGE PID DIAGRAM

SHEET NO. **AN07**

PAGE NO. 34

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-00\DWG\Sheets\PID\162813-E-PID-AN12.dwg | Layout: AN07 | Plotted: 09/04/18 @ 09:09:27 | LastSavedBy: JohnH

PLC REFERENCE NUMBER
1 PLC-SC
2 PLC-PCB
3 PLC- SP1
4 PLC-SP2
5 PLC-CHEM
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7 PLC-UV
8 PLC-SH
9 PLC-OPS
10 NO CONNECTION TO SCADA
11 MAN-BNRS-CP
12 VOLUTE PRESS CONTROL PANEL
13 GRAVITY BELT THICKENER CONTROL PANEL
FUTURE ANAEROBIC DIGESTER NO. 3
FUTURE WETWELL NO. 3
FUTURE WETWELL NO. 4
FUTURE ANAEROBIC DIGESTER NO. 4
ANAEROBIC DIGESTER NO. 1
WETWELL NO. 1
WETWELL NO. 2
ANAEROBIC DIGESTER NO. 2
EXPANSION TANK
PLC-DCB
TEMP
TIT
CITY WATER
PG
HW-17
STRAINER
AIR SEPARATOR
HW-18
HW-19
PRESSURE
PIT
HOT WATER LOOP (HW)
COMBUSTION LOUVER
CNTRL PWRLOK
H2O CIRC. RUNNING
BLWR RUNNING
FLAME FAIL
LO H2O LEVEL
BLDG LVR OPEN
BLDG LVR OPENED
HW-14
BOILER NO. 1
BOILER NO. 1 SYSTEM
HW-13
HW-16
FUTURE BOILER NO. 2
FUTURE BOILER NO. 2 SYSTEM
HW-15
HW-20
HW-21
STARTER
HOT WATER RE-CIRC.. PUMP NO. 1 (HWRP-1)
HOT WATER RE-CIRC.. PUMP NO. 2 (HWRP-2)
HW-01
HW-02
CHEM FEED POINT
MULTI-FUNCTION VALVE
FLOW
FIT
HW-11
HW-03
HW-12
FUTURE COGEN PUMP NO. 1
FUTURE COGEN HEAT EXCHANGER (HEX)
FUTURE COGEN SYSTEM
HW-04
HW-08
HW-05
HEAT EXCHANGER PUMP NO. 1 (HEXP-1)
HEAT EXCHANGER PUMP NO. 2 (HEXP-2)
HEAT EXCHANGER NO. 1 (HEX-1)
HW-10
HW-09
TG
FROM ANAEROBIC DIGESTER NO. 1 SLUDGE RE-CIRC.. PUMPS (DIG1-SRP-1/2)
AN07
DIGESTER SLUDGE (DS)
TO DIGESTER NO. 1
FROM ANAEROBIC DIGESTER NO. 2 SLUDGE RE-CIRC.. PUMPS (DIG2-SRP-1/2)
TO DIGESTER NO. 2
HEAT EXCHANGER NO. 2 (HEX-2)
HW-07
HW-06
RUN
IN REMOTE
FAIL
RUNNING
SPEED FDBK
SPEED CMD
VFD
TYPICAL VFD I/O
TYPICAL MOTOR STARTER I/O
OPENED
CLOSED
OPEN
CLOSE
% OPEN FDBK
% OPEN CMD
TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O
TYPICAL MODULATING VALVE I/O

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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	PROJECT NUMBER 162813-04-003					

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

HOT WATER CIRCULATION PID DIAGRAM

SHEET NO. **AN08**


PLC REFERENCE NUMBER
1 PLC-SC
2 PLC-PCB
3 PLC- SP1
4 PLC-SP2
5 PLC-CHEM
6 PLC-DCB
7 PLC-UV
8 PLC-SH
9 PLC-OPS
10 NO CONNECTION TO SCADA
11 MAN-BNRS-CP
12 VOLUTE PRESS CONTROL PANEL
13 GRAVITY BELT THICKENER CONTROL PANEL
FUTURE ANAEROBIC DIGESTER NO. 3
FUTURE WETWELL NO. 3
FUTURE WETWELL NO. 4
FUTURE ANAEROBIC DIGESTER NO. 4
ANAEROBIC DIGESTER NO. 1
WETWELL NO. 1
WETWELL NO. 2
ANAEROBIC DIGESTER NO. 2
PLC-DCB
LEVEL
LT
RADAR MEASURING COVER LEVEL
CONDENSATE/SEDIMENT TRAP
MANUAL DRIP TAP
DG-02
DG-03
DG-05
DG-06
DG-07
DG-08
DG-09
FLAME TRAP AND THERMAL SHUTOFF ASSEMBLY
FT
TS
ANAEROBIC DIGESTER NO. 1 METHANE GAS MONITOR AND FLOW METER (DGM-1)
ANAEROBIC DIGESTER NO. 2 METHANE GAS MONITOR AND FLOW METER (DGM-2)
FIT
AIT
PIT
PG
FLOW
METHANE
PRESSURE
DIGESTER GAS (DG)
4" DIGESTER GAS (DG)
TO HOT WATER (HW) LOOP
FUTURE BOILER NO. 2
BOILER NO. 1
NATURAL GAS (NG)
COMBINED METHANE GAS MONITOR AND FLOW METER (DGM-3)
MANUAL DRIP TRAP
WASTE GAS BURNER
FLAME TRAP AND PRESSURE RELIEF VALVE
FUTURE COGEN
HI GAS LVL BASEMENT
GAS LVL GAS HANDLING RM
RELAY 5 (FUTURE)
GENERAL FAIL ALARM
DIGESTER CONTROL BUILDING GAS MONITORING SYSTEM (GAS-DCB)
AE
BASEMENT COMBUSTIBLE GAS SENSOR
GAS HANDLING ROOM COMBUSTIBLE GAS SENSOR
FUTURE GAS CONDITIONING ROOM COMBUSTIBLE GAS SENSOR
RUN
IN REMOTE
FAIL
RUNNING
SPEED FDBK
SPEED CMD
VFD
STARTER
TYPICAL VFD I/O
TYPICAL MOTOR STARTER I/O
OPENED
CLOSED
OPEN
CLOSE
% OPEN FDBK
% OPEN CMD
TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O
TYPICAL MODULATING VALVE I/O

SCALE VERIFICATION	DRAWN BY	EAS
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	ISSUE DATE	SEPTEMBER 4, 2018
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NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

DIGESTER GAS PID DIAGRAM

SHEET NO.
AN09

PAGE NO.
36

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FROM DIGESTER CONTROL BUILDING AN07

DIGESTED SLUDGE

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL

VPBC

CONVEYOR MOTOR

BELT CONVEYOR

CONVEYOR LCS

VOLUTE PRESS (VP)

SLUDGE LOADING STATION

VOLUTE GRINDER (VG)

VOLUTE PRESS FEED PUMP (VFP)

VOLUTE PRESS FLOW METER

GRAVITY BELT THICKENER (GBT)

GBT FLOW METER

THICKENER FEED PUMP (TFP)

THICKENER GRINDER (TG)

TWAS LINE

THICKENED SLUDGE FLOW METER

THICKENED SLUDGE PUMP (TSP)

TO DIGESTER CONTROL BUILDING AN07

TURBO BLOWER NO. 1 (TB-1)

TURBO BLOWER NO. 2 (TB-2)

CENTRIFUGAL BLOWER (CB)

STARTER

AIR

TO OXIDATION DITCHES AN04

TO GRIT TANK AND SELECTOR TANK AN02

WAS HOLDING TANK (WASHT)

WAS LINE

FROM SLUDGE PUMP STATION NO. 1 AN05

TO PRIMARY INFLUENT SPLITTER BOX AN03

YSI SENSORNET (SH-SN)

DIGESTED SLUDGE HOLDING TANK (DSHT)

DSHTM-1

DSHTM-2

FROM DIGESTER OVERFLOW PUMP STATION AN07

SEPTAGE HOLDING TANK (SHT)

SHTM

MIXING TANK BYPASS

SEPTAGE MIXING TANK (MT)

DECANT/OVERFLOW LINE

TO GRIT EFFLUENT LINE AN02

POLYMER BLENDER SKID (PB-2)

POLYMER BLENDER SKID (PB-1)

POLYMER TOTE NO. 2

POLYMER TOTE NO. 1

DRAIN FROM VP AND BT

SEPTAGE FLOW METER

SEPTAGE TRANSFER PUMP (STP)

PULSED AIR SYSTEM (PAS)

SUMP

EXISTING SOLIDS HANDLING PUMP STATION

EX SOLIDS HANDLING PUMP STATION CP (CP-SHPS)

SUMP PUMP CONTROL PANEL (MAN-CP-SUMP4)

HI LEVEL ALARM

LAG PUMP ON

LEAD PUMP ON

PUMPS OFF

LOW LEVEL ALARM

TYPICAL VFD I/O

TYPICAL MOTOR STARTER I/O

TYPICAL NON-MODULATING ELECTRIC ACTUATOR I/O

TYPICAL MODULATING VALVE I/O

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

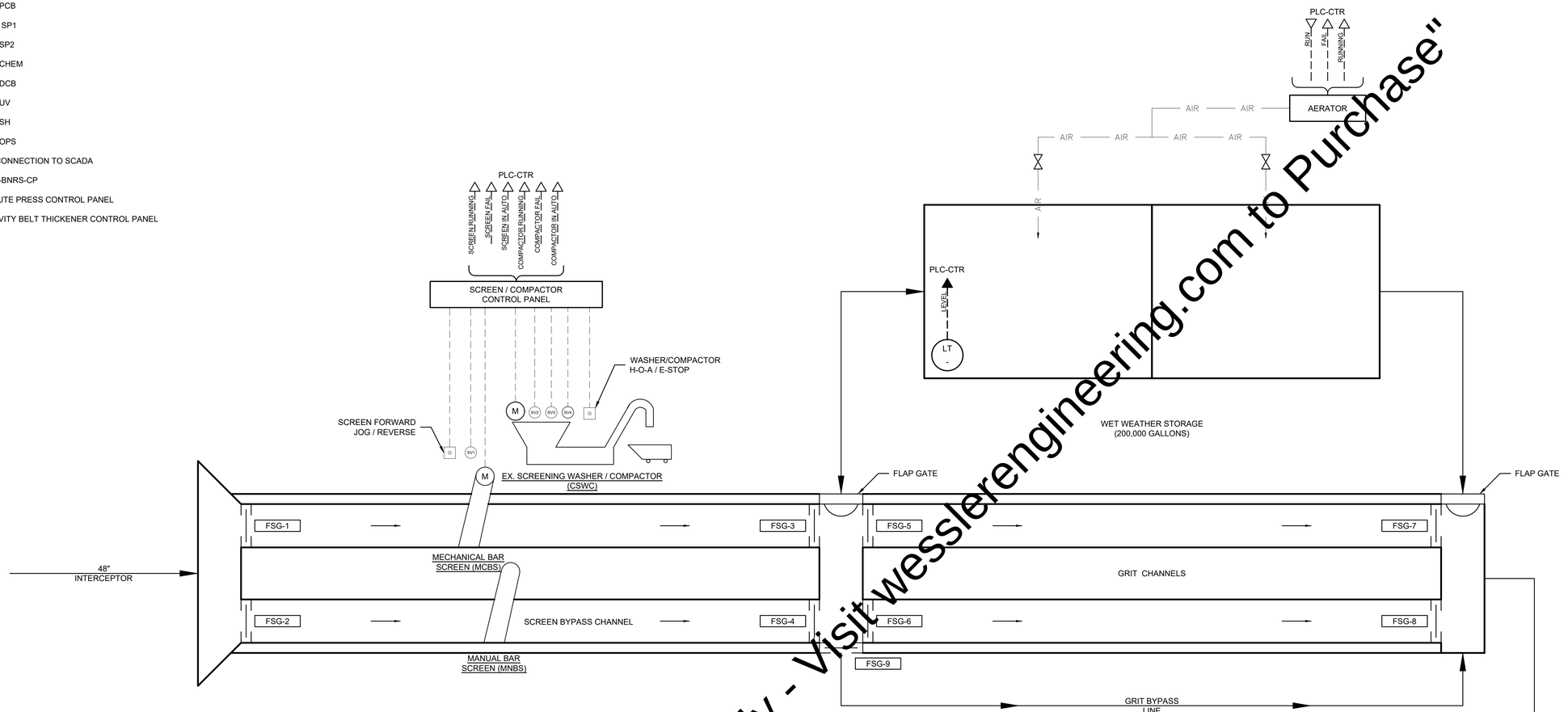
SOLIDS HANDLING BUILDING PID DIAGRAM

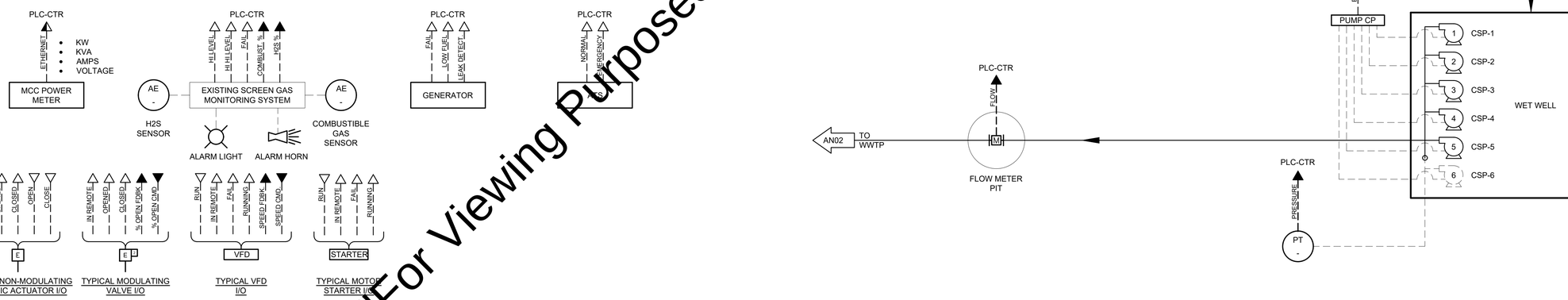
SHEET NO. **AN10**

PAGE NO. 37

PLC REFERENCE NUMBER

1. PLC-SC
2. PLC-PCB
3. PLC- SP1
4. PLC-SP2
5. PLC-CHEM
6. PLC-DCB
7. PLC-UV
8. PLC-SH
9. PLC-OPS
10. NO CONNECTION TO SCADA
11. MAN-BNRS-CP
12. VOLUTE PRESS CONTROL PANEL
13. GRAVITY BELT THICKENER CONTROL PANEL





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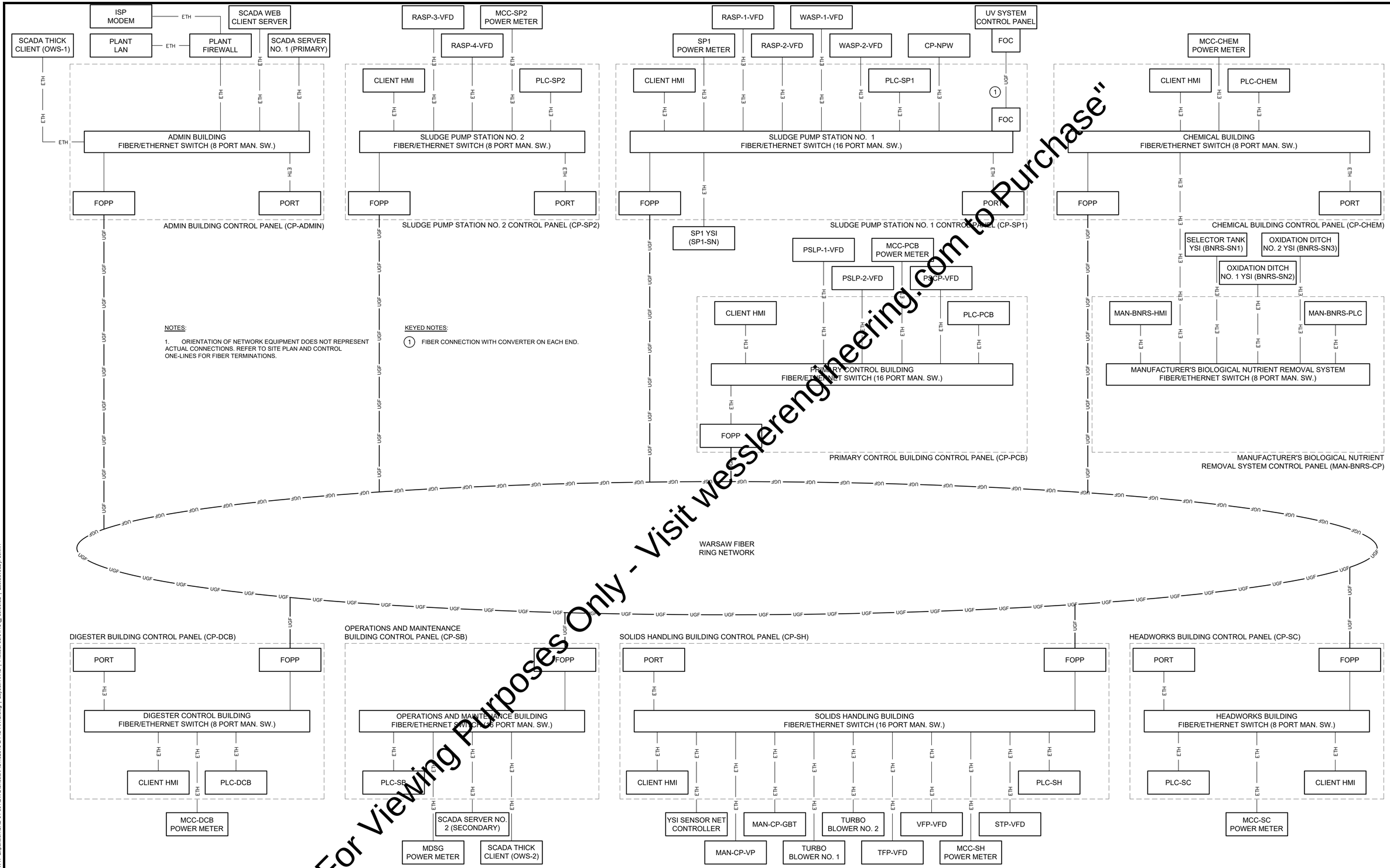
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

CENTER STREET PUMP STATION
PID DIAGRAM

SHEET NO.
AN11
PAGE NO.
38



NOTES:

1. ORIENTATION OF NETWORK EQUIPMENT DOES NOT REPRESENT ACTUAL CONNECTIONS. REFER TO SITE PLAN AND CONTROL ONE-LINES FOR FIBER TERMINATIONS.

KEYED NOTES:

(1) FIBER CONNECTION WITH CONVERTER ON EACH END.

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NETWORK DIAGRAM

SHEET NO.
AN12
PAGE NO.
39

GENERAL SITE NOTES:

1. ELEVATION INFORMATION SHOWN ON THESE PLANS, INCLUDING BENCH MARK ELEVATIONS, ARE BASED ON NGVD 1988 DATUM. NEITHER THE 2001 WASTEWATER TREATMENT PLANT, CONTRACT 9 PROJECT; NOR THE 2010 WASTEWATER TREATMENT PLANT BIOSOLIDS FACILITY IMPROVEMENTS, CONTRACT 17, BOTH PREPARED BY JONES & HENRY ENGINEERS, LTD, WERE PROVIDED WITH BENCH MARK OR DATUM INFORMATION.
2. EXISTING STRUCTURES HAVE BEEN SHOWN PER THE 2001 WASTEWATER TREATMENT PLANT, CONTRACT 9 PROJECT; THE 2008 WWTP LAB BUILDING CONTRACT 16 PROJECT; AND THE 2010 WASTEWATER TREATMENT PLANT BIOSOLIDS FACILITY IMPROVEMENTS, CONTRACT 17, ALL PREPARED BY JONES & HENRY ENGINEERS, LTD.
3. EXISTING UNDERGROUND WASTEWATER TREATMENT PROCESS PIPING, POTABLE WATER PIPING AND NON POTABLE WATER PIPING HAVE BEEN SHOWN PER THE 2001 WASTEWATER TREATMENT PLANT, CONTRACT 9 PROJECT; THE 2008 WWTP LAB BUILDING CONTRACT 16 PROJECT; AND THE 2010 WASTEWATER TREATMENT PLANT BIOSOLIDS FACILITY IMPROVEMENTS, CONTRACT 17, ALL PREPARED BY JONES & HENRY ENGINEERS, LTD. EXCEPT FOR EVIDENCE FOUND AT THE SURFACE THIS INFORMATION HAS NOT BEEN FIELD VERIFIED, AND ITS ACCURACY IS UNKNOWN.
4. PDF DRAWING FILES OF THESE THREE PREVIOUS PROJECTS ARE AVAILABLE FROM WESSLER ENGINEERING UPON WRITTEN REQUEST.
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF PROTECTION AND STABILIZATION OF SOILS, BANKS, AND SLOPES OF ALL OPEN EXCAVATIONS FOR THE PROTECTION AND SAFETY OF THE WORK AND WORKERS. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE SITE SOIL CONDITIONS DESCRIBED IN THE GEOTECHNICAL REPORT IN THE PROJECT MANUAL.
6. THE 100 YEAR AND 25 YEAR FLOODPLAIN ELEVATIONS ARE AS DEFINED ON SHEET NO. AG05.
7. NO CONTRACTOR ACTIVITIES OR STAGING OF EQUIPMENT SHALL TAKE PLACE OUTSIDE OF THE CONSTRUCTION LIMITS. THE CONSTRUCTION LIMITS SHALL BE DEFINED AS THE AREA WITHIN THE PROPERTY LINES FOR THE CITY OF WARSAW WASTEWATER TREATMENT PLANT.
8. REMOVE VALVE BOXES COMPLETE ON ALL EXISTING YARD PIPING DESIGNATED FOR REMOVAL AND/OR ABANDONMENT.

LEGEND – EXISTING UNDERGROUND FEATURES

- POTABLE WATER FIRE HYDRANT
- NON POTABLE WATER YARD HYDRANT
- NON POTABLE WATER (NPW) YARD PIPING
- PROCESS YARD PIPING
- POTABLE WATER PIPING
- POTABLE WATER SERVICE
- SANITARY SEWER WITH MANHOLE
- STORM SEWER WITH MANHOLE

10" DANEK FORCE MAIN
AIR RELEASE VALVE VAULT
FIRE DEPT PRACTICE BURN BUILDING
CR STONE PARKING AREA
SAW CUT AND REMOVE SECTION OF ASPHALT DRIVE COMPLETE
CP 4
CP 5
EXISTING 34' ELECTRIC EASEMENT
EXISTING ±78' NIPSCO EASEMENT
DIGESTER NO. 3
DIGESTER NO. 2
DIGESTER NO. 1
BIOSOLIDS STORAGE BUILDING
SAW CUT AND REMOVE SECTION OF ASPHALT DRIVE AND CONNECTING WALK FOR REPLACEMENT
SAW CUT AND REMOVE SECTION OF ASPHALT DRIVE FOR REPLACEMENT
SAW CUT AND REMOVE SECTION OF ASPHALT DRIVE FOR REPLACEMENT
ADMINISTRATION BUILDING
SEPTAGE RECEIVING STATION
SOLIDS HANDLING BUILDING
REMOVE POST HYDRANT FOR REPLACEMENT
REMOVE SECTION OF 6" DI WAS FOR RELOCATION
REMOVE (2) INLETS AND STORM PIPING COMPLETE
REMOVE RIP RAP COMPLETE
REMOVE LIGHT POLE COMPLETE
GATE CHAMBER NO. 3
SAW CUT AND REMOVE SECTION OF ASPHALT DRIVE COMPLETE
UV/POST AERATION CHAMBER
MIXING TANK
SOLIDS HANDLING PUMP STATION
SEPTAGE RECEIVING BUILDING
SEPTAGE PUMP STATION
CP 3
REMOVE SECTION OF 8" DI SUPERNATANT & OVERFLOW FOR RELOCATION
OXIDATION DITCH NO. 2
FINAL CLARIFIER NO. 2
TBM 50
CP 7
PLANT ENTRANCE ASPHALT DRIVE
REMOVE SECTION OF 30" CPVC WASTEWATER LINE
GATE CHAMBER NO. 1
SLUDGE PUMP STATION
OPERATIONS & MAINTENANCE BUILDING
PLANT INFLUENT STRUCTURE
REMOVE SIDEWALK SECTION AS REQ'D FOR GRADING MODIFICATIONS
REMOVE 18" DI CLARIFIER EFFLUENT FOR REPLACEMENT
OXIDATION DITCH NO. 1
FINAL CLARIFIER NO. 1
POLICE PRACTICE SHOOTING RANGE
DIESEL FUEL STORAGE TANK WITH CONTAINMENT
REMOVE 4" DI FROM INFLUENT CHANNEL TO 45° BEND
DRAIN PUMP STATION
POLICE STORAGE BARN
LOCATE 20" 45° BEND AT APPROX ℄ EL 812.0, REMOVE 20" PVC FORCE MAIN FROM INFLUENT CHANNEL THRU FITTING
GATE CHAMBER NO. 2
EXISTING 150' NIPSCO EASEMENT
REMOVE 16" DI FORCE MAIN AS REQ'D FOR NEW FORCE MAIN INSTALLATION
APPROX LOCATION OF ABANDONED SECTION OF 10" ANCHORAGE FORCE MAIN
CP 6
ACTIVE 16" ANCHORAGE FORCE MAIN
CENTER ST FORCE MAIN
AIR RELEASE VALVE VAULT
42" RCP PLANT EFFLUENT SEWER TO OUTFALL STRUCTURE
TIPPECANOE RIVER

CONTROL POINT TABLE				
POINT NO.	NORTHING	EASTING	ELEVATION	MONUMENT
3	2191151.09	273243.21	816.45	5/8" REBAR
4	2191475.02	273109.14	819.77	5/8" REBAR
5	2191387.27	272781.95	813.63	5/8" REBAR
6	2190814.34	273326.32	816.46	5/8" REBAR
7	2191146.52	273600.21	814.00	5/8" REBAR

NOTES:
1. A FIELD SURVEY WAS PERFORMED IN NOVEMBER 2015.
2. COORDINATES (INDIANA STATE PLANE, EAST ZONE, NAD 83) AND ELEVATIONS (NAVD 88) ARE BASED ON INCORS.
3. UNITS ARE IN U.S. SURVEY FEET.
4. CONTROL POINTS WERE SET USING GPS.
5. A LEVEL LOOP WAS PERFORMED ON THE CONTROL POINTS AND TBMS.

AREA A1 | AREA B1 | AREA A2 | AREA B2

SITE KEY PLAN
NO SCALE

BENCH MARK:
TBM NO. 1 – "□" CUT IN TOP OF CONCRETE PERIMETER WALL, SOUTHWEST CORNER OF THE UV/POST AERATION CHAMBER EL 814.91

EXISTING OVERALL SITE PLAN
0 25 50 100 FT
1"=50'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GREGORY L. RUSSION REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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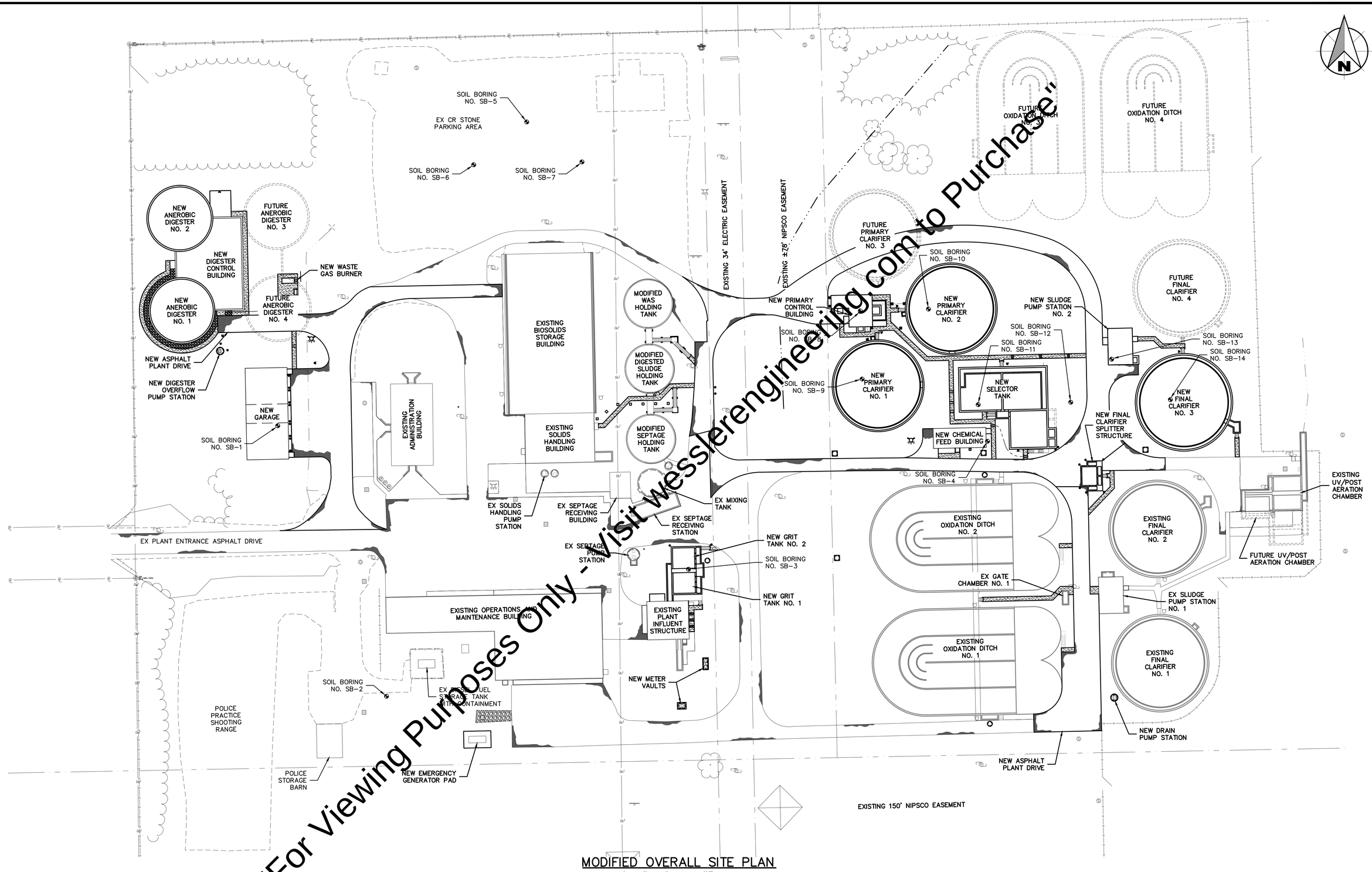
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OVERALL SITE PLAN

SHEET NO. **BY01**

PAGE NO. 40



MODIFIED OVERALL SITE PLAN

0 20 40 80 FT
1"=40'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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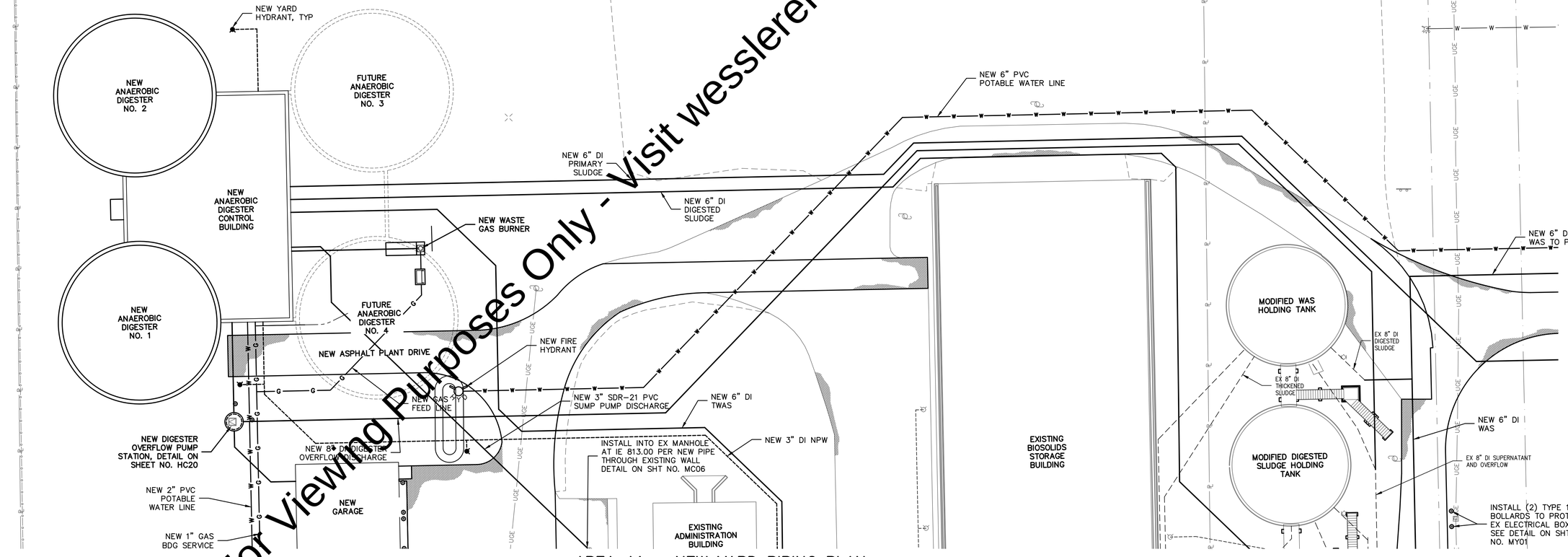
MODIFIED OVERALL SITE PLAN

SHEET NO.
BY02
PAGE NO.
41



AREA A1 – NEW YARD PIPING PLAN

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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CITY OF WARSAW, INDIANA

AREA A1
NEW YARD PIPING PLAN

SHEET NO.
BY03
PAGE NO.
42

NEW GARAGE
NEW 2" SDR-21 PVC POTABLE WATER LINE
NEW 1¼" GAS BDG SERVICE TO NEW GARAGE, CONNECT TO EX GAS LINE
CONNECT TO EX 2" WATER LINE WITH GATE VALVE & VALVE BOX
EX 4" IE 812.96
IE 812.91
EXISTING ADMINISTRATION BUILDING
NEW 3" DI NPW
NEW 6" DI TWAS
EX 6" PVC SANITARY SEWER
EX 2" CU CW
EX 1½" PE GAS
EX 2" PE NATURAL GAS
EX PLANT ASPHALT DRIVE
EX 3" PE GAS
EX DIESEL FUEL STORAGE TANK WITH CONTAINMENT
CONNECT TO EX BDG FEED LINE RISER PIPE AND PERMANENTLY CAP OFF FEED TO BDG
POLICE STORAGE BARN
NEW [size/material] PETROLEUM FEED LINE
RELOCATED EX EMERGENCY GENERATOR
NEW EMERGENCY GENERATOR PAD
EXISTING OPERATIONS AND MAINTENANCE BUILDING
NEW 16" STL AIR LINE
EXISTING SOLIDS HANDLING BUILDING
EX 8" DI THICKENED SLUDGE
EX 8" DI THICKENED SLUDGE
NEW 6" DI SEPTAGE TRANSFER LINE
EX 6" DI OVERFLOW
EX 8" DI PS DISCHARGE
EX SOLIDS HANDLING PUMP STATION
EX 6" DI NPW
EX 2" CU CW
EX 1½" PE GAS
CONNECT TO EX 2" WATER LINE WITH GATE VALVE & VALVE BOX
EX 2" CU PW
EX 8" PVC SANITARY SEWER
EX SEPTAGE PUMP STATION
MODIFIED SEPTAGE HOLDING TANK
EXISTING SEPTAGE RECEIVING BUILDING
EXISTING MIXING TANK
EXISTING SEPTAGE RECEIVING STATION
NEW POST HYDRANT, CONNECT TO EX 2" NPW
EX 2" PE GAS
NEW 6" DI AIR LINE
NEW 2" SDR-21 PVC POTABLE WATER LINE
CONNECT NEW DI TO EX DI
EX 6" DI NPW
PLUG
RELOCATED 8" DI SUPERNATANT AND OVERFLOW
NEW 6" DI WAS
NEW GRIT TANK NO. 2
NEW GRIT TANK NO. 1
NEW 48" DI GRIT TANK EFFLUENT
NEW CHEMICAL LINE PULL BOX NO. 4, SEE SHT. NO. MC05 FOR DETAILS
NEW 6" DI GRIT LINE
MODIFIED 30" DI GRIT EFFLUENT
NEW GRIT ROOM
EX 2" PE GAS
EXISTING SCREEN BUILDING
EX 1¼" PE GAS
NEW METER VAULTS
EX 20" PVC CENTER ST FM

AREA A2 – NEW YARD PIPING PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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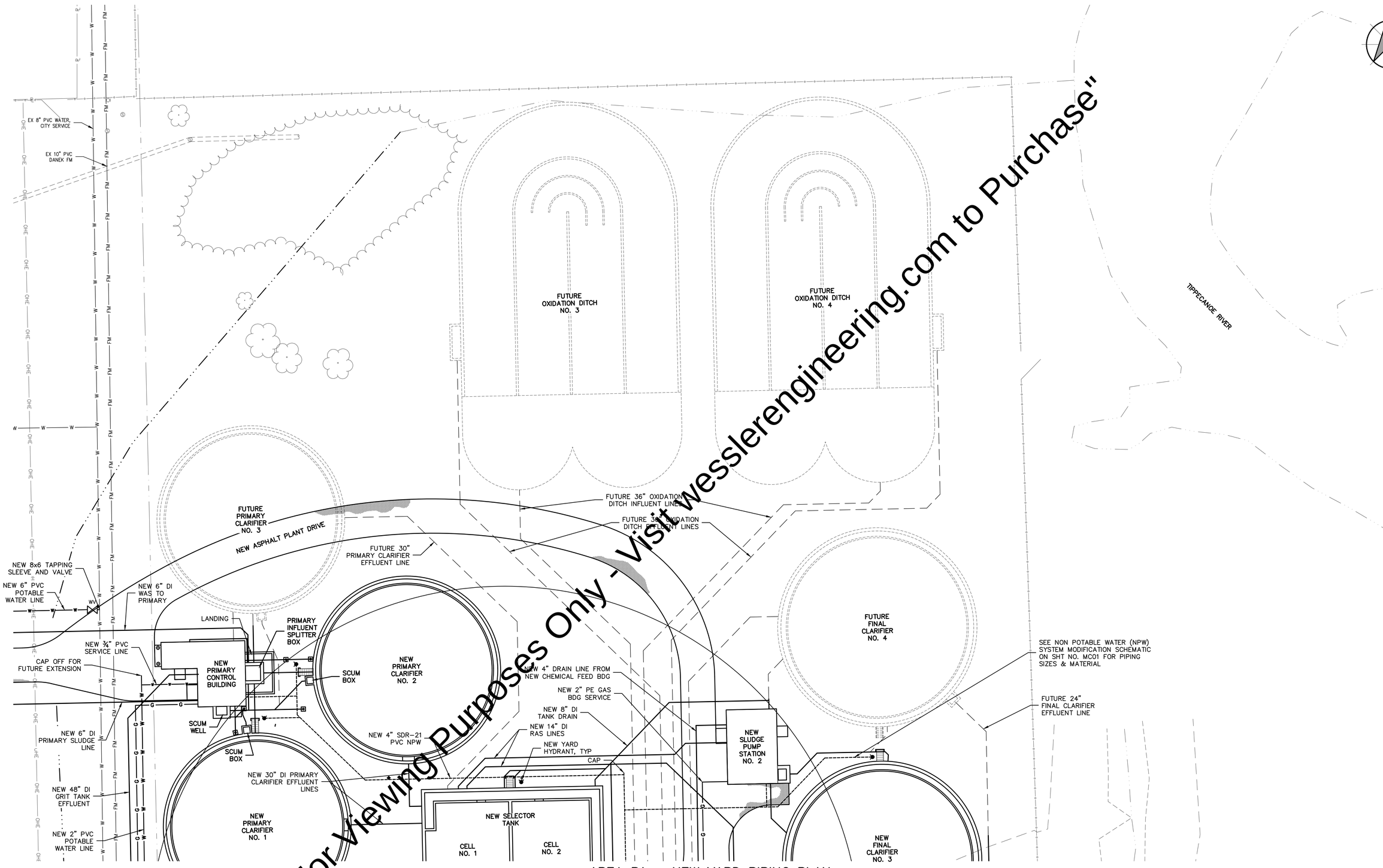
WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
AREA A2
NEW YARD PIPING PLAN

SHEET NO.
BY04
PAGE NO.
43

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWGSheets\162813-Nw Sht-YP.dwg | Layout: BY04 | Plotted: 09/04/18 @ 09:02:22 | LastSavedBy: DonT



AREA B1 – NEW YARD PIPING PLAN

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA B1
NEW YARD PIPING PLAN

SHEET NO.
BY05
PAGE NO.
44

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\162813-Nw S1-YP.dwg | Layout: BY05 | Plotted: 09/04/18 @ 09:02:24 | LastSavedBy: DonT

NEW PRIMARY CLARIFIER NO. 1
CELL NO. 1
CELL NO. 2
CELL NO. 3
NEW FINAL CLARIFIER NO. 3
NEW SELECTOR TANK
NEW CHEMICAL FEED BUILDING
NEW CHEMICAL LINE PULL BOX NO. 1, SEE SHT. NO. MC05 FOR DETAILS
NEW PV NO PW-33
PROVIDE (3) CONDUIT STUB OUTS TO NORTH, CAP
EX 10" PVC DANEK FM
EX 8" PVC WATER, CITY SERVICE
NEW 8x6 TAPPING SLEEVE AND VALVE
NEW 6" PVC POTABLE WATER LINE
NEW FIRE HYDRANT
NEW 2" PVC POTABLE WATER LINE
NEW ½" GAS BDG SERVICE
NEW CHEMICAL LINE PULL BOX NO. 2
EX 2" PE GAS
MODIFIED PLANT ASPHALT DRIVE
NEW CHEMICAL LINE PULL BOX NO. 7
NEW 30" DI CLARIFIER EFFLUENT
EX 8" DI NPW
NEW FINAL CLARIFIER SPLITTER STRUCTURE
NEW 16" DI AIR LINE
NEW 4" DI AIR LINE
CAP OFF FOR FUTURE EXTENSION
EX 24" CPVC OXIDATION DITCH EFFLUENT
NEW 1" SDR-21 PVC NPW, CONNECT TO EX 6" DI NPW WITH SADDLE, SADDLE AND CURB BOX
NEW CHEMICAL LINE PULL BOX NO. 6
NEW PV NO PW-34
EX 42" RCP CLARIFIER EFFLUENT
EXISTING UV/POST AERATION CHAMBER
EX 6" DI NPW
EX 24" DI CLARIFIER INFLUENT
RELOCATE EX GAS LINE AROUND NEW STRUCTURE
NEW 48" DI GRIT EFFLUENT
EXISTING OXIDATION DITCH NO. 2
EXISTING FINAL CLARIFIER NO. 2
FUTURE UV/POST AERATION CHAMBER
EX 10" DI DRAIN
EX 14" DI RAS
NEW CHEMICAL LINE PULL BOX NO. 3
NEW 24" DI CLARIFIER EFFLUENT
EX 2" PVC NPW
NEW 16" DI AIR LINE
EX GATE CHAMBER NO. 1
NEW 6" SDR-35 PVC CONDUIT PIPE FOR CHEMICAL FEED TUBING, TYP
EX 6" DI WAS
EXISTING SLUDGE PUMP STATION NO. 1
EX 30" CPVC GRIT EFFLUENT
EX 2" PVC NPW
EX 42" RCP PLANT EFFLUENT SEWER
NEW 6" DI WAS
EXISTING OXIDATION DITCH NO. 1
EXISTING FINAL CLARIFIER NO. 1
EX 16" HDPE ANCHORAGE FM
ABANDONED 10" PVC ANCHORAGE FM
NEW CHEMICAL LINE PULL BOX NO. 5
EX 24" PVC OXIDATION DITCH EFFLUENT
NEW DRAIN PUMP STATION
EX 2" PVC NPW
YARD PIPING BETWEEN STRUCTURES AS DESCRIBED ON SHT NOS. EC16 AND EC17

NEW YARD PIPING PLAN – EAST

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA B2
NEW YARD PIPING PLAN

SHEET NO.
BY06
PAGE NO.
45

CENTER POINT
N 2191454.5
E 272816.4

NEW ANAEROBIC DIGESTER NO. 2

FUTURE ANAEROBIC DIGESTER NO. 3

NEW ANAEROBIC DIGESTER CONTROL BUILDING

FUTURE ANAEROBIC DIGESTER NO.4

NEW WASTE GAS BURNER
BURNER CENTER POINT
N 2191395.3
E 272727.2

STR 6
N: 2191374.2
E: 272736.1
IE: 810.41

6" PVC FROM DOWNSPOUT TO SWALE

6" CRUSHED STONE, LANDSCAPING WITH WEED BARRIER FABRIC

NEW ANAEROBIC DIGESTER NO. 1

NEW ASPHALT PLANT DRIVE

SIDEWALK TRENCH DRAIN

STR 5
N: 2191341.6
E: 272738.3
IE: 810.44

CENTER POINT
N 2191366.6
E 272618.2

STR 2
N: 2191316.7
E: 272738.4
IE: 810.48
24" CONCRETE END SECTION

NEW 4' WIDE SIDEWALK, TYP

NEW DIGESTER OVERFLOW PUMP STATION
N 2191328.1
E 272654.9

N 2191311.6
E 272678.6

NEW GARAGE

EXISTING ADMINISTRATION BUILDING

EXISTING BIOSOLIDS STORAGE BUILDING

MODIFIED WAS HOLDING TANK

MODIFIED DIGESTED SLUDGE HOLDING TANK

AREA A1 – SITE REGRADE & EROSION CONTROL PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
	CHECKED BY	ALT					
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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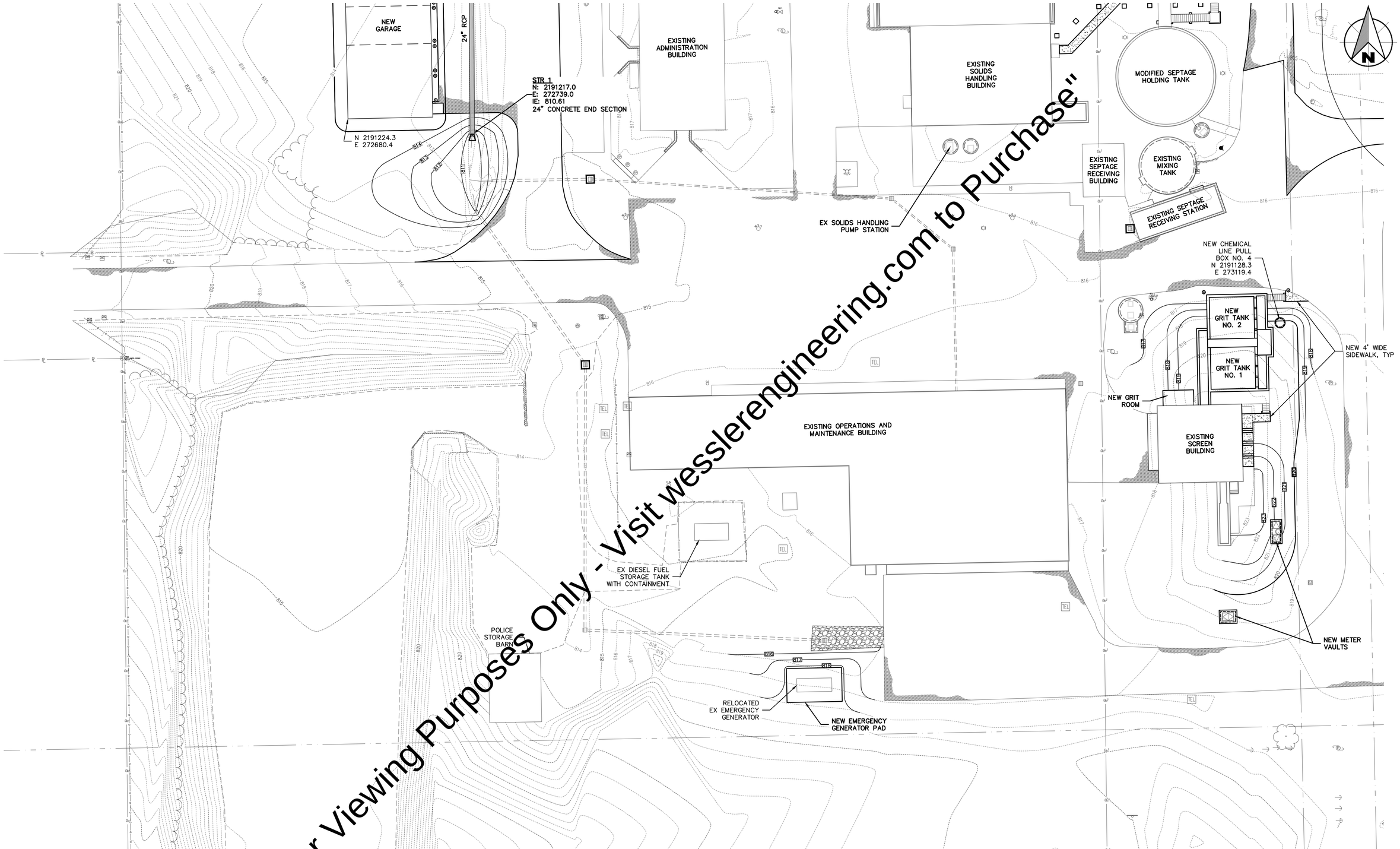
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA A1
SITE REGRADE & EROSION CONTROL PLAN

SHEET NO.
BY07
PAGE NO.
46



AREA A2 – SITE REGRADE & EROSION CONTROL PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT
	APPROVED BY	GLR
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA A2
SITE REGRADE & EROSION CONTROL PLAN

SHEET NO.
BY08
PAGE NO.
47

FUTURE OXIDATION DITCH NO. 3

FUTURE OXIDATION DITCH NO. 4

FUTURE PRIMARY CLARIFIER NO. 3

NEW ASPHALT PLANT DRIVE

STR 4
N: 2191392.6
E: 273186.8
IE: 813.66
12" CONCRETE END SECTION

12" RCP

STR 3
N: 2191351.4
E: 273188.5
IE: 813.96
12" CONCRETE END SECTION

CENTER POINT
N 2191368.2
E 273351.9

PRIMARY INFLUENT SPLITTER BOX

NEW PRIMARY CONTROL BUILDING

SCUM BOX

NEW PRIMARY CLARIFIER NO. 2

SCUM WELL

SCUM BOX

FUTURE FINAL CLARIFIER NO. 4

N 2191349.6
E 273500.9

NEW SLUDGE PUMP STATION NO. 2

NEW 4' WIDE SIDEWALK, TYP

CENTER POINT
N 2191279.2
E 273573.8

N 2191314.8
E 273501.7

CENTER POINT
N 2191295.0
E 273282.1

NEW PRIMARY CLARIFIER NO. 1

NEW SELECTOR TANK

CELL NO. 1

CELL NO. 2

NEW FINAL CLARIFIER NO. 3

AREA B1 – SITE REGRADE & EROSION CONTROL PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA B1
SITE REGRADE & EROSION CONTROL PLAN

SHEET NO.
BY09
PAGE NO.
48

NEW PRIMARY CLARIFIER NO. 1
NEW SELECTOR TANK
N 2191255.23
E 273384.87
CELL NO. 1
CELL NO. 2
CELL NO. 3
SIDEWALK DRAIN TRENCH
SWALE
NEW CHEMICAL FEED BUILDING
N 2191254.19
E 273334.55
MODIFIED PLANT ASPHALT DRIVE
NEW CHEMICAL LINE PULL BOX NO. 2
N 2191230.4
E 273240.8
NEW CHEMICAL LINE PULL BOX NO. 1,
N 2191230.9
E 273382.7
SEE SHT. NO. #### FOR DETAILS
NEW CHEMICAL LINE PULL BOX NO. 6
N 2191210.0
E 273383.8
SIDEWALK DRAIN TRENCH
N 2191198.8
E 273475.7
EXISTING OXIDATION DITCH NO. 2
NEW CHEMICAL LINE PULL BOX NO. 3
N 2191130.8
E 273242.9
EX GATE CHAMBER NO. 1
EXISTING OXIDATION DITCH NO. 1
NEW ASPHALT PLANT DRIVE
N 2191218.6
E 273475.3
NEW FINAL CLARIFIER SPLITTER STRUCTURE
NEW 4' WIDE SIDEWALK, TYP
NEW FINAL CLARIFIER NO. 3
NEW CHEMICAL LINE PULL BOX NO. 7
N 2191234.0
E 273537.0
EXISTING UV/POST AERATION CHAMBER
FUTURE UV/POST AERATION CHAMBER
EXISTING FINAL CLARIFIER NO. 2
EXISTING SLUDGE PUMP STATION NO. 1
EXISTING FINAL CLARIFIER NO. 1
NEW DRAIN PUMP STATION
N 2190997.6
E 273507.3
NEW CHEMICAL LINE PULL BOX NO. 5
N 2190972.2
E 273388.6
N

AREA B2 – SITE REGRADE & EROSION CONTROL PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA B2
SITE REGRADE & EROSION CONTROL PLAN

SHEET NO.
BY10
PAGE NO.
49

GENERAL SITE NOTES:

1. [1] REPRESENTS AREAS REQUIRING NEW TYPE 1 PAVING AS SHOWN IN THE TYPICAL TYPE 1 SECTION ON SHEET NO. MY02.
2. [2] REPRESENTS AREAS REQUIRING NEW TYPE 2 PAVING AS SHOWN IN THE TYPICAL TYPE 2 SECTION ON SHEET NO. MY02.

NEW ANEROBIC DIGESTER NO. 2
FUTURE ANEROBIC DIGESTER NO. 3
NEW DIGESTER CONTROL BUILDING
NEW ANEROBIC DIGESTER NO. 1
FUTURE ANEROBIC DIGESTER NO. 4
NEW SITE SIDEWALK, TYP
N: 2191408.6 E: 272746.5
N: 2191361.6 E: 272652.3
N: 2191345.6 E: 272652.7
N: 2191317.2 E: 272728.9
NEW DIGESTER OVERFLOW PUMP STATION
NEW GARAGE
NEW ASPHALT PLANT DRIVE
N: 2191217.3 E: 272750.4
MATCH EX RADIUS
EX PLANT ENTRANCE ASPHALT DRIVE
MA EX
N: 2191321.6 E: 272748.8
N: 2191326.6 E: 272833.7
REPLACEMENT ASPHALT PLANT DRIVE SECTION
EXISTING ADMINISTRATION BUILDING
N: 2191391.9 E: 272923.8
N: 2191379.9 E: 272923.9
EXISTING BIOSOLIDS STORAGE BUILDING
REPLACEMENT ASPHALT PLANT DRIVE SECTION
EXISTING SOLIDS HANDLING BUILDING
EX SOLIDS HANDLING PUMP STATION
EX SEPTAGE RECEIVING BUILDING
EX SEPTAGE PUMP STATION
MODIFIED WAS HOLDING TANK
MODIFIED DIGESTED SLUDGE HOLDING TANK
MODIFIED SEPTAGE HOLDING TANK
MA EX
EX MIXING TANK
EX SEPTAGE RECEIVING STATION
NEW GRIT TANK NO. 2
NEW GRIT TANK NO. 1
EXISTING PLANT INFLUENT STRUCTURE
EXISTING OPERATIONS AND MAINTENANCE BUILDING
NEW METER VAULTS
EXISTING 34' ELECTRIC EASEMENT
EXISTING ±78' NIPSCO EASEMENT
POLICE PRACTICE SHOOTING RANGE
NEW EMERGENCY GENERATOR PAD
POLICE STORAGE BARN
N: 2191408.5 E: 273172.0
N: 2191407.1 E: 273156.7
N: 2191383.8 E: 273224.5
FUTURE PRIMARY CLARIFIER NO. 3
NEW ASPHALT PLANT DRIVE
N: 2191363.5 E: 273419.6
NEW PRIMARY CLARIFIER NO. 2
NEW PRIMARY CONTROL BUILDING
N: 2191332.6 E: 273179.2
N: 2191317.6 E: 273169.0
NEW PRIMARY CLARIFIER NO. 1
N: 2191254.0 E: 273324.6
N: 2191246.2 E: 273304.8
N: 2191236.5 E: 273126.4
NEW SLUDGE PUMP STATION NO. 2
N: 2191284.8 E: 273421.3
NEW SELECTOR TANK
N: 2191285.2 E: 273522.3
N: 2191224.9 E: 273414.3
NEW CHEMICAL FEED BUILDING
FUTURE FINAL CLARIFIER NO. 4
N: 2191276.3 E: 273552.4
NEW FINAL CLARIFIER NO. 3
N: 2191226.4 E: 273555.8
N: 2191186.2 E: 273363.8
N: 2191212.7 E: 273414.3
REPLACEMENT ASPHALT PLANT DRIVE SECTION
EXISTING OXIDATION DITCH NO. 2
N: 2191162.7 E: 273416.9
EXISTING FINAL CLARIFIER NO. 2
NEW FINAL CLARIFIER SPLITTER STRUCTURE
MA EX
N: 2191214.6 E: 273555.9
EXISTING UV/POST AERATION CHAMBER
FUTURE UV/POST AERATION CHAMBER
EX GATE CHAMBER NO. 1
EX SLUDGE PUMP STATION NO. 1
N: 2191041.1 E: 273456.9
EXISTING OXIDATION DITCH NO. 1
N: 2191008.1 E: 273431.5
N: 2190982.0 E: 273430.4
EXISTING FINAL CLARIFIER NO. 1
NEW DRAIN PUMP STATION
N: 2190964.6 E: 273430.8
N: 2190966.1 E: 273495.2
NEW ASPHALT PLANT DRIVE
EXISTING 150' NIPSCO EASEMENT
FUTURE OXIDATION DITCH NO. 3
FUTURE OXIDATION DITCH NO. 4

NEW PLANT DRIVES PAVEMENT PLAN

0 20 40 80 FT
1"=40'

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
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	PROJECT NUMBER	162813-04-003					

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PLANT DRIVES PAVEMENT PLAN

SHEET NO. **BY11**

PAGE NO. XXX

GENERAL NOTES:

1. ALL EXISTING UNDERGROUND CONDUITS SHOWN ARE BASED ON RECORD DRAWINGS. THERE MAY BE ADDITIONAL CONDUITS THAT ARE NOT SHOWN. CONTRACTOR TO LOCATE ALL EXISTING CONDUITS PRIOR TO EXCAVATION ON SITE.
2. COORDINATE ALL ELECTRICAL SERVICE WORK WITH LOCAL POWER COMPANY PRIOR TO INSTALLATION OR MODIFICATION.
3. CONTRACTOR SHALL REFERENCE ONE-LINE DIAGRAMS FOR CONDUIT AND WIRE REQUIREMENTS

KEYED NOTES:

(1) ---
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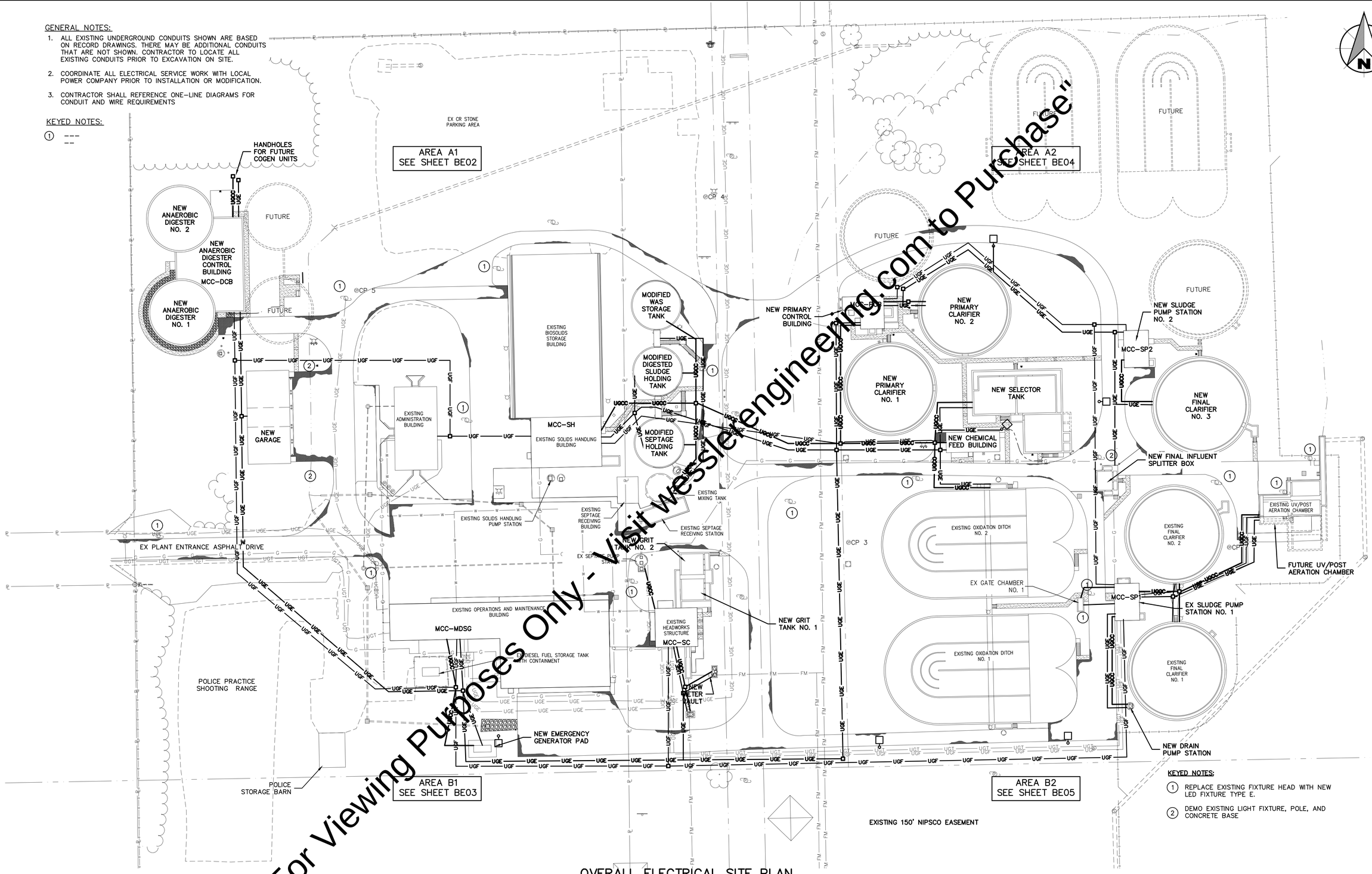

KEYED NOTES:

(1) REPLACE EXISTING FIXTURE HEAD WITH NEW LED FIXTURE TYPE E.

(2) DEMO EXISTING LIGHT FIXTURE, POLE, AND CONCRETE BASE

OVERALL ELECTRICAL SITE PLAN

0 20 40 80 FT
1"=40'

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

WAYNE V. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

OVERALL ELECTRICAL SITE PLAN

SHEET NO. **BE01**

PAGE NO. XX

AREA A1 – ELECTRICAL SITE PLAN

0 10 20 40 FT 1"=20'

SCALE VERIFICATION			NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	PROJECT NUMBER	162813-04-003				

WAYNE C. MOORE, REGISTERED No. 10707476, STATE OF INDIANA, PROFESSIONAL ENGINEER

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CITY OF WARSAW, INDIANA

AREA A1
ELECTRICAL SITE PLAN

SHEET NO. **BE02**

PAGE NO. XX

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\Elect\162813-E-NEW-SI.dwg | Layout: BE02 | Plotted: 09/04/18 @ 09:11:00 | LastSavedBy: JohnH

NEW GARAGE

EXISTING ADMINISTRATION BUILDING

EXISTING SOLIDS HANDLING BUILDING

EX SOLIDS HANDLING PUMP STATION

MODIFIED DIGESTED SLUDGE HOLDING TANK

MODIFIED SEPTAGE HOLDING TANK

EXISTING MIXING TANK

EXISTING SEPTAGE RECEIVING BUILDING

EXISTING SEPTAGE RECEIVING STATION

EX PLANT ENTRANCE ASPHALT DRIVE

EX PLANT ASPHALT DRIVE

EX SEPTAGE PUMP STATION

NEW GRIT TANK NO. 2

NEW GRIT TANK NO. 1

NEW GRIT ROOM

EXISTING SCREEN BUILDING

EXISTING OPERATIONS AND MAINTENANCE BUILDING

NEW METER VAULT

EX DIESEL FUEL STORAGE TANK WITH CONTAINMENT

POLICE PRACTICE SHOOTING RANGE

POLICE STORAGE BARN

LP-ADMIN-1

RELOCATED EX EMERGENCY GENERATOR

NEW EMERGENCY GENERATOR PAD

KEYED NOTES:

1. REPLACE EXISTING FIXTURE HEAD WITH NEW LED FIXTURE TYPE E.
2. DEMO EXISTING LIGHT FIXTURE, POLE, AND CONCRETE BASE

AREA B1 – ELECTRICAL SITE PLAN

0 10 20 40 FT
1"=20'

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
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CITY OF WARSAW, INDIANA

AREA A2
ELECTRICAL SITE PLAN

SHEET NO.
BE03

PAGE NO.
XXX

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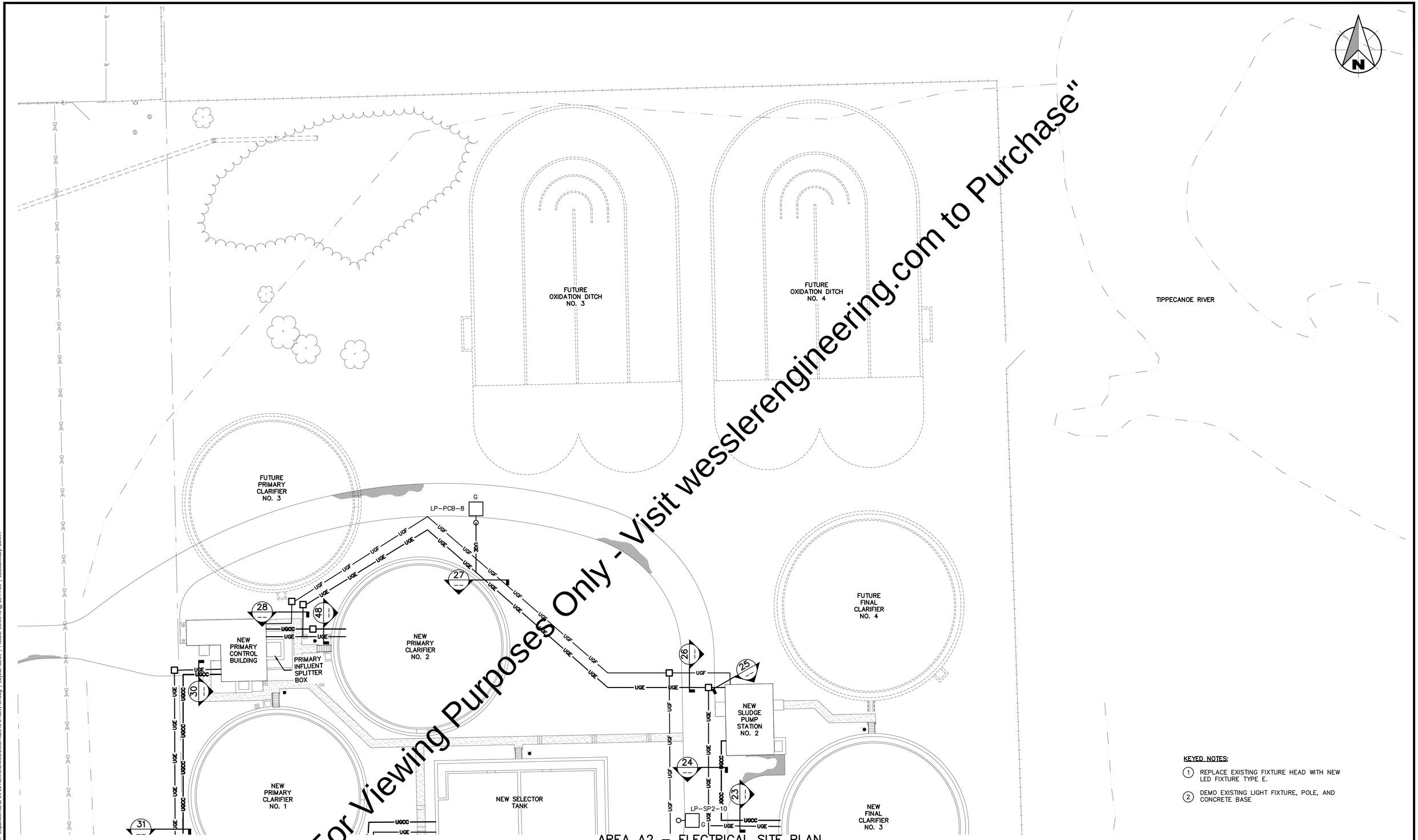

AREA A2 – ELECTRICAL SITE PLAN

0 10 20 40 FT
1"=20'

KEYED NOTES:

1. REPLACE EXISTING FIXTURE HEAD WITH NEW LED FIXTURE TYPE E.
2. DEMO EXISTING LIGHT FIXTURE, POLE, AND CONCRETE BASE

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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	ISSUE DATE	SEPTEMBER 4, 2018				
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CITY OF WARSAW, INDIANA

AREA B1
ELECTRICAL SITE PLAN

SHEET NO.
BE04
PAGE NO.
XXX
54

NEW PRIMARY CLARIFIER NO. 1

NEW FINAL CLARIFIER NO. 3

NEW CHEMICAL FEED BUILDING

EX PLANT ASPHALT DRIVE

NEW FINAL INFLUENT SPLITTER BOX

EXISTING UV/POST AERATION CHAMBER

TBM 50

FUTURE UV/POST AERATION CHAMBER

EXISTING OXIDATION DITCH NO. 2

EXISTING FINAL CLARIFIER NO. 2

EX GATE CHAMBER NO. 1

EXISTING SLUDGE PUMP STATION NO. 1

EXISTING OXIDATION DITCH NO. 1

EXISTING FINAL CLARIFIER NO. 1

NEW DRAIN PUMP STATION

LP-SP1-36

LP-SP1-36

KEYED NOTES:

1. REPLACE EXISTING FIXTURE HEAD WITH NEW LED FIXTURE TYPE E.
2. DEMO EXISTING LIGHT FIXTURE, POLE, AND CONCRETE BASE

AREA B2 – ELECTRICAL SITE PLAN

0 10 20 40 FT

1"=20'

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

AREA B2
ELECTRICAL SITE PLAN

SHEET NO. **BE05**

PAGE NO. XXX

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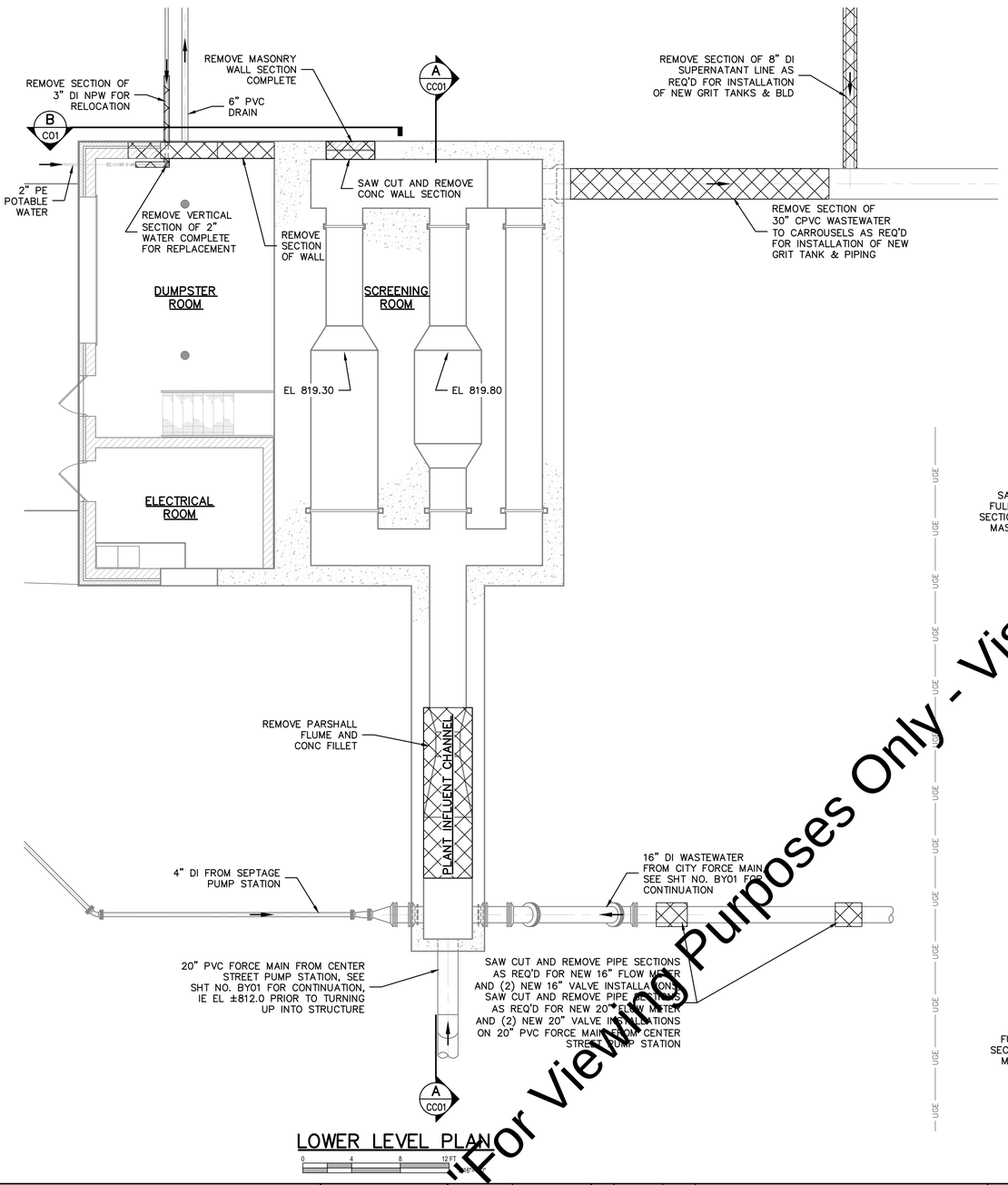
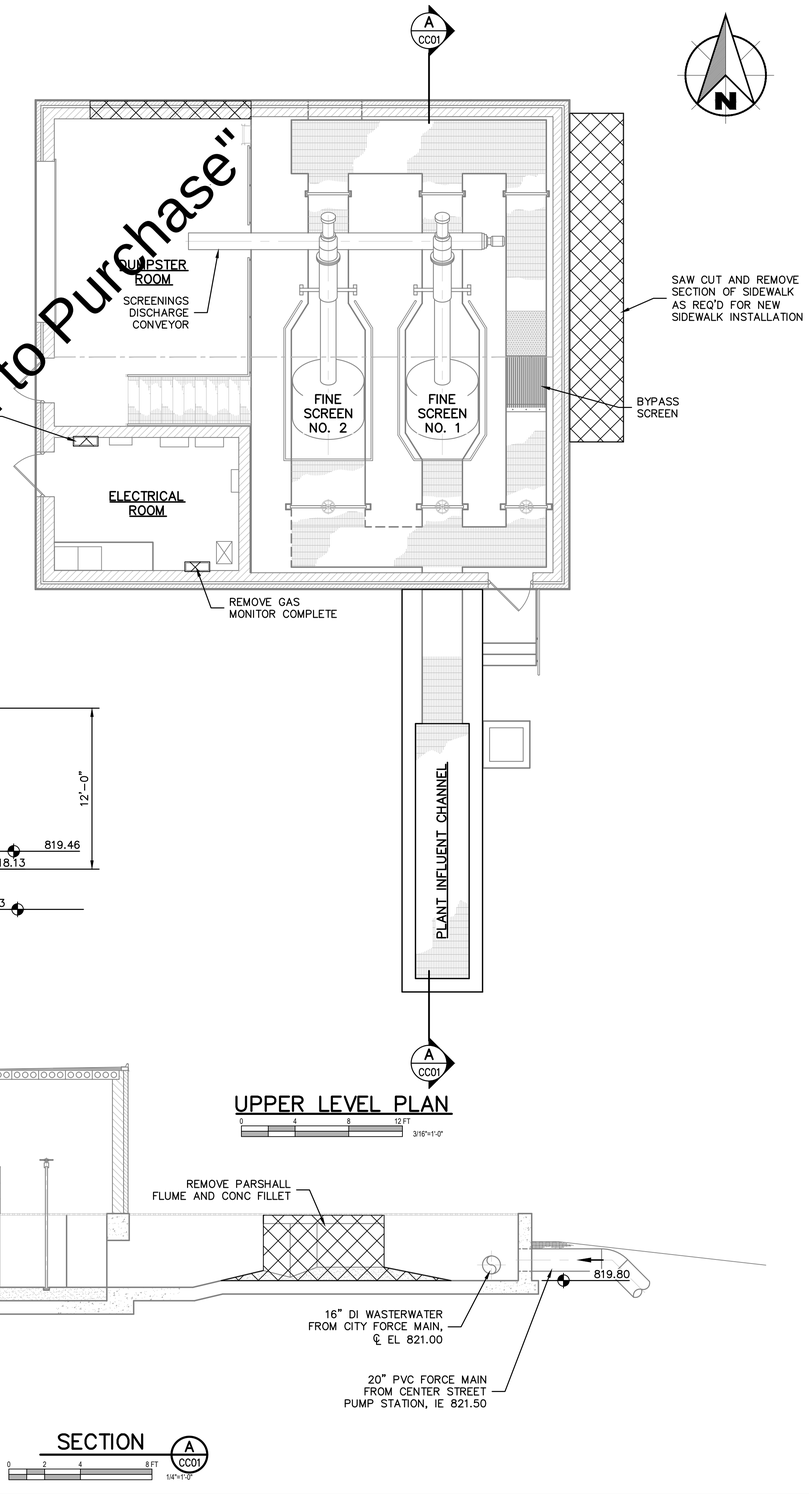
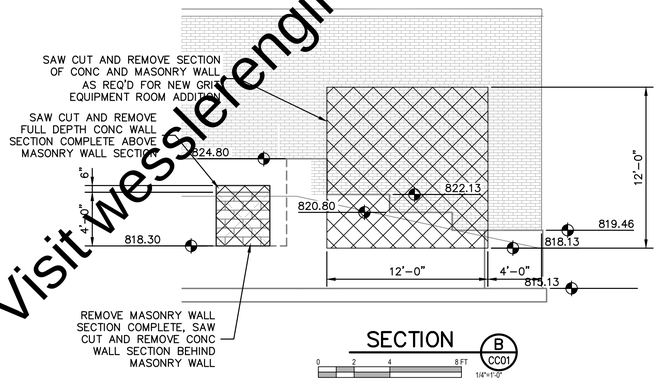
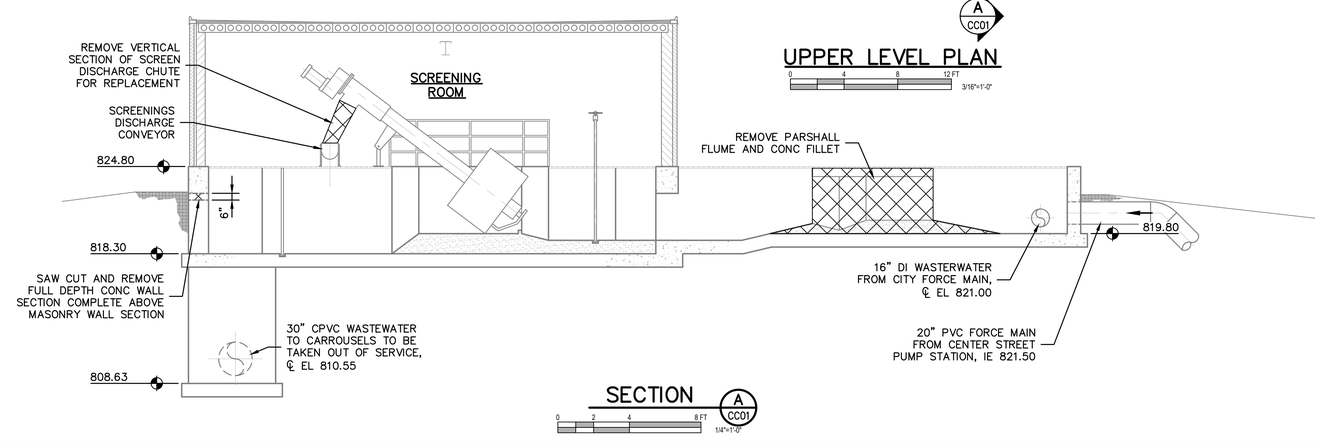
CONTROL BUILDING GENERAL DEMOLITION NOTES:

1. THE TOP OF WALL ELEVATION ALONG THE PLANT INFLUENT CHANNEL HAS BEEN SHOWN AT 825.50 ON THE 2001 WASTEWATER TREATMENT PLANT PROJECT, BY JONES & HENRY ENGINEERS, LTD. THE WESSLER ENGINEERING SITE SURVEY FOR THIS PROJECT DETERMINED THE TOP OF WALL ELEVATION TO BE 824.80. ALL EXISTING VERTICAL INFORMATION SHOWN FOR THIS STRUCTURE HAS BEEN REVISED TO AGREE WITH THE SITE SURVEY, WITH THE ASSUMPTION THAT VERTICAL DISTANCES REFERENCED ON THE JONES & HENRY DRAWINGS ARE ACCURATE.
2. EXISTING YARD PIPING SHOWN AROUND THIS STRUCTURE IS AS SHOWN ON THE 2001 WASTEWATER TREATMENT PROJECT, BY JONES & HENRY ENGINEERS, LTD; WITH SOME ADJUSTMENTS MADE FROM THE SITE SURVEY BY WESSLER ENGINEERING, FOR THIS PROJECT. INFORMATION AS PROVIDED ON THE JONES & HENRY DRAWINGS HAS NOT BEEN FIELD VERIFIED, OTHER THAN OBVIOUS DISCREPANCIES FOUND DURING THE WESSLER SURVEY.









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	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GREG L. RUSTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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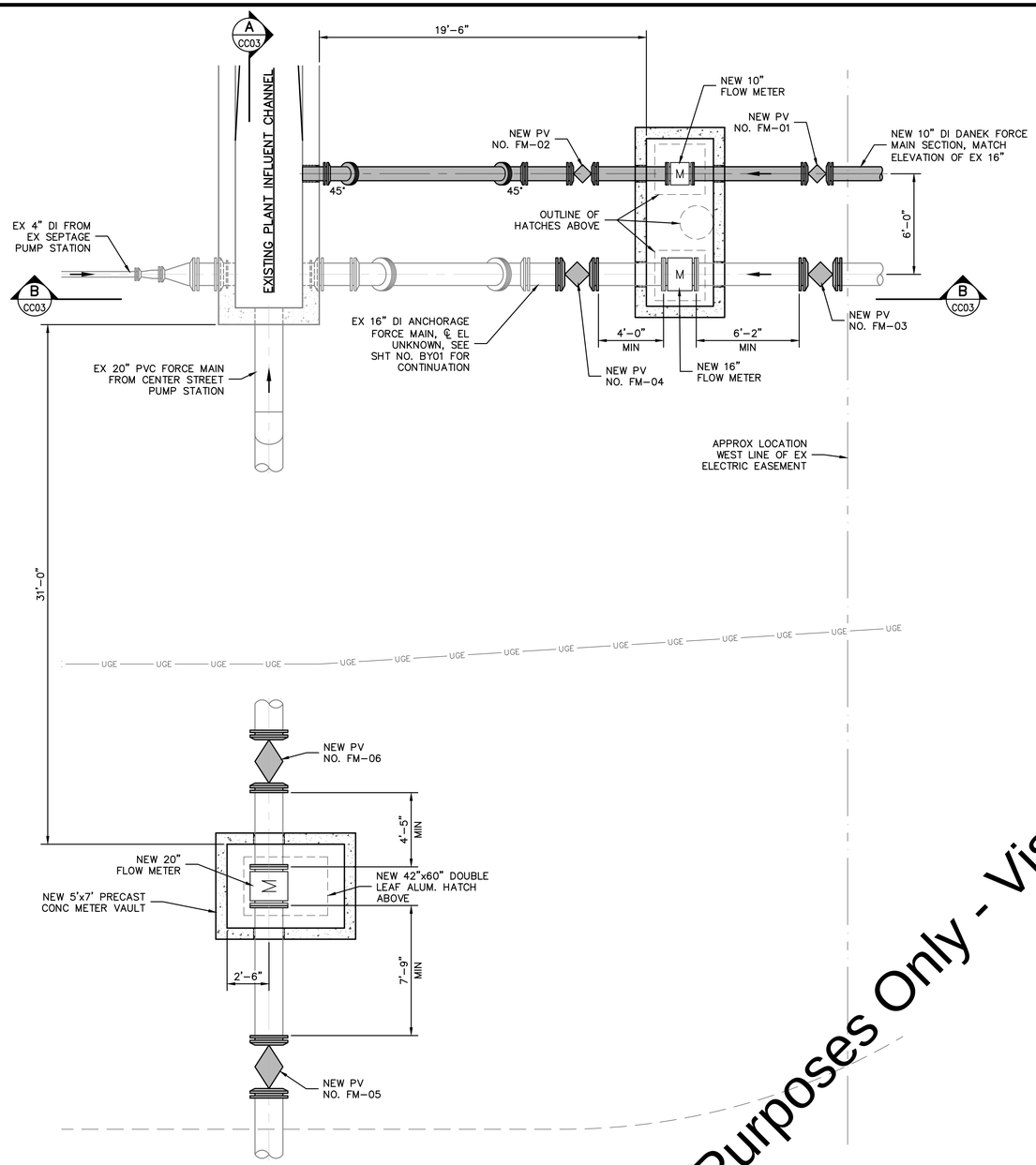
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING HEADWORKS STRUCTURE DEMOLITION PLANS AND SECTIONS

SHEET NO. **CC01**

PAGE NO. 56

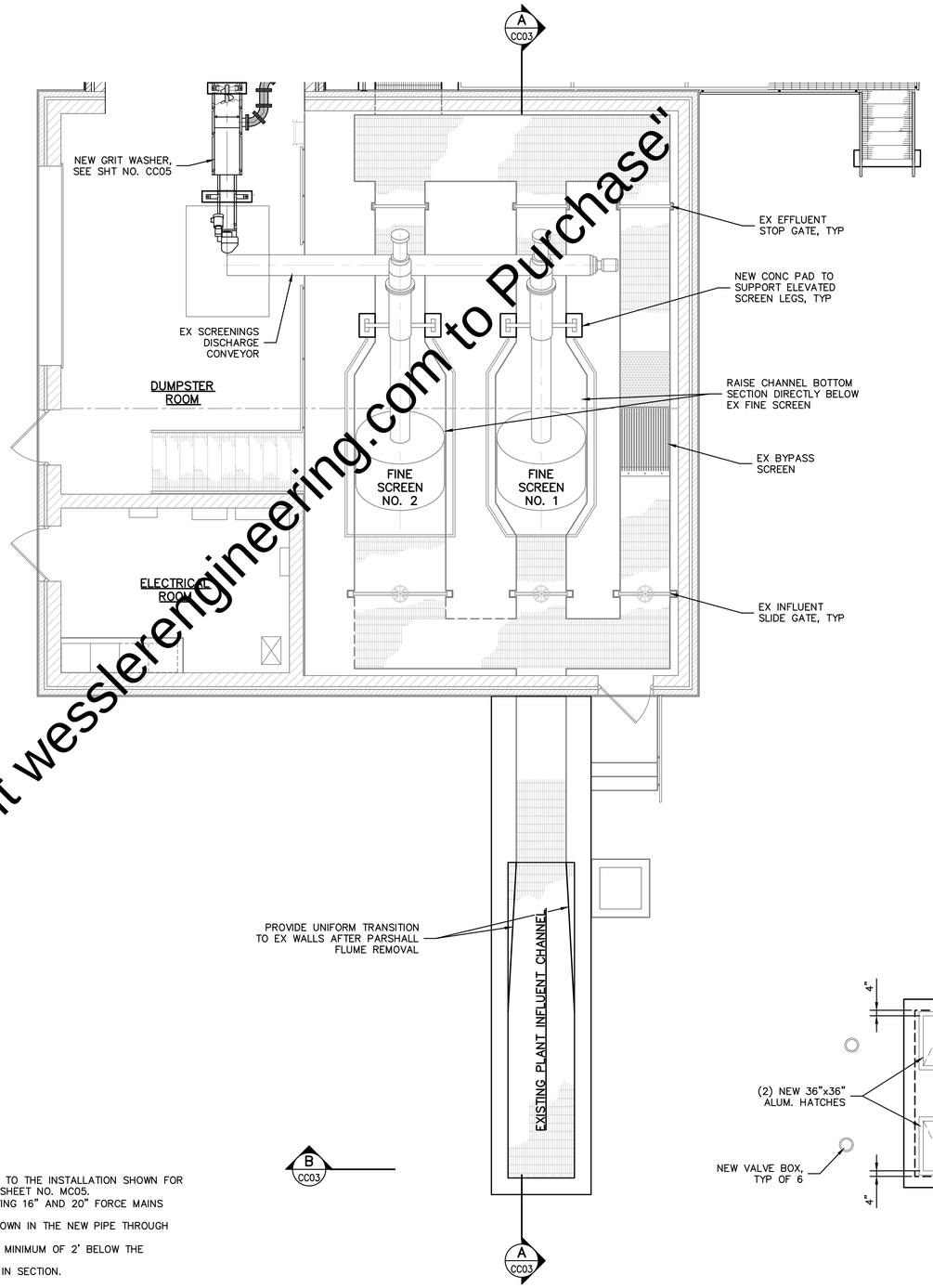


LOWER LEVEL MODIFICATION PLAN

0 2 4 8 FT

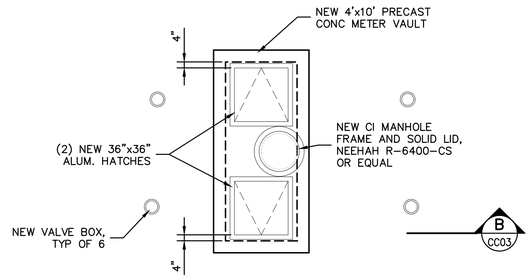
METER VAULT NOTES:

1. THE NEW METER VAULT INSTALLATION SHALL BE SIMILAR TO THE INSTALLATION SHOWN FOR THE CHEMICAL FEED LINE PULL BOXES 4, 5, AND 6 ON SHEET NO. MC05.
2. EXCAVATE TO DETERMINE THE ELEVATIONS OF THE EXISTING 16" AND 20" FORCE MAINS PRIOR TO ORDERING THE NEW VAULTS.
3. PIPE INSTALLATIONS INTO EACH VAULT SHALL BE AS SHOWN IN THE NEW PIPE THROUGH EXISTING WALL DETAIL ON SHEET NO. MC06
4. THE TOP OF FOOTING OF EACH NEW VAULT SHALL BE A MINIMUM OF 2' BELOW THE CORRESPONDING FORCE MAIN.
5. THE VAULT TOP SLAB ELEVATIONS SHALL BE AS NOTED IN SECTION.



UPPER LEVEL MODIFICATION PLAN

0 2 4 8 FT 1/4"=1'-0"



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BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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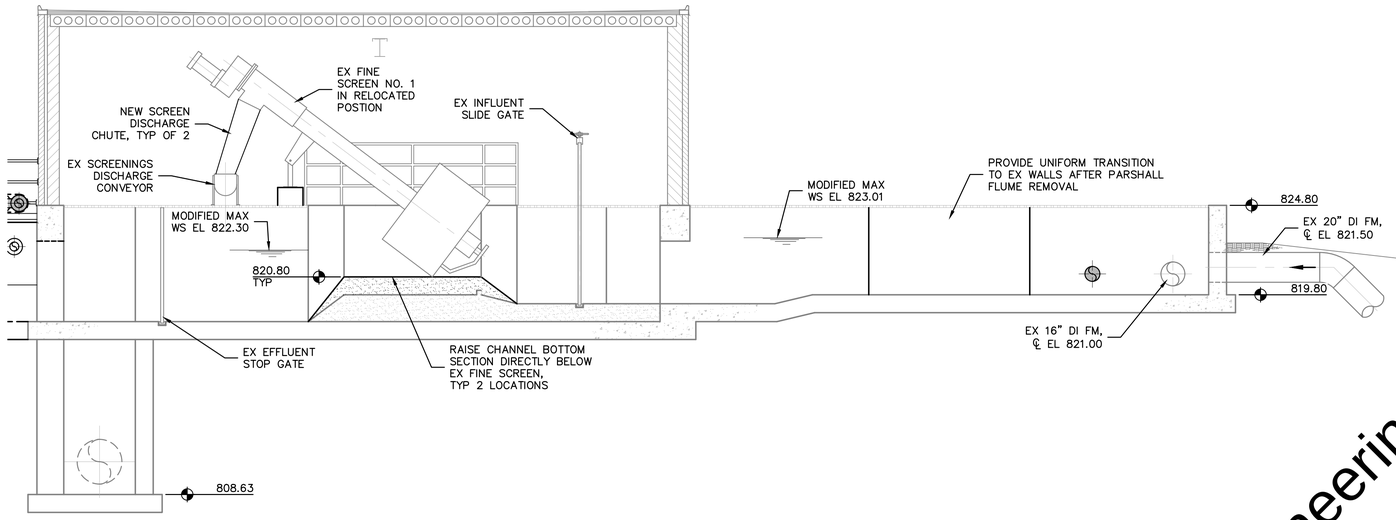
WASTEWATER TREATMENT PLANT EXPANSION - 2017

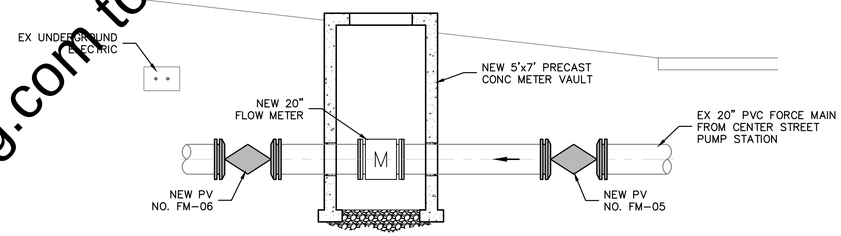
CITY OF WARSAW, INDIANA

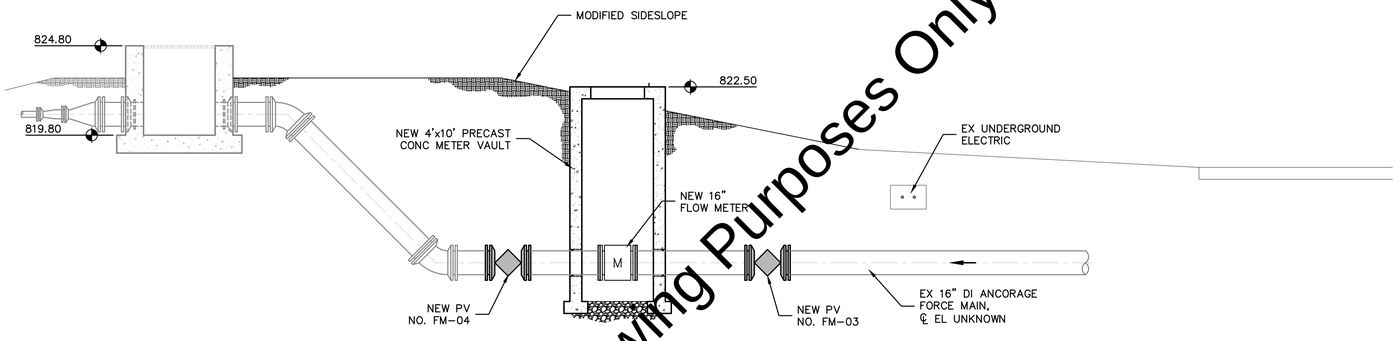
EXISTING HEADWORKS STRUCTURE MODIFICATION PLANS

SHEET NO.
CC02
PAGE NO.
57

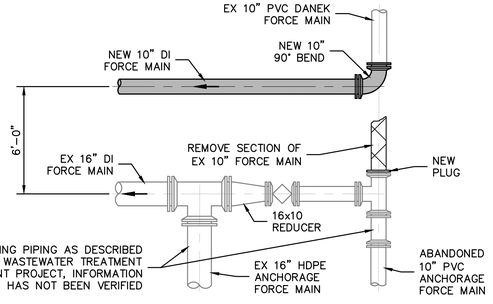


SECTION A CC02
0 2 4 8 FT
1/4"=1'-0"





SECTION B CC02
0 2 4 8 FT
1/4"=1'-0"



NEW FORCE MAIN CONNECTION DETAIL
0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

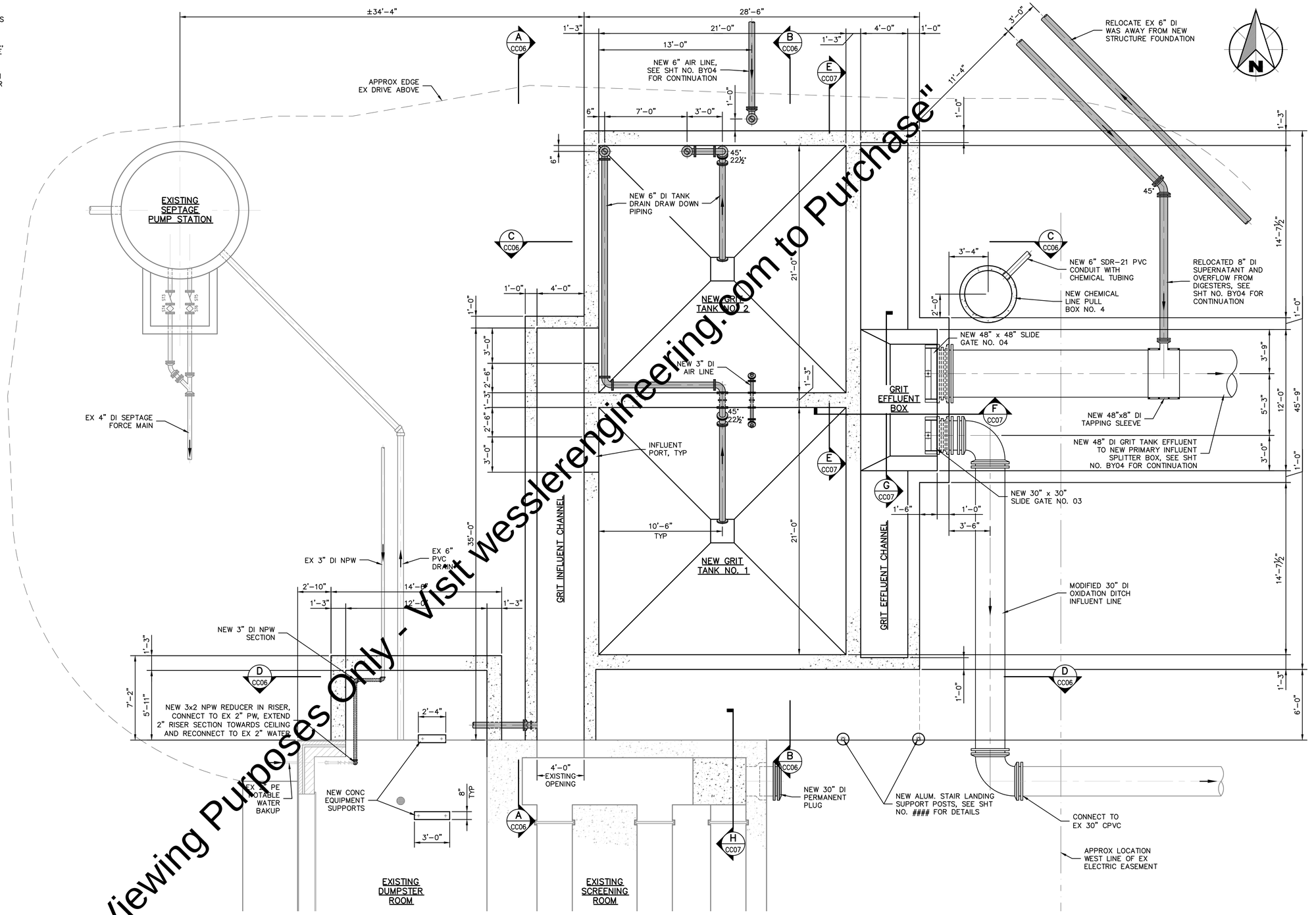
CITY OF WARSAW, INDIANA

EXISTING HEADWORKS STRUCTURE MODIFICATION SECTIONS AND DETAILS

SHEET NO.
CC03
PAGE NO.
58

GRIT TANK GENERAL NOTES:

1. THE WASTEWATER TREATMENT PLANT, CONTRACT 9 DRAWINGS, BY JONES & HENRY ENGINEERS, LTD, CORRECTED FROM CONSTRUCTION DATA IN JANUARY 2004, CALL FOR A MASONRY PLUG WITH A KNOCKOUT SECTION IN THE CONCRETE WALL ALONG THE STRUCTURE'S NORTH WALL, NORTH OF THE CHANNEL FOR EXISTING FINE SCREEN NO. 2. EXISTENCE OF MASONRY WITHIN THE WALL HAS BEEN FIELD VERIFIED, THE EXACT INSTALLED LOCATION HAS NOT.
2. ALL GRATING ALONG CHANNELS SHALL BE A MAXIMUM 4'–0" IN LENGTH FOR EASE OF REMOVAL DURING CLEANING. THE GRATING SECTION OVER STOP GATE NO. 1 SHALL BE A MAXIMUM 12" IN LENGTH FOR EASY ACCESS. THE GRATING SECTION OVER STOP GATES NO. 2 AND 3 SHALL BE THE SAME LENGTH AS THE WALL THICKNESS. SEE GRATING SUPPORT DETAILS ON SHEET NO. MC02.
3. ALL NEW DUCTILE IRON AIR PIPING AND FITTINGS SHALL BE PROVIDED WITHOUT CEMENT LINING.
4. FURNISH AND INSTALL QUICK CONNECT FITTINGS TO THE NEW 6" DI DRAIN DRAW DOWN PIPING WHICH WILL PROPERLY MATE UP TO THE EXISTING CITY OWN PORTABLE PUMP HOSES.



LOWER LEVEL PLAN

0 2 4 8 FT
1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
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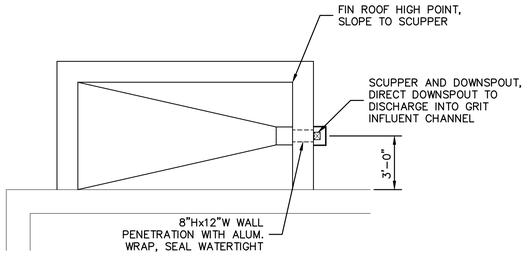
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW GRIT TANKS
LOWER LEVEL PLAN

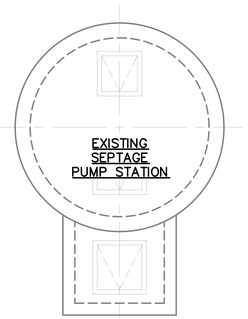
SHEET NO. **CC04**

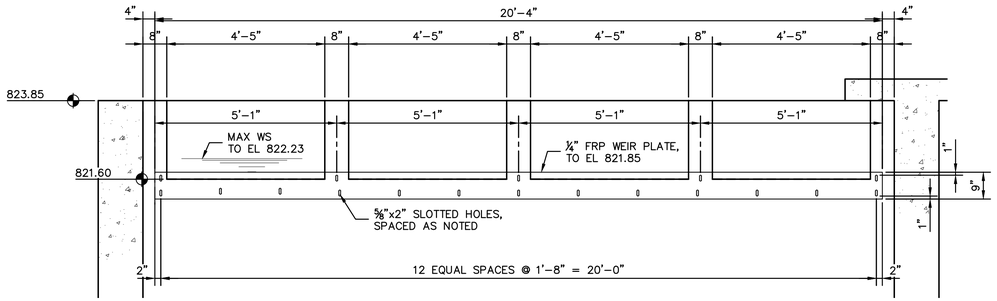
PAGE NO. 59



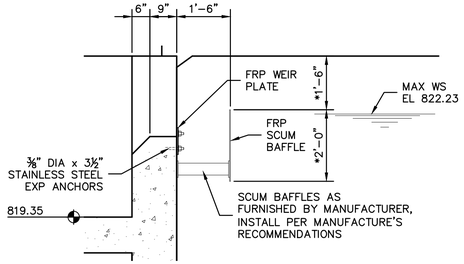
ROOF LEVEL PLAN

0 2 4 8 FT 1/4"=1'-0"





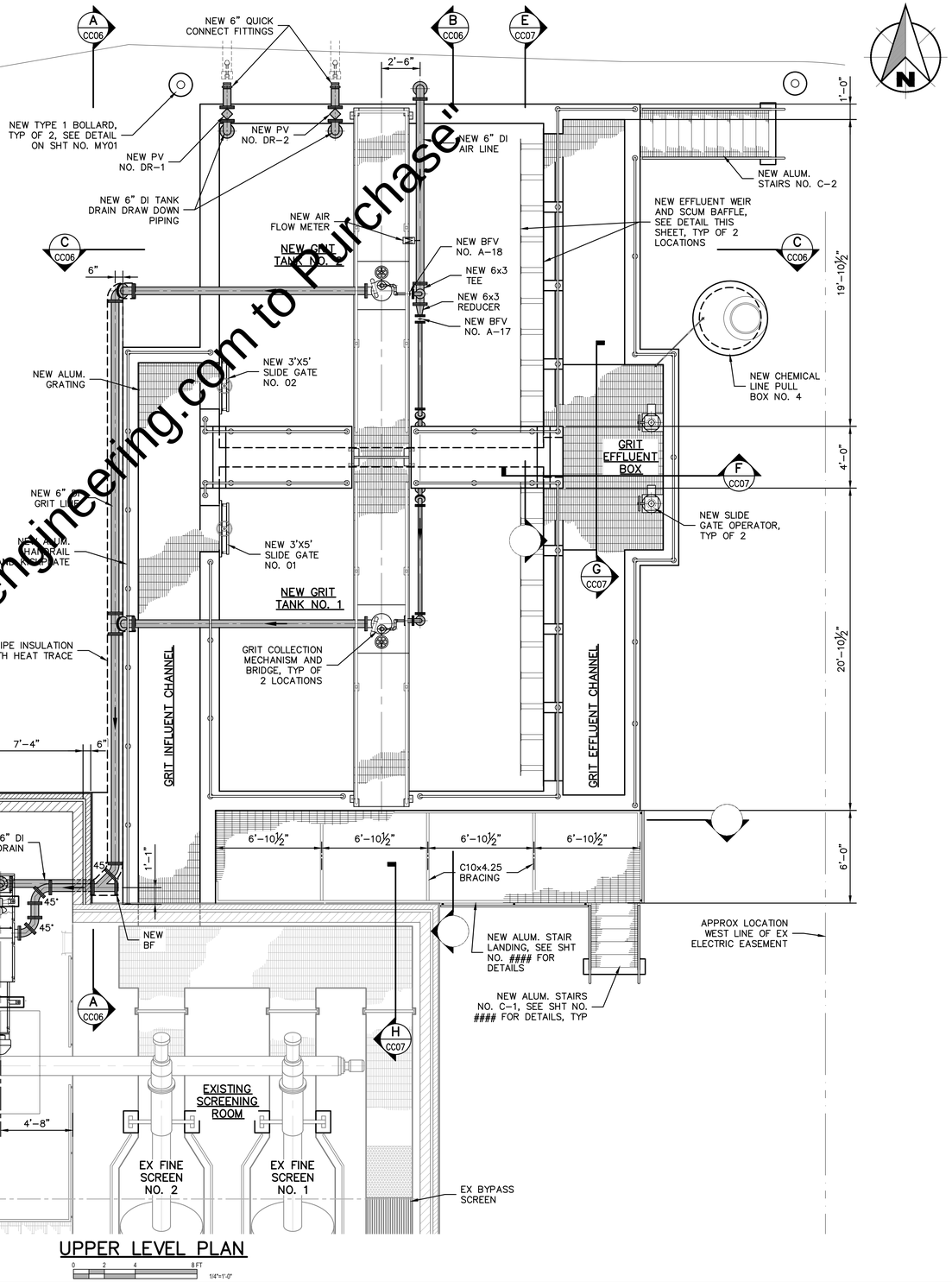
FRONT ELEVATION



TYPICAL SECTION

GRIT TANK EFFLUENT WEIR & BAFFLE DETAILS

0 4 8 16 FT 1/8"=1'-0"



UPPER LEVEL PLAN

0 2 4 8 FT 1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
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	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

BRET L. RUSTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 04/2018

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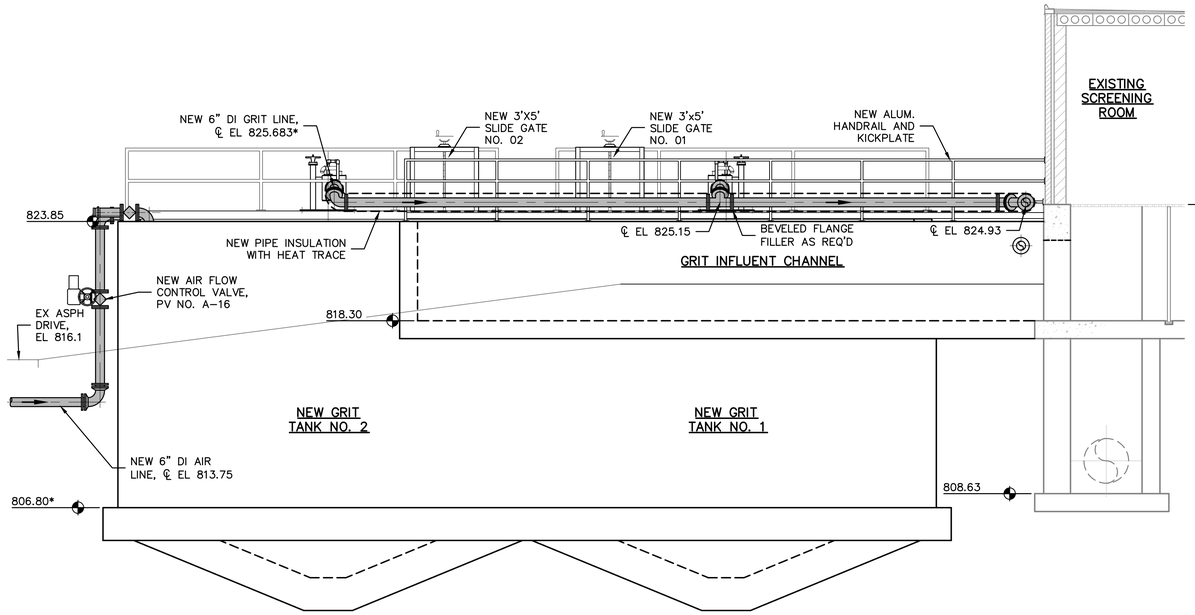
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

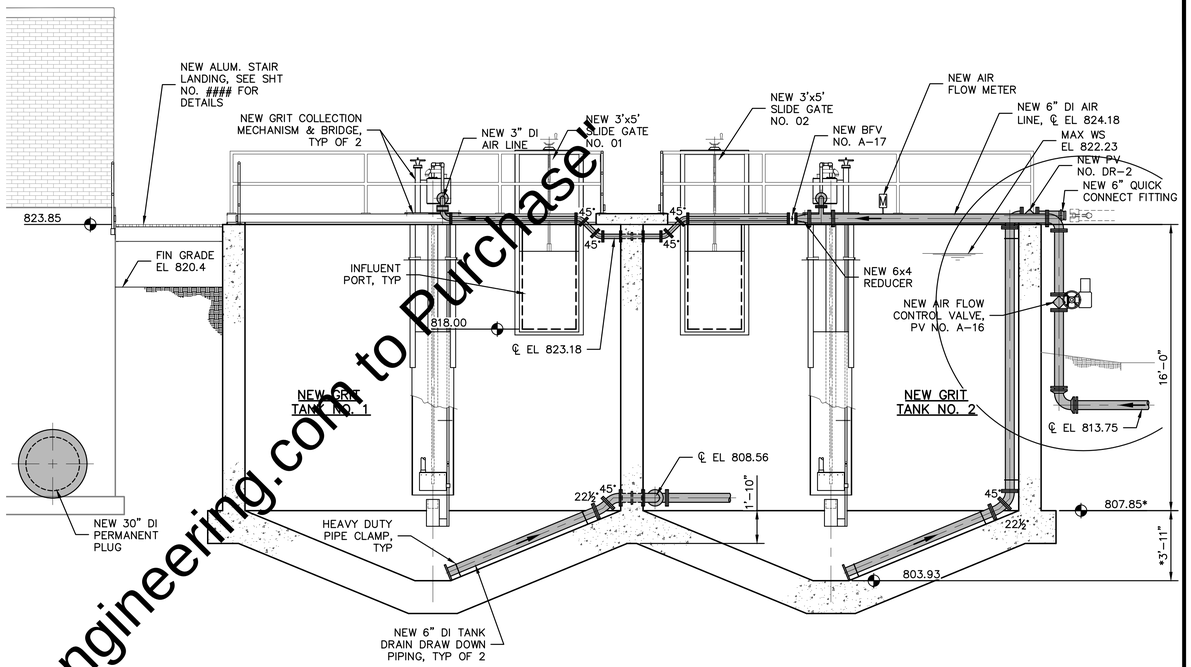
NEW GRIT TANKS
UPPER LEVEL PLAN AND DETAILS

SHEET NO. **CC05**

PAGE NO. 60



SECTION A
0 2 4 8 FT 1/4"=1'-0"
CC04, CC05



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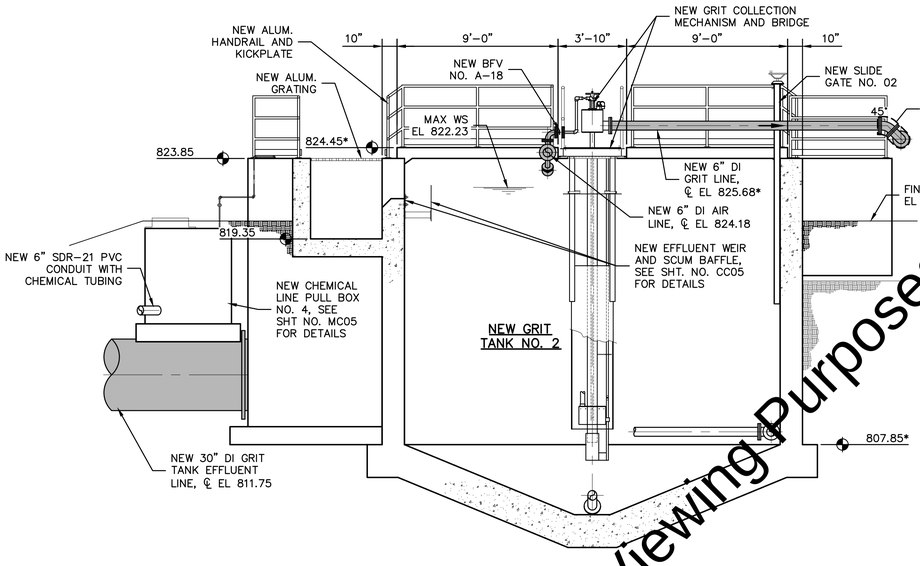
CC04, CC05



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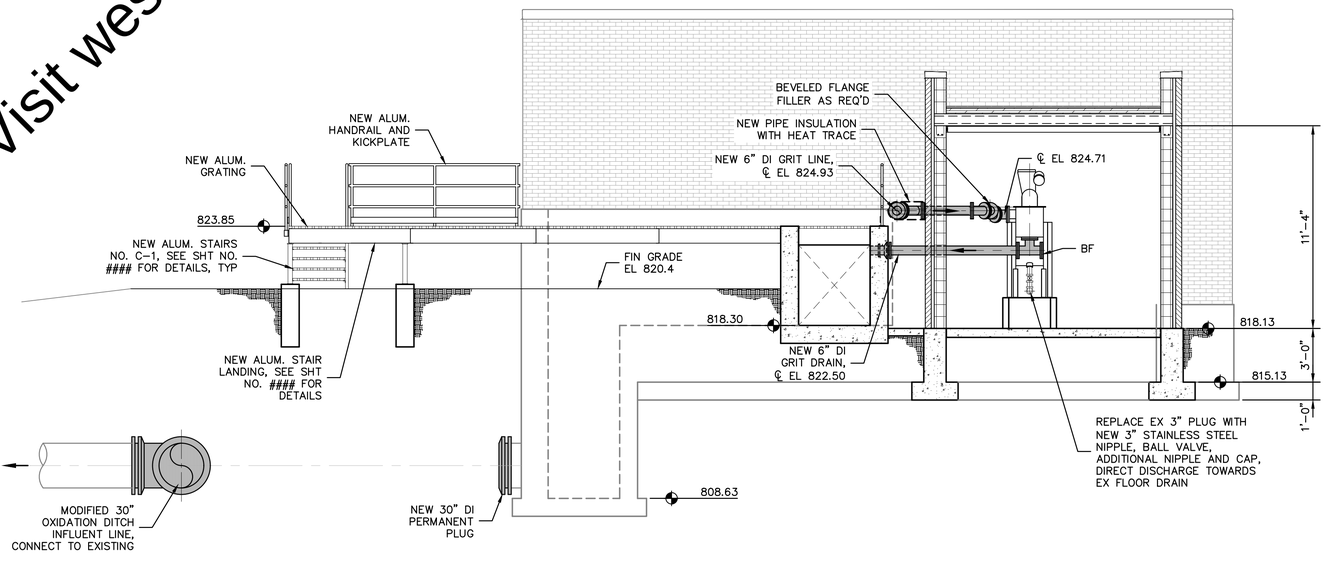
CC04, CC05



SECTION D
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CC04, CC05

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUSIN REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 9/4/2018

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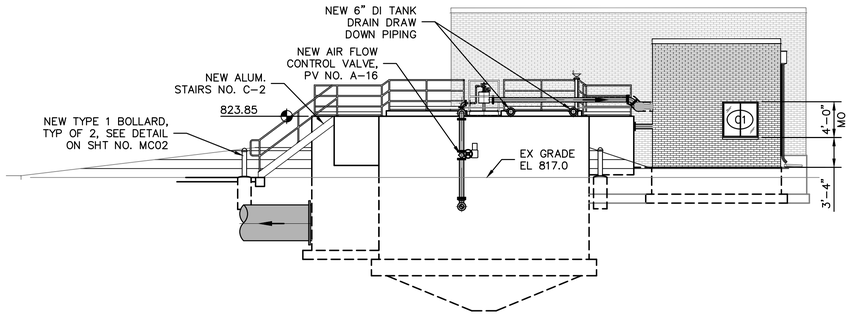
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

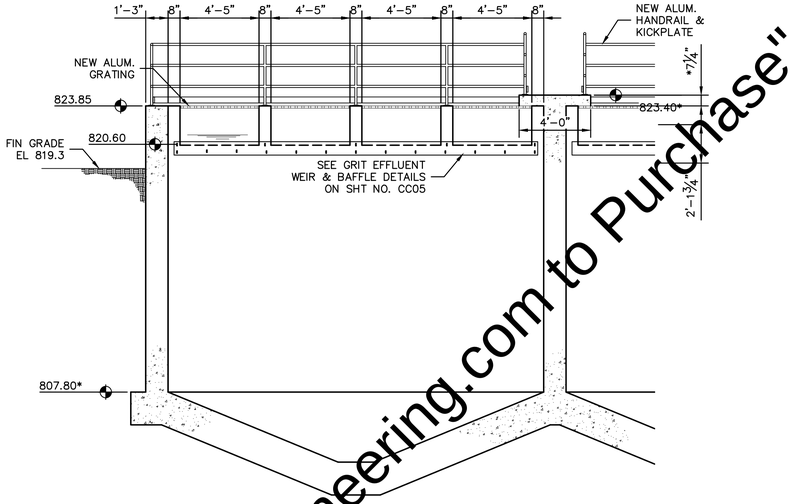
NEW GRIT TANKS SECTIONS

SHEET NO.
CC06
PAGE NO.
61

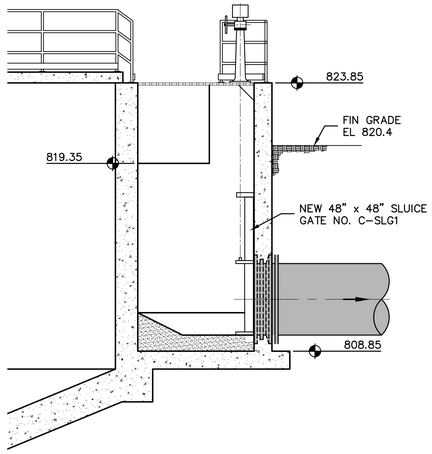


NORTH ELEVATION

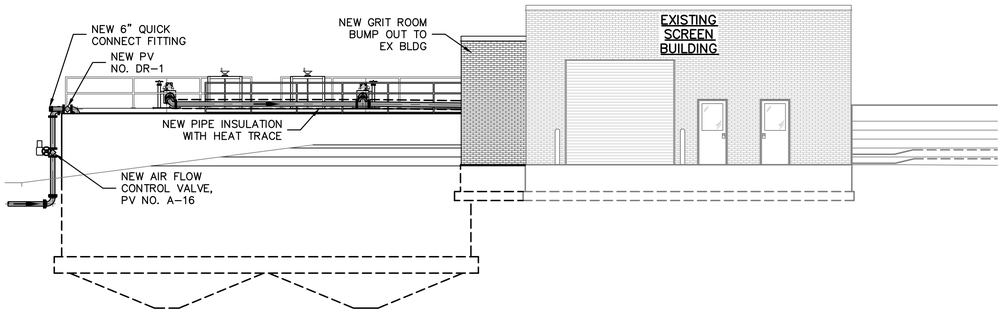
0 4 8 16 FT 1/8"=1'-0"



SECTION E 0 2 4 8 FT 1/4"=1'-0" CC04, CC05

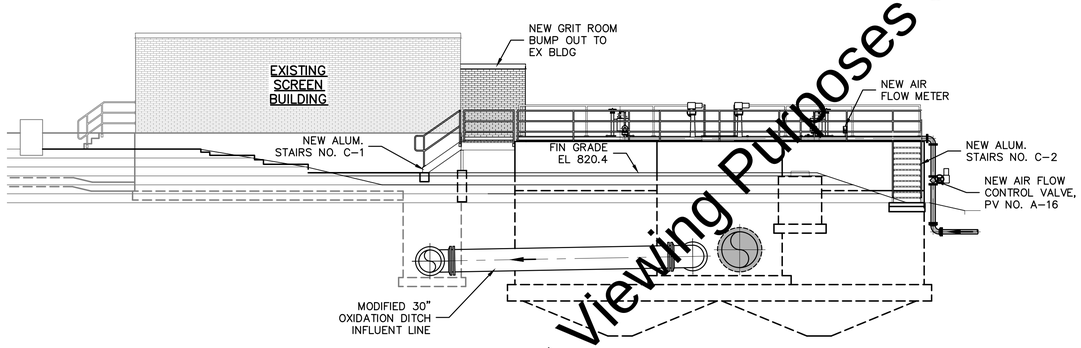


SECTION F 0 2 4 8 FT 1/4"=1'-0" CC04, CC05



WEST ELEVATION

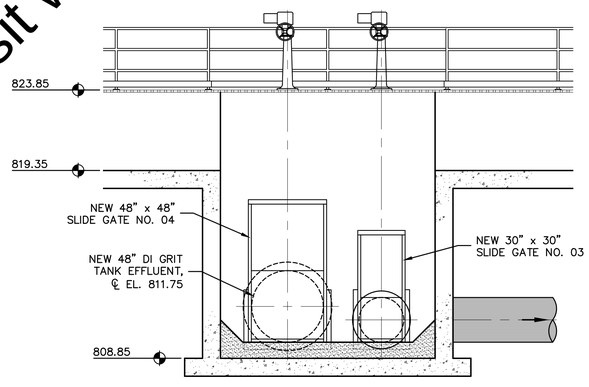
0 4 8 16 FT 1/8"=1'-0"



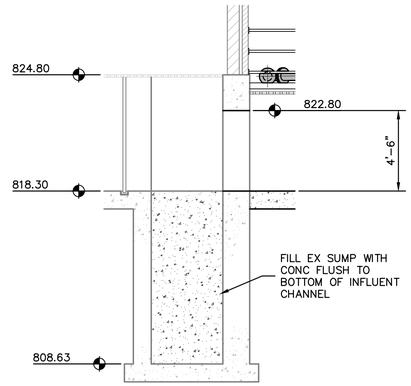
EAST ELEVATION

0 4 8 16 FT 1/8"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.



SECTION G 0 2 4 8 FT 1/4"=1'-0" CC04, CC05



SECTION H 0 2 4 8 FT 1/4"=1'-0" CC04, CC05

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW GRIT TANKS
SECTIONS AND ELEVATIONS

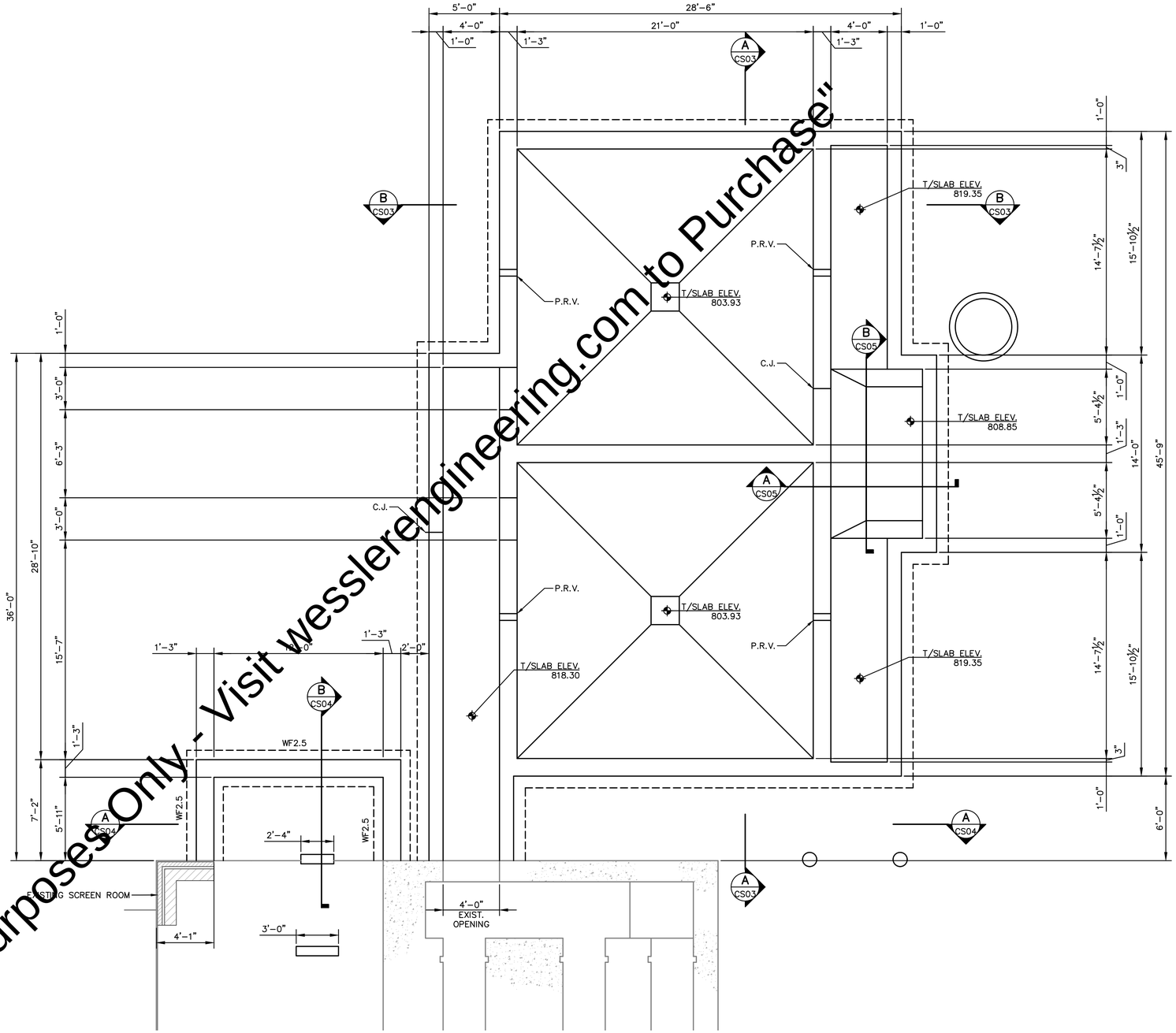
SHEET NO. **CC07**

PAGE NO. 62

FOUNDATION PLAN NOTES: ○ INDICATES NOTE REFERENCED ON PLAN

1. SEE SHEET AS01 AND AS02 FOR GENERAL STRUCTURAL NOTES. SEE SHEETS MS01 TO MS04 FOR TYPICAL STRUCTURAL DETAILS.
2. SEE PROCESS DRAWINGS FOR ADDITIONAL REQUIREMENTS INCLUDING CONCRETE FILL, GROUT BEDS, PIPE PENETRATIONS, ETC.
3. SEE SITE CIVIL FOR FINAL GRADE ELEVATIONS.
4. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER SLAB-ON-GRADE.
5. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
6. ALL FOOTINGS ARE CENTERED BENEATH BEARING WALLS UNLESS NOTED OTHERWISE.
7. REFER TO CIVIL DRAWINGS FOR WALL LAYOUT, OPENING SIZES AND LOCATIONS.
8. CONTRACTOR TO PLACE 4 WALL MOUNTED PRESSURE RELIEF VALVES (P.R.V.). SEE DETAIL 11/MS01. PROVIDE 6" DIA. P.R.V. INSTALL P.R.V. 3'-0" ABOVE FOUNDATION SLAB, TYP. TWO P.R.V.s REQUIRED PER GRIT TANK. INSTALL P.R.V.S AT EXTERIOR WALLS ONLY.

WALL FOOTING SCHEDULE					
MARK	FOOTING DIMENSION			REINFORCEMENT	
	W	L	T	W	L
WF2.5	2'-6"	CONT.	12"	#4 AT 18"	4 - #5 CONT.
FOUNDATION DESIGN VALUES:					
ALLOWABLE BEARING PRESSURE = 2,500 PSF					



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

CE Solutions
structural engineers
10 Shoshone Drive 317.818.1912
Carmel, IN 46032 cesolutionsinc.com

SCALE VERIFICATION
BAR IS ONE INCH LONG ON ORIGINAL DRAWING

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PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

CARL E. BRADWAY REGISTERED No. 10200054 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
NEW GRIT TANKS
LOWER LEVEL PLAN

SHEET NO.
CS01
PAGE NO.
63

FOUNDATION PLAN NOTES: ○ INDICATES NOTE REFERENCED ON PLAN

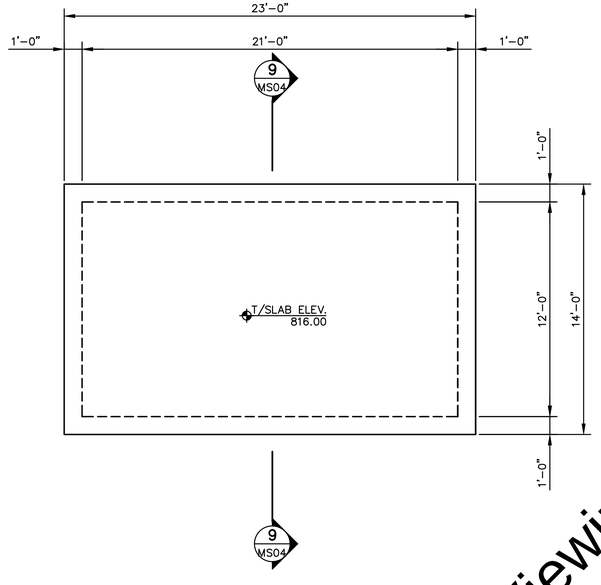
1. SEE SHEET AS01 AND AS02 FOR GENERAL STRUCTURAL NOTES. SEE SHEETS MS01 TO MS04 FOR TYPICAL STRUCTURAL DETAILS.
2. SEE PROCESS DRAWINGS FOR ADDITIONAL REQUIREMENTS INCLUDING CONCRETE FILL, GROUT BEDS, PIPE PENETRATIONS, ETC.
3. SEE SITE CIVIL FOR FINAL GRADE ELEVATIONS.
4. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER SLAB-ON-GRADE.
5. FLOOR SLAB SHALL CONSIST OF A 6-INCH CONCRETE SLAB-ON-GROUND OVER 8-INCHES OF COMPACTED AGGREGATE FILL AND A 10-MIL VAPOR RETARDER. REINFORCE SLAB WITH #3 BARS AT 12-INCHES O.C. EACH WAY.
6. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION, OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
7. ALL FOOTINGS ARE CENTERED BENEATH BEARING WALLS UNLESS NOTED OTHERWISE.
8. REFER TO CIVIL DRAWINGS FOR WALL LAYOUT, OPENING SIZES AND LOCATIONS.
9. CONTRACTOR TO PLACE 2 WALL MOUNTED PRESSURE RELIEF VALVES (P.R.V.). SEE DETAIL 11/MS01. PROVIDE 6" DIA. P.R.V. INSTALL P.R.V. 3'-0" ABOVE FOUNDATION SLAB, TYP. ONE P.R.V. REQUIRED PER GRIT TANK. INSTALL P.R.V.S AT EXTERIOR WALLS ONLY.

MASONRY WALL REINFORCING SCHEDULE	
(A)	8-INCH CMU WALL 8-INCH NORMAL WEIGHT CMU BLOCK VERTICAL: #5 BARS AT 32-INCHES O.C. MAX. HORIZONTAL: (2) #5 BARS IN 8" BOND BEAM AT BOTTOM OF HOLLOWCORE PLANKS #9 TRUSS TYPE JOINT REINF. AT 16-INCHES O.C. (8" LAP)

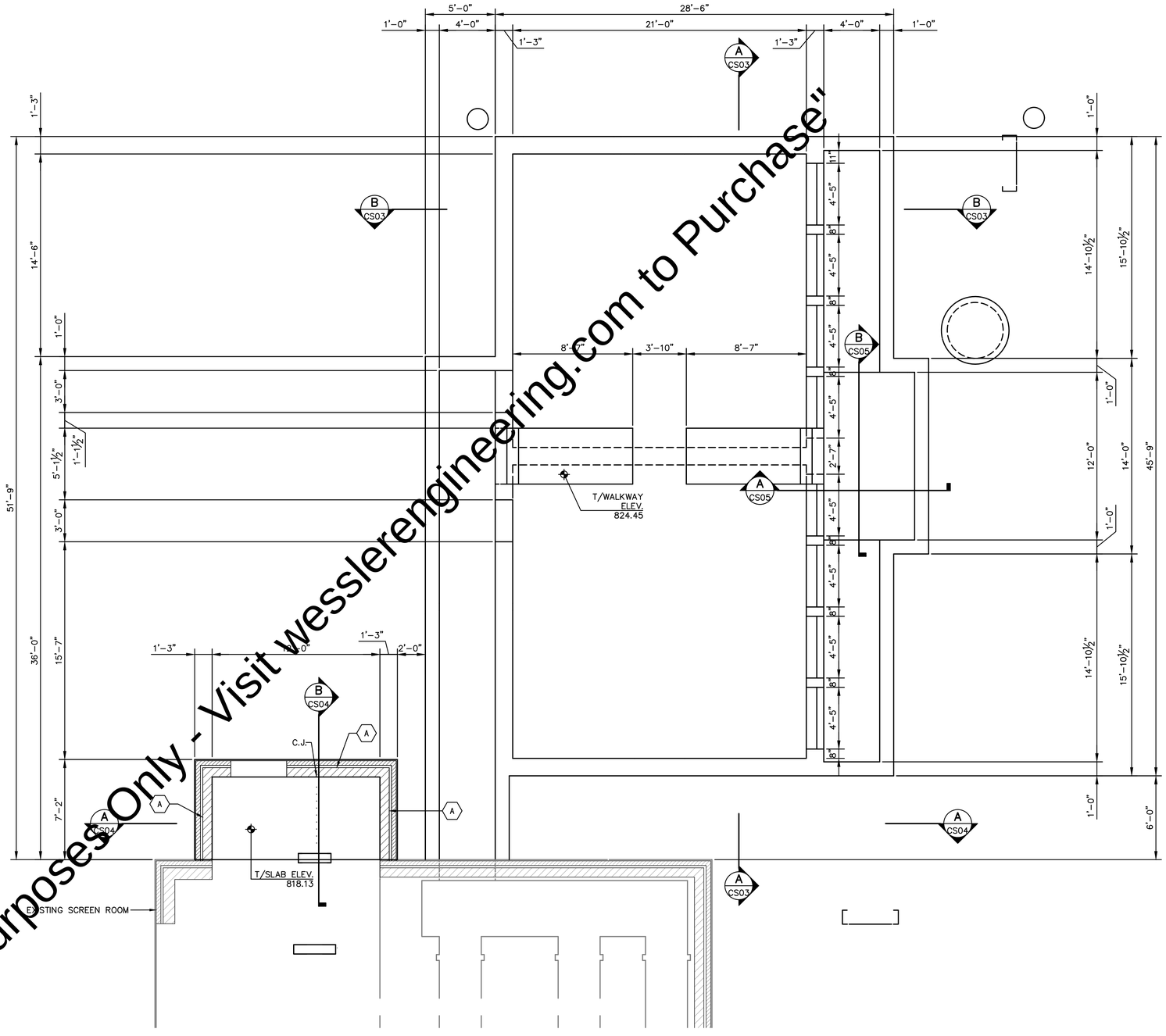
MASONRY NOTES:

1. REINFORCE ALL WALLS AS NOTED BY SCHEDULE EXCEPT AS NOTED ON PLANS AND/OR DETAILS.
2. PROVIDE A 1'-0" HOOK AT TOP OF ALL VERTICAL BARS.
3. SEE CIVIL. DWGS. FOR LOCATION OF CMU WALLS.

1'-0" / 3'-0" MIN.



NEW EMERGENCY GENERATOR PAD PLAN
SCALE: 1/4"=1'-0"



UPPER LEVEL PLAN
SCALE: 1/4"=1'-0"

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structural engineers
10 Shoshone Drive Carmel, IN 46032 317.818.1912 cesolutionsinc.com

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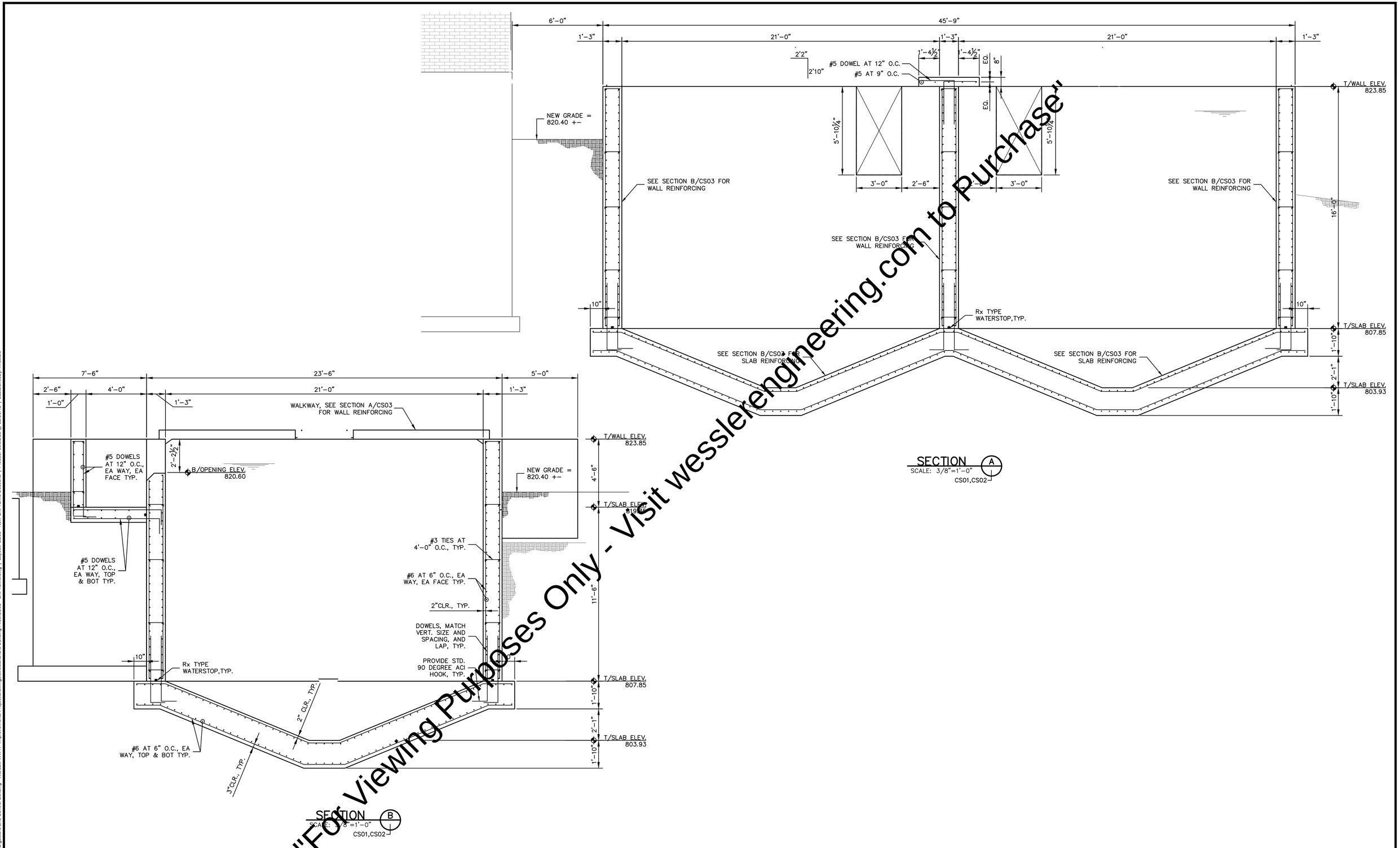
WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
NEW GRIT TANKS AND EMERGENCY GENERATOR PAD
UPPER LEVEL PLAN

SHEET NO.
CS02
PAGE NO.
64



SECTION A
SCALE: 3/8"=1'-0"
CS01,CS02

SECTION B
SCALE: 3/8"=1'-0"
CS01,CS02

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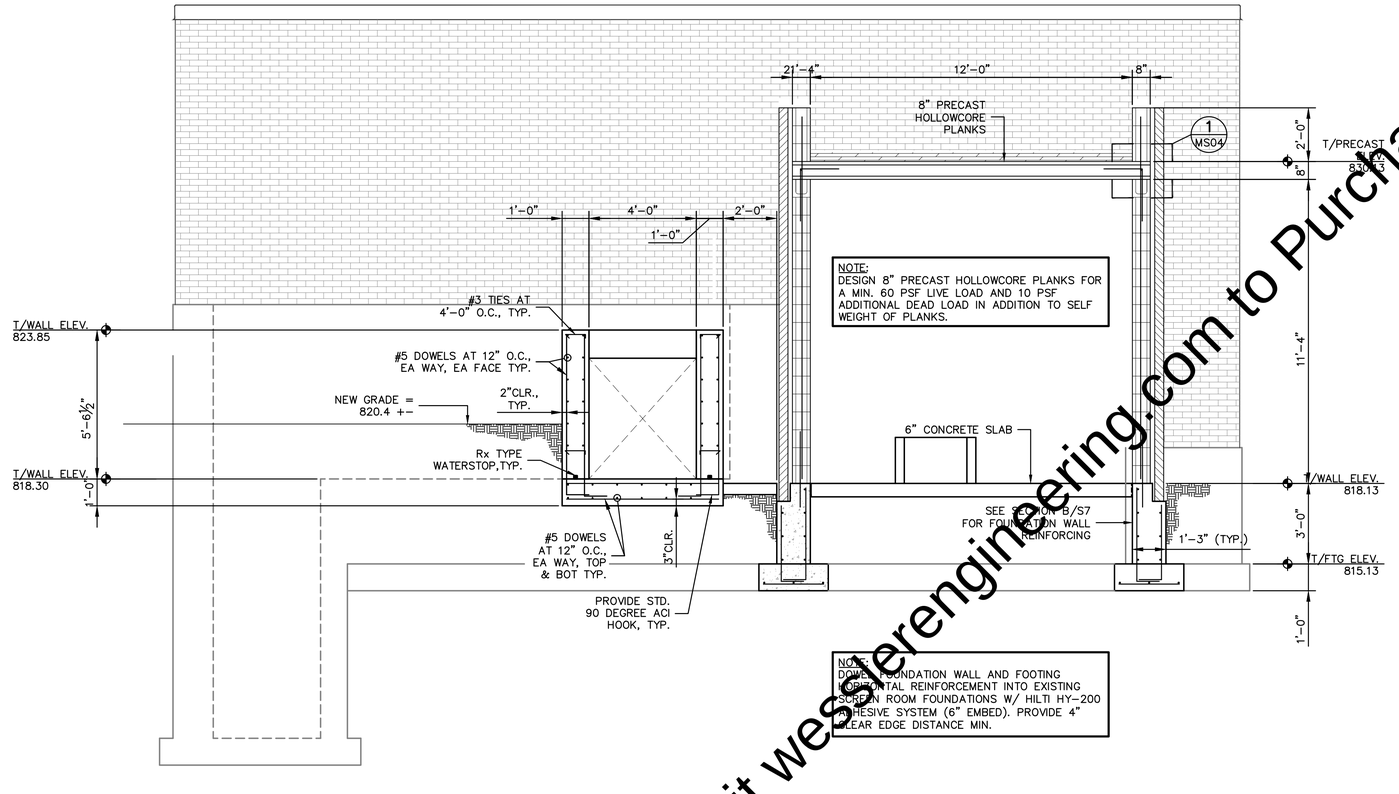
WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
NEW GRIT TANK
SECTIONS

SHEET NO.
CS03
PAGE NO.
65



SECTION A
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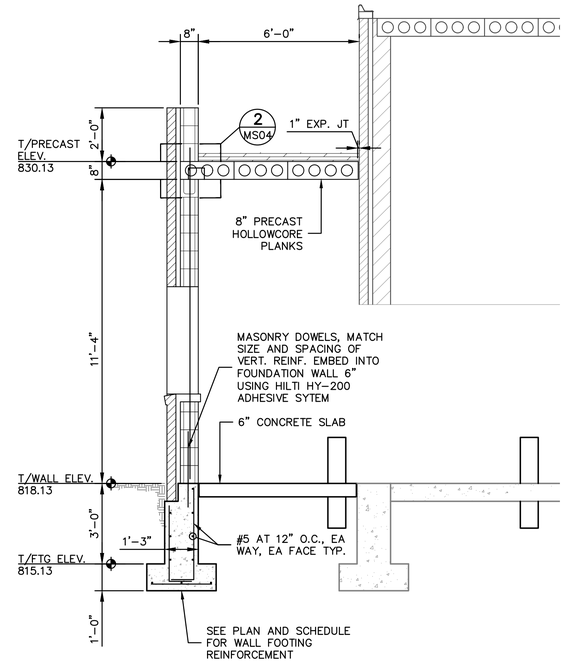
CS01,CS02



SECTION B
SCALE: 3/8"=1'-0"
CS01,CS02

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SCALE VERIFICATION
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ISSUE DATE	SEPTEMBER 4, 2018
PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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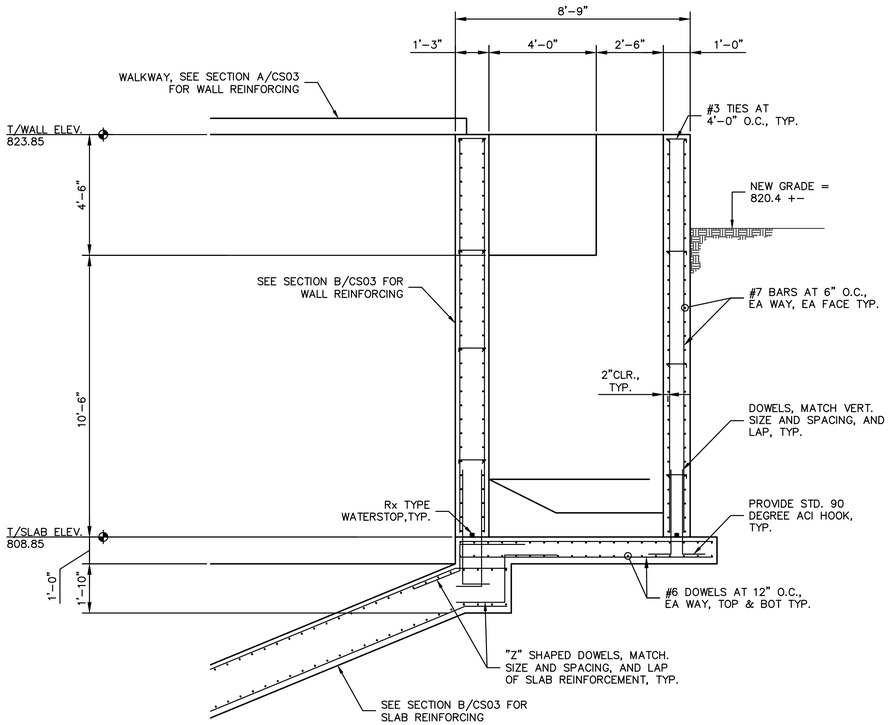
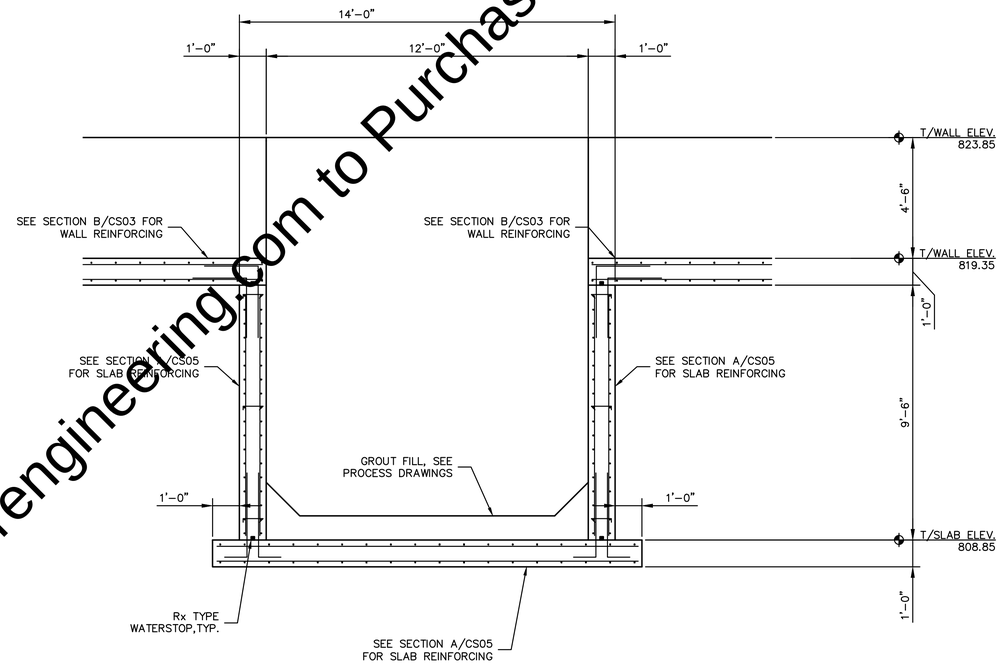
WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
NEW GRIT TANK
SECTIONS AND GRIT ROOM

SHEET NO.
CS04
PAGE NO.
66



SECTION A
SCALE: 3/8"=1'-0"
CS01,CS02



SECTION B
SCALE: 3/8"=1'-0"
CS01,CS02

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317.818.1912 cesolutionsinc.com

SCALE VERIFICATION
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ISSUE DATE	SEPTEMBER 4, 2018
PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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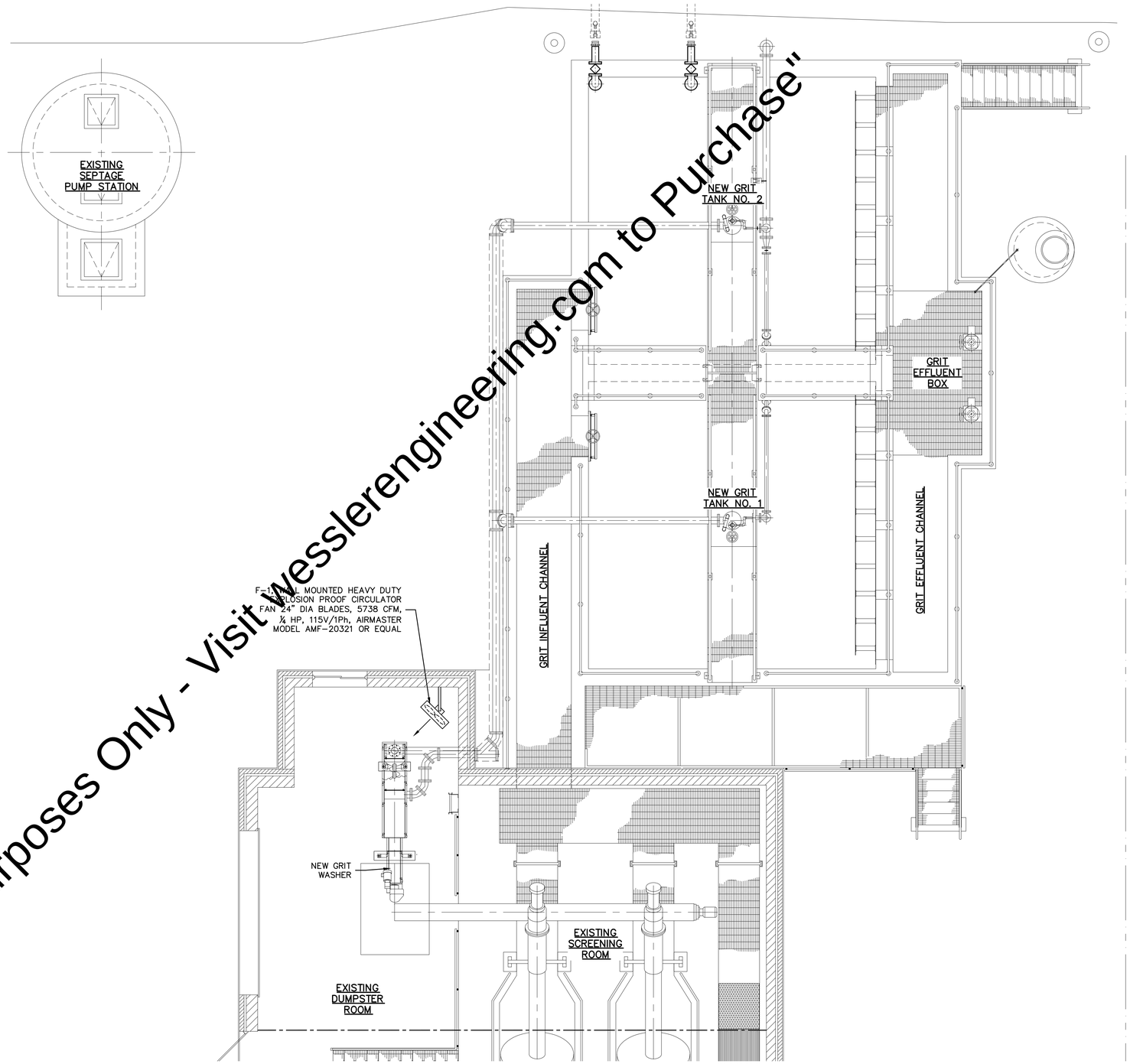
WASTEWATER TREATMENT PLANT EXPANSION - 2017
CITY OF WARSAW, INDIANA
NEW GRIT TANK SECTIONS

SHEET NO.
CS05
PAGE NO.
67



MECHANICAL PLAN

0 2 4 8FT

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
	CHECKED BY	RKB					
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	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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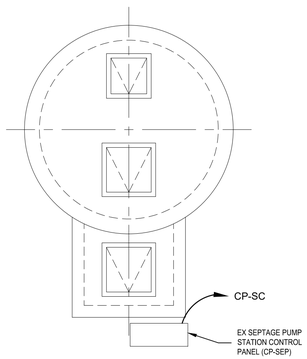
WASTEWATER TREATMENT PLANT EXPANSION - 2017

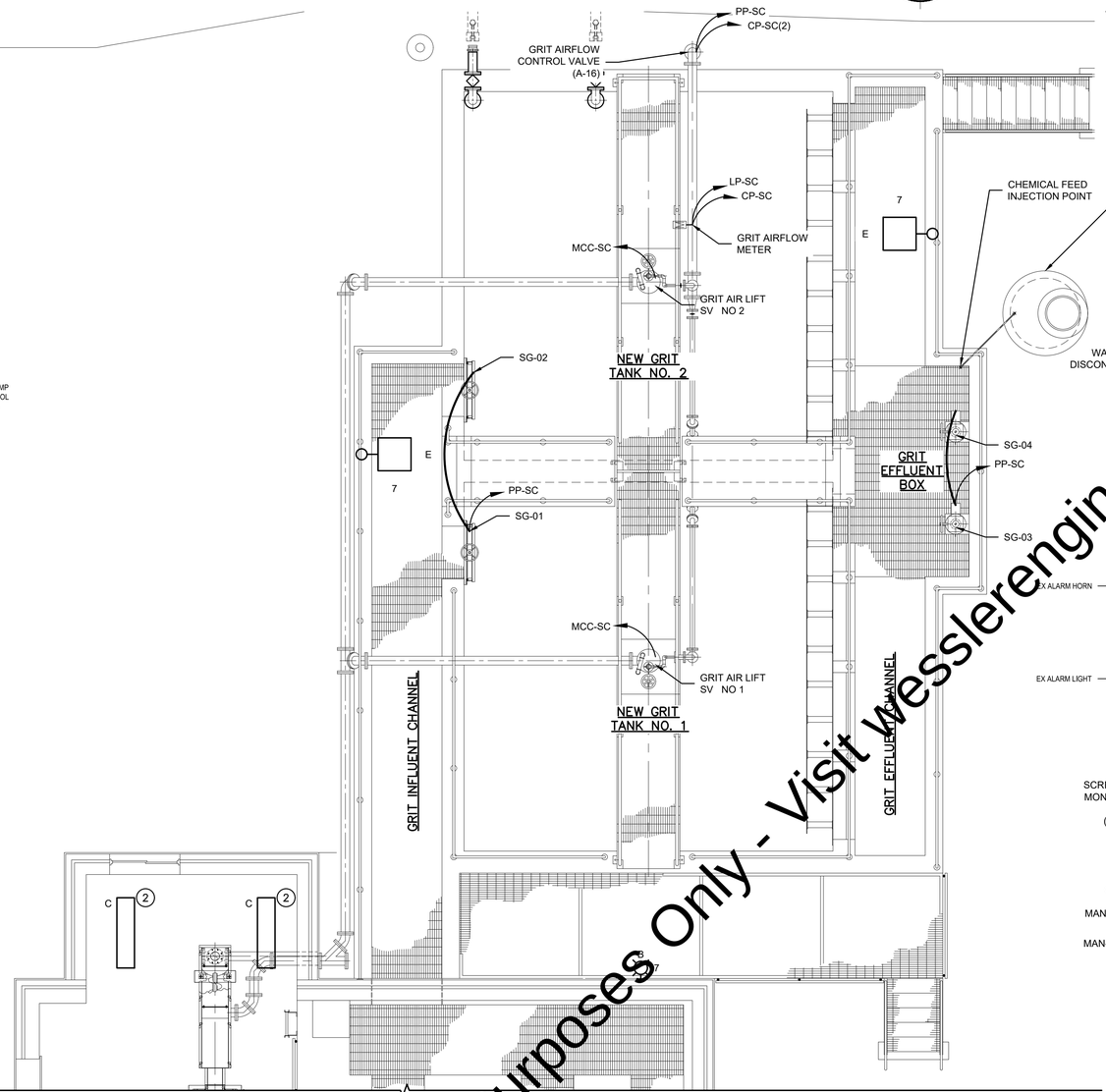
CITY OF WARSAW, INDIANA

EXISTING SCREEN BUILDING
DUMPSTER ROOM MODIFICATIONS
MECHANICAL PLAN

SHEET NO.
CM01
PAGE NO.
XXX

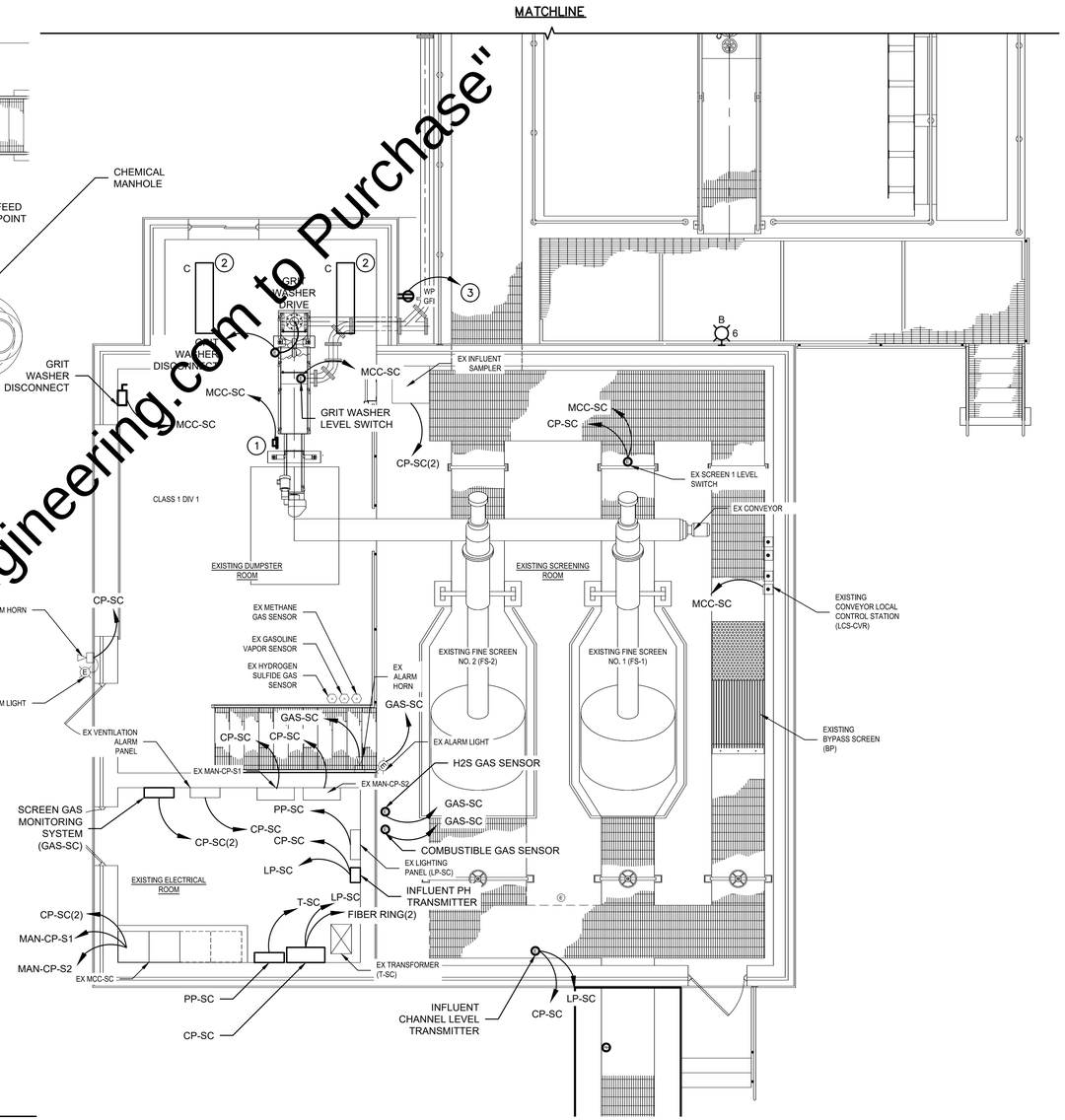


SEPTAGE AREA



NORTH ELECTRICAL AND LIGHTING PLAN

0 4 8 FT
1/4"=1'-0"



KEYED NOTES:

1. PROVIDE LOCAL CONTROL STATION AT THIS LOCATION. PROVIDE UNISTRUT AS REQUIRED. NEW STARTER FOR WASHER LOCATED IN ELECTRICAL ROOM MCC-SC.
2. MATCH EXISTING LIGHT FIXTURE THIS AREA. PROVIDE TWO FIXTURE AS SHOWN. CONNECT TO EXISTING LIGHTING CIRCUIT AND SWITCH SYSTEM.
3. MOUNT NEW GFI RECEPTACLE AT THIS LOCATION. CONNECT TO NEW 1P-20A BREAKER IN CLOSEST 120V PANEL.

SOUTH ELECTRICAL AND LIGHTING PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

MAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER

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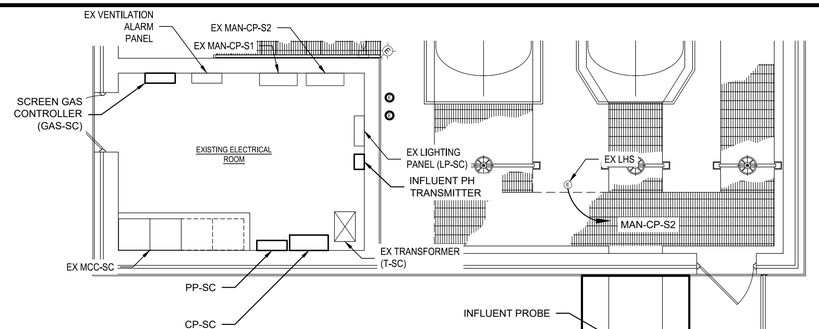
WASTEWATER TREATMENT PLANT EXPANSION - 2017

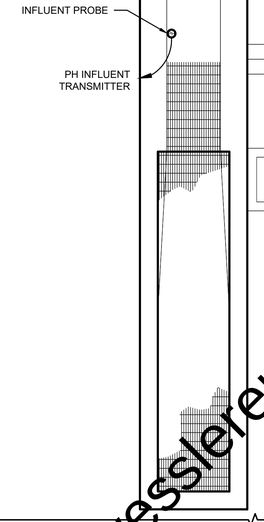
CITY OF WARSAW, INDIANA

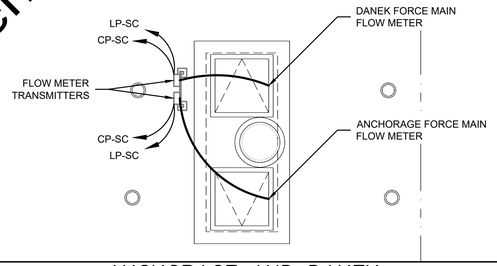
EXISTING HEADWORKS STRUCTURE AND NEW GRIT TANKS ELECTRICAL PLAN

SHEET NO.
CE01
PAGE NO.
69

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWGS\Sheets\Elect\162813-E-Ex Screen Bldg.dwg | Layout: CE01 | Plotted: 09/04/18 @ 09:11:50 | LastSavedBy: JohnH | Project No.: 162812-04-003

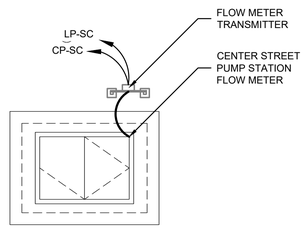






ANCHORAGE AND DANEK PUMP STATIONS METER VAULT

0 2 4 8 FT
1/4"=1'-0"



CENTER STREET PUMP STATION METER VAULT

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS					
	APPROVED BY	WCM					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER

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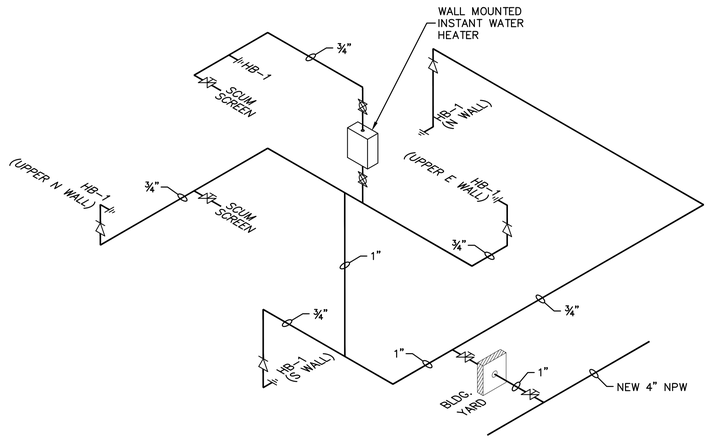
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

PLANT INFLUENT

SHEET NO.
CE02
PAGE NO.
70

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-00\1DWG\Sheets\Each\162813-E-Ex Screen Bldg.dwg | Layout: CE02 | Plotted: 09/04/18 @ 09:12:19 | LastSavedBy: JohnH | Project No.: 162813-04-003

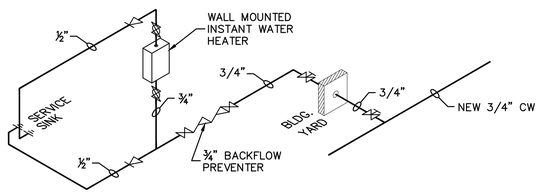


PRIMARY BUILDING NON POTABLE WATER (NPW) SCHEMATIC

NO SCALE

LEGEND

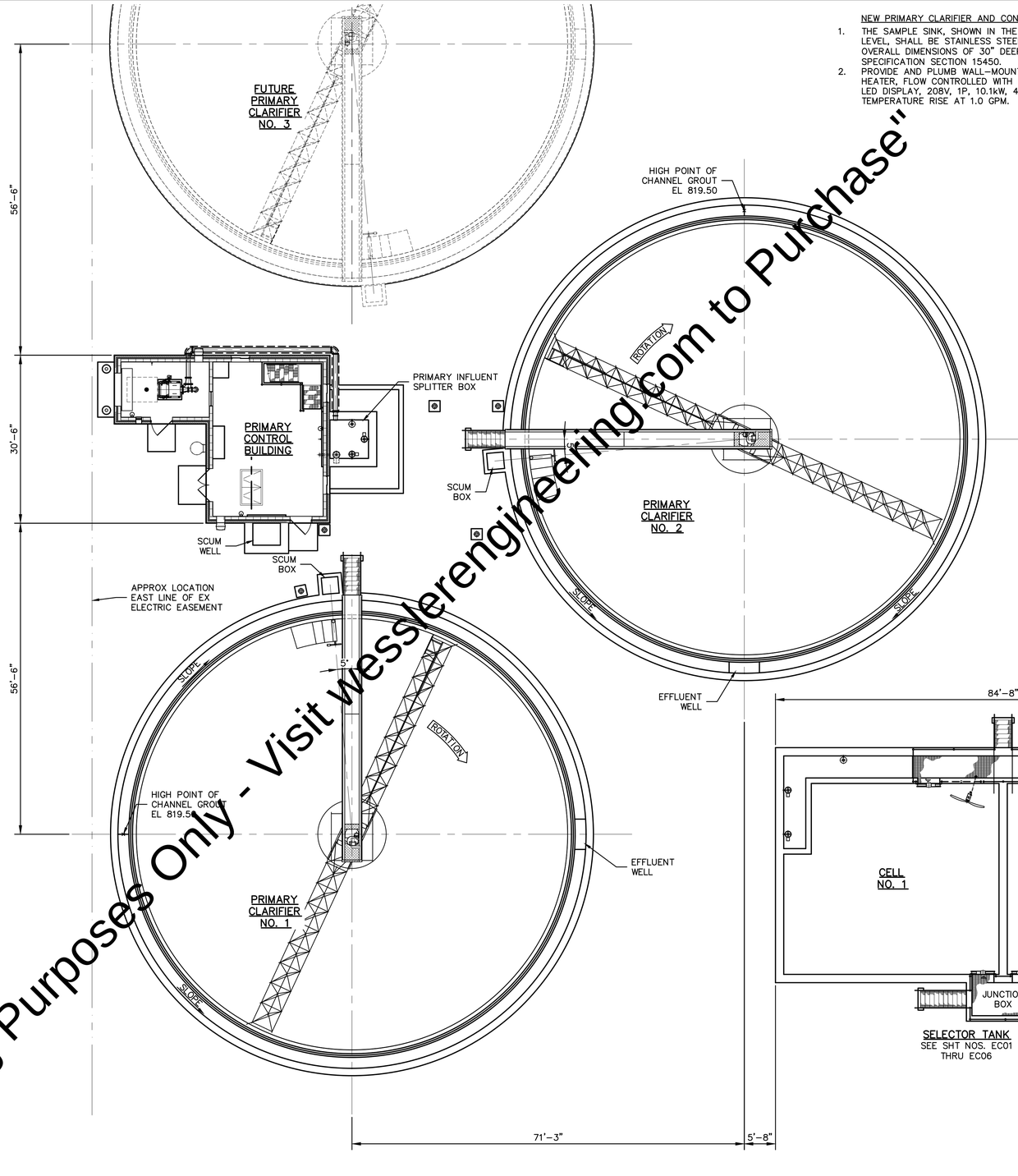
HB–1	HOSE BIB (INDOORS)
HB–2	HOSE BIB (NON FREEZE)
WH	WALL HYDRANT
YH–1	1" YARD HYDRANT
YH–2	1½" YARD HYDRANT
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
⊠	BALL VALVE
⊠	CORPORATION STOP
▷|	CHECK VALVE
⋈	REDUCER



PRIMARY BUILDING CITY WATER SCHEMATIC

NO SCALE

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.



NEW PRIMARY CLARIFIERS AND ASSOCIATED STRUCTURES – OVERALL LAYOUT PLAN

0 5 10 20 FT
3/32"=1'-0"

NEW PRIMARY CLARIFIER AND CONTROL BUILDING GENERAL NOTES:

1. THE SAMPLE SINK, SHOWN IN THE PRIMARY CONTROL BUILDING LOWER LEVEL, SHALL BE STAINLESS STEEL WITH DRAIN BOARD, APPROXIMATE OVERALL DIMENSIONS OF 30" DEEP x 50" WIDE, AS DESCRIBED IN SPECIFICATION SECTION 15450.
2. PROVIDE AND PLUMB WALL–MOUNTED ELECTRIC TANKLESS WATER HEATER, FLOW CONTROLLED WITH DIGITAL THERMOSTAT CONTROL WITH LED DISPLAY, 208V, 1P, 10.1kW, 49A, 0.3–4.8 GPM FLOW RATE, 69° F TEMPERATURE RISE AT 1.0 GPM.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUSHTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 04/2018

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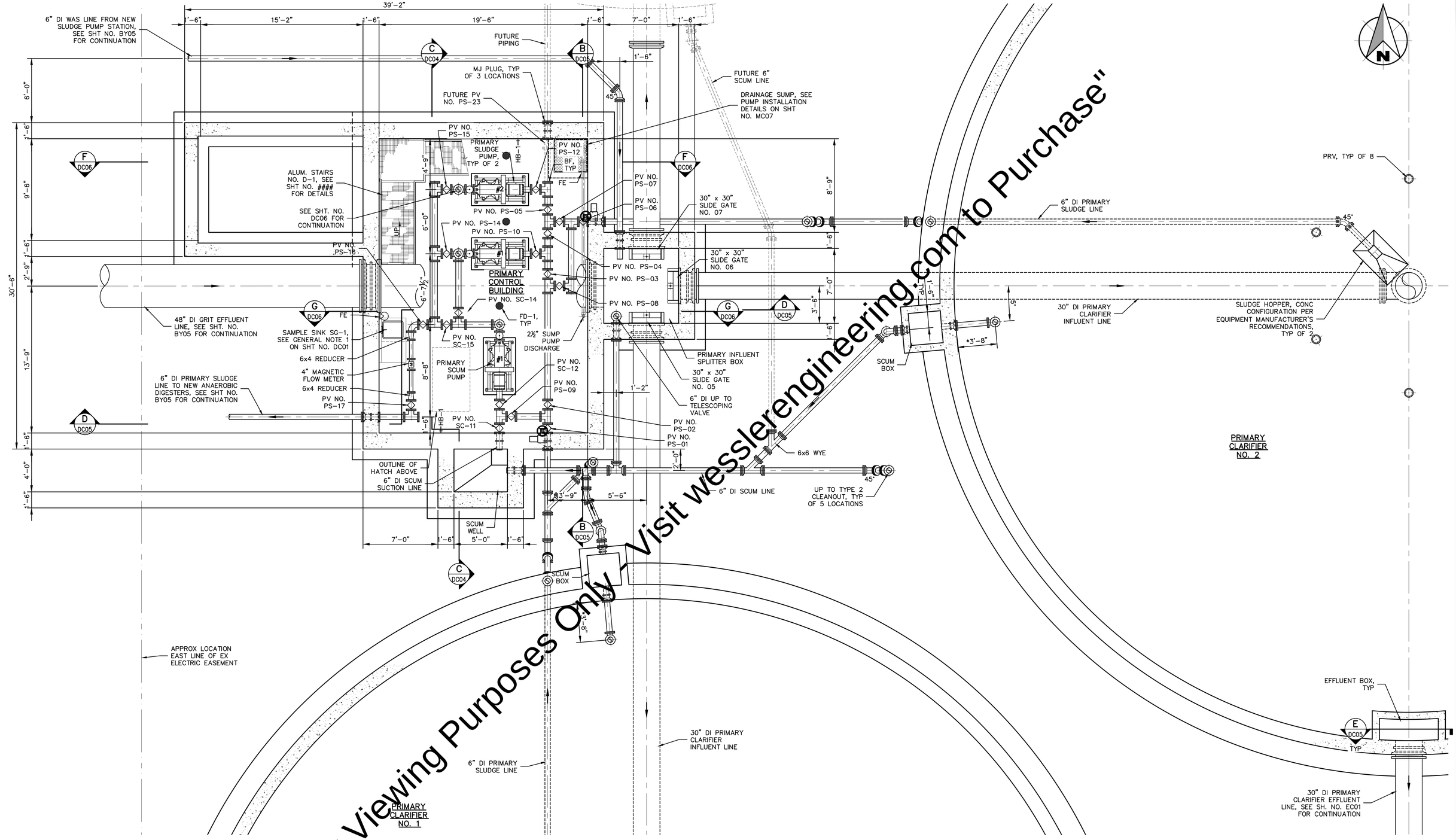
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS AND ASSOCIATED STRUCTURES OVERALL LAYOUT PLAN AND DETAILS

SHEET NO. **DC01**

PAGE NO. 71



* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING – LOWER PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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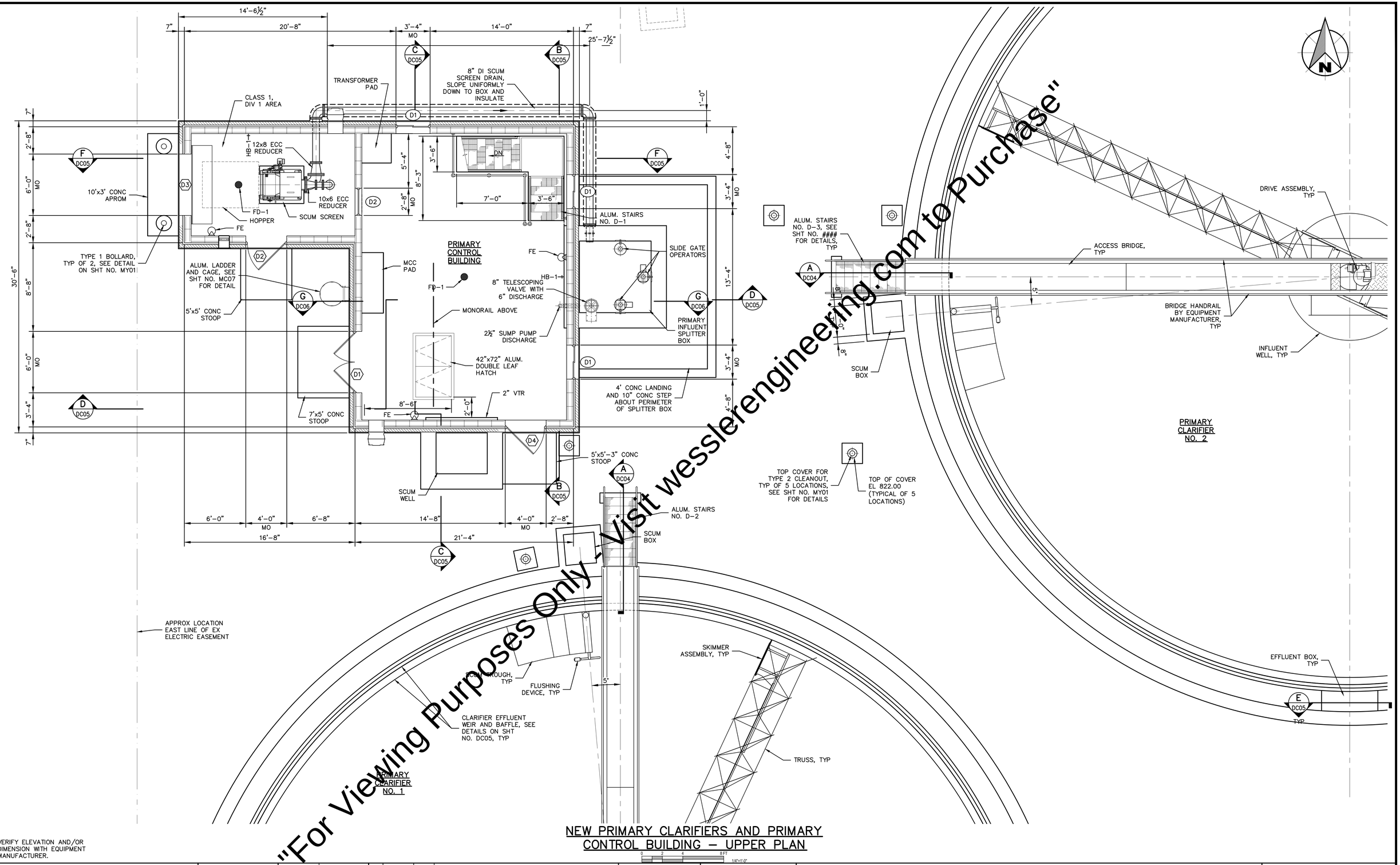
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING LOWER PLAN

SHEET NO.
DC02
PAGE NO.
72



NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING – UPPER PLAN

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
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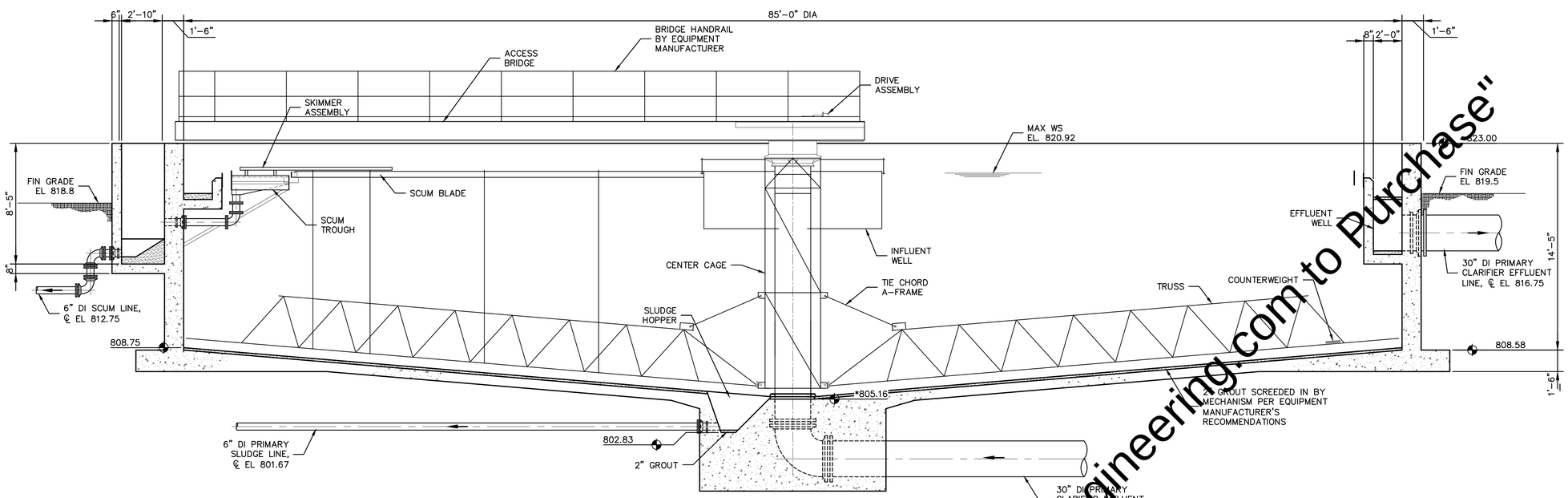
CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING UPPER PLAN

SHEET NO. **DC03**

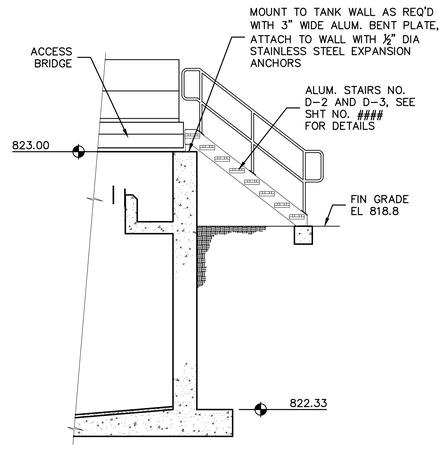
PAGE NO. 73



TYPICAL CLARIFIER SECTION

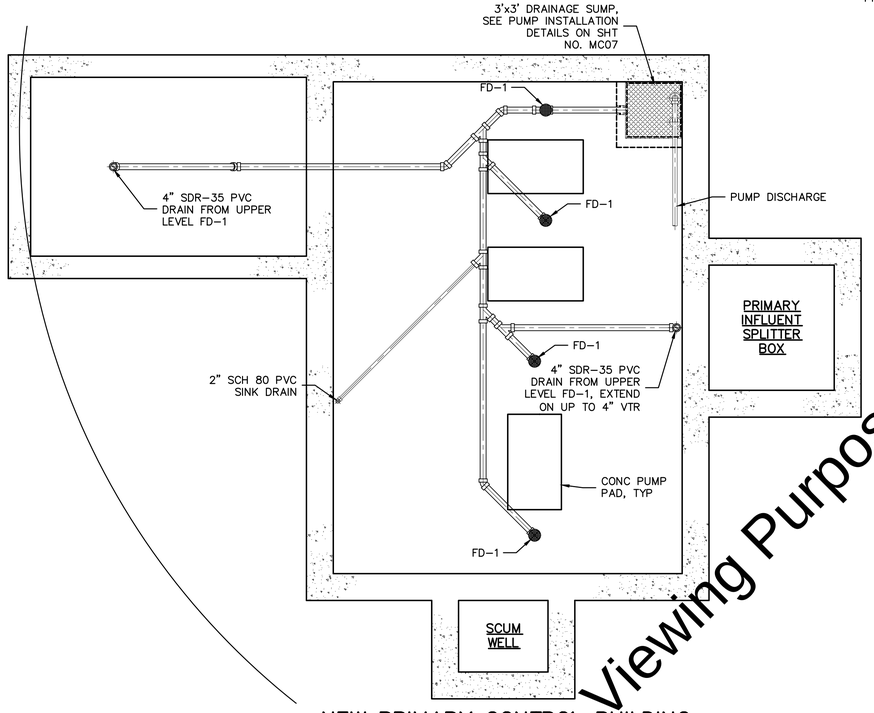
PIPING NOT SHOWN TO TRUE ORIENTATION

0 2 4 8 FT 1/4"=1'-0"



SECTION A DC03

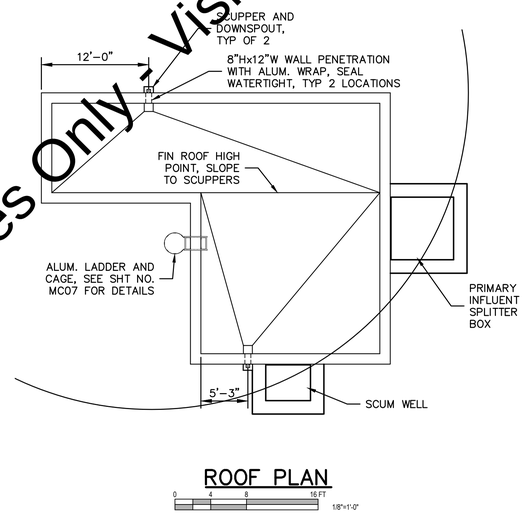
0 2 4 8 FT 1/4"=1'-0"



NEW PRIMARY CONTROL BUILDING PLUMBING PLAN OF DRAINS

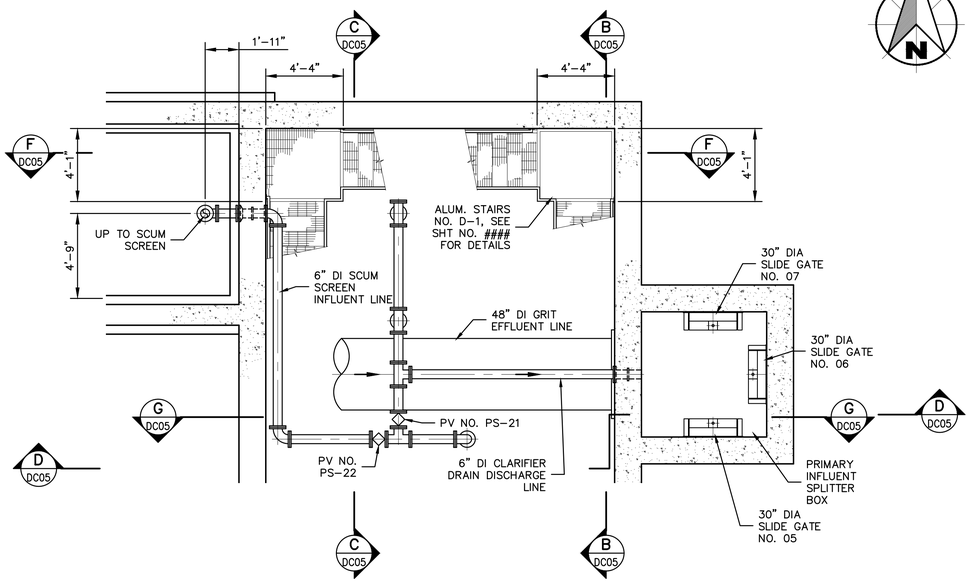
0 2 4 8 FT 1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.



ROOF PLAN

0 4 8 16 FT 1/8"=1'-0"



NEW PRIMARY CONTROL BUILDING PARTIAL LOWER PLAN AT ELEVATION 818.5

0 2 4 8 FT 1/4"=1'-0"

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	APPROVED BY	GLR
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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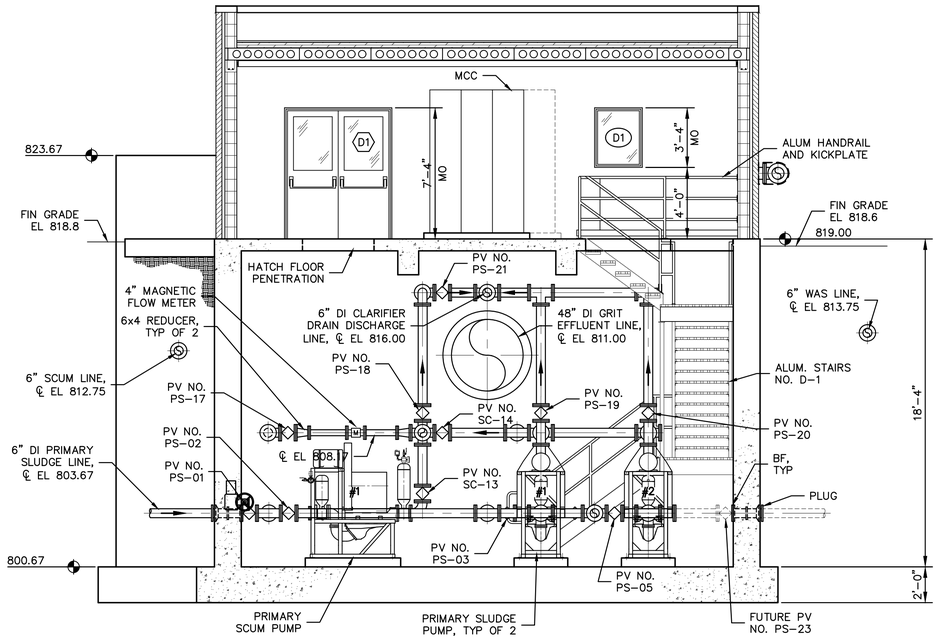
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING PLANS AND SECTIONS

SHEET NO. **DC04**

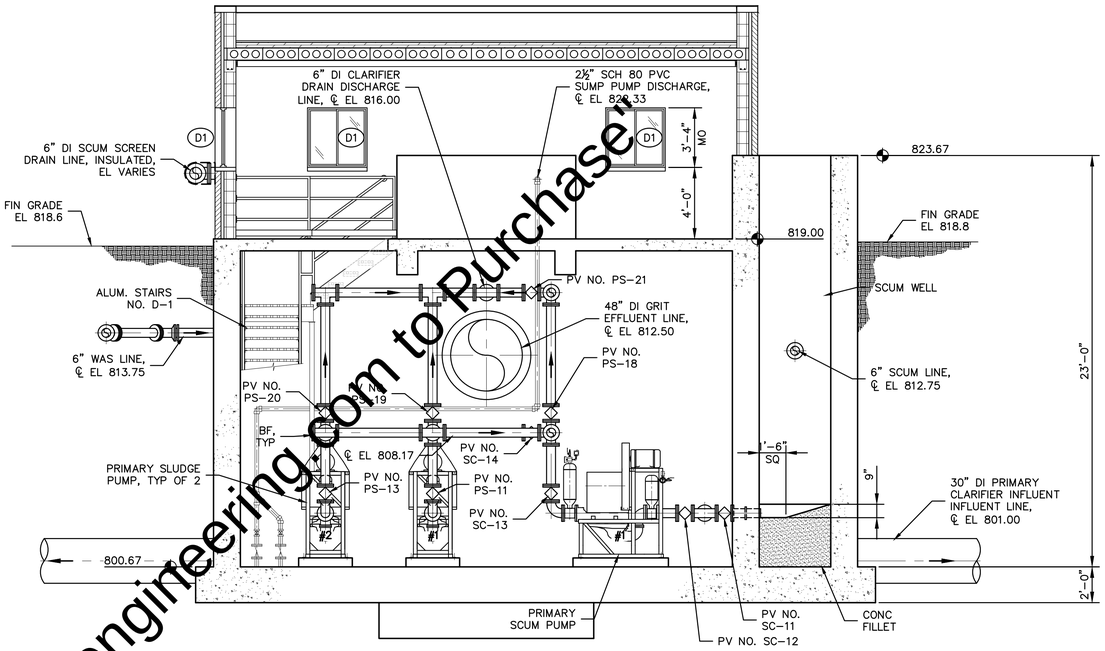
PAGE NO. 74



SECTION B

0 2 4 8 FT 1/4"=1'-0"

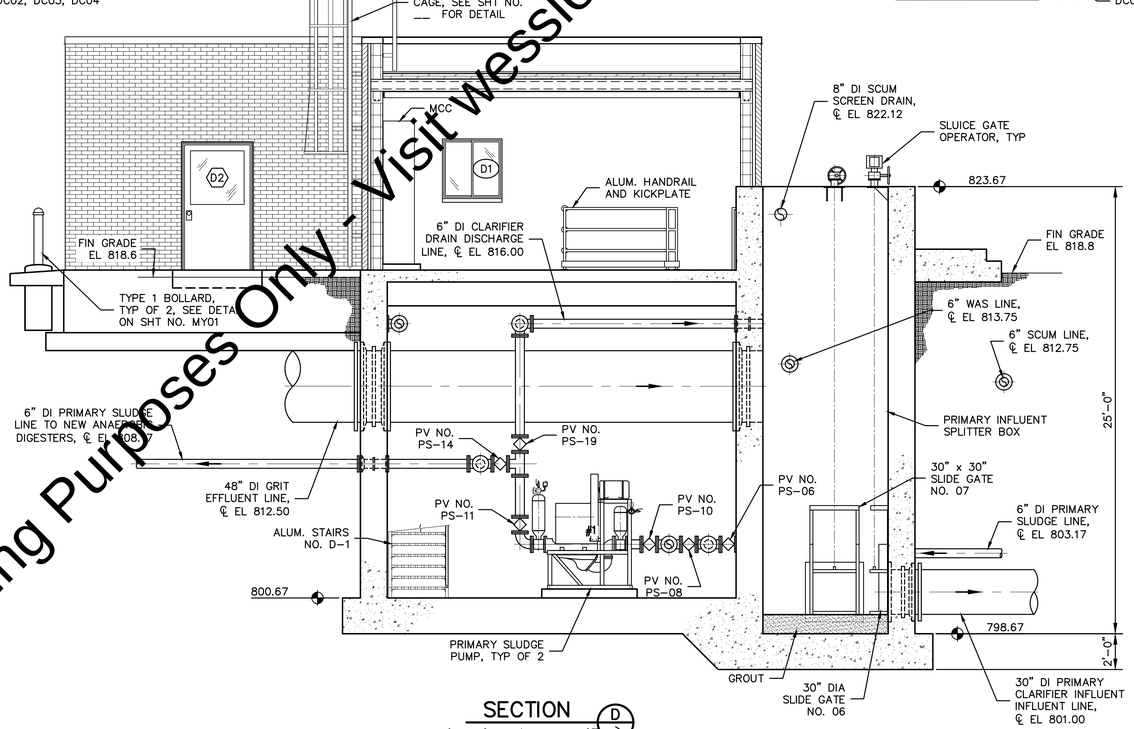
DC02, DC03, DC04



SECTION C

0 2 4 8 FT 1/4"=1'-0"

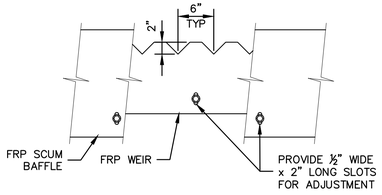
DC02, DC03, DC04



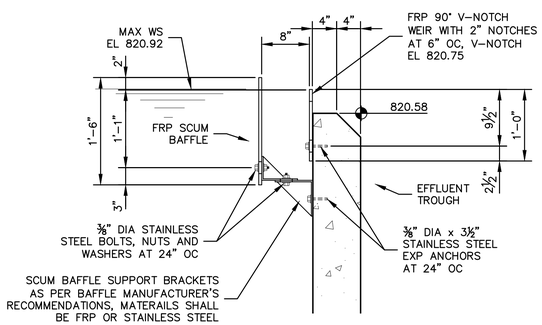
SECTION D

0 2 4 8 FT 1/4"=1'-0"

DC02, DC03, DC04



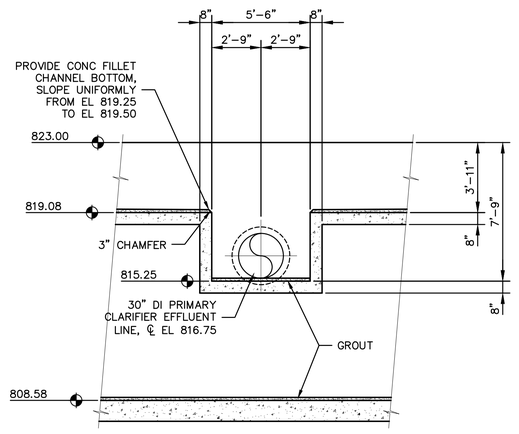
FRONT ELEVATION



TYPICAL SECTION

CLARIFIER EFFLUENT WEIR AND BAFFLE DETAILS

0 1/2 1 2 FT 1"=1'-0"



SECTION E

0 2 4 8 FT 1/4"=1'-0"

DC02, DC03

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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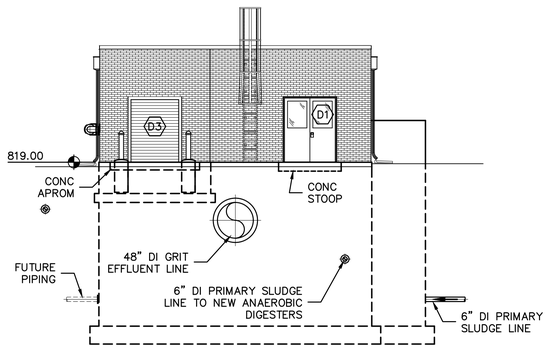
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING SECTIONS AND DETAILS

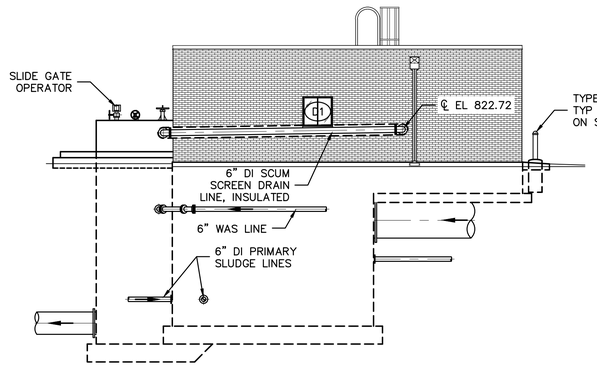
SHEET NO. **DC05**

PAGE NO. 75



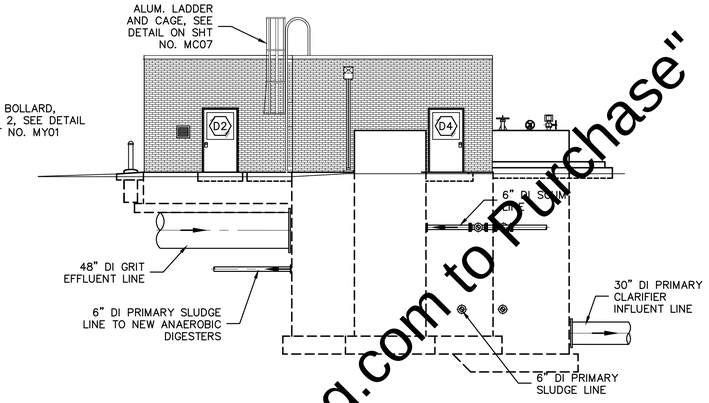
WEST ELEVATION

0 4 8 16 FT 1/8"=1'-0"



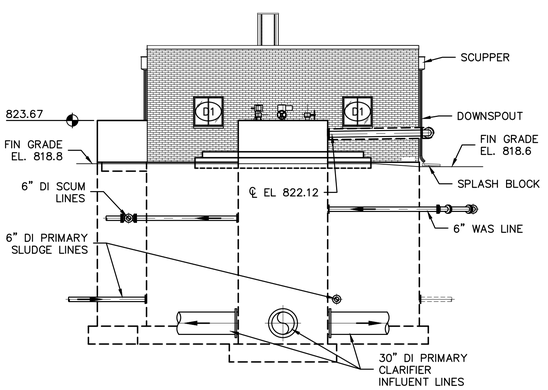
NORTH ELEVATION

0 4 8 16 FT 1/8"=1'-0"



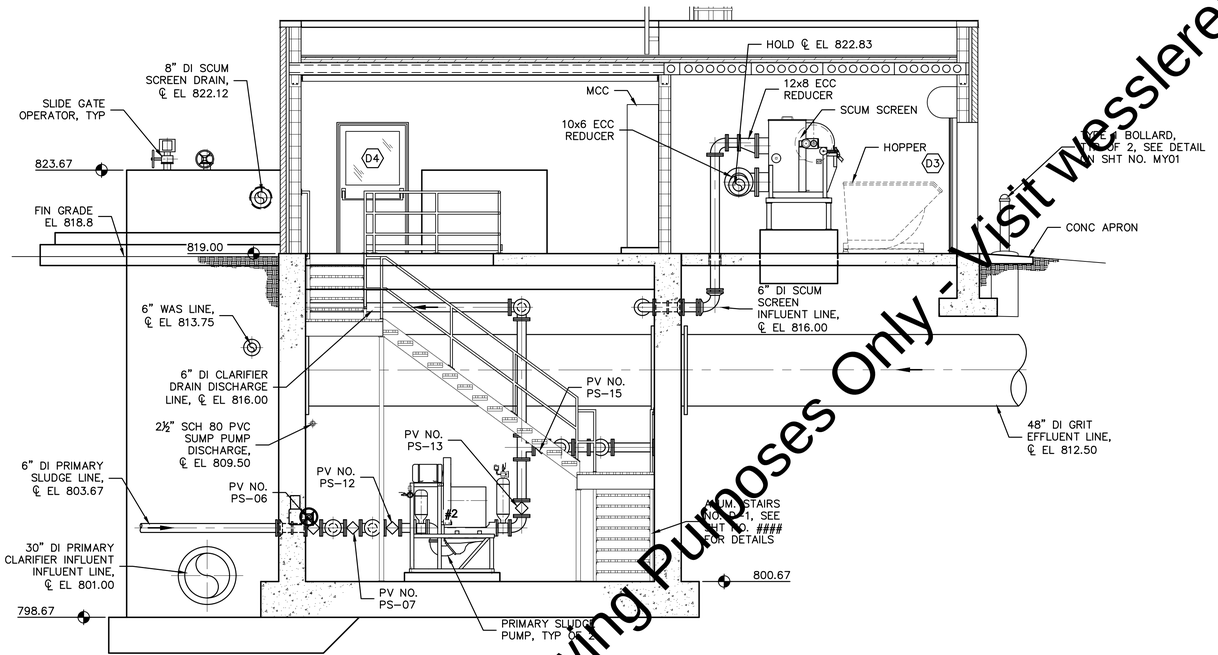
SOUTH ELEVATION

0 4 8 16 FT 1/8"=1'-0"



EAST ELEVATION

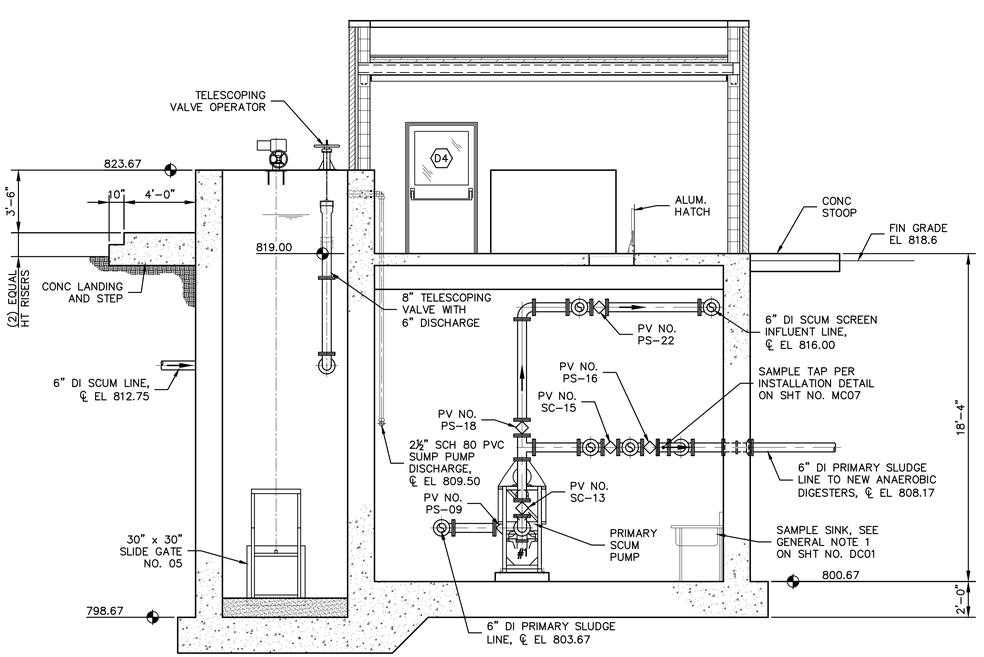
0 4 8 16 FT 1/8"=1'-0"



SECTION F

0 4 8 FT 1/4"=1'-0"

DC02, DC03, DC04



SECTION G

0 2 4 8 FT 1/4"=1'-0"

DC02, DC03, DC04

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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WASTEWATER TREATMENT PLANT EXPANSION - 2017

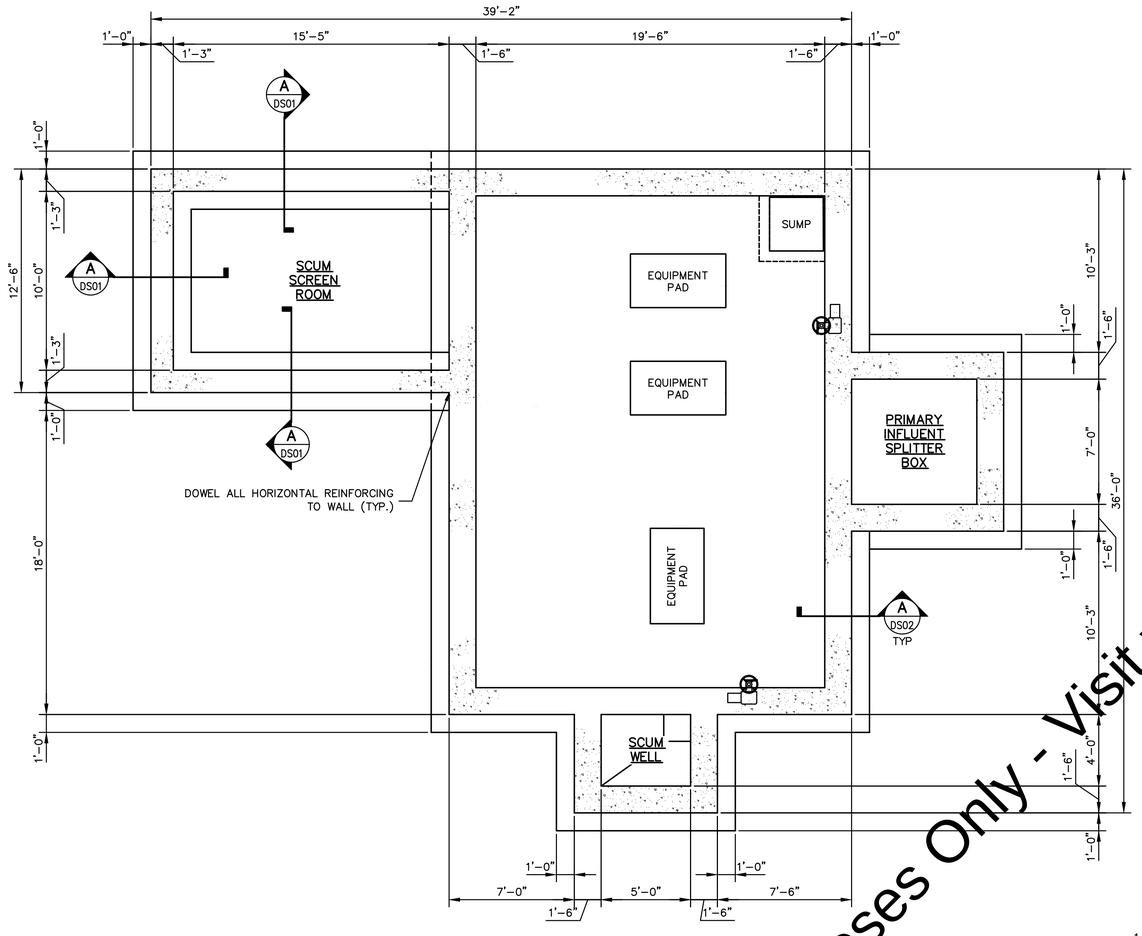
CITY OF WARSAW, INDIANA

NEW PRIMARY CONTROL BUILDING
SECTIONS AND ELEVATIONS

SHEET NO.
DC06
PAGE NO.
76

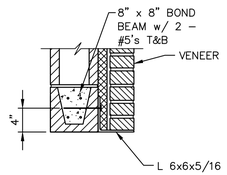
GENERAL STRUCTURAL NOTES:

1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.



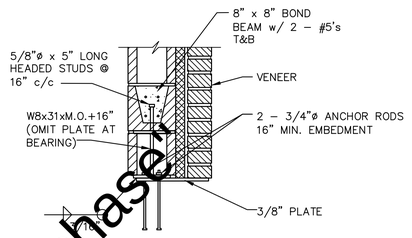
NEW PRIMARY CONTROL BUILDING FOUNDATION PLAN

0 2 4 8 FT
1/4"=1'-0"



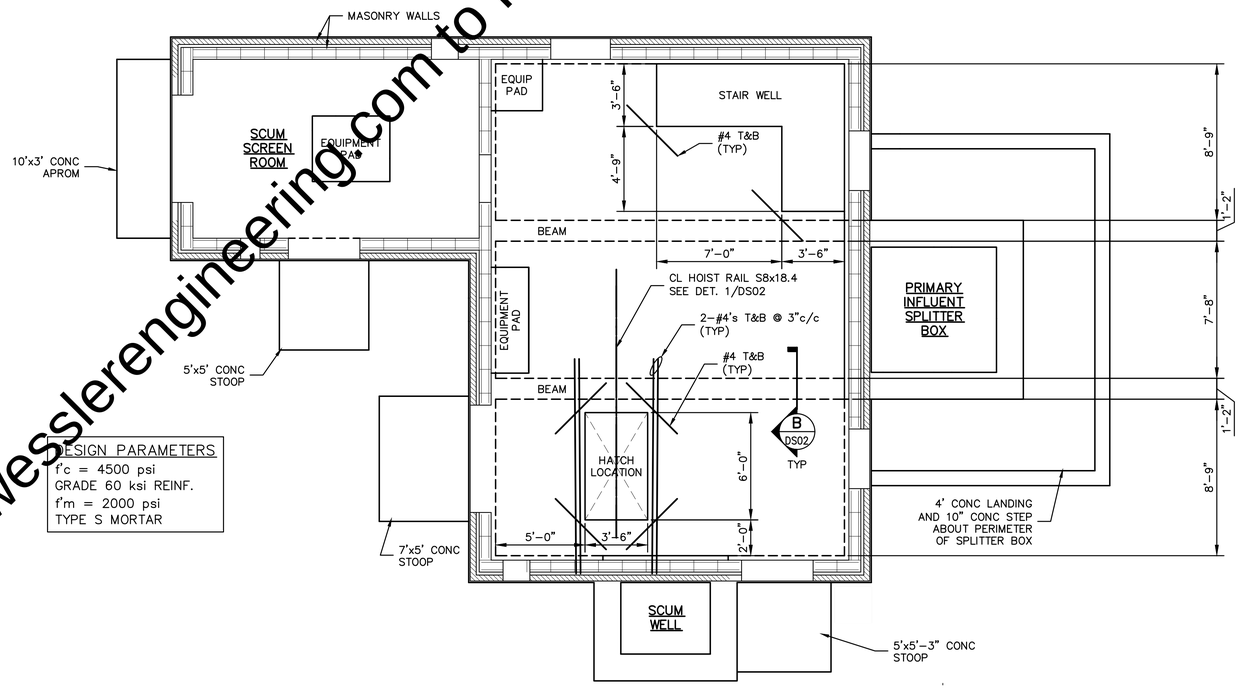
LINTEL DETAIL 1 DS01

SCALE: 1" = 1'-0"
(M.O. 4'-0" AND SMALLER)



LINTEL DETAIL 2 DS01

SCALE: 1" = 1'-0"
(M.O. 4'-0" AND LARGER)



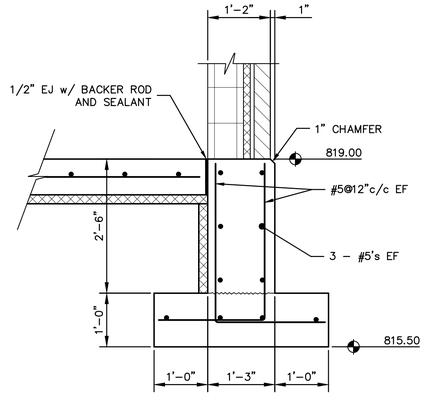
NOTE: HOIST RAIL IS TO BE LOCATED AT CENTERLINE OF HATCH.

(FLOOR LL = 250 PSF)

NEW PRIMARY CONTROL BUILDING FIRST FLOOR FRAMING PLAN

0 2 4 8 FT
1/4"=1'-0"

DESIGN PARAMETERS
f'c = 4500 psi
GRADE 60 ksi REINF.
f'm = 2000 psi
TYPE S MORTAR



MASONRY WALL REINFOIRCING:
VERTICAL REINFORCING – ALL WALLS – #5@48"O/C
DOWEL ALL REINFORCING TO CONCRETE FOUNDATION.
TERMINATE ALL REINFORCING AT BOND BEAM AT TOP/WALL, TOP/PARAPET.
PROVIDE #9GA HORIZ JOINT REINFORCING EVERY OTHER COURSE, 16"c/c.
PROVIDE 8" BOND BEAM WITH 2–#5's AT 7'–4" ABOVE FINISH FLOOR, AR PRECAST DECK BEARING AND AT TOP OF PARAPET.
PROVIDE 8" BOND BEAM w/ 2–#5's BELOW ALL OPENINGS, EXTEND 2'–0" BEYOND EACH SIDE OF OPENING.
PROVIDE 1–#5 VERTICAL BAR EACH SIDE OF ALL MASONRY OPENING UP TO 4'–0" WIDE AND 2 CELLS EACH w/ 1–#5 FOR MASONRY OENINGS 6'–0" WIDE.

SCALE VERIFICATION	DRAWN BY	WBJ
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	APPROVED BY	GLR
	ISSUE DATE	SEPTEMBER 4, 2018
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NO.	DATE	INITIALS	REVISION DESCRIPTIONS

JEFFREY ROSS BALLARD REGISTERED No. 60860191 STATE OF INDIANA PROFESSIONAL ENGINEER

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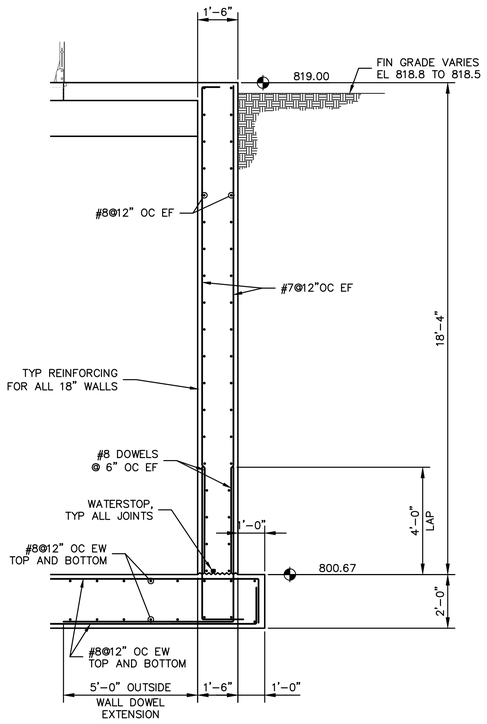
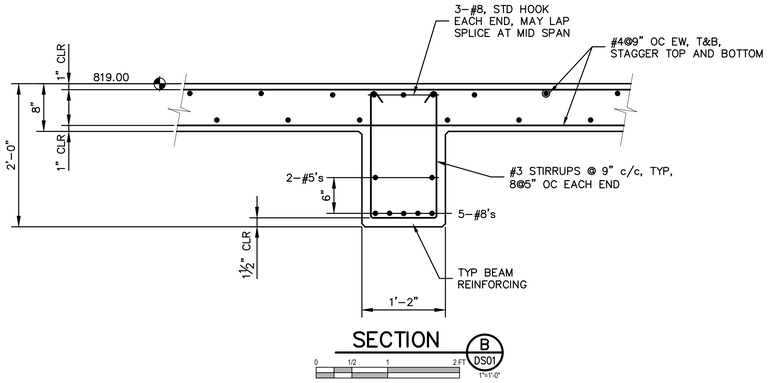
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

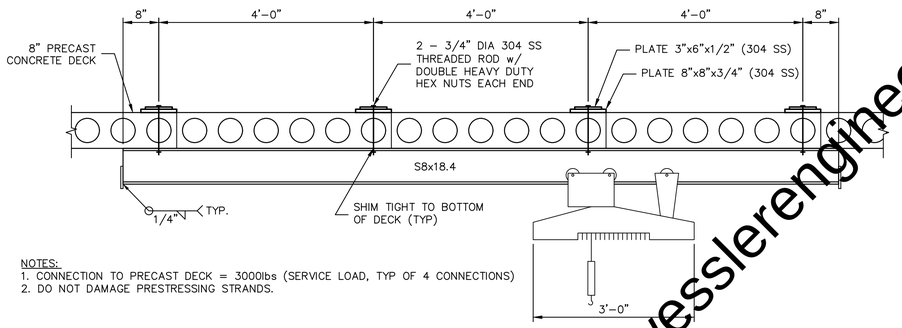
NEW PRIMARY CONTROL BUILDING STRUCTURAL PLANS

SHEET NO.
DS01
PAGE NO.
77

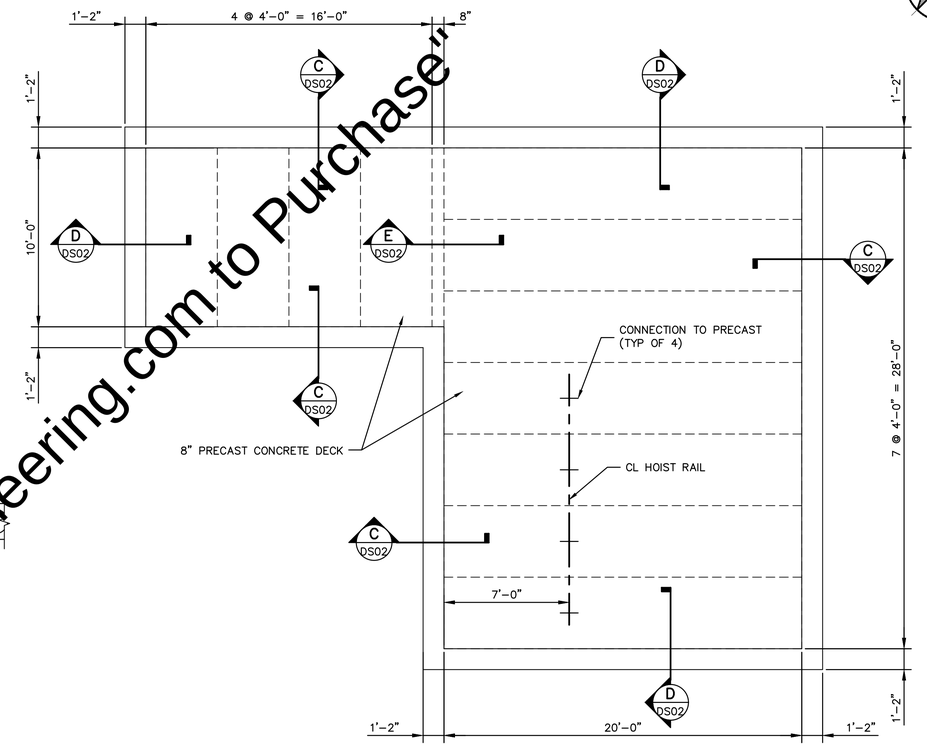




SECTION B DS01 1"=1'-0"



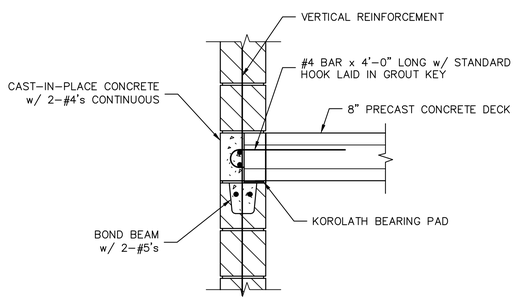
NOTES:
1. CONNECTION TO PRECAST DECK = 3000lbs (SERVICE LOAD, TYP OF 4 CONNECTIONS)
2. DO NOT DAMAGE PRESTRESSING STRANDS.



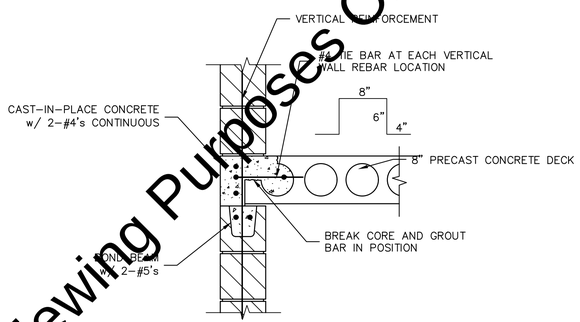
SECTION A DS01 3/8"=1'-0"

HOIST/TROLLEY BEAM DETAIL 5 DS102 3/4"=1'-0"

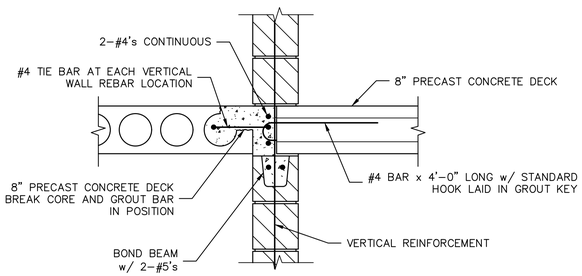
NEW PRIMARY CONTROL BUILDING
ROOF FRAMING PLAN 1/4"=1'-0"



SECTION C DS02 1"=1'-0"



SECTION D DS02 1"=1'-0"



SECTION E DS02 1"=1'-0"

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

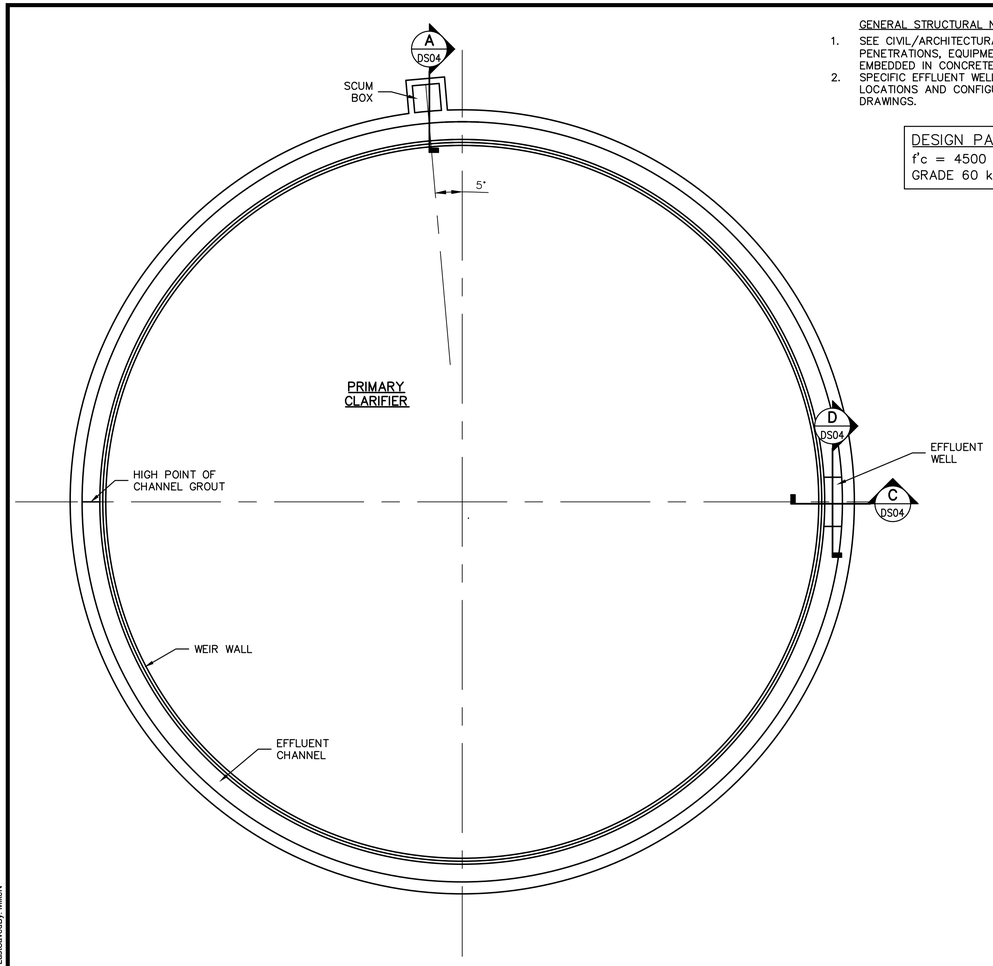
NEW PRIMARY CONTROL BUILDING
STRUCTURAL PLANS, SECTIONS AND DETAILS

SHEET NO.
DS02
PAGE NO.
78

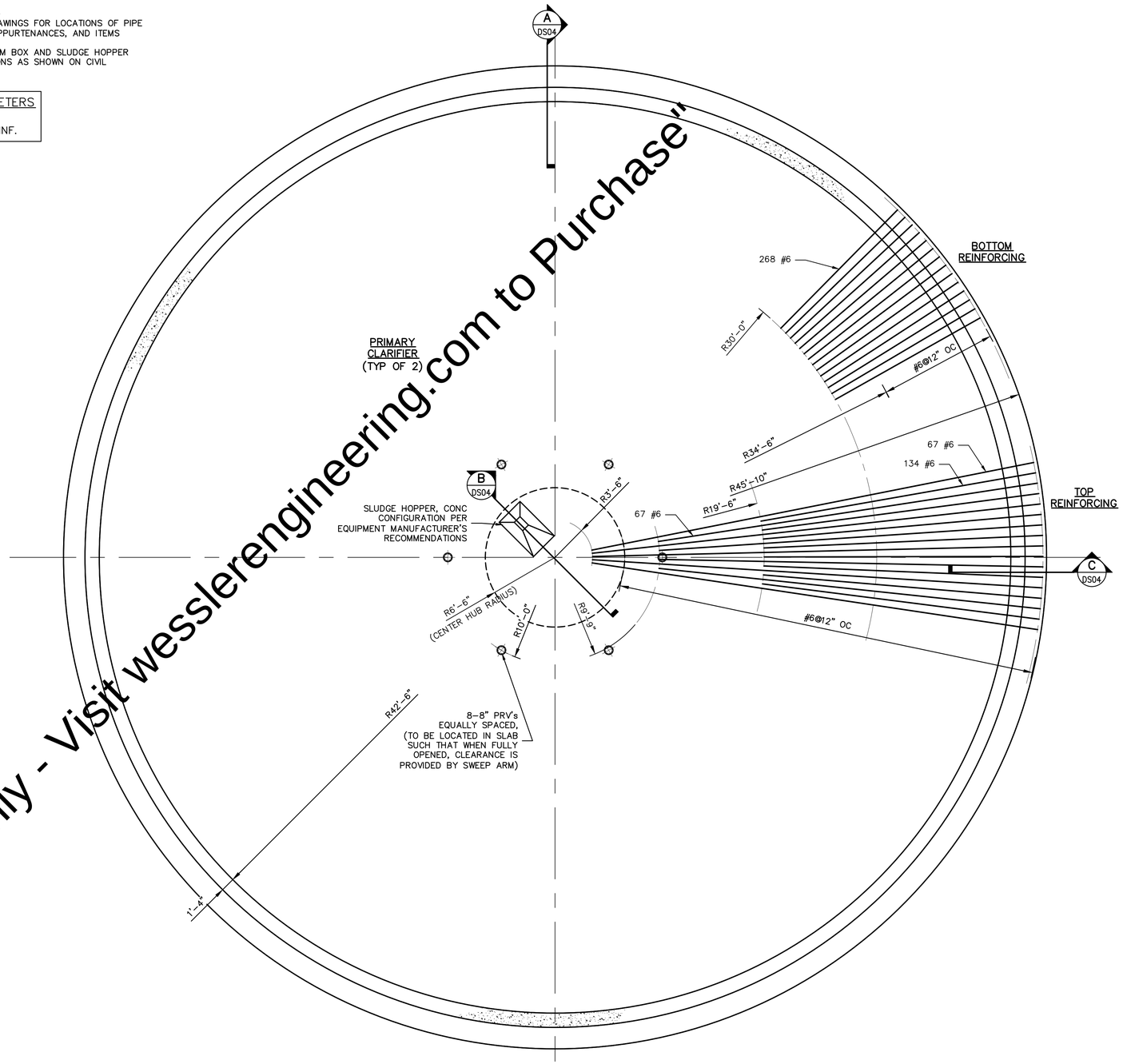
GENERAL STRUCTURAL NOTES:

1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.
2. SPECIFIC EFFLUENT WELL, SCUM BOX AND SLUDGE HOPPER LOCATIONS AND CONFIGURATIONS AS SHOWN ON CIVIL DRAWINGS.

DESIGN PARAMETERS
f'c = 4500 psi
GRADE 60 ksi REINF.



TYPICAL UPPER PLAN
0 4 8 16 FT
1/8"=1'-0"



TYPICAL FOUNDATION PLAN
0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	JRB				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

JEFFREY ROSS BALLARD REGISTERED No. 60860191 STATE OF INDIANA PROFESSIONAL ENGINEER

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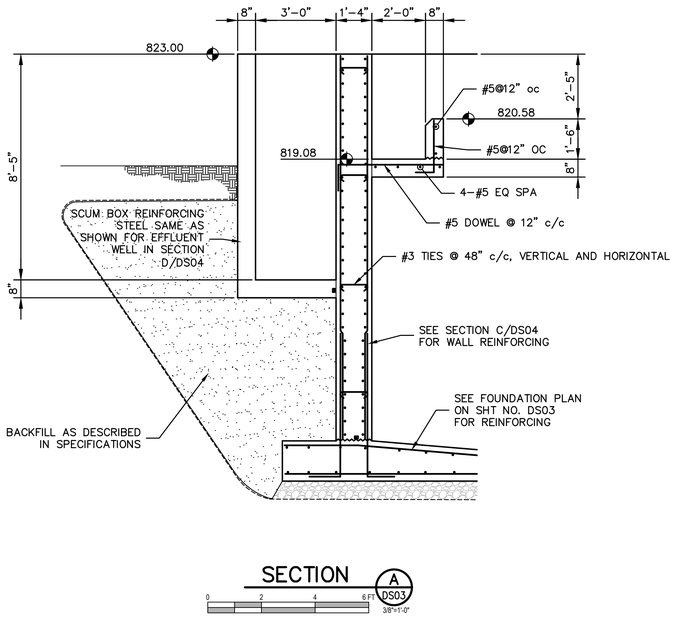
WASTEWATER TREATMENT PLANT EXPANSION - 2017

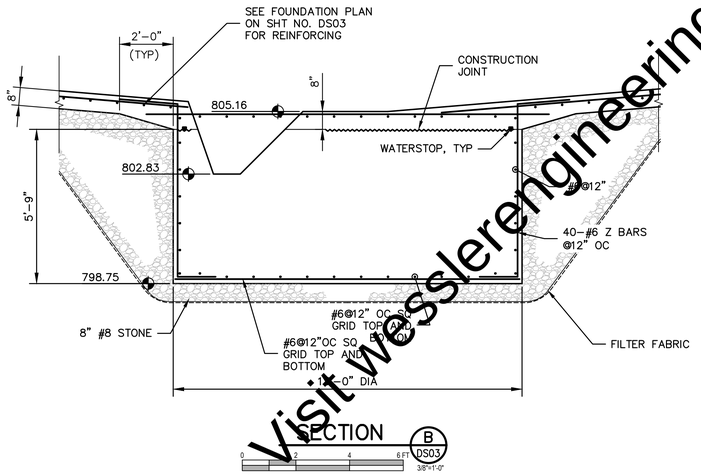
CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS STRUCTURAL PLANS

SHEET NO.
DS03
PAGE NO.
79

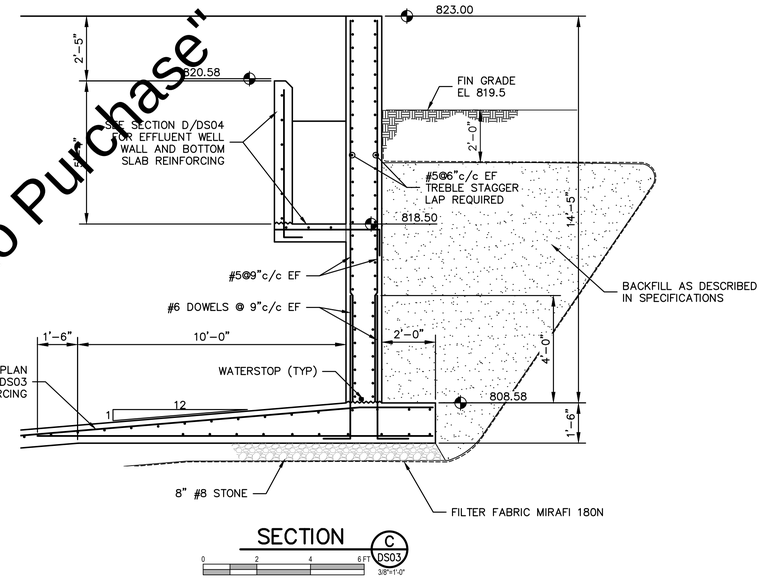


SECTION A DS03
0 2 4 6FT
3/8"=1'-0"

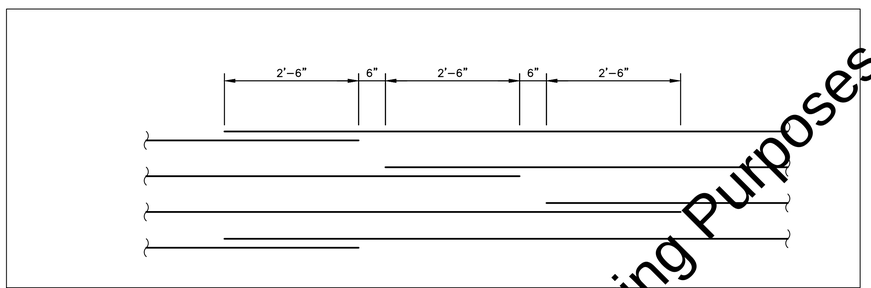


SECTION B DS03
0 2 4 6FT
3/8"=1'-0"

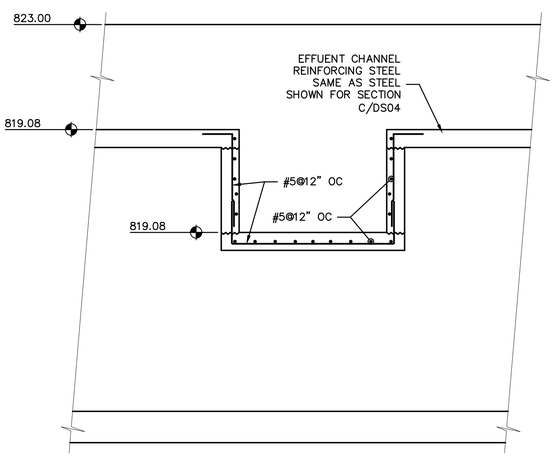
NOTE: VERIFY ALL ELEVATIONS WITH EQUIPMENT MANUFACTURER.



SECTION C DS03
0 2 4 6FT
3/8"=1'-0"



#5 TREBLE STAGGER LAPS DETAIL 3 DS04
SCALE: 3/4" = 1'-0"
0 1 2 3FT
3/4"=1'-0"



SECTION D DS03
0 2 4 6FT
3/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	JRB				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

JEFFREY ROSS BALLARD REGISTERED No. 60860191 STATE OF INDIANA PROFESSIONAL ENGINEER

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW PRIMARY CLARIFIERS
STRUCTURAL SECTIONS AND DETAILS

SHEET NO.
DS04
PAGE NO.
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MAKE-UP AIR SCHEDULE

TAG	MANUFACTURER AND MODEL NUMBER	LOCATION	SUPPLY AIR CFM	E.S.P.	HEATING			FAN DATA		POWER SUPPLY				GAS INLET SIZE	UNIT WEIGHT LBS	OPTIONS	NOTE(S)	INTERLOCK WITH
					MBH INPUT	MBH OUTPUT	TEMP RISE	HP	RPM	F.L.A.	M.C.A.	VOLTAGE	PHASE					
MUA–1	REZNOR RDH–75	ROOF	563	0.25	75	60.75	99.0	1/4	554	12	15	460	3	1.5	120	1,3,4,7	A	THERMOSTAT
OPTIONS:																		
1. GFI CONVENIENCE OUTLET, 2. DDC CONTROLS, 3. INTEGRAL DISCONNECT, 4. ROOF CURB, 5. EXTRA FILTERS, 6. THRU–WALL INSTALLATION PACKAGE, 7. 3–WAY DISCHARGE DIFFUSER, 8. 4–WAY DISCHARGE DIFFUSER																		
NOTES:																		
A. INCLUDES 2" THICK METAL MESH FILTERS.																		

LOUVER SCHEDULE

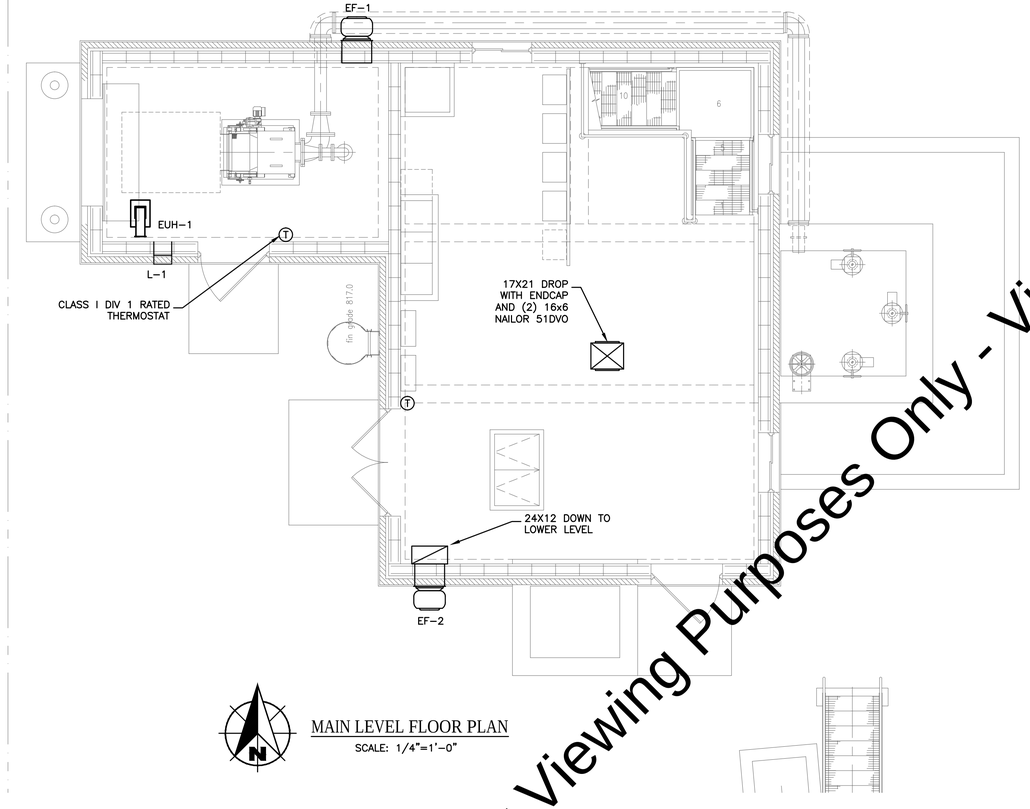
TAG	LOCATION	MANUFACTURER AND MODEL NUMBER	WIDTH	HEIGHT	FREE AREA (SQ. FT)	THCK	OPTIONS	NOTES
L–1	SCUM ROOM	RUSKIN ELC6375DAX	12	12	0.3	6"	1,2	INTERLOCK WITH EF–1
OPTIONS:								
1. 120V ACTUATOR 2. INTERLOCK WITH EXHAUST FAN OPERATION								

EXHAUST FAN SCHEDULE

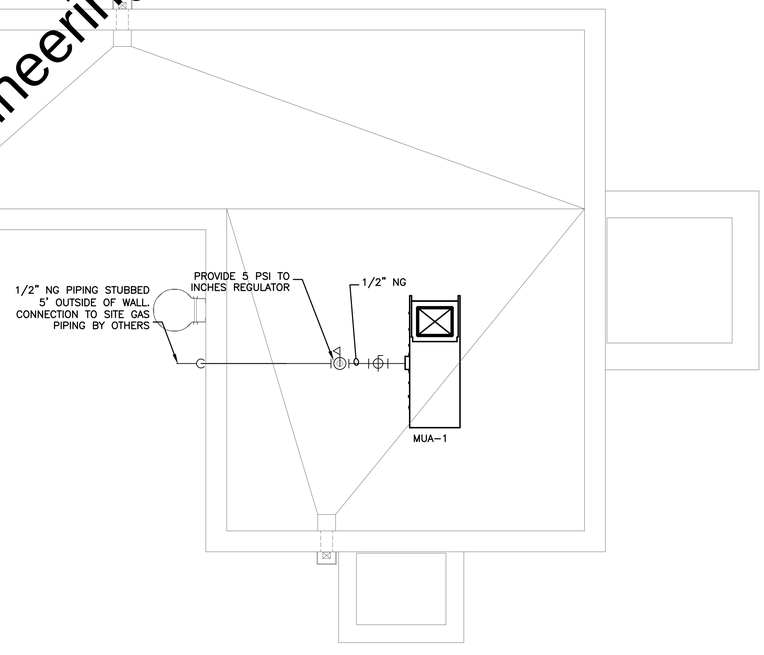
TAG	LOCATION	TYPE	CFM	S.P.	FRPM	BHP (WATTS)	SONES	MOTOR				UNIT WEIGHT LBS	NOTE	MANUFACTURER AND MODEL NUMBER	INTERLOCK WITH
								HP	VOLT	RPM	PH				
EF–1	WALL	WALL	160	0.250	973	(57)	2.5	1/8	115	1550	1	14	–	LOREN COOK 90W15DH	L–1
EF–2	WALL	WALL	500	0.250	533	(119)	7.3	1/8	116	1550	2	15	EXPLOSION PROOF	LOREN COOK 90W15DH	MUA–1
ACCESSORIES: BACKDRAFT DAMPER, DISCONNECT															

ELECTRIC UNIT HEATER SCHEDULE

MARK	LOCATION	CONFIGURATION	FAN DATA					HEATING DATA			ELECTRICAL DATA			ACCESSORIES			MANUFACTURER WITH MODEL NUMBER	NOTES
			AIRFLOW (CFM)	ESP	DRIVE	DESIGN SPEED(S)	HP	MBH KW	MBH	EAT	LAT	AMPS	VOLTS	PH	DISCONNECT SWITCH	INTEGRAL THERMOSTAT	WALL BRACKET		
EUH–1	SCUM ROOM	UNIT HEATER	700	–	AXIAL	1	1/10	5	17.1	–	–	12.1	480	3	Y	Y	Y	QMARK GUX5004832	1
	NOTES: 1. EXPLOSION PROOF CONSTRUCTION																		



MAIN LEVEL FLOOR PLAN
SCALE: 1/4"=1'–0"



ROOF PLAN
SCALE: 1/4"=1'–0"

freije RSC ENGINEERED SOLUTIONS

SCALE VERIFICATION

BAR IS ONE INCH LONG ON ORIGINAL DRAWING

DRAWN BY	
CHECKED BY	
APPROVED BY	
ISSUE DATE	MARCH 2018
PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	12/12/17		

REGISTERED PROFESSIONAL ENGINEER No. PE19500284 STATE OF INDIANA 03/09/2018

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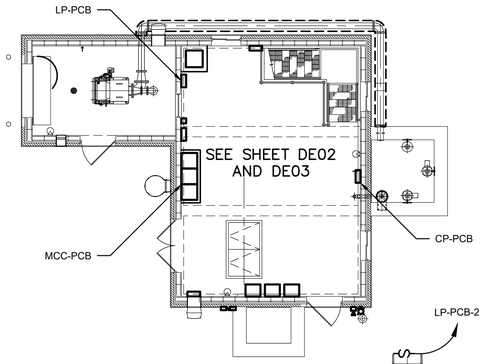
WASTEWATER TREATMENT PLANT EXPANSION - 2017

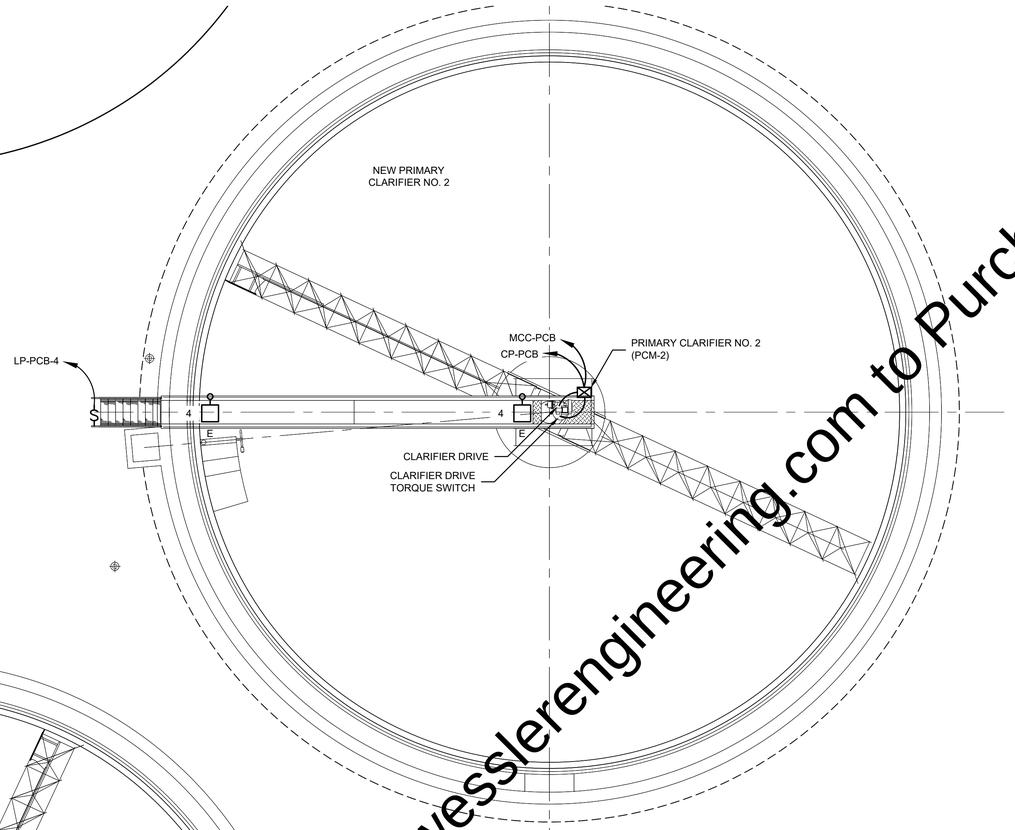
CITY OF WARSAW, INDIANA

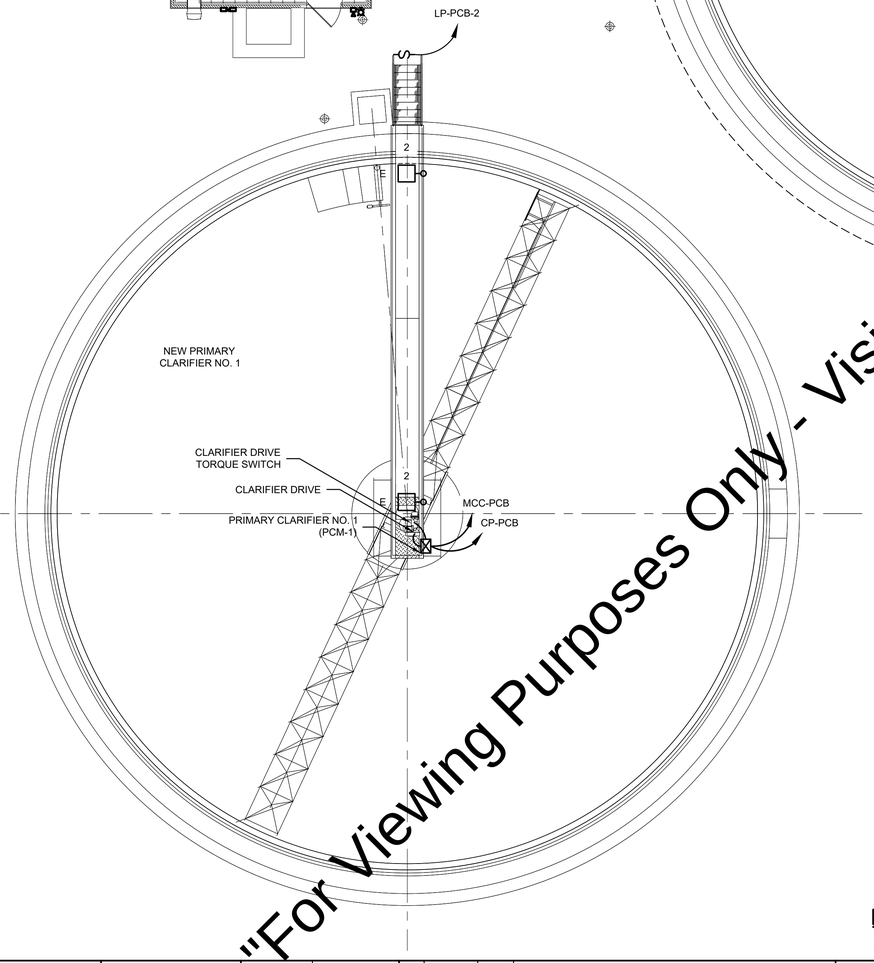
NEW PRIMARY CLARIFIERS AND PRIMARY CONTROL BUILDING
MECHANICAL PLAN

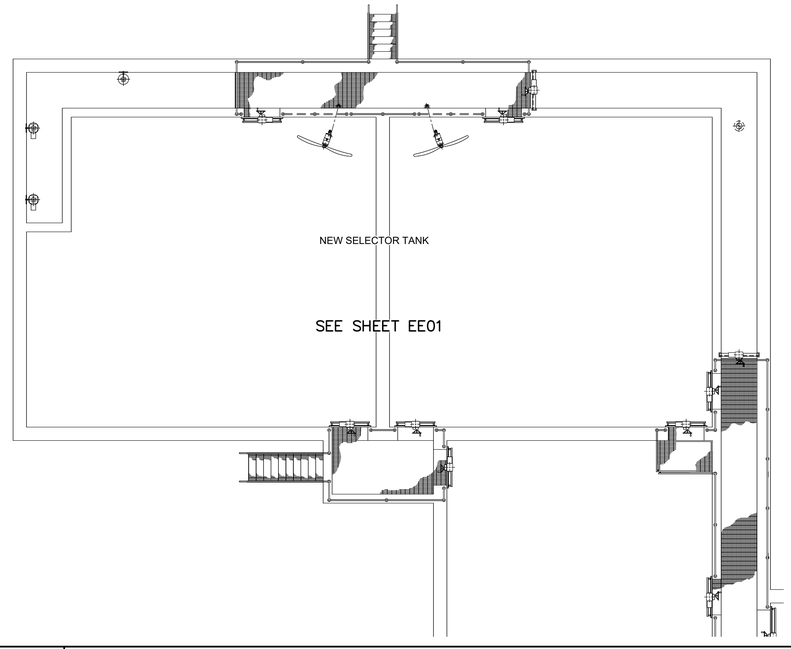
SHEET NO.
DM01

PAGE NO.
81









ELECTRICAL PLAN

0 4 8 16 FT
1/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS
	APPROVED BY	WCM
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

OVERALL CLARIFIER ELECTRICAL PLAN

SHEET NO.
DE01
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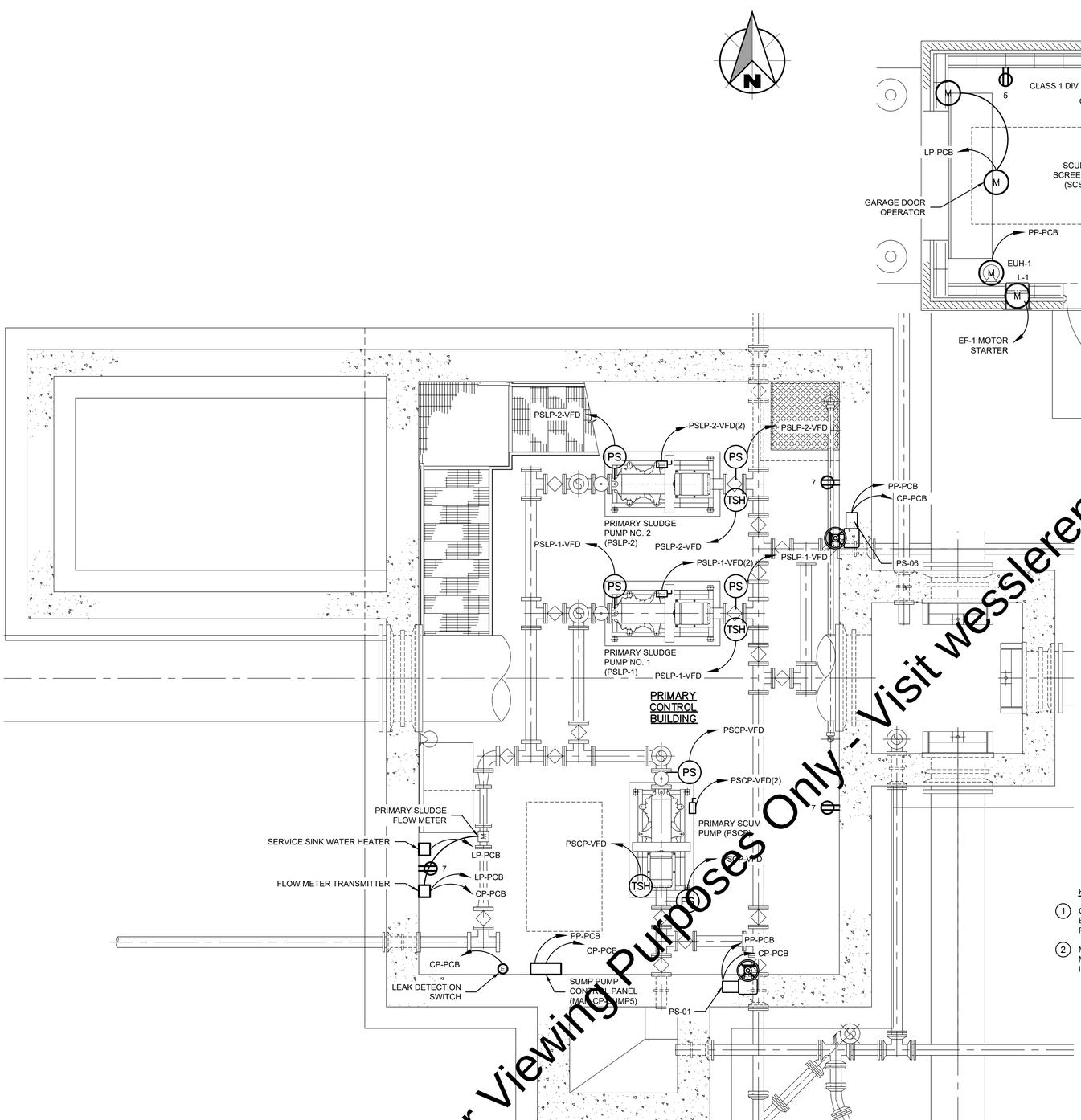
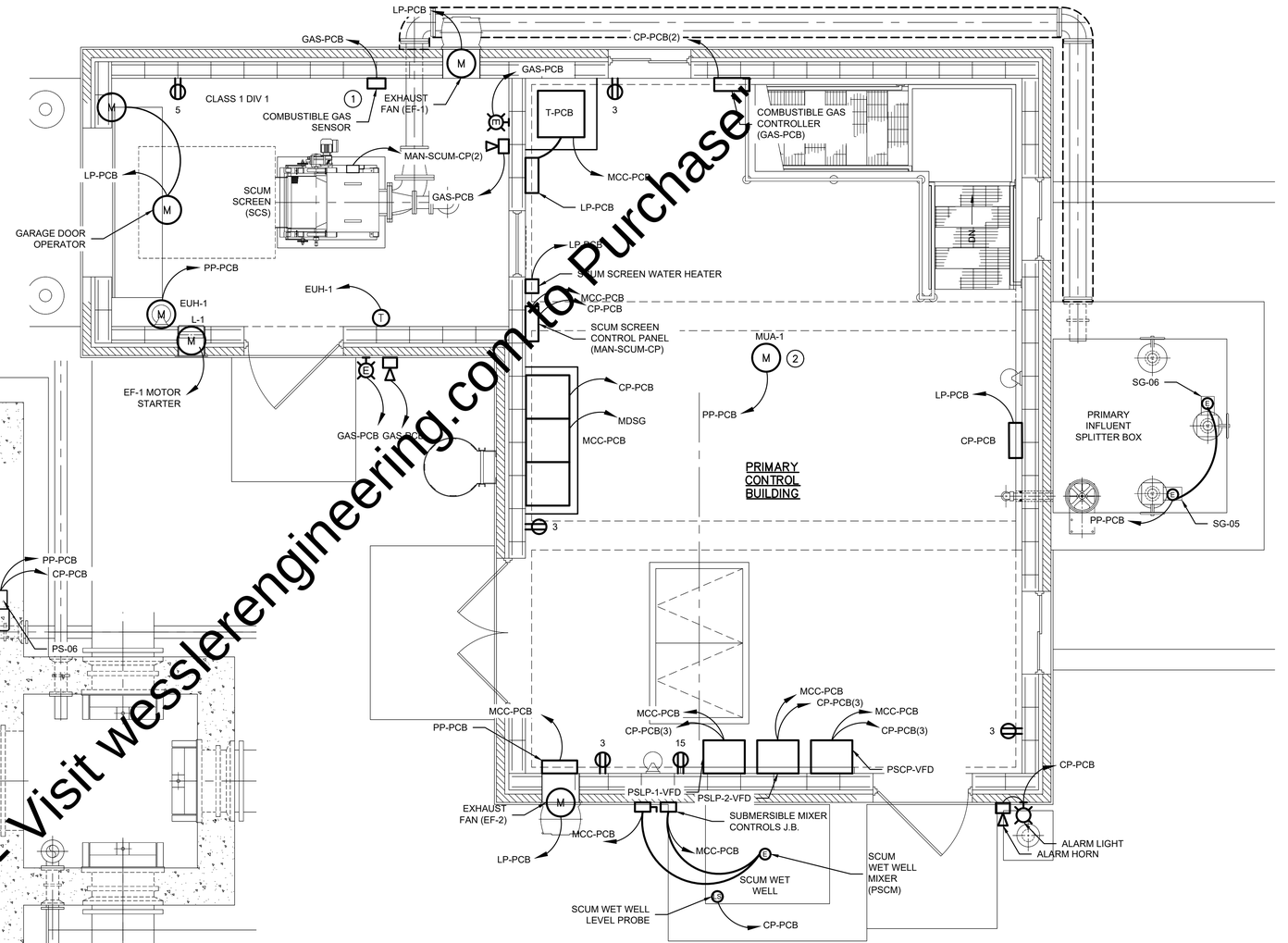
82



LOWER LEVEL POWER PLAN



MAIN LEVEL POWER PLAN

KEYED NOTES:

1. COMBUSTIBLE GAS SENSOR SHALL BE MOUNTED 2' OFF OF CEILING. READOUT SHALL BE VIEWABLE FROM FLOOR.
2. MECHANICAL EQUIPMENT ON ROOF. SEE MECHANICAL SHEETS FOR MORE INFORMATION.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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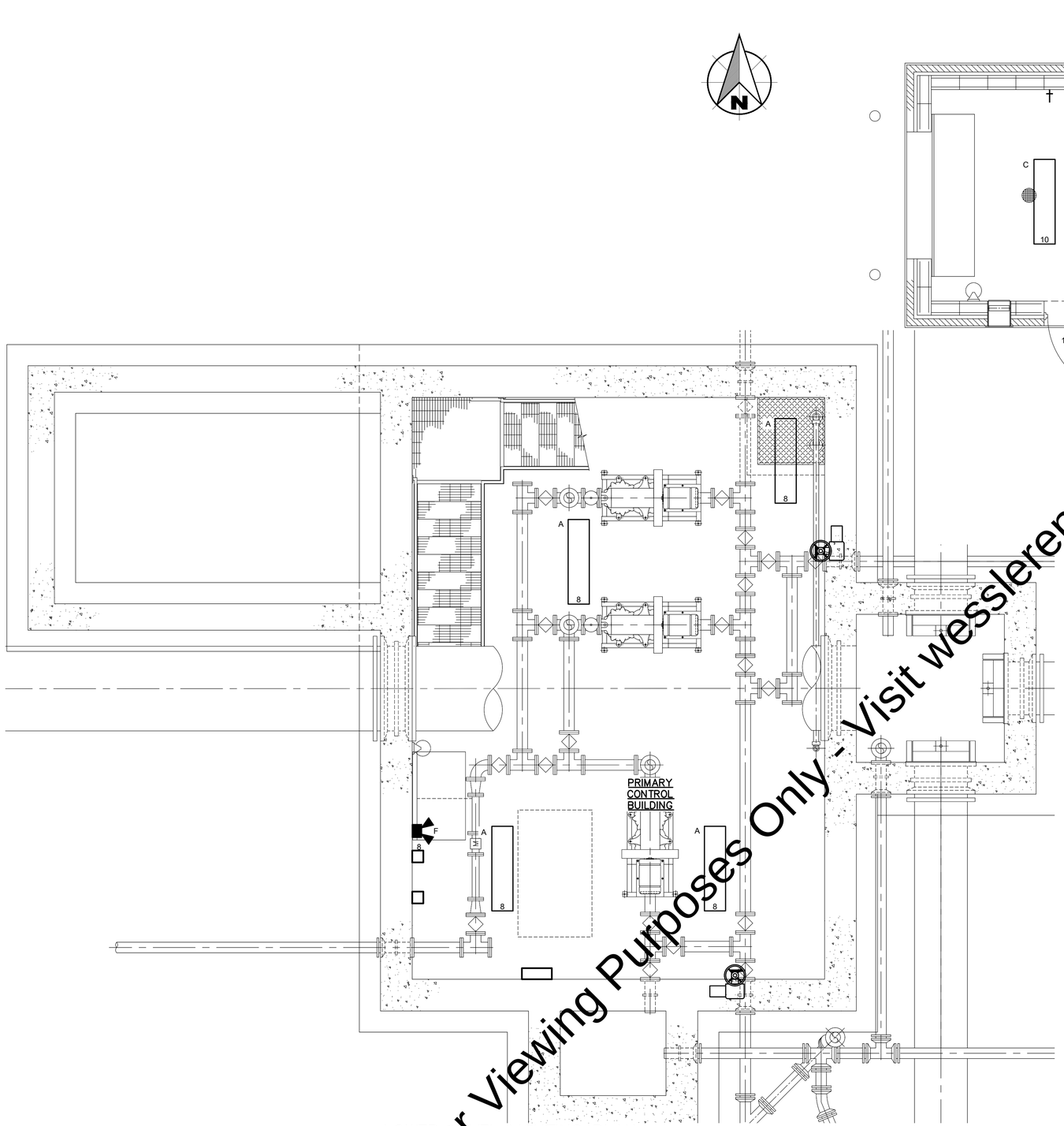
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

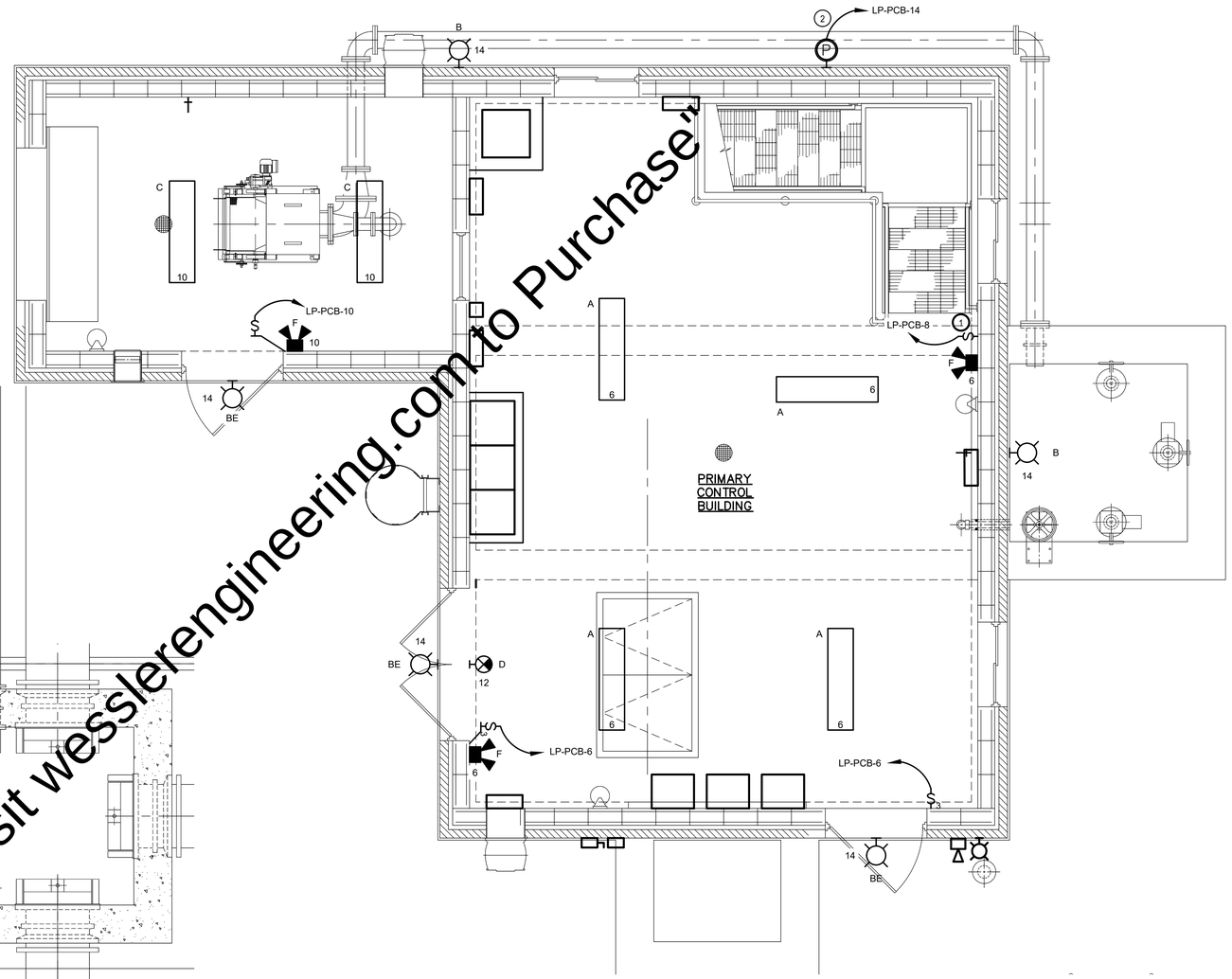
PRIMARY CONTROL BUILDING POWER PLANS

SHEET NO.
DE02
PAGE NO.
83



LOWER LEVEL LIGHTING PLAN

0 2 4 6 FT
3/8"=1'-0"



MAIN LEVEL LIGHTING PLAN

0 2 4 6 FT
3/8"=1'-0"

KEYED NOTES:

1. LIGHT SWITCH FOR BASEMENT LIGHT FIXTURES.
2. MOUNT PHOTO CELL ON NORTH SIDE OF BUILDING.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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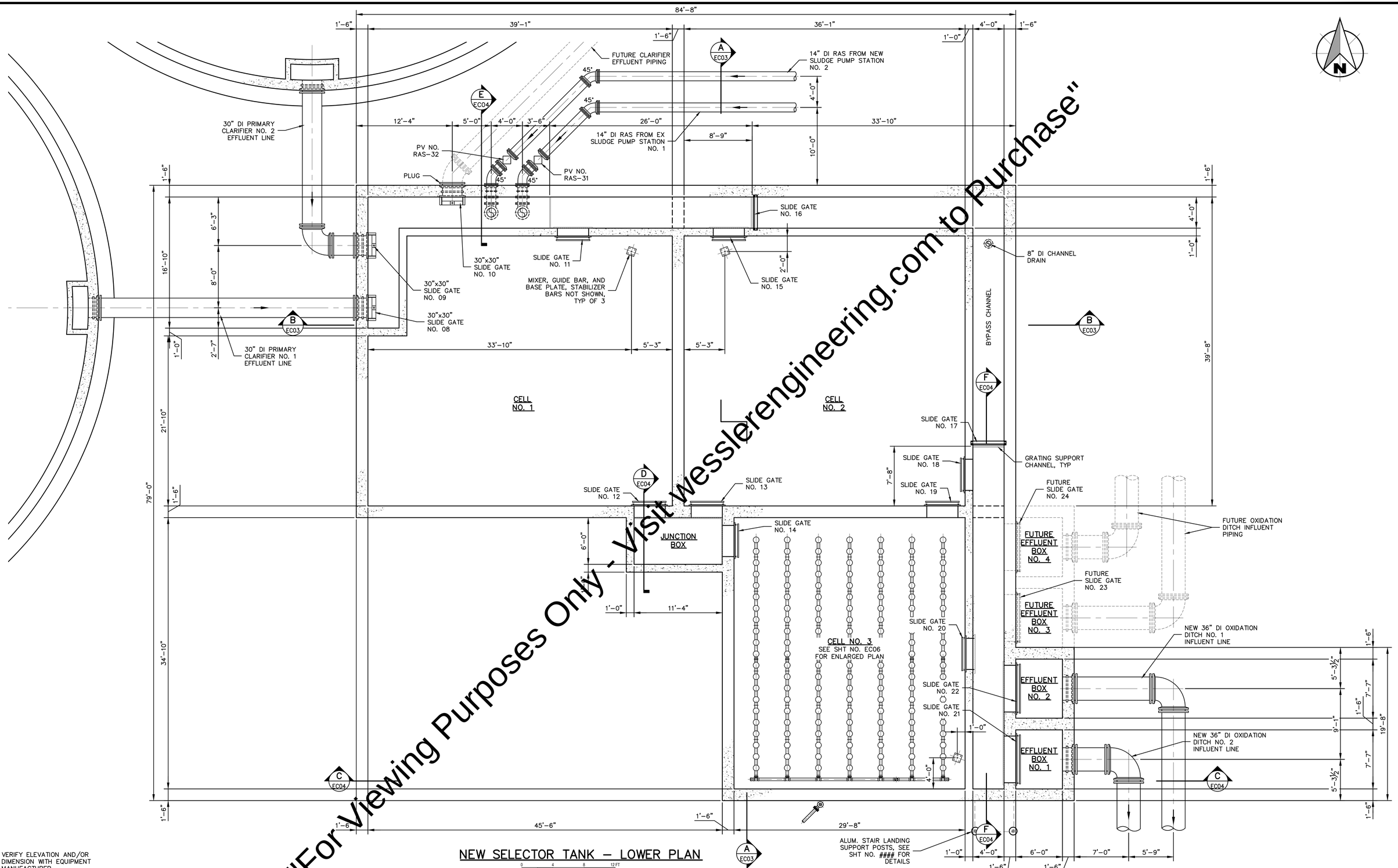
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

PRIMARY CONTROL BUILDING LIGHTING PLANS

SHEET NO.
DE03
PAGE NO.
84



* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

NEW SELECTOR TANK – LOWER PLAN

0 4 8 12 FT.
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT
	APPROVED BY	GLR
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

HARRY L. RUSTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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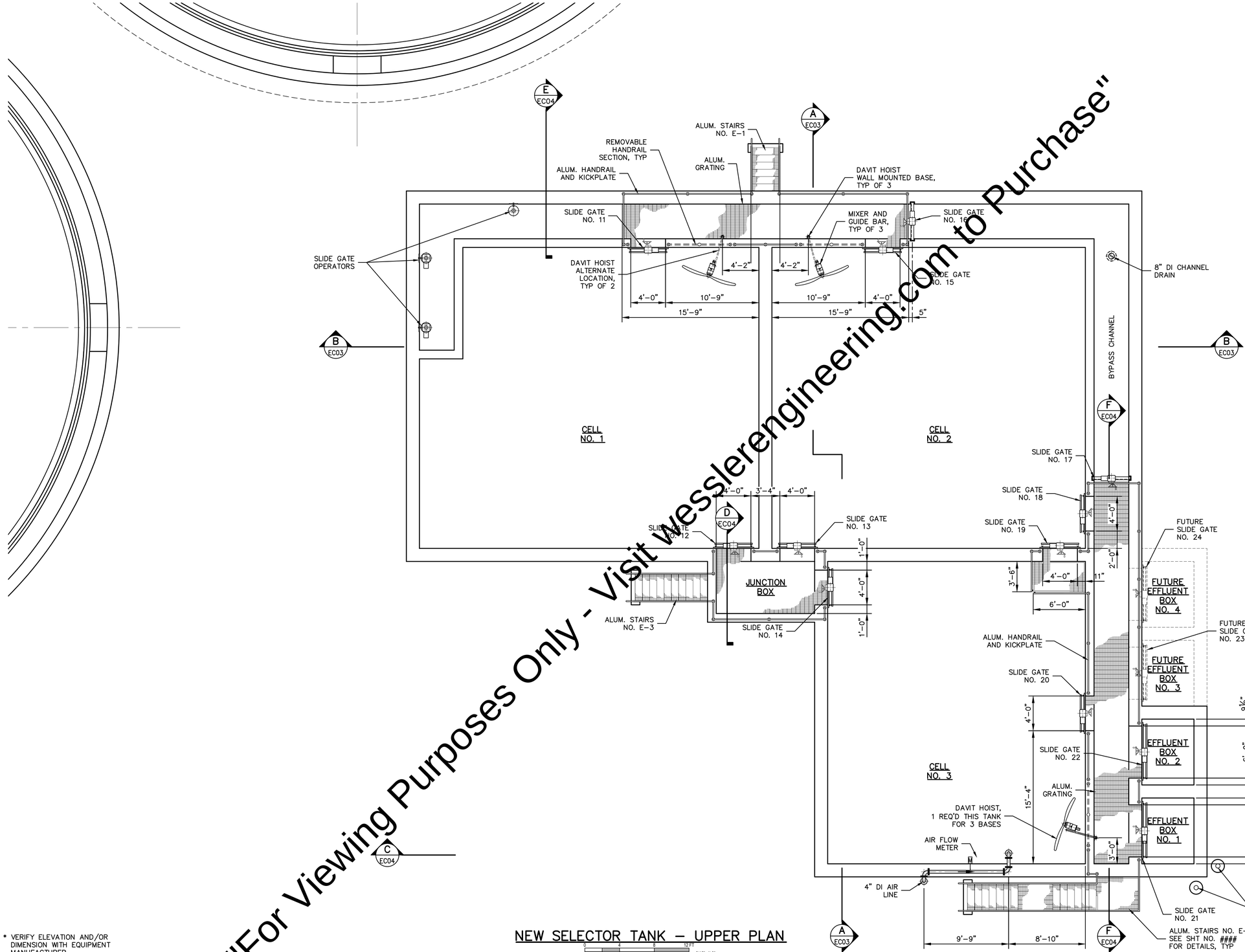
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK LOWER PLAN

SHEET NO. **EC01**

PAGE NO. 85



* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

NEW SELECTOR TANK – UPPER PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUSTON REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 09/4/2018

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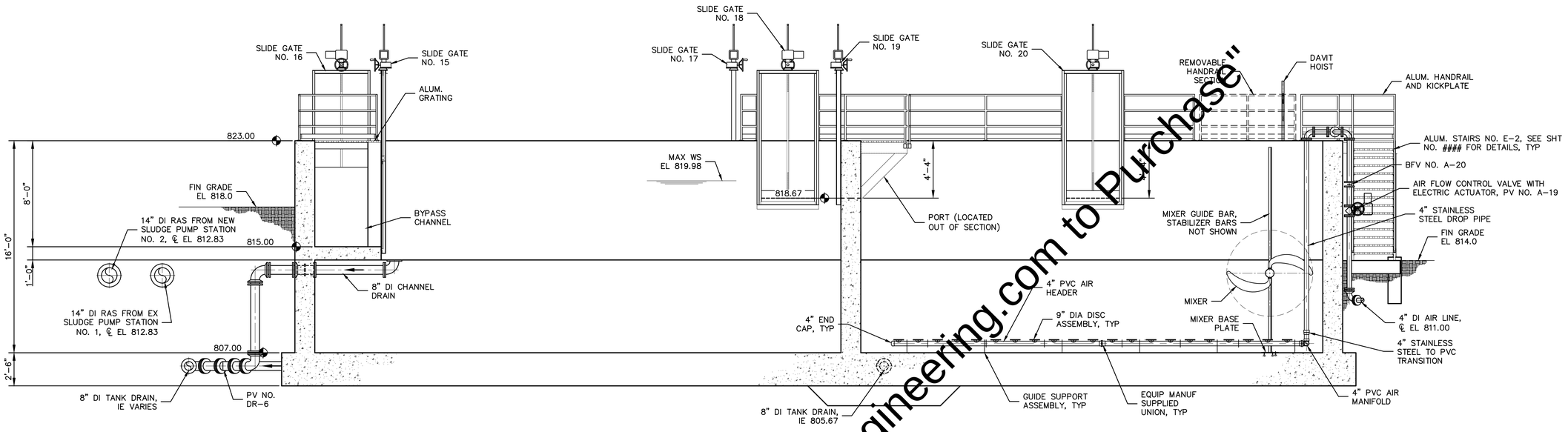
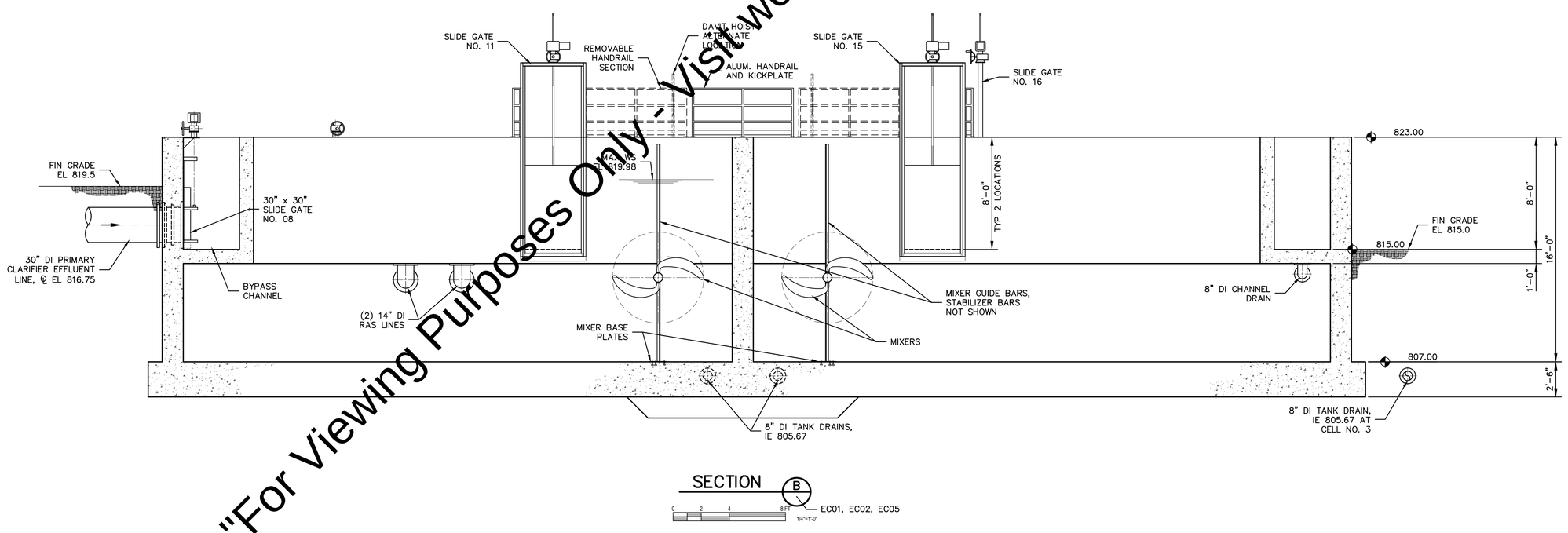
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK
UPPER PLAN

SHEET NO.
EC02
PAGE NO.
86





* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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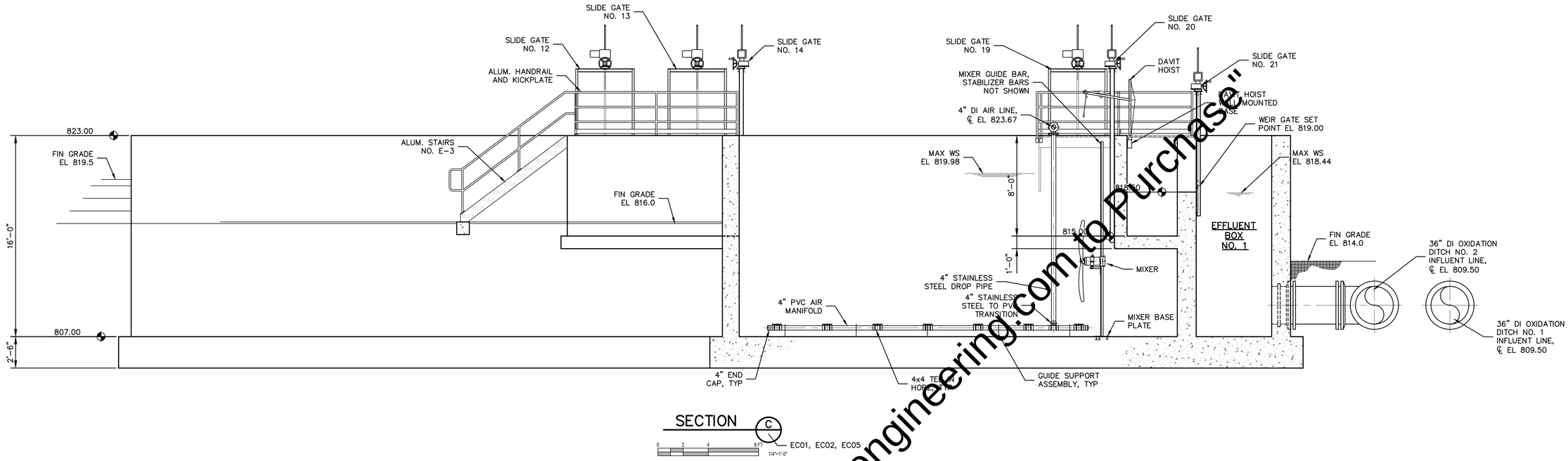
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

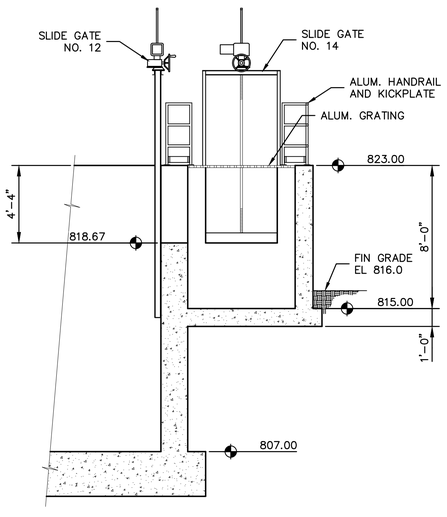
NEW SELECTOR TANK SECTIONS

SHEET NO. **EC03**

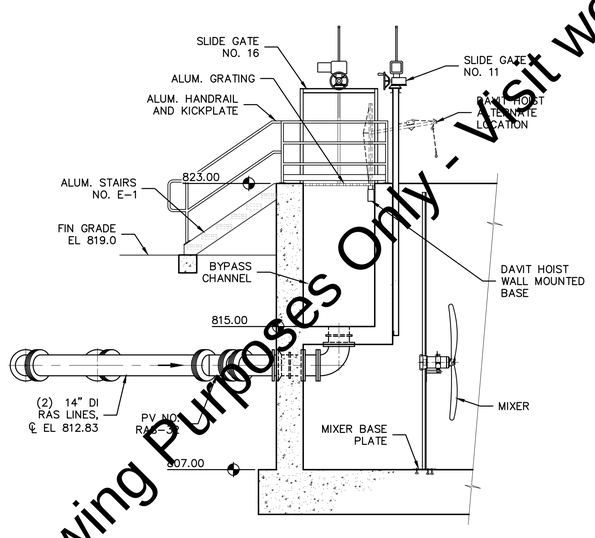
PAGE NO. 87



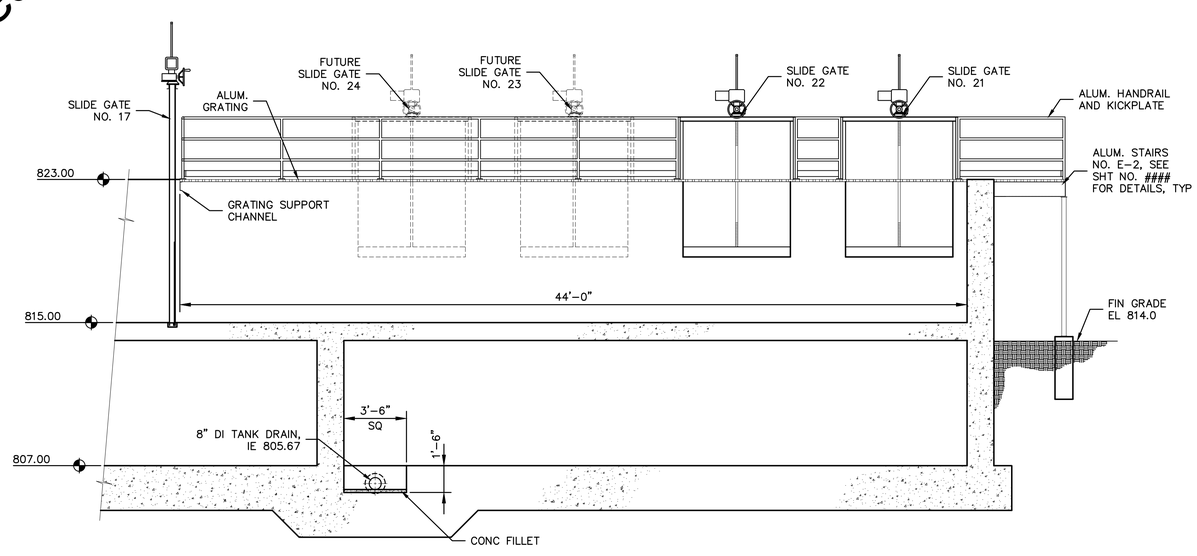
SECTION C
0 2 4 8 FT
1/4"=1'-0"
EC01, EC02, EC05



SECTION D
0 2 4 8 FT
1/4"=1'-0"
EC01, EC02, EC05



SECTION E
0 2 4 8 FT
1/4"=1'-0"
EC01, EC02, EC05



SECTION F
0 2 4 8 FT
1/4"=1'-0"
EC01, EC02, EC05

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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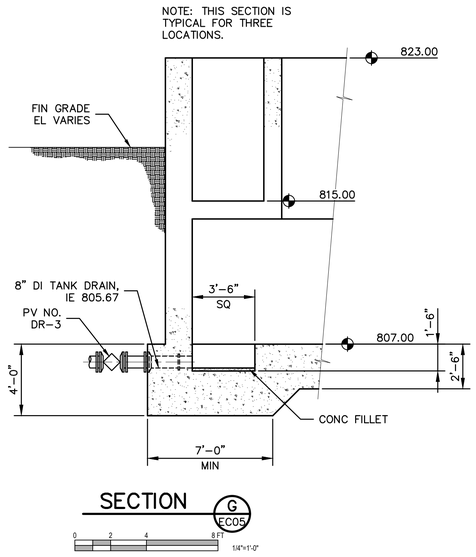
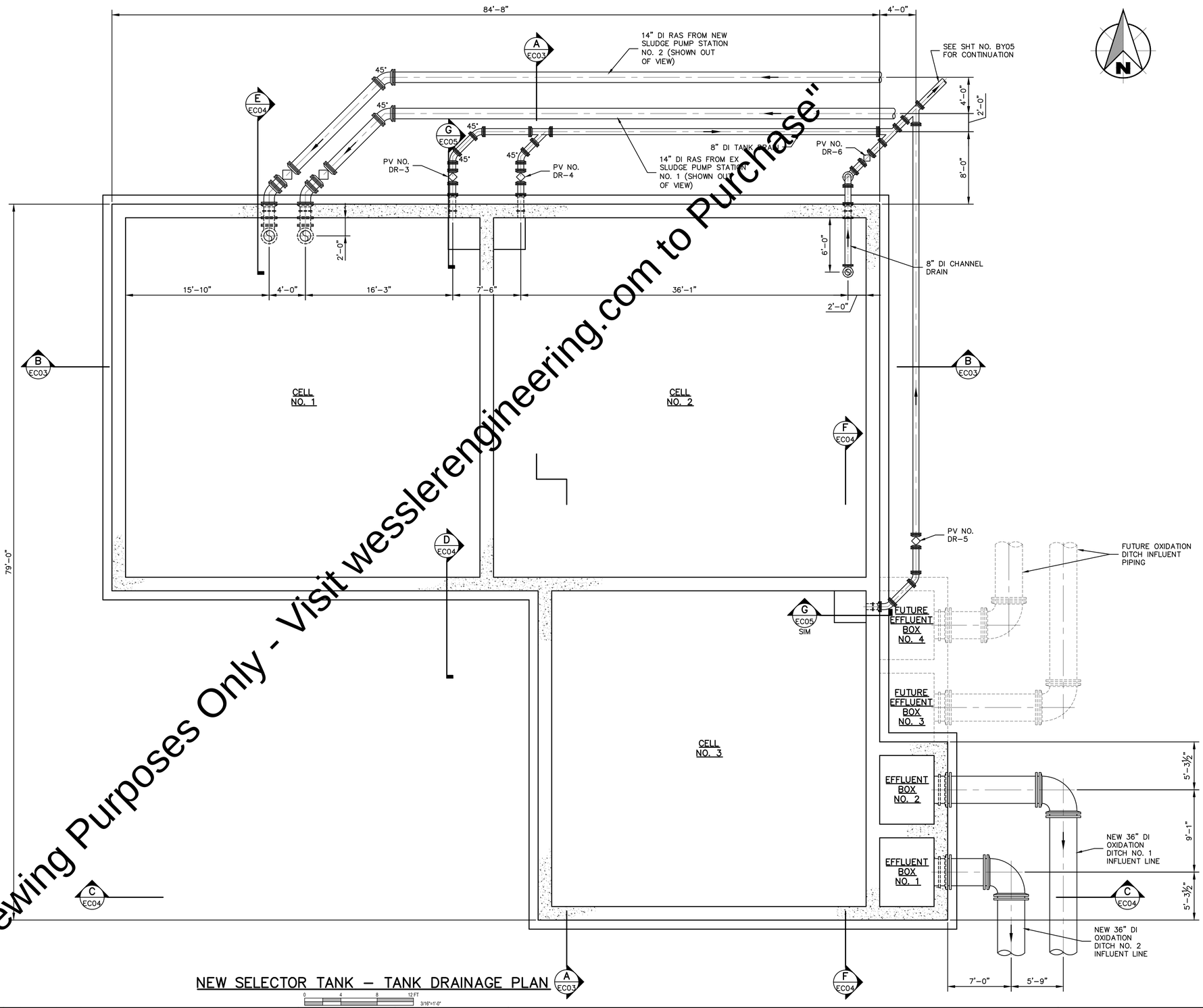
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK SECTIONS & DETAILS

SHEET NO.
EC04
PAGE NO.
88





NEW SELECTOR TANK – TANK DRAINAGE PLAN

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

GREGORY L. RUSSELL REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 09/05/2018

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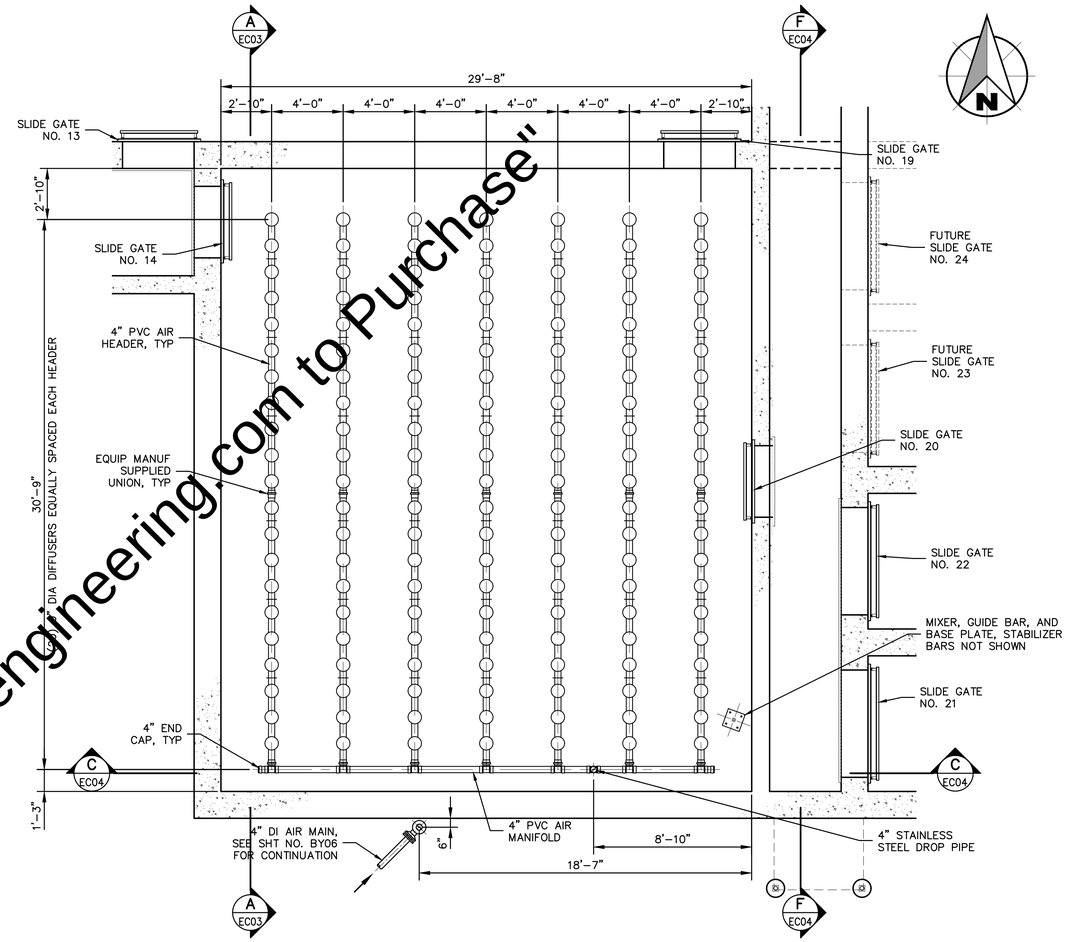
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK
TANK DRAINAGE PLAN AND SECTION

SHEET NO. **EC05**

PAGE NO. 89



CELL NO. 3 AIR GRID
ENLARGED PLAN

0 2 4 8 FT
1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUSH REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 9/4/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

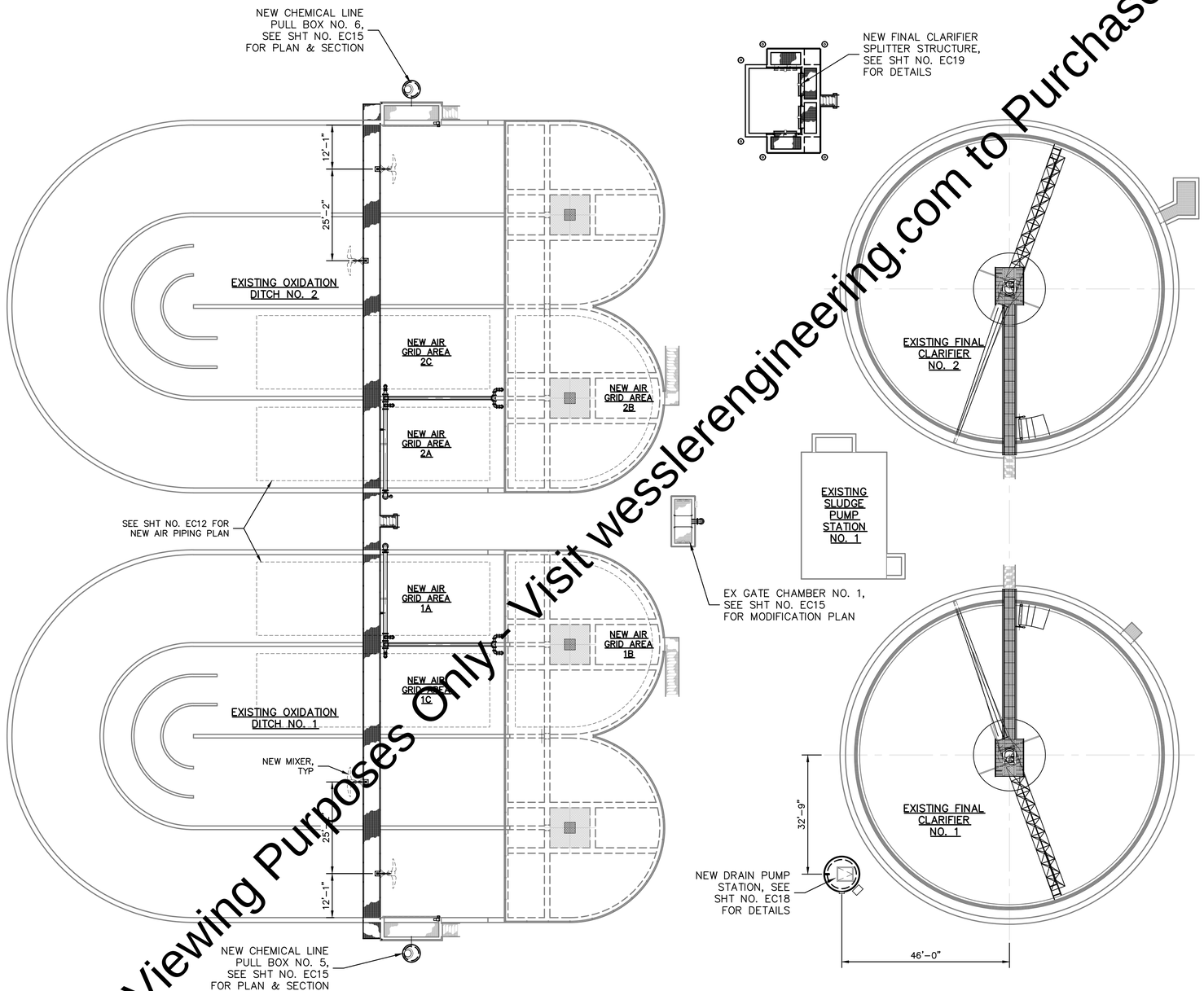
CITY OF WARSAW, INDIANA

NEW SELECTOR TANK - AIR GRID PLAN AND DETAILS

SHEET NO.
EC06
PAGE NO.
90

OXIDATION DITCH GENERAL NOTES:

1. THE TOP OF THE LOWER WALL ELEVATION FOR THE OXIDATION DITCH HAS BEEN SHOWN AT 821.50, AND THE TOP OF WALL ELEVATION FOR GATE CHAMBER NO. 1 HAS BEEN SHOWN AT 821.00, ON THE 2001 WASTEWATER TREATMENT PLANT PROJECT, BY JONES & HENRY ENGINEERS, LTD. THE WESSLER ENGINEERING SITE SURVEY FOR THIS PROJECT DETERMINED THE TOP OF WALL ELEVATION TO BE 820.75 FOR THE OXIDATION DITCHES AND 820.25 FOR GATE CHAMBER NO. 1. ALL VERTICAL INFORMATION SHOWN FOR THIS STRUCTURE HAS BEEN REVISED TO AGREE WITH THE SITE SURVEY, WITH THE ASSUMPTION THAT VERTICAL DISTANCES REFERENCED ON THE JONES & HENRY DRAWINGS ARE ACCURATE.
2. EXISTING BELOW GRADE PIPING SHOWN ON THE DRAWINGS FOR AREA D IS AS SHOWN ON THE WASTEWATER TREATMENT PLANT, CONTRACT 9 PROJECT, BY JONES & HENRY ENGINEERS, LTD., CORRECTED FROM CONSTRUCTION DATA IN JANUARY 2004. THIS INFORMATION HAS NOT BEEN VERIFIED.
3. FIELD VERIFY ALL GATE CHAMBER DIMENSIONS PRIOR TO THE CONSTRUCTION OF NEW FEATURES. COORDINATE WITH THE ENGINEER FOR ANY REQUIRED FIELD ADJUSTMENTS TO THE INSTALLATIONS.



EXISTING OXIDATION DITCHES & FINAL CLARIFIERS OVERALL UPPER LEVEL MODIFICATION PLAN

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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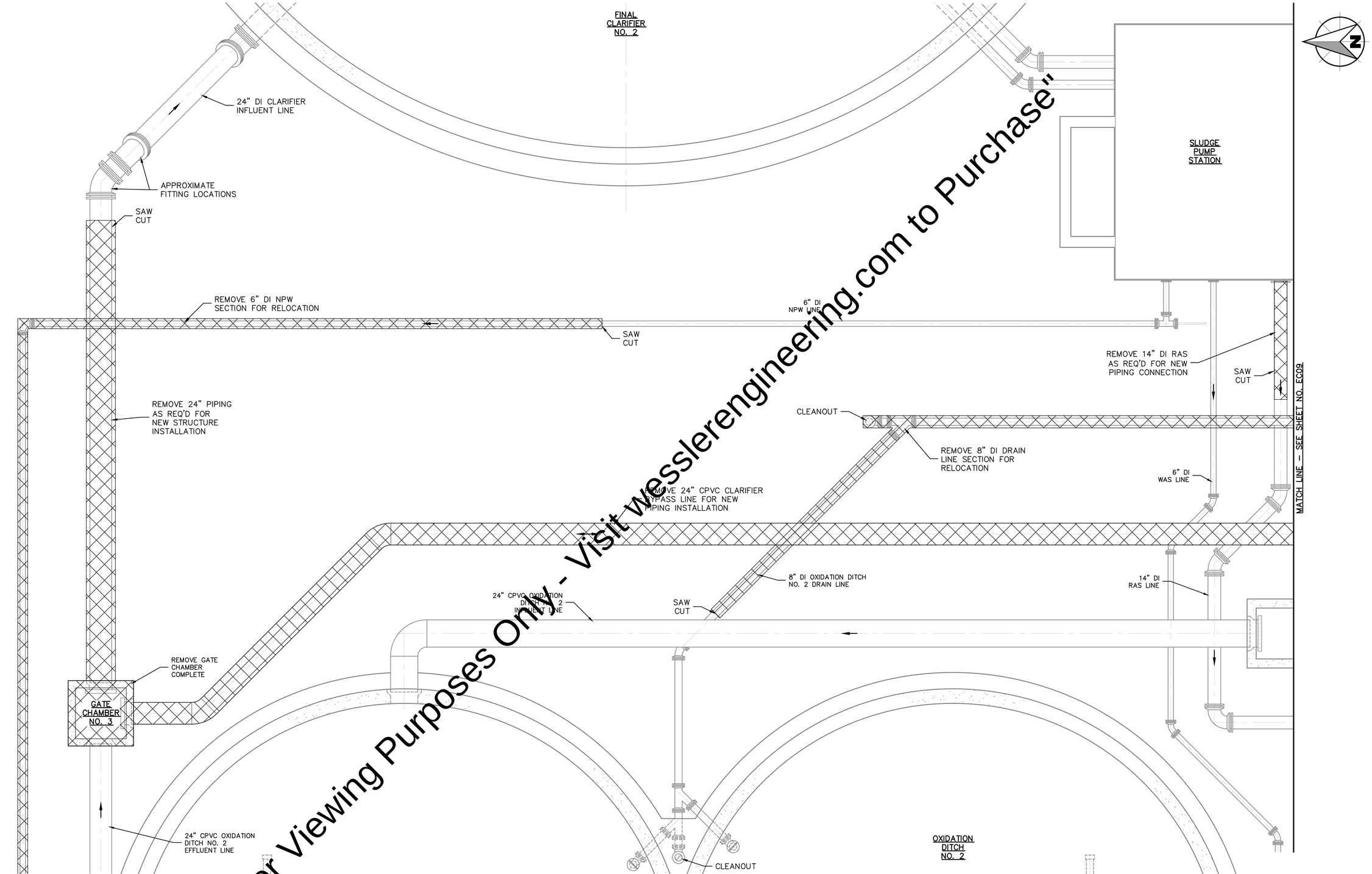
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES AND FINAL CLARIFIERS OVERALL UPPER LEVEL MODIFICATION PLAN

SHEET NO. **EC07**

PAGE NO. 91



EXISTING PIPING CORRIDOR – DEMOLITION PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
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EXISTING OXIDATION DITCH AND CLARIFIER PIPING CORRIDOR LOWER LEVEL DEMOLITION PLAN

SHEET NO. **EC08**

PAGE NO. 92

EXISTING PIPING COORIDOR – DEMOLITION PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ
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	APPROVED BY	GLR
	ISSUE DATE	
	SEPTEMBER 4, 2018	
	PROJECT NUMBER	
	162813-04-003	

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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No. 19500302
STATE OF INDIANA
09/04/2018

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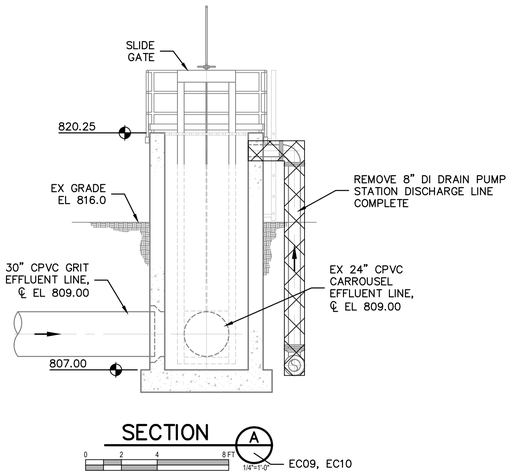
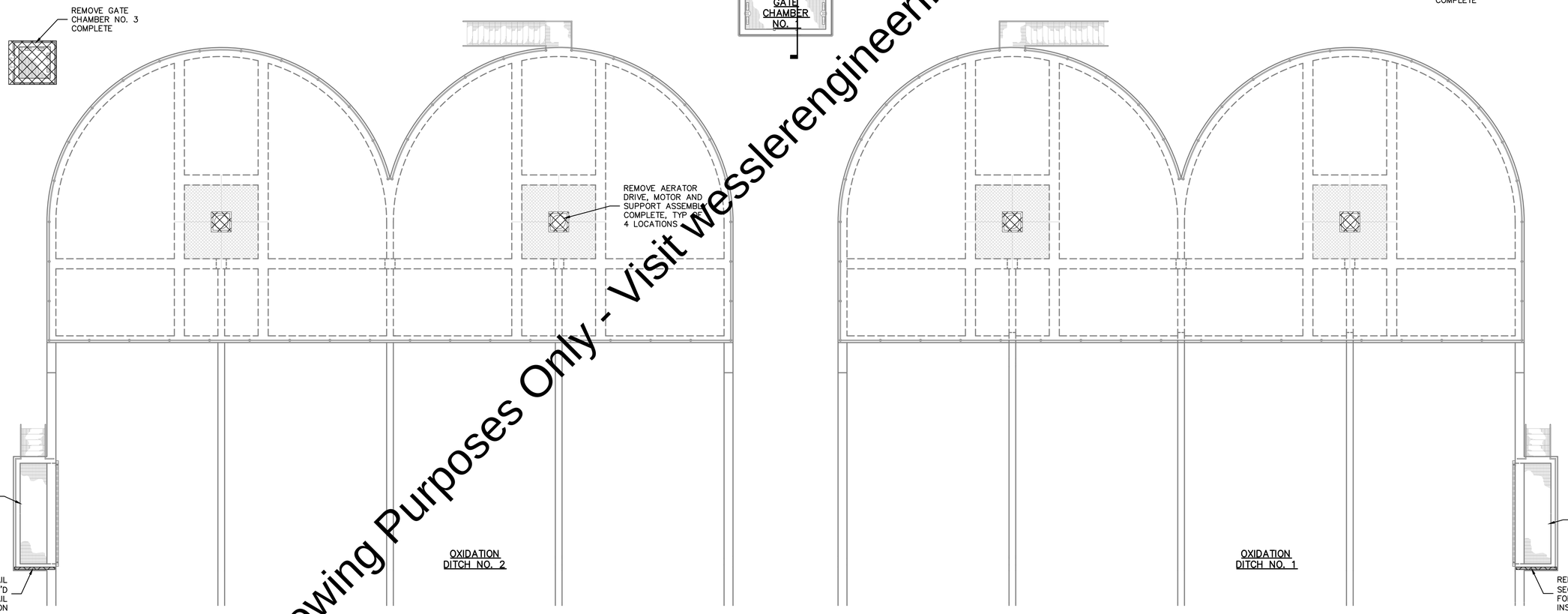
EXISTING OXIDATION DITCH AND CLARIFIER PIPING CORRIDOR
LOWER LEVEL DEMOLITION PLAN

SHEET NO.
EC09

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\162813-Ex Carrousel.dwg | Layout: EC09 | Plotted: 09/04/18 @ 09:25:03 | LastSavedBy: MikeN





EXISTING OXIDATION DITCHES UPPER LEVEL DEMOLITION PLAN

0 4 8 16 FT
1/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
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	APPROVED BY	GLR					
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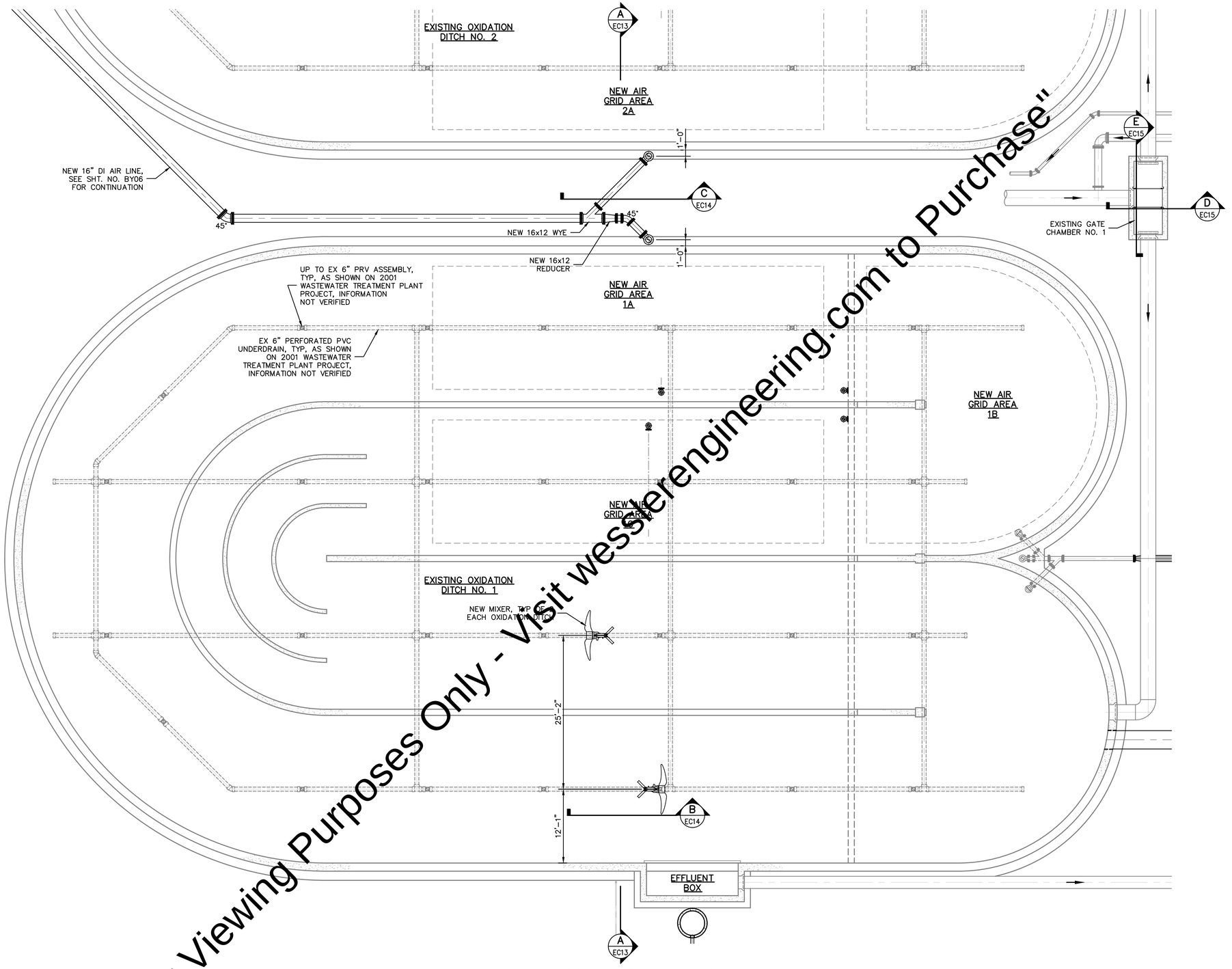
EXISTING OXIDATION DITCHES
UPPER LEVEL DEMOLITION PLAN AND SECTION

SHEET NO.
EC10
PAGE NO.
94



OXIDATION DITCH NO. 1
NEW AIR PIPING LOWER LAYOUT PLAN

0 4 8 16 FT
1/8"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
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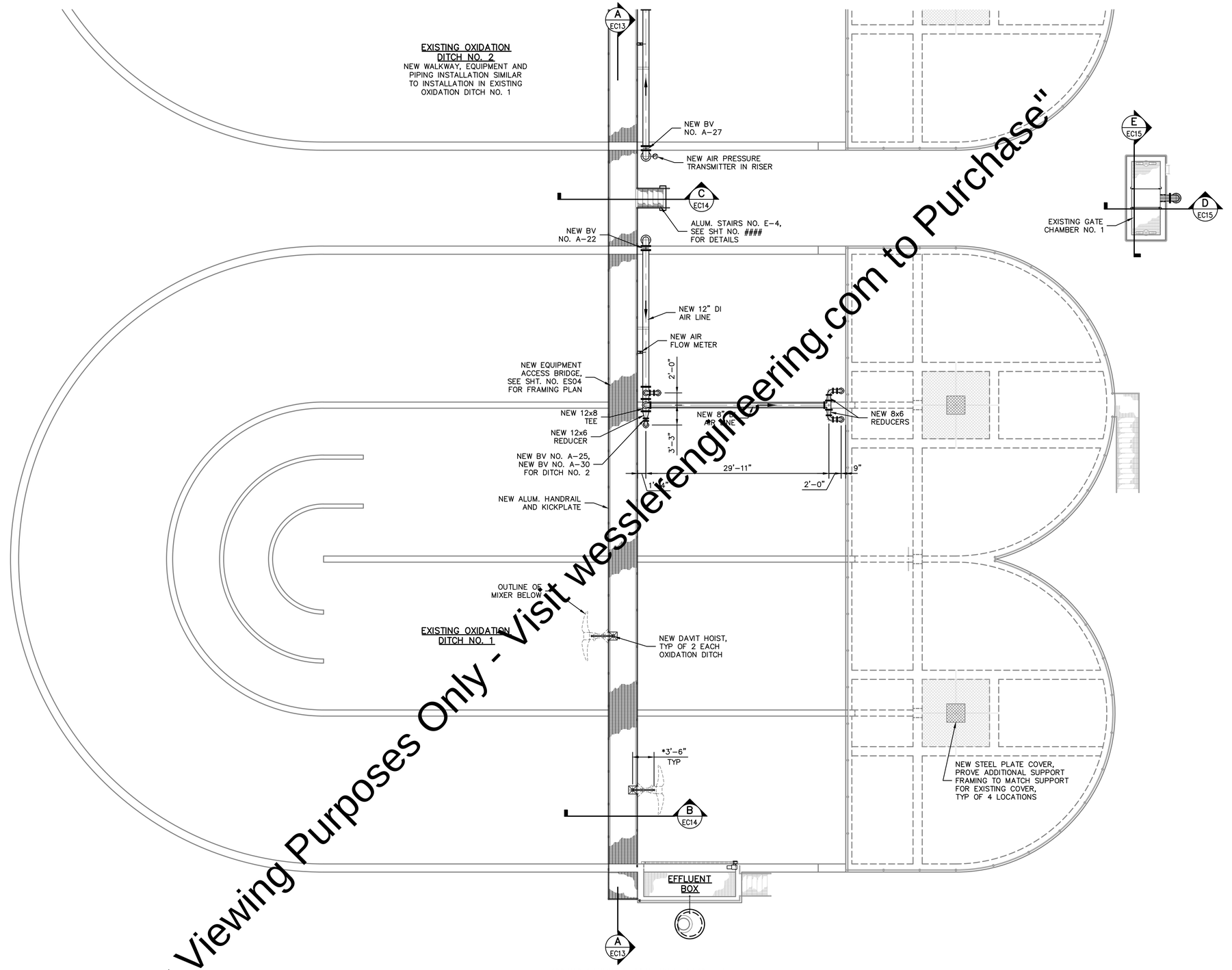
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES LOWER LEVEL MODIFICATION PLAN

SHEET NO.
EC11
PAGE NO.
95



OXIDATION DITCH NO. 1
UPPER LEVEL MODIFICATION PLAN

0 4 8 16 FT
1/8"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

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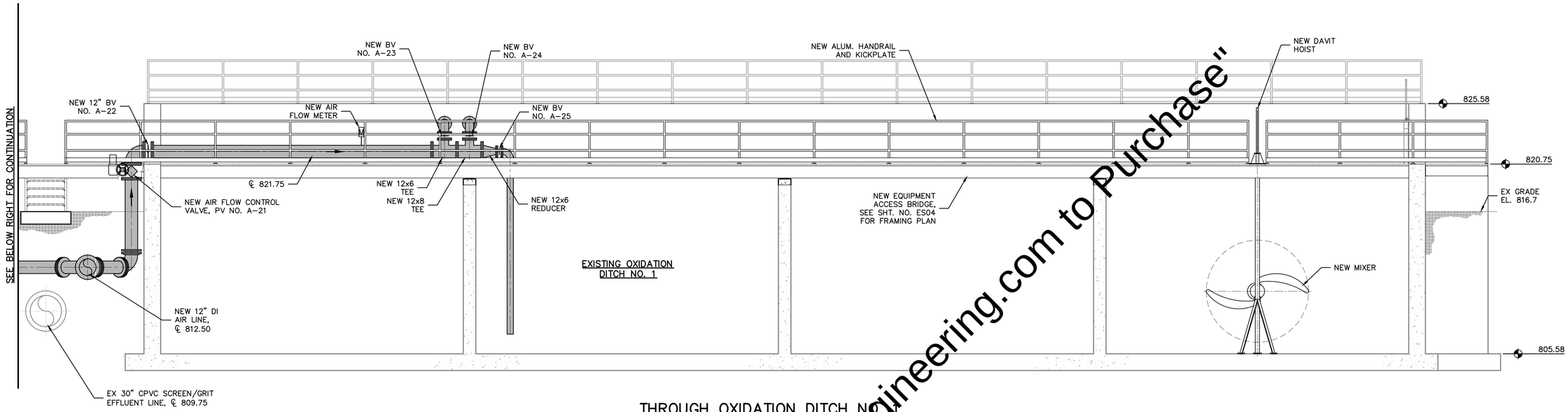
WASTEWATER TREATMENT PLANT EXPANSION - 2017

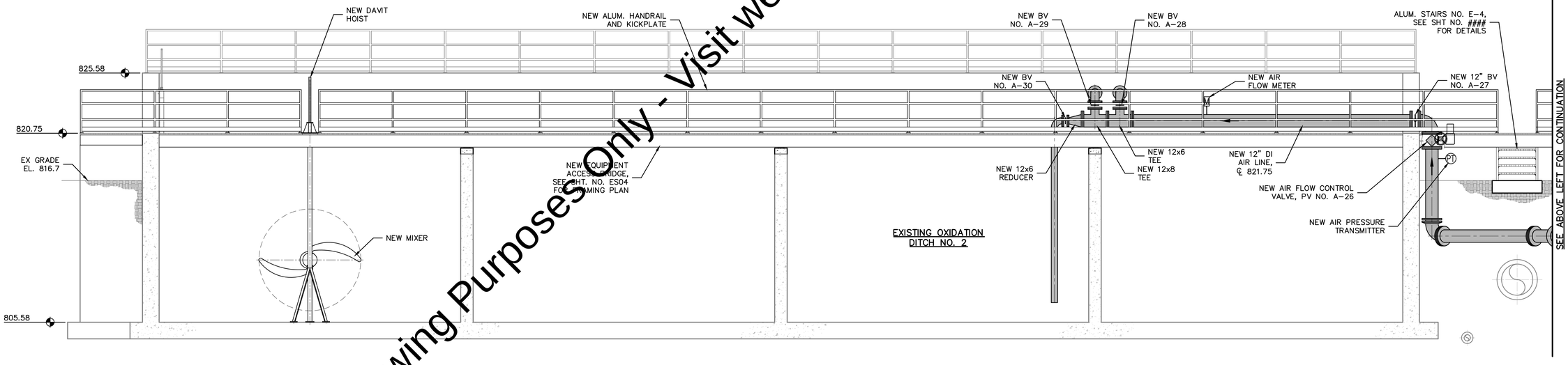
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES
UPPER LEVEL MODIFICATION PLAN

SHEET NO.
EC12
PAGE NO.
96



THROUGH OXIDATION DITCH NO. 1
SECTION A
0 2 4 8 FT
1/4"=1'-0"
EC11, EC12



THROUGH OXIDATION DITCH NO. 2
SECTION A
0 2 4 8 FT
1/4"=1'-0"
EC11, EC12

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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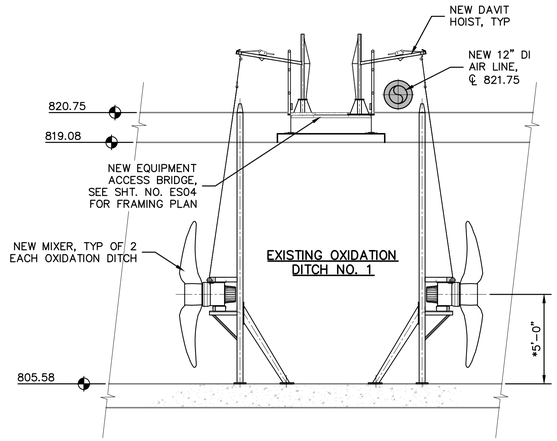
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES MODIFCATION SECTIONS

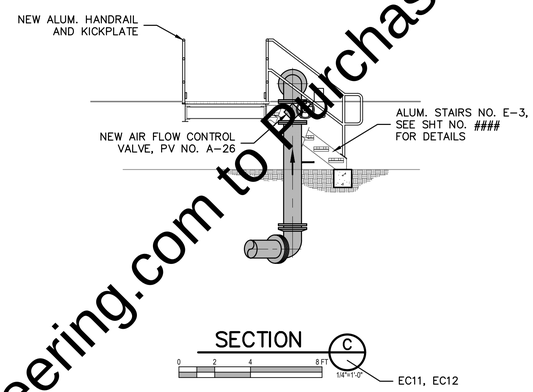
SHEET NO. **EC13**

PAGE NO. 97



SECTION B

EC11, EC12



SECTION C

EC11, EC12

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
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	PROJECT NUMBER					
	162813-04-003					

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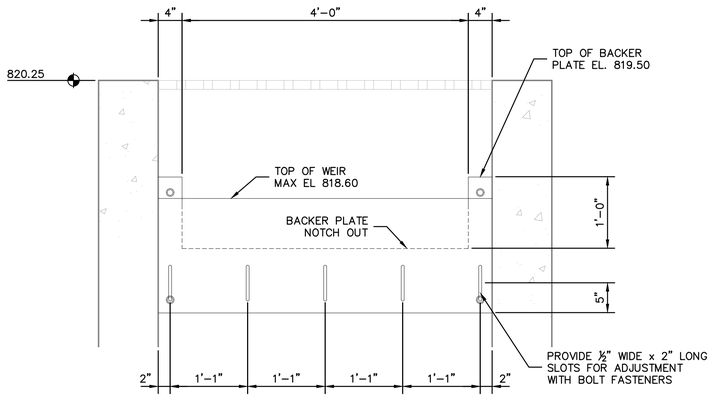
WASTEWATER TREATMENT PLANT EXPANSION - 2017

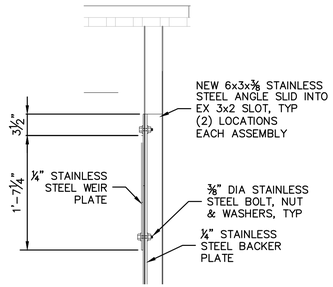
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES
NEW AIR PIPING
SECTIONS

SHEET NO.
EC14
PAGE NO.
98



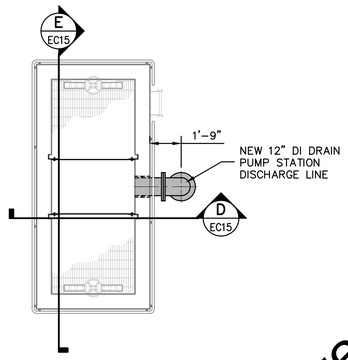
FRONT ELEVATION



TYPICAL SECTION

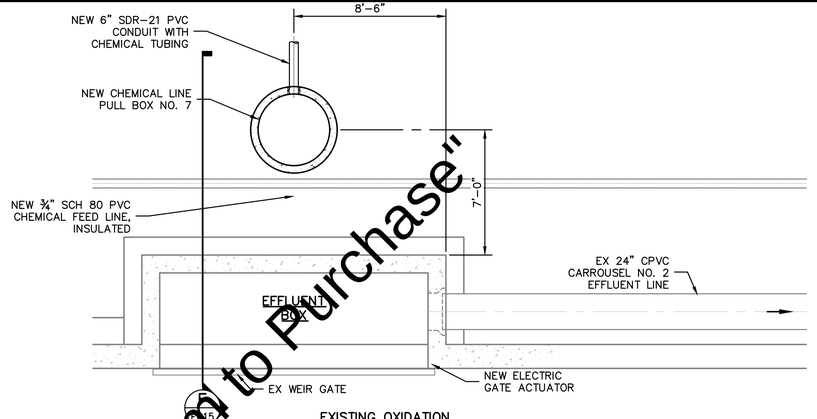
NEW FLOW CONTROL ASSEMBLY DETAILS

0 2 4 8FT
1/4"=1'-0"



GATE CHAMBER NO. 1 MODIFICATION PLAN

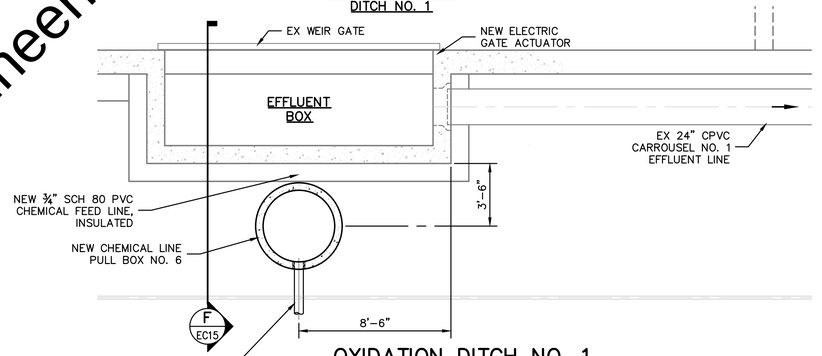
0 2 4 8FT
1/4"=1'-0"



OXIDATION DITCH NO. 2 CHEMICAL FEED PIPING PLAN

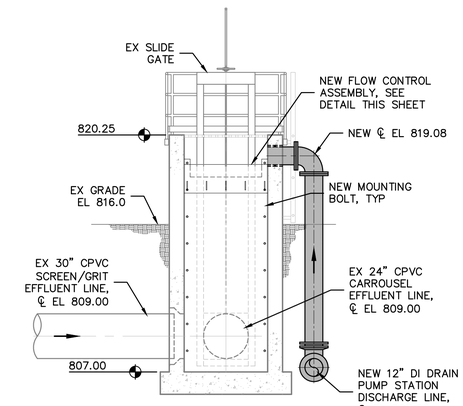
0 2 4 8FT
1/4"=1'-0"

EXISTING OXIDATION DITCH NO. 1



OXIDATION DITCH NO. 1 CHEMICAL FEED PIPING PLAN

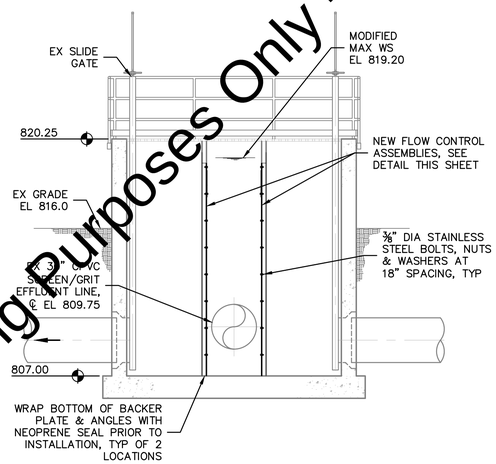
0 2 4 8FT
1/4"=1'-0"



SECTION D EC11, EC12, EC15

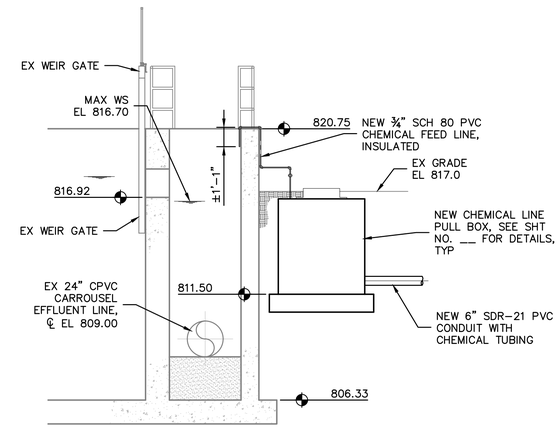
0 2 4 8FT
1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.



SECTION E EC11, EC12, EC15

0 2 4 8FT
1/4"=1'-0"



SECTION F EC15

0 2 4 8FT
1/4"=1'-0"

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	CHECKED BY	ALT				
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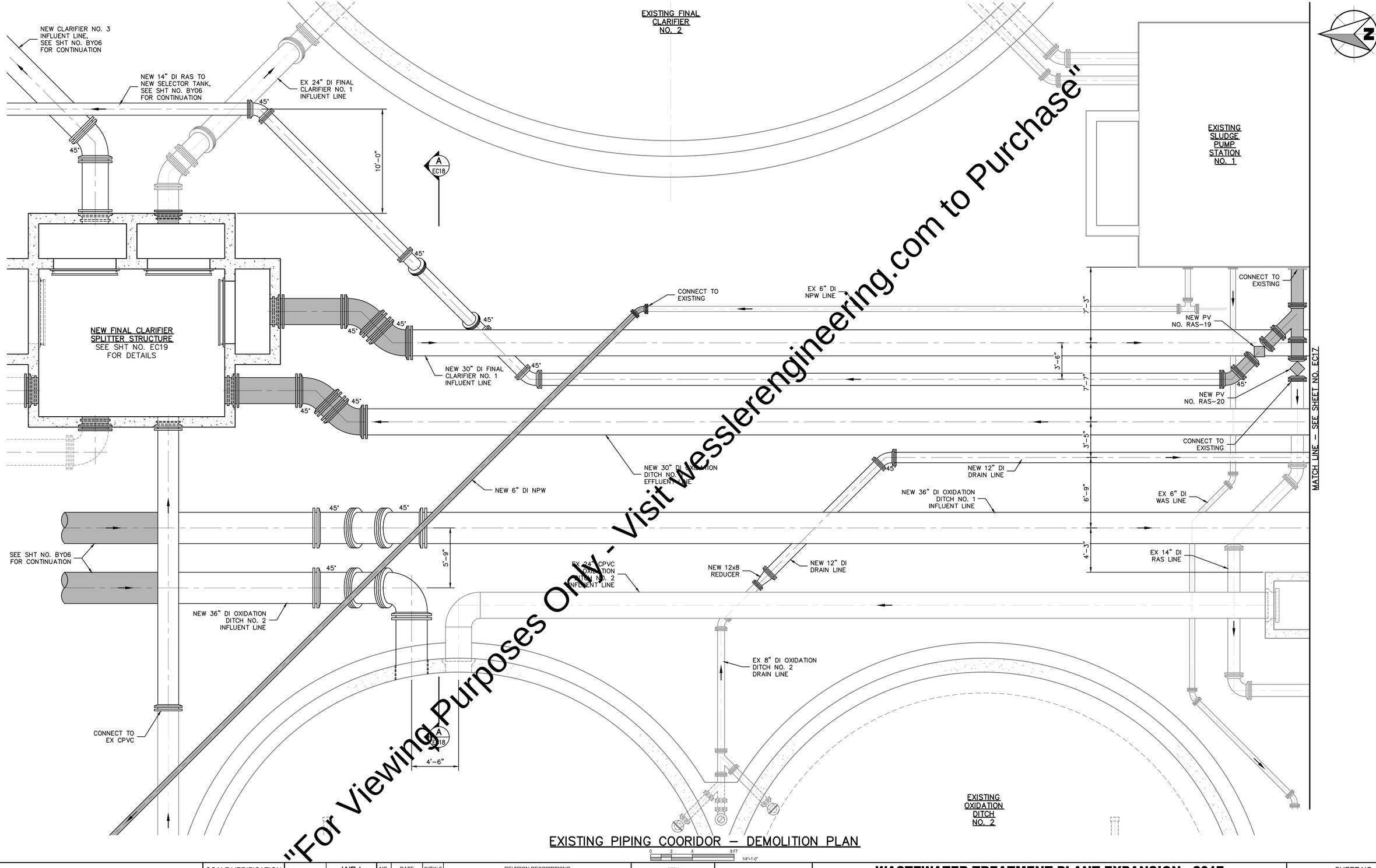
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES MISCELLANEOUS PLANS AND SECTIONS

SHEET NO.
EC15
PAGE NO.
99



EXISTING PIPING COORIDOR — DEMOLITION PLAN

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
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EXISTING OXIDATION DITCH AND CLARIFIER PIPING CORRIDOR LOWER LEVEL MODIFICATION PLAN

SHEET NO. **EC16**

PAGE NO. 100

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\C4D 04-001\DWGSheets\162813-Ex Carrousel.dwg | Layout: EC16 | Plotted: 09/04/18 @ 09:27:32 | LastSavedBy: MikeN

EXISTING FINAL CLARIFIER NO. 1

EXISTING SLUDGE PUMP STATION NO. 1

NEW DRAIN PUMP STATION
SEE SHT NO. EC18 FOR DETAILS

B EC18

EX 24" DI FINAL CLARIFIER NO. 1 INFLUENT LINE

45°

UGF UGT

EX 2" PVC NPW LINE

CONNECT TO EXISTING

NEW 30" DI FINAL CLARIFIER NO. 1 INFLUENT LINE

NEW 30" DI OXIDATION DITCH NO. 1 EFFLUENT LINE

NEW 30x24 REDUCER

NEW 12" DI DRAIN LINE

NEW 12" DI DRAIN PUMP STATION DISCHARGE LINE

NEW 36" DI OXIDATION DITCH NO. 1 INFLUENT LINE

CONNECT TO EX CPVC PIPE

NEW 12" DI DRAIN PUMP STATION DISCHARGE LINE

1'-9"

EXISTING GATE CHAMBER NO. 1

NEW STOP GUIDE GUIDE, TYP

EX 24" CPVC OXIDATION DITCH NO. 1 INFLUENT LINE

NEW 12x8 REDUCER

CONNECT TO EXISTING

EX 8" DI OXIDATION DITCH NO. 1 DRAIN LINE

EX 30" CPVC SCREEN/GRIT EFFLUENT LINE

B EC18

EXISTING OXIDATION DITCH NO. 1

MATCH LINE – SEE SHHET NO. EC16

EXISTING PIPING COORIDOR – DEMOLITION PLAN

0 2 4 8 FT
1/4"=1'-0"

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	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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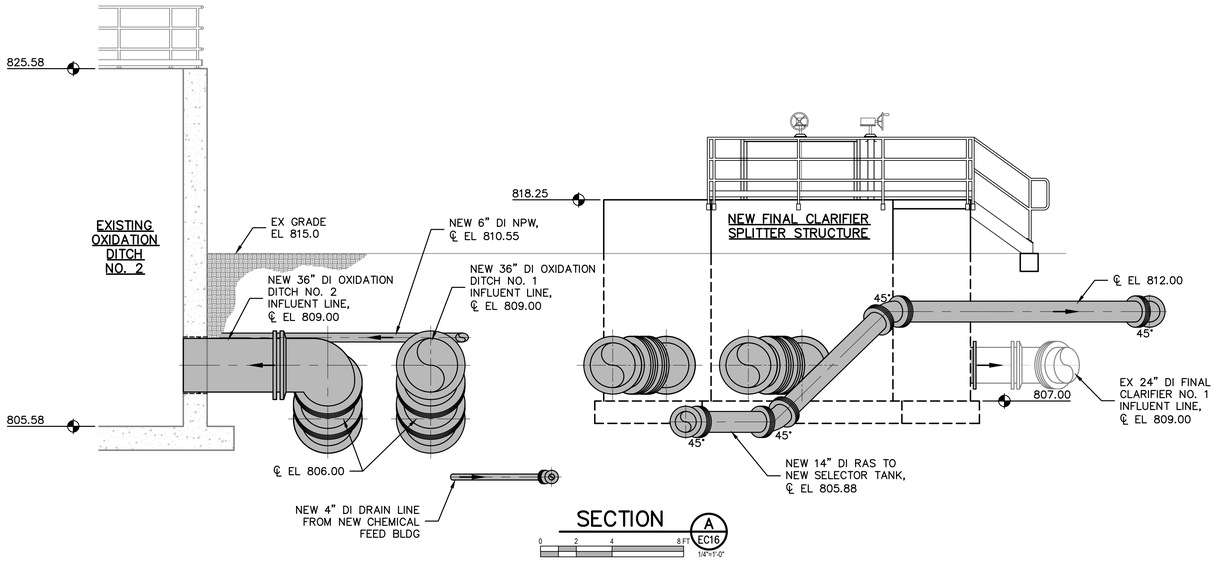
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCH AND CLARIFIER PIPING CORRIDOR LOWER LEVEL MODIFICATION PLAN

SHEET NO. **EC17**

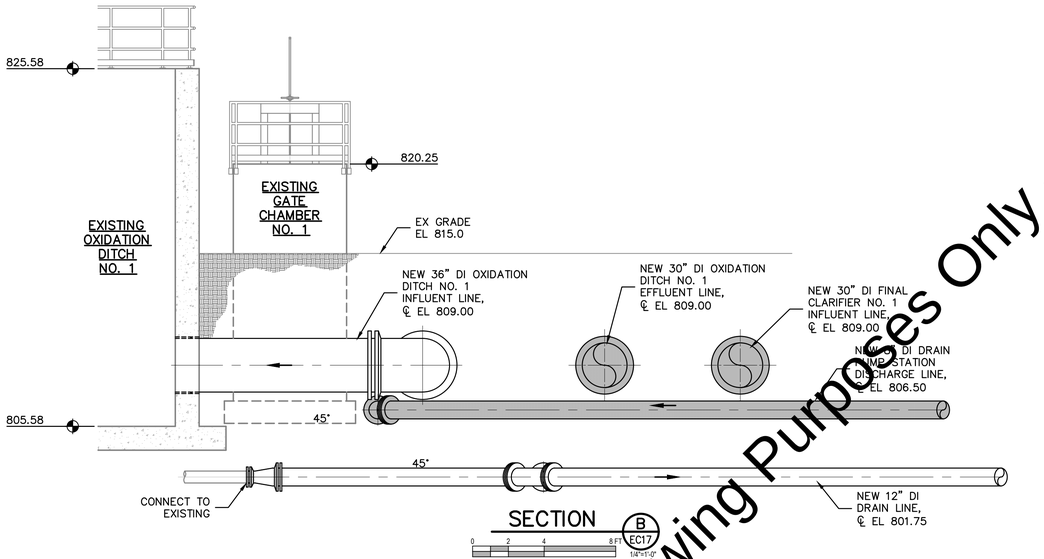
PAGE NO. XXX

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-60\12DWGS\Sheets\162813-Ex Carousel.dwg | Layout: EC17 | Plotted: 09/04/18 @ 09:27:42 | LastSavedBy: MikeN



SECTION A EC16

0 2 4 8 FT 1/4"=1'-0"

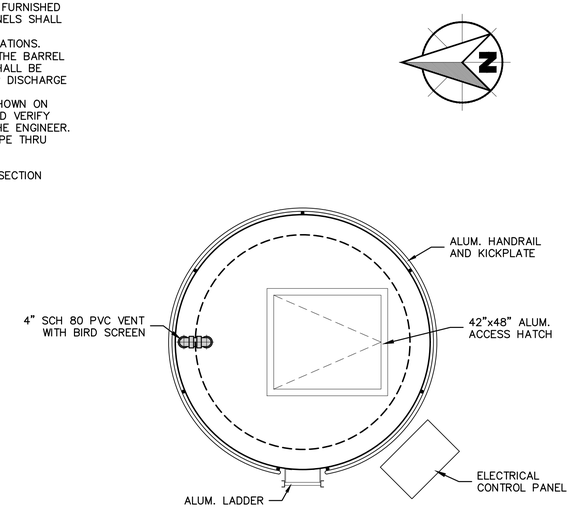


SECTION B EC17

0 2 4 8 FT 1/4"=1'-0"

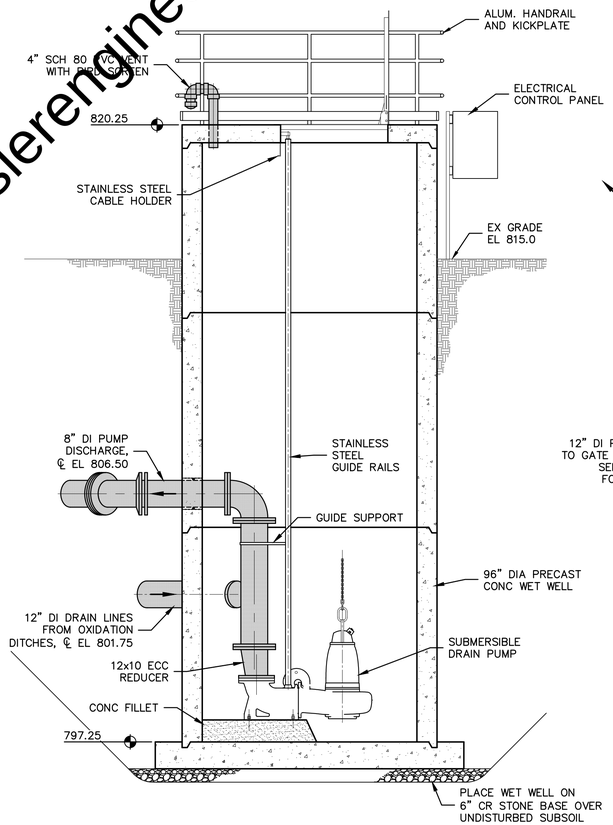
NEW DRAIN PUMP STATION GENERAL NOTES:

1. THE PLANT DRAIN PUMP EQUIPMENT INCLUDING PUMPS, GUIDE RAILS AND SUPPORT BRACKETS SHALL BE FURNISHED BY THE SAME MANUFACTURER. SEE SPECIFICATION SECTION 11200. PUMP CONTROLS AND CONTROL PANELS SHALL BE AS DESCRIBED IN ELECTRICAL DRAWINGS AND IN SPECIFICATION SECTION 11200.
2. INSTALL CONCRETE FILLET INTO THE BOTTOM OF THE WET WELL PER PUMP MANUFACTURER'S RECOMMENDATIONS.
3. THE WET WELL TOP SLAB SHALL BE PRECAST REINFORCED CONCRETE BY THE SAME MANUFACTURER AS THE BARREL SECTIONS. THE ACCESS HATCH SHALL BE INCLUDED IN THE CASTING OF THE TOP SLAB. THE HATCH SHALL BE INSTALLED ALONG THE CENTERLINE OF THE STRUCTURE, CENTERED AND ALIGNED PARALLEL TO THE PUMP DISCHARGE PIPING.
4. PIPE ELEVATIONS FOR THE DRAIN LINES AND DISCHARGE LINE ARE AS SHOWN BASED ON INFORMATION SHOWN ON THE 2001 WASTEWATER TREATMENT PROJECT, BY JONES & HENRY ENGINEERS, LTD. UNCOVER PIPING AND VERIFY PIPING PRIOR TO ORDERING THE WET WELL. COORDINATE ANY VERTICAL ADJUSTMENTS REQUIRED WITH THE ENGINEER.
5. ALL WALL PENETRATIONS FOR THE WET WELL SHALL BE WITH A MECHANICAL SEAL, AS SHOWN IN NEW PIPE THRU EXISTING WALL DETAIL, SHEET NO. MC02.
6. PROVIDE ALUMINUM ACCESS LADDER AS SHOWN IN LADDER DETAIL ON SHEET NO. MC02.
7. THE ACCESS HATCH TO THE DRAIN PUMP SHALL INCLUDE HINGED SAFETY GRATING. SEE SPECIFICATION SECTION 05532.



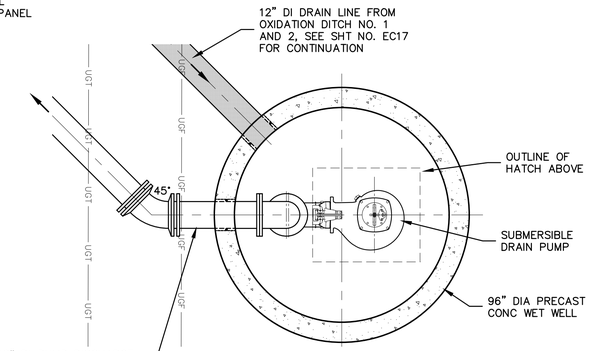
NEW DRAIN PUMP STATION UPPER PLAN

0 2 4 6 FT 3/8"=1'-0"



NEW DRAIN PUMP STATION TYPICAL SECTION

0 2 4 6 FT 3/8"=1'-0"



NEW DRAIN PUMP STATION LOWER PLAN

0 2 4 6 FT 3/8"=1'-0"

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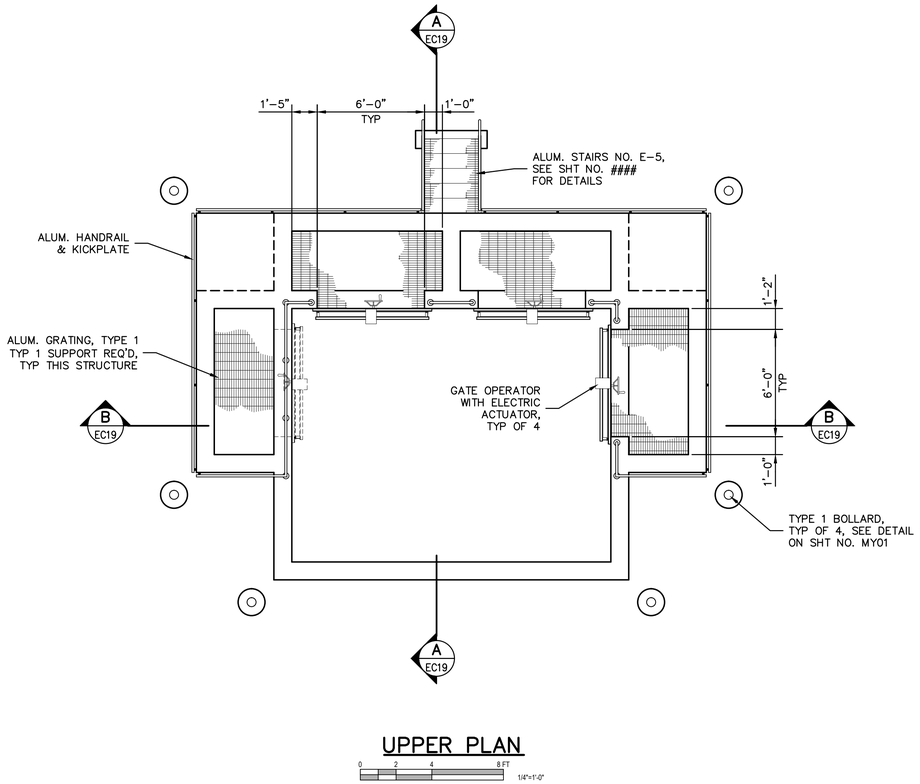
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCH AND CLARIFIER PIPING CORRIDOR MODIFICATION SECTIONS
NEW DRAIN PUMP STATION - PLAN AND SECTION

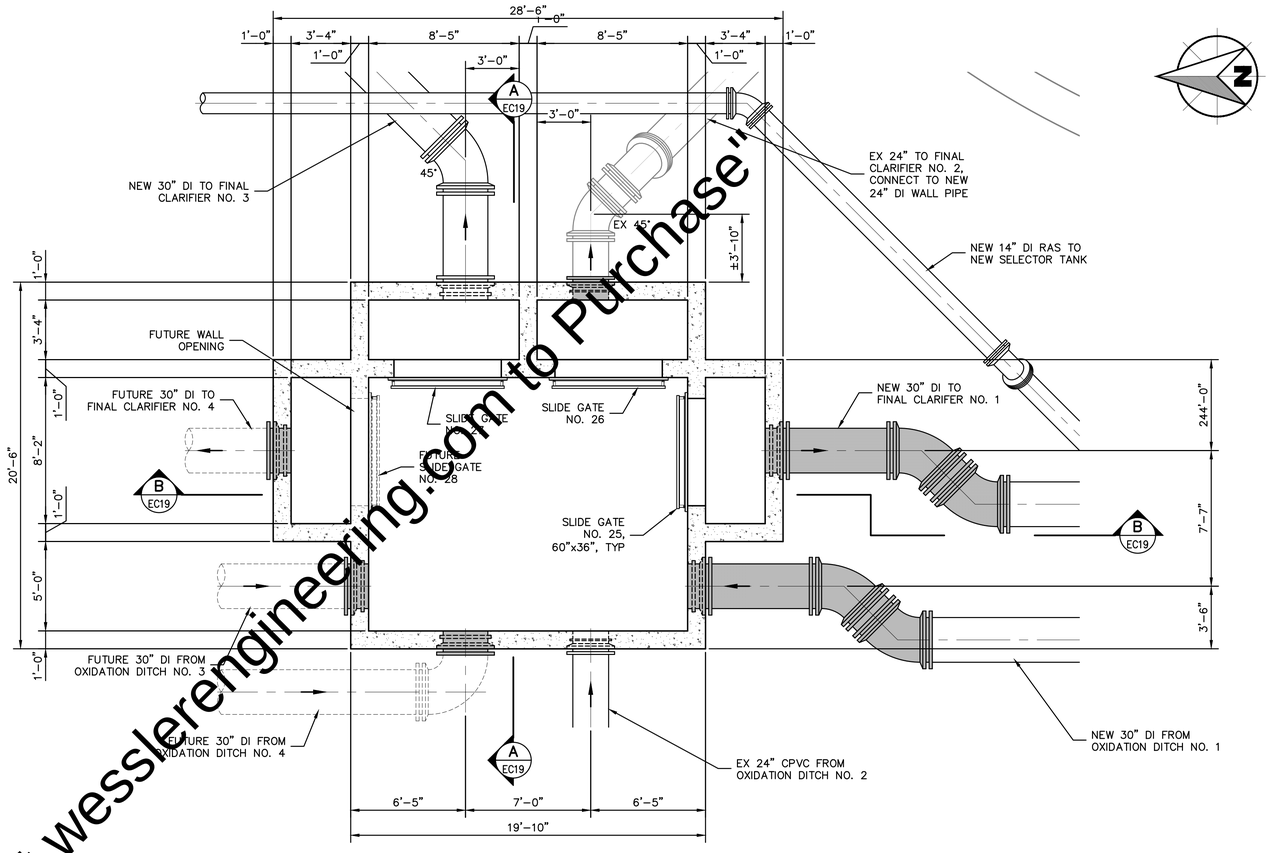
SHEET NO. **EC18**

PAGE NO. 102



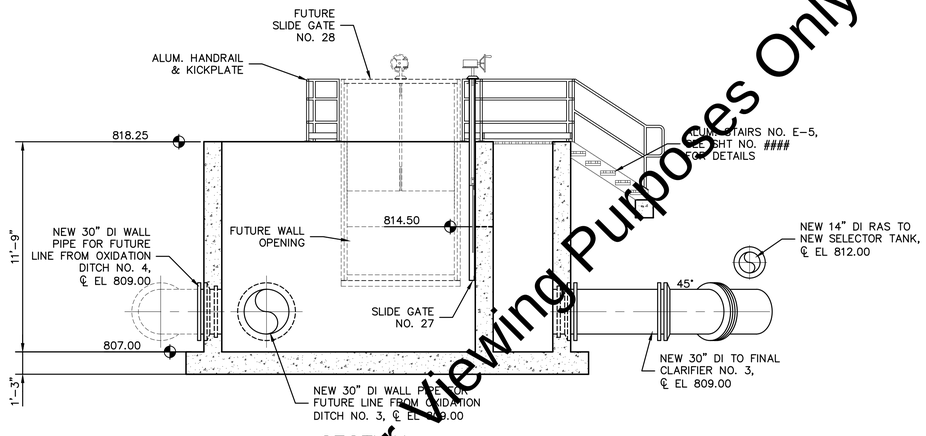
UPPER PLAN

0 2 4 8 FT 1/4"=1'-0"



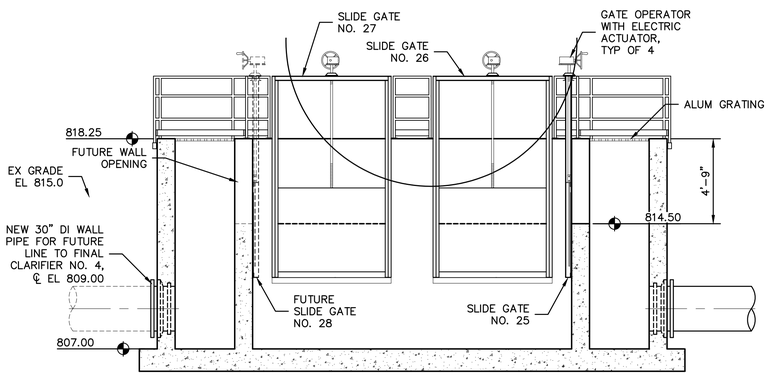
LOWER PLAN

0 2 4 8 FT 1/4"=1'-0"



SECTION A EC19

0 2 4 8 FT 1/4"=1'-0"



SECTION B EC19

0 2 4 8 FT 1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
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	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

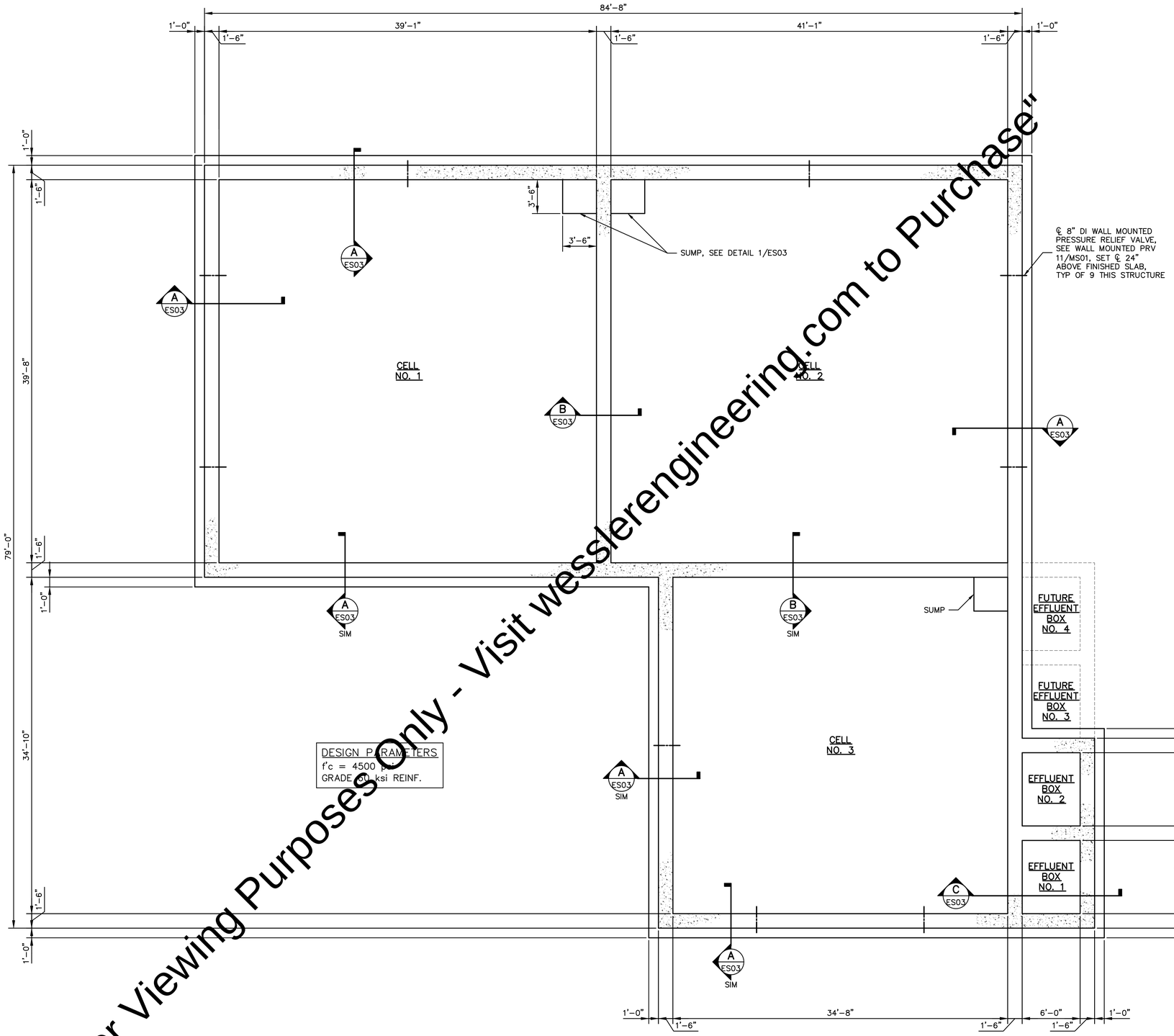
CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER SPLITTER STRUCTURE PLANS, SECTIONS AND DETAILS

SHEET NO.
EC19
PAGE NO.
103

GENERAL STRUCTURAL NOTES:

1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.



NEW SELECTOR TANK – FOUNDATION PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	MLN	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	JRB					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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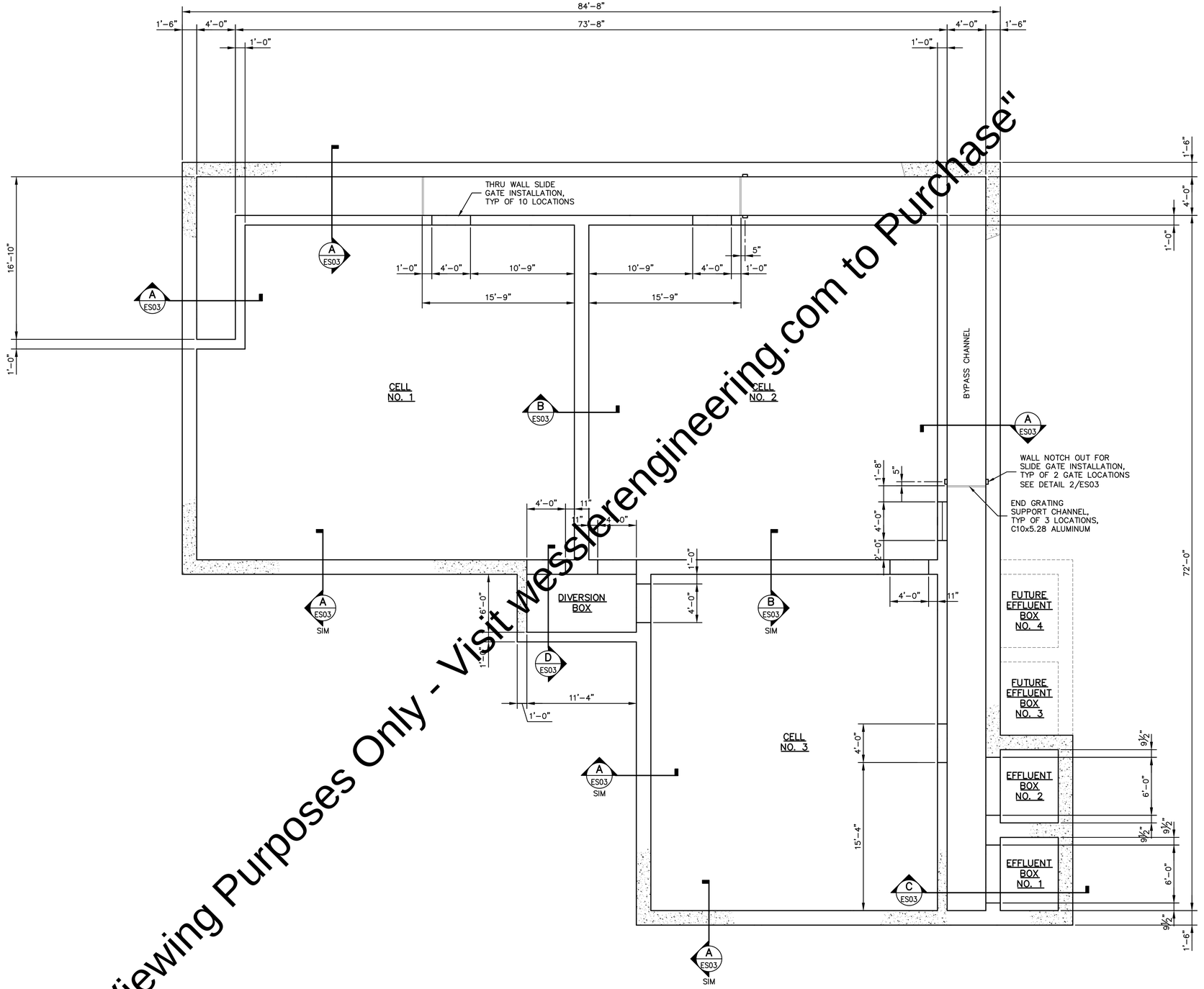
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK FOUNDATION PLAN

SHEET NO.
ES01
PAGE NO.
104



NEW SELECTOR PLAN
UPPER LEVEL STRUCTURAL PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	MLN	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
	CHECKED BY	ALT					
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	JRB					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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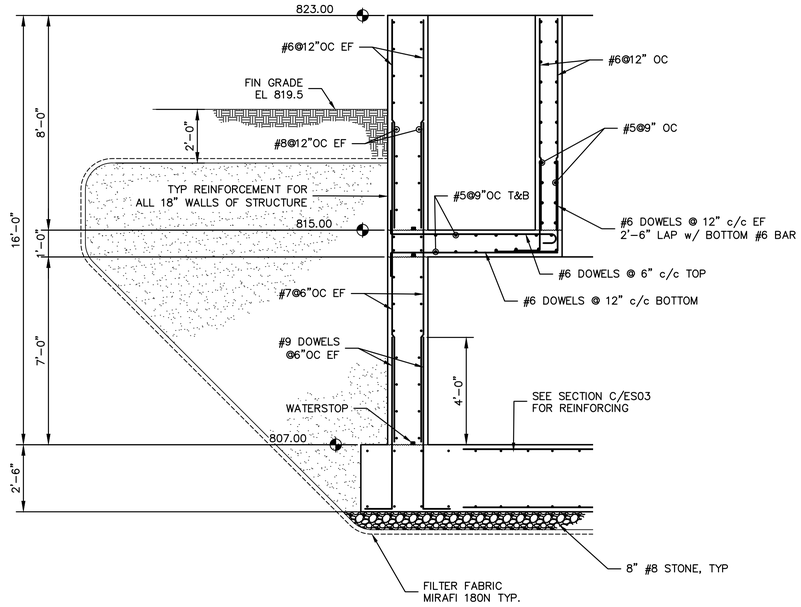
WASTEWATER TREATMENT PLANT EXPANSION - 2017

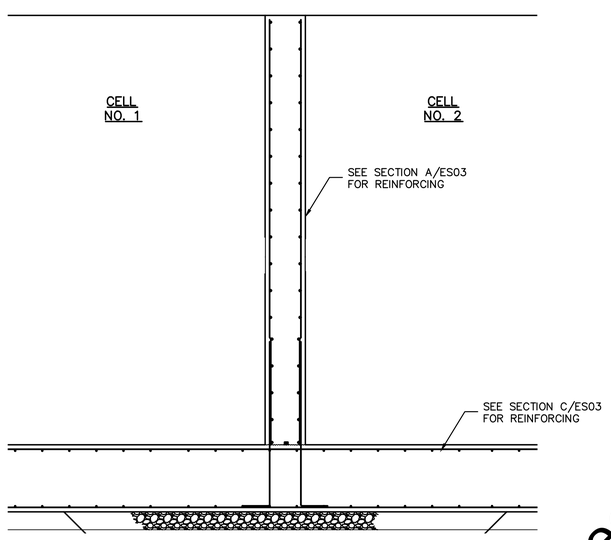
CITY OF WARSAW, INDIANA

NEW SELECTOR PLAN
UPPER LEVEL STRUCTURAL PLAN

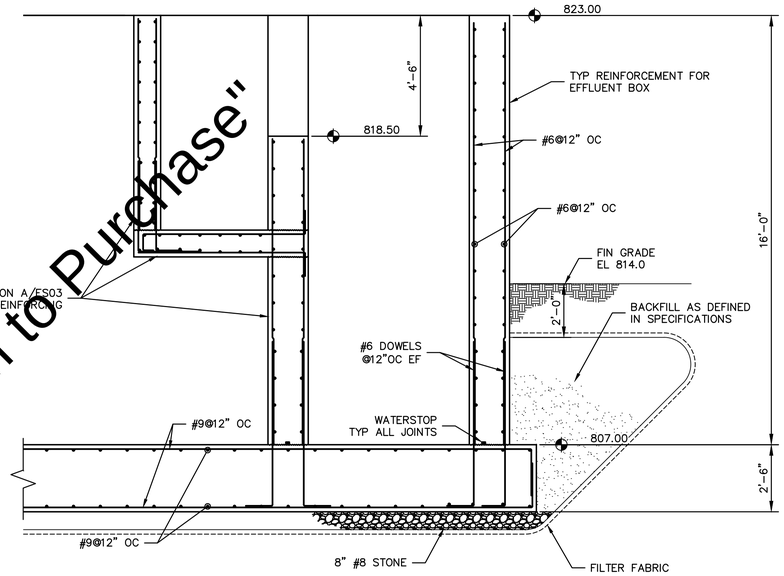
SHEET NO.
ES02
PAGE NO.
105



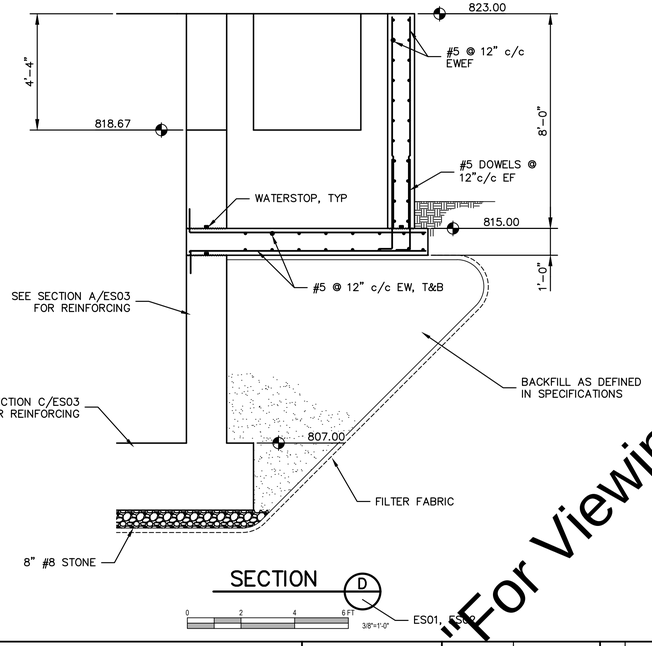
SECTION A — ES01, ES02



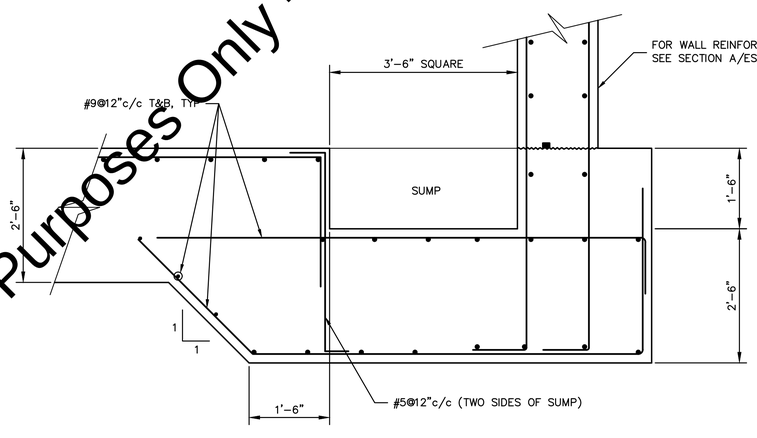
SECTION B — ES01, ES02



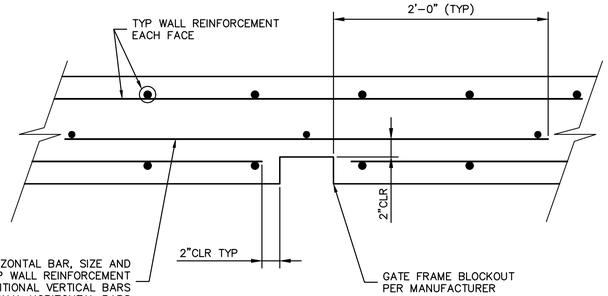
SECTION C — ES01, ES02



SECTION D — ES01, ES02



SUMP DETAIL 1/ES01 — SCALE: 3/4" = 1'-0"



GATE FRAME BLOCKOUT DETAIL 2/ES02 — SCALE: 1-1/2" = 1'-0"

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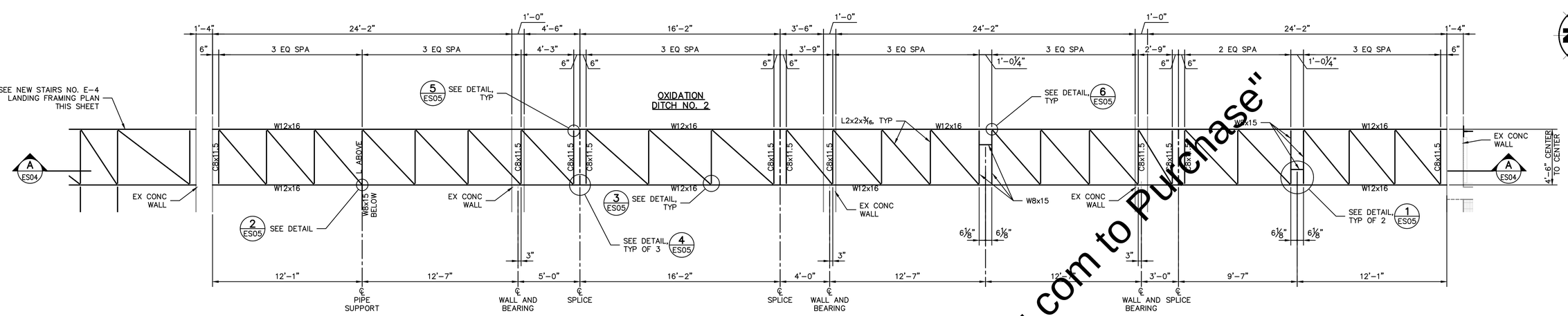
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SELECTOR TANK
STRUCTURAL SECTIONS

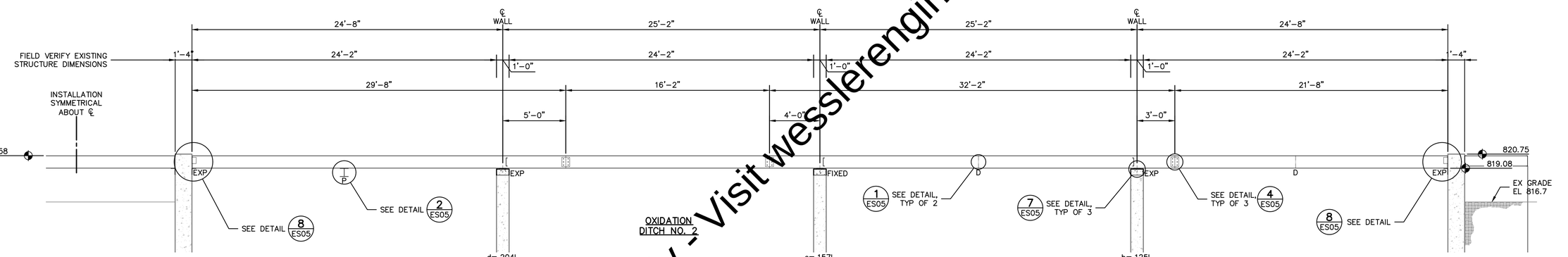
SHEET NO. **ES03**

PAGE NO. 106



NEW EQUIPMENT ACCESS BRIDGE FRAMING PLAN FOR OXIDATION DITCH NO. 2

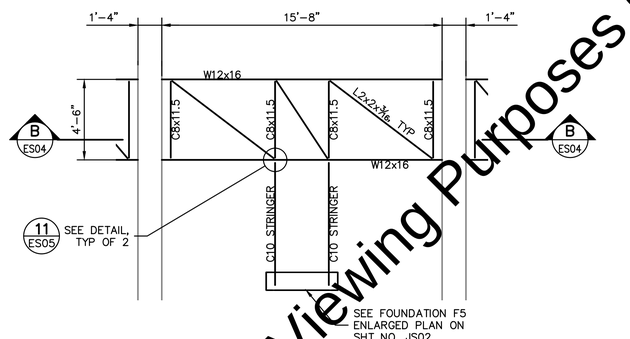
0 2 4 8 FT 1/4"=1'-0"



OXIDATION DITCH NO. 2

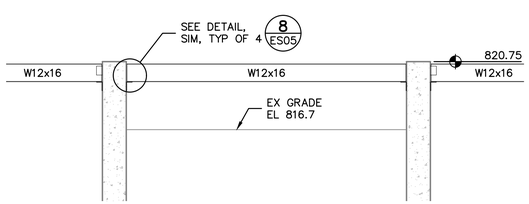
SECTION A ES04

0 2 4 8 FT 1/4"=1'-0"



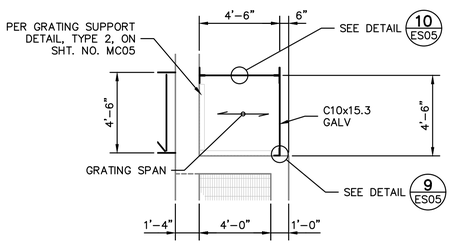
NEW STAIRS NO. E-4 LANDING FRAMING PLAN

0 2 4 8 FT 1/4"=1'-0"



SECTION B ES04

0 2 4 8 FT 1/4"=1'-0"



CONNECTION AT EXISTING OXIDATION DITCH NO. 1 IS MIRRORED TO THIS VIEW

NEW LANDING FRAMING PLAN CONNECTING NEW EQUIPMENT ACCESS BRIDGE TO EXISTING OXIDATION DITCH NO. 2 EFFLUENT BOX

0 2 4 8 FT 1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	PROJECT NUMBER	162813-04-003				

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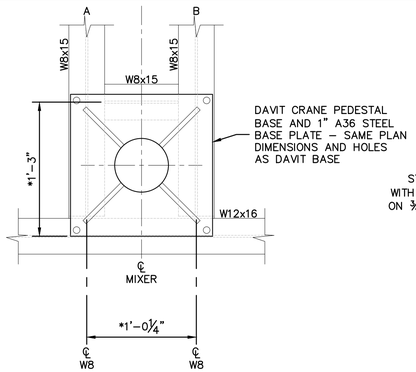
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

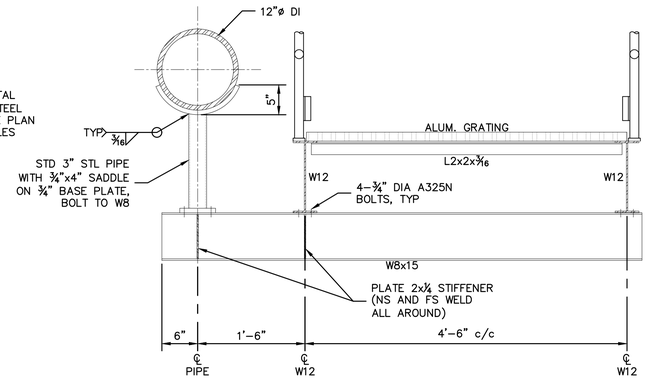
EXISTING OXIDATION DITCHES
NEW EQUIPMENT ACCESS BRIDGE
STRUCTURAL PLANS AND SECTIONS

SHEET NO. **ES04**

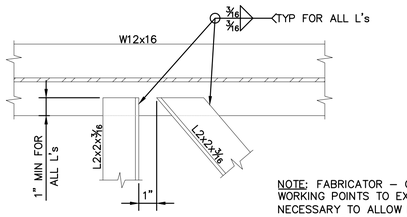
PAGE NO. 107



DETAIL 1 ES04 — 0 1/2 1 1 1/2 FT — 1 1/2"=1'-0"



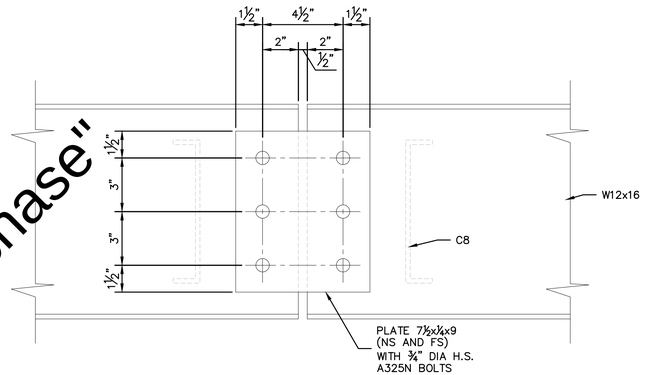
DETAIL 2 ES04 — 0 1/2 1 2 FT — 1"=1'-0"



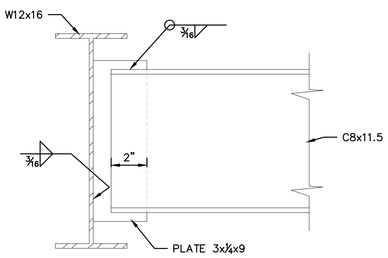
NOTE: FABRICATOR – OFFSET WORKING POINTS TO EXTENT AS NECESSARY TO ALLOW FOR 1" GAP BETWEEN ADJACENT ANGLES.

VIEW – UNDERSIDE OF TOP FLANGE

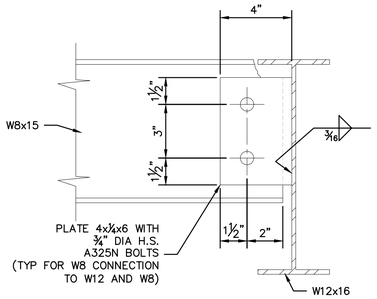
DETAIL 3 ES04 — 0 3 6 9 IN — 3"=1'-0"



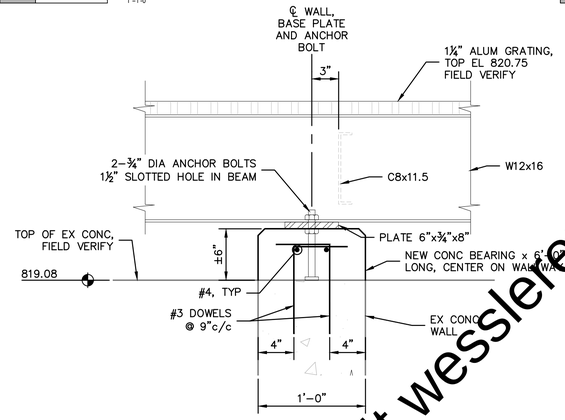
DETAIL 4 ES04 — 0 3 6 9 IN — 3"=1'-0"



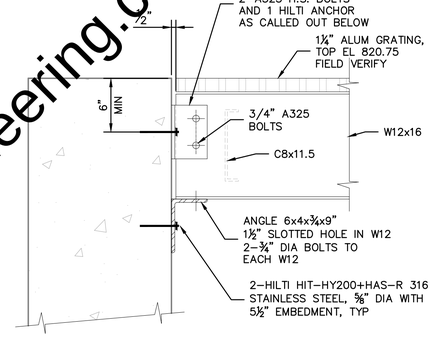
DETAIL 5 ES04 — 0 3 6 9 IN — 3"=1'-0"



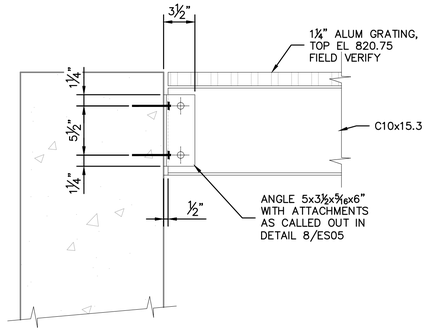
DETAIL 6 ES04 — 0 3 6 9 IN — 3"=1'-0"



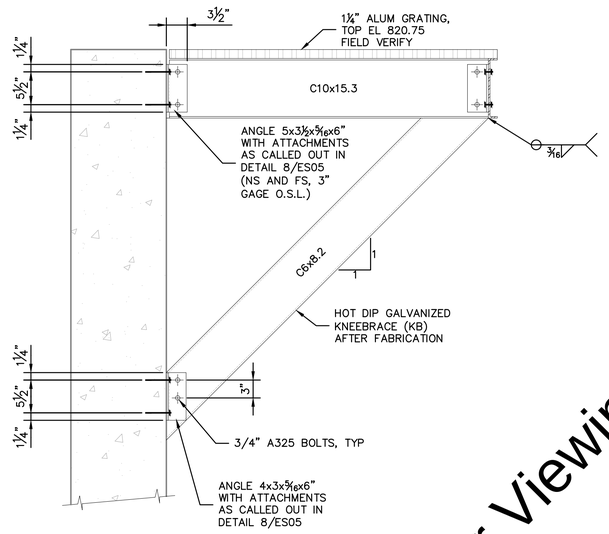
DETAIL 7 ES04 — 0 1/2 1 1 1/2 FT — 1 1/2"=1'-0"



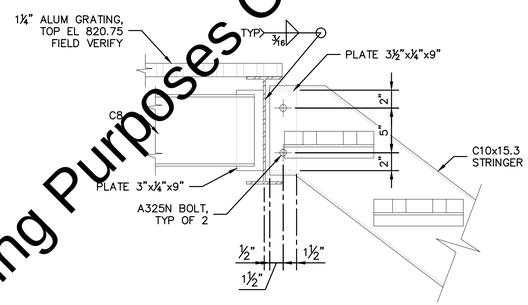
DETAIL 8 ES04 — 0 1/2 1 1 1/2 FT — 1 1/2"=1'-0"



DETAIL 9 ES04 — 0 1/2 1 1 1/2 FT — 1 1/2"=1'-0"



DETAIL 10 ES04 — 0 1/2 1 2 FT — 1"=1'-0"



DETAIL 11 ES04 — 0 1/2 1 1 1/2 FT — 1 1/2"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	PROJECT NUMBER	162813-04-003				

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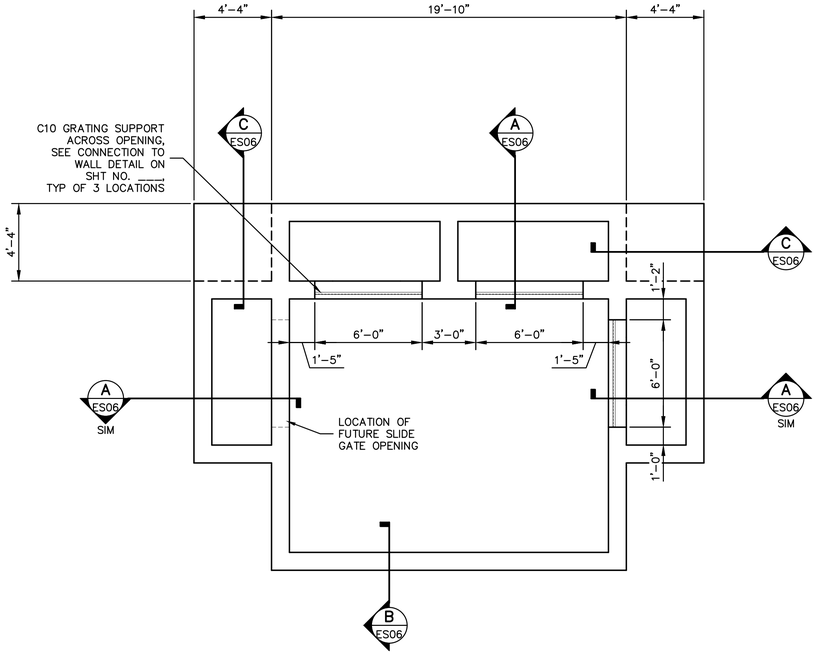
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCHES
NEW EQUIPMENT ACCESS BRIDGE
STRUCTURAL DETAILS

SHEET NO. **ES05**

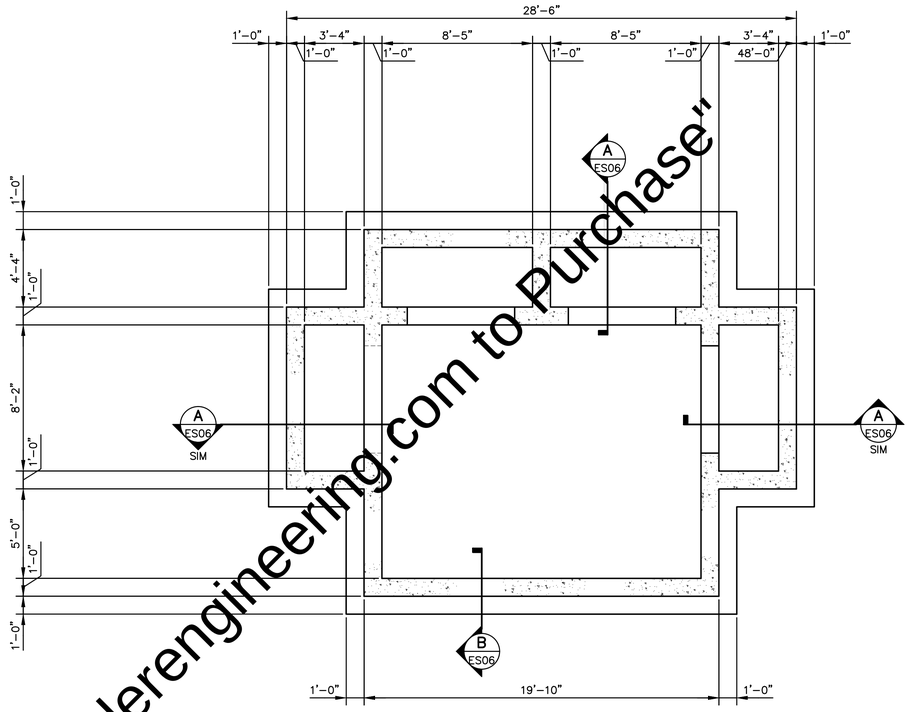
PAGE NO. 108



UPPER LEVEL STRUCTURAL PLAN

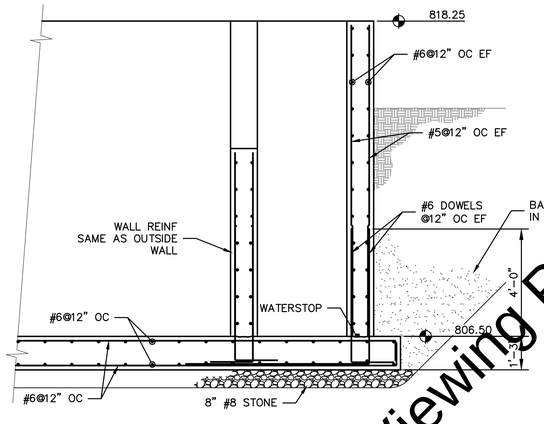
0 2 4 8 FT
1/4"=1'-0"

DESIGN PARAMETERS
f'c = 4500 psi
GRADE 60 ksi REINF.



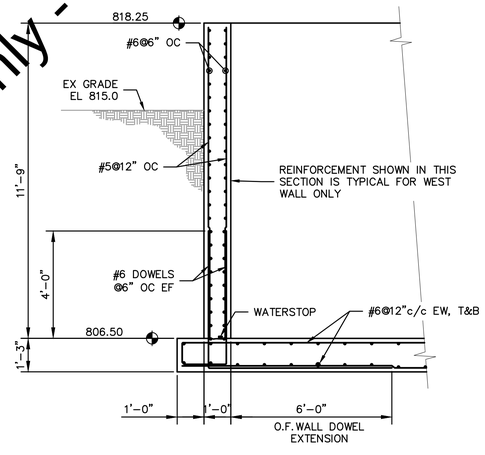
FOUNDATION PLAN

0 2 4 8 FT
1/4"=1'-0"



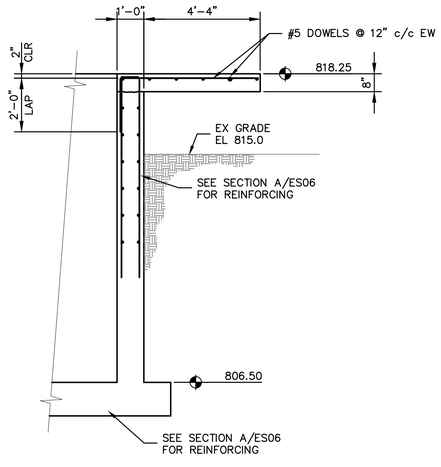
SECTION A/ES06

0 2 4 8 FT
3/8"=1'-0"



SECTION B/ES06

0 2 4 6 FT
3/8"=1'-0"



SECTION C/ES06

0 2 4 6 FT
3/8"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	MLN	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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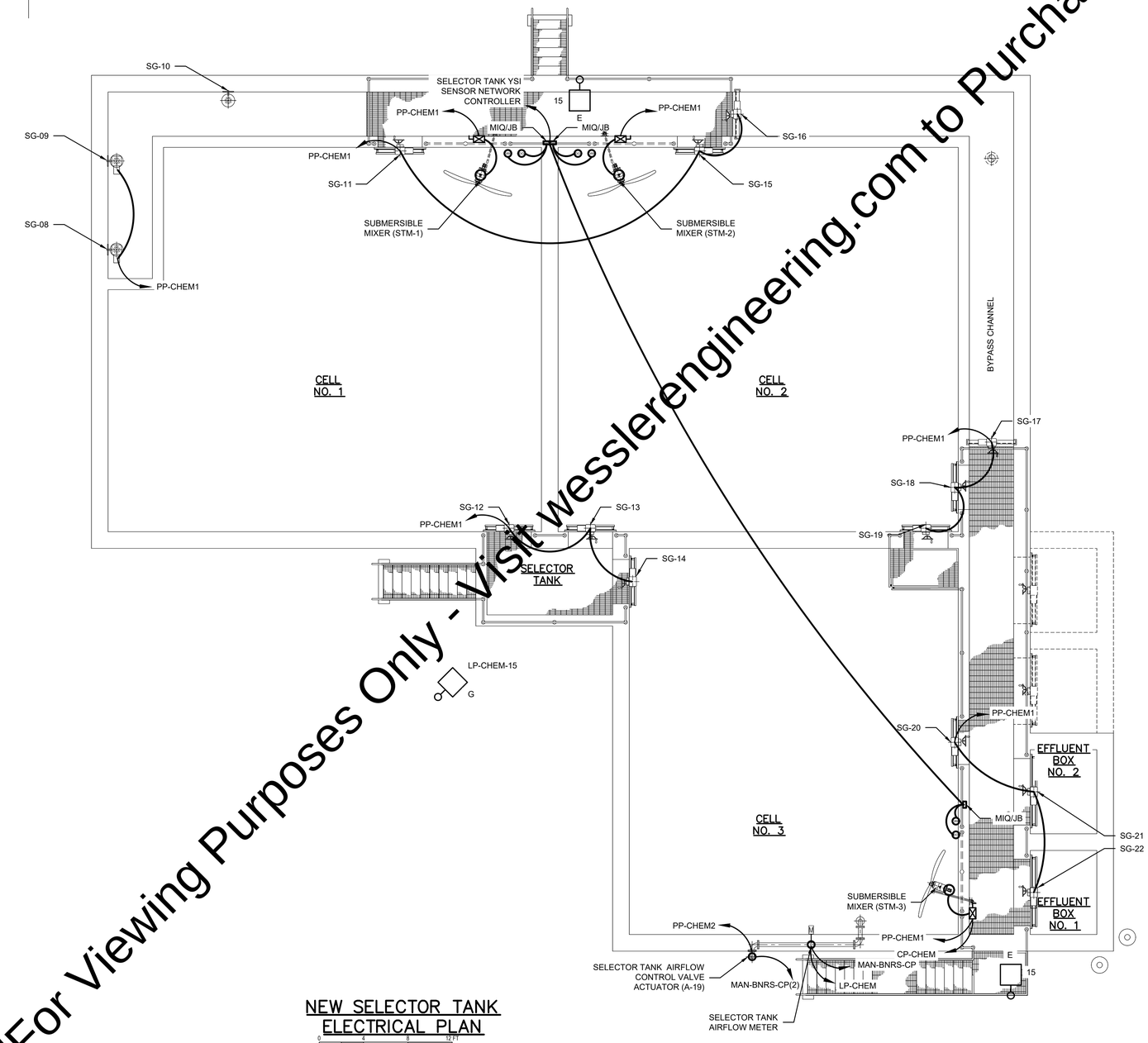
CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER SPLITTER STRUCTURE STRUCTURAL PLANS AND SECTIONS

SHEET NO.
ES06
PAGE NO.
109



NEW SELECTOR TANK
ELECTRICAL PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS					
	APPROVED BY	WCM					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

MAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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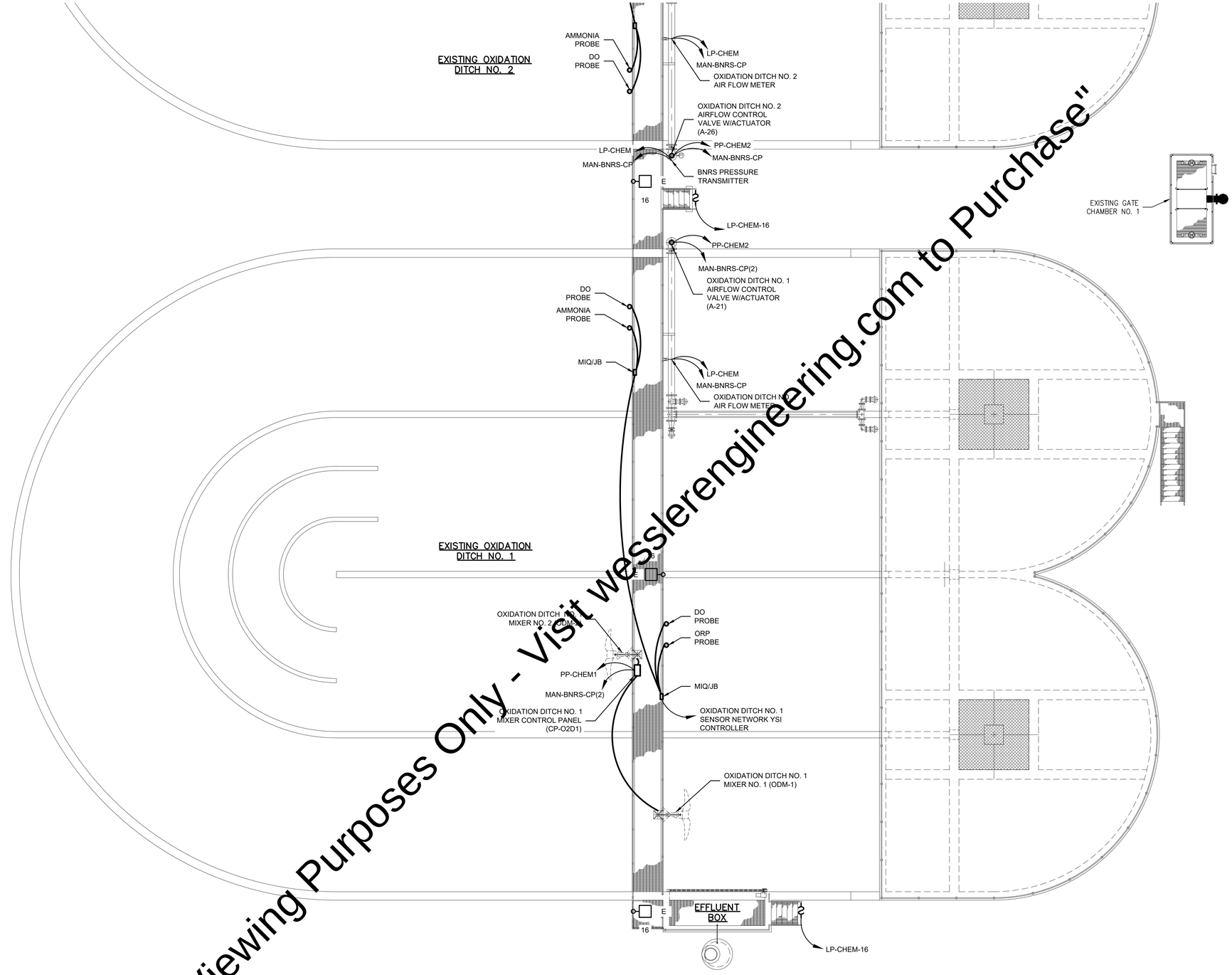
CITY OF WARSAW, INDIANA

NEW SELECTOR TANK ELECTRICAL PLAN

SHEET NO.
EE01
PAGE NO.
110



OXIDATION DITCH NO. 1
ELECTRICAL MODIFICATION PLAN

0 4 8 16 FT
1/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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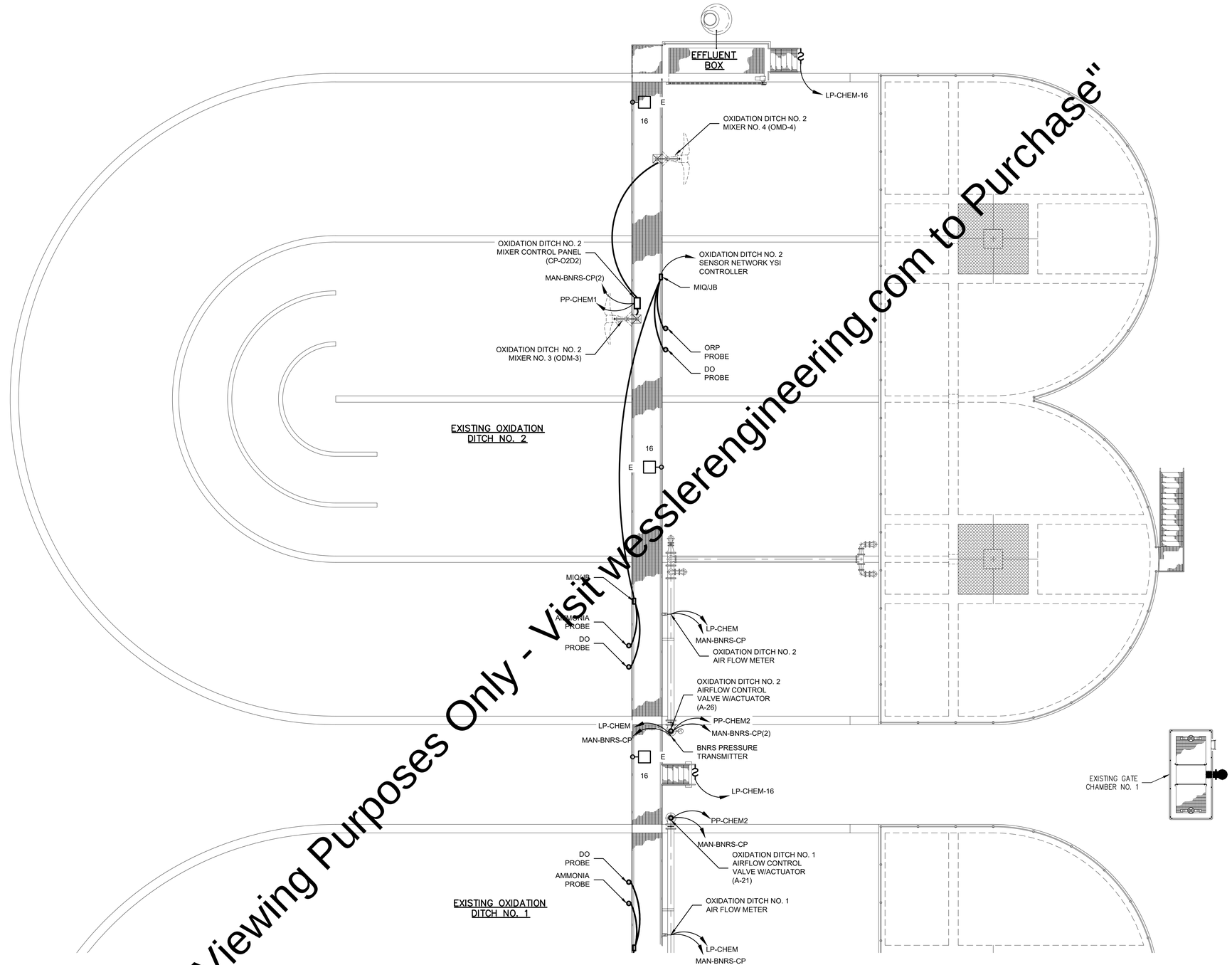
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCH NO. 1 ELECTRICAL PLAN

SHEET NO.
EE02

PAGE NO.
111



OXIDATION DITCH NO. 2
ELECTRICAL MODIFICATION PLAN

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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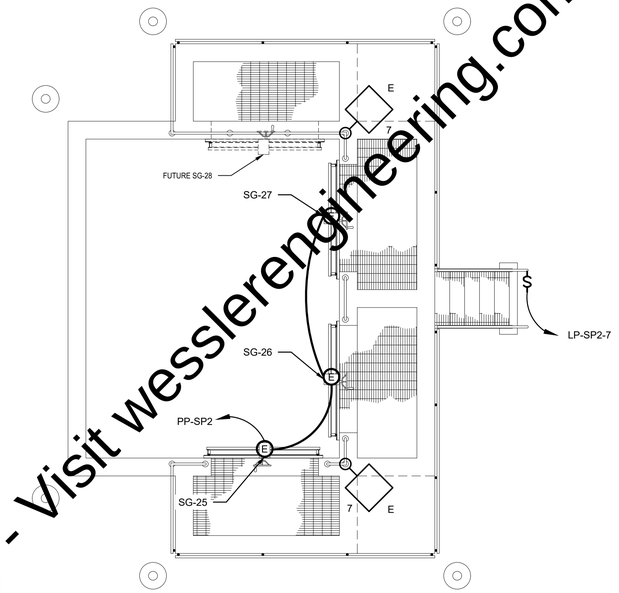
CITY OF WARSAW, INDIANA

EXISTING OXIDATION DITCH NO. 2 ELECTRICAL PLAN

SHEET NO. **EE03**

PAGE NO. 112



NEW FINAL INFLUENT SPLITTER BOX
ELECTRICAL PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS					
	APPROVED BY	WCM					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

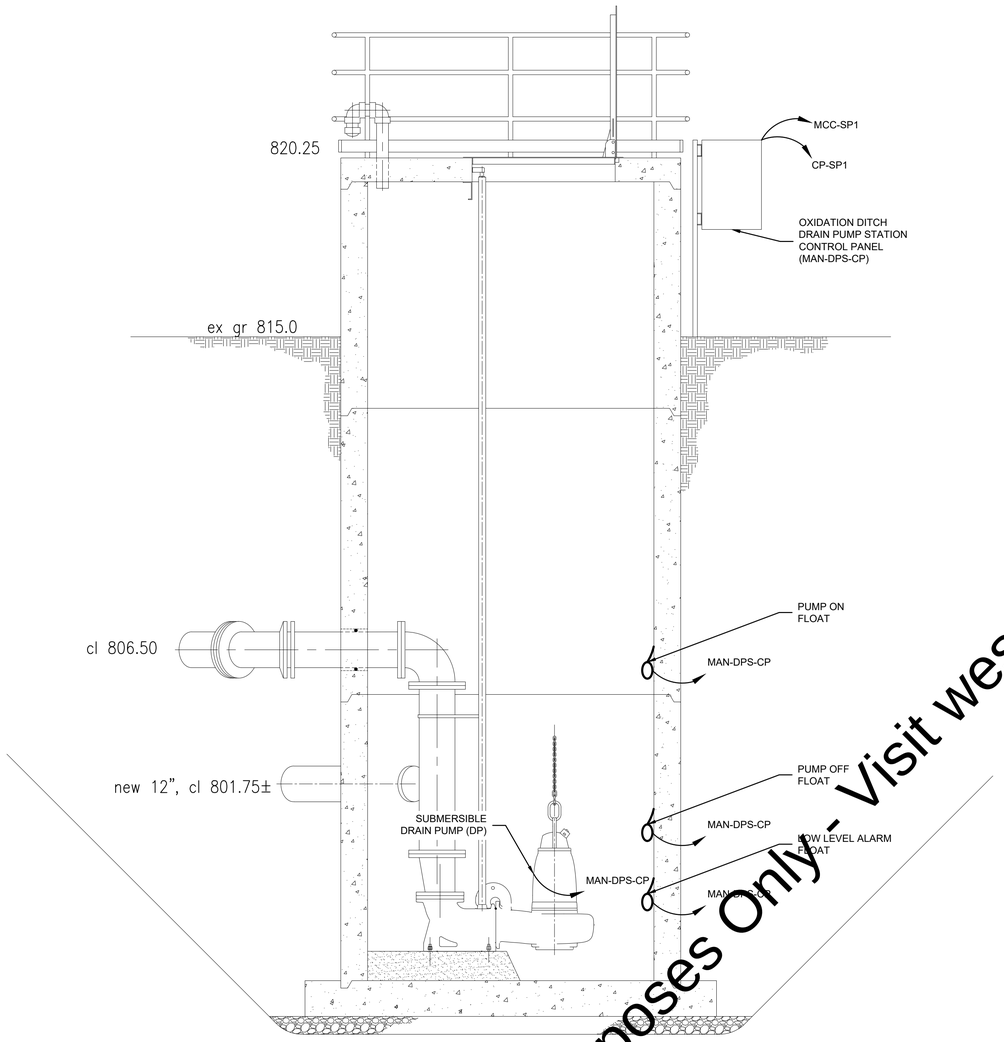
CITY OF WARSAW, INDIANA

NEW FINAL INFLUENT SPLITTER STRUCTURE ELECTRICAL PLAN

SHEET NO.
EE04

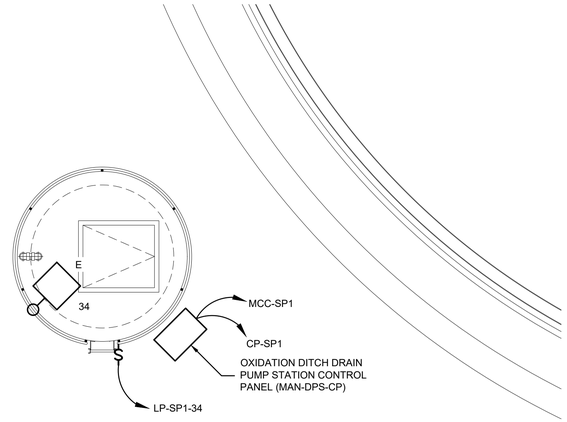
PAGE NO.
113

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\Ebs\162813-E-Ex Carrousel SHEET EE04-05.dwg | Layout: EE04 | Plotted: 09/04/18 @ 09:15:19 | LastSavedBy: JohnH | Project No.: 162813-04-003



NEW DRAIN PUMP STATION
ELECTRICAL SECTION PLAN

0 1 2 4 FT
1/2"=1'-0"



NEW DRAIN PUMP STATION
ELECTRICAL PLAN

0 2 4 8 FT
1/4"=1'-0"

NOTE

1. SEE C SHEETS FOR FLOAT MOUNTING ELEVATION.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW DRAIN PUMP STATION ELECTRICAL PLAN

SHEET NO.
EE05
PAGE NO.
114

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\Elec\162813-E-Ex Carrousel SHEET EE04-05.dwg | Layout: EE05 | Plotted: 09/04/18 @ 09:15:43 | LastSavedBy: JohnH | Project No.: 162813-04-003

42" RCP CLARIFIER EFFLUENT

EFFLUENT WELL

A
FC03

REMOVE 18" DI CLARIFIER EFFLUENT LINE COMPLETE FOR REPLACEMENT

CLARIFIERS GENERAL DEMOLITION NOTES:

1. THE TOP OF WALL ELEVATION FOR THE CLARIFIERS HAS BEEN SHOWN AT 818.50 ON THE 2001 WASTEWATER TREATMENT PLANT PROJECT, BY JONES & HENRY ENGINEERS, LTD. THE WESSLER ENGINEERING SITE SURVEY FOR THIS PROJECT DETERMINED THE TOP OF WALL ELEVATION TO BE 817.80. ALL VERTICAL INFORMATION SHOWN FOR THIS STRUCTURE HAS BEEN REVISED TO AGREE WITH THE SITE SURVEY, WITH THE ASSUMPTION THAT VERTICAL DISTANCES REFERENCED ON THE JONES & HENRY DRAWINGS ARE ACCURATE.

EFFLUENT WELL

6" PVC PERFORATED DRAIN PIPING NETWORK, TYP

REMOVE PORTION OF 6" DI SCUM LINE WITHIN TANK FOR REPLACEMENT

REMOVE PORTION OF 6" DI SCUM LINE AS REQ'D FOR SCUM BEACH RELOCATION

6" DI SCUM LINE

14" DI RAS TO SLUDGE PUMP STATION

10" DI DRAIN TO BE ABANDONED IN PLACE

24" DI CLARIFIER INFLUENT LINE

14" DI RAS TO SLUDGE PUMP STATION

10" DI DRAIN TO BE ABANDONED IN PLACE

24" DI CLARIFIER INFLUENT LINE

SCUM WELL

FINAL CLARIFIER NO. 2

FINAL CLARIFIER NO. 1

SLUDGE PUMP STATION NO. 1 PUMP ROOM

NPW WET WELL

LOWER DEMOLITION PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

GARY L. RUSIN REGISTERED No. 19500302 STATE OF INDIANA PROFESSIONAL ENGINEER 9/4/2018

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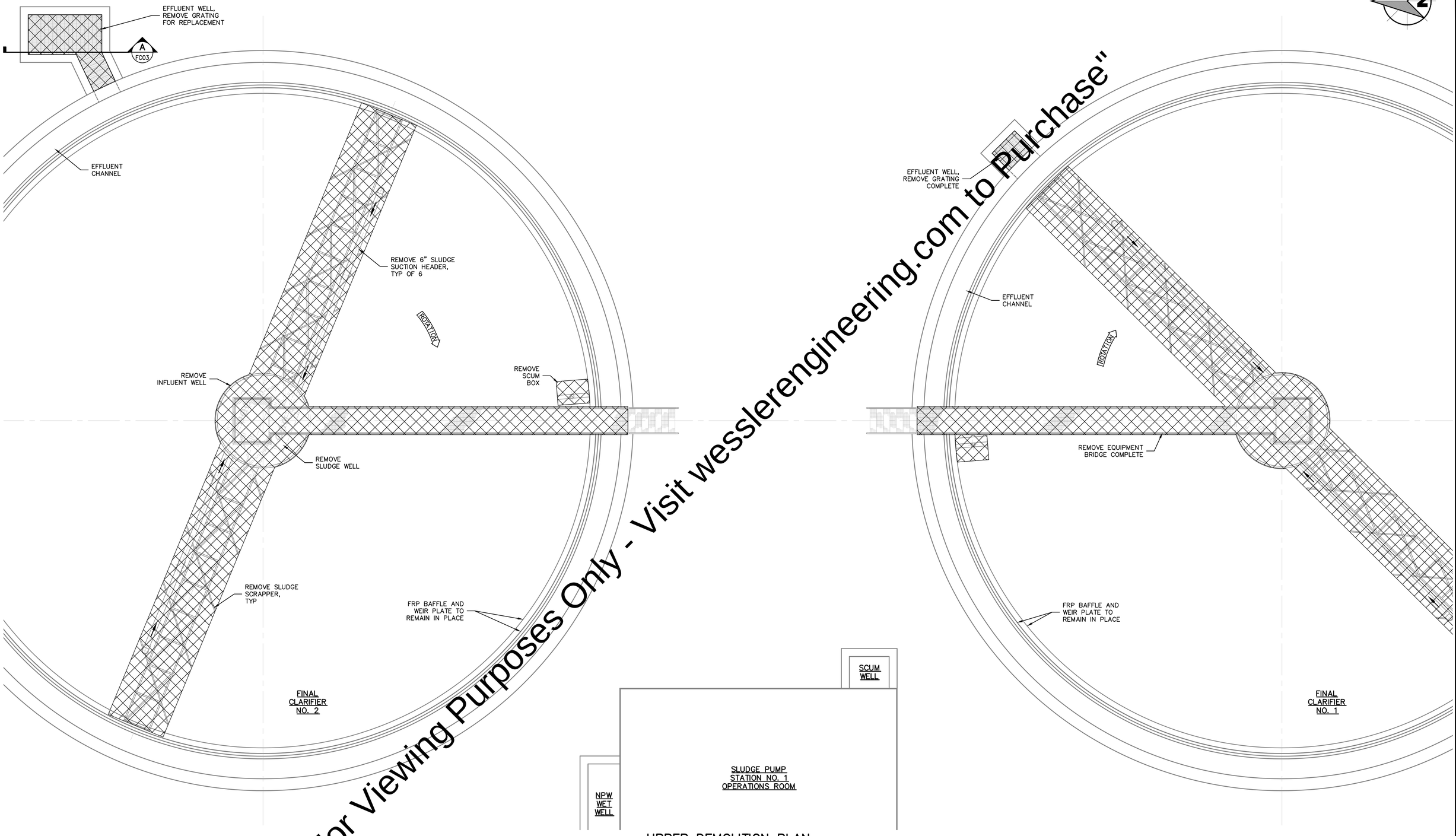
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING FINAL CLARIFIERS
LOWER DEMOLITION PLAN

SHEET NO.
FC01
PAGE NO.
115



UPPER DEMOLITION PLAN

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

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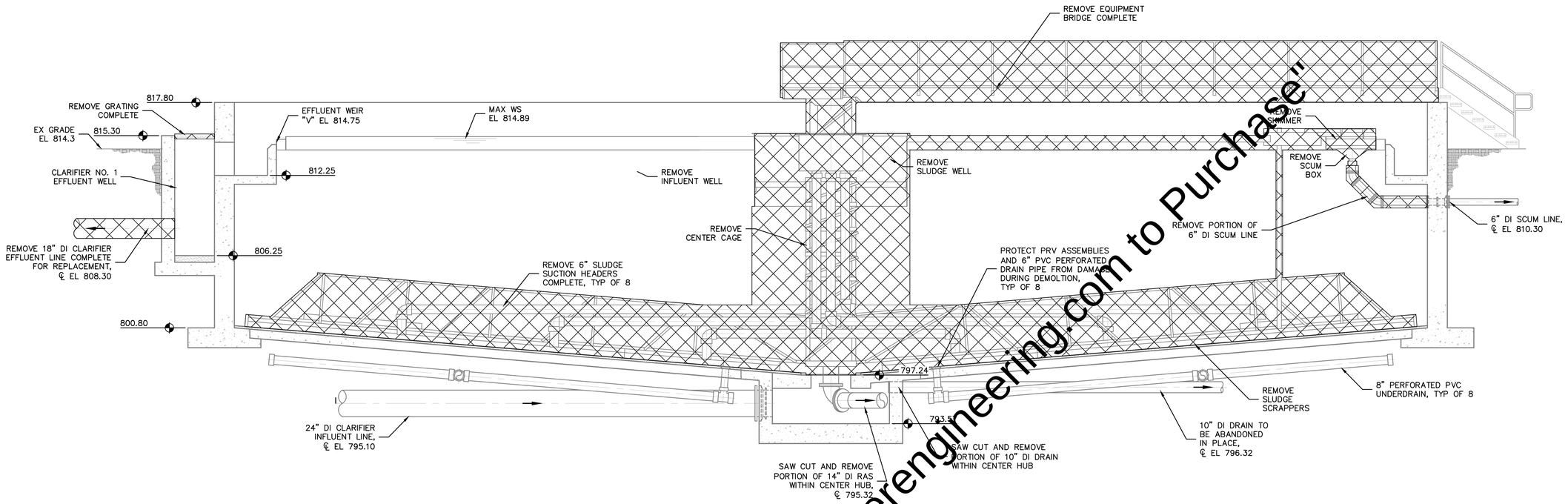
EXISTING FINAL CLARIFIERS
UPPER DEMOLITION PLAN

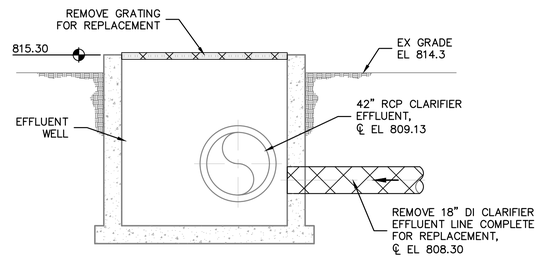
SHEET NO.
FC02
PAGE NO.
116



TYPICAL FINAL CLARIFIER DEMOLITION SECTION

0 2 8 FT
1/4"=1'-0"

PIPING NOT SHOWN TO TRUE ORIENTATION



SECTION A

0 2 4 8 FT
1/4"=1'-0"

FC01, FC02

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

EXISTING FINAL CLARIFIERS DEMOLITION SECTIONS

SHEET NO.
FC03
PAGE NO.
117

EX 42" RCP CLARIFIER EFFLUENT

A FC06

NEW 30" DI CLARIFIER EFFLUENT LINE, SEE SHT NO. BY06 FOR CONTINUATION

EFFLUENT WELL

B FC06

NEW SLIDE 36"x30" GATE NO. 30

NEW 24" DI CLARIFIER EFFLUENT LINE

45°

NEW SLIDE 30"x30" GATE NO. 29

EFFLUENT WELL

N

EX 6" PVC PERFORATED DRAIN PIPING NETWORK, TYP

OUTLINE OF NEW MANIFOLD ABOVE, TYP OF 2

NEW 6" DI SCUM LINE, CONNECT TO EX WALL PIPE

*4'-3"

AS DETERMINED BY EQUIP MANUF

PROVIDE 90° FITTING OR CORE DRILL TO CONNECT MANIFOLD TO EXISTING RAS LINE PER MANUFACTURER RECOMMENDATION (TYPICAL OF 2)

PERMANENTLY PLUG EX 10" DI

NEW 6" DI SCUM LINE, CONNECT TO EX WALL PIPE

*4'-3"

PERMANENTLY PLUG EX 10" DI

EX 14" DI RAS TO SLUDGE PUMP STATION

EX 10" DI DRAIN TO BE ABANDONED IN PLACE

6" DI SCUM LINE TO SLUDGE PUMP STATION

EX 14" DI RAS TO SLUDGE PUMP STATION

EX 10" DI DRAIN TO BE ABANDONED IN PLACE

SCUM WELL

EXISTING FINAL CLARIFIER NO. 2

EXISTING FINAL CLARIFIER NO. 1

EX 24" DI CLARIFIER INFLUENT LINE

EXISTING SLUDGE PUMP STATION NO. 1 PUMP ROOM

NPW WET WELL

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

LOWER MODIFICATION PLAN

0 4 8 12 FT

3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT
	APPROVED BY	GLR
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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CITY OF WARSAW, INDIANA

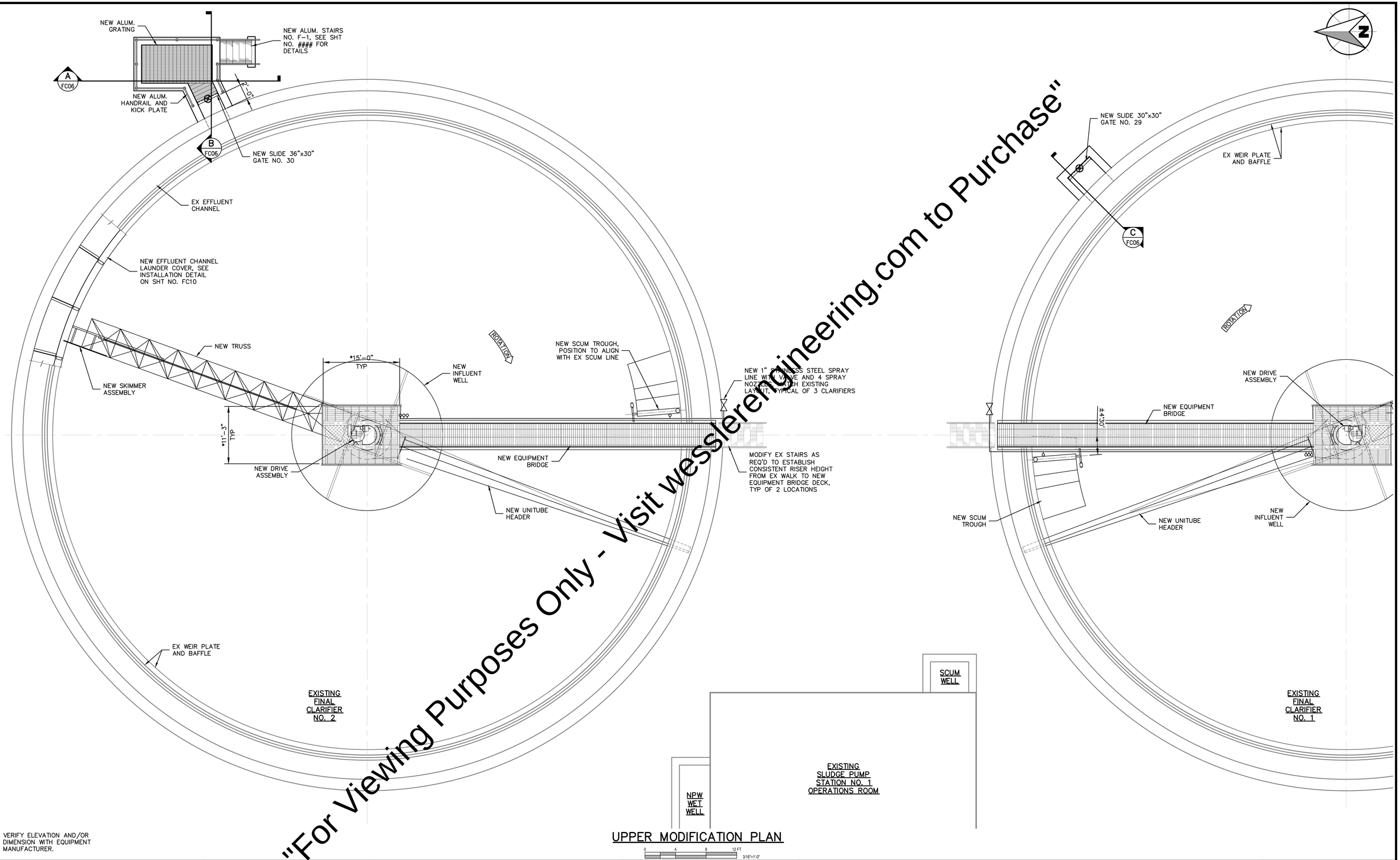
EXISTING FINAL CLARIFIERS LOWER MODIFICATION PLAN

SHEET NO.

FC04

PAGE NO.

118



UPPER MODIFICATION PLAN

0 4 8 12 FT
3/16"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

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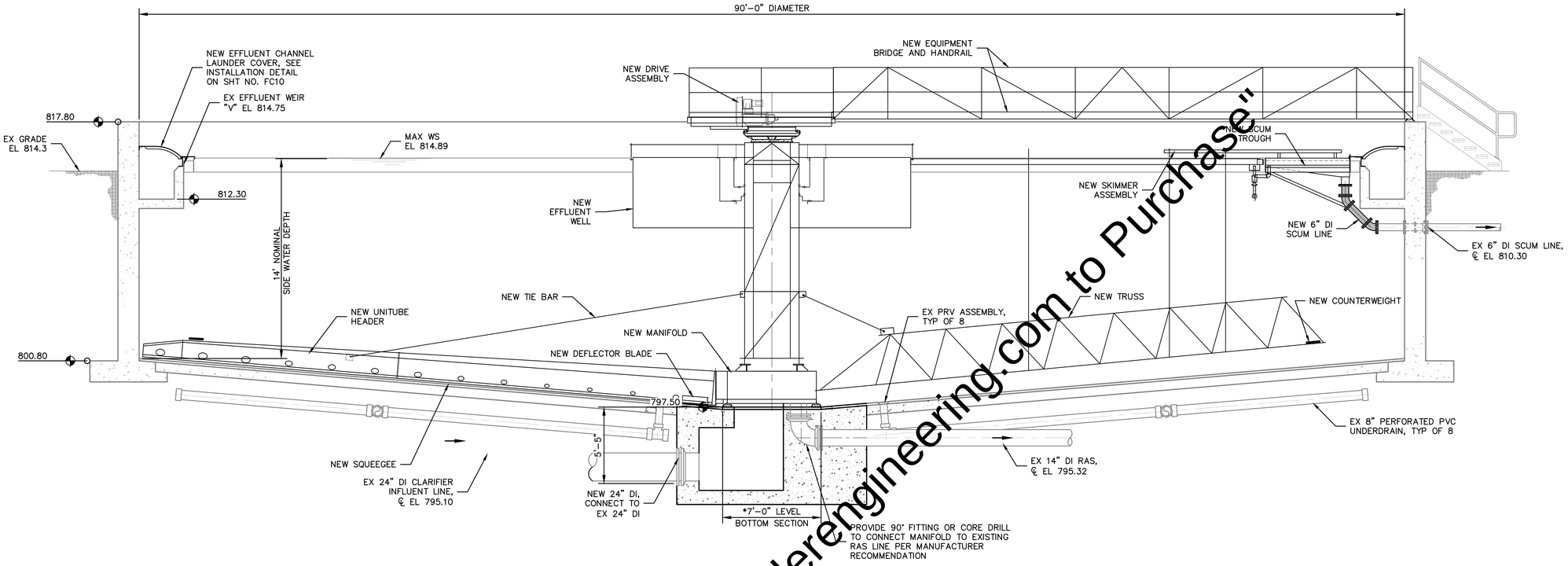
EXISTING FINAL CLARIFIERS
UPPER MODIFICATION PLAN

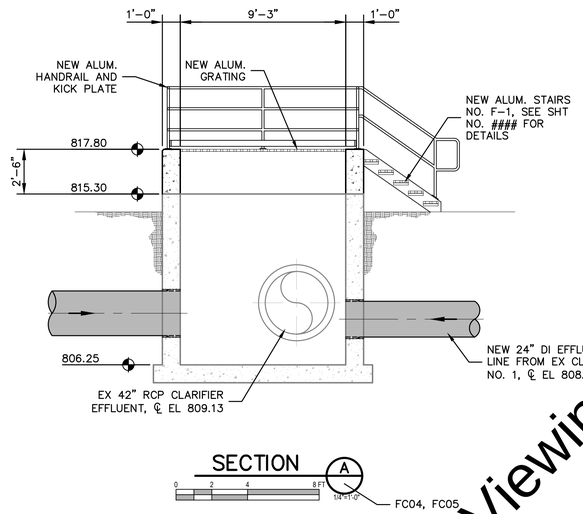
SHEET NO.
FC05
PAGE NO.
119



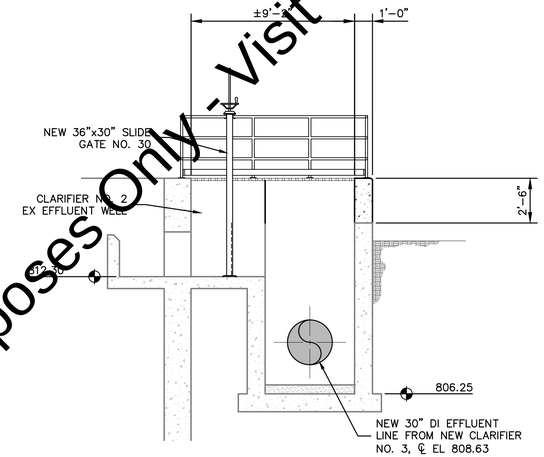
TYPICAL FINAL CLARIFIER MODIFICATION SECTION

0 4 8 16 FT
1/8"=1'-0"

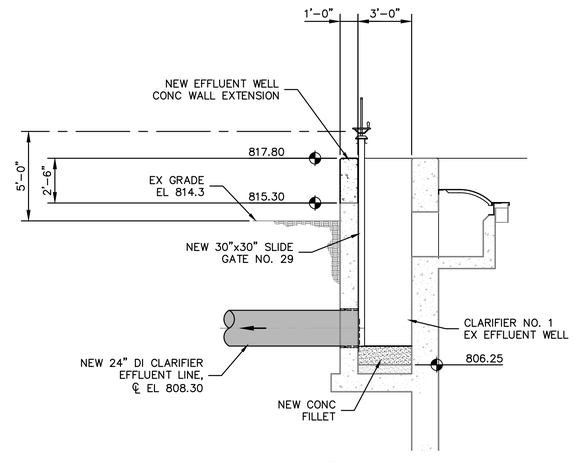
PIPING NOT SHOWN TO TRUE ORIENTATION



SECTION A
0 2 4 8 FT
1/4"=1'-0"
FC04, FC05



SECTION B
0 2 4 8 FT
1/4"=1'-0"
FC04, FC05



SECTION C
0 2 4 8 FT
1/4"=1'-0"
FC04, FC05

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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CITY OF WARSAW, INDIANA

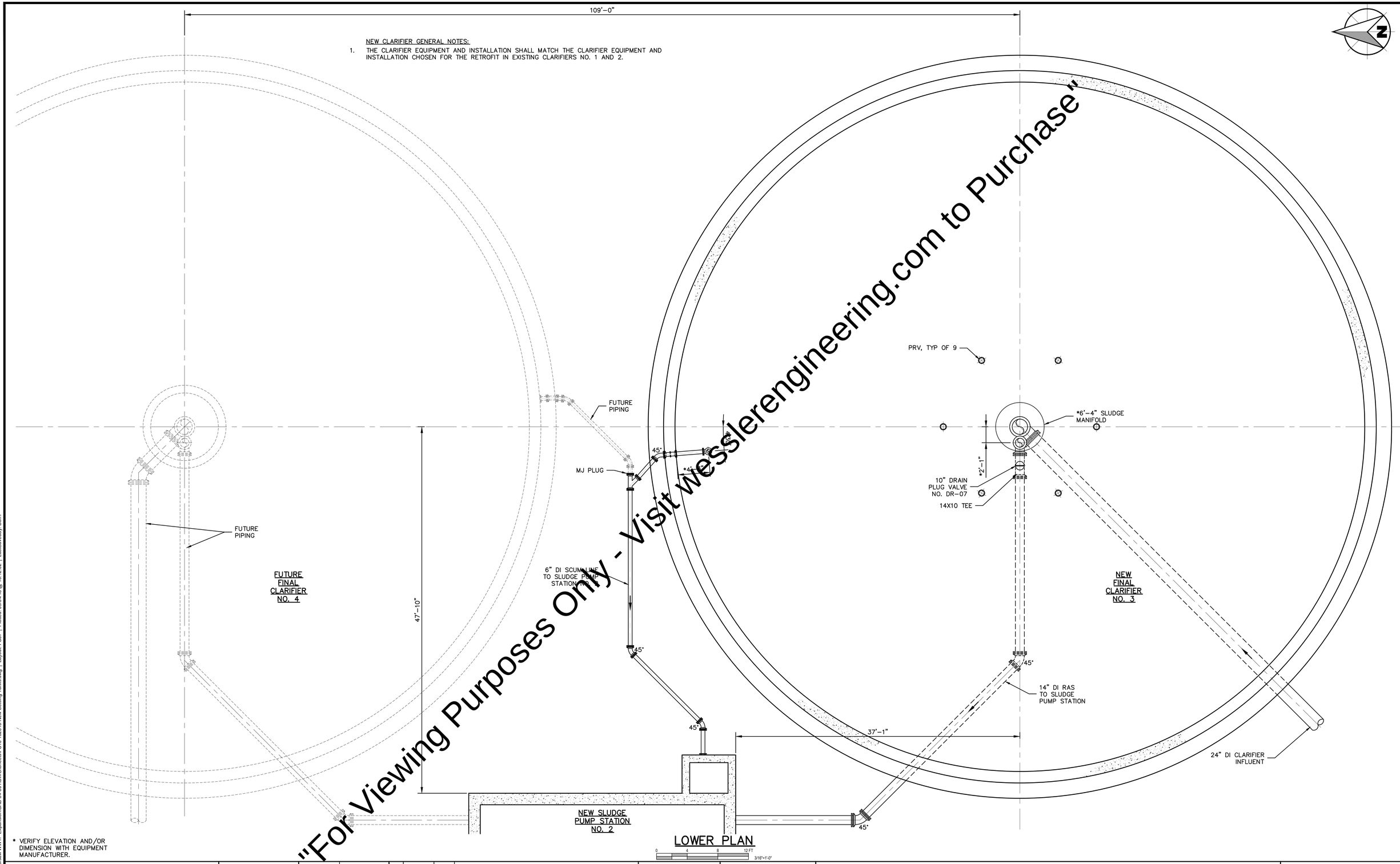
EXISTING FINAL CLARIFIERS MODIFICATION SECTIONS

SHEET NO. **FC06**

PAGE NO. 120

NEW CLARIFIER GENERAL NOTES:

1. THE CLARIFIER EQUIPMENT AND INSTALLATION SHALL MATCH THE CLARIFIER EQUIPMENT AND INSTALLATION CHOSEN FOR THE RETROFIT IN EXISTING CLARIFIERS NO. 1 AND 2.



LOWER PLAN

0 4 8 12 FT
3/16"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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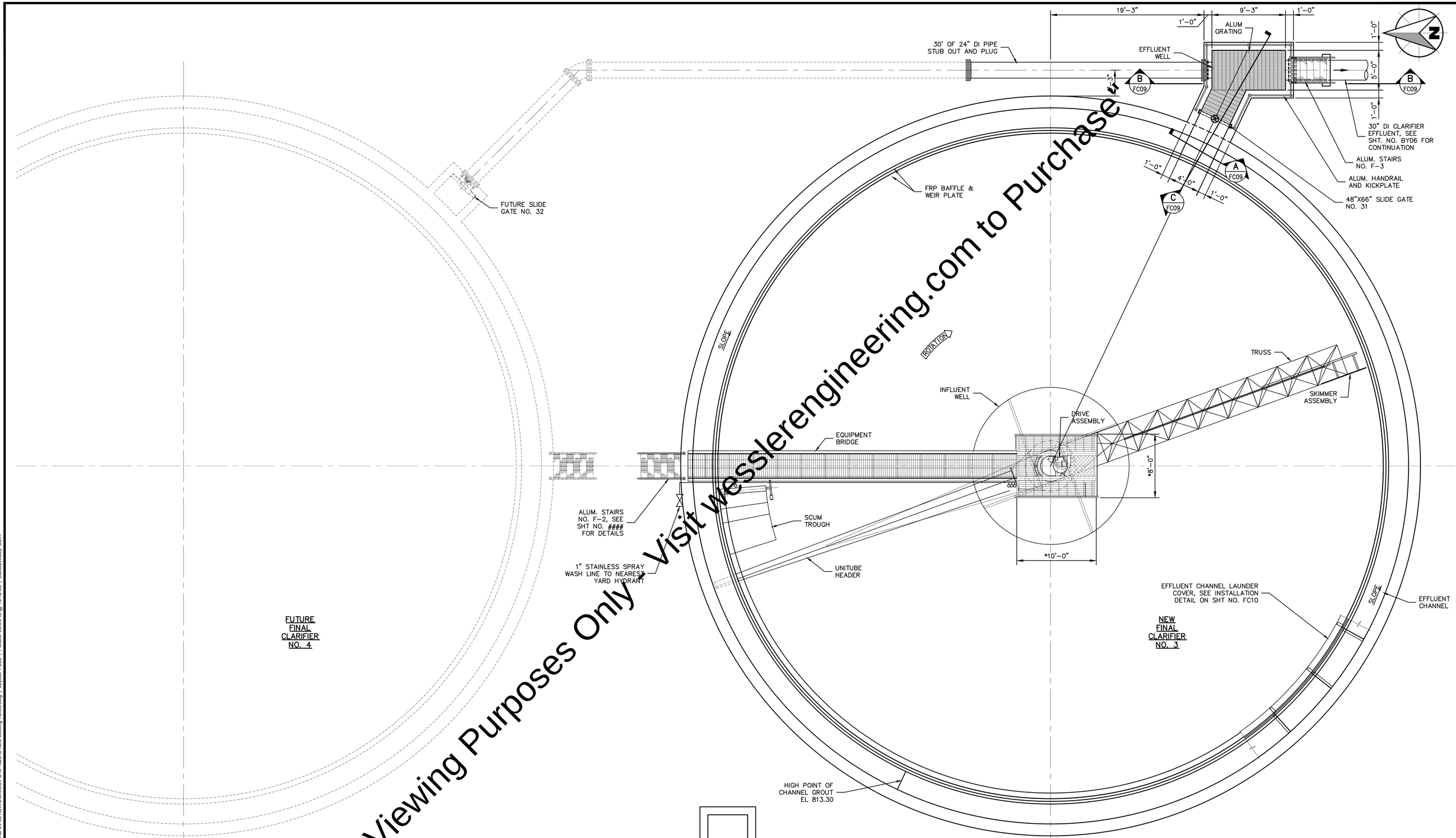
CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER LOWER PLAN

SHEET NO. **FC07**

PAGE NO. 121



UPPER PLAN

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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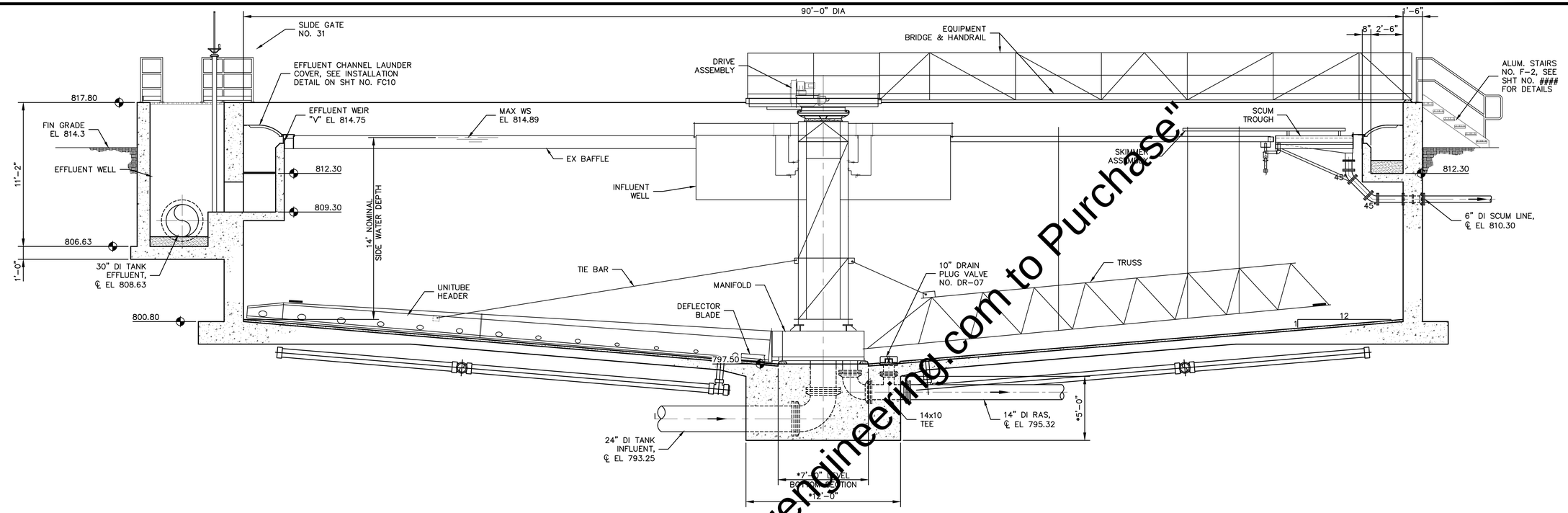
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER UPPER PLAN

SHEET NO. **FC08**

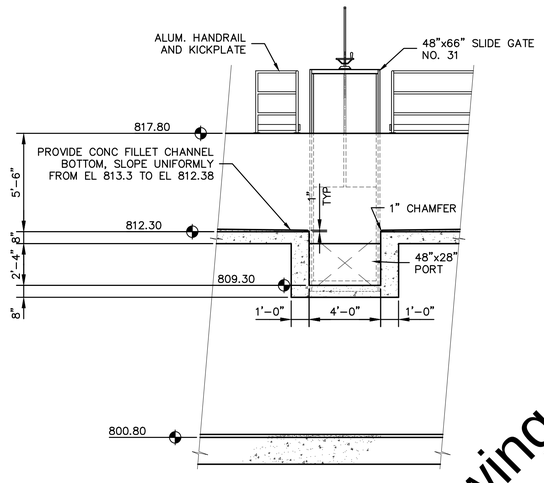
PAGE NO. 122



TYPICAL CLARIFIER SECTION

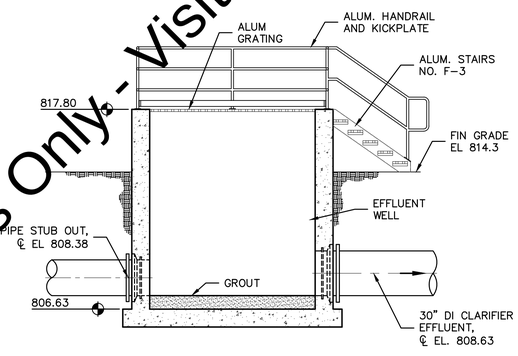
0 2 4 8 FT 1/4"=1'-0"

PIPING NOT SHOWN TO TRUE ORIENTATION



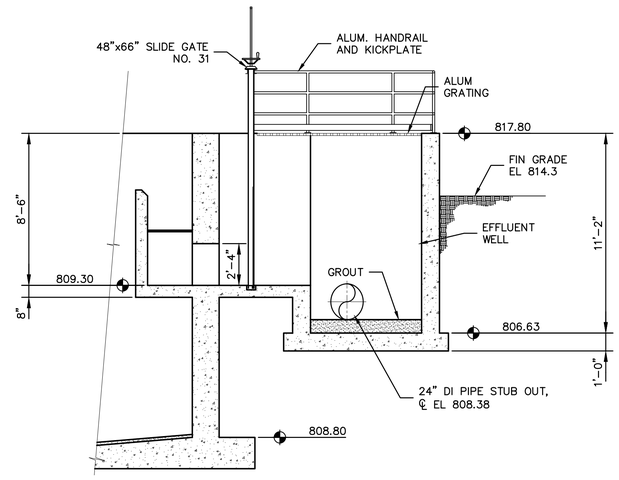
SECTION A FC08

0 2 4 8 FT 1/4"=1'-0"



SECTION B FC08

0 2 4 8 FT 1/4"=1'-0"



SECTION C FC08

0 2 4 8 FT 1/4"=1'-0"

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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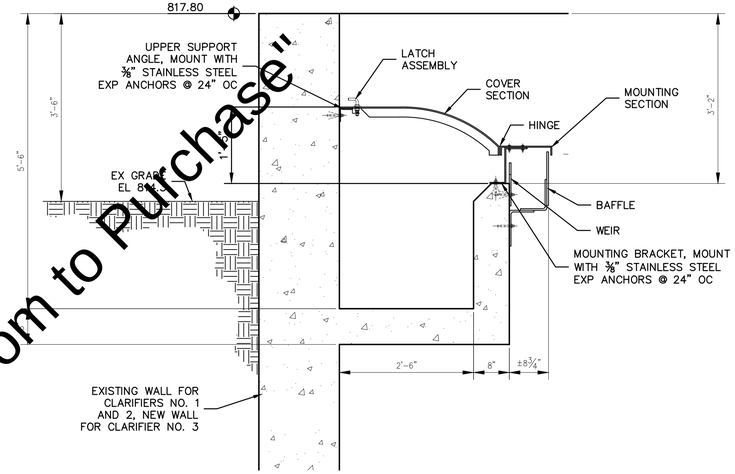
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER SECTIONS

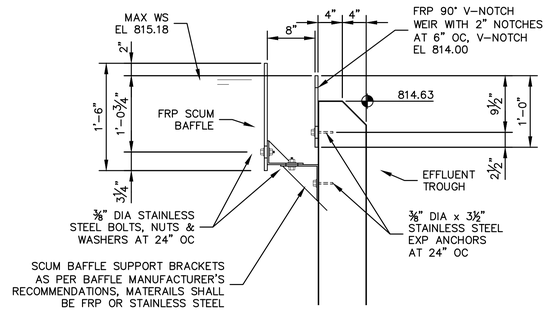
SHEET NO. **FC09**

PAGE NO. 123

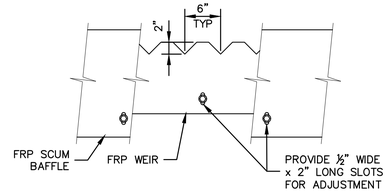


NEW LAUNDER COVER INSTALLATION DETAIL FOR NEW AND EXISTING CLARIFIERS

0 1 2 3FT
3/4"=1'-0"



TYPICAL SECTION



FRONT ELEVATION

CLARIFIER EFFLUENT WEIR AND BAFFLE DETAILS FOR NEW CLARIFIERS

0 1/2 1 2 FT
1"=1'

* VERIFY ELEVATION AND/OR DIMENSION WITH EQUIPMENT MANUFACTURER.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

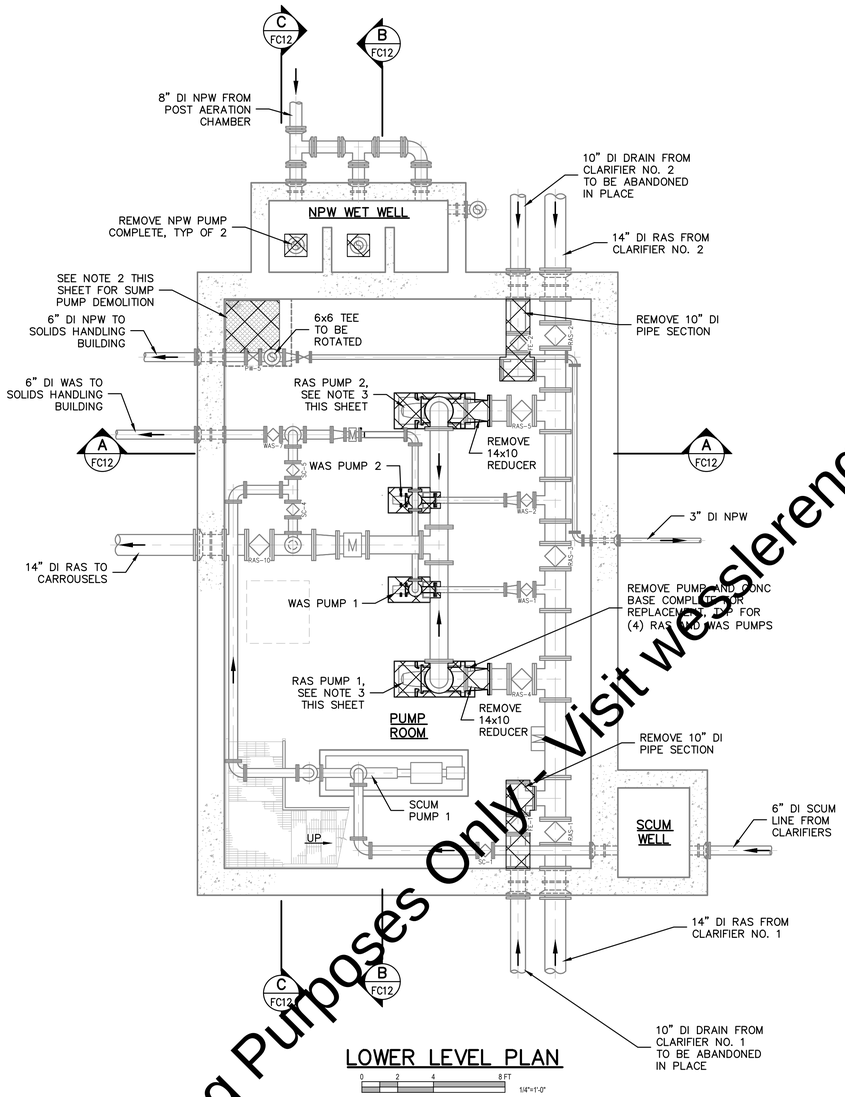
CITY OF WARSAW, INDIANA

NEW AND EXISTING FINAL CLARIFIERS DETAILS

SHEET NO.
FC10
PAGE NO.
124

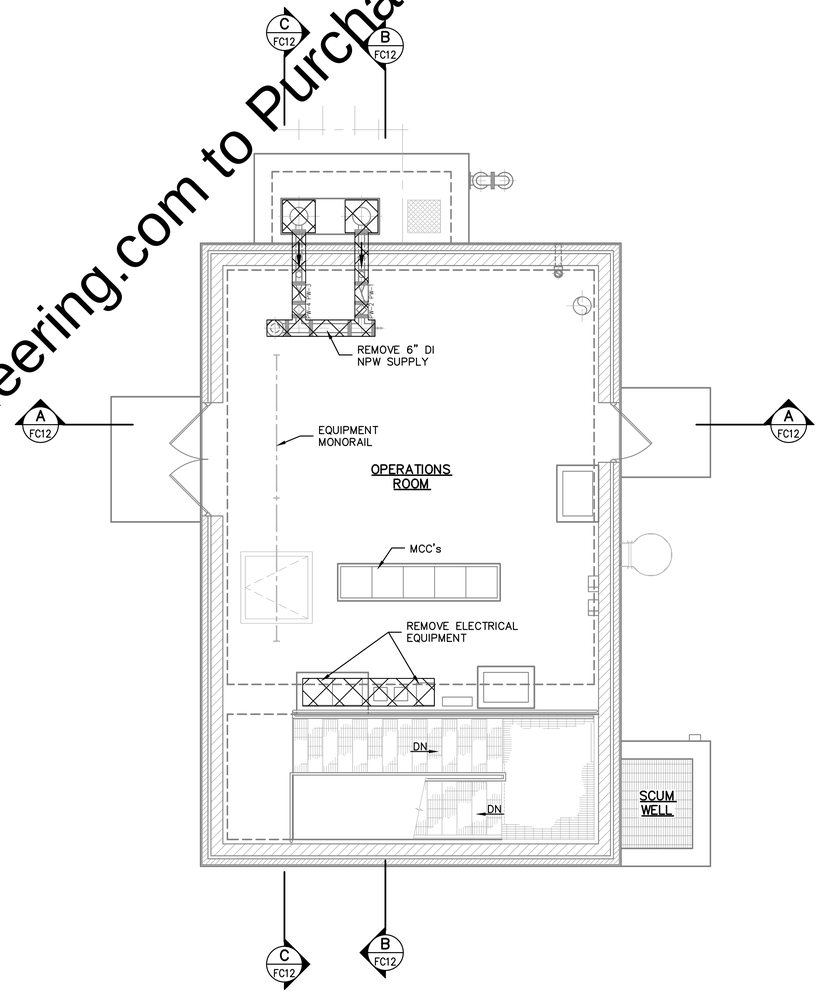
SLUDGE PUMP STATION GENERAL DEMOLITION NOTES:

1. THE FINISHED FLOOR ELEVATION FOR THE SLUDGE PUMP STATION HAS BEEN SHOWN AT 818.50 ON THE 2001 WASTEWATER TREATMENT PLANT PROJECT, BY JONES & HENRY ENGINEERS, LTD. THE WESSLER ENGINEERING SITE SURVEY FOR THIS PROJECT DETERMINED THE FINISHED FLOOR ELEVATION TO BE 815.80. ALL VERTICAL INFORMATION SHOWN FOR THIS STRUCTURE HAS BEEN REVISED TO AGREE WITH THE SITE SURVEY, WITH THE ASSUMPTION THAT VERTICAL DISTANCES REFERENCED ON THE JONES & HENRY DRAWINGS ARE ACCURATE.
2. REMOVE SUMP PUMP SYSTEM COMPLETE FOR REPLACEMENT. REMOVAL INCLUDES PUMPS, VALVES, DISCHARGE PIPING AS REQUIRED, ACCESS HATCH, ELECTRICAL CONNECTIONS, AND CONTROLS.
3. RAS PUMP NO. 1 AND RAS PUMP NO. 2 TO BE RELOCATED TO NEW SLUDGE PUMP STATION NO. 2.



LOWER LEVEL PLAN

0 2 4 8 FT
1/4"=1'-0"



UPPER LEVEL PLAN

0 2 4 8 FT
1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT				
	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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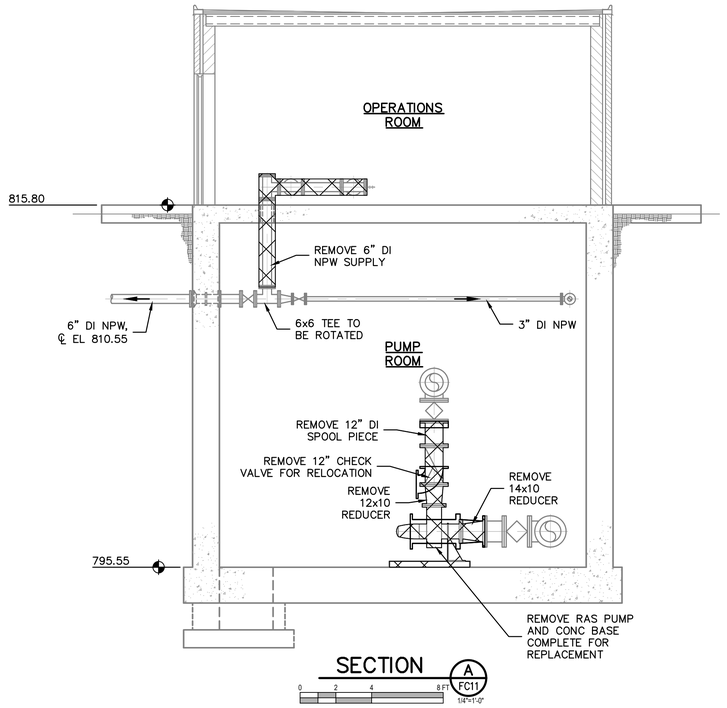
WASTEWATER TREATMENT PLANT EXPANSION - 2017

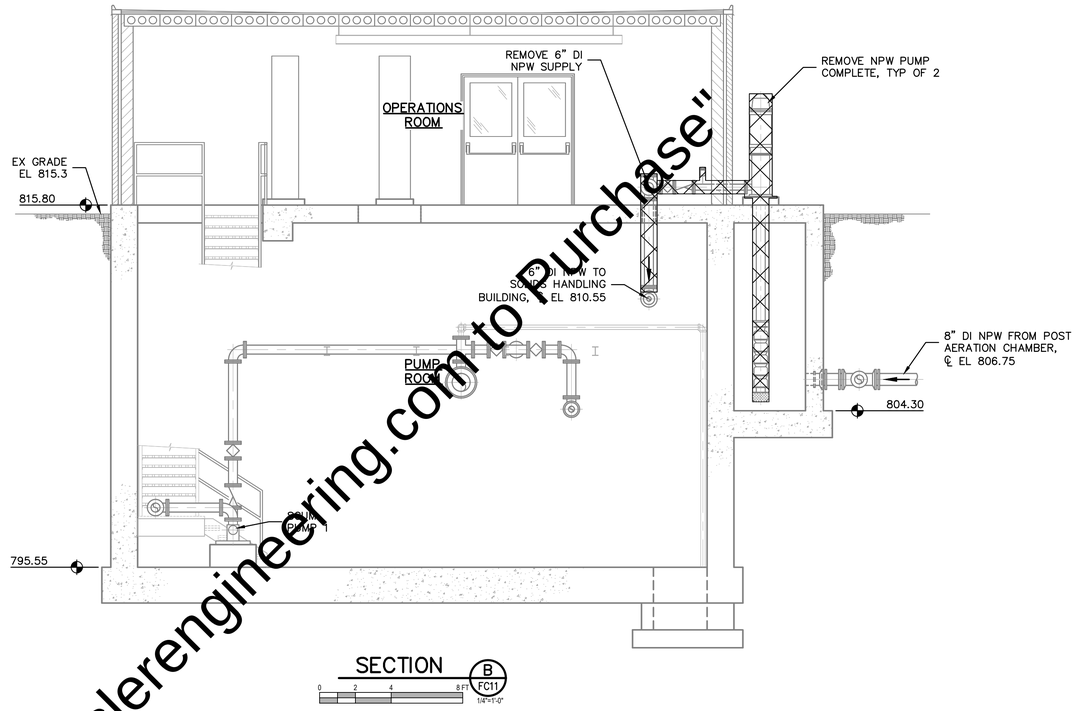
CITY OF WARSAW, INDIANA

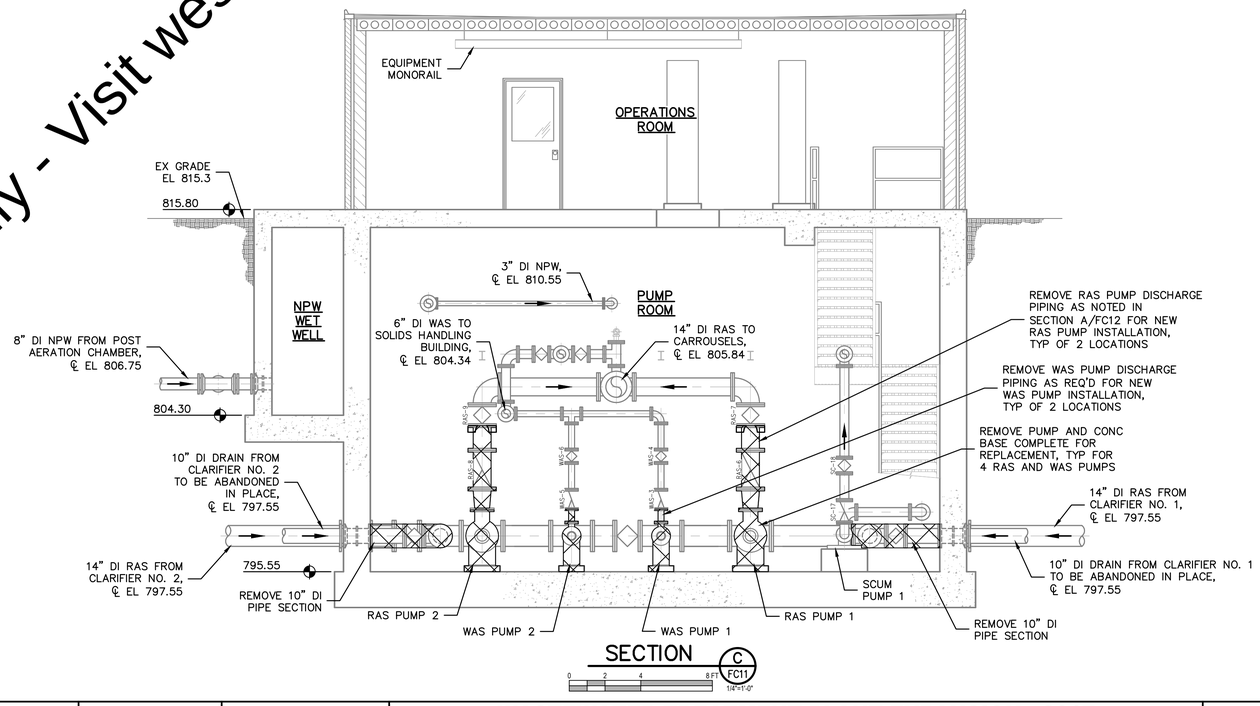
EXISTING SLUDGE PUMP STATION NO. 1 DEMOLITION PLANS

SHEET NO. **FC11**

PAGE NO. 125







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	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

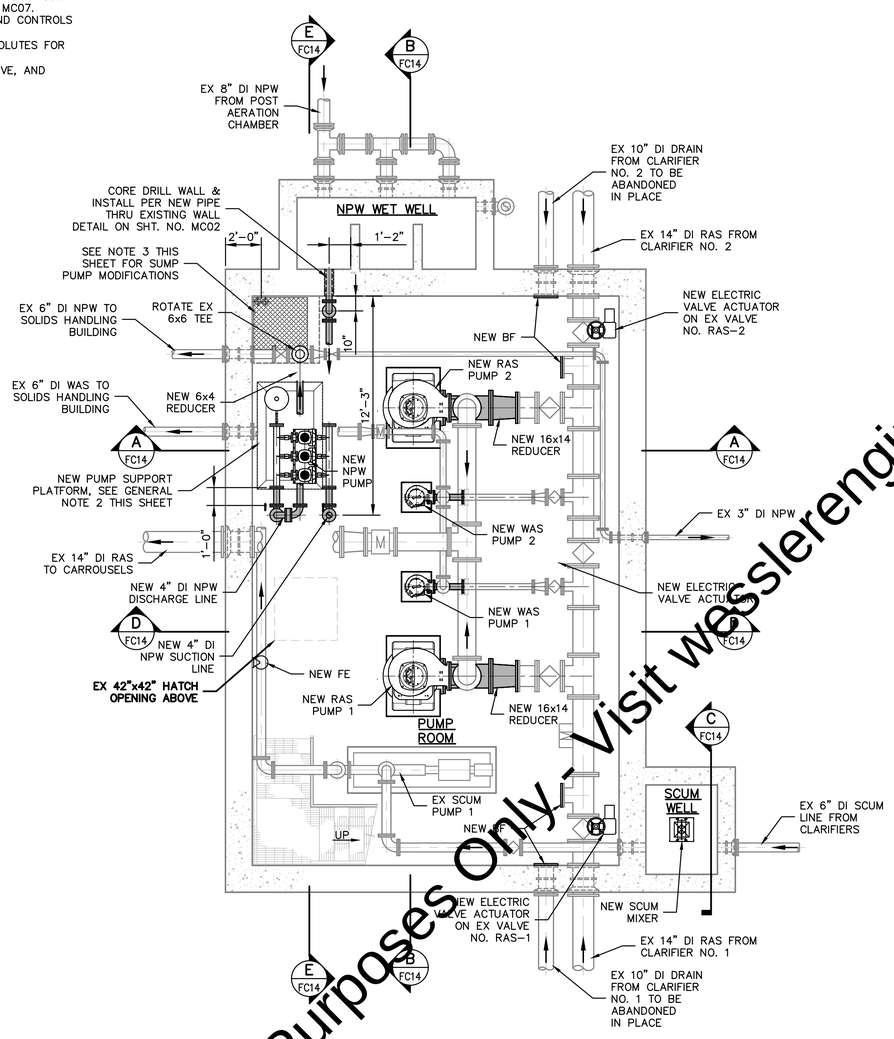
CITY OF WARSAW, INDIANA

EXISTING SLUDGE PUMP STATION NO. 1 DEMOLITION SECTIONS

SHEET NO.
FC12
PAGE NO.
126

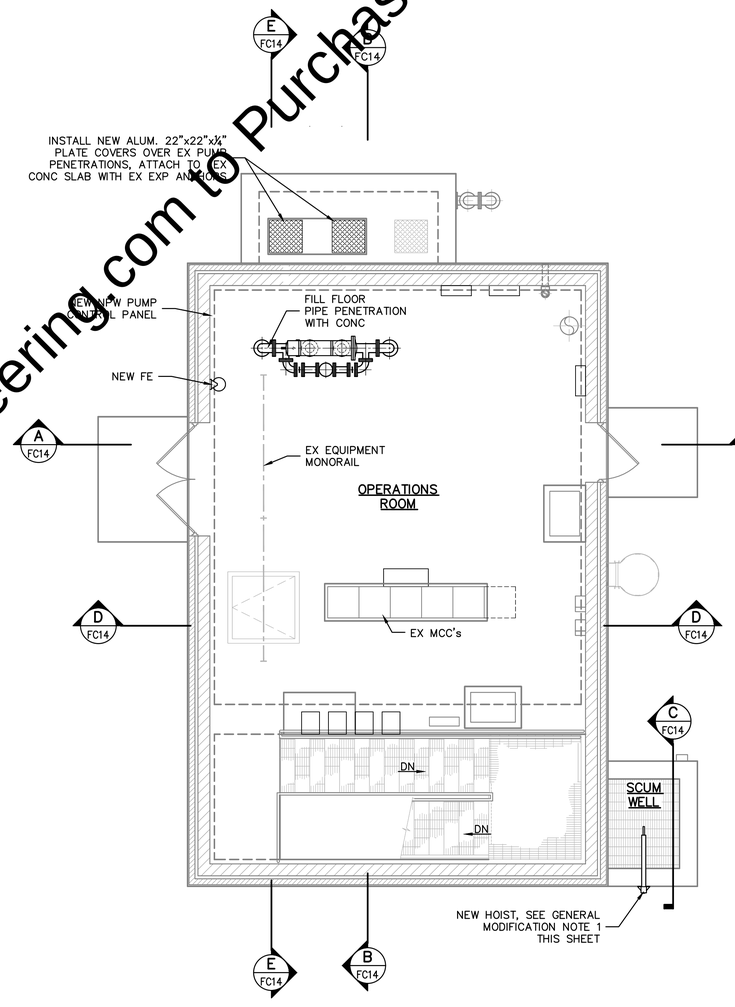
SLUDGE PUMP STATION GENERAL MODIFICATION NOTES:

1. FURNISH AND INSTALL (1) NEW 500 POUND CAPACITY HOIST FOR THE NEW SCUM MIXER REMOVAL, WITH A MINIMUM 42" REACH BOOM WITH A MINIMUM 34° UPWARD SWIVEL. FURNISH WITH A WALL MOUNTED BASE WITH A 360° HORIZONTAL SWIVEL, A MANUAL WINCH, AND A MINIMUM 30' OF 304 STAINLESS STEEL CABLE. THE HOIST SHALL BE A THERN FIRST MATE MODEL 5122, OR APPROVED EQUAL. MOUNT TO THE SCUM WALL WITH STAINLESS STEEL EXPANSION ANCHORS, SIZED AS RECOMMENDED BY THE HOIST MANUFACTURER.
2. FURNISH AND INSTALL (1) STEEL PLATFORM, COATED, SUITABLE TO SUPPORT THE TOTAL WEIGHT OF THE NEW NPW PUMPING EQUIPMENT, BLADDER TANK, SUCTION AND DISCHARGE PIPING, AND ALL WATER CONTAINED IN THE PUMP AND PIPING. ATTACH STEEL BASE PLATES, COATED, TO BOTTOM OF THE (4) PLATFORM LEGS AND ATTACH TO CONCRETE FLOOR WITH MINIMUM (2) 3/8" STAINLESS STEEL EXPANSION ANCHORS PER BASE PLATE.
3. INSTALL NEW SUMP PUMPS, PIPING, VALVES, AND ACCESS COVER IN EXISTING 3'x3'x3' SUMP AS SHOWN IN THE BUILDING SUMP PUMP INSTALLATION DETAILS ON SHEET NO. MC07. RECONNECT TO EXISTING DISCHARGE PIPING AS REQUIRED. NEW ELECTRICAL AND CONTROLS AS SHOWN IN ASSOCIATED DRAWINGS.
4. PROVIDE 1" STAINLESS STEEL NIPPLES AND VALVES ON RAS AND WAS PUMP VOLUTES FOR AIR BLEED OFF.
5. PROVIDE (2) 2" SAMPLE TAPS ON SADDLE, STAINLESS STEEL NIPPLE, BALL VALVE, AND CAP TO BE LOCATED IN THE FIELD.



LOWER LEVEL PLAN

0 2 4 8 FT 1/4"=1'-0"



UPPER LEVEL PLAN

0 2 4 8 FT 1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	ALT					
	APPROVED BY	GLR					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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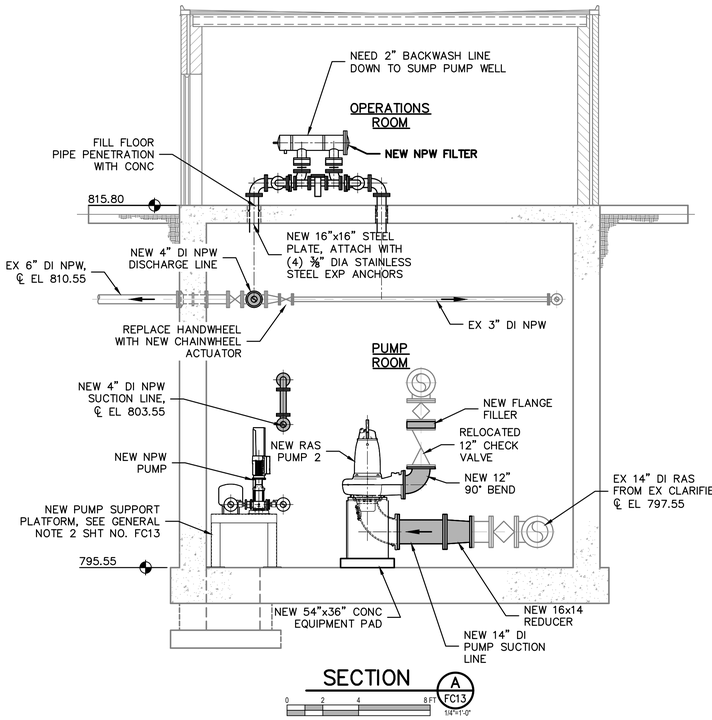
WASTEWATER TREATMENT PLANT EXPANSION - 2017

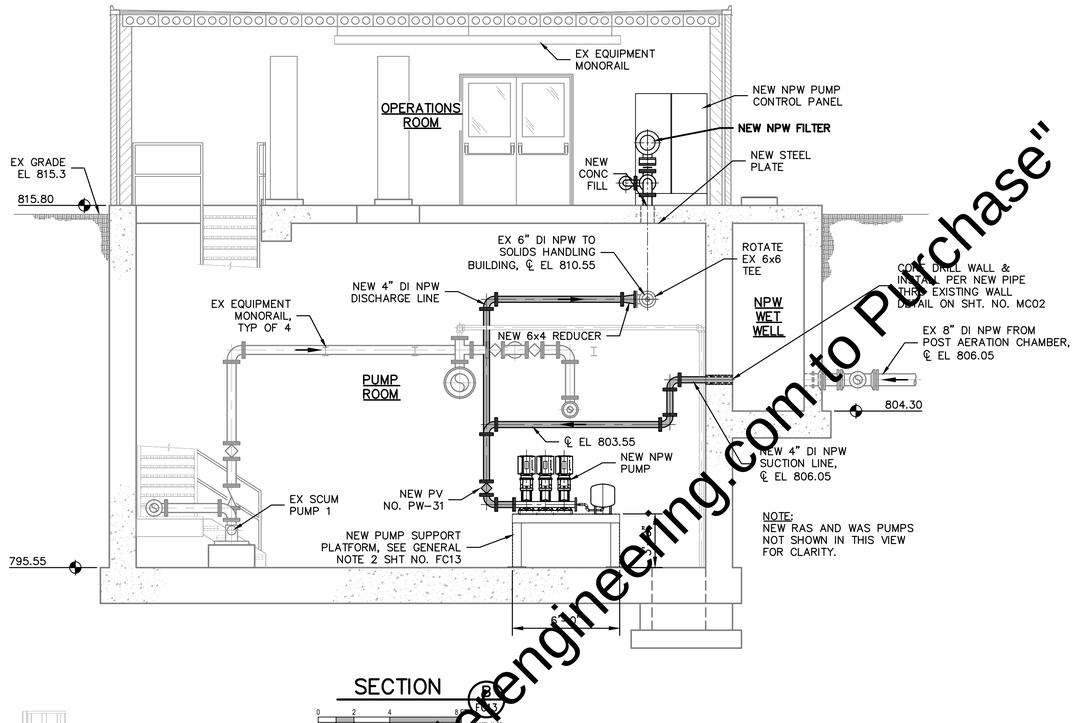
CITY OF WARSAW, INDIANA

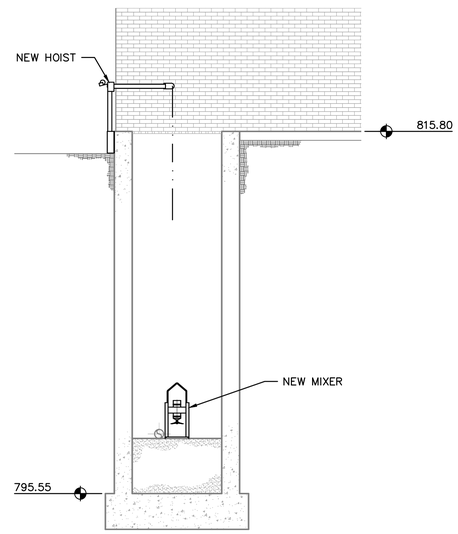
EXISTING SLUDGE PUMP STATION NO. 1 MODIFICATION PLANS

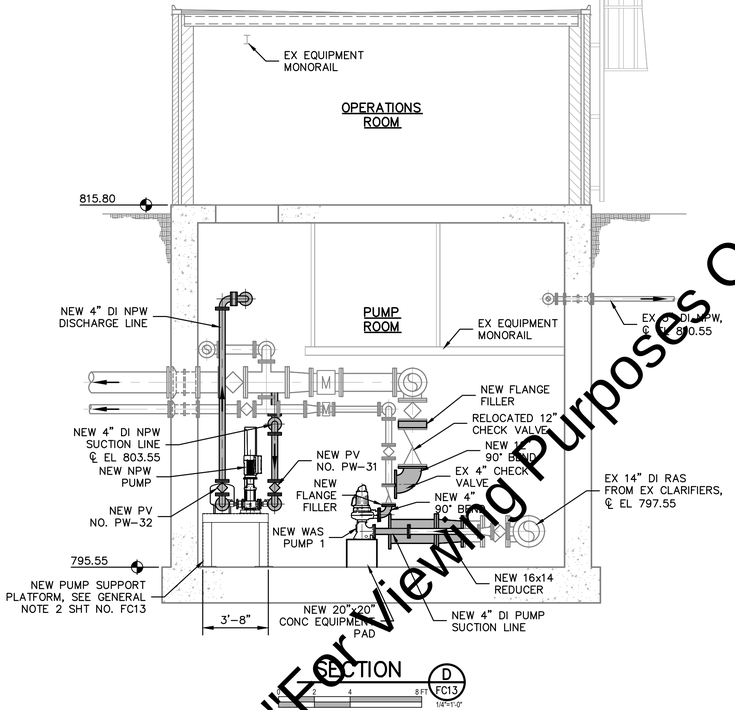
SHEET NO. **FC13**

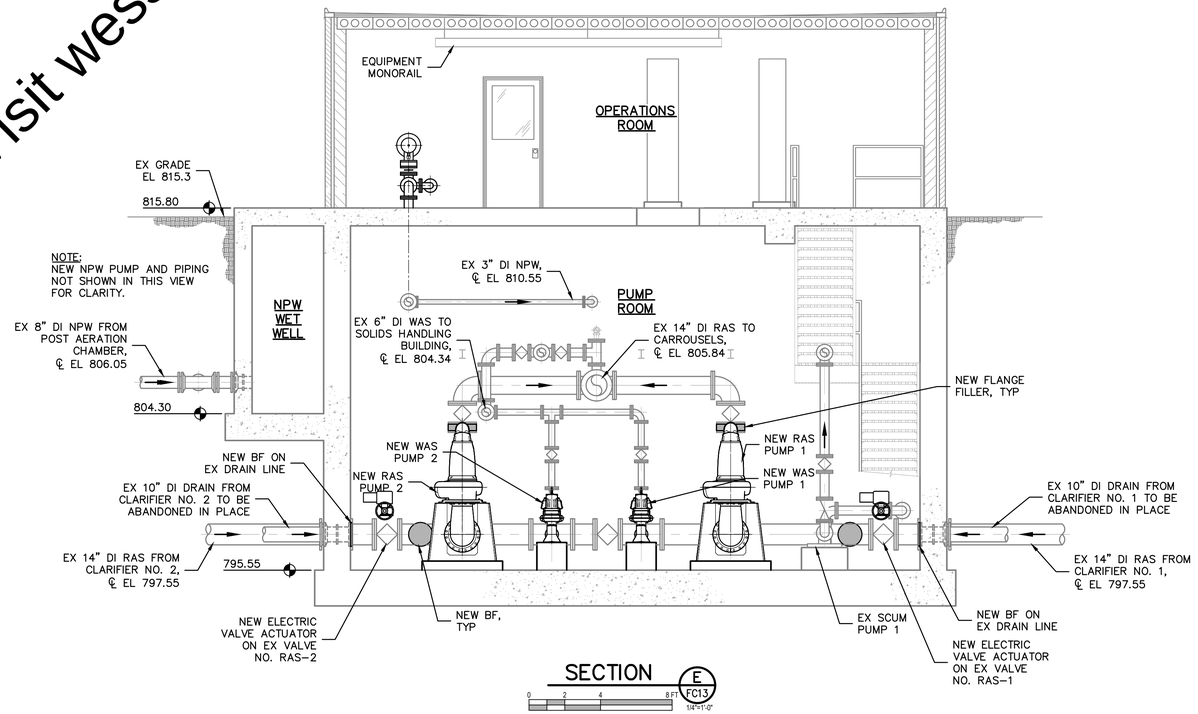
PAGE NO. 127











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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

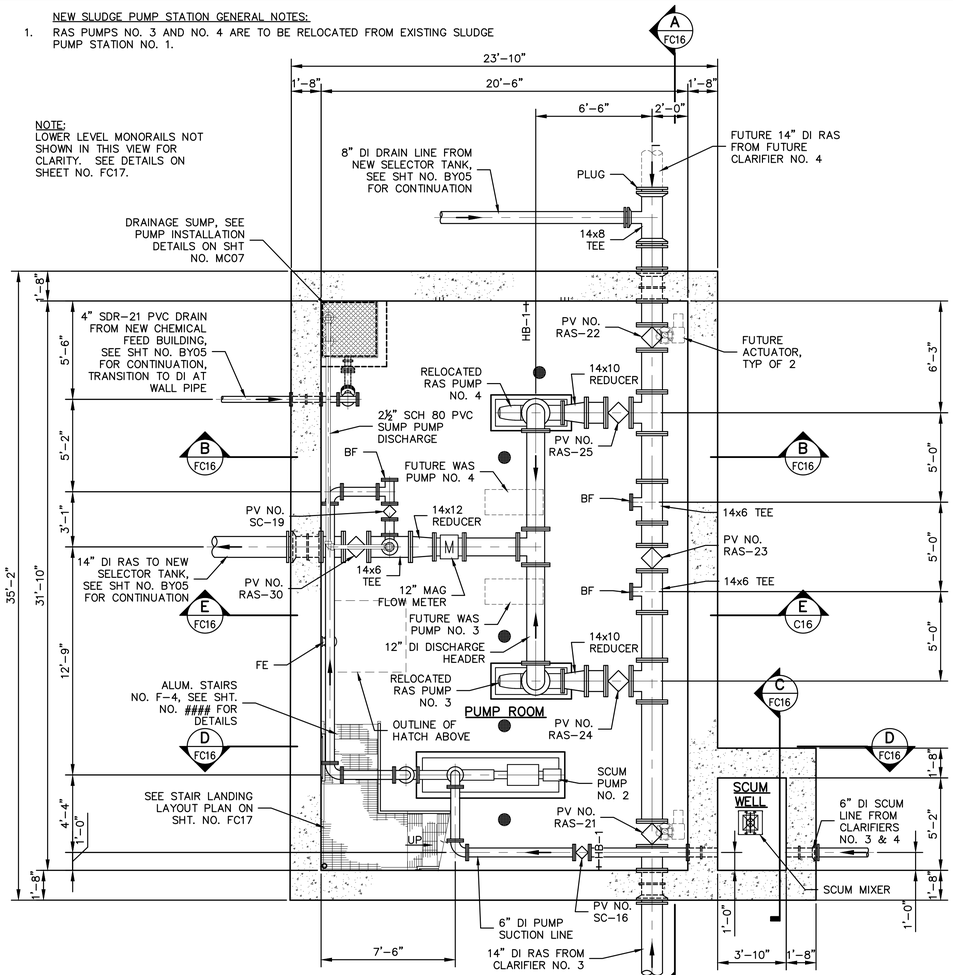
EXISTING SLUDGE PUMP STATION NO. 1 MODIFICATION SECTIONS

SHEET NO. **FC14**

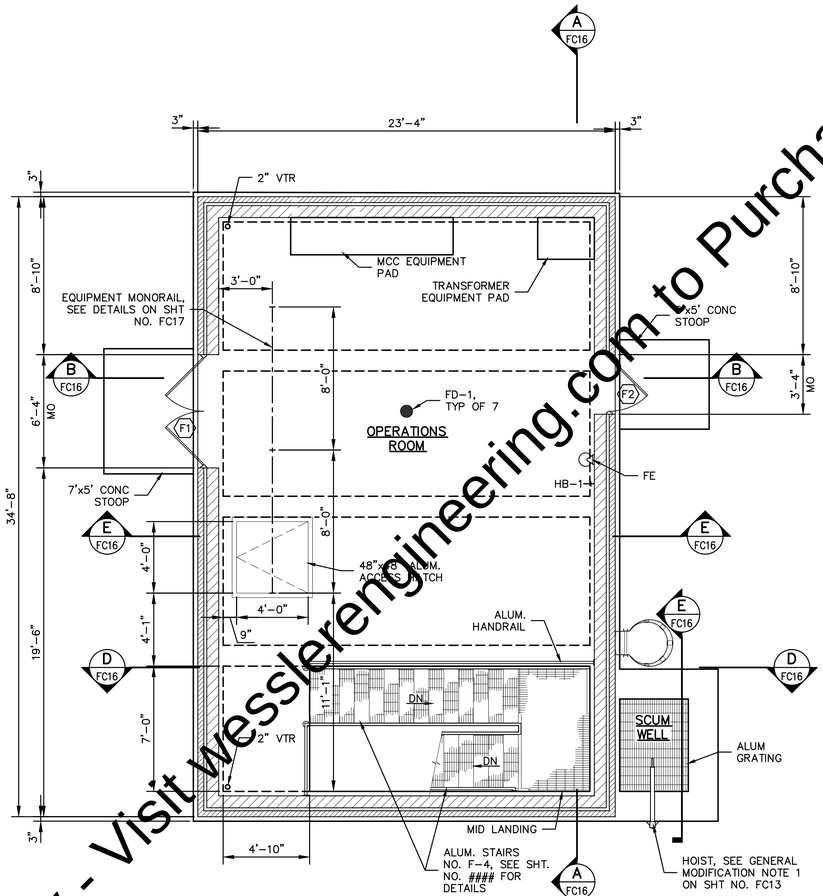
PAGE NO. 128

NEW SLUDGE PUMP STATION GENERAL NOTES:

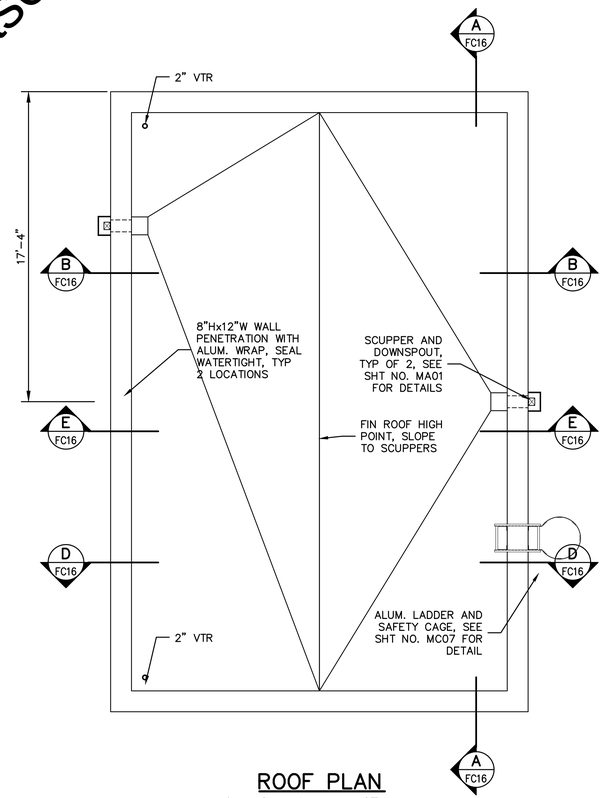
1. RAS PUMPS NO. 3 AND NO. 4 ARE TO BE RELOCATED FROM EXISTING SLUDGE PUMP STATION NO. 1.



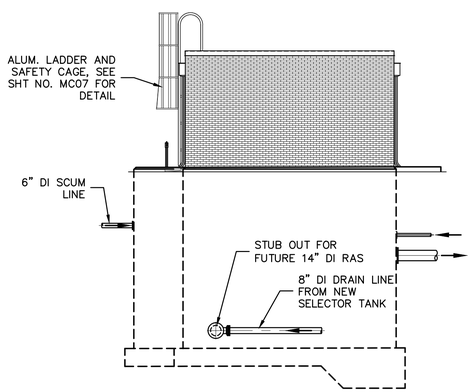
LOWER LEVEL PLAN



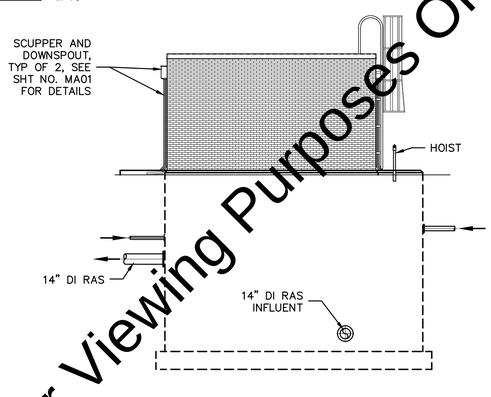
UPPER LEVEL PLAN



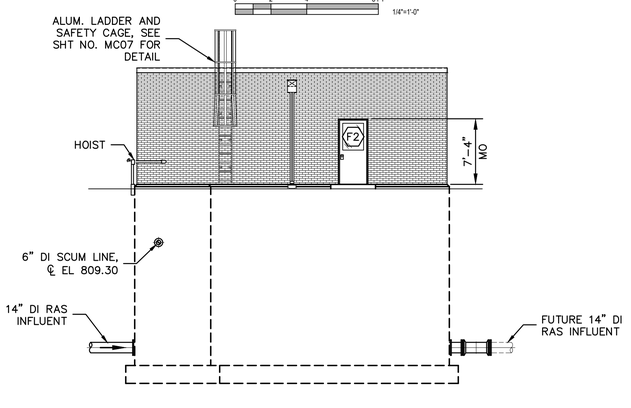
ROOF PLAN



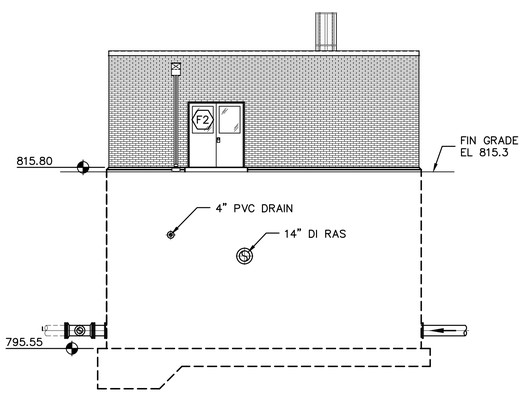
NORTH ELEVATION



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

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	PROJECT NUMBER	162813-04-003				

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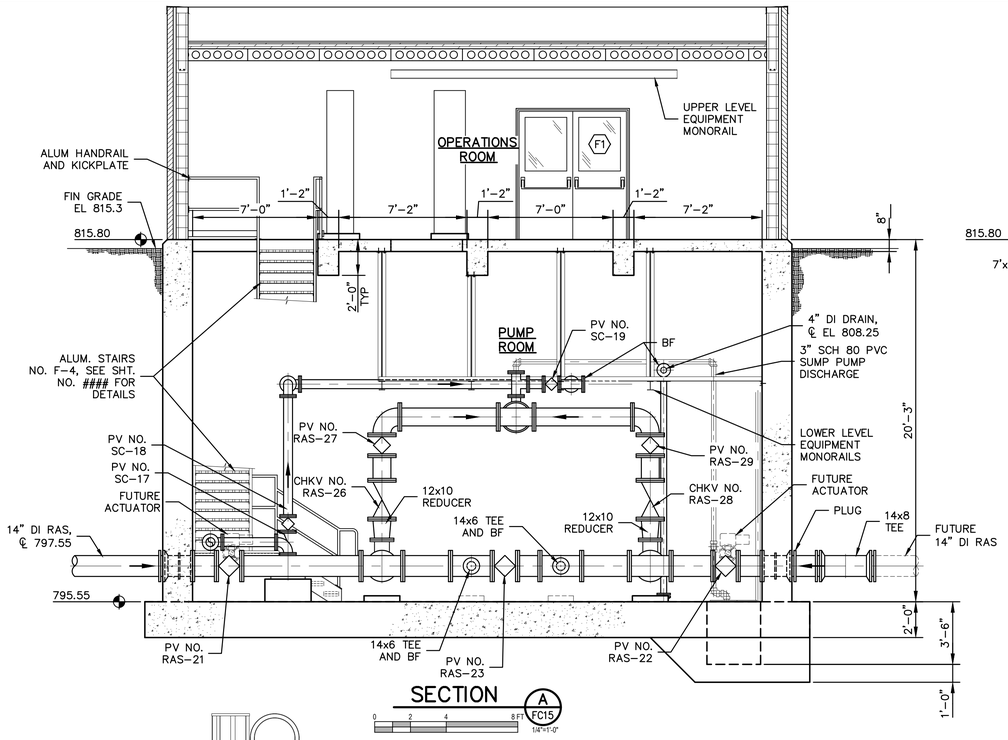
WASTEWATER TREATMENT PLANT EXPANSION - 2017

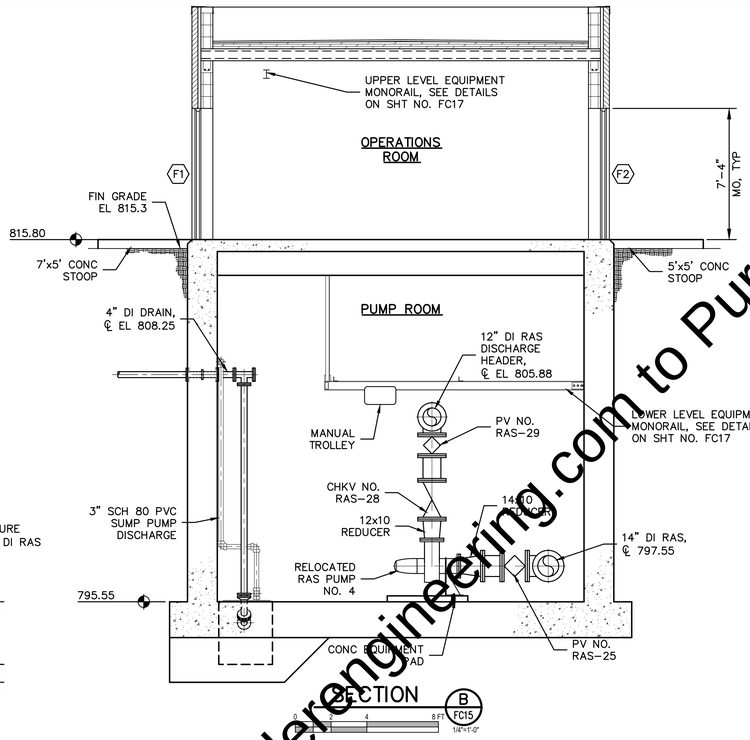
CITY OF WARSAW, INDIANA

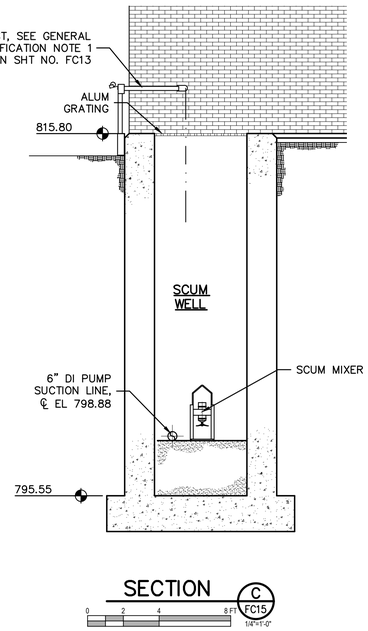
NEW SLUDGE PUMP STATION NO. 2
PLANS & ELEVATIONS

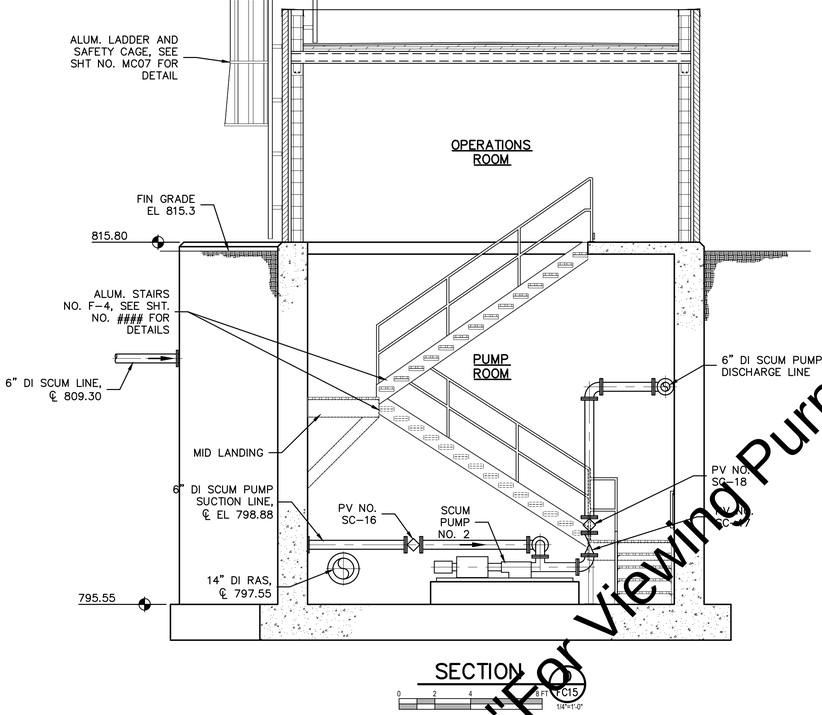
SHEET NO. **FC15**

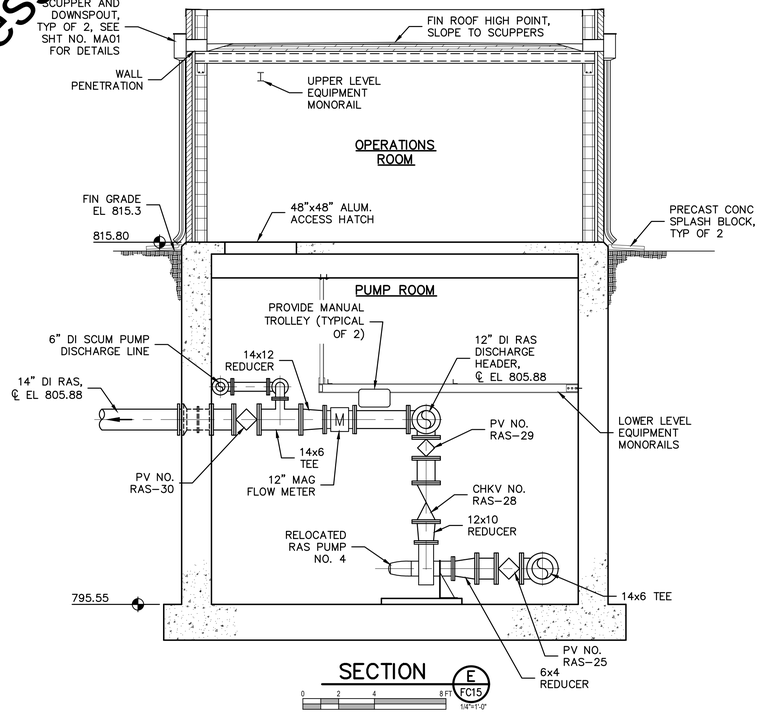
PAGE NO. 129











NOTES:

1. PROVIDE (2) 2-INCH SAMPLE TAPS WITH SADDLE, STAINLESS STEEL NIPPLE, BALL VALVE AND CAP TO BE LOCATED IN THE FIELD.

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	CHECKED BY	ALT				
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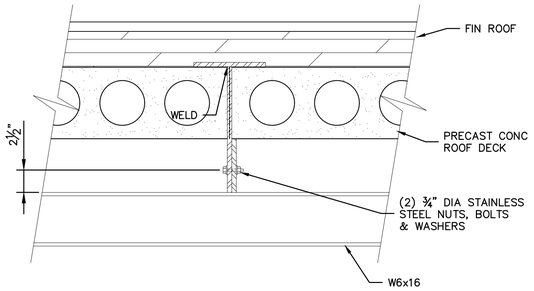
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

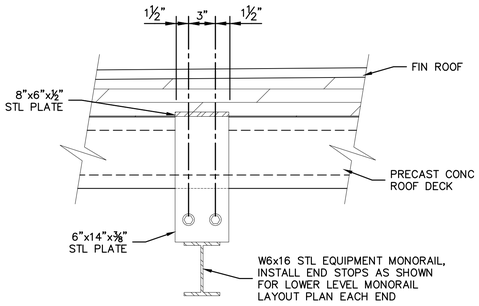
NEW SLUDGE PUMP STATION NO. 2
SECTIONS

SHEET NO. **FC16**

PAGE NO. 130



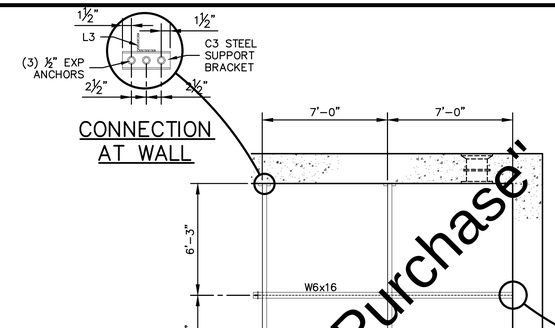
SIDE VIEW



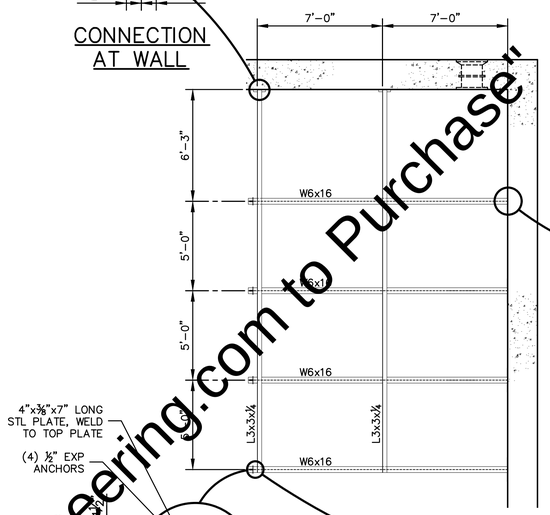
CROSS SECTION

UPPER LEVEL MONORAIL MOUNTING DETAILS

0 1/2 1 1 1/2 FT
1 1/2"=1'-0"

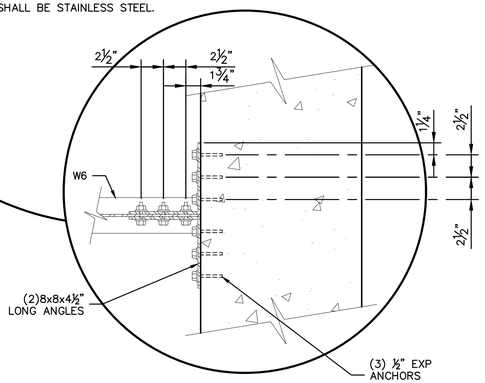


CONNECTION AT WALL

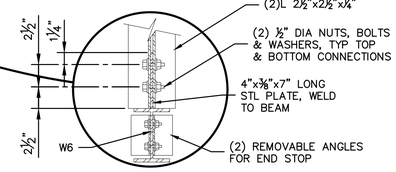


CONNECTION AT CEILING

NOTE:
ALL CONNECTING HARDWARE SHALL BE STAINLESS STEEL.



CONNECTION AT WALL



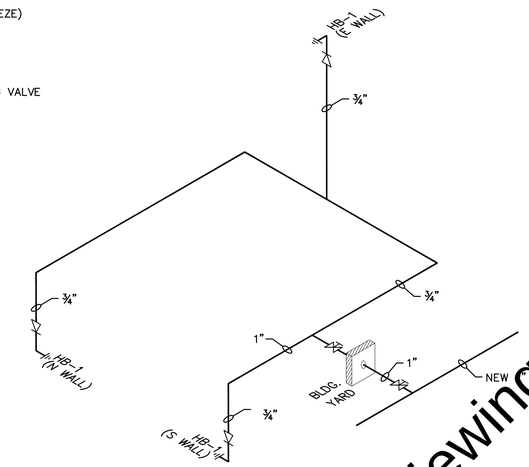
CONNECTION AT BEAM

LOWER LEVEL MONORAIL LAYOUT PLAN

0 2 4 8 FT
1/4"=1'-0"

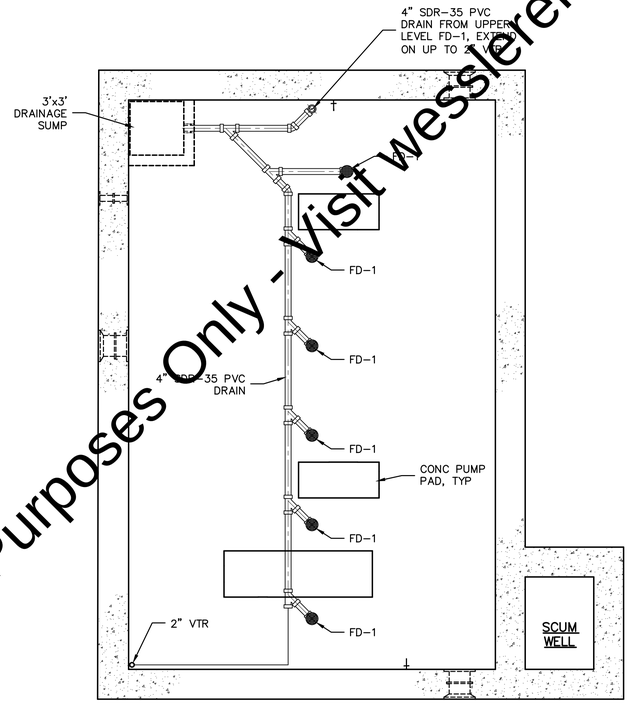
LEGEND

HB–1	HOSE BIB (INDOORS)
HB–2	HOSE BIB (NON FREEZE)
WH	WALL HYDRANT
YH–1	1" YARD HYDRANT
YH–2	1½" YARD HYDRANT
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
⊠	BALL VALVE
⊠	CORPORATION STOP
▷|	CHECK VALVE
⋈	REDUCER



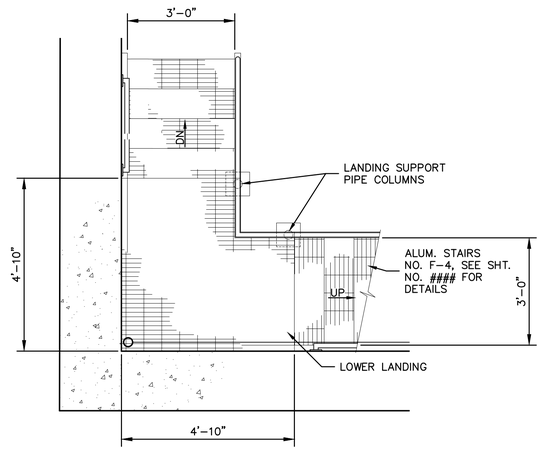
NEW SLUDGE PUMP STATION NO. 2 NON POTABLE WATER (NPW) SCHEMATIC

NO SCALE



PLUMBING PLAN – DRAINS

0 2 4 8 FT
1/4"=1'-0"



STAIR LANDING LAYOUT PLAN

0 1 2 4 FT
1/2"=1'-0"

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	PROJECT NUMBER	162813-04-003					

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SLUDGE PUMP STATION NO. 2
PLANS & DETAILS

SHEET NO.
FC17
PAGE NO.
131

MAKE-UP AIR SCHEDULE

TAG	MANUFACTURER AND MODEL NUMBER	LOCATION	SUPPLY AIR CFM	E.S.P.	HEATING			FAN DATA		POWER SUPPLY				GAS INLET SIZE	UNIT WEIGHT LBS	OPTIONS	NOTE(S)	INTERLOCK WITH
					MBH INPUT	MBH OUTPUT	TEMP RISE	HP	RPM	F.L.A.	M.C.A.	VOLTAGE	PHASE					
MUA–1	REZNOR RDH–75	ROOF	563	0.25	75	60.75	99.0	1/4	554	12	15	460	3	1.5	120	1,3,4	A	THERMOSTAT

OPTIONS:

1. GFI CONVENIENCE OUTLET, 2. DDC CONTROLS, 3. INTEGRAL DISCONNECT, 4. ROOF CURB, 5. EXTRA FILTERS, 6. THRU–WALL INSTALLATION PACKAGE, 7. 3–WAY DISCHARGE DIFFUSER, 8. 4–WAY DISCHARGE DIFFUSER

NOTES:

A. INCLUDES 2" THICK METAL MESH FILTERS.

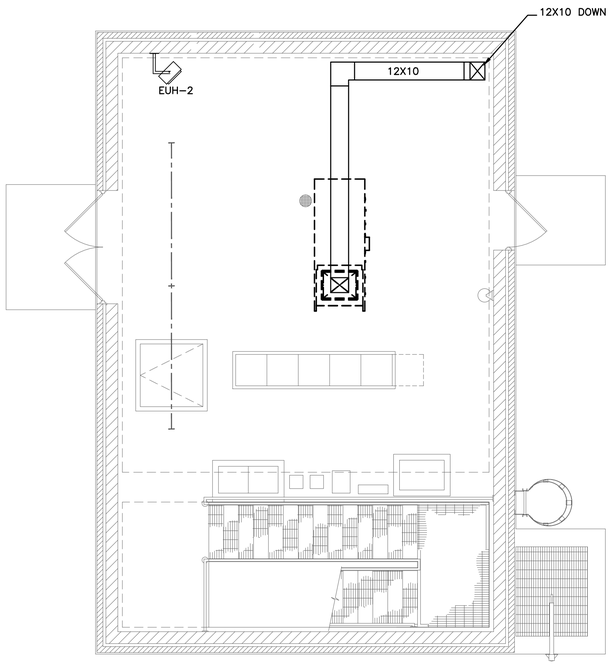
EXHAUST FAN SCHEDULE

TAG	LOCATION	TYPE	CFM	S.P.	FRPM	BHP (WATTS)	SONES	MOTOR				UNIT WEIGHT LBS	ROOF OPENING	MANUFACTURER AND MODEL NUMBER	INTERLOCK WITH
								HP	VOLT	RPM	PH				
EF–1	ROOF	ROOF	500	0.375	1550	(107)	8.4	1/8	115	1725	1	35	13.5" SQ	LOREN COOK 90C15DH	MUA–1

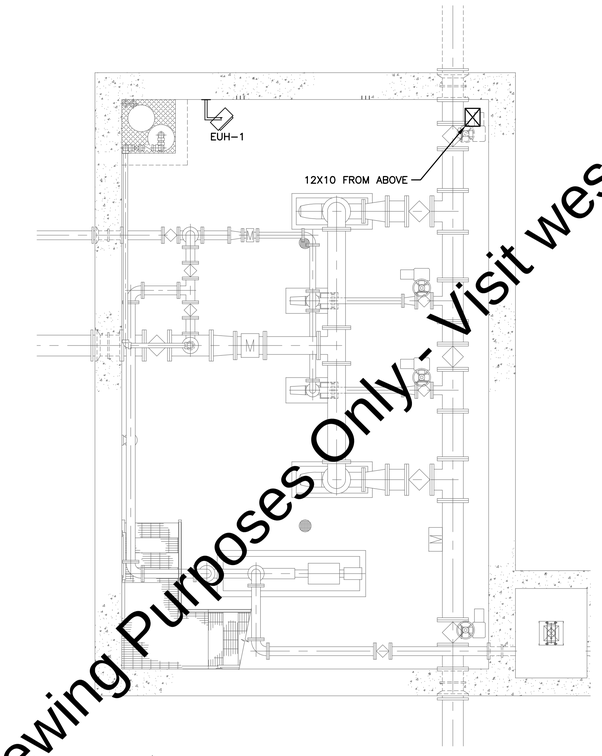
ACCESSORIES: BACKDRAFT DAMPER, DISCONNECT

ELECTRIC UNIT HEATER SCHEDULE

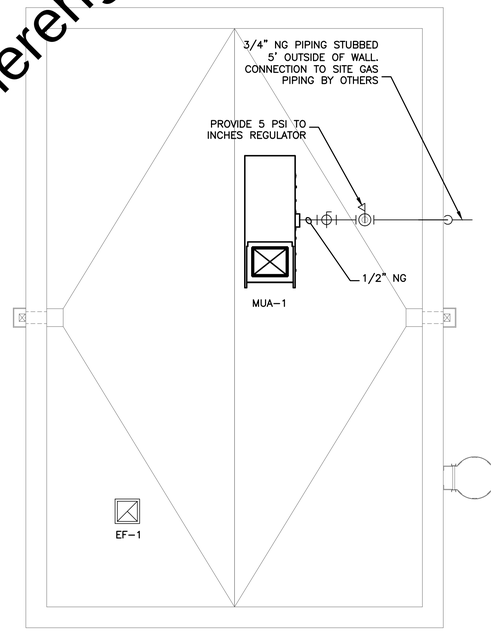
MARK	LOCATION	CONFIGURATION	FAN DATA					HEATING DATA				ELECTRICAL DATA			ACCESSORIES			MANUFACTURER WITH MODEL NUMBER	NOTES
			AIRFLOW (CFM)	ESP	DRIVE	DESIGN SPEED(S)	HP	MIN KW	MBH	EAT	LAT	AMPS	VOLTS	PH	DISCONNECT SWITCH	INTEGRAL THERMOSTAT	WALL BRACKET		
EUH–1	LOWER LEVEL	UNIT HEATER	700	–	AXIAL	1	1/100	5	17.1	–	–	12.1	480	3	Y	Y	Y	MARKEL 5500/QMARK QWD	1
EUH–2	UPPER LEVEL	UNIT HEATER	700	–	AXIAL	1	1/100	5	17.1	–	–	12.1	480	3	Y	Y	Y	MARKEL 5500/QMARK QWD	1
	NOTES: 1. WASHDOWN/CORROSION RESISTANT CONSTRUCTION																		



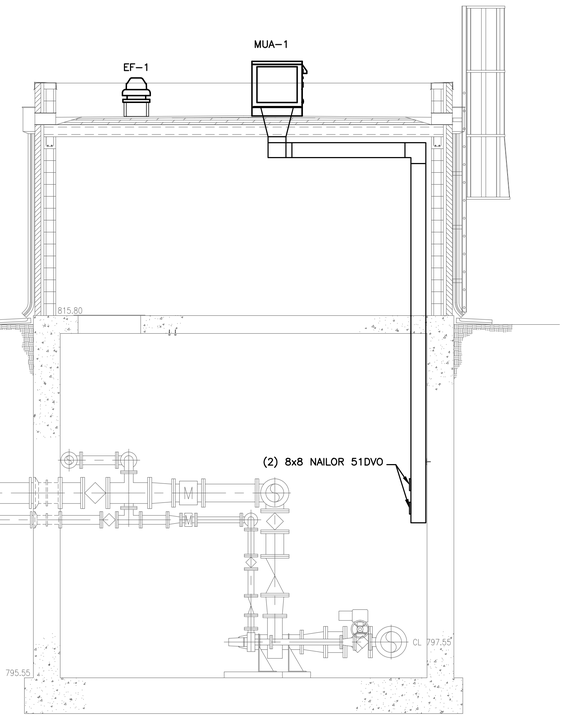
UPPER LEVEL FLOOR PLAN
SCALE: 1/4"=1'–0"



LOWER LEVEL FLOOR PLAN
SCALE: 1/4"=1'–0"



ROOF PLAN
SCALE: 1/4"=1'–0"



SECTION
SCALE: 1/4"=1'–0"

freije RSC ENGINEERED SOLUTIONS

SCALE VERIFICATION

BAR IS ONE INCH LONG ON ORIGINAL DRAWING

DRAWN BY
CHECKED BY
APPROVED BY
ISSUE DATE: MARCH 2018
PROJECT NUMBER: 162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	12/12/17		

REGISTERED PROFESSIONAL ENGINEER No. PE19500284 STATE OF INDIANA 03/09/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

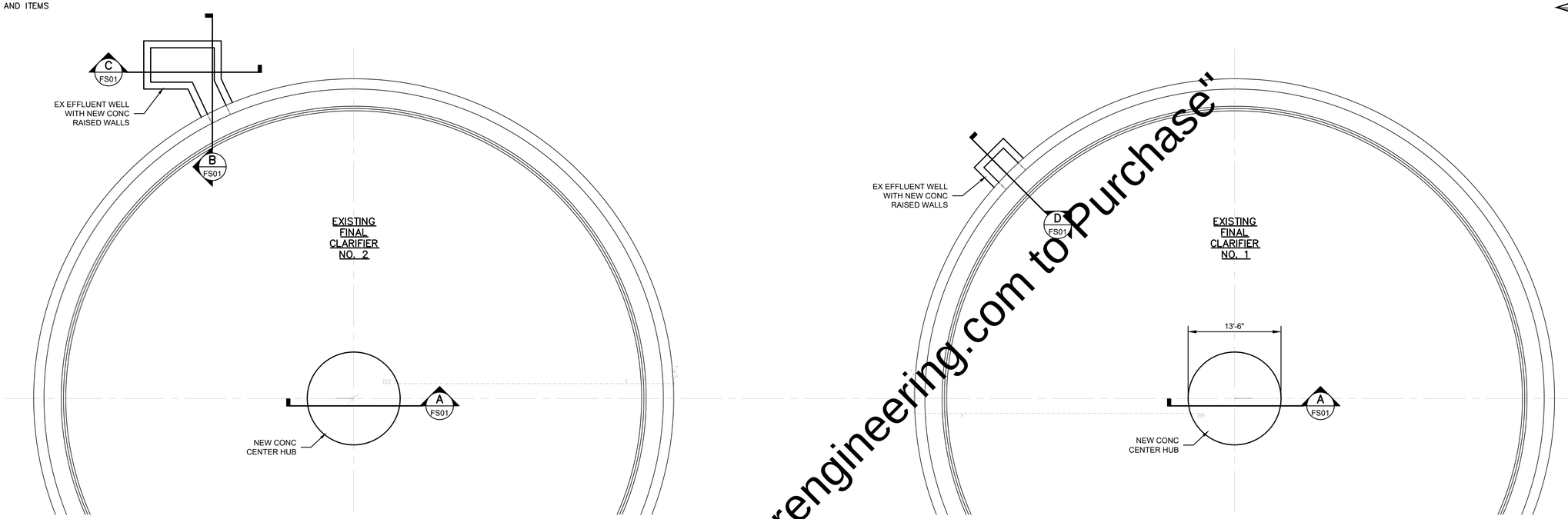
NEW SLUDGE PUMP STATION NO. 2
MECHANICAL PLAN

SHEET NO.
FM01

PAGE NO.
132

GENERAL STRUCTURAL NOTES:

1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.



EXISTING CLARIFIERS MODIFICATION PLAN

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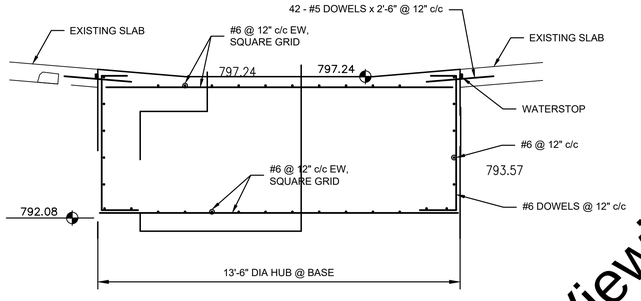
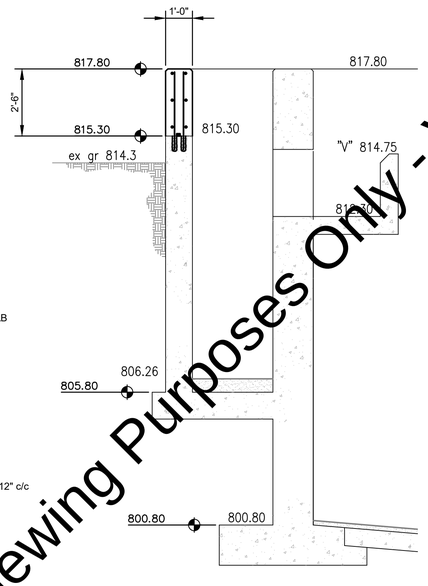
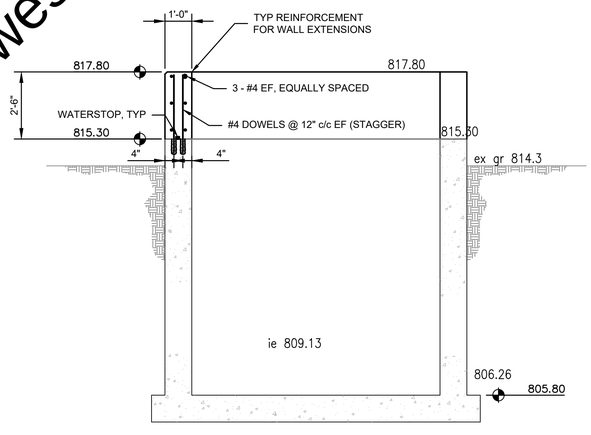
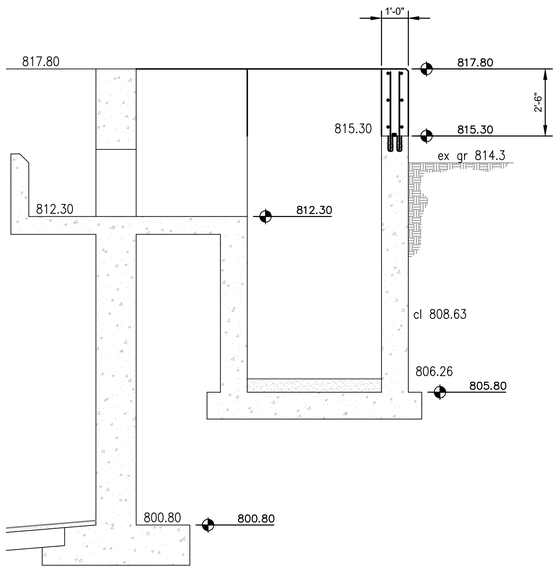
1/8"=1'-0"









SECTION A FS01 0 2 4 6FT 3/8"=1'-0"

SECTION B FS01 0 2 4 6FT 3/8"=1'-0"

SECTION C FS01 0 2 4 6FT 3/8"=1'-0"

SECTION D FS01 0 2 4 6FT 3/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	GLR				
	APPROVED BY	JRB				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

JEFFREY ROSS BALLARD REGISTERED No. 60860191 STATE OF INDIANA PROFESSIONAL ENGINEER 09/04/2018

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

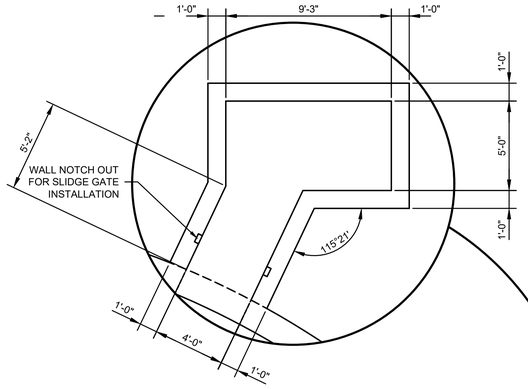
EXISTING FINAL CLARIFIERS STRUCTURAL MODIFATION PLAN AND SECTIONS

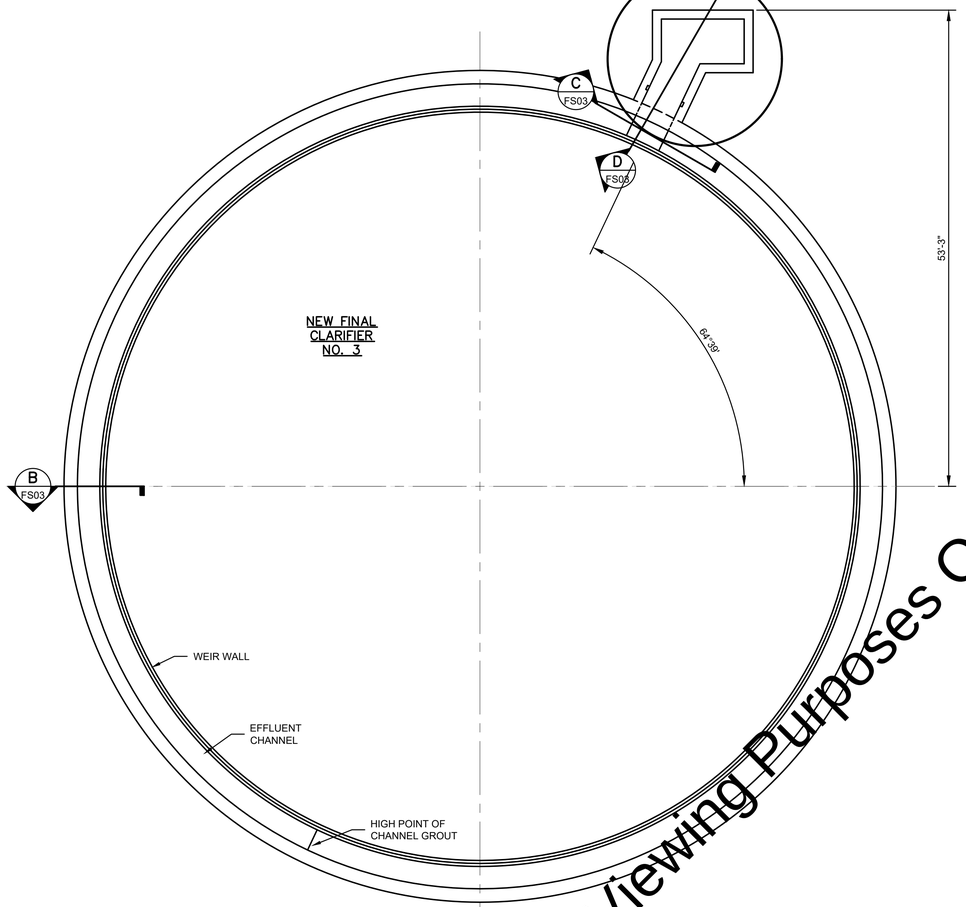
SHEET NO. **FS01**

PAGE NO. 133

GENERAL STRUCTURAL NOTES:

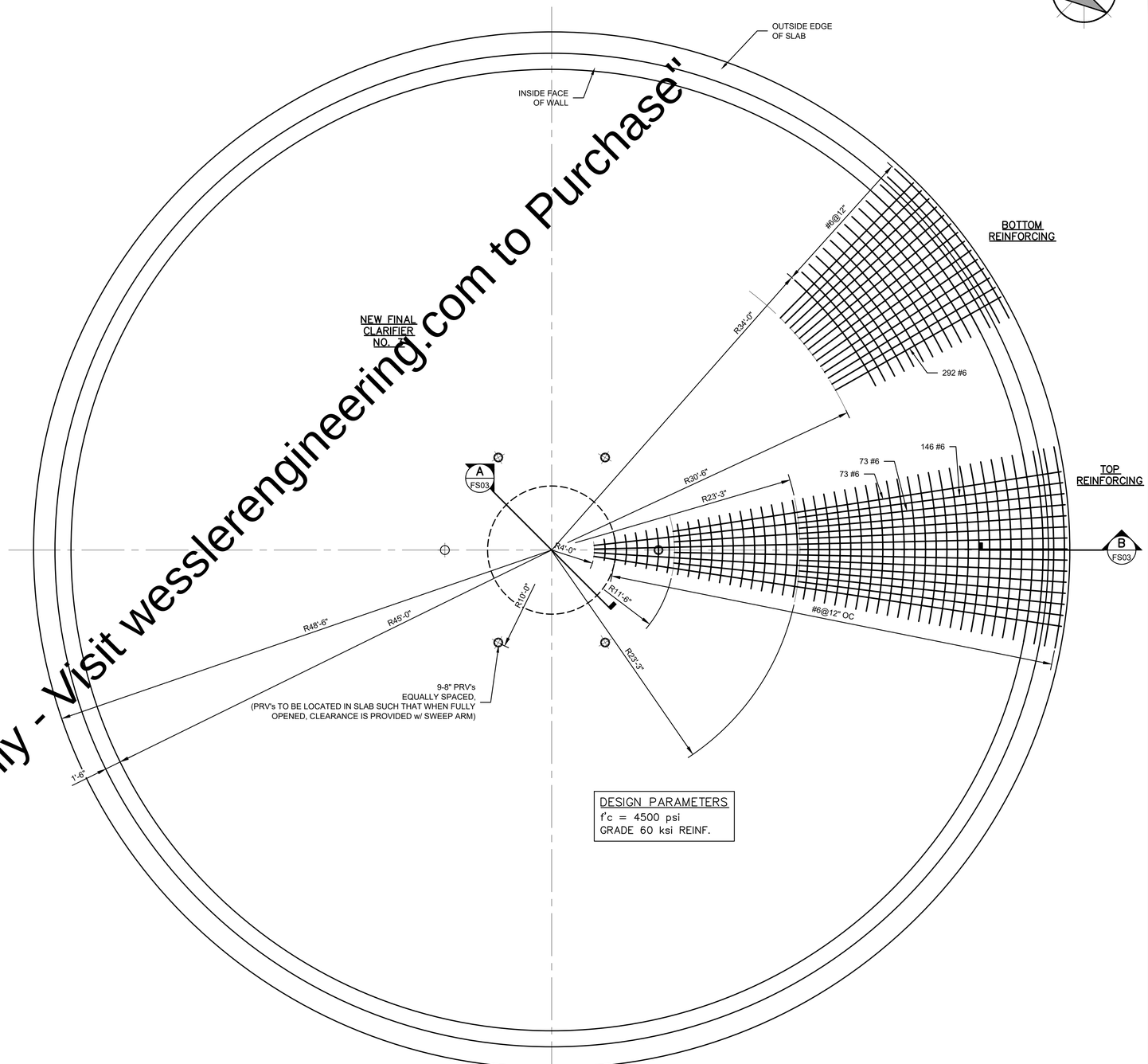
1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.





NEW FINAL CLARIFIER TYPICAL UPPER PLAN

0 4 8 16 FT
1/8"=1'-0"



DESIGN PARAMETERS
f'c = 4500 psi
GRADE 60 ksi REINF.

FOUNDATION PLAN

0 4 8 12 FT
3/16"=1'-0"

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	GLR				
	APPROVED BY	JRB				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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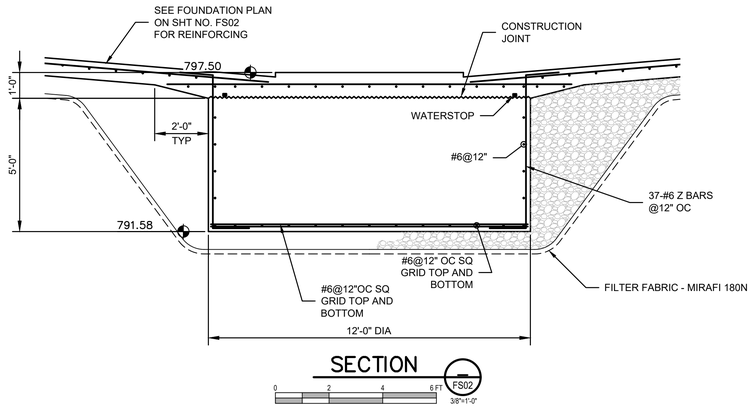
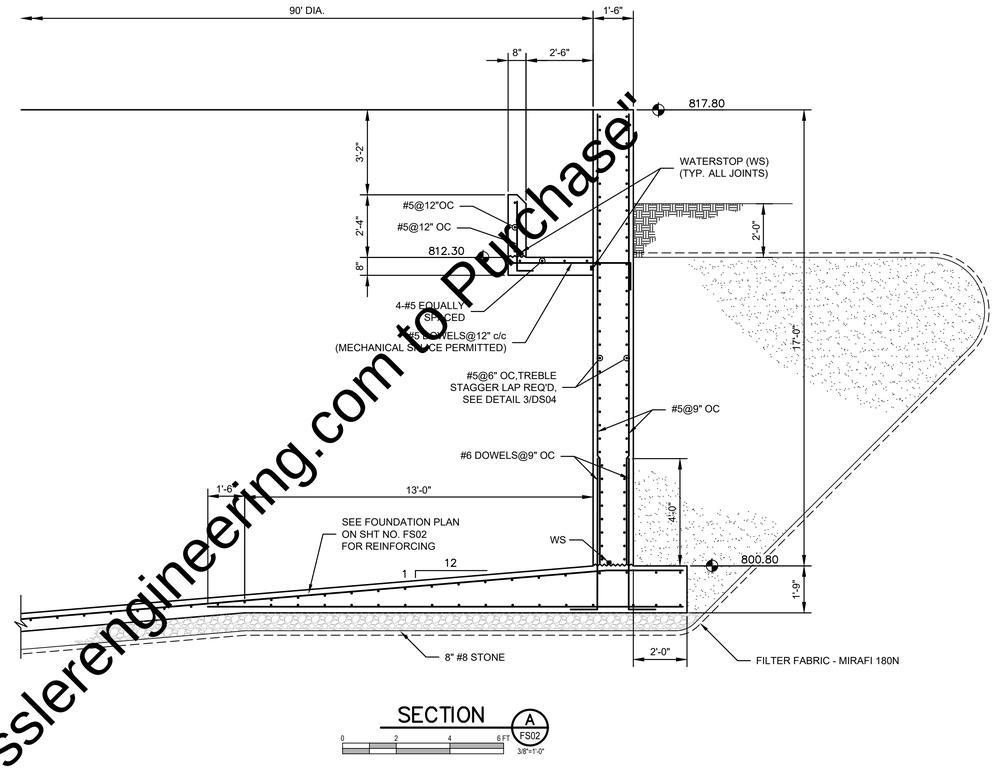
WASTEWATER TREATMENT PLANT EXPANSION - 2017

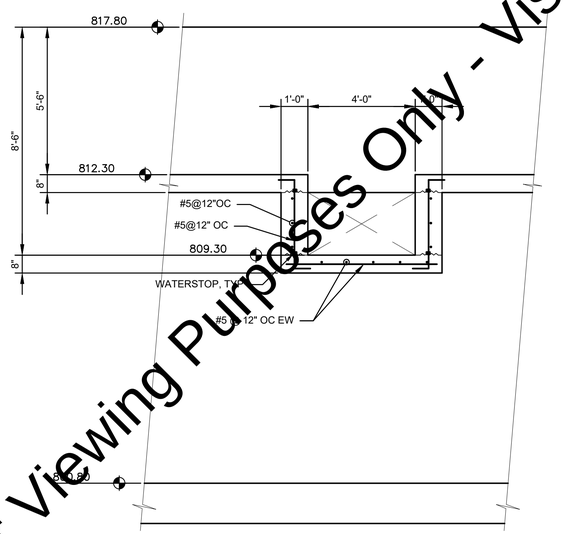
CITY OF WARSAW, INDIANA

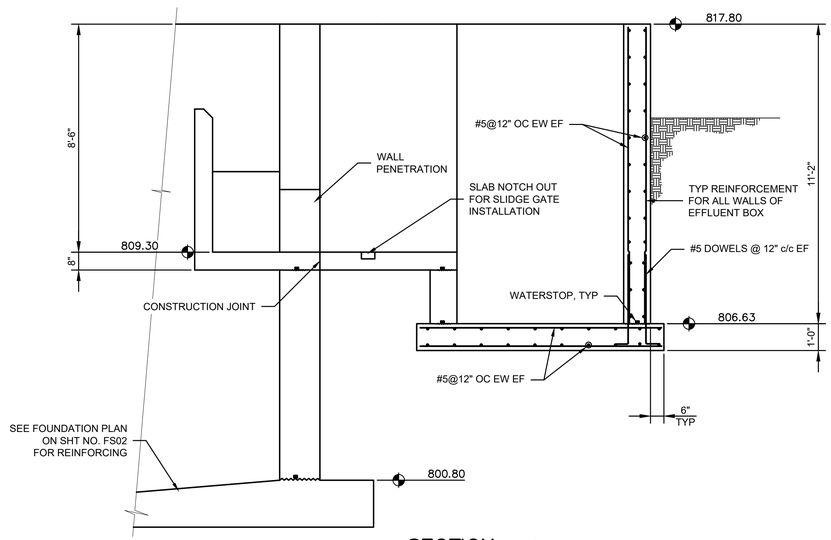
NEW FINAL CLARIFIER STRUCTURAL PLANS

SHEET NO.
FS02
PAGE NO.
134









SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	GLR				
	APPROVED BY	JRB				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

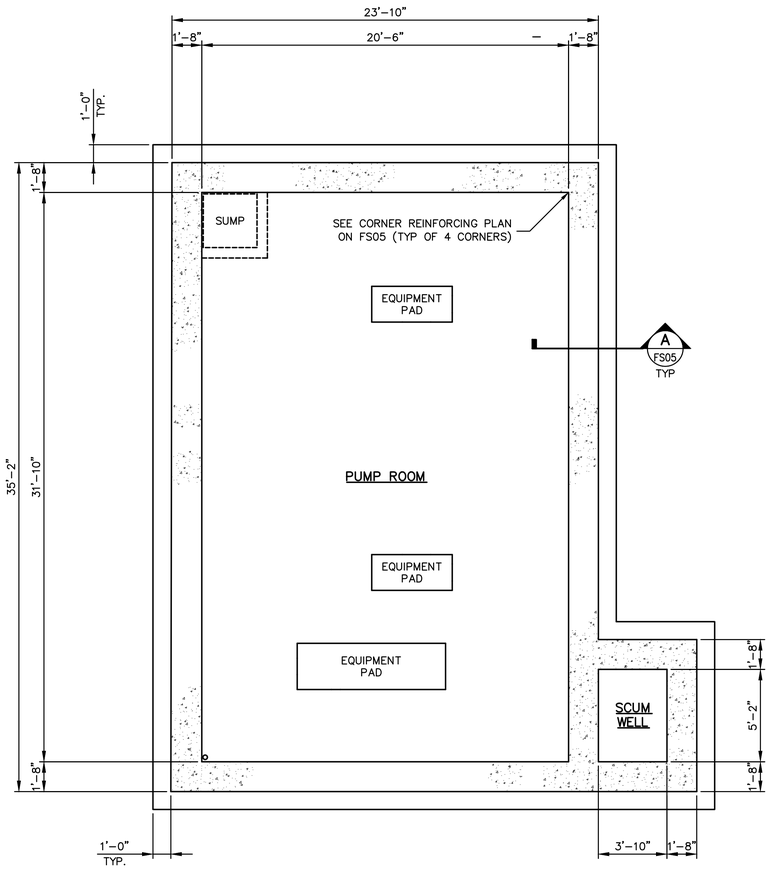
CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER STRUCTURAL SECTIONS

SHEET NO.
FS03
PAGE NO.
135

GENERAL STRUCTURAL NOTES:

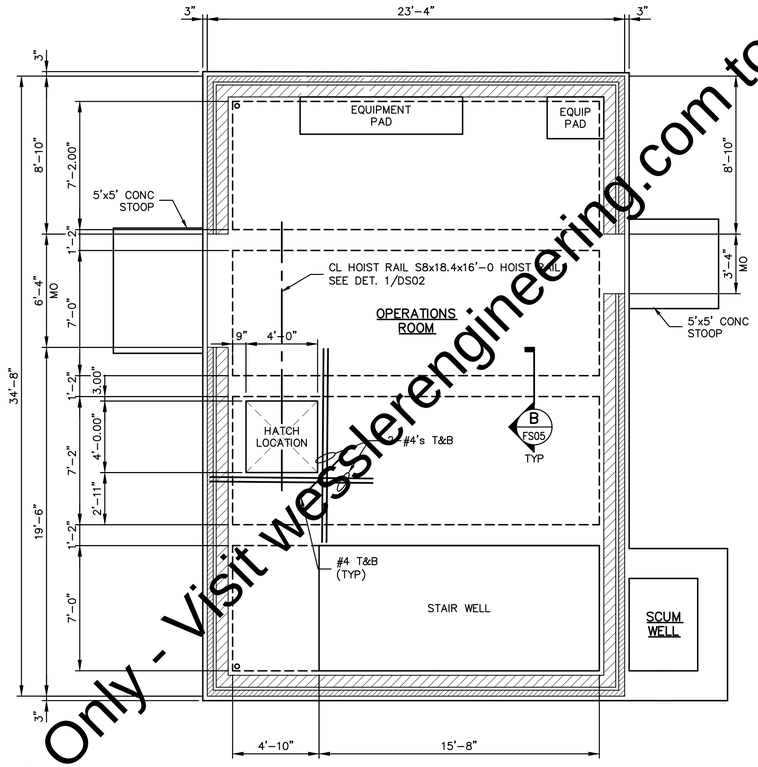
1. SEE CIVIL/ARCHITECTURAL DRAWINGS FOR LOCATIONS OF PIPE PENETRATIONS, EQUIPMENT, APPURTENANCES, AND ITEMS EMBEDDED IN CONCRETE.



FOUNDATION PLAN

0 2 4 8 FT
1/4"=1'-0"

DESIGN PARAMETERS
f'c = 4500 psi
GRADE 60 ksi REINF
f'm = 2000 psi
TYPE S MORTAR



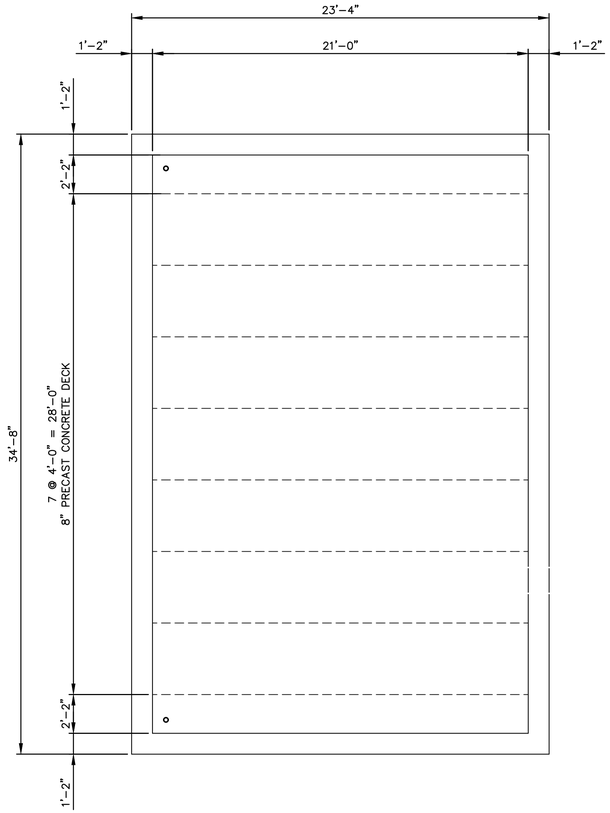
(FLOOR LL = 250 PSF)

FIRST FLOOR FRAMING PLAN

0 2 4 8 FT
1/4"=1'-0"

NOTES:

1. FOR MASONRY REINFORCEMENT AND LINTEL REQUIREMENTS, SEE DS01
2. HOIST RAIL IS TO BE LOCATED AT CENTERLINE OF HATCH, SEE "DS" SHEETS FOR DETAILS.



ROOF FRAMING PLAN

0 2 4 8 FT
1/4"=1'-0"

NOTE: FOR END BEARING AND EDGE CONDITION, SEE DS02.

SCALE VERIFICATION	DRAWN BY	WBJ	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
	CHECKED BY	ALT				
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	APPROVED BY	GLR				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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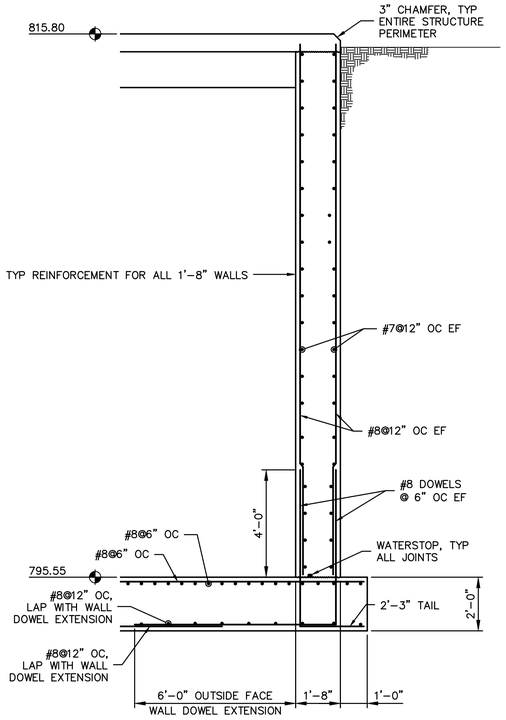
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SLUDGE PUMP STATION NO. 2
STRUCTURAL PLANS

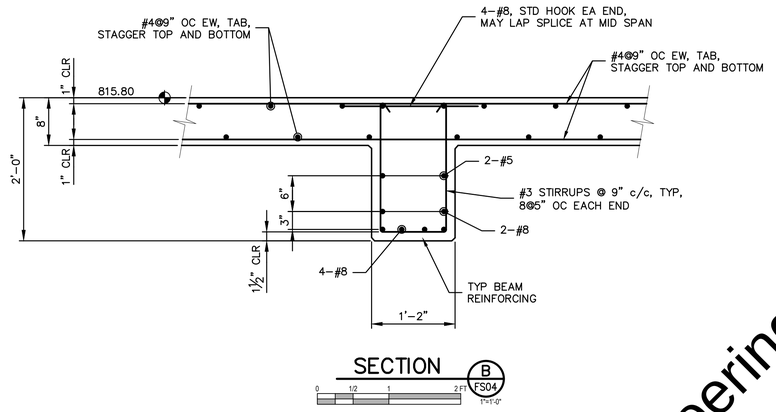
SHEET NO.
FS04
PAGE NO.
136



SECTION A FS04

0 2 4 6 FT

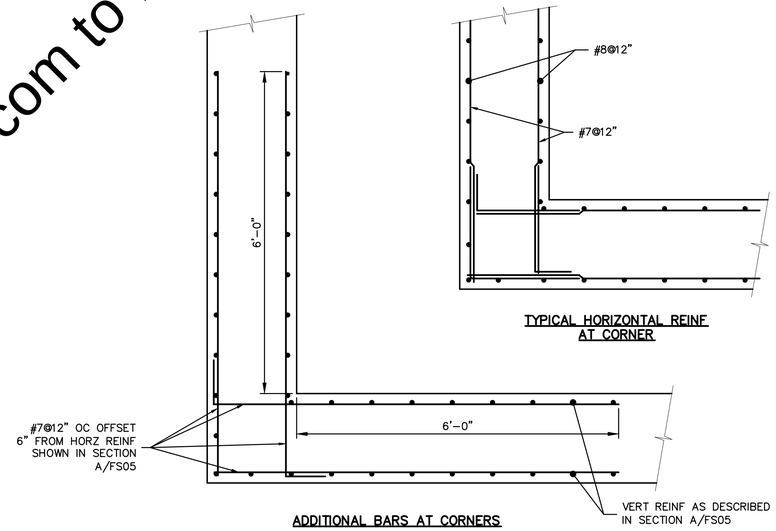
3/8"=1'-0"



SECTION B FS04

0 1/2 1 2 FT

1"=1'-0"



TYPICAL CORNER REINFORCING PLAN

0 1 2 3 FT

3/4"=1'-0"

SCALE VERIFICATION	DRAWN BY		NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	APPROVED BY					
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

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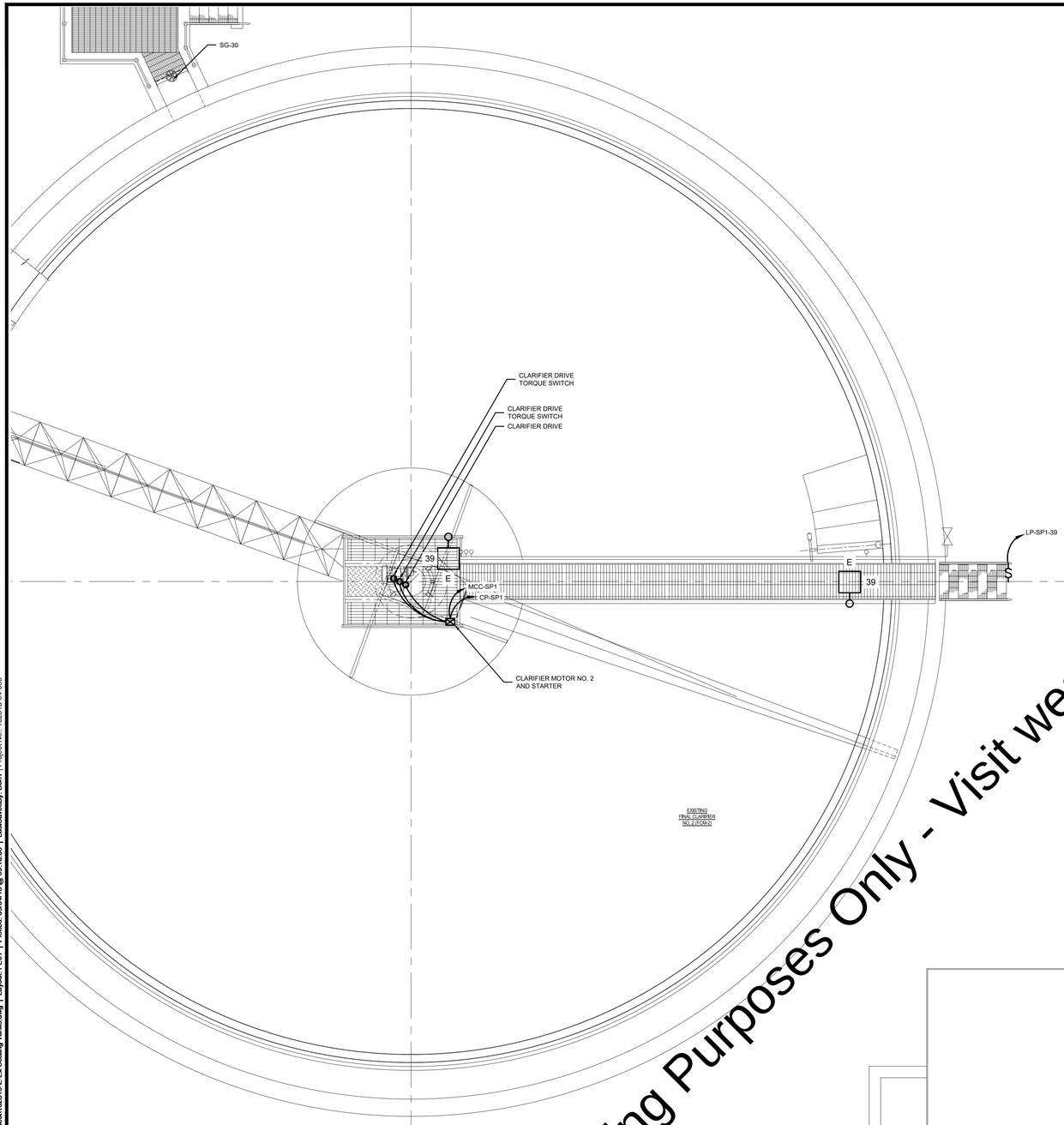
WASTEWATER TREATMENT PLANT EXPANSION - 2017

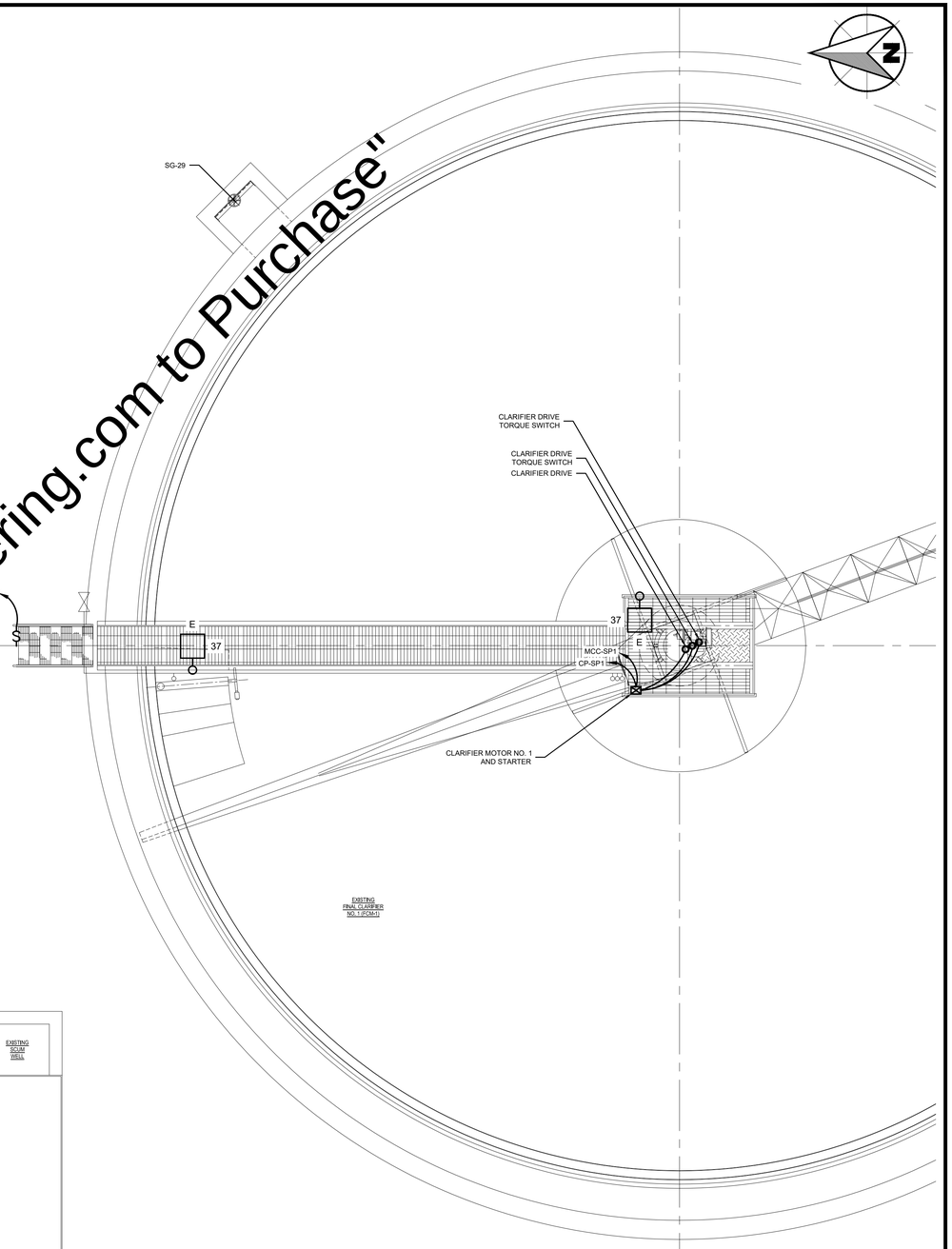
CITY OF WARSAW, INDIANA

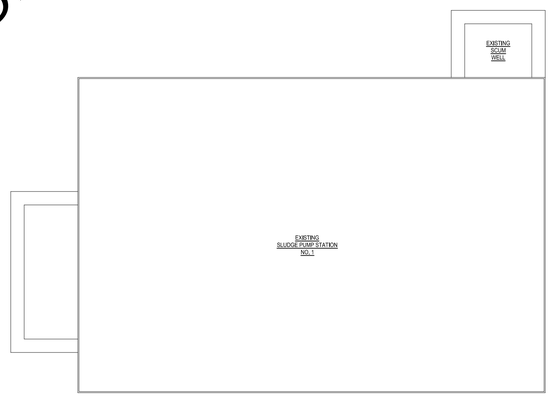
NEW SLUDGE PUMP STATION NO. 2
STRUCTURAL SECTIONS AND DETAILS

SHEET NO. **FS05**

PAGE NO. 137







ELECTRICAL PLAN

0 2 4 8 FT

1/4"=1'-0"

SCALE VERIFICATION			NO.	DATE	INITIALS	REVISION DESCRIPTIONS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	DRAWN BY	EAS				
	CHECKED BY	BMS				
	APPROVED BY	WCM				
	ISSUE DATE	SEPTEMBER 4, 2018				
	PROJECT NUMBER	162813-04-003				

WAYNE C. MOORE REGISTERED No. 10707476 STATE OF INDIANA PROFESSIONAL ENGINEER

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

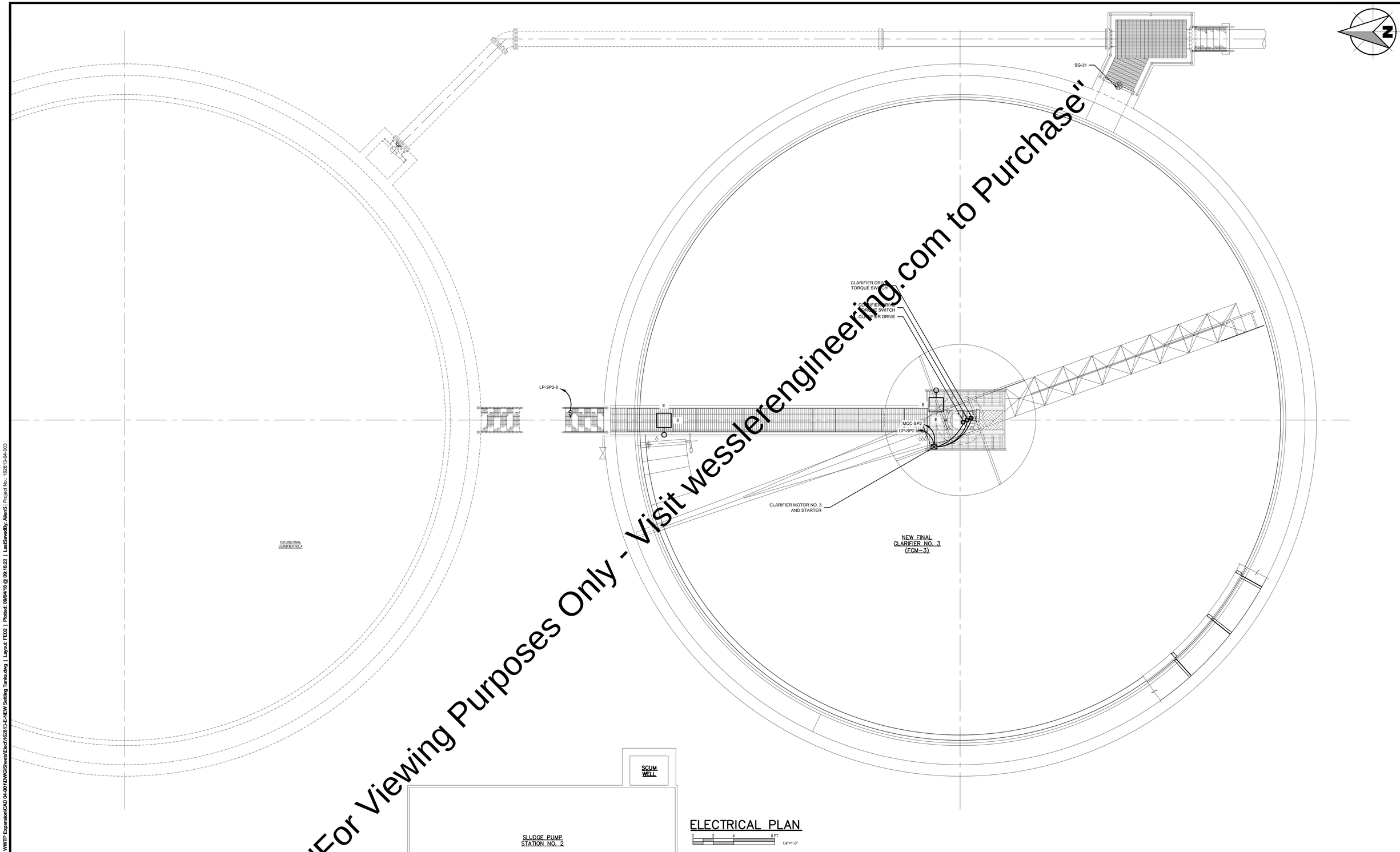
CITY OF WARSAW, INDIANA

EXISTING FINAL CLARIFIERS ELECTRICAL PLAN

SHEET NO. **FE01**

PAGE NO. 138

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\Elect\162813-E-Ex Settling Tanks.dwg | Layout: FE01 | Plotted: 09/04/18 @ 09:16:05 | LastSavedBy: DonT | Project No.: 162813-04-003



ELECTRICAL PLAN

0 2 4 8 FT

1/4"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS	
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS					
	APPROVED BY	WCM					
	ISSUE DATE	SEPTEMBER 4, 2018					
	PROJECT NUMBER	162813-04-003					

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

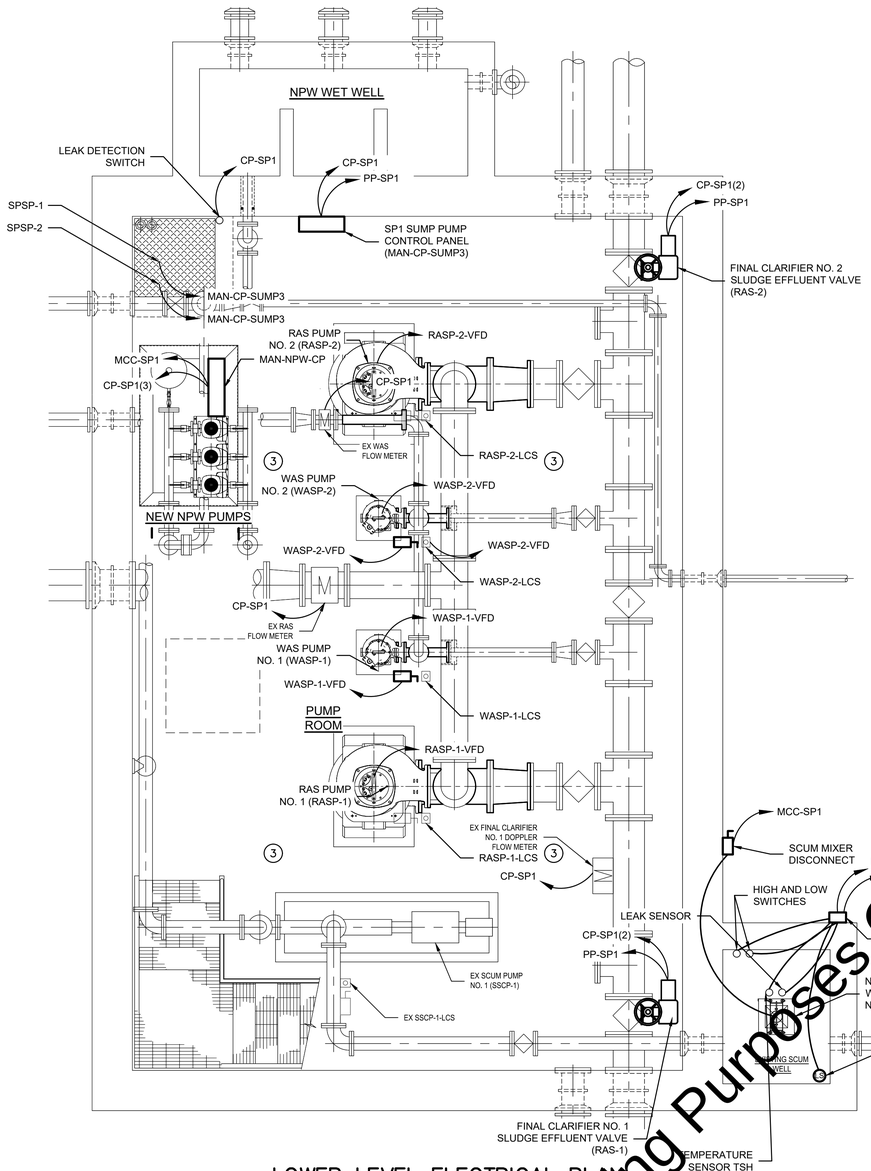
CITY OF WARSAW, INDIANA

NEW FINAL CLARIFIER ELECTRICAL PLAN

SHEET NO. **FE02**

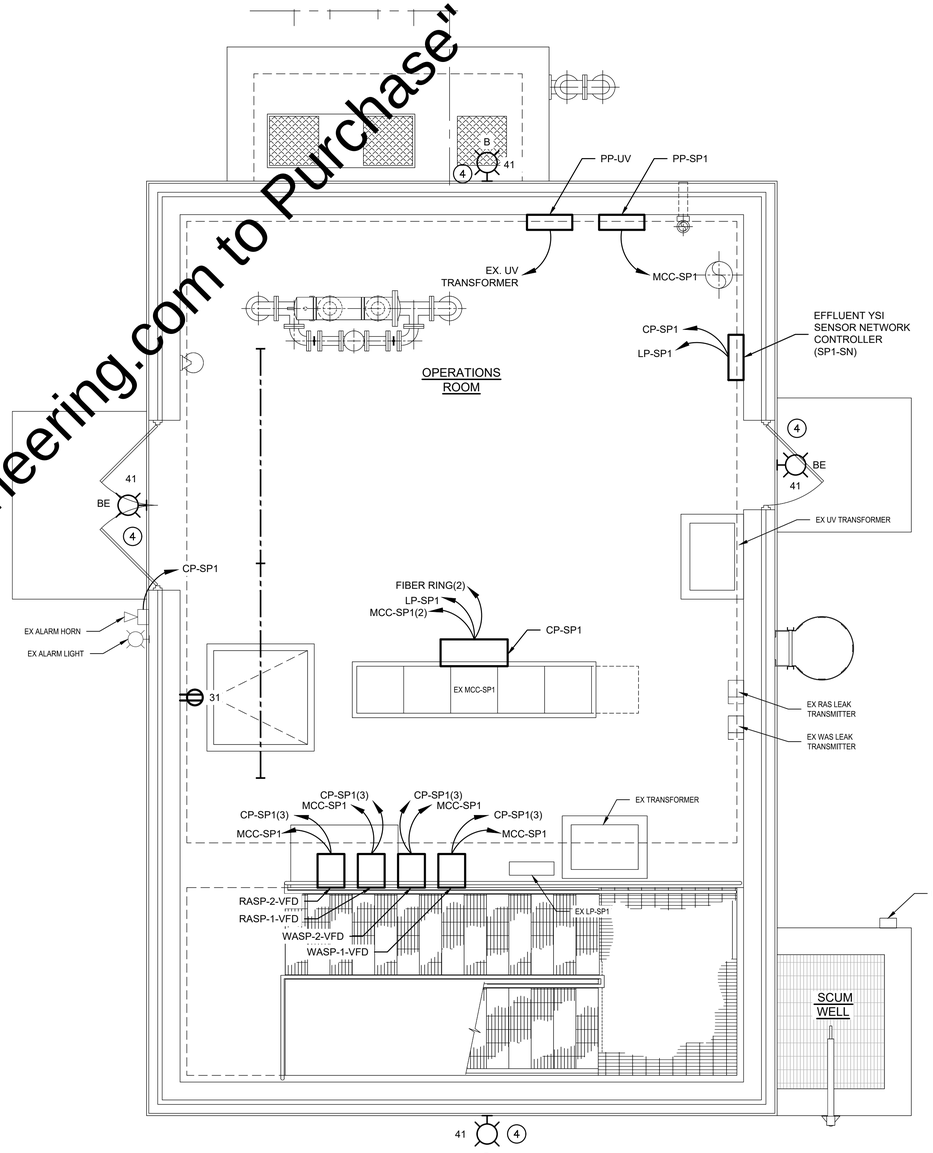
PAGE NO. 1~~9~~XX

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-00\1DWG\Sheets\Elect\162813-E-NEW Settling Tanks.dwg | Layout: FE02 | Plotted: 09/04/18 @ 09:16:22 | LastSavedBy: AllenS | Project No.: 162813-04-003



LOWER LEVEL ELECTRICAL PLAN

0 2 4 6 FT 3/8"=1'-0"



UPPER LEVEL ELECTRICAL PLAN

0 2 4 6 FT 3/8"=1'-0"

KEYED NOTES:

1. PROVIDE 6" HOUSEKEEPING PAD AS REQUIRED FOR NEW MCC SECTION.
2. ADD MCC SECTION 6 AS REQUIRED.
3. REPLACE EXISTING LIGHT FIXTURE WITH NEW LED FIXTURE TYPE 'H'. LIGHTING CIRCUITS ARE EXISTING.
4. REPLACE EXISTING LIGHT FIXTURE WITH NEW LED WALLPAK FIXTURE.

NOTES:

1. CORE DRILL THROUGH EXISTING FLOOR AS REQUIRED FOR NEW LOAD CONDUCTORS.

SCALE VERIFICATION	DRAWN BY	EAS
BAR IS ONE INCH LONG ON ORIGINAL DRAWING	CHECKED BY	BMS
	APPROVED BY	WCM
	ISSUE DATE	SEPTEMBER 4, 2018
	PROJECT NUMBER	162813-04-003

NO.	DATE	INITIALS	REVISION DESCRIPTIONS

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

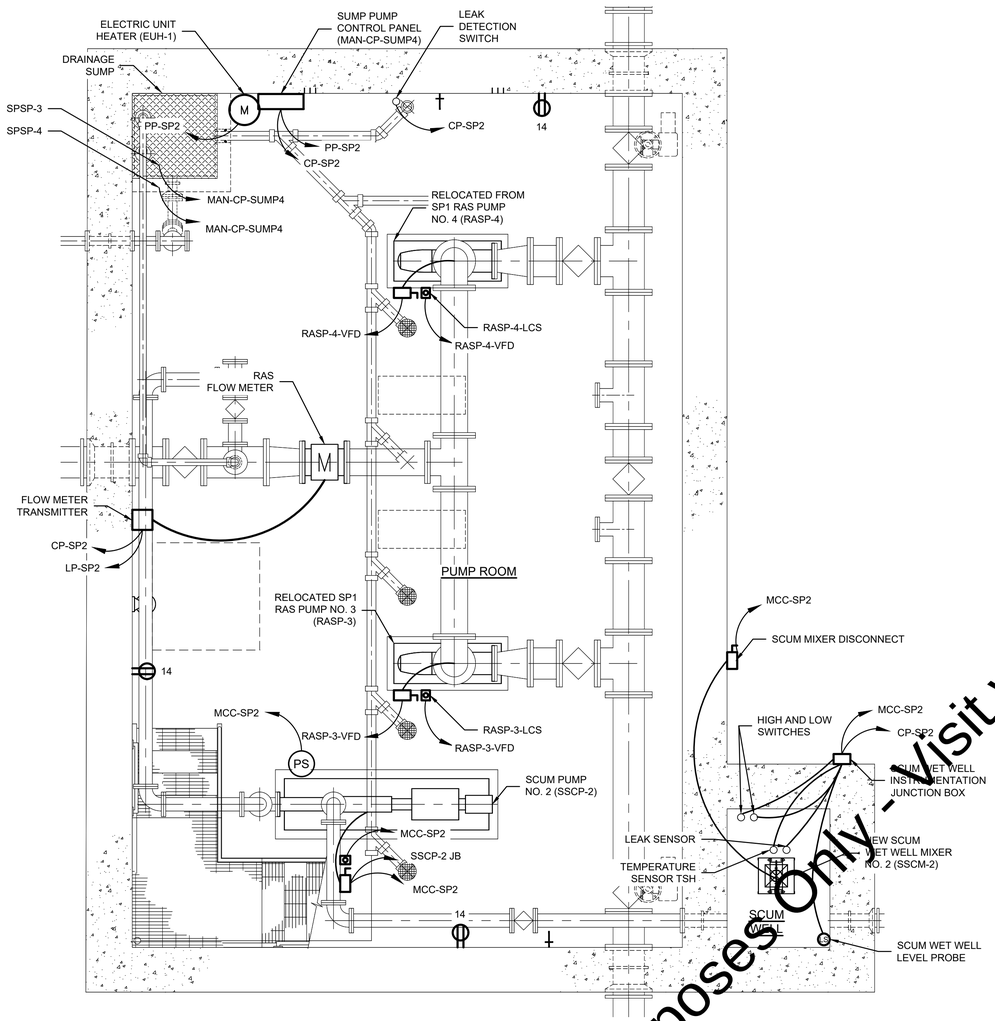
CITY OF WARSAW, INDIANA

EXISTING SLUDGE PUMP STATION NO. 1 ELECTRICAL PLAN

SHEET NO. **FE03**

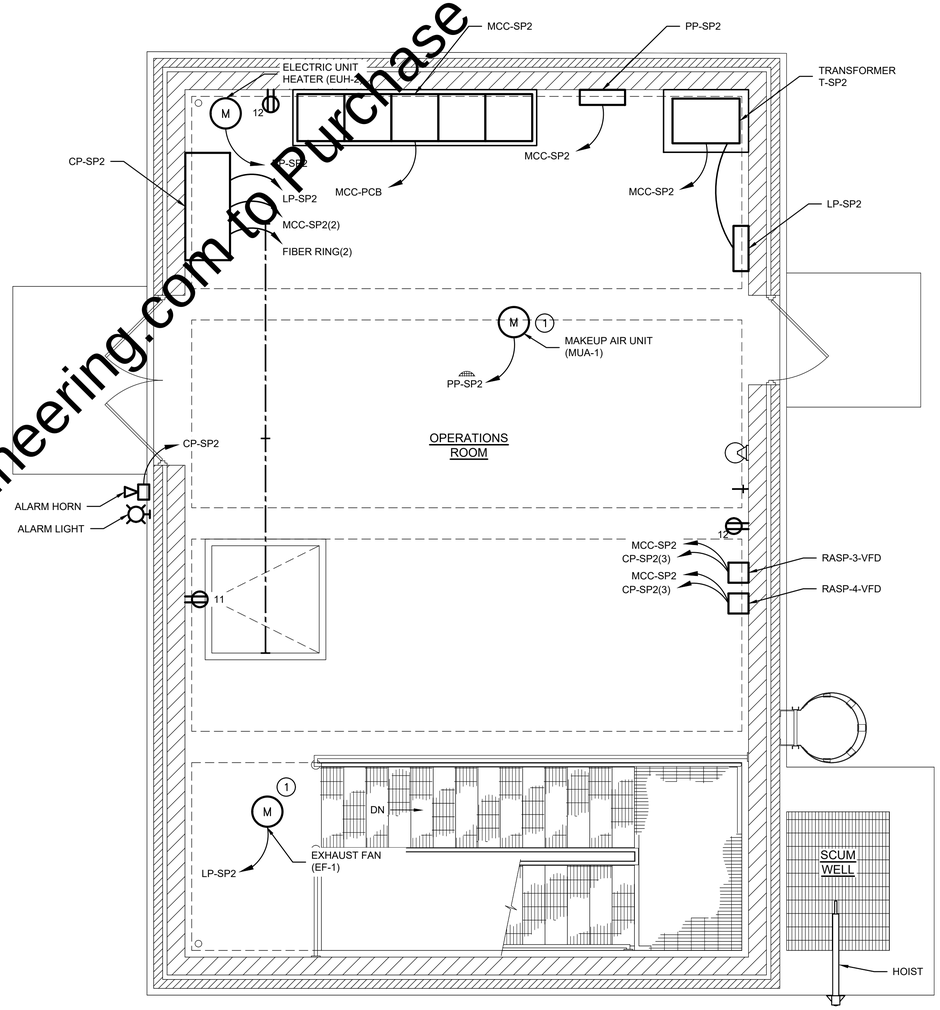
PAGE NO. 140

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD\ 04-00\10\DWG\Sheets\Elect\162813-E-Ex Sldg Pmp Sta.dwg | Layout: FE03 | Plotted: 09/04/18 @ 10:24:58 | LastSavedBy: JohnH | Project No.: 162813-04-003



LOWER LEVEL POWER PLAN

0 2 4 6FT
3/8"=1'-0"



KEYED NOTES:

(1) MECHANICAL EQUIPMENT ON ROOF. SEE MECHANICAL SHEETS FOR MORE INFORMATION.

UPPER LEVEL POWER PLAN

0 2 4 6FT
3/8"=1'-0"

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	PROJECT NUMBER	162813-04-003				

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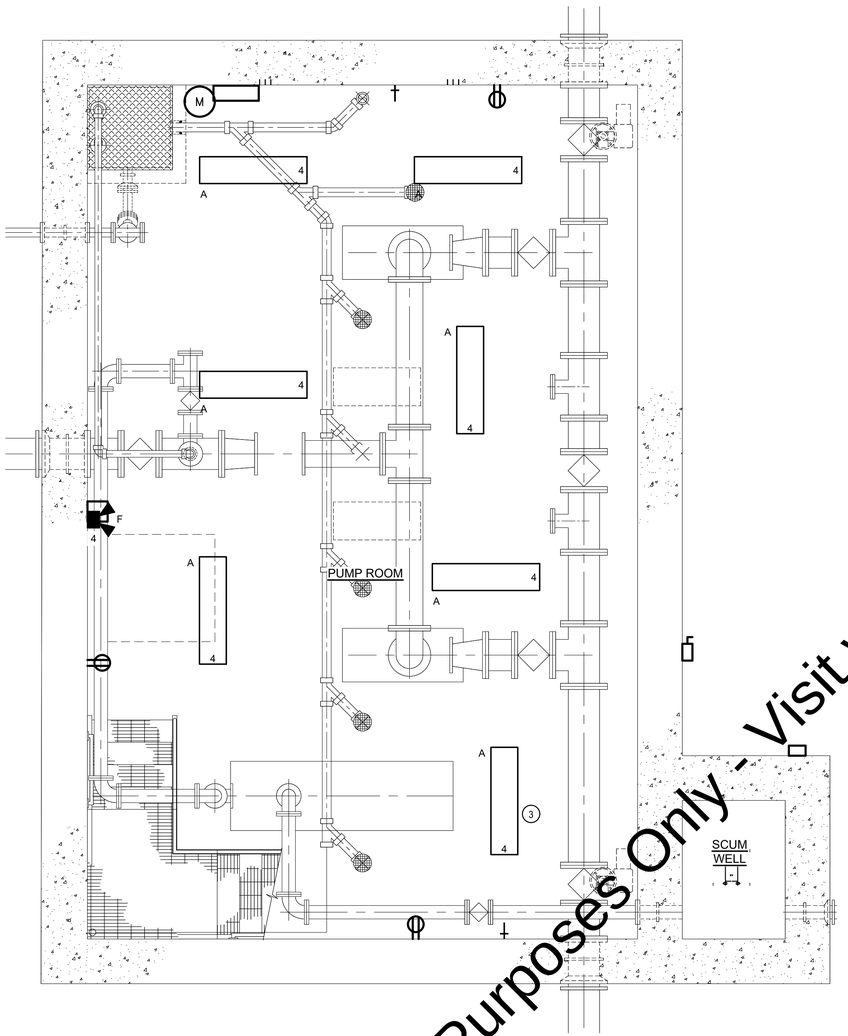
WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SLUDGE PUMP STATION NO. 2
POWER PLANS

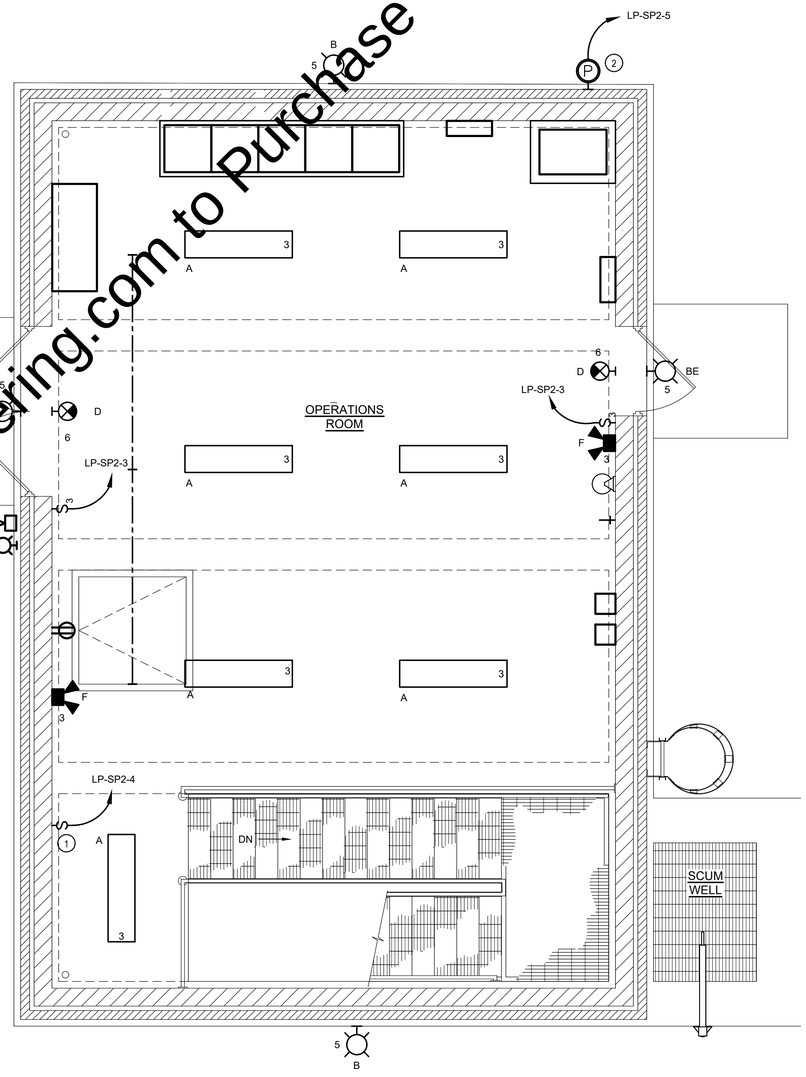
SHEET NO.
FE04
PAGE NO.
141

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-00\TIDWGS\Sheets\Elec\162813-E-NEW Sldg Pmp Sta - FE04.dwg | Layout: FE04 | Plotted: 09/04/18 @ 11:26:09 | LastSavedBy: JohnH | Project No.: 162813-04-003



LOWER LEVEL LIGHTING PLAN

0 2 4 6FT
3/8"=1'-0"



UPPER LEVEL LIGHTING PLAN

0 2 4 6FT
3/8"=1'-0"

KEYED NOTES:

1. LIGHT SWITCH FOR BASEMENT LIGHT FIXTURES.
2. MOUNT PHOTO CELL ON NORTH SIDE OF BUILDING.
3. THIS LIGHT FIXTURE MOUNTED UNDER STAIRWAY.

SCALE VERIFICATION	DRAWN BY	EAS	NO.	DATE	INITIALS	REVISION DESCRIPTIONS
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	PROJECT NUMBER	162813-04-003				

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WASTEWATER TREATMENT PLANT EXPANSION - 2017

CITY OF WARSAW, INDIANA

NEW SLUDGE PUMP STATION NO. 2
LIGHTING PLANS

SHEET NO.
FE05
PAGE NO.
142

Drawing: J:\Warsaw\Projects\162813 Warsaw WWTP Expansion\CAD 04-001\DWG\Sheets\Each\162813-E-NEW Sldg Pmp Sta - FE05.dwg | Layout: FE05 | Plotted: 09/04/18 @ 11:26:31 | LastSavedBy: JohnH | Project No.: 162813-04-003