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CITY OF MASSILLON

2013 WASTEWATER TREATMENT PLANT IMPROVEMENTS

MASSILLON, OHIO

CONTRACT DRAWINGS

CONTRACT NO. 2 - GENERAL CONSTRUCTION

STATE OF OHIO · WILLIAM A DORMAN 44196 · REGISTERED PROFESSIONAL ENGINEER

9-11-15

WILLIAM A. DORMAN (WAD)

STATE OF OHIO · WILLIAM J. MEINERT E-76089 · REGISTERED PROFESSIONAL ENGINEER

9/11/15

WILLIAM J. MEINERT (WJM)

STATE OF OHIO · Richard W. Reed E-67298 · REGISTERED PROFESSIONAL ENGINEER

9-11-15

RICHARD W. REED (RWR)

STATE OF OHIO · DAREK LETKIEWICZ E-77684 · REGISTERED PROFESSIONAL ENGINEER

9/11/15

DAREK LETKIEWICZ (DL)

STATE OF OHIO · KENNETH G. PRICE 70495 · REGISTERED PROFESSIONAL ENGINEER

9-14-15

KENNETH G. PRICE (KGP)

STATE OF OHIO · ROBERT BRODOWSKI 74129 · REGISTERED PROFESSIONAL ENGINEER

9/16/15

ROBERT F. BRODOWSKI (RFB)

STATE OF OHIO · DAVID B. KOHLMEIER E-69450 · REGISTERED PROFESSIONAL ENGINEER

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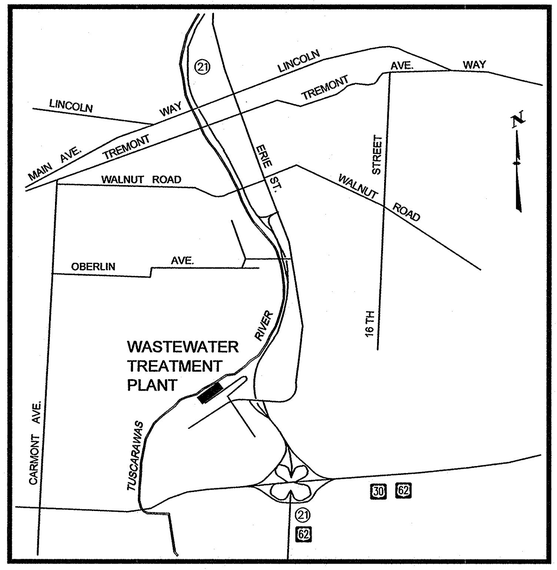
DAVID B. KOHLMEIER (DBK)



LOCATION MAP
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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702
PHONE: 330-455-7733

O'BRIEN & GERE

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JOEL SMITH	SAFETY/SERVICE DIRECTOR
JAYNE FERRERO	AUDITOR
MAUDE SLAGLE	TREASURER
PERICLES G. STERGIOS	LAW DIRECTOR
KEITH A. DYLEWSKI, P.E., P.S.	CITY ENGINEER
TONY ULRICH	MANAGER WASTEWATER TREATMENT DEPARTMENT

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APPROVED BY:

KEITH A. DYLEWSKI, P.E., P.S.
CITY ENGINEER

9/11/15
DATE

JOEL SMITH
DIRECTOR OF PUBLIC SERVICE AND SAFETY

9/11/15
DATE

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1	9/23/2015	ISSUED FOR BID	WJM
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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

GENERAL

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DATE MARCH 19, 2015

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GENERAL

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DATE MARCH 19, 2015

G-002

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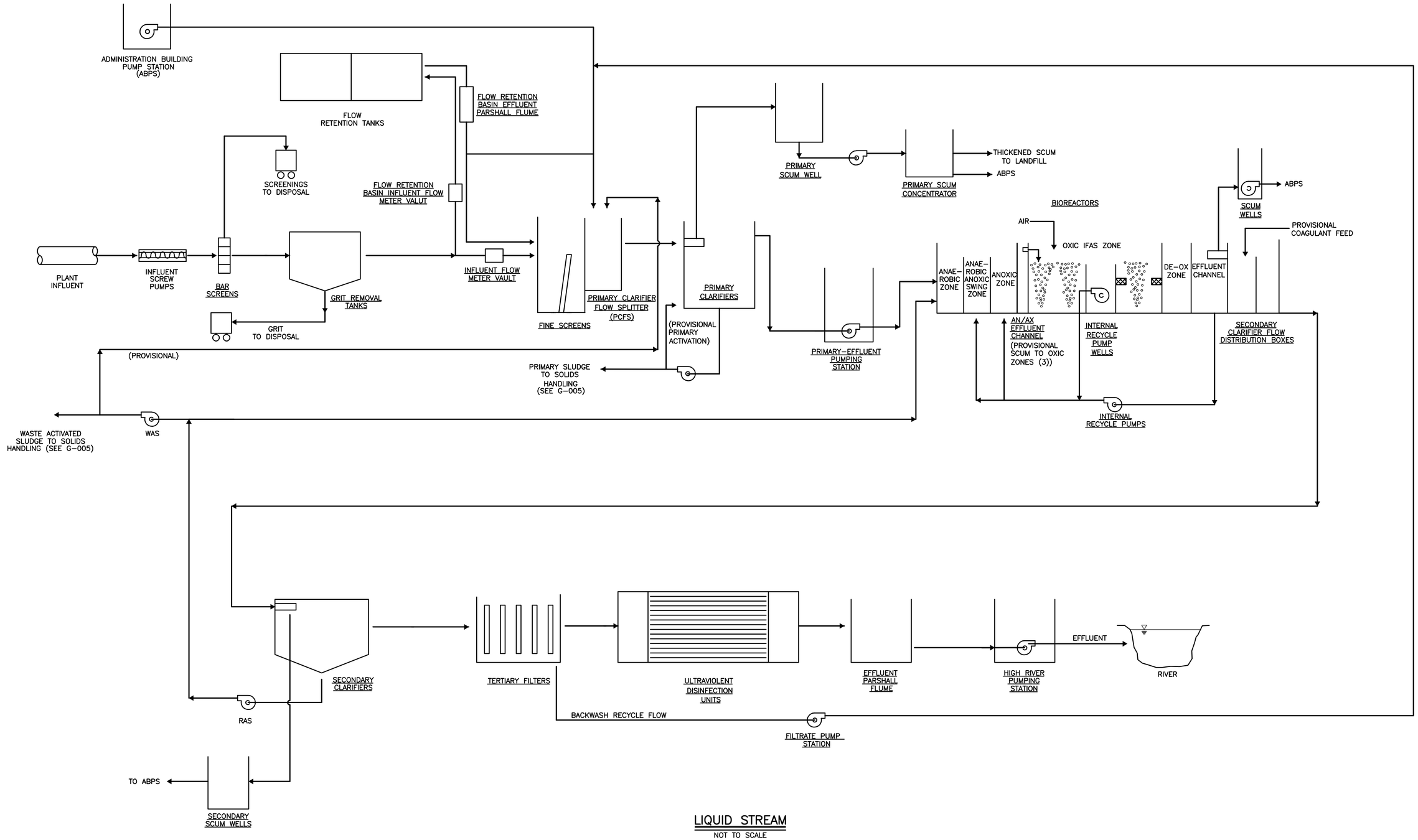

LIQUID STREAM

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CHECKED BY WJM
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MASSILLON, OHIO

GENERAL

LIQUID PROCESS FLOW DIAGRAM

FILE NO. 23374.51633 -G004
DATE MARCH 19, 2015

G-004

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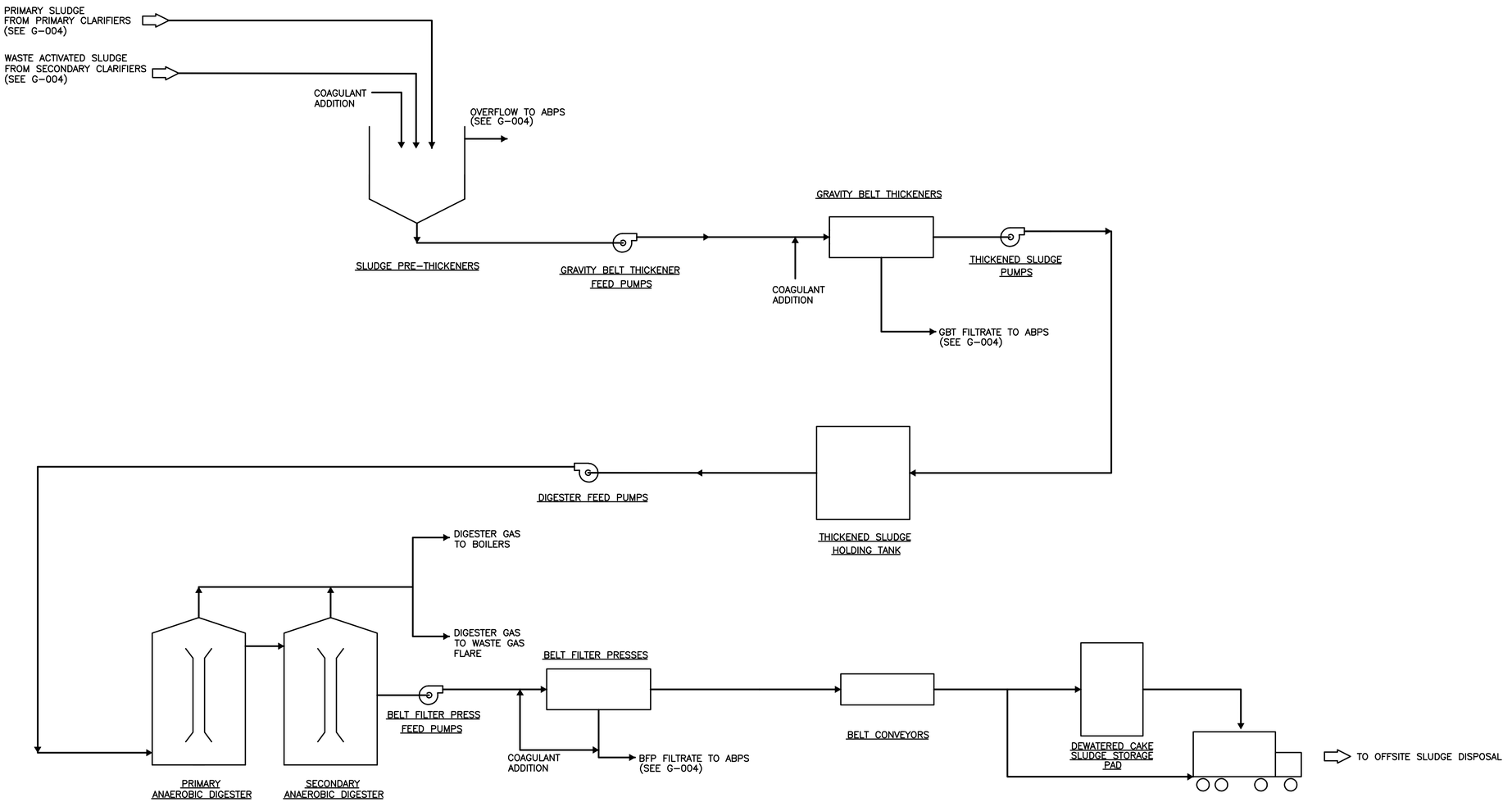

SOLIDS STREAM

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GENERAL

SOLIDS PROCESS FLOW DIAGRAM

FILE NO. 23374.51633 -G005
DATE MARCH 19, 2015

G-005

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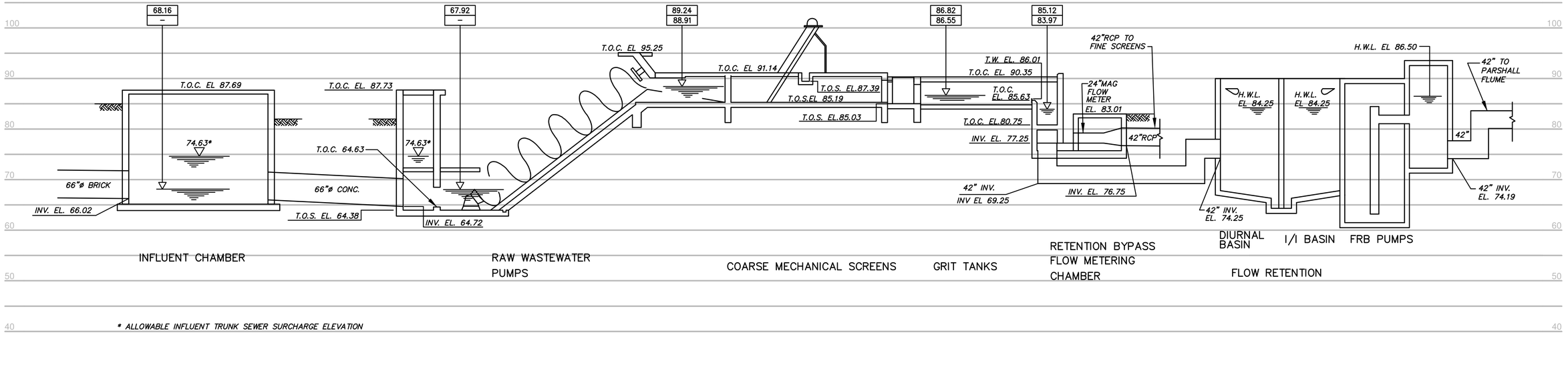
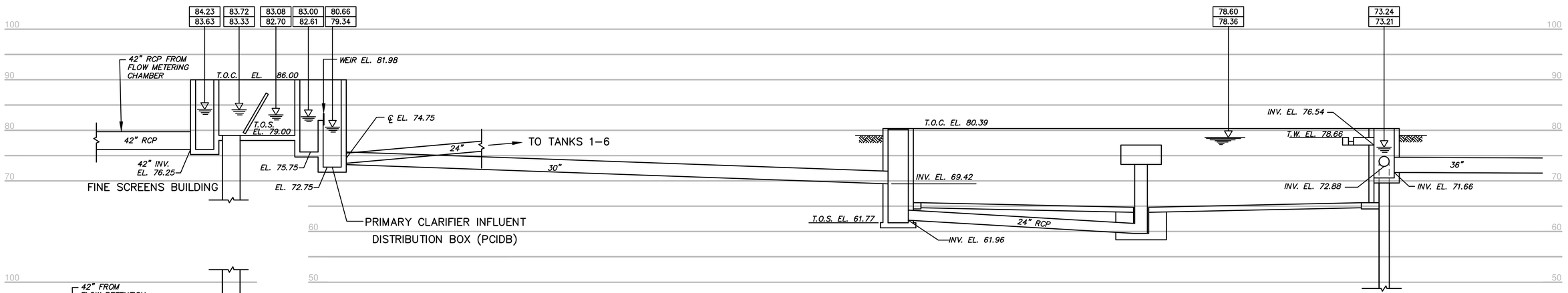


* ALLOWABLE INFLUENT TRUNK SEWER SURCHARGE ELEVATION



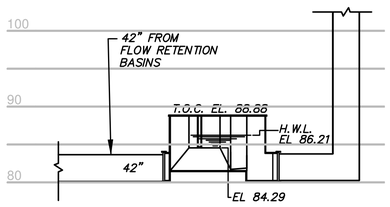
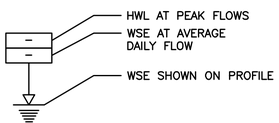
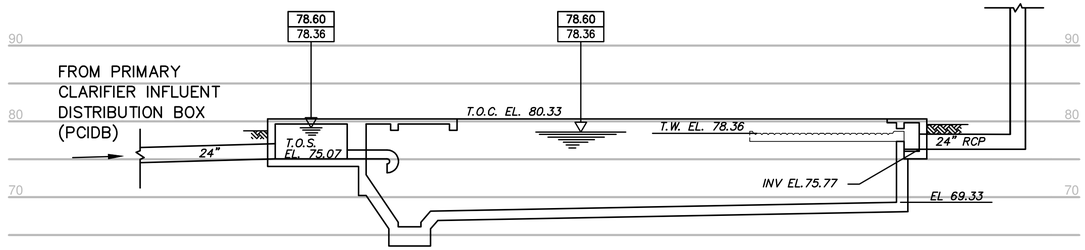


TABLE OF FLOWS	
AVERAGE DAILY FLOW	17 MGD
PEAK WET WEATHER FLOW	42.5 MGD
INFLUENT SCREW PUMP	31.5 MGD
FLOW RETENTION BASIN PUMP	22 MGD
FINE SCREENS (MAX WITH RECYCLE)	27 MGD
PRIMARY EFFLUENT PUMP STATION	27 MGD
DAILY PEAK HOURLY DIURNAL FORWARD FLOW DOWNSTREAM OF GRIT PROCESS	22 MGD





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MASSILLON, OHIO

GENERAL

HYDRAULIC PROFILE I

FILE NO. 23374.51633 - G006
DATE MARCH 19, 2015
G-006

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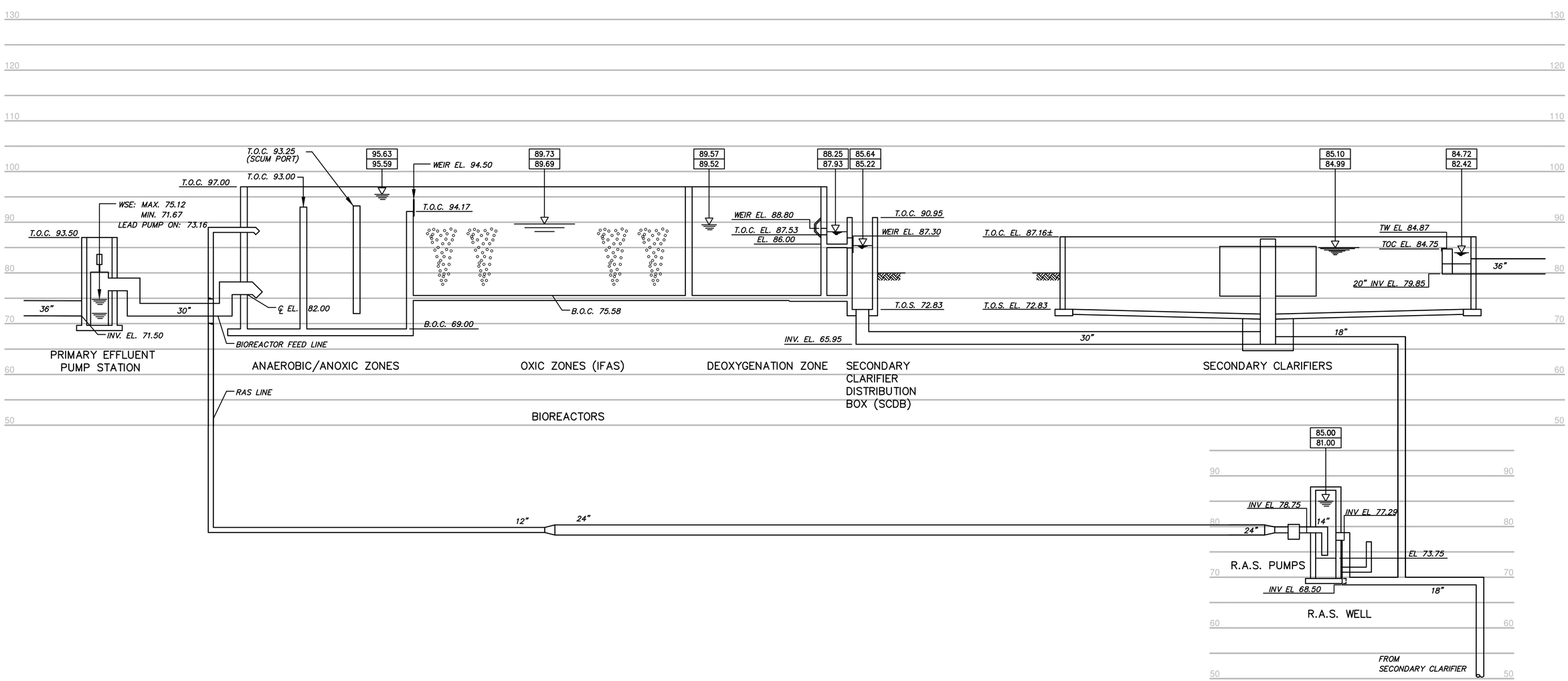

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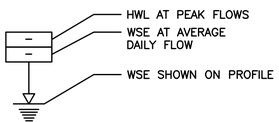

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GENERAL

HYDRAULIC PROFILE II

FILE NO. 23374.51633 - G007
DATE MARCH 19, 2015

G-007

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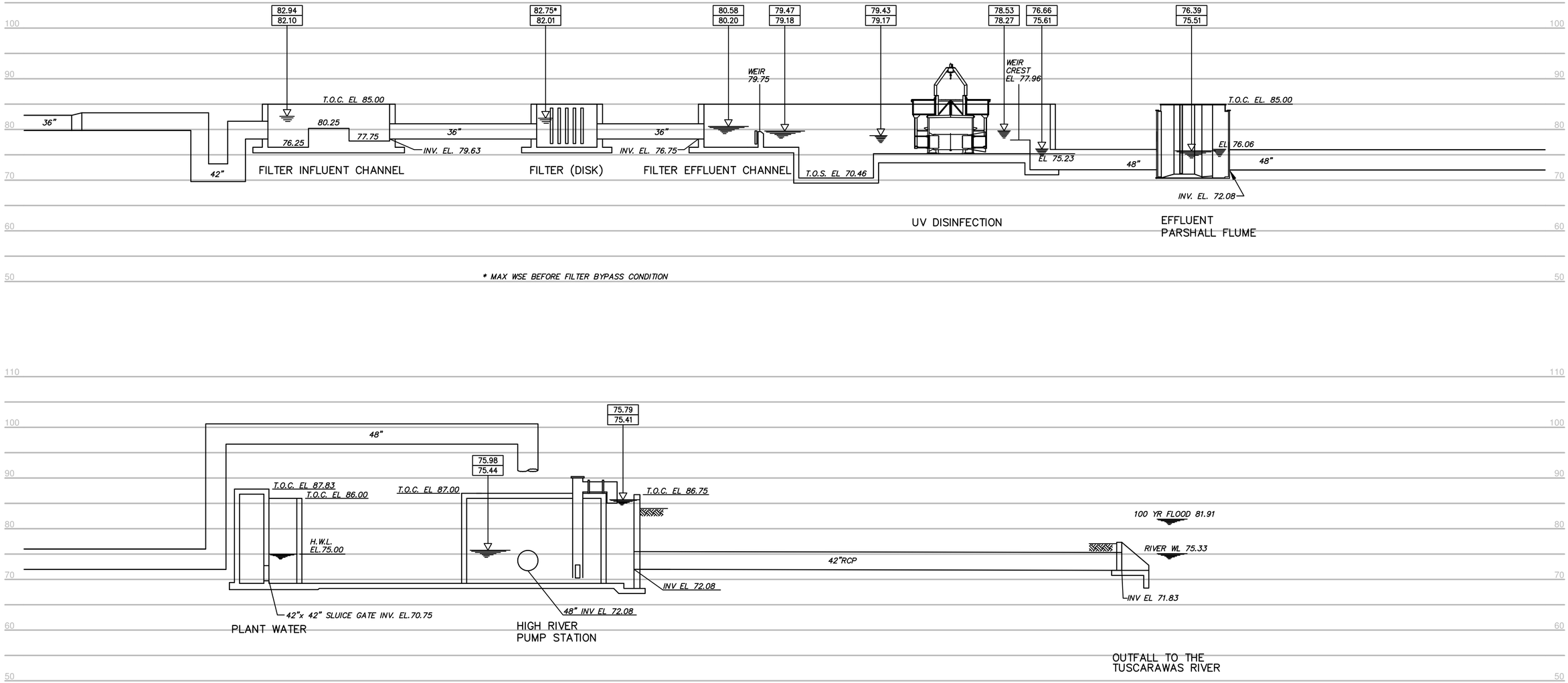

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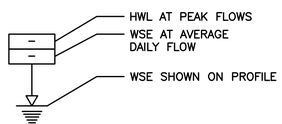

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HYDRAULIC PROFILE III

FILE NO. 23374.51633 - G008
DATE MARCH 19, 2015

G-008

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ABBREVIATIONS

A

AB	ANCHOR BOLT
ACP	ASBESTOS CEMENT PIPE
ADJT	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATIVE
ALUM	ALUMINUM
@	AT
ASPH	ASPHALT
AUTO	AUTOMATIC
AVG	AVERAGE

B

BIP	BLACK IRON PIPE
BF	BLIND FLANGE OR BOTTOM FACE
BFP	BELT FILTER PRESS
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOS	BOTTOM OF SLAB
BOT	BOTTOM
BRG	BEARING
BTF	BIOTRICKLING FILTER TOWER

C

CB	CATCH BASIN
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CIP	CAST IRON PIPE
℄ , C/L	CENTERLINE
C/C	CENTERLINE TO CENTERLINE
CL	CLEAR
CLG	CEILING
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CON	CONCENTRIC
CONC	CONCRETE
CONN	CONNECTION
CPR	COPPER
CJ	CONSTRUCTION JOINT
CONTR JT	CONTRACTION JOINT
CONST	CONSTRUCTION
CONT	CONTINUOUS
CPLG	COUPLING
CW	COLD WATER
CY	CUBIC YARD

D

DEMO	DEMOLITION
DIA	DIAMETER
DIG	DIGESTED
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
D.L.	DEAD LOAD
DO	DOOR OPENING, DISSOLVED OXYGEN
DSL	DIGESTED SLUDGE
DS	DOWN SPOUT OR DICONNECT SWITCH
DTL	DETAIL
DWG	DRAWING

E

E	EAST
EA	EACH
ECC	ECCENTRIC
ED	EQUIPMENT DRAIN
EF	EACH FACE
EFFL	EFFLUENT
ELEC	ELECTRICAL
EL	ELEVATION
ELB	ELBOW
EQ	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EJ	EXPANSION JOINT
EXP	EXPOSED
EXT	EXTERIOR

F

FA	FRESH AIR
FB	FLOOR BOX OR FOUNDATION BEAM
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FIBREINFP	FIBERGLASS REINFORCED POLYMERS
FIG	FIGURE
FIN	FINISHED
FLG	FLANGE
FLR	FLOOR
FD	FLOOR DRAIN
FLRET	FLOW RETENTION
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
FT	FEET OR FOOT
FTG	FOOTING

G

GA	GAUGE OR GAGE
GAL	GALLON
GALV	GALVANIZED
GBT	GRAVITY BELT THICKENER
GEN	GENERAL
GRD	GRADE OR GRADING

H

HB	HOSE BIBB
HC	HOLLOW CORE
HDPE	HIGH DENSITY POLYETHYLENE
HE	HEAT EXCHANGER
HK	HOOK(S)
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT	HIGH POINT
HS	HIGH SERVICE
HT	HEIGHT
HU	HEATING UNIT
HVAC	HEATING/VENTILATION AIR CONDITIONING
HWL	HIGH WATER LEVEL
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY

I

ID	INSIDE DIAMETER
IF	INSIDE FACE
IJ	ISOLATION JOINT
IN	INCHES
INFL	INFLUENT
INT	INTERIOR
INV	INVERT
IP	IRON PIN

J

JT	JOINT

L

LB	POUND
LG	LENGTH
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LPT	LOW POINT
LR	LONG RADIUS
LS	LOW SERVICE
LT	LEFT
LTG	LIGHTING
LWL	LOW WATER LEVEL

M

MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MISC	MISCELLANEOUS
MIN	MINIMUM
MJ	MECHANICAL JOINT
MK	MARK
MO	MASONRY OPENING OR MOTOR OPERATED

N

N	NORTH
NC	NORMALLY CLOSED
NF	NEAR FACE
NG	NATURAL GAS
NO	NORMALLY OPEN
No.	NUMBER
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL

O

OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVERHEAD
OPG	OPENING
OPP	OPPOSITE
OZ	OUNCE

P

PCF	POUNDS PER CUBIC FOOT
PCP	PUMP CONTROL PANEL
PE	PLAIN END
PEJM	PREMOLDED EXP. JT. MATERIAL
PL	PLATE
PLCS	PLACES
PLT	PLANT
PNL	PANEL
POT	POTABLE
PP	POLYPROPYLENE
PRCP	PRESTRESSED REINFORCED CONCRETE PIPE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWD	PLYWOOD

Q

QUAN	QUANTITY

R

R	RISE
RAD	RADIUS
RAS	RETURNED ACTIVATED SLUDGE
RB	ROOF BEAM
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RECIRC	RECIRCULATION
RED	REDUCER
REINF	REINFORCING
REQ'D	REQUIRED
RM	ROOM
RT	RIGHT
R/W	RIGHT OF WAY

S

S	SLAB, SOUTH
SAN	SANITARY
SCH	SCHEDULE
SEC	SECTION
SF	SQUARE FEET
SHT	SHEET
SJ	SAW JOINT
SIM	SIMILAR
SPC	SPACES
SPEC	SPECIFICATION
SPG	SPACING
SQ	SQUARE
SS	STAINLESS STEEL
ST	STRAIGHT
STA	STATION
STD	STANDARD
STIR	STIRRUPS
STL	STEEL
STR	STRUCTURAL
STM	STORM SEWER
SUP	SUPERNATENT
SY	SQUARE YARD
SYM	SYMMETRICAL
SW	SWITCH

T

TBM	TEMPORARY BENCHMARK
TF	TOP FACE
THK	THICKNESS
THKD	THICKENED
T	TOP
TOB	TOP OF BANK
TOC	TOP OF CONCRETE
TOS	TOP OF SLAB
T&B	TOP AND BOTTOM
TC	TOP OF COVER
T&G	TONGUE AND GROOVE
TP	TURNING POINT OR TANGENT POINT
TRANS	TRANSFER
TYP	TYPICAL

V

V	VACUUM
VAR	VARIES
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL

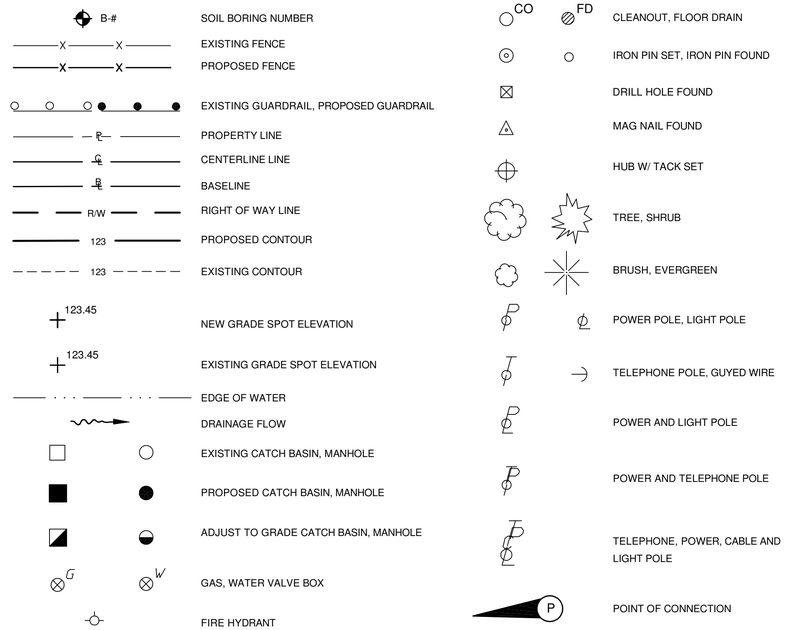
W

WAS	WASTE ACTIVATED SLUDGE
W	WATER OR WIDE
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WHA	WATER HAMMER ARRESTER
WL	WATER LEVEL OR WATER LINE
WWF	WELDED WIRE FABRIC

Y

YH	YARD HYDRANT

SITE PLAN SYMBOLS



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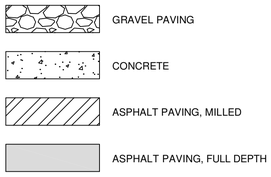

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ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE

SYMBOLS AND ABBREVIATIONS

FILE NO. 23374.51633 - C001
DATE MARCH 19, 2015

C-001

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GENERAL NOTES

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE OHIO EROSION AND SEDIMENT CONTROL REGULATIONS AND STANDARD DETAILS AND LOCAL AND STATE STORMWATER REGULATIONS AND AS SHOWN ON THE CONTRACT DOCUMENTS. THE REQUIRED MEASURES SHALL BE COMPLETE AND IN–PLACE PRIOR TO CONSTRUCTION.
2. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLETE SUCH WORK, AT NO ADDITIONAL COST TO THE CONTRACT.
3. IF THE CONTRACTOR HAS ANY QUESTIONS AS TO THE INTENT OF THESE PLANS AND SPECIFICATIONS, HE SHALL IMMEDIATELY BRING IT TO THE ATTENTION OF THE ENGINEER WHO SHALL RESPOND IN A TIMELY MANNER.
4. ANY REVISIONS TO THE ACCEPTED CONSTRUCTION PLANS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
5. ALL WORK MUST BE INSPECTED AND APPROVED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ENGINEER 48 HOURS PRIOR TO STARTING WORK.
6. ANY CHANGE IN THE PROPOSED IMPROVEMENTS MUST BE MADE BY CHANGE ORDER AND APPROVED BY THE ENGINEER.
7. THE CONTRACTOR SHALL BE REPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND SHALL NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES.
8. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS APPLICABLE TO CONSTRUCTION OF THIS PROJECT. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND PAY THE REQUIRED FEES.
9. THE CONTRACTOR SHALL LIMIT THEIR WORK AREA TO AREAS DESIGNATED HEREIN. ON–SITE STORAGE AND STAGING AREA SHALL BE DESIGNATED PRIOR TO CONSTRUCTION AND APPROVED BY THE OWNER AND ENGINEER.
10. REFERENCE TO "ODOT ITEM" OR "ODOT" REFERS TO ITEMS AND PARAGRAPHS IN THE "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (CMS) PUBLISHED BY THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT), STATE OF OHIO, 2013 EDITION. REFERENCE TO "DIRECTOR", ETC. IN THESE REFERENCES SHALL MEAN "ENGINEER". REFERENCE TO ODOT ITEMS AND PARAGRAPHS ARE FOR MATERIALS AND METHODS ONLY; MEASUREMENTS, ACCEPTANCES, PAYMENTS AND GENERAL CONTRACT PROVISIONS SHALL BE AS NOTED OR AS DESCRIBED IN THE CONTRACT DOCUMENTS FOR THIS PROJECT. A COPY OF THE CMS SHALL BE ON THE JOB SITE AT ALL TIMES DURING THE WORK.
11. CONTACT THE UTILITIES PROTECTION SERVICE AT 1–800–362–2764 THREE (3) WORKING DAYS BEFORE CONSTRUCTION BEGINS.
12. THE CONTRACTOR SHALL VERIFY FLOW LINE ELEVATIONS OF EXISTING SANITARY SEWERS, SANITARY LATERALS, PUMP STATIONS AND FORCE MAINS PRIOR TO WORK. ANY ADJUSTMENT OF GRADES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
13. ALL DISTURBED EARTH SHALL BE SEEDED AND MULCHED AS SOON AS POSSIBLE TO PRECLUDE EROSION. JUTE MATTING SHALL BE PLACED IN AREAS WHERE GRASS COVER CANNOT BE ESTABLISHED DUE TO STEEP SLOPES.
14. ALL TRENCHES WITHIN PAVEMENT OR DRIVEWAY AREAS SHALL BE BACKFILLED WITH ODOT ITEM 304 LIMESTONE AS APPROVED BY THE ENGINEER.
15. ROOF DRAINS, FLOOR DRAINS, AND ALL CLEAN WATER CONNECTIONS SHALL BE PROHIBITED FROM CONNECTING TO THE SANITARY SYSTEMS.
16. NO GROUND OR SURFACE WATER ENCOUNTERED DURING SEWER LINE EXCAVATION WILL BE ALLOWED TO ENTER THE SANITARY SEWER COLLECTION SYSTEM.
17. ALL POLLUTANTS OTHER THAN SEDIMENT THAT OCCUR ON–SITE DURING CONSTRUCTION SHALL BE HANDLED AND LEGALLY DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORM OR SURFACE WATERS. POLLUTANTS OF CONCERN INCLUDE, BUT ARE NOT LIMITED TO, FUELS, LUBRICANTS, SOLVENTS, CONCRETE BI–PRODUCTS AND CONSTRUCTION MATERIALS.
18. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SECURITY OF ALL STORED MATERIALS ON OWNER'S SITE.
19 THE CONTRACTOR SHALL COORDINATE WITH OWNER THE STORAGE OF STORED MATERIALS AND REMOVED EXISTING EQUIPMENT TO BE RETAINED.

STATIONING

ALL STATIONING SHOWN IS REFERENCED TO THE COORDINATE SYSTEM AS SHOWN. THE COORDINATE SYSTEM SHALL BE FIELD ESTABLISHED BY THE CONTRACTOR AND VERIFIED BY THE OWNER BEFORE STARTING WORK.

EXCAVATED MATERIAL

ALL EXCAVATED MATERIAL AND ALL MATERIAL USED IN CONSTRUCTION OF THE WORK SHALL BE PILED IN A MANNER THAT WILL NOT ENDANGER THE WORK AND THAT WILL LEAVE DRIVEWAYS, FIRE AND POLICE CALL BOXES OR OTHER CONTROLS UNOBSTRUCTED AND ACCESSIBLE WHILE THE WORK IS BEING COMPLETED. SATISFACTORY PROVISIONS SHALL BE MADE FOR STREET DRAINAGE, AND NATURAL WATERCOURSES SHALL NOT BE OBSTRUCTED. DURING THE PROGRESS OF THE WORK, ALL MATERIAL PILES SHALL BE KEPT TRIMMED UP AND MAINTAINED IN A NEAT MANNER. ALL EXCAVATED WASTE PAVEMENT MATERIAL SHALL BE REMOVED FROM THE PROJECT SITE.

ALL DISPOSAL OF EXCESS SOIL, DEBRIS AND MATERIALS MUST BE DONE IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. THERE SHALL BE NO DISPOSAL IN OR NEAR ANY WATER BODY, FLOODPLAIN, WETLAND, DRAINAGE COURSE OR ENVIRONMENTALLY SENSITIVE AREA, EVEN WITH PERMISSION OF THE PROPERTY OWNER.

PRESERVATION OF PROPERTY CORNERS AND SURVEY MARKERS

THE CONTRACTOR SHALL PRESERVE ALL CORNERSTONES, IRON PINS, AND CONCRETE MONUMENTS, OR ANY TYPE OF LAND MONUMENT. HE SHALL HAVE ALL LAND MONUMENTS IN THE PROXIMITY OF THE WORK REFERENCED. HE SHALL REPLACE DESTROYED OR DAMAGED MONUMENTS AND SHALL FURNISH CERTIFICATION BY AN OHIO REGISTERED SURVEYOR THAT THE MONUMENTS HAVE BEEN RESTORED.

PROTECTION OF EXISTING UTILITIES AND PIPES

THE CONTRACTOR SHALL BE REQUIRED, AT HIS EXPENSE, TO DO EVERYTHING NECESSARY TO PROTECT, SUPPORT AND SUSTAIN ALL SANITARY SEWERS, STORM DRAINS, WATER OR GAS PIPES, SERVICE PIPES, ELECTRIC LIGHTS, POWER AND TELEPHONE POLES, CONDUIT AND OTHER FIXTURES LAID ACROSS OR ALONG THE SITE OF THE WORK. THE ENGINEER AS WELL AS THE COMPANY OR CORPORATION OWNING SAID PIPES, POLES OR CONDUITS MUST BE NOTIFIED OF THE SAME BY THE CONTRACTOR, BEFORE ANY SUCH FIXTURES ARE REMOVED OR DISTURBED. IN CASE ANY OF THE SAID SEWER, DRAIN, GAS OR WATER PIPES, SERVICE PIPES, ELECTRIC LIGHT, POWER AND TELEPHONE POLES, CONDUITS OR OTHER FIXTURES ARE DAMAGED THEY SHALL BE REPAIRED BY THE AUTHORITIES HAVING CONTROL OF THE SAME AND THE EXPENSE OF SAID REPAIRS SHALL BE DEDUCTED FROM THE MONIES WHICH ARE DUE OR TO BECOME DUE THE CONTRACTOR UNDER THIS CONTRACT.

SHOULD IT BECOME NECESSARY TO CHANGE THE POSITION OR TEMPORARILY REMOVE ANY STORM DRAIN, SANITARY SEWER, ELECTRIC CONDUITS, WATER PIPES, GAS PIPES OR OTHER PIPES OR WIRES IN ORDER TO PERMIT THE CONTRACTOR TO USE A PARTICULAR METHOD OF CONSTRUCTION OR IN ORDER TO CLEAR THE STRUCTURES BEING BUILT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE LOCATION AND CIRCUMSTANCES AND SHALL CEASE WORK, IF NECESSARY, UNTIL SATISFACTORY ARRANGEMENTS HAVE BEEN MADE BY THE OWNERS OF SAID PIPES OR WIRES TO PROPERLY CARE FOR THE SAME. NO CLAIMS FOR DAMAGES WILL BE ALLOWED ON ACCOUNT OF ANY DELAY OCCASIONED THEREBY. THE ENTIRE COST OF THE CHANGES OR TEMPORARY REMOVAL MUST BE INCLUDED IN THE PRICES STIPULATED FOR THE VARIOUS ITEMS OF WORK TO BE DONE UNDER THIS CONTRACT.

CONTRACTOR AVAILABILITY

THE CONTRACTOR SHALL SUPPLY THE OWNER WITH A 24 HOUR PHONE NUMBER WHERE HE, THE CONTRACTOR, SHALL BE AVAILABLE FOR EMERGENCIES.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES PROTECTION

THE CONTRACTOR(S) AND SUBCONTRACTORS ARE REQUIRED UNDER OHIO REVISED CODE SECTION 149.53 TO NOTIFY THE OHIO HISTORICAL SOCIETY AND THE OHIO HISTORIC SITE PRESERVATION BOARD OF ARCHAEOLOGICAL DISCOVERIES LOCATED IN THE PROJECT AREA, AND TO COOPERATE WITH THOSE ENTITIES IN ARCHAEOLOGICAL AND HISTORIC SURVEYS AND SALVAGE EFFORTS FOR DISCOVERIES IN THE PROJECT AREA. IN CASE OF AN ARCHAEOLOGICAL DISCOVERY OR DAMAGE TO A POTENTIAL HISTORIC RESOURCE, CONTACT OHIO EPA–DEFA (614–644–3667) AND OHIO HISTORIC PRESERVATION OFFICE (614–297–2470).

NOISE CONTROL PRACTICES

CONSTRUCTION SHALL BE LIMITED TO DAYTIME HOURS. CONSTRUCTION EQUIPMENT WILL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS AS REQUIRED BY SAFETY STANDARDS.

PAVEMENT REPLACEMENT

THE CONTRACTOR SHALL PERFORM ALL PAVEMENT REPLACEMENT CONSTRUCTION ACCORDING TO THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS AS SHOWN ON THESE DRAWINGS.

UNDERGROUND UTILITIES

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS HAS BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED TO BE ESSENTIALLY CORRECT, BUT NEITHER THE OWNER NOR THE ENGINEER ENSURES THEIR ACCURACY OR COMPLETENESS.

THE CONTRACTOR SHALL VERIFY WITH THE OWNERS THE LOCATIONS OF ALL PUBLIC AND PRIVATE UTILITIES WHICH MAY BE AFFECTED BY THE CONSTRUCTION. THE LOCATION OF UTILITIES AND STRUCTURES, BOTH SURFACE AND SUBSURFACE, ARE SHOWN ON THE DRAWINGS FROM DATA AVAILABLE AT THE TIMES OF SURVEY AND ARE NOT NECESSARILY COMPLETE OR CORRECT. THE EXACT LOCATION AND PROTECTION OF UTILITIES AND STRUCTURES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST THREE (3) WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO CONSTRUCTION TO HAVE THE UTILITIES STAKED, MARKED OR OTHERWISE DESIGNATED IN THE CONSTRUCTION AREA. STAKING, MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY THREE (3) DAYS AHEAD OF THE PLANNED CONSTRUCTION.

THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF THE UTILITY OR STRUCTURE AND ITS EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY OWNER.

THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS ON ALL LOCATIONS WHERE EXISTING UTILITIES ARE TO BE CROSSED OR ALTERED OR WHERE NEW CONSTRUCTION TIES INTO EXISTING FACILITIES. THE CONTRACTOR SHALL PROVIDE FITTINGS AND ADAPTERS AS REQUIRED TO EFFECT ALTERATIONS, IF ANY.

O.S.H.A. PROHIBITS CRANE OR BACKHOE OPERATIONS WITHIN TEN (10) FEET OF ENERGIZED PRIMARY CONDUCTORS. TEMPORARY RELOCATION OF ELECTRICAL UTILITIES INCLUDING RESTRAINT POLES, RELOCATION OF POLES AND RUBBER COVERING OF ENERGIZED CONDUCTORS MAY BE REQUIRED. THE COORDINATION AND COSTS OF THESE SERVICES IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MAY RESTRAIN POLES IF THE METHOD OR SUPPORT HAS BEEN SUBMITTED TO AND APPROVED BY THE UTILITY OWNER.

EXISTING UTILITY (GAS, ELECTRICAL, CABLE TELEVISION, TELEPHONE, WATER LINE, STORM OR SANITARY SEWER, WATER LINE, STORM OR SANITARY SEWER APPURTENANCE, ETC.) IN OR OUTSIDE THE CONSTRUCTION LIMITS DAMAGED DURING THE CONSTRUCTION OF THE PROPOSED PROJECT, WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE. INDIVIDUAL SANITARY, STORM, GAS, WATER, ELECTRIC AND TELEPHONE AND CABLE SERVICE CONNECTIONS ARE NOT SHOWN. THE CONTRACTOR SHALL LOCATE AND PROTECT SERVICE CONNECTIONS THROUGHOUT THE COURSE OF THE WORK. IN THE EVENT SERVICE CONNECTIONS ARE BROKEN OR DISTURBED, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SERVICE CONNECTION TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

A MINIMUM 10–FOOT HORIZONTAL SEPARATION (MEASURED OUT–TO–OUT CLEAR) BETWEEN THE PROPOSED SANITARY SEWER AND EXISTING WATER LINES SHALL BE MAINTAINED.

A MINIMUM 18" VERTICAL CLEARANCE (MEASURED OUT–TO–OUT CLEAR) BETWEEN THE PROPOSED SANITARY SEWER AND EXISTING WATER LINES SHALL BE MAINTAINED.

ACCESS TO ALL DRIVEWAYS AND PARKING AREAS WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. ALL OPEN TRENCHES SHALL BE BACKFILLED AS SOON AS POSSIBLE.

MATERIAL DISPOSAL AND TEMPORARY SURFACES

THE REMOVAL AND DISPOSAL OF ALL SURPLUS EXCAVATED MATERIAL AND CONSTRUCTION DEBRIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR ULTIMATE DISPOSAL. THE DISPOSAL OF ALL WASTE MATERIAL SHALL BE AT APPROVED LANDFILLS AND/OR OTHER SITES APPROVED BY THE OWNER AND ENGINEER. THE CONTRACTOR SHALL OBTAIN ALL APPROVALS, PERMITS, LICENSES, ETC. FROM THE LOCAL, STATE AND FEDERAL AGENCIES AND/OR PRIVATE LAND OWNERS. THE CONTRACTOR SHALL FURNISH THE ENGINEER A COPY OF ALL APPROVAL OR WRITTEN PERMISSION PRIOR TO DISPOSING OF ANY WASTE AT SAID SITE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE RESTORATION OF ALL MATERIAL WASTE AREAS USED IN THE COURSE OF THE CONTRACT. THE RESTORATION WORK SHALL INCLUDE CLEANUP, SHAPING AND GRADING AND ESTABLISHMENT OF VEGETATIVE COVER BY SEEDING AND MULCHING IN ACCORDANCE WITH SPECIFICATION NO 32 92 00. THE FINAL GRADING OF WASTE AREAS SHALL BE PROPERLY SLOPED TO PROVIDE DRAINAGE RUNOFF. ALL ROCKS, BOULDERS AND CONCRETE CHUNKS SHALL BE BURIED WITHIN THE WASTE AREA TO A DEPTH OF AT LEAST TWO (2) FEET AND SHALL NOT BE VISIBLE AT COMPLETION.

TRANSPORTATION AND SAFETY PRACTICES

THE CONTRACTOR IS RESPONSIBLE FOR THE CONTROL OF DUST AND DEBRIS ON "BIG INDIAN DRIVE SW" AND ANY OTHER PUBLIC ROAD ACCESSED BY CONSTRUCTION ENTRANCES AS A RESULT OF CONSTRUCTION VEHICLES ENTERING AND LEAVING THE PROJECT SITE DURING CONSTRUCTION.

THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE EXISTING CITY OF MASSILLON WASTEWATER TREATMENT FACILITY INCLUDING PROCESS TREATMENT UNITS WITHIN AT ALL TIMES.

CONTRACTOR SHALL COMPLY AND BE SOLEY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REQUIREMENTS DURING ALL PHASES OF CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL VISITORS TO THE CONSTRUCTION SITE.

THE CONTRACTOR SHALL KEEP ALL EXISTING AND PROPOSED PAVEMENTS CLEAR OF MUD, GRAVEL, GREASES, AND OILS, AND THE RIGHT–OF–WAY CLEAR OF EQUIPMENT AND MATERIALS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR BARRICADING AND/OR FENCING AREAS THAT ARE DEEMED UNSAFE BY OWNER OR ENGINEER.

DRAWINGS

IN GENERAL, BOLD LINE WEIGHT (OR BOLD TEXT) INDICATES NEW WORK. EXISTING STRUCTURES AND EQUIPMENT ARE CALLED FOR AS "EX" OR INDICATED IN LIGHT LINE WEIGHT. INDIVIDUAL DRAWINGS MAY HAVE SPECIFIC NOTATIONS FOR CLARITY BETWEEN NEW AND EXISTING WORK.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF WAD
DESIGNED BY RWR
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WAD
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL

GENERAL NOTES

FILE NO. 23374.51633 - C002
DATE MARCH 19, 2015

C-002

E:\E14007 MASSILLON WWTP IMPROVEMENTS\DWG\SHEETS\C-002 GENERAL NOTES.DWG

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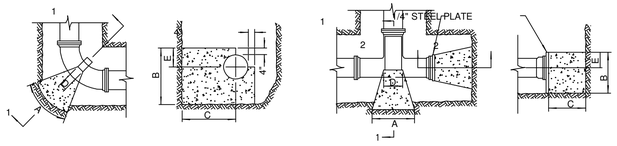


PLAN
45°, 22-1/2°, 11-1/4°

SECTION 1-1

PLAN
DEAD END OR TEE

SECTION 2-2

TABLE OF DIMENSIONS

DIA	11-1/4° BEND			22-1/2° BEND			45° BEND			TEE-DEAD END		
	A	B	C.Y.	A	B	C.Y.	A	B	C.Y.	A	B	C.Y.
4"							1'-0"	1'-0"	0.08	1'-1"	1'-0"	0.08
6"				1'-0"	1'-0"	0.08	1'-7"	1'-2"	0.12	1'-10"	1'-4"	0.15
8"	1'-0"	1'-0"	0.97	1'-5"	1'-2"	0.11	2'-5"	1'-4"	0.17	2'-6"	1'-8"	0.23
10"	1'-2"	1'-2"	0.09	2'-0"	1'-4"	0.15	3'-0"	1'-8"	0.25	3'-4"	2'-0"	0.32
12"	1'-5"	1'-4"	0.23	2'-6"	1'-6"	0.35	3'-8"	2'-0"	0.58	4'-1"	2'-4"	0.82
14"	1'-8"	1'-6"	0.28	3'-0"	1'-8"	0.45	4'-3"	2'-4"	0.95	4'-10"	2'-8"	1.05
16"	2'-0"	1'-8"	0.33	3'-4"	2'-0"	0.58	4'-10"	2'-8"	1.15	5'-7"	3'-0"	1.30
18"	2'-4"	1'-10"	0.53	3'-7"	2'-4"	0.95	5'-6"	3'-0"	1.91	6'-1"	3'-6"	2.18
20"	2'-7"	2'-0"	0.61	3'-10"	2'-8"	1.15	6'-1"	3'-4"	1.91	6'-7"	4'-0"	2.62
24"	3'-5"	2'-2"	0.97	5'-0"	3'-0"	1.91	6'-1"	3'-10"	1.91	8'-6"	4'-6"	4.47

DIMENSION C
4" - 10" DIA. = 2'-0"
12" - 16" DIA. = 3'-0"
18" - 20" DIA. = 4'-0"
24" DIA. = 5'-0"

DIMENSION C
4" - 10" DIA. = 1'-0"
12" - 24" DIA. = 2'-0"

DIMENSION C
FOR ALL DIAMETERS
E = D/2 + 4"

NOTE:
BLOCKING DESIGN BASED ON WORKING PRESSURE 150 psi + 100 psi WATER HAMMER AND SOIL BEARING 3000 PSF

NOTE: ALL CONCRETE BLOCKING MUST HAVE ITS ENTIRE FACE (A & B) BEARING AGAINST UNDISTURBED SOIL

THRUST BLOCK DETAILS

NOT TO SCALE

WORKING PRESSURE UP TO 150 psi
FOR BENDS IN HORIZONTAL PLAN

MINIMUM AREA TO BE PROVIDED
AREA(S.F.)=WxD

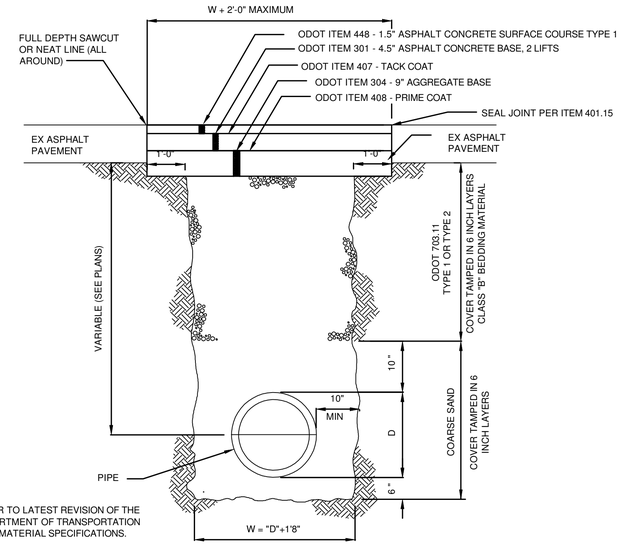
SIZE	90°BEND	45°BEND	TEE	VALVE
2"	1.3	0.7	0.9	3.0
4"	1.3	0.7	0.9	3.0
6"	2.7	1.3	1.9	3.0
8"	4.7	2.5	3.3	3.75
10"	7.6	4.1	5.5	6.0
12"	10.9	5.9	7.6	6.75
14"	14.6	7.9	10.3	8.0
16"	19.0	10.3	13.4	9.5
18"	21.2	11.5	15.0	-
20"	23.9	14.0	18.5	-
24"	36.1	20.0	26.1	-

NOTE:

- FLEXIBLE ADAPTOR TO BE USED AT A CONNECTION OF DISSIMILAR PIPE. CONCRETE COLLARS NOT ACCEPTABLE.
- TABLE BASED ON 150 P.S.I.(MAX.) AND A SAFE BEARING LOAD OF 3000#/S.F.
- CONTRACTOR SHALL SUBMIT PROPOSED BLOCKING WHENEVER A SAFE BEARING LOAD OF 3000#/S.F. IS NOT AVAILABLE.
- COST OF ADDITIONAL BLOCKING TO BE INCLUDED IN THE UNIT PRICES BID.

CONCRETE BLOCKING DETAILS

NOT TO SCALE



NOTE:

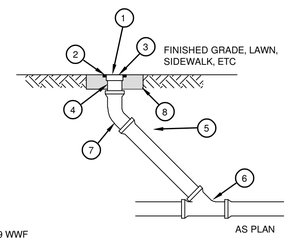
ITEM NUMBERS REFER TO LATEST REVISION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

PIPE BEDDING DETAIL

NOT TO SCALE

LEGEND

1. BPS-3-1/2:CSK PLUG (SQUARE COUNTERSUNK) BRASS PLUG SCREWS INTO FEMALE BRASS INSERT PRESSED INTO RUBBER GASKET W/ COVER PLATE
2. RUBBER GASKET INSERT
3. CAST IRON XH SOIL PIPE
4. CLEANOUT ZURN Z-1402
5. BACKFILL COMPACTED TO 95% OF MAXIMUM DRY DENSITY
6. WYE DIP OR CAST IRON
7. 45° ELBOW DIP OR CAST IRON
8. 2'-0" SQ. CONC PAD, 6" THK W/ 6"x 6" W 2.9x W2.9 WWF



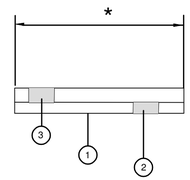
AS PLAN

NOTE:

SIZE OF CLEANOUT PIPE SAME AS PLAN

CLEANOUT DETAIL

NOT TO SCALE



1. COMPACTED SUBGRADE
2. 4" ODOT ITEM 304 AGGREGATE BASE
3. 6" CONC W/ 6"x 6" W 2.9x W2.9 WWF.
* WIDTH AS SHOWN ON DRAWING

SIDEWALK TYPICAL SECTION

NOT TO SCALE

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IN CHARGE OF WAD
DESIGNED BY RWR
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL

GENERAL DETAILS

FILE NO. 23374.51633 -C003
DATE MARCH 19, 2015

C-003

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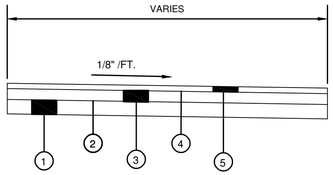
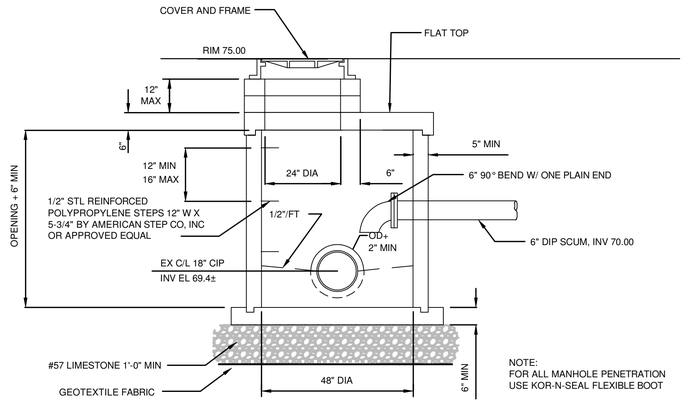


ITEM LEGEND

1. ODOT ITEM 304 - 9" AGGREGATE BASE
2. ODOT ITEM 408 - PRIME COAT
3. ODOT ITEM 301 - 4.5" ASPHALT CONCRETE BASE, 2 LIFTS
4. ODOT ITEM 407 - TACK COAT
5. ODOT ITEM 448 - 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE 1

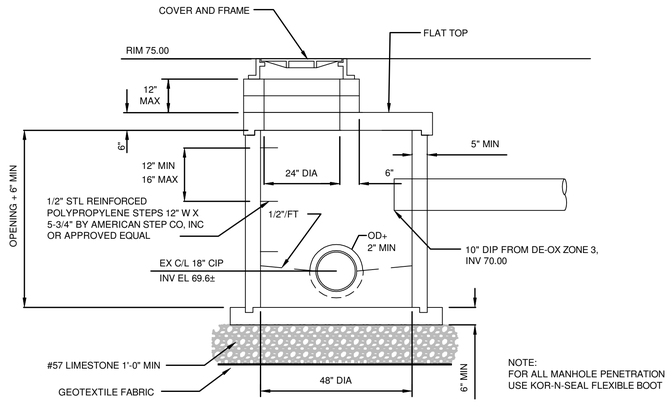
FULL DEPTH ASPHALT PAVEMENT TYPICAL SECTION

NOT TO SCALE



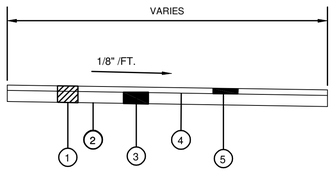
MANHOLE FOR SCUM PIPE

NOT TO SCALE



MANHOLE FOR TANK DRAIN 10" PIPE CONNECTION

NOT TO SCALE



ITEM LEGEND

1. ODOT ITEM 254 - PAVEMENT PLANNING, ASPHALT CONCRETE, 3" (1 1/2" CART PATH)
2. ODOT ITEM 407 - TACK COAT
3. ODOT ITEM 448 - 1.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (EXCLUDE CART PATH)
4. ODOT ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (EXCLUDE CART PATH)
5. ODOT ITEM 448 - 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE 1

FULL DEPTH ASPHALT PAVEMENT AND RESURFACING TYPICAL SECTION

NOT TO SCALE

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL

GENERAL DETAILS

FILE NO. 23374.51633 - C004

DATE MARCH 19, 2015

C-004

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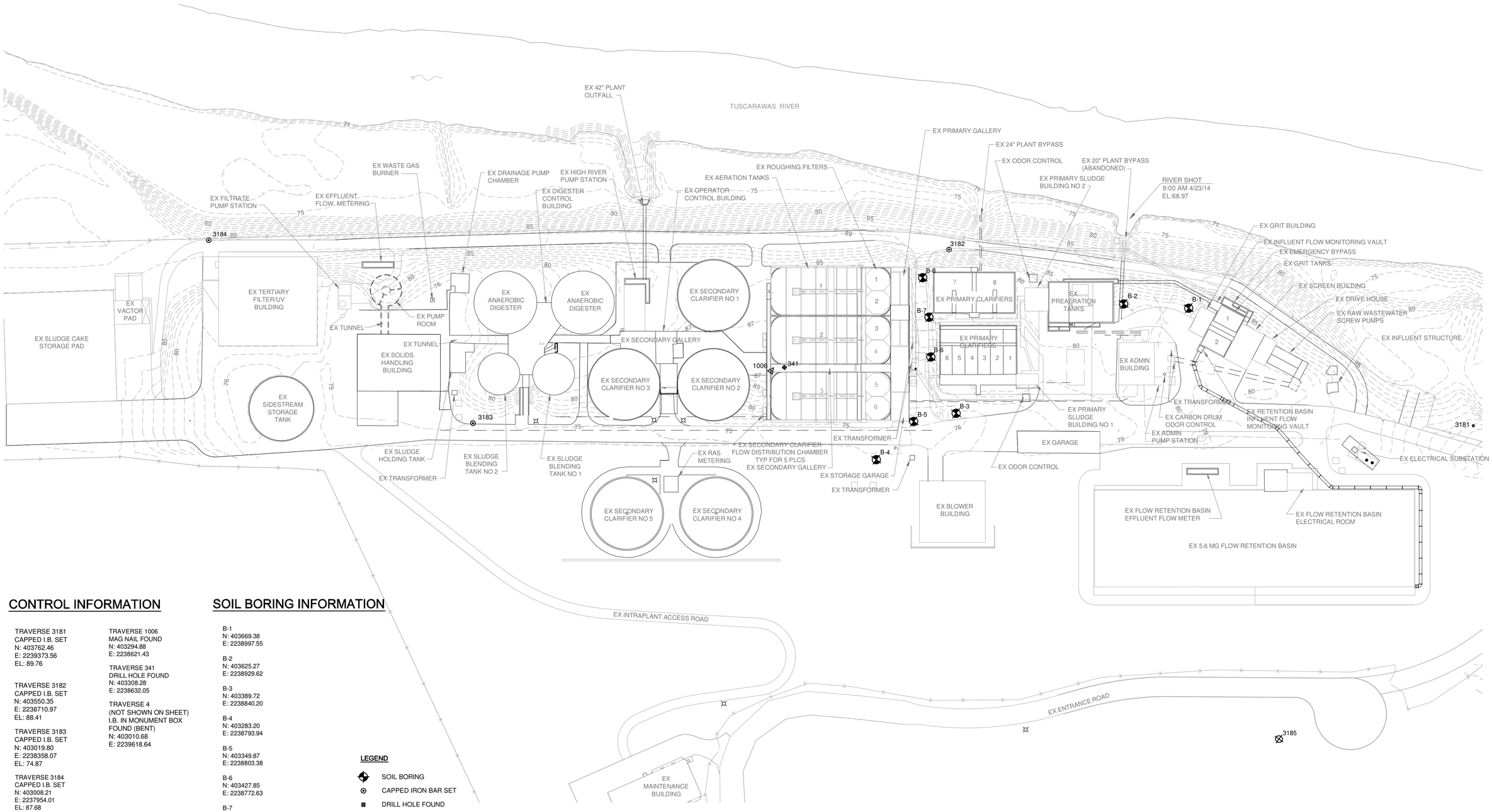

CONTROL INFORMATION

TRAVERSE 3181
CAPPED I.B. SET
N: 403762.46
E: 2239373.56
EL: 89.76

TRAVERSE 3182
CAPPED I.B. SET
N: 403550.35
E: 2238710.97
EL: 88.41

TRAVERSE 3183
CAPPED I.B. SET
N: 403019.80
E: 2238358.07
EL: 74.87

TRAVERSE 3184
CAPPED I.B. SET
N: 403008.21
E: 2237954.01
EL: 87.68

TRAVERSE 3185
HUB W/ TACK SET
N: 403300.23
E: 2239410.07

TRAVERSE 1006
MAG NAIL FOUND
N: 403294.88
E: 2238621.43

TRAVERSE 341
DRILL HOLE FOUND
N: 403308.28
E: 2238632.05

TRAVERSE 4
(NOT SHOWN ON SHEET)
I.B. IN MONUMENT BOX
FOUND (BENT)
N: 403010.68
E: 2239618.64

SOIL BORING INFORMATION

B-1
N: 403669.38
E: 2238997.55

B-2
N: 403625.27
E: 2238929.62

B-3
N: 403389.72
E: 2238840.20

B-4
N: 403283.20
E: 2238793.94

B-5
N: 403349.87
E: 2238803.38

B-6
N: 403427.85
E: 2238772.63

B-7
N: 403466.92
E: 2238741.21

B-8
N: 403502.16
E: 2238705.33

LEGEND

- SOIL BORING
- CAPPED IRON BAR SET
- DRILL HOLE FOUND
- MAG NAIL FOUND
- HUB W/ TACK SET

EXISTING SITE LOCATION OVERALL CONTROL PLAN

1" = 60' 60' 0 60'

PLAN NORTH

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CHECKED BY RWR
DRAWN BY AJP

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0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

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CTI ENGINEERS, INC.
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE
EXISTING SITE LOCATION OVERALL CONTROL PLAN

FILE NO. 23374.51633 -C100
DATE MARCH 19, 2015

C-100

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MATCHLINE SEE SHEET C-102

REMOVE AND PLUG EX FIRE HYDRANT

REMOVE EX SIDEWALK

REMOVE AND PLUG EX FIRE HYDRANT

EX 8" DRAIN REMOVED AND PLUG THE EX 8" DRAIN

REMOVE EX SIDEWALK

EX PIPES REMOVED AND REPLACED IN THIS AREA EXCEPT 24"

REMOVE AND RELOCATE EX 3/4" W

EX 6" W TO BE REMOVED AND RELOCATED

EX 42" FL RET INF TO BE REMOVED AND REPLACED

EX 20" PLANT BYPASS (ABANDONED)

TUSCARAWAS RIVER

EX 30" EMERGENCY OVERFLOW

EX 6" NPW

EX ODOR CONTROL PAD AND EQUIPMENT

EX 2" NPW

EX ASPHALT

EX 42" RCP

EX 6" SCUM

EX PRIMARY SLUDGE BUILDING NO 2

EX PRE-AERATION TANKS

EX 2" W

EX 8" DRAIN

EX 8" RAW

EX 8" SIDESTREAM FM

EX INFLUENT FLOW MONITORING VAULT

EX EMERGENCY OVERFLOW

EX SIDEWALK

EX GRIT BUILDING

EX GRIT TANK 1

EX GRIT TANK 2

EX SCREEN BUILDING

EX DRIVE HOUSE

EX RAW WASTEWATER PUMPS

EX 66" RCP

EX 48" RCP

EX 66" (ABAND)

EX 66" INFLUENT

EX GATE

EX 36" SAN

EX SAN MH TOP 84.55 18" INV 67.70 36" INV 67.70

EX 10" STM

EX CB1 TOP 79.20 INV W 74.08

EX 30" CIP (ABAND) TOP 79.07 INV E 74.07

EX 4" DRAIN (ABAND)

EX METER VAULT (ABAND)

EX 1" W

EX 3/4" G

EX 1 1/4" G

EX 1 1/4" W

EX ADMINISTRATION BUILDING

EX TRANSFORMER

EX WET WELL (ABAND)

EX ADMIN PUMP STATION

EX FLOCCULATION TANK (ABAND)

EX 24" CIP

EX 6" WAS

EX 42" FL RET EFF

EX 6" SIDESTREAM FM

EX STRUCTURE (ABAND)

EX RETENTION BASIN INFLUENT FLOW MONITORING VAULT

EX 6" NPW

EX 6" PVC DRAIN

EX CB TOP 78.47 INV NW 74.77 INV SE 74.69 INV SW 74.80

EX CB3 TOP 78.75 INV SE NW 75.02

EX CB2 TOP 78.78 INV SE 75.66

EX INFLUENT STRUCTURE

EX 18" (ABAND)

EX ASPHALT

EX 42" FL RET INF

EX 6" W

EX 3" G

EX TELE

EX CB TOP 78.22 INV NE 75.61

EX 6" NPW

EX 36" SAN

EX SAN MH TOP 81.81 36" INV 67.66

EX 42" FL RET EFF

EX INFLUENT FLOW METER

EX FLOW RETENTION BASIN PUMP STATION

EX FLOW RETENTION BASIN ELECTRICAL ROOM

EX 5.6 MG FLOW RETENTION BASIN

EX ELECTRICAL SUBSTATION

EX 18" SAN

EX 12" STM

CB T/RIM EL 87.00 12" SE INV 84.00

EX GARAGE

EX 18" THICKENER OVERFLOW

EX ODOR CONTROL

EX ODOR CONTROL PAD

EX CB TOP 78.76 INV NW 74.43 INV SE 74.39 INV NE 74.44

EX CB TOP 78.76 INV NW 73.04 INV SE 73.02

EX 8" ADMIN FM

EX 24" CIP

EX TELE

EX 3" G (ABAND)

EX 10" STM

EX 4" W

EX 1" W

EX 6" W

EX 6" NPW

EX 42" FL RET EFF

EX 8" SIDESTREAM FM

EX 36" SAN

EX SAN MH TOP 80.51 36" INV 67.85

EX 6" NPW

EX 8" SIDESTREAM FM

8.2'

44.6'

20.1'

34.9'

19.9'

58.9'

68.6'

22.6'

FOR ASPHALT PAVEMENT MILLED SEE SHEETS C104 THROUGH C107

PIPE REMOVAL

AREA OF FULL DEPTH EX PAVEMENT REMOVAL

AREA OF EX CONCRETE SIDEWALK REMOVAL

PLAN NORTH

EXISTING SITE DEMOLITION PARTIAL PLAN 1

1" = 20'

20' 0 20'

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MASSILLON, OHIO

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EXISTING SITE DEMOLITION PARTIAL PLAN 1

FILE NO. 23374.51633 - C101
DATE MARCH 19, 2015

C-101

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MATCHLINE SEE SHEET C-103

MATCHLINE SEE SHEET C-101

EX ASPHALT ROAD

EX 6" NPW

EX 44" RCP PLANT OUTFALL

EX 48" PLANT EFFLUENT

EX 18" FILTERED EFFLUENT

EX ANAEROBIC DIGESTER NO 1

EX HIGH RIVER PUMP STATION

EX 6" NPW

EX 6" DRAIN

EX 12"

EX 2" NPW

EX SECONDARY CLARIFIER NO. 1

EX SECONDARY GALLERY

EX CHLORINE STORAGE/ CONTROL BUILDING

EX 12"

EX SLUDGE BLENDING TANK NO 1

EX SECONDARY CLARIFIER NO. 3

EX SECONDARY CLARIFIER NO. 2

EX 30"

EX 24" RAS

EX 24" RAS

EX 12" THICKENER OVERFLOW

EX 6" NPW

EX 12"

EX 12" STM (ABAND)

EX 12" THICKENER OVERFLOW

MH NO 1

EX CB TOP 74.43

EX 30" EFFLUENT

EX 10" STM

EX 18" DIP

EX 12" STM (ABAND)

EX 42" EFFLUENT

EX 8" DRAIN

EX 36" EFFLUENT

EX 8" DRAIN

EX 10" STM

EX 15" STM

EX 6" NPW

EX CB TOP 74.34

EX 36" SAN

EX 18" RAS

EX 18" RAS

EX 20" EFFLUENT

EX 20" EFFLUENT

EX SECONDARY CLARIFIER NO 5

EX SECONDARY CLARIFIER NO 4

EX 24" RAS

EX 24" SECONDARY EFFLUENT

EX 8" DRAIN

EX 10" TANK DRAIN

EX 30" SECONDARY EFFLUENT

EX 30" SECONDARY EFFLUENT

EX 12" STM (ABAND)

EX 3" G

EX 15" STM

EX 10" TANK DRAIN

EX 10" TANK DRAIN

EX ROUGHING FILTER NO. 1 REMOVE

EX ROUGHING FILTER NO. 2 REMOVE

EX ROUGHING FILTER NO. 3 REMOVE

EX ROUGHING FILTER NO. 5 REMOVE

EX ROUGHING FILTER NO. 6 REMOVE

EX AERATION TANK NO. 1

EX AERATION TANK NO. 2

EX AERATION TANK NO. 3

EX SECONDARY GALLERY

EX PRIMARY GALLERY REMOVE

EX STORAGE GARAGE REMOVE

EX 12" BYPASS

EX 12" PIPE TO BE ABANDONED IN PLACE

EX DRIVEWAY TO BE RELOCATED

EX PAVEMENT REMOVAL TO EDGE OF PAVEMENT

EX 6" NPW TO BE REMOVED AND RELOCATED

EX 30" EMERGENCY OVERFLOW

EX 24" ABAND

EX 2" CHLORINE (ABAND)

EX PRIMARY CLARIFIERS

EX PRIMARY CLARIFIERS

EX 6" NPW

EX 3" G

EX 2" W

EX 8" RAW

EX 8" WAS

EX 4" W

EX 8" RAW

EX 8" WAS

EX 3" GAS (ABAND)

EX 18" THICKENER OVERFLOW

EX 10" STM

EX 6" NPW

EX ASPHALT ROAD

EX 3" G

EX 10" STORM

EX TRANSFORMER

EX PW

EX OVERHEAD AIR DUCT

EX BLOWER BUILDING

REMOVE EX 14" RAS PIPE

REMOVE AND REPLACE EX 24" RAS PIPE

REMOVE EX 30" SECOND EFFLUENT AND REPLACE

REMOVE EX 18" THICKENER OVERFLOW AND RELOCATE

REMOVE EX 14" RAS PIPE

REMOVE AND REPLACE EX 12" PIPE

REMOVE EX CB

REMOVE EX 10" STM

REMOVE EX 6" NPW

REMOVE EX 36" RCP

REMOVE EX 10" DRAIN

REMOVE EX SIDEWALK

EX 2" W RELOCATE

EX 8" WAS RELOCATE

REMOVE EX HYDRANT

EX 8" RAW RELOCATE

EX 4" W RELOCATE

REMOVE EX HYDRANT AND CONC PAD

REMOVE EX 6" NPW

REMOVE EX 10" TANK DRAIN

EX 10" STORM PIPE RELOCATED

REMOVE EX STM MH AND 4" STORM PIPE

REMOVE

20

107.9

22.9

10.1

213.7

7.9

3.3

13.8

34.9

11

38.5

29.1

129.8

24.6

69.5

FOR ASPHALT PAVEMENT MILLED
SEE SHEETS C104 THROUGH C107

PIPE REMOVAL

AREA OF FULL DEPTH EX PAVEMENT REMOVAL

AREA OF EX CONCRETE SIDEWALK REMOVAL

PLAN NORTH

EXISTING SITE DEMOLITION PARTIAL PLAN 2

1" = 20' 20' 0 20'

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

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EXISTING SITE DEMOLITION PARTIAL PLAN 2

FILE NO. 23374.51633 - C102
DATE MARCH 19, 2015

C-102

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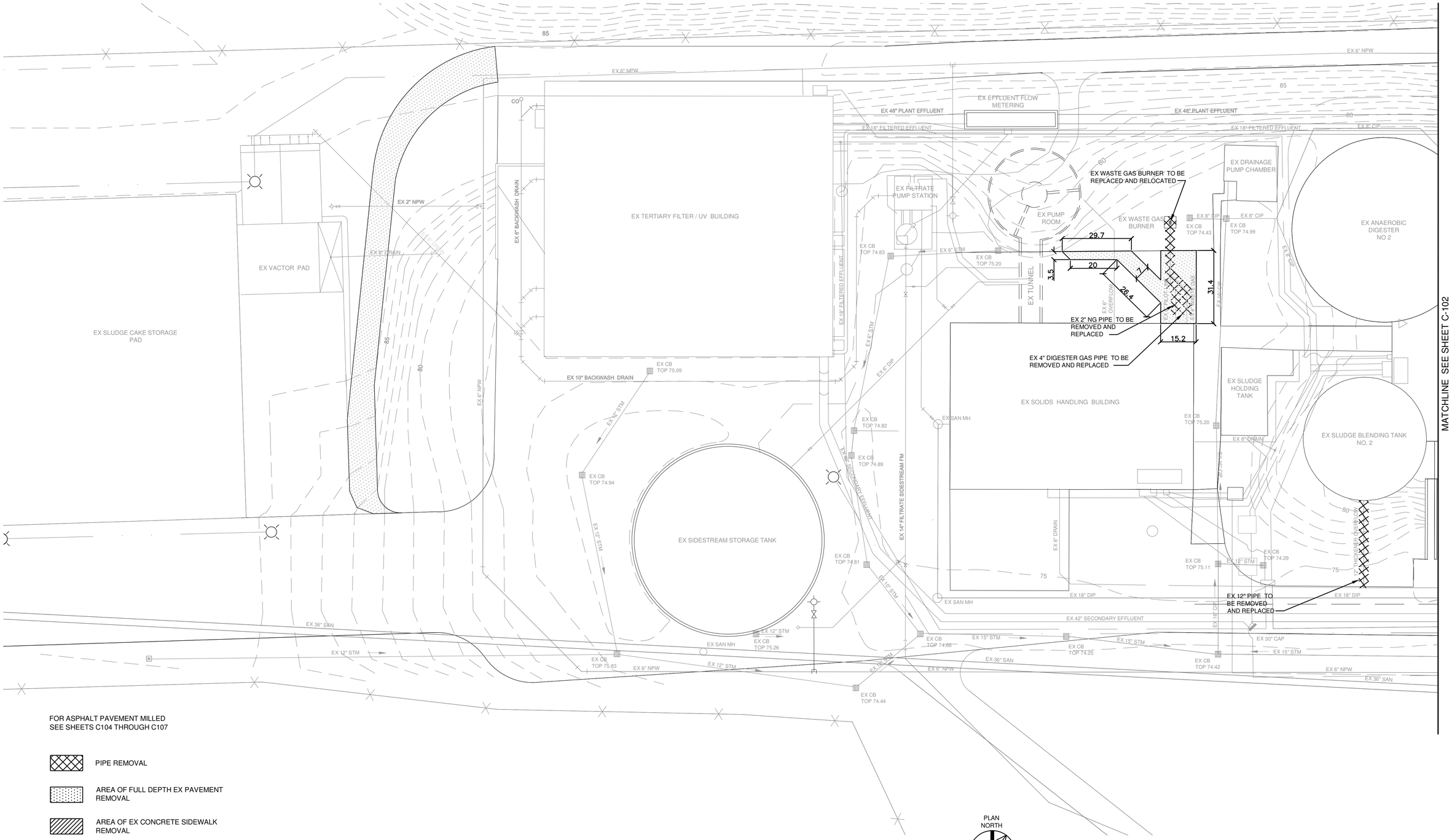

MATCHLINE SEE SHEET C-102

FOR ASPHALT PAVEMENT MILLED
SEE SHEETS C104 THROUGH C107

PIPE REMOVAL

AREA OF FULL DEPTH EX PAVEMENT REMOVAL

AREA OF EX CONCRETE SIDEWALK REMOVAL

PLAN NORTH

EXISTING SITE DEMOLITION PARTIAL PLAN 3

1"=20'-0" 20' 0 20'

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MASSILLON, OHIO

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EXISTING SITE DEMOLITION PARTIAL PLAN 3

FILE NO. 23374.51633 -C103
DATE MARCH 19, 2015

C-103

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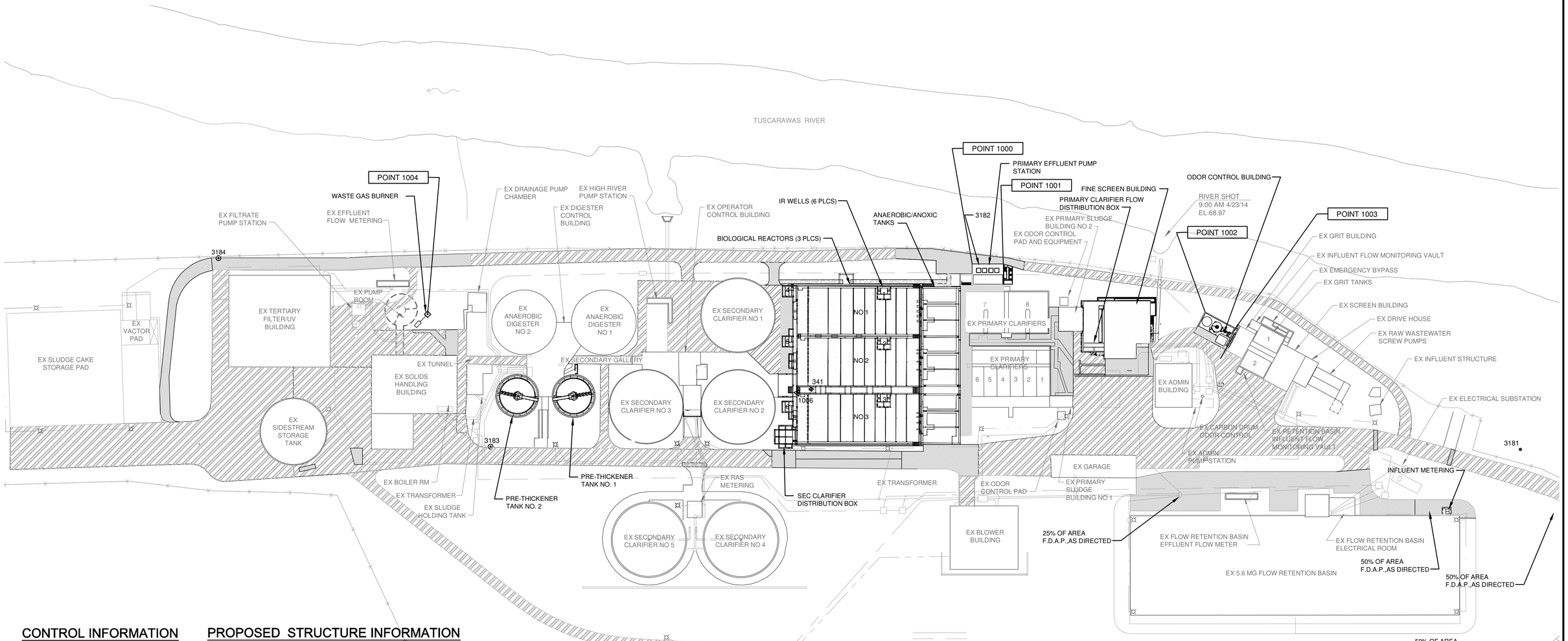

CONTROL INFORMATION

TRAVERSE 3181
CAPPED I.B. SET
N: 403762.46
E: 2239373.56
EL: 89.76

TRAVERSE 3182
CAPPED I.B. SET
N: 403550.35
E: 2238710.97 EL: 88.41

TRAVERSE 3183
CAPPED I.B. SET
N: 403019.80
E: 2238358.07
EL: 74.87

TRAVERSE 3184
CAPPED I.B. SET
N: 403008.21
E: 2237954.01
EL: 87.68

TRAVERSE 3185
HUB W/ TACK SET
N: 403300.23
E: 2239410.07

TRAVERSE 1006
MAG NAIL FOUND
N: 403294.88
E: 2238621.43

TRAVERSE 341
DRILL HOLE FOUND
N: 403308.28
E: 2238632.05

TRAVERSE 4
(NOT SHOWN ON SHEET)
I.B. IN MONUMENT BOX
FOUND (BENT)
N: 403010.68
E: 2239618.64

PROPOSED STRUCTURE INFORMATION

POINT 1000
PRIMARY EFFLUENT PUMP STATION
NW CORNER
N: 403548.13
E: 2238699.82

POINT 1001
PRIMARY EFFLUENT PUMP STATION
NE CORNER
N: 403570.64
E: 2238730.44

POINT 1002
ODOR CONTROL BUILDING
NW CORNER
N: 403669.42
E: 2238963.88

POINT 1003
ODOR CONTROL BUILDING
NE CORNER
N: 403675.37
E: 2239005.46

POINT 1004
DIGESTER GAS FLARE CENTER
N: 403104.35
E: 2238200.33

NOTE :

FOR SOIL BORING LOCATIONS SEE SHEET C-100

LEGEND

- CAPPED IRON BAR SET
- DRILL HOLE FOUND
- MAG NAIL FOUND
- HUB W/ TACK SET

PROPOSED SITE LOCATION
OVERALL CONTROL PLAN

1" = 60' 60' 0 60'

PLAN NORTH

- AREA OF FULL DEPTH ASPHALT PAVEMENT PLACEMENT
- AREA OF PAVEMENT PLANE AND RESURFACE
- AREA OF CONCRETE SIDEWALK

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MASSILLON, OHIO

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PROPOSED SITE LOCATION
OVERALL CONTROL PLAN

FILE NO. 23374.51633 -C104
DATE MARCH 19, 2015

C-104

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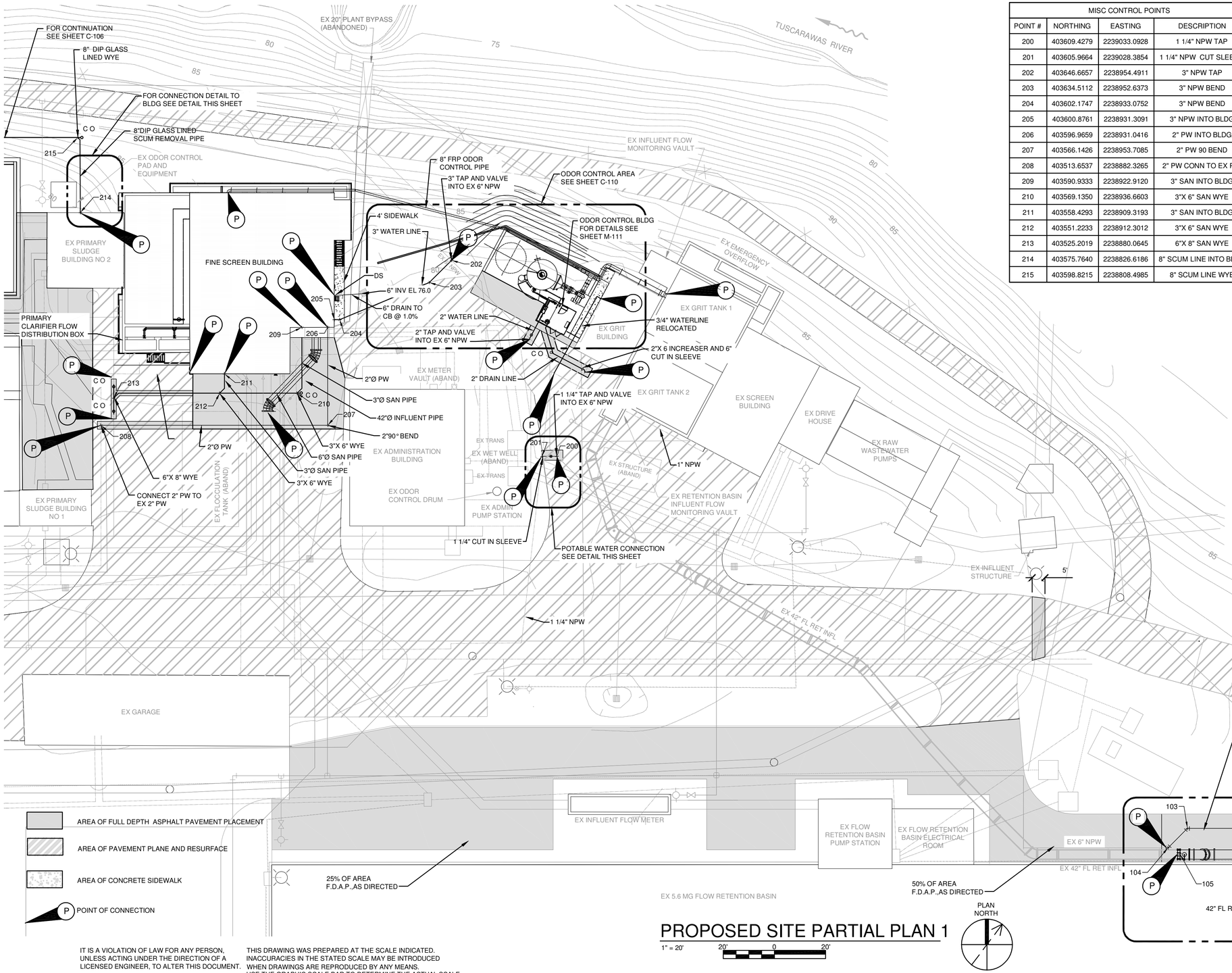
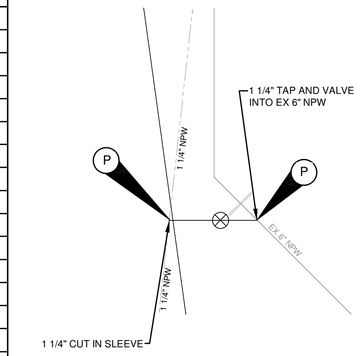
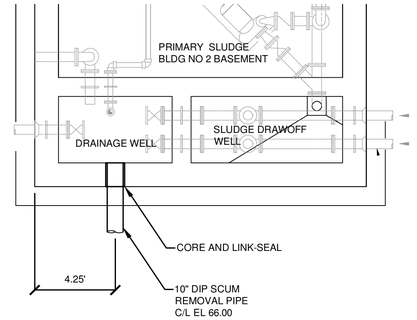


MISC CONTROL POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
200	403609.4279	2239033.0928	1 1/4" NPW TAP
201	403605.9664	2239028.3854	1 1/4" NPW CUT SLEEVE
202	403646.6657	2238954.4911	3" NPW TAP
203	403634.5112	2238952.6373	3" NPW BEND
204	403602.1747	2238933.0752	3" NPW BEND
205	403600.8761	2238931.3091	3" NPW INTO BLDG
206	403596.9659	2238931.0416	2" PW INTO BLDG
207	403566.1426	2238953.7085	2" PW 90 BEND
208	403513.6537	2238882.3265	2" PW CONN TO EX PW
209	403590.9333	2238922.9120	3" SAN INTO BLDG
210	403569.1350	2238936.6603	3"X 6" SAN WYE
211	403558.4293	2238909.3193	3" SAN INTO BLDG
212	403551.2233	2238912.3012	3"X 6" SAN WYE
213	403525.2019	2238880.0645	6"X 8" SAN WYE
214	403575.7640	2238826.6186	8" SCUM LINE INTO BLDG
215	403598.8215	2238808.4985	8" SCUM LINE WYE



POTABLE WATER CONNECTION

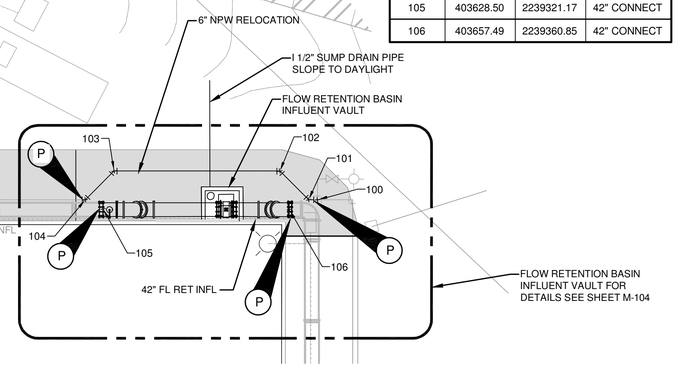
NOT TO SCALE



CONNECTION DETAIL FOR SCUM REMOVAL PIPE TO BUILDING

NOT TO SCALE

FRBI CONTROL POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
100	403663.98	2239365.33	EX TEE
101	403662.57	2239363.46	6" 45 BEND
102	403664.18	2239352.85	6" 45 BEND
103	403638.26	2239317.59	6" 45 BEND
104	403627.67	2239315.98	6" 45 BEND
105	403628.50	2239321.17	42" CONNECT
106	403657.49	2239360.85	42" CONNECT



PROPOSED SITE PARTIAL PLAN 1

1" = 20'

20' 0 20'

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SUITE 750
CANTON, OH 47702

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MASSILLON, OHIO

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PROPOSED SITE PARTIAL PLAN 1

FILE NO. 23374.51633 - C105

DATE MARCH 19, 2015

C-105

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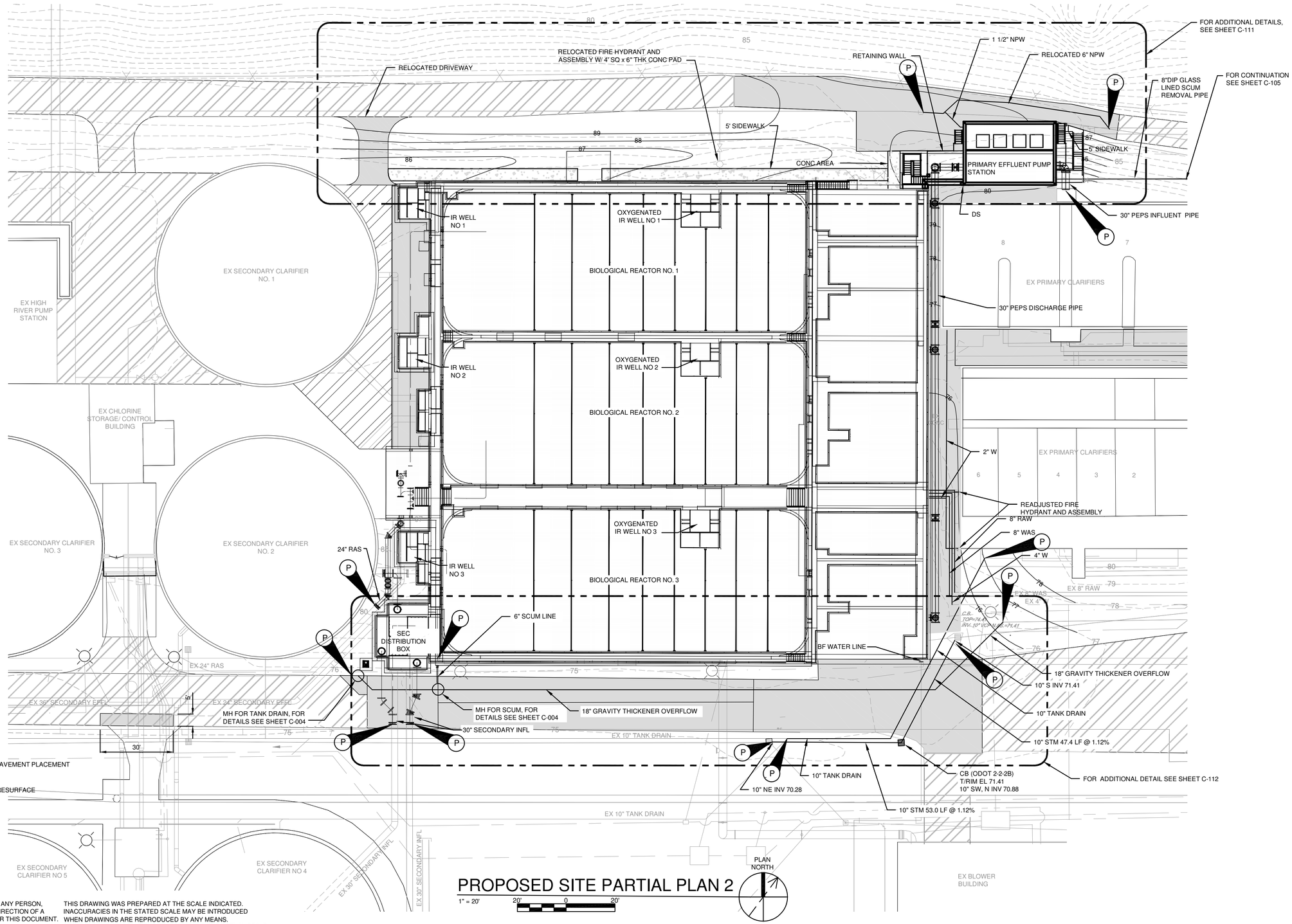

PROPOSED SITE PARTIAL PLAN 2

1" = 20'

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PROPOSED SITE PARTIAL PLAN 2

FILE NO. 23374.51633 -C106
DATE MARCH 19, 2015

C-106

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EX TERTIARY FILTER / UV BUILDING

EX VACTOR PAD

EX SLUDGE CAKE STORAGE PAD

EX SIDESTREAM STORAGE TANK

EX EFFLUENT FLOW METERING

EX FILTRATE PUMP STATION

EX PUMP BOOM TOC EL 78.08

WASTE GAS BURNER

WASTE GAS BURNER CONTROL PANEL

EX TUNNEL

2" NG PILOT PIPE

8" WASTE GAS PIPE

EX DRAINAGE PUMP CHAMBER

EX ANAEROBIC DIGESTER NO 2

EX ANAEROBIC DIGESTER NO 1

EX SOLIDS HANDLING BUILDING

EX SLUDGE HOLDING TANK

EX BOILER RM

EX TRANSFORMER

PRE-THICKENER TANK NO. 2

PRE-THICKENER TANK NO. 1

12" THICKENER OVERFLOW PIPE

12" THICKENER OVERFLOW PIPE

AREA OF FULL DEPTH ASPHALT PAVEMENT PLACEMENT

AREA OF PAVEMENT PLANE AND RESURFACE

AREA OF CONCRETE SIDEWALK

P POINT OF CONNECTION

PROPOSED SITE PARTIAL PLAN 3

1" = 20'

PLAN NORTH

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IN CHARGE OF WAD
DESIGNED BY WAD
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE

PROPOSED SITE PARTIAL PLAN 3

FILE NO. 23374.51633 - C107
DATE MARCH 19, 2015

C-107

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EROSION CONTROL GENERAL NOTES

1. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES & PRACTICES MUST COMPLY WITH THE **CONSTRUCTION GENERAL PERMIT PART III.G - SWP3 REQUIREMENTS** AND BE INSTALLED IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS IN THE 2006 VERSION OF THE ODNR **RAINWATER AND LAND DEVELOPMENT** HANDBOOK OR EQUAL APPROVED BY THE STARK COUNTY SWCD.

2. MEASURES & PRACTICES SHALL BE IMPLEMENTED DURING CONSTRUCTION AS FEASIBLE, TO PRESERVE NATURAL CONDITIONS, INCLUDING: PROTECTION OF EXISTING VEGETATION (INCLUDING INDIVIDUAL TREES) AND RIPARIAN AREAS; MAINTENANCE OF VEGETATION BUFFER STRIPS ALONG ANY DRAINAGES, WATER BODIES AND WETLANDS; AND PHASING CONSTRUCTION AND CLEARING LAND IN STAGES TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ANY ONE TIME.

3. INDIVIDUAL TREES, TREE AREAS, AND VEGETATION TO BE SAVED SHALL BE MARKED AND PROTECTED WITH A BARRIER IF NECESSARY. ENSURE THAT THERE IS NO STORAGE OF SOIL OR MATERIAL, OR CONSTRUCTION TRAFFIC WITHIN THE DRIP LINE OF THE TREES. NO TREE REMOVAL SHALL BE PERMITTED OUTSIDE THE CONSTRUCTION AREA WITHOUT SPECIFIC PERMISSION OF THE PROJECT ENGINEER.

4. PRIOR TO GRADING AND WITHIN **7 DAYS** FROM THE START OF GRUBBING, APPROPRIATE STRUCTURAL MEASURES & PRACTICES SHALL BE IMPLEMENTED TO DIRECT RUNOFF AWAY FROM, LIMIT RUNOFF FROM, AND CONTROL RELEASE OF SEDIMENT FROM ANY AREA DISTURBED BY CONSTRUCTION OR ASSOCIATED ACTIVITY ON OR OFF THE PROJECT SITE. MEASURES & PRACTICES SUCH AS PERIMETER SEDIMENT BARRIERS, SEDIMENT BASINS AND DIVERSIONS INTO THEM, PIPE SLOPE DRAINS, ROCK CHECK DAMS, AND PROTECTIVE GRADING MAY BE USED.

5. STRUCTURAL MEASURES & PRACTICES TO CONTROL EROSION AND TRAP SEDIMENT SHALL BE IMPLEMENTED ON ANY AREA THAT IS TO REMAIN DISTURBED FOR MORE THAN **14 DAYS**. MEASURES & PRACTICES SUCH AS SILT FENCES, SETTLING PONDS, STORM DRAIN INLET PROTECTION, AND DIKES OR CHANNELS TO DIRECT RUNOFF FROM DISTURBED AREAS TO A SETTLING POND SHALL BE USED.

6. ANY DISTURBED AREA ON OR OFF THE PROJECT SITE INCLUDING ANY SOIL STOCKPILE THAT WILL REMAIN IDLE FOR MORE THAN **21 DAYS**, SHALL BE STABILIZED BY QUICKLY PROVIDING COVER TO CONTROL EROSION. DISTURBED AREAS MAY BE STABILIZED USING MEASURES & PRACTICES SUCH AS: SEEDING, DORMANT SEEDING, MULCHING, MULCH BLANKET, GEOTEXTILE, SOD, PRESERVATION OF EXISTING COVER, ALTERNATIVE GROUND COVER, AND USE OF CONSTRUCTION ENTRANCES. STABILIZATION OF SLOPES GREATER THAN 6%, FILL SLOPES, AND OTHER AREAS TENDING TO BE UNSTABLE SHALL INCLUDE MEASURES SUCH AS EROSION CONTROL BLANKET OR MATTING.

7. ANY DISTURBED AREA NOT AT FINAL GRADE THAT WILL REMAIN IDLE FOR MORE THAN 21 DAYS AND LESS THAN 1 YEAR SHALL BE TEMPORARILY STABILIZED. ANY SUCH DISTURBED AREA THAT IS **WITHIN 50 FEET** OF A WATER BODY OR DRAINAGE COURSE, SHALL BE STABILIZED WITHIN **2 DAYS** OF MOST RECENT DISTURBANCE. ANY AREA **NOT WITHIN 50 FEET** OF A WATER BODY OR DRAINAGE COURSE SHALL BE STABILIZED WITHIN **7 DAYS**.

8. DISTURBED AREAS AT FINAL GRADE SHALL BE PERMANENTLY STABILIZED TO ACHIEVE FINAL STABILIZATION USING MEASURES & PRACTICES SUCH AS: PERENNIAL VEGETATION COVER, LANDSCAPING MULCH, MATTING, SOD, RIP RAP, AND LANDSCAPING TECHNIQUES. FINAL STABILIZATION IS ACHIEVED WHEN UNIFORM PERENNIAL COVERAGE OF AT LEAST 70% IS ESTABLISHED ON ALL AREAS NOT PAVED OR LANDSCAPED, OR WHEN EQUIVALENT PERMANENT STABILIZATION MEASURES HAVE BEEN EMPLOYED. TRAPPED SEDIMENT SHALL BE PERMANENTLY STABILIZED AND TEMPORARY CONTROL PRACTICES REMOVED AFTER FINAL STABILIZATION.

9. ANY AREA **WITHIN 50 FEET** OF A WATER BODY OR DRAINAGE COURSE SHALL BE PERMANENTLY STABILIZED WITHIN **2 DAYS** OF REACHING FINAL GRADE. ANY AREA THAT IS **MORE THAN 50 FEET** FROM A WATER BODY OR DRAINAGE COURSE SHALL BE PERMANENTLY STABILIZED WITHIN **7 DAYS** OF REACHING FINAL GRADE. EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN FUNCTIONAL CONDITION UNTIL FINAL STABILIZATION IS ACHIEVED.

10. ANY DISTURBED AREA OR PART OF ANY DISTURBED AREA THAT WILL REMAIN IDLE FOR MORE THAN 1 YEAR OR OVER THE WINTER, OR ON WHICH WORK IS TO BE SUSPENDED, SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF MOST RECENT DISTURBANCE. DISTURBED AREAS SHALL BE STABILIZED PRIOR TO THE ONSET OF WINTER. EROSION AND SEDIMENT CONTROLS SHALL BE MAINTAINED IN FUNCTIONAL CONDITION DURING INTERRUPTION OF CONSTRUCTION.

11. AS CONSTRUCTION IS COMPLETED ON A PART OF THE PROJECT SITE OR AN AREA ON OR OFF THE SITE IS NO LONGER NEEDED FOR STORAGE OR EQUIPMENT TRAFFIC, ANY DISTURBED AREAS NOT TO BE PAVED SHALL BE FINE GRADED AND PERMANENTLY STABILIZED. THE AREAS SHALL BE GRADED TO BE CONSISTENT WITH SURROUNDING CONTOURS FOR PROPER DRAINAGE AND AESTHETICS.

12. ANY SITE PREPARATION THAT WILL INVOLVE EARTH MOVING (SUCH AS CLEARING AND GRUBBING) WILL NOT BEGIN MORE THAN 2 WEEKS IN ADVANCE OF THE START OF EXCAVATION. THE PURPOSE OF THIS RESTRICTION IS TO PREVENT THE EXISTENCE OF LARGE AREAS OF EXPOSED SOILS FOR EXTENDED PERIODS OF TIME WHEN CONSTRUCTION IS NOT PROCEEDING.

13. ALL DISTURBED VEGETATION IS TO BE RESEEDED AS PART OF RESTORATION, UNLESS THE AREA WILL BE PAVED OR OCCUPIED BY ABOVE GROUND FACILITIES. TOP SOILING FOR THE RESTORATION OF VEGETATED AREAS DISTURBED BY CONSTRUCTION SHALL AVERAGE (6) INCHES IN THICKNESS.

14. ALL DEWATERING FLOWS SHALL BE SILT-FREE PRIOR TO DISCHARGE, AND DISCHARGE SHALL BE DIRECTLY TO STABILIZED SITES SUCH AS STREAMS, STORM SEWERS OR EXISTING GRASSED DRAINAGES, NOT ONTO EXPOSED SOILS OR ANY OTHER SITE WHERE FLOWS COULD CAUSE EROSION.

15. IF, DUE TO WEATHER, FINAL GRADING CANNOT BE ACCOMPLISHED IMMEDIATELY, MULCHING AND TEMPORARY SEEDING, IF FEASIBLE, OR SOME OTHER TYPE OF TEMPORARY EROSION CONTROL MEASURES, MUST BE USED UNTIL LONG-TERM RESTORATION CAN OCCUR.

16. STOCK PILED TOPSOIL AND FILL MATERIALS SHALL BE PROTECTED WITH EROSION CONTROL BARRIERS OR TEMPORARY SEEDING.

17. IN AREAS WHERE EARTH MOVING WILL BE EXTENSIVE, A COMBINATION OF DIVERSION CHANNELS (WITH EROSION CONTROL BARRIERS) AND SEDIMENTATION BASINS SHALL BE USED TO CONTROL RUNOFF AND EROSION.

18. EXCESS SOIL THAT IS STOCK PILED MUST BE EITHER REMOVED OR REGRADED WITHIN 15 DAYS OF THE COMPLETION OF THE CONSTRUCTION.

19. IF TREE REMOVAL IS NECESSARY, TREES SHALL BE FELLED IN A MANNER THAT AVOIDS DAMAGE TO ADJACENT TREES TO REMAIN STANDING. WHERE ROOT DAMAGE CANNOT BE AVOIDED, PRUNING AS APPROPRIATE TO COMPENSATE FOR THE DAMAGE SHALL BE DONE BY AN AUTHORIZED ARBORIST.

20. NO FILL, TOPSOIL OR HEAVY EQUIPMENT SHALL BE STORED WITHIN 2OO FEET OF A STREAM BANK OR WITHIN THE DRIP LINE OF TREED AREAS.

21. CONSTRUCTION AND RESTORATION ACTIVITIES SHALL NOT SIGNIFICANTLY ALTER EXISTING DRAINAGE PATTERNS AND/OR VELOCITY OF STORM WATER FLOW.

22. THE EROSION CONTROL MEASURES DESCRIBED HEREIN ARE TYPICAL.THE CONTRACTOR SHALL USE THIS PLAN AS A GUIDE TO CONTROL EROSION. IN THE EVENT OF ADVERSE WEATHER CONDITIONS, ETC. ADDITIONAL MEASURES SHOULD BE TAKEN TO ESTABLISH AND MAINTAIN PROTECTIVE VEGETATION.

23. CONTINUOUS MAINTENANCE WILL BE REQUIRED AS NECESSARY UNTIL PERMANENT, STABLE VEGETATIVE COVER HAS BEEN ESTABLISHED AND EROSION HAS BEEN CONTROLLED. THIS INCLUDES BUT IS NOT LIMITED TO RESEEDING, MULCHING, EARTH FILLING, ETC.

24. DISTURBED AREAS SHALL BE KEPT TO A MINIMUM WITH RESPECT TO AREAS EXPOSED AND TIME OF EXPOSURE. ALL TOPSOIL SHALL BE STOCKPILED.

25. TO ASSIST IN EROSION CONTROL, ALL TREES AND VEGETATION OUTSIDE OF GRADED AREAS SHALL REMAIN.

26. SILT FENCE FABRIC SHALL BE EXXON GTF-100S OR APPROVED EQUAL.

27. ADJACENT ROADS SHALL BE KEPT FREE OF DIRT AND DEBRIS AT ALL TIMES.

28. ALL S.W.P.P.P. ITEMS **MUST** BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS.

29. EROSION CONTROL BLANKETS WITH MATTING WILL BE USED ON DITCHES GREATER THAN 1.5% AND ALL OTHER SLOPES GREATER THAN 6.0% GRADE.

30. OTHER EROSION CONTROL AND SEDIMENT CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS.

31. REGULAR INSPECTION AND MAINTENANCE WILL BE PROVIDED FOR ALL EROSION CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES IN A 24 HOUR PERIOD. PROVIDE NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION, CERTIFICATION OF COMPLIANCE AND CORRECTIVE MEASURES TAKEN.

32. NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF.

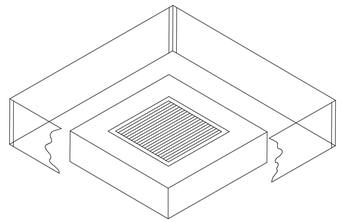
33. OFF-SITE VEHICLE TRACKING SEDIMENT SHALL BE MINIMIZED. CONSTRUCTION VEHICLES ARE LIMITED TO THE CONSTRUCTION ACCESS ROAD(S) NOTED ON THE PLAN.

34. FILTER FABRIC AND STRAW BALES BARRIER ARE NOT SUITABLE MATERIALS FOR DITCH CHECKS UNLESS PRIOR APPROVAL FOR LOCATION SPECIFIC USE IS GIVEN BY THE OEPA-DSW STORM WATER INSPECTOR.

35. STRAW BALES BARRIER SHALL ONLY BE USED FOR RUNOFF DIVERSION AND SEDIMENT CONTROL IN COMBINATION WITH OTHER MATERIALS. AN EXAMPLE IS AN ANCHORED BALE BERM OR BARRIER COVERED WITH FILTER FABRIC WHICH IS TRENCHED AND BACKFILLED ON THE UPSLOPE SIDE.

36. UNNECESSARY OPERATION OF CONSTRUCTION MACHINERY SHALL BE AVOIDED NEAR A WATER BODY, WETLAND, DRAINAGE COURSE, OR STREAM RIPARIAN AREA. A BUFFER STRIP OF VEGETATION SHALL BE PRESERVED UNDISTURBED OR CREATED AND MAINTAINED ALONG SUCH AREAS.

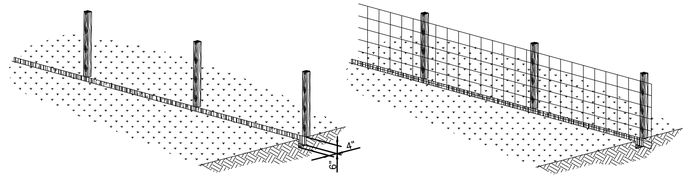
37. PRIOR TO STARTING WORK, FILTER FABRIC FENCING SHALL BE INSTALLED AND MAINTAINED TO MARK THE BOUNDARY OF THE AREA TO BE DISTURBED OR THE BUFFER STRIP. THE BUFFER SHALL MEET THE MOST RESTRICTIVE OF LOCAL, STATE OR FEDERAL REQUIREMENTS, BUT SHOULD BE AT LEAST 25 FEET WIDE WHERE FEASIBLE, AS MEASURED FROM THE TOP OF THE BANK OR THE ORDINARY HIGH WATER MARK.



INLET PROTECTION TO BE PLACED AT ALL INLETS
INSTALL, UNTIL SITE IS STABILIZED.

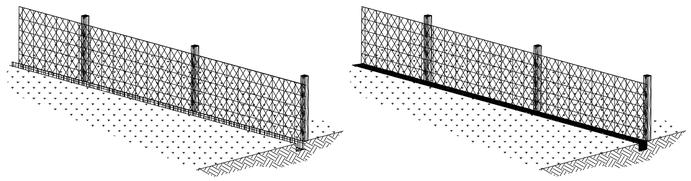
SILT FENCE FOR INLETS

NOT TO SCALE



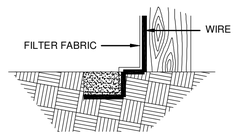
1. SET POSTS AND EXCAVATE A 4" X 6" TRENCH UPSLOPE ALONG THE LINE OF POSTS.

2. STAPLE WIRE FENCING TO THE POSTS.



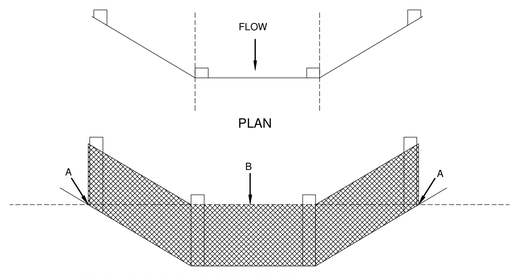
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



5. EXTENSION OF FABRIC AND WIRE INTO THE TRENCH

CONSTRUCTION OF STRAW BALES BARRIER



POINTS A SHOULD BE HIGHER THAN POINT B

ELEVATION

PROPER PLACEMENT OF A FILTER BARRIER IN A DRAINAGE WAY SEE NOTE 34 ON THIS SHEET

SILT FENCE DETAILS

NOT TO SCALE

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IN CHARGE OF WAD
DESIGNED BY RWR
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE
STORMWATER EROSION CONTROL
GENERAL NOTES AND DETAILS

FILE NO. 23374.51633 - C108
DATE MARCH 19, 2015

C-108

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SAVED: 9/11/15 8:57 AM

STORM DRAIN INLET PROTECTION (IP)

1. STRAW BALE DROP INLET STRUCTURE

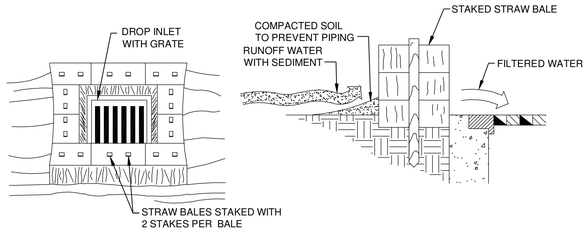
   A. BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED WITH THE BINDINGS ORIENTED AROUND THE SIDES RATHER THAN OVER AND UNDER THE BALES.

   B. BALES SHALL BE PLACED LENGTHWISE IN A SINGLE ROW SURROUNDING THE INLET, WITH THE ENDS OF ADJACENT BALES PRESSED TOGETHER. (FIGURE BELOW)

   C. THE FILTER BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED AROUND THE INLET THE WIDTH OF A BALE TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AND COMPACTED AGAINST THE FILTER BARRIER.

   D. EACH BALE SHALL BE SECURELY ANCHORED AND HELD IN PLACE BY AT LEAST TWO STAKES OR REBARS DRIVEN THROUGH THE BALE.

   E. LOOSE STRAW SHALL BE WEDGED BETWEEN BALES TO PREVENT WATER FROM ENTERING BETWEEN BALES.

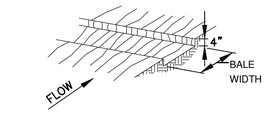


SPECIFIC APPLICATION

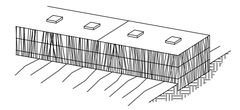
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL.

STRAW BALE DROP INLET SEDIMENT FILTER DETAIL

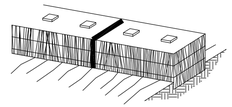
NOT TO SCALE



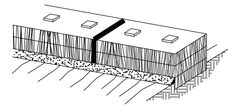
1. EXCAVATE THE TRENCH.



2. PLACE AND STAKE STRAW BALES.

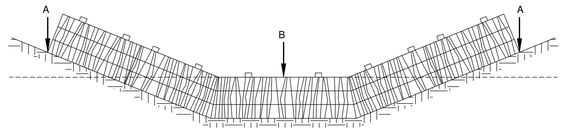


3. WEDGE LOOSE STRAW BETWEEN BALES.



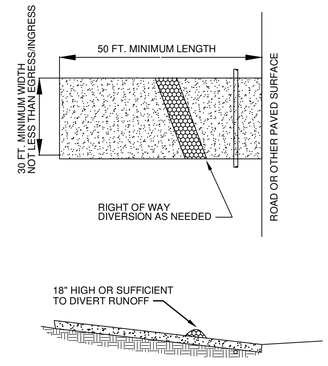
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

CONSTRUCTION OF A STRAW BALE BARRIER



POINTS A SHOULD BE HIGHER THAN POINT B

PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY

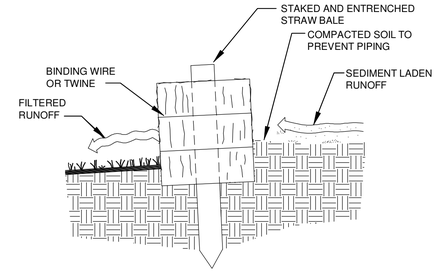


TEMPORARY CONSTRUCTION DRIVE NOTES:

1. STONE SIZE--TWO-INCH STONE SHALL BE USED, OR RECYCLED CONCRETE PAVEMENT.
2. LENGTH--THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 50 FT.
3. THICKNESS--THE STONE LAYER SHALL BE AT LEAST 18 IN. THICK.
4. WIDTH--THE ENTRANCE SHALL BE AT LEAST 30 FT. WIDE, BUT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. BEDDING--A GEOTEXTILE SHALL BE PLACE OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL HAVE A GRAB TENSILE STRENGTH OF AT LEAST 200 LB. AND A MULLED BURST STRENGTH OF AT LEAST 190 LB.
6. CULVERT--A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FLOWING ACROSS THE ENTRANCE FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
7. WATER BAR--A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND OUT ONTO PAVED SURFACES.
8. MAINTENANCE--TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS SHALL BE REMOVED IMMEDIATELY, BY EITHER SCRAPING OR SWEEPING.
9. CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION-SITE SHALL BE RESTRICTED FROM MUDDY AREAS.

CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



CROSS SECTION OF A PROPERLY INSTALLED STRAW BALE

STRAW BALE BARRIER DETAILS

NOT TO SCALE

SEE NOTE 35 ON SHEET C-108

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CIVIL
SITE
STORMWATER EROSION CONTROL DETAILS

FILE NO. 23374.51633 - C109
DATE MARCH 19, 2015

C-109

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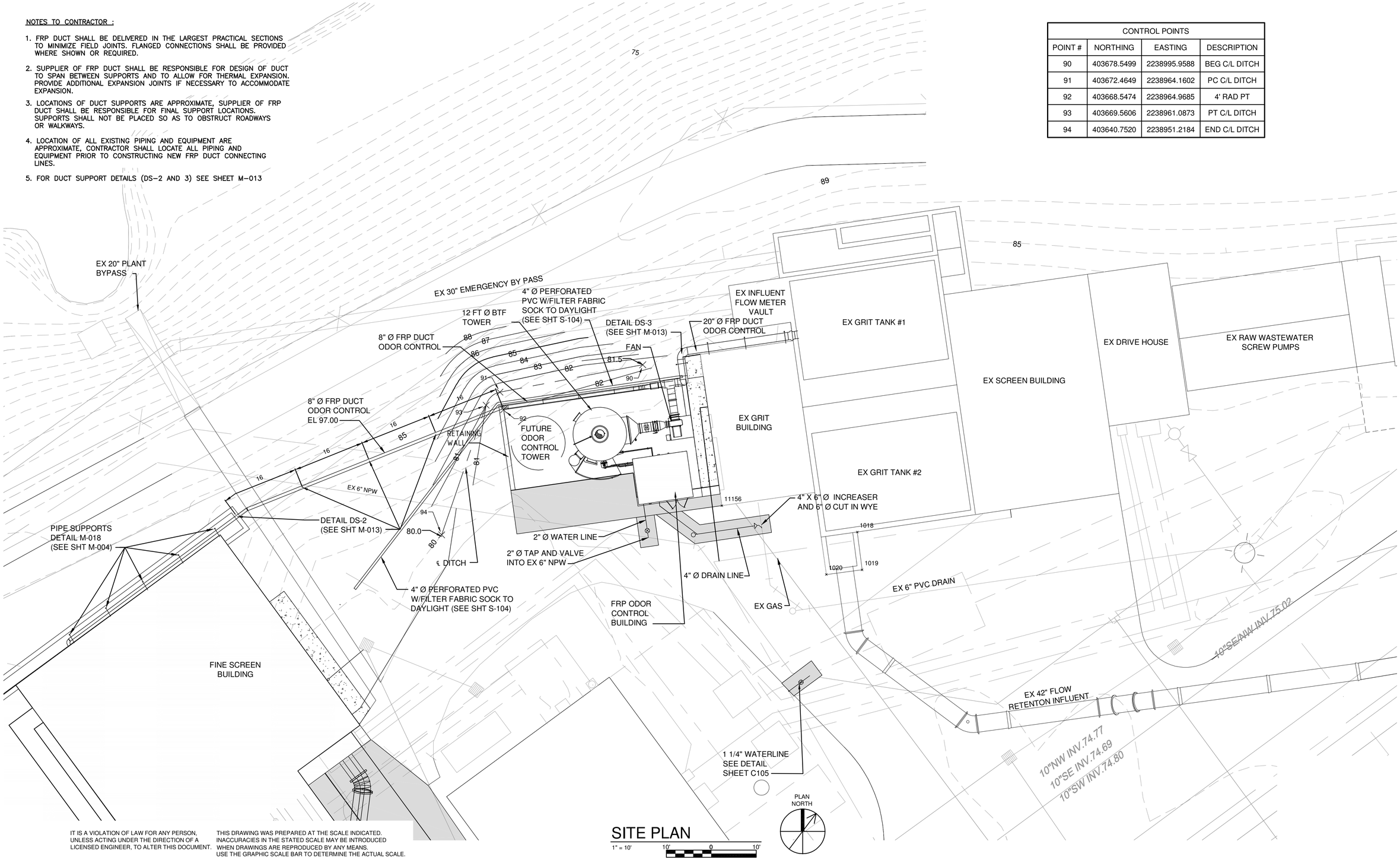
NOTES TO CONTRACTOR :

1. FRP DUCT SHALL BE DELIVERED IN THE LARGEST PRACTICAL SECTIONS TO MINIMIZE FIELD JOINTS. FLANGED CONNECTIONS SHALL BE PROVIDED WHERE SHOWN OR REQUIRED.
2. SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR DESIGN OF DUCT TO SPAN BETWEEN SUPPORTS AND TO ALLOW FOR THERMAL EXPANSION. PROVIDE ADDITIONAL EXPANSION JOINTS IF NECESSARY TO ACCOMMODATE EXPANSION.
3. LOCATIONS OF DUCT SUPPORTS ARE APPROXIMATE, SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR FINAL SUPPORT LOCATIONS. SUPPORTS SHALL NOT BE PLACED SO AS TO OBSTRUCT ROADWAYS OR WALKWAYS.
4. LOCATION OF ALL EXISTING PIPING AND EQUIPMENT ARE APPROXIMATE, CONTRACTOR SHALL LOCATE ALL PIPING AND EQUIPMENT PRIOR TO CONSTRUCTING NEW FRP DUCT CONNECTING LINES.
5. FOR DUCT SUPPORT DETAILS (DS-2 AND 3) SEE SHEET M-013

CONTROL POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
90	403678.5499	2238995.9588	BEG C/L DITCH
91	403672.4649	2238964.1602	PC C/L DITCH
92	403668.5474	2238964.9685	4' RAD PT
93	403669.5606	2238961.0873	PT C/L DITCH
94	403640.7520	2238951.2184	END C/L DITCH



SITE PLAN

1" = 10'

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IN CHARGE OF WAD
DESIGNED BY WAD
CHECKED BY WAD
DRAWN BY AJP/GJL

NO.	DATE	REVISION	INT.
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE

PROPOSED ODOR CONTROL SITE PLAN

FILE NO. 23374.51633 -C109
DATE MARCH 19, 2015

C-110

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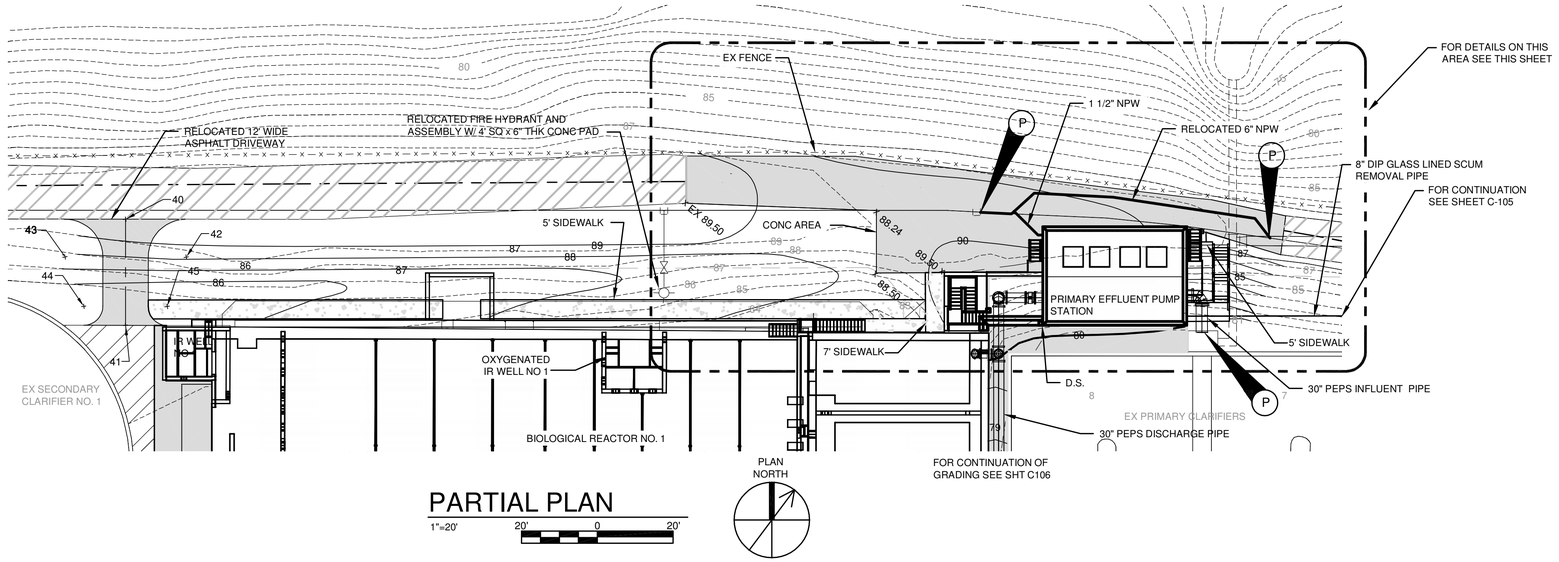
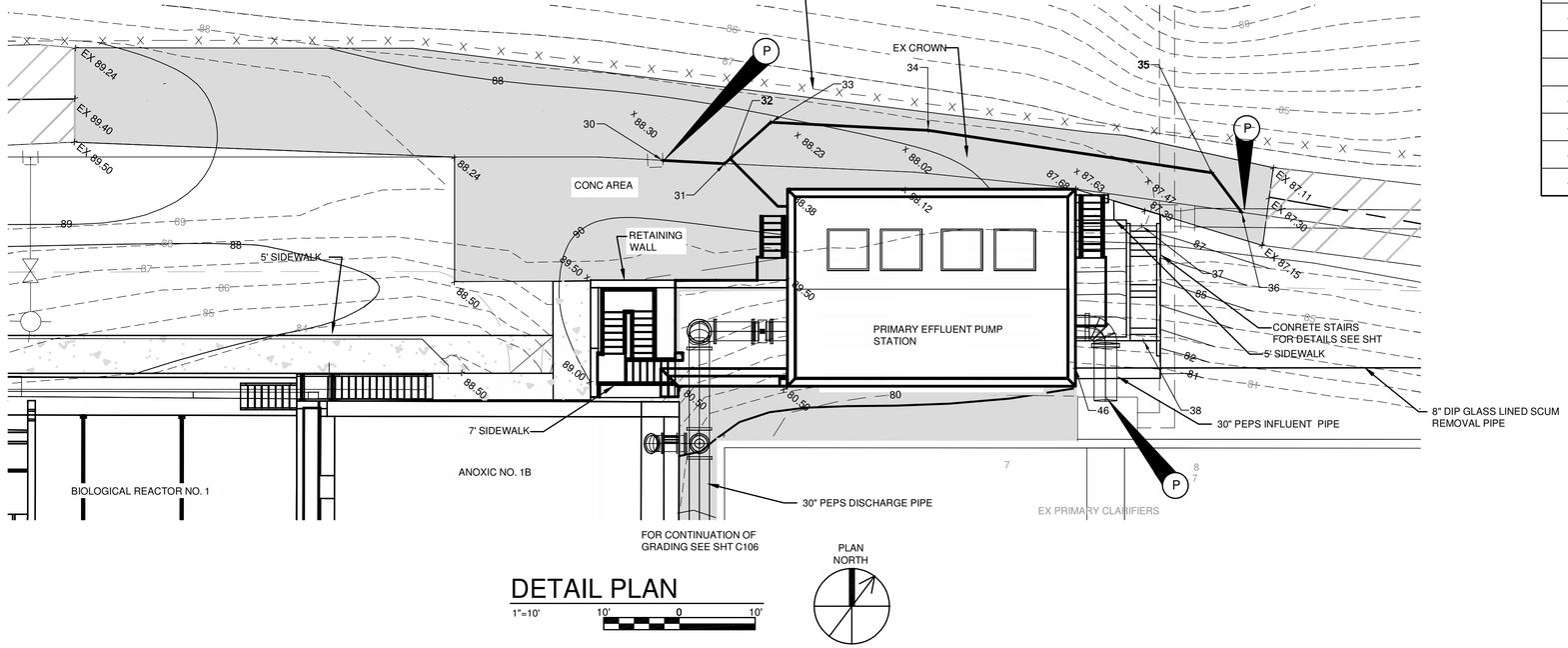


PARTIAL PLAN

1"=20' 20' 0 20'



DETAIL PLAN

1"=10' 10' 0 10'

PEPS POINT TABLE			
POINT #	NORTHING	EASTING	DESCRIPTION
30	403541.4222	2238684.3222	6" TIE IN PNT
31	403545.9081	2238691.1357	6" 45 BEND
32	403546.8806	2238691.3360	1 1/2" SUPPLY TIE IN
33	403553.9166	2238692.7854	6" 45 BEND
34	403565.3673	2238710.1775	6" BEND
35	403583.0503	2238743.6573	6" 45 BEND
36	403581.1716	2238749.9307	6" 45 BEND
37	403571.9286	2238740.3314	C/L STEPS
38	403559.8505	2238749.5224	C/L STEPS
40	403406.3592	2238503.6932	C/L 12' DRIVE
41	403383.7819	2238520.2541	C/L 12' DRIVE
42	403407.7631	2238522.5063	10' RAD PT
43	403388.8363	2238496.7037	10' RAD PT
44	403381.3074	2238508.4271	5' RAD PT
45	403394.3196	2238526.1665	5' RAD PT
46	403551.6293	2238744.4122	8" SCUM INTO BLDG

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DESIGNED BY RWR
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
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CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE

PARTIAL SITE PLAN

FILE NO. 23374.51633 - C111
DATE SEPT. 23, 2015

C-111

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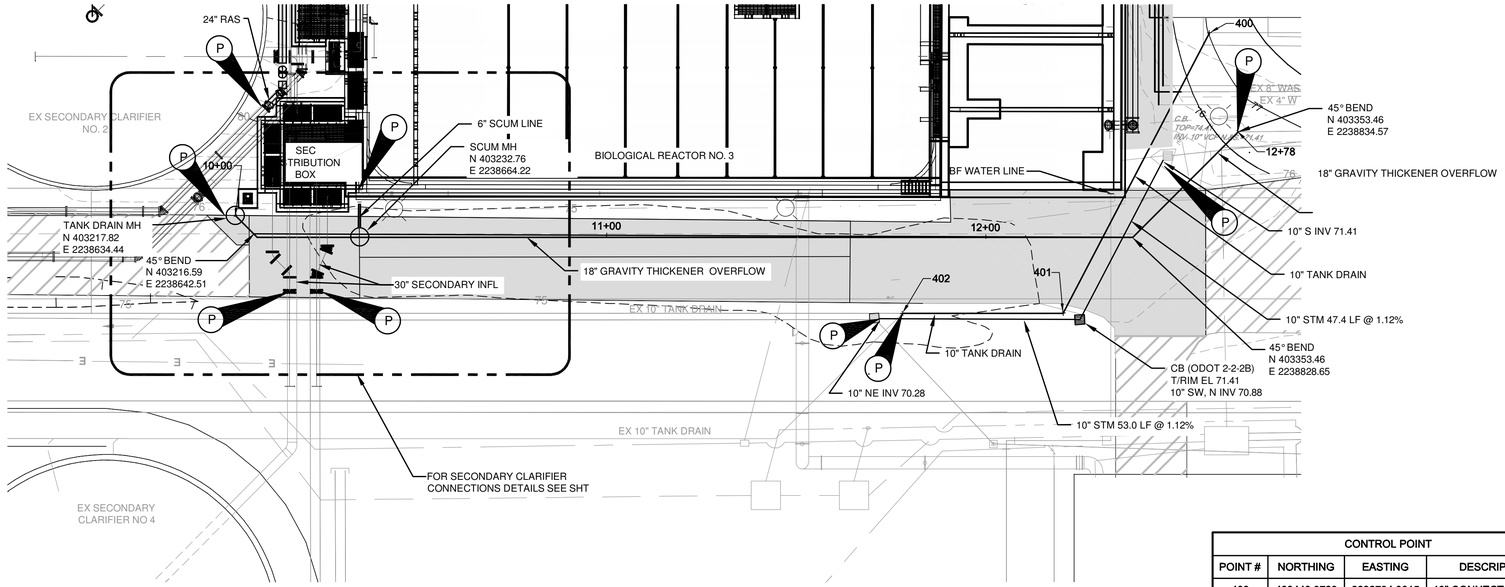
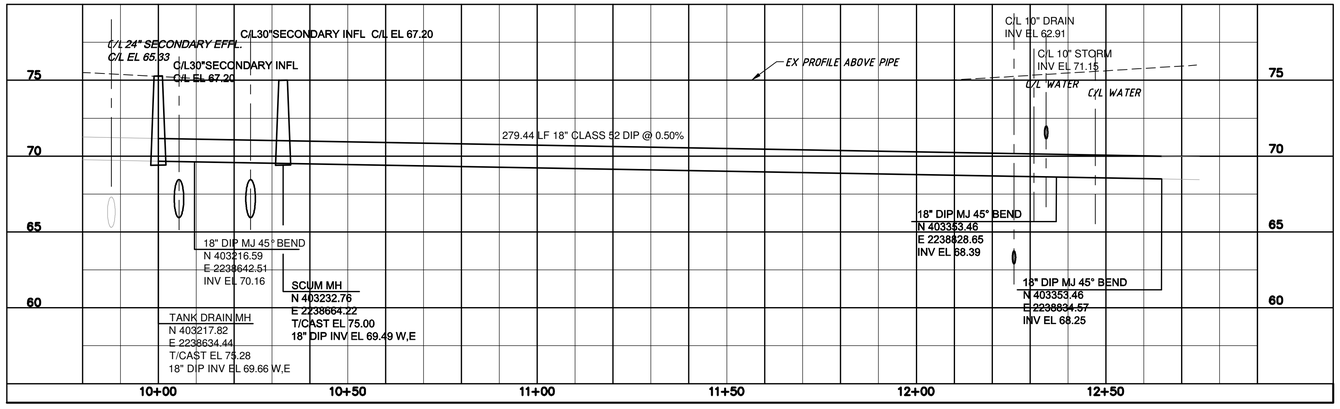


SITE PLAN

1"=50' 50' 0 50'

PLAN NORTH

CONTROL POINT			
POINT #	NORTHING	EASTING	DESCRIPTION
400	403440.9729	2238794.0015	10" CONNECT TO EX 10"
401	403358.4779	2238806.7272	10" 45 BEND
402	403333.3805	2238772.5962	10" CONNECT TO EX 10"



PROFILE

SCALE: HORIZ. 1"=20' VERT. 1"=5'

20' 0 20'

5' 0 5'

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220 MARKET AVENUE SOUTH
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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

CIVIL
SITE

PLAN AND PROFILE

FILE NO. 23374.51633 - C112
DATE SEPT. 23, 2015

C-112

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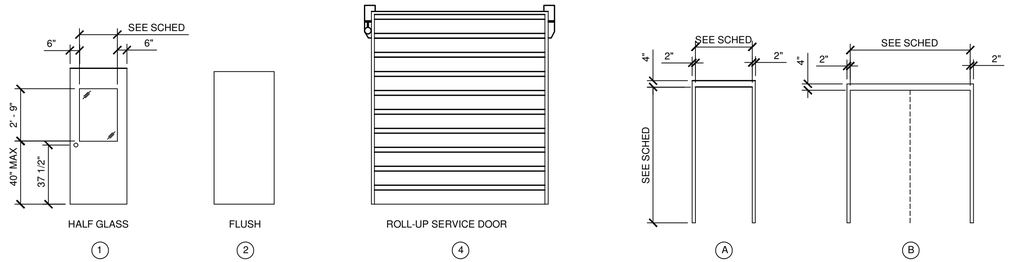
DOOR AND FRAME SCHEDULE

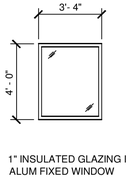
DOOR NUMBER	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR SIZE OF EACH	DOOR GLAZING TYPE	FRAME ELEVATION	FRAME MATERIAL	FRAME FINISH	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	HARDWARE SET NO.	REMARKS
FINE SCREEN BUILDING (FSB)													
FSB-1	3	ALUM	-	8'-0"x8'-0"					H3	J1	S3		ELECTRIC MOTOR OPERATOR
FSB-2	3	ALUM	-	8'-0"x8'-0"					H3	J1	S3		ELECTRIC MOTOR OPERATOR
FSB-3	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
FSB-4	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
FSB-5	1	FRP	PTD	2'-10"x7'-0"	1/4" TEMP GLASS	B	FRP	PTD	H1	J1	S2	3	DOUBLE
FSB-6	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
FSB-7	1	FRP	PTD	2'-10"x7'-0"	1/4" TEMP GLASS	B	FRP	PTD	H1	J1	S1	2	DOUBLE
FSB-8	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
PRIMARY EFFLUENT PUMP STATION (PEPS)													
PEPS-1	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
PEPS-2	1	FRP	PTD	2'-10"x7'-0"	1/4" TEMP GLASS	B	FRP	PTD	H1	J1	S1	2	DOUBLE
PEPS-3	3	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
PEPS-4	4	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
PEPS-5		ALUM		3'-0"X3'-0"			ALUM						FLOOR DOOR
PEPS-6		ALUM		3'-0"X3'-0"			ALUM						FLOOR DOOR
PEPS-7		ALUM		5'-0"X5'-0"			ALUM						FLOOR DOOR
PEPS-8		ALUM		5'-0"X5'-0"			ALUM						FLOOR DOOR
PEPS-9		ALUM		5'-0"X5'-0"			ALUM						FLOOR DOOR
PEPS-10		ALUM		5'-0"X5'-0"			ALUM						FLOOR DOOR
PEPS-11		ALUM		2'-6"X2'-6"			ALUM						FLOOR DOOR w/FALL PROTECTION - NOTE 1
PEPS-12		ALUM		2'-6"X2'-6"			ALUM						FLOOR DOOR
PEPS-13		ALUM		2'-6"X2'-6"			ALUM						FLOOR DOOR
PEPS-14		ALUM		2'-6"X2'-6"			ALUM						FLOOR DOOR - NOTE 1
SECONDARY GALLERY (SG)													
SG-1	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	
SG-2	1	FRP	PTD	3'-0"x7'-0"	1/4" TEMP GLASS	A	FRP	PTD	H1	J1	S1	1	

NOTE 1 : PROVIDE 8"X8" DOOR FOR GATE ACCESS. COORDINATE LOCATION WITH GATE MANUFACTURER



DOOR TYPES

NOT TO SCALE

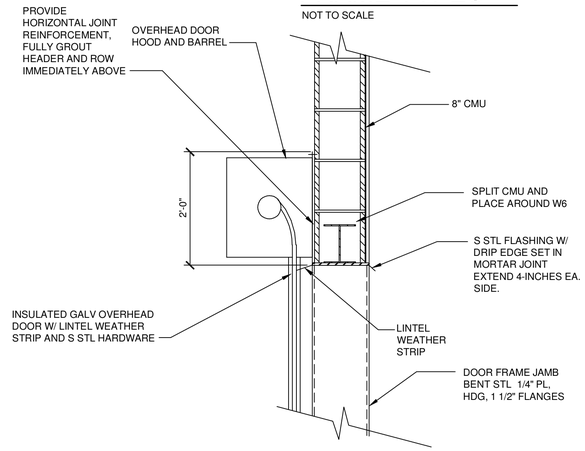


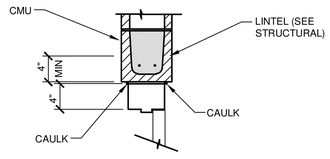
WINDOW TYPES

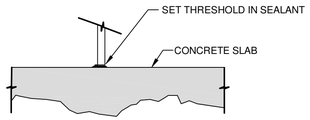
NOT TO SCALE

FRAME TYPES

NOT TO SCALE

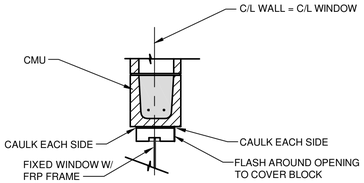


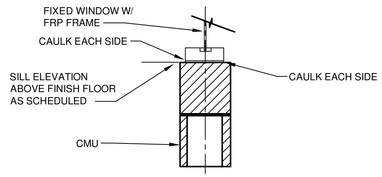




S2 DOOR SILL DETAIL

1"=1'-0" 1' 6" 0 1'



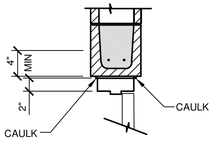


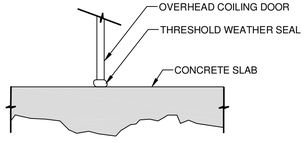
H3 OVERHEAD DOOR - HEADER - DETAIL

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

H1 DOOR HEAD DETAIL

1"=1'-0" 1' 6" 0 1'



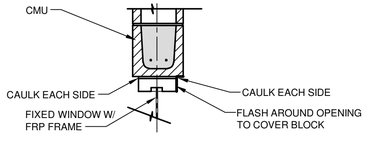


S3 DOOR SILL DETAIL

1"=1'-0" 1' 6" 0 1'

H2 WINDOW HEAD DETAIL

1"=1'-0" 1' 6" 0 1'

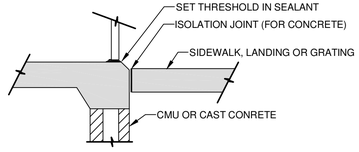


S5 WINDOW SILL DETAIL

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

J1 DOOR JAMB DETAIL

1"=1'-0" 1' 6" 0 1'



J2 WINDOW JAMB DETAIL

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

S1 DOOR SILL DETAIL

1"=1'-0" 1' 6" 0 1'

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DESIGNED BY KGP
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL

GENERAL DETAILS

FILE NO. 23374.51633 - A001

DATE SEPT. 23, 2015

A-001

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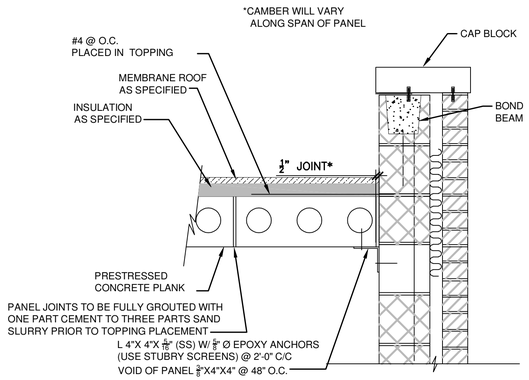
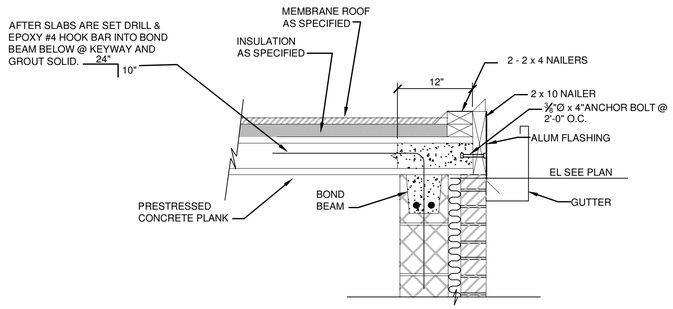


FINE SCREENING BUILDING AND
PRIMARY EFFLUENT PUMP STATION BUILDING

PARPET WALL DETAIL 1

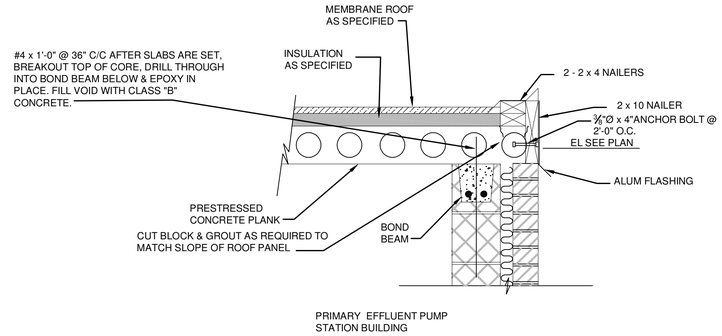
1"=1'-0" 1' 6" 0 1'



PRIMARY EFFLUENT PUMP
STATION BUILDING

PARPET WALL DETAIL 2 WITH GUTTER

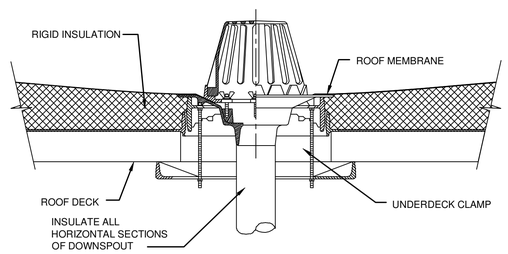
1"=1'-0" 1' 6" 0 1'



PRIMARY EFFLUENT PUMP
STATION BUILDING

PARPET WALL DETAIL 3

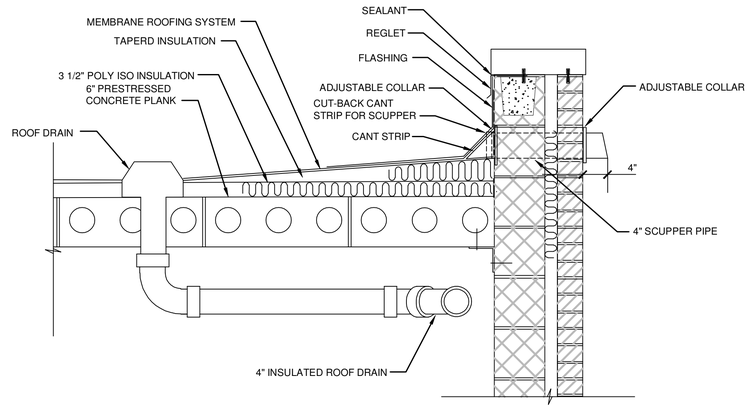
1"=1'-0" 1' 6" 0 1'



FINE SCREENING BUILDING

ROOF DRAIN DETAIL

1"=1'-0" 1' 6" 0 1'



FINE SCREENING BUILDING

ROOF DRAIN, ROOF BUILDUP AND SCUPPER DETAIL

1"=1'-0" 1' 6" 0 1'

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL

GENERAL DETAILS

FILE NO. 23374.51633 - A002
DATE SEPT. 23, 2015

A-002

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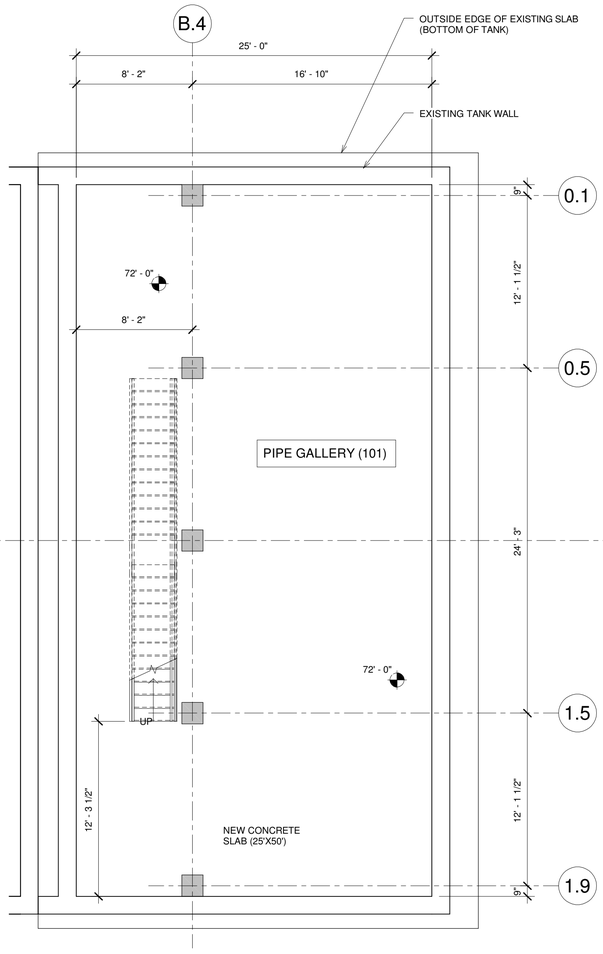
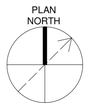
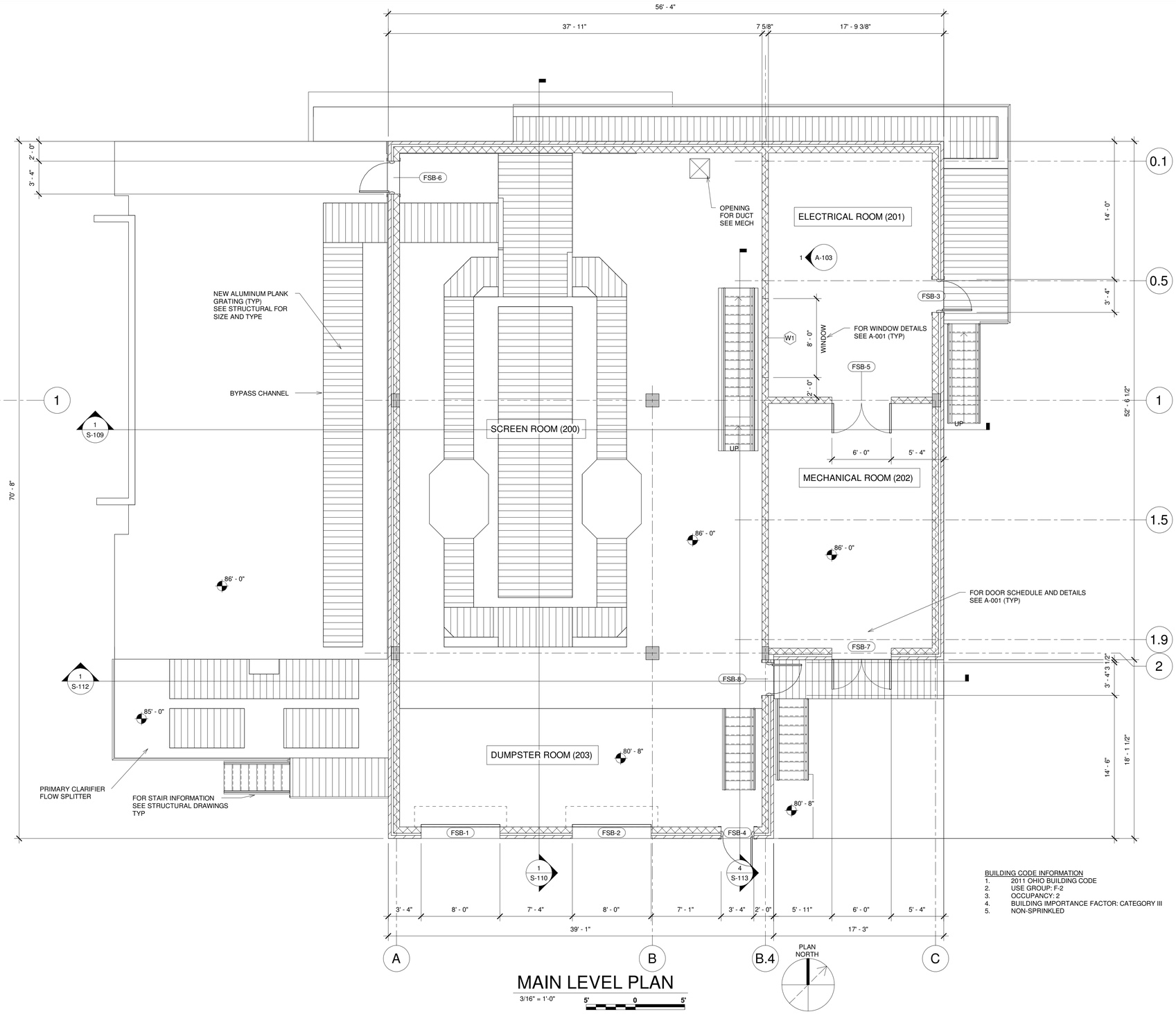


LOWER LEVEL PLAN

3/16" = 1'-0"





MAIN LEVEL PLAN

3/16" = 1'-0"

BUILDING CODE INFORMATION
1. 2011 OHIO BUILDING CODE
2. USE GROUP: F-2
3. OCCUPANCY: 2
4. BUILDING IMPORTANCE FACTOR: CATEGORY III
5. NON-SPRINKLED

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DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

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0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
FINE SCREEN BUILDING

FLOOR PLAN

FILE NO. 23374.51633- 100

DATE MARCH 19,2015

A-100

\\fs-canton\fE1400? Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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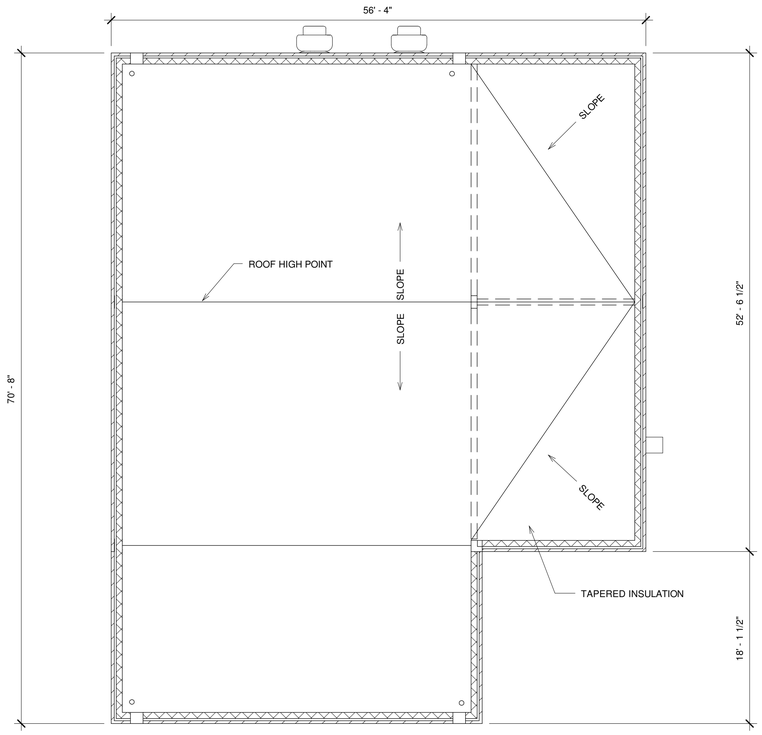

ROOF PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

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DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
FINE SCREEN BUILDING

ROOF PLAN

FILE NO. 23374.51633- 101

DATE MARCH 19,2015

A-101

\\fs-canton\fE14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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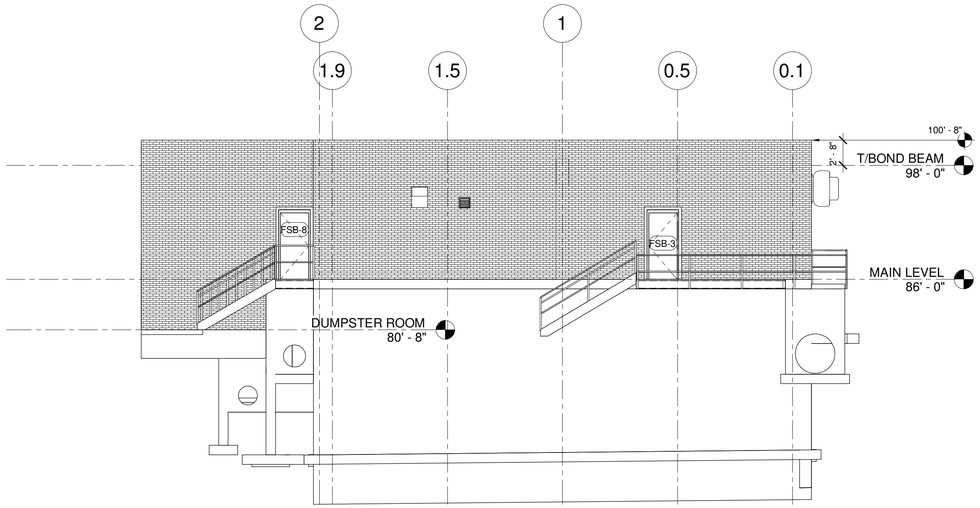
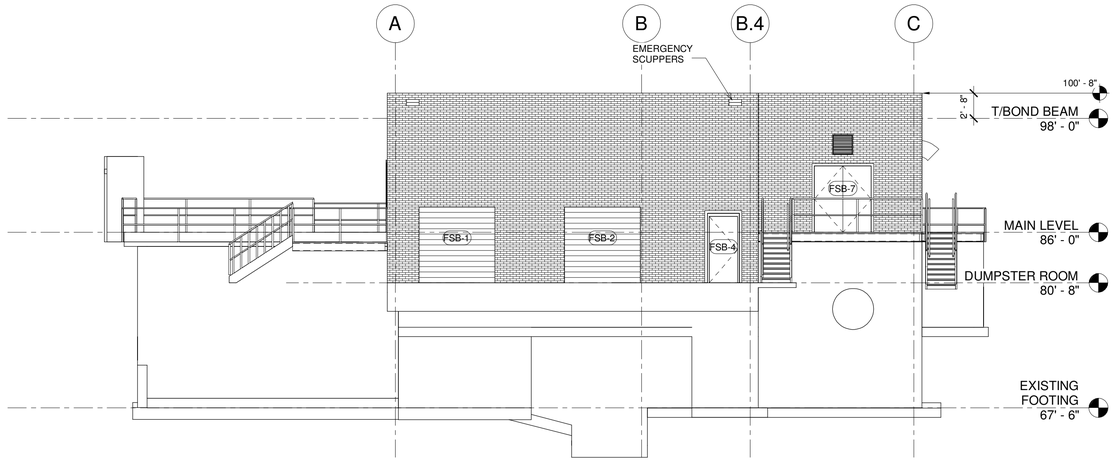
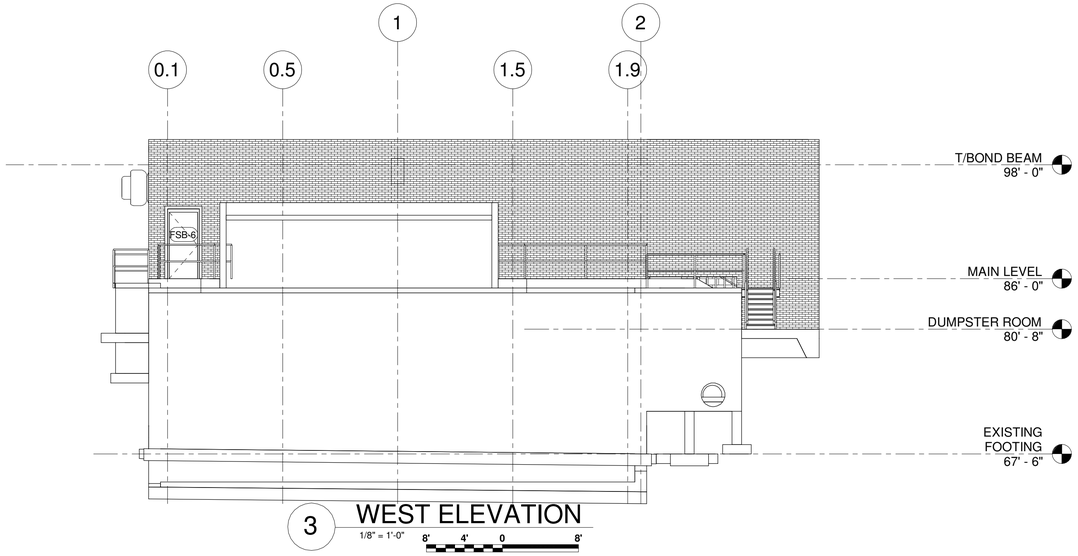


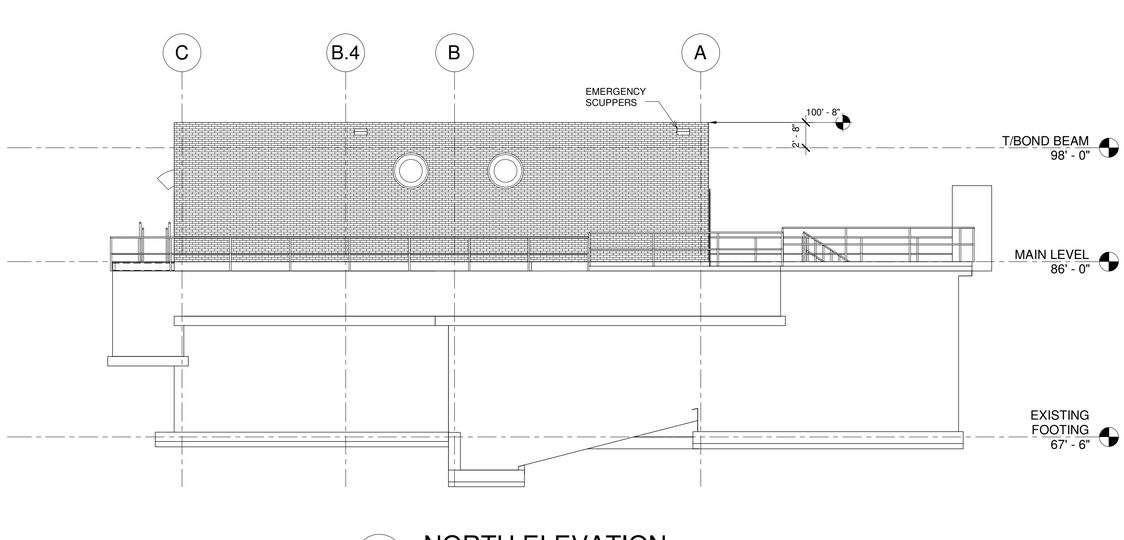
1 EAST ELEVATION
1/8" = 1'-0"
8' 4' 0 8'



2 SOUTH ELEVATION
1/8" = 1'-0"
8' 4' 0 8'



3 WEST ELEVATION
1/8" = 1'-0"
8' 4' 0 8'



4 NORTH ELEVATION
1/8" = 1'-0"
8' 4' 0 8'

NOTE:
COORDINATE ALL ROOF AND WALL PENETRATIONS WITH OTHER TRADES

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
FINE SCREEN BUILDING

ELEVATIONS

FILE NO.
23374.51633- 102

DATE
MARCH 19,2015

A-102

\\fs-canton\fE14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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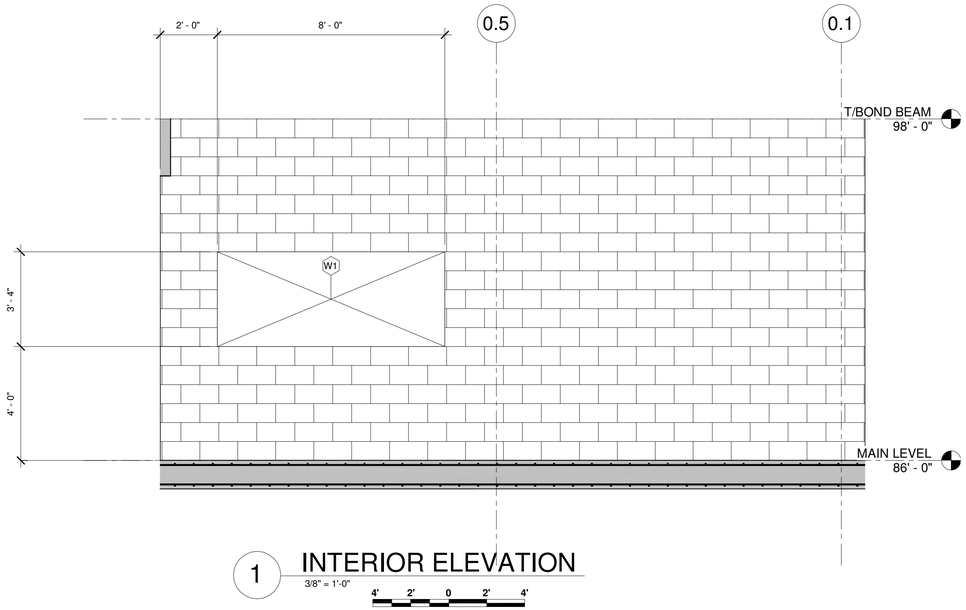

1 INTERIOR ELEVATION

3/8" = 1'-0"

4' 2' 0 2' 4'

\\fs-canton\fE14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 103

DATE MARCH 19,2015

A-103

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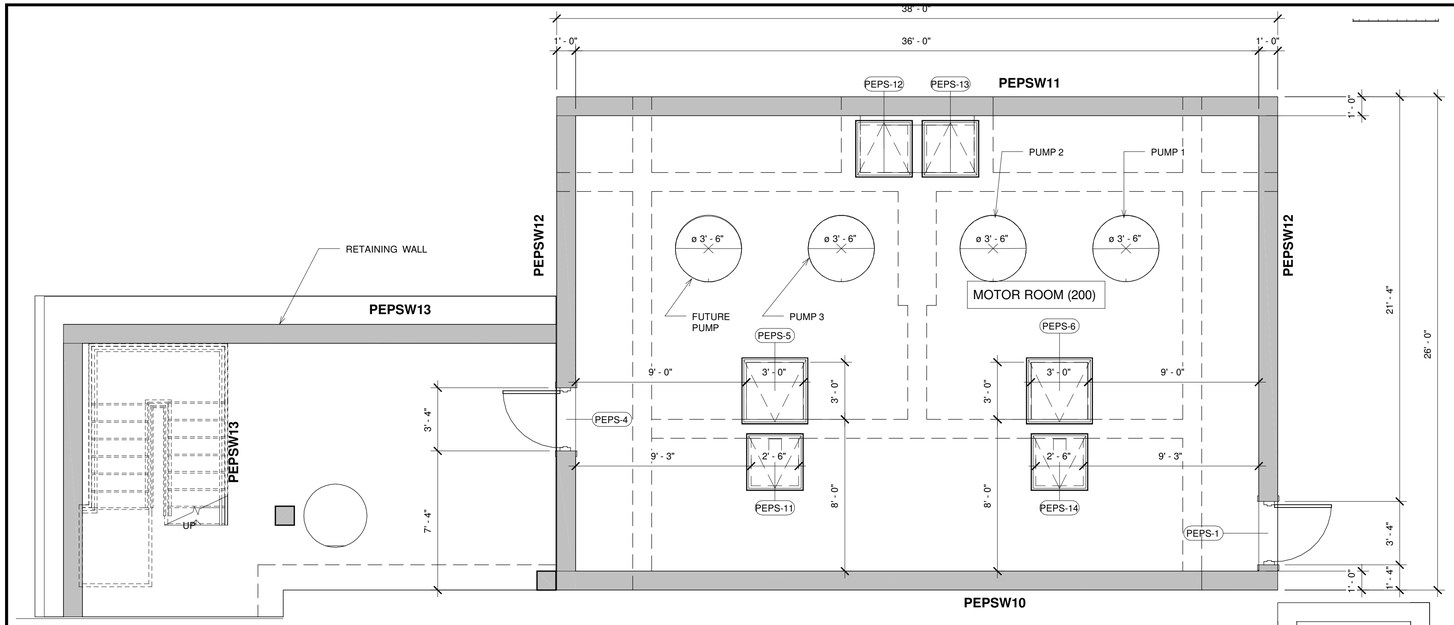
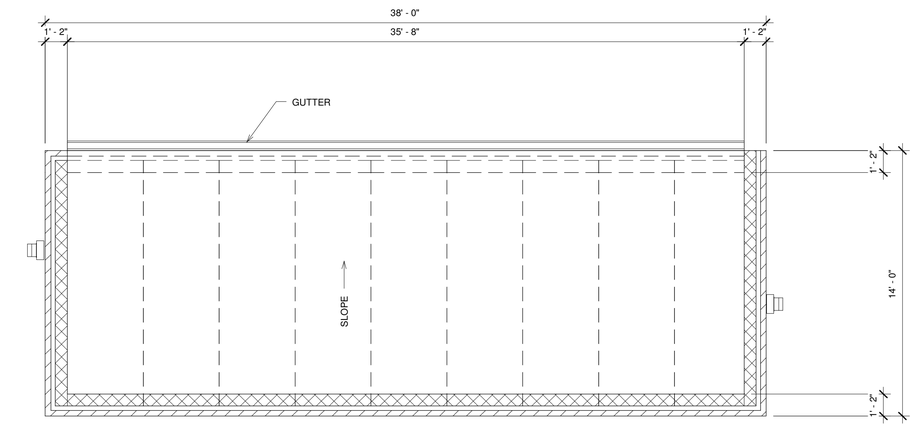


ARCHITECTURAL MOTOR ROOM FLOOR PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'



ARCHITECTURAL ROOF PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

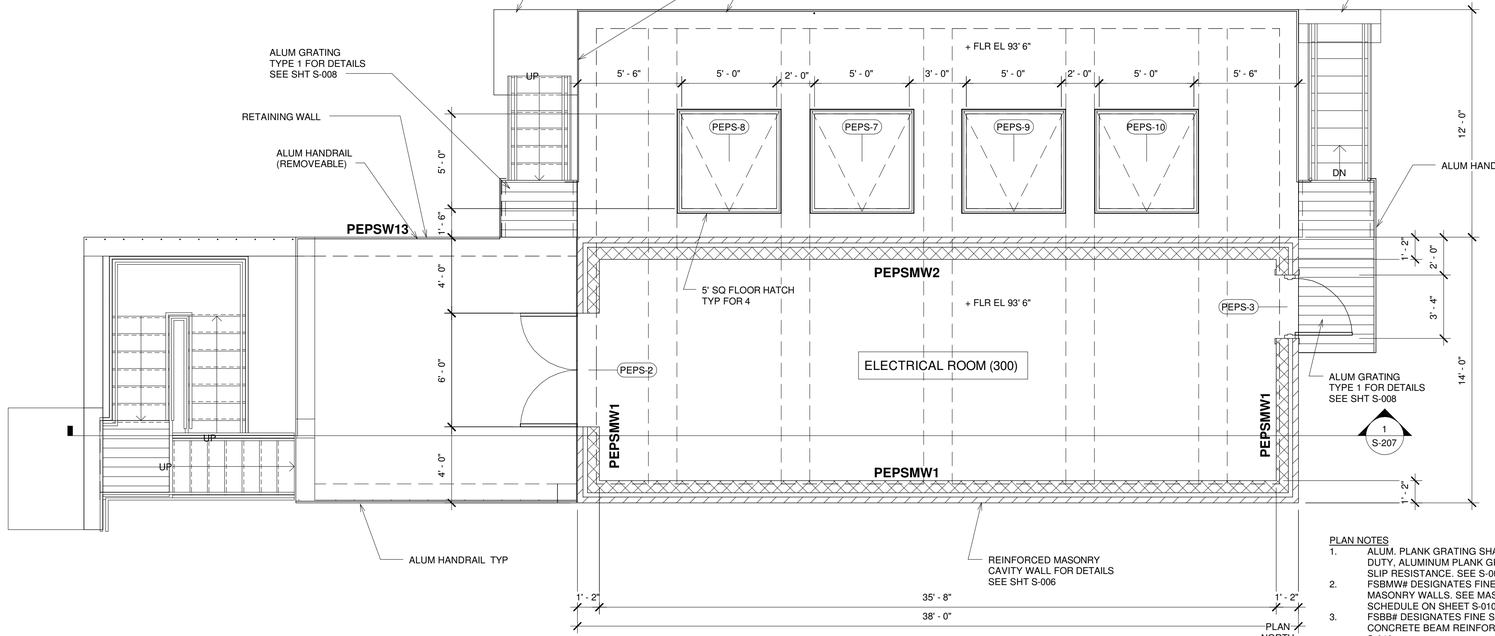
PLAN NORTH

EX PRIMARY EFFLUENT BOX

CONC LANDING

ALUM HANDRAIL (REMOVEABLE)

CONC LANDING



PLAN NORTH

ARCHITECTURAL UPPER LEVEL FLOOR/DECK PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

BUILDING CODE INFORMATION

1. 2011 OHIO BUILDING CODE
2. USE GROUP: F-2
3. OCCUPANCY: 2
4. BUILDING IMPORTANCE FACTOR: CATEGORY III
5. NON-SPRINKLED

PLAN NOTES

1. ALUM. PLANK GRATING SHALL BE UNPUNCHED, HEAVY DUTY, ALUMINUM PLANK GRATING WITH UPSETS FOR SLIP RESISTANCE. SEE S-008 FOR SUPPORT DETAILS.
2. FSBMW# DESIGNATES FINE SCREEN BUILDING MASONRY WALLS. SEE MASONRY WALL REINFORCING SCHEDULE ON SHEET S-010.
3. FSBB# DESIGNATES FINE SCREEN BUILDING BEAM. SEE CONCRETE BEAM REINFORCING SCHEDULE ON SHEET S-010.
4. FLOOR, PLATFORM AND STAIR LIVE LOAD = 100 PSF
5. ALL ALUMINUM STAIRS, PLATFORMS, FRAMING, HANDRAIL AND PLANK GRATING SHOWN ON THIS PLAN ARE NEW
6. ALUMINUM PLATFORMS TO BE CONSTRUCTED FROM C8X4.25's SPACED 5'-0" MAX AND 1 1/2" PLANKS. POST DOWN OR KNEE BRACE OFF EXISTING STRUCTURE WITH L4X4X5/16

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
PRIMARY EFFLUENT PUMP STATION

FLOOR AND ROOF PLANS

FILE NO. 22374.51633-A201

DATE MARCH 19, 2015

A-201

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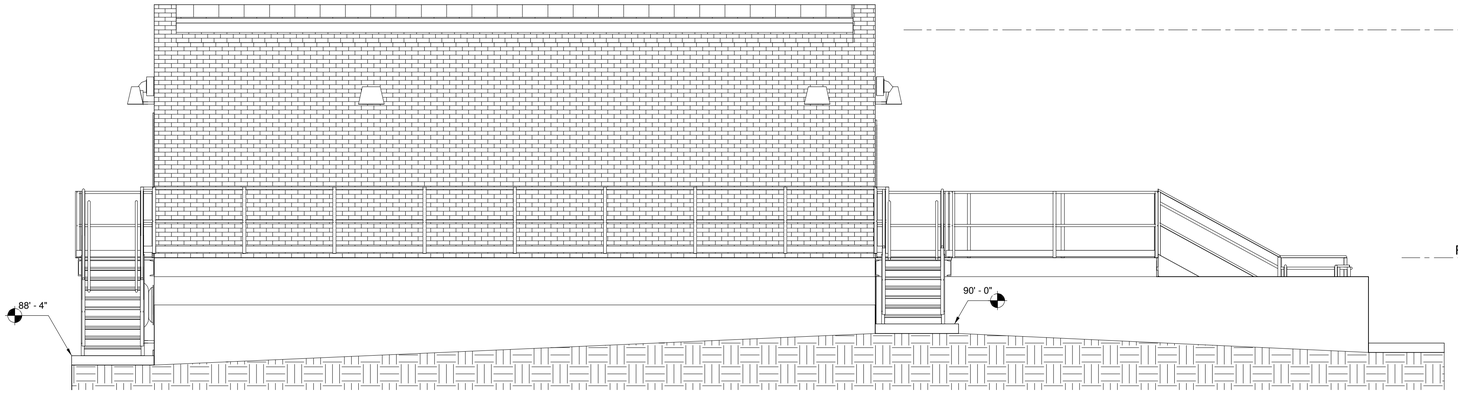
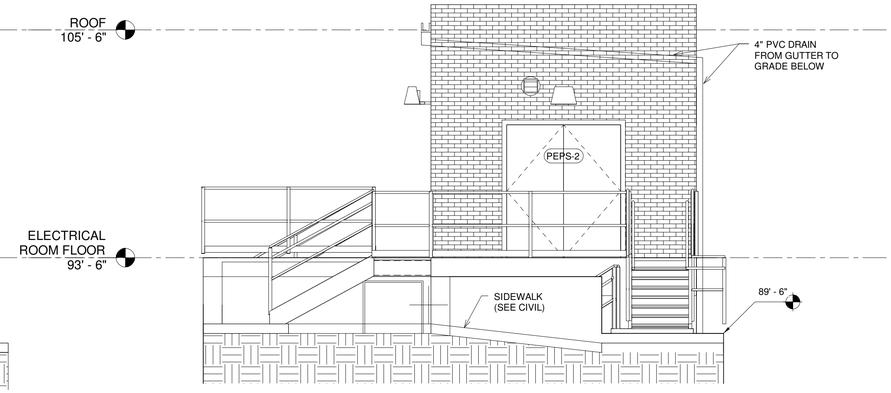
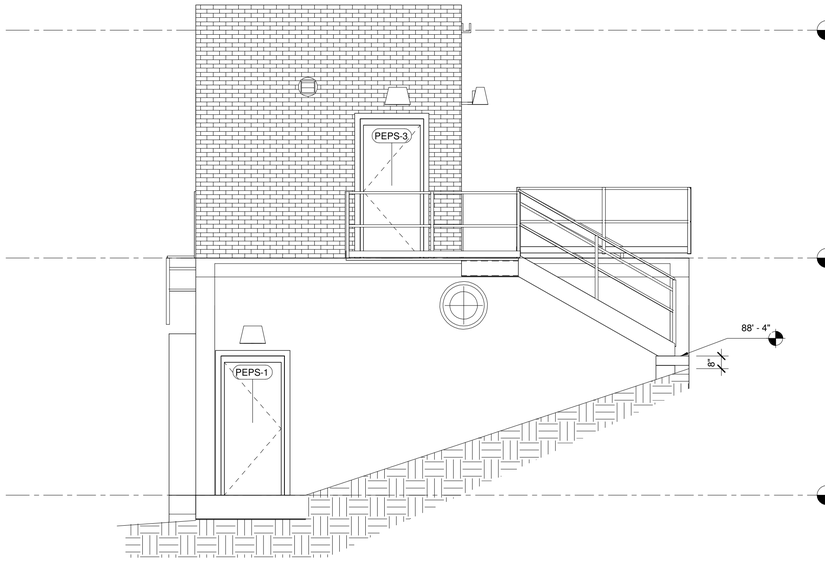


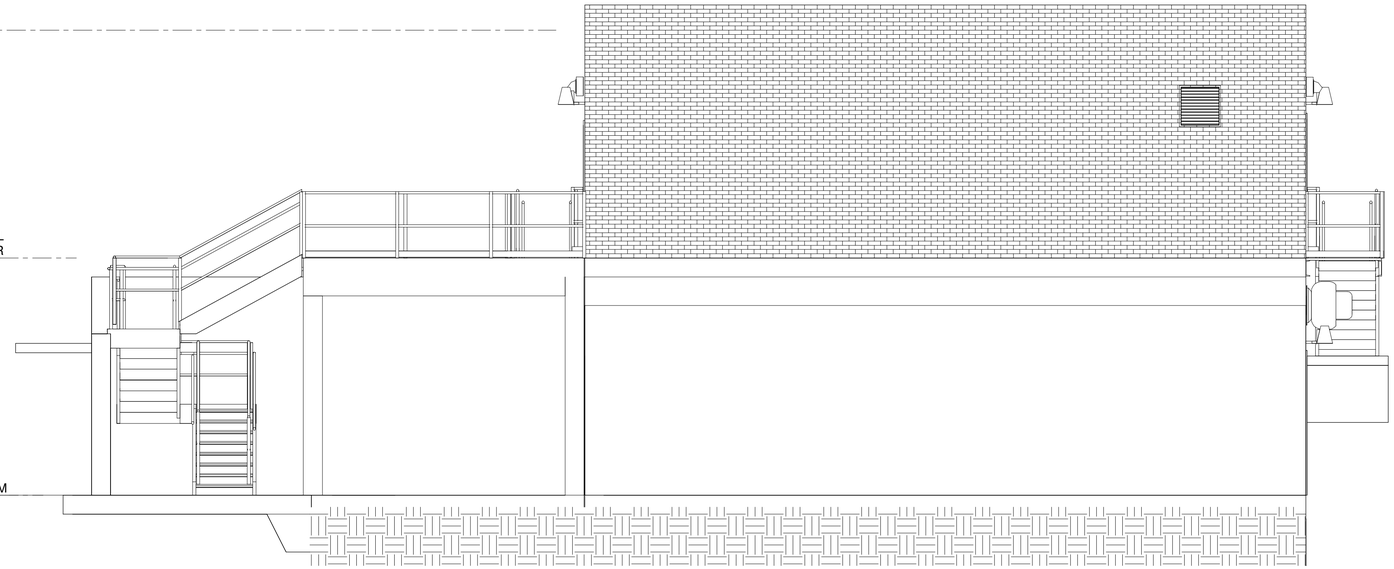
1 NORTH ELEVATION
1/4" = 1'-0"
4' 2' 0 2' 4'



3 WEST ELEVATION
1/4" = 1'-0"
4' 2' 0 2' 4'



4 EAST ELEVATION
1/4" = 1'-0"
4' 2' 0 2' 4'



2 SOUTH ELEVATION
1/4" = 1'-0"
4' 2' 0 2' 4'

NOTE:
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
PRIMARY EFFLUENT PUMP STATION

ELEVATIONS

FILE NO. 22374.51633-A202
DATE MARCH 19, 2015

A-202

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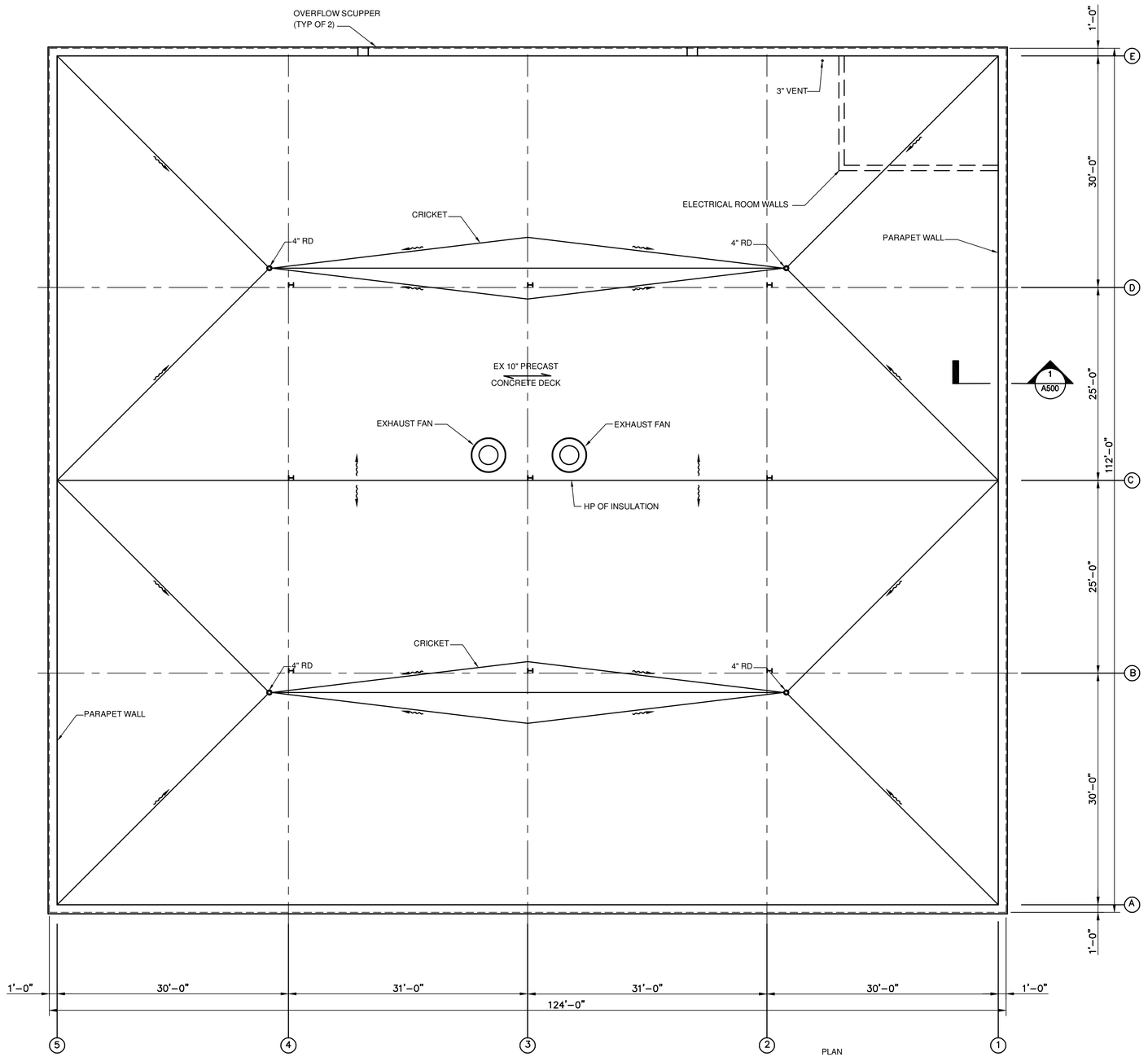
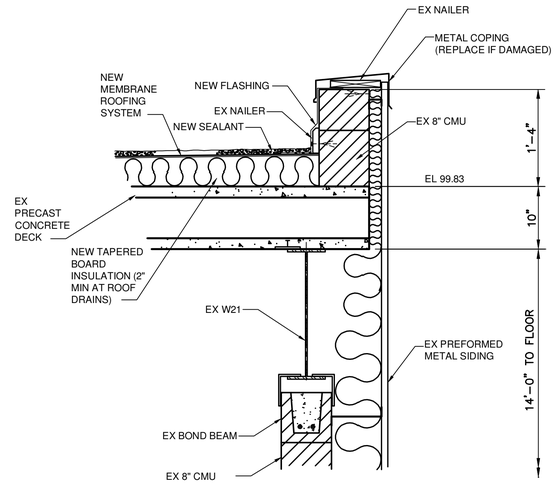


ROOF PLAN
1/8"=1'-0"
8' 4' 0 8'

PLAN NORTH



1 SECTION
1"= 1'-0"
1' 0 1'

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
TERTIARY FILTER/UV BUILDING

ROOF REPLACEMENT PLAN

FILE NO. 23374.51633 - A500
DATE MARCH 19, 2015

A-500

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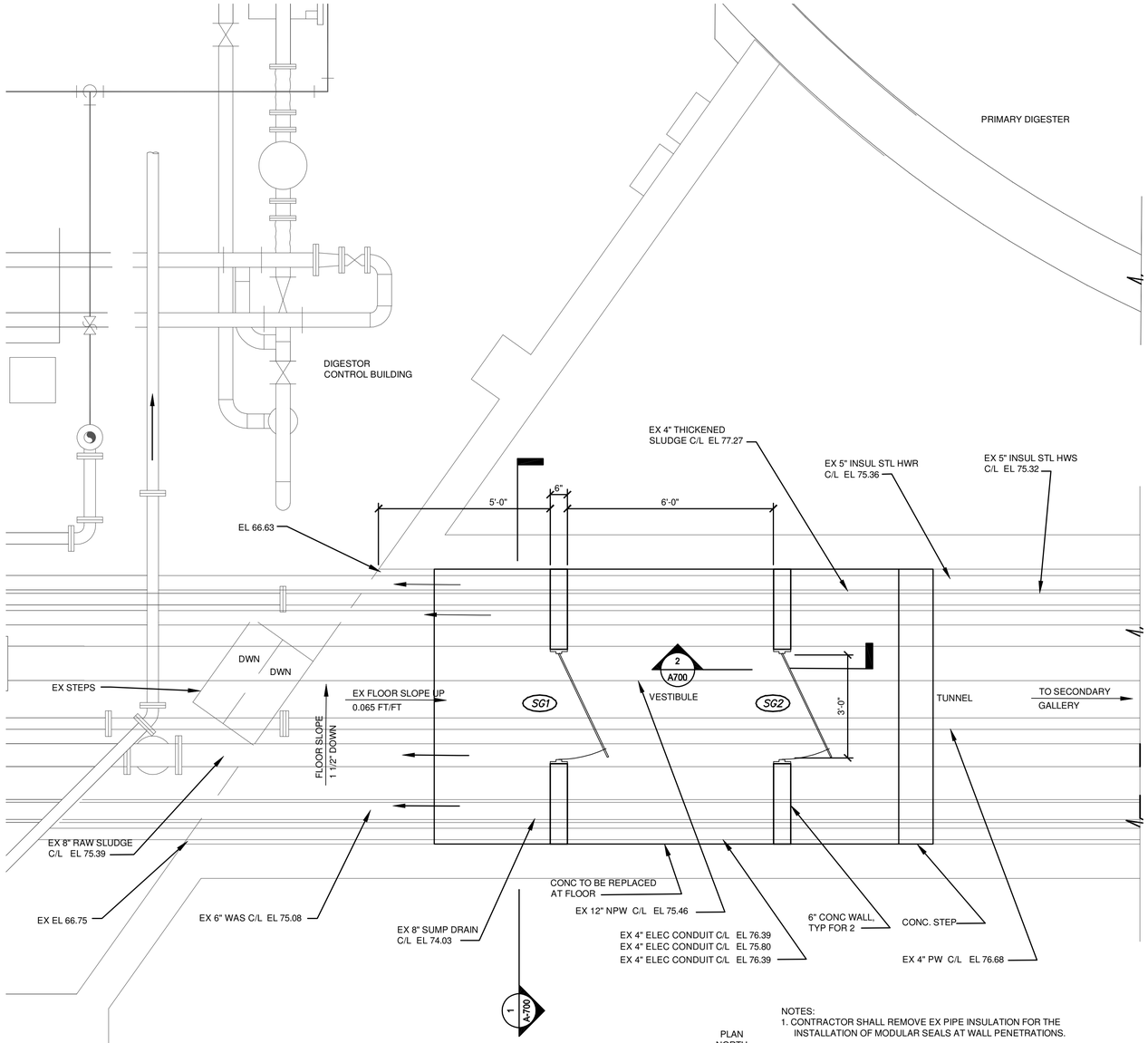
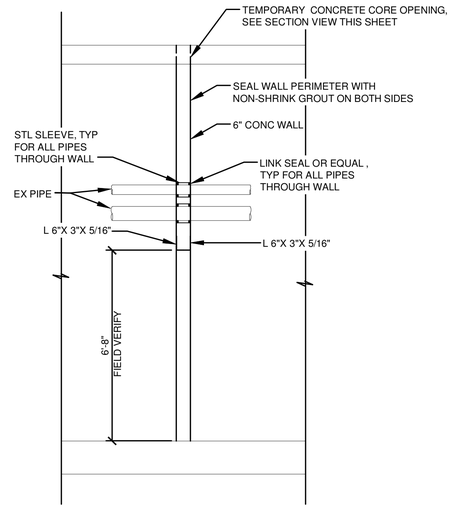


VESTIBULE PLAN

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

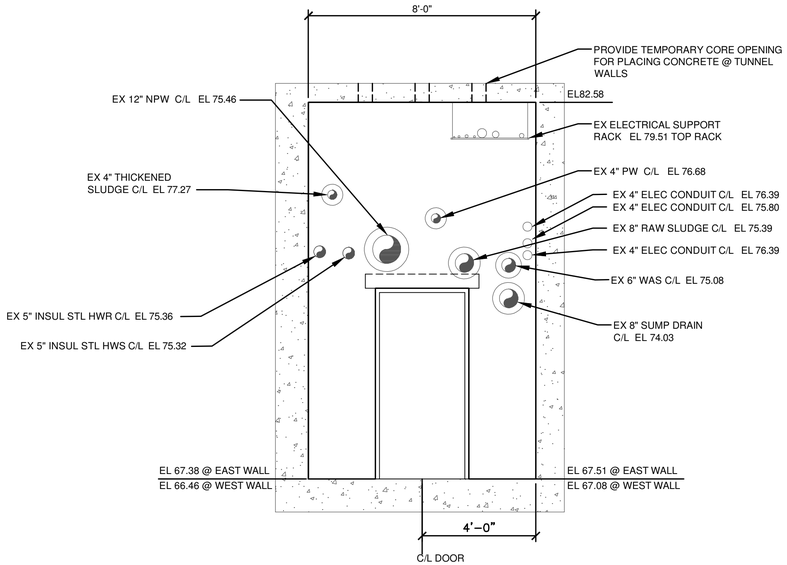
PLAN NORTH

NOTES:
1. CONTRACTOR SHALL REMOVE EX PIPE INSULATION FOR THE INSTALLATION OF MODULAR SEALS AT WALL PENETRATIONS.
2. FOR DOOR SCHEDULE SEE SHEET A-001.



2 SECTION

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



1 SECTION

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

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ARCHITECTURAL
SECONDARY GALLERY

TUNNEL PLAN, SECTION, AND DETAILS

FILE NO. 23374.51633 - A700

DATE MARCH 19, 2015

A-700

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A. STRUCTURAL GENERAL NOTES

1. WORK SHALL COMPLY WITH THE OHIO BUILDING CODE (2011 EDITION WITH AMENDMENTS).
2. SECTIONS AND DETAILS SHOWN ON DRAWINGS ARE TYPICAL. USE SIMILAR CONSTRUCTION AT LOCATIONS NOT SPECIFICALLY DETAILED.
3. EXAMINE AND COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL, PLUMBING SITE, ELECTRICAL, AND PROCESS DRAWINGS. VERIFY LOCATIONS AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
4. VERIFY LOCATION OF EXISTING UNDERGROUND SITE UTILITIES PRIOR TO THE START OF WORK AND COORDINATE LOCATION WITH STRUCTURAL DRAWINGS. NOTIFY THE ENGINEER OF ANY CONFLICTS IN WRITING. DO NOT PROCEED WITH AFFECTED WORK UNTIL CONFLICTS HAVE BEEN RESOLVED.
5. ADEQUATE TEMPORARY BRACING OF CONSTRUCTION ELEMENTS SHALL BE PROVIDED FOR FOUNDATIONS, ABOVE GRADE WALLS, STRUCTURAL STEEL AND OTHER STRUCTURAL SYSTEMS, FOR WIND AND/OR CONSTRUCTION LOADS. BRACING SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING THEIR SPECIFIED DESIGN STRENGTH AND/OR REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR SHALL PROVIDE SUPPORTS, WHETHER SHEETING, SHORING OR BRACING SUCH THAT NO HORIZONTAL MOVEMENT OR VERTICAL SETTLEMENT OCCURS TO EXISTING STRUCTURES, STREETS OR UTILITIES ADJACENT TO, OR ON THE PROJECT SITE.
7. DESIGN, INSTALLATION AND MAINTENANCE OF SHEETING, SHORING OR BRACING REQUIRED TO PERFORM THIS WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO FABRICATION AND INSTALLATION OF SHEETING, SHORING AND BRACING, DRAWINGS AND STRUCTURAL CALCULATIONS FOR THE SHEETING,SHORING AND BRACING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER (LICENSED IN OHIO) RESPONSIBLE FOR THEIR PREPARATION.
8. FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE START OF WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES IN WRITING. DO NOT PROCEED WITH AFFECTED WORK UNTIL DISCREPANCIES HAVE BEEN RESOLVED.
9. PRIOR TO EXCAVATION ADJACENT TO EXISTING STRUCTURES, DOCUMENT EXISTING DISTRESS TO THE EXISTING STRUCTURES INCLUDING PHOTOGRAPHS, LOCATIONS AND DETAILED DESCRIPTIONS OF DISTRESS NOTED. SUBMIT DOCUMENTATION OF EXISTING DISTRESS, FOR RECORD PURPOSES, PRIOR TO PROCEEDING WITH EXCAVATION WORK.
10. PRIOR TO EXCAVATION ADJACENT TO EXISTING STRUCTURES, DEVELOP AND SUBMIT A VIBRATION MINIMIZATION MONITORING PLAN AND A SETTLEMENT MINIMIZATION AND MONITORING PLAN FOR EXISTING STRUCTURES. THE PEAK PARTICLE VELOCITY SHALL BE LESS THAN 0.5 INCHES/SECOND AT ANY STRUCTURE DURING CONSTRUCTION ACTIVITIES. IF THE PEAK PARTICLE VELOCITY EXCEED 0.5 INCHES/SECOND, WORK MUST BE STOPPED AND ALTERNATE PROCEDURES AND TREATMENT TO REDUCE THE VIBRATIONS MUST BE PROPOSED. IF SETTLEMENT OR OTHER DISTRESS TO EXISTING STRUCTURE IS OBSERVED, WORK MUST BE STOPPED AND ALTERNATE PROCEDURES AND EQUIPMENT TO ELIMINATE THESE IMPACTS SHALL BE PROPOSED.
11. PRIOR TO EXCAVATION ADJACENT TO EXISTING STRUCTURES, DEVELOP AND SUBMIT STRUCTURAL UNDERPINNING SYSTEMS FOR THE EXISTING STRUCTURES (INCLUDING THE EXISTING AERATION TANKS AND PRIMARY CLARIFIERS), ENGAGE A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OHIO, TO DESIGN THE UNDERPINNING SYSTEMS, INCLUDING ANY ASSOCIATED BRACING AND/OR LATERAL SUPPORT SYSTEMS. LAYOUT DRAWINGS AND CALCULATIONS (INCLUDING ASSUMPTIONS) SHALL BE SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW. UNDERPINNING SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE OHIO BUILDING CODE AND DESIGN CRITERIA LISTED ON SHEET S-002. FIELD OVERSIGHT DURING INSTALLATION OF THE UNDERPINNING SYSTEMS, AND WRITTEN CERTIFICATION THAT THE SYSTEMS WERE INSTALLED IN ACCORDANCE WITH THE DESIGN AND THAT FIELD OVERSIGHT WAS PROVIDED DURING INSTALLATION SHALL BE PROVIDED BY THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR TO PERFORM THE DESIGN. ANY VERTICAL OR LATERAL MOVEMENT OF THE STRUCTURE OR OTHER DISTRESS WHICH OCCURS AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE, UNDER THE DIRECTION OF THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR. REPAIRS TO EXISTING STRUCTURES DUE TO MOVEMENT OF THE UNDERPINNING SYSTEM OR OTHER CONSTRUCTION ACTIVITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

B. STRUCTURAL FOUNDATION NOTES

1. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL ENGINEERING REPORT BY S&ME, INC., DATED SEPTEMBER 25, 2014 AND REPORT ADDENDUM 1 BY S&ME, INC., DATED NOVEMBER 12, 2014:

   a. NET ALLOWABLE BEARING PRESSURE: ANOXIC/ANAEROBIC TANK - 4,000 P.S.F.
      PRIMARY EFFLUENT PUMP STATION - 3,000 P.S.F.
      EFFLUENT DISTRIBUTION STRUCTURES - 3,000 P.S.F.
      ODOR CONTROL STRUCTURE - 2,500 P.S.F.
      FLOW RETENTION INFLUENT METERING CHAMBER - 4,000 P.S.F.

   b. MODULUS OF SUBGRADE REACTION: ANOXIC/ANAEROBIC TANK - 35 P.C.I.
      PRIMARY EFFLUENT PUMP STATION - 36 P.C.I.
      EFFLUENT DISTRIBUTION STRUCTURES- 49 P.C.I.
      ODOR CONTROL STRUCTURE - 150 P.C.I.
      FLOW RETENTION INFLUENT METERING CHAMBER - 42 P.C.I.

   c. MINIMUM FOUNDATION DEPTH: 3'-6" BELOW FINISH GRADE

   d. MINIMUM OVER-EXCAVATION DEPTH: EFFLUENT DISTRIBUTION STRUCTURES - ELEVATION 68'-0"
      ODOR CONTROL STRUCTURE - ELEVATION 68'-0"

2. SUBGRADE PREPARATION FOR THE EFFLUENT DISTRIBUTION STRUCTURES AND ODOR CONTROL STRUCTURE SHALL INCLUDE REMOVAL OF EXISTING SOILS AND FILL TO THE ELEVATIONS NOTED ABOVE ("MINIMUM OVER-EXCAVATION DEPTH"). SOIL AND FILL SHALL BE REMOVED WITHIN AND 10'-0" BEYOND THE PERIMETER OF STRUCTURES AND REPLACED WITH COMPACTED STRUCTURAL FILL.
3. GROUND WATER LEVELS SHALL BE LOWERED TO A MINIMUM OF 3 FEET BELOW MAXIMUM EXCAVATION DEPTH. LOWERING OF GROUND WATER SHALL BE CONTINUOUS DURING CONSTRUCTION AND SHALL BE MAINTAINED UNTIL BACKFILL IS PLACED TO FINAL GRADE. DESIGN AND MAINTENANCE OF SYSTEM TO LOWER GROUND WATER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PRIOR TO EXCAVATION DEVELOP AND SUBMIT DEWATERING PLAN. ENGAGE A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OHIO, TO DESIGN THE DEWATERING SYSTEM. LAYOUT DRAWINGS AND CALCULATIONS (INCLUDING ASSUMPTIONS) SHALL BE SIGNED AND SEALED BY THE PROFESSIONAL ENGINEER ENGAGED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW.
4. AFTER FINAL EXCAVATION, COMPACT FOUNDATION SUBGRADES WITH AT LEAST TWO PASSES OF A DOUBLE-DRUM VIBRATORY ROLLER (OR VIBRATORY PLATE COMPACTOR WITHIN 5' OF STRUCTURES) PRIOR TO FOUNDATION CONSTRUCTION OR PLACEMENT OF COMPACTED STRUCTURAL FILL. ANY SOFT AREAS ENCOUNTERED DURING COMPACTION SHALL BE EXCAVATED AND REPLACED WITH COMPACTED STRUCTURAL FILL. COMPACTION SHALL BE DISCONTINUED IF DISTURBANCE OCCURS DUE TO THE PRESENCE OF WATER, AS EVIDENCED BY SUBGRADE WEAVING OR "PUMPING" OF WATER UP THROUGH THE SUBGRADE SOIL.
5. PLACE FOUNDATIONS ON MINIMUM 6 INCH THICKNESS OF A.S.T.M. NO. 57 CRUSHED STONE SUBBASE. COMPACT EXISTING SUBGRADE PRIOR TO PLACEMENT OF FOUNDATIONS.
6. STRUCTURAL FILL SHALL BE ODOT ITEM 304. STRUCTURAL FILL SHALL BE USED FOR BACKFILL BEHIND PERMANENT WALLS AND WHEREVER LOAD-BEARING CAPABILITY IS REQUIRED INCLUDING UNDER STRUCTURES, PAVEMENTS AND SIDEWALKS. STRUCTURAL FILL SHALL BE FREE OF ORGANIC MATERIAL, DEBRIS AND FROZEN SOIL. ON-SITE SOILS DO NOT MEET THE CRITERIA FOR STRUCTURAL FILL.
7. COMPACTED BACKFILL: PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES IN LOOSE DEPTH. BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 100% OF STANDARD PROCTOR MAXIMUM DRY DENSITY PER A.S.T.M. D698. IN CONFINED AREAS WHERE MANUALLY-GUIDED EQUIPMENT MUST BE USED, SUCH AS BACKFILL IN SMALL EXCAVATIONS OR AROUND FOUNDATIONS, THE MAXIMUM LOOSE LIFT THICKNESS SHALL NOT EXCEED 4 INCHES. WHEN BACKFILL IS PLACED DIRECTLY AGAINST BELOW-GRADE WALLS, LIGHT COMPACTION EQUIPMENT SHALL BE USED (NOT EXCEEDING 2,000 POUNDS) WITHIN A LATERAL DISTANCE OF 5 FEET FROM SUCH STRUCTURES. UNCONFINED AREAS TO RECEIVE STRUCTURAL FILL SHALL BE PROOF-ROLLED WITH HEAVY (20 TONS OR MORE) COMPACTION EQUIPMENT PRIOR TO FILL PLACEMENT.
8. WHERE BACKFILL IS PLACED ON BOTH SIDES OF FOUNDATION WALL, CARE SHALL BE TAKEN DURING THE BACKFILLING OPERATIONS TO INSTALL BACKFILL EVENLY ON OPPOSITE FACE OF THE WALL. THE MAXIMUM DIFFERENTIAL OF FILL HEIGHT SHALL BE 12 INCHES. DO NOT DAMAGE WALL CONSTRUCTION WITH COMPACTION EQUIPMENT.
9. BACKFILL TO TOP OF FOOTINGS AS SOON AS POSSIBLE AFTER PLACING CONCRETE.
10. BACKFILL AGAINST BELOW GRADE BASEMENT WALLS AFTER FLOOR SLAB IS SUPPORTING T/ WALL OR PROVIDE TEMPORARY SUPPORT FOR T/ WALL UNTIL FLOOR SLAB IS IN PLACE AND HAS REACHED DESIGN STRENGTH.
11. TOPSOIL, ORGANIC MATERIAL AND ANY NATURAL OR MANMADE DEBRIS SHALL BE STRIPPED FROM THE SITE TO THE DEPTHS REQUIRED OR NOTED. THESE AND OTHER DELETERIOUS MATERIAL SHALL NOT BE USED AS BACKFILL UNDER ANY STRUCTURAL AREA AND SHALL BE REMOVED FROM THE SITE.
12. UNSUITABLE SUBGRADE, IF ENCOUNTERED, WILL BE UNDERCUT AND REPLACED WITH LEAN CONCRETE OR SELECT GRANULAR MATERIAL AS ORDERED BY THE GEOTECHNICAL ENGINEER.
13. FOUNDATIONS OR SLABS SHALL NOT BE PLACED IN WATER, OR SATURATED SUBGRADES, NOR ON FROZEN SUBGRADES. IN-PLACE FOUNDATIONS AND SLABS SHALL BE PROTECTED FROM FROST PENETRATION UNTIL PROJECT IS COMPLETE.
14. FOUNDATION ELEMENTS SHALL BE CENTERED IN EACH DIRECTION UNDER SUPPORTED STRUCTURAL MEMBERS UNLESS NOTED OTHERWISE ON THE DRAWINGS. MINIMUM FOOTING PROJECTION SHALL BE 1'-0" U.O.N.
15. THE CONTRACTOR SHALL PROVIDE STABLE SIDES AND BOTTOM OF EXCAVATION DURING CONSTRUCTION BY SHORES, SLOPES OR BENCHED SIDES. THE DESIGN AND INSTALLATION OF THE EXCAVATION BRACING SHALL BE IN ACCORDANCE WITH O.S.H.A. SHORING PRACTICES AND BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

C. STRUCTURAL CONCRETE NOTES

1. CONCRETE WORK SHALL CONFORM TO REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (A.C.I.) 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE", A.C.I. 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND A.C.I. 350. CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING STRUCTURES.
2. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH AS SHOWN: UNIT WEIGHT MIN. STRENGTH @ 28 DAYS (P.S.I.)

ITEM	MIN. STRENGTH @ 28 DAYS (P.S.I.)	UNIT WEIGHT (P.C.F.)
a. CONCRETE EXPOSED TO WATER, WASTEWATER OR GROUNDWATER	4500	145
b. ALL OTHER CONCRETE, U.O.N.	4000	145

3. PORTLAND CEMENT USED FOR CONCRETE WORK SHALL COMPLY WITH A.S.T.M. C-150 FOR TYPE I/II CEMENT.
4. NORMAL WEIGHT CONCRETE SHALL CONTAIN FINE AND COARSE AGGREGATES COMPLYING WITH A.S.T.M. C-33. THE MAXIMUM SIZE OF COARSE AGGREGATES SHALL BE OF SIZES SUITABLE FOR PLACEMENT IN STRUCTURAL ELEMENTS CONSIDERING THEIR SIZE AND REINFORCEMENT CONFIGURATION.
5. CONCRETE PLACED UNDER COLD WEATHER CONDITIONS THAT MAY BE EXPOSED TO SUBSEQUENT MOISTURE AND FREEZING CONDITIONS PRIOR TO REACHING DESIGN COMPRESSIVE STRENGTH OR EXTERIOR CONCRETE WORK EXPOSED TO FREEZE/ THAW CYCLING SHALL BE AIR-ENTRAINED TO 5-7% AIR CONTENT. HOWEVER, SLAB FLATWORK TO RECEIVE A HARD-TROWEL FINISH SHALL NOT BE AIR ENTRAINED.
6. CONSTRUCTION AND CONTROL JOINTS SHALL BE LOCATED BY THE CONTRACTOR BASED ON PLANS, DETAILS AND SPACING LIMITATIONS SHOWN ON THE CONTRACT DOCUMENTS. SHOP DRAWINGS SHOWING CONTRACTORS PROPOSED LOCATION OF CONSTRUCTION AND CONTROL JOINTS AND CONCRETE PLACEMENT SEQUENCING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE PREPARATION OF THE REINFORCEMENT SHOP DRAWINGS AND PLACEMENT OF CONCRETE.
7. CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED. VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL NOT BE MADE AT POINTS OF MAX. SHEAR.
8. CONCRETE SLABS ON GRADE, INCLUDING CONCRETE PLACED ON STEEL DECK, SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE CONTRACT DRAWINGS. ADJUST SUBGRADE ELEVATIONS TO ACCOUNT FOR SLOPED SLAB ON GRADE SURFACES.
9. CHAMFER EXPOSED CORNERS OF CONCRETE 3/4 INCH.
10. CONCRETE WALLS SHALL HAVE POCKETS FOR BEAMS & SHELVES FOR STRUCTURAL SLABS NOT MONOLITHIC WITH WALL. PROVIDE 8" MINIMUM BEARING FOR BEAMS AND 4" MINIMUM BEARING FOR SLABS U.O.N.
11. CONCRETE BEAMS SHALL BE MONOLITHIC WITH SLABS. HORIZONTAL JOINTS IN STRUCTURAL SLABS AND BEAMS ARE NOT ALLOWED.
12. PIPES AND CONDUITS RUNNING HORIZONTALLY IN SLABS:

    a. PLACEMENT: CENTERED IN DEPTH OF SLAB
    b. MAXIMUM OUTSIDE DIAMETER: 1/3 SLAB THICKNESS
    c. SPACING: AT LEAST THREE DIAMETERS ON CENTER. COVER SHALL BE MAINTAINED & EMBEDMENTS SHALL NOT CONTACT REINFORCEMENT.

13. CAST INTO CONCRETE ACCESSORIES REQUIRED BY ARCHITECTURAL FINISHES AND MECHANICAL EQUIPMENT. COORDINATE LOCATION AND QUANTITY WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
14. AT CONSTRUCTION JOINTS, PROVIDE A SHEAR KEY 1 1/2 IN. DEEP x 1/3-JOINT-WIDTH. ALSO PROVIDE A TENSION CLASS "B" LAP OF REINFORCING. USE ROUGHENED JOINT WHERE INDICATED ON THE DRAWING.
15. SLAB, BEAM, AND JOIST TOP REINFORCING CONTINUOUS OVER A SUPPORT SHALL EXTEND TO THE 1/3-POINT OF THE CLEAR SPAN UNLESS INDICATED OTHERWISE ON THE DRAWINGS. SLAB, BEAM, AND JOIST TOP REINFORCING AT A DISCONTINUOUS END SHALL TERMINATE IN A STANDARD 90 DEGREE HOOK INTO SUPPORTING BEAMS AND WALLS.
16. LOCATE CONSTRUCTION JOINTS IN BEAMS AND STRUCTURAL SLABS IN THE CENTER 1/3 OF SPAN, AND NOT CLOSER THAN 3 FT. FROM INTERSECTING BEAM.

D. STRUCTURAL REINFORCING NOTES

1. REINFORCEMENT WORK OF DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318)", "A.C.I. DETAILING MANUAL - 1988 (SP-66)", CRSI MANUAL OF STANDARD PRACTICE (MSP 1)" AND "STRUCTURAL WELDING CODE - REINFORCING STEEL (A.W.S. D1.4)".
2. STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:
   a. BARS, TIES AND STIRRUPS . . . . A.S.T.M. A615 GRADE (Fy = 60,000P.S.I.)
   b. REINFORCING TO BE WELDED SHALL CONFORM TO A.S.T.M. A706 (Fy = 60,000 P.S.I.) OR MILL TEST REPORTS SHALL BE SUBMITTED SHOWING CARBON EQUIVALENT.
3. MINIMUM CONCRETE PROTECTIVE COVER FOR REINFORCEMENT OF NON-ENVIRONMENTAL ENGINEERING CONCRETE SHALL BE AS FOLLOWS U.O.N.:

   a. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH . . . . . 3.0"
   b. BUILDING SURFACES FORMED IN CONTACT WITH EARTH OR EXPOSED TO WEATHER,
      #6 THROUGH #18 BARS . . . . . 2.0"
      #5 BARS AND SMALLER . . . . . 1.5"
   c. BUILDING SURFACES NOT IN CONTACT WITH OR EXPOSED TO WEATHER (WALLS AND SLABS)
      #14 AND #18 BARS . . . . . 1.5"
      #11 BARS AND SMALLER . . . . . 0.75"
   d. BUILDING BEAMS, GIRDERS AND COLUMNS - PRINCIPAL REINFORCEMENT, TIES, STIRRUPS AND SPIRALS . . . . . 1.5"

4. MINIMUM CONCRETE PROTECTIVE COVER FOR LIQUID CONTAINING STRUCTURES SHALL CONFORM TO "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (A.C.I. 350)".
5. WHERE CONTINUOUS REINFORCEMENT IS CALLED FOR, IT SHALL BE EXTENDED CONTINUOUSLY AROUND CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS.
6. LAPS SHALL BE CLASS B TENSION LAP SPLICES, UNLESS NOTED OTHERWISE.
7. WHERE REINFORCEMENT IS NOT SHOWN ON THE CONTRACT DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE DETAILS AS DETERMINED BY THE ENGINEER. IN NO CASE SHALL REINFORCEMENT BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES NOR LESS THAN THE FOLLOWING:

   a. BEAM STIRRUPS: #4@12" O.C.
   b. BEAM STIRRUPS SUPPORTS: 1-#5 @ EACH STIRRUP BEND
   c. FACE REINFORCEMENT IN BEAMS OR PORTIONS OF BEAMS: #4@12" O.C.
   d. STRUCTURAL SLABS: 0.0018 x GROSS CONCRETE AREA IN EACH DIRECTION
   e. STRUCTURAL COLUMNS: 0.01 x GROSS CONCRETE CROSS SECTIONAL AREA
   f. STRUCTURAL BEAMS: 0.0033 x GROSS CONCRETE CROSS SECTION AREA
   g. DOWELS FROM TOP OF CONCRETE WALLS TO CONCRETE SLABS:
      MAIN SLAB REINFORCING: #4@12"
      TEMPERATURE & SHRINKAGE: #4@12"

8. EXTEND DOWELS TO THE 1/4-POINT OF SLAB SPAN.
9. WHERE REINFORCEMENT IS SHOWN IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE SECTION APPLES.
10. WHERE THERE IS A CONFLICT BETWEEN LOCATION OF COLUMN VERTICAL BARS AND BEAM HORIZONTAL BARS, THE COLUMN BARS SHALL REMAIN IN THEIR DESIGNATED POSITIONS AND BEAM BAR LOCATIONS SHALL BE ADJUSTED.
11. REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN.
12. COLUMN DOWELS SHALL BE SET AND POSITIONED SO AS TO BE ENCLOSED BY THE COLUMN TIES.
13. PROVIDE DOWELS FOR FOUNDATION TO MATCH BAR SIZE AND NUMBER OF REINFORCING IN THE SUPPORTED ELEMENT, UNLESS NOTED OTHERWISE.
14. REINFORCEMENT SHALL NOT BE TACK WELDED OR HEATED FOR BENDING.
15. INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO THE SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO THE SCHEDULED COMPLETION OF THE INSTALLATION OF REINFORCEMENT.
16. WELDING OF REINFORCEMENT SHALL CONFORM TO A.W.S. D1.4 (INCLUDING PREHEAT REQUIREMENTS). ONLY BARS INDICATED ON DRAWINGS TO BE WELDED SHALL BE WELDED.

E. STRUCTURAL MASONRY NOTES :

1. MASONRY CONSTRUCTION SHALL CONFORM TO SPECIFICATION FOR MASONRY STRUCTURES (A.C.I. 530.1) U.O.N.
2. STRENGTH OF MASONRY MATERIALS SHALL BE AS FOLLOWS:

   a. CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT, GRADE N, TYPE 1, CONFORMING TO A.S.T.M. C-90 AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1900 P.S.I. ON THE NET AREA.
   b. MORTAR SHALL CONFORM TO A.S.T.M. C-270 TYPE M OR S.
   c. GROUT SHALL CONFORM TO A.S.T.M. C-476 WITH A MAXIMUM AGGREGATE SIZE OF 3/8 IN. AND A MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. GROUT TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH A.C.I. 530.
   d. REINFORCED MASONRY SHALL HAVE A STRENGTH F'm = 1500 P.S.I. F'm IS THE COMPRESSIVE STRENGTH OF THE MASONRY AT 28 DAYS AS DETERMINED BY UNIT STRENGTH METHOD.

3. ALL VERTICAL REINFORCEMENT FOR CONCRETE MASONRY SHALL BE A.S.T.M. A-615, GRADE 60. ALL SPLICES SHALL BE LAPPED 48 BAR DIAMETERS MINIMUM.
4. REINFORCED MASONRY WALLS SHALL HAVE BOND BEAMS AT BOTTOM OF WALLS NOT DOWELED INTO CONCRETE FOUNDATIONS, AT EACH FLOOR LEVEL, AT ROOF LEVEL, AT TOP OF WALLS, AT MAXIMUM SPACING OF 10 FEET AND AS INDICATED IN THE DRAWINGS. BOND BEAM REINFORCING SHALL EXTEND INTO AND BE CONTINUOUS WITH INTERSECTING BOND BEAMS. FILL BOND BEAMS WITH COARSE GROUT.
5. CONCRETE MASONRY WALLS, UNLESS OTHERWISE INDICATED, SHALL HAVE LADDER TYPE HORIZONTAL JOINT REINFORCEMENT MADE OF 9 GAUGE SIDE AND INTERMEDIATE BARS OF COLD DRAWN STEEL WIRE MEETING THE REQUIREMENTS OF A.S.T.M. A-82, AS MANUFACTURED BY "DUR-O-WALL CORPORATION" OR EQUIVALENT. HORIZONTAL JOINT REINFORCEMENT SHALL BE PLACED AT 16 INCHES O.C. VERTICALLY U.O.N. AND SHALL HAVE A HOT DIP GALVANIZED FINISH IN ACCORDANCE WITH A.S.T.M. A153 - CLASS B - 2. INTERMEDIATE BAR SPACING SHALL BE 16 INCHES O.C.
6. FILL BLOCK CORES CONTAINING REINFORCEMENT FULL WITH GROUT. CROSS WEBS OF CORES CONTAINING REINFORCEMENT ARE TO BE MORTAR BEDDED.
7. THE BASE OF EACH CELL IN WHICH A VERTICAL BAR IS PLACED SHALL HAVE A CLEAN-OUT HOLE OF SIZE 2" BY 3" MINIMUM.
8. PRIOR TO GROUTING CELLS, BARS AND CELLS MUST BE INSPECTED.
9. THE BEARING BLOCK BENEATH BEAMS OR OTHER CONCENTRATED LOADS SHALL BE GROUTED SOLID FOR A WIDTH OF AT LEAST 2'-0" AND A DEPTH OF AT LEAST 3 COURSES (2'-0") MINIMUM.
10. AT MASONRY WALLS: PROVIDE ONE (1) #5 VERTICAL REINFORCING BAR AS FOLLOWS:

    a. AT CORNERS.
    b. WITHIN 16 INCHES OF EACH SIDE OF WALL OPENINGS.
    c. WITHIN 8 INCHES OF EACH SIDE OF CONTROL JOINTS.
    d. WITHIN 8 INCHES OF ENDS OF WALLS.

    PROVIDE TWO (2) #5 REINFORCING BARS AS FOLLOWS:
    e. HORIZONTAL IN BOND BEAMS
    f. HORIZONTAL IN BOND BEAMS ABOVE AND BELOW MASONRY OPENINGS.
    g. EXTEND BOND BEAMS 40 BAR DIAMETERS EACH SIDE OF OPENINGS.

11. AT MASONRY WALLS PROVIDE A MINIMUM VERTICAL REINFORCEMENT OF #5@4'-0" U.O.N.
12. REINFORCED MASONRY PIERS/ PLASTERS SHALL HAVE 3/16 INCH DIAMETER, MILL GALVANIZED, CLOSED WIRE TIES AT 8 INCHES O.C. VERTICALLY UNLESS NOTED OTHERWISE.
13. BONDING METHODS, TIES, LINTELS AND ACCESSORIES SHALL BE APPROVED BY THE ENGINEER.

14. MASONRY OPENINGS IN WALLS MORE THAN 16 INCHES WIDE IN NEW OR EXISTING CONSTRUCTION REQUIRE LINTELS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS OTHERWISE INDICATED:

MISCELLANEOUS MASONRY LINTEL (M.L.) STEEL SCHEDULE:

MAX. OPENING	4" THICK	6" THICK	8" THICK	12" THICK
3'-0"	1-L3 1/2x3 1/2x1/4	1-WT5x9.5	2-L3 1/2x3 1/2x1/4	3-L3 1/2x3 1/2x1/4"
4'-0"	1-L4x3 1/2x1/4	1-WT5x9.5	2-L4x3 1/2x5/16	3-L4x3 1/2x5/16"
5'-0"	1-L4x3 1/2x5/16	1-WT6x11	2-L4x3 1/2x5/16	3-L4x3 1/2x5/16"
6'-0"	1-L5x3 1/2x5/16	1-WT7x11	2-L5x3 1/2x5/16	3-L5x3 1/2x5/16"
7'-0"	1-L6X3 1/2x3/8	1-WT8x13	2-L6x3 1/2x3/8	3-L6x3 1/2x3/8"

(USE STEEL LINTEL SCHEDULE ON S-006 FOR LINTELS WITH DESIGNATIONS CALLED OUT ON PLANS)

COORDINATE WITH THE LINTEL SCHEDULE FOR WALLS LARGER THAN THE ABOVE THICKNESS, USE MULTIPLES OF THE ABOVE PIECES. FOR EXTERIOR CAVITY WALLS, USE 4" SCHEDULE FOR VENEER AND 8", 10", OR 12" SCHEDULE FOR BACKUP WYTHE. LINTEL SHALL BE 1'-4" LONGER THAN MASONRY OPENINGS. LONG LEGS SHALL BE VERTICAL. WHERE LINTEL ABUTS COLUMNS OR WALLS, PROVIDE CONNECTION TO SUCH. SUBMIT SHOP DRAWINGS OF CONNECTION DETAIL FOR APPROVAL.

15. OPENINGS FOR, OR AROUND, UTILITIES, DUCTS, AND STRUCTURAL MEMBERS SHALL BE FILLED WITH MASONRY.
16. WHERE MASONRY PARTITION WALLS EXTEND TO DECK/ FLOOR/ ROOF OR AROUND STRUCTURAL MEMBERS AN APPROPRIATE CLEARANCE (1" MIN. - 2" MAX.) SHALL BE PROVIDED TO PREVENT TRANSFER OF GRAVITY LOADS INTO PARTITIONS. GAPS SHALL BE SEALED FOR FIRE SEPARATION AND/ OR SOUND TRANSMISSION AS INDICATED ON ARCHITECTURAL DRAWINGS. LATERAL BRACING OF TOP OF PARTITION SHALL BE AS SHOWN ON DRAWINGS.
17. ADEQUATE TEMPORARY BRACING FOR WIND AND CONSTRUCTION LOADS SHALL BE PROVIDED AT ALL TIMES DURING INSTALLATION OF MASONRY UNTIL SUCH TIME AS THE MASONRY HAS REACHED ITS DESIGN STRENGTH AND THE STRUCTURE IS IN ITS COMPLETED FORM. DESIGN, STAGING AND INSTALLATION OF TEMPORARY BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR

F. STRUCTURAL STEEL & ALUMINUM NOTES

1. FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS."
2. STEEL MEMBERS HAVE PROPORTIONED UTILIZING ALLOWABLE STRESS DESIGN (ASD) METHODS AS PRESCRIBED BY A.I.S.C.
3. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION (A.I.S.C.)" AND WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES.
4. STRUCTURAL STEEL SHALL BE NEW AND CONFORM TO:

   a. UNLESS OTHERWISE NOTED — A.S.T.M. A992 (Fy=50 K.S.I.)
   b. HOLLOW STRUCTURAL SECTIONS
      ROUND — A.S.T.M. A500 (Fy=42 K.S.I.)
      SQUARE OR RECTANGULAR — A.S.T.M. A500 (Fy=46 K.S.I.)
   c. MISC. STRUCTURAL SHAPES & CONNECTIONS — A.S.T.M. A36 (Fy=36 K.S.I.)
   d. ANCHOR BOLTS — A.S.T.M. A36 (Fy=36 K.S.I.) OR F1554 GRADE 36
   e. HIGH STRENGTH BOLTS — A.S.T.M. A325-N

5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF A.W.S. D1.1, AND SHALL BE PERFORMED BY APPROVED, CERTIFIED PERSONS.
6. WELDED CONNECTIONS SHALL UTILIZE E70XX ELECTRODES. ALUMINUM WELD FILLER ALLOY 5356.
7. WELDS SHALL DEVELOP FULL STRENGTH OF THE MATERIALS BEING WELDED, UNLESS NOTED OTHERWISE, EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM OF 3/16" U.O.N.
8. ANCHOR BOLTS, LEVELING PLATES OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK, PRESET BY T

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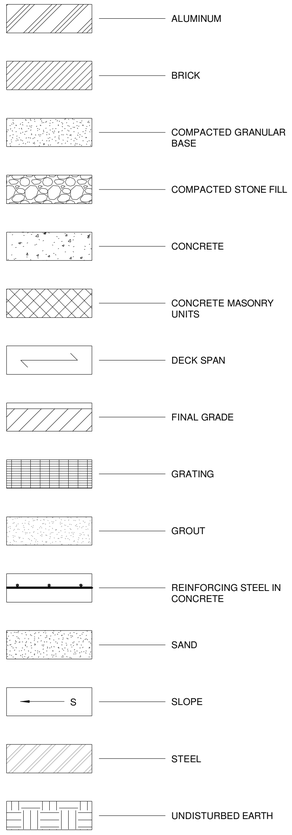
ABBREVIATIONS:

A.B.	ANCHOR BOLT
ADD'L.	ADDITIONAL
A.C.I.	AMERICAN CONCRETE INSTITUTE
A.F.F.	ABOVE FINISH FLOOR
A.I.S.C.	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
A.N.S.I.	AMERICAN NATIONAL STANDARD INSTITUTE
A.S.T.M.	AMERICAN SOCIETY FOR TESTING AND MATERIAL
A.W.S.	AMERICAN WELDING SOCIETY
ALT.	ALTERNATE
ALUM. OR AL.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
B.	BOTTOM
B/EL.	BOTTOM ELEVATION
B.F.F.	BELOW FINISHED FLOOR
BLDG.	BUILDING
BM.	BEAM
BRG.	BEARING
BSMT.	BASEMENT
(C)	COMPRESSION
CHEM.	CHEMICAL
C.J.	CONTROL JOINT
C.S.J.	CONSTRUCTION JOINT
C.L.	CENTER LINE
CLG.	CEILING
CLR.	CLEAR
C.M.U.	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
COORD.	COORDINATE
C.Y.	CUBIC YARDS
DEMO.	DEMOLISH
DET.	DETAIL
D.F.T.	DRY FILM THICKNESS
DIA.	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
D.L.	DEAD LOAD
DWG.	DRAWING
DWL.	DOWEL
E.	EAST
EA.	EACH
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL.	ELEVATION
EMBED.	EMBEDMENT
ELEC.	ELECTRICAL
EQUIP.	EQUIPMENT
EQUIV.	EQUIVALENT
E.W.	EACH WAY
EX. OR EXIST.	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
F.R.C.	FIBER REINFORCED CONCRETE
F.S.	FAR SIDE
FT.	FEET
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRADE BEAM
H.D.P.E.	HIGH DENSITY POLYETHYLENE
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
H.S.	HIGH STRENGTH
H.V.A.C.	HEATING, VENTILATING AND AIR CONDITIONING
I.D.	INSIDE DIAMETER
I.F.	INSIDE FACE
IN.	INCHES
INFO.	INFORMATION
INSUL.	INSULATION
INT.	INTERIOR
INV.	INVERT
JT.	JOINT
K	KIPS (1 K = 1000 LBS.)
K/FT	KIPS PER FOOT
K.S.F.	KIPS PER SQUARE FOOT
L.L.	LIVE LOAD
L.L.H.	LONG LEG HORIZONTAL
L.L.O.	LONG LEG OUTSTANDING
L.L.V.	LONG LEG VERTICAL
LBS.	POUNDS
LONGIT.	LONGITUDINAL
L.P.	LOW POINT
LW.	LIGHTWEIGHT
MFR.	MANUFACTURER
MAT'L.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MEZZ.	MEZZANINE
M.H.	MANHOLE
M.D.	METAL DECK
MISC.	MISCELLANEOUS
MTL.	METAL
MIN.	MINIMUM
M.L.	MASONRY LINTEL (STEEL)
M.O.	MASONRY OPENING
N.	NORTH
N.F.	NEAR FACE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
#	NUMBER SYMBOL FOR REBAR SIZE
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
OPNG.	OPENING
OPP.	OPPOSITE
P/C OR P.C.P.	PRECAST PLANK
P.H.	PENTHOUSE
PL.	PLATE
PREFAB.	PREFABRICATED
P.S.F.	POUNDS PER SQUARE FOOT
P.S.I.	POUNDS PER SQUARE INCH
P.V.C.	POLYVINYL CHLORINE
R.	RADIUS OR RISER
REF.	REFERENCE
REINF.	REINFORCED
REQ'D.	REQUIRED
REV.	REVISION
R.D.	ROOF DRAIN
RM.	ROOM
S.	SOUTH
SCHED.	SCHEDULE
SECT.	SECTION
S.F.	SQUARE FEET
SIM.	SIMILAR
SQ.	SQUARE
S.S.R.	STANDING SEAM ROOFING
S. STL. OR S.S.	STAINLESS STEEL
STD.	STANDARD
STIFF.	STIFFENER
STIRR.	STIRRUP
STL.	STEEL
STRUCT.	STRUCTURAL
SYM.	SYMMETRICAL
(T)	TENSION
T.	TREAD
T.	TOP
T/EL.	TOP ELEVATION
TEMP.	TEMPERATURE
T & G	TONGUE & GROOVE
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.I.F.	VERIFY IN FIELD
VERT.	VERTICAL
W.	WEST
W/	WITH
W/O	WITHOUT
WS.	WATERSTOP

SYMBOLS:



DESIGN CRITERIA

FLOOR LIVE LOAD
EQUIPMENT AREAS: 250 P.S.F. OR 3 KIPS CONCENTRATED
OFFICE & PERSONNEL ASSEMBLY AREAS: 100 P.S.F. OR 2 KIPS CONCENTRATED
STAIRS & EXITS: 100 P.S.F. OR 0.3 KIPS CONCENTRATED
WALKWAYS & ELEVATED PLATFORMS: 60 P.S.F.

ROOF LIVE LOAD
MINIMUM ROOF LIVE LOAD: 20 P.S.F.

ROOF SNOW LOAD
GROUND SNOW (Pg): 20 P.S.F.
FLAT ROOF SNOW (Pf): VARIES PER STRUCTURE
SNOW EXPOSURE (Ce): 1.0
SNOW LOAD IMPORTANCE (Is): 1.1
SNOW THERMAL (Ct): VARIES PER STRUCTURE

WIND LOAD
BASIC WIND SPEED: 90 M.P.H.
WIND IMPORTANCE: 1.15
WIND EXPOSURE: C
INTERNAL PRESSURE COEFFICIENT: VARIES PER STRUCTURE
NET DESIGN COMPONENTS & CLADDING PRESSURE: VARIES

EARTHQUAKE
SEISMIC IMPORTANCE FACTOR, Ie: 1.25
OCCUPANCY CATEGORY: III
Ss: 0.141
S1: 0.051
SITE CLASS: D
Sds: 0.151
Sd1: 0.081
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC FORCE - RESISTING SYSTEM: VARIES PER STRUCTURE
DESIGN BASE SHEAR: VARIES PER STRUCTURE
SEISMIC RESPONSE COEFFICIENT, Cs: VARIES PER STRUCTURE
RESPONSE MODIFICATION FACTOR: VARIES PER STRUCTURE
ANALYSIS PROCEDURE: EQUIVALENT STATIC FORCE PROCEDURE

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IN CHARGE OF	RFB
DESIGNED BY	TRL
CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

DESIGN CRITERIA, SYMBOLS & ABBREVIATIONS

FILE NO. 23374.51633- S002

DATE MARCH 19, 2015

S-002

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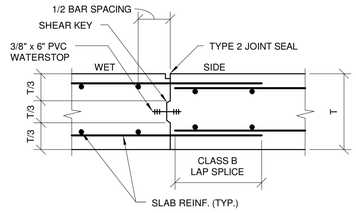
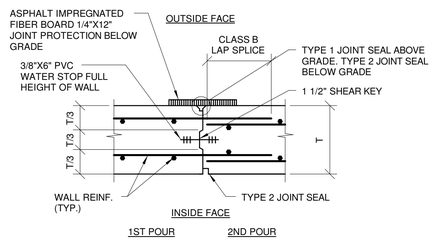


CONST. JOINT DETAIL AT LIQUID RETAINING STRUCTURE SLAB

NOT TO SCALE

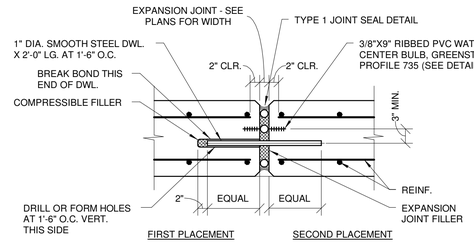
DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS 30T UNLESS OTHERWISE NOTED ON THE PLANS.
2. DETAILING OF CONCRETE REINFORCING SHALL NOT BEGIN UNTIL THE CONTRACTOR PROVIDES THE FABRICATOR WITH A FINALIZED JOINT LAYOUT THAT HAS BEEN REVIEWED BY THE ENGINEER.



CONST. JOINT DETAIL AT LIQUID RETAINING STRUCTURE WALL

NOT TO SCALE

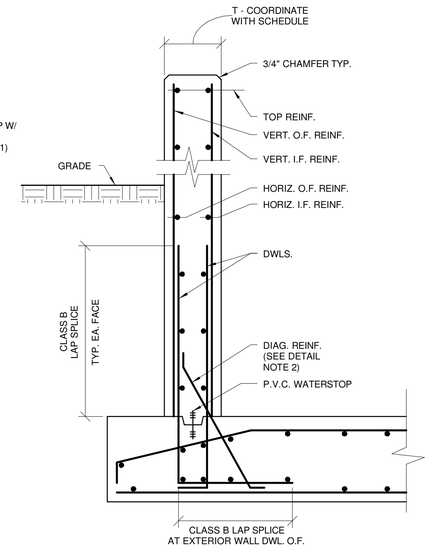
DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS, 30T NOT TO EXCEED 60 FEET FOR WALLS UP TO 24 INCHES THICK. FOR WALLS THAT ARE GREATER THAN 24 INCHES THICK, MAXIMUM SPACING BETWEEN JOINTS SHALL NOT EXCEED 72 FEET.
2. DETAILING OF CONCRETE REINFORCING SHALL NOT BEGIN UNTIL THE CONTRACTOR PROVIDES THE REBAR FABRICATOR WITH A FINALIZED JOINT LAYOUT THAT HAS BEEN REVIEWED BY THE ENGINEER.
3. STAGGER WALL AND SLAB CONSTRUCTION JOINTS 4'-0" MINIMUM.



EXPANSION JOINT DETAIL AT WALL & SLAB

NOT TO SCALE

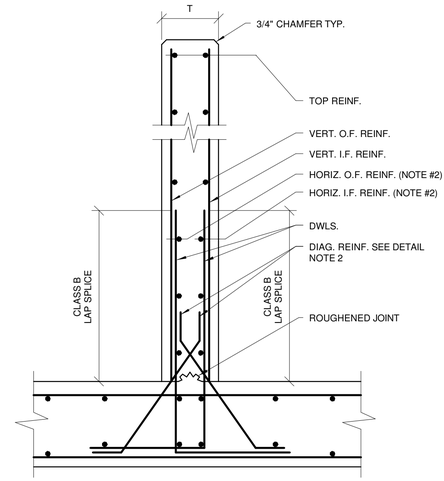
DETAIL NOTES:
1. WATERSTOP SHALL BE OMITTED AND DOWEL CENTERED AT WALKWAY EXPANSION JOINTS THAT ARE EXPOSED TO WET ENVIRONMENTS ON BOTH SIDES.



EXTERIOR LIQUID RETAINING STRUCTURE WALL DETAIL

NOT TO SCALE

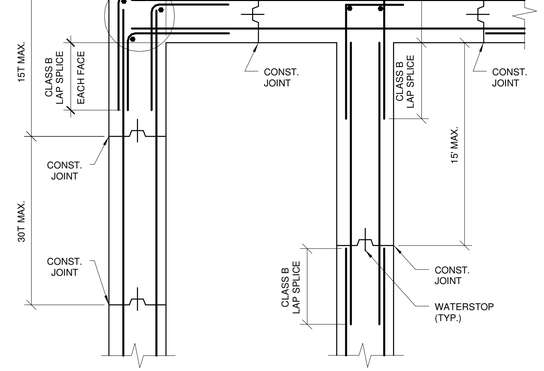
DETAIL NOTES :
1. LAP BASE SLAB TOP REINF. AT WALL & COL. LINES. HOOK AT ENDS. LAP BASE SLAB BOT. REINF. MIDSPAN BETWEEN WALL & COL. LINES.
2. PROVIDE DIAGONAL REINF. IN WALLS THAT ARE 24 INCHES THICK OR GREATER. SEE WALL SCHEDULE FOR SIZE AND SPACING.
3. USE THIS DETAIL WITH WALL SCHEDULE ON SHEET S-010.



INTERIOR LIQUID RETAINING STRUCTURE WALL DETAIL

NOT TO SCALE

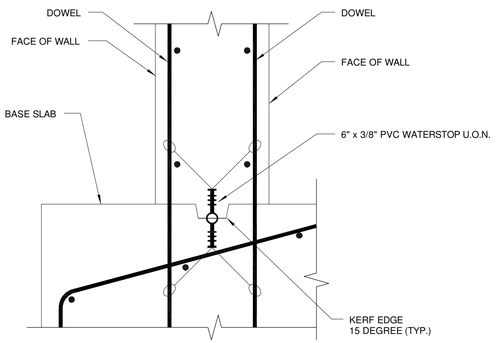
DETAIL NOTES :
1. "I.F." SIDE OF WALL IS MARKED ON PLAN WHEN REINF. IS NOT THE SAME ON EACH FACE OF WALL.
2. PROVIDE DIAG. REINF. IN WALLS THAT ARE 24 INCHES THICK OR GREATER. SEE WALL SCHEDULE FOR SIZE AND SPACING.
3. USE THIS DETAIL WITH WALL SCHEDULE ON SHEET S-010.



SCHEMATIC HORIZ. WALL REINF. & JOINT LOCATION DETAIL AT LIQUID RETAINING STRUCTURE

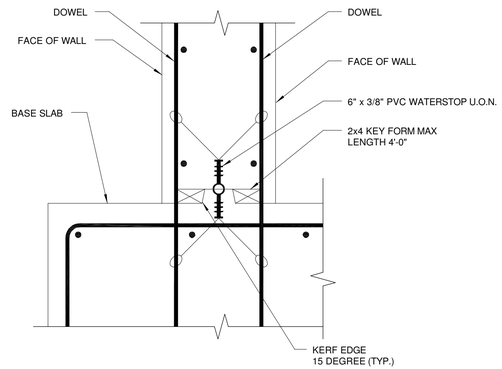
NOT TO SCALE

DETAIL NOTES:
1. CORNER AND INTERSECTION REINF. BARS SHALL BE SAME SIZE AND SPACING AS HORIZONTAL WALL REINFORCING U.O.N. WHERE REINFORCING IS NOT THE SAME IN EACH WALL, THE HEAVIER REINFORCING SHALL BE USED AT THE CORNER.
2. LAP SPLICE - CLASS "B" TOP BAR LAP SPLICE.
3. JOINT TYPE AS NOTED ON THE PLANS.
4. STAGGER WALL AND FOOTING JOINTS 4'-0" MINIMUM.



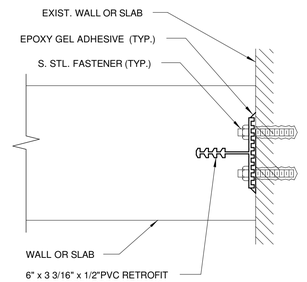
WATERSTOP WALL TO SLAB INSTALLATION DETAIL (DOWNTURNED)

NOT TO SCALE



WATERSTOP WALL TO SLAB INSTALLATION DETAIL (UPTURNED)

NOT TO SCALE



RETROFIT WATERSTOP DETAIL

NOT TO SCALE

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IN CHARGE OF	RFB			
DESIGNED BY	TRL			
CHECKED BY	CHL	1	09/23/2015	ISSUED FOR BID
DRAWN BY	RAE	0	03/19/2015	ISSUED FOR OEPA REVIEW
		NO.	DATE	REVISION

		RFB	
		RFB	
		INT.	

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

TYPICAL DETAILS

FILE NO. 23374.51633- S003

DATE MARCH 19, 2015

S-003

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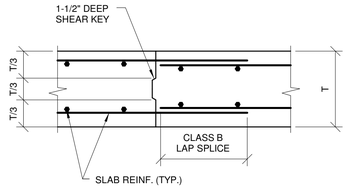
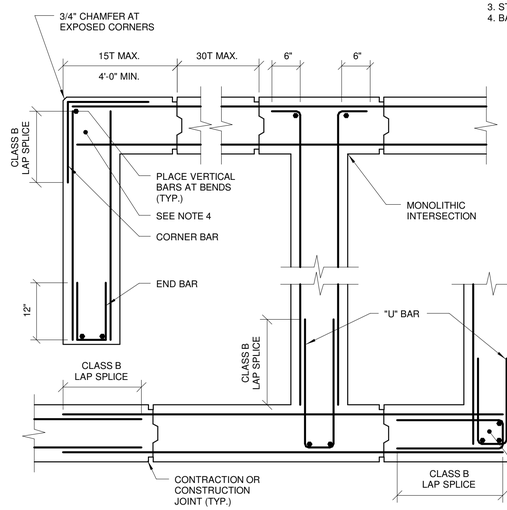


CONST. JOINT DETAIL AT NON-LIQUID RETAINING STRUCTURE SLAB

NOT TO SCALE

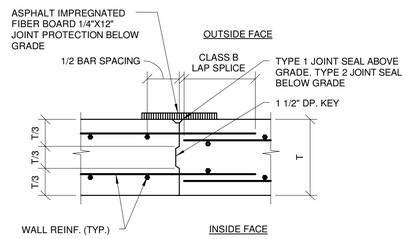
DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C.



SCHEMATIC HORIZONTAL BLDG. JOINT & REINF. DETAIL

NOT TO SCALE

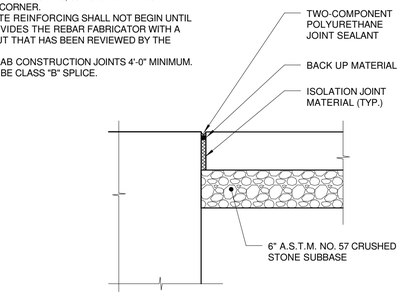
DETAIL NOTES:
1. CORNER, INTERSECTION, AND END WALL REINFORCING SHALL BE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING U.O.N. WHERE REINFORCING IS NOT THE SAME IN EACH WALL. THE HEAVIER REINFORCING SHALL EXTEND AROUND THE CORNER.
2. LAP SPLICE CLASS "B" TOP BAR SPLICE.
3. STAGGER WALL AND FOOTING JOINTS 4'-0" MINIMUM.
4. USE THIS CORNER DETAIL IF WALL LOADED FROM OUTSIDE.
5. USE THIS CORNER DETAIL IF WALL LOADED FROM INSIDE.



CONST. JOINT DETAIL AT NON-LIQUID RETAINING STRUCTURE WALL

NOT TO SCALE

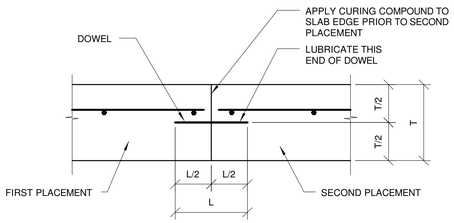
DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C. WITH FIRST JOINT 15T MAX FROM A CORNER.
2. DETAILING OF CONCRETE REINFORCING SHALL NOT BEGIN UNTIL THE CONTRACTOR PROVIDES THE REBAR FABRICATOR WITH A FINALIZED JOINT LAYOUT THAT HAS BEEN REVIEWED BY THE ENGINEER.
3. STAGGER WALL AND SLAB CONSTRUCTION JOINTS 4'-0" MINIMUM.
4. BAR LAP SPLICE SHALL BE CLASS "B" SPLICE.



ISOLATION JOINT DETAIL FOR SLAB-ON-GRADE

NOT TO SCALE

DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C.

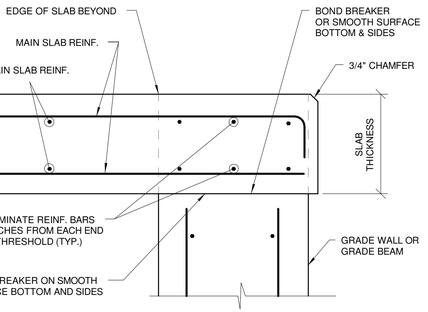


SLAB-ON-GRADE CONSTRUCTION JOINT DOWEL SCHEDULE			
SLAB DEPTH T (IN.)	DOWEL DIA. (IN.)	TOT. DOWEL LENGTH (L) (IN.)	DOWEL SPACING CENTER TO CENTER (IN.)
5-6	3/4	16	12
7-8	1	18	12
9-11	1 1/4	18	12

SLAB-ON-GRADE CONSTRUCTION JOINT DETAIL

NOT TO SCALE

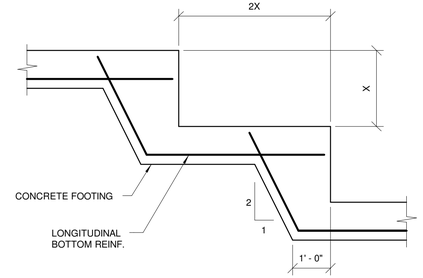
DETAIL NOTES :
1. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C.



PEDESTRIAN DOOR THRESHOLD DETAIL

NOT TO SCALE

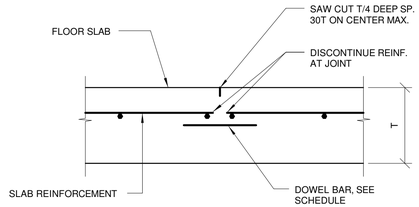
DETAIL NOTES :
1. COORDINATE DETAIL WITH DOOR THRESHOLD DETAIL ON ARCH. DWGS.



FOOTING STEP DETAIL

NOT TO SCALE

DETAIL NOTES:
1. COORDINATE WITH FOUNDATION PLANS FOR LOCATION AND ELEVATIONS.

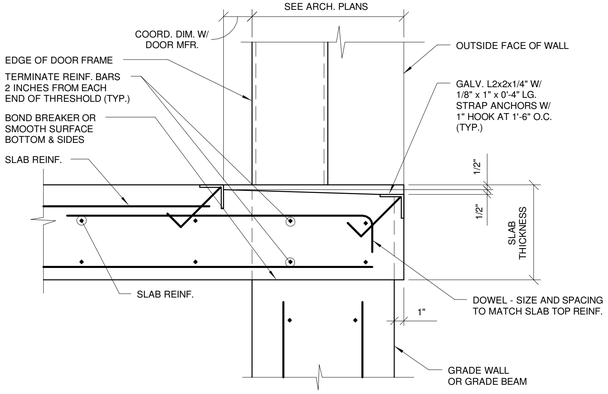


SLAB-ON-GRADE CONTRACTION JOINT DOWEL SCHEDULE			
SLAB DEPTH "X" (IN.)	DOWEL DIA. (IN.)	TOT. DOWEL LENGTH (L) (IN.)	DOWEL SPACING CENTER TO CENTER (IN.)
5-6	3/4	16	12
7-8	1	18	12
9-11	1 1/4	18	12

REINF. SLAB-ON-GRADE CONTROL JOINT DETAIL

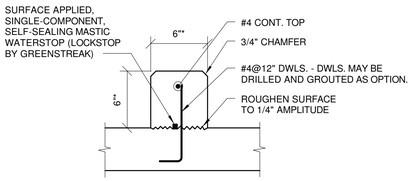
NOT TO SCALE

DETAIL NOTES:
1. IN AREAS THAT DO NOT HAVE FLOOR COVERING, THE CONTRACTION JOINT MAY BE SAW CUT AND FILLED WITH TWO-COMPONENT POLYURETHANE JOINT SEALANT.
2. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C.



THRESHOLD DETAIL AT COILING OR SECTIONAL DOOR

NOT TO SCALE

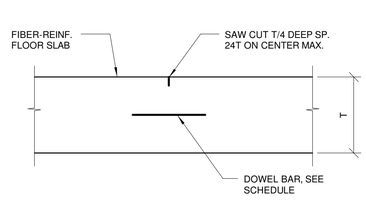


CURB DETAIL

NOT TO SCALE

* UNLESS OTHERWISE NOTED ON THE PLANS

DETAIL NOTES :
1. THIS DETAIL SHALL BE USED AROUND DUCT AND PIPE PENETRATIONS THROUGH CONCRETE FLOORS.



SLAB-ON-GRADE CONTRACTION JOINT DOWEL SCHEDULE			
SLAB DEPTH "X" (IN.)	DOWEL DIA. (IN.)	TOT. DOWEL LENGTH (L) (IN.)	DOWEL SPACING CENTER TO CENTER (IN.)
5-6	3/4	16	12
7-8	1	18	12
9-11	1 1/4	18	12

FIBER-REINF. SLAB-ON-GRADE CONTROL JOINT DETAIL

NOT TO SCALE

DETAIL NOTES:
1. IN AREAS THAT DO NOT HAVE FLOOR COVERING, THE CONTRACTION JOINT MAY BE SAW CUT AND FILLED WITH TWO-COMPONENT POLYURETHANE JOINT SEALANT.
2. MAXIMUM SPACING BETWEEN JOINTS, 30T O.C.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

TYPICAL DETAILS

FILE NO. 23374.51633- S004

DATE MARCH 19, 2015

S-004

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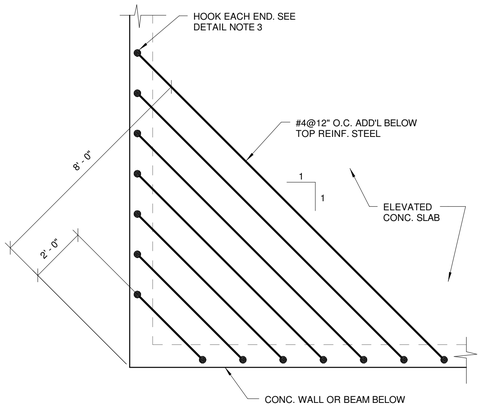
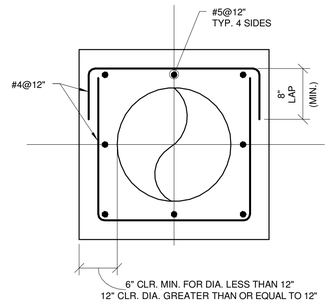


ADD'L REINF. AT ELEVATED SLAB CORNER DETAIL

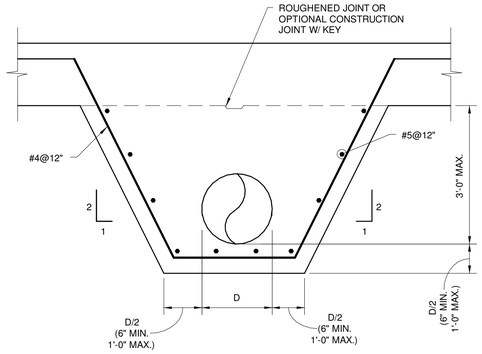
NOT TO SCALE

DETAIL NOTES :
1. USE AT ELEVATED SLABS.
2. CUT ADD'L REINF. AT SLAB OPENINGS.
3. BAR HOOK LENGTH = SLAB THICKNESS MINUS 4 INCHES.



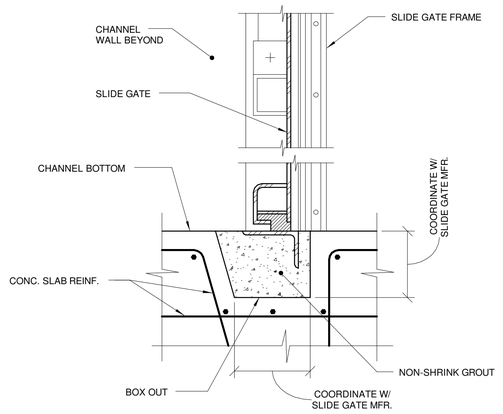
PIPE ENCASEMENT DETAIL

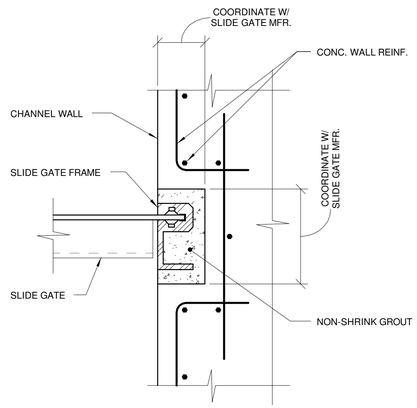
NOT TO SCALE



PIPE ENCASEMENT BELOW SLAB

NOT TO SCALE



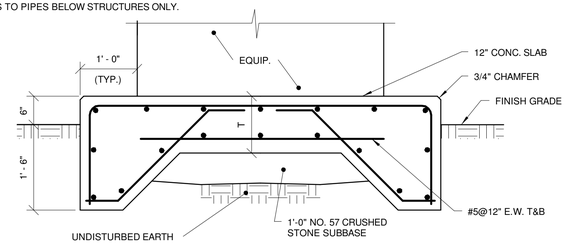


BOTTOM SIDE

SLIDE GATE MOUNTING DETAILS

NOT TO SCALE

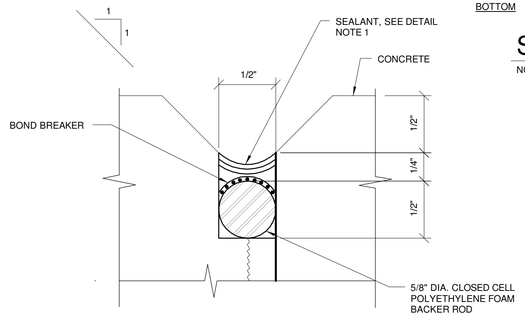
DETAIL NOTES:
1. DETAIL APPLIES TO PIPES BELOW STRUCTURES ONLY.



EXTERIOR EQUIPMENT PAD DETAIL

NOT TO SCALE

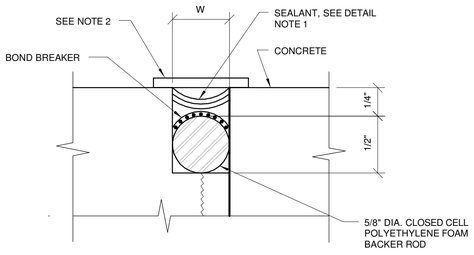
DETAIL NOTES :
1. COORDINATE ANCHOR BOLT SIZE AND LOCATIONS W/ EQUIP. MANUF.
2. COORDINATE PAD PENETRATIONS WITH ELECTRICAL, PLUMBING, HVAC AND MECHANICAL DRAWINGS AND EQUIPMENT MFR.
3. AT PAD PENETRATIONS PROVIDE 1/2" ISOLATION JOINT WITH SEALANT AT TOP OF SLAB.



TYPE 1 JOINT SEAL DETAIL (EXPOSED TO PUBLIC VIEW)

NOT TO SCALE

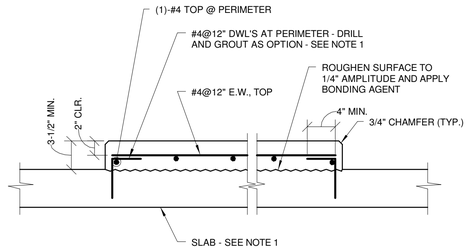
DETAIL NOTES :
1. SEAL JOINTS IN CONCRETE USING A 2 COMPONENT POLYURETHANE SEALANT. PRIME CONCRETE SURFACES THAT SEALANT WILL BE APPLIED TO USING THE SEALANT MANUFACTURERS RECOMMENDED PRIMER.
2. AT SEALED JOINTS BELOW GRADE, COVER JOINTS WITH 1/4"x12" ASPHALT IMPREGNATED FIBER BOARD.



TYPE 2 JOINT SEAL DETAIL (NOT EXPOSED TO PUBLIC VIEW)

NOT TO SCALE

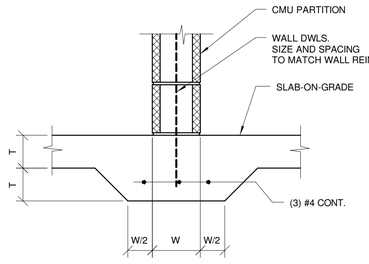
DETAIL NOTES :
1. SEAL JOINTS IN CONCRETE USING A 2 COMPONENT POLYURETHANE SEALANT. PRIME CONCRETE SURFACES THAT SEALANT WILL BE APPLIED TO USING THE SEALANT MANUFACTURERS RECOMMENDED PRIMER.
2. AT SEALED JOINTS BELOW GRADE, COVER JOINTS WITH 1/4"x12" ASPHALT IMPREGNATED FIBER BOARD.



EQUIPMENT PAD DETAIL ON CONC. SLAB

NOT TO SCALE

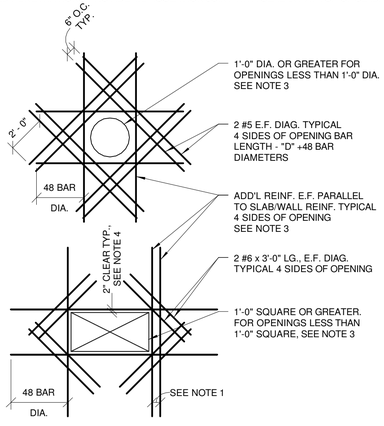
DETAIL NOTES :
1. COORDINATE EQUIPMENT PAD SIZE & ANCHOR LOCATIONS WITH MECHANICAL DRAWINGS & EQUIPMENT MFR.



THICKENED SLAB DETAIL AT CMU PARTITION

NOT TO SCALE

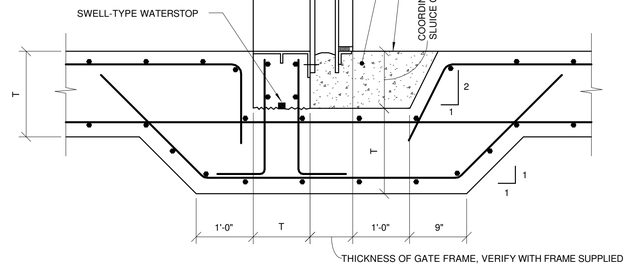
DETAIL NOTES:
1. DOWELS MAYBE POST-INSTALLED AT CONTRACTOR OPTION.



ADDITIONAL REINFORCING AT CONCRETE SLAB & WALL OPENINGS

NOT TO SCALE

DETAIL NOTES :
1. WHERE MORE THAN ONE ADDITIONAL BAR IS REQUIRED PARALLEL TO THE EXISTING SLAB/WALL REINFORCING THE ADDITIONAL REINFORCING BARS SHALL BE SPACED AT 4 INCHES ON CENTER.
2. ADDITIONAL REINFORCING PARALLEL TO THE SLAB/WALL REINFORCING SHALL BE #5 BARS THAT PROVIDE A STEEL AREA ON EACH SIDE OF THE OPENING EQUAL TO 1/2 THE AREA OF THE REINFORCING CUT BY THE OPENING.
3. FOR OPENINGS WITH SIDES OR DIAMETERS LESS THAN 1'-0" SPREAD THE SLAB/WALL REINFORCING TO THE CLEAR OPENING.
4. IF PERIPHERY OF OPENING IS WATERSTOPPED, PROVIDE ADDITIONAL CLEARANCE TO AVOID WATERSTOP.



SLUICE GATE DETAIL

NOT TO SCALE

DETAIL NOTES:
1. MAKE POCKET IN SLAB 1'-0" LONGER THAN THE MAXIMUM OUT TO OUT HORIZONTAL DIMENSION OF THE WALL THIMBLE.
2. D = SLAB DEPTH & WALL THICKNESS
3. COORDINATE DETAIL WITH MECH. DRAWINGS.

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

TYPICAL DETAILS

FILE NO. 23374.51633- S005

DATE MARCH 19, 2015

S-005

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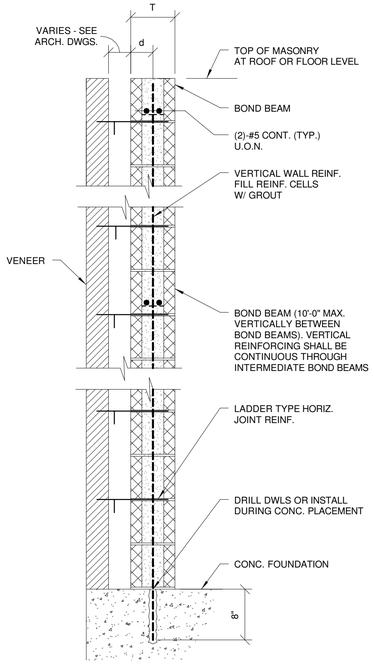
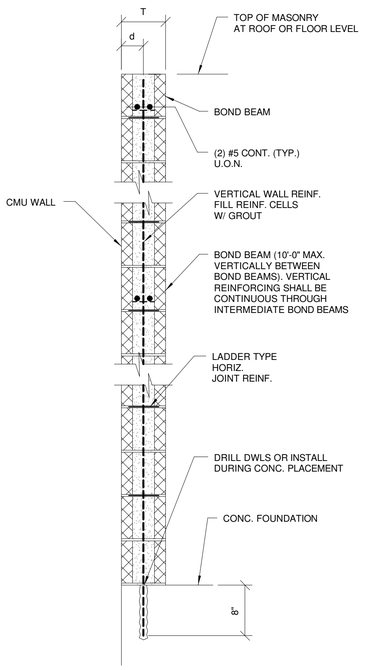


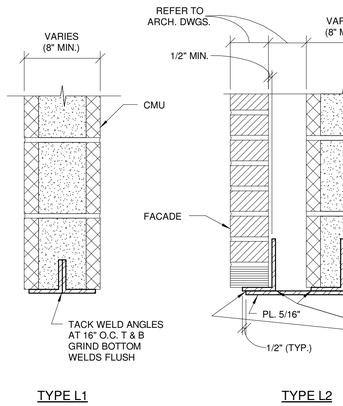
REINFORCED MASONRY CAVITY WALL DETAIL

NOT TO SCALE

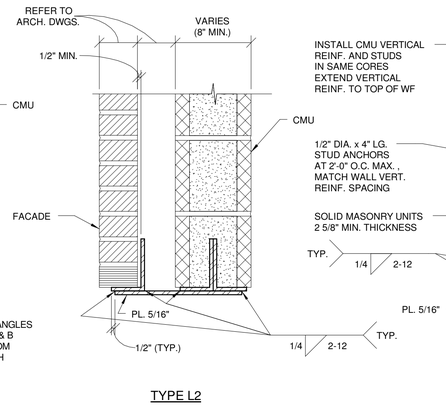


SINGLE WYTHE REINFORCED MASONRY WALL DETAIL

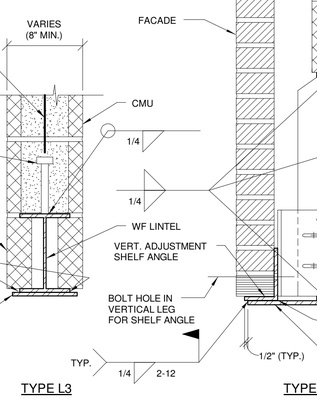
NOT TO SCALE



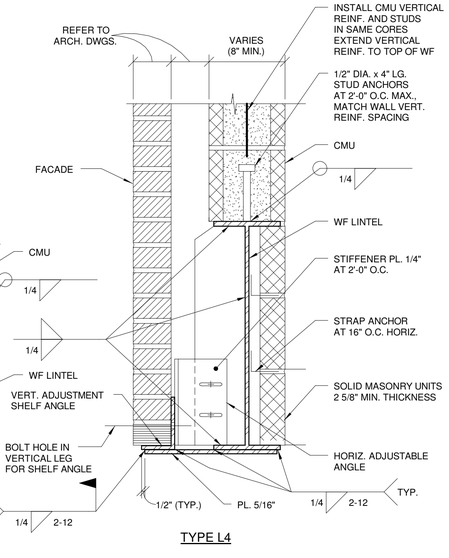
TYPE L1



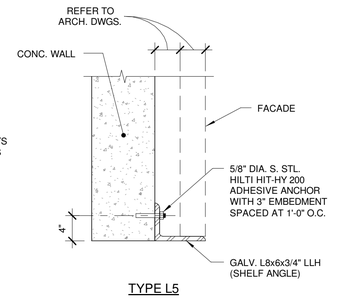
TYPE L2



TYPE L3



TYPE L4



TYPE L5

STEEL LINTEL DETAILS

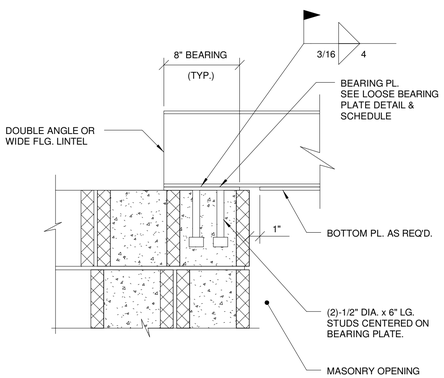
NOT TO SCALE

DETAIL NOTES:
1. INSTALL UNDER SHORED CONDITIONS ONLY.

STEEL LINTEL SCHEDULE

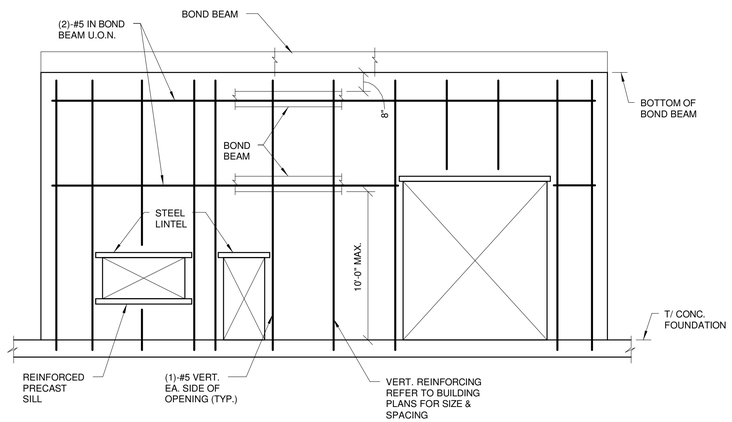
TYPE	MAX. M.O.	CMU THICKNESS	SECTION	LINTEL SIZE
L1	5'-0"	8"		(2) L3 1/2x3 1/2x5/16"
L1	5'-0"	10"		(2) L4x4x5/16"
L1	5'-0"	12"		(2) L5x5x5/16"
L2	7'-0"	8"		(3) L5x3 1/2x5/16" W/ 5/16" B/PL
L2	7'-0"	10"		(3) L5x3 1/2x5/16" W/ 5/16" B/PL
L2	7'-0"	12"		(3) L5x5x5/16" W/ 5/16" B/PL
L3	12'-0"	8"		W8x21 W/ 5/16" B/PL
L3	12'-0"	10"		W8x24 W/ 5/16" B/PL
L3	12'-0"	12"		W8x31 W/ 5/16" B/PL
L4	12'-0"	8"		W8x21 W/ 5/16" B/PL + STIFFENERS
L4	12'-0"	10"		W8x24 W/ 5/16" B/PL + STIFFENERS
L4	12'-0"	12"		W8x31 W/ 5/16" B/PL + STIFFENERS
L5	-	10"		L8x6x3/4" LLH

SCHEDULE NOTES:
1. UNLESS OTHERWISE NOTED, ALL LINTELS SHALL HAVE A MINIMUM BEARING OF 8 INCHES AT EACH END.
2. UNLESS OTHERWISE NOTED, ON THE PLANS & SECTIONS GROUT A MINIMUM OF 3 COURSES OF CMU BELOW END BEARINGS.
3. PROVIDE & INSTALL 1/2" DIA. x 4" LONG STUDS AT SAME SPACING AS WALL VERT. REINF. BUT NOT GREATER THAN 2'-0" ON CENTER ALONG THE CENTERLINE OF THE TOP FLANGE OF WIDE FLANGE LINTELS. FILL CORES AT STUDS WITH GROUT.
4. THE FIRST COURSE OF MASONRY ABOVE WIDE FLANGE LINTELS SHALL BE LAID IN A FULL BED OF MORTAR.
5. FINISHED LINTEL ASSEMBLIES SHALL BE GALVANIZED.
6. COORDINATE LINTEL TYPE & MARK WITH PLANS.



STEEL LINTEL BEARING DETAIL

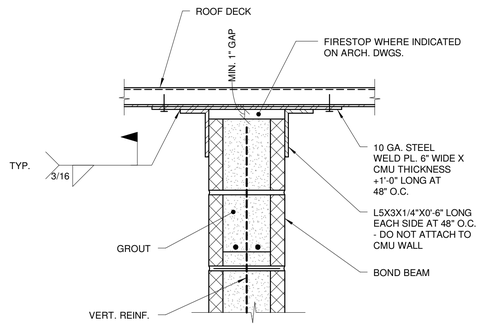
NOT TO SCALE



MASONRY REINFORCING DETAIL

NOT TO SCALE

DETAIL NOTES :
1. FILL ALL REINFORCED CELLS W/ GROUT.
2. DRILL & GROUT ALL VERTICAL REINFORCING 8 INCHES INTO CONCRETE FOUNDATION.
3. REINFORCING STEEL ASTM A-615 GRADE 60.
4. COORDINATE REINF. WITH STRUCTURAL GENERAL NOTES & CMU WALL SCHEDULE.
5. VERTICAL REINFORCING SHALL BE CONTINUOUS THROUGH INTERMEDIATE BOND BEAMS NOT LOCATED AT ROOF OR FLOOR LEVEL.



MASONRY PARTITION TO METAL DECK ANCHOR DETAIL

NOT TO SCALE

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TYPICAL DETAILS

FILE NO. 23374.51633- S006

DATE MARCH 19, 2015

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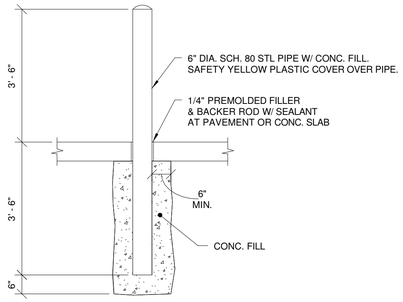
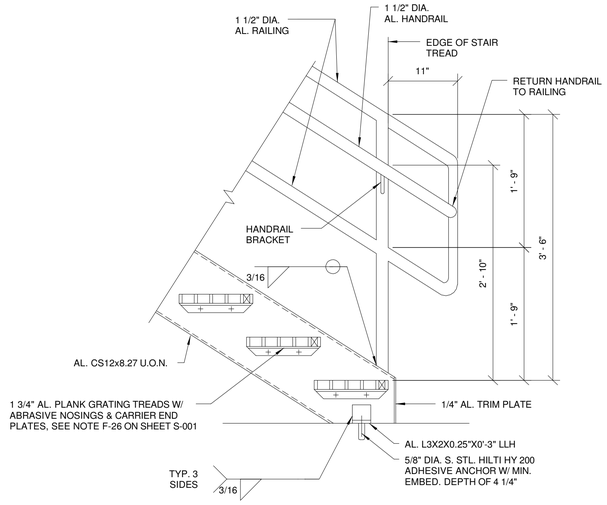


BOLLARD DETAIL

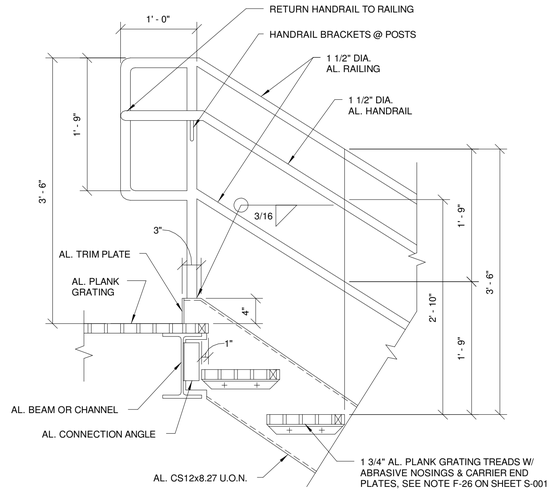
NOT TO SCALE



AL. GRATING STAIR BASE DETAIL

NOT TO SCALE

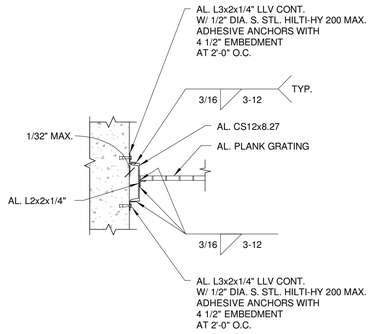
DETAIL NOTES :
1. SEE PLANS FOR STAIR WIDTH AND RUN.
2. BACK PAINT AL. IN CONTACT W/ CONC. USING BITUMINOUS PAINT.



AL. GRATING STAIR HEAD DETAIL AT GRATING PLATFORM

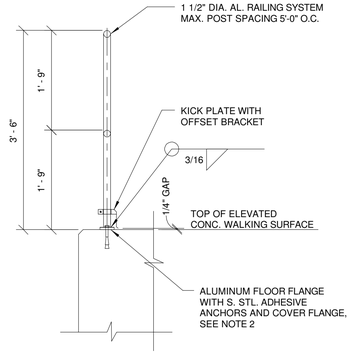
NOT TO SCALE

DETAIL NOTES :
1. SEE PLANS FOR STAIR WIDTH AND RUN.
2. BACK PAINT AL. IN CONTACT W/ CONC. USING BITUMINOUS PAINT.



AL. STRINGER TO WALL ATTACHMENT DETAIL

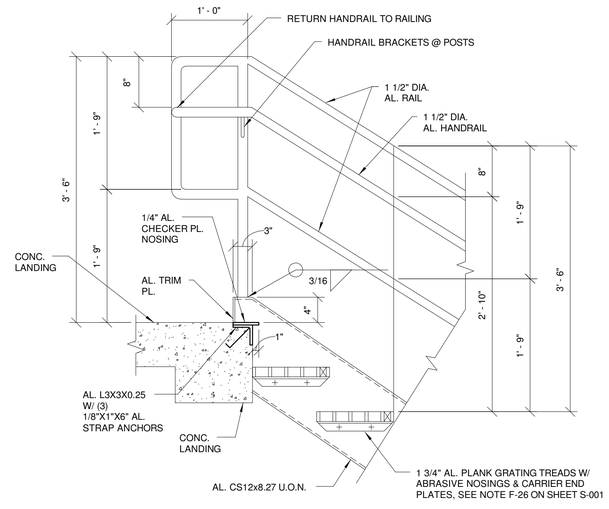
NOT TO SCALE



FIXED ALUMINUM RAILING DETAIL AT EX. CONCRETE

NOT TO SCALE

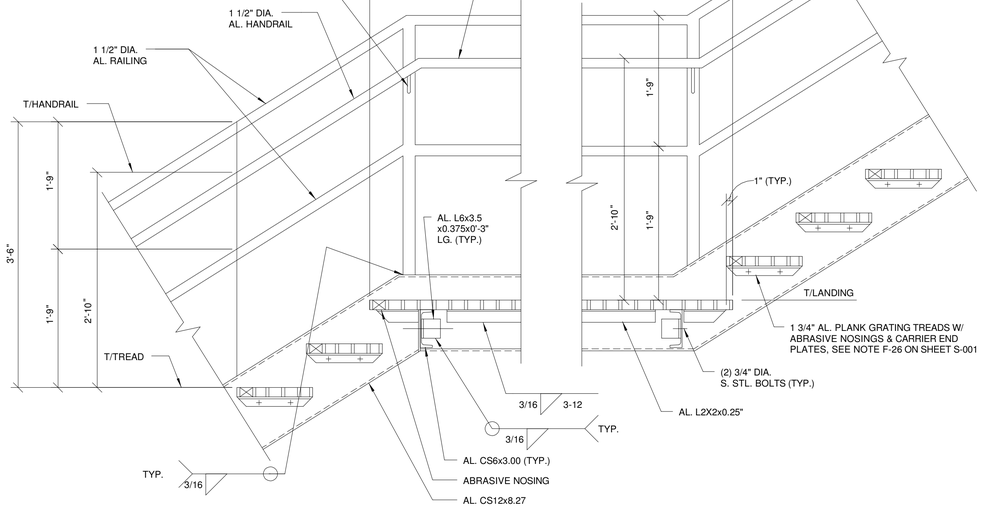
DETAIL NOTES :
1. PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT WITH HYDRAULIC CEMENT USING BITUMINOUS PAINT.
2. ANCHORAGE OF FLOOR FLANGE BY RAILING MANUFACTURER.



AL. GRATING STAIR HEAD DETAIL AT CONC. BEAM, SLAB OR WALL

NOT TO SCALE

DETAIL NOTES :
1. SEE PLANS FOR STAIR WIDTH AND RUN.
2. BACK PAINT AL. IN CONTACT W/ CONC. USING BITUMINOUS PAINT.



STRAIGHT RUN AL. STAIR LANDING DETAIL

NOT TO SCALE

DETAIL NOTES:
1. ALL MEMBER SIZES ARE TYPICAL UNLESS OTHERWISE NOTED ON CONTRACT DRAWINGS.
2. WELD LANDING GRATING TO SUPPORT MEMBERS.

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TYPICAL DETAILS

FILE NO. 23374.51633- S007

DATE MARCH 19, 2015

S-007

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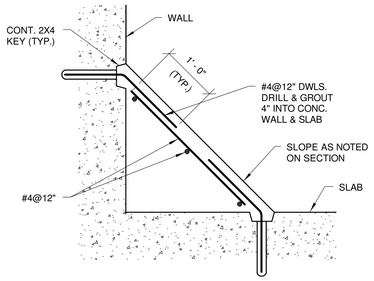
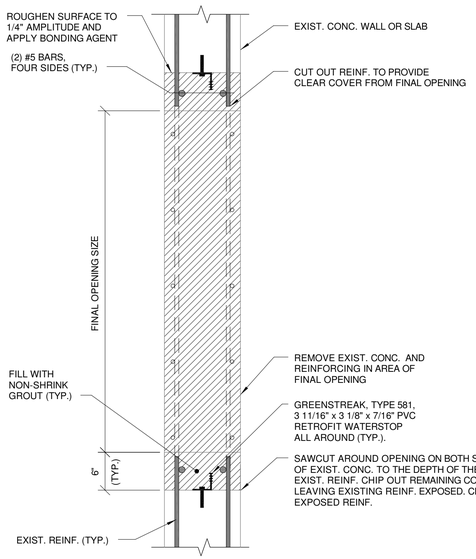


CONCRETE FILLET DETAIL

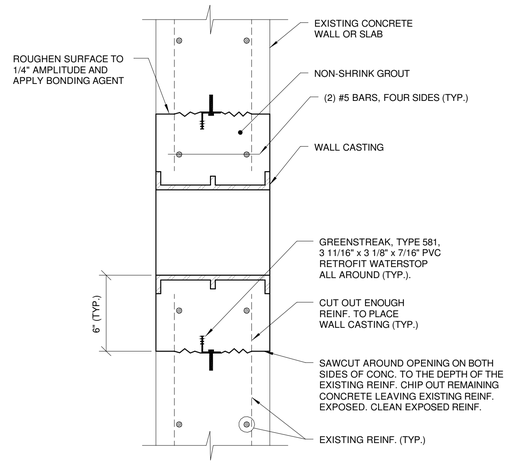
NOT TO SCALE

DETAIL NOTES :
1. FOR FILLETS WITH HEIGHT OR WIDTH OF LESS THAN 1'-0" OMIT REINFORCING STEEL & REINFORCE FILLET WITH FIBER REINFORCING.



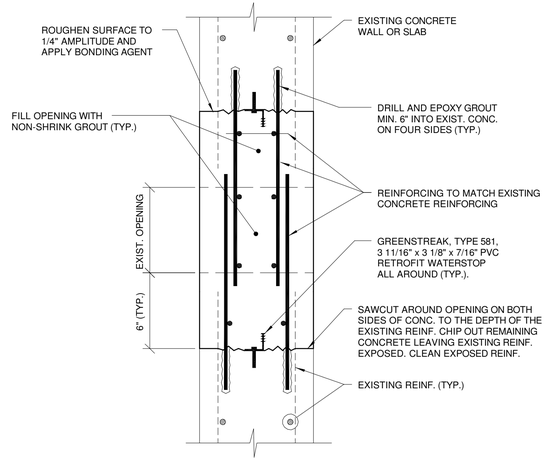
OPENING THROUGH EXIST. CONCRETE DETAIL

NOT TO SCALE



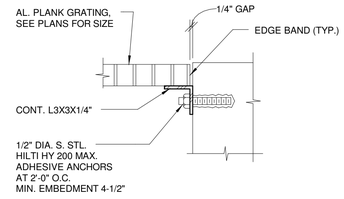
PIPE PENETRATION DETAIL THROUGH EXISTING CONCRETE

NOT TO SCALE



CONCRETE OPENING INFILL DETAIL

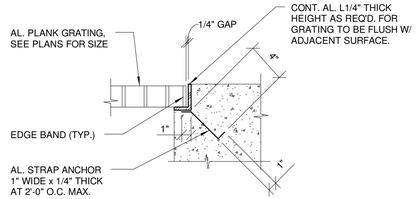
NOT TO SCALE



TYPE 1 ALUMINUM GRATING SUPPORT DETAIL

NOT TO SCALE

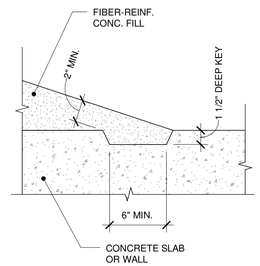
DETAIL NOTES:
1. BACK PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT W/ CONCRETE.
2. SECURE GRATING TO SUPPORT FRAMING USING WELDED ANCHOR BLOCKS AND SELF TAPPING S. STL. SCREWS.



TYPE 2 ALUMINUM GRATING SUPPORT DETAIL

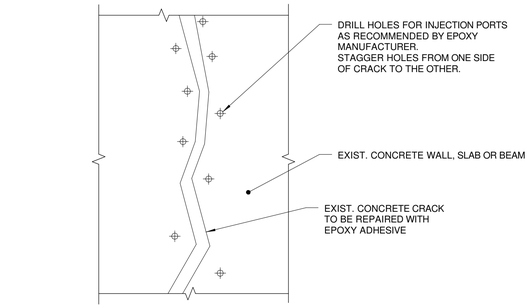
NOT TO SCALE

DETAIL NOTES:
1. BACK PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT W/ CONCRETE.
2. SECURE GRATING TO SUPPORT FRAMING USING WELDED ANCHOR BLOCKS AND SELF TAPPING S. STL. SCREWS.



KEY AT CONC. FILL DETAIL

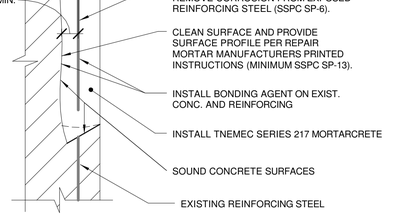
NOT TO SCALE



CONCRETE CRACK REPAIR DETAIL

NOT TO SCALE

DETAIL NOTES:
1. REPAIR CONCRETE CRACKS GREATER THAN 1/16" WIDE AND OTHER DAMAGE IDENTIFIED BY THE OWNER'S REPRESENTATIVE.
2. CRACK REPAIR SHALL COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, CONCRETE CRACK REPAIR DETAIL AND PROTECTIVE LINING FOR CONCRETE SPECIFICATION (09 96 59).
3. DRILL HOLES FOR INJECTORS AT 45 DEGREE ANGLE TO CRACK SO THAT HOLES INTERSECT CRACK.
4. CLEAN DEBRIS FROM CRACK SURFACE
5. INSTALL INJECTORS IN HOLES.
6. FLUSH CRACKS WITH CLEAN WATER.
7. INJECT EPOXY ADHESIVE INTO CRACKS.
8. REMOVE INJECTORS.
9. FILL INJECTOR HOLES WITH NON SHRINK GROUT.
10. GRIND SURFACE SO THAT AREA IS SMOOTH AND MATCHES ADJACENT AREA.



CONCRETE SURFACE REPAIR DETAIL

NOT TO SCALE

DETAIL NOTES:
1. REPAIR CONCRETE SPALLING, CRACKING, DELAMINATION AND DEFECTS INCLUDING VOIDS GREATER THAN 1/4" IN ANY DIMENSION, HONEYCOMBING, ROCK POCKETS, HOLES LEFT BY TIES RODS AND OTHER DAMAGE IDENTIFIED BY THE OWNER'S REPRESENTATIVE.
2. OUTLINE WITH MARKING PAINT THE EXACT EXTENT OF CONCRETE AREAS TO BE REPAIRED IN COORDINATION WITH THE OWNER'S REPRESENTATIVE. SOUND CONCRETE WITH A HAMMER TO DETERMINE THE EXTENT OF LOOSE OR DELAMINATE CONCRETE.
3. USING A MINIMUM NUMBER OF STRAIGHT LINE, LAYOUT AND MARK THE SAW-CUT LOCATIONS AROUND THE REPAIR AREA. SAW-CUT MIN. 1" DEEP AROUND REPAIR AREA AT SLIGHT BEVEL IN ORDER TO KEY THE REPAIR AREA INTO THE EXISTING CONCRETE.
4. REMOVE ALL UNSOUND CONCRETE, AGGREGATES, CEMENT PASTE, DIRT, OIL, GREASE, FUNGUS, MILDEW, PAINT , PREVIOUS COATINGS, FORM RELEASE. CURING AGENTS AND OTHER FOREIGN MATERIALS.
5. AT ALL EXPOSED REINFORCING BARS, CHIP OUT CONCRETE TO CREATE A MINIMUM 3/4" SPACE BEHIND THE BAR.
6. REVIEW EACH REPAIR AREA WITH OWNER'S REPRESENTATIVE. TALLY QUANTITIES TO THE NEAREST 0.1 SQUARE FOOT.
7. SAND BLAST EXPOSED REINFORCING BARS TO COMPLY WITH SSPC-SP 6/NACE NO. 3 "COMMERCIAL BLAST CLEANING." IF REINFORCING STEEL HAS LOST MORE THAN 25% OF CROSS SECTIONAL AREA. THE REINFORCEMENT SHALL BE CUT AT THE EXTENTS OF THE SECTION LOSS, REMOVED FROM THE STRUCTURE AND A MATCHING BAR SHALL BE INSTALLED USING LENTON LOCK B-SERIES MECHANICAL REBAR COUPLERS AT EACH END. THE ERICO LENTON LOCK COUPLERS SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS.
8. SAND BLAST EXPOSED SURFACE OF CONCRETE. INSPECT CLEANER CONCRETE AND REMOVE LOOSE UNBONDED AGGREGATE. VACUUM REPAIR AREA TO REMOVE REMAINING LOOSE DEBRIS.
9. WET THE CONCRETE SUBSTRATE WITH CLEAN WATER FOR 24 HOURS TO ACHIEVE A SATURATED SURFACE DRIED CONDITION, WITH NO STANDING WATER.
10. INSTALL REPAIR MORTAR EXTENDED WITH 3/8" AGGREGATE. AGGREGATE SHALL BE NON-REACTIVE (PER ASTM C1260, C227 AND C289), CLEAN, WELL-GRADED, SATURATED SURFACE DRY, LOW ABSORPTION, HIGH DENSITY AND COMPLY WITH ASTM C33 SIZE NO. 8. REPAIR MORTAR SHALL BE MIXED, INSTALLED, FINISHED AND CURED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
11. APPLY CURING SYSTEM IMMEDIATELY AFTER FINISHING PATCH SURFACE CURING SYSTEM SHALL BE TWO OR MORE COATS OF LIQUID MEMBRANE-FORMING CURING COMPOUND.
12. REFER TO PROTECTIVE LINING FOR CONCRETE SPECIFICATION (09 96 59) FOR ADDITIONAL INFORMATION.

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DESIGNED BY	TRL
CHECKED BY	CHL
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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

TYPICAL DETAILS

FILE NO.
23374.51633- S008

DATE
MARCH 19, 2015

S-008

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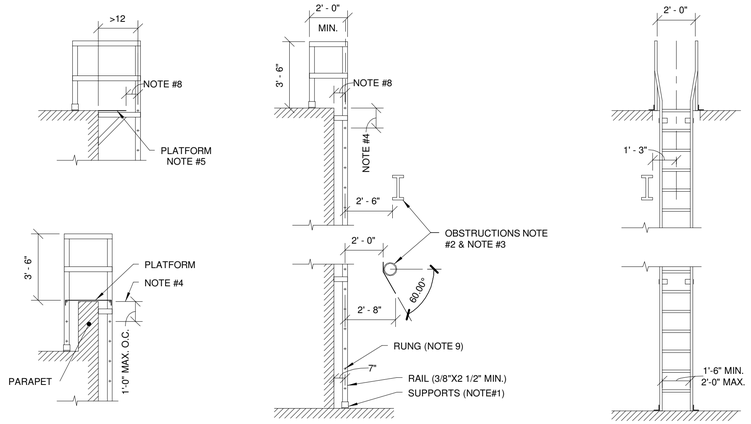
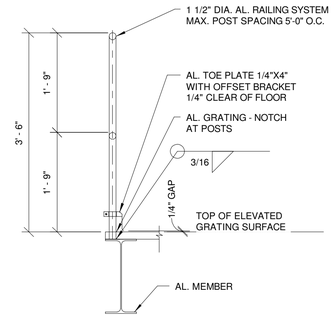


GENERAL LADDER DETAILS

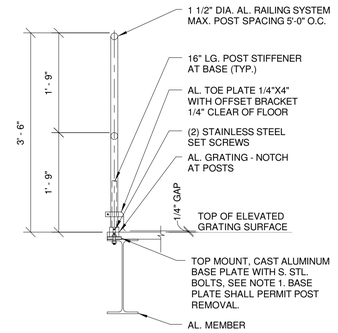
NOT TO SCALE

DETAIL NOTES :
1. SUPPORTS SHALL BE AT TOP & BOT. AND AT 5'-0" O.C. MAX. W/ S.S. ANCHORS. DESIGN EA. SUPPORT TO RESIST SHEAR & PULLOUT OF A 500 LB. LOAD.
2. VERT. LADDERS WITHOUT CAGES OR WELLS SHALL HAVE A MINIMUM PERPENDICULAR DISTANCE OF 2'-6" FROM CENTERLINE OF RUNGS TO THE EDGE OF THE NEAREST PERMANENT OBJECT. PITCHED LADDERS SHALL HAVE A MINIMUM DISTANCE OF 3'-0" CLEAR. DISTANCE MAY BE REDUCED BY 6" IF A 1/16" DEFLECTOR PLATE IS PROVIDED.
3. MINIMUM DISTANCE TO THE NEAREST PERMANENT OBJECT ON EACH SIDE OF THE LADDER CENTERLINE SHALL BE 1'-3". MIN. DISTANCE FROM CENTERLINE OF RUNGS TO NEAREST PERMANENT OBJECT ON BACKSIDE OF LADDER SHALL BE 7".
4. TOP RUNG SHALL BE LEVEL WITH ACCESS/ EGRESS LEVEL OR LANDING PLATFORM. RUNGS SHALL BE AT 1'-0" O.C. MAX. AND UNIFORM THROUGHOUT.
5. PLATFORM IS REQ'D IF STEP ACROSS DISTANCE IS GREATER THAN 1'-0" (GREATER THAN 1'-8" FOR SIDE STEP LADDERS).
6. BILCO LADDER-UP SAFETY POST (OR APPROVED EQUAL) IS REQ'D WHERE 3'-6" EXTENSION OF RAILS IS NOT PRACTICAL. (IE: AT HATCHES)
7. PITCH OF LADDERS SHALL RANGE FROM 90 DEG. (VERT.) TO 75 DEG. FROM HORIZ.
8. STEP ACROSS DISTANCE FROM TOP RUNG TO PLATFORM SHALL BE 2 1/2" MIN.TO 12" MAX.
9. RUNGS SHALL BE MIN. 3/4" DIA. BARS. FIT RUNGS IN CENTERLINE OF SIDERAILS: PLUG-WELD AND GRIND SMOOTH ON OUTER RAIL FACES.
10. LADDER SHALL BE FREE OF SHARP EDGES AND HAZARDOUS PROJECTIONS.
11. PROVIDE TOPRAIL AND MIDRAIL SWING GATE AT TOP OF LADDERWAY OPENING.
12. LADDERS SHALL BE DESIGNED BY MANUFACTURER TO MEET O.S.H.A.



FIXED ALUMINUM RAILING DETAIL AT ALUMINUM FRAMING

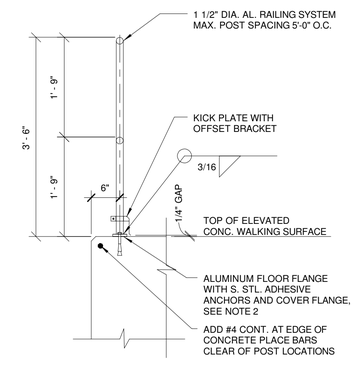
NOT TO SCALE



REMOVABLE ALUMINUM RAILING DETAIL AT ALUMINUM FRAMING

NOT TO SCALE

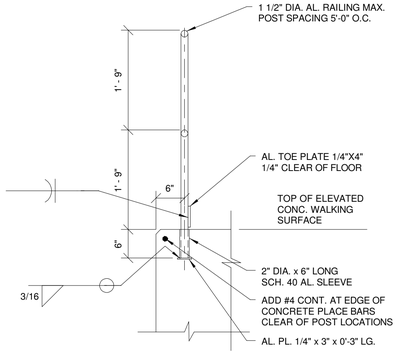
DETAIL NOTES:
1. ANCHORAGE OF BASE PLATE BY RAILING MANUFACTURER.



FIXED ALUMINUM RAILING DETAIL

NOT TO SCALE

DETAIL NOTES :
1. PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT WITH HYDRAULIC CEMENT USING BITUMINOUS PAINT.
2. ANCHORAGE OF FLOOR FLANGE BY RAILING MANUFACTURER.



REMOVABLE ALUMINUM RAILING DETAIL

NOT TO SCALE

DETAIL NOTES :
1. USE IN LOCATIONS WHERE FRESH CONC. WILL BE PLACED.
2. PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT WITH HYDRAULIC CEMENT USING BITUMINOUS PAINT.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL

TYPICAL DETAILS

FILE NO. 23374.51633- S009

DATE MARCH 19, 2015

S-009

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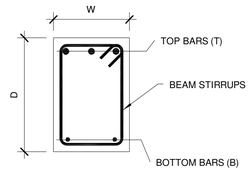
CONCRETE WALL REINFORCING SCHEDULE

MARK	THICK	REINFORCING									
		TOP OF WALL	BOTTOM OF WALL	VERT. I.F.	VERT. I.F. DWLS.	VERT. O.F.	VERT. O.F. DWLS.	HORIZ. I.F.	HORIZ. O.F.	CORNER/ INTERSECTION BARS	REMARKS
BIOLOGICAL REACTOR TANKS (BRT)											
BRTW1	2'-0"	EL. VARIES	EL. 70'-6"	#7@9"	#7@9"	#7@9"	#7@9"	#9@6"	#9@6"	#9@6"	SEE NOTE 3
BRTW2A	2'-0"	EL. VARIES	EL. 70'-6"	#8@9"	#9@9"	#8@9"	#9@9"	#9@6"	#9@6"	#9@6"	SEE NOTE 4
BRTW2B	2'-0"	EL. VARIES	EL. 70'-6"	#9@6"	#9@6"	#9@6"	#9@6"	#9@6"	#9@6"	#9@6"	
BRTW3	1'-0"	EL. VARIES	EL. 70'-6"	#6@12"	#6@12"	#6@12"	#6@12"	#6@6"	#6@6"	#6@6"	SEE NOTE 5
BRTW4	1'-0"	EL. VARIES	EL. 75'-7"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	
BRTW5	1'-0"	EL. VARIES	EL. 75'-7"	#6@12"	#6@12"	#6@12"	#6@12"	#6@9"	#6@9"	#6@9"	
BRTW6	1'-0"	EL. VARIES	EL. 75'-7"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	#6@12"	
BRTW7	1'-0"	EL. VARIES	EL. 72'-10"	#6@12"	#6@12"	#6@12"	#6@12"	#7@9"	#7@9"	#7@9"	
FINE SCREENING BUILDING (FSB)											
FSBW1	1'-0"	EL. 79'-0"	EL. 72'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@8"	#5@8"	#5@8"	
FSBW2	1'-0"	EL. 86'-0"	EL. 79'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@6"	#5@6"	#5@12"	
FSBW3	1'-0"	EL. 86'-0"	EL. 79'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	
FSBW4	2'-6"	EL. 86'-0"	EL. 79'-0"	#7@12"	#7@12"	#7@12"	#7@12"	#6@6"	#6@6"	N/A	
FSBW5	2'-0"	EL. 86'-0"	EL. 79'-0"	#6@12"	#6@12"	#6@12"	#6@12"	#6@8"	#6@8"	N/A	
FSBW6	0'-6"	EL. 86'-0"	EL. 79'-0"	#5@12"	#5@12"	-	-	#5@12"	-	N/A	
FSBW7	1'-6"	EL. 86'-0"	EL. 79'-0"	#6@12"	#6@12"	#6@12"	#6@12"	#5@8"	#5@8"	#5@12"	
FSBW8	1'-0"	EL. 86'-0"	EL. 76'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	
PRIMARY EFFLUENT PUMPING STATION (PEPS)											
PEPSW1	1'-0"	EL. 81'-0"	EL. 63'-2"	#6@6"	#8@6"	#6@6"	#8@6"	#5@12"	#5@12"	#5@12"	
PEPSW2	1'-0"	EL. 81'-0"	EL. 61'-8"	#6@6"	#8@6"	#6@6"	#8@6"	#6@12"	#6@12"	#6@12"	
PEPSW3	1'-0"	EL. 81'-0"	EL. 69'-8"	#6@8"	#6@8"	#6@8"	#6@8"	#5@12"	#5@12"	#5@12"	
PEPSW4	1'-0"	EL. 69'-8"	EL. 63'-2"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	
PEPSW5	1'-0"	EL. 93'-6"	EL. 63'-2"	#6@12"	#6@6"	#6@12"	#6@6"	#5@12"	#5@12"	#5@12"	
PEPSW6	2'-0"	EL. 81'-0"	EL. 63'-2"	#6@8"	#6@8"	#6@8"	#6@8"	#6@12"	#6@12"	#6@12"	
PEPSW7	1'-0"	EL. 71'-8"	EL. 63'-2"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	
PEPSW8	1'-0"	EL. 91'-0"	EL. 81'-0"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	
TERTIARY FILTER BUILDING (TFB)											
TFBW1	1'-0"	EL. 85'-0"	EL. 77'-9"	#6@12"	#6@12"	#6@12"	#6@12"	#5@12"	#5@12"	#5@12"	
TFBW2	1'-0"	EL. 85'-0"	EL. 80'-3"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	#5@12"	

SCHEDULE NOTES:
1. REFER TO PLANS FOR LOCATION OF CONCRETE WALLS.
2. AT WALL CORNERS WHERE INTERSECTING WALLS INDICATE DIFFERENT SIZE OR SPACING FOR CORNER BARS, THE CORNER BARS WITH GREATER AREA OF STEEL SHALL BE PROVIDED.
3. AT BRTW1, PROVIDE ADDITIONAL #9@6" HORIZ. IN TOP 6 FT. OF WALL AND 4 FT. BELOW WALL OPENINGS.
4. AT BRTW2A, LENGTH OF VERTICAL LEG OF DOWEL BARS SHALL BE EQUAL TO 4'-0"+ LENGTH OF CLASS "B" TENSION LAP SPLICE ABOVE INTERSECTION WITH SLAB.
5. AT BRTW3, HORIZONTAL & CORNER BARS SHALL BE #7@6" IN TOP 6 FT. OF WALL IN PLACE OF #6@6".

CONCRETE BEAM REINFORCING SCHEDULE

MARK	SIZE		REINFORCING		STIRRUPS			T/ BEAM	REMARKS
	WIDTH	DEPTH	T	B	SIZE	SPACING	SECTION TYPE		
FINE SCREENING BUILDING (FSB)									
FSBB1	1'-6"	2'-0"	(4) #6	(4) #6	#4	10"	1	EL. 86'-0"	-
FSBB2	1'-4"	2'-8"	(2) #8	(5) #8	#4	12"	1	EL. VARIES	-
PRIMARY EFFLUENT PUMPING STATION (PEPS)									
PEPSB1	1'-6"	2'-6"	(2) #7	(6) #7	#4	10"	1	EL. 93'-6"	-
PEPSB2	1'-0"	2'-0"	(3) #5	(3) #5	#4	12"	1	EL. 93'-6"	-



BEAM SECTION TYPE 1

MASONRY WALL REINFORCING SCHEDULE

WALL MARK	THICKNESS	BOTTOM ELEV.	TOP ELEV.	VERT. REINF.	GA. LADUR TYPE HORIZ. JOINT REINF.	d (INCHES)	REMARKS
FINE SCREENING BUILDING (FSB)							
FSBMW1	8"	86'-0"	100'-0"	#5@48"	3/16 GA. @ 16"	4"	W/ BRICK VENEER
FSBMW2	8"	80'-8"	100'-0"	#5@24"	3/16 GA. @ 16"	4"	W/ BRICK VENEER
FSBMW3	8"	86'-0"	98'-0"	#4@48"	3/16 GA. @ 16"	4"	
PRIMARY EFFLUENT PUMPING STATION (PEPS)							
PEPSMW1	8"	93'-6"	106'-2"	#5@48"	3/16 GA. @ 16"	4"	W/ BRICK VENEER
PEPSMW2	8"	93'-6"	104'-10"	#5@48"	3/16 GA. @ 16"	4"	W/ BRICK VENEER

SCHEDULE NOTES:
1. INSTALL BOND BEAMS AT 10'-0" MAX. VERTICALLY.
2. SEE WALL MARK NUMBERS ON THE STRUCTURAL DRAWINGS.
3. FOR ALL OTHER WALL NOT SHOWN ON SCHEDULE INCLUDING INTERIOR WALLS. PROVIDE #5@48" O.C. VERT. REINF. AND 9 GA. @ 16" HORIZ. REINF.
4. ALL "d" VALUES MEASURED FROM OUTSIDE FACE OF WALL.

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IN CHARGE OF RFB
DESIGNED BY TRL
CHECKED BY CHL
DRAWN BY RAE

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MASSILLON, OHIO

STRUCTURAL

REINFORCING SCHEDULES

FILE NO. 23374.51633- S010

DATE MARCH 19, 2015

S-010

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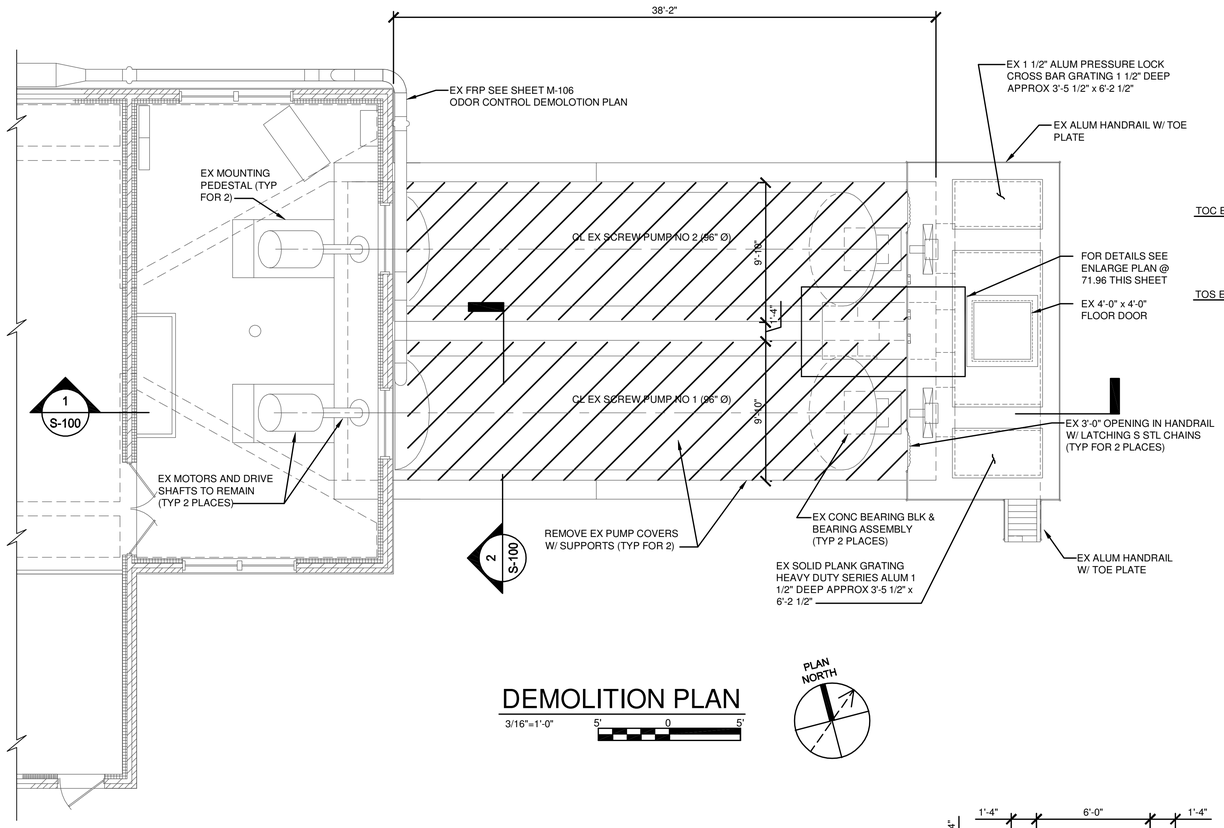
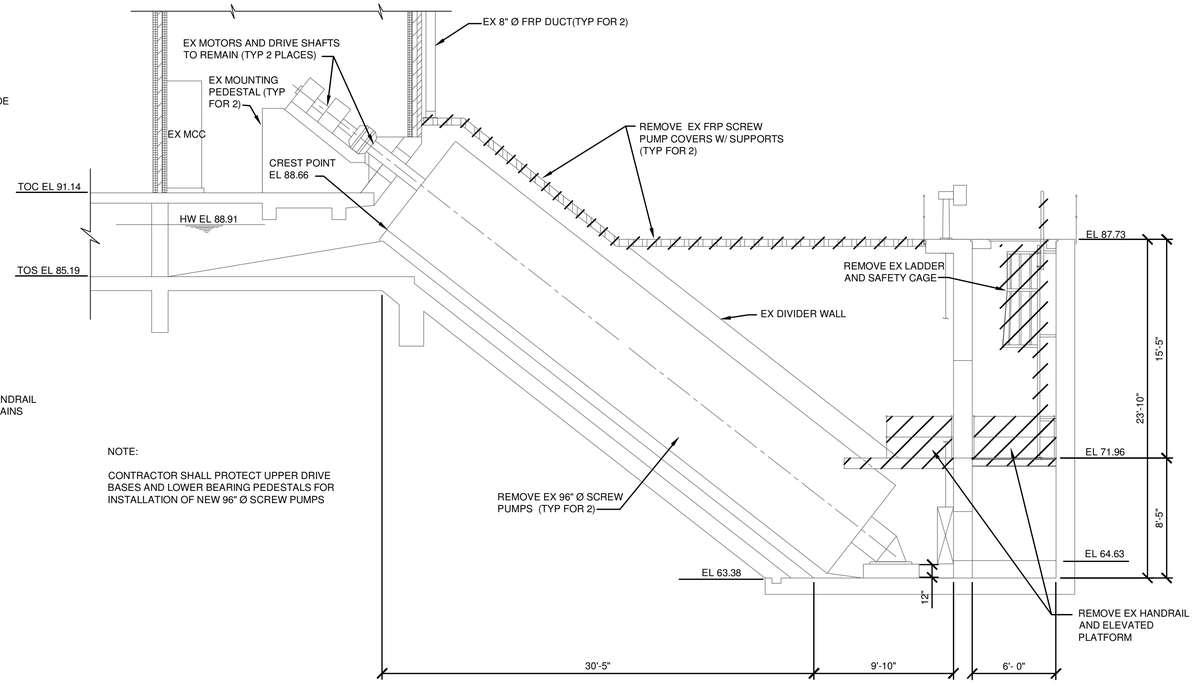


DEMOLITION PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

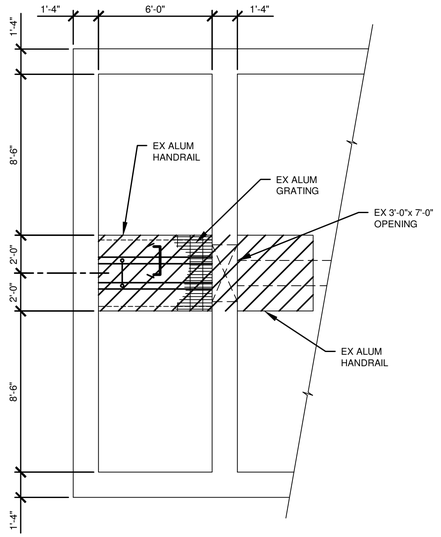


NOTE:

CONTRACTOR SHALL PROTECT UPPER DRIVE BASES AND LOWER BEARING PEDESTALS FOR INSTALLATION OF NEW 96" Ø SCREW PUMPS

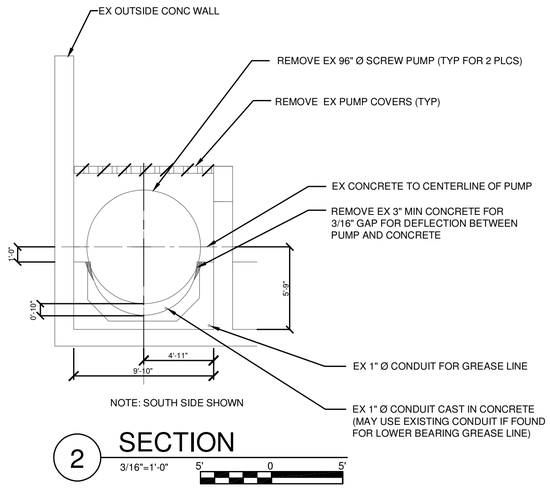
1 SECTION

3/16"=1'-0" 5' 0 5'



ENLARGED PLAN @ EL 71.96

1/4"=1'-0" 5' 0 5'



NOTE: SOUTH SIDE SHOWN

2 SECTION

3/16"=1'-0" 5' 0 5'

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0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PUMP DRIVE/SCREEN BUILDING

DEMOLITION PLANS AND SECTIONS

FILE NO. 23374.51633 -S100
DATE MARCH 19, 2015

S-100

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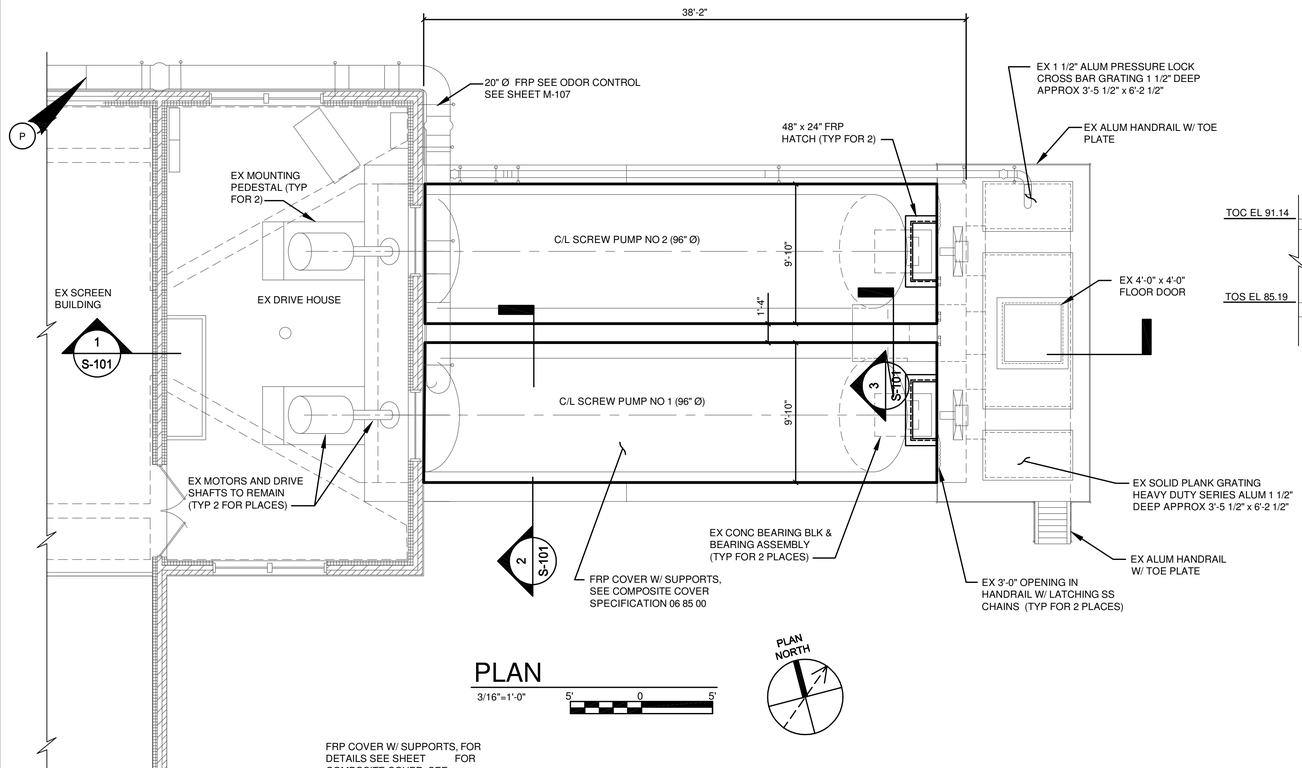
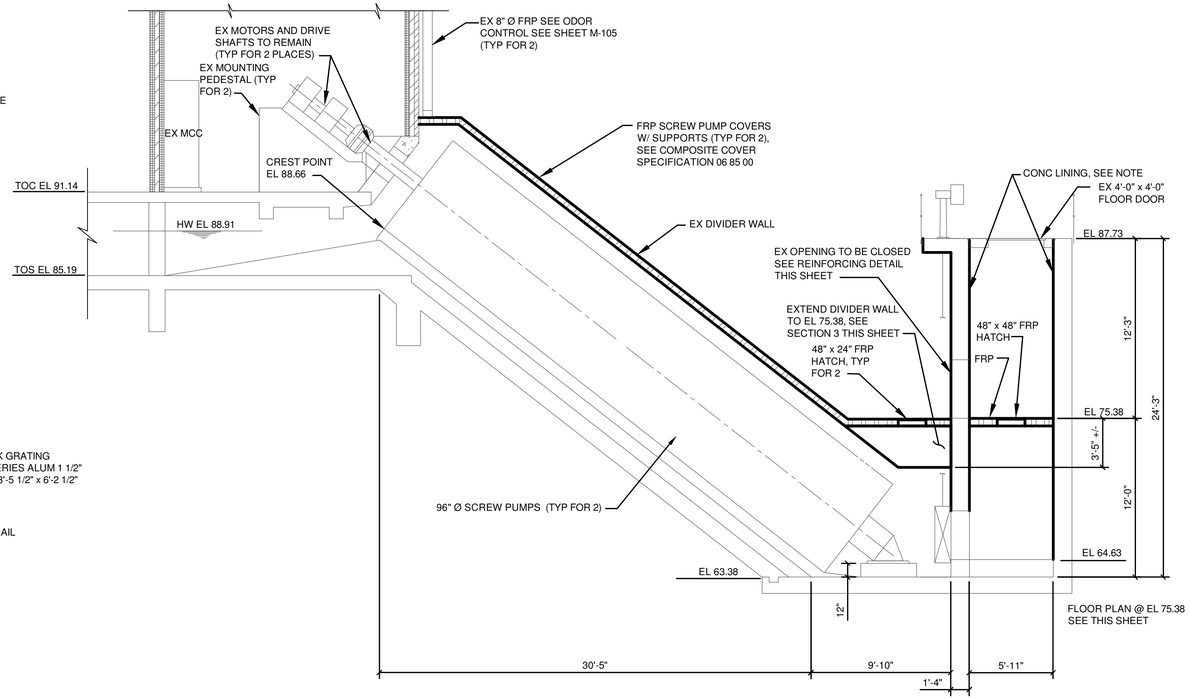
SAVED: 9/21/15 5:18 PM



PLAN

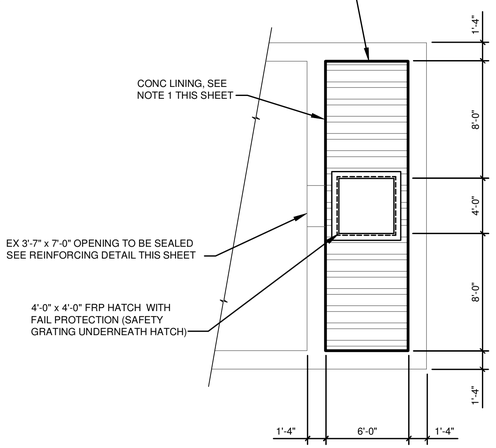
3/16"=1'-0"



1 SECTION

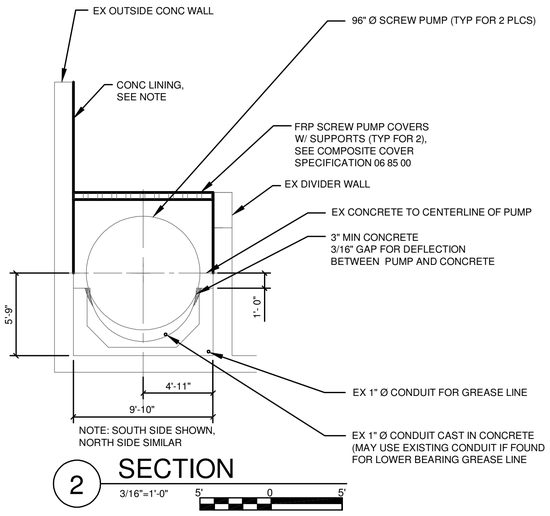
3/16"=1'-0"

NOTE:
1. ALL VERTICAL EXISTING AND NEW CONCRETE SURFACES FOR THE INTERIOR OF THE SCREW PUMPS AND INFLUENT CHAMBER TO THE SCREW PUMPS SHALL HAVE THE CONCRETE REPAIRED AND COATED. SEE PROTECTIVE LINING FOR CONCRETE SPECIFICATION 09 96 59.



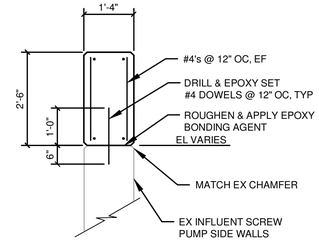
PLAN @ EL 75.38

3/8"=1'-0"



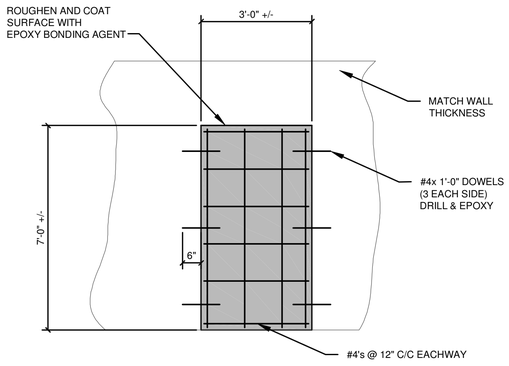
2 SECTION

3/16"=1'-0"



3 SECTION

1/2"=1'-0"



REINFORCING DETAIL

1/2"=1'-0"

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PUMP DRIVE/SCREEN BUILDING

PLANS, SECTIONS AND DETAIL

FILE NO. 23374.51633 - S101
DATE MARCH 19, 2015

S-101

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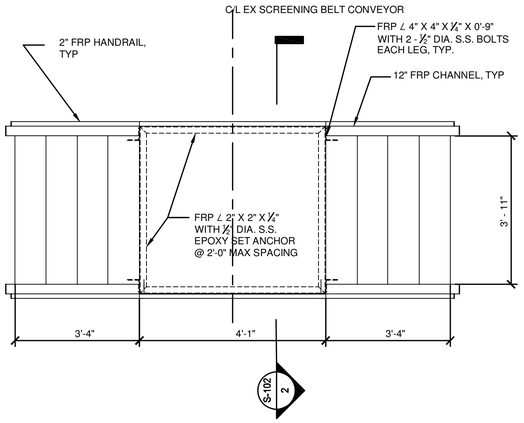
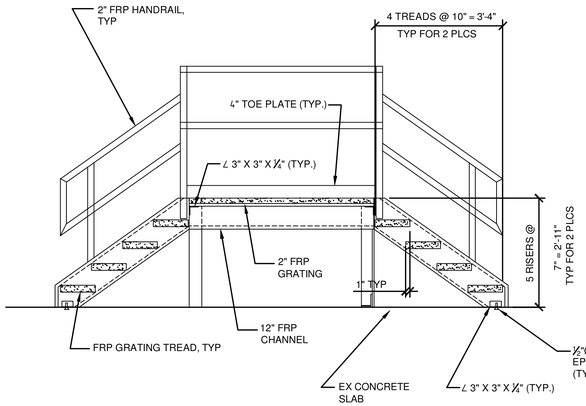


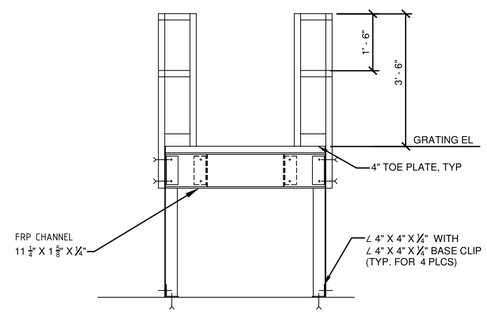
NEW STAIR PLAN

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



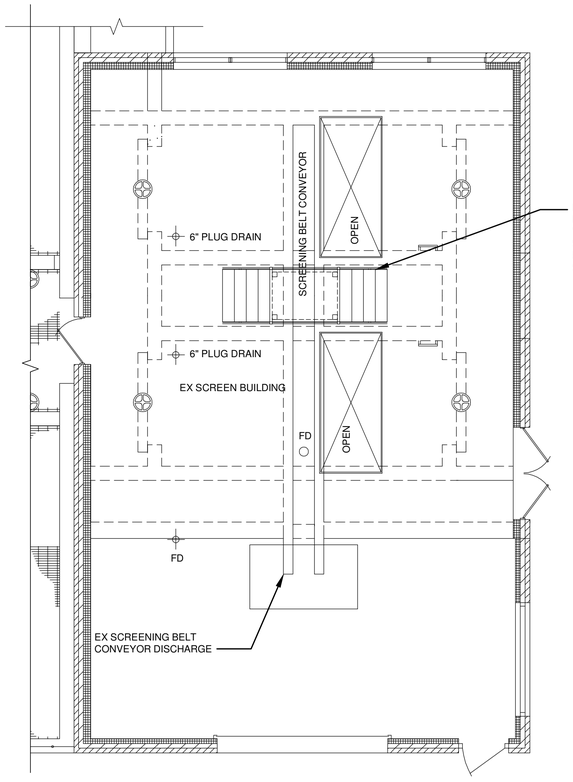
STAIR ELEVATION

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



2 SECTION

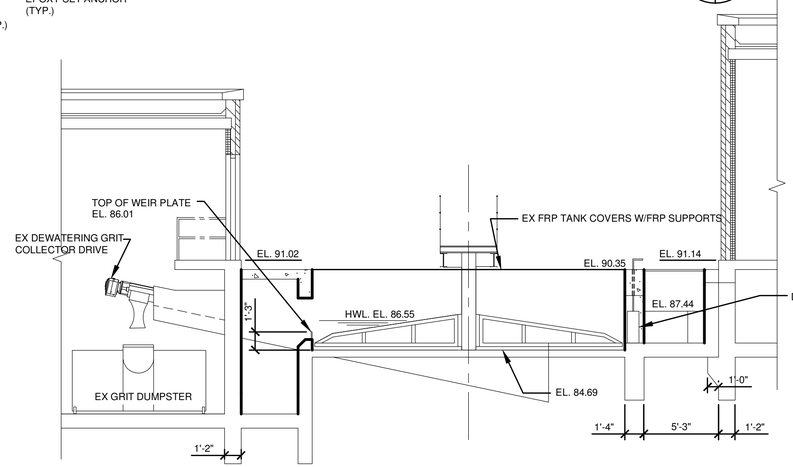
3/16"=1'-0" 5' 0 5'



EX SCREEN BUILDING UPPER PLAN

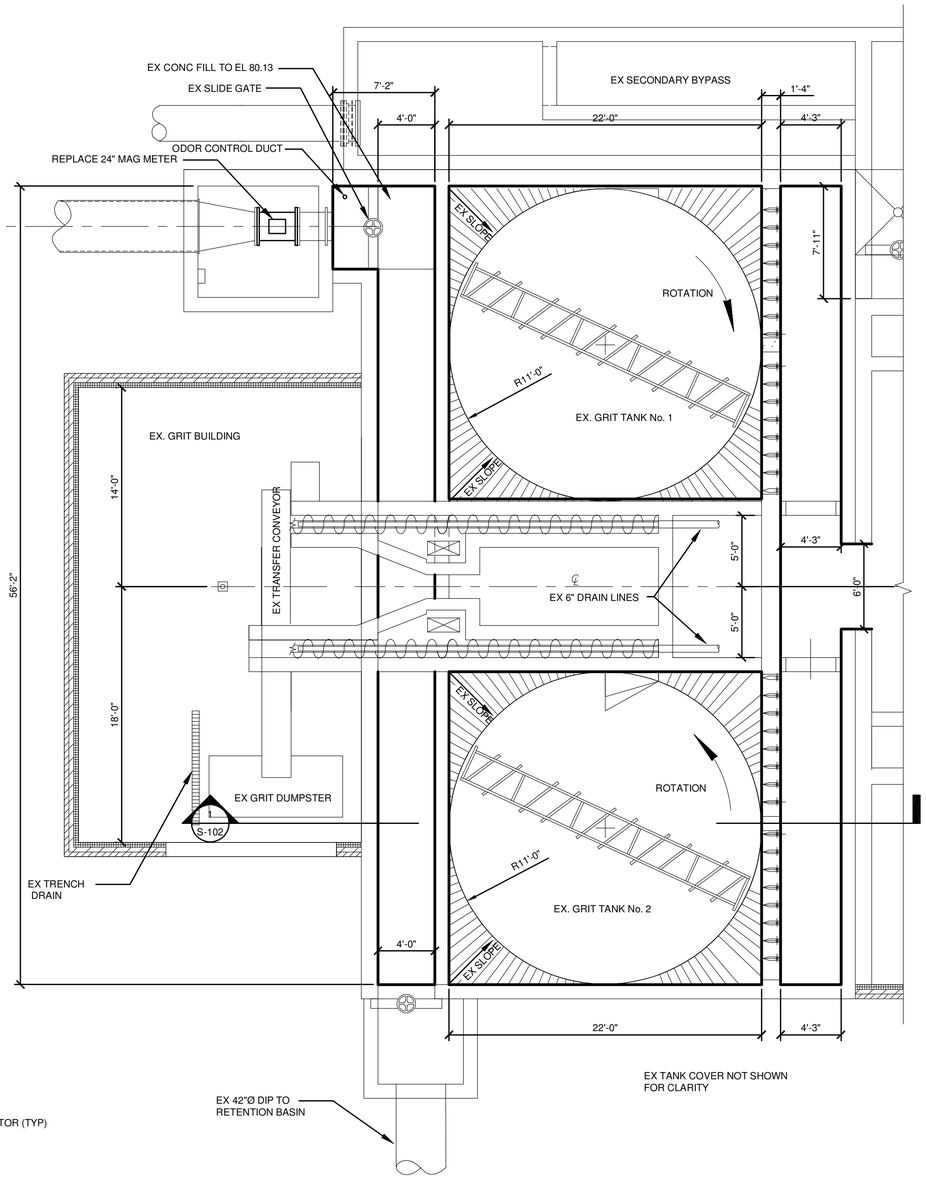
3/16"=1'-0" 5' 0 5'

PLAN NORTH



1 SECTION

3/16"=1'-0" 5' 0 5'



LIMITS OF CONCRETE REPAIR AND CONCRETE LINING. SEE PROTECTIVE LINING FOR CONCRETE SPECIFICATION 09 96 59.

EX GRIT TANK LOWER PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

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CHECKED BY PCC
DRAWN BY JAM

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CTI ENGINEERS, INC.
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
GRIT TANKS AND BUILDING

PLANS AND SECTION

FILE NO. 23374.51633 -S102
DATE MARCH 19, 2015

S-102

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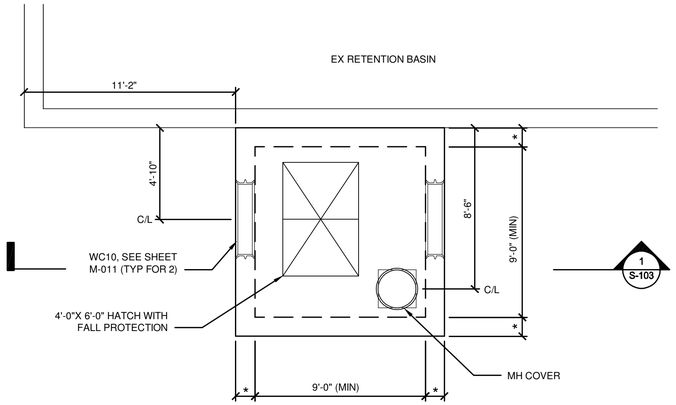
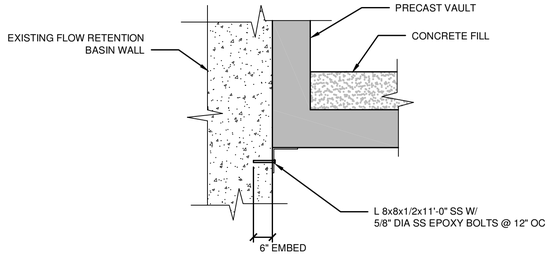
SAVED: 9/21/15 2:20 PM



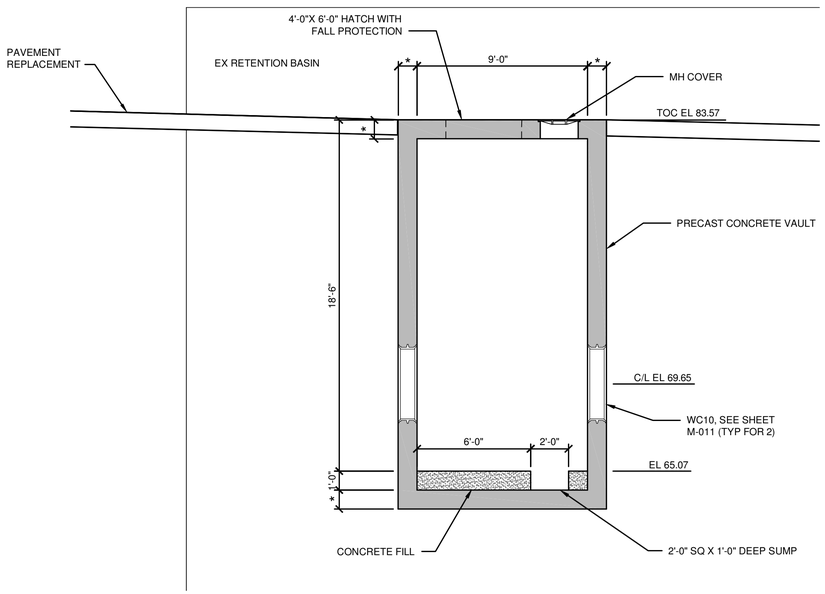
PLAN

1/4"=1'-0"



EXISTING WALL CONNECTION DETAIL

1/2"=1'-0"



1 SECTION

1/4"=1'-0"

* WALL THICKNESS AND REINFORCEMENT PER PRECAST CONCRETE VAULT MANUFACTURER

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FLOW RETENTION BASIN INFLUENT VAULT

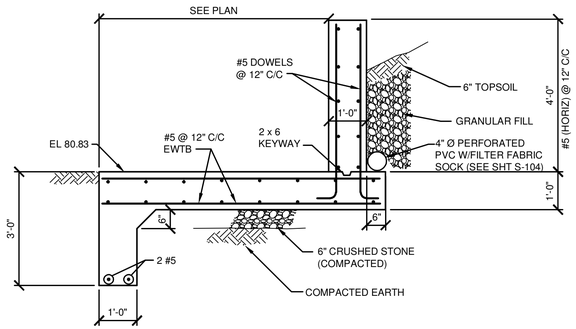
PLAN, SECTIONS, AND DETAILS

FILE NO. 23374.51633 -S103
DATE MARCH 19, 2015

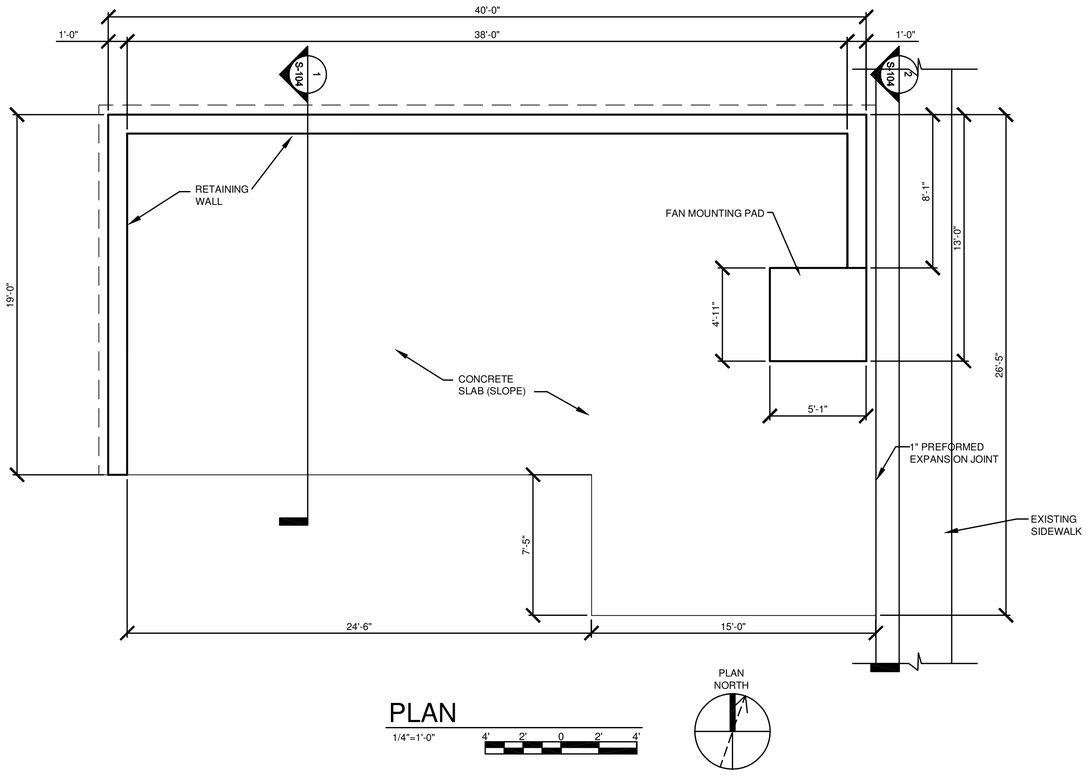
S-103

E:\E14007 MASSILLON WWTP IMPROVEMENTS\DWGS\SHEETS\51633-S-103.DWG

SAVED: 6/9/15 11:05 AM

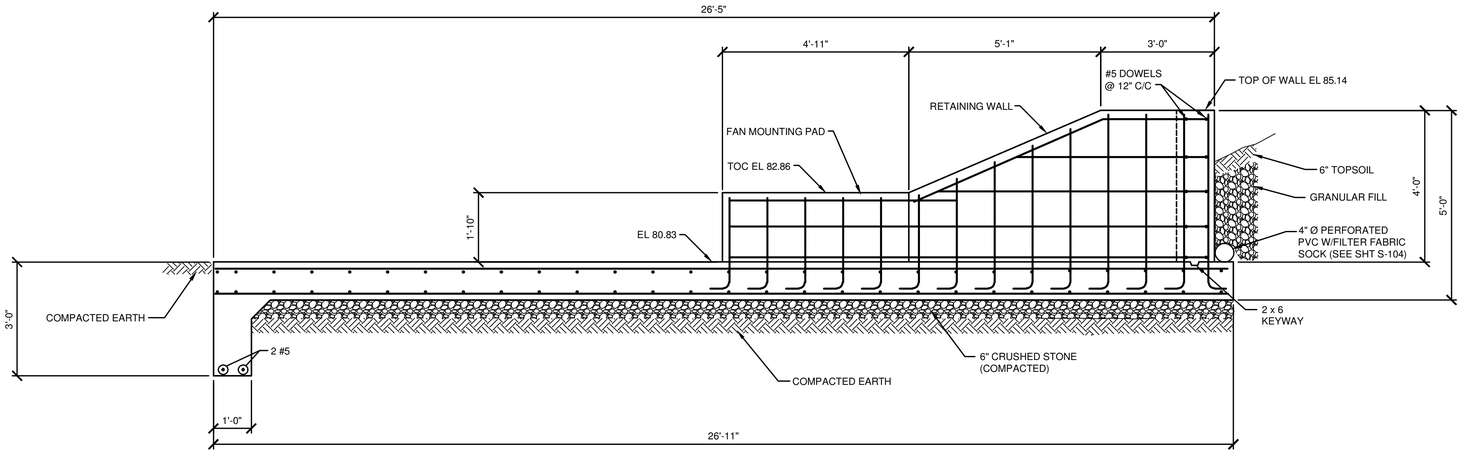


1 SECTION
1/2"=1'-0"



PLAN
1/4"=1'-0"

PLAN
NORTH



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

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
HEADWORKS

ODOR CONTROL PLAN AND SECTION

FILE NO. 23374.51633 - S104
DATE MARCH 19, 2015
S-104

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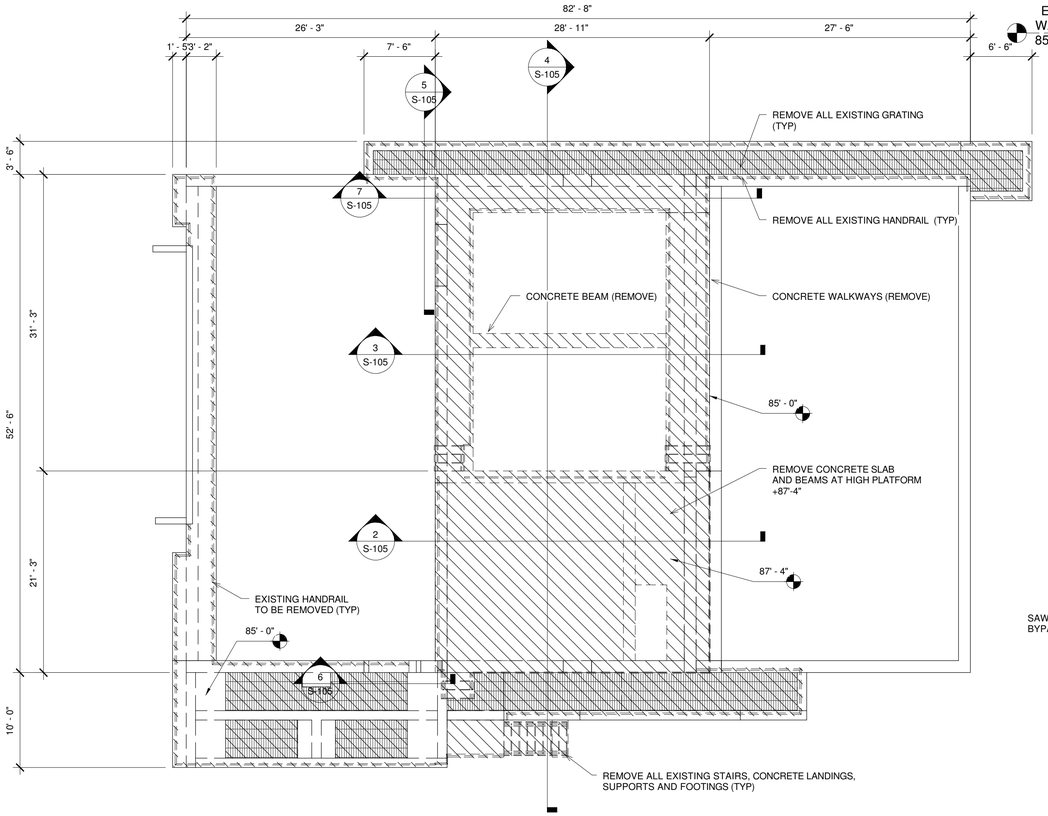
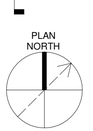
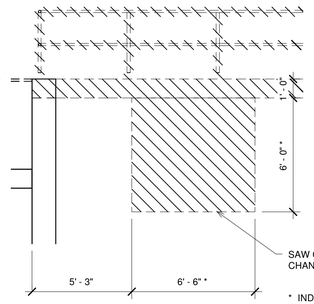


DEMOLITION PLAN

1/8" = 1'-0"

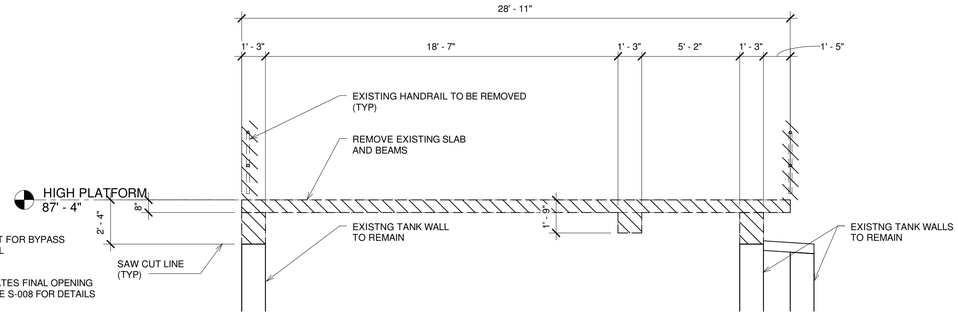




5 SECTION

1/4" = 1'-0"

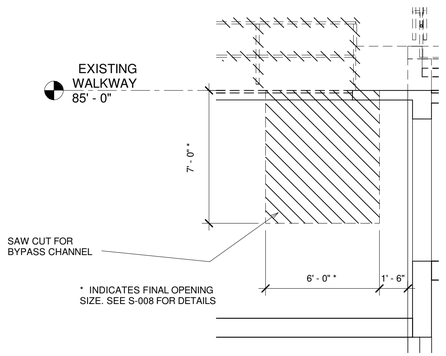
4' 2' 0 2' 4'



2 SECTION

1/4" = 1'-0"

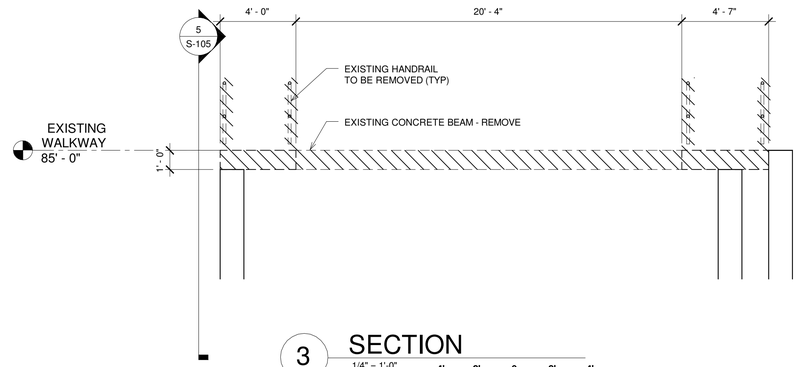
4' 2' 0 2' 4'



6 SECTION

1/4" = 1'-0"

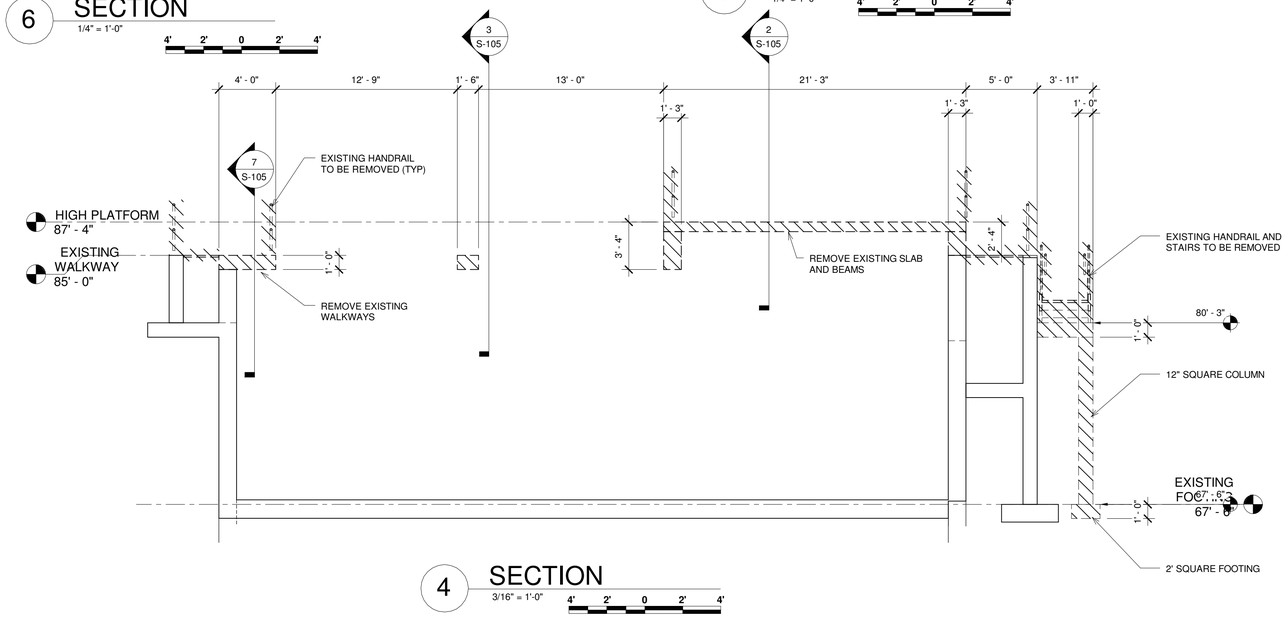
4' 2' 0 2' 4'



3 SECTION

1/4" = 1'-0"

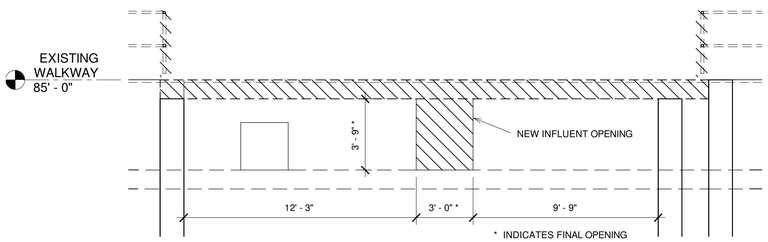
4' 2' 0 2' 4'



4 SECTION

3/16" = 1'-0"

4' 2' 0 2' 4'



7 SECTION

1/4" = 1'-0"

4' 2' 0 2' 4'

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DESIGNED BY	KGP
CHECKED BY	PCC
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ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRE-AERATION TANKS

DEMOLITION PLAN AND SECTIONS

FILE NO. 23374.51633- 105
DATE MARCH 19,2015

S-105

\\fs-canton\IE\14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633 STRU-FSB.rvt

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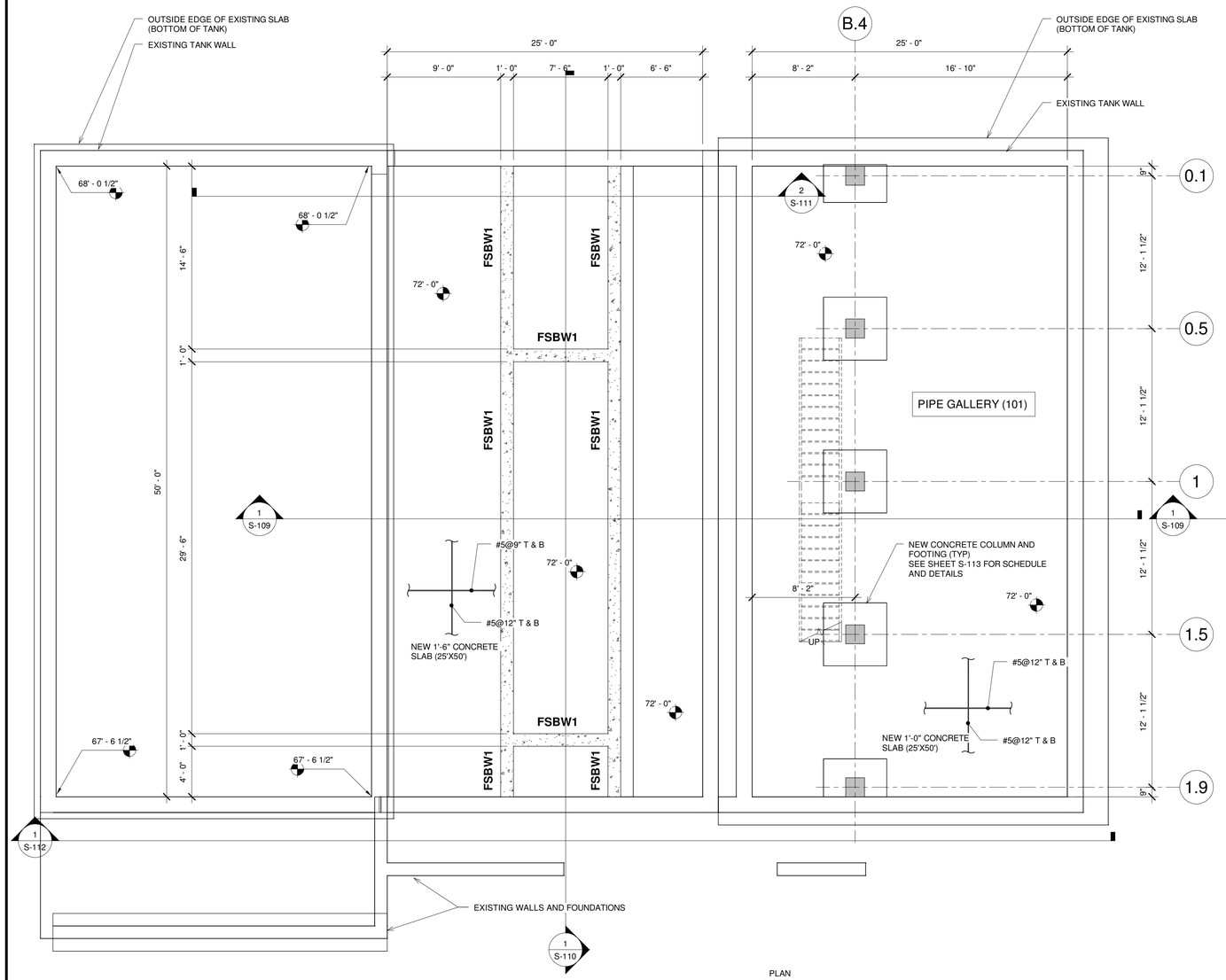
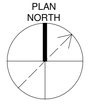
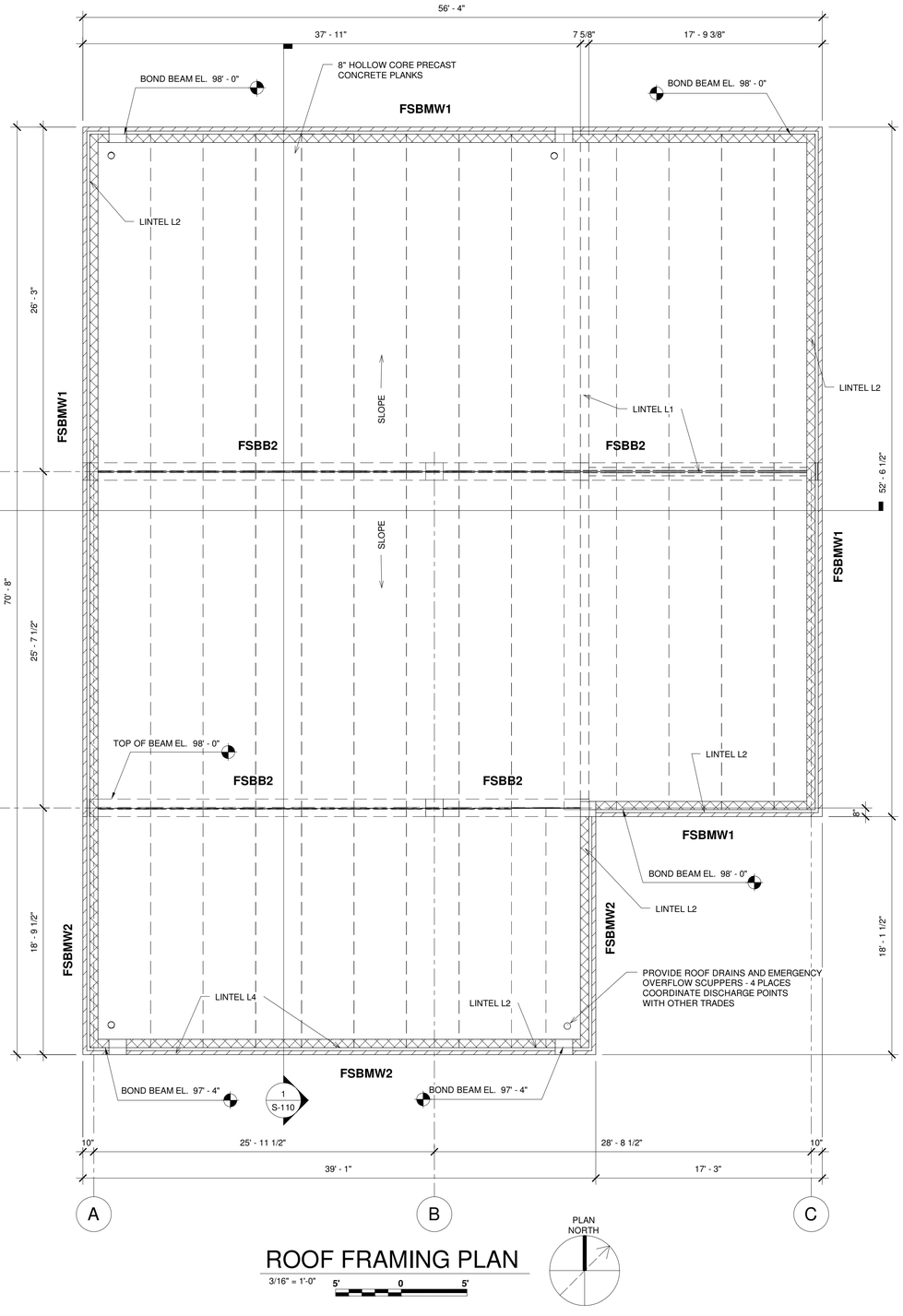


LOWER LEVEL PLAN

3/16" = 1'-0" 5' 0 5'





ROOF FRAMING PLAN

3/16" = 1'-0" 5' 0 5'

PLAN NOTES

1. FSBW# DESIGNATES FINE SCREEN BUILDING CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. FSBB# DESIGNATES FINE SCREEN BUILDING BEAMS. SEE CONCRETE BEAM REINFORCING SCHEDULE ON SHEET S-010.
3. FOR LINTEL SCHEDULE AND DETAILS SEE SHEET S-006.

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING
LOWER LEVEL & ROOF FRAMING PLANS

FILE NO. 23374.51633- 106
DATE MARCH 19,2015

S-106

\\fs-canton\IE14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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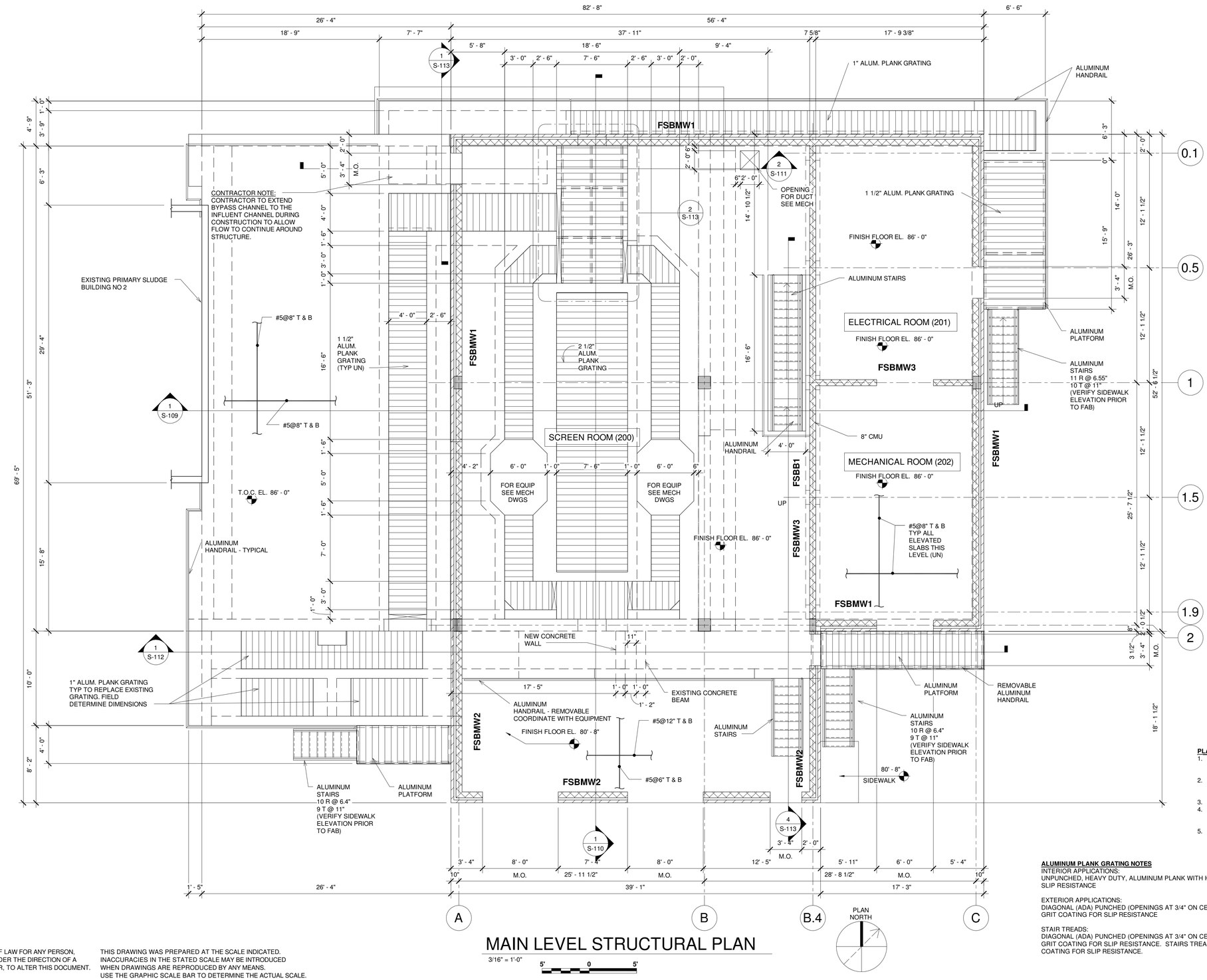

MAIN LEVEL STRUCTURAL PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NOTES

1. FSBMW# DESIGNATES FINE SCREEN BUILDING MASONRY WALLS. SEE MASONRY WALL REINFORCING SCHEDULE ON SHEET S-010.
2. FSBB# DESIGNATES FINE SCREEN BUILDING BEAM. SEE CONCRETE BEAM REINFORCING SCHEDULE ON SHEET S-010.
3. FLOOR, PLATFORM AND STAIR LIVE LOAD = 100 PSF
4. ALL ALUMINUM STAIRS, PLATFORMS, FRAMING, HANDRAIL AND PLANK GRATING SHOWN ON THIS PLAN ARE NEW
5. ALUMINUM PLATFORMS TO BE CONSTRUCTED FROM C8X4.25's SPACED 5'-0" MAX AND 1 1/2" PLANKS. POST DOWN OR KNEE BRACE OFF EXISTING STRUCTURE WITH L4X4X5/16

ALUMINUM PLANK GRATING NOTES

INTERIOR APPLICATIONS:
UNPUNCHED, HEAVY DUTY, ALUMINUM PLANK WITH HORIZONTAL CROSS CUTS PERPENDICULAR TO STRIATIONS FOR SLIP RESISTANCE

EXTERIOR APPLICATIONS:
DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE

STAIR TREADS:
DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE. STAIRS TREADS SHALL HAVE ALUMINUM NOSINGS WITH ALUMINUM OXIDE COATING FOR SLIP RESISTANCE.

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IN CHARGE OF	WAD
DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	KGP
0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

MAIN LEVEL FRAMING PLAN

FILE NO. 23374.51633- 107

DATE MARCH 19,2015

S-107

\\ls-canton\fE14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633 STRU-FSB.rvt

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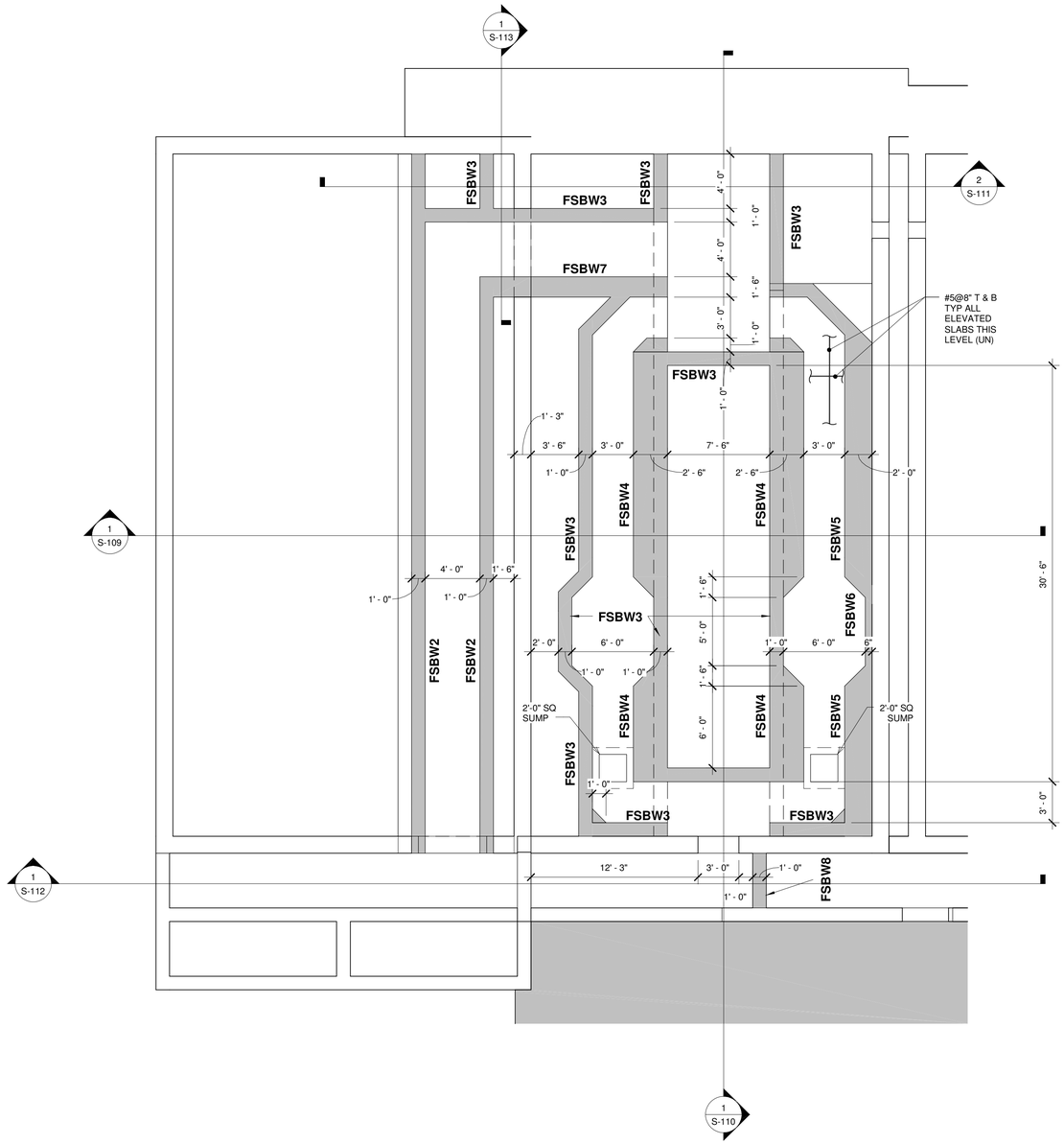

PLAN NOTES
1. FSBW# DESIGNATES FINE SCREEN BUILDING CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.

CHANNEL LEVEL PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

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CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

CHANNEL LEVEL PLAN

FILE NO. 23374.51633- 108

DATE MARCH 19,2015

S-108

\\fs-canton\IE\14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-FSB.rvt

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A | 1 S-110 | B | B.4 | C

10" | 25' - 11 1/2" | 11' - 5 1/2" | 17' - 3" | 10"

T/BOND BEAM 98' - 0"

3 S-113

CONCRETE COLUMN (BEYOND)

19' - 9" | 4' - 0" | 2' - 6" | 5' - 9" | 3' - 0" | 2' - 6" | 7' - 6" | 2' - 6" | 3' - 0" | 9' - 4" | 4' - 0" | 18' - 10"

1' - 0" | 1' - 0" | 1' - 3" | 1" | 1' - 0" | 2' - 0" | 1' - 3" | 2' - 8" | 3' - 5" | 1' - 6"

4' - 0" S-113

EXISTING PRIMARY SLUDGE BUILDING NO. 2

HANDRAIL

1/2" EXPANSION BOARD

MAIN LEVEL 86' - 0"

1' - 0" | 7' - 0" | 1' - 0"

FSBW2 | BYPASS CHANNEL | FSBW2 | FSBW3 | FSBW4 | 7' - 0" | FSBW4 | 1' - 0" | FSBW5

FSBB1

CHANNEL 79' - 0"

1' - 0" | 1' - 6"

18" SQ CONCRETE COLUMN

DOWEL BARS - DRILL AND EPOXY MATCH SLAB REINFORCEMENT SIZE SPACING. (TYP)

26' - 3"

1/2" EXPANSION BOARD ALL AROUND (TYP)

FSBW1 | 1' - 0" | FSBW1

2x4 KEYWAY w/ BENTONITE WATERSTOP (TYP)

4 #6 DOWELS WITH STD. HOOK 3'-0" LAP TYP ALL COLUMNS THIS LEVEL

7' - 0"

BASE SLAB 72' - 0"

EXISTING TANK WALLS (TYP)

1' - 6" | 1' - 0"

4'-3" +/-

68' - 9"

COMPACTED FILL (TYP)

NOTE:
COORDINATE ALL OPENINGS AND PIPE SLEEVES WITH OTHER TRADES.

1 SECTION

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

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 109

DATE MARCH 19,2015

S-109

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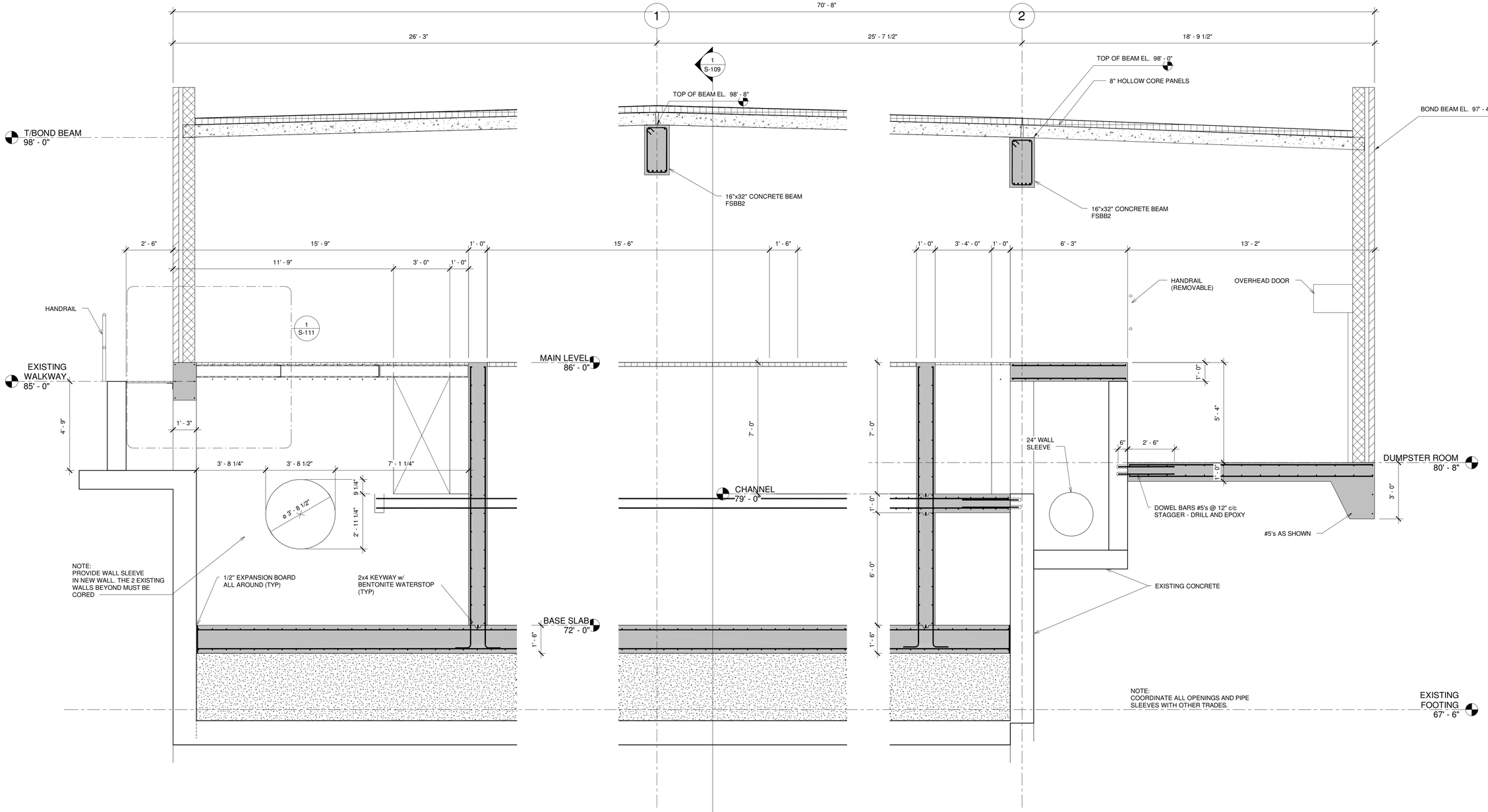

1 SECTION
3/8" = 1'-0"

3' 2' 1' 0 1' 2' 3'

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 110

DATE MARCH 19,2015

S-110

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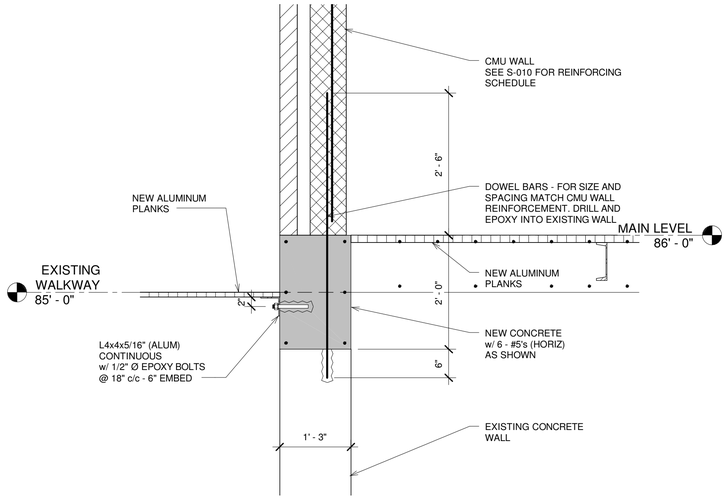
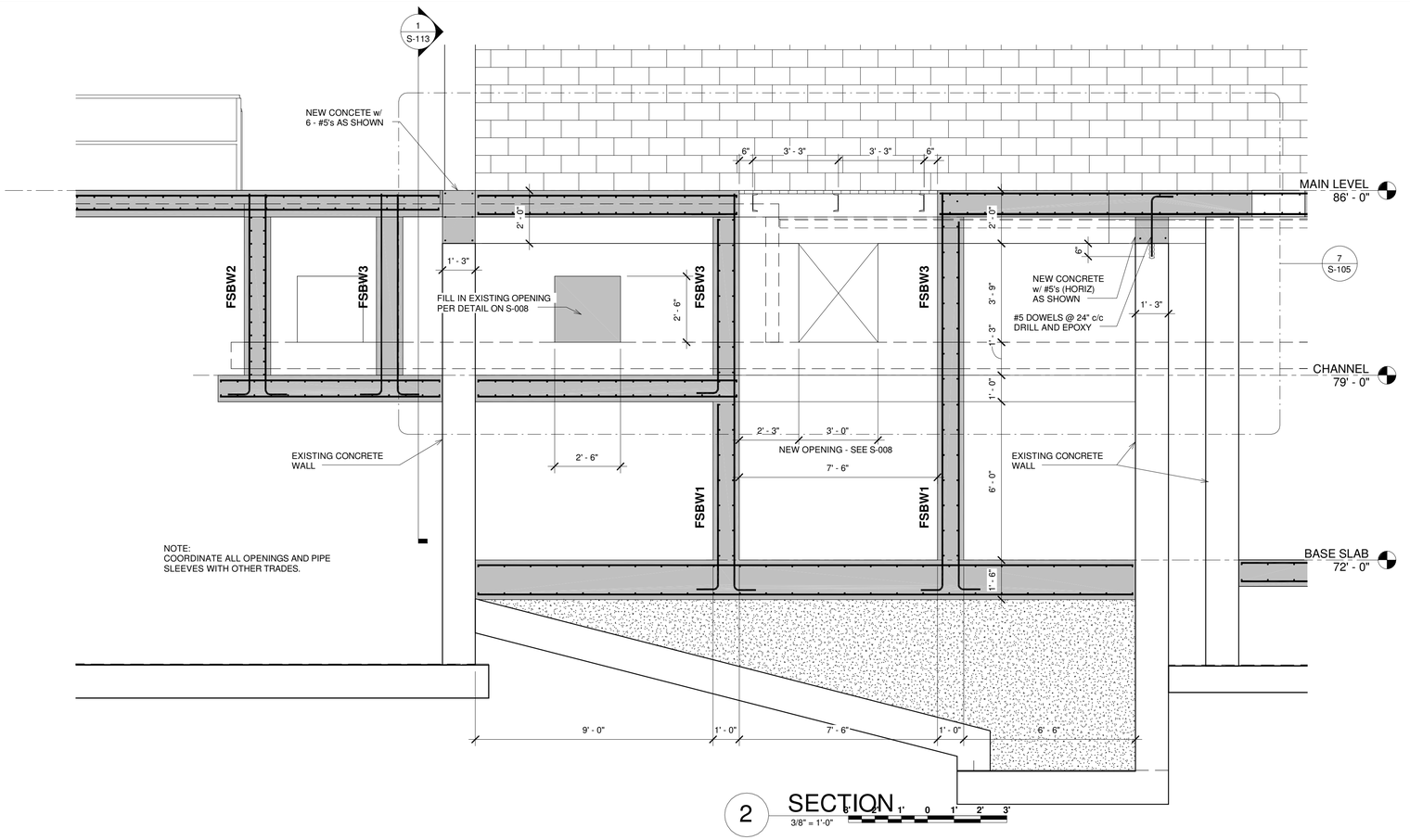


1 DETAIL
3/4" = 1'-0"



2 SECTION
3/8" = 1'-0"

NOTE:
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STRUCTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 111
DATE MARCH 19,2015

S-111

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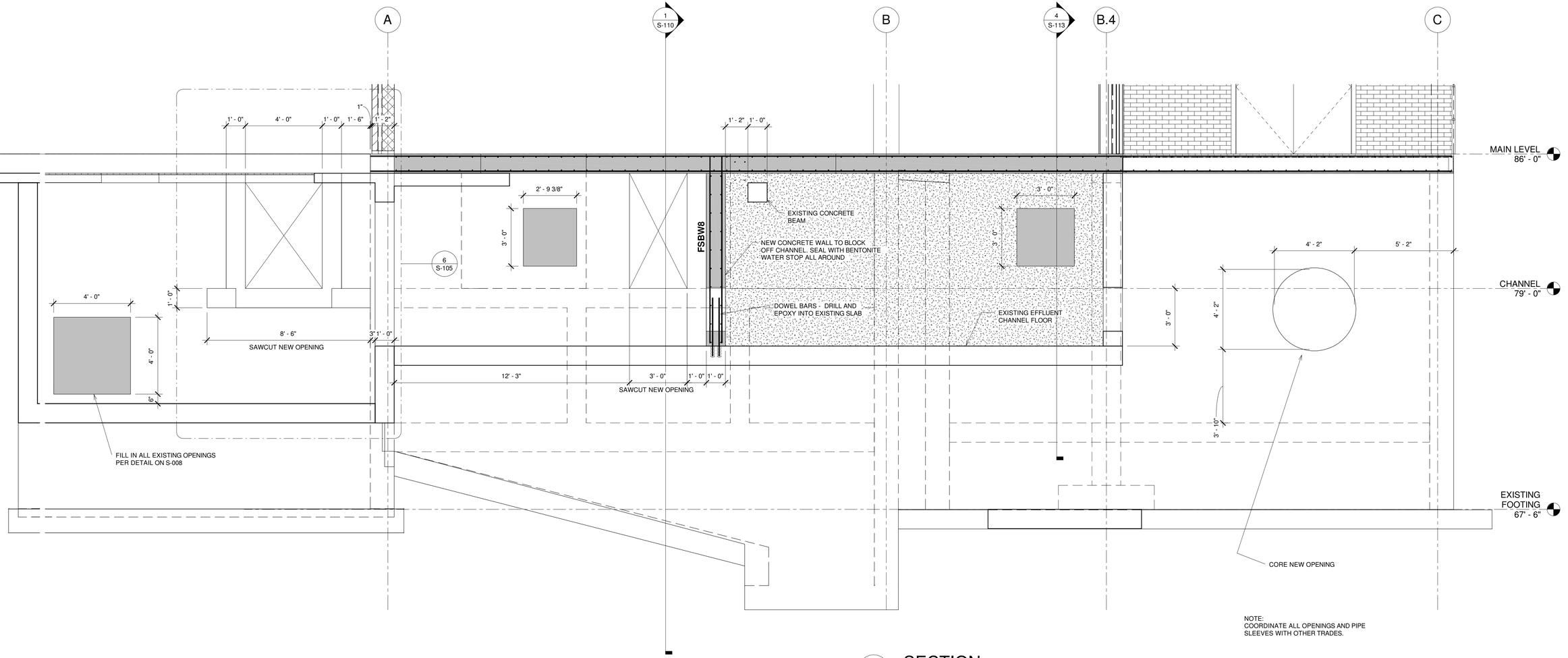

NOTE:
COORDINATE ALL OPENINGS AND PIPE SLEEVES WITH OTHER TRADES.

1 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'

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MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 112
DATE MARCH 19,2015

S-112

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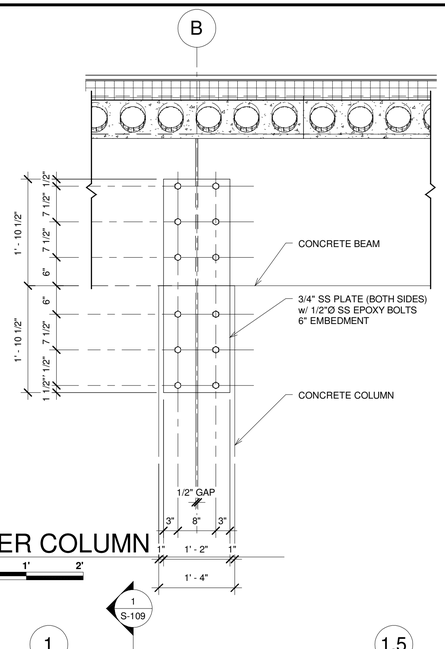
T/BOND BEAM												T/BOND BEAM
98' - 0" MAIN LEVEL					18" X 18" FSBC01	18" X 18" FSBC01	18" X 18" FSBC01	18" X 18" FSBC01	18" X 18" FSBC01			98' - 0" MAIN LEVEL
86' - 0" BASE SLAB	8" X 16" FSBC02	8" X 16" FSBC02	16" X 16" FSBC03	16" X 16" FSBC03						8" X 16" FSBC02	8" X 16" FSBC02	86' - 0" BASE SLAB
72' - 0" EXISTING FOOTING												72' - 0" EXISTING FOOTING
67' - 6" REINFORCEMENT	4 # 6's w/ #4 TIES @ 8" c/c	4 # 6's w/ #4 TIES @ 8" c/c	4 # 6's w/ #4 TIES @ 12" c/c	4 # 6's w/ #4 TIES @ 12" c/c	8 # 6's w/ #4 TIES @ 12" c/c	8 # 6's w/ #4 TIES @ 12" c/c	8 # 6's w/ #4 TIES @ 12" c/c	8 # 6's w/ #4 TIES @ 12" c/c	8 # 6's w/ #4 TIES @ 12" c/c	4 # 6's w/ #4 TIES @ 8" c/c	4 # 6's w/ #4 TIES @ 8" c/c	67' - 6"
Column Locations	A-1	A-2	B-1	B-2	B.4-0.1	B.4-0.5	B.4-1	B.4-1.5	B.4-1.9	B.4-2	C-1	

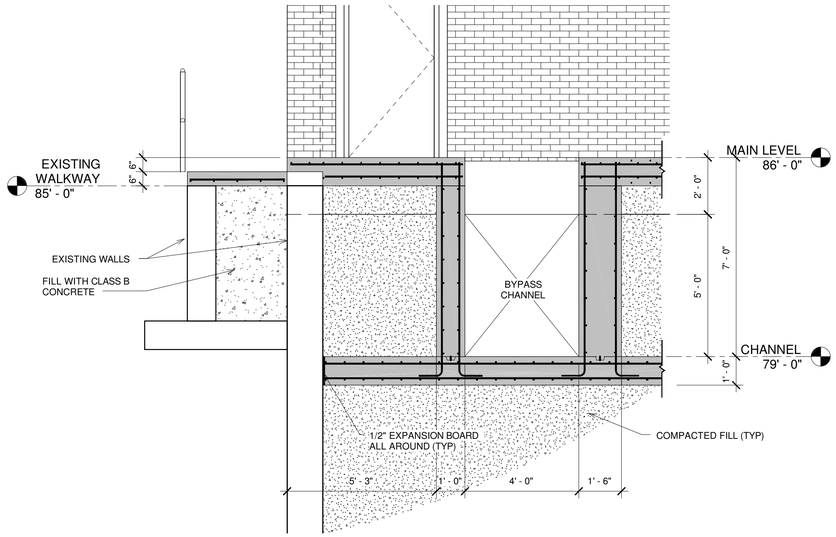
COLUMN SCHEDULE

NOT TO SCALE



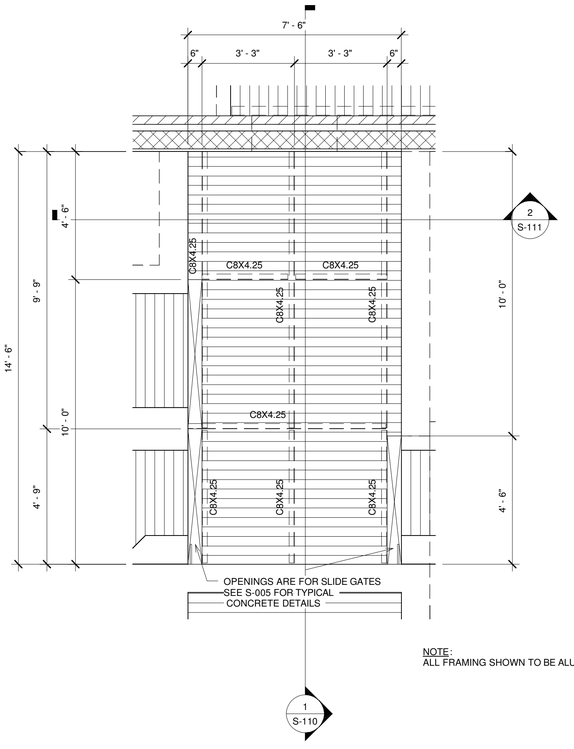
3 BEAM OVER COLUMN

3/4" = 1'-0"



1 SECTION

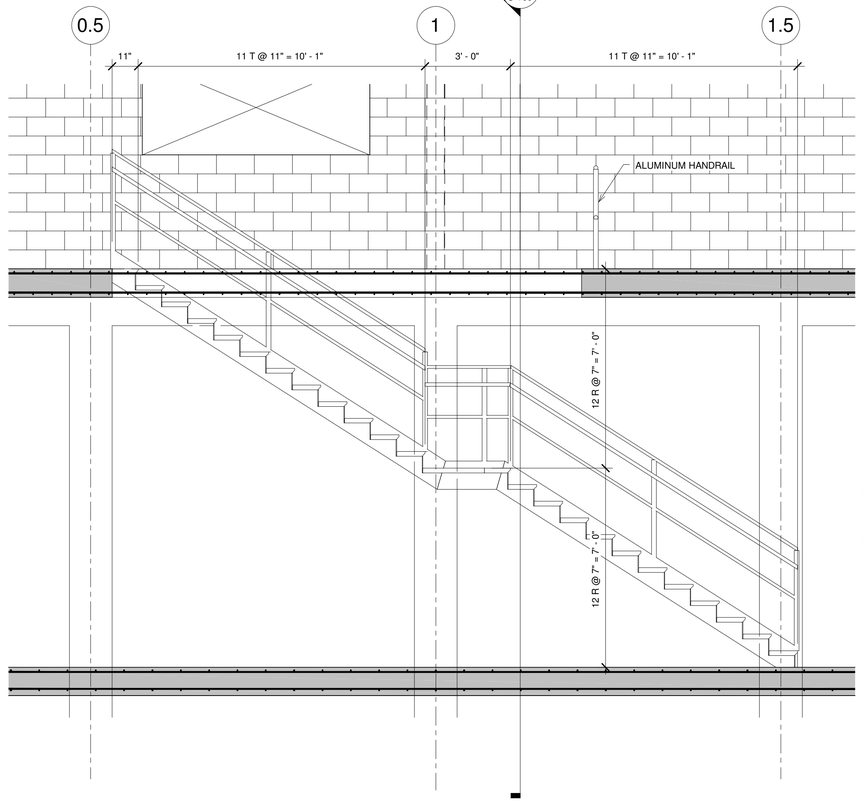
3/8" = 1'-0"

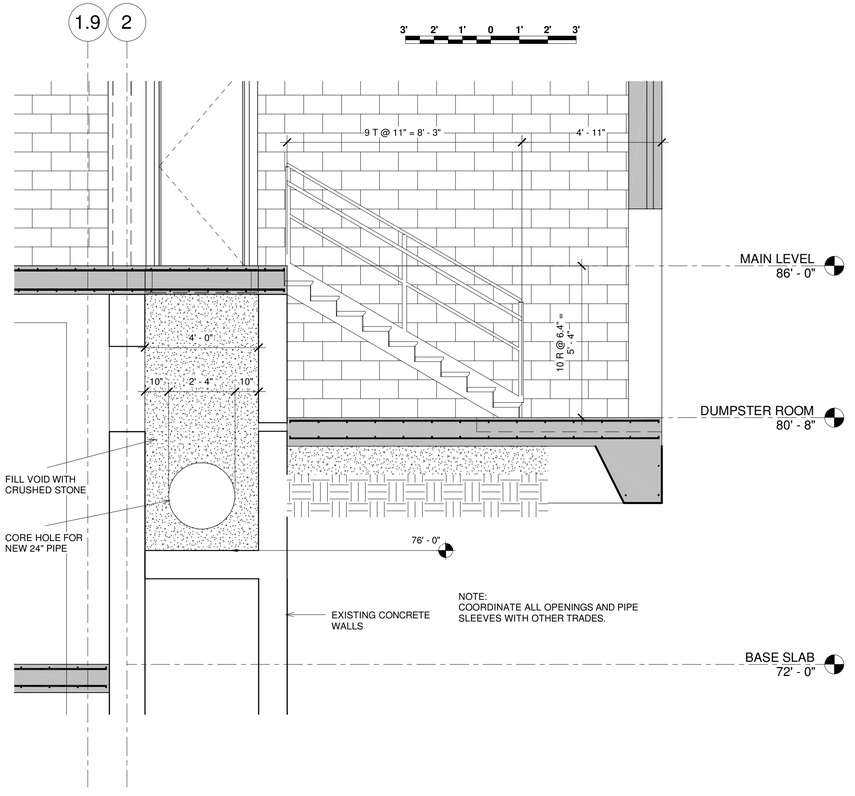


NOTE:
ALL FRAMING SHOWN TO BE ALUMINUM

2 BLOW UP OF INFLUENT CHAMBER

3/8" = 1'-0"





4 SECTION

3/8" = 1'-0"

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CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
FINE SCREEN BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 113

DATE MARCH 19,2015

S-113

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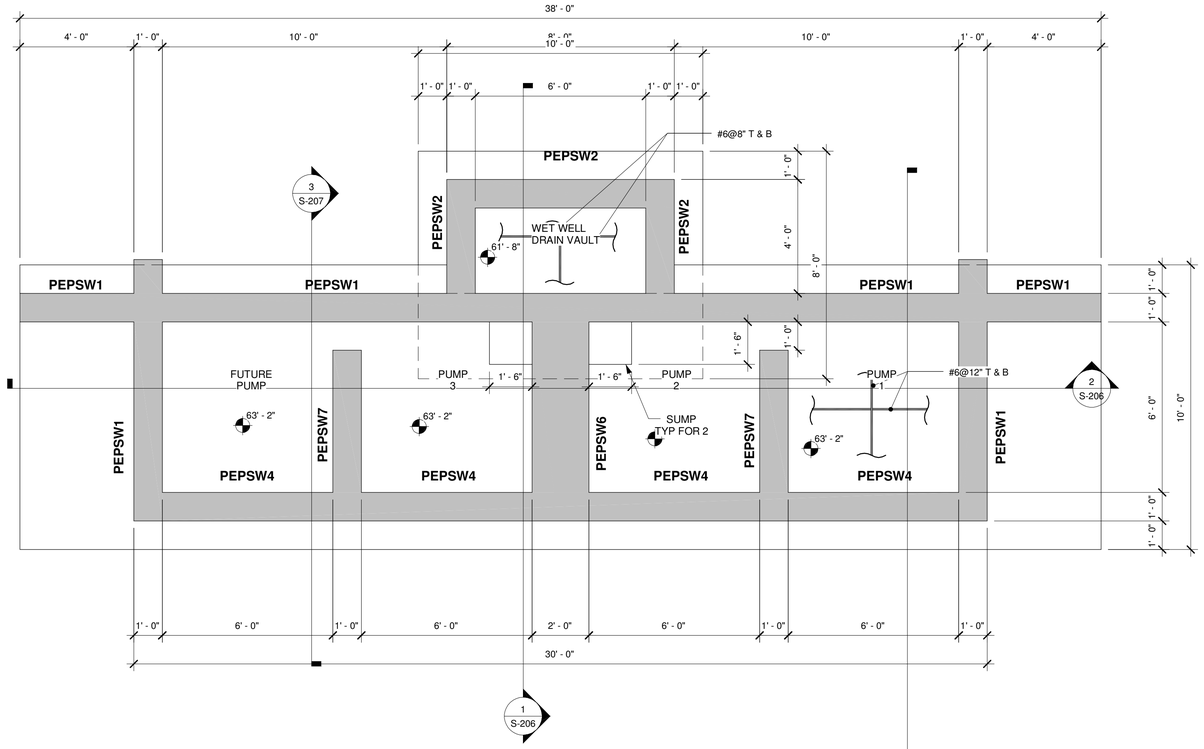
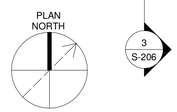
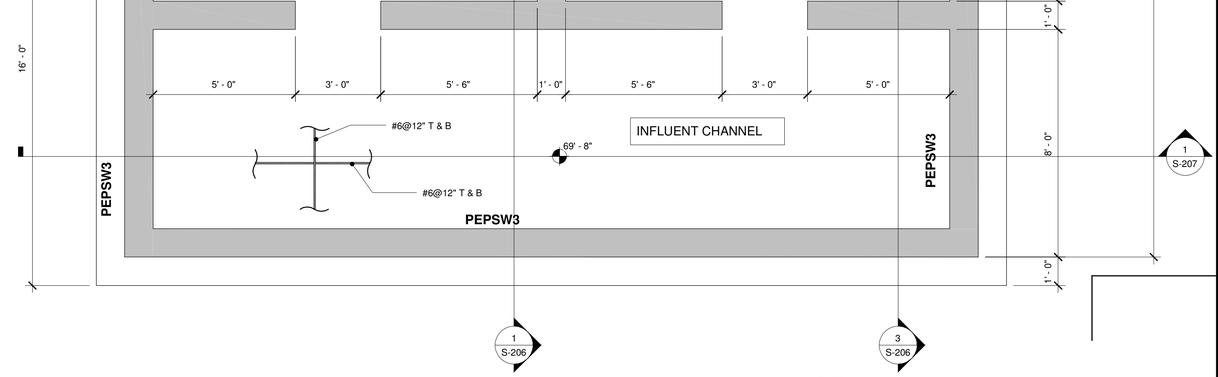


WELL FOUNDATION @ 63'-2"

3/8" = 1'-0"





CHANNEL PLAN @ 69'-8"

3/8" = 1'-0"

PLAN NOTES
1. PEPSW# DESIGNATES PEPS CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.

CONSTRUCTION SEQUENCE NOTES:
1. AT BIOLOGICAL REACTOR TANKS AND PRIMARY EFFLUENT PUMP STATION, STRUCTURES SHALL BE CONSTRUCTED AND LEAK TESTED PRIOR TO INSTALLING EQUIPMENT, PIPING OR UTILITIES. THESE STRUCTURES ARE ANTICIPATED TO SETTLE APPROXIMATELY 1 TO 3 INCHES DURING CONSTRUCTION AND LEAK TESTING

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

WELL AND CHANNEL PLANS

FILE NO. 22374.51633-S202

DATE MARCH 19, 2015

S-202

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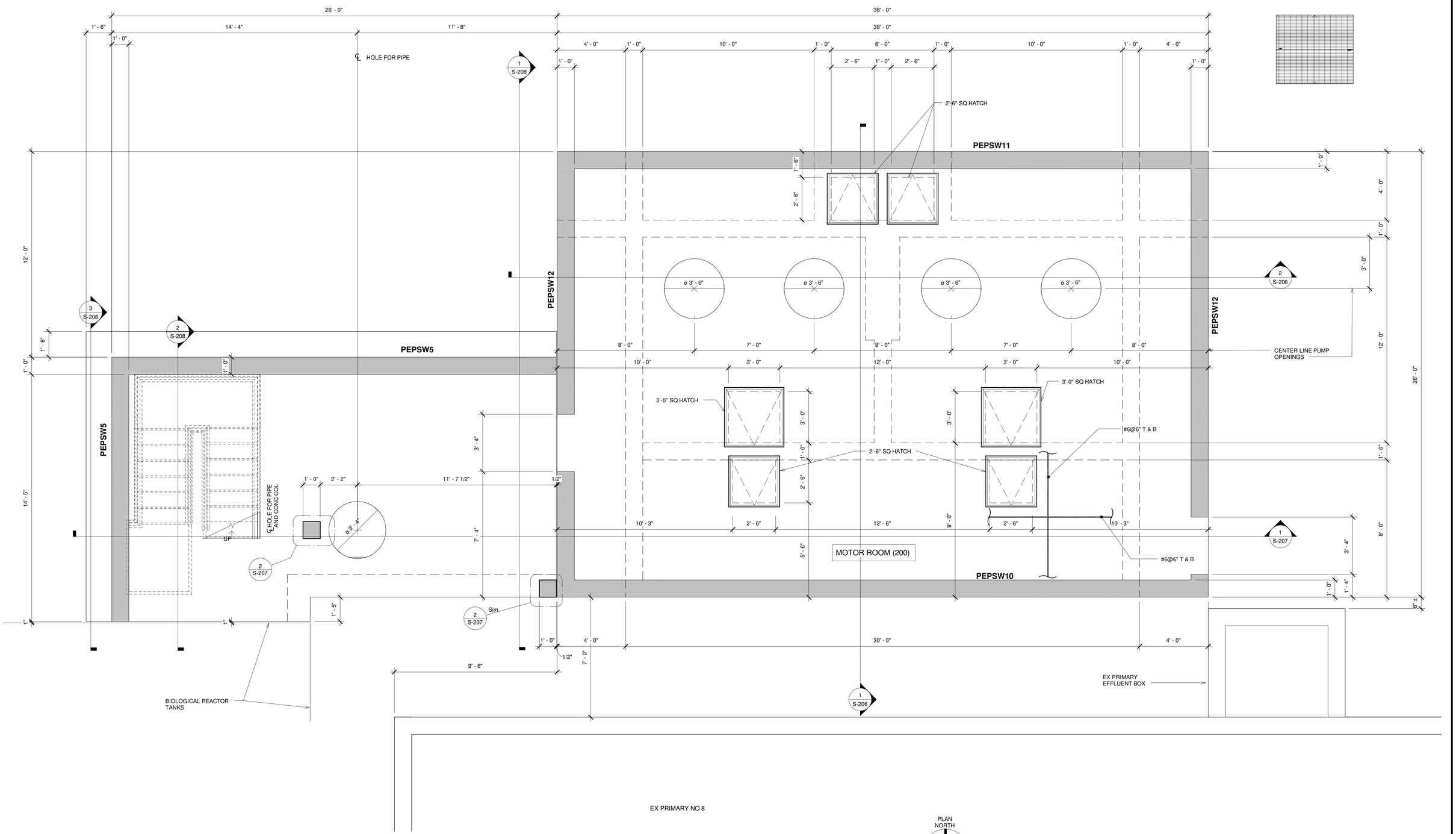

MOTOR ROOM FLOOR @ 81'-0"

3/8" = 1'-0"

PLAN NORTH

PLAN NOTES
1. PEPSW# DESIGNATES PEPS CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

MOTOR ROOM FLOOR PLAN

FILE NO. 22374.51633-S203

DATE MARCH 19, 2015

S-203

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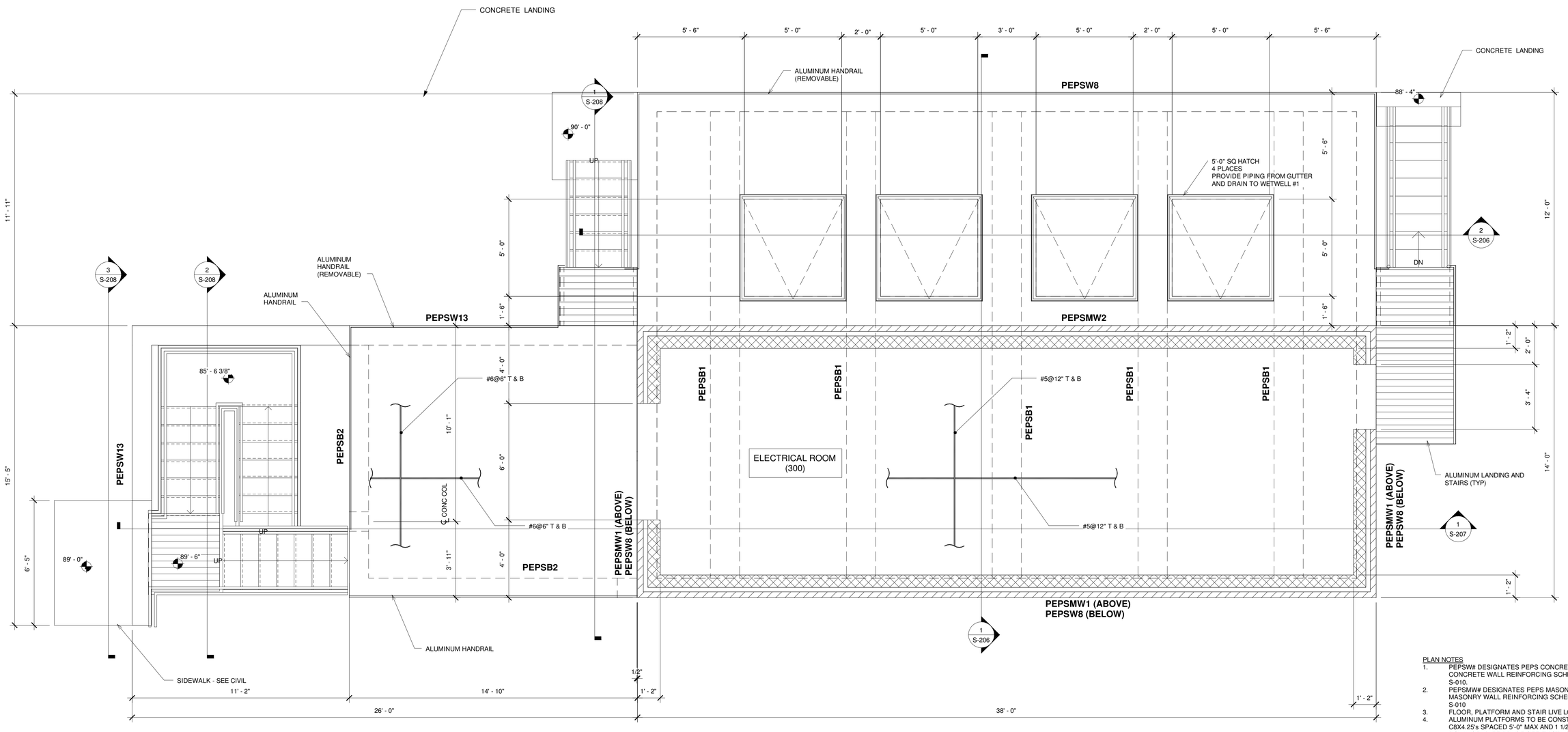

PLAN NOTES

1. PEPSW# DESIGNATES PEPS CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. PEPSMW# DESIGNATES PEPS MASONRY WALLS. SEE MASONRY WALL REINFORCING SCHEDULE ON SHEET S-010
3. FLOOR, PLATFORM AND STAIR LIVE LOAD = 100 PSF
4. ALUMINUM PLATFORMS TO BE CONSTRUCTED FROM C8X4.25's SPACED 5'-0" MAX AND 1 1/2" PLANKS. POST DOWN OR KNEE BRACE OFF EXISTING STRUCTURE WITH L4X4X5/16

ALUMINUM PLANK GRATING NOTES

EXTERIOR APPLICATIONS:
DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE

STAIR TREADS:
DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE. STAIRS TREADS SHALL HAVE ALUMINUM NOSINGS WITH ALUMINUM OXIDE COATING FOR SLIP RESISTANCE.

UPPER LEVEL FLOOR/DECK @ 93'-6"

3/8"=1'-0"

PLAN NORTH

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IN CHARGE OF	WAD
DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	KGP
0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

UPPER LEVEL FLOOR / DECK PLAN

FILE NO. 22374.51633-S204

DATE MARCH 19, 2015

S-204

\\fs-canton\E\14007 Massillon WWTP Improvements\DWG\Revit\Structural (CTI)\51633-STRU-PEPS.rvt

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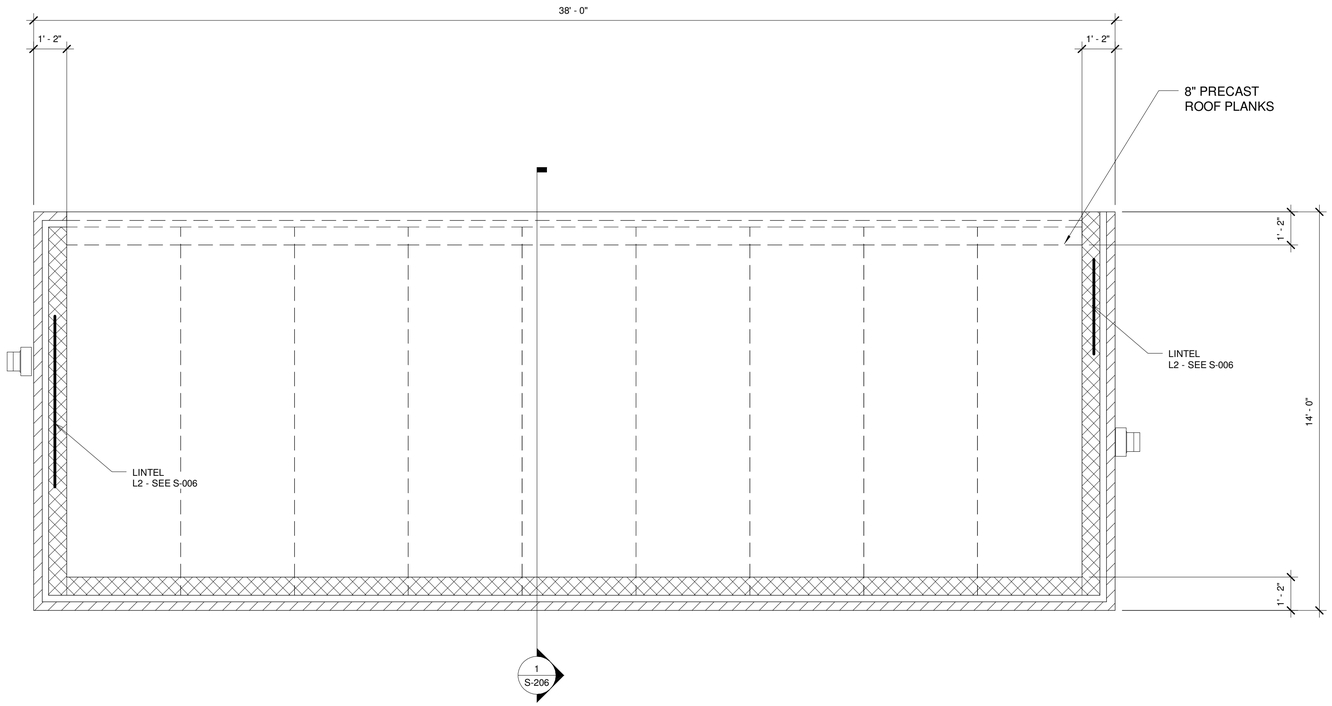
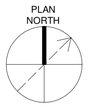


ROOF @ 105'-6"

3/8" = 1'-0"

3' 2' 1' 0 1' 2' 3'



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PRIMARY EFFLUENT PUMP STATION

ROOF FRAMING PLAN

FILE NO. 22374.51633-S205

DATE MARCH 19, 2015

S-205

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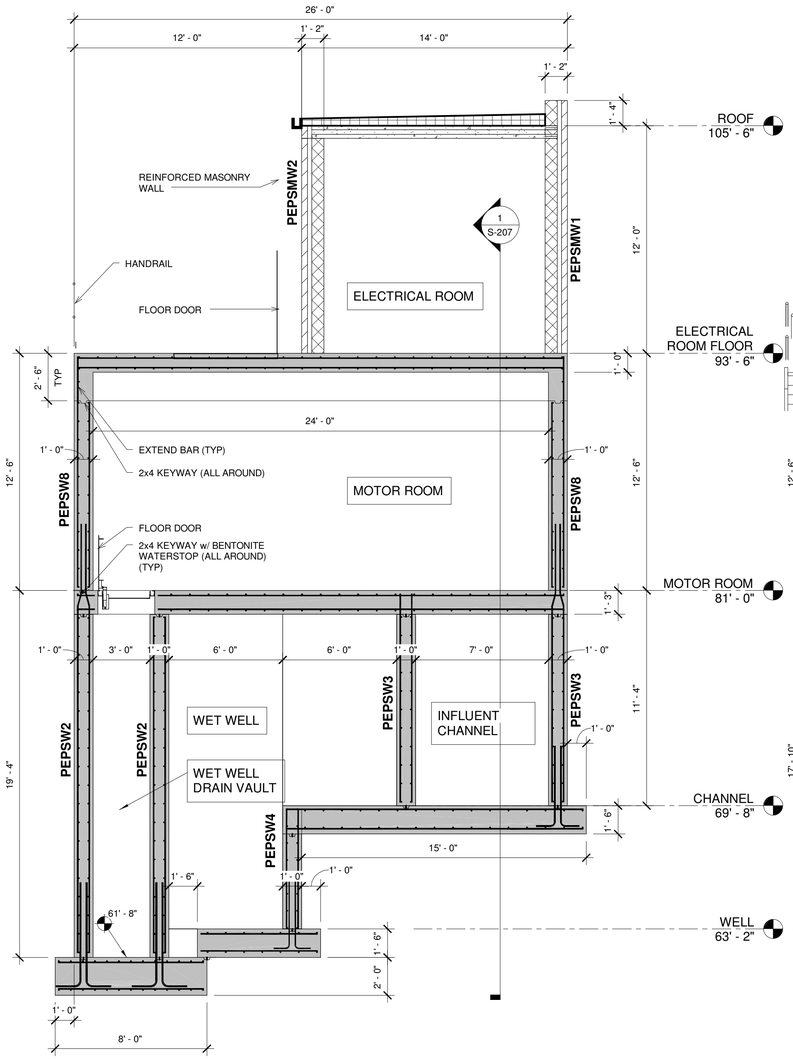
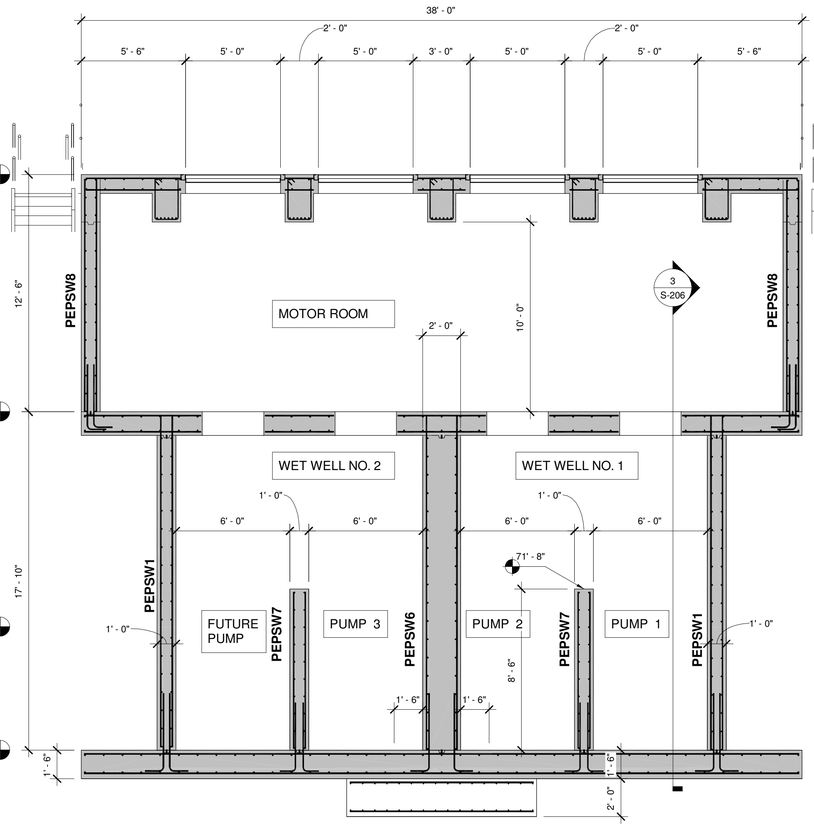
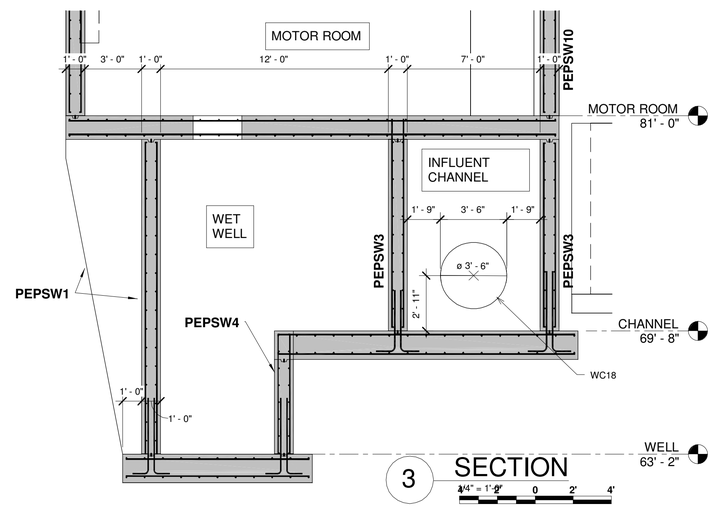


1 SECTION
1/4" = 1'-0"



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



3 SECTION
3/4" = 1'-0"

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

SECTIONS

FILE NO. 22374.51633-S206
DATE MARCH 19, 2015

S-206

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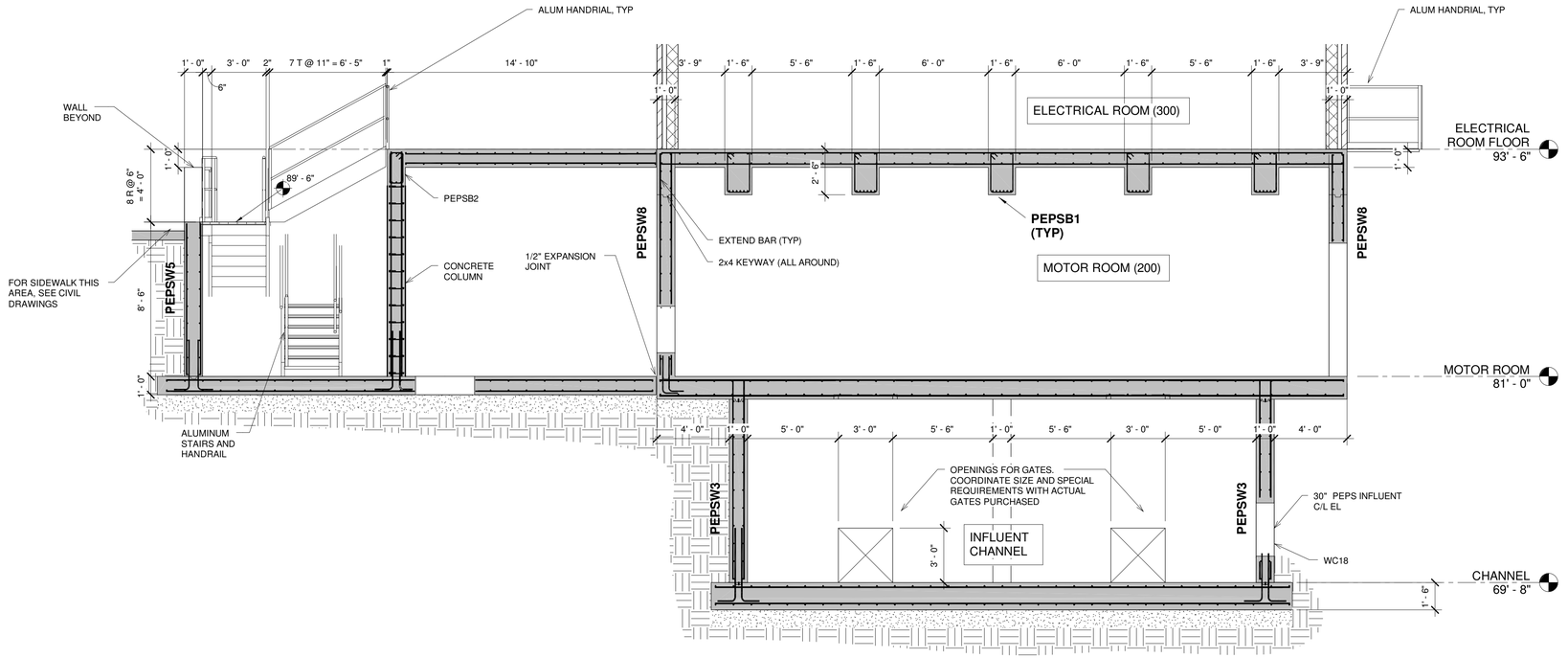
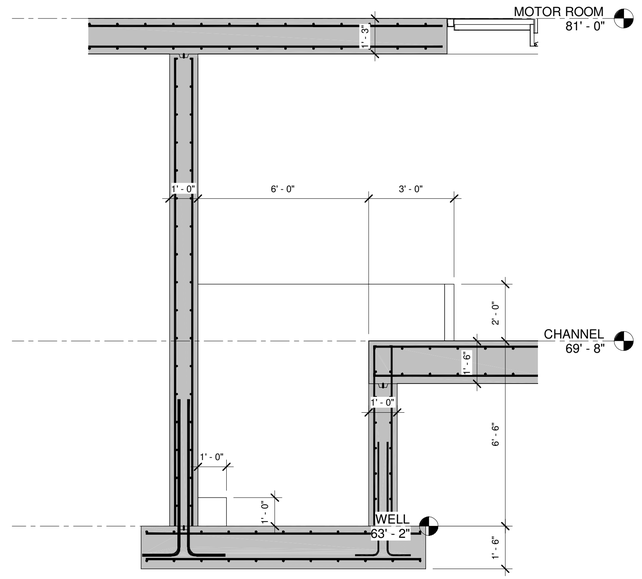
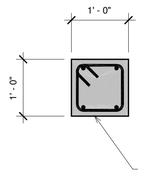




1 SECTION
1/4" = 1'-0"
4' 2' 0 2' 4'

3 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'



2 DETAIL
3/4" = 1'-0"
6" 3" 0 1' 2'

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

SECTIONS

FILE NO. 22374.51633-S207

DATE MARCH 19, 2015

S-207

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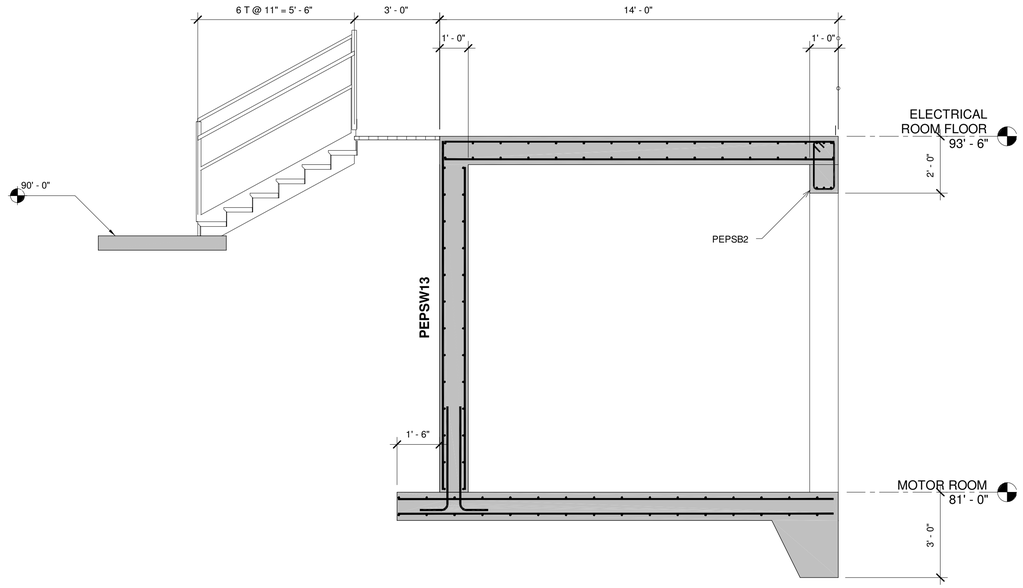
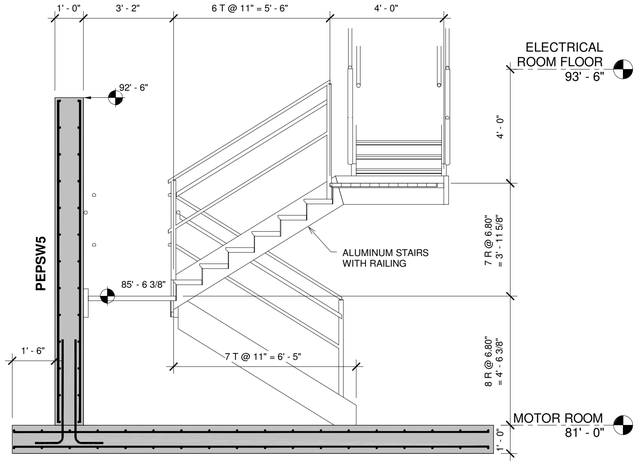
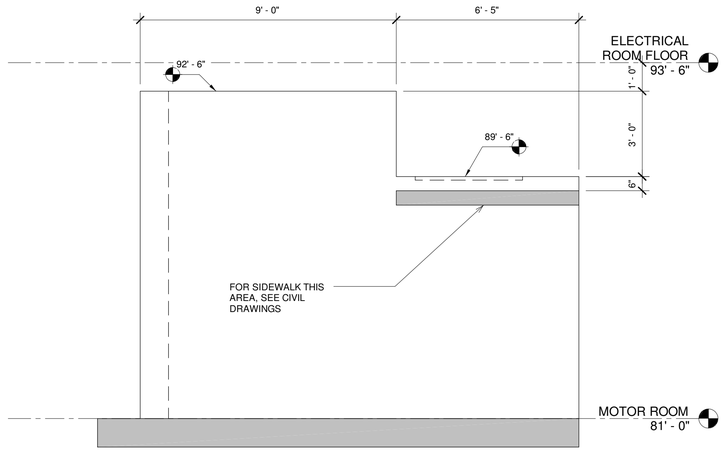


1 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'



2 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'



3 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRIMARY EFFLUENT PUMP STATION

SECTIONS

FILE NO. 22374.51633-S208
DATE SEPT. 23, 2015

S-208

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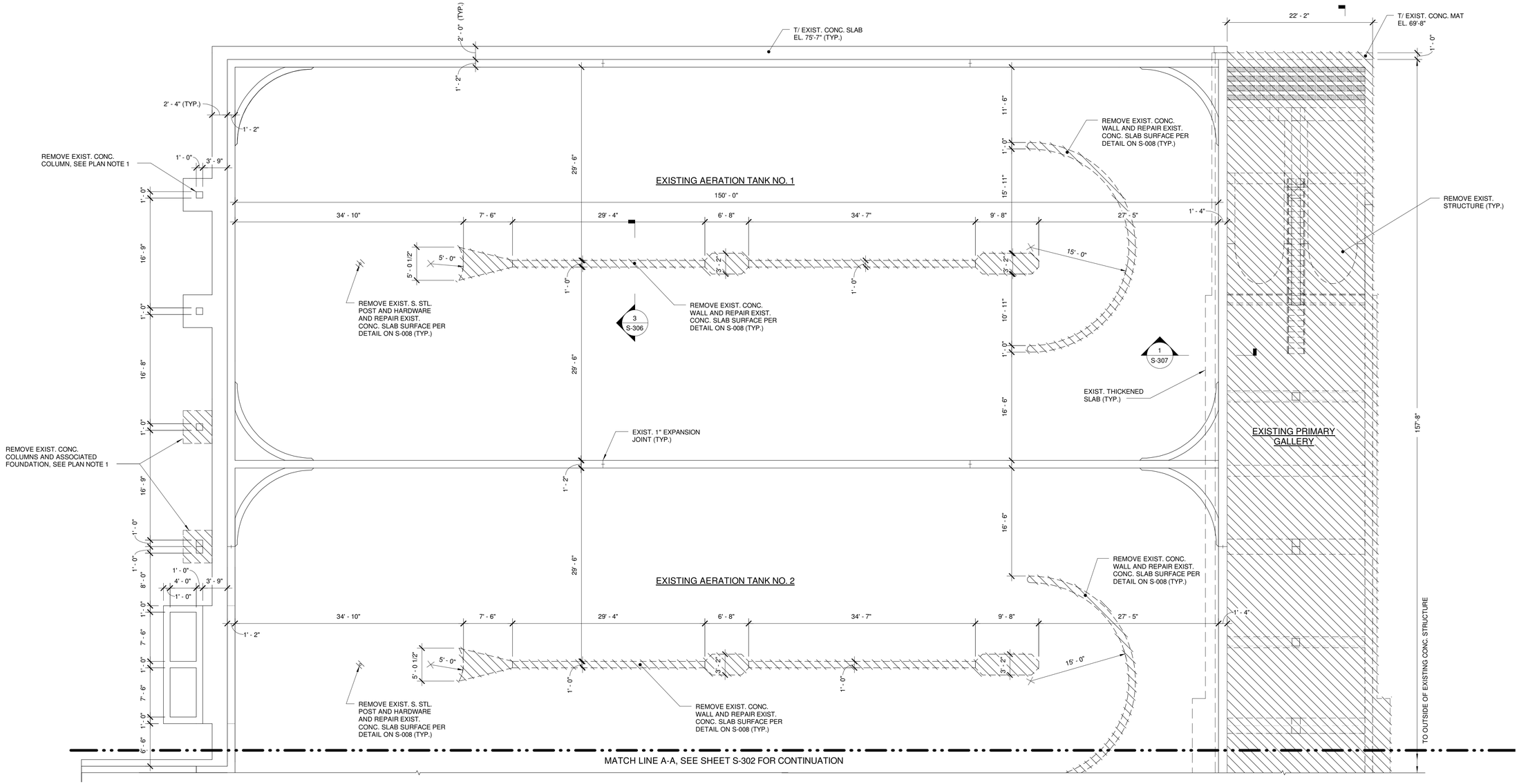

NORTH DEMOLITION PLAN AT EL. 87'-10"

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

PLAN NOTES:
1. PRIOR TO REMOVAL OF EXIST. CONC. COLUMNS, PROVIDE ADEQUATE TEMPORARY SUPPORT FOR THE EXIST. EFFLUENT CHANNEL. SUPPORTS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING TIER SPECIFIED DESIGN STRENGTH AND REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID SUPPORTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

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DESIGNED BY	TRL
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS
NORTH DEMOLITION PLAN
AT EL. 87'-10"

FILE NO. 23374.51633- S301

DATE MARCH 19, 2015

S-301

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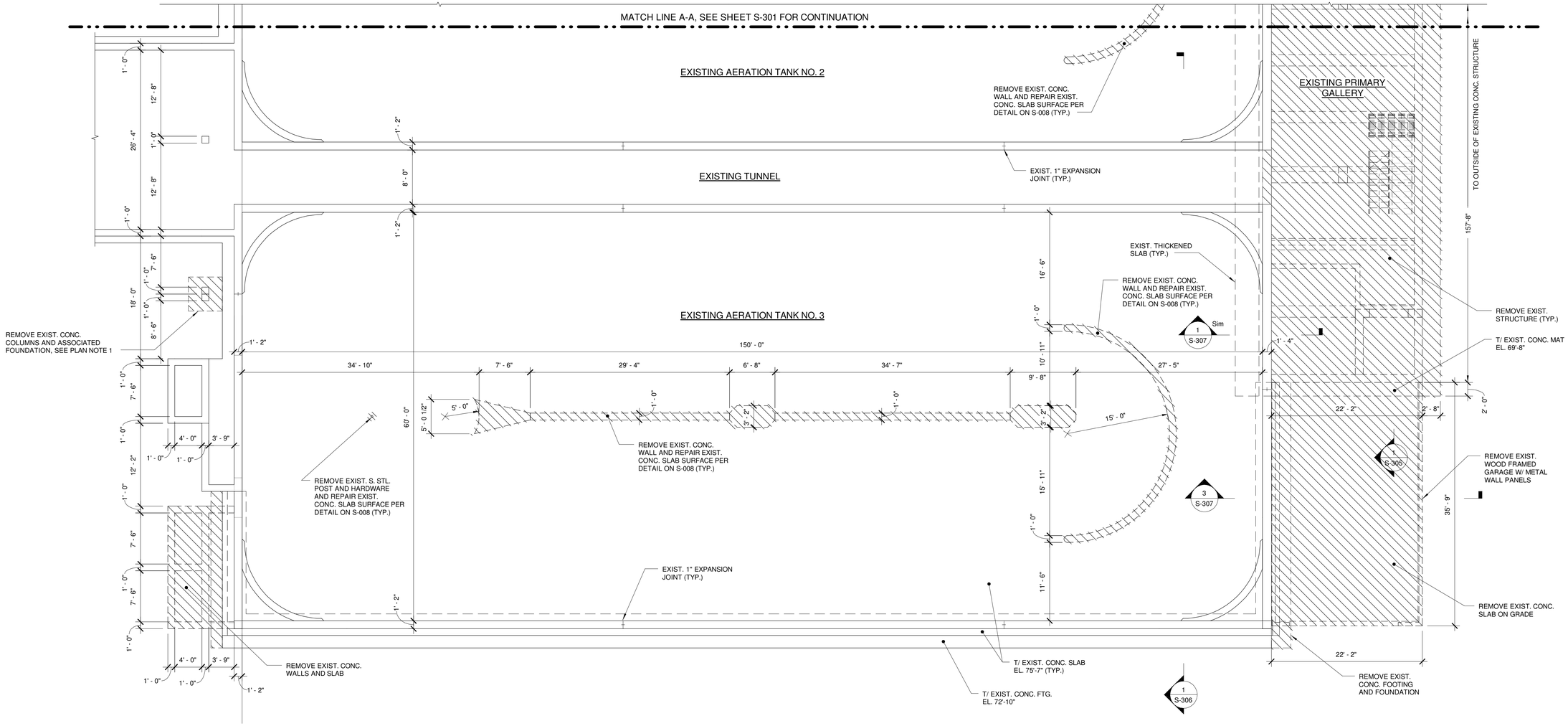

SOUTH DEMOLITION PLAN AT EL. 87'-10"

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

PLAN NOTES:

1. PRIOR TO REMOVAL OF EXIST. CONC. COLUMNS, PROVIDE ADEQUATE TEMPORARY SUPPORT FOR THE EXIST. EFFLUENT CHANNEL. SUPPORTS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING TIER SPECIFIED DESIGN STRENGTH AND REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID SUPPORTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

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IN CHARGE OF	RFB
DESIGNED BY	TRL
CHECKED BY	CHL
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1	09/23/2015	ISSUED FOR BID	RFB
0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

CTI / O'BRIEN & GERE JOINT VENTURE
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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS
SOUTH DEMOLITION PLAN AT EL. 87'-10"

FILE NO. 23374.51633- S302

DATE MARCH 19, 2015

S-302

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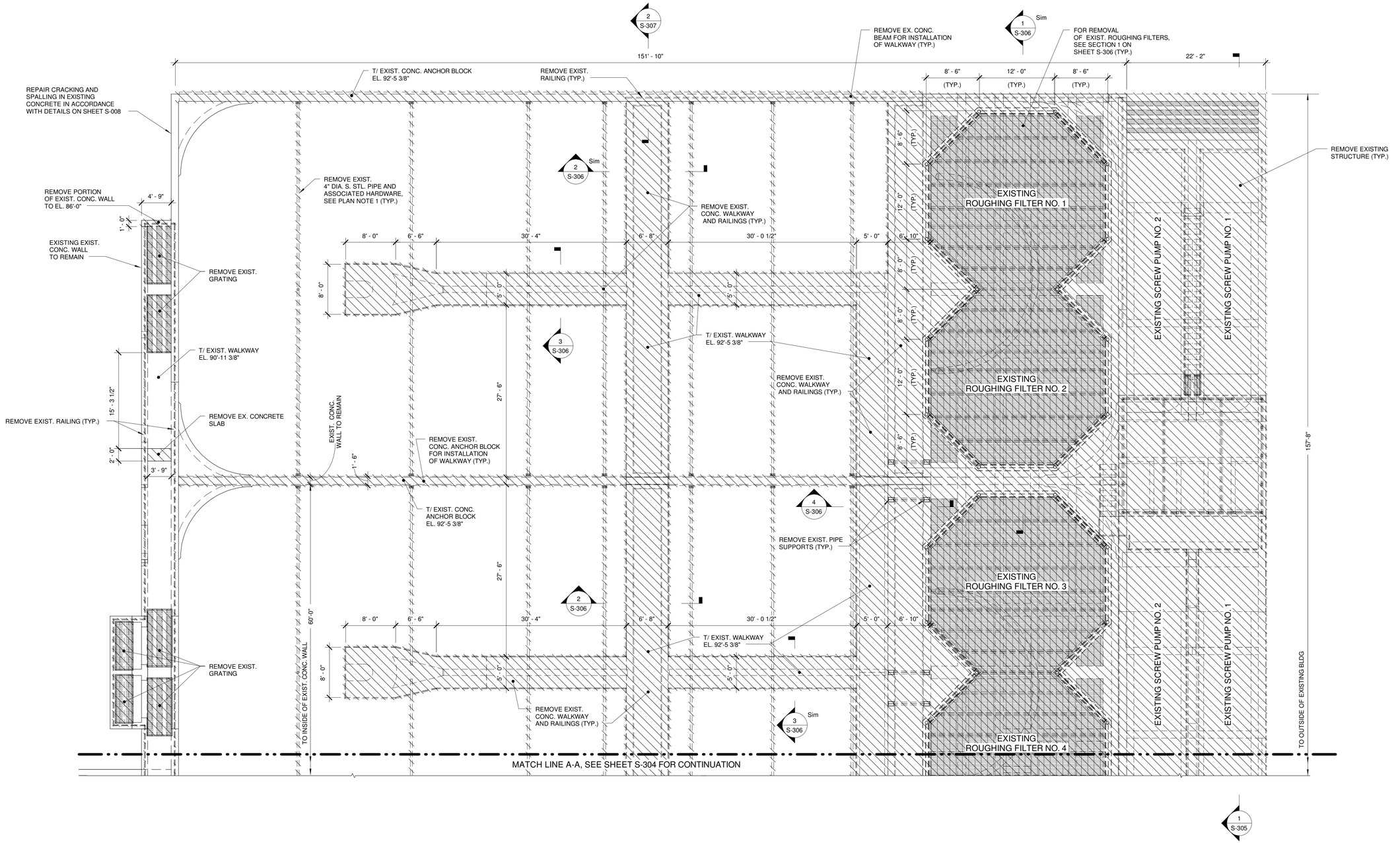

1 NORTH DEMOLTION PLAN AT EL.143'-0"

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

PLAN NOTES:
1. FOLLOWING REMOVAL OF STRUCTURAL ELEMENTS REPAIR EXIST. CONC. SURFACES PER DETAILS ON S-008 (TYP.)
2. SEE SECTIONS ON SHEETS S-305 AND S-306 FOR DEMOLITION OF EXIST. SCREW PUMP STRUCTURE AND ROUGHING FILTERS.

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS
NORTH DEMOLITION PLAN AT EL. 143'-0"

FILE NO. 23374.51633- S303
DATE MARCH 19, 2015

S-303

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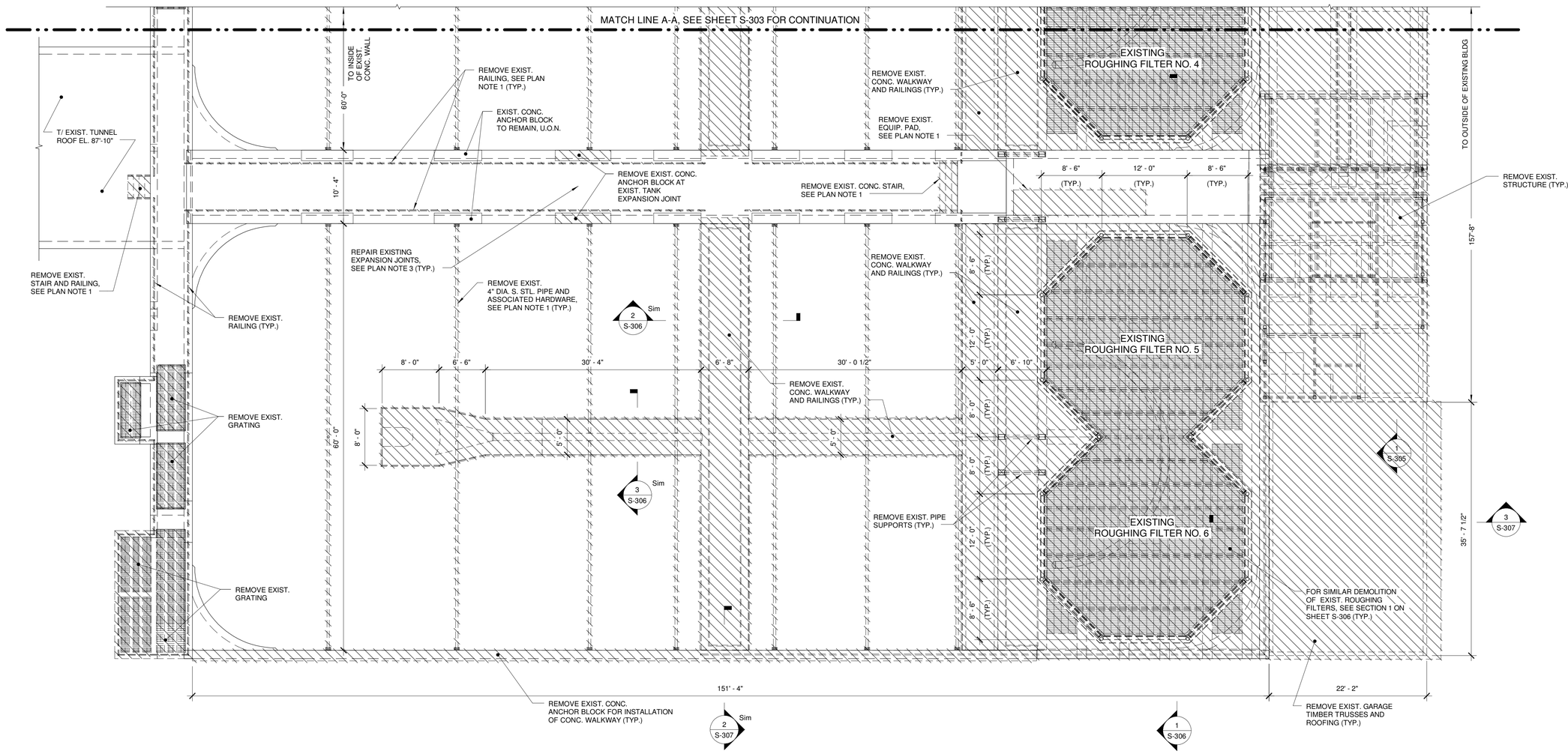

1 SOUTH DEMOLTION PLAN AT EL.143'-0"

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

PLAN NOTES:
1. FOLLOWING REMOVAL OF STRUCTURAL ELEMENTS REPAIR EXIST. CONC. SURFACES PER DETAILS ON S-008 (TYP.)
2. SEE SECTIONS ON SHEETS S-305 AND S-306 FOR DEMOLITION OF EXIST. SCREW PUMP STRUCTURE AND ROUGHING FILTERS.
3. AT EXISTING JOINTS IN GALLERY REMOVE EXISTING EXPANSION JOINT SEALANT AND REPAIR EXISTING EXPANSION JOINTS IN ACCORDANCE WITH TYPE 1 JOINT SEAL DETAIL ON SHEET S-005.

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SUITE 750
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CITY OF MASSILLON
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MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS
SOUTH DEMOLITION PLAN
AT EL. 143'-0"

FILE NO. 23374.51633- S304

DATE MARCH 19, 2015

S-304

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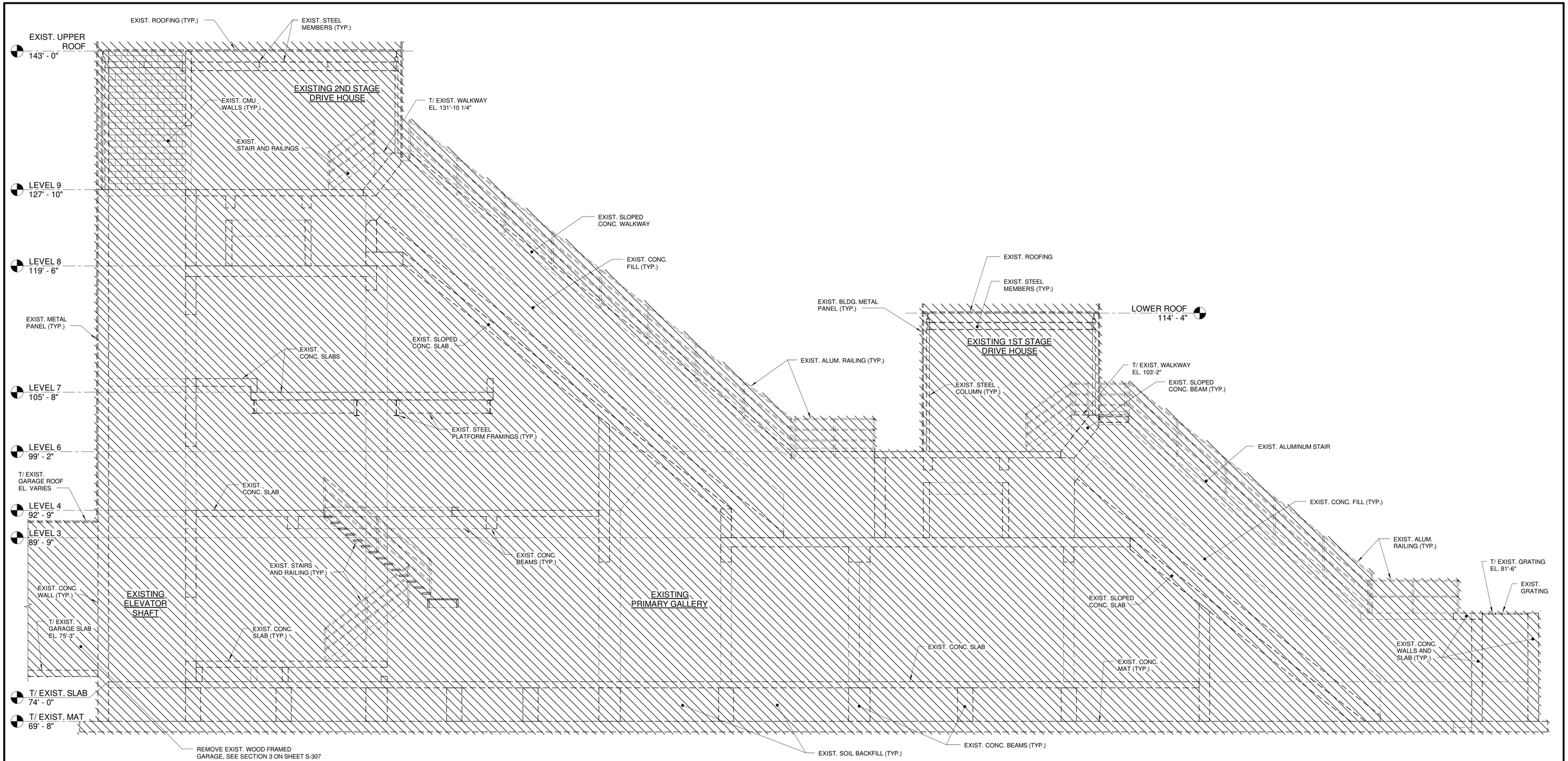

1 SECTION

3/16" = 1'-0"

5' 0 5'

SECTION NOTES:
1. REMOVE EXIST. STRUCTURE IN IT'S ENTIRETY INCLUDING, BUT NOT LIMITED TO, THE ITEMS LISTED ON THIS SHEET.

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS

DEMOLITION SECTION

FILE NO. 23374.51633- S305

DATE MARCH 19, 2015

S-305

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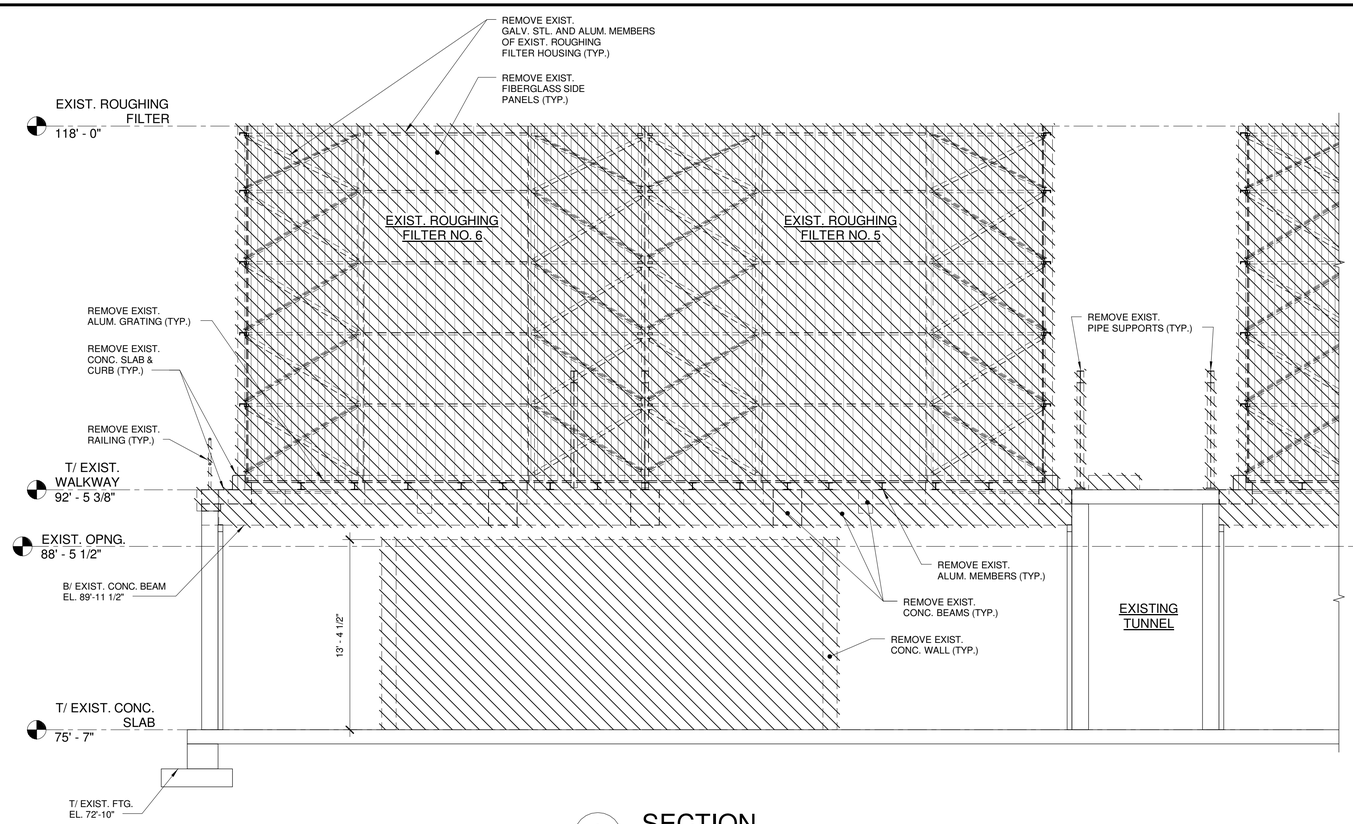
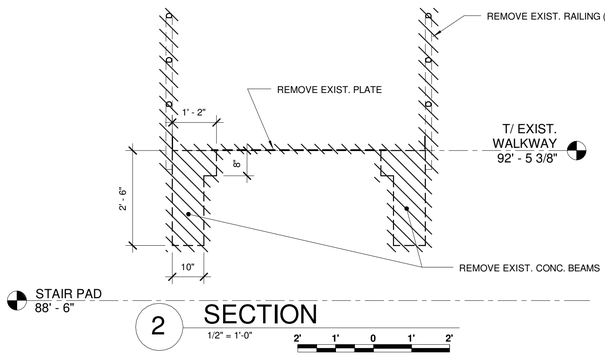


1 SECTION

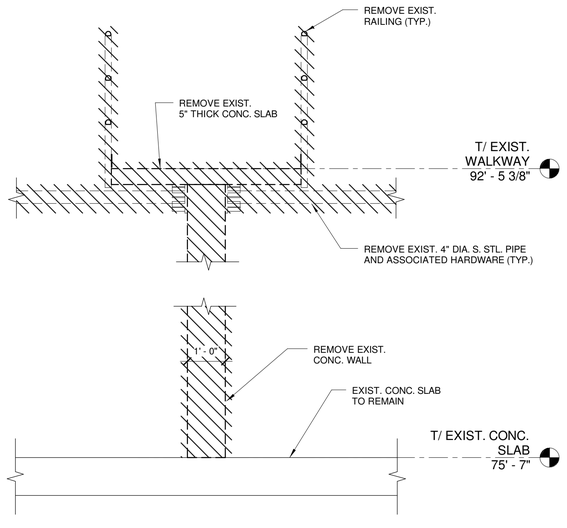
3/16" = 1'-0" 5' 0 5'

SECTION NOTES:
1. REMOVAL AT EXIST. ROUGHING FILTER NOS. 1, 2, 3 & 4 IS SIMILAR TO THAT SHOWN ABOVE.



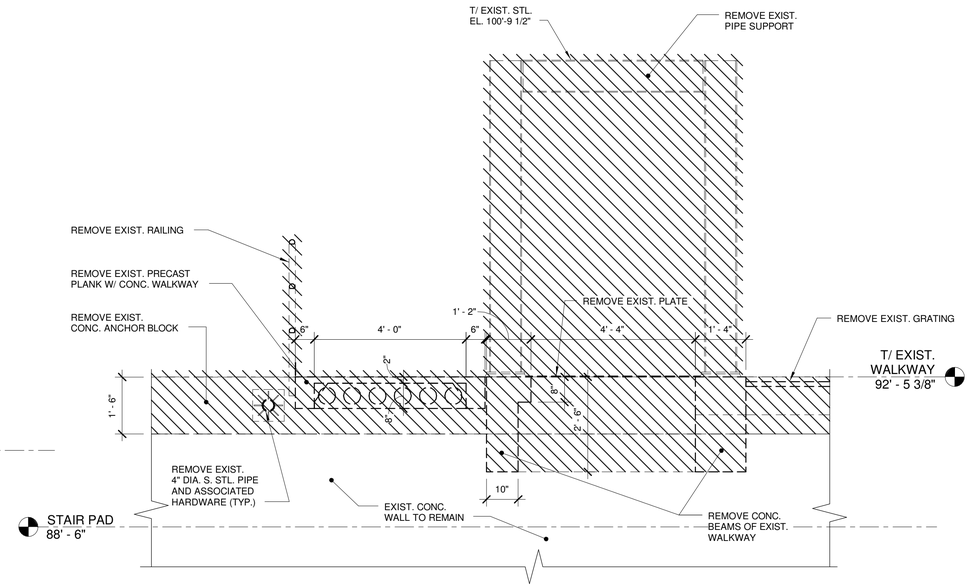
2 SECTION

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



3 SECTION

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



4 SECTION

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

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CHECKED BY	CHL
DRAWN BY	RAE

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0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
EXISTING AERATION TANKS

DEMOLITION SECTIONS

FILE NO. 23374.51633- S306
DATE MARCH 19, 2015

S-306

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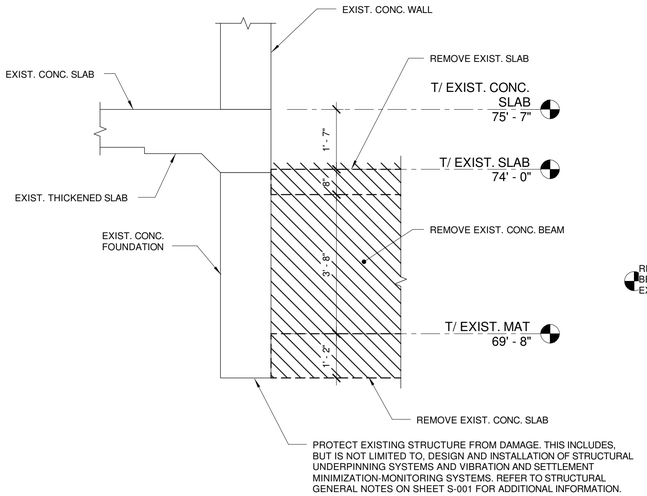

1 SECTION
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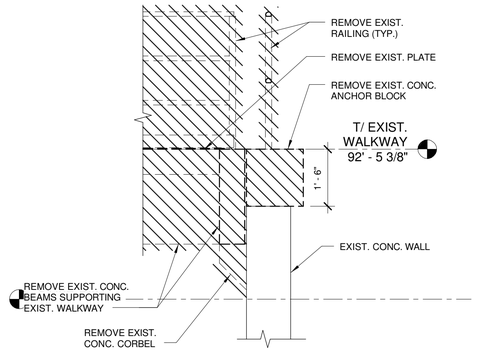
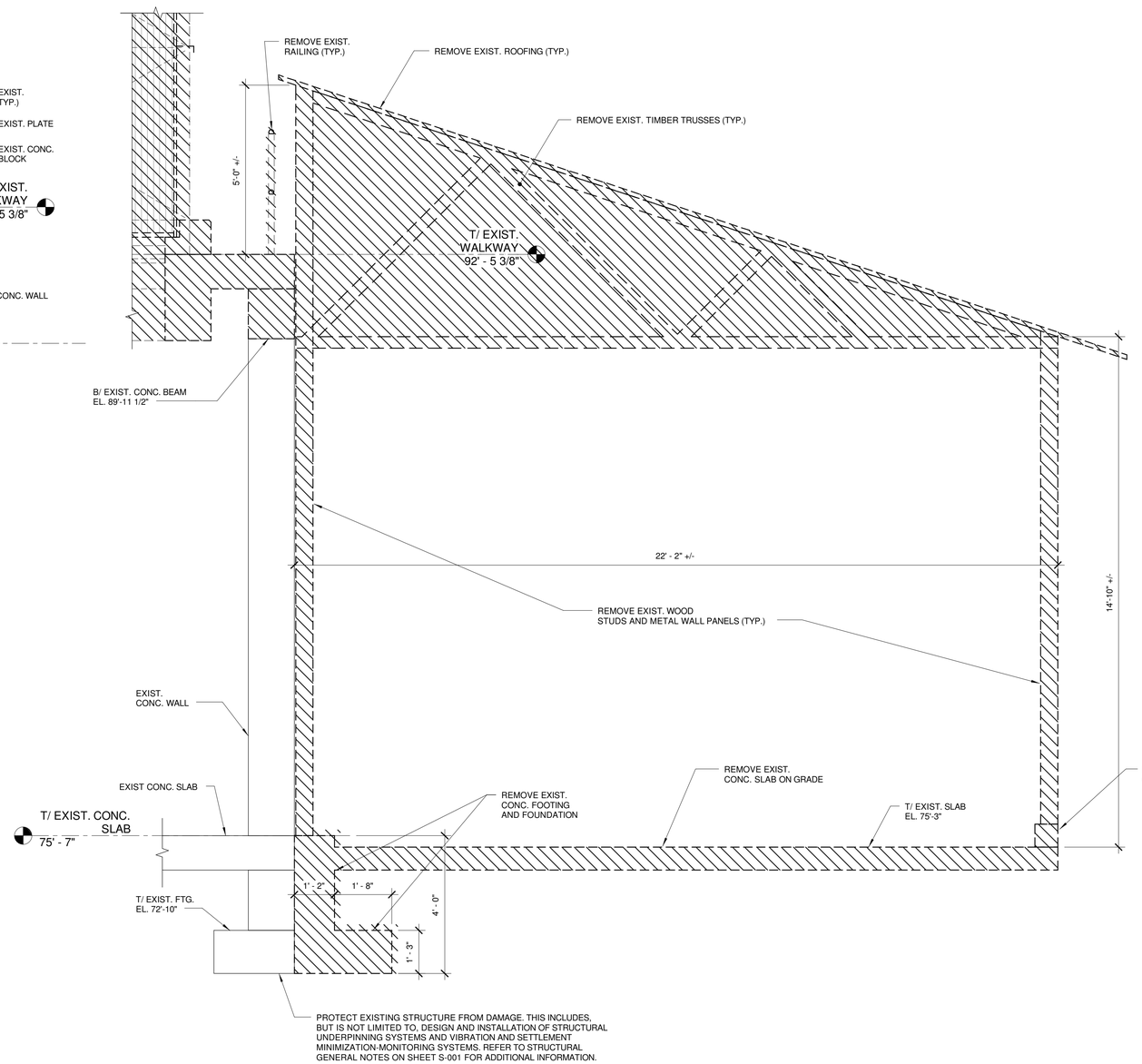


2 SECTION
1/2" = 1'-0"
2' 1' 0 1' 2'



3 SECTION
1/2" = 1'-0"
2' 1' 0 1' 2'

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STRUCTURAL
EXISTING AERATION TANKS

DEMOLITION SECTIONS

FILE NO. 23374.51633- S307
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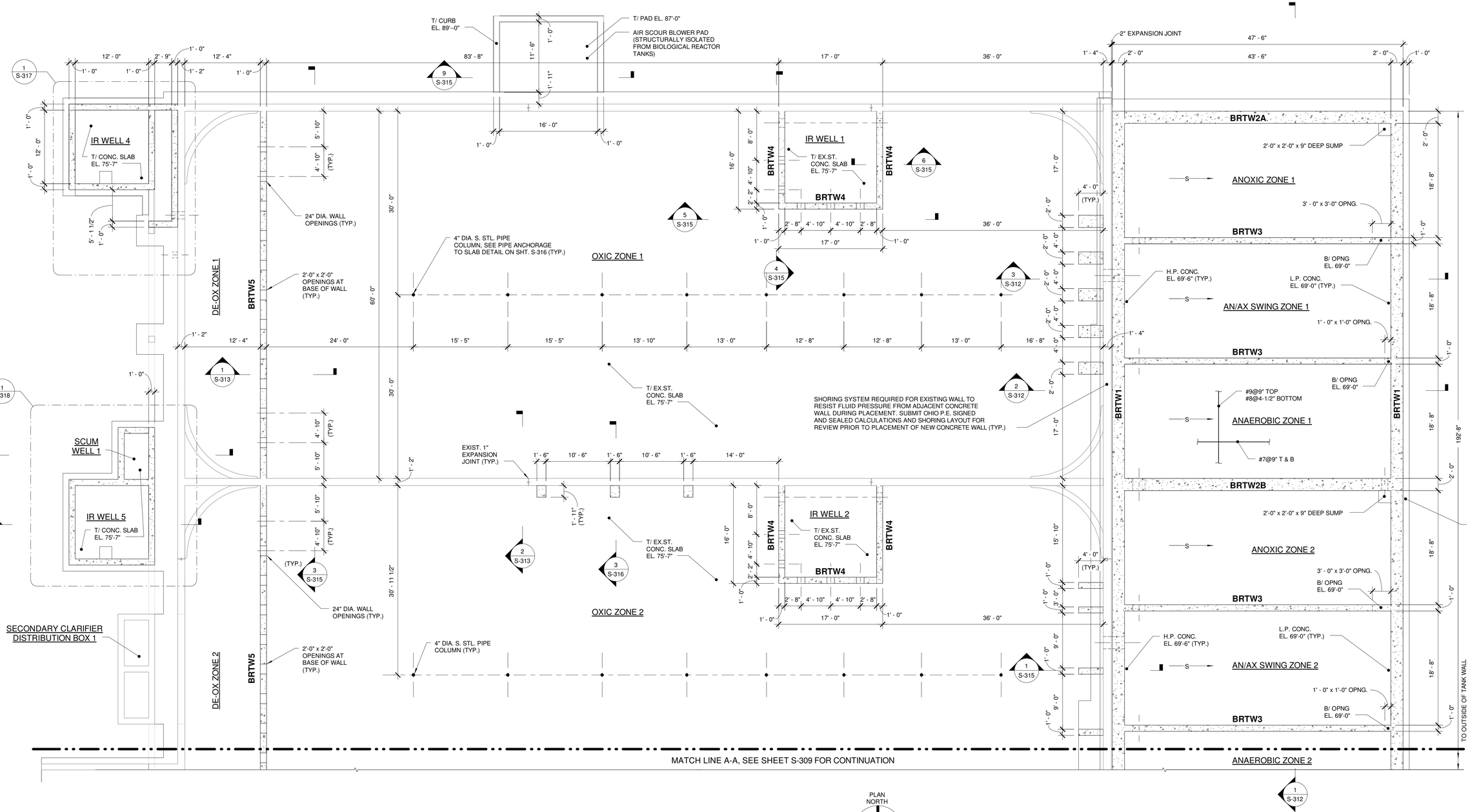

NORTH PLAN AT EL. 87'-10"

1/8" = 1'-0"

PLAN NORTH

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. COORDINATE SIZE AND LOCATION OF SLAB AND WALL PENETRATIONS WITH MECHANICAL DRAWINGS AND EQUIP. MFR.
3. PROVIDE ADDITIONAL REINFORCING AT CONCRETE SLAB AND WALL OPENINGS IN ACCORDANCE WITH ADDITIONAL REINFORCING TYPICAL DETAIL SHOWN IN SHEET S-005.
4. SUBGRADE PREPARATION FOR THE EFFLUENT DISTRIBUTION STRUCTURES (INCLUDING IR WELLS 4, 5 AND 6, SCUM WELL 1 AND SECONDARY CLARIFIER DISTRIBUTION BOX 2) SHALL INCLUDE REMOVAL OF EXISTING SOILS AND FILL TO ELEVATION 68'-0", SOIL AND FILL SHALL BE REMOVED WITHIN AND 10'-0" BEYOND WITHIN AND 10'-0" BEYOND THE PERIMETER OF STRUCTURES AND REPLACED WITH COMPACTED STRUCTURAL FILL.

CONSTRUCTION SEQUENCE NOTES:

1. AT BIOLOGICAL REACTOR TANKS AND PRIMARY EFFLUENT PUMP STATION, STRUCTURES SHALL BE CONSTRUCTED AND LEAK TESTED PRIOR TO INSTALLING EQUIPMENT, PIPING, OR UTILITIES. THESE STRUCTURES ARE ANTICIPATED TO SETTLE APPROXIMATELY 1 TO 3 INCHES DURING CONSTRUCTION AND LEAK TESTING.

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DRAWN BY RAE

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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS
NORTH PLAN AT EL. 87'-10"

FILE NO. 23374.51633- S308
DATE MARCH 19, 2015
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MATCH LINE A-A, SEE SHEET S-308 FOR CONTINUATION

DE-OX ZONE 2 | BRTW5 | 24" DIA. WALL OPENINGS (TYP.) | 4' - 10" (TYP.) | 5' - 10"

OXIC ZONE 2 | T/ EX.ST. CONC. SLAB EL. 75'-7"

EXIST. 1" EXPANSION JOINT (TYP.)

EXISTING GALLERY

SHORING SYSTEM REQUIRED FOR EXISTING WALL TO RESIST FLUID PRESSURE FROM ADJACENT CONCRETE WALL DURING PLACEMENT. SUBMIT OHIO P.E. SIGNED AND SEALED CALCULATIONS AND SHORING LAYOUT FOR REVIEW PRIOR TO PLACEMENT OF NEW CONCRETE WALL (TYP.)

1 S-319

IR WELL NO. 6 | T/ CONC. SLAB EL. 75'-7" | T/ EXIST. SLAB EL. 73'-1" | T/ FIBER-REINFORCED CONCRETE FILL EL. 75'-7"

SCUM WELL 2

1 S-320

3 S-324

1 S-324

T/ CONC. SLAB EL. 72'-10" (TYP.)

SECONDARY CLARIFIER DISTRIBUTION BOX 2

DE-OX ZONE 3 | BRTW5 | 24" DIA. WALL OPENINGS (TYP.) | 2'-0" x 2'-0" OPENINGS AT BASE OF WALL (TYP.)

T/ EX.ST. CONC. SLAB EL. 75'-7"

4" DIA. S. STL. PIPE COLUMN, SEE PIPE ANCHORAGE TO SLAB DETAIL ON SHT. S-316 (TYP.)

OXIC ZONE 3

IR WELL 3 | T/ EX.ST. CONC. SLAB EL. 75'-7" | BRTW4

EXIST. 1" EXPANSION JOINT (TYP.)

BRTW3 | BRTW1 | BRTW2A | BRTW5

ANAEROBIC ZONE 2 | NEW TUNNEL SLAB EXTENDING 16" INTO EXISTING TUNNEL

GALLERY | 3 S-313 | 1 S-325

2'-0" x 2'-0" x 9" DEEP SUMP

ANOXIC ZONE 3 | 3' - 0" x 3'-0" OPNG.

AN/AX SWING ZONE 3 | #9@9" TOP #8@4-1/2" BOTTOM | B/ OPNG. EL. 69'-0" | H.P. CONC. EL. 69'-6" (TYP.) | L.P. CONC. EL. 69'-0" (TYP.) | 1' - 0" x 1'-0" OPNG. | #7@9" T & B

B/ OPNG. EL. 69'-0"

ANAEROBIC ZONE 3

T/ MAT EL. 69'-0" (TYP.)

1 S-312

TO OUTSIDE OF TANK WALL

2" EXPANSION JOINT

SOUTH PLAN AT EL. 87'-10"

1/8" = 1'-0" (8', 4', 0, 8')

PLAN NORTH

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SOUTH PLAN AT EL. 87'-10"

FILE NO. 23374.51633- S309
DATE MARCH 19, 2015

S-309

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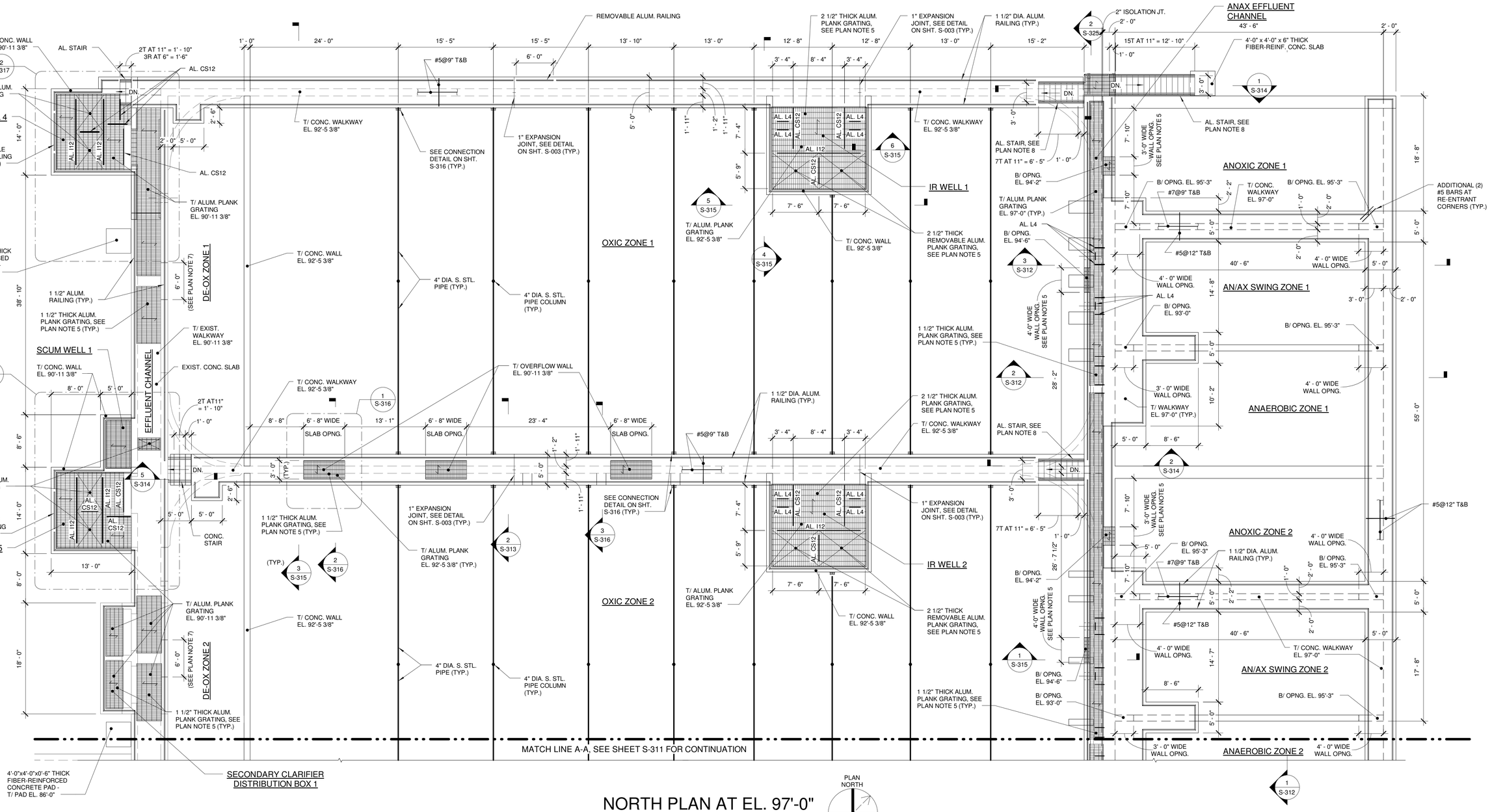

NORTH PLAN AT EL. 97'-0"

1/8" = 1'-0"

PLAN NORTH

PLAN NOTES:

1. COORDINATE SIZE AND LOCATION OF STRUCTURAL FRAMING AND GRATING OPENINGS WITH MECH. DWGS. AND EQUIPMENT MFR.
2. AL. C12 INDICATES ALUMINUM CS12x11.8
3. AL. L4 INDICATES ALUMINUM L4x4x1/2"
4. AL. I12 INDICATES ALUMINUM I12x8.27
5. ALUM. PLANK GRATING SHALL BE DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE. REFER TO ALUM. PLANK GRATING NOTES ON SHEET S-001 FOR ADDITIONAL INFORMATION.
6. LOCATE RAILING POSTS TO SPAN OVER OPENINGS AND PROVIDE MINIMUM 6" FROM EDGE OF CONCRETE TO CENTERLINE OF POST.
7. FIBER REINF. CONC. INFILL, 1'-2" WIDE, CENTERED IN PORTION OF EXIST. OPENING BELOW SLAB. ROUGHEN SURFACE OF EXIST. CONC. TO 1/4" AMPLITUDE AND APPLY BONDING AGENT.
8. FIELD VERIFY RISE AND RUN AND FABRICATE STAIR AFTER BIOLOGICAL REACTOR TANKS LEAK TESTING HAS BEEN COMPLETED.

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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

NORTH PLAN AT 97'-0"

FILE NO. 23374.51633- S310

DATE MARCH 19, 2015

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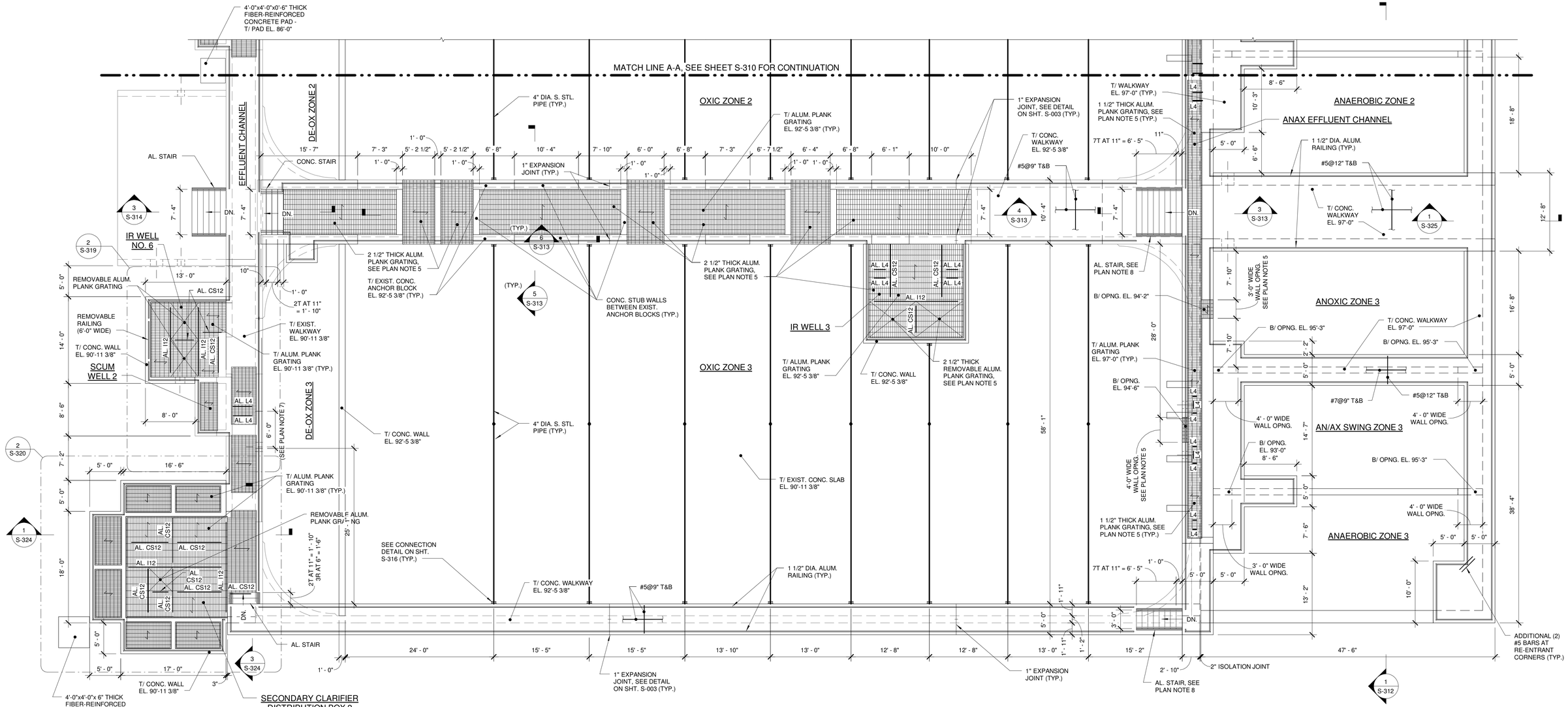

SOUTH PLAN AT EL. 97'-0"

1/8" = 1'-0"

PLAN NORTH

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SUITE 750
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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SOUTH PLAN AT EL. 97'-0"

FILE NO. 23374.51633- S311

DATE MARCH 19, 2015

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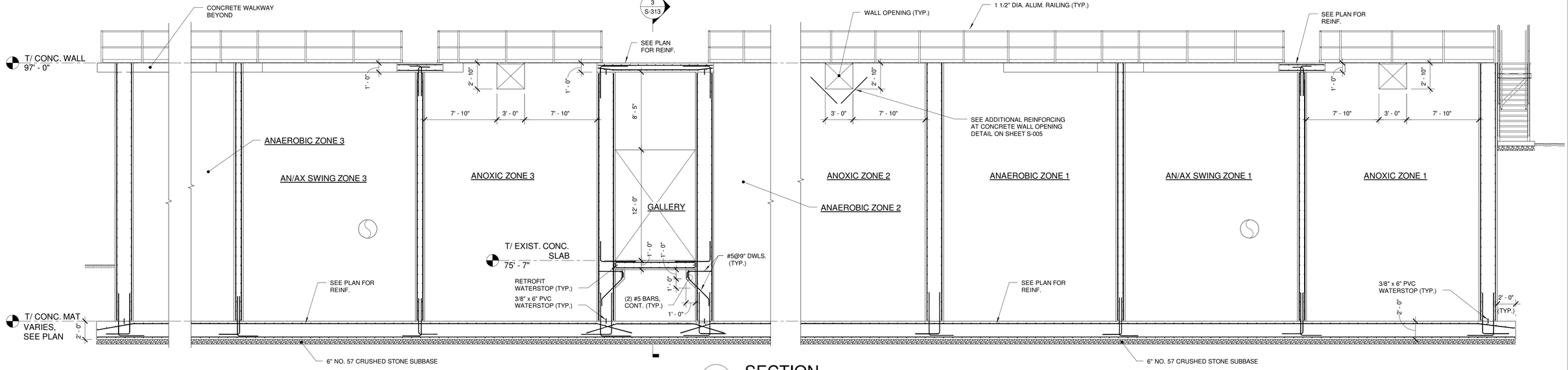
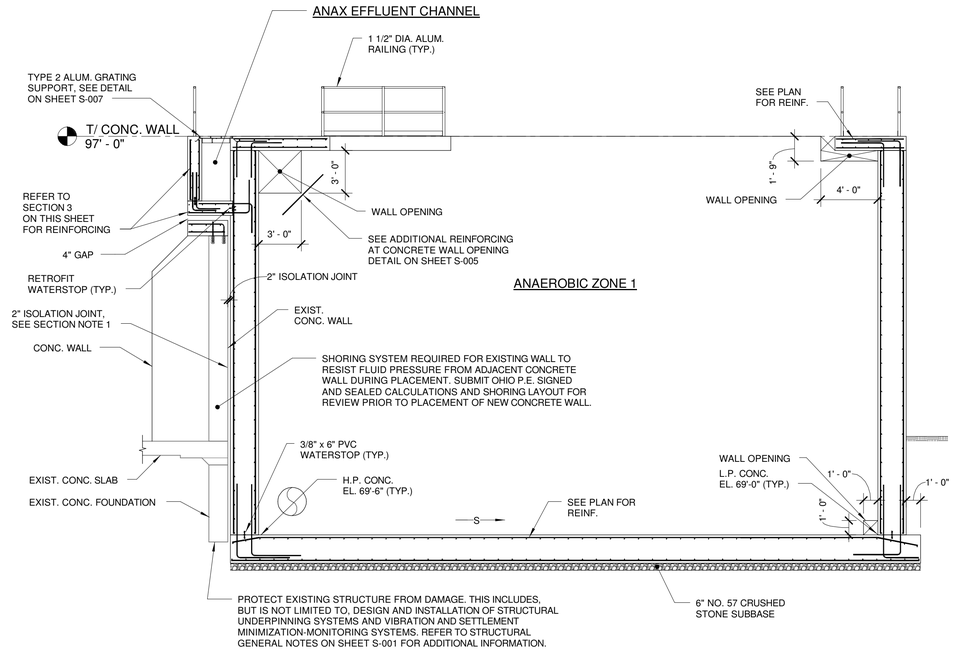


1 SECTION

3/16" = 1'-0" 5' 0 5'



2 SECTION

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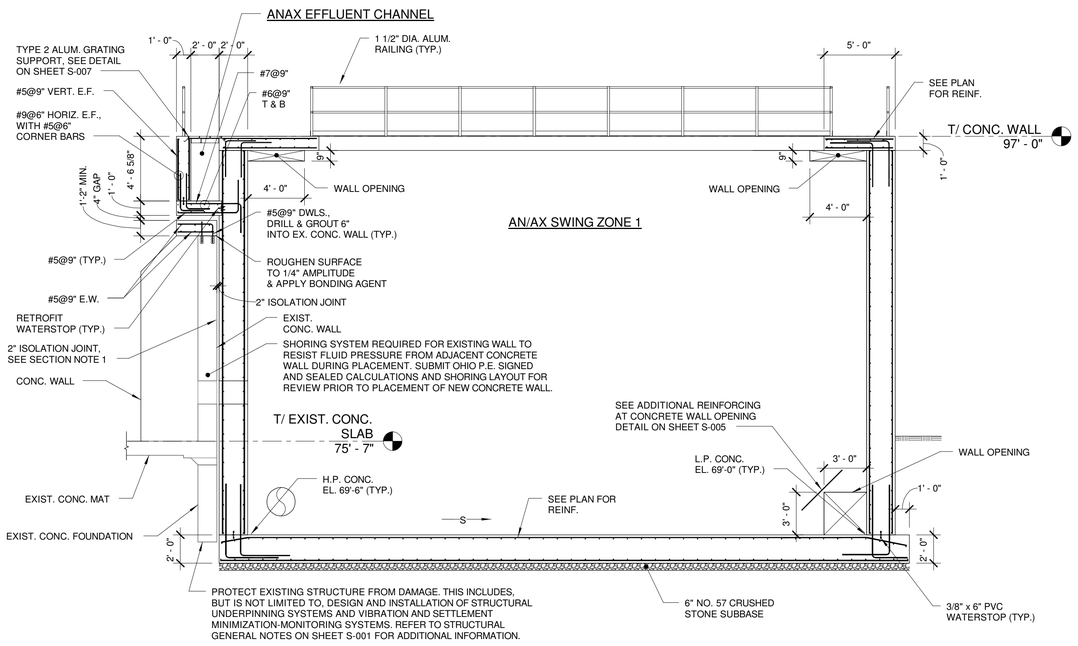

3 SECTION

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SECTION NOTES:
1. ISOLATION JOINTS SHALL CONSIST OF POLYETHYLENE FOAM EXPANSION JOINT FILLER AT CONTACT SURFACES BETWEEN NEW AND EXISTING STRUCTURES.

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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633- S312

DATE MARCH 19, 2015

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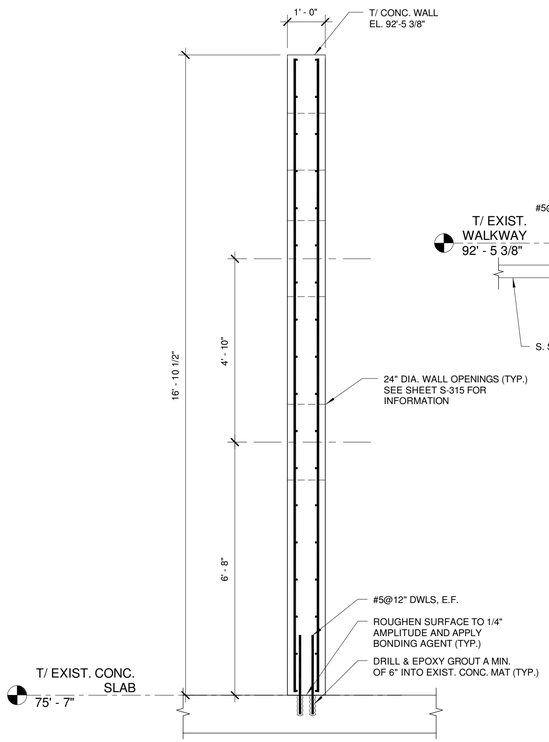
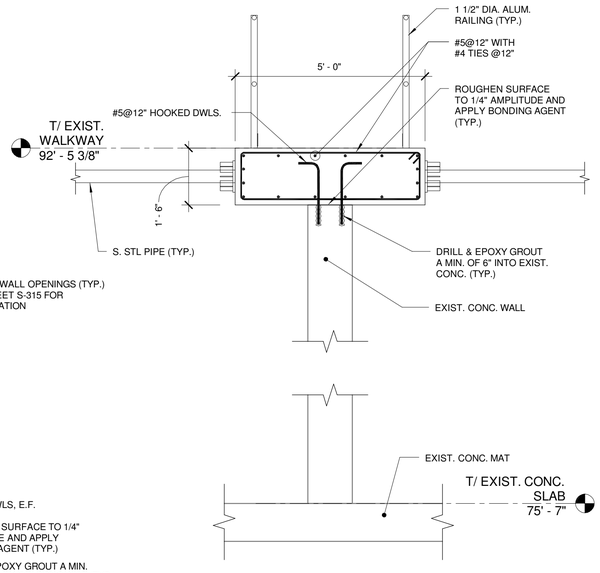


1 SECTION
1/2" = 1'-0"



2 SECTION
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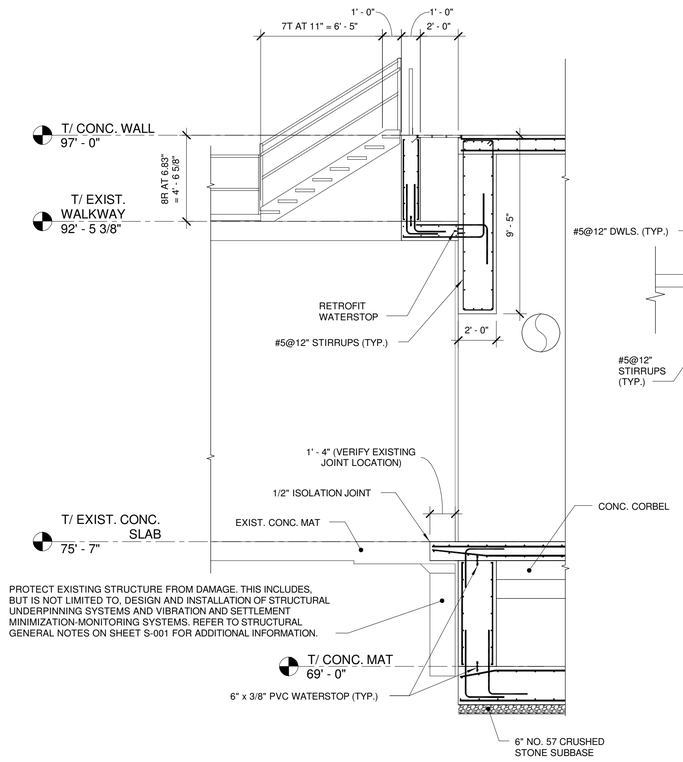
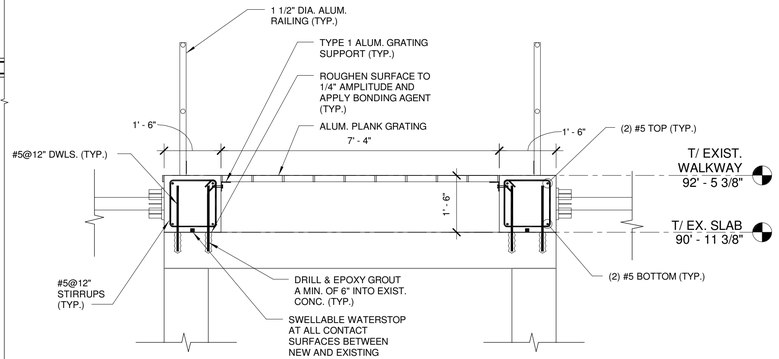


3 SECTION
1/4" = 1'-0"



5 SECTION
1/2" = 1'-0"

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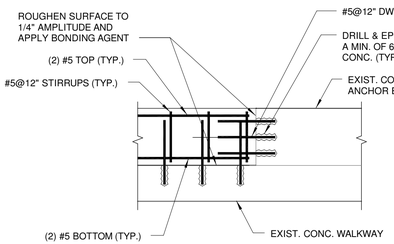
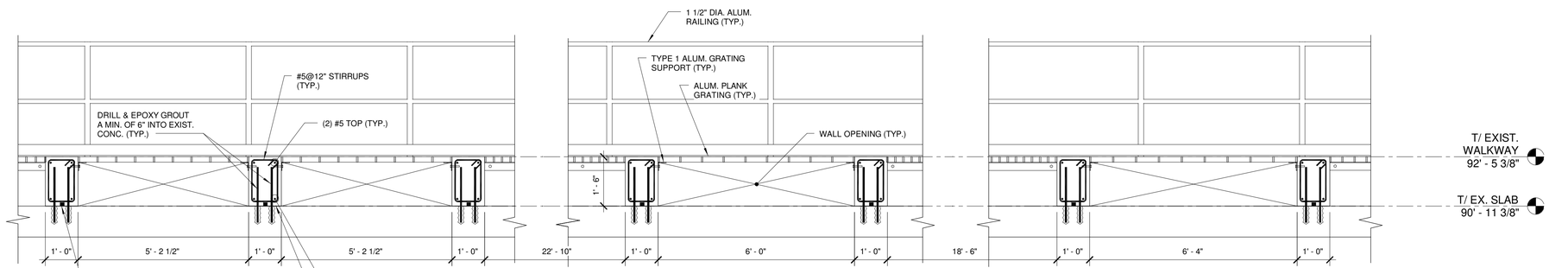


6 SECTION
1/2" = 1'-0"



4 SECTION
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

MODIFICATION SECTIONS

FILE NO.
23374.51633- S313

DATE
MARCH 19, 2015

S-313

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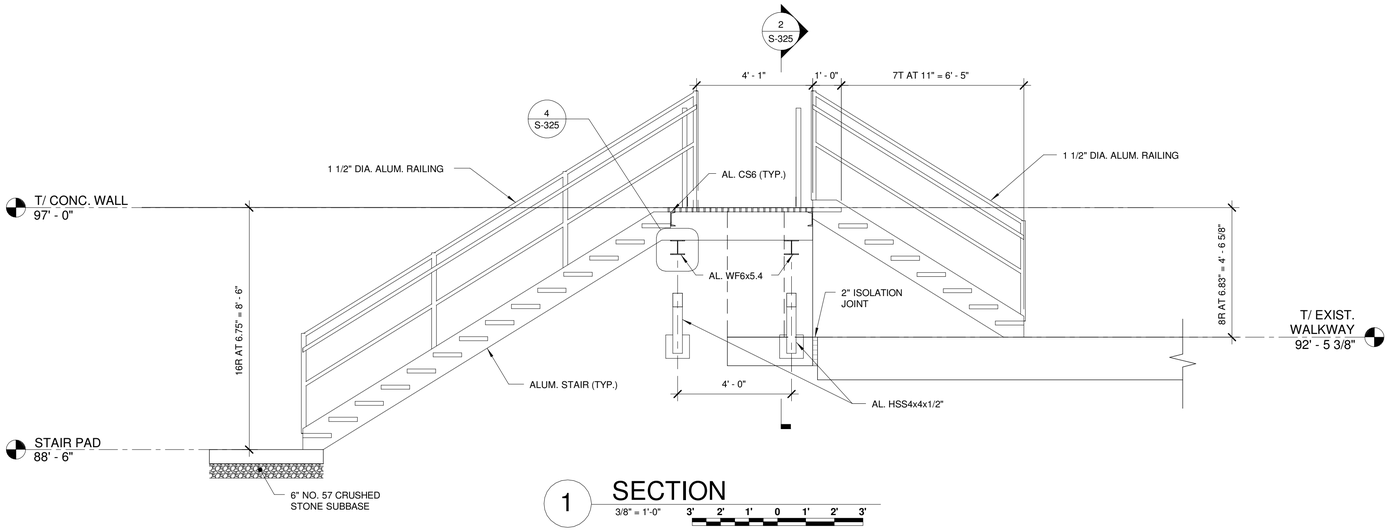
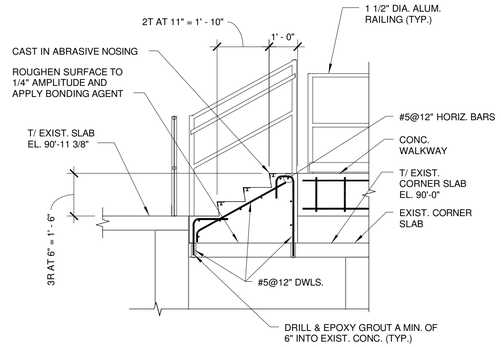
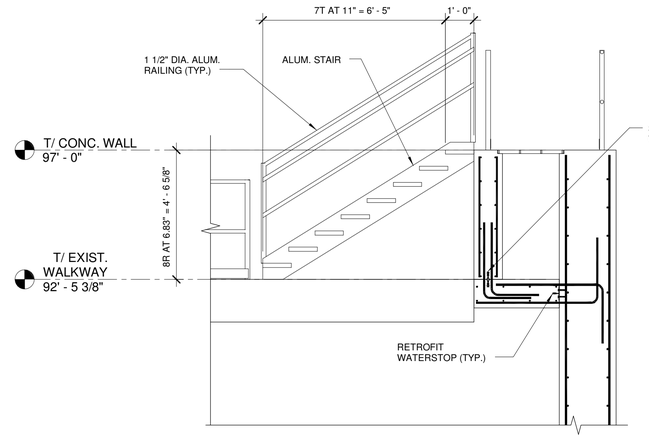


1 SECTION
3/8" = 1'-0"



5 SECTION
3/8" = 1'-0"



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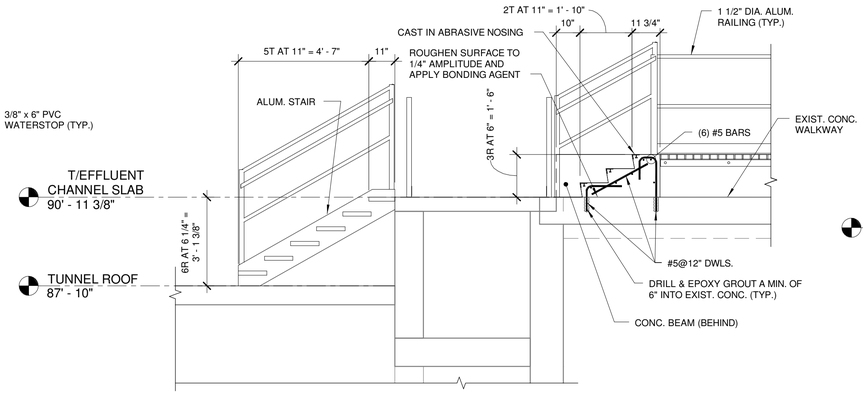
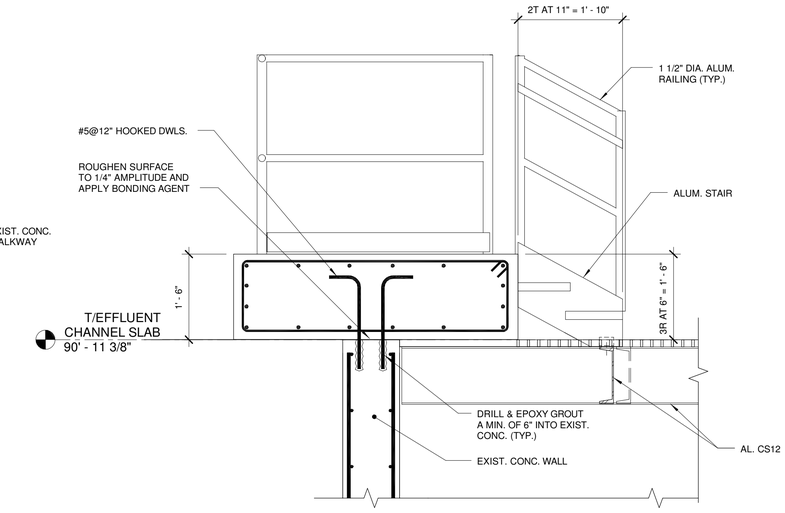


3 SECTION
3/8" = 1'-0"



4 SECTION
3/4" = 1'-0"

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IN CHARGE OF	RFB
DESIGNED BY	TRL
CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO.
23374.51633- S314

DATE
MARCH 19, 2015

S-314

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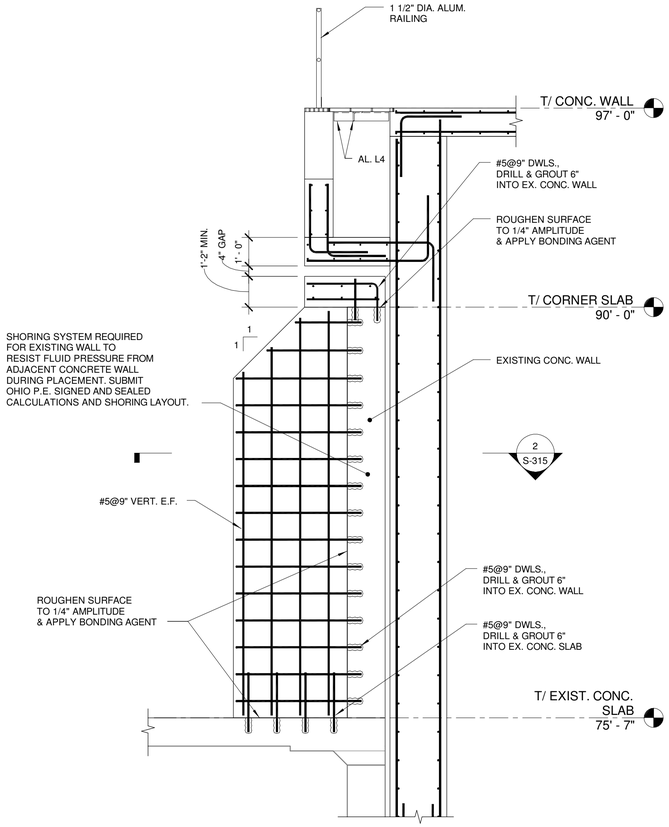
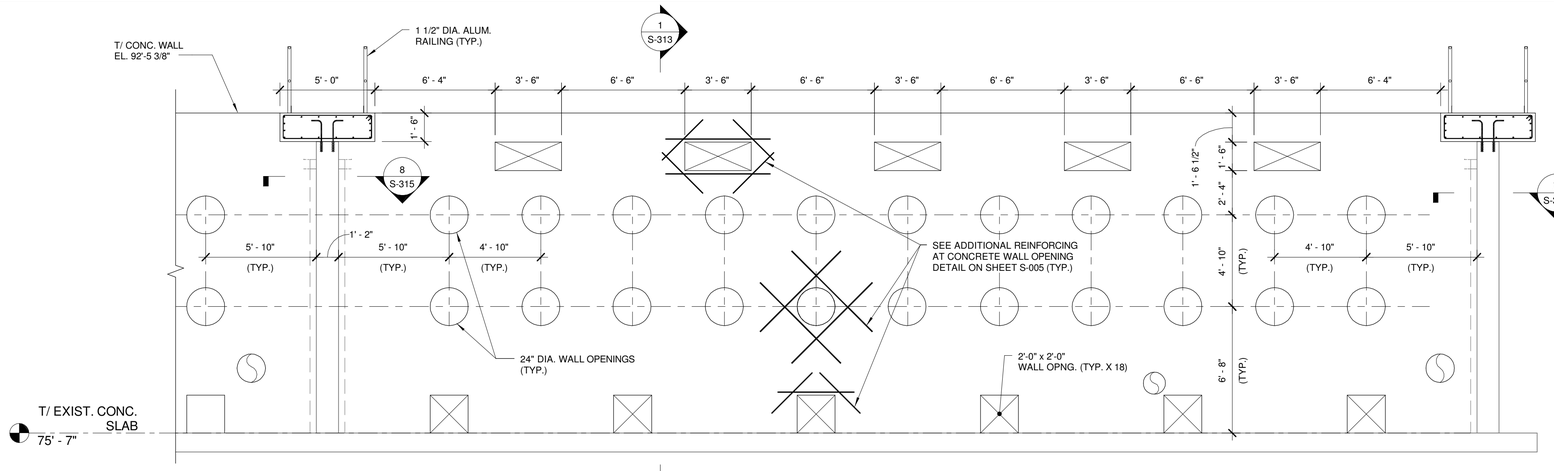
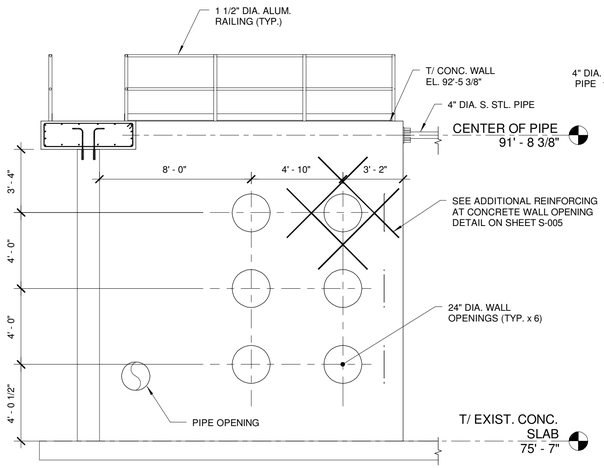


1 SECTION
3/8" = 1'-0"

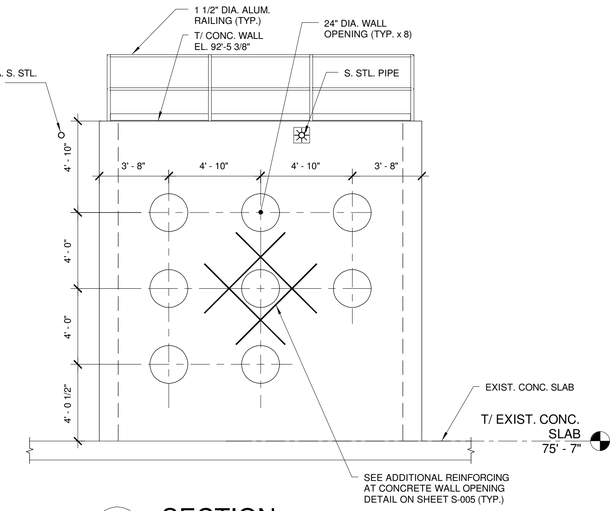
SECTION NOTES:
1. AT 2'-0" WIDE CONCRETE STIFFENER WALLS IN OXIC ZONE NO. 1, PROVIDE #7@9" E.W., E.F. AND #7@9" VERT. AND HORIZ. DOWELS.



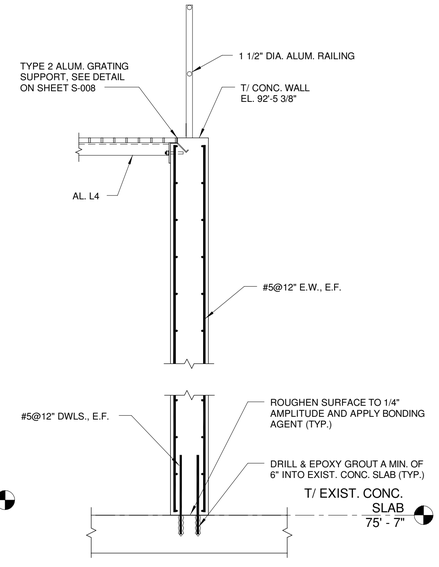
3 SECTION
1/4" = 1'-0"



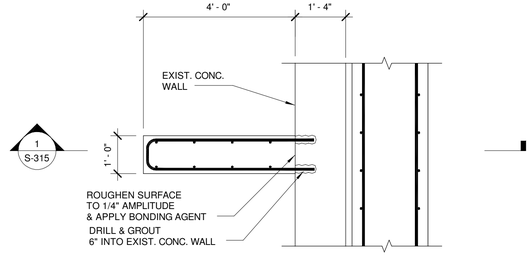
4 SECTION
1/4" = 1'-0"



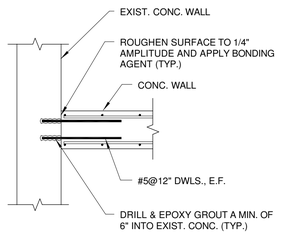
5 SECTION
1/4" = 1'-0"



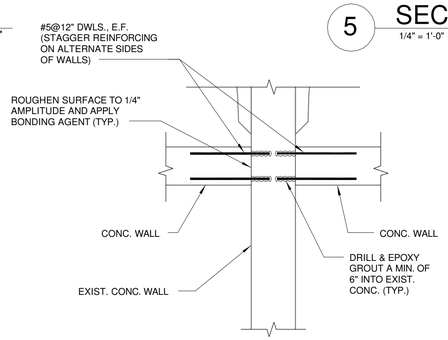
6 SECTION
1/2" = 1'-0"



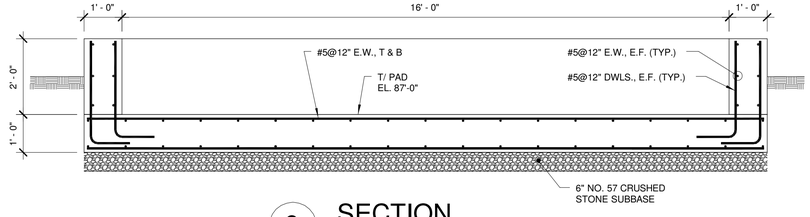
2 SECTION
1/2" = 1'-0"



7 SECTION
1/2" = 1'-0"



8 SECTION
1/2" = 1'-0"



9 SECTION
1/2" = 1'-0"

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CHECKED BY	CHL
DRAWN BY	RAE

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SECTIONS & DETAILS

FILE NO. 23374.51633- S315
DATE MARCH 19, 2015
S-315

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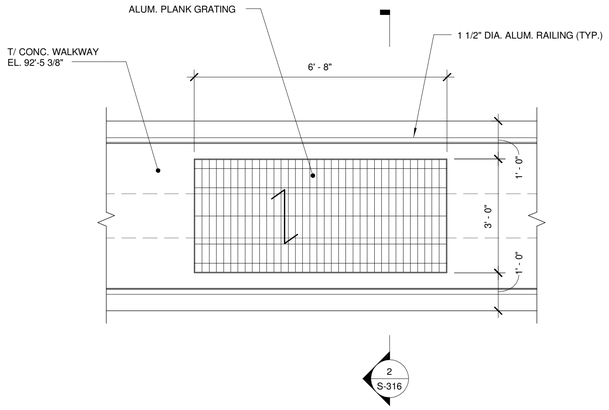
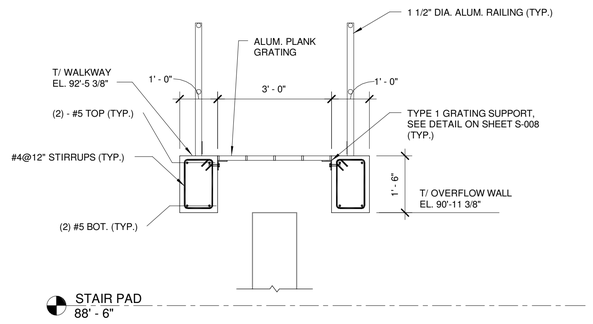


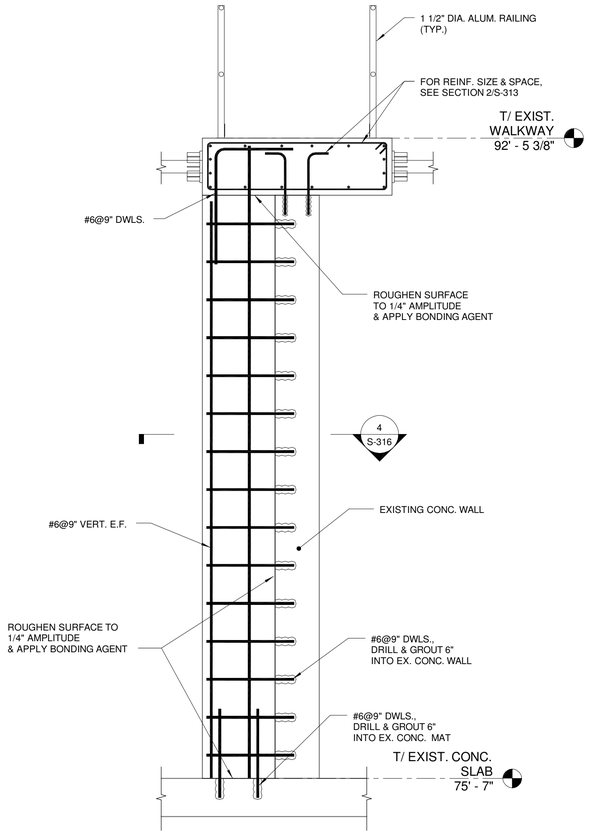
1 SLAB OPNG. - OVERFLOW DETAIL

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



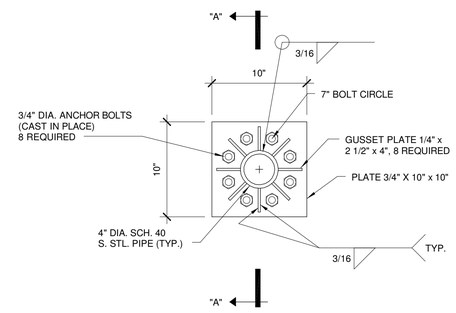
2 SECTION

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



3 SECTION

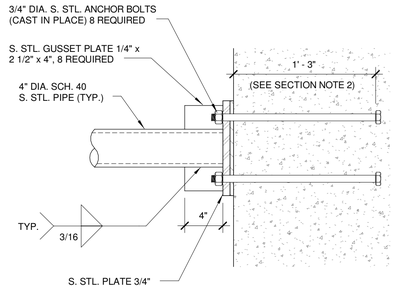
1/2" = 1'-0" 2' 1' 0 1' 2'



TYPICAL PIPE END PLATE DETAIL

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

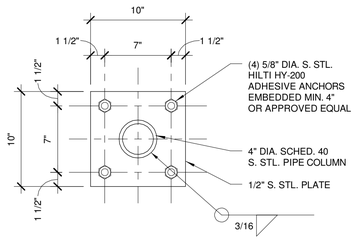
DETAIL NOTES:
1. TIE PIPES INCLUDING PIPE, COLUMNS, PLATES, AND ANCHOR BOLTS SHALL BE FABRICATED FROM TYPE 316 STAINLESS STEEL.
2. ANCHOR BOLTS SHALL BE THREADED THEIR ENTIRE LENGTH AND SHALL A HEX HEAD EMBEDDED IN CONCRETE.
3. TIE PIPE LENGTHS SHALL BE DETERMINED WITH AERATION TANKS IN OPERATION, PIPES SHALL BE FABRICATED FOR A 60 DEGREES FAHRENHEIT NOMINAL TEMPERATURE. FABRICATION DIMENSIONS SHOULD BE ADJUSTED TO ALLOW FOR TEMPERATURE VARIATION FROM NOMINAL DURING INSTALLATION.



PIPE END PLATE SECTION "A"-"A"

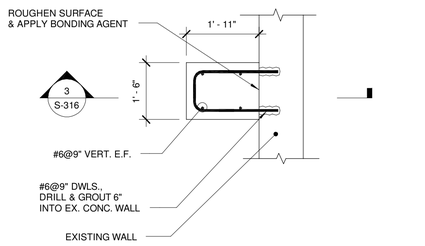
1 1/2" = 1'-0"

SECTION NOTES:
1. TYPICAL AT ALL PIPES UNLESS SHOWN OTHERWISE.
2. AT CONCRETE WALL LESS THAN 1'-6" THICK, EXTEND ANCHOR BOLTS THROUGH WALL AND ANCHOR WITH 3/4" THICK S. STL. PLATE ON OPPOSITE FACE OF WALL.



PIPE ANCHORAGE TO SLAB DETAIL

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



4 SECTION

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

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CHECKED BY	CHL			
DRAWN BY	RAE			

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SECTIONS & DETAILS

FILE NO. 23374.51633- S316

DATE MARCH 19, 2015

S-316

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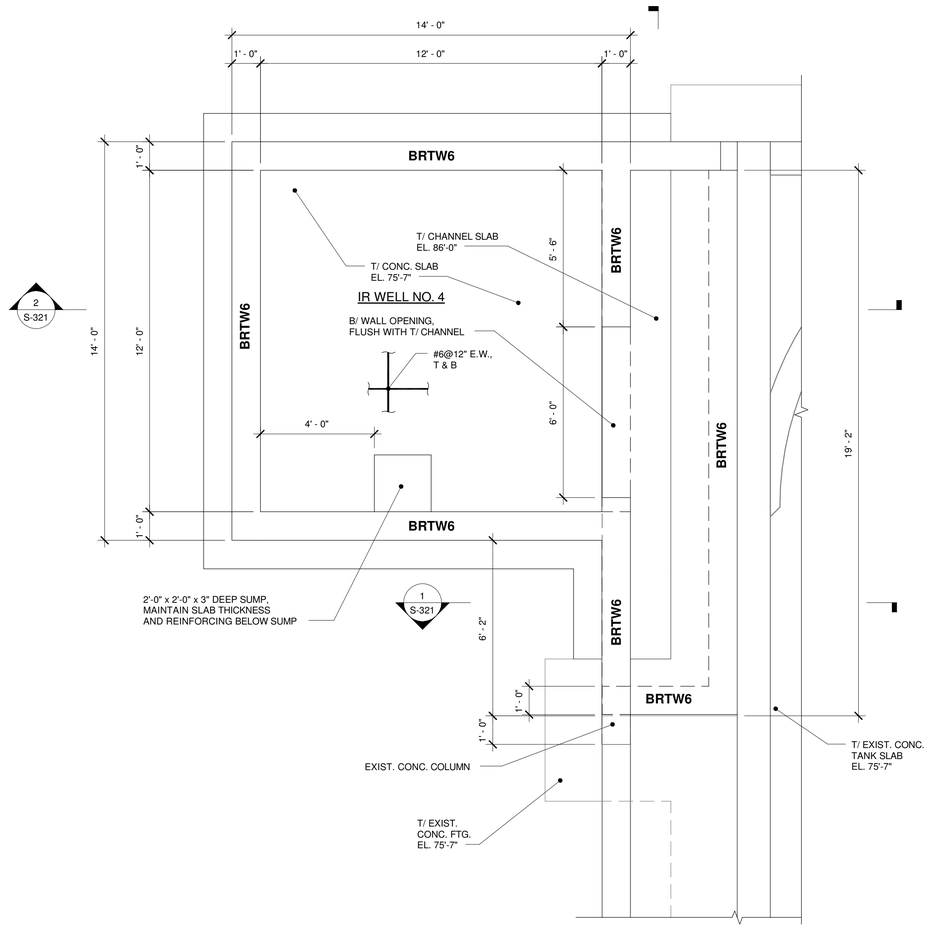
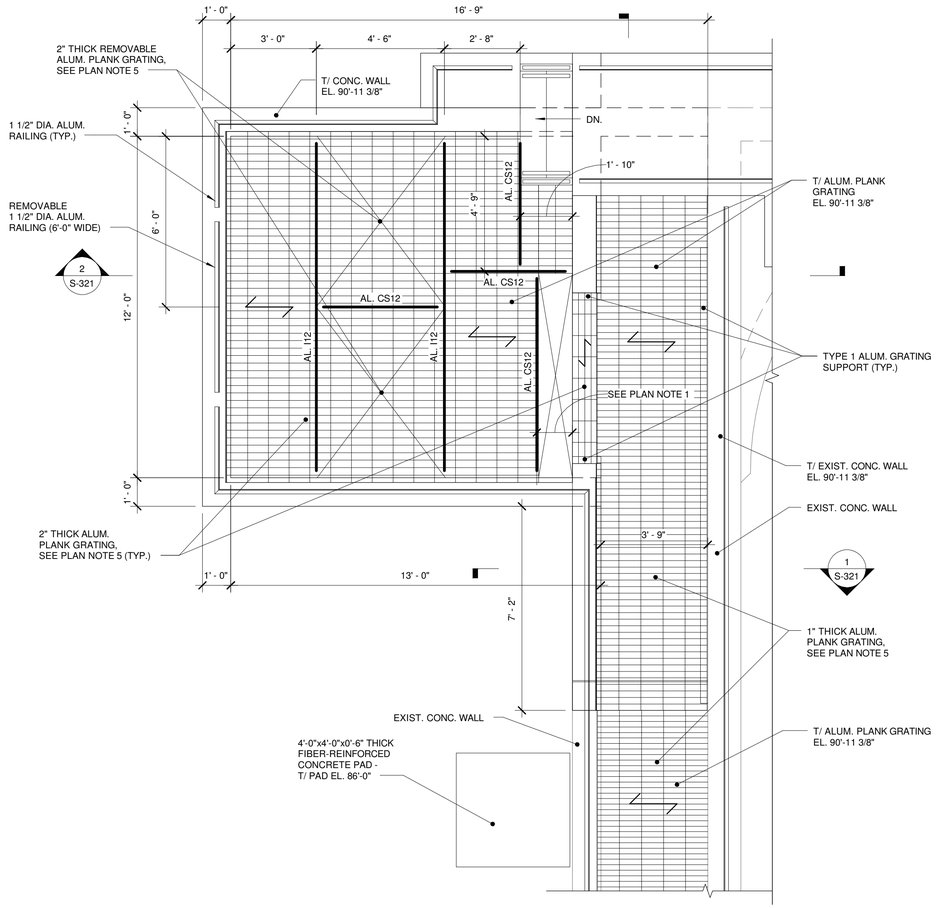


1 PARTIAL FOUNDATION PLAN

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

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. COORDINATE SIZE AND LOCATION OF SLAB AND WALL PENETRATIONS WITH MECHANICAL DRAWINGS AND EQUIP. MFR.
3. PROVIDE ADDITIONAL REINFORCING AT CONCRETE SLAB AND WALL OPENINGS IN ACCORDANCE WITH ADDITIONAL REINFORCING TYPICAL DETAIL SHOWN IN SHEET S-005.
4. SHORING SYSTEM REQUIRED FOR EXISTING WALLS TO RESIST FLUID PRESSURE FROM ADJACENT CONCRETE WALLS DURING PLACEMENT. SUBMIT OHIO P.E. SIGNED AND SEALED CALCULATIONS AND SHORING LAYOUT FOR REVIEW PRIOR TO PLACEMENT OF NEW CONCRETE WALL.



2 PARTIAL TOP PLAN

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

PLAN NOTES:
1. COORDINATE SIZE AND LOCATION OF STRUCTURAL FRAMING AND GRATING OPENINGS WITH MECH. DWGS. AND EQUIPMENT MFR.
2. AL. C12 INDICATES ALUMINUM CS12x11.8
3. AL. L4 INDICATES ALUMINUM L4x4x1/2"
4. AL. I12 INDICATES ALUMINUM I12x8.27
5. ALUM. PLANK GRATING SHALL BE DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE.
6. LOCATE RAILING POSTS TO SPAN OVER OPENINGS AND PROVIDE MINIMUM 6" FROM EDGE OF CONCRETE TO CENTERLINE OF POST.

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CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 4 PLANS

FILE NO. 23374.51633- S317

DATE MARCH 19, 2015

S-317

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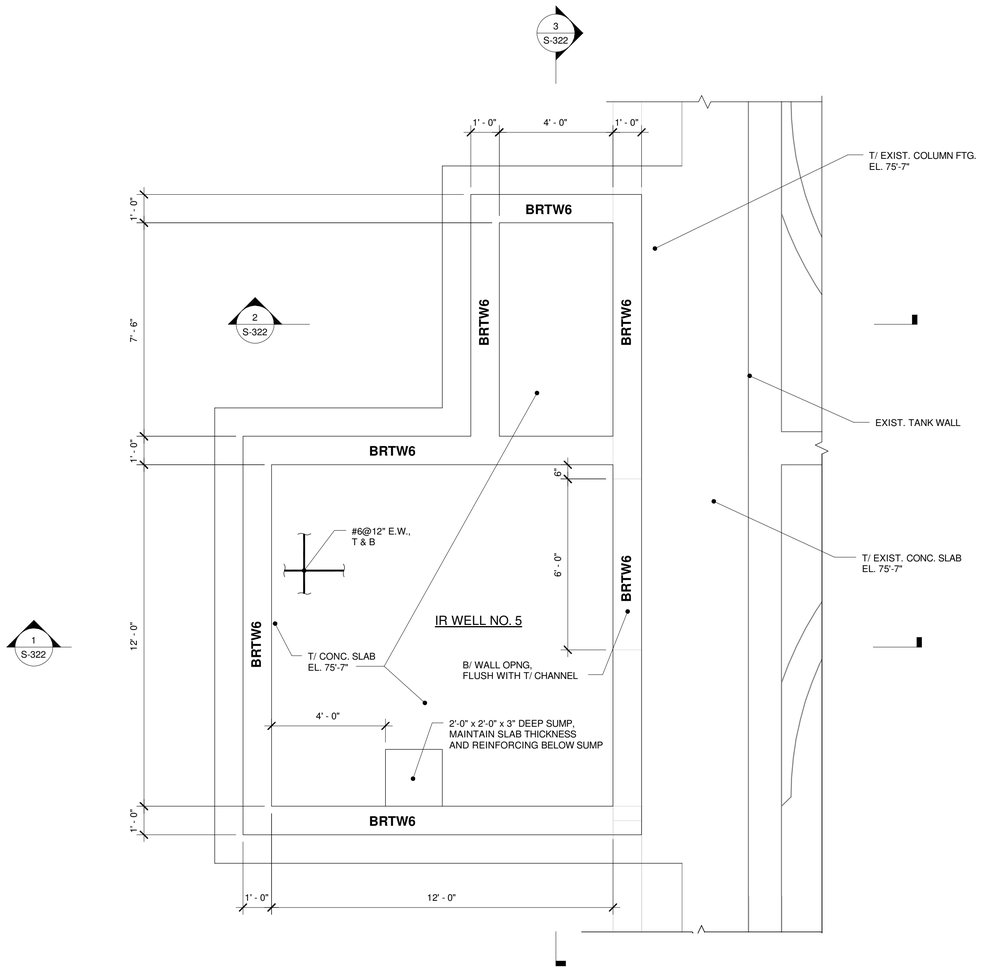

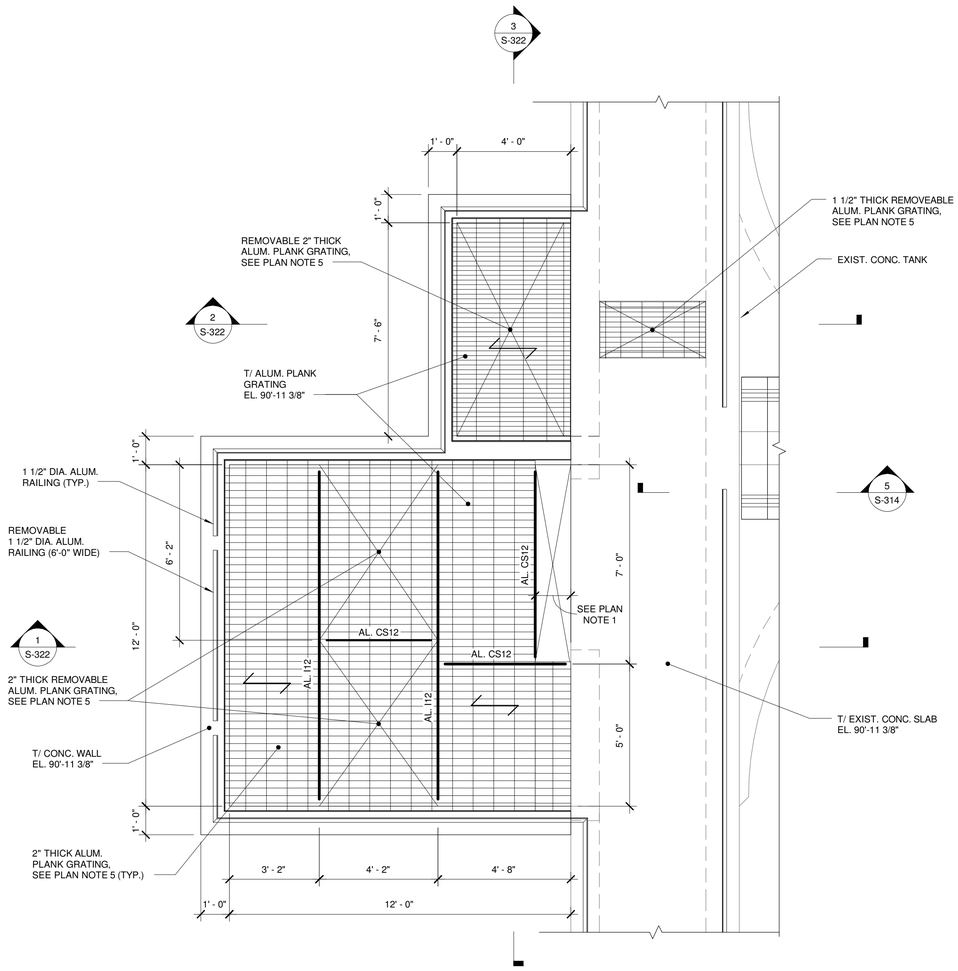

1 PARTIAL FOUNDATION PLAN

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

PLAN NORTH

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. COORDINATE SIZE AND LOCATION OF SLAB AND WALL PENETRATIONS WITH MECHANICAL DRAWINGS AND EQUIP. MFR.
3. PROVIDE ADDITIONAL REINFORCING AT CONCRETE SLAB AND WALL OPENINGS IN ACCORDANCE WITH ADDITIONAL REINFORCING TYPICAL DETAIL SHOWN IN SHEET S-005.

2 PARTIAL TOP PLAN

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

PLAN NORTH

PLAN NOTES:
1. COORDINATE SIZE AND LOCATION OF STRUCTURAL FRAMING AND GRATING OPENINGS WITH MECH. DWGS. AND EQUIPMENT MFR.
2. AL. C12 INDICATES ALUMINUM CS12x11.8
3. AL. L4 INDICATES ALUMINUM L4x4x1/2"
4. AL. I12 INDICATES ALUMINUM I12x8.27
5. ALUM. PLANK GRATING SHALL BE DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE.
6. LOCATE RAILING POSTS TO SPAN OVER OPENINGS AND PROVIDE MINIMUM 6" FROM EDGE OF CONCRETE TO CENTERLINE OF POST.

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DRAWN BY	RAE

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0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 5 PLANS

FILE NO. 23374.51633- S318

DATE MARCH 19, 2015

S-318

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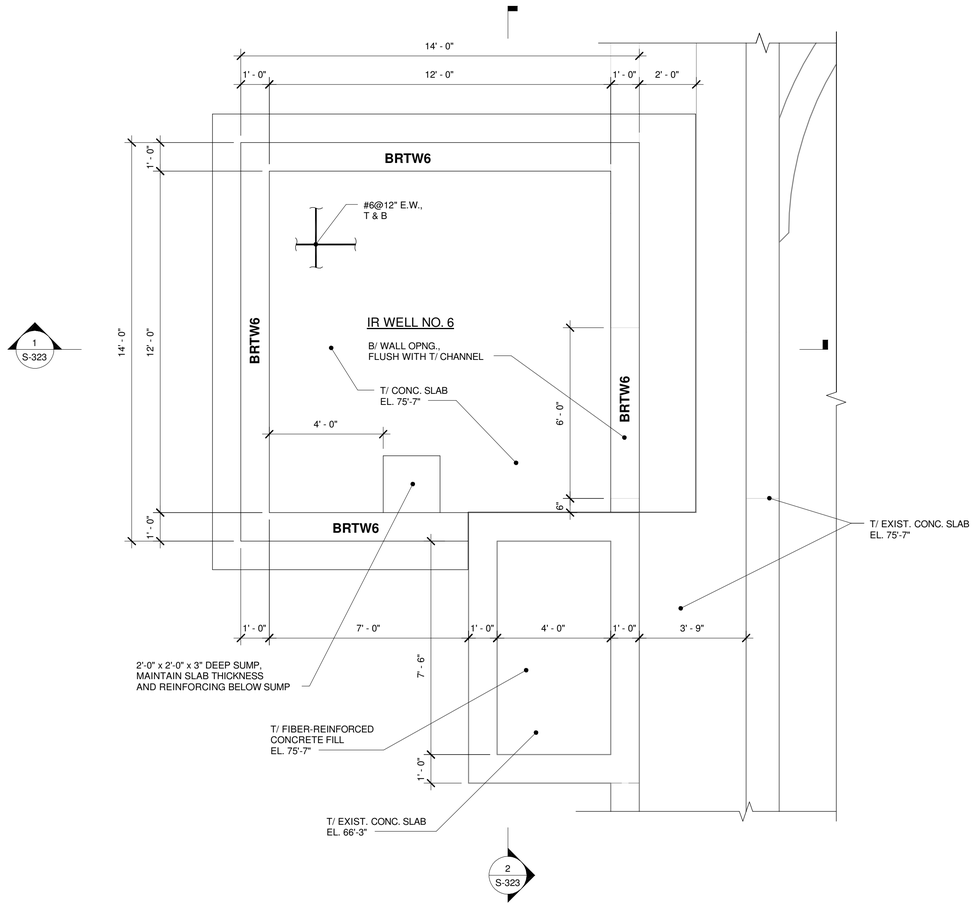
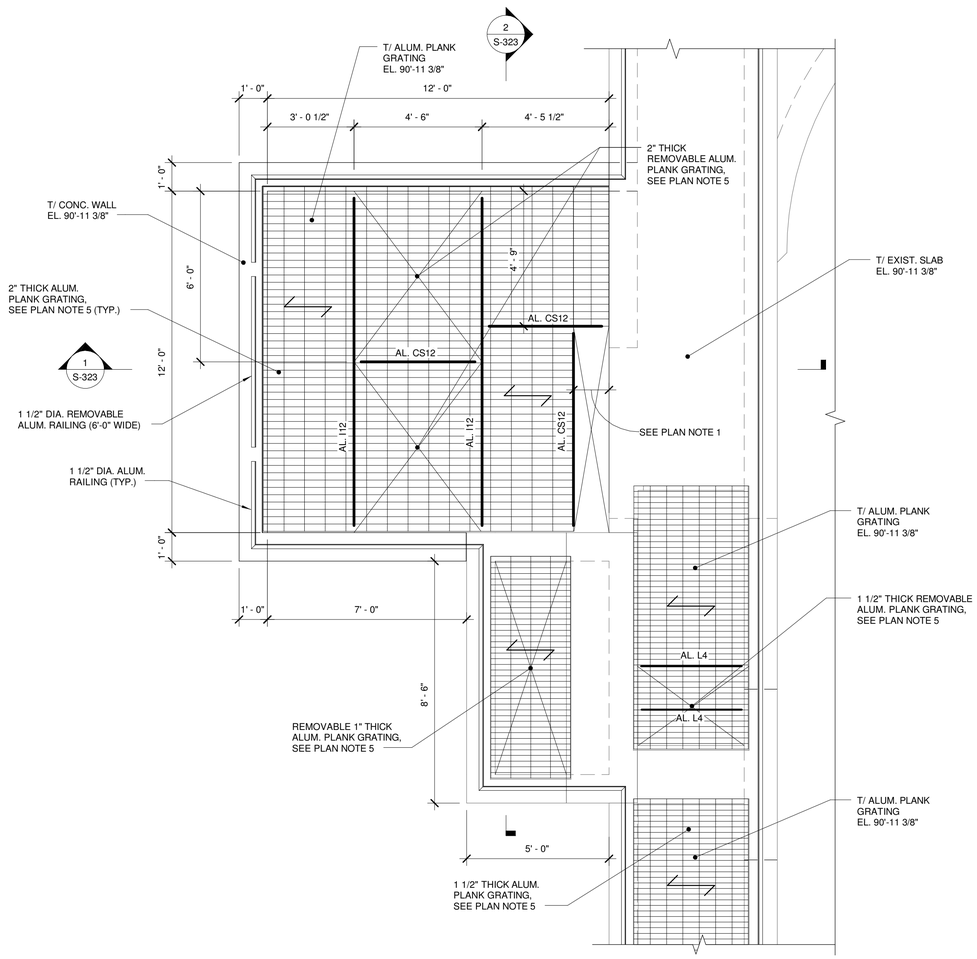


1 PARTIAL FOUNDATION PLAN

3/8" = 1'-0"

PLAN NORTH

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. COORDINATE SIZE AND LOCATION OF SLAB AND WALL PENETRATIONS WITH MECHANICAL DRAWINGS AND EQUIP. MFR.
3. PROVIDE ADDITIONAL REINFORCING AT CONCRETE SLAB AND WALL OPENINGS IN ACCORDANCE WITH ADDITIONAL REINFORCING TYPICAL DETAIL SHOWN IN SHEET S-005.



2 PARTIAL TOP PLAN

3/8" = 1'-0"

PLAN NORTH

PLAN NOTES:
1. COORDINATE SIZE AND LOCATION OF STRUCTURAL FRAMING AND GRATING OPENINGS WITH MECH. DWGS. AND EQUIPMENT MFR.
2. AL. C12 INDICATES ALUMINUM CS12x11.8
3. AL. L4 INDICATES ALUMINUM L4x4x1/2"
4. AL. I12 INDICATES ALUMINUM I12x8.27
5. ALUM. PLANK GRATING SHALL BE DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE.
6. LOCATE RAILING POSTS TO SPAN OVER OPENINGS AND PROVIDE MINIMUM 6" FROM EDGE OF CONCRETE TO CENTERLINE OF POST.

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DESIGNED BY	TRL
CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 6 PLANS

FILE NO. 23374.51633- S319

DATE MARCH 19, 2015

S-319

I:\Cti-Obg-Jv-23374\51633.Massillon Nr-Ex\Docs\DWG\Revit\Structural (OBG)\51633-STRUCT-ANT AXT TANK.rvt

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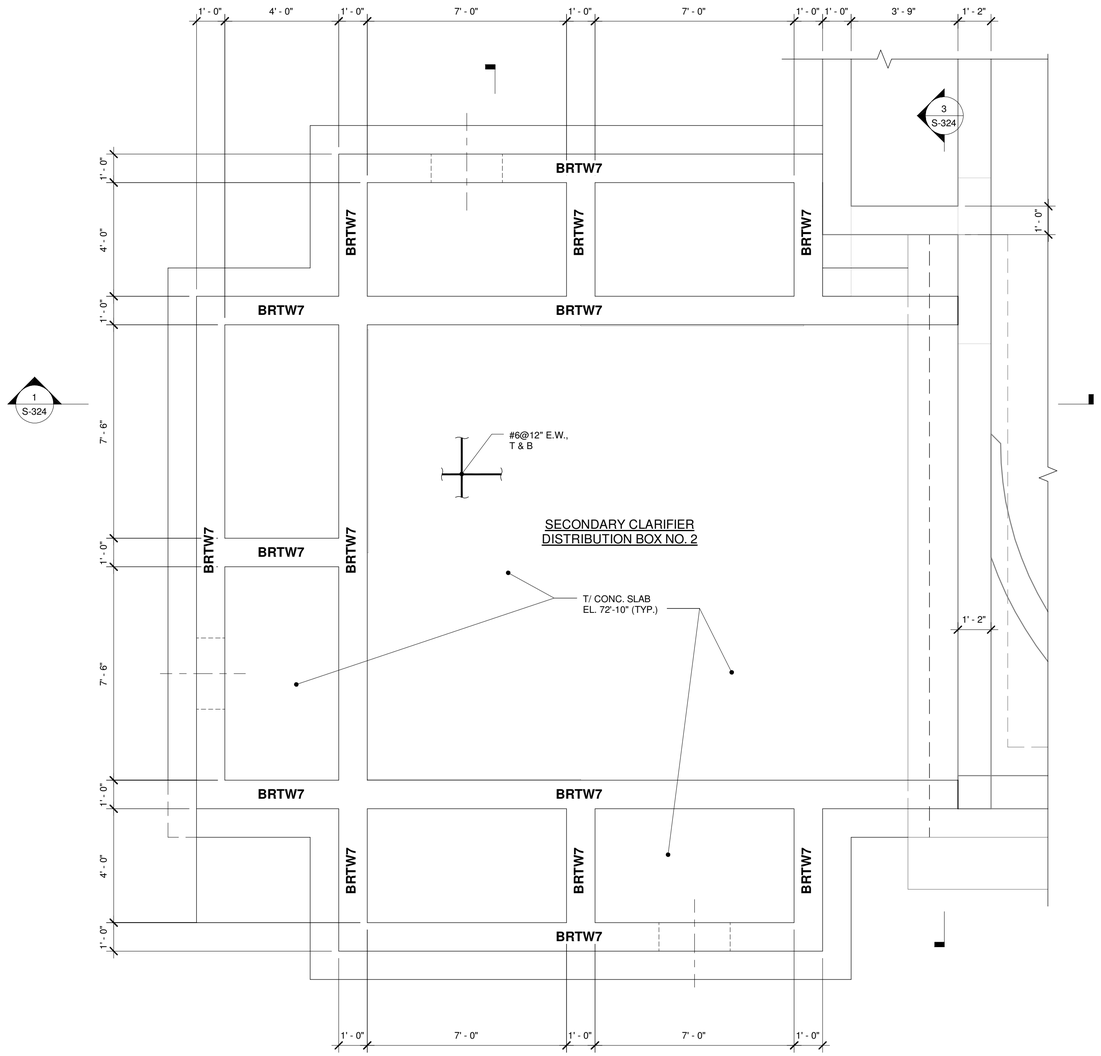
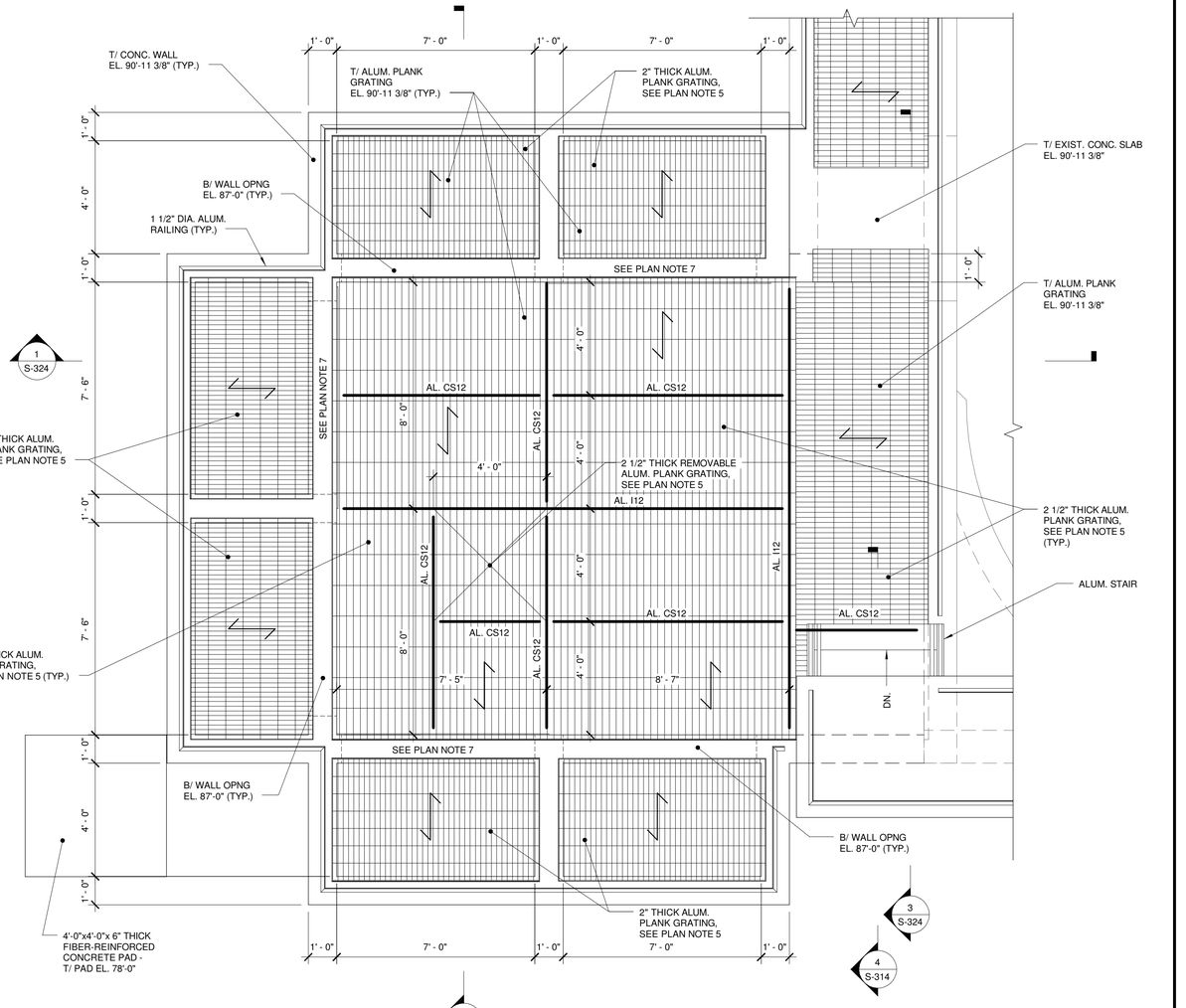


1 PARTIAL FOUNDATION PLAN

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

PLAN NORTH

PLAN NOTES:
1. BRTW# DESIGNATES BIOLOGICAL REACTOR TANK WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. COORDINATE SIZE AND LOCATION OF SLAB AND WALL PENETRATIONS WITH MECHANICAL DRAWINGS AND EQUIP. MFR.
3. PROVIDE ADDITIONAL REINFORCING AT CONCRETE SLAB AND WALL OPENINGS IN ACCORDANCE WITH ADDITIONAL REINFORCING TYPICAL DETAIL SHOWN IN SHEET S-005.



2 PARTIAL TOP PLAN

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

PLAN NORTH

PLAN NOTES:
1. COORDINATE SIZE AND LOCATION OF STRUCTURAL FRAMING AND GRATING OPENINGS WITH MECH. DWGS. AND EQUIPMENT MFR.
2. AL. C12 INDICATES ALUMINUM CS12x11.8
3. AL. L4 INDICATES ALUMINUM L4x4x1/2"
4. AL. I12 INDICATES ALUMINUM I12x8.27
5. ALUM. PLANK GRATING SHALL BE DIAGONAL (ADA) PUNCHED (OPENINGS AT 3/4" ON CENTER), HEAVY DUTY, ALUMINUM PLANK WITH ALUMINUM OXIDE GRIT COATING FOR SLIP RESISTANCE.
6. LOCATE RAILING POSTS TO SPAN OVER OPENINGS AND PROVIDE MINIMUM 6" FROM EDGE OF CONCRETE TO CENTERLINE OF POST.
7. AT LOCATIONS WHERE NO GATES ARE SCHEDULED FOR INSTALLATION, ON WET SIDE OF WALL INSTALL 1/2" THICK S. STL. PLATE EXTENDING MIN. 6" BEYOND EDGES OF OPENING. ANCHOR PLATE WITH 1/2" DIA. S. STL. ADHESIVE ANCHORS WITH MIN. 3 3/4" EMBEDMENT AT 2'-0" ON CENTER. MIN. 4" ANCHOR EDGE DISTANCE. POLYURETHANE JOINT SEALANT BETWEEN PERIMETER OF PLATE AND CONCRETE WALL.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF	RFB			
DESIGNED BY	TRL			
CHECKED BY	CHL	1	09/23/2015	ISSUED FOR BID — RFB
DRAWN BY	RAE	0	03/19/2015	ISSUED FOR OEPA REVIEW — RFB
		NO.	DATE	REVISION — INT.

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS
SECONDARY CLARIFIER DISTRIBUTION BOX NO. 2 PLANS

FILE NO. 23374.51633- S320
DATE MARCH 19, 2015
S-320

I:\Cti-Obg-Jv-233745\51633.Massillon-Nr-Ex\Docs\DWG\Revit\Structural (OBG)\51633-STRUCT-ANT AXT TANK.rvt

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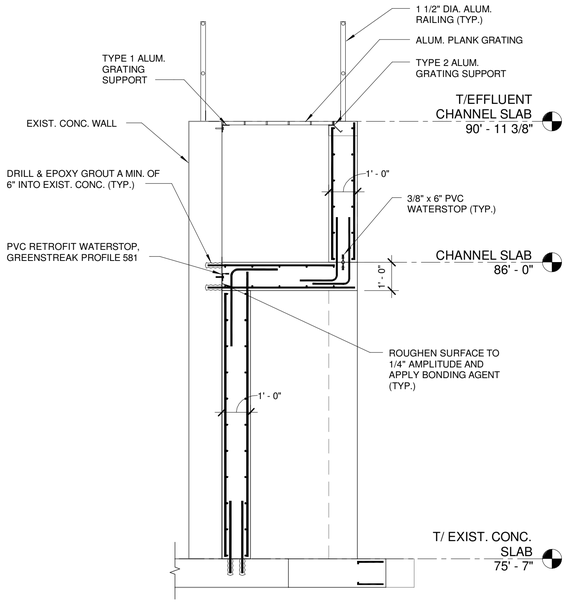

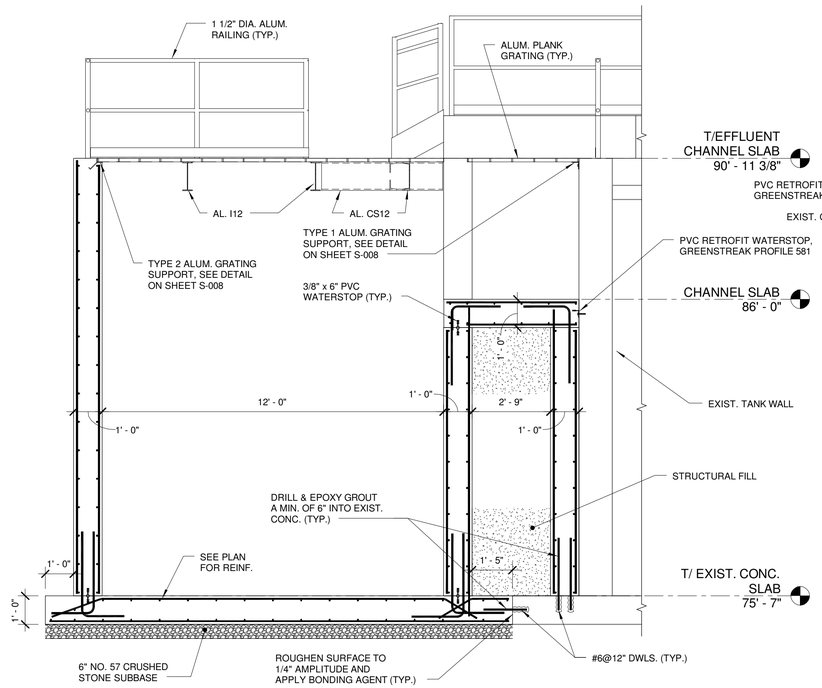

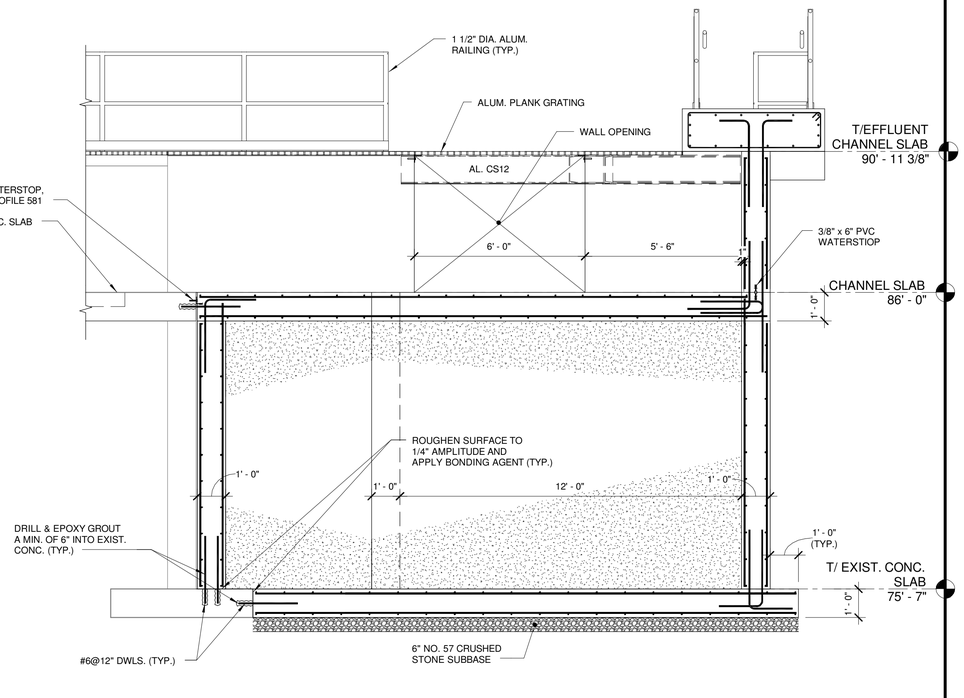

1 SECTION
3/8" = 1'-0"

2 SECTION
3/8" = 1'-0"

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

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NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 4 SECTIONS

FILE NO. 23374.51633- S321

DATE MARCH 19, 2015

S-321

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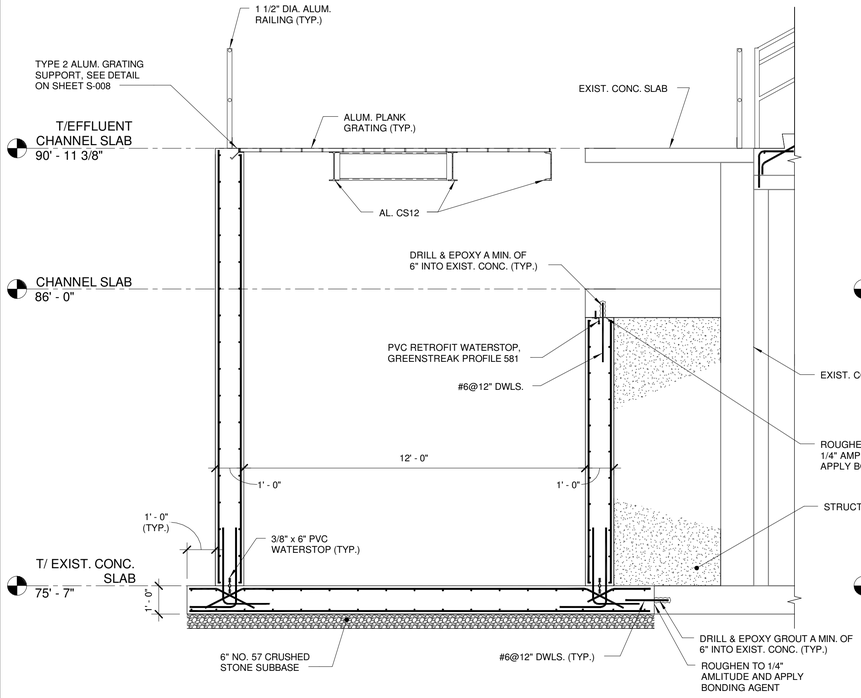
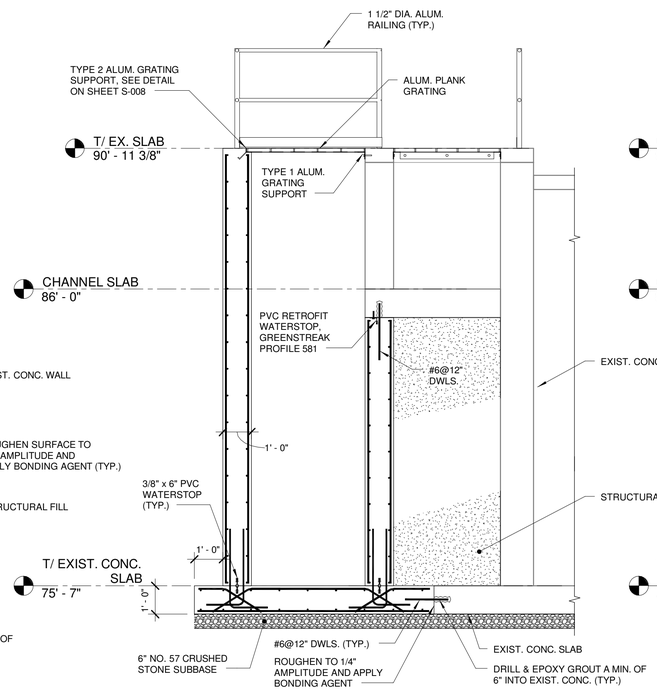
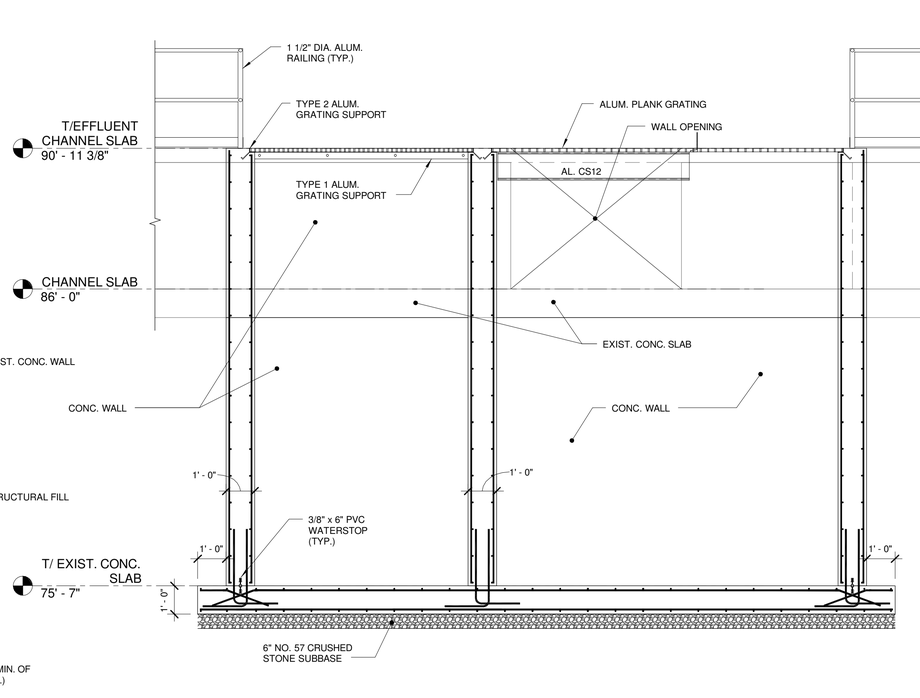


1 SECTION
3/8" = 1'-0"



2 SECTION
3/8" = 1'-0"



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

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 5 SECTIONS

FILE NO. 23374.51633- S322

DATE MARCH 19, 2015

S-322

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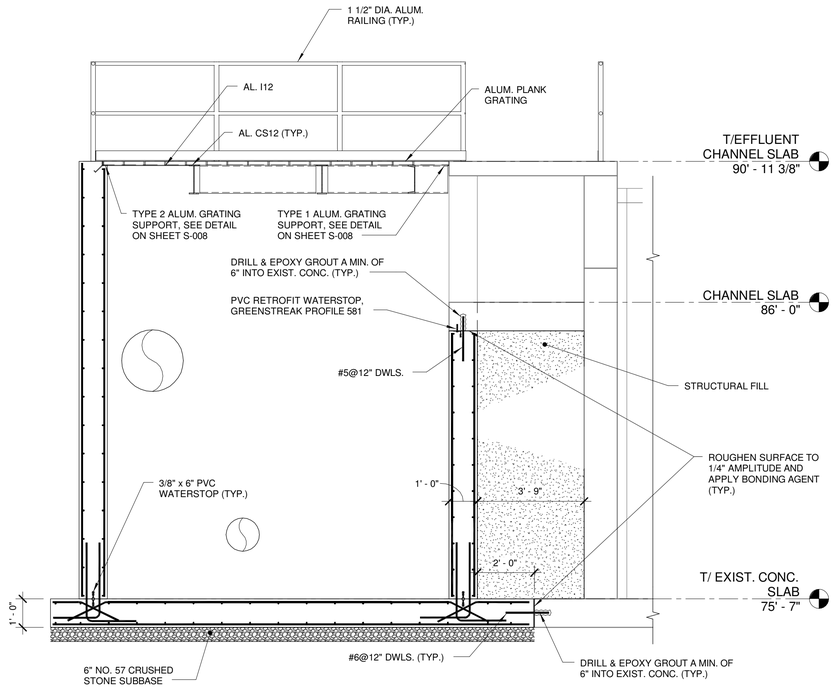
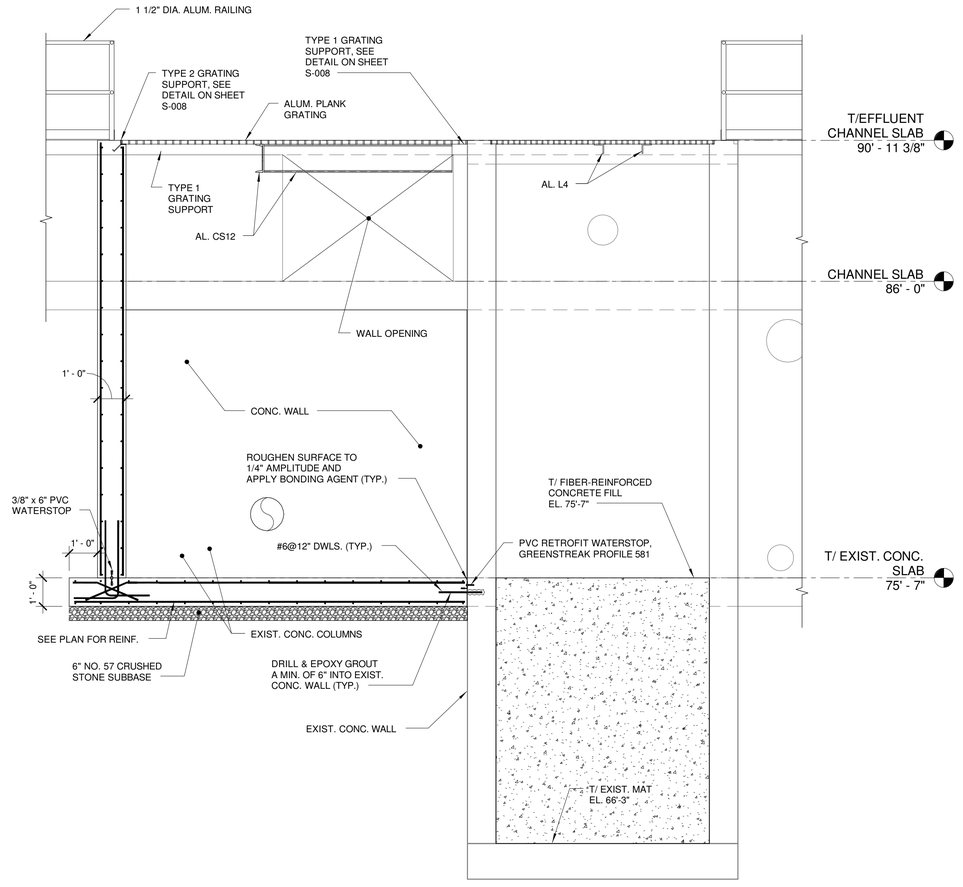


1 SECTION

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



2 SECTION

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

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DRAWN BY	RAE

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0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
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STRUCTURAL
BIOLOGICAL REACTOR TANKS

IR WELL NO. 6 SECTIONS

FILE NO. 23374.51633- S323

DATE MARCH 19, 2015

S-323

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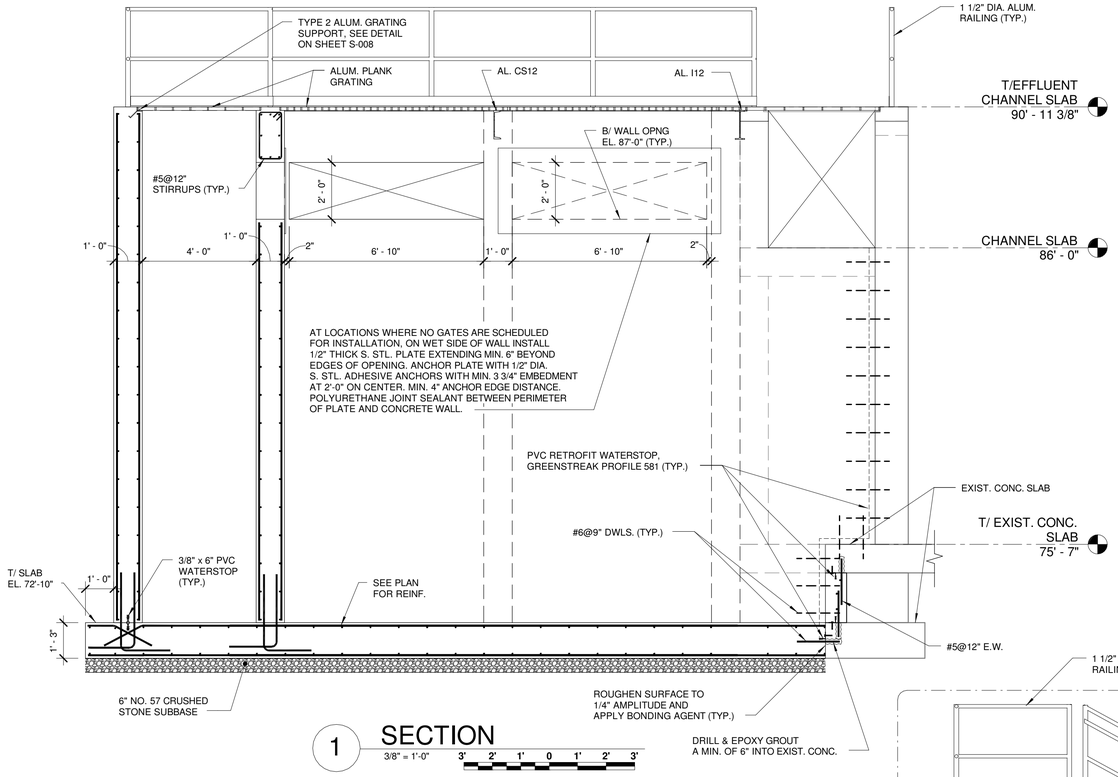
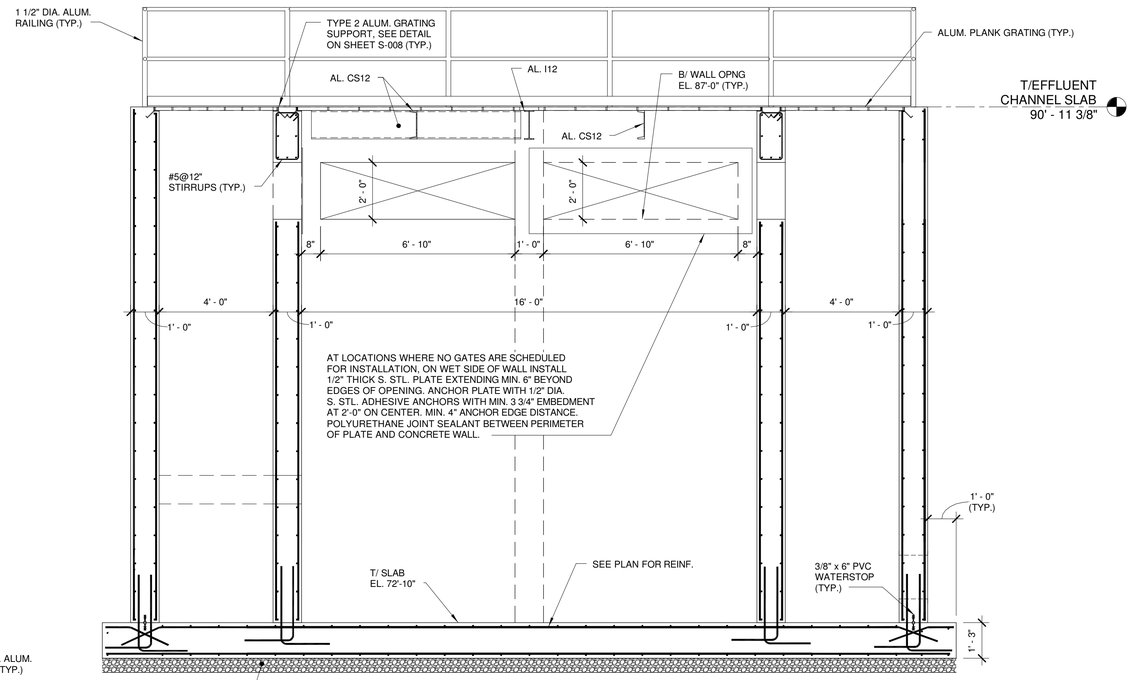
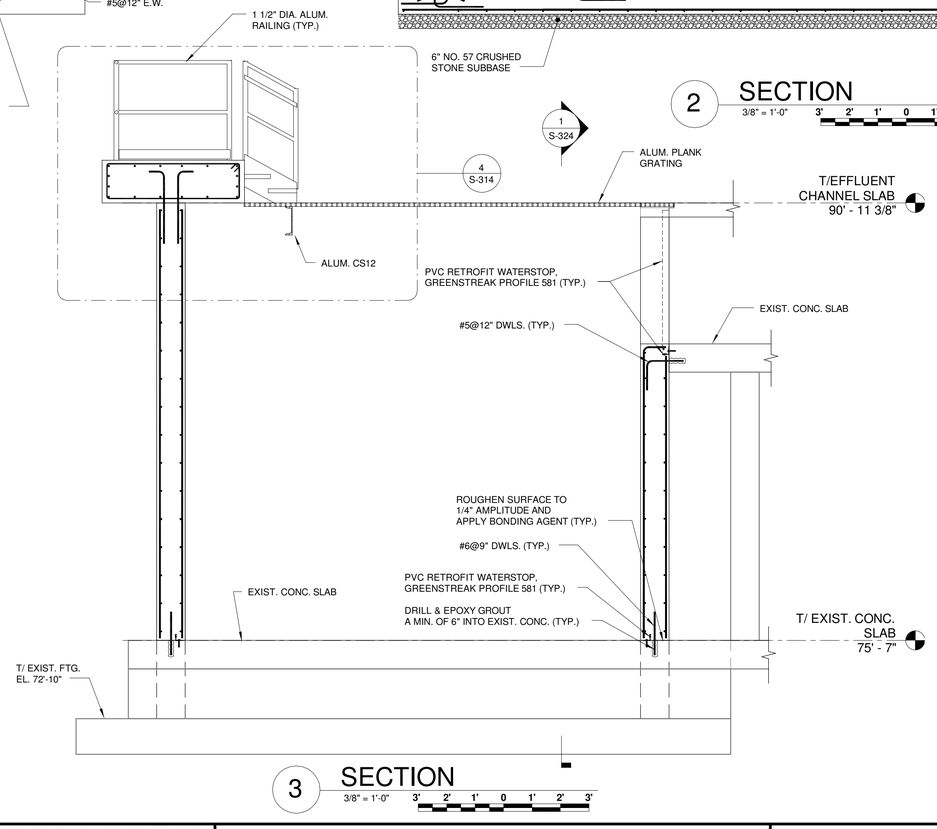


1 SECTION
3/8" = 1'-0"



2 SECTION
3/8" = 1'-0"



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

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IN CHARGE OF	RFB
DESIGNED BY	TRL
CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RFB
0	03/19/2015	ISSUED FOR OEPA REVIEW	RFB

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CITY OF MASSILLON
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MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS
SECONDARY CLARIFIER DISTRIBUTION BOX N O. 2 SECTIONS

FILE NO. 23374.51633- S324
DATE MARCH 19, 2015

S-324

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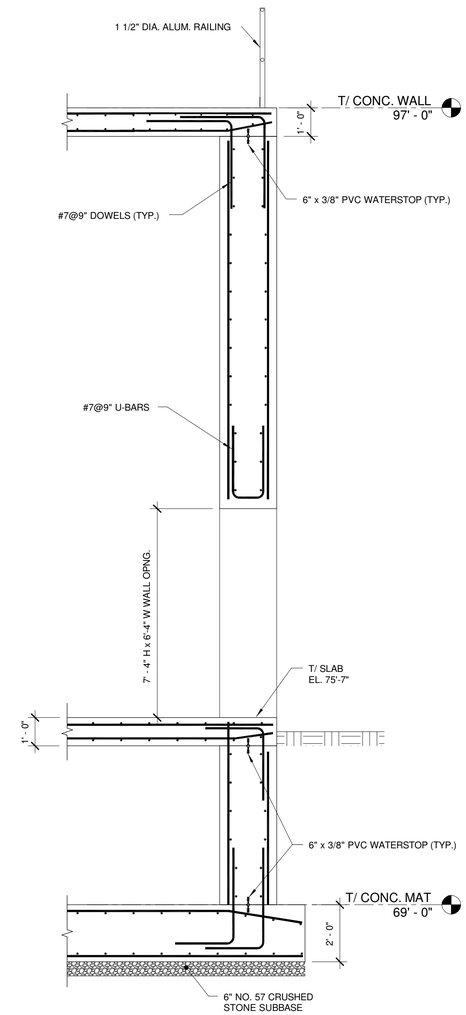
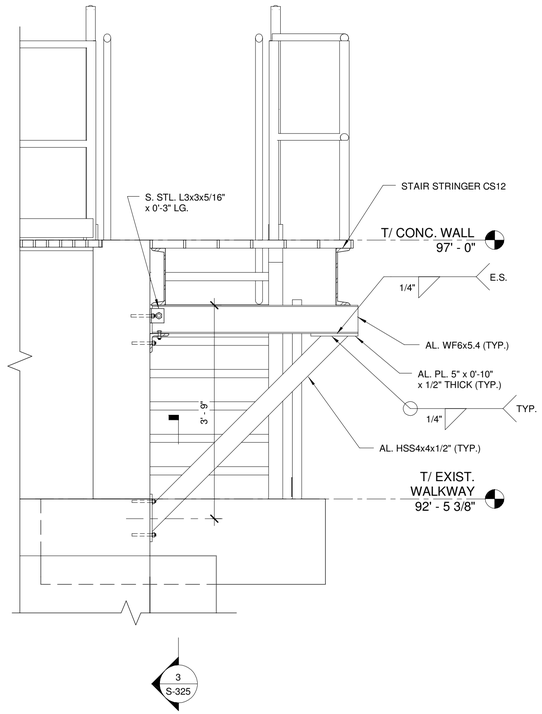
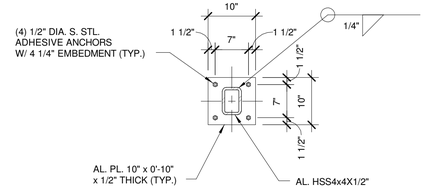


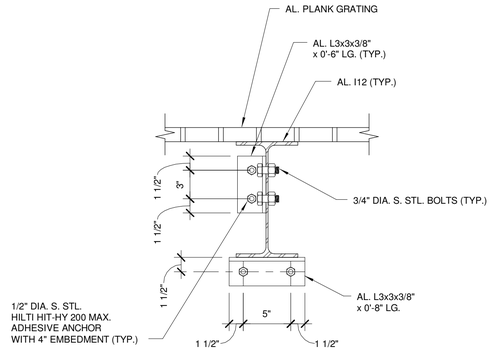
1 SECTION
3/8" = 1'-0" 3' 2' 1' 0 1' 2' 3'



2 SECTION
3/4" = 1'-0" 2" 1" 0 3" 6"

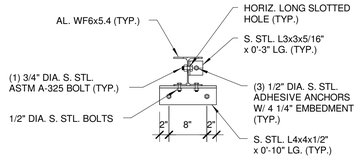


3 SECTION
3/4" = 1'-0" 2" 1" 0 3" 6"

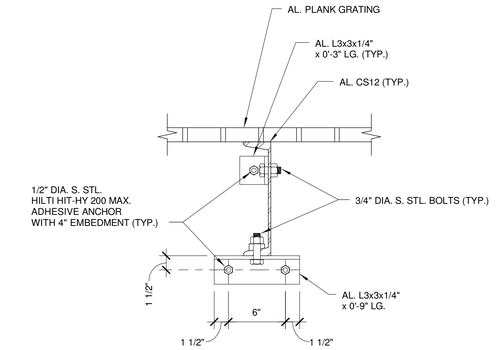


TYPICAL I-BEAM TO WALL CONNECTION DETAIL

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

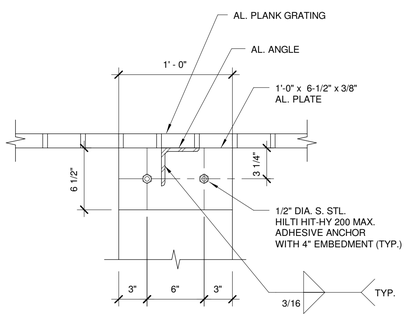


4 DETAIL
3/4" = 1'-0" 2" 1" 0 3" 6"



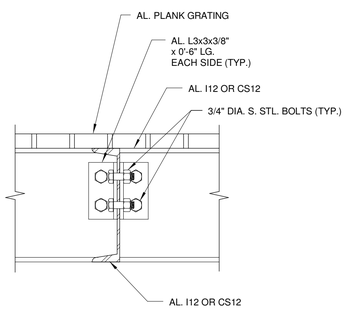
TYPICAL CHANNEL TO WALL CONNECTION DETAIL

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



TYPICAL ANGLE TO WALL CONNECTION DETAIL

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



TYPICAL FRAMING CONNECTION DETAIL

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

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IN CHARGE OF	RFB
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CHECKED BY	CHL
DRAWN BY	RAE

NO.	DATE	REVISION	INT.
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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
BIOLOGICAL REACTOR TANKS

SECTIONS & DETAILS

FILE NO. 23374.51633- S325

DATE SEPT. 23, 2015

S-325

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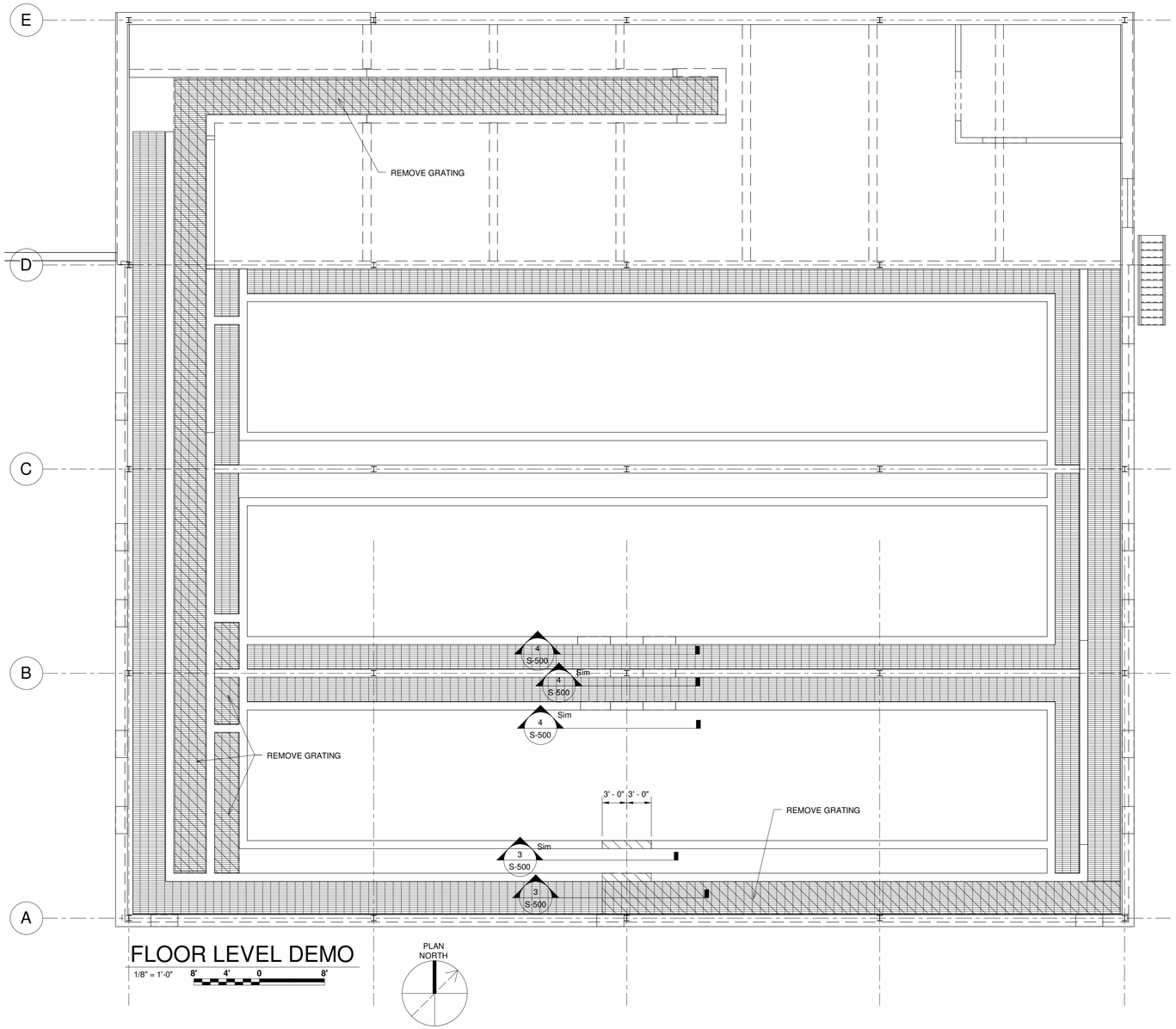
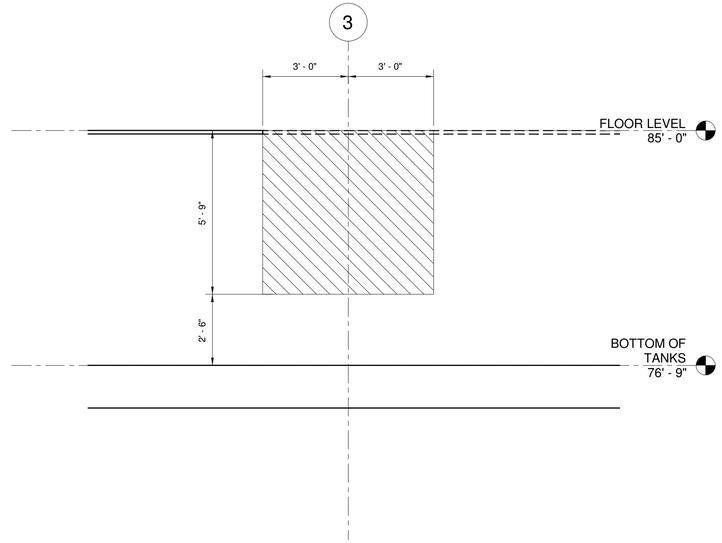


FLOOR LEVEL DEMO

1/8" = 1'-0"

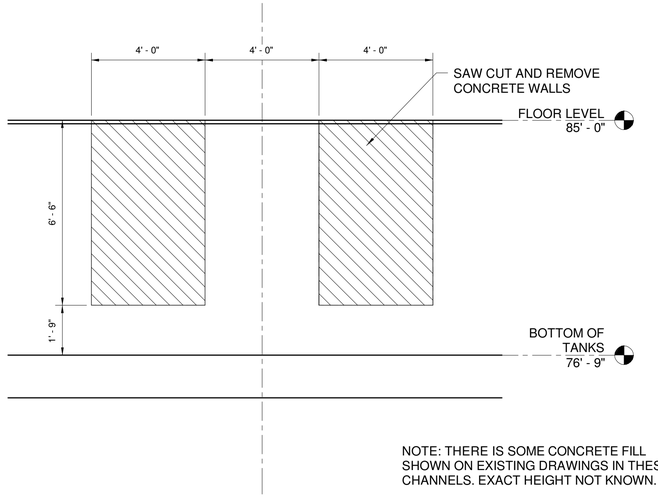
8' 4' 0 8'

PLAN NORTH



3 SECTION

3/8" = 1'-0"



NOTE: THERE IS SOME CONCRETE FILL SHOWN ON EXISTING DRAWINGS IN THESE CHANNELS. EXACT HEIGHT NOT KNOWN.

4 SECTION

3/8" = 1'-0"

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IN CHARGE OF	WAD
DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	KGP
0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE

ENGINEERS, INC.

220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
TERITARY FLILTERS/UV BUILDING
BASE AND FLOOR LEVEL DEMOLITION

FILE NO. 23374.51633-S500

DATE MARCH 19, 2015

S-500

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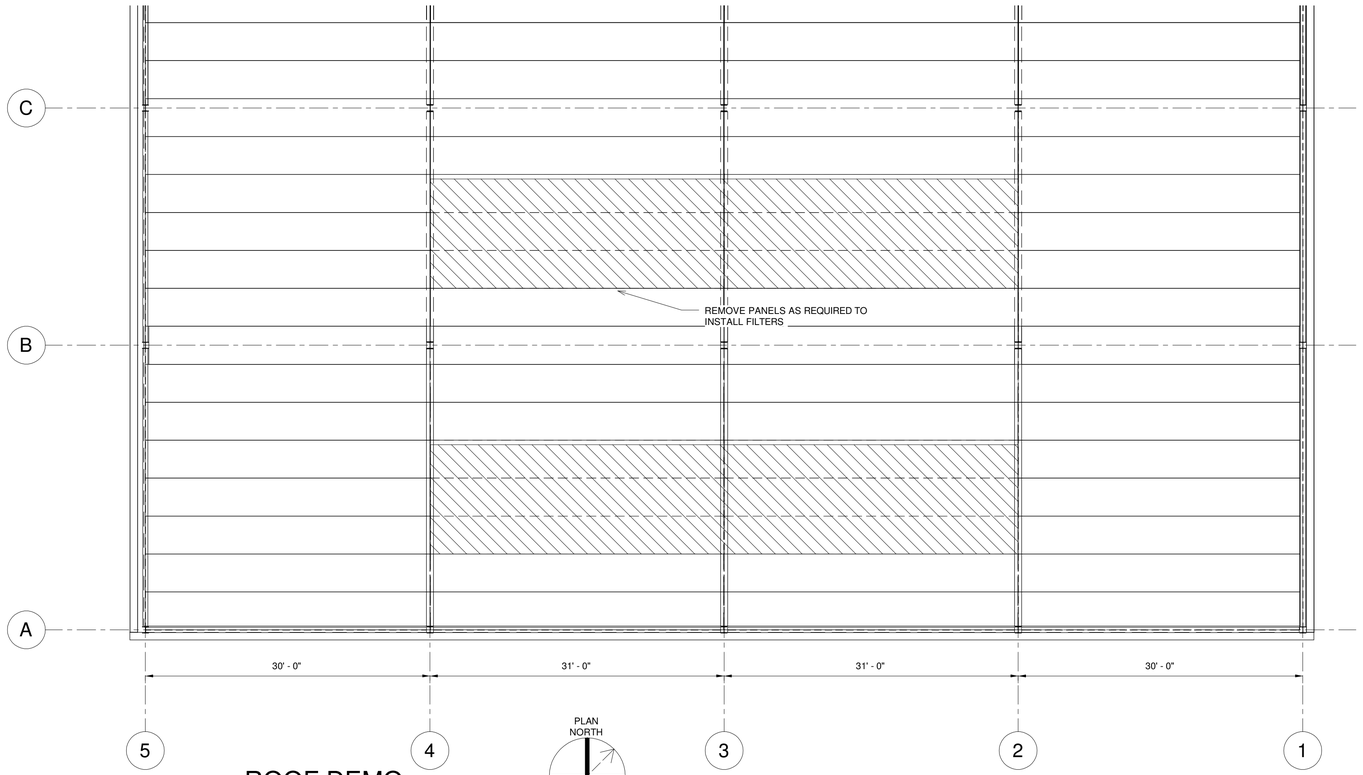

ROOF DEMO

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

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CHECKED BY	PCC
DRAWN BY	KGP

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0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

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ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
TERITARY FLILTERS/UV BUILDING

ROOF DEMOLITION

FILE NO. 23374.51633- 501

DATE MARCH 19, 2015

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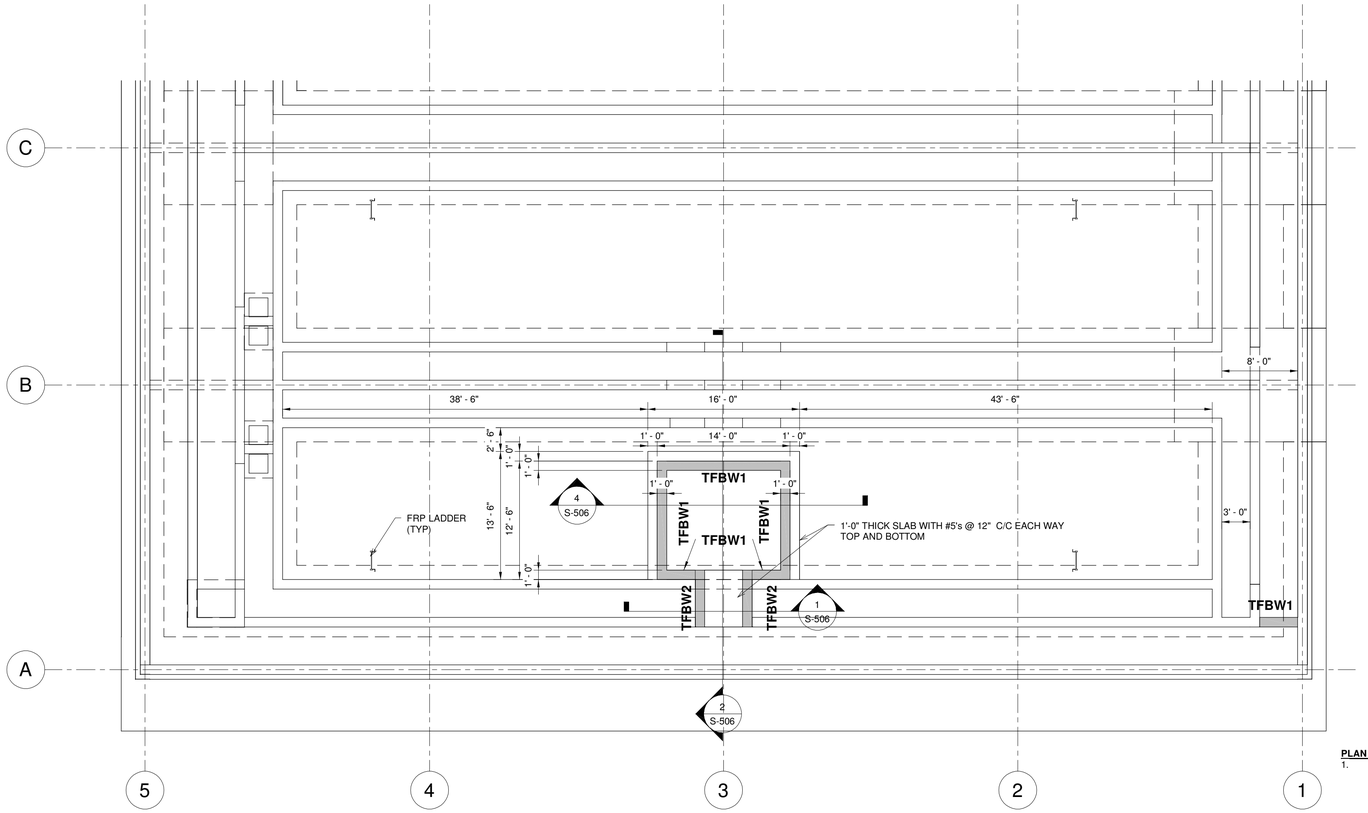

PLAN NOTES

1. TFBW# DESIGNATES TERTIARY BUILDING CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.

BASE LEVEL PLAN

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

PLAN NORTH

PLAN NOTES

1. TFBW# DESIGNATES TERTIARY FILTER BUILDING CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.

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IN CHARGE OF	WAD
DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	KGP
0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
TERITARY FLILTERS/UV BUILDING

BASE LEVEL PLAN

FILE NO. 23374.51633- 502

DATE MARCH 19, 2015

S-502

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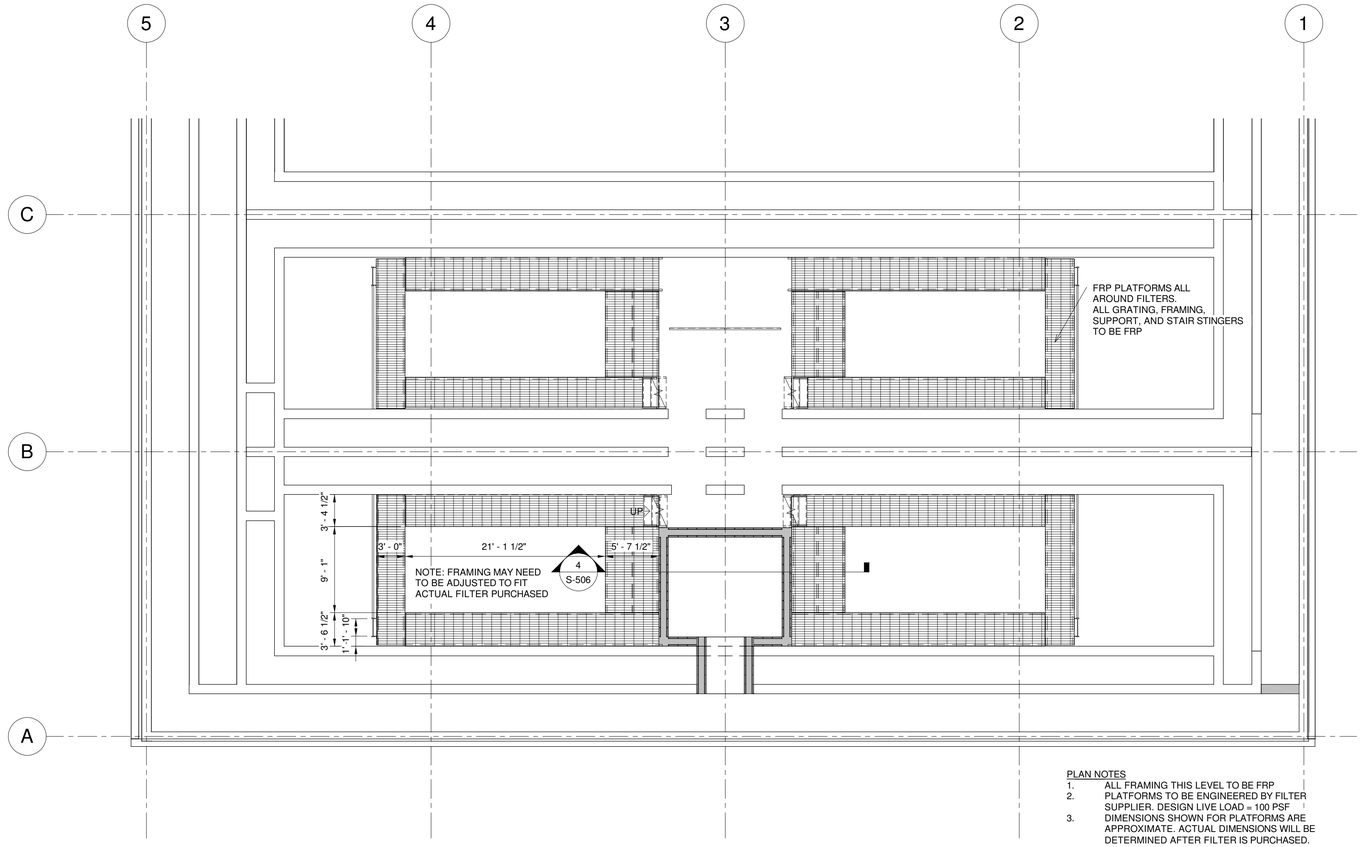

PLAN NOTES
1. ALL FRAMING THIS LEVEL TO BE FRP
2. PLATFORMS TO BE ENGINEERED BY FILTER SUPPLIER. DESIGN LIVE LOAD = 100 PSF
3. DIMENSIONS SHOWN FOR PLATFORMS ARE APPROXIMATE. ACTUAL DIMENSIONS WILL BE DETERMINED AFTER FILTER IS PURCHASED.

FILTER PLATFORM PLAN

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

PLAN NORTH

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CHECKED BY	PCC
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2013 WWTP IMPROVEMENTS
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STRUCTURAL
TERITARY FLILTERS/UV BUILDING

FILTER PLATFORM PLAN

FILE NO. 23374.51633- 503

DATE MARCH 19, 2015

S-503

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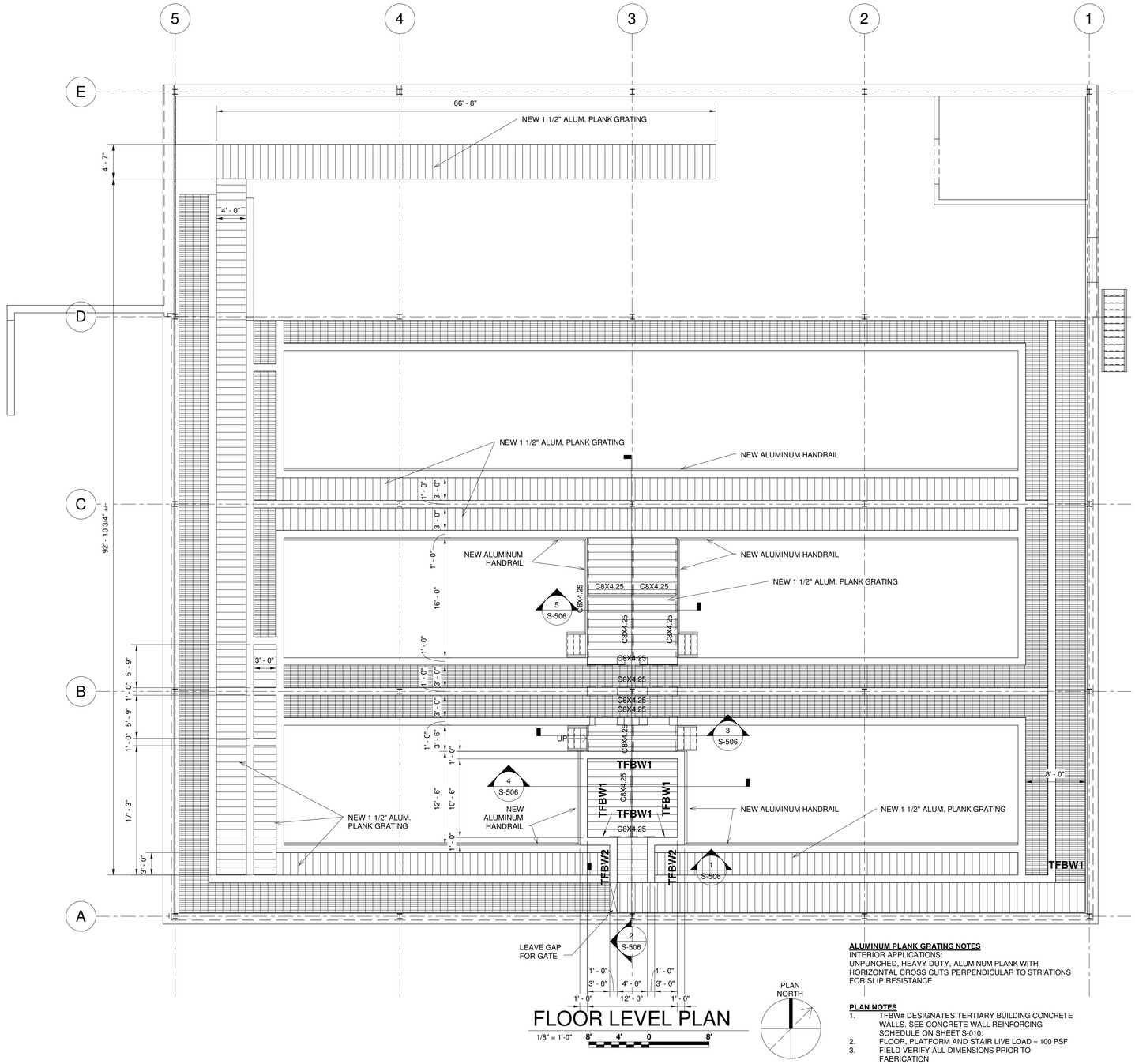

FLOOR LEVEL PLAN

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

ALUMINUM PLANK GRATING NOTES

INTERIOR APPLICATIONS:
UNPUNCHED, HEAVY DUTY, ALUMINUM PLANK WITH HORIZONTAL CROSS CUTS PERPENDICULAR TO STRIATIONS FOR SLIP RESISTANCE

PLAN NOTES

1. TFBW# DESIGNATES TERTIARY BUILDING CONCRETE WALLS. SEE CONCRETE WALL REINFORCING SCHEDULE ON SHEET S-010.
2. FLOOR, PLATFORM AND STAIR LIVE LOAD = 100 PSF
3. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION

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STRUCTURAL
TERITARY FLILTERS/UV BUILDING

FLOOR LEVEL PLAN

FILE NO. 23374.51633- 504
DATE MARCH 19, 2015

S-504

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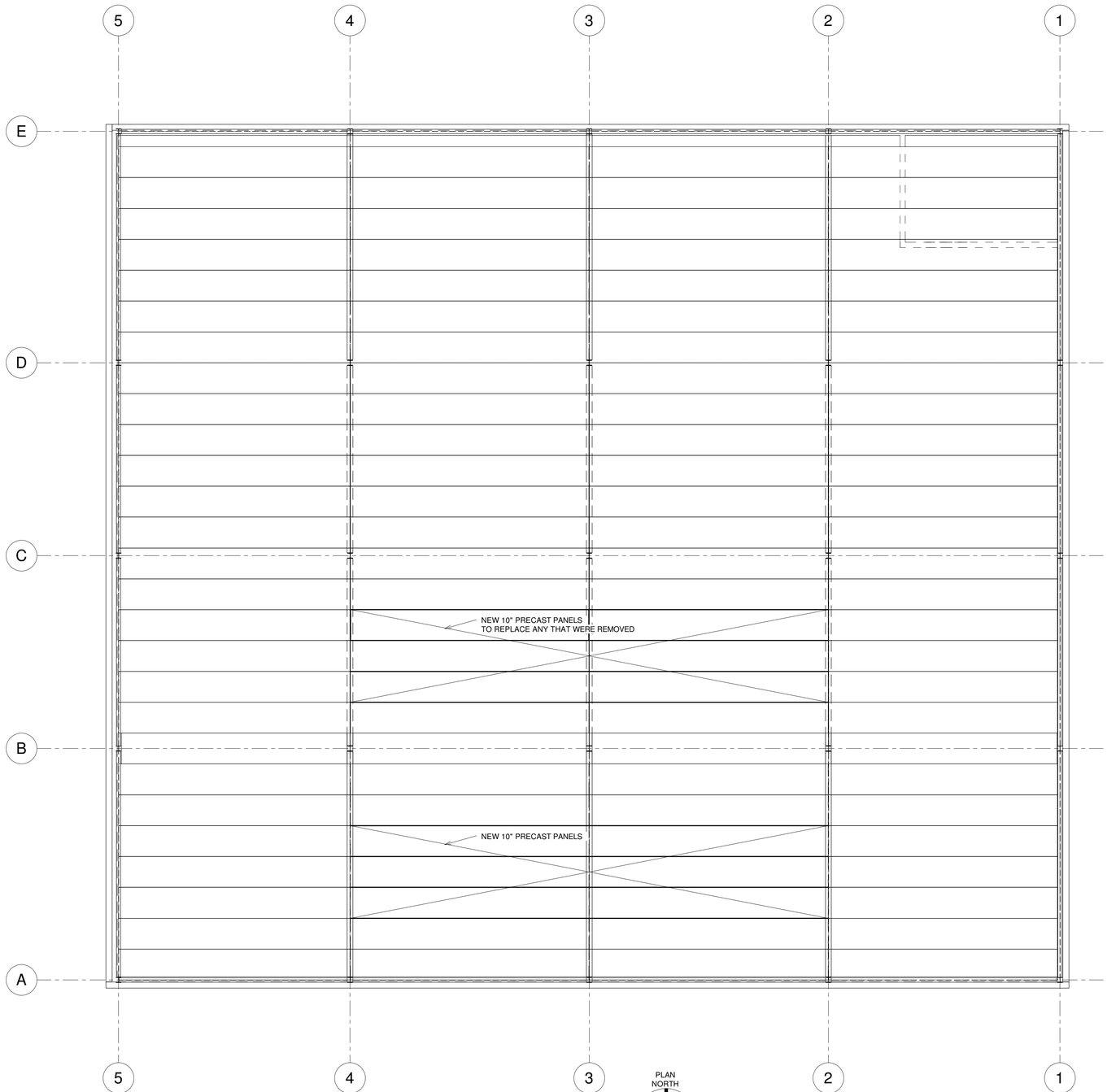

ROOF FRAMING PLAN

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

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CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
TERITARY FLILTERS/UV BUILDING

ROOF FRAMING PLAN

FILE NO. 23374.51633- 505

DATE MARCH 19, 2015

S-505

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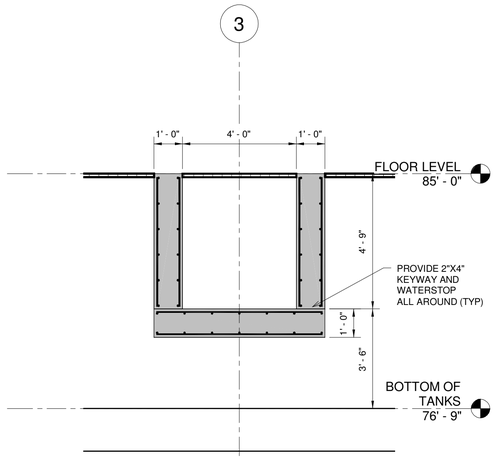
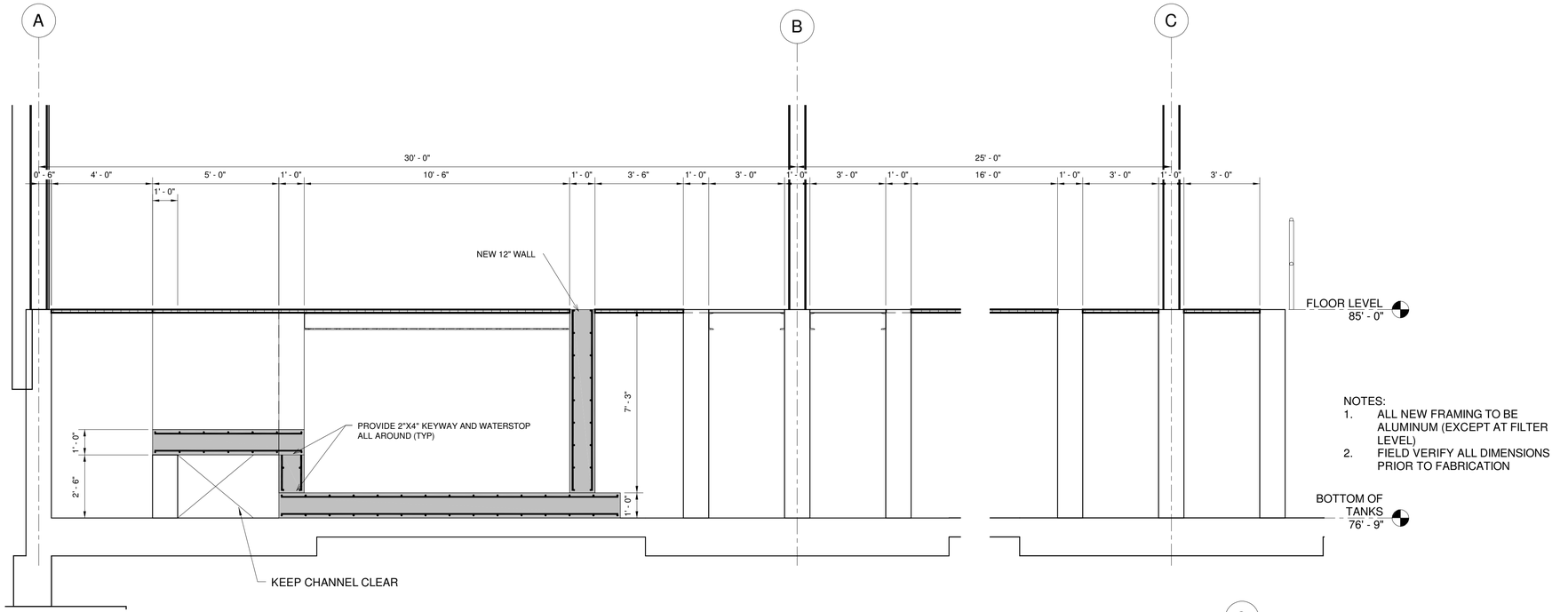
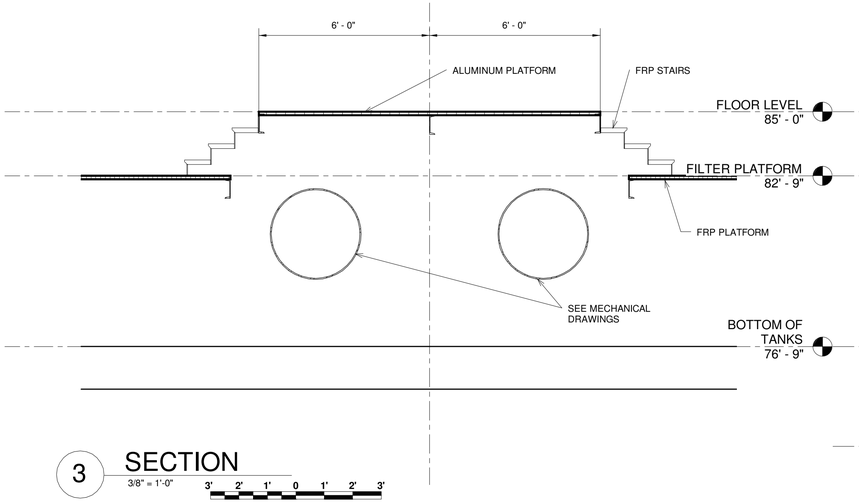


1 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'

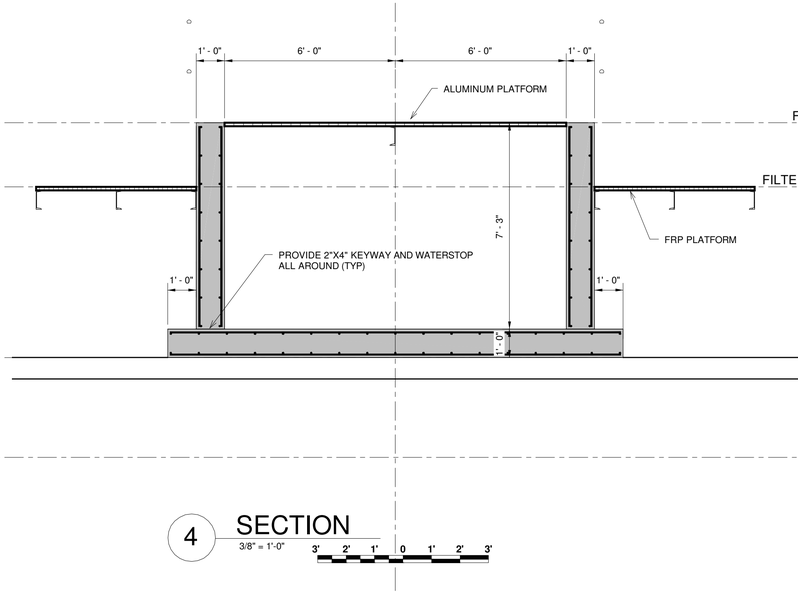


NOTES:
1. ALL NEW FRAMING TO BE ALUMINUM (EXCEPT AT FILTER LEVEL)
2. FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION

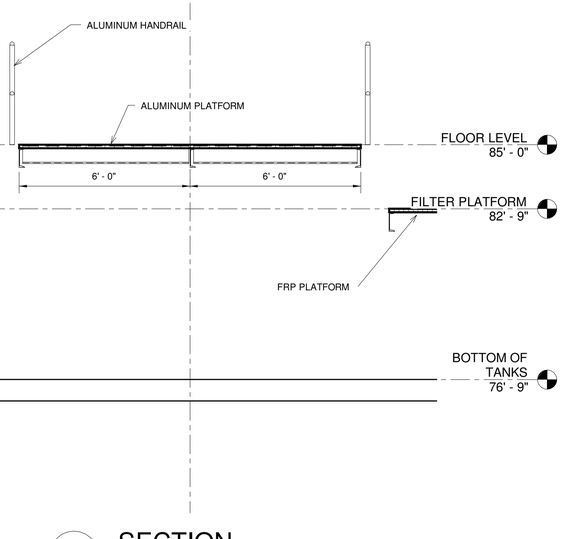
2 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'



3 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'



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



5 SECTION
3/8" = 1'-0"
3' 2' 1' 0 1' 2' 3'

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CHECKED BY	PCC
DRAWN BY	KGP

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0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

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ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
TERITARY FLILTERS/UV BUILDING

SECTIONS & DETAILS

FILE NO. 23374.51633- 506

DATE MARCH 19, 2015

S-506

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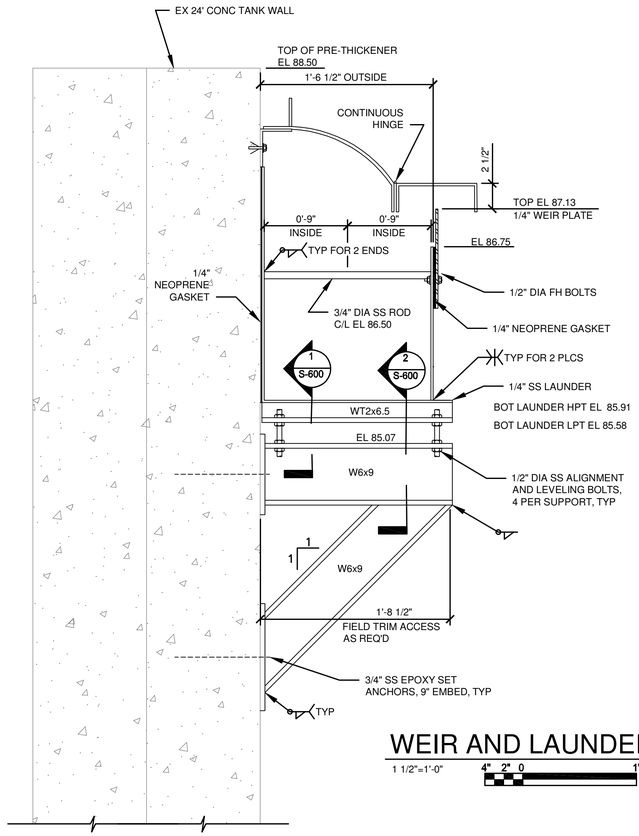
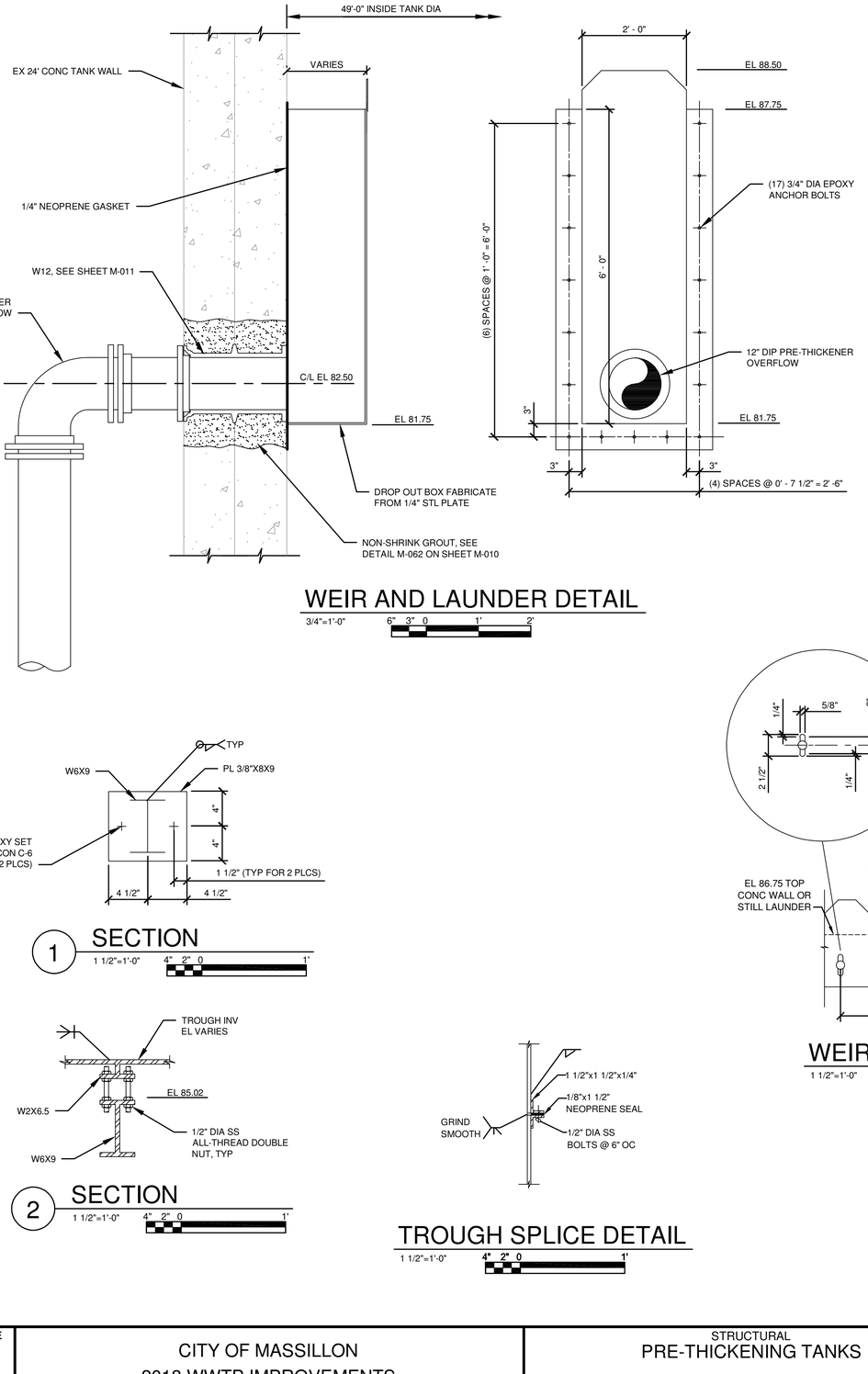


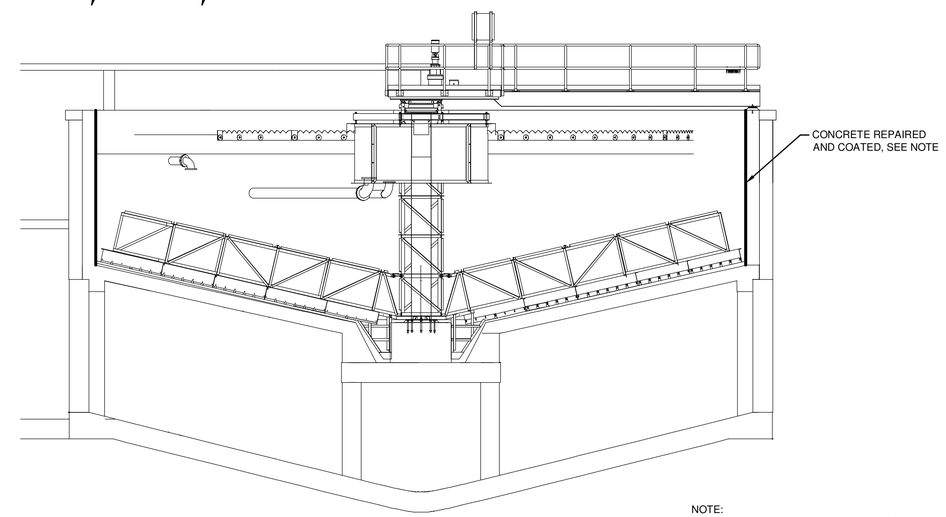
WEIR AND LAUNDER DETAIL

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



WEIR AND LAUNDER DETAIL

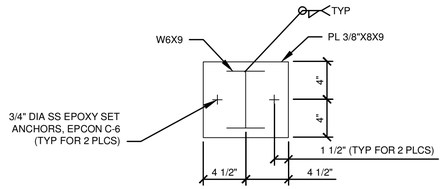
3/4"=1'-0" 6" 3" 0 1' 2'



EXISTING CONCRETE REPAIR DETAIL

NOT TO SCALE

NOTE:
ALL VERTICAL EXISTING CONCRETE SURFACE FOR THE INTERIOR OF THE PRE-THICKENED SHALL HAVE THE CONCRETE REPAIRED AND COATED.



1 SECTION

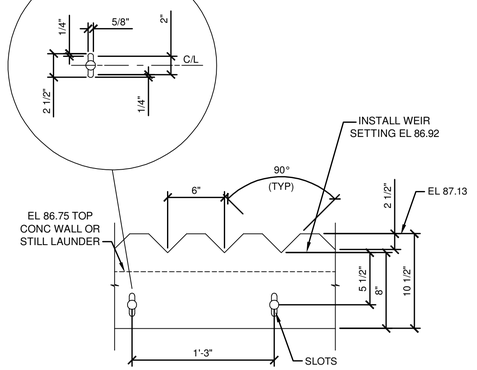
1 1/2"=1'-0" 4" 2" 0 1'

2 SECTION

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

TROUGH SPLICE DETAIL

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



WEIR DETAIL

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

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NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	KGP
0	03/19/2015	ISSUED FOR OEPA REVIEW	KGP

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
PRE-THICKENING TANKS

DETAILS

FILE NO. 23374.51633 -S600
DATE MARCH 19, 2015

S-600

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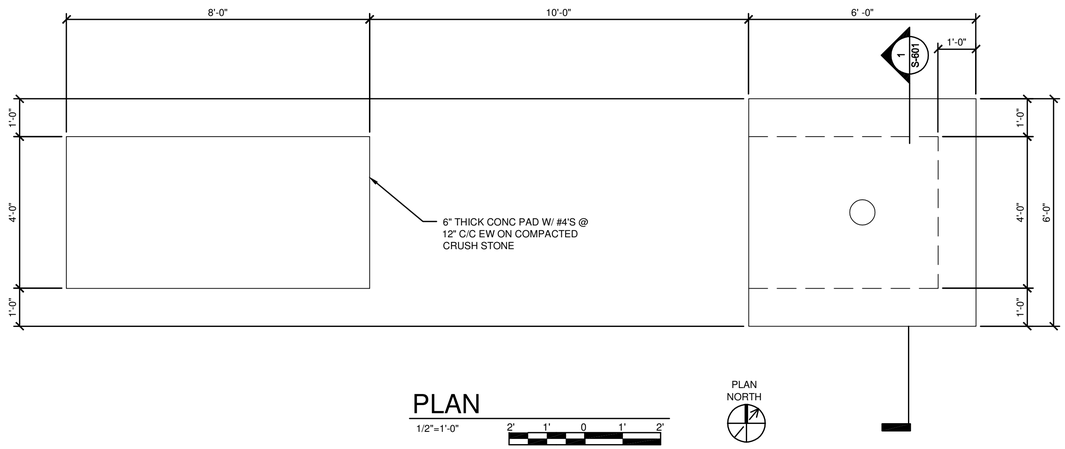
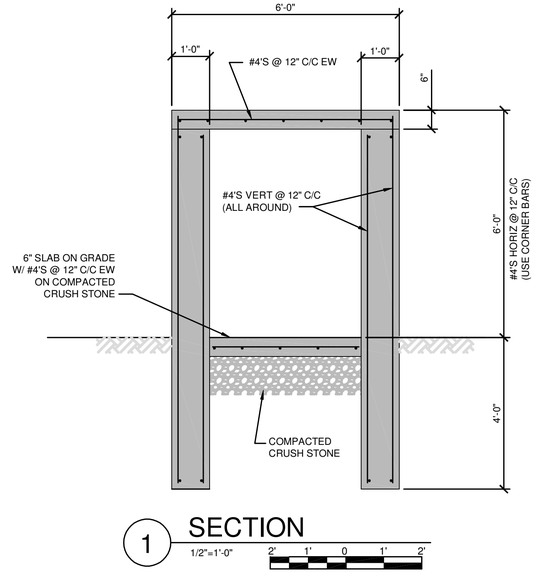


PLAN

1/2"=1'-0"

2' 1' 0 1' 2'

PLAN NORTH



1 SECTION

1/2"=1'-0"

2' 1' 0 1' 2'

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		NO.	DATE	REVISION

		KGP	
		KGP	
		INT.	

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
WASTE GAS BURNER

PLAN AND SECTION

FILE NO. 23374.51633 - S601

DATE MARCH 19, 2015

S-601

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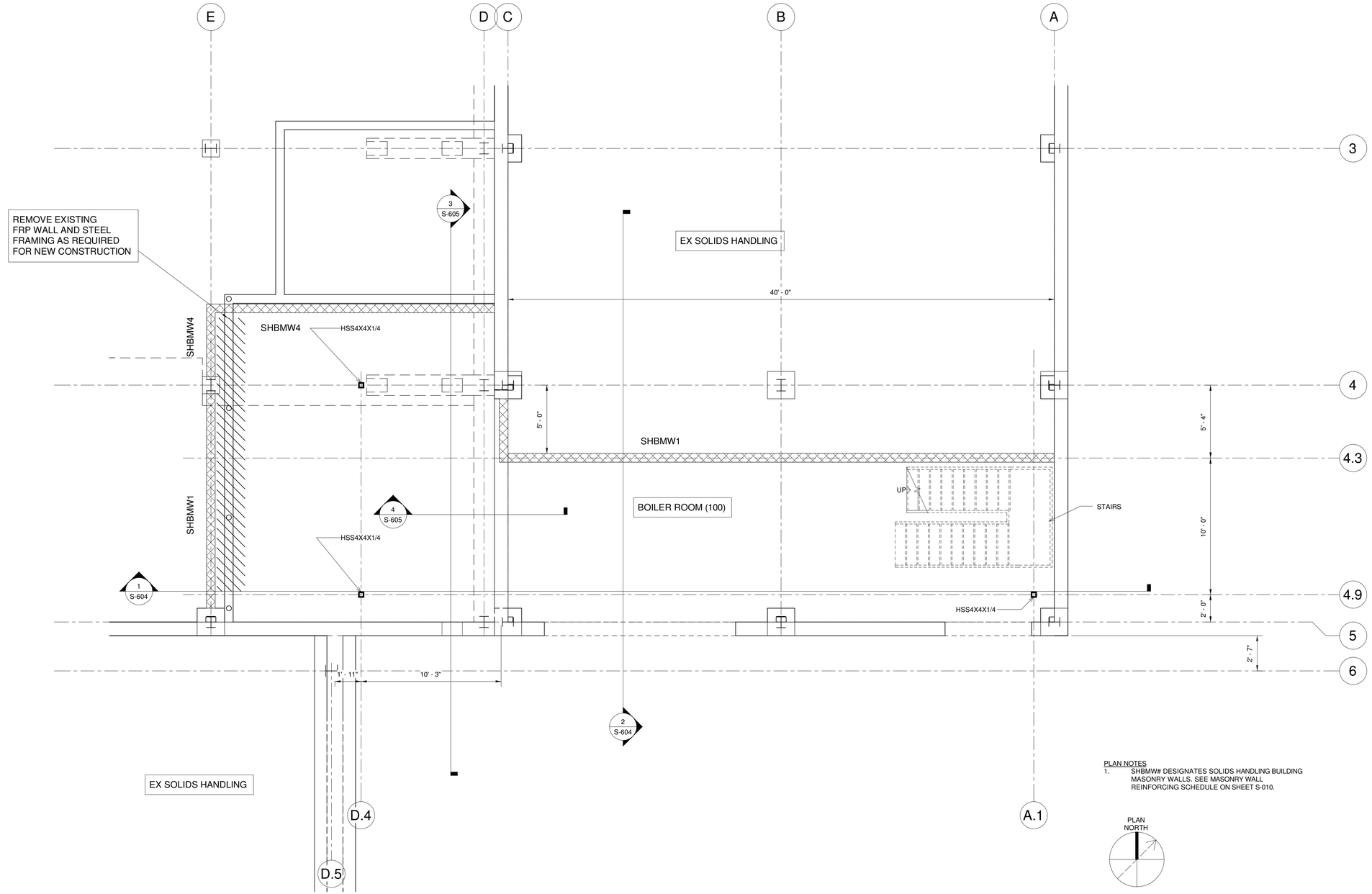

PLAN NOTES
1. SHBMW# DESIGNATES SOLIDS HANDLING BUILDING MASONRY WALLS. SEE MASONRY WALL REINFORCING SCHEDULE ON SHEET S-010.

FOUNDATION PLAN

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

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CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
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STRUCTURAL
SOLIDS HANDLING BUILDING

FOUNDATION PLAN

FILE NO. 23374.51633- 602

DATE MARCH 19,2015

S-602

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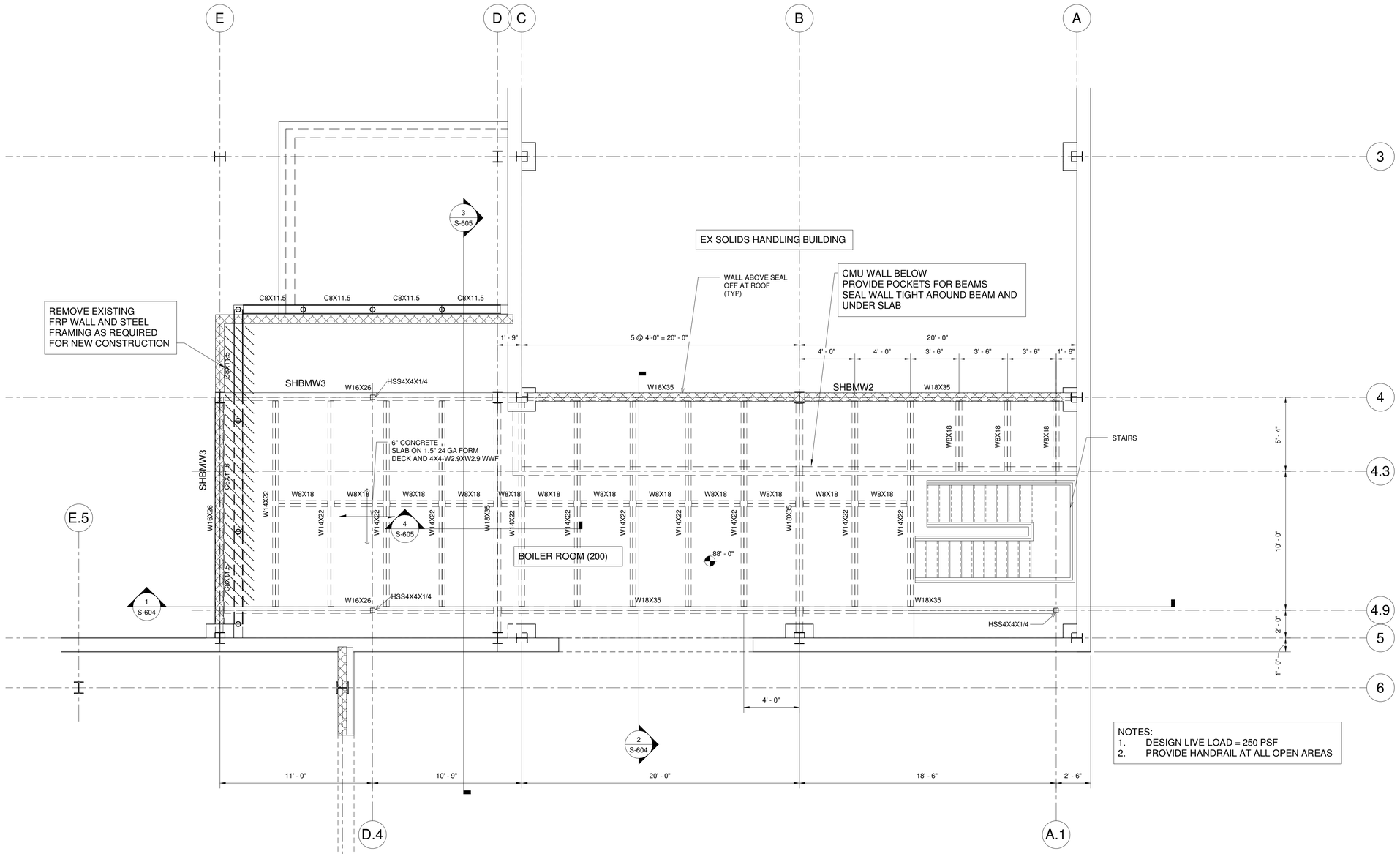

NOTES:
1. DESIGN LIVE LOAD = 250 PSF
2. PROVIDE HANDRAIL AT ALL OPEN AREAS

MEZZANINE FRAMING PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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SUITE 750
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CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
SOLIDS HANDLING BUILDING

MEZZANINE FRAMING PLAN

FILE NO. 23374.51633- 603

DATE MARCH 19,2015

S-603

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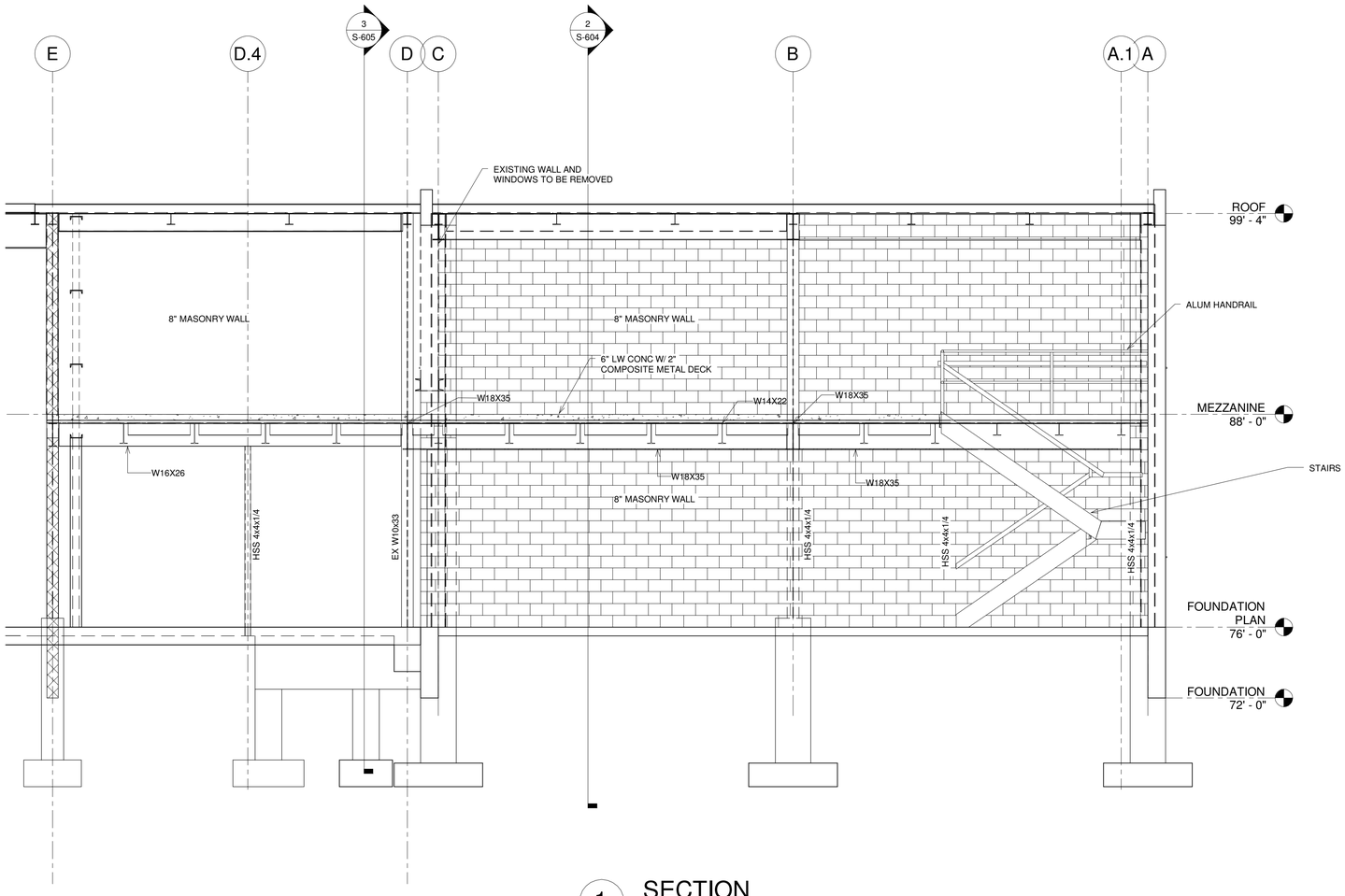
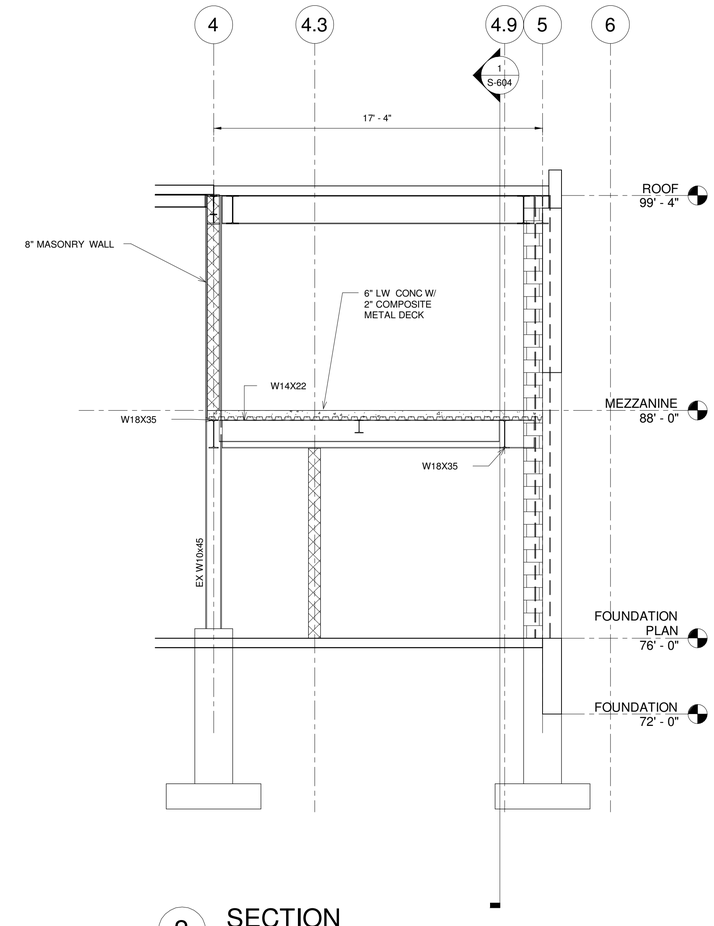


1 SECTION
1/4" = 1'-0"



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

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CHECKED BY	PCC
DRAWN BY	KGP

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
SOLIDS HANDLING BUILDING

SECTIONS

FILE NO.
23374.51633- 604

DATE
SEPT. 23, 2015

S-604

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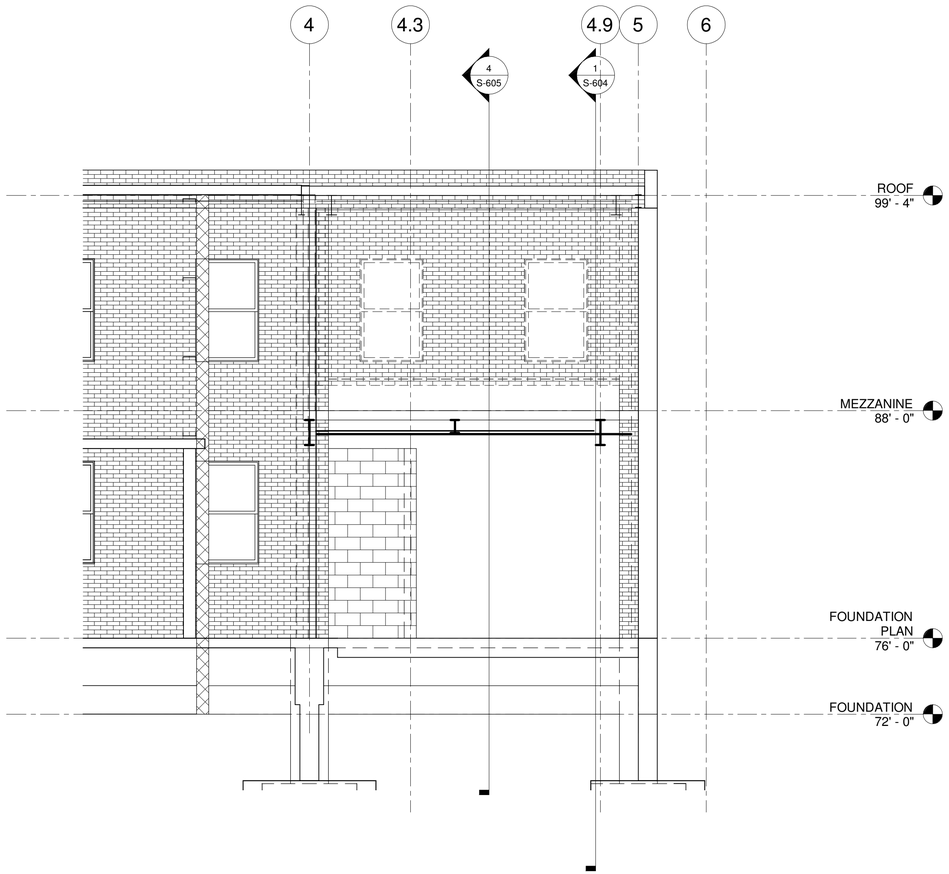
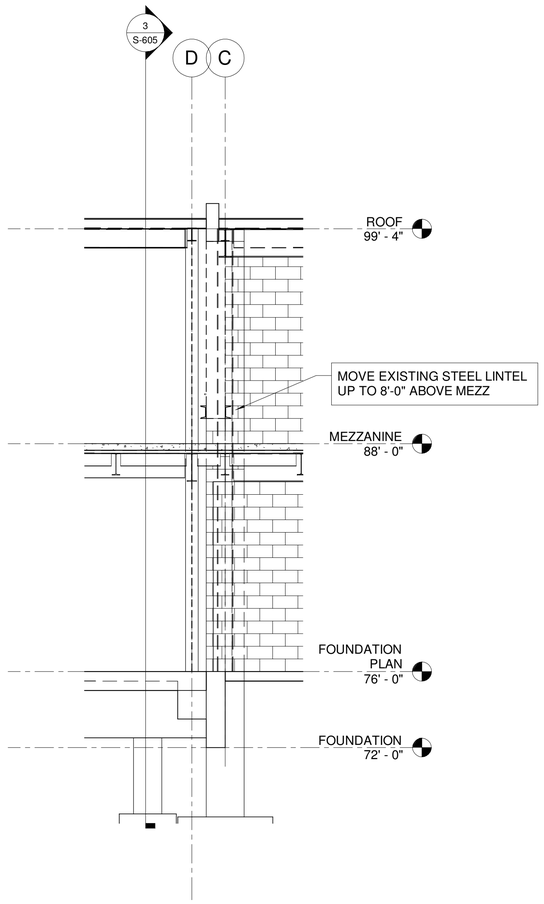


3 SECTION
1/4" = 1'-0"



4 SECTION
1/4" = 1'-0"

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IN CHARGE OF	WBD
DESIGNED BY	KGP
CHECKED BY	PCC
DRAWN BY	KGP

NO.	DATE	REVISION	INT.
0	9/23/15	ISSUED FOR BID	KGP

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON, OHIO
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

STRUCTURAL
SOLIDS HANDLING BUILDING

SECTIONS

FILE NO. 23374.51633- 605

DATE SEPT. 23, 2015

S-605

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PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPING
		PIPING
		FLANGED JOINT
		WELDED JOINT
		MECHANICAL JOINT
		SLEEVE-TYPE MECHANICAL COUPLING
		ELBOW UP
		ELBOW DOWN
		90° ELBOW
		45° ELBOW
		TEE UP
		TEE DOWN
		TEE
		CROSS
		LATERAL WYE UP
		LATERAL WYE DOWN
		LATERAL WYE
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		WYE
		STRAINER
		SEDIMENT TRAP
		TRAP
	CO	CLEANOUT
		DRAIN (PLAN)
		DRAIN (SCHEMATIC)
		QUICK CONNECTION
		FLEX CONNECTION

VALVE AND GATE SYMBOLS

- BUTTERFLY VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- GATE VALVE
- ECCENTRIC PLUG VALVE (SEAT END SHADED)
- COCK VALVE
- NEEDLE VALVE
- KNIFE GATE VALVE
- BALANCING VALVE
- DIAPHRAGM VALVE
- PINCH VALVE
- PRESSURE REDUCING VALVE
- BACK PRESSURE VALVE
- ANGLE VALVE
- ANGLE GATE VALVE
- ANGLE GLOBE VALVE
- 3 WAY VALVE
- 3 WAY BALL VALVE
- 3 WAY GLOBE VALVE
- TELESCOPING VALVE
- PRESSURE RELIEF VALVE
- BACKFLOW VALVE
- RPZ BACKFLOW VALVE
- MUD VALVE
- HB — HOSE BIB
- FC — FLUSHING CONNECTION
- ST — SAMPLE TAP
- FABRICATED GATE: SLIDE, SLUICE, WEIR GATE; STOP PLATE
- M — MOTOR OPERATED
- S — SOLENOID OPERATED
- PIG VALVE

FOR ABBREVIATIONS NOT NOTED HERE, SEE GENERAL ABBREVIATIONS SHEET.

MISCELLANEOUS SYMBOLS

- FLEXIBLE HOSE
- PRESSURE GAUGE
- CALIBRATION PIPE STAND
- POINT OF CONNECTION
- AIR VENT AUTO
- AIR VENT MANUAL
- ROTAMETER
- RUPTURE DISK
- PULSATION DAMPENER
- S — PIPE SLOPE
- PIPE CAP

PROCESS FLOW DESIGNATIONS

ABBREV.	DESCRIPTION
AHP	AIR, HIGH PRESSURE
ALP	AIR, LOW PRESSURE
DG	DIGESTER GAS
DGS	DIGESTED SLUDGE
DWL	DEWATERED SLUDGE
EFF	EFFLUENT
FC	FERRIC CHLORIDE
FS	FOAM SPRAY
GR	GRIT
HF	HYDRAULIC FILL
IFAS	INTEGRATED FIXED FILM ACTIVATED SLUDGE
INF	INFLUENT
IR	INTERNAL RECYCLE
NG	NATURAL GAS
NPW	NON-POTABLE WATER
PCE	PRIMARY CLARIFIER EFFLUENT
PCI	PRIMARY CLARIFIER INFLUENT
D, PD, PRD	PROCESS DRAIN
PSL	PRIMARY SLUDGE
PW	PLANT WATER
PY	POLYMER
RAW	RAW WASTEWATER
SA	SUPPLY AIR
SAM	SAMPLE
SCE	SECONDARY CLARIFIER EFFLUENT
SCI	SECONDARY CLARIFIER INFLUENT
SC, SCM	SCUM
SE	SECONDARY EFFLUENT
SI	SECONDARY INFLUENT
SL	SLUDGE
SW	SEAL WATER
TSL	THICKENED SLUDGE
W, PW	POTABLE WATER
WSE	WATER SURFACE ELEVATION
WSL	WASTE SLUDGE

PIPES, FITTINGS & MATERIALS DESIGNATIONS

ABBREV.	DESCRIPTION
B/	BOTTOM
C/L	CENTERLINE
CPLG	COUPLING
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
ECC	ECCENTRIC
EL	ELEVATION
FLG	FLANGE
INV	INVERT
MJ	MECHANICAL JOINT
SS	STAINLESS STEEL
T/	TOP
TYP	TYPICAL

VALVE DESIGNATIONS

ABBREV.	DESCRIPTION
ARV	AIR RELEASE VALVE
BFV	BUTTERFLY VALVE
BV	BALL VALVE
CV	CONTROL VALVE
CKV	CHECK VALVE
DV	DIAPHRAGM VALVE
FCV	FLOW CONTROL VALVE
GV	GATE VALVE
KGV	KNIFE GATE VALVE MOTOR
MOV	OPERATED VALVE MUD
MV	VALVE
PIV	PINCH VALVE
PLV	PLUG VALVE
PRV	PRESSURE RELIEF VALVE
RV	RELIEF VALVE
TV	TELESCOPING VALVE

MECHANICAL EQUIPMENT DESIGNATIONS

ABBREV.	DESCRIPTION
AC	AIR COMPRESSOR
BL	BLOWER
BS	BAR SCREEN
GC	GRIT CLASSIFIER
GDU	GRIT DEWATERING UNIT
GRU	GRIT REMOVAL UNIT
IFS	INLET FILTER SILENCER
MX	MIXER
OCS	ODOR CONTROL SYSTEM
PBU	POLYMER BLENDING UNIT
PC	PRIMARY CLARIFIER
PU	PUMP
SC	SECONDARY CLARIFIER
SIG	SLIDE GATE
ST	STRAINER
SUG	SLUICE GATE
SWC	SCREENINGS WASHER COMPACTOR
TA	TANK
WG	WEIR GATE

BUILDING AND STRUCTURE DESIGNATIONS

CODE	STRUCTURE
	HEADWORKS - 100 SERIES
IF	EX. INFLUENT STRUCTURE
FRBIV	NEW FLOW RETENTION BASIN INFLUENT FLOW MONITORING VAULT
FRBEM	EX. FLOW RETENTION BASIN EFFLUENT MONITORING STRUCTURE
RBER	EX. RETENTION BASIN ELECTRICAL ROOM
RBPS	EX. FLOW RETENTION BASIN PUMPING STATION
FRB	EX. FLOW RETENTION BASIN
PDSB	EX. PUMP DRIVE SCREEN BUILDING
GTB	EX. GRIT TANKS AND BUILDING
IV	INFLUENT FLOW METER VAULT (EX. METERING CHAMBER)
AB	EX. ADMINISTRATION BUILDING
ABPS	EX. ADMINISTRATION BUILDING PUMP STATION
FSB	FINE SCREENING BUILDING (EX. PRE-AERATION TANK)
	PRIMARY CLARIFICATION - 200 SERIES
PCFS	EX. PRIMARY CLARIFIER FLOW SPLITTER (FSB EFFLUENT CHANNEL)
PC	EX. PRIMARY CLARIFIERS 1-8
PSPS	EX. PRIMARY SLUDGE PUMPING STATION NO. 1-2
PEPS	PRIMARY EFFLUENT PUMP STATION (EX. PRIMARY GALLERY)
	BIOLOGICAL TREATMENT - 300 SERIES
RF	EX. ROUGHING FILTERS (DEMO)
ANT	ANAEROBIC TANK
AXT	ANOXIC TANK
AT	AERATION TANK
IR	INTERNAL RECYCLE ZONE
BB	EX. BLOWER BUILDING
	SECONDARY CLARIFICATION -400 SERIES
SCFS	SECONDARY CLARIFIER FLOW SPLITTER
SC	EX. SECONDARY CLARIFIERS 1-5
RW	EX. RAS WELL
RSMC	EX. RETURN SLUDGE METERING CHAMBER
	EX. SECONDARY GALLERY
	TERTIARY TREATMENT - 500 SERIES
TFB	EX. TERTIARY FILTER / UV BUILDING
	SOLIDS HANDLING- 600 SERIES
SHB	EX. SOLIDS HANDLING BUILDING (PREVIOUSLY CALLED FILTER BUILDING)
PT	PRE-THICKENERS (EX. SLUDGE BLENDING TANKS)
SHT	EX. THICKENED SLUDGE HOLDING TANK (ALSO KNOWN AS 40 K TANK)
DIG	EX. DIGESTERS
DCB	EX. DIGESTER CONTROL BUILDING
WGB	EX. WASTE GAS BURNERS
FPS	EX. FILTRATE PUMP STATION
	ANCILLARY FACILITIES - 700 SERIES
CSCB	EX. CHLORINE STORAGE CONTROL BUILDING (INCLUDING LAB)
SST	EX. SIDE STREAM STORAGE TANK
HRPS	EX. HIGH RIVER STAGE PUMP STATION
DCP	EX. DRAINAGE PUMP CHAMBER (STORMWATER COLLECTION SYSTEM)
IPW	EX. IN PLANT WATER WELL

INTERIOR AND EXTERIOR PROCESS PIPING SCHEDULE

(OVERVIEW SUMMARY - REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS)

PLANT PIPING SYSTEM	PIPE MATERIAL AND JOINING
PROCESS WASTEWATER PLANT/PROCESS DRAIN (GREATER THAN 3 INCH INTERIOR OR LOCATED BELOW STRUCTURES) PLANT/UTILITY WATER (GREATER THAN 3 INCH) POTABLE WATER (GREATER THAN 3 INCH) NON-POTABLE WATER (GREATER THAN 3 INCH) PLANT SEWER SEAL WATER PRIMARY SLUDGE (PS) WASTE SLUDGE (WSL) INTERNAL RECYCLE (IR) THICKENED SLUDGE (TSL) OTHER SLUDGES NOT LISTED ELSEWHERE SCUM	DUCTILE IRON PIPE, DUCTILE IRON FITTINGS AND SPECIALS; PIPING AND FITTINGS TO BE FLANGED JOINTS FOR INTERIOR OR ABOVE GRADE SERVICE; PIPING AND FITTINGS TO BE RESTRAINED JOINTS FOR BURIED SERVICE WHERE SPECIFIED. PIPE, PIPE FITTINGS AND SPECIALS TO BE CEMENT-LINED; THICKNESS/PRESSURE CLASS OF PIPE AND FITTINGS TO BE AS SPECIFIED.
AERATION PROCESS AIR (ALP)	ABOVE GRADE AND INTERIOR: STAINLESS STEEL, TYPE 304L BELOW GRADE: DUCTILE IRON PIPE, DUCTILE IRON FITTINGS AND SPECIALS; PIPING AND FITTINGS TO BE FLANGED JOINTS FOR INTERIOR OR ABOVE GRADE SERVICE; PIPING AND FITTINGS TO BE RESTRAINED JOINTS FOR BURIED SERVICE. PIPE, PIPE FITTINGS AND SPECIALS TO BE CEMENT-LINED; THICKNESS/PRESSURE CLASS OF PIPE AND FITTINGS TO BE AS SPECIFIED.
POLYMER SOLUTION (PY) FERRIC CHLORIDE (FC)	CPVC, ASTM D-1784 CLASS 23447-B TYPE IV GRADE 1 SCHEDULE 80 PIPE AND FITTINGS. SOLVENT WELDED JOINTS. HEAT TRACE AND INSULATE. DOUBLE WALLED CONTAINMENT PIPING SHALL BE USED FOR PIPING ROUTED OUTSIDE OF CHEMICAL CONTAINMENT AREAS.
PLANT/UTILITY WATER (3 INCHES AND LESS) NON-POTABLE WATER (3 INCHES AND LESS)	PVC TYPE 1, SCHEDULE 80 PIPE AND FITTINGS; COPPER TYPE K.
PLANT/PROCESS DRAIN (PRD YARD PIPING GREATER THAN 3 INCH NOT LOCATED BELOW STRUCTURES)	PVC SDR 35, ASTM D-3034 PER SECTION 40 05 13.20 PVC NON-PRESSURE PIPE
COMPRESSED AIR (AHP) (SA)	304 S.S. WELDED
GRIT (GR)	DUCTILE IRON PIPE. DUCTILE IRON FITTINGS AND SPECIALS. PIPING AND FITTINGS TO BE FLANGED JOINTS FOR INTERIOR OR ABOVE GRADE SERVICE. PIPING AND FITTINGS TO BE RESTRAINED JOINTS FOR BURIED SERVICE WHERE SPECIFIED. PIPE, PIPE FITTINGS AND SPECIALS TO BE GLASS LINED. THICKNESS/PRESSURE CLASS OF PIPE AND FITTINGS TO BE AS SPECIFIED.
DIGESTER GAS (DG)	SCH 40 304 L STAINLESS STEEL, WELDED JOINTS
FOAM SPRAY (FS)	SCH 40 TYPE 304 STAINLESS STEEL; GROOVED JOINTS ABOVE GRADE, BUTT-WELDED JOINTS BELOW GRADE.
SUMP PUMP DISCHARGE	SCH 40 GALVANIZED STEEL PIPE. SEE SECTION 22 13 16
PLANT PROCESS DRAIN (PRD) - 3 INCHES AND LESS	PVC TYPE 1, SCH 40 PIPE AND FITTINGS. SOLVENT WELDED JOINTS

GENERAL MECHANICAL NOTES:

1. SEE ELECTRICAL DRAWINGS FOR HAZARDOUS (CLASSIFIED) LOCATIONS.
2. PROVIDE HIGH POINT VENTS AND LOW POINT DRAINS ON PIPING SYSTEMS, WITH 1/2" BALL VALVE AND NPT HOSE CONNECTION.
3. SEE PROCESS MECHANICAL INSULATION SPECIFICATION 40 42 00 FOR INSULATION SCHEDULE.
4. SEE ELECTRICAL DRAWINGS FOR HEAT TRACING SCHEDULE.
5. SECONDARY CONTAINMENT PIPING SHALL BE AS SPECIFIED IN SECTION ENTITLED "COMMON WORK RESULTS FOR PROCESS PIPING".
6. EXISTING UTILITIES AND STRUCTURES SHOWN ON THESE PLANS HAVE BEEN DEVELOPED FROM AVAILABLE RECORD DRAWINGS LISTED BELOW, PROVIDED BY THE CITY OF MASSILLON AND SHALL BE VERIFIED BY THE CONTRACTOR TO THEIR SATISFACTION PRIOR TO CONSTRUCTION. ANY DISCREPANCY SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND STRUCTURES AND ANY DAMAGE TO SUCH SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
   - CITY OF MASSILLON, SEWAGE TREATMENT WORKS, PREPARED BY GEORGE B. GASCOIGNE - CONSULTING SANITARY ENGINEER, DATED JUNE 1953.
   - CITY OF MASSILLON, SEWAGE TREATMENT PLANT IMPROVEMENTS CONTRACT NO. 2, PREPARED BY FLOYD G. BROWNE & ASSOCIATES, DATED JUNE 1959.
   - CITY OF MASSILLON, SEWAGE TREATMENT PLANT IMPROVEMENTS CONTRACT NO. 4, PREPARED BY FLOYD G. BROWNE & ASSOCIATES, DATED JULY 1973.
   - CITY OF MASSILLON, WASTEWATER TREATMENT PLANT IMPROVEMENTS, PREPARED BY URS CONSULTANTS, INC., DATED JUNE 1995.
   - CITY OF MASSILLON, REGIONAL WASTEWATER TREATMENT PLANT UPGRADE 2000, PREPARED BY CTI ENVIRONMENTAL, INC., DATED 2000.
7. CONTRACTOR SHALL NOTIFY DOMINION EAST OHIO DISTRIBUTION AND TRANSMISSION PUBLIC AUTHORITY (330-266-2136), SBC AMERITECH (330-384-8057), OHIO EDISON (330-830-7085), AQUA OHIO (330-833-4156) AND MASSILLON CABLE TV (330-833-4134) TEN (10) WORKING DAYS BEFORE STARTING CONSTRUCTION.
8. ALL WORK SHALL BE CONFINED WITHIN THE LIMITS OF CITY OWNED PROPERTY AND RIGHT-OF-WAY.
9. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLETE SUCH WORK, AT NO ADDITIONAL COST TO THE CONTRACT.
10. THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE EXISTING CITY OF MASSILLON WASTEWATER TREATMENT FACILITY INCLUDING PROCESS TREATMENT UNITS WITHIN AT ALL TIMES.
11. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS APPLICABLE TO CONSTRUCTION OF THIS PROJECT. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND PAY THE REQUIRED FEES.
12. THE CONTRACTOR SHALL LIMIT THEIR WORK AREA TO AREAS DESIGNATED HEREIN. ON-SITE STORAGE AND STAGING AREA SHALL BE DESIGNATED PRIOR TO CONSTRUCTION AND APPROVED BY THE OWNER AND ENGINEER.
13. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS ON ALL LOCATIONS WHERE EXISTING UTILITIES ARE TO BE CROSSED OR ALTERED OR WHERE NEW CONSTRUCTION TIES INTO EXISTING FACILITIES. THE CONTRACTOR SHALL PROVIDE FITTINGS AND ADAPTERS AS REQUIRED TO EFFECT ALTERATIONS, IF ANY.
14. IN GENERAL, BOLD LINE WEIGHT (OR BOLD TEXT) INDICATES NEW WORK. EXISTING STRUCTURES AND EQUIPMENT ARE CALLED FOR AS "EXISTING" OR INDICATED IN LIGHT LINE WEIGHT. INDIVIDUAL DRAWINGS MAY HAVE SPECIFIC NOTATIONS FOR CLARITY BETWEEN NEW AND EXISTING WORK.
15. EBAA IRON CO. MEGA-FLANGE ADAPTER (F.A.), OR APPROVED EQUAL, SHALL BE INSTALLED ON ONE SIDE (FL-PE) OF FLANGED PIPING CONNECTIONS FOR FL-FL VALVES AND FLOW METERS.

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DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY BNL

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

SYMBOLS AND ABBREVIATIONS

FILE NO. 23374.51633 - M001
DATE MARCH 19, 2015

M-001

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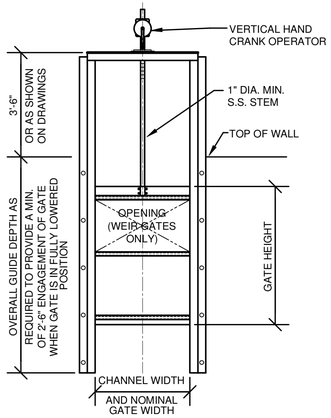
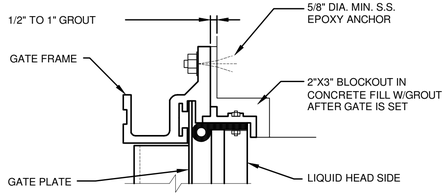


ELEVATION
NOT TO SCALE



HORIZONTAL SECTION
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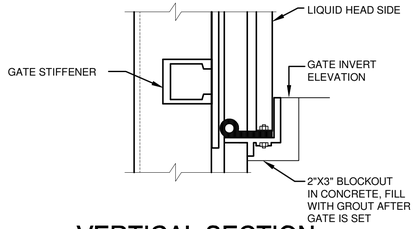


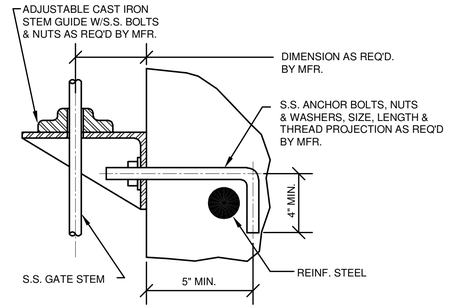
VERTICAL SECTION
NOT TO SCALE

FABRICATED WEIR/SLIDE GATE DETAILS
NOT TO SCALE

NOTES

1. COORDINATE GATE MOUNTING WITH MANUFACTURER'S RECOMMENDATIONS.
2. OPERATORS SHOWN ARE REPRESENTATIVE AND ARE NOT RELATED TO STYLE OF GATE.
3. FOR EMBEDDED WEIR CROSS SECTION PROVIDE 5"X7" BLOCKOUT IN CONCRETE AND FILL WITH GROUT AFTER GATE IS SET.

M-001

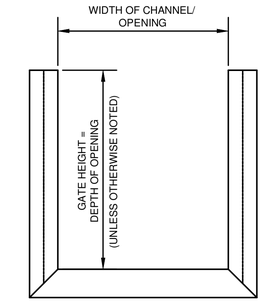


STEM GUIDE INSTALLATION DETAIL
NOT TO SCALE

NOTES

1. COORDINATE GATE STEM SUPPORT WITH GATE MANUFACTURER'S RECOMMENDATIONS.

M-002



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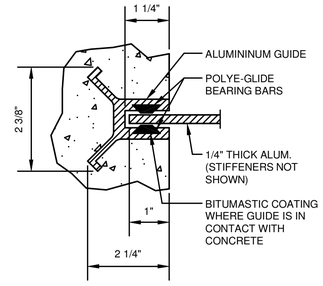
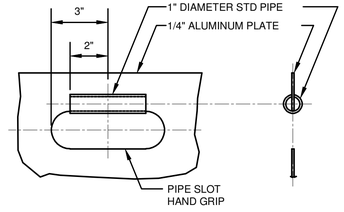
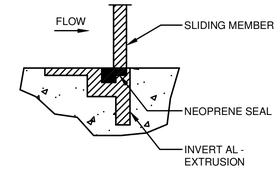


PLAN
(EMBEDDED GUIDE FRAME TYPE)



HAND GRIPS



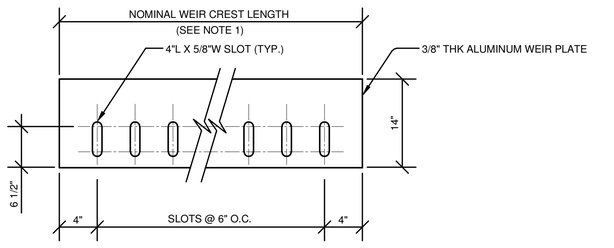
INVERT
(EMBEDDED GUIDE FRAME TYPE)

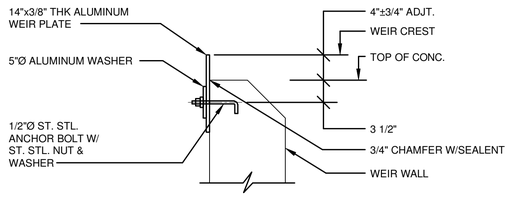
HAND LIFT STOP PLATE DETAIL
NOT TO SCALE

NOTES:

1. STOP PLATES SHALL BE OF THE FABRICATED ALUMINUM SLIDE GATE TYPE AS MANUFACTURED BY "WASHINGTON ALUMINUM COMPANY (WACO)" - SERIES 4000 OR APPROVED EQUAL.
2. GUIDE FRAME SHALL BE EMBEDDED AND SHALL BE EXTRUDED ALUMINUM, INCORPORATING ULTRA HIGH MOLECULAR WEIGHT POLYMER (UHMW) BEARING BARS. THE UHMW BEARING BARS SHALL REDUCE THE COEFF. OF FRICTION TO 0.125. FRAME SHALL HAVE FLUSH BOTTOM INVERT.
3. THE SLIDING MEMBER SHALL BE 1/4" ALUMINUM PLATE, REINFORCED AS REQUIRED TO LIMIT DEFLECTION TO 1/360 OR LESS OF THE SPAN OF THE PLATE UNDER THE DESIGN HEAD. ALL OTHER PARTS OF THE GATE SHALL HAVE MIN. THICKNESS OF 1/4". GATES WIDER THAN 7'-0" SHALL BE DESIGNED FOR DEFLECTION OF LESS THAN 1/720 OF THE SPAN OF THE GATE UNDER THE DESIGN HEAD.
4. HAND LIFT PLATES SHALL BE PROVIDED WITH A SINGLE PIPE HANDSLOT FOR PLATES UP TO 3'-0" WIDE AND DUAL PIPE HAND SLOTS IF WIDER THAN 3 FEET. PROVIDE EXTENDED LIFT HANDLES WHERE SHOWN ON THE DRAWINGS.

M-003





STRAIGHT EDGE WEIR PLATE DETAIL
NOT TO SCALE

NOTES:

1. FOR END-CONTRACTED WEIRS, PLATE LENGTHS SHALL BE WEIR CREST LENGTH + 12".

M-004

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		WJM
		WJM
		INT.

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 1

FILE NO. 23374.51633 -M002

DATE MARCH 19, 2015

M-002

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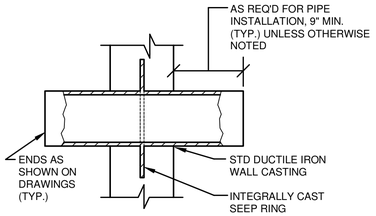


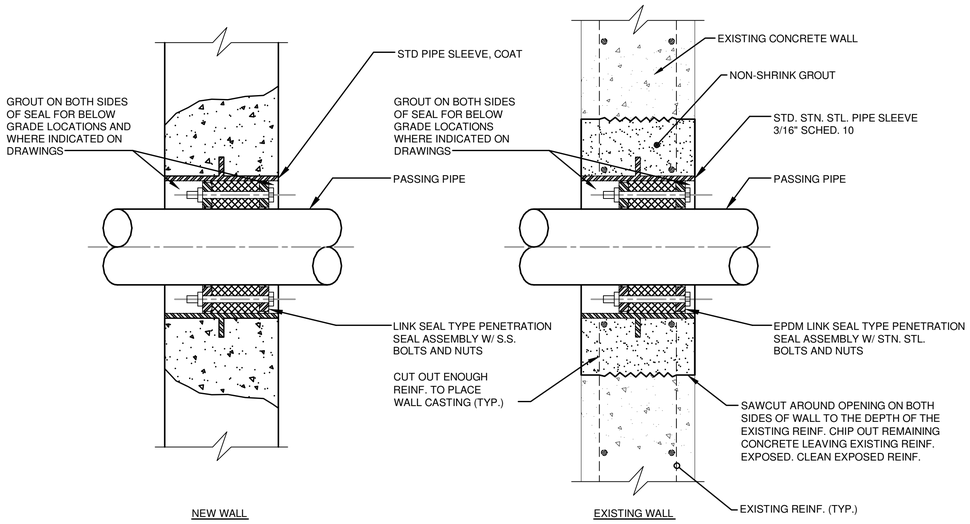
NOTES:

1. COAT WALL CASTING WITH PAINT SYSTEM PRIOR TO CONCRETE PLACEMENT.

DUCTILE IRON WALL CASTING DETAIL

NOT TO SCALE

M-005



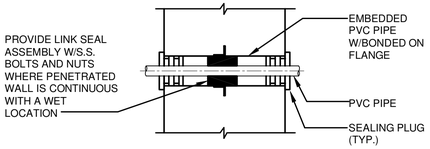
NOTES:

1. TYPICAL FOR "FLOOR SLEEVE" AND "WALL SLEEVE" WHERE INDICATED.

MISC. PIPE WALL PENETRATION DETAIL

NOT TO SCALE

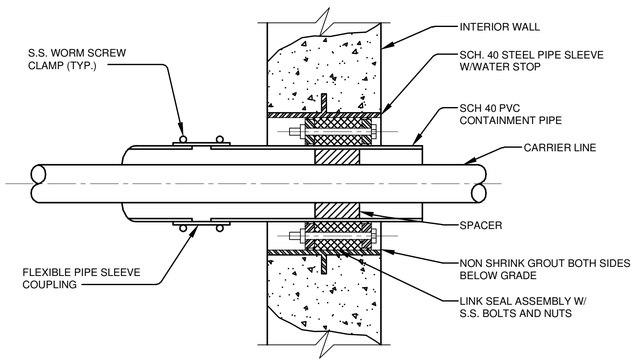
M-006



PVC PIPE WALL PENETRATION DETAIL

NOT TO SCALE

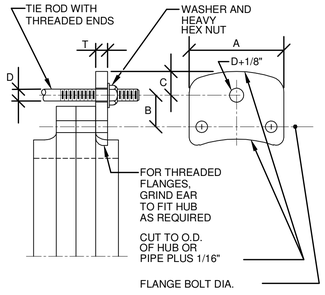
M-007

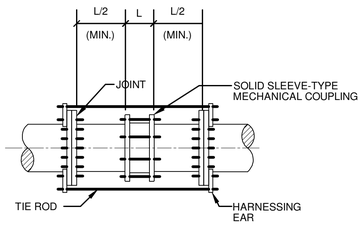


CONTAINMENT PIPE WALL PENETRATION DETAIL

NOT TO SCALE

M-008





HARNESSING EAR AND TIE ROD SCHEDULE

NOMINAL PIPE SIZE (IN.)	"A" (IN.)	"B" (IN.)	"C" (IN.)	TEST PRESSURE < 15 PSI			15 PSI < TEST PRESSURE < 150 PSI		
				"T" (IN.)	"D" (IN.)	QTY REQ'D	"T" (IN.)	"D" (IN.)	QTY REQ'D
4	7 1/2	2 1/2	1 1/4	5/8	5/8	2	5/8	5/8	2
6	7 1/2	2 1/2	1 1/4	5/8	5/8	2	5/8	5/8	2
8	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/4	5/8	2
10	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/4	3/4	2
12	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/4	3/4	4
14	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/4	3/4	4
16	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/4	1	4
18	7 1/2	2 1/2	1 1/4	5/8	5/8	2	1 1/2	1	4
20	7 1/2	3	1 1/2	5/8	5/8	2	1 1/2	1 1/4	4
24	7 1/2	3	1 1/2	3/4	5/8	2	2	1 1/4	4
30	7 1/2	3	1 1/2	3/4	5/8	4	2	1 1/4	7
36	7 1/2	3	1 1/2	1	5/8	4	2	1 1/2	8
42	7 1/2	3	1 1/2	1	3/4	4	2 1/4	1 1/2	9
48	7 1/2	3	1 1/2	1	1	4	2 1/4	1 1/2	11

NOTES:

1. ROD MATERIAL SHALL HAVE A MINIMUM YIELD STRENGTH OF 70,000 PSI.
2. EAR MATERIAL SHALL CONFORM TO ASTM A-36.
3. HARNESSING EARS SHALL BE EQUALLY SPACED AROUND PIPE.

M-009

HARNESSING EAR & TIE ROD DETAIL

NOT TO SCALE

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DESIGNED BY	ISK/KAW
CHECKED BY	WJM
DRAWN BY	BNL

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1	9/23/2015	ISSUED FOR BID	WJM
0	3/19/2015	ISSUED FOR OEPA REVIEW	WJM

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 2

FILE NO. 23374.51633 - M003

DATE MARCH 19, 2015

M-003

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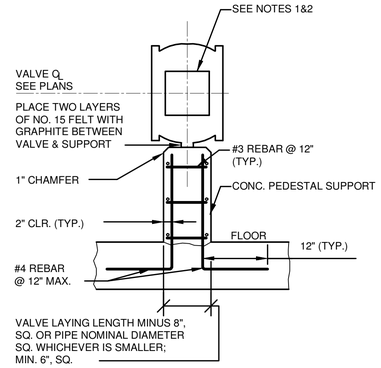


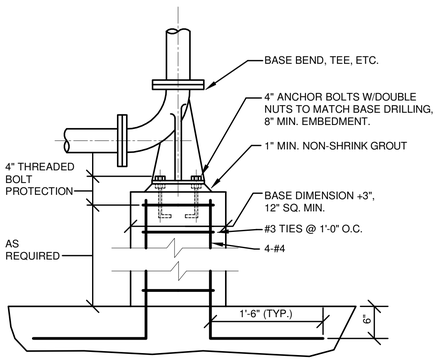
NOTES:

1. INSTALL ECCENTRIC PLUG VALVES WITH STEMS HORIZONTAL.
2. THE PLUG SHALL STORE IN THE TOP WHEN THE VALVE IS OPEN.
3. INSTALL BUTTERFLY VALVES WITH STEMS HORIZONTAL.

VALVE SUPPORT DETAIL

NOT TO SCALE

M-010



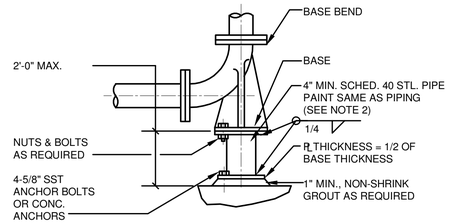
NOTES:

1. ALSO USE FOR SUPPORT OF HORIZONTAL TEE OR CROSS.
2. ANCHOR BOLTS MUST BE AT LEAST 6 DIAMETERS FROM EDGE OF CONCRETE.

BASE BEND DETAIL - TYPE "A"

NOT TO SCALE

M-011



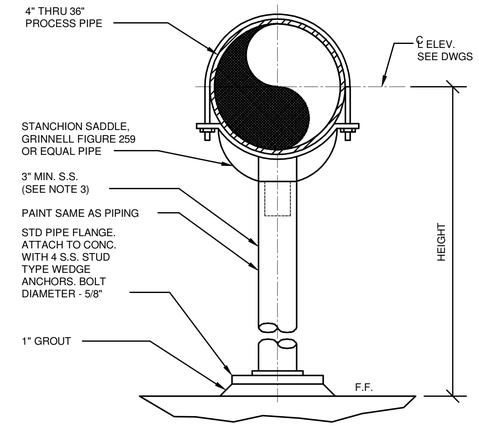
NOTES:

1. ALSO USE FOR SUPPORT OF HORIZONTAL TEE OR CROSS.
2. PIPE SUPPORT DIA. SHALL BE NO LESS THAN 1/2 THE PIPE DIA.

BASE BEND DETAIL - TYPE "B"

NOT TO SCALE

M-012



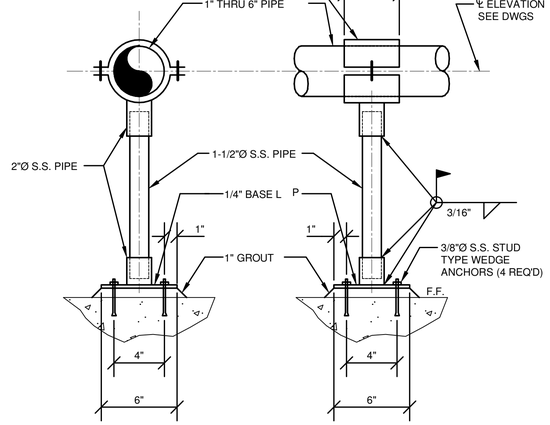
NOTES:

1. EMBEDMENT DEPTH, PER ANCHOR MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE BITUMASTIC COATING BETWEEN PIPE FLANGE AND GROUT.
3. THE PIPE SUPPORT DIAMETER SHALL BE NO LESS THAN 1/4 OF THE PROCESS PIPE DIAMETER.

PIPE SUPPORT DETAIL

NOT TO SCALE

M-013



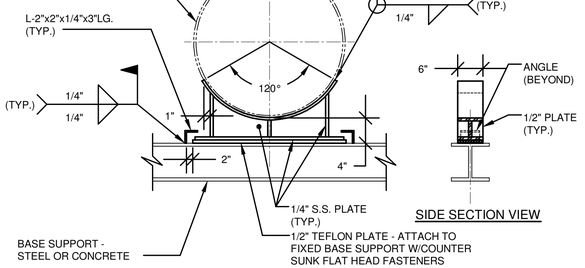
NOTES:

1. EMBEDMENT DEPTH PER MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE BITUMASTIC COATING BETWEEN BASE PLATE AND GROUT.
3. FOR EXTERIOR LOCATIONS, PROVIDE 1'-6"x1'-6"x6" DEEP CONCRETE PAD, WITH TOP OF PAD AT FINISHED GRADE.

PIPE SUPPORT DETAIL

NOT TO SCALE

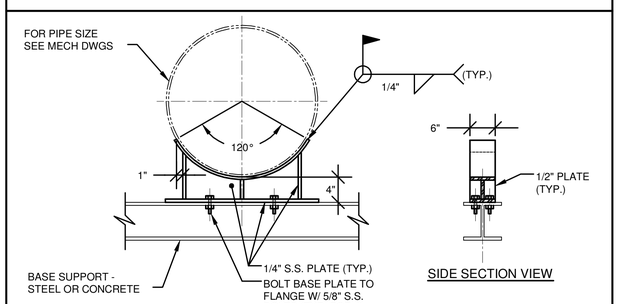
M-014



SLIDING PIPE SUPPORT DETAIL

NOT TO SCALE

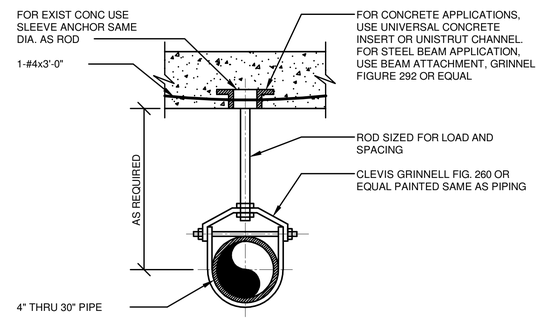
M-015



FIXED PIPE SUPPORT DETAIL

NOT TO SCALE

M-016



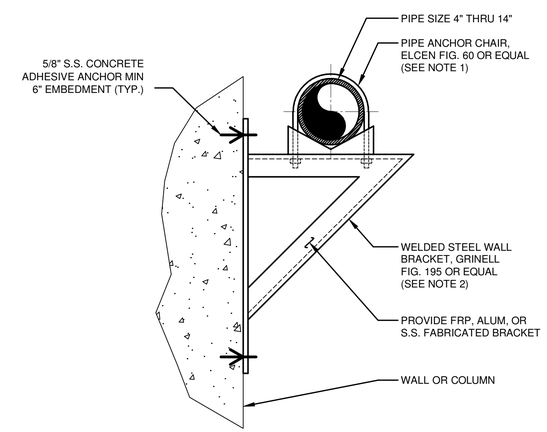
NOTES:

1. FOR INSULATED PIPES USE INSULATION PROTECTION SHIELD, GRINNEL FIGURE 167 OR EQUAL.
2. TOTAL LOADING SHALL NOT EXCEED MANUFACTURER'S RECOMMENDED LOADING.

PIPE HANGER DETAIL

NOT TO SCALE

M-017



NOTES:

1. PROVIDE STAINLESS STEEL U-BOLT FOR OUTDOOR LOCATIONS OR WHERE IN CONTACT WITH WASTE WATER. PAINT ANCHOR CHAIR IN ACCORDANCE WITH THE SPECIFICATIONS.
2. PAINT BRACKET IN ACCORDANCE WITH THE SPECIFICATIONS.

PIPE SUPPORT DETAIL

NOT TO SCALE

M-018

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CHECKED BY WJM
DRAWN BY BNL

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SUITE 750
CANTON, OH 47702

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MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 3

FILE NO. 23374.51633 -M004
DATE MARCH 19, 2015

M-004

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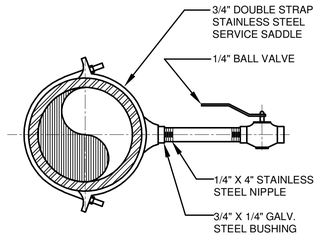


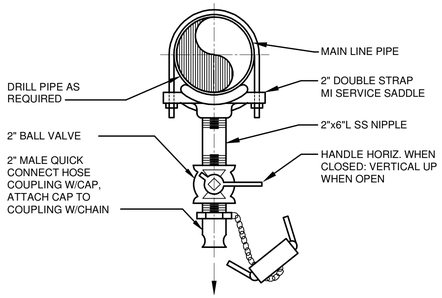
NOTES:

1. FOR LINE SIZE 2" & SMALLER, FITTINGS AND VALVES SHALL BE SAME AS LINE.

PRESSURE TEST POINT DETAIL

NOT TO SCALE

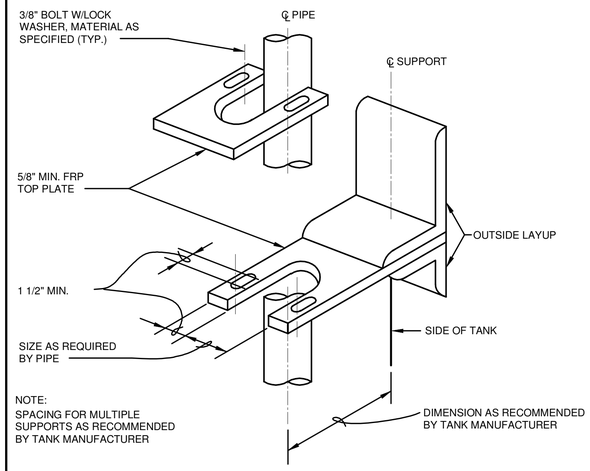
M-019



LINE DRAIN VALVE INSTALLATION DETAIL

NOT TO SCALE

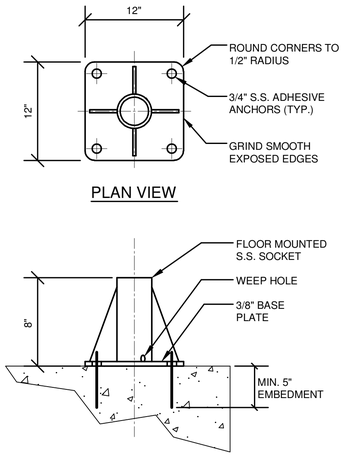
M-020



FRP TANK PIPE SWAY BRACE DETAIL

NOT TO SCALE

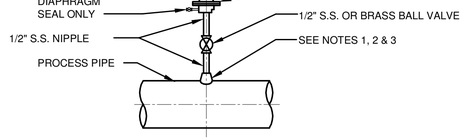
M-021



FLOOR MOUNTED HOIST SOCKET DETAIL

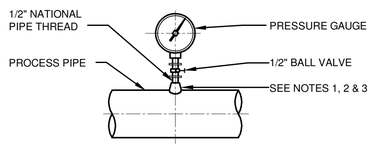
NOT TO SCALE

M-022



DIAPHRAGM PRESSURE GAUGE

(ALL WASTE WATER PROCESS LINES)



PRESSURE GAUGE

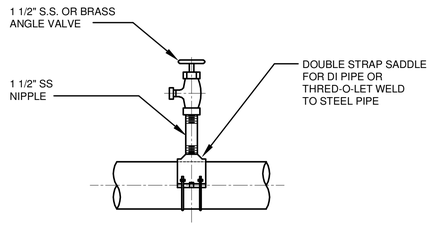
NOTES:

1. FOR STEEL, STAINLESS STEEL, AND PVC 2 1/2" AND SMALLER USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON AND FIBERGLASS REINFORCED PLASTIC PIPE, ALL SIZES, USE PIPE SADDLE WITH BUSHING.
3. FOR STEEL AND STAINLESS STEEL PIPES 3" AND LARGER, AND PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.
4. PROVIDE SNUBBER FOR ALL INSTALLATIONS.

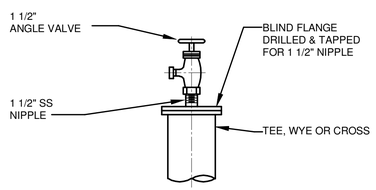
PRESSURE GAUGE MOUNTING DETAIL

NOT TO SCALE

M-023



TYPE 1 FLUSHING CONNECTION



TYPE 2 FLUSHING CONNECTION

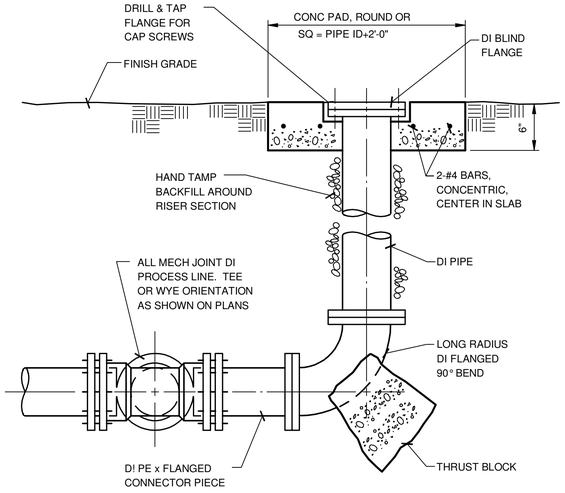
NOTES:

1. TAPPING OF FITTINGS ALLOWED AT BOSS ONLY.

FLUSHING CONNECTION DETAIL

NOT TO SCALE

M-024



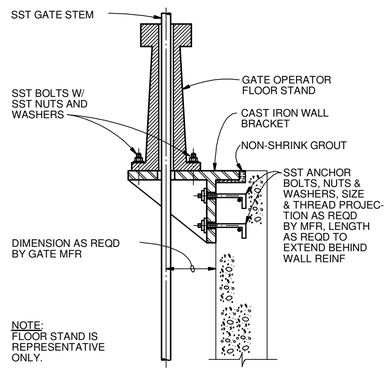
NOTE:

RISER SECTION AND ELBOW SAME SIZE AS PROCESS LINE, UNLESS NOTED OTHERWISE.

PROCESS LINE CLEAN-OUT SETTING DETAIL

NOT TO SCALE

M-025



FLOOR STAND INSTALLATION DETAIL

NOT TO SCALE

M-026

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CHECKED BY WJM
DRAWN BY BNL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 4

FILE NO. 23374.51633 - M005

DATE MARCH 19, 2015

M-005

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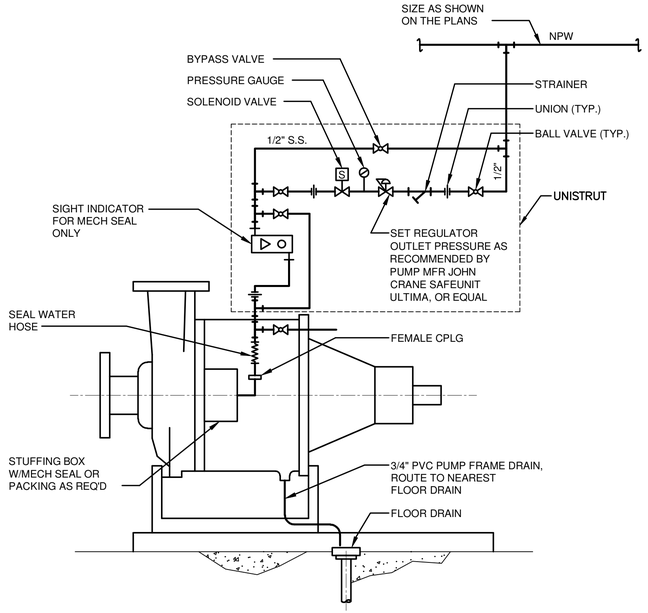
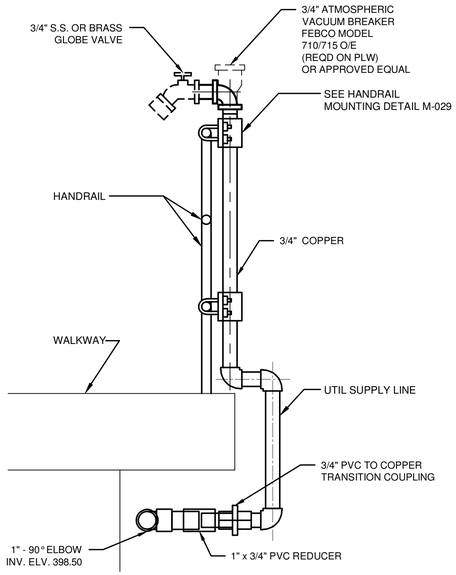


TYPICAL PUMP SEAL WATER PIPING/ TYPICAL SOLENOID VALVE WITH BYPASS PIPING DETAIL

NOT TO SCALE

M-027



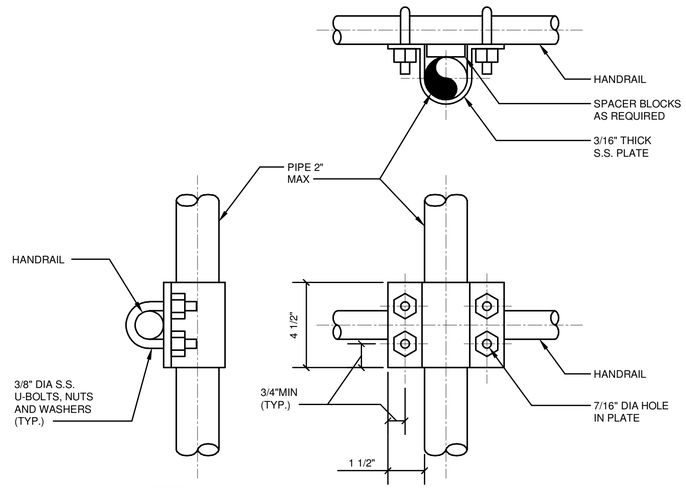
NOTES:

1. PROVIDE ISOLATION VALVE AND DRAIN CONNECTION AT EACH HOSE BIBB FOR DRAINING.

HANDRAIL MOUNTED HOSE BIBB VALVE DETAIL

NOT TO SCALE

M-028



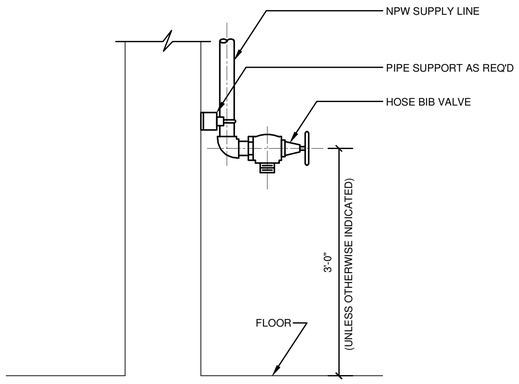
NOTES:

1. USE NEOPRENE SLEEVE BETWEEN DISSIMILAR MATERIALS.

HANDRAIL MOUNTED PIPE DETAIL

NOT TO SCALE

M-029



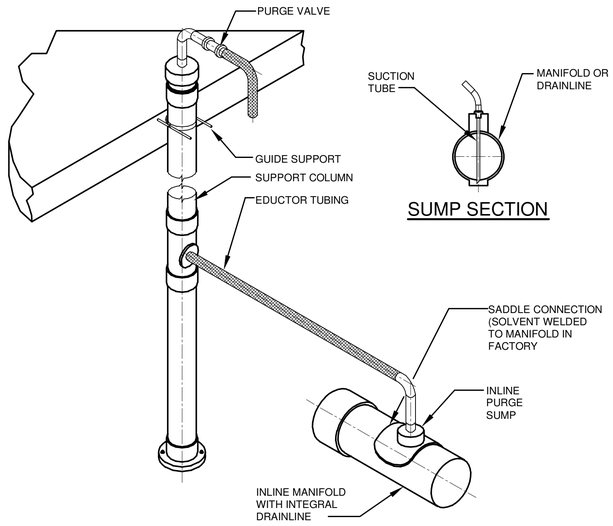
NOTES:

1. ROTATE HOSE BIBB VALVE 30° OFF WALL.
2. SEE MECHANICAL DRAWINGS FOR SIZES OF NPW SUPPLY LINES AND HOSE BIBB VALVES.
3. PROVIDE STAINLESS STEEL HOSE RACK AT EACH INTERIOR HOSE BIBB. INSTALL 4'-0" ABOVE FLOOR UNLESS OTHERWISE INDICATED.

INTERIOR HOSE BIBB VALVE DETAIL

NOT TO SCALE

M-030

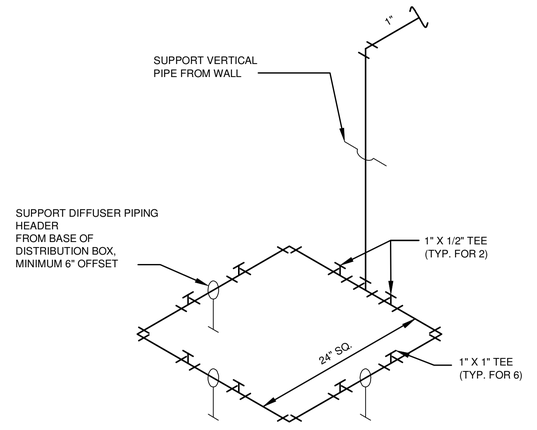


SUMP SECTION

INLINE MANIFOLD PURGE SUMP ARRANGEMENT DETAIL

NOT TO SCALE

M-031



NOTES:

1. DETAIL IS TYPICAL FOR FERRIC CHLORIDE FEED POINT INTO THE SECONDARY CLARIFIER INFLUENT DISTRIBUTION BOX.
2. CHEMICAL PIPING SHALL BE AS SPECIFIED.
3. SUPPORT HARDWARE SHALL BE TYPE 316 SS.

CHEMICAL DIFFUSER PIPING DETAIL

NOT TO SCALE

M-032

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
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MECHANICAL

GENERAL DETAILS 5

FILE NO. 23374.51633 - M006

DATE MARCH 19, 2015

M-006

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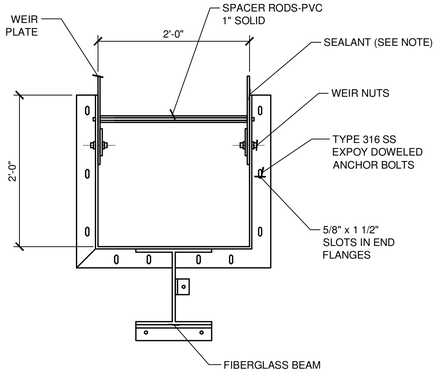
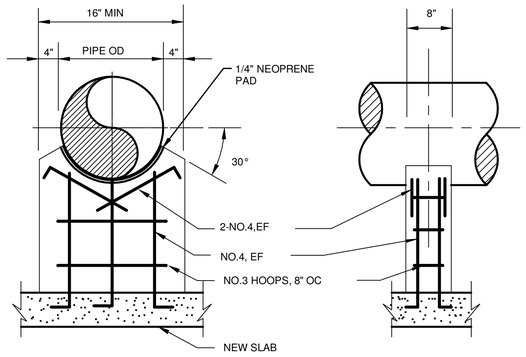


NOTE:
PRIME CONCRETE WITH SIKAFLEX 429 AND PRIME FRP FLANGE WITH SIKAFLEX 260 APPLY SIKAFLEX 1A (OR APPROVED EQUAL) BETWEEN WEIR PLATE AND CONCRETE

FIBERGLASS WEIR TROUGH DETAIL
NOT TO SCALE

M-033

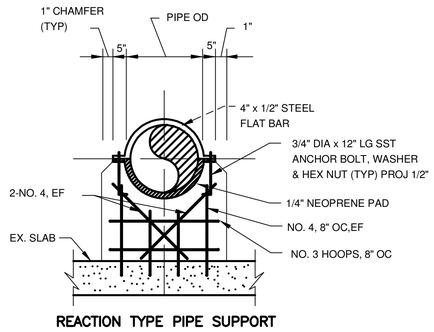


MISCELLANEOUS PIPE SUPPORT DETAIL
NOT TO SCALE

M-034

NOTES:

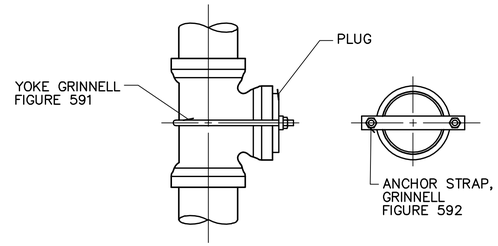
1. USE WASHERS WITH NUTS AND BOLTS.
2. ALL ANCHORS, FASTNERS, BOLTS, NUTS, WASHERS, SCREWS, ETC SHALL BE 316 STAINLESS STEEL.
3. DETAILS SHOWN ARE INTENDED TO COVER A WIDE RANGE OF PROJECT SITUATIONS. ALL DETAILS MAY NOT APPLY TO THIS PROJECT.



REACTION TYPE PIPE SUPPORT

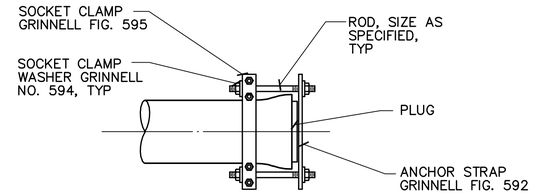
MISCELLANEOUS PIPE SUPPORT DETAIL
NOT TO SCALE

M-035



TEE PLUG ANCHOR
NOT TO SCALE

M-036

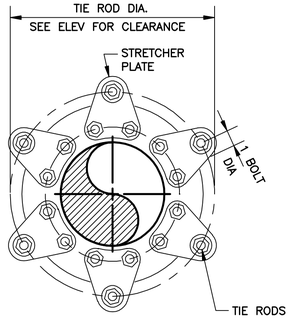


END PLUG ANCHOR DETAIL
NOT TO SCALE

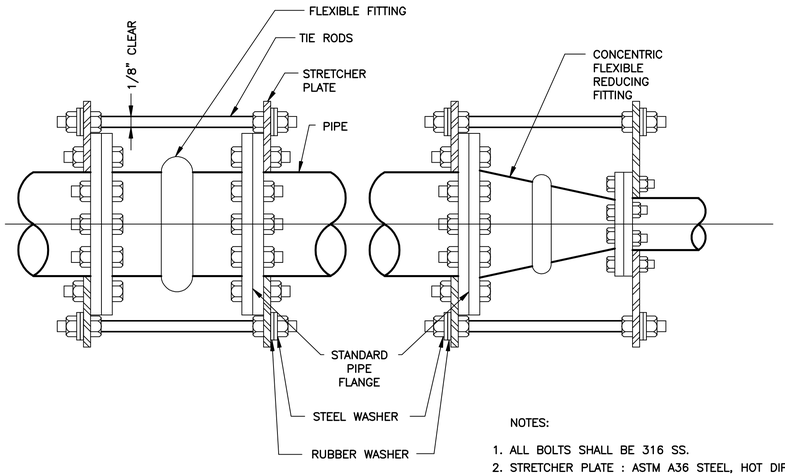
M-037

NOT USED

M-038



SECTION
NTS



PIPE DIA.	TIE ROD NUMBER	TIE ROD DIA.	STRETCHER B THICK
10	6	3/4"	5/8"
12	6	3/4"	5/8"
14	6	3/4"	5/8"
16	8	3/4"	5/8"
18	8	3/4"	1"
20	10	3/4"	1"
24	10	1"	1"
30	14	1"	1 1/2"
36	16	1 1/4"	1 1/2"
42	18	1 1/4"	1 1/2"
48	22	1 1/4"	1 1/2"
54	22	1 1/4"	1 1/2"

NOTES:
1. ALL BOLTS SHALL BE 316 SS.
2. STRETCHER PLATE : ASTM A36 STEEL, HOT DIP GALV.
3. FLEXIBLE FITTING PER SPECIFICATIONS

ELEVATION
NTS

THRUST HARNESS FOR EXPANSION JOINT
NOT TO SCALE

M-039

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 6

FILE NO. 23374.51633 -M007
DATE MARCH 19, 2015

M-007

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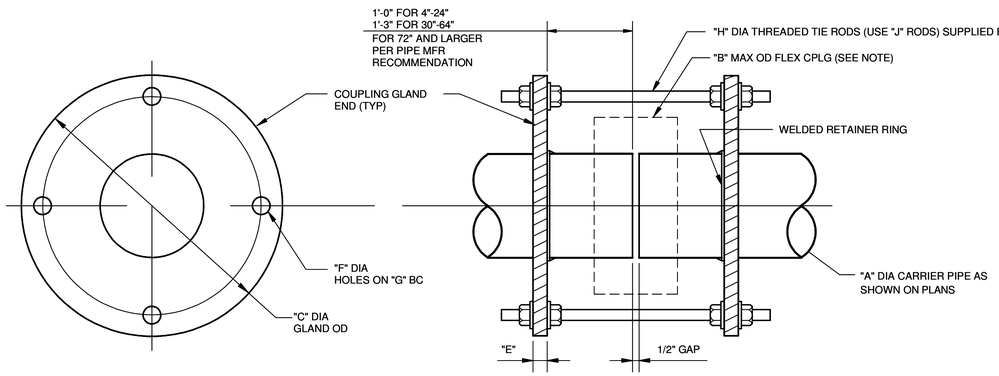


DIMENSIONS IN INCHES										
"A"	"B" MAXIMUM	"C"	"D" PIPE OD	"E" D.I.	"E" STEEL / SS	"F" B.H. DIA	"G" B.C.	"H" TIE ROD ø	"J" NO.RODS	TIE ROD LENGTH
4	9.00	11.50	4.80	0.75	0.75	7/8	9.88	3/4	4	31-1/2
6	11.00	13.50	6.90	0.87	1.00	7/8	11.88	3/4	4	31-1/2
8	13.06	15.63	9.05	1.00	1.00	7/8	13.94	3/4	4	31-1/2
10	15.81	18.37	11.10	1.00	1.00	7/8	16.69	3/4	4	31-1/2
12	18.06	20.63	13.20	1.00	1.00	7/8	18.94	3/4	6	31-1/2
14	19.31	23.00	15.30	1.50	1.50	7/8	21.32	3/4	10	31-1/2
16	21.38	24.63	17.40	1.56	2.00	7/8	23.01	3/4	12	31-1/2
18	23.50	27.00	19.50	1.62	2.00	7/8	25.38	3/4	12	31-1/2
20	25.63	29.13	21.60	1.69	2.00	7/8	27.51	3/4	14	31-1/2
24	29.19	33.38	25.80	1.81	2.00	7/8	31.69	3/4	16	31-1/2
30	37.00	40.11	32.00	2.25	2.50	1-1/8	38.25	1	20	31-1/2
36	43.31	46.30	38.30	2.44	2.50	1-1/8	44.56	1	24	31-1/2
42	49.50	53.12	44.50	2.62	3.00	1-3/8	51.00	1-1/4	28	41-1/2"
48	55.81	60.00	50.80	2.81	3.00	1-3/8	57.50	1-1/4	32	41-1/2"
54	62.57	66.88	57.56	3.00	3.00	1-3/8	64.38	1-1/4	36	41-1/2"
60	66.41	66.41	61.61	3.12	3.50	1-3/4	69.25	1-1/2	26	42
64	70.47	70.47	65.67	3.38	3.50	1-3/4	76.00	1-1/2	26	42

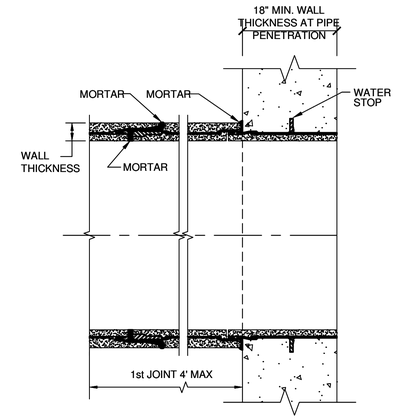
NOTES:
1. FLEXIBLE COUPLINGS ARE NOT FURNISHED BY PIPE MANUFACTURER FOR THIS JOINT. CONTRACTOR SHALL CHECK COUPLING LENGTH AND DIAMETER DIMENSIONS FOR APPROPRIATE CLEARANCES TO MAKE SURE THEY ARE COMPATIBLE WITH THE THRUST HARNESS.
2. ALL NUTS AND BOLTS SHALL BE 316 SS.

THRUST HARNESS FOR FLEXIBLE COUPLING DETAIL
NOT TO SCALE

M-040

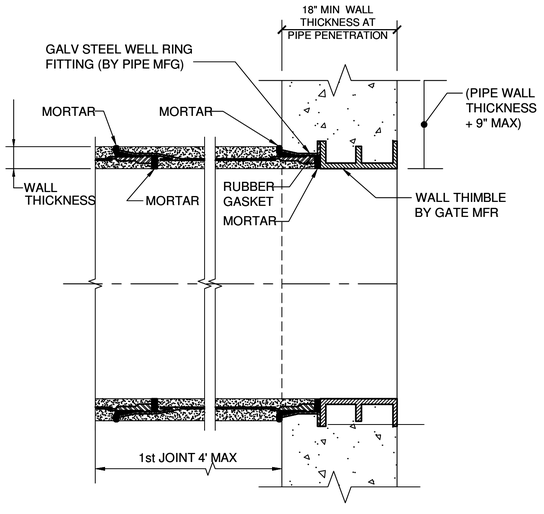
NOT USED

M-041



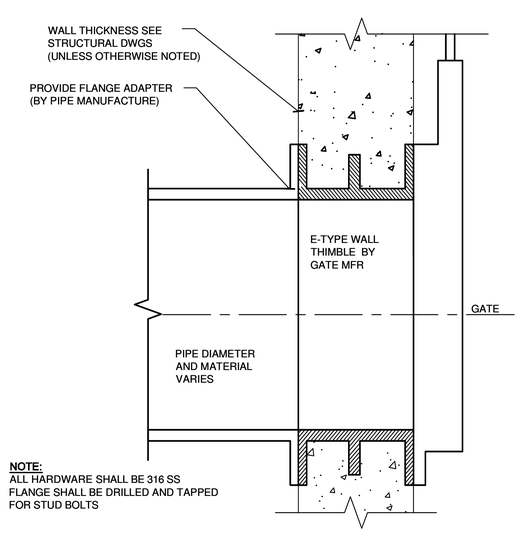
PCCP SPIGOT WALL PIECE
FULL WALL PENETRATION DETAIL
NOT TO SCALE

M-042



PCCP PIPE WALL CONNECTION
AT SLUICE GATE LOCATION DETAIL
NOT TO SCALE

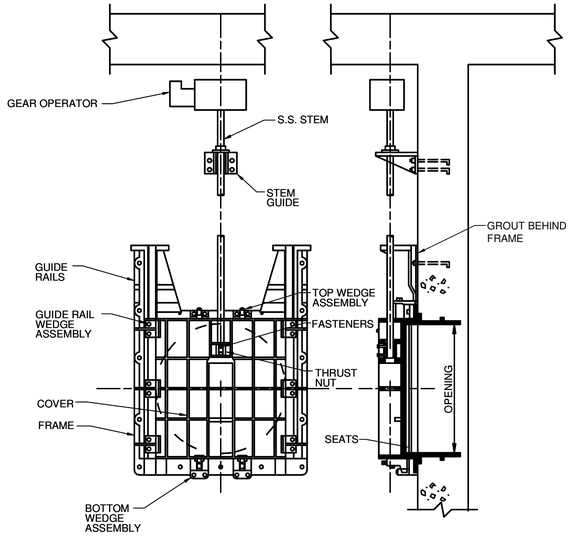
M-043



NOTE:
ALL HARDWARE SHALL BE 316 SS
FLANGE SHALL BE DRILLED AND TAPPED
FOR STUD BOLTS

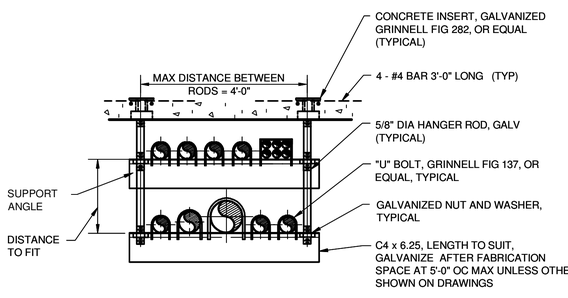
TYPE E WALL THIMBLE DETAIL
NOT TO SCALE

M-044



SLUICE GATE FLAT BACK MOUNTED DETAIL
NOT TO SCALE

M-045



NOTE:
WHEN USED WITH PVC OR FIBERGLASS PIPE PROVIDE GALVANIZE STEEL SHIELD AROUND PIPE AT "U" BOLT, WITH LOOSE FIT, WRAP COPPER TUBES WITH 2" WIDE STRIP OF RUBBER FABRIC WHERE SUBMERGED OR LOCATED OVER WATER, STEEL SHIELDS, BRACKETS, 'U' BOLTS, AND BOLTS ARE TO BE SS TYPE 316

TRAPEZE PIPE HANGER DETAIL
NOT TO SCALE

M-046

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MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 7

FILE NO. 23374.51633 -M008
DATE MARCH 19, 2015

M-008

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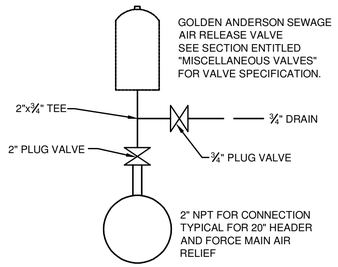


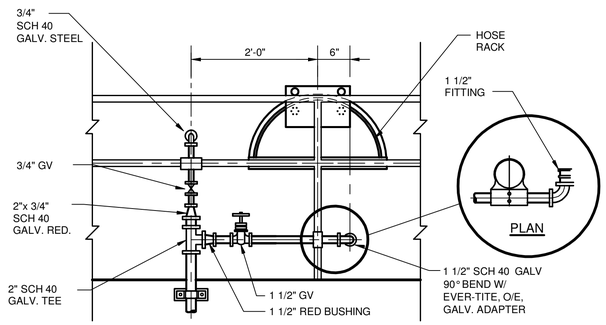
AIR RELIEF VALVE DETAIL

NOT TO SCALE

NOTES:

1. PROVIDE 2" PRD FROM VALVE OUTLET WITH 2" BALL VALVE. ROUTE 2" LINE TO VAULT EXTERIOR. SEE YARD PIPING DRAWINGS FOR CONTINUATION.

M-047



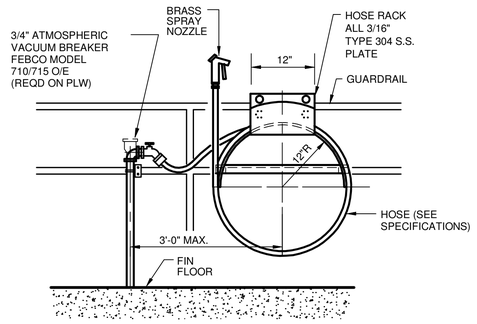
NOTES:

1. PROVIDE 1/16" THICK NEOPRENE SLEEVE ON PIPE AT ALL SUPPORT CONNECTIONS.
2. PROVIDE LENGTH AND TYPE OF HOSE IN CONFORMANCE WITH THE SPECIFICATIONS.

HOSE BIBB & HIGH VOLUME HOSE CONNECTION DETAIL

NOT TO SCALE

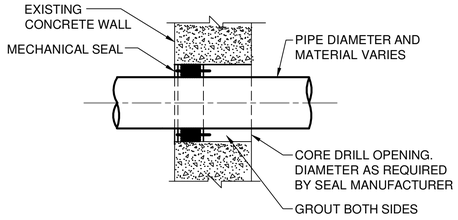
M-048



WASH HOSE STATION ON GUARDRAIL DETAIL

NOT TO SCALE

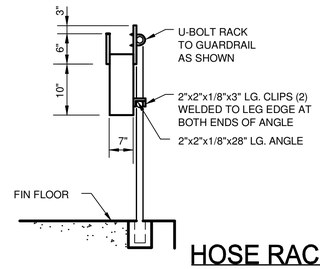
M-049



CORE DRILLED OPENING & MECHANICAL SEAL PENETRATION THROUGH EX. CONCRETE DETAIL

NOT TO SCALE

M-050



NOTES:

1. ANNEAL S.S. HOSE RACK AFTER FABRICATION.
2. ANCHOR WASH HOSE STATION TO TWO RAILS OF GUARDRAIL WITH STAINLESS STEEL HARDWARE AS SHOWN. ALL HOSE BIBBS SHALL INCLUDE A WASH HOSE STATION UNLESS OTHERWISE NOTED.

HOSE RACK DETAIL

NOT TO SCALE

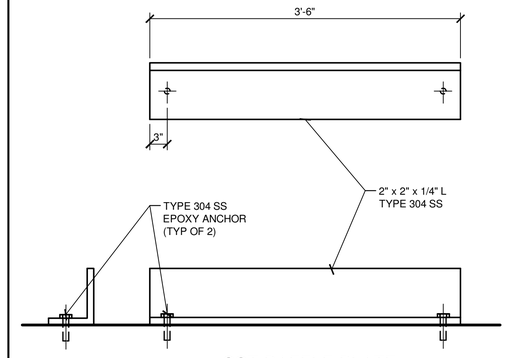
M-051

NOT USED

M-052

NOT USED

M-053



SST BAFFLE PLATE

NOT TO SCALE

M-054

COLORS: BACKGROUND SHALL BE OSHA SAFETY YELLOW, LETTERS SHALL BE RECESSED BLACK.

NOTE: MOUNT AT ALL PLANT WATER LOCATIONS.

NON-POTABLE WATER SIGN DETAIL

NOT TO SCALE

M-055

NOT USED

M-056

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MECHANICAL

GENERAL DETAILS 8

FILE NO. 23374.51633 -M009

DATE MARCH 19, 2015

M-009

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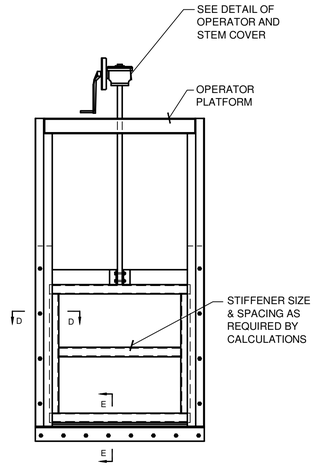
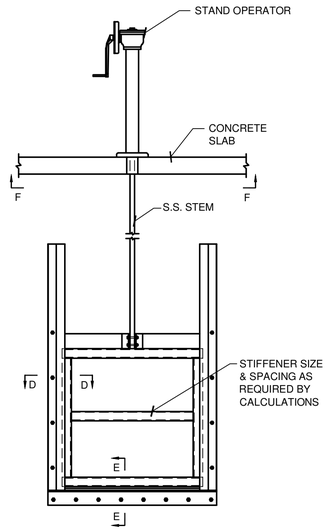


SELF CONTAINED SLIDE GATE DETAIL

NOT TO SCALE

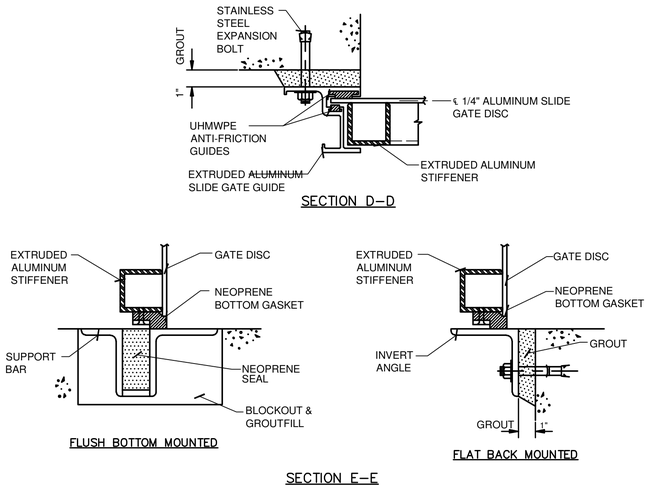
M-057



OPEN FRAME SLIDE GATE DETAIL

NOT TO SCALE

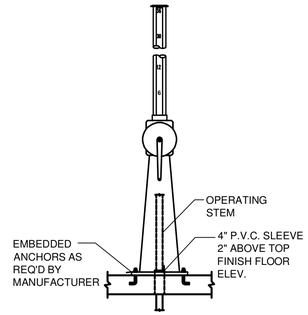
M-058



SLIDE GATE FRAME DETAIL

NOT TO SCALE

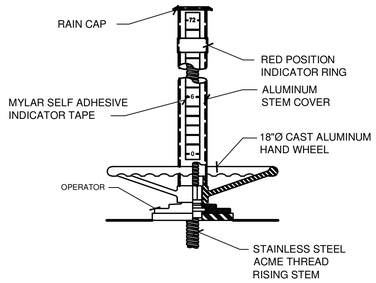
M-059



TYPICAL FLOOR STAND DETAIL

NOT TO SCALE

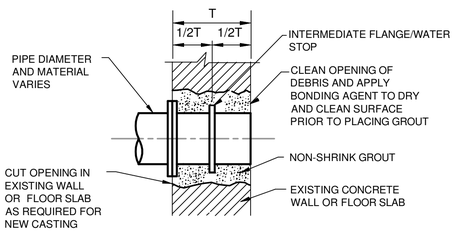
M-060



OPERATOR & STEM COVER DETAIL

NOT TO SCALE

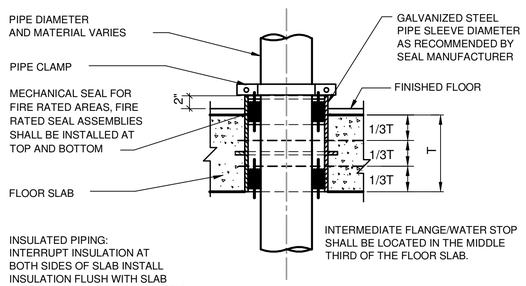
M-061



CASTINGS OR SLEEVES TO BE INSTALLED IN EX. WALLS OR FLOOR SLABS DETAIL

NOT TO SCALE

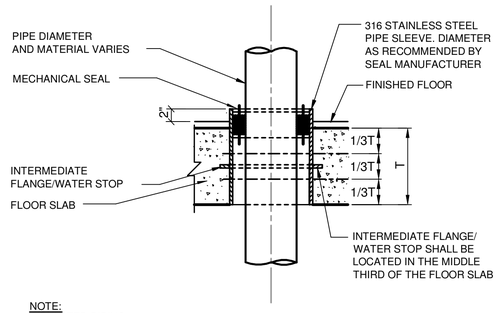
M-062



FLOOR SLEEVE WITH DUAL MECHANICAL SEAL DETAIL

NOT TO SCALE

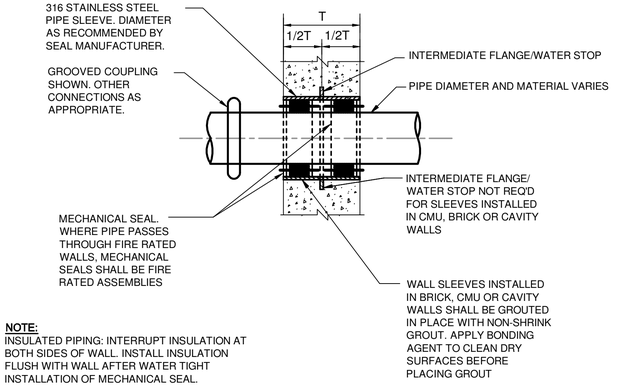
M-063



SLEEVE WITH MECHANICAL SEAL DETAIL

NOT TO SCALE

M-064



FLOOR SLEEVE WITH MECHANICAL SEAL FOR CONCRETE, BRICK, CMU OR CAVITY WALL DETAIL

NOT TO SCALE

M-065

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CHECKED BY	WJM
DRAWN BY	BNL

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

GENERAL DETAILS 9

FILE NO. 23374.51633 -M010

DATE MARCH 19, 2015

M-010

I:\CTI-OBG-JV 23374\51633.MASSILLON.NR-EX\DOCS\DWG\SHEETS\51633-M010.DWG

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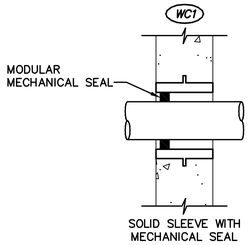
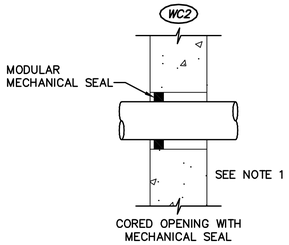
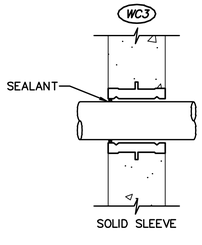


SOLID SLEEVE WITH
MECHANICAL SEAL



CORED OPENING WITH
MECHANICAL SEAL



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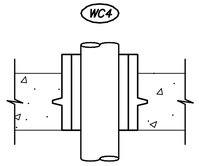

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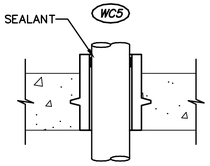
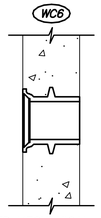
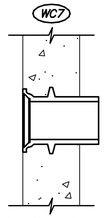


FLOOR SLEEVE



TAPPED MECHANICAL JOINT–
PLAIN END WALL PIPE



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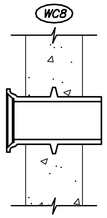
PLAIN END WALL PIPE



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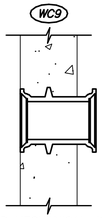
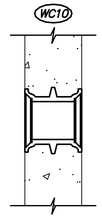
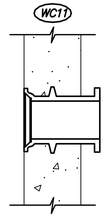
PLAIN END WALL PIPE



TAPPED MECHANICAL JOINT–
MECHANICAL JOINT WALL PIPE



TAPPED MECHANICAL JOINT–
TAPPED MECHANICAL JOINT
WALL PIPE



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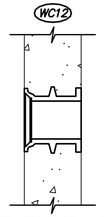
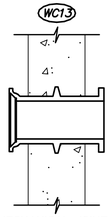
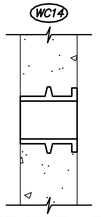
FLANGE WALL PIPE



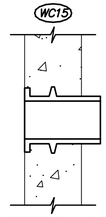
TAPPED MECHANICAL JOINT–
TAPPED FLANGE WALL PIPE



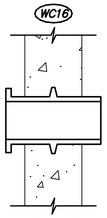
MECHANICAL JOINT–
FLANGE WALL PIPE



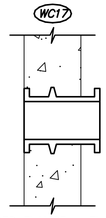
TAPPED FLANGE – PLAIN
END WALL PIPE



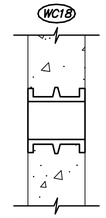
TAPPED FLANGE
PLAIN END WALL PIPE



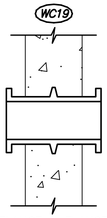
FLANGE – PLAIN
END WALL PIPE



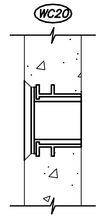
TAPPED FLANGE – FLANGE
WALL PIPE



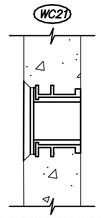
TAPPED FLANGE – TAPPED
FLANGE WALL PIPE



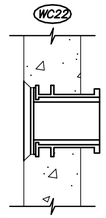
FLANGE – FLANGE
WALL PIPE



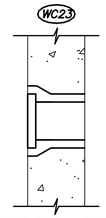
PRECAST CONC CYLINDER PIPE
BELL – PLAIN END WALL PIPE



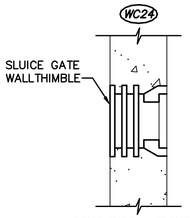
PRECAST CONC CYLINDER PIPE
BELL – TAPPED FLANGE WALL PIPE



PRECAST CONC CYLINDER PIPE
BELL – FLANGE WALL PIPE



CONC PIPE – PLAIN
END WALL PIPE



CONC PIPE – THIMBLE
WALL PIPE

NOTE:
1. FOR WALLS 12 IN THICK OR GREATER PROVIDE TWO MODULAR MECHANICAL SEALS. FOR WALLS WITH AT LEAST ONE SIDE WET PROVIDE TWO MECHANICAL SEALS.

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THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

WALL PIPE SCHEDULE

NTS

IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY BNL

NO.	DATE	REVISION	INT.
1	9/23/2015	ISSUED FOR BID	WJM
0	3/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

WALL PIPE SCHEDULE

FILE NO. 23374.51633 -M011
DATE MARCH 19, 2015

M-011

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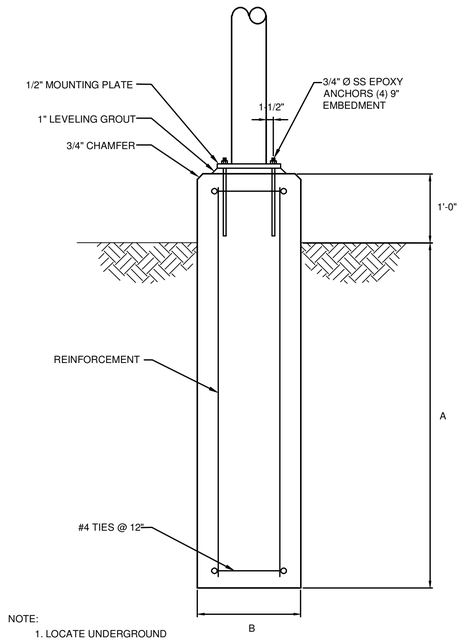
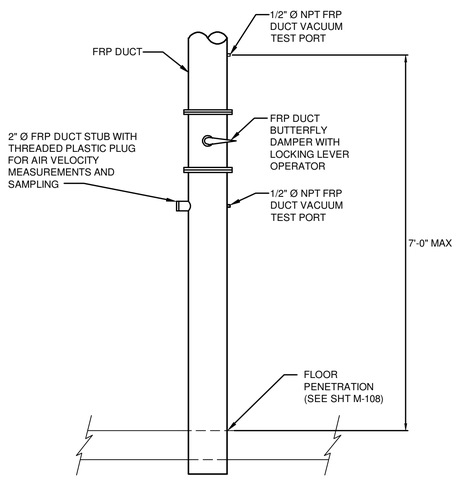


NOTE:
1. LOCATE UNDERGROUND UTILITIES PRIOR TO EXCAVATING FOOTING.
2. FOR DIMENSIONS AND TOP SUPPORT SEE DUCT SUPPORT SCHEDULE.

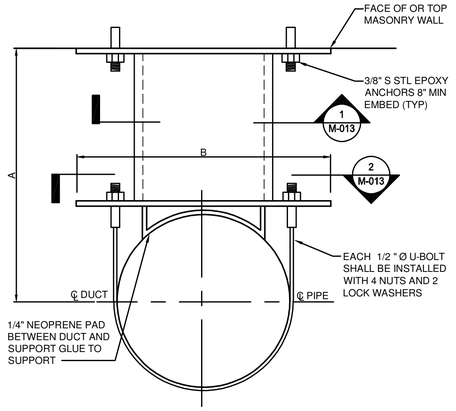
DUCT SUPPORT FOUNDATION DETAIL DS-2 AND DS-3 (SEE SHEET C-110)

NOT TO SCALE



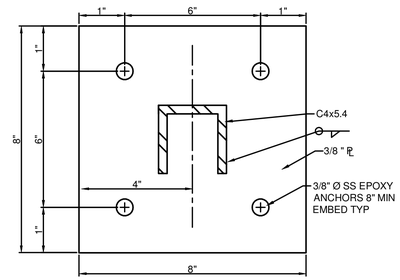
TYPICAL RISER DETAIL

NOT TO SCALE



VERTICAL DUCT SUPPORT DETAIL DS-4

NOT TO SCALE



1 SECTION

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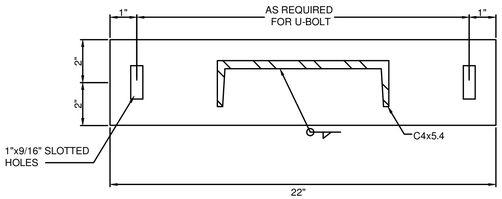
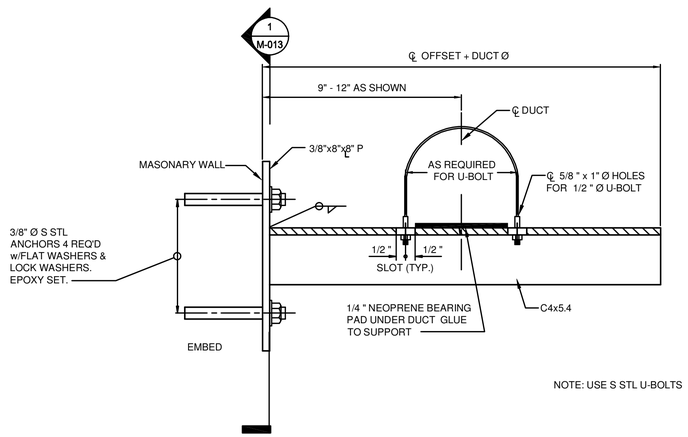


2 SECTION

NOT TO SCALE

DUCT SUPPORT SCHEDULE		
DESIGNATION	DS-2	DS-3
PIPE COLUMN DIAMETER (IN)	6	10
CONCRETE FOUNDATION Ø B (IN)	24	30
TOP SUPPORT DETAIL (SHEET M-004)	M-013	M- 013
MINIMUM A (FT)	4.5	4.5
FOOTING REINFORCEMENT	5 -#6	5-#6

NOTE:
1. ALL DUCT SUPPORTS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION NO FIELD WELDING OR CUTTING SHALL BE PERMITTED PAINT BOTTOMS OF BASE PLATES WITH BITUMINOUS PAINT



NOTE: USE S STL U-BOLTS

HORIZONTAL DUCT SUPPORT DETAIL DS-1

NOT TO SCALE

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IN CHARGE OF WAD
DESIGNED BY WAD/DRB
CHECKED BY KGP
DRAWN BY GJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WAD
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

ODOR CONTROL GENERAL DETAILS

FILE NO. 23374.51633 -M013
DATE MARCH 19, 2015

M-013

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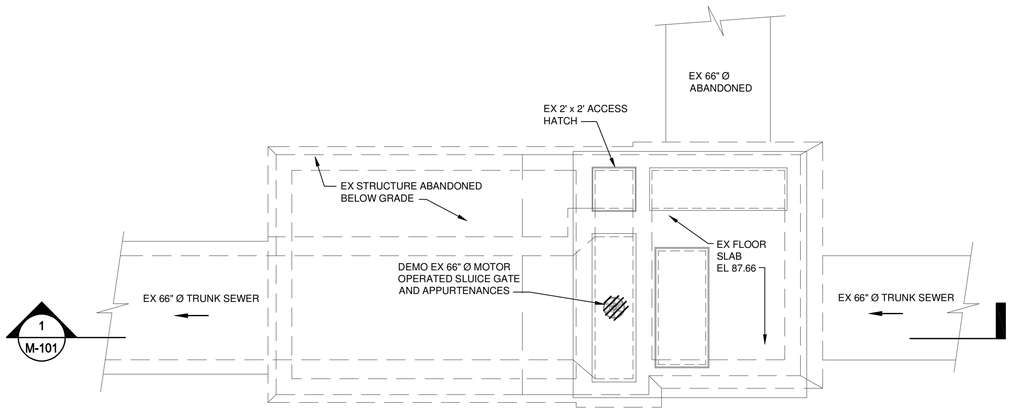
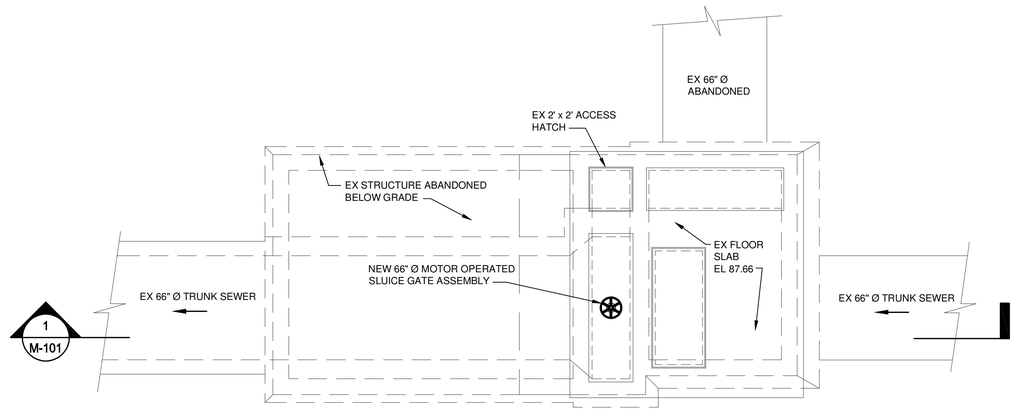


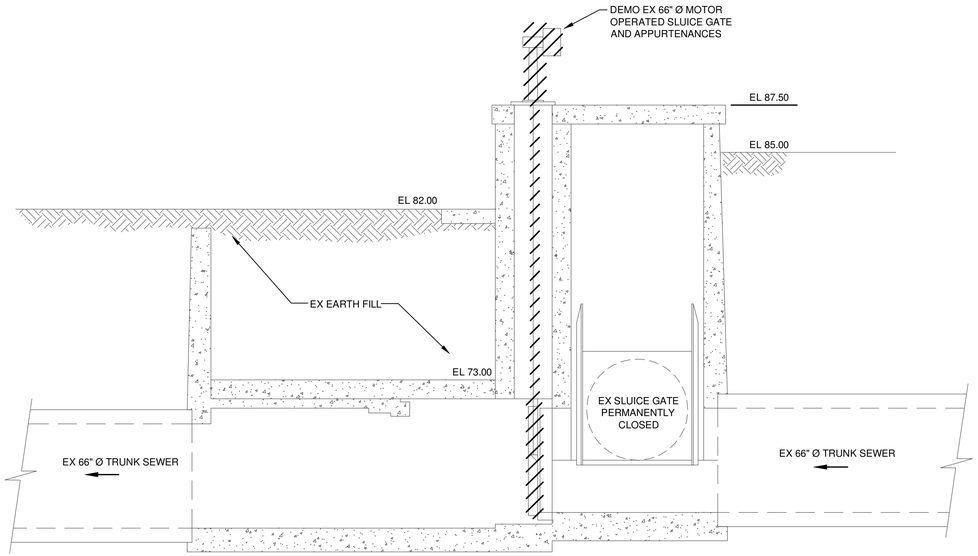
DEMOLITION PLAN

1/4"=1'-0"



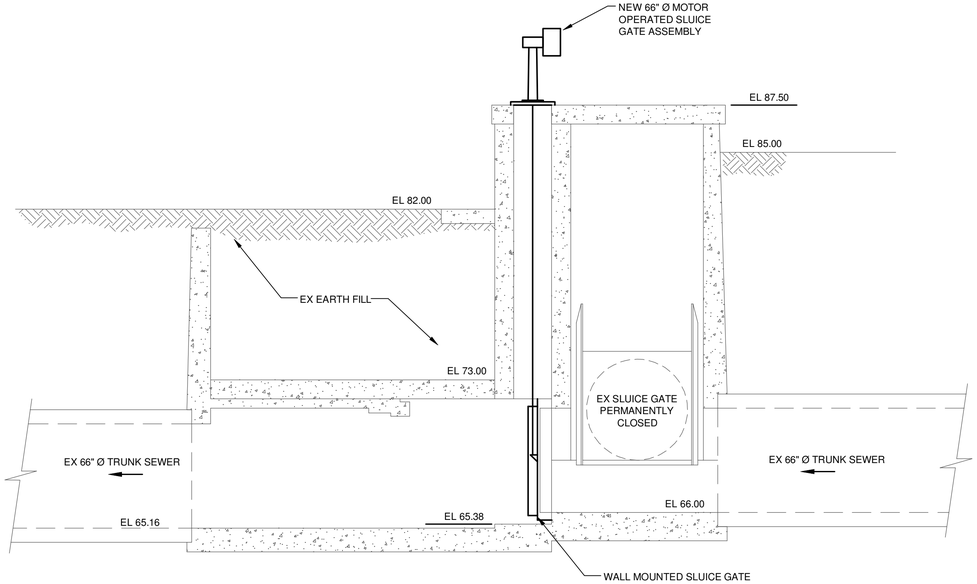
PLAN

1/4"=1'-0"



1 SECTION

1/4"=1'-0"



2 SECTION

1/4"=1'-0"

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GLB

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
EXISTING INFLUENT STRUCTURE

DEMOLITION AND MODIFICATIONS

FILE NO. 23374.51633 -M101
DATE MARCH 19, 2015

M-101

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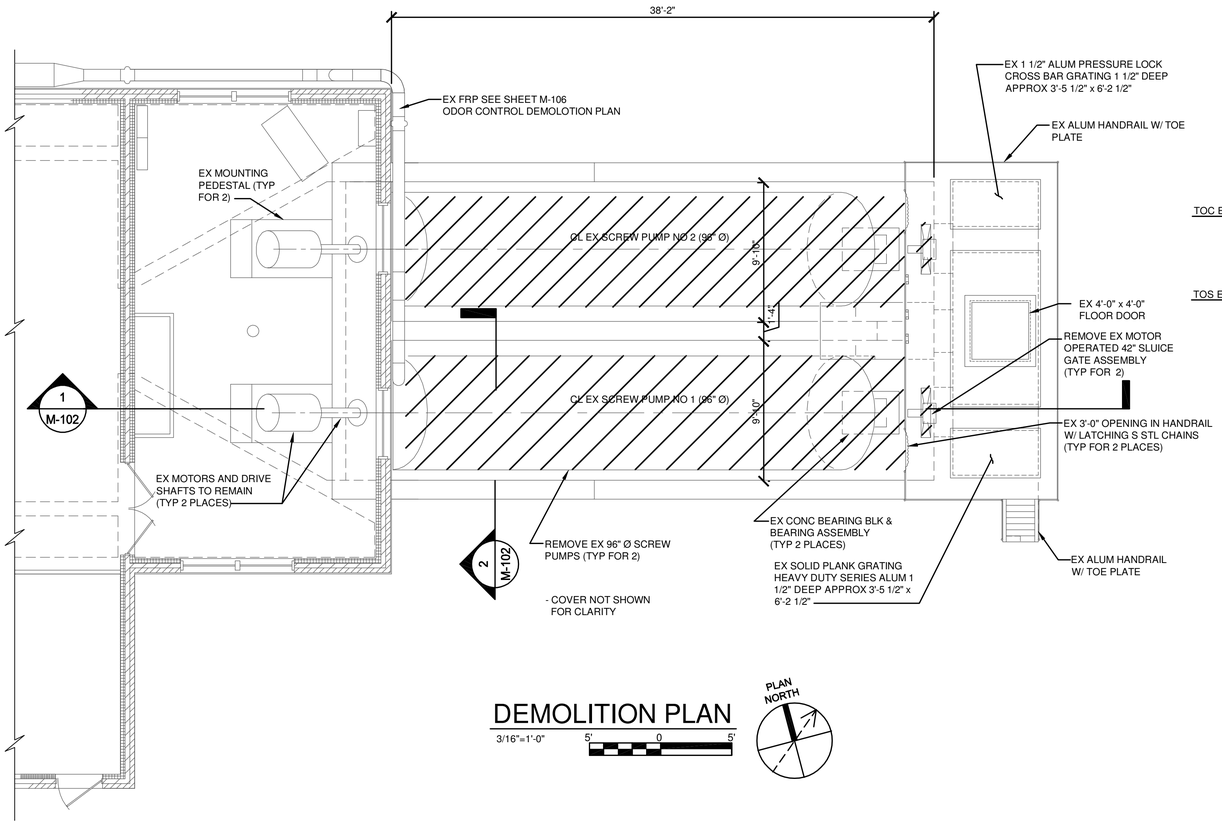
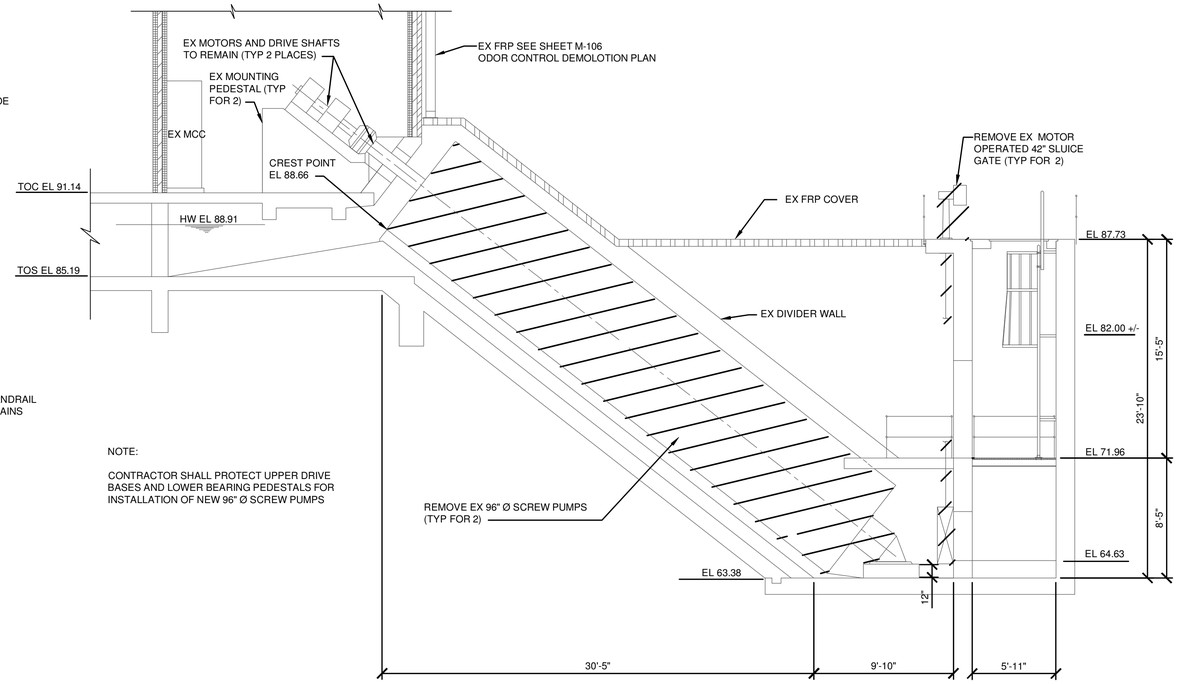
SAVED: 9/21/15 5:01 PM



DEMOLITION PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

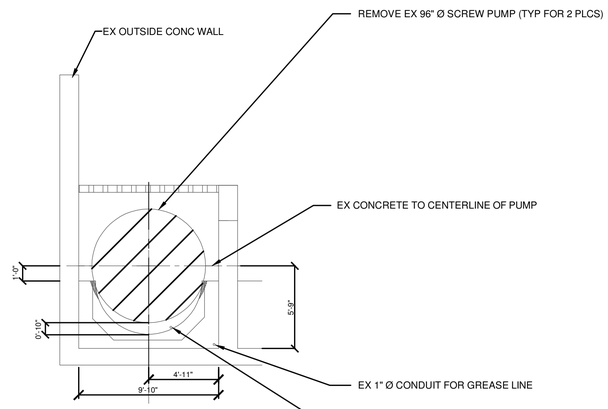


NOTE:

CONTRACTOR SHALL PROTECT UPPER DRIVE BASES AND LOWER BEARING PEDESTALS FOR INSTALLATION OF NEW 96" Ø SCREW PUMPS

1 SECTION

3/16"=1'-0" 5' 0 5'



NOTE: SOUTH SIDE SHOWN

2 SECTION

3/16"=1'-0" 5' 0 5'

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DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

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0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PUMP DRIVE/SCREEN BLDG

DEMOLITION PLAN AND SECTIONS

FILE NO. 23374.51633 -M102
DATE MARCH 19, 2015

M-102

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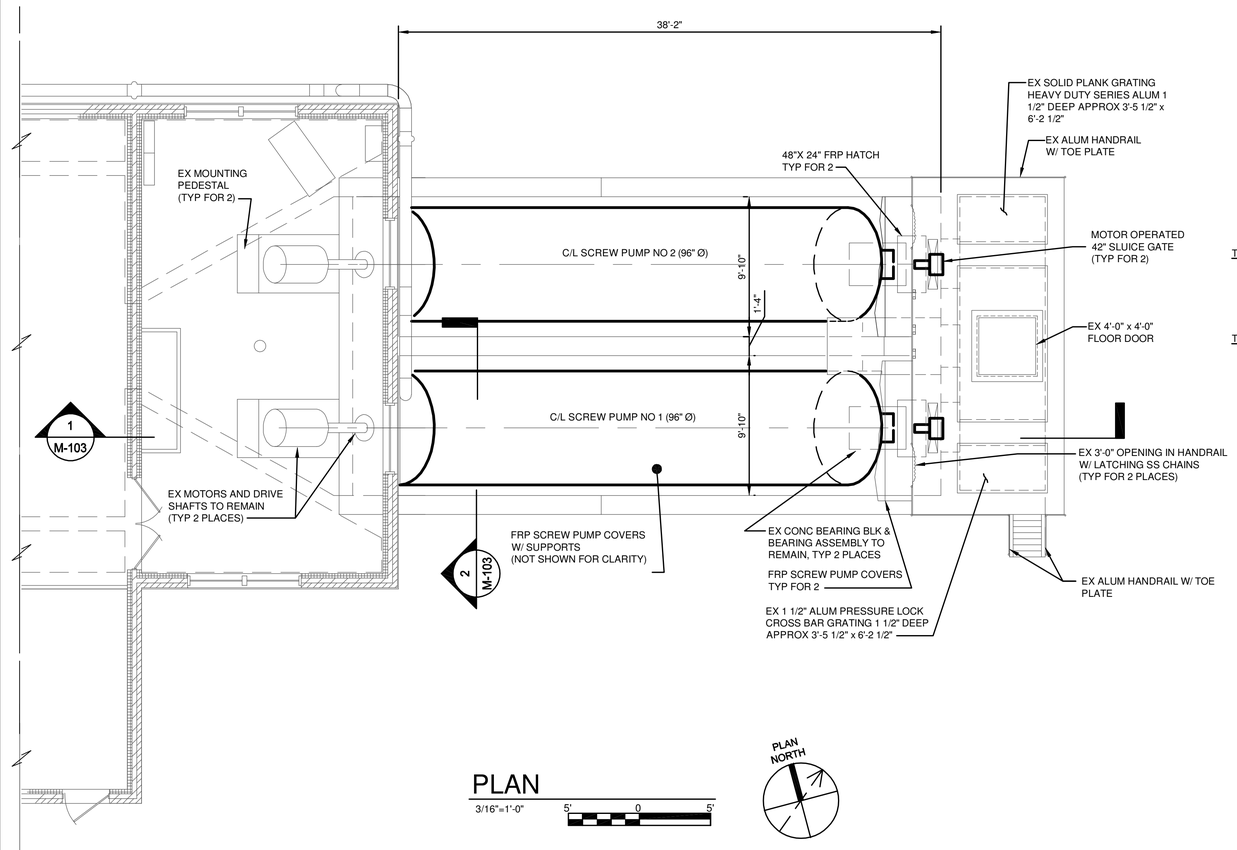
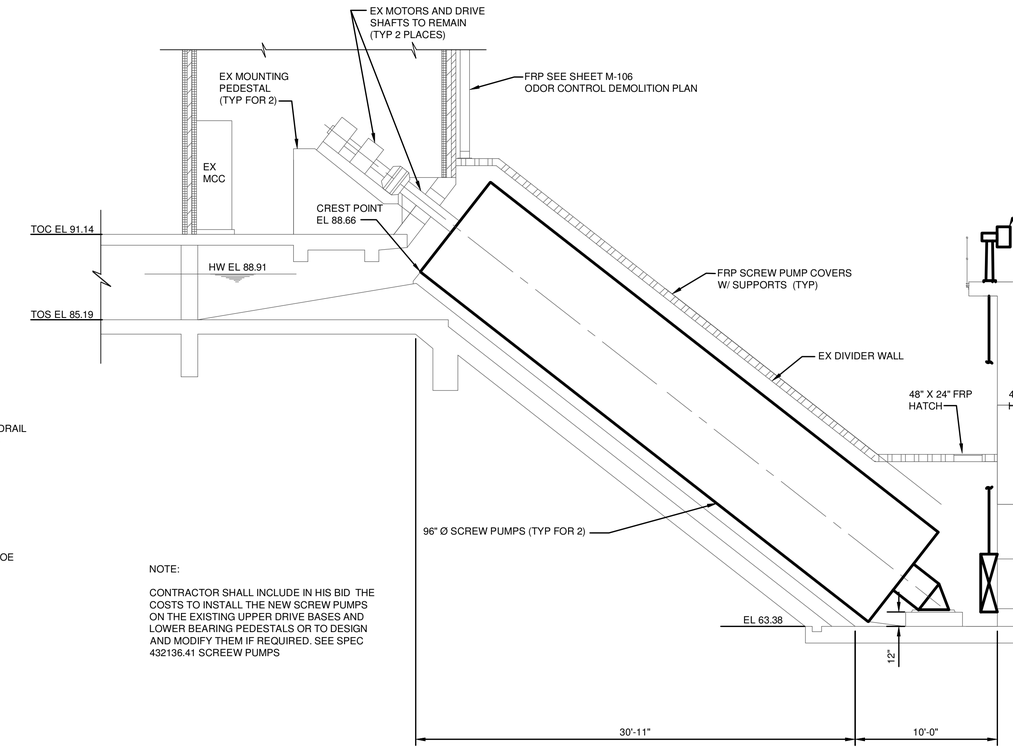


PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

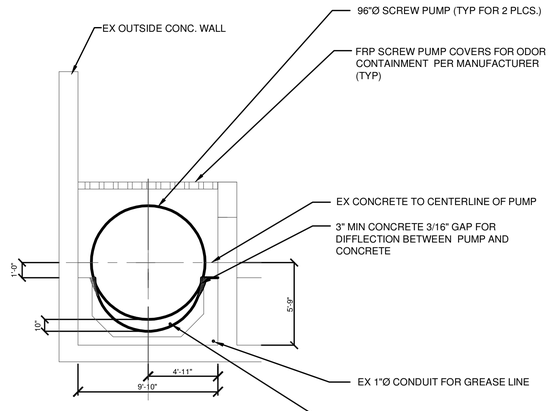


NOTE:

CONTRACTOR SHALL INCLUDE IN HIS BID THE COSTS TO INSTALL THE NEW SCREW PUMPS ON THE EXISTING UPPER DRIVE BASES AND LOWER BEARING PEDESTALS OR TO DESIGN AND MODIFY THEM IF REQUIRED. SEE SPEC 432136.41 SCREEW PUMPS

1 SECTION

3/16"=1'-0" 5' 0 5'



NOTE: EAST SIDE SHOWN

2 SECTION

3/16"=1'-0" 5' 0 5'

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

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1	09/23/2015	ISSUED FOR BID	WAD
0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PUMP DRIVE/SCREEN BLDG

PLAN AND SECTIONS

FILE NO. 23374.51633 -M103
DATE MARCH 19, 2015

M-103

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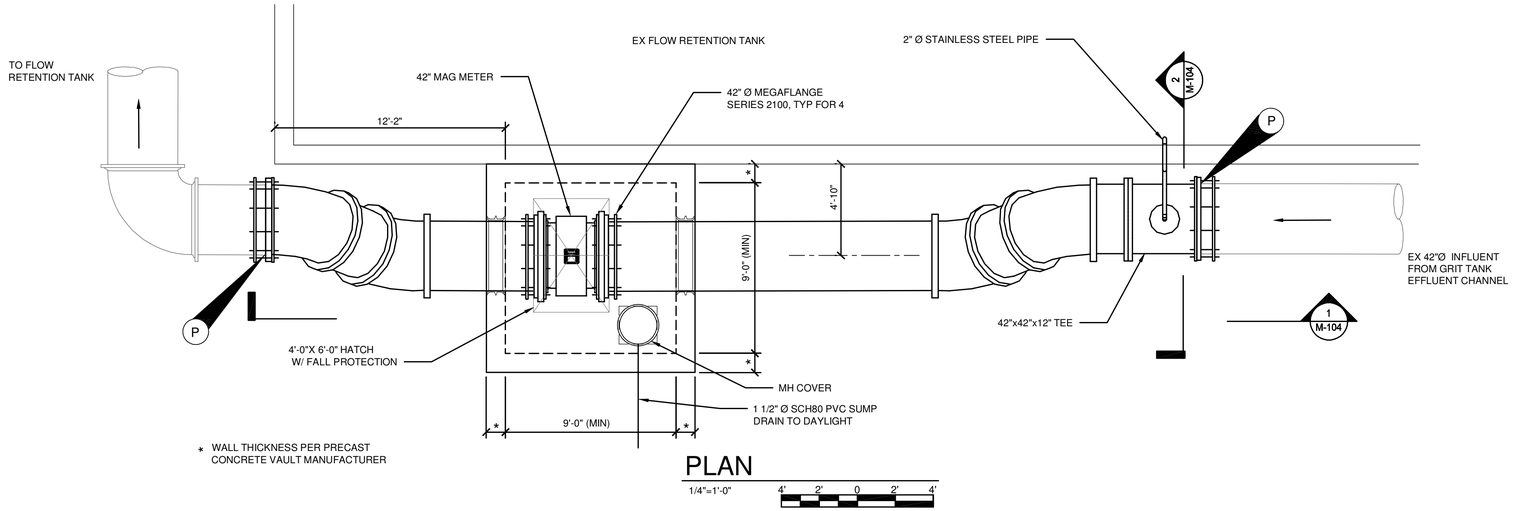
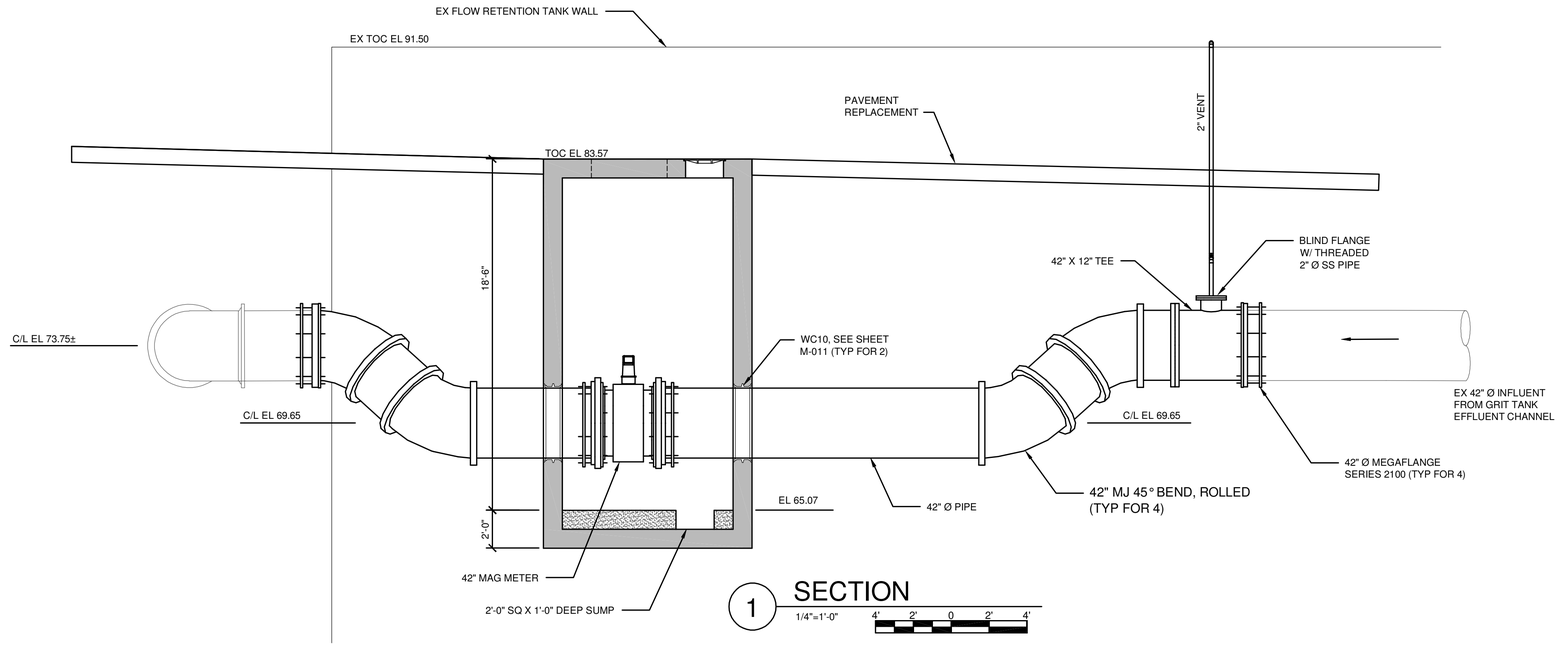


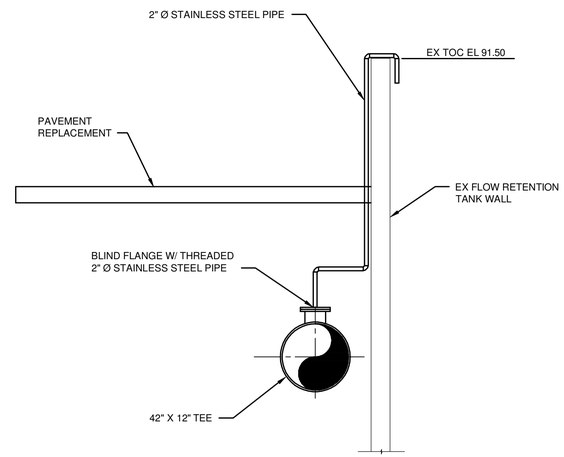
PLAN

1/4"=1'-0"



1 SECTION

1/4"=1'-0"



2 SECTION

1/4"=1'-0"

NOTES:
METER TO BE SUPPORTED FROM FLOOR.
SEE DETAIL M-010 ON SHEET M-004.

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CHECKED BY RWR
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220 MARKET AVENUE SOUTH
SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FLOW RETENTION BASIN INFLUENT VAULT

PLAN AND SECTION

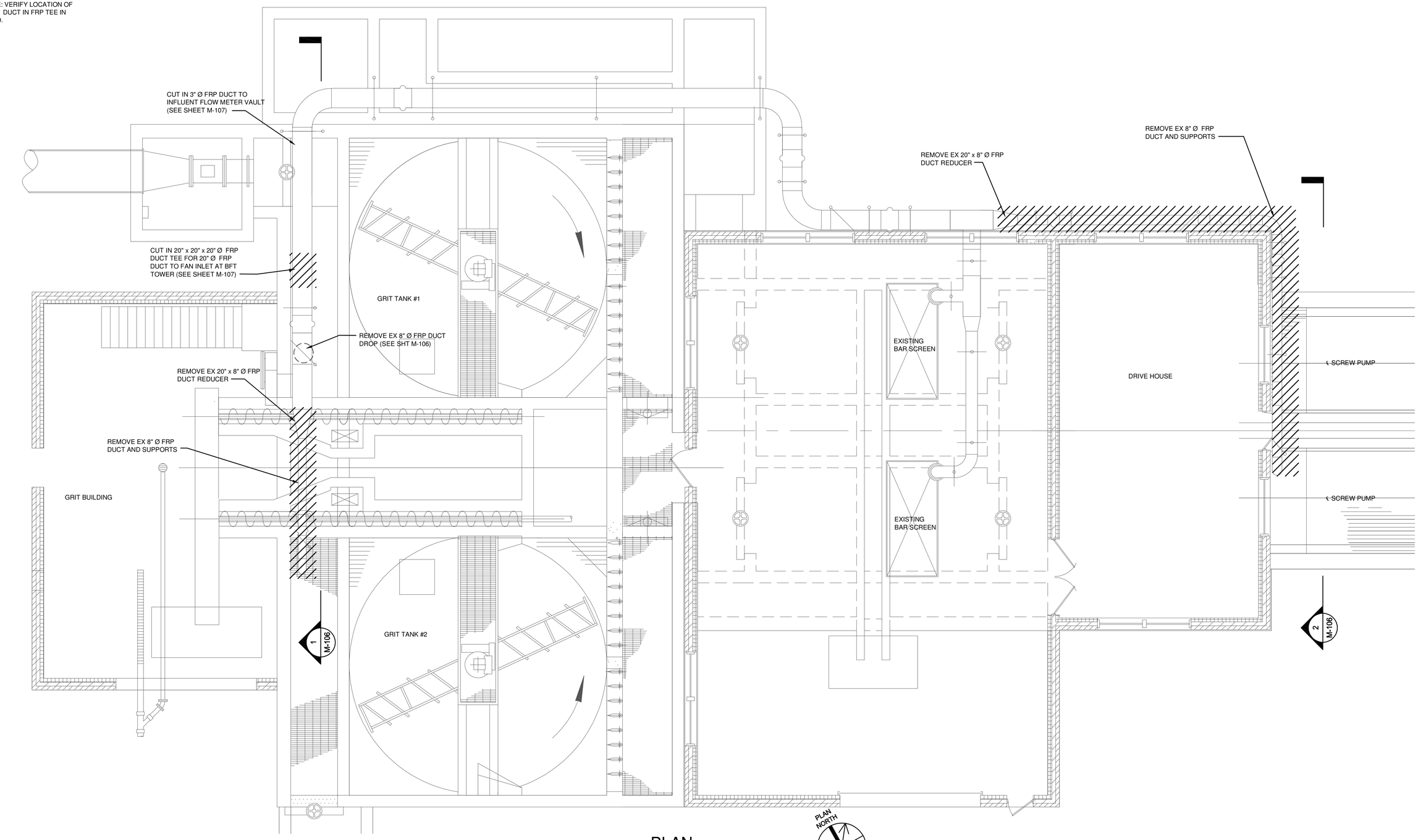
FILE NO. 23374.51633 -M104
DATE MARCH 19, 2015

M-104

E:\E14007 MASSILLON WWTP IMPROVEMENTS\DWG\SHEETS\51633-M-104.DWG

SAVED: 6/15/15 1:24 PM

NOTE: VERIFY LOCATION OF 20" Ø DUCT IN FRP TEE IN FIELD.



PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS

ODOR CONTROL DEMOLITION PLAN

FILE NO. 23374.51633 -M105

DATE MARCH 19, 2015

M-105

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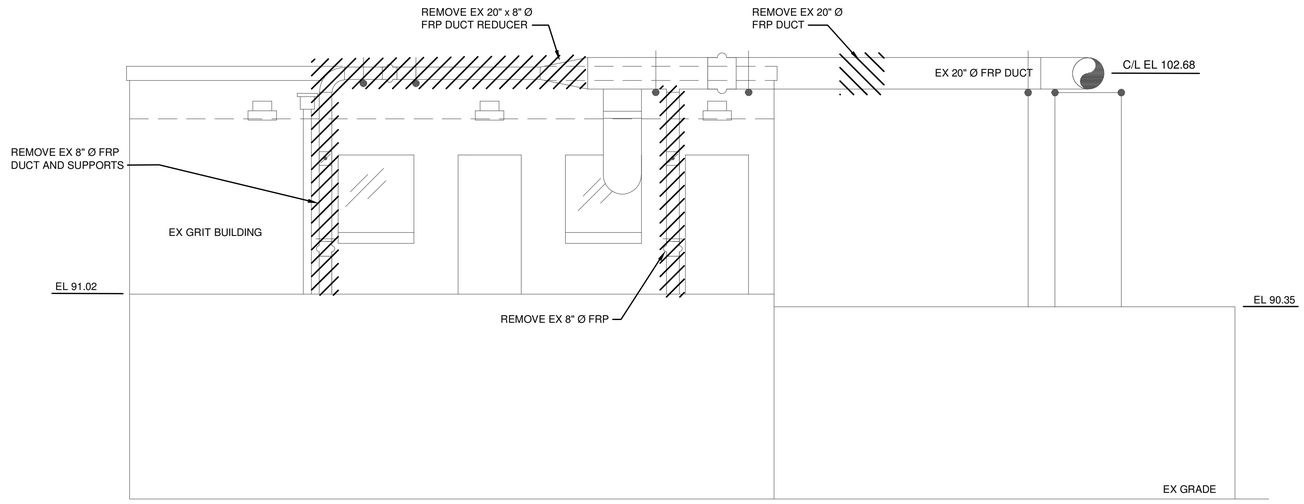
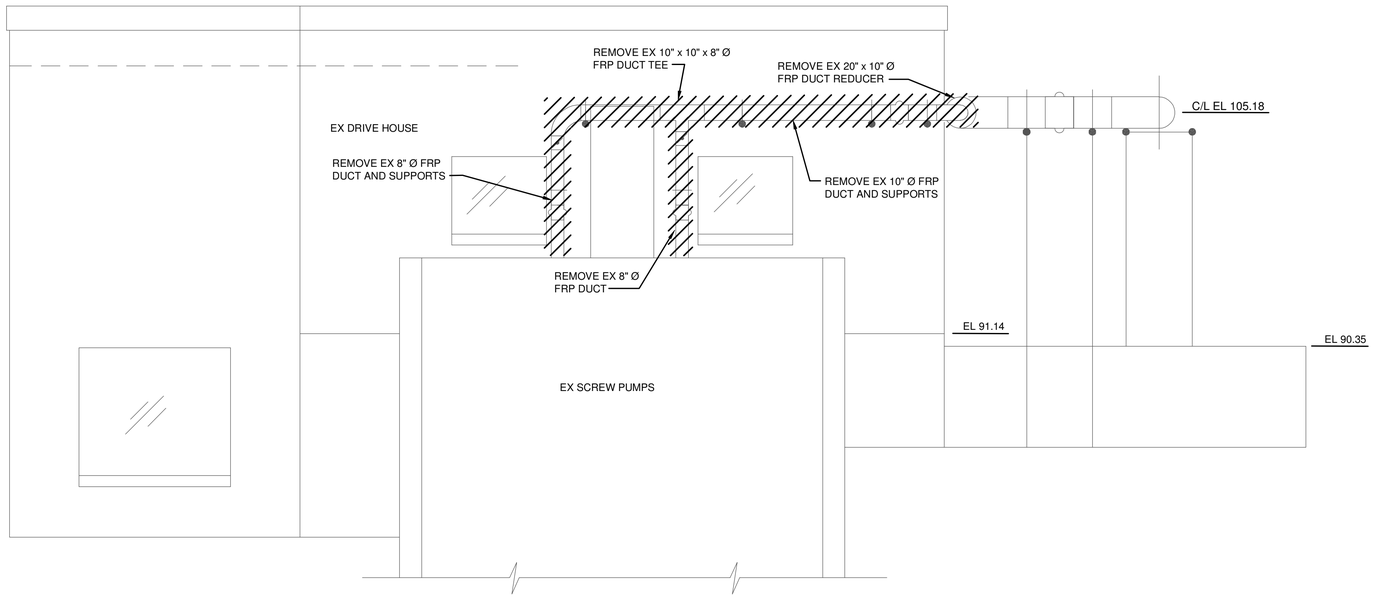


1 SECTION
1/4"=1'-0"
4' 2' 0 2' 4'



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

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS
ODOR CONTROL DEMOLITION SECTIONS

FILE NO. 23374.51633 -M106
DATE MARCH 19, 2015

M-106

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NOTES TO CONTRACTOR :

1. FRP DUCT SHALL BE DELIVERED IN THE LARGEST PRACTICAL SECTIONS TO MINIMIZE FIELD JOINTS. FLANGED CONNECTIONS SHALL BE PROVIDED WHERE SHOWN OR REQUIRED.

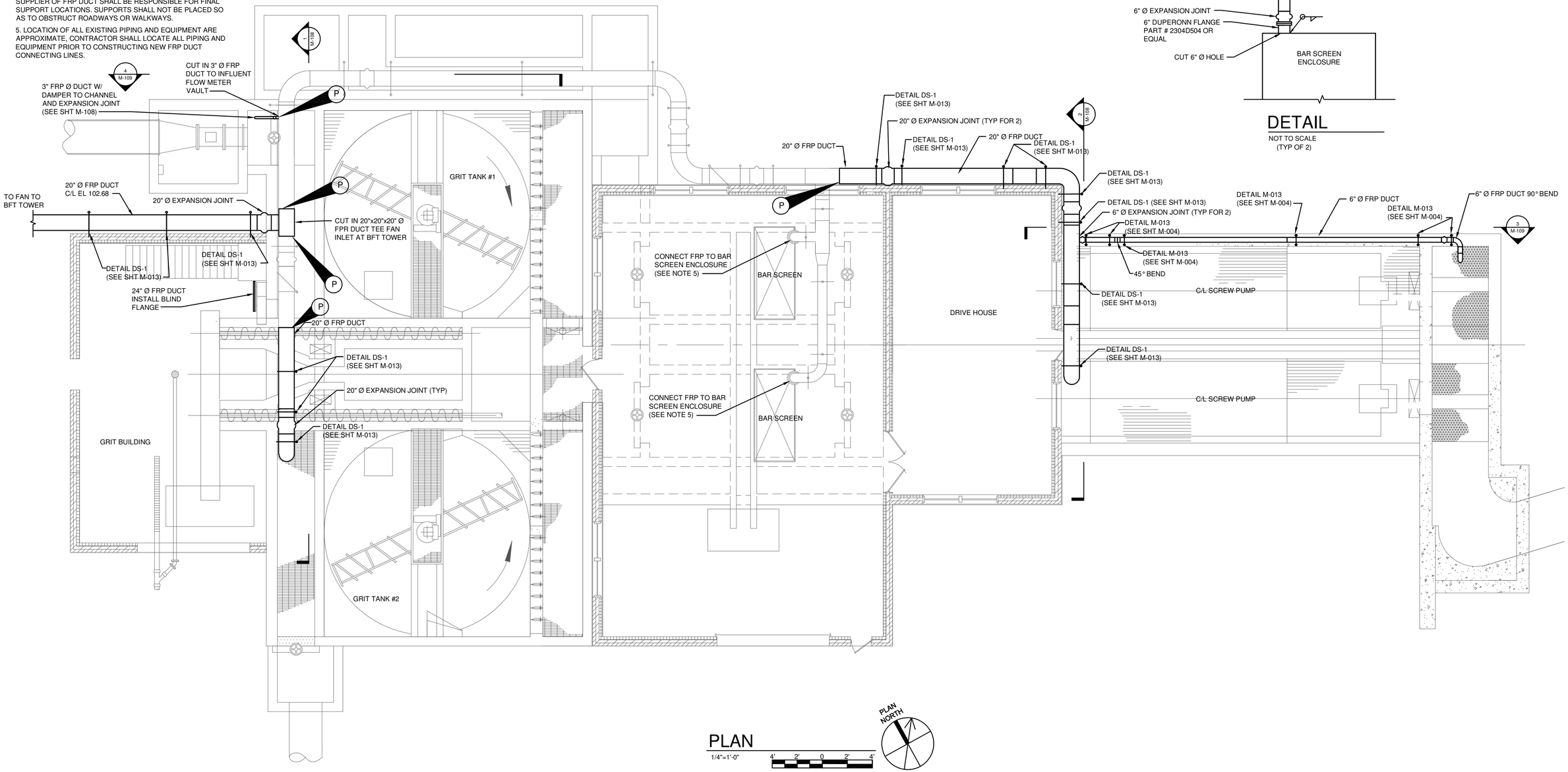
2. SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR DESIGN OF DUCT TO SPAN BETWEEN SUPPORTS AND TO ALLOW FOR THERMAL EXPANSION PROVIDE ADDITIONAL EXPANSION JOINTS IF NECESSARY TO ACCOMMODATE EXPANSION.

3. ALL DIMENSIONS OF OPENINGS TO RECEIVE ALUMINUM OR FRP COVERS OR COVER PLATES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION.

4. LOCATIONS OF DUCT SUPPORTS ARE APPROXIMATE, SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR FINAL SUPPORT LOCATIONS. SUPPORTS SHALL NOT BE PLACED SO AS TO OBSTRUCT ROADWAYS OR WALKWAYS.

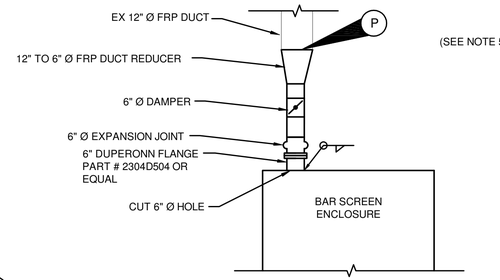
5. LOCATION OF ALL EXISTING PIPING AND EQUIPMENT ARE APPROXIMATE, CONTRACTOR SHALL LOCATE ALL PIPING AND EQUIPMENT PRIOR TO CONSTRUCTING NEW FRP DUCT CONNECTING LINES.

6. FOR DUCT SUPPORT DETAILS SEE SHEETS M-004 AND M-013.



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

PLAN NORTH



DETAIL
NOT TO SCALE
(TYP OF 2)

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS

ODOR CONTROL PLAN AND DETAIL

FILE NO. 23374.51633 -M107
DATE MARCH 19, 2015

M-107

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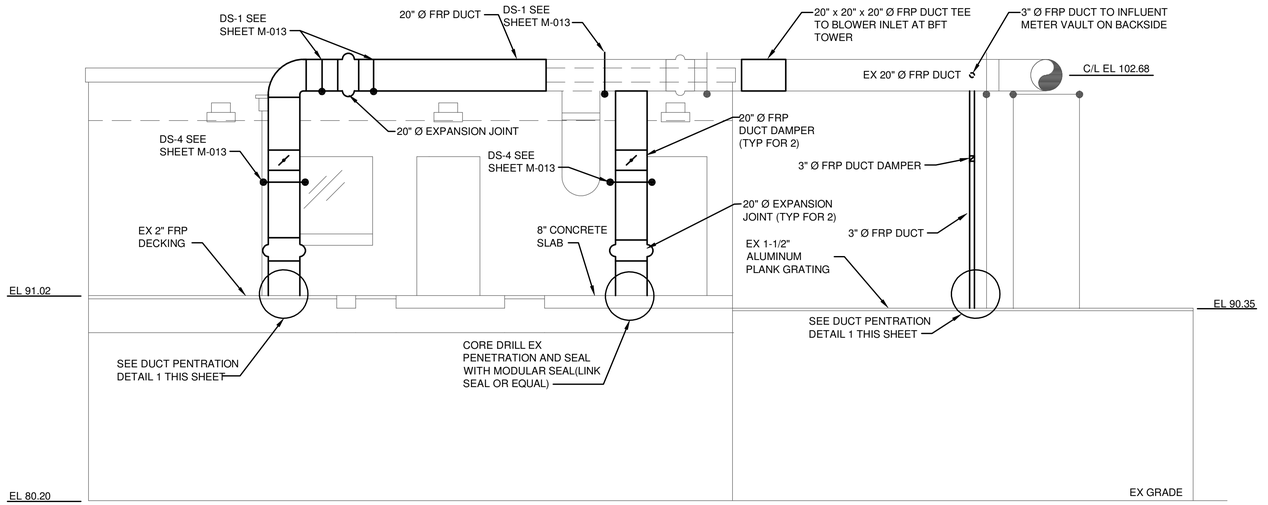
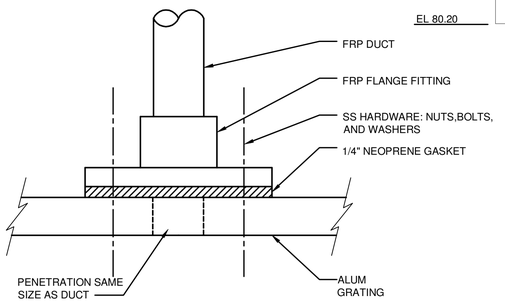
SAVED: 9/18/15 8:46 AM



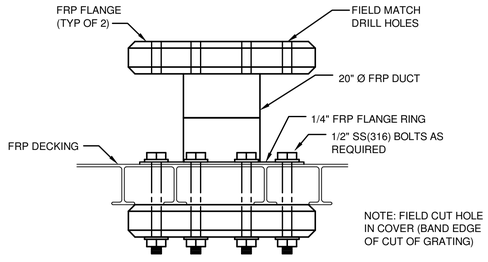
1 SECTION
1/4"=1'-0"

NOTE:
1. LOCATE DAMPERS TO BE ACCESSED WITHOUT LADDERS (WHERE POSSIBLE)

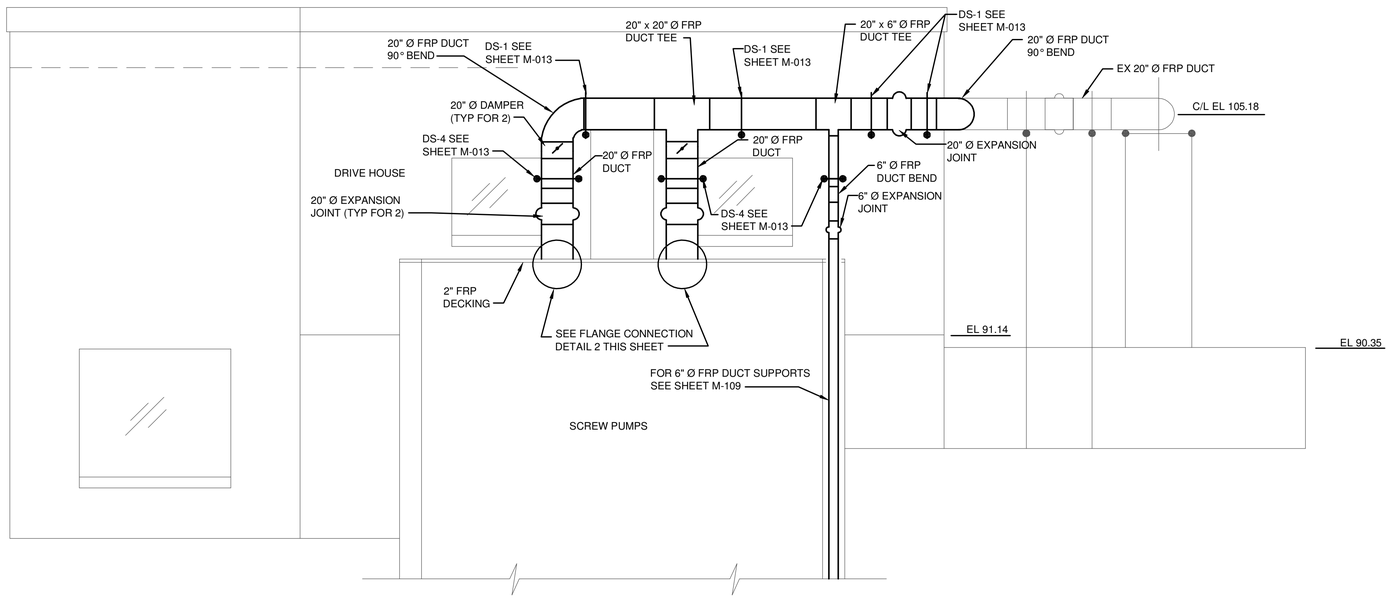
2. FOR PIPE SUPPORT DETAIL SEE SHEET M-004



1 DUCT PENETRATION DETAIL
NOT TO SCALE



2 FLANGE CONNECTION DETAIL
NOT TO SCALE



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

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS
ODOR CONTROL SECTIONS AND DETAILS

FILE NO. 23374.51633 -M108
DATE MARCH 19, 2015

M-108

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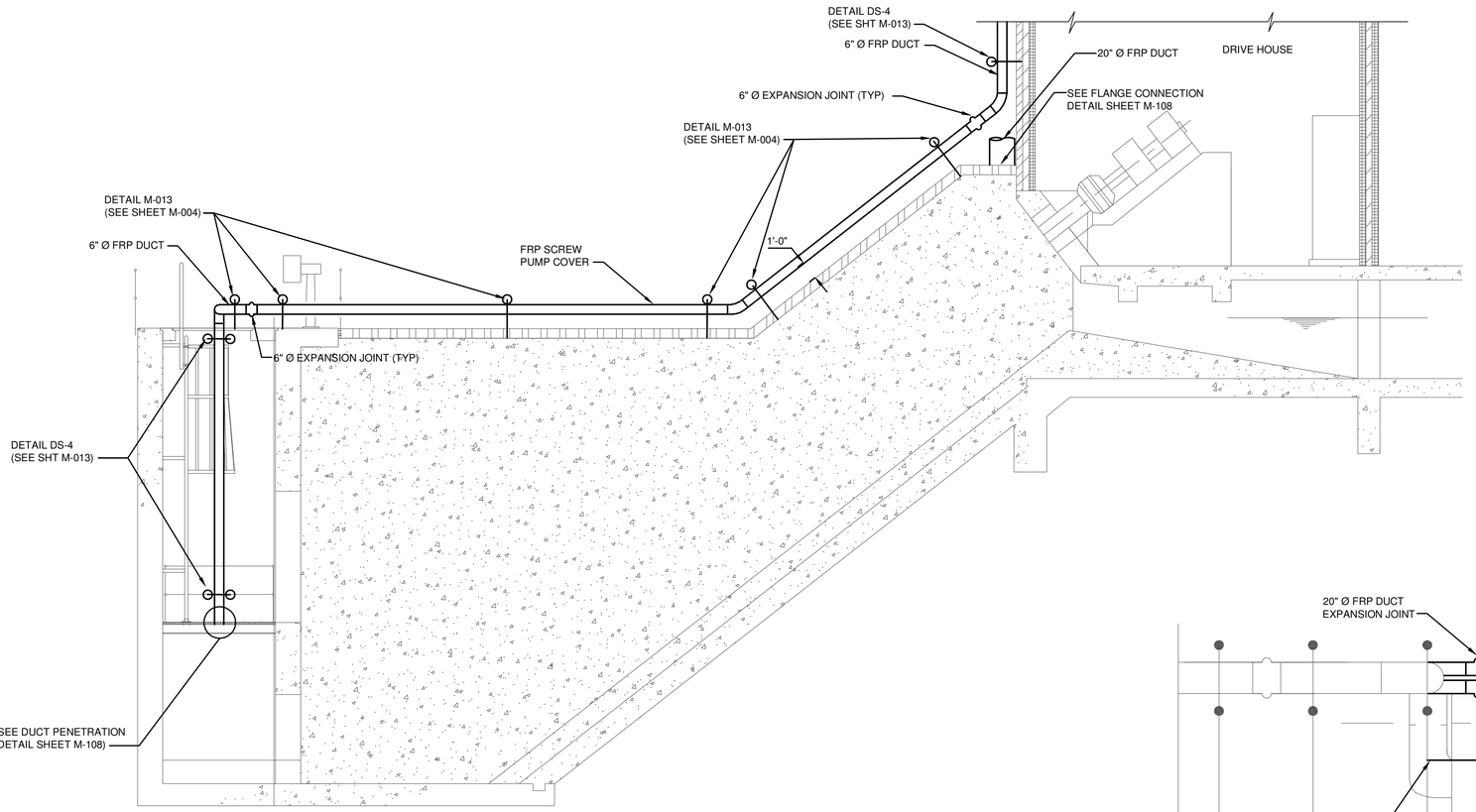
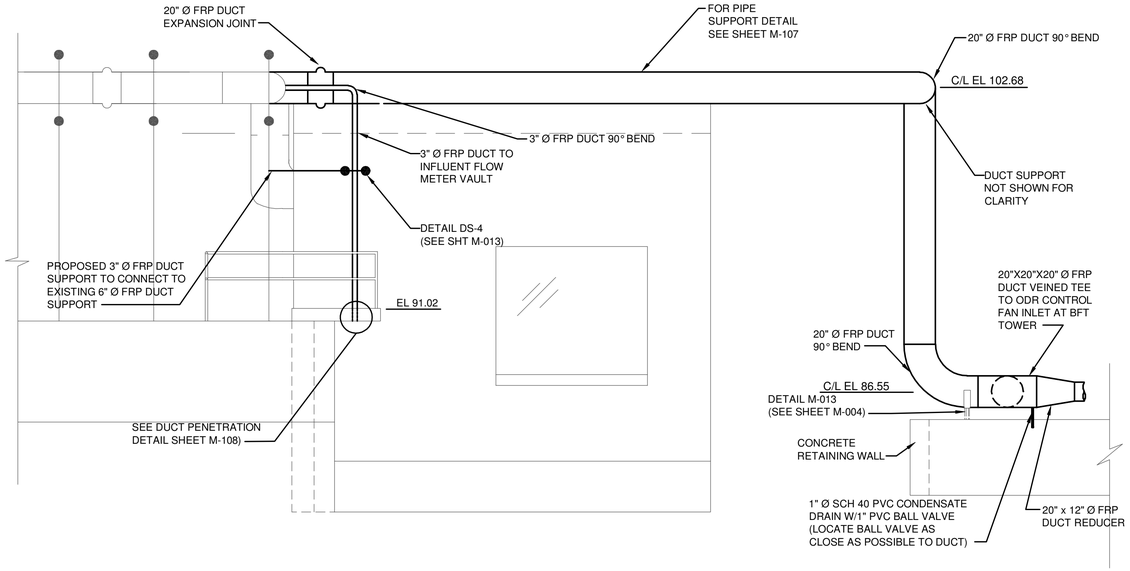


3 SECTION
1/4"=1'-0" 4' 2' 0 2' 4'



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

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS

ODOR CONTROL SECTIONS AND DETAIL

FILE NO. 23374.51633 -M109
DATE MARCH 19, 2015

M-109

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SAVED: 7/8/15 3:01 PM

NOTES TO CONTRACTOR :

1. FRP DUCT SHALL BE DELIVERED IN THE LARGEST PRACTICAL SECTIONS TO MINIMIZE FIELD JOINTS. FLANGED CONNECTIONS SHALL BE PROVIDED WHERE SHOWN OR REQUIRED.

2. SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR DESIGN OF DUCT TO SPAN BETWEEN SUPPORTS AND TO ALLOW FOR THERMAL EXPANSION PROVIDE ADDITIONAL EXPANSION JOINTS IF NECESSARY TO ACCOMMODATE EXPANSION.

3. ALL DIMENSIONS OF OPENINGS TO RECEIVE ALUMINUM OR FRP COVERS OR COVER PLATES SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION.

4. LOCATIONS OF DUCT SUPPORTS ARE APPROXIMATE, SUPPLIER OF FRP DUCT SHALL BE RESPONSIBLE FOR FINAL SUPPORT LOCATIONS. SUPPORTS SHALL NOT BE PLACED SO AS TO OBSTRUCT ROADWAYS OR WALKWAYS.

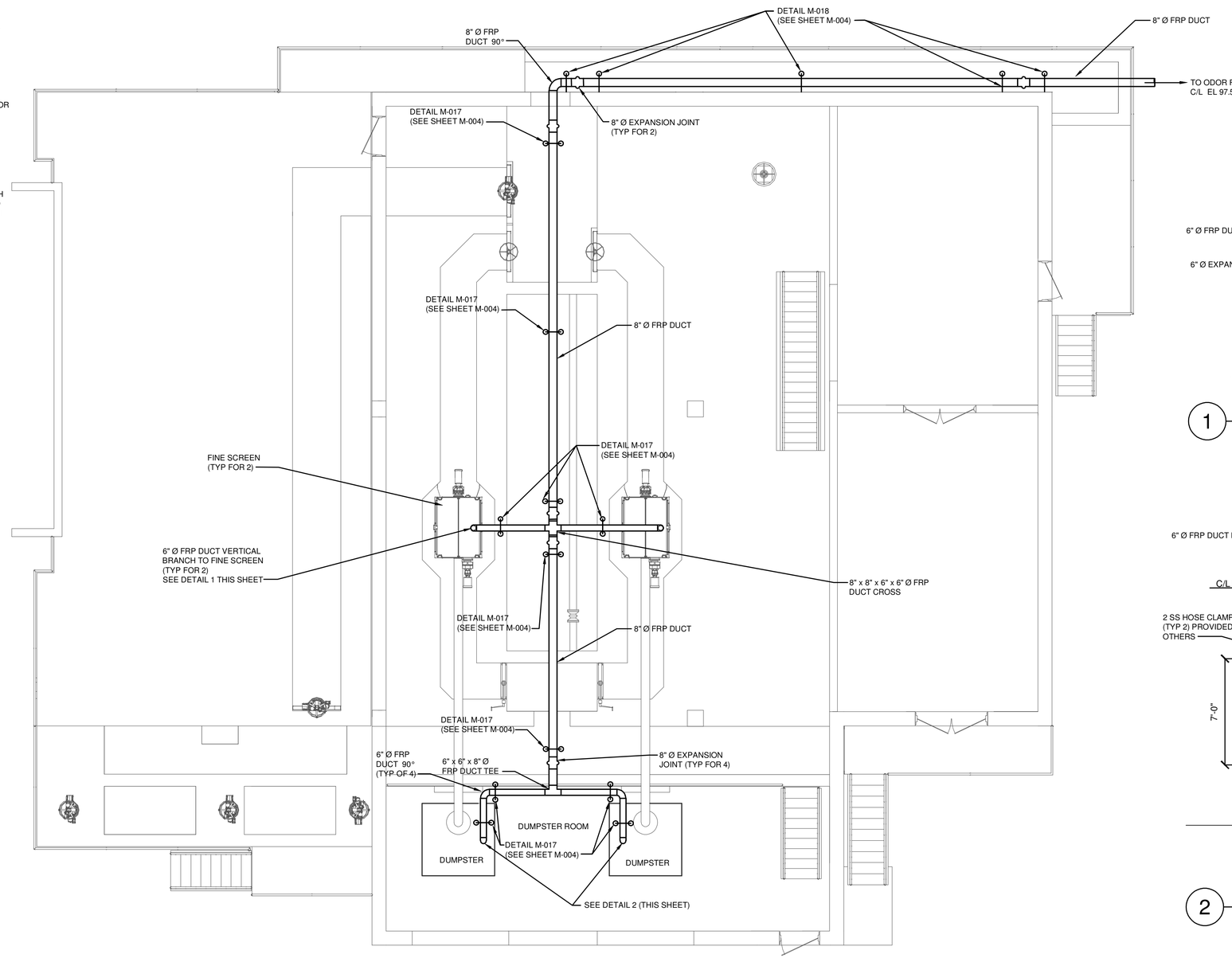
5. LOCATION OF ALL EXISTING PIPING AND EQUIPMENT ARE APPROXIMATE, CONTRACTOR SHALL LOCATE ALL PIPING AND EQUIPMENT PRIOR TO CONSTRUCTING NEW FRP DUCT CONNECTING LINES.

6. FOR DUCT SUPPORT DETAILS M-017 AND M-013 SEE SHEET M-004.

7. FOR INSTALLATION OF DUCTWORK INSIDE FINESCREEN SCREEN BUILDING (SHOWN THIS SHEET). DUCT WORK SHOULD BE FITTED WITH SADDLE BANDS AT 8' TO 12' CENTERS, SUSPENDED WITH ALL THREAD ROD. DUCTWORK SHOULD ALSO BE SUSPENDED AT EACH CHANGE IN DIRECTION. CONTRACTOR IS REQUIRED TO DETERMINE SIZE OF SADDLE BANDS AND ALL THREAD ROD, PER DUCT MANUFACTURES REQUIREMENTS. DUCTWORK IS TO BE SUSPENDED FROM PRE CAST ROOF SLAB. A 1/4" NEOPRENE PAD SHALL BE PLACED BETWEEN THE DUCT SUPPORT.

8. TAPER FRP PIPE ENDS TO FIT 6" ID FLEXIBLE HOSE.

9. NO PIPE SUPPORTS SHALL BE LOCATED DIRECTLY OVER DOORWAYS.

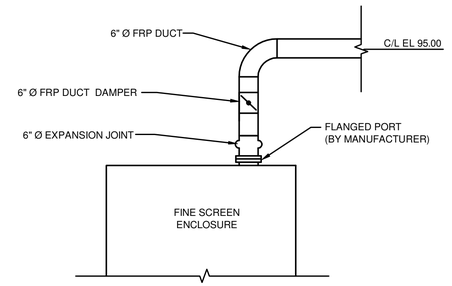


PLAN

1"=5'-0"

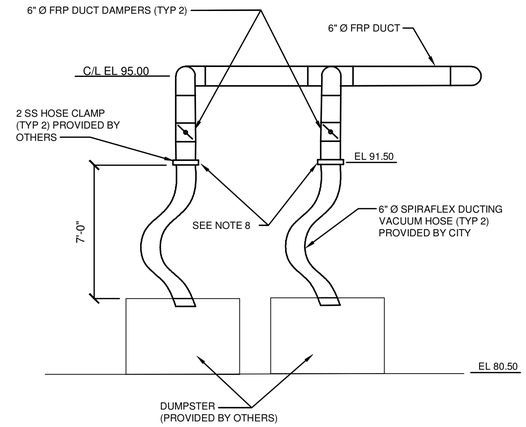
5' 0 5'

PLAN NORTH



1 VERTICAL BRANCH DETAIL

NOT TO SCALE



2 DUMPSTER ROOM DETAIL

NOT TO SCALE

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DRAWN BY GJL

NO.	DATE	REVISION	INT.
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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FINE SCREEN BUILDING

ODOR CONTROL PLAN AND DETAILS

FILE NO. 23374.51633 -M110
DATE MARCH 19, 2015

M-110

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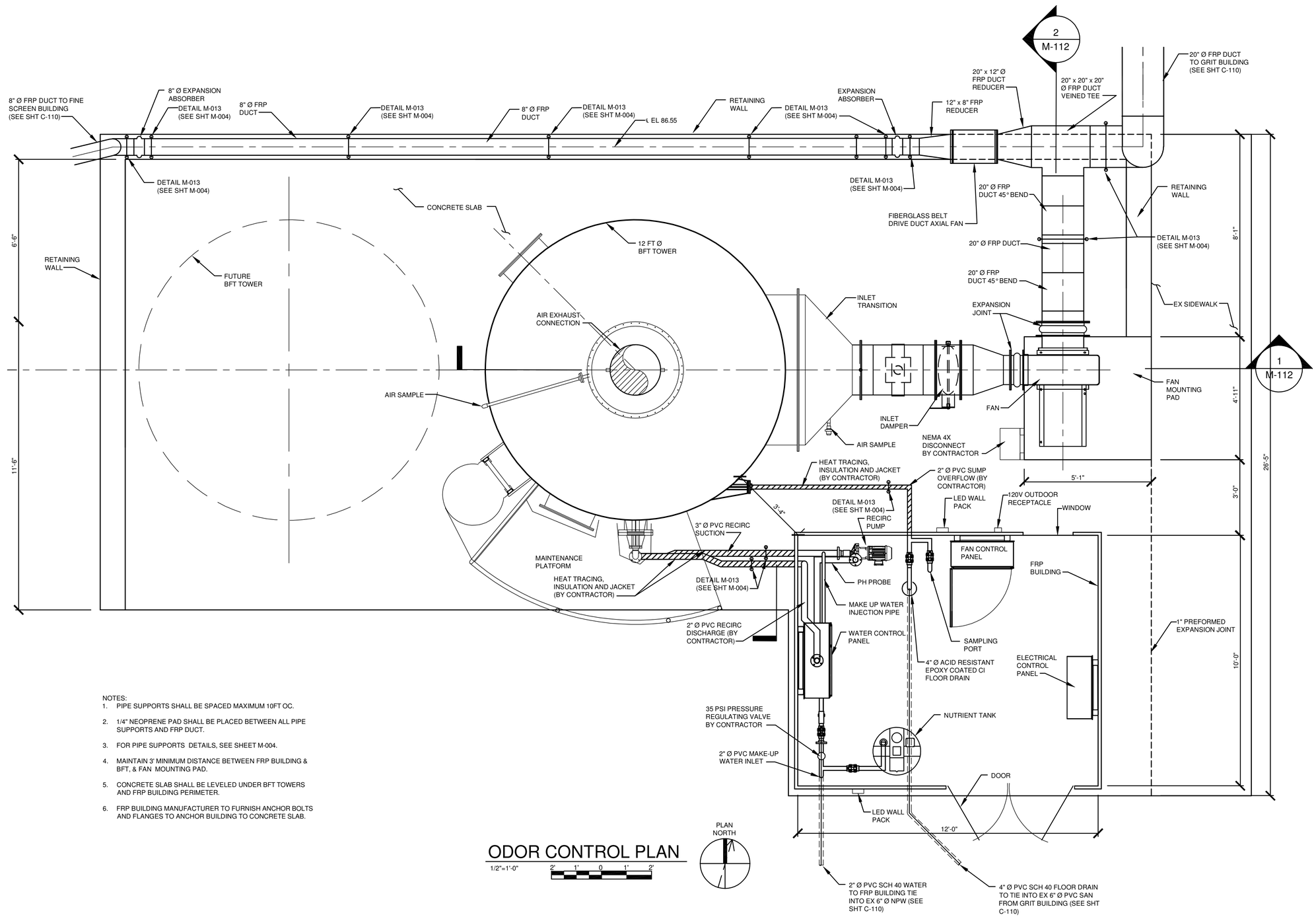

NOTES:
1. PIPE SUPPORTS SHALL BE SPACED MAXIMUM 10FT OC.
2. 1/4" NEOPRENE PAD SHALL BE PLACED BETWEEN ALL PIPE SUPPORTS AND FRP DUCT.
3. FOR PIPE SUPPORTS DETAILS, SEE SHEET M-004.
4. MAINTAIN 3' MINIMUM DISTANCE BETWEEN FRP BUILDING & BFT, & FAN MOUNTING PAD.
5. CONCRETE SLAB SHALL BE LEVELED UNDER BFT TOWERS AND FRP BUILDING PERIMETER.
6. FRP BUILDING MANUFACTURER TO FURNISH ANCHOR BOLTS AND FLANGES TO ANCHOR BUILDING TO CONCRETE SLAB.

ODOR CONTROL PLAN

1/2"=1'-0"

PLAN NORTH

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0	03/19/2015	ISSUED FOR OEPA REVIEW	WAD

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS

ODOR CONTROL PLAN

FILE NO. 23374.51633 -M111
DATE MARCH 19, 2015

M-111

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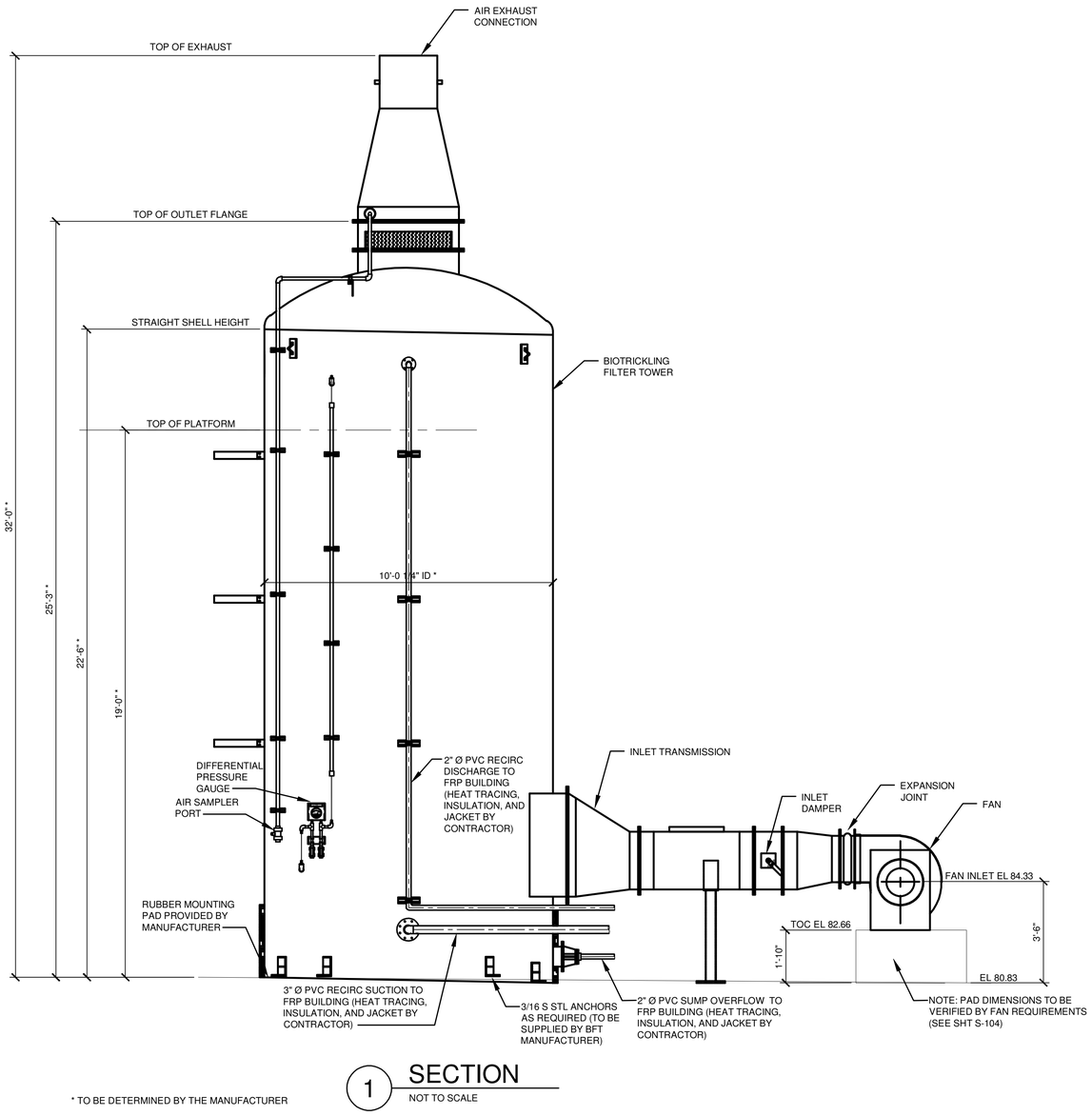
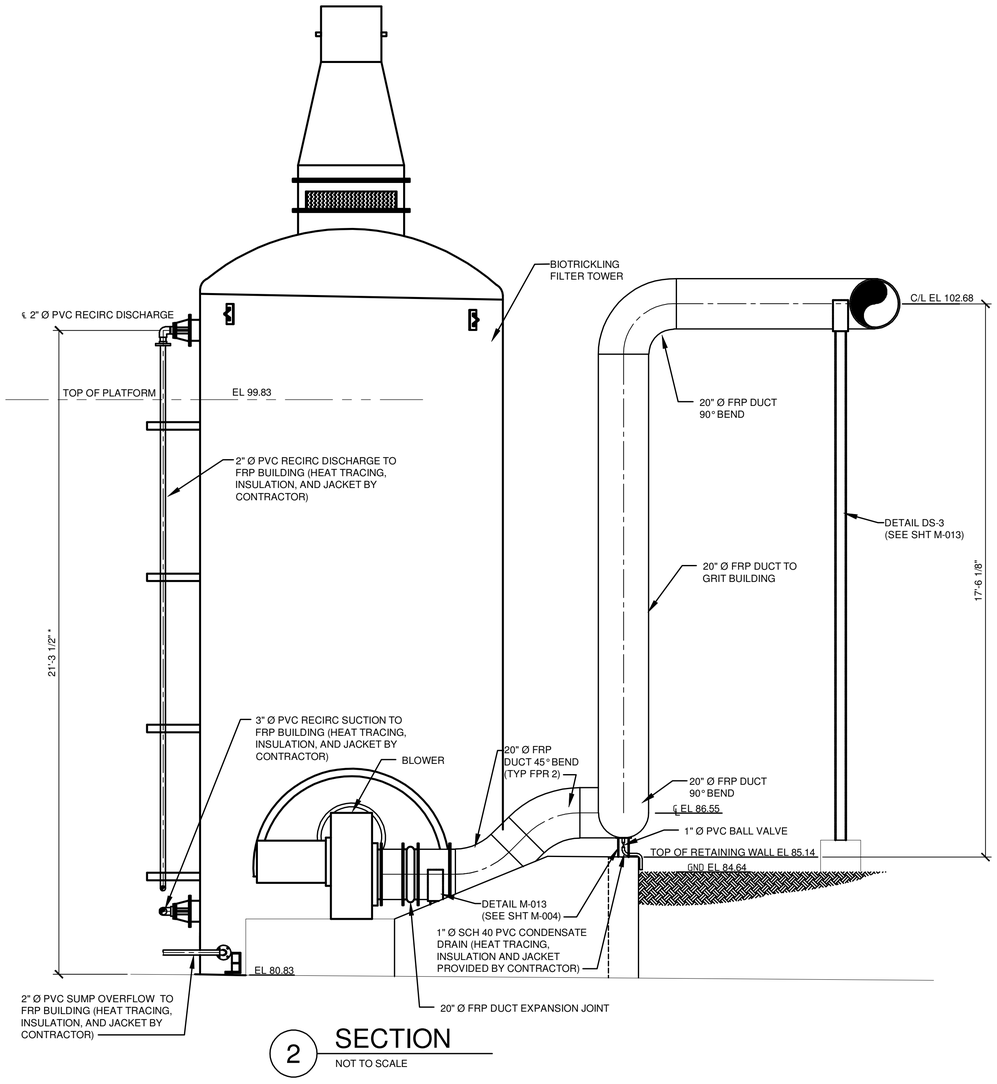
SAVED: 6/8/15 10:10 AM

NOTE: 1/4" NEOPRENE PAD SHALL BE PLACED BETWEEN ALL PIPE SUPPORTS AND FRP DUCT.



* TO BE DETERMINED BY THE MANUFACTURER

1 SECTION
NOT TO SCALE



2 SECTION
NOT TO SCALE

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IN CHARGE OF	WAD			
DESIGNED BY	WAD/DRB			
CHECKED BY	RWR	1	09/23/2015	ISSUED FOR BID
DRAWN BY	GJL	0	03/19/2015	ISSUED FOR OEPA REVIEW
		NO.	DATE	REVISION

		INT.
WAD		
WAD		

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
HEADWORKS

ODOR CONTROL SECTIONS

FILE NO. 23374.51633 -M112
DATE MARCH 19, 2015

M-112

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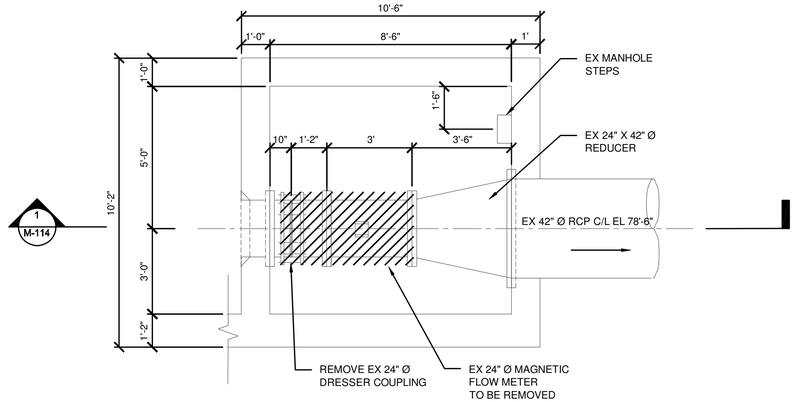
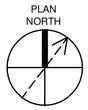
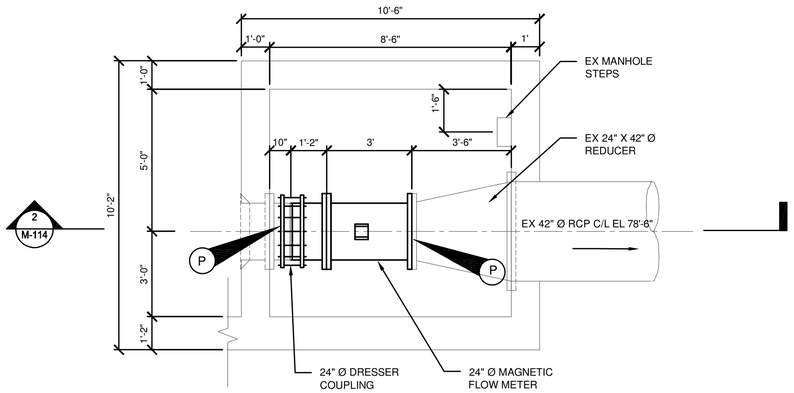


DEMOLITION PLAN

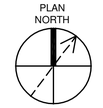
3/8"=1'-0" 3' 2' 1' 0 1' 2' 3'

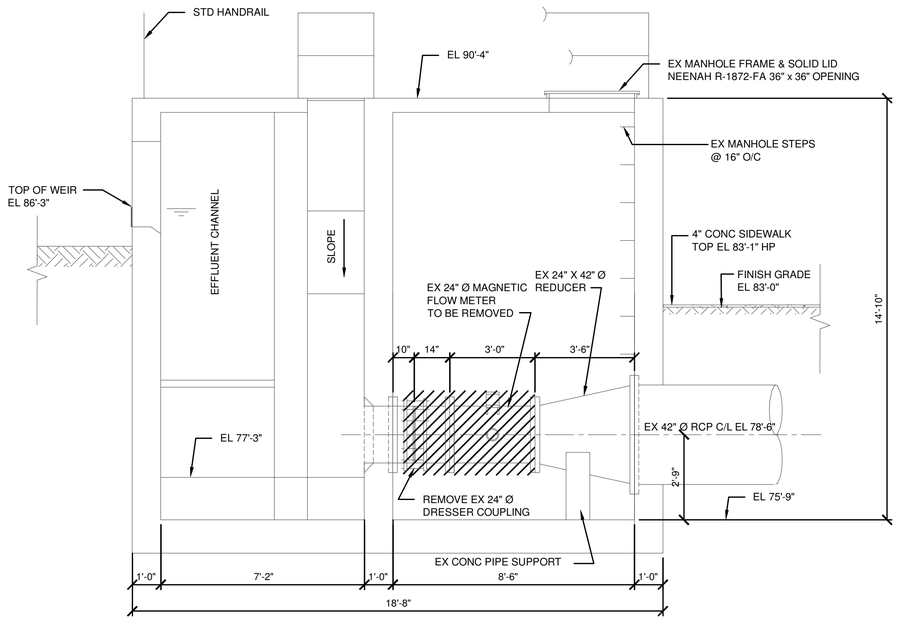




PLAN

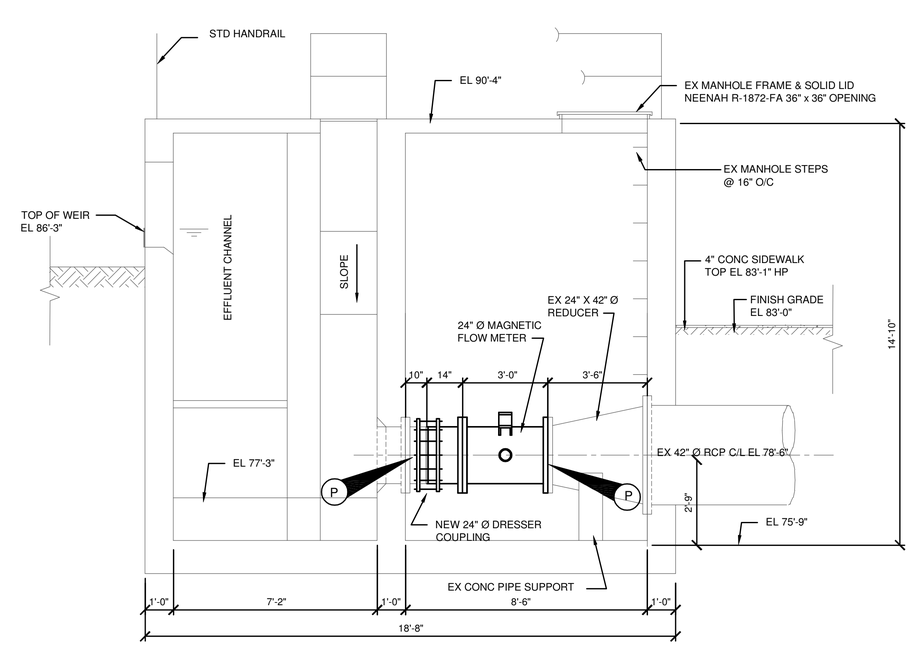
3/8"=1'-0" 3' 2' 1' 0 1' 2' 3'





1 SECTION

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



2 SECTION

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

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IN CHARGE OF	WAD			
DESIGNED BY	TRT			
CHECKED BY	RWR			
DRAWN BY	GJL			
NO.	DATE	REVISION		INT.
1	09/23/2015	ISSUED FOR BID		WAD
0	03/19/2015	ISSUED FOR OEPA REVIEW		WAD

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
INFLUENT FLOW METER VAULT

DEMOLITION AND MODIFICATIONS

FILE NO. 23374.51633 -M113
DATE MARCH 19, 2015
M-113

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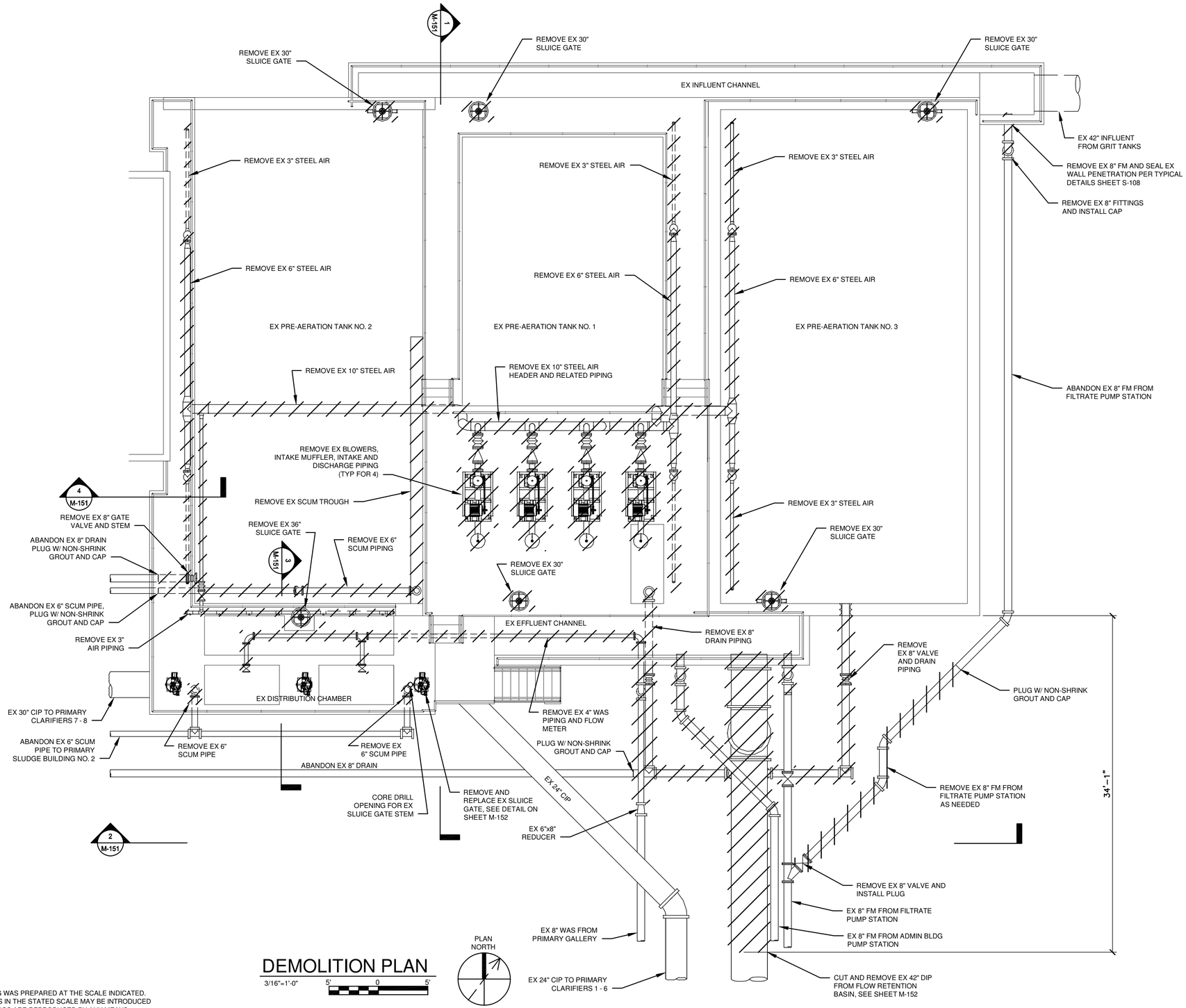

NOTE:
1. IN GENERAL, THE NOTATION TO REMOVE A PARTICULAR EQUIPMENT ITEM SHALL BE INTERPRETED TO INCLUDE THE REMOVAL OF ALL ASSOCIATED PIPING, BASES, SUPPORTS, ANCHORS, CONTROLS, CONDUIT, WIRING AND RELATED APPURTENANCES UNLESS SPECIFICALLY DESIGNATED OR ORDERED TO THE CONTRARY. CONCRETE SURFACES DISTURBED BY REMOVED ANCHORS, SUPPORTS, ETC SHALL BE REPAIRED PER 03 30 00 IN THE SPECIFICATIONS.
2. SEAL ALL EXISTING WALL PENETRATIONS IN ACCORDANCE WITH TYPICAL DETAILS ON SHEET S-108.

DEMOLITION PLAN

3/16"=1'-0" 5' 0 5'

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRE-AERATION TANKS
DEMOLITION PLAN

FILE NO. 23374.51633 -M150
DATE MARCH 19, 2015
M-150

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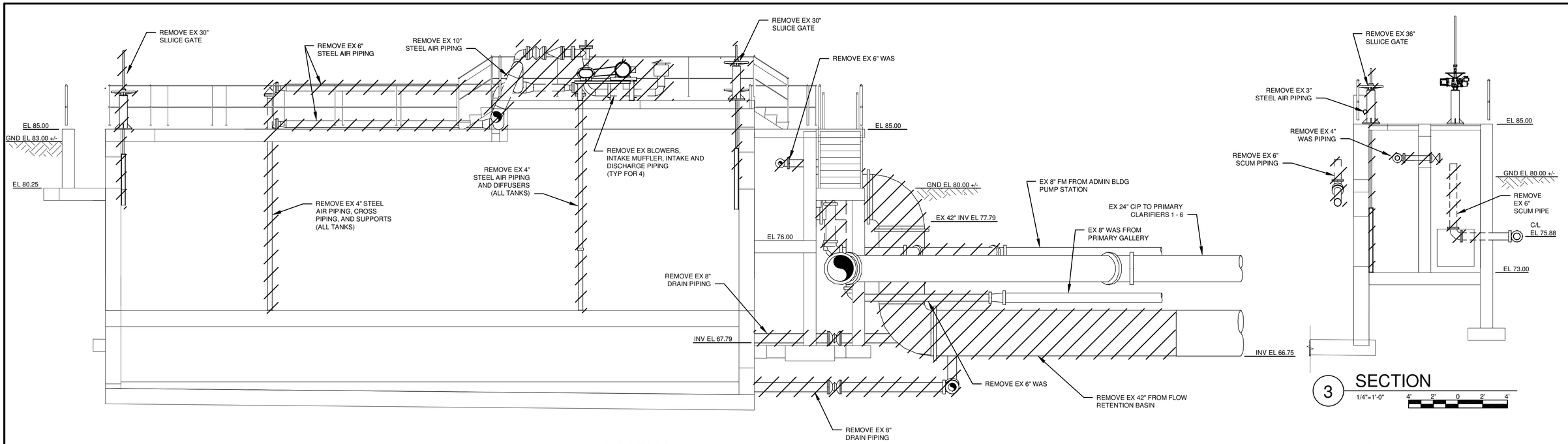
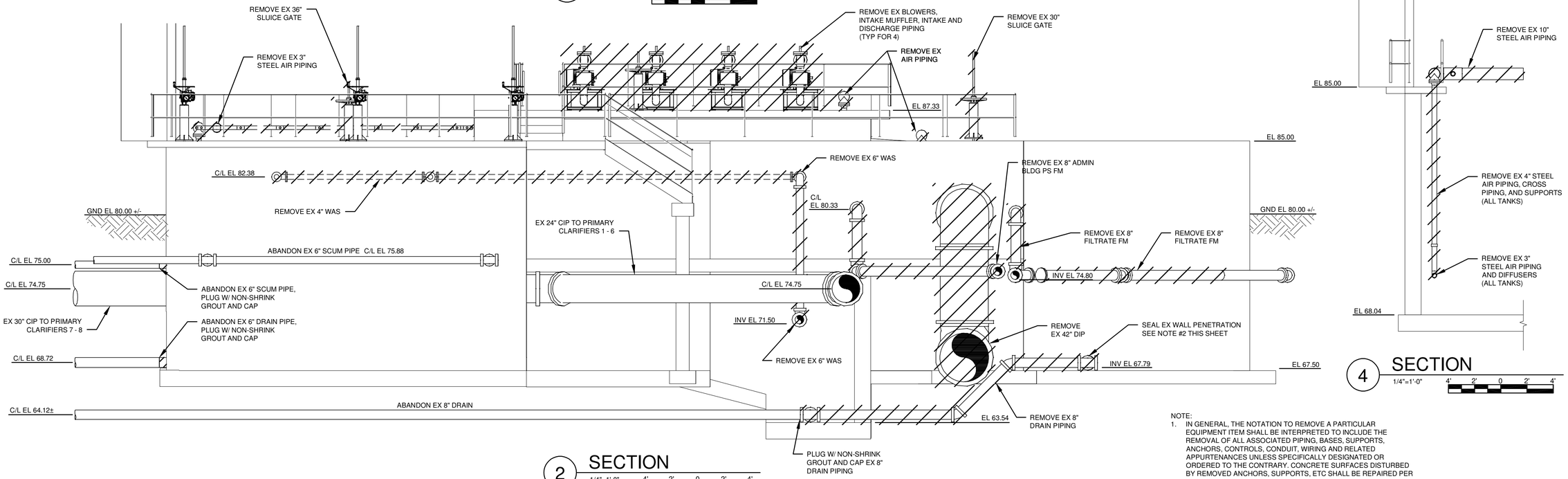


1 SECTION
1/4"=1'-0"

3 SECTION
1/4"=1'-0"



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

4 SECTION
1/4"=1'-0"

NOTE:
1. IN GENERAL, THE NOTATION TO REMOVE A PARTICULAR EQUIPMENT ITEM SHALL BE INTERPRETED TO INCLUDE THE REMOVAL OF ALL ASSOCIATED PIPING, BASES, SUPPORTS, ANCHORS, CONTROLS, CONDUIT, WIRING AND RELATED APPURTENANCES UNLESS SPECIFICALLY DESIGNATED OR ORDERED TO THE CONTRARY. CONCRETE SURFACES DISTURBED BY REMOVED ANCHORS, SUPPORTS, ETC SHALL BE REPAIRED PER 03 30 00 IN THE SPECIFICATIONS.
2. SEAL ALL EXISTING WALL PENETRATIONS IN ACCORDANCE WITH TYPICAL DETAILS ON SHEET S-108.

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRE-AERATION TANKS

DEMOLITION SECTIONS

FILE NO. 23374.51633 -M151
DATE MARCH 19, 2015
M-151

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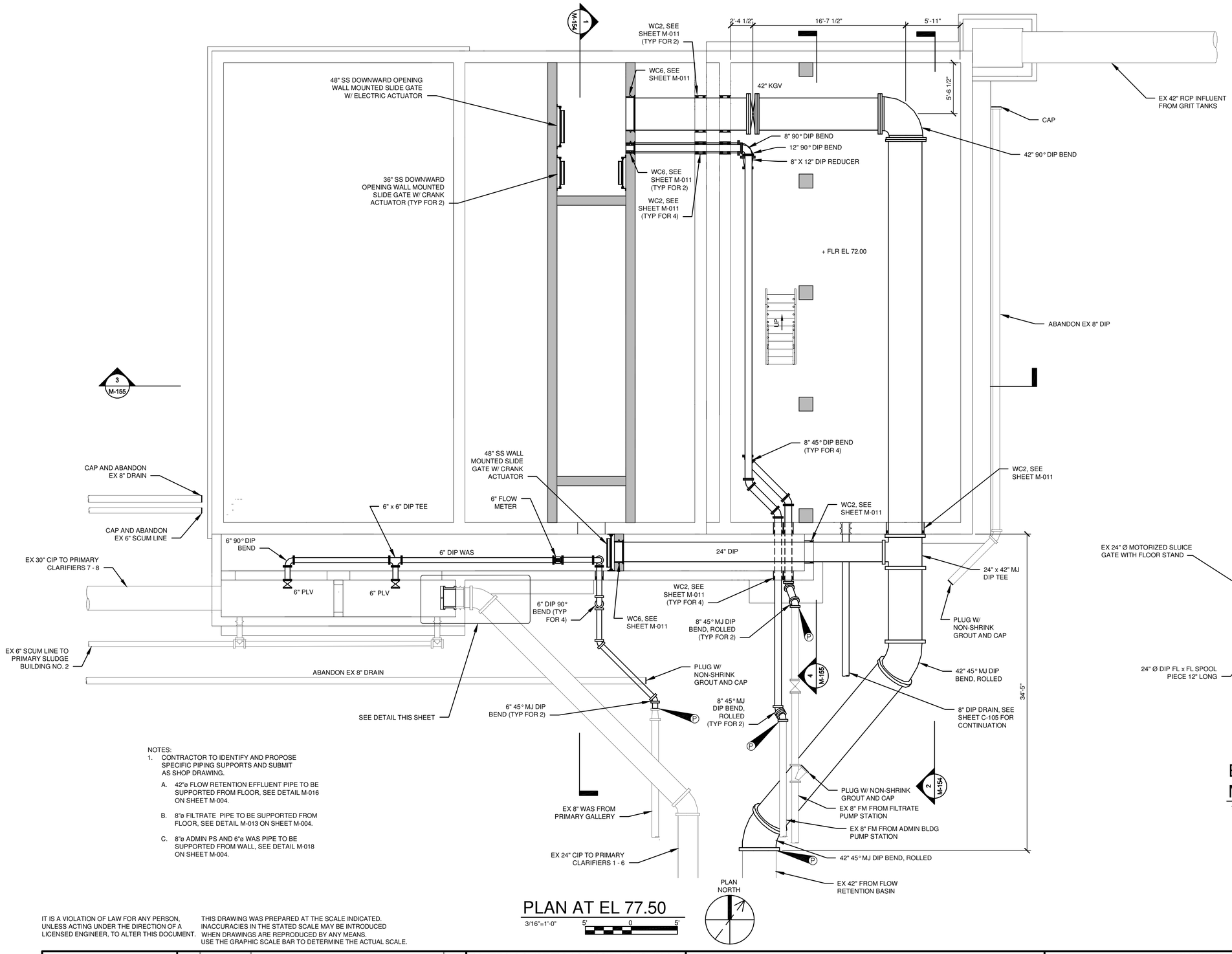
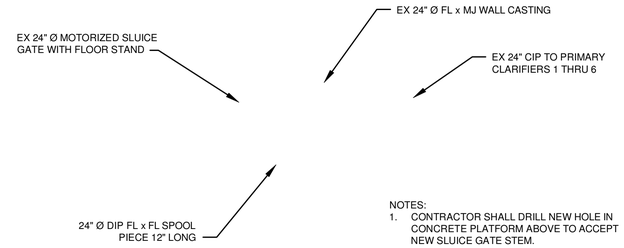


PLAN AT EL 77.50

3/16"=1'-0" 5' 0 5'

NOTES:
1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING.
   - A. 42"ø FLOW RETENTION EFFLUENT PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-016 ON SHEET M-004.
   - B. 8"ø FILTRATE PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-013 ON SHEET M-004.
   - C. 8"ø ADMIN PS AND 6"ø WAS PIPE TO BE SUPPORTED FROM WALL, SEE DETAIL M-018 ON SHEET M-004.



NOTES:
1. CONTRACTOR SHALL DRILL NEW HOLE IN CONCRETE PLATFORM ABOVE TO ACCEPT NEW SLUICE GATE STEM.
2. DRILL TAP AS REQUIRED FOR STUDS AND MOUNT WITH NEW SS HARDWARE AND RELOCATED SLUICE GATE.
3. EXISTING HOLE THROUGH WHICH SLUICE GATE STEM HAD PREVIOUSLY BEEN INSTALLED SHALL BE PLUGGED WITH NON SHRINK GROUT.

EX SLUICE GATE MODIFICATION DETAIL

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

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FINE SCREEN BUILDING

PLAN AT EL 77.50

FILE NO. 23374.51633 -M152
DATE MARCH 19, 2015

M-152

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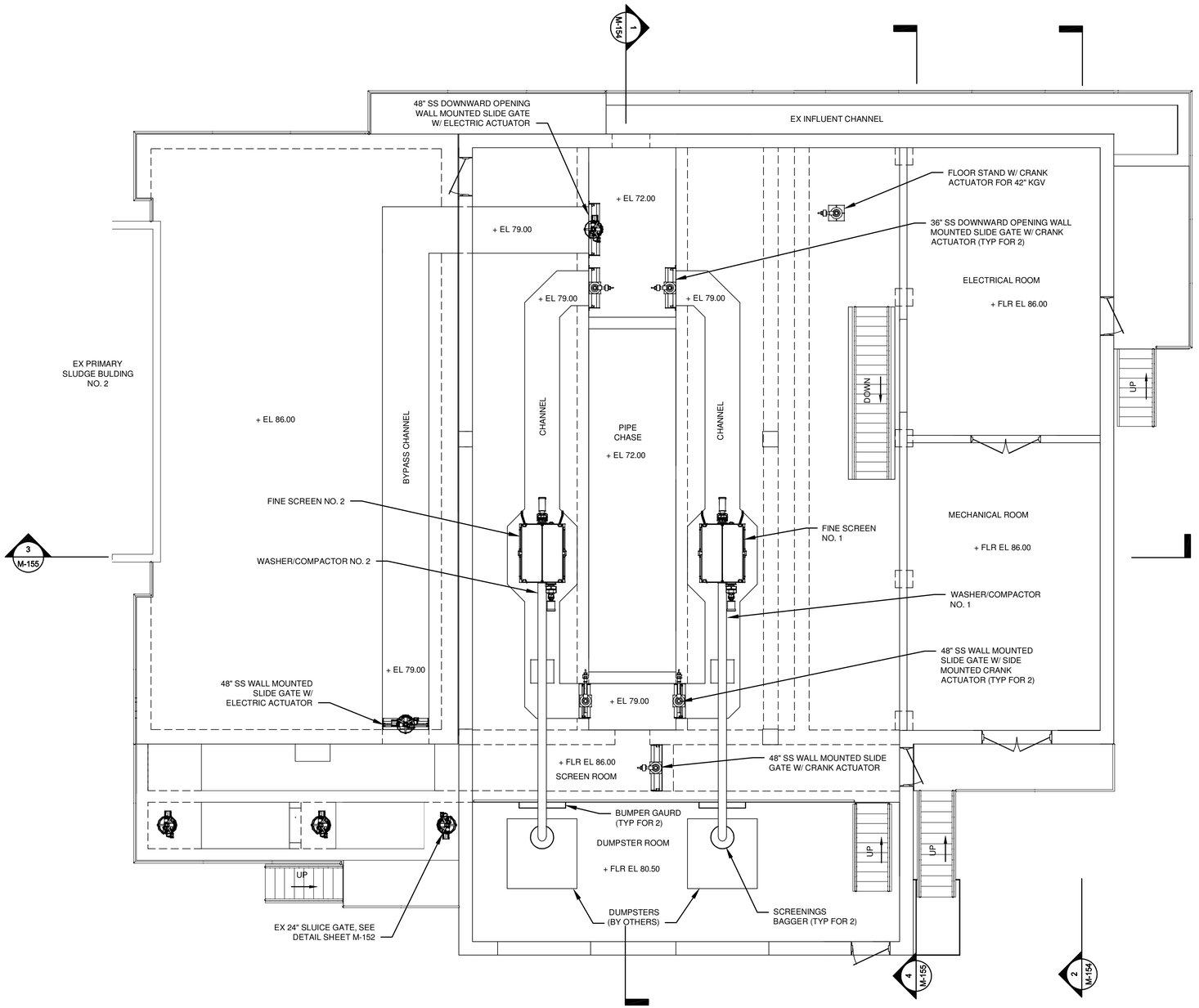

PLAN AT EL 86.00

3/16"=1'-0" 5' 0 5'

PLAN NORTH

NOTES:
1. FOR ODOR CONTROL PIPING, SEE SHEET M-110.
2. ALUMINUM PLANKING OVER CHANNELS NOT SHOWN FOR CLARITY. SEE SHEET S-107.

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DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FINE SCREEN BUILDING

PLAN AT EL 86.00

FILE NO. 23374.51633 -M153
DATE MARCH 19, 2015

M-153

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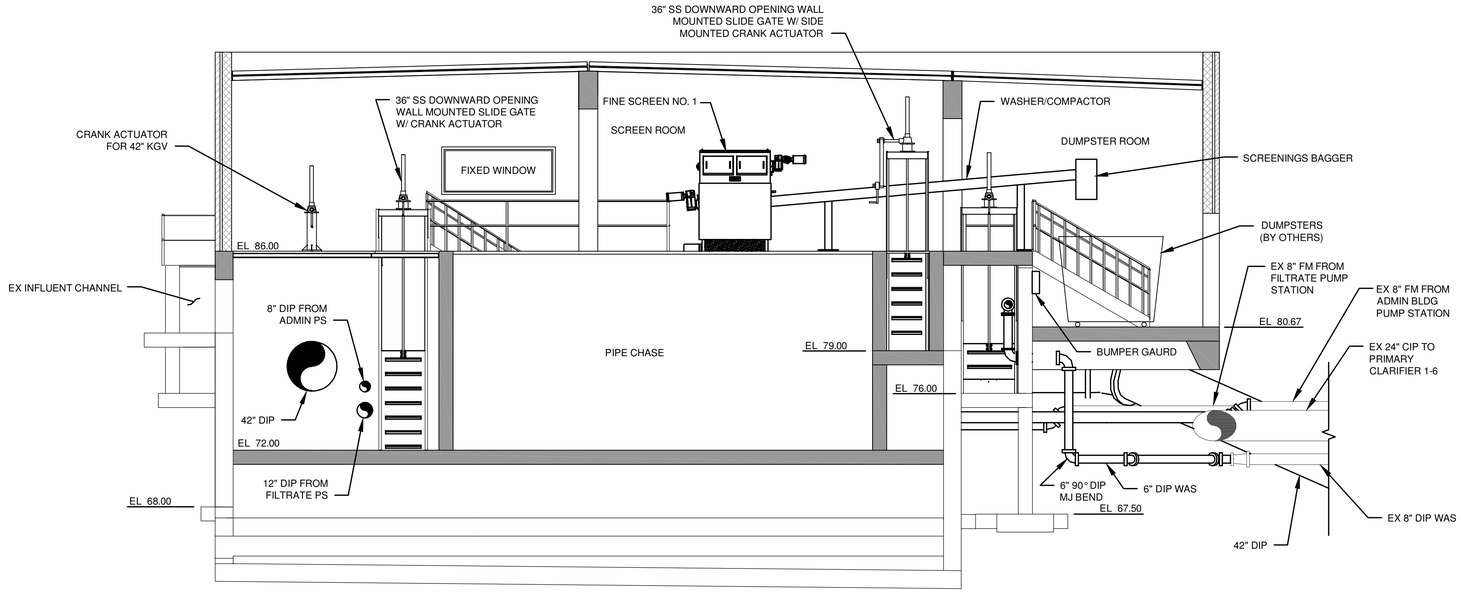
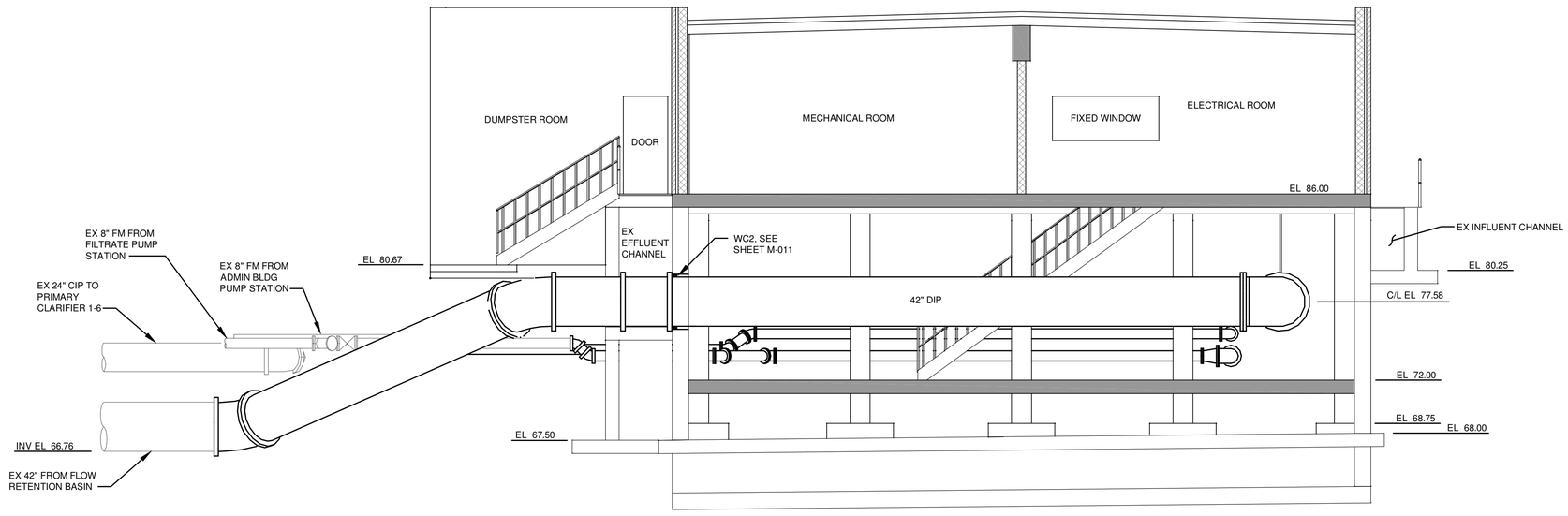


1 SECTION

3/16"=1'-0" 5' 0 5'



2 SECTION

3/16"=1'-0" 5' 0 5'

NOTES:
1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING.
   1. 42"ø FLOW RETENTION EFFLUENT PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-016 ON SHEET M-004.
   2. 8"ø FILTRATE PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-013 ON SHEET M-004.
   3. 8"ø ADMIN PS AND 6"ø WAS PIPE TO BE SUPPORTED FROM WALL, SEE DETAIL M-018 ON SHEET M-004.

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FINE SCREEN BUILDING

SECTIONS

FILE NO. 23374.51633 -M154
DATE MARCH 19, 2015

M-154

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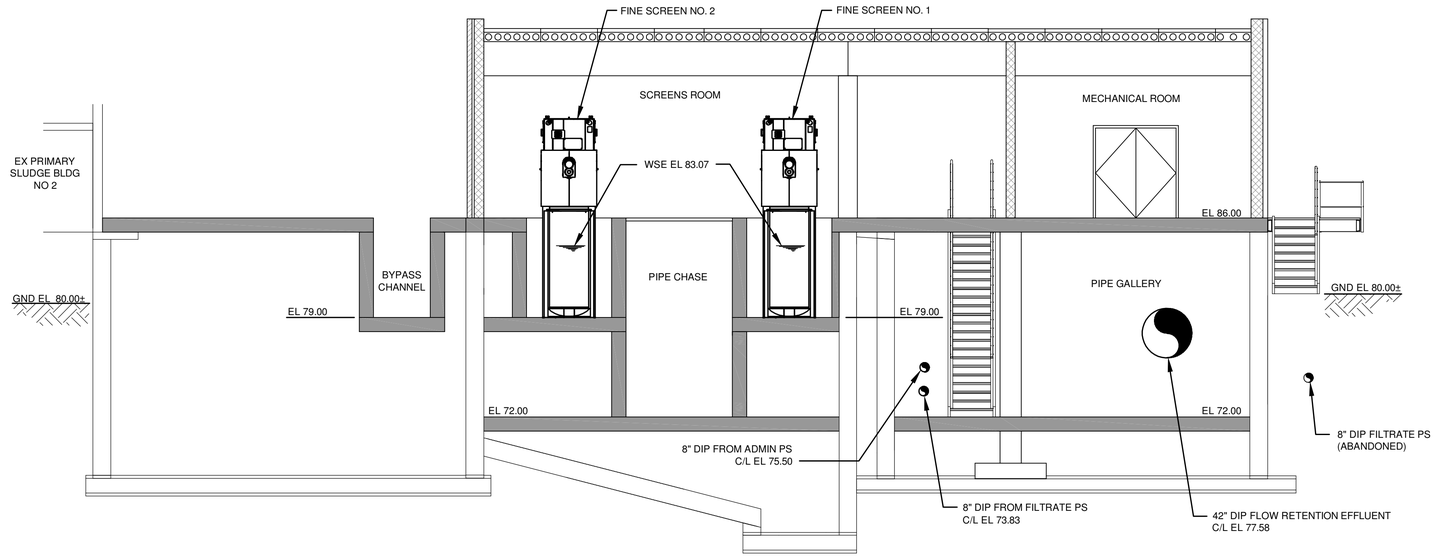
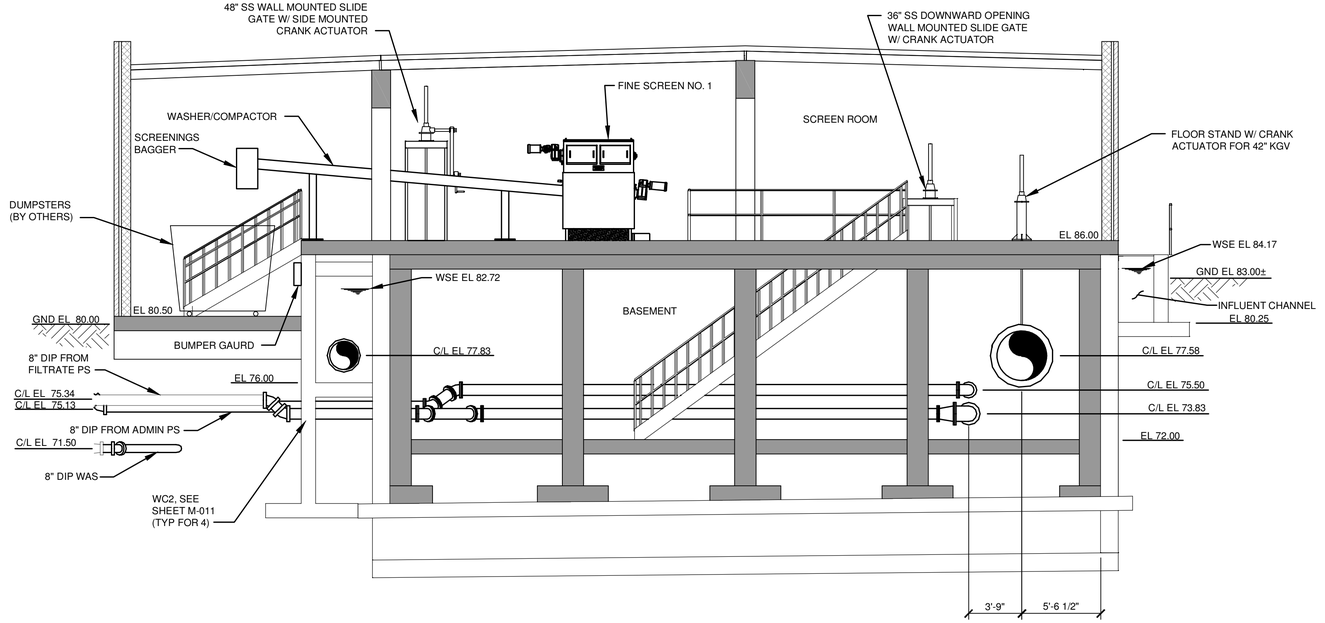


3 SECTION

3/16"=1'-0" 5' 0 5'



4 SECTION

3/16"=1'-0" 5' 0 5'

NOTES:
1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING.
   1. 42"ø FLOW RETENTION EFFLUENT PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-016 ON SHEET M-004.
   2. 8"ø FILTRATE PIPE TO BE SUPPORTED FROM FLOOR, SEE DETAIL M-013 ON SHEET M-004.
   3. 8"ø ADMIN PS AND 6"ø WAS PIPE TO BE SUPPORTED FROM WALL, SEE DETAIL M-018 ON SHEET M-004.

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
FINE SCREEN BUILDING

SECTIONS

FILE NO. 23374.51633 -M155
DATE MARCH 19, 2015

M-155

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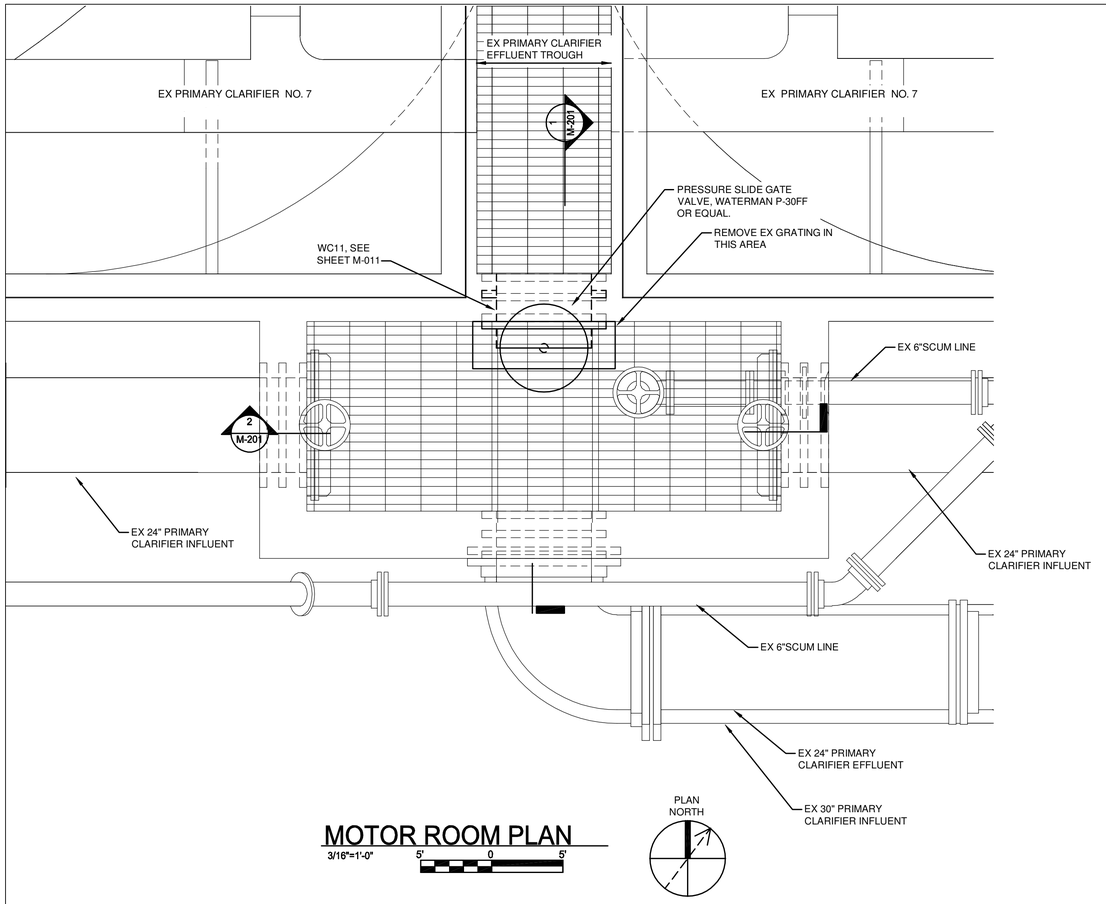
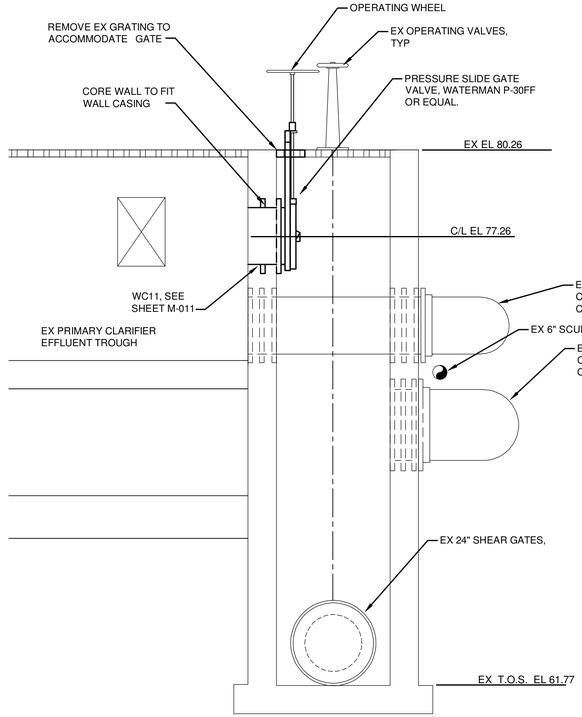


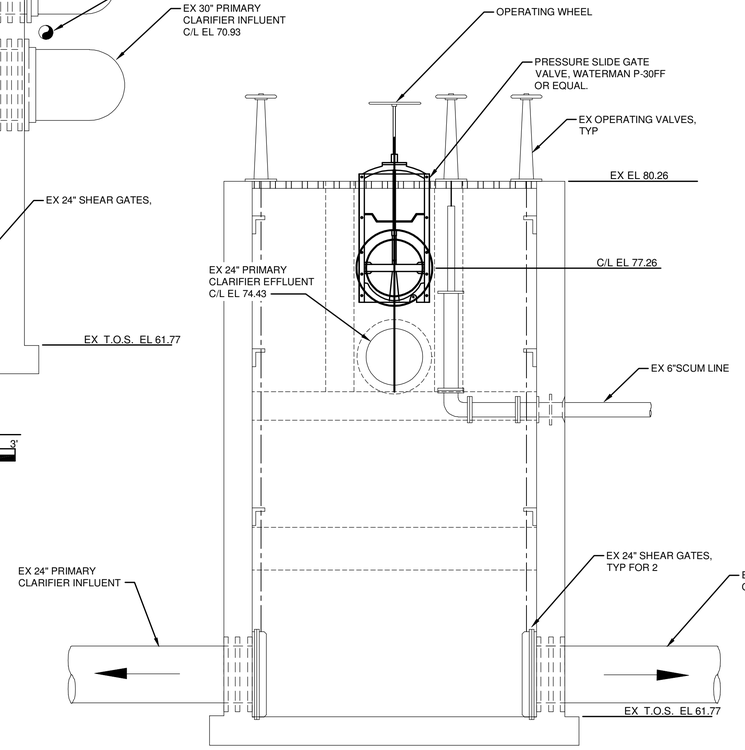
MOTOR ROOM PLAN

3/16"=1'-0" 5' 0 5'



1 SECTION

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



2 SECTION

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

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IN CHARGE OF WAD
DESIGNED BY RWR
CHECKED BY RWR
DRAWN BY AJP

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRIMARY CLARIFIERS

PLAN AND SECTIONS

FILE NO. 23374.51633 -M201
DATE SEPT. 23, 2015

M-200

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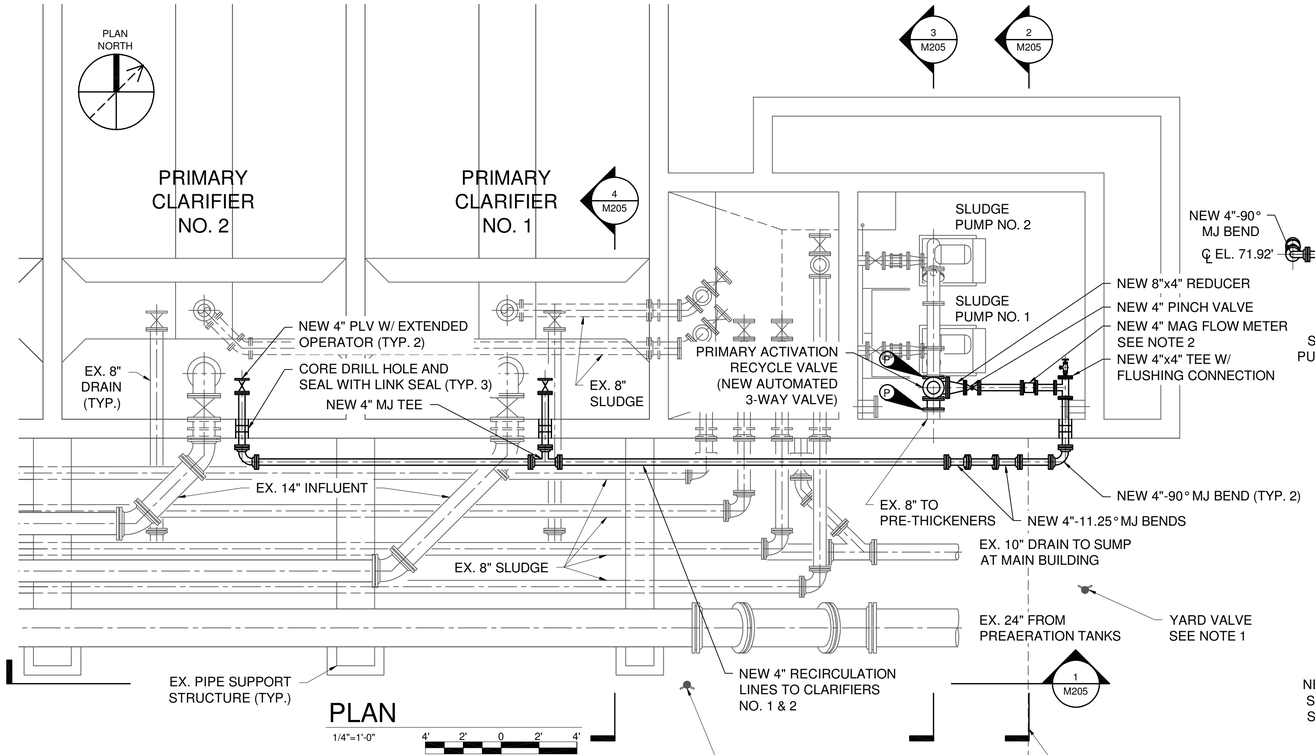
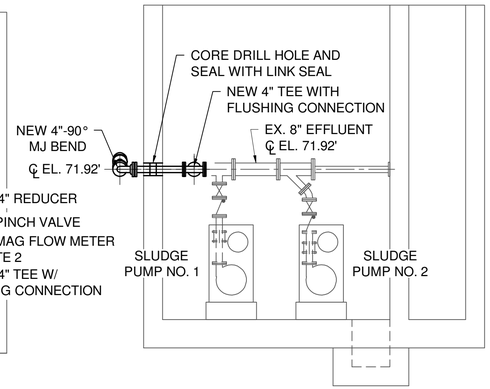


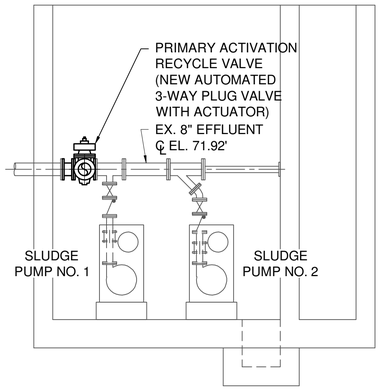
PLAN

1/4"=1'-0"



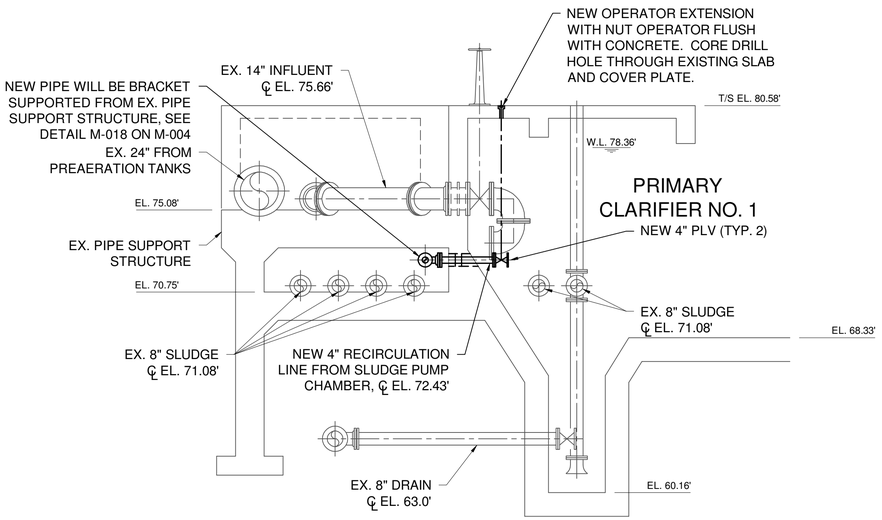
2 SECTION

1/4"=1'-0"



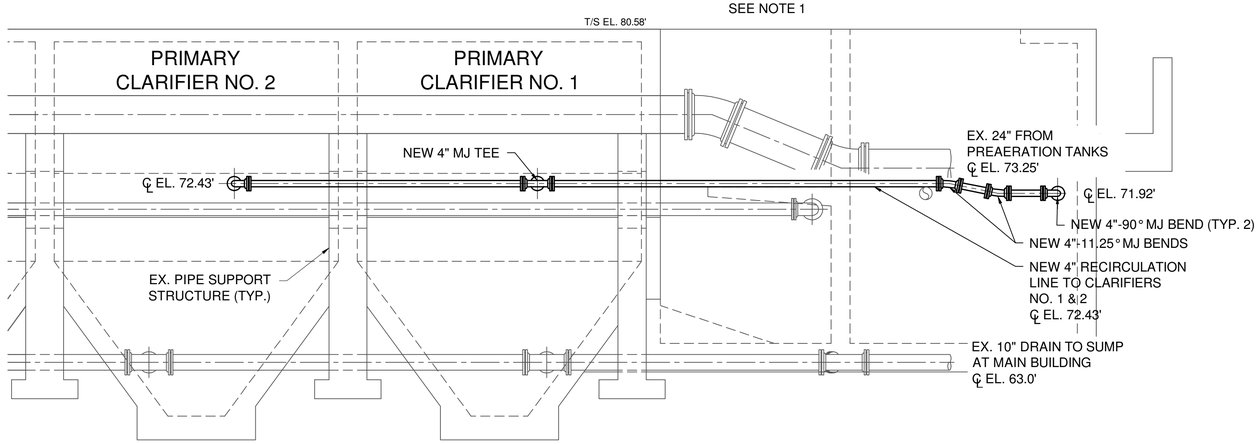
3 SECTION

1/4"=1'-0"



4 SECTION

1/4"=1'-0"



1 FRONT ELEVATION

1/4"=1'-0"

NOTES:

1. POTABLE AND NON-POTABLE WATER HYDRANTS, VALVES AND LINES ARE DRAWN AT APPROXIMATE LOCATIONS. CONTRACTOR TO CONFIRM LOCATIONS AND FEED LINES PRIOR TO DIGGING IN NEARBY AREAS.
2. CONTRACTOR TO PROVIDE A SPOOL PIECE EQUAL TO THE LAYING LENGTH OF THE MAGNETIC FLOW METER. ONE SPOOL PIECE SHALL BE PROVIDED FOR EACH MAGNETIC FLOW METER. SPOOL PIECES SHALL BE EQUIVALENT TO THE PROCESS PIPE TYPE, MATERIAL, AND JOINT CONSTRUCTION.
3. ELECTRONIC CONTROLS SHALL BE ACCESSIBLE WITHOUT A LADDER.
4. ELEVATED VALVES SHALL HAVE CHAINWHEEL OPERATORS.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

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DESIGNED BY	ISK/KAW		
CHECKED BY	WJM		
DRAWN BY	BNL		

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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

PRIMARY SLUDGE PUMP STATION NO. 1

FILE NO. 23374.51633 - M205

DATE MARCH 19, 2015

M-201

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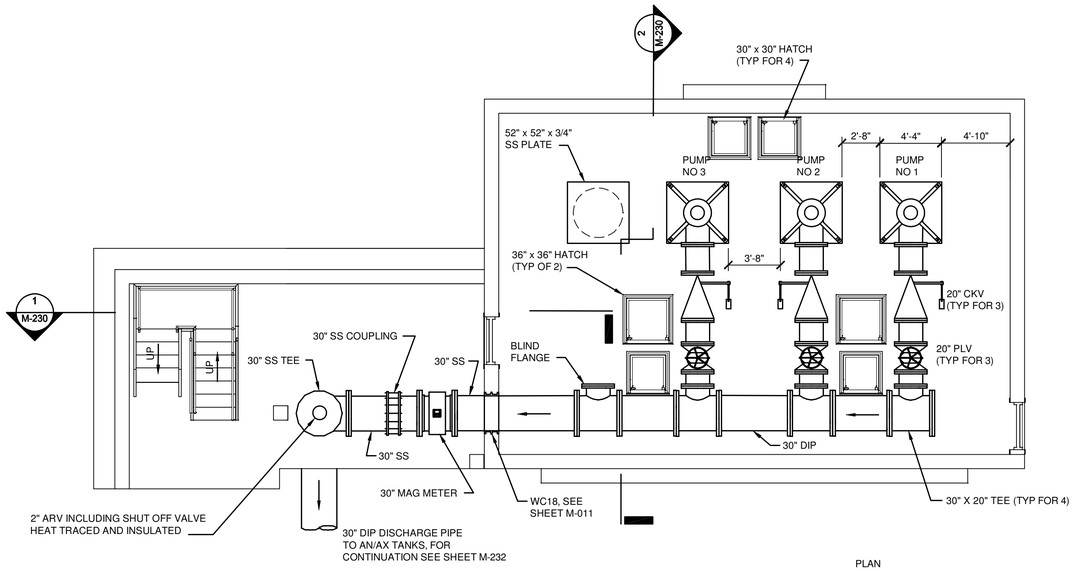
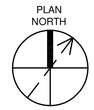
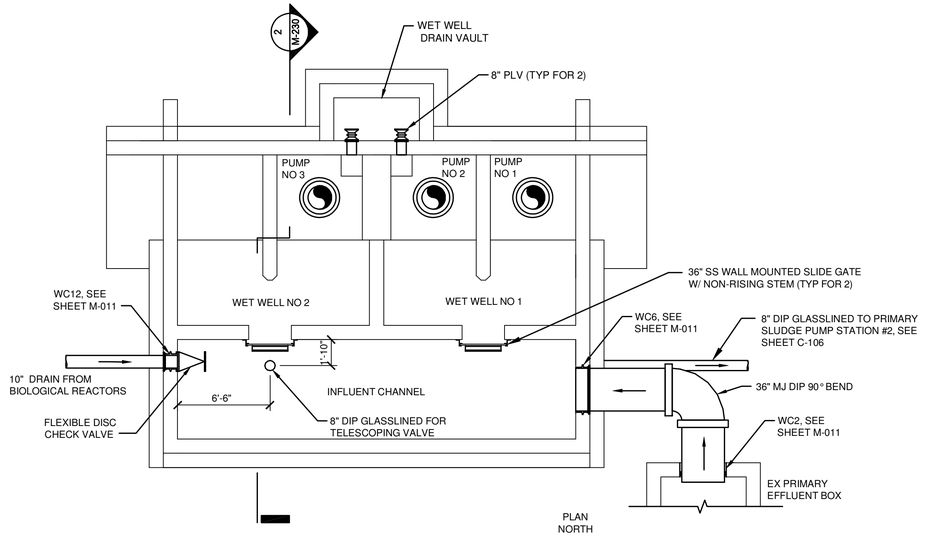


MOTOR ROOM PLAN

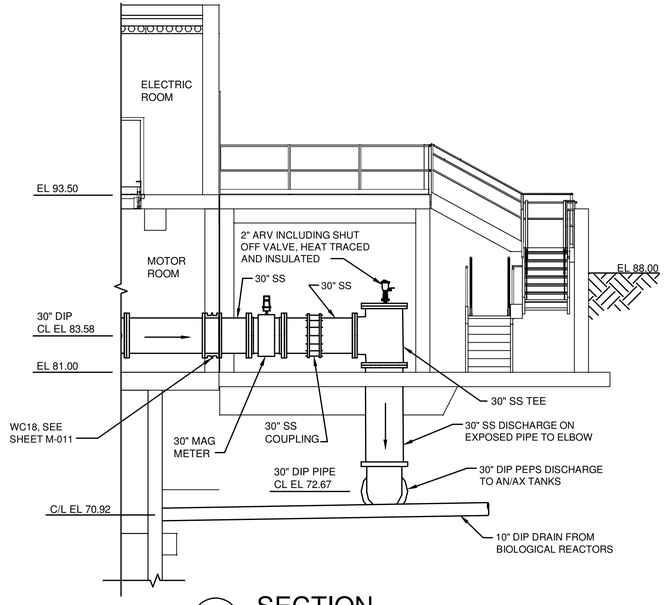
3/16"=1'-0" 5' 0 5'





WET WELL PLAN

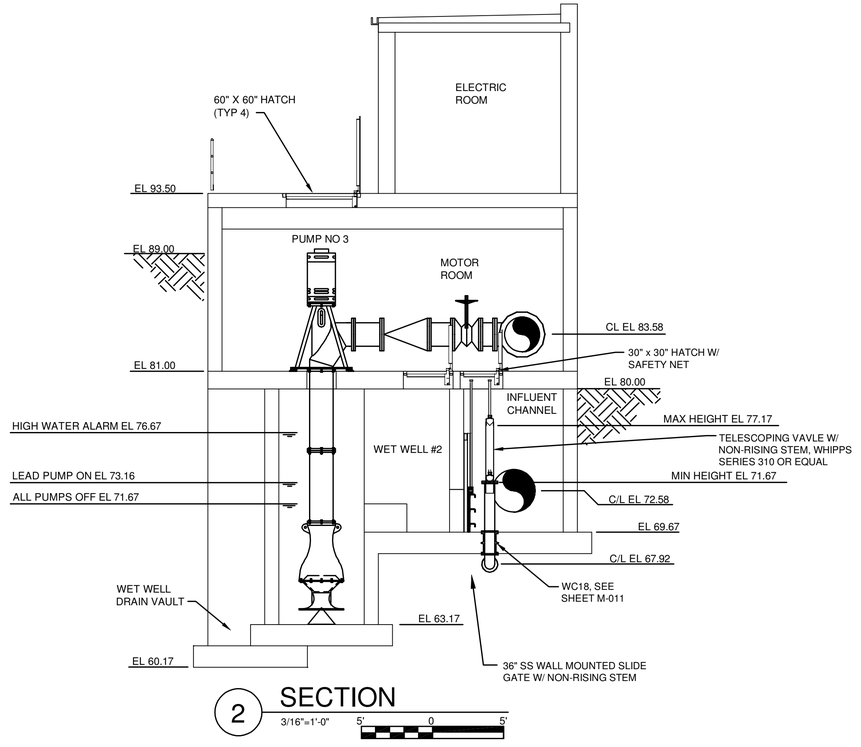
3/16"=1'-0" 5' 0 5'



1 SECTION

3/16"=1'-0" 5' 0 5'

NOTE:
CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING. ALL PIPES TO BE SUPPORTED FROM FLOOR. SEE DETAIL M-013 ON SHEET M-004.



2 SECTION

3/16"=1'-0" 5' 0 5'

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRIMARY EFFLUENT PUMP STATION

PLANS AND SECTIONS

FILE NO. 23374.51633 -M230
DATE MARCH 19, 2015

M-230

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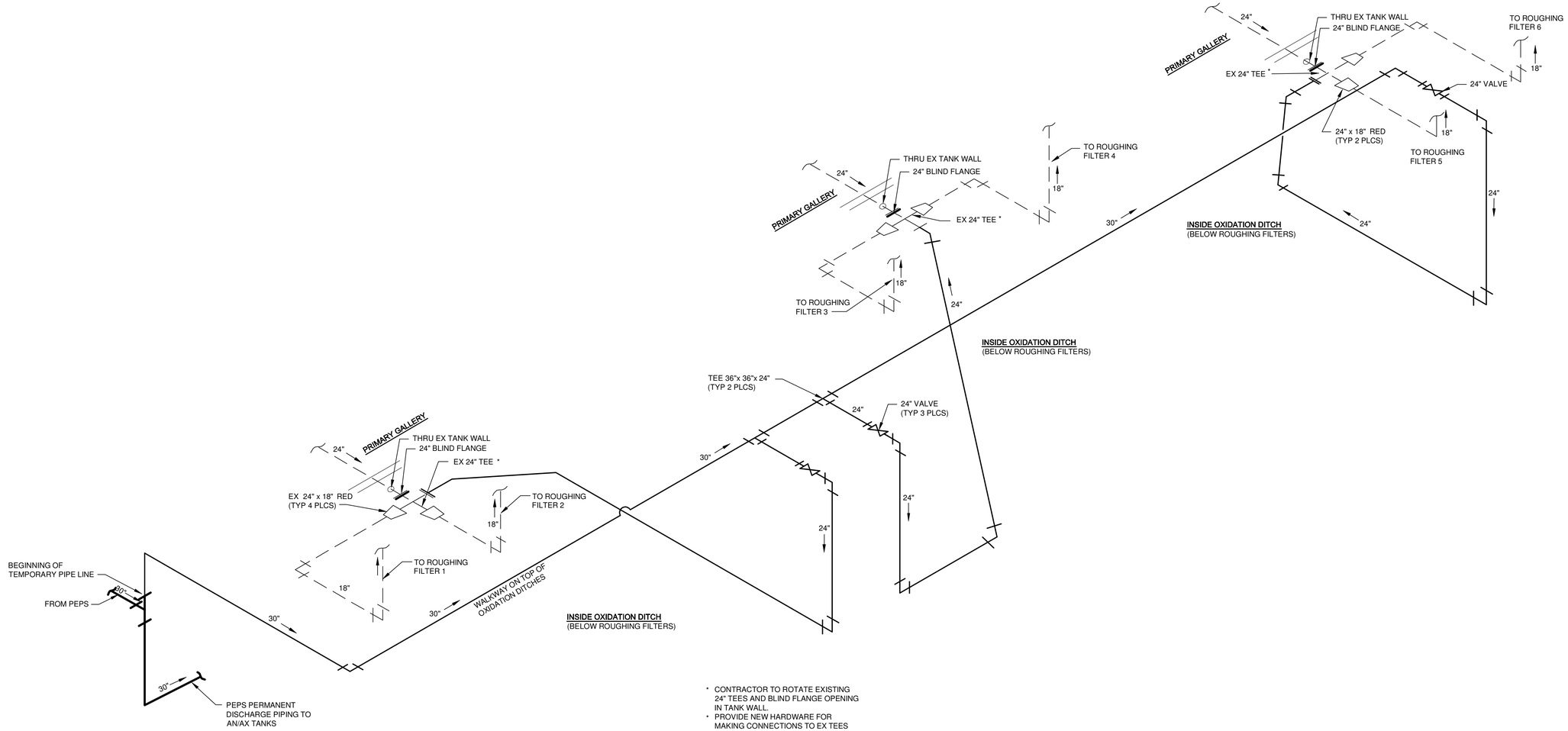

TEMPORARY DISCHARGE PIPING SCHEMATIC

NOT TO SCALE

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CHECKED BY WAD
DRAWN BY GLB

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRIMARY EFFLUENT PUMP STATION
TEMPORARY DISCHARGE PIPING SCHEMATIC

FILE NO. 23374.51633 -M231
DATE MARCH 19, 2015
M-231

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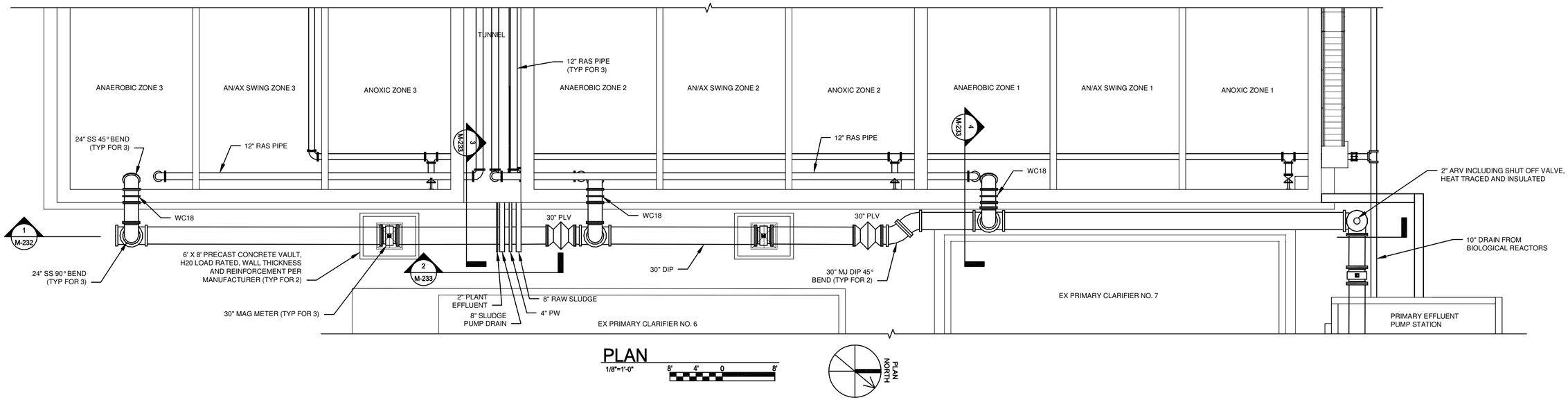
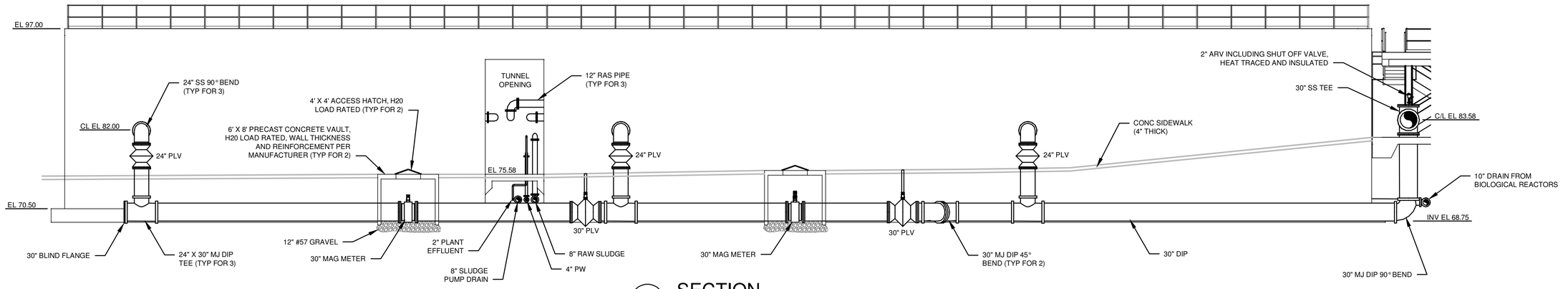


PLAN

1/8"=1'-0"

PLAN NORTH



1 SECTION

1/8"=1'-0"

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRIMARY EFFLUENT PUMP STATION
DISCHARGE PIPING PLAN AND SECTION

FILE NO. 23374.51633 -M232
DATE MARCH 19, 2015
M-232

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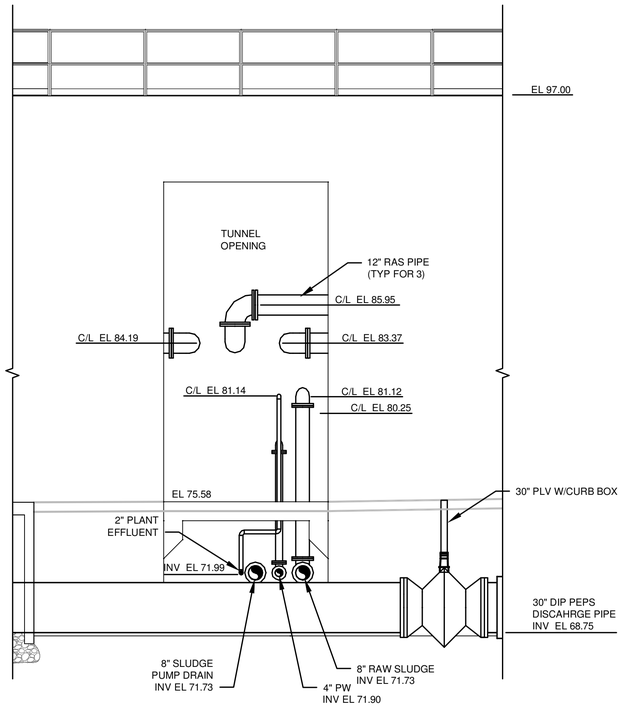
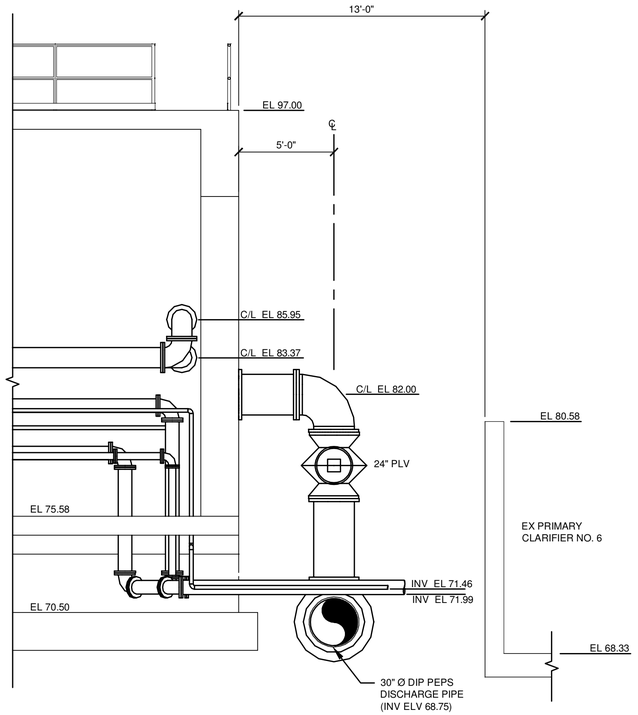
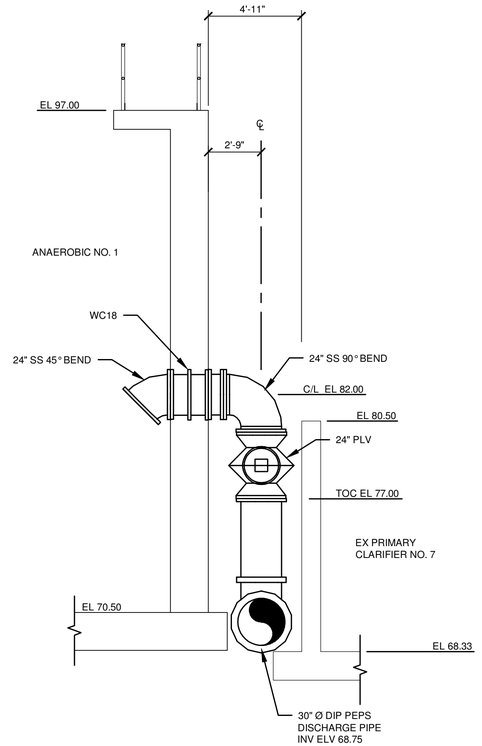


2 SECTION
1/4"=1'-0" 4' 2' 0 2' 4'



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



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

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRIMARY EFFLUENT PUMP STATION

SECTIONS

FILE NO. 23374.51633 -M233
DATE MARCH 19, 2015

M-233

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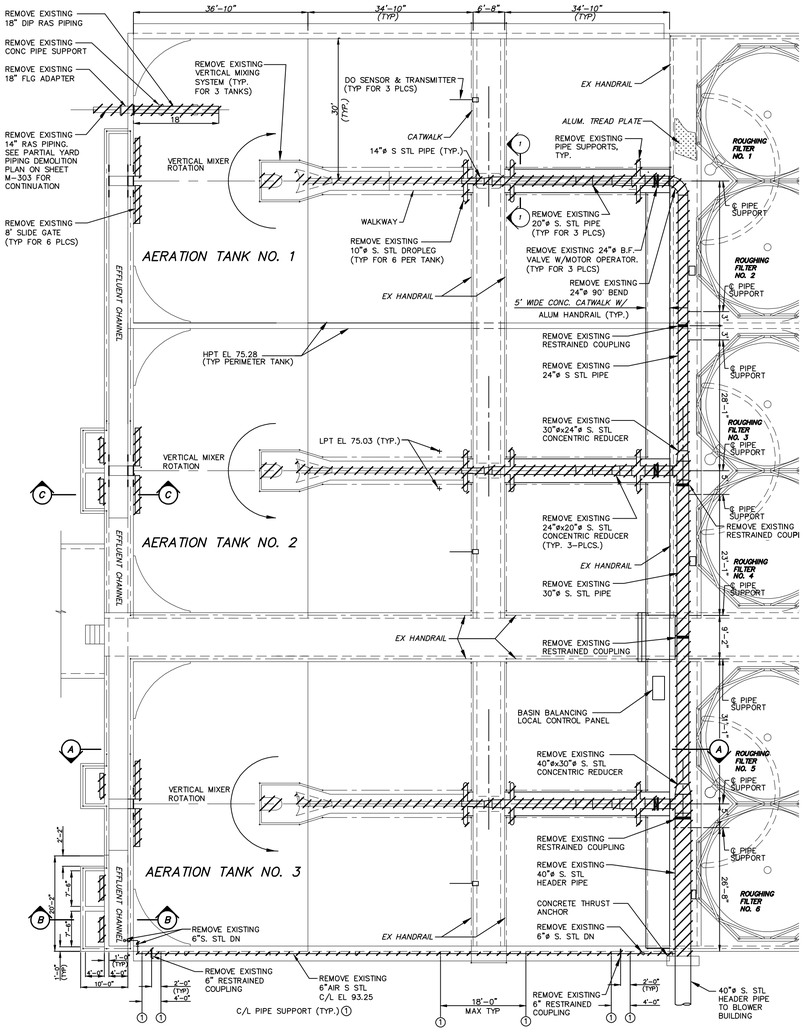
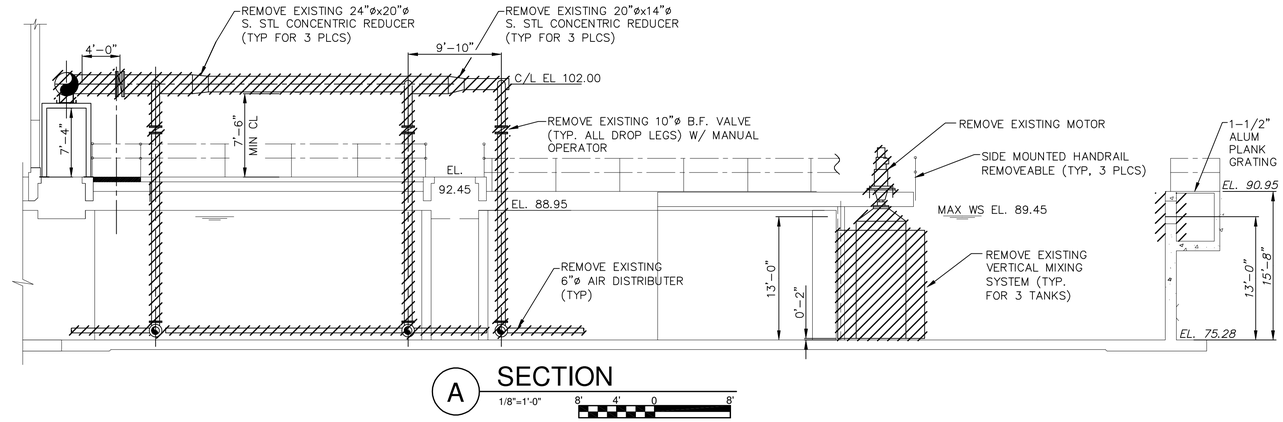
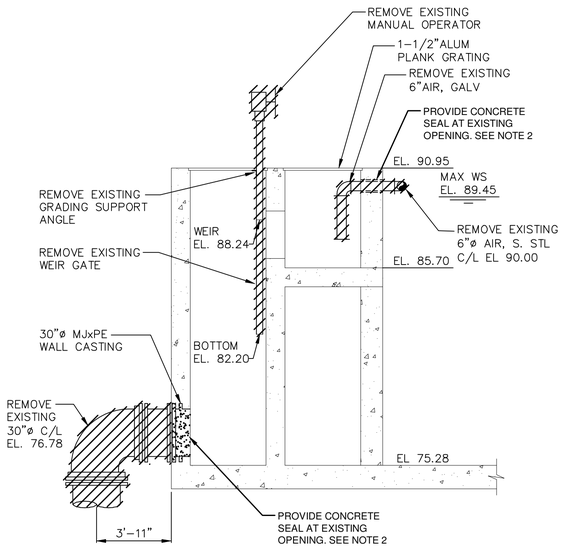


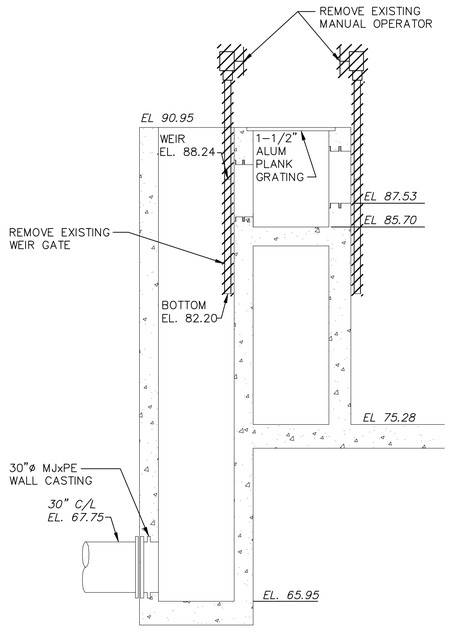
PLAN
1/16"=1'-0"



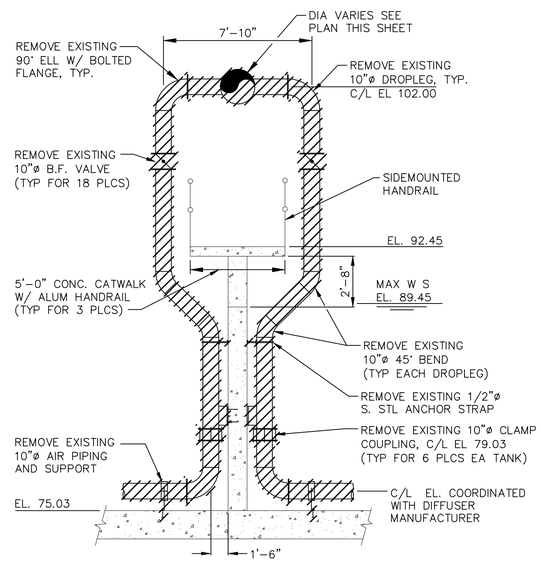
A SECTION
1/8"=1'-0"



B SECTION
1/4"=1'-0"



C SECTION
1/4"=1'-0"



1 SECTION
1/4"=1'-0"

PLAN NORTH

LEGEND

TO BE REMOVED

NOTES:

1. CONTRACTOR TO REMOVE ALL SUPPORTS AND ANCHORS ASSOCIATED WITH ITEMS TO BE REMOVED AND REPAIR CONCRETE SURFACES.
2. CONTRACTOR TO PLUG OR CONCRETE SEAL EXISTING PENETRATIONS OF PIPES BEING REMOVED. PENETRATIONS GREATER THAN 6" IN DIAMETER SHALL BE CONCRETE SEALED.
3. CONTRACTOR TO INSTALL FLANGES FOR ANY NEW PIPING CONNECTIONS.

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DRAWN BY TWL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
EXISTING AERATION TANKS

DEMOLITION PLAN AND SECTIONS

FILE NO. 23374.51633 -M301
DATE MARCH 19, 2015
M-301

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150'-0"

1'-2"

1'-2"

1'-2"

REMOVE EXISTING 4" FLANGED CONNECTION (TYP)

REMOVE EXISTING 10"ø PVC MANIFOLD (TYP, 6 PLCS EACH TANK)

REMOVE EXISTING 10"ø PVC MANIFOLD (TYP, 2 PLCS EACH TANK)

1'-0"

20'-2"

19'-0"

CONCRETE HPT EL 75.28 (TYP, PERIMETER OF TANK)

CONCRETE SEAL EXISTING PIPE PENETRATIONS. SEE NOTE 2 (TYP. ALL TANKS)

5'-0"

1'-0"

4'-0"

29'-6"

REMOVE EXISTING RAS PIPING (TYP, FOR 3 TANKS)

1'-0"

CONCRETE LPT EL 75.03 (TYP)

REMOVE EXISTING 10"ø S. STL (UP, TYP, 6 PLCS)

CONCRETE LPT EL 75.03 (TYP)

1'-10"

CONCRETE SEAL EXISTING PIPE PENETRATIONS. SEE NOTE 2 (TYP. ALL TANKS)

AERATION TANK NO. 1

REMOVE EXISTING VERTICAL MIXING SYSTEM (TYP, FOR 3 TANKS)

VERTICAL MIXER ROTATION

2'-0"x2'-0" SUMP

PRIMARY GALLERY

29'-6"

EFFLUENT CHANNEL

CONCRETE HPT EL 75.28 (TYP, PERIMETER OF TANK)

REMOVE EXISTING CERAMIC DIFFUSERS AND 4"ø PVC DISTRIBUTION HEADERS (TYP, FOR 3 TANKS)

REMOVE EXISTING 18"ø C.I.P. FILTER FEED LINE C/L EL. 84.40 (TYP, 2 PLCS PER TANK)

AERATION TANK NO. 2

LOWER PLAN

3/16"=1'-0"

5' 0 5'

PLAN NORTH

LEGEND

TO BE REMOVED

NOTES:

1. CONTRACTOR TO REMOVE ALL SUPPORTS AND ANCHORS ASSOCIATED WITH ITEMS TO BE REMOVED AND REPAIR CONCRETE SURFACES.
2. CONTRACTOR TO PLUG OR CONCRETE SEAL EXISTING PENETRATIONS OF PIPES BEING REMOVED. PENETRATIONS GREATER THAN 6" IN DIAMETER SHALL BE CONCRETE SEALED.
3. CONTRACTOR TO INSTALL FLANGES FOR NEW PIPING CONNECTIONS.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
EXISTING AERATION TANKS
TYPICAL LOWER LEVEL DEMOLITION PLAN

FILE NO. 23374.51633 -M302
DATE MARCH 19, 2015

M-302

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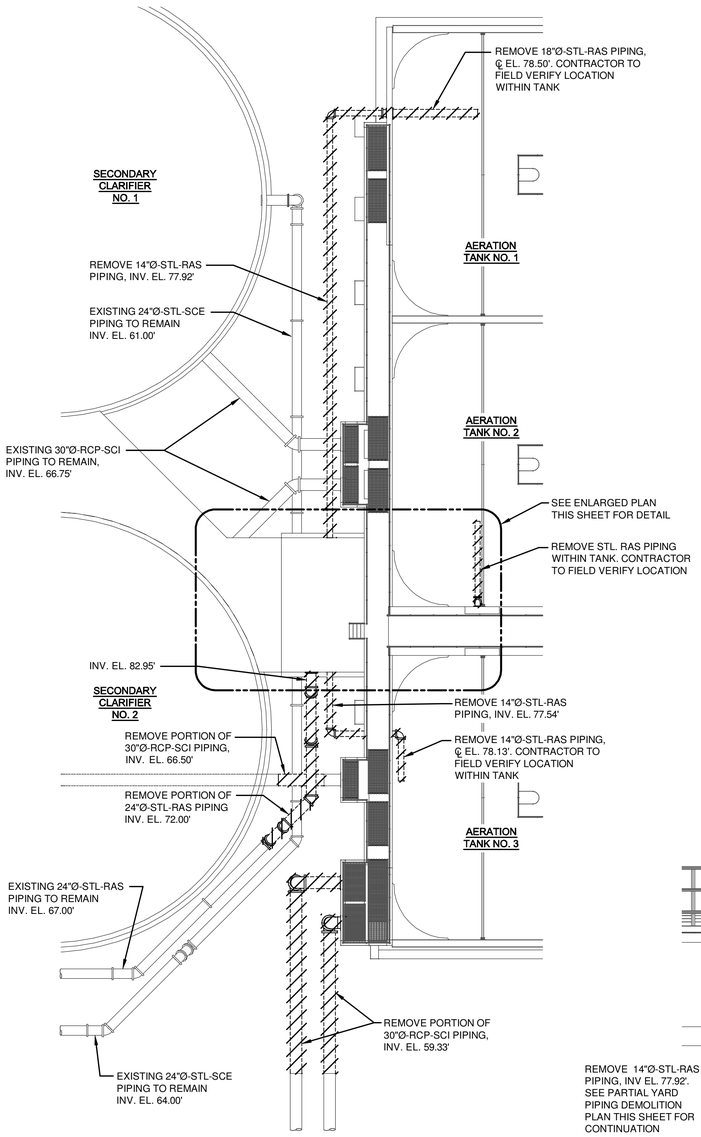
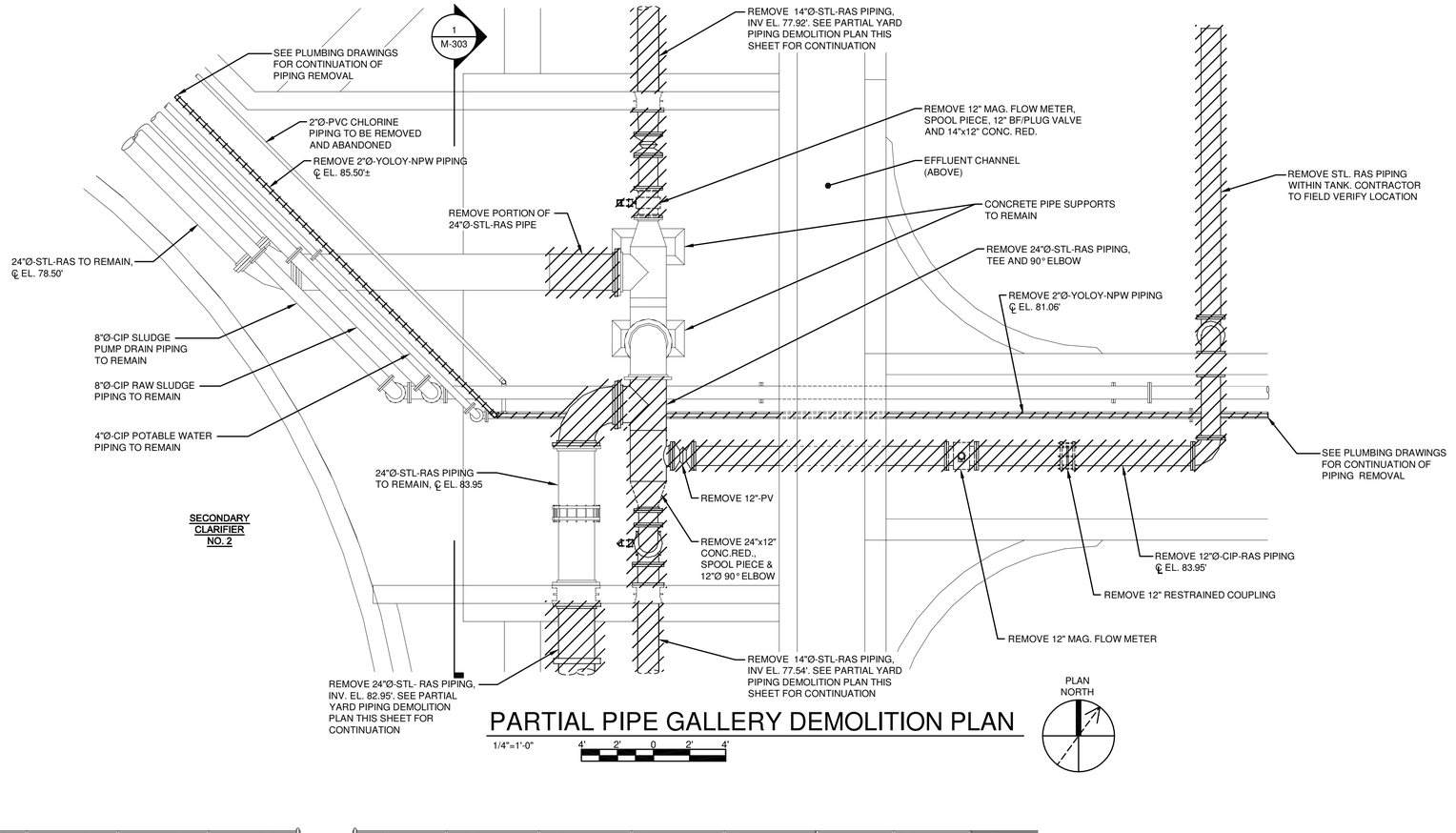


PARTIAL YARD PIPING DEMOLITION PLAN

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

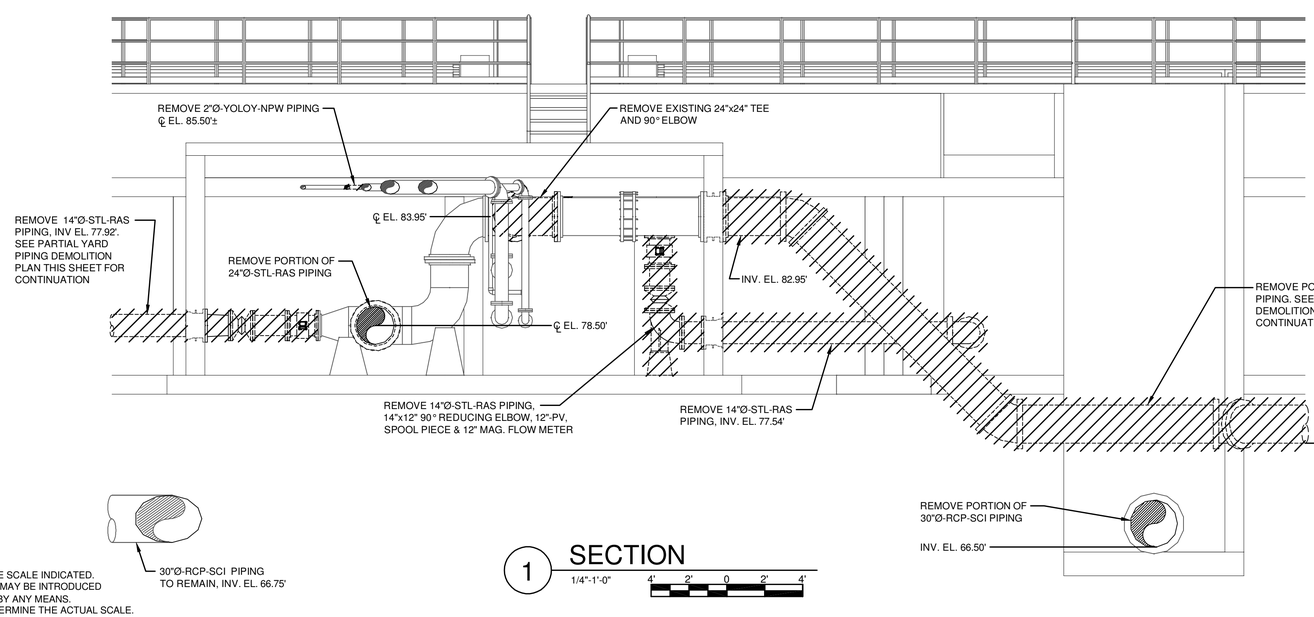
PLAN NORTH



PARTIAL PIPE GALLERY DEMOLITION PLAN

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

PLAN NORTH



1 SECTION

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

LEGEND

TO BE REMOVED

NOTES:

1. CONTRACTOR TO REMOVE ALL SUPPORTS AND ANCHORS ASSOCIATED WITH ITEMS TO BE REMOVED AND REPAIR CONCRETE SURFACES.
2. CONTRACTOR TO PLUG OR CONCRETE SEAL EXISTING PENETRATIONS OF PIPES BEING REMOVED. PENETRATIONS GREATER THAN 6" IN DIAMETER SHALL BE CONCRETE SEALED.
3. CONTRACTOR TO INSTALL FLANGES FOR ANY NEW PIPING CONNECTIONS.

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CHECKED BY WJM
DRAWN BY TWL

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0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
EXISTING AERATION TANKS
PARTIAL DEMOLITION PLANS & SECTION

FILE NO. 23374.51633 -M303
DATE MARCH 19, 2015
M-303

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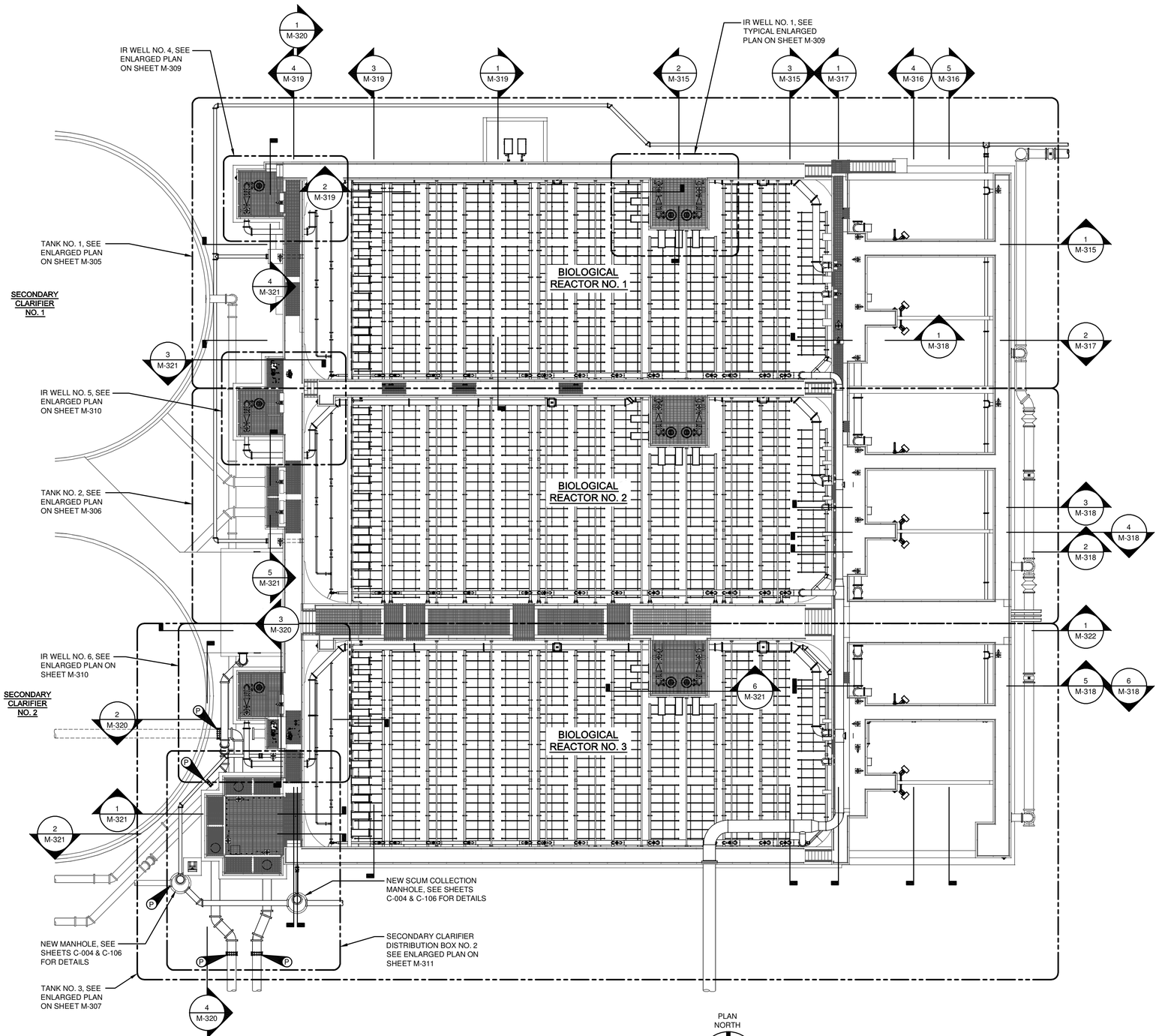

OVERALL PLAN

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

PLAN NORTH

NOTES:

1. CONTRACTOR TO COORDINATE PIPING SYSTEM INSTALLATION WITH PRE-PURCHASED EQUIPMENT SYSTEM COMPONENTS. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING.
2. AERATION PIPING SHALL BE SUPPORTED BY STANCHION TYPE PIPE SUPPORTS WITH FIXED AND SLIDING PIPE SUPPORTS AS REQUIRED. CONTRACTOR TO PROVIDE LAYOUT OF SUPPORTS AS SHOP DRAWING.
3. AERATION PIPING SHALL HAVE EXPANSION AND FIXED COUPLINGS AS REQUIRED. CONTRACTOR TO PROVIDE LAYOUT AS SHOP DRAWING.
4. WITHIN 30 DAYS OF NTP, CONTRACTOR TO FIELD VERIFY DIMENSIONS OF EXISTING TANKAGE WHERE CONTRACT 1A EQUIPMENT IS SUPPORTED, AND PROVIDE INFORMATION TO CONTRACT 1A SUPPLIER FOR COORDINATION OF FABRICATION AND INSTALLATION OF CONTRACT 1A EQUIPMENT THAT IS ANCHORED TO EXISTING TANKAGE.
5. ALL EQUIPMENT OPERATORS SHALL BE ORIENTED FOR CLEARANCE FROM HANDRAILS AND OTHER OBSTRUCTIONS SO THEY CAN BE FULLY OPERATED WITHOUT INTERFERENCE.

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IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

OVERALL PLAN

FILE NO. 23374.51633 -M304
DATE MARCH 19, 2015

M-304

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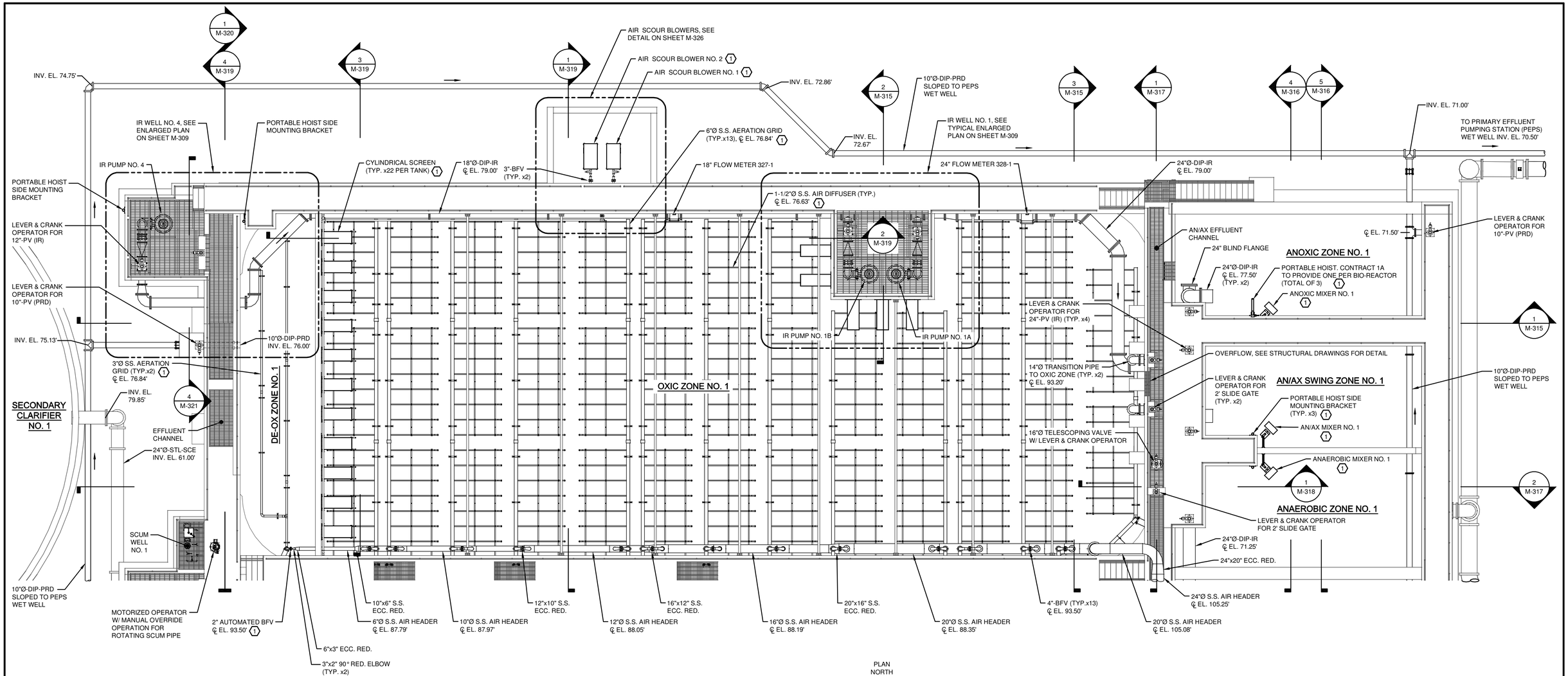

TANK NO. 1 - PLAN

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

PLAN NORTH

CODED NOTES:

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MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 1

PLAN

FILE NO. 23374.51633 -M305
DATE MARCH 19, 2015

M-305

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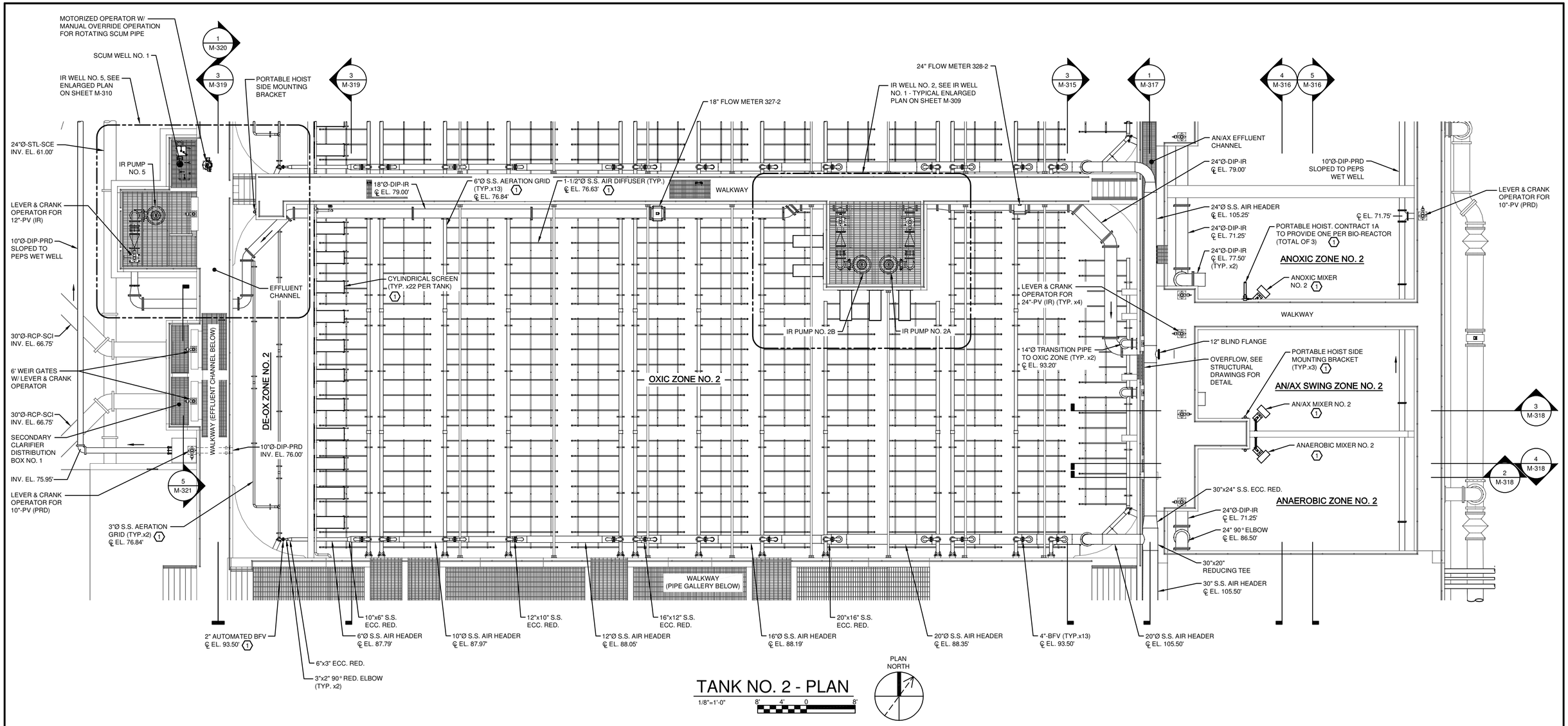

TANK NO. 2 - PLAN

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

PLAN NORTH

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MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 2

PLAN

FILE NO. 23374.51633 -M306
DATE MARCH 19, 2015

M-306

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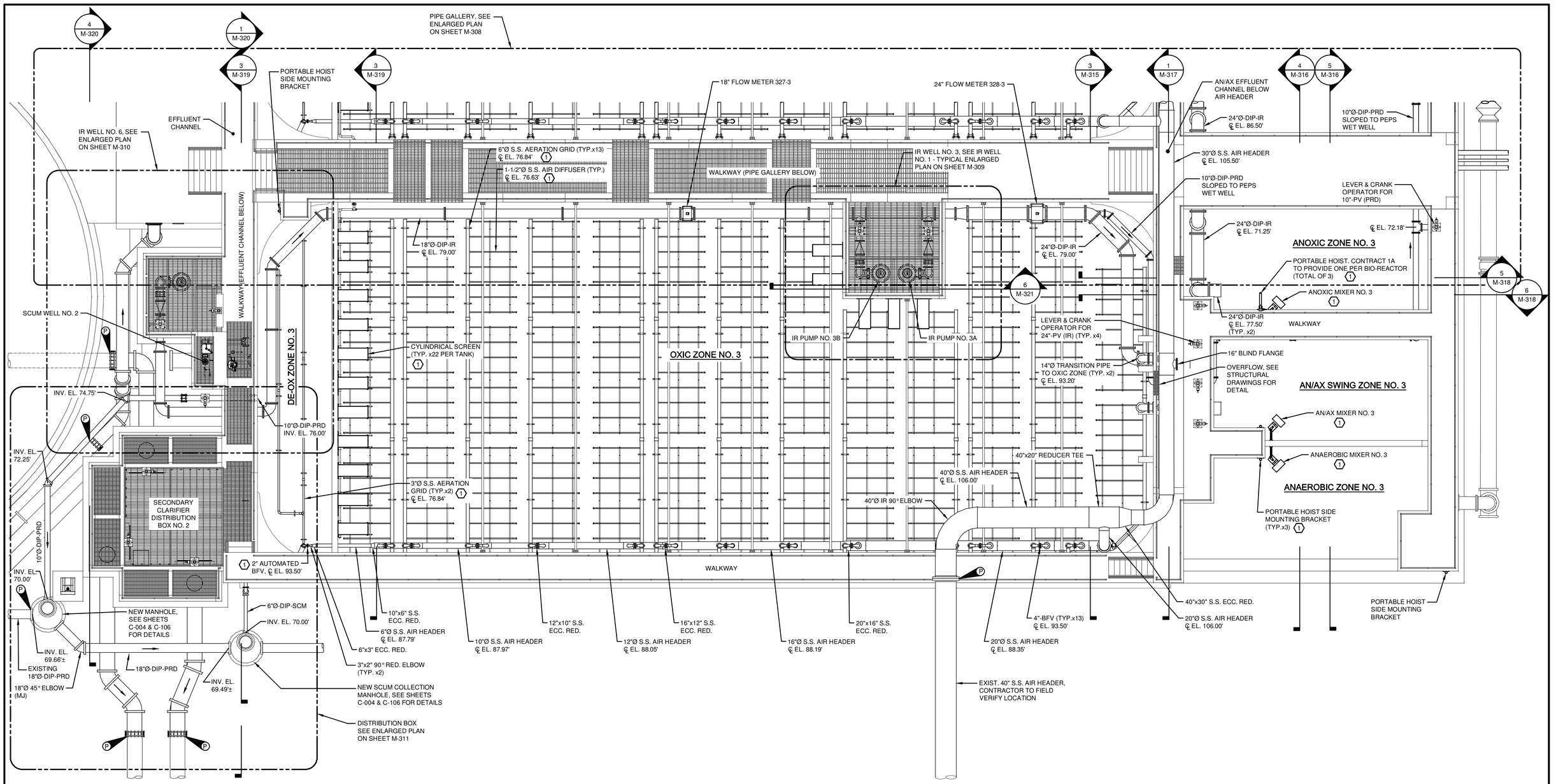

TANK NO. 3 - PLAN

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

PLAN NORTH

CODED NOTES:

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MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 3

PLAN

FILE NO. 23374.51633 -M307
DATE MARCH 19, 2015

M-307

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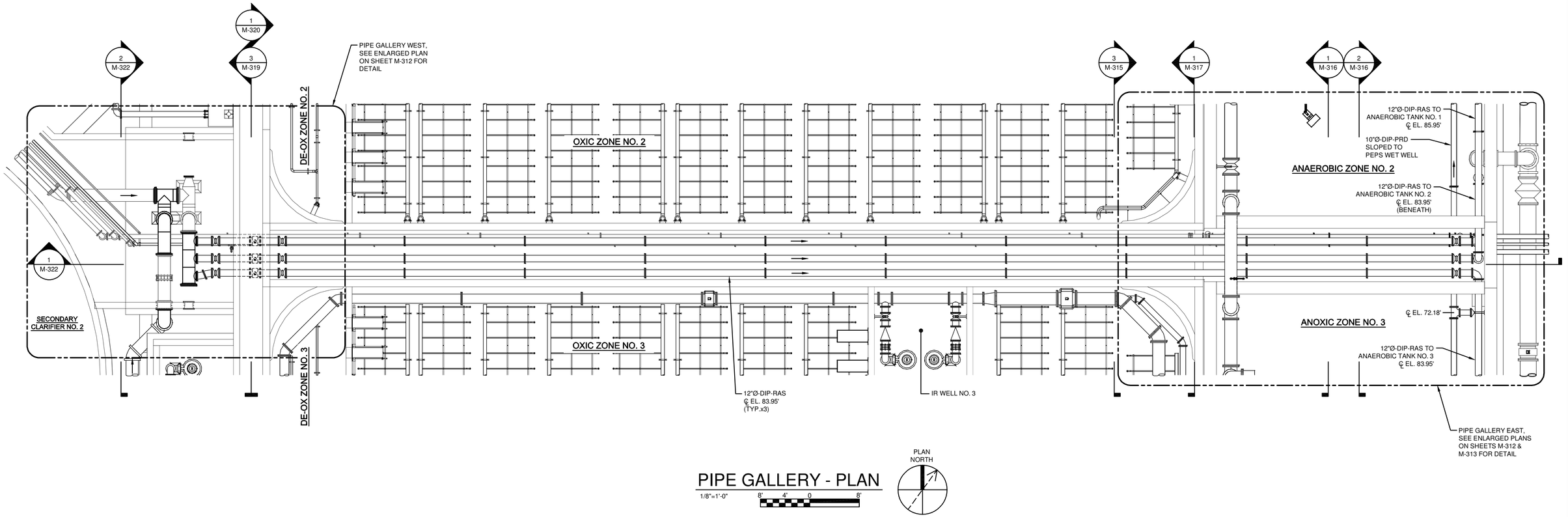

PIPE GALLERY - PLAN

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

PLAN NORTH

NOTES:

1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING. 12"Ø RAS PIPING IN THE GALLERY SHALL BE SUPPORTED BY HANGING PIPE SUPPORTS (SEE DETAIL M-017 ON SHEET M-004). CONTRACTOR TO PROVIDE LAYOUT AS SHOP DRAWING.
2. ELEVATED VALVES SHALL HAVE CHAINWHEEL OPERATORS.

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NO.	DATE	REVISION	INT.
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MECHANICAL
BIOLOGICAL REACTOR TANKS

PIPE GALLERY - PLAN

FILE NO. 23374.51633 - M308
DATE MARCH 19, 2015

M-308

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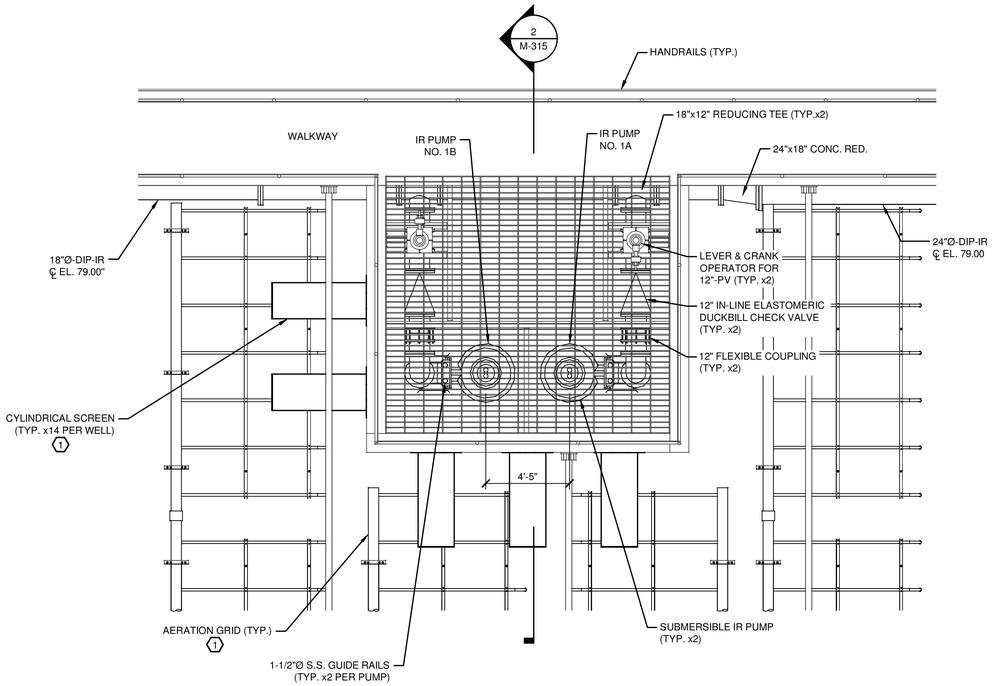
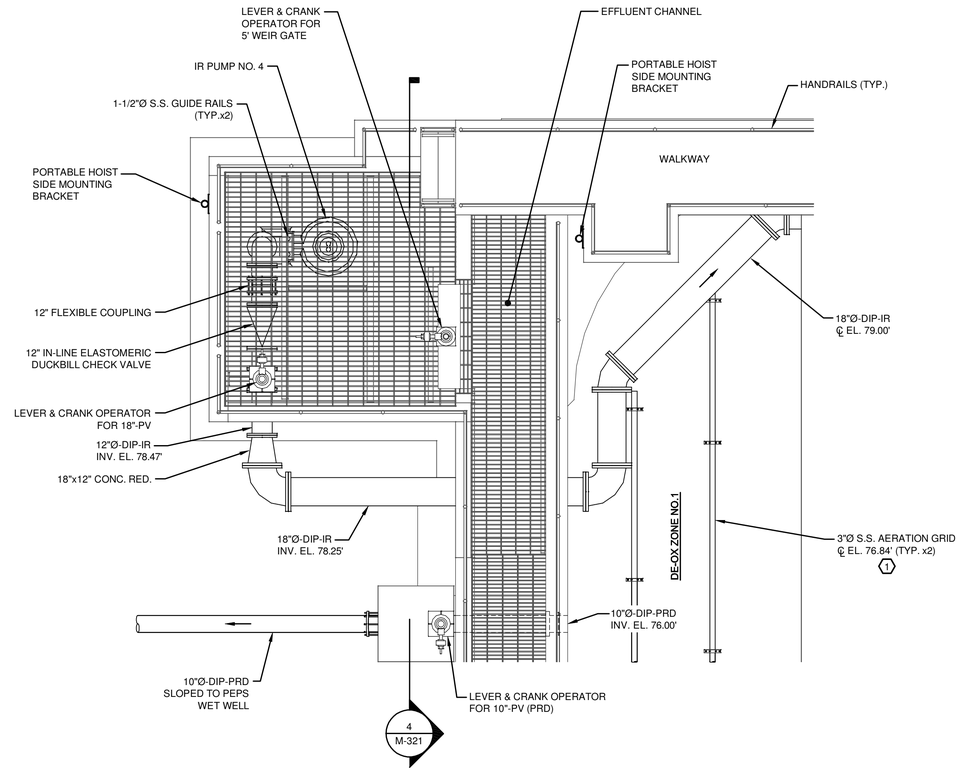


IR WELL NO. 1 - TYPICAL ENLARGED PLAN

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



IR WELL NO. 4 - ENLARGED PLAN

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

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CODED NOTES:

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MECHANICAL
BIOLOGICAL REACTOR TANKS

ENLARGED PLANS

FILE NO. 23374.51633 -M309
DATE MARCH 19, 2015

M-309

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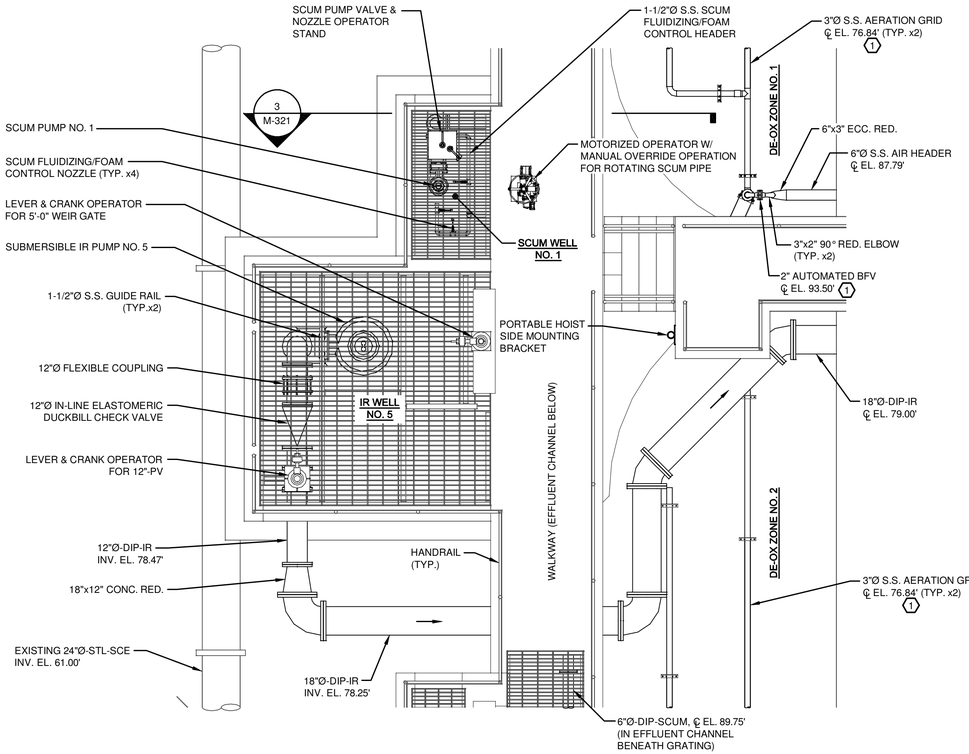
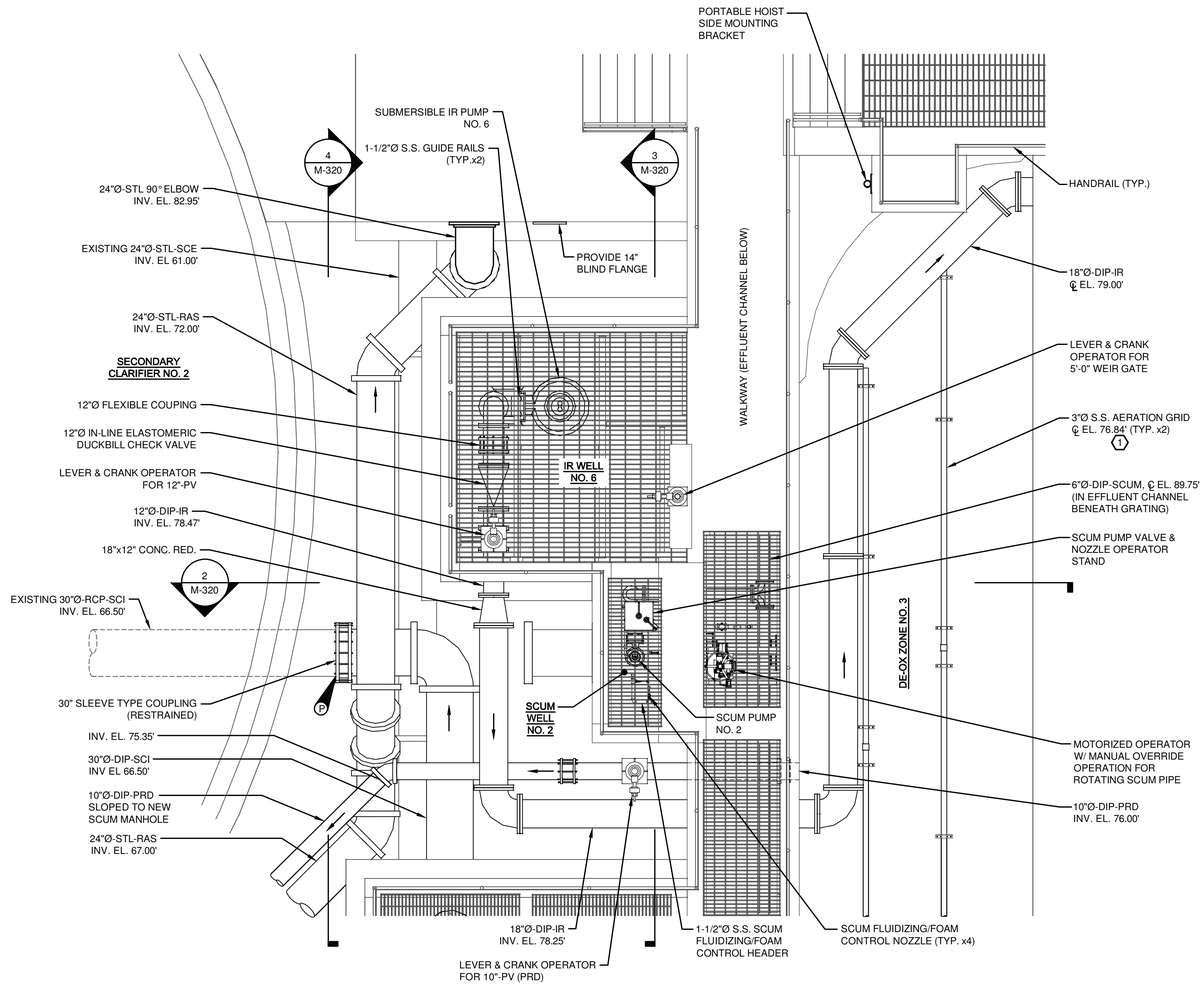


IR WELL NO. 5 - ENLARGED PLAN

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



IR WELL NO. 6 - ENLARGED PLAN

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

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0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

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MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

ENLARGED PLANS

FILE NO. 23374.51633 -M310

DATE MARCH 19, 2015

M-310

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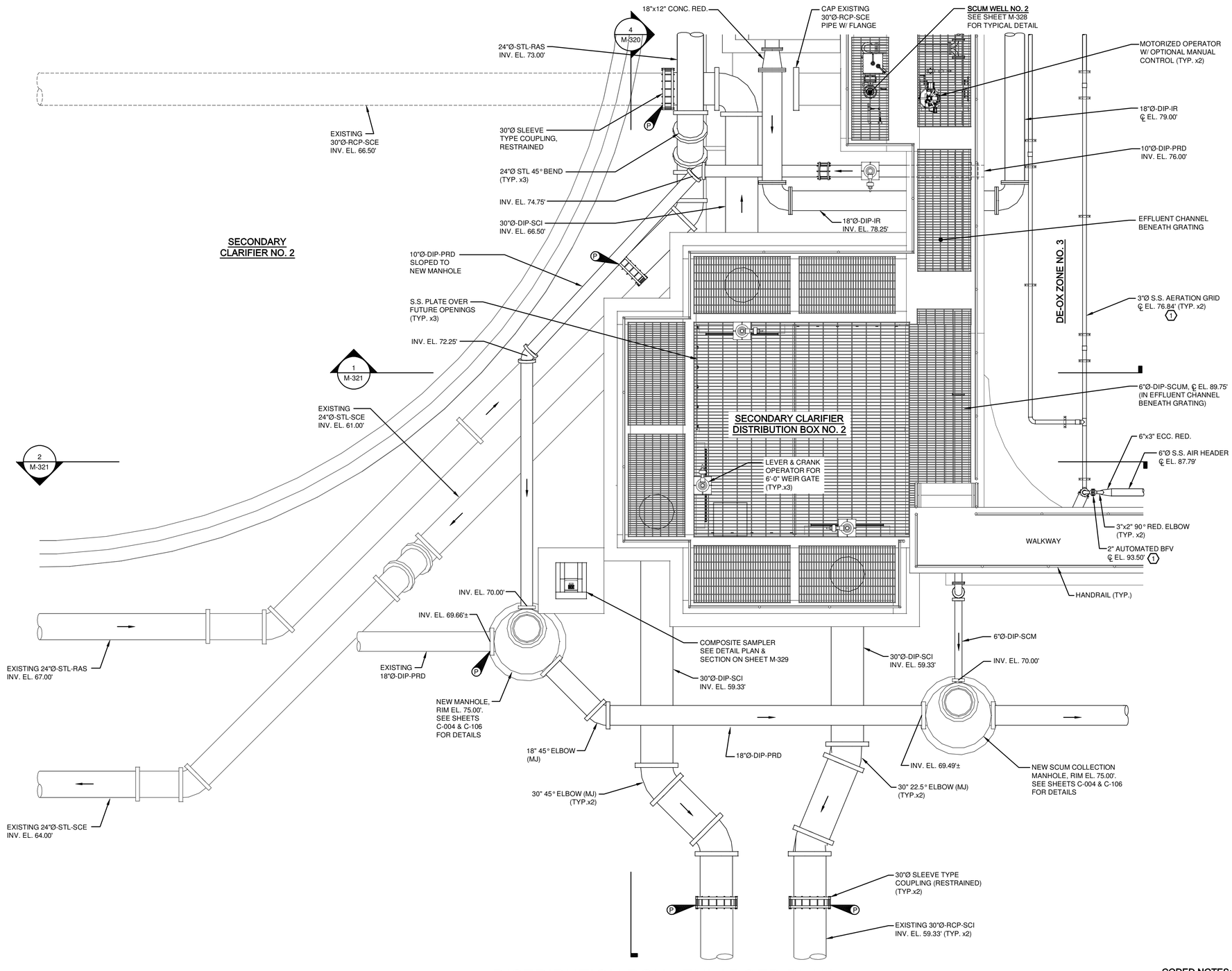

DISTRIBUTION BOX - ENLARGED PLAN

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

CODED NOTES:

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
ENLARGED PLANS

FILE NO. 23374.51633 -M311
DATE MARCH 19, 2015

M-311

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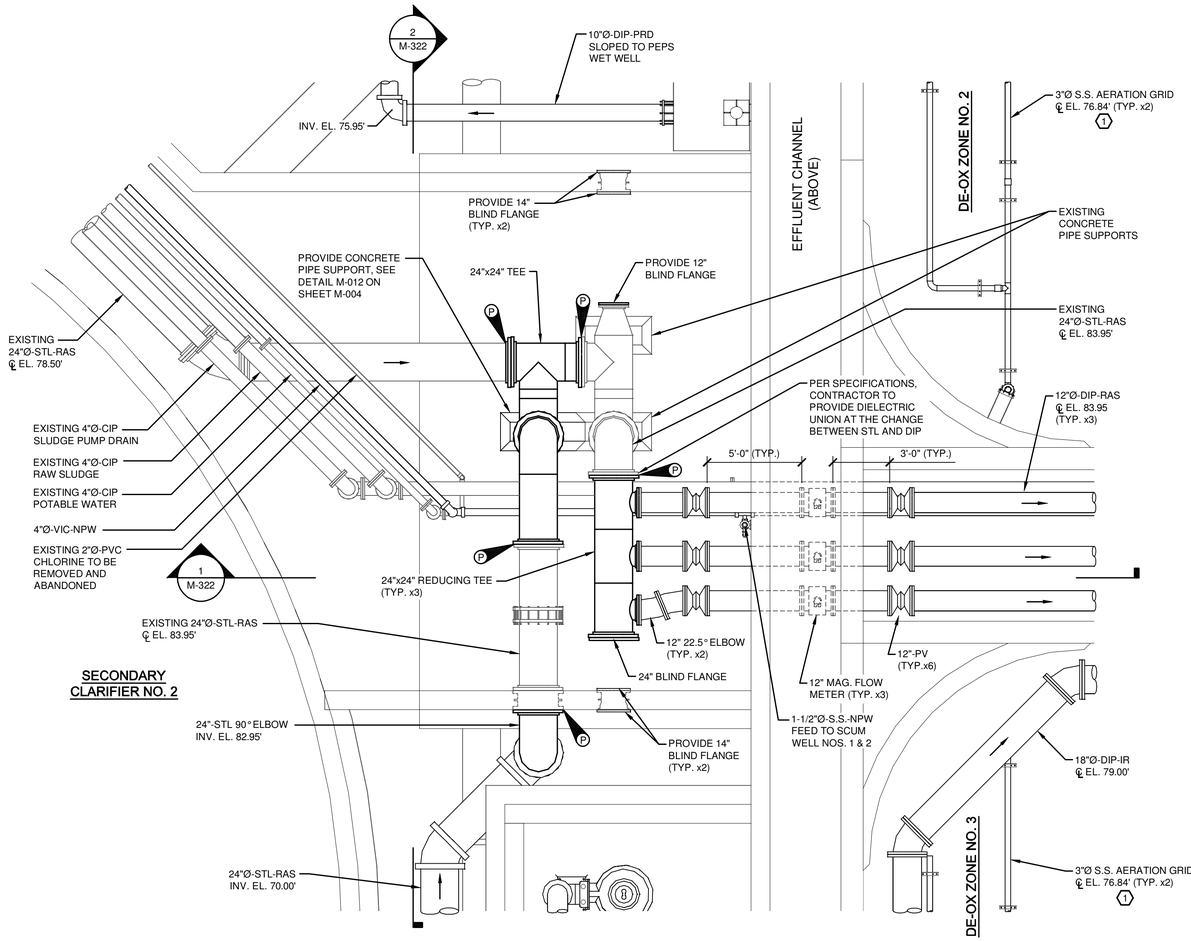
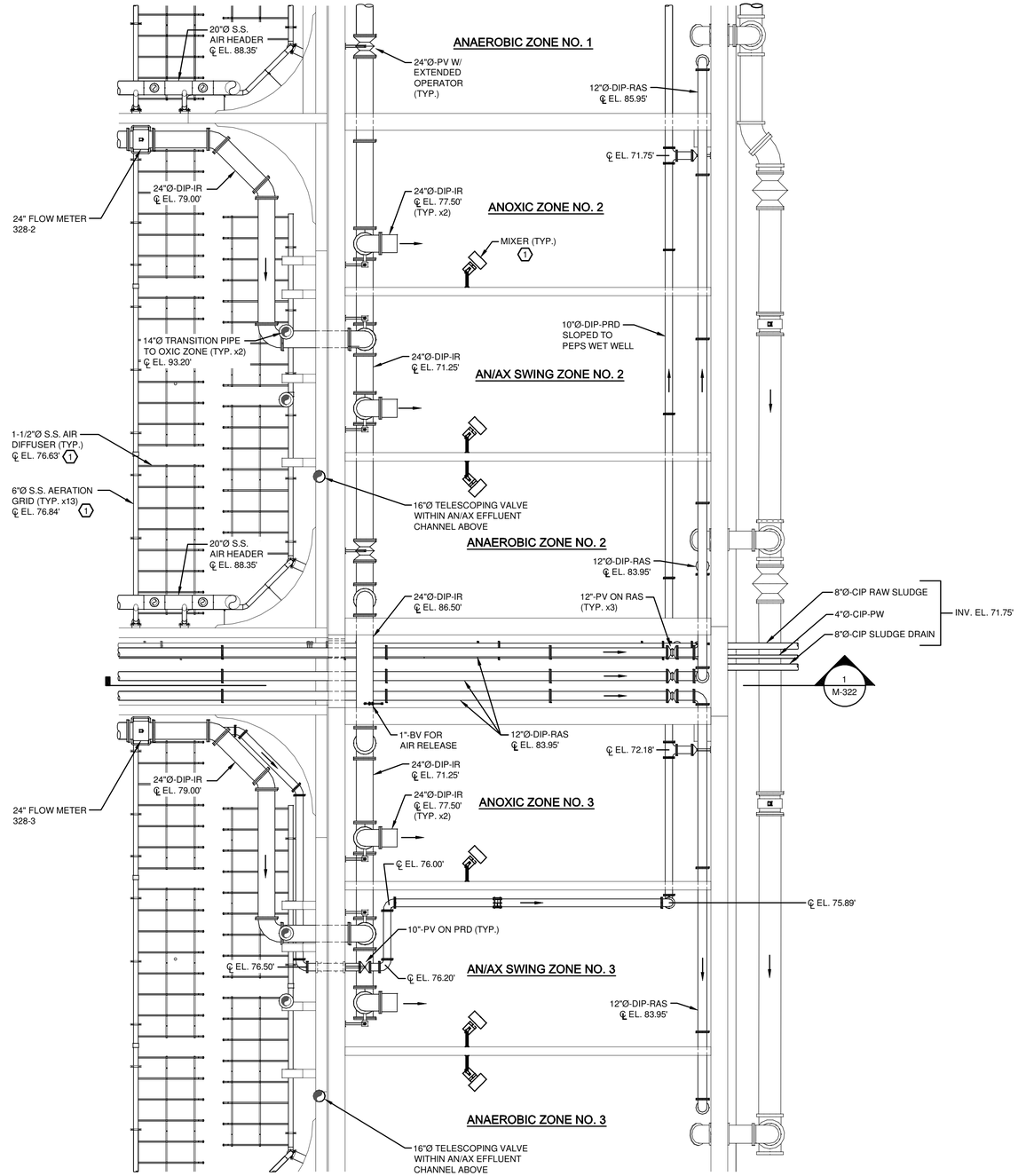


PIPE GALLERY WEST - ENLARGED PLAN

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

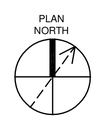
PLAN NORTH



PIPE GALLERY EAST - ENLARGED PLAN

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

PLAN NORTH



NOTES:

1. CONTRACTOR TO PROVIDE A SPOOL PIECE EQUAL TO THE LAYING LENGTH OF THE MAGNETIC FLOW METER. ONE SPOOL PIECE SHALL BE PROVIDED FOR EACH MAGNETIC FLOW METER. SPOOL PIECES SHALL BE EQUIVALENT TO THE PROCESS PIPE TYPE, MATERIAL AND JOINT CONSTRUCTION.

CODED NOTES:

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MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

ENLARGED PLANS

FILE NO. 23374.51633 -M312
DATE MARCH 19, 2015

M-312

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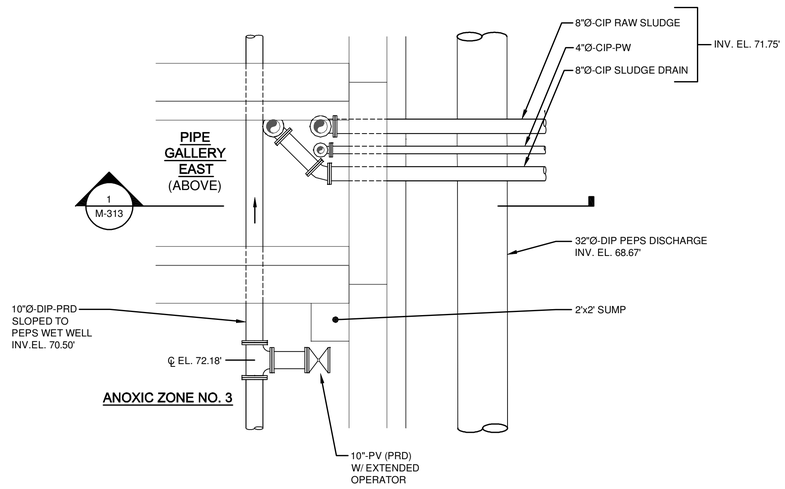
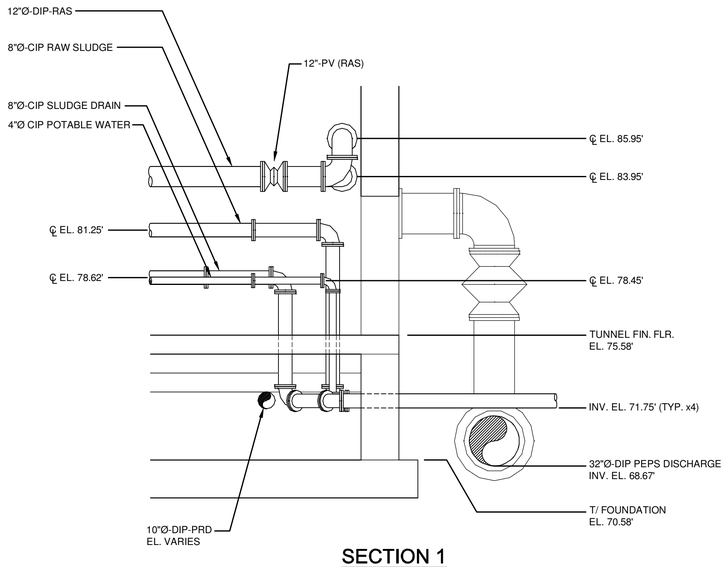


PLAN AT EL. 79.00'

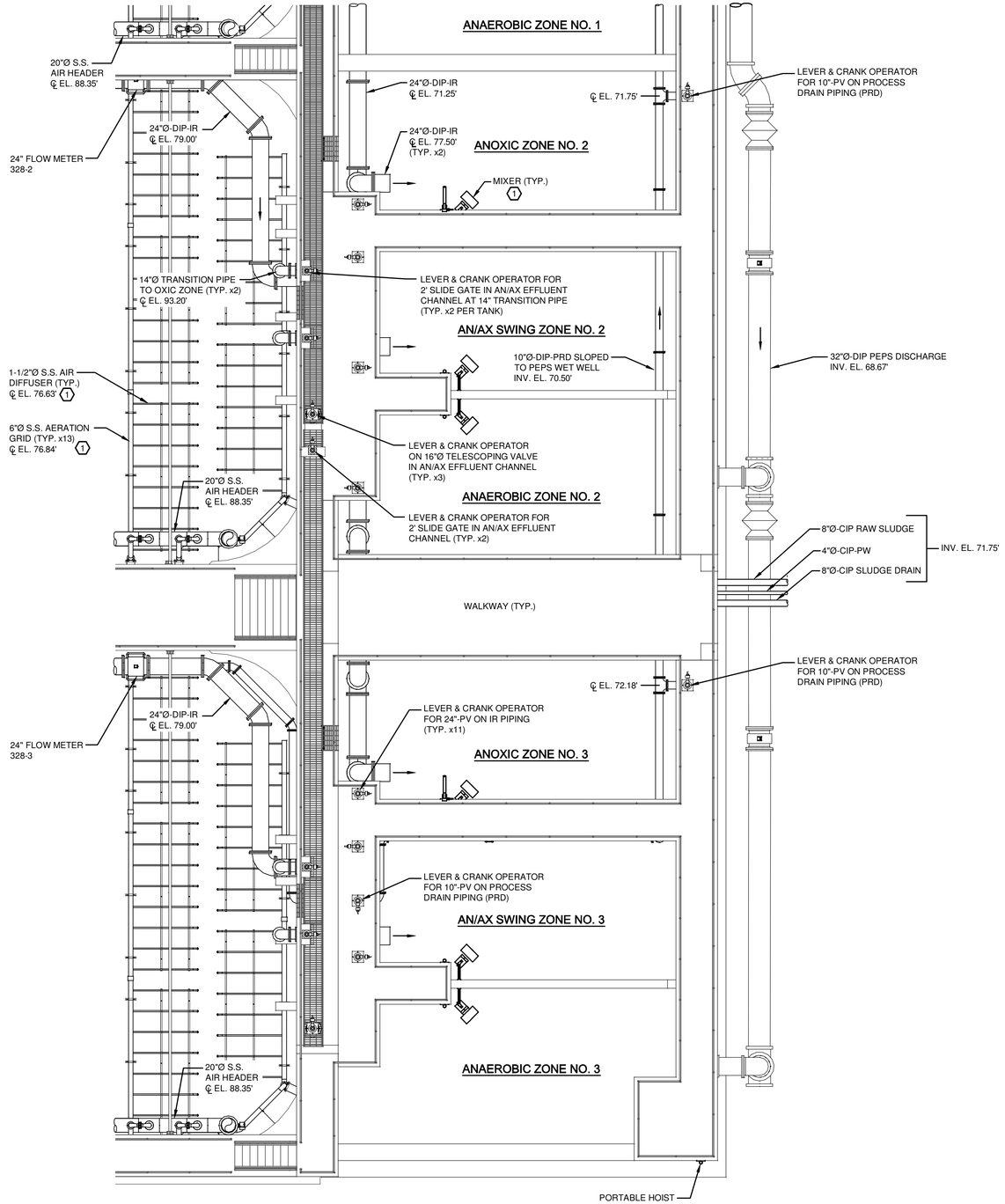


SECTION 1

EAST END TUNNEL PIPING - ENLARGED PLAN & SECTION

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

PLAN NORTH



EAST END WALKWAYS - ENLARGED PLAN

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

PLAN NORTH

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MECHANICAL
BIOLOGICAL REACTOR TANKS
ENLARGED PLANS

FILE NO. 23374.51633 -M313
DATE MARCH 19, 2015

M-313

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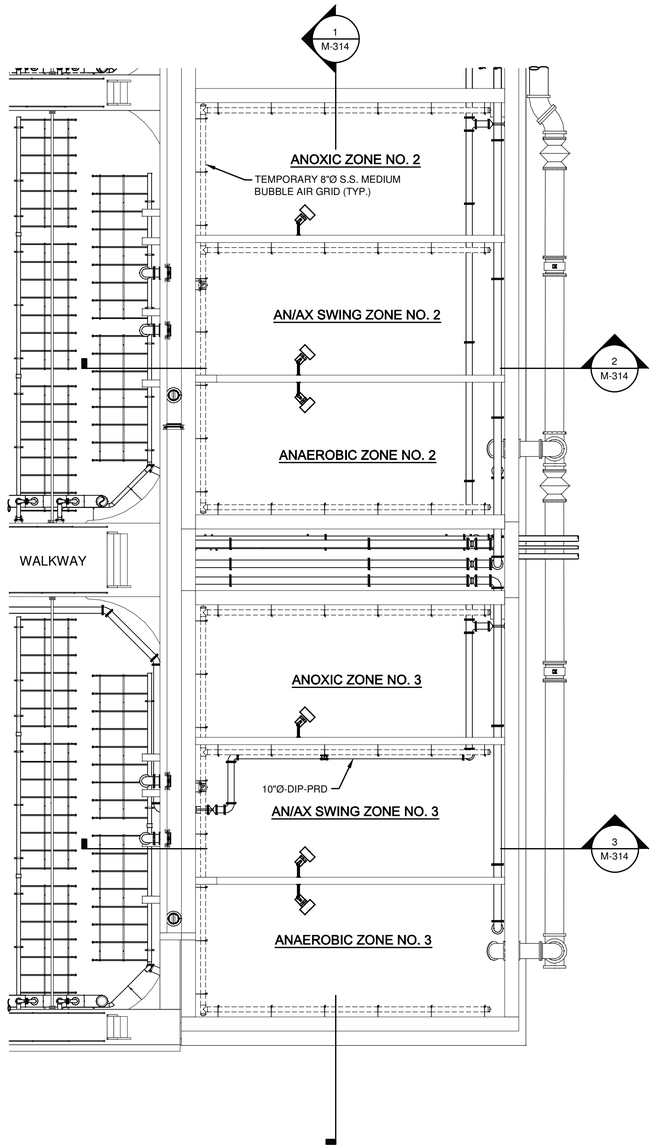
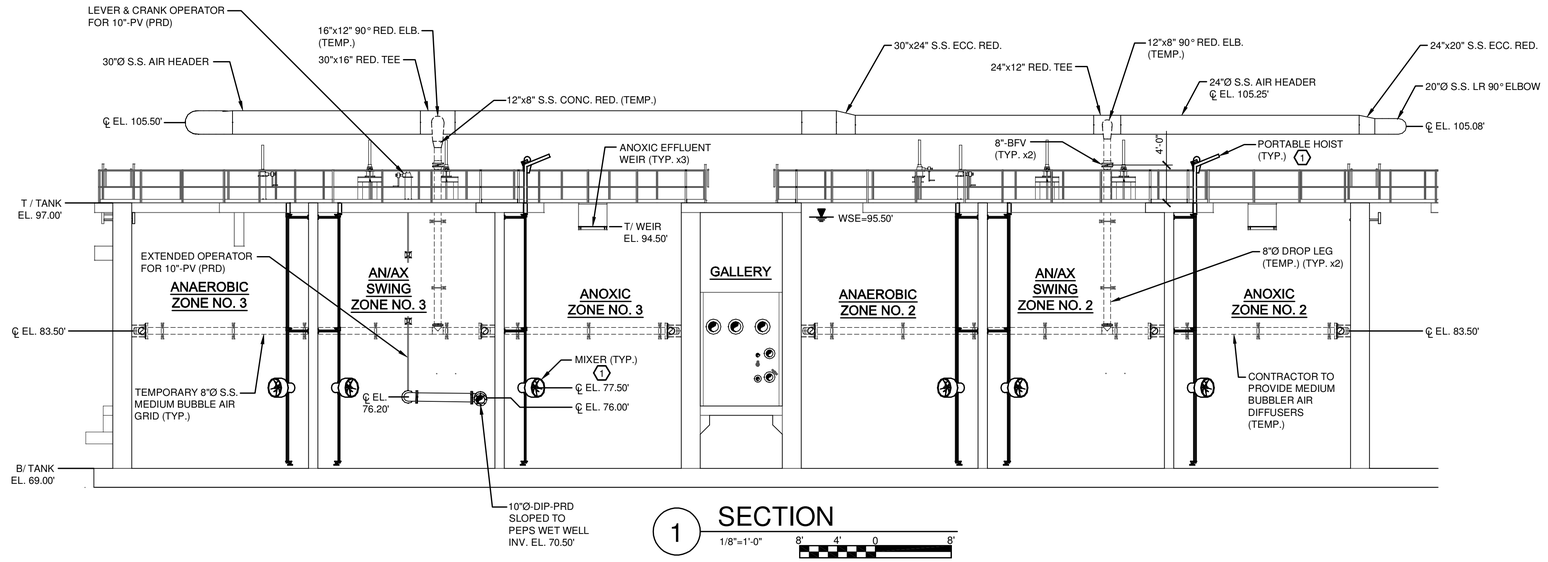


PARTIAL PLAN

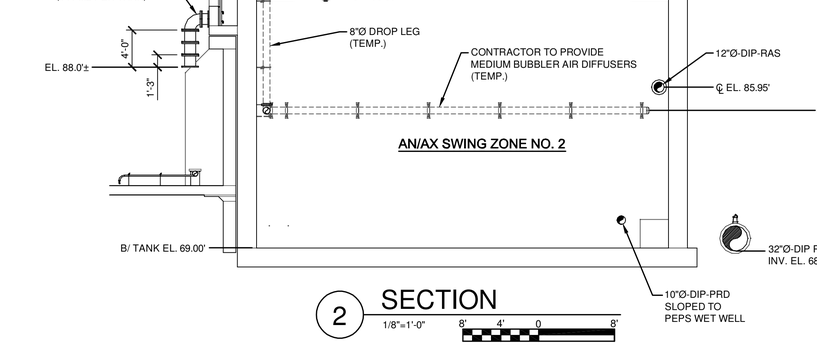
3/32"=1'-0" 10' 0 10'

PLAN NORTH



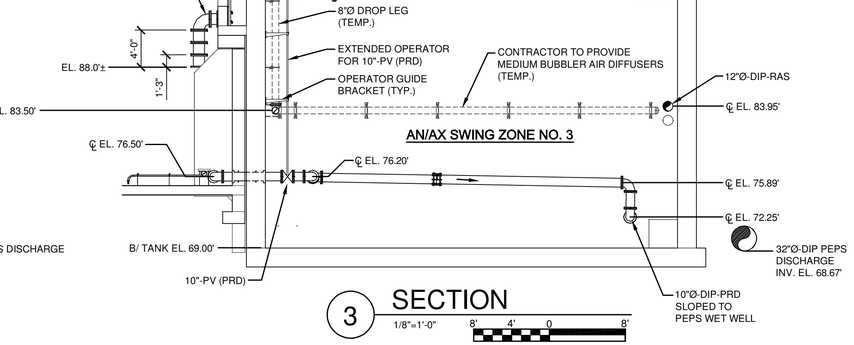
1 SECTION

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



2 SECTION

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



3 SECTION

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

CODED NOTES:

1 EQUIPMENT INCLUDED IN CONTRACT 1A AND INSTALLED BY GENERAL CONTRACTOR. REFER TO CONTRACT 1A DOCUMENTATION FOR FULL SCOPE OF SUPPLY, INCLUDING INSTRUMENTATION.

NOTES:

1. CONTRACTOR MUST SUBMIT TEMPORARY AERATION PIPING AND DIFFUSER LAYOUT DRAWINGS AS SHOP DRAWINGS.
2. ANTICIPATE OPERATING MECHANICAL MIXERS (INCLUDED IN CONTRACT 1A AND INSTALLED BY GENERAL CONTRACTOR) DURING TEMP AERATION.
3. TEMPORARY PIPING SHALL BE SCHEDULE 5 STAINLESS STEEL.
4. TEMPORARY AERATION PIPING SHALL BE SUPPORTED BY STANCHION TYPE PIPE SUPPORTS, WITH FIXED AND SLIDING PIPE SUPPORTS AS REQUIRED. CONTRACTOR TO PROVIDE LAYOUT OF SUPPORTS AS SHOP DRAWINGS.
5. TEMPORARY AERATION PIPING SHALL HAVE EXPANSION AND FIXED COUPLINGS AS REQUIRED. CONTRACTOR TO PROVIDE LAYOUT AS SHOP DRAWING.
6. IR PIPING NOT SHOWN FOR CLARITY.

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IN CHARGE OF	WJM			
DESIGNED BY	ISK/KAW			
CHECKED BY	WJM	1	09/23/2015	ISSUED FOR BID — WJM
DRAWN BY	TWL	0	03/19/2015	ISSUED FOR OEPA REVIEW — WJM
		NO.	DATE	REVISION — INT.

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
TEMPORARY AERATION PIPING PARTIAL PLAN & SECTIONS

FILE NO. 23374.51633 -M314
DATE MARCH 19, 2015
M-314

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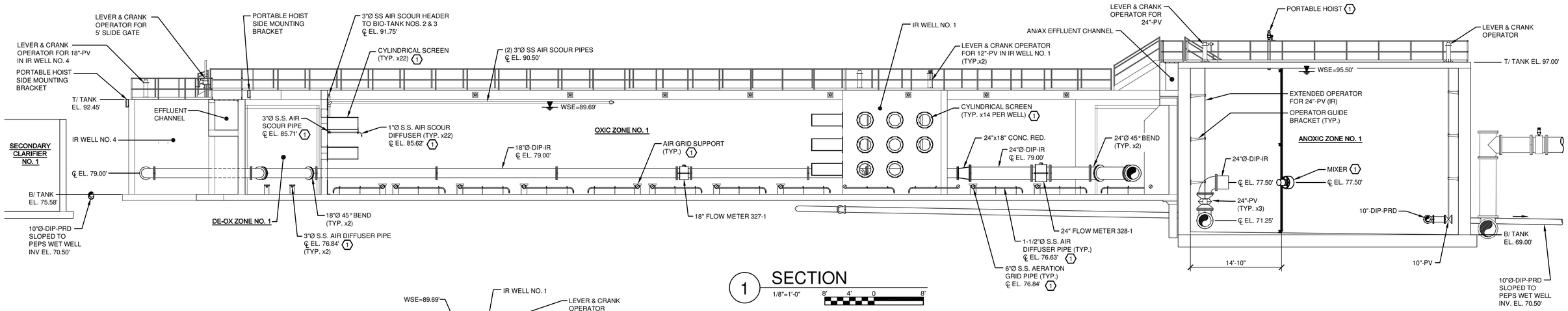

1 SECTION
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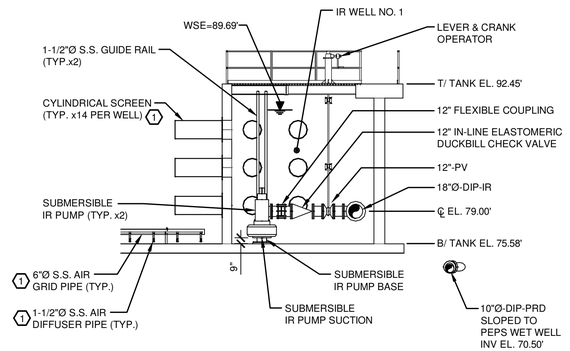

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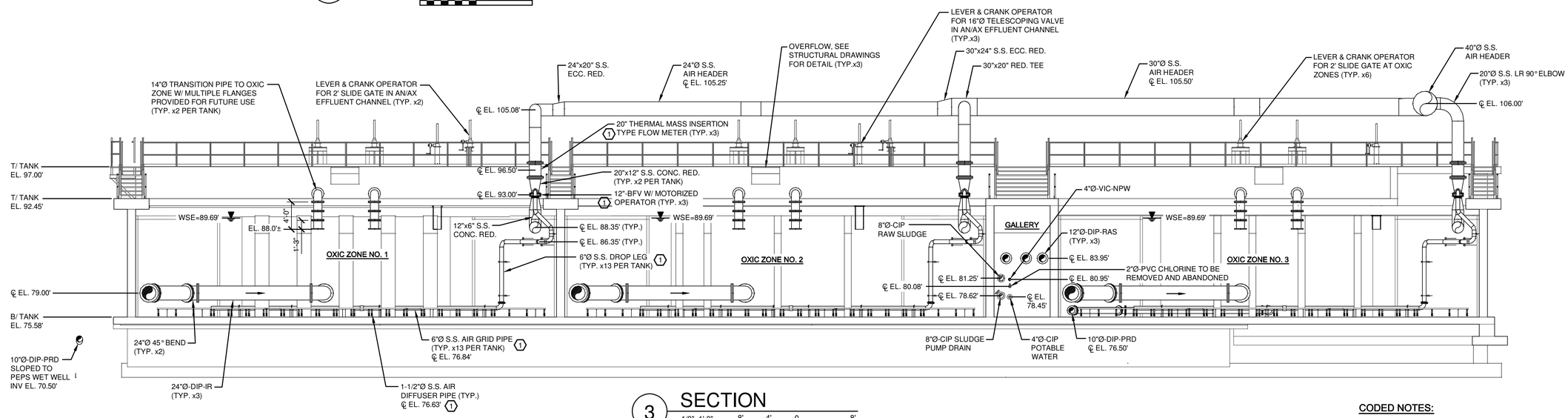

3 SECTION
1/8"=1'-0"

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0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M315
DATE MARCH 19, 2015

M-315

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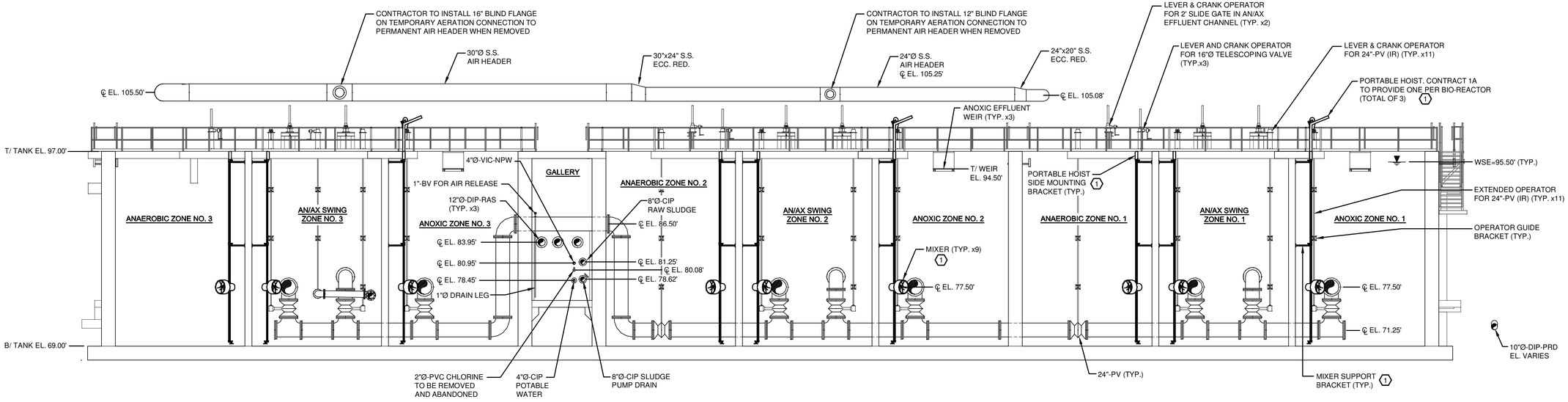
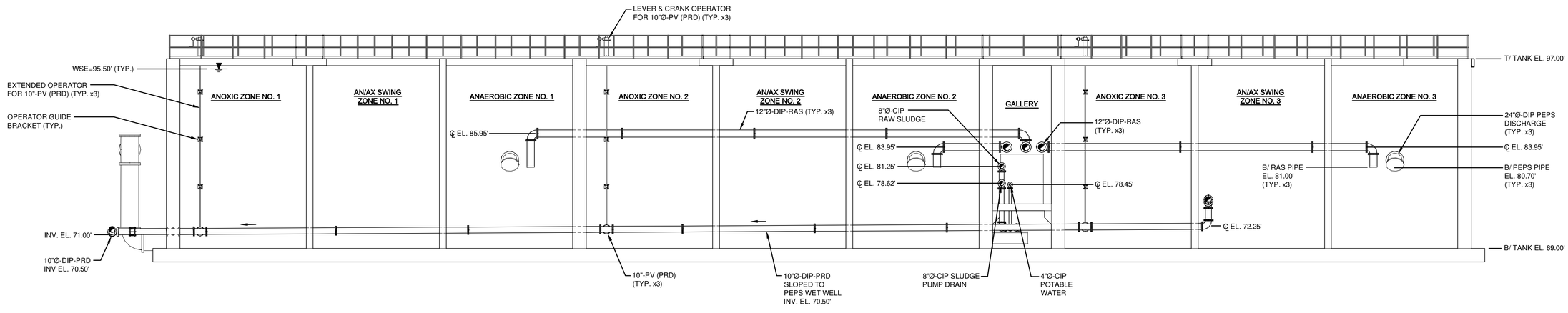


4 SECTION

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



5 SECTION

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

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	WJM	
	WJM	

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M316

DATE MARCH 19, 2015

M-316

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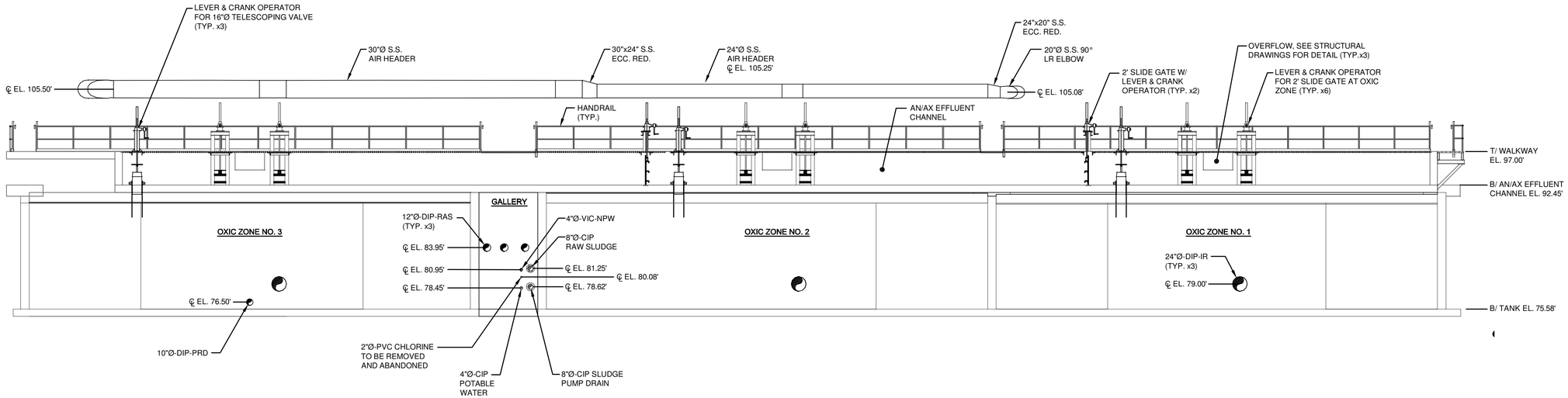
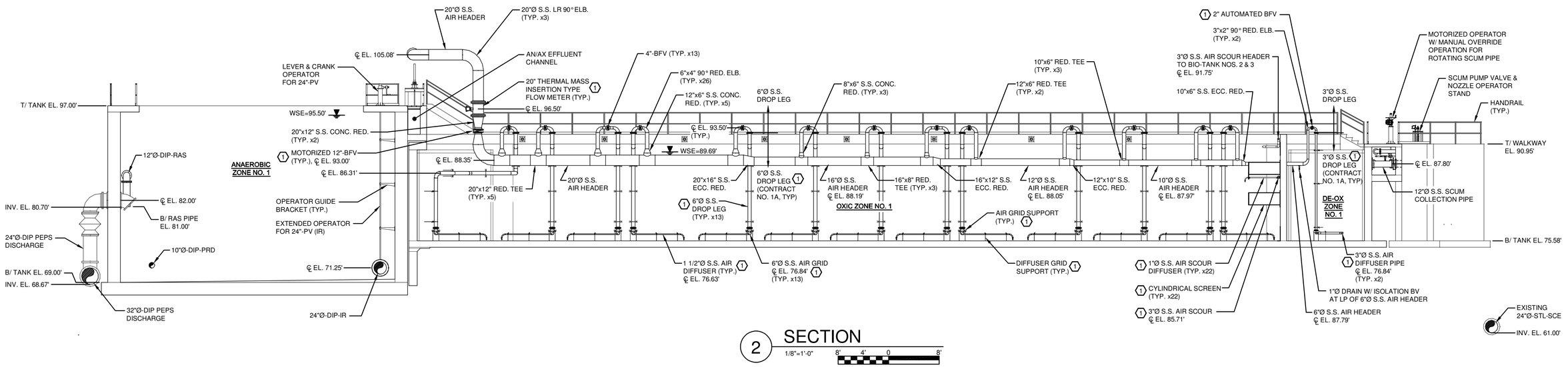


1 SECTION
1/8"=1'-0"
8' 4' 0 8'



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

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M317
DATE MARCH 19, 2015

M-317

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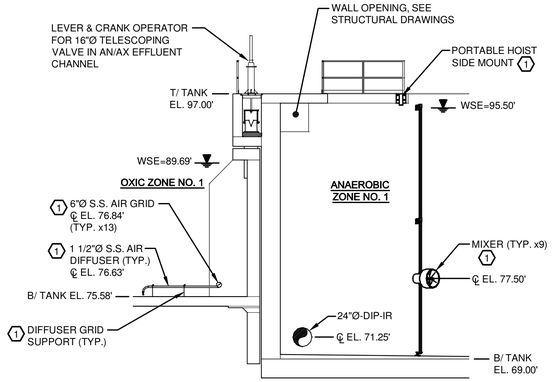

1 SECTION
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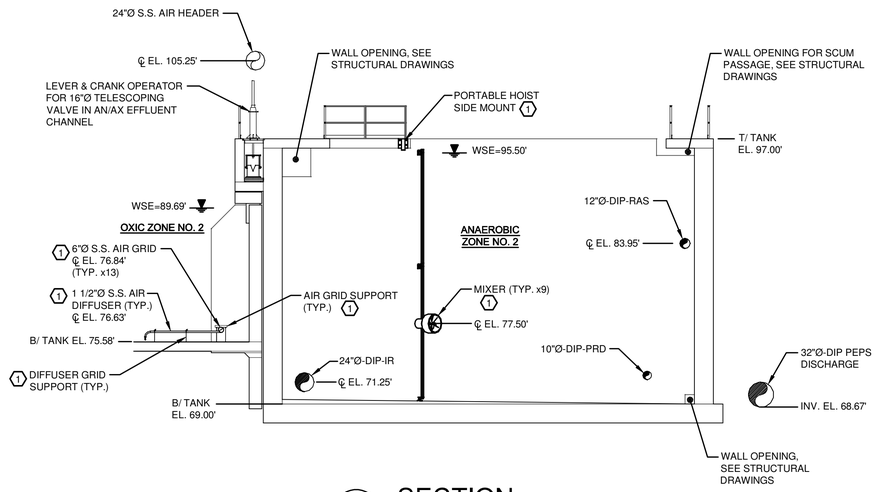

2 SECTION
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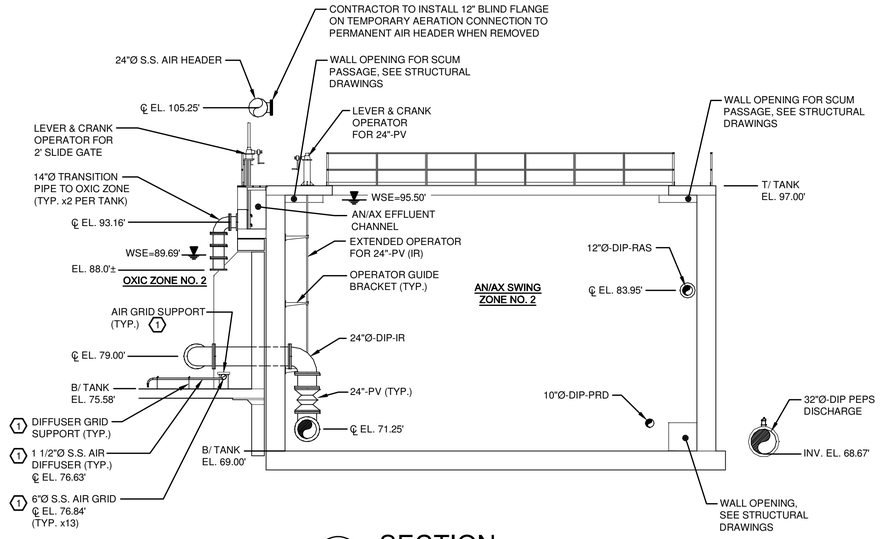

3 SECTION
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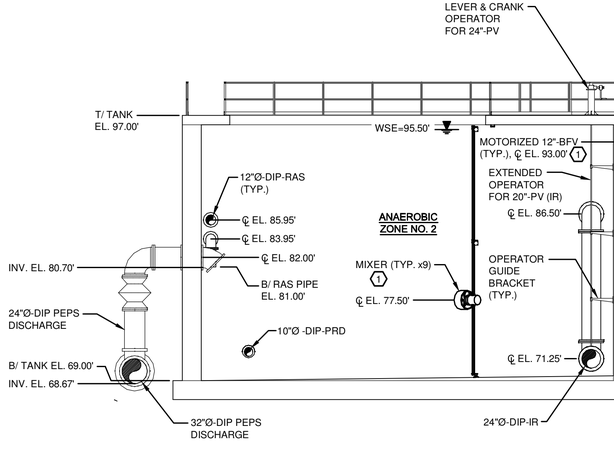
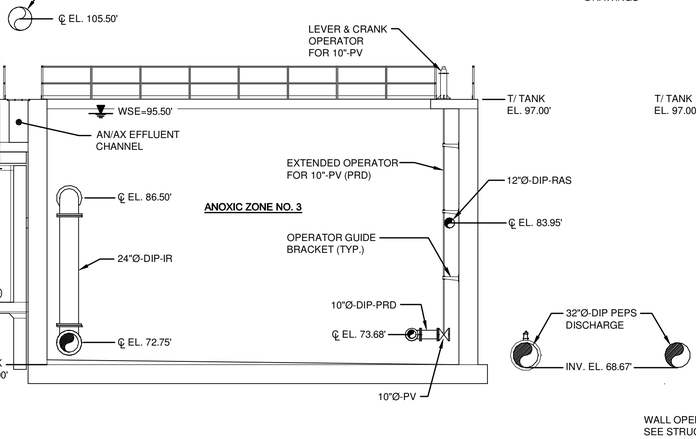
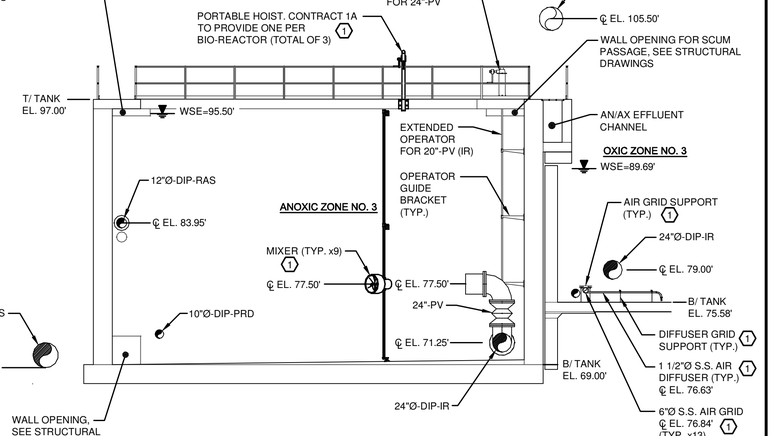


4 SECTION
1/8"=1'-0"



5 SECTION
1/8"=1'-0"



6 SECTION
1/8"=1'-0"

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O'BRIEN & GERE
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M318
DATE MARCH 19, 2015

M-318

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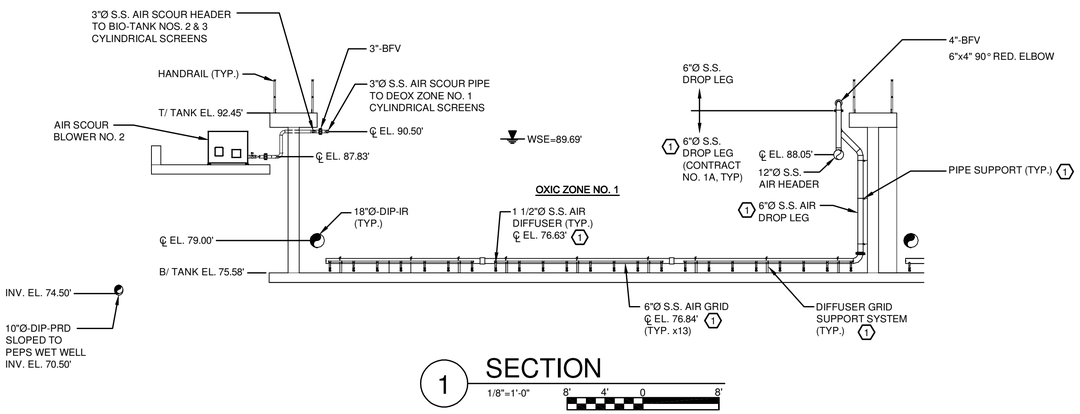
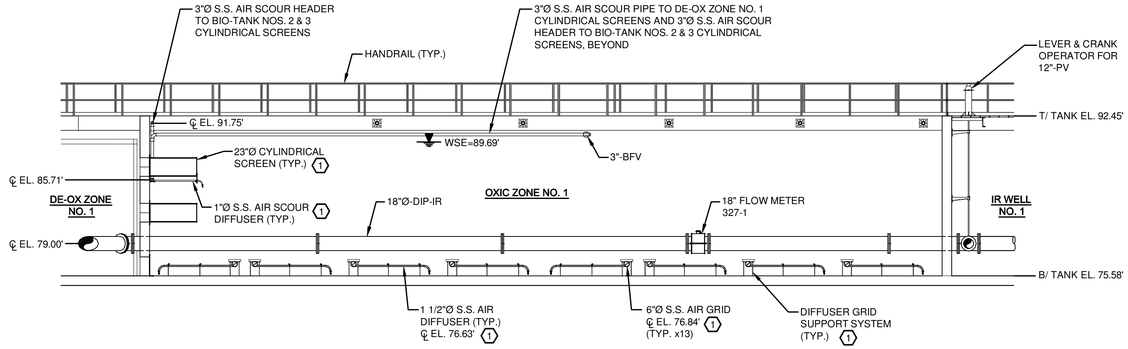


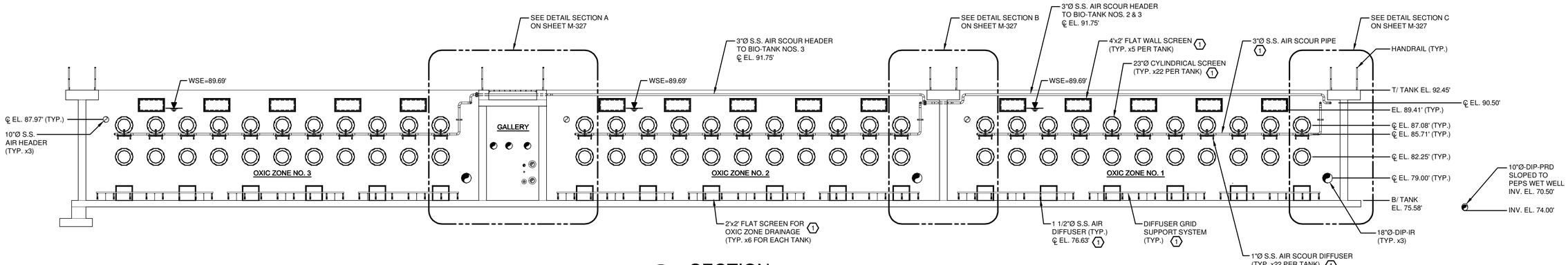
1 SECTION

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



2 SECTION

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



3 SECTION

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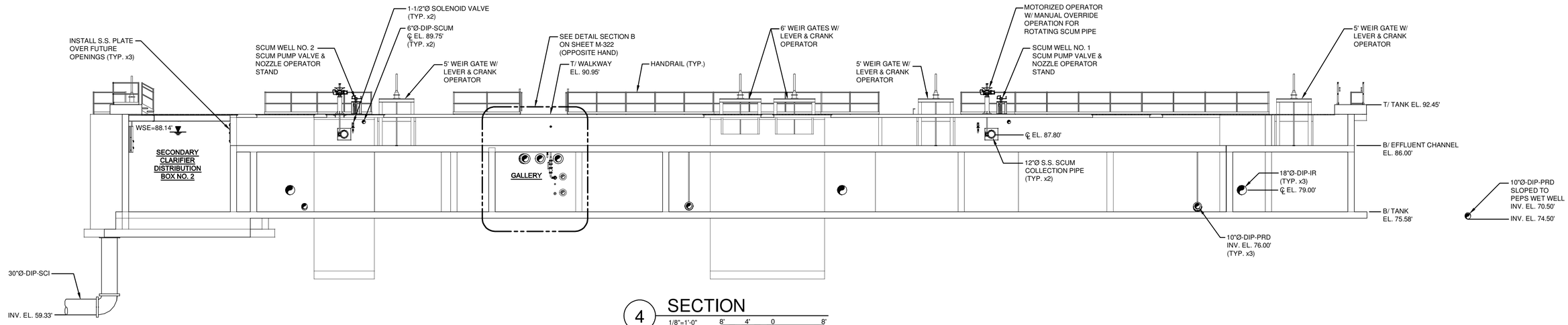

4 SECTION

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

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M319

DATE MARCH 19, 2015

M-319

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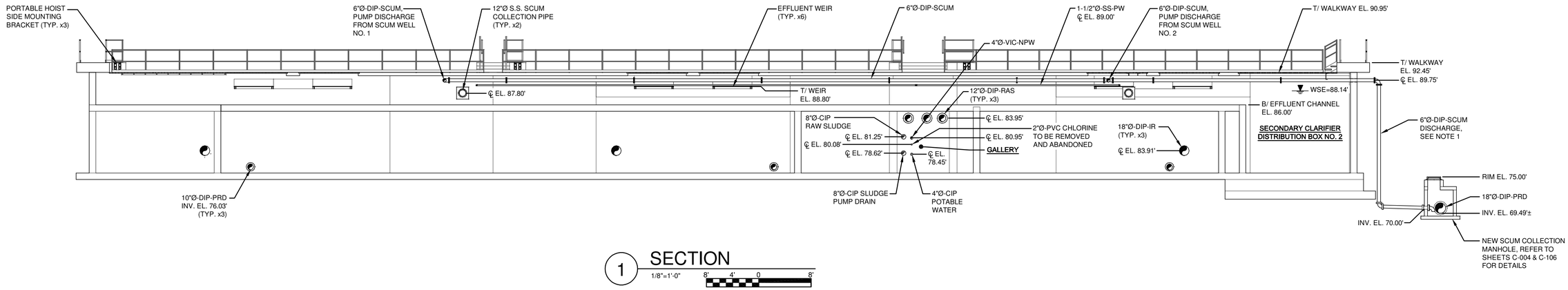
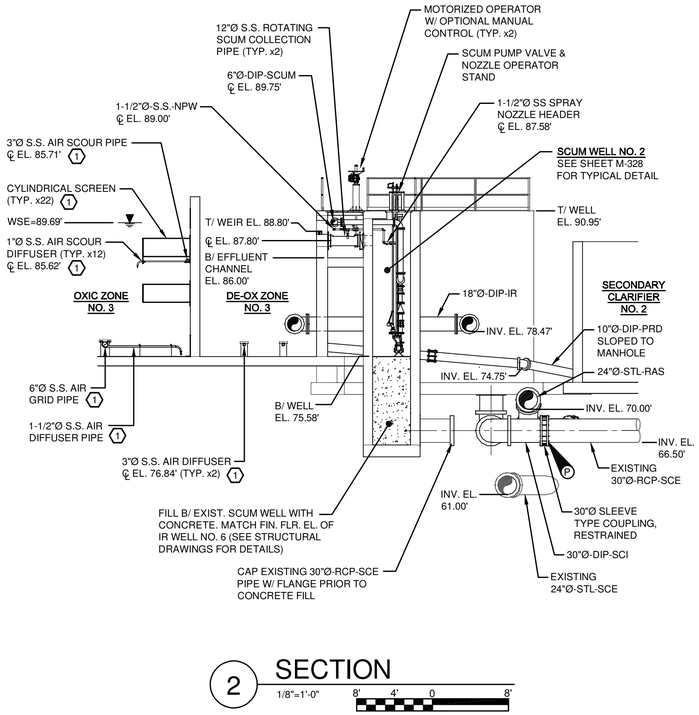


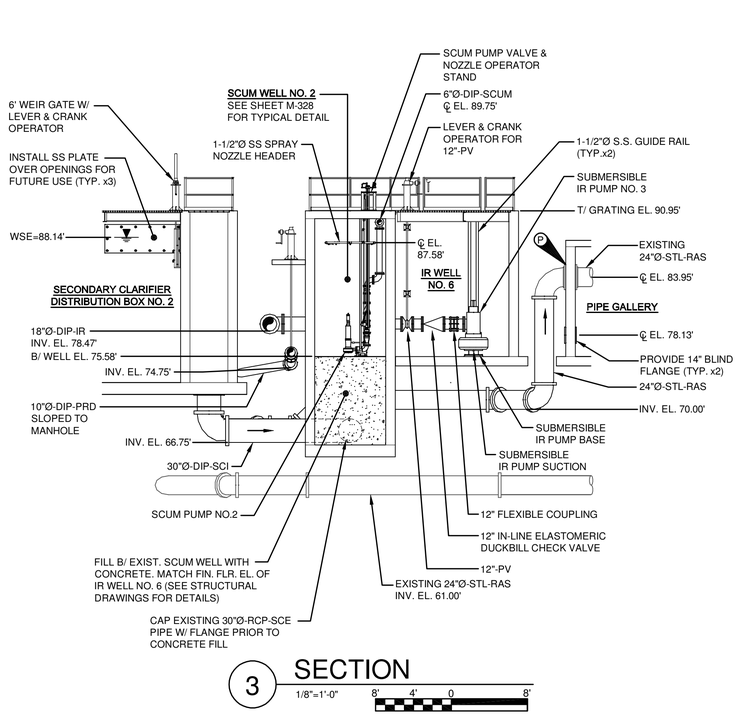
1 SECTION

1/8"=1'-0"



2 SECTION

1/8"=1'-0"



3 SECTION

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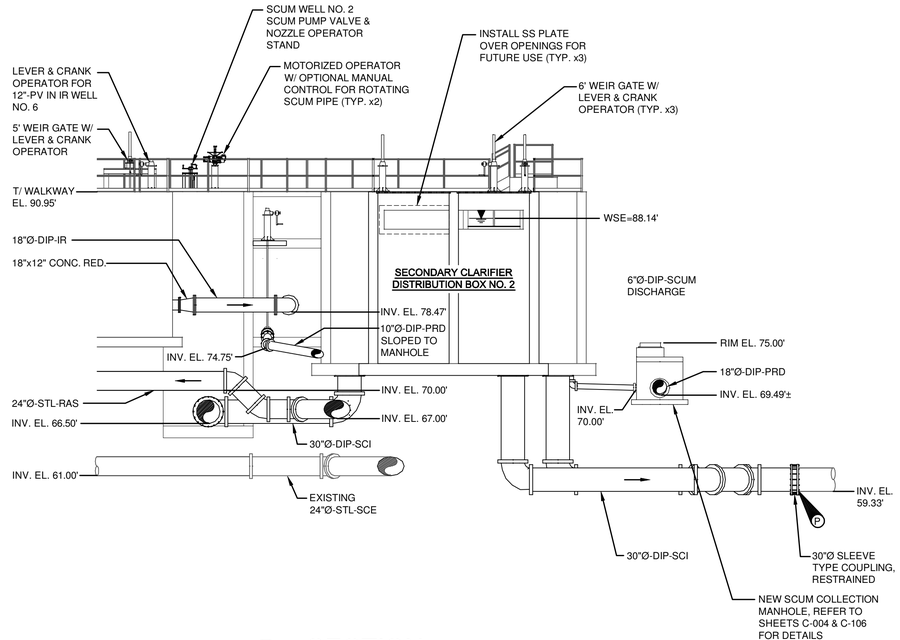

4 SECTION

1/8"=1'-0"

DRAWING NOTES:

1. ANY EXPOSED SCUM PIPING (NOT BURIED OR WITHIN TANK) SHALL BE SS.

CODED NOTES:

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M320
DATE MARCH 19, 2015
M-320

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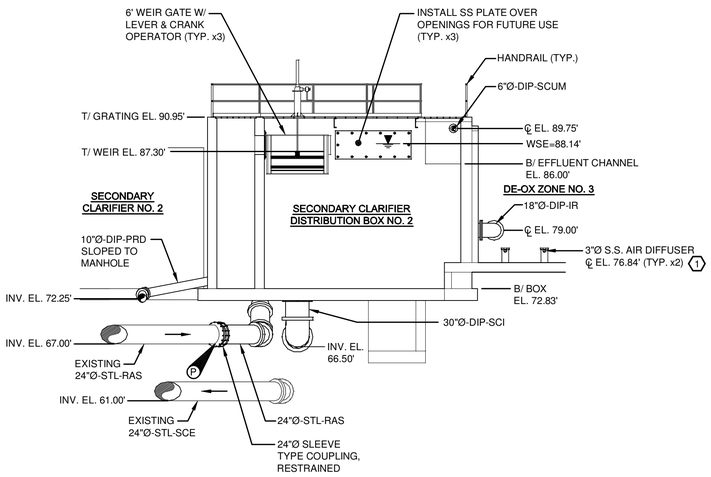

1 SECTION
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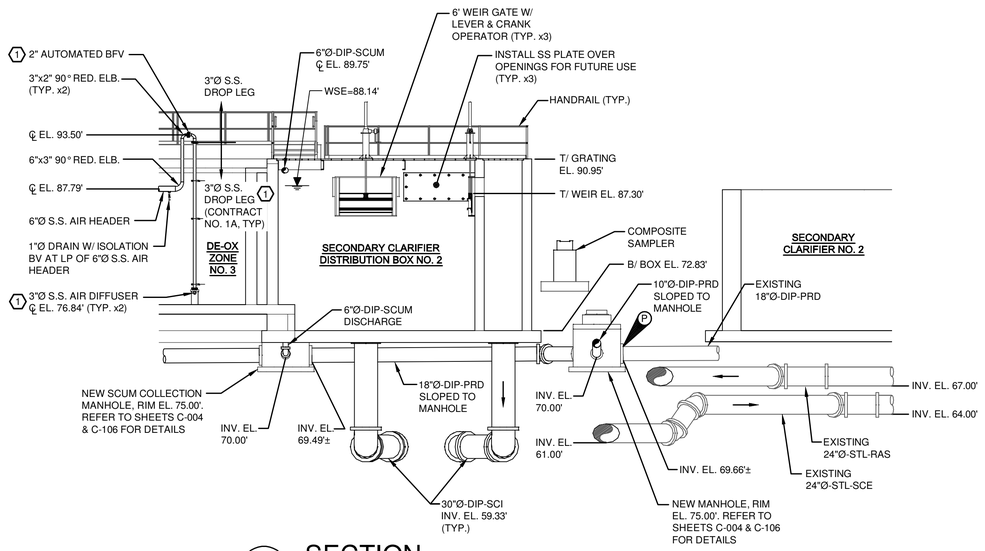

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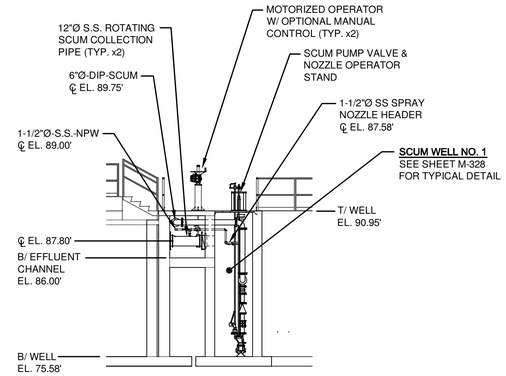

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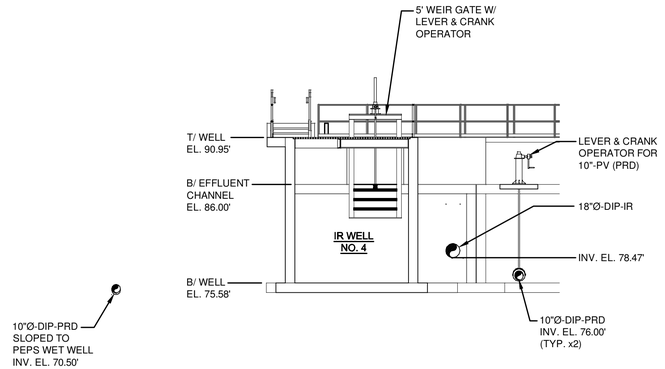
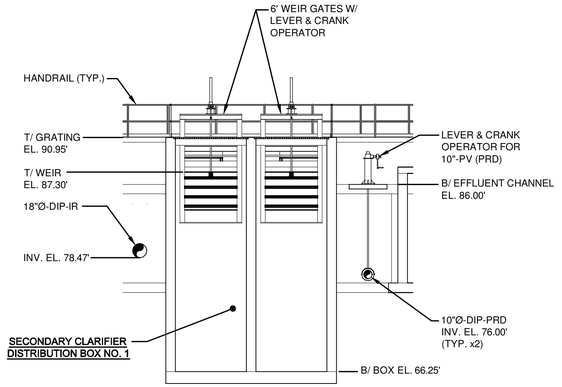


4 SECTION
1/8"=1'-0" 8' 4' 0 8'



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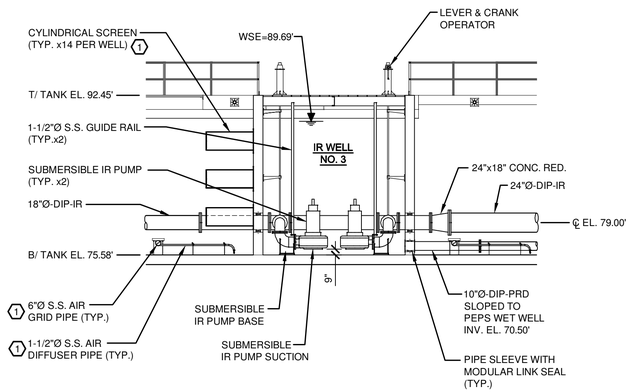

6 SECTION
1/8"=1'-0" 8' 4' 0 8'

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M321
DATE MARCH 19, 2015

M-321

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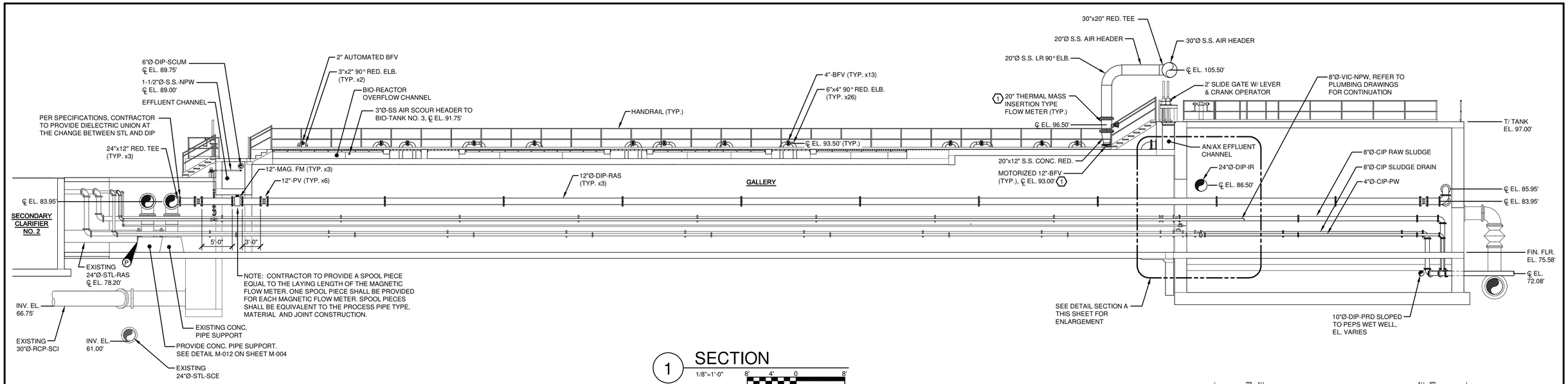
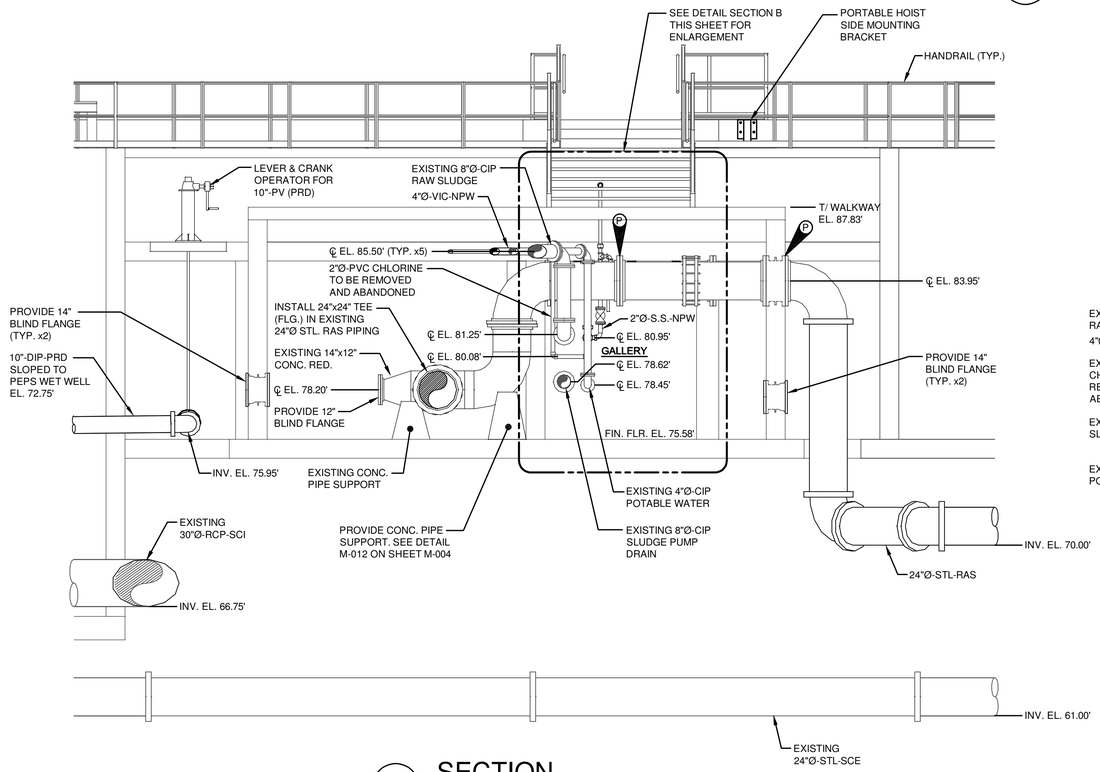


1 SECTION

1/8"=1'-0"



2 SECTION

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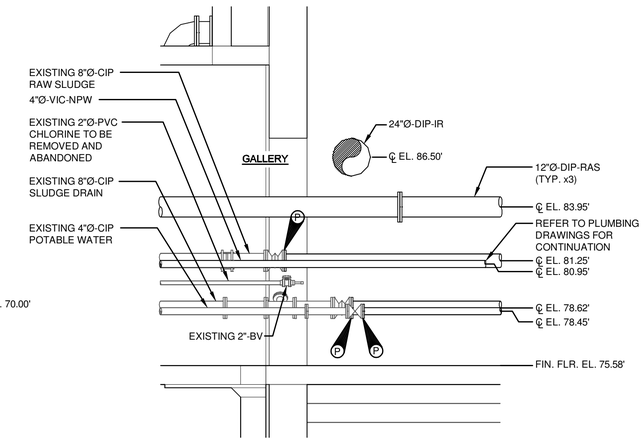
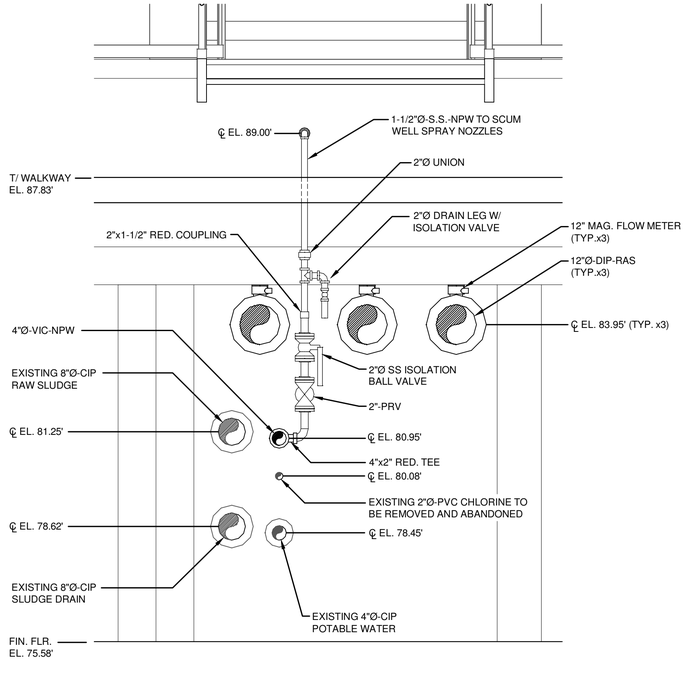


A DETAIL SECTION

1/4"=1'-0"



B DETAIL SECTION

1/2"=1'-0"

CODED NOTES:

1 EQUIPMENT INCLUDED IN CONTRACT 1A AND INSTALLED BY GENERAL CONTRACTOR. REFER TO CONTRACT 1A DOCUMENTATION FOR FULL SCOPE OF SUPPLY, INCLUDING INSTRUMENTATION.

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IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

SECTIONS

FILE NO. 23374.51633 -M322
DATE MARCH 19, 2015
M-322

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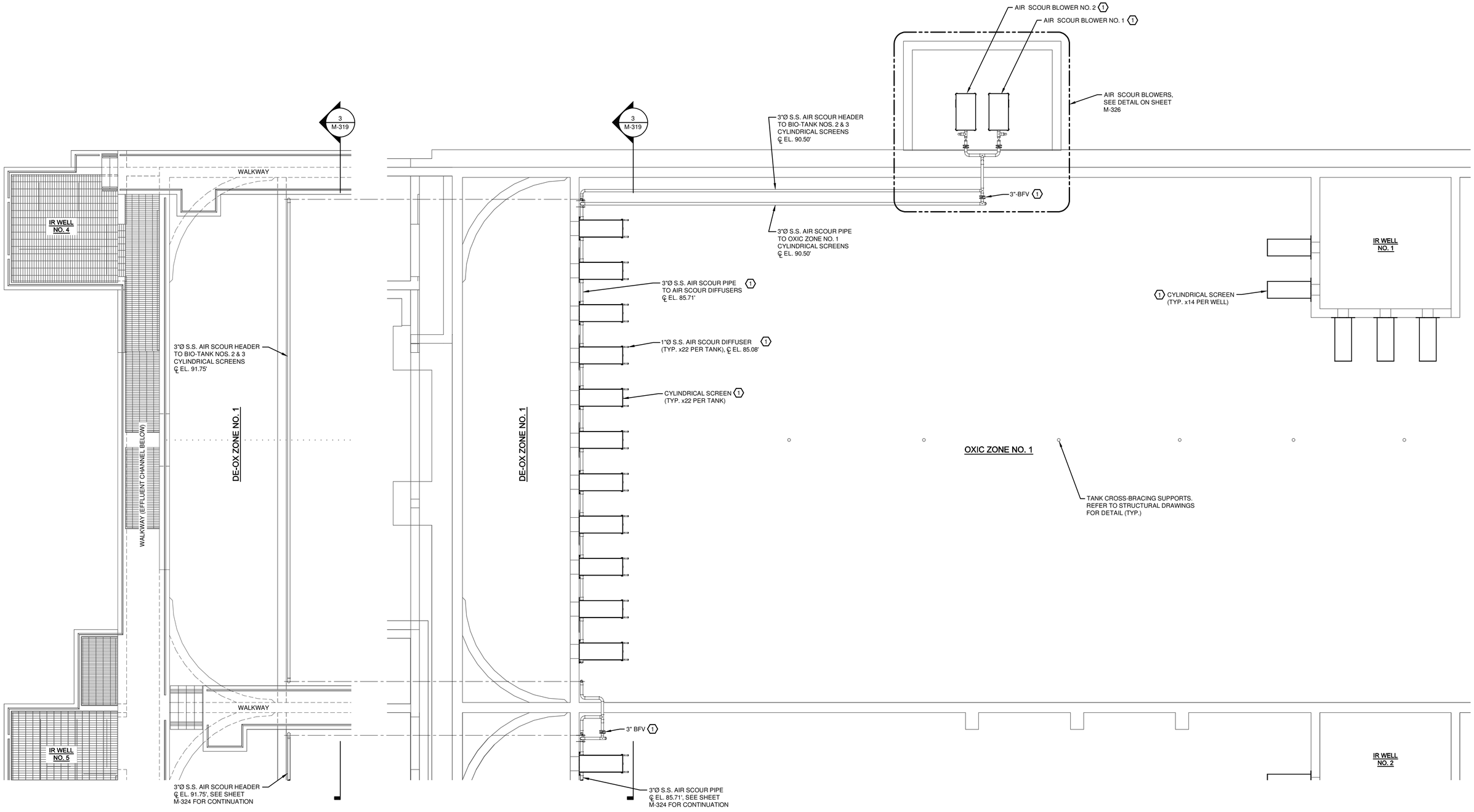

PLAN @ EL. 93.00'

3/16"=1'-0" 5' 0 5'

PLAN @ EL. 92.00'

3/16"=1'-0" 5' 0 5'

DRAWING NOTES:

1. AERATION GRID AND IR PIPING LAYOUTS NOT SHOWN FOR CLARITY.

CODED NOTES:

(1) EQUIPMENT INCLUDED IN CONTRACT 1A AND INSTALLED BY GENERAL CONTRACTOR. REFER TO CONTRACT 1A DOCUMENTATION FOR FULL SCOPE OF SUPPLY, INCLUDING INSTRUMENTATION.

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IN CHARGE OF WJM
DESIGNED BY KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 1

AIR SCOUR PIPING PLANS

FILE NO. 23374.51633 -M323
DATE SEPT. 23, 2015

M-323

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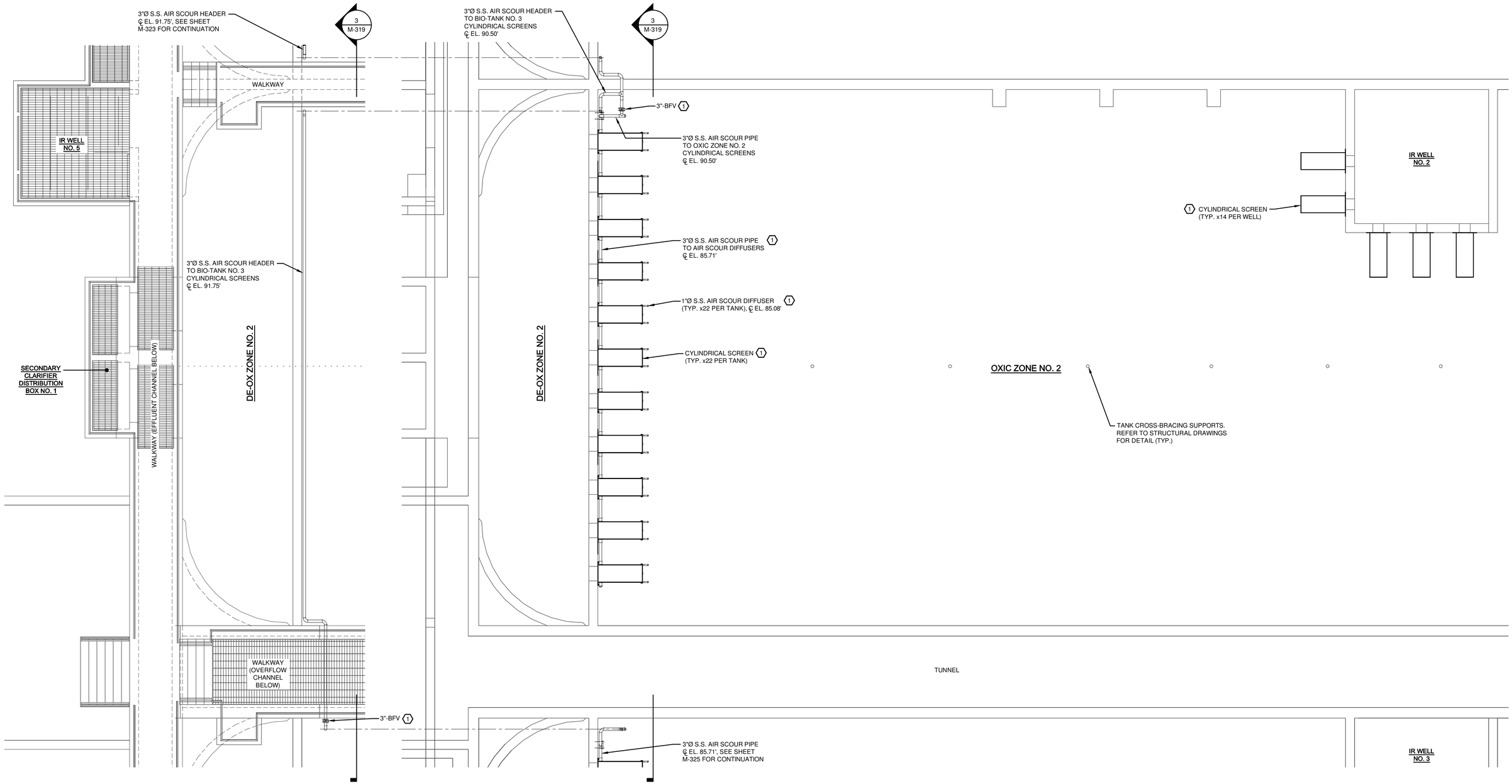

PLAN @ EL. 93.00'

3/16"=1'-0" 5' 0 5'

PLAN @ EL. 92.00'

3/16"=1'-0" 5' 0 5'

DRAWING NOTES:

1. AERATION GRID AND IR PIPING LAYOUTS NOT SHOWN FOR CLARITY.

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IN CHARGE OF	WJM		
DESIGNED BY	KAW		
CHECKED BY	WJM		
DRAWN BY	TWL		

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 2

AIR SCOUR PIPING PLANS

FILE NO. 23374.51633 -M324
DATE SEPT. 23, 2015

M-324

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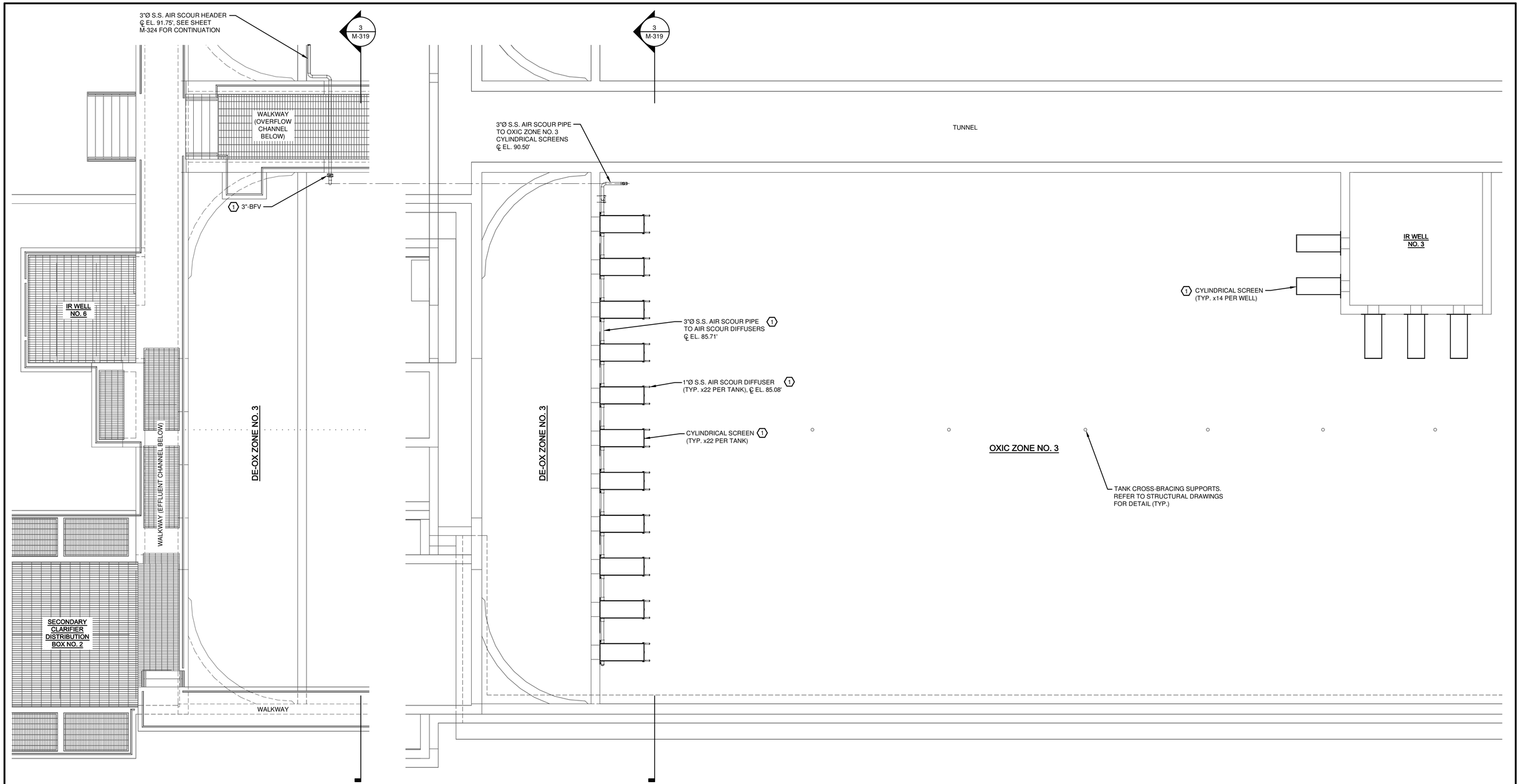

PLAN @ EL. 93.00'

3/16"=1'-0" 5' 0 5'

PLAN @ EL. 92.00'

3/16"=1'-0" 5' 0 5'

DRAWING NOTES:

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CODED NOTES:

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DESIGNED BY	KAW		
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DRAWN BY	TWL		

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANK NO. 3

AIR SCOUR PIPING PLANS

FILE NO. 23374.51633 -M325

DATE SEPT. 23, 2015

M-325

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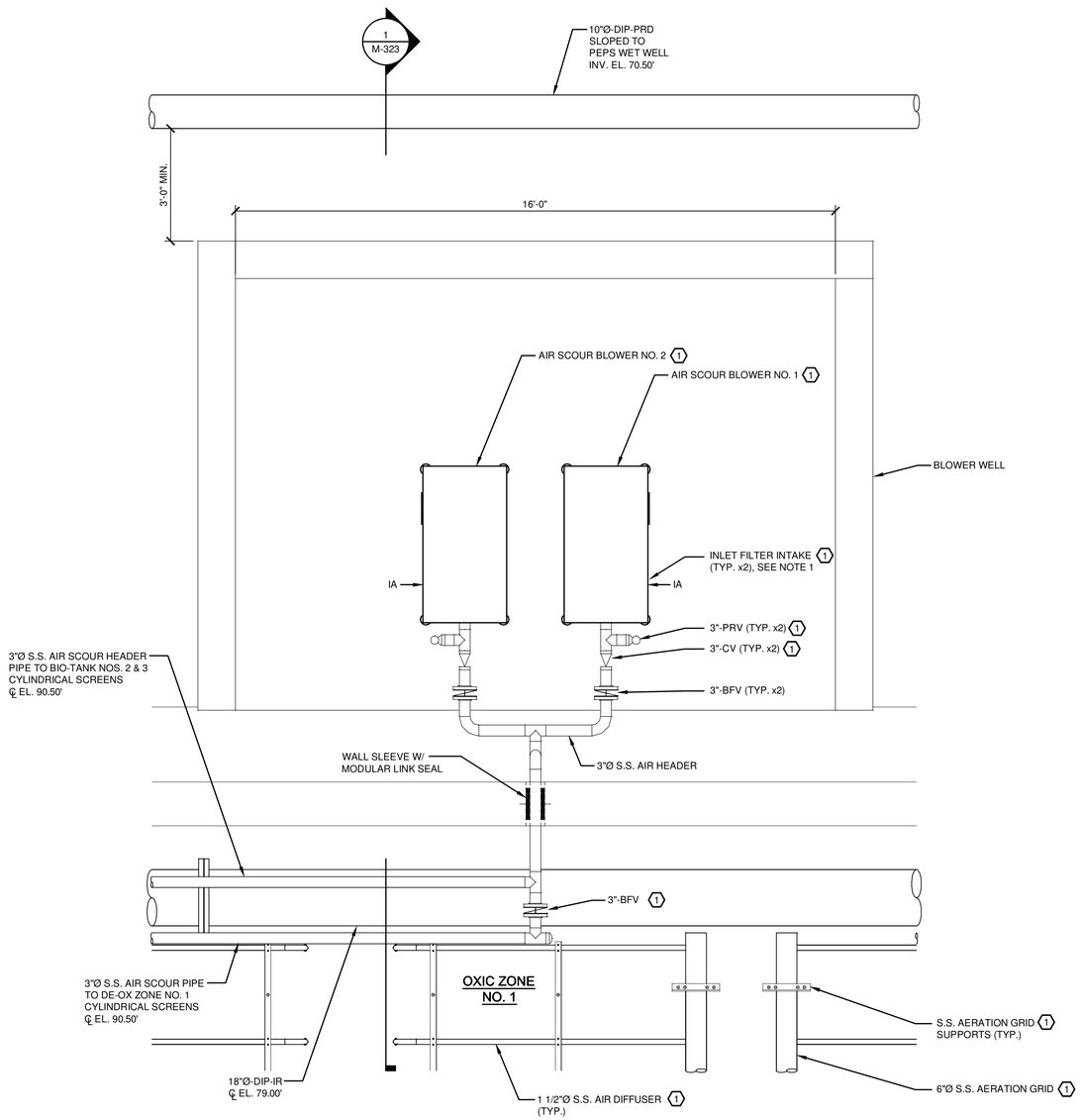
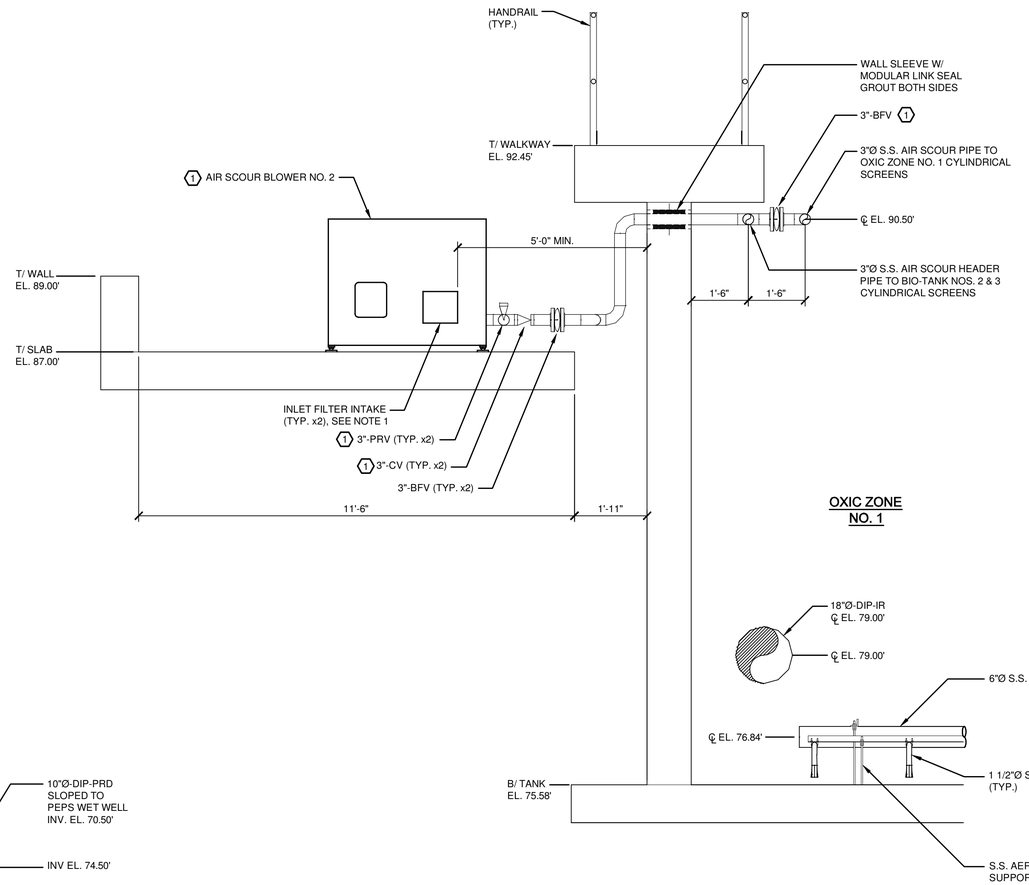
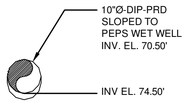


DETAIL PLAN

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





1 SECTION

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

DRAWING NOTES:

1. AIR SCOUR BLOWER INTAKES SHALL BE LOCATED A MINIMUM DISTANCE OF 5' FROM THE EXTERIOR WALL OF THE BIOLOGICAL REACTOR TANK.

CODED NOTES:

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IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
AIR SCOUR BLOWERS - DETAIL PLAN & SECTION

FILE NO. 23374.51633 -M326
DATE MARCH 19, 2015
M-326

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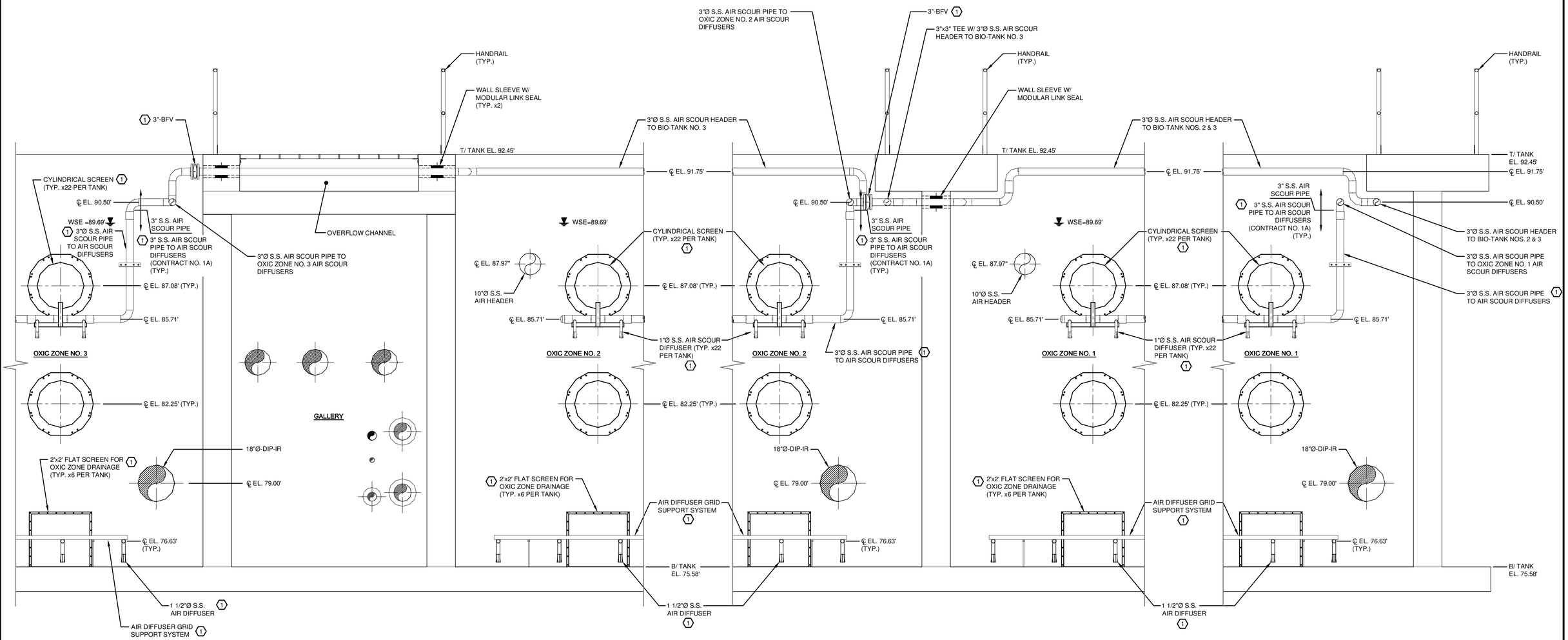

A DETAIL SECTION
1/4"=1'-0"

B DETAIL SECTION
1/4"=1'-0"

C DETAIL SECTION
1/4"=1'-0"

CODED NOTES:

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DESIGNED BY KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS

AIR SCOUR PIPING DETAIL SECTIONS

FILE NO. 23374.51633 -M327
DATE SEPT. 23, 2015

M-327

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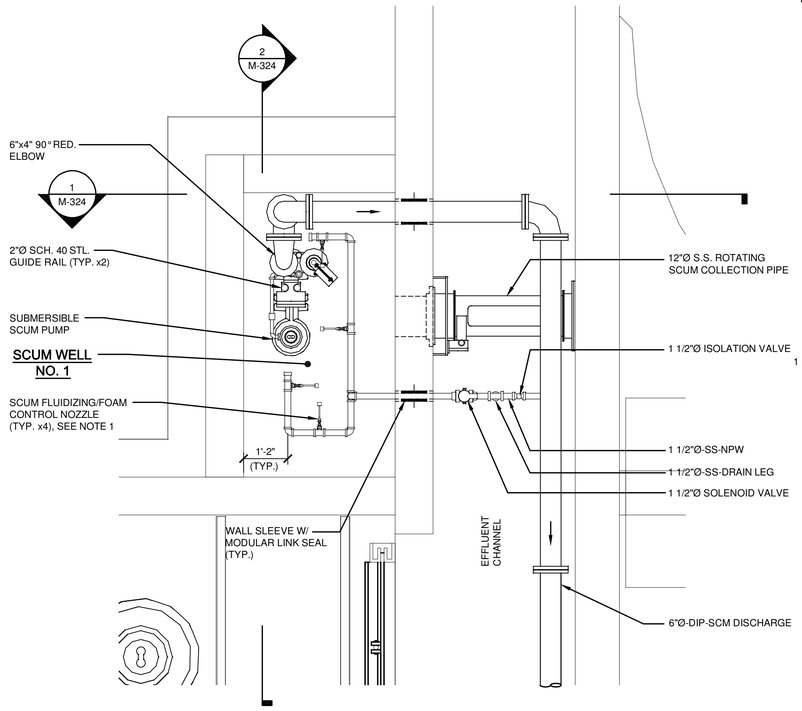
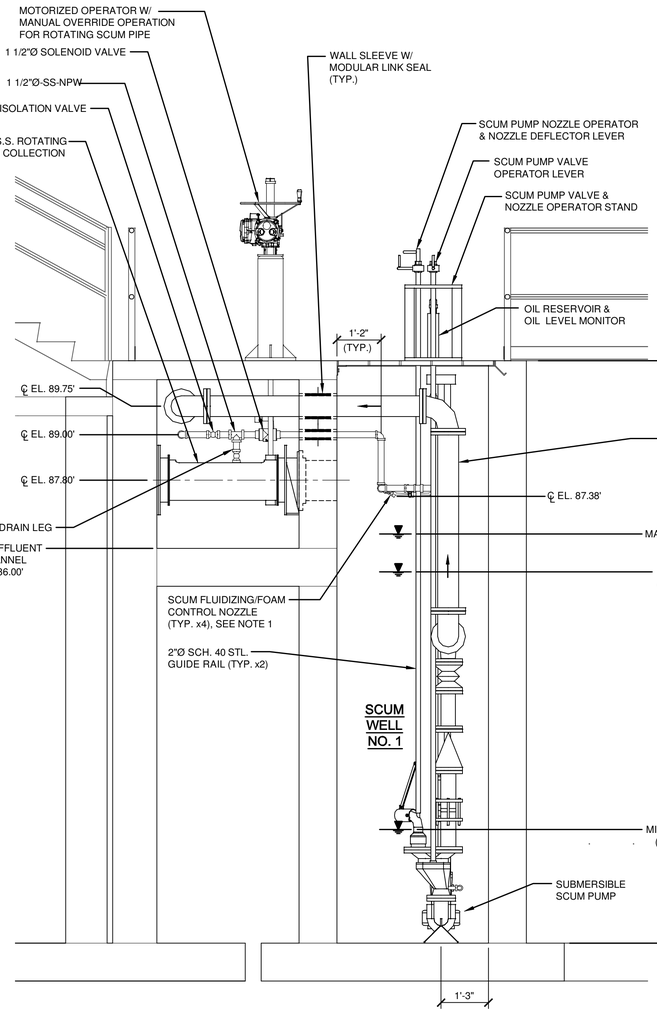


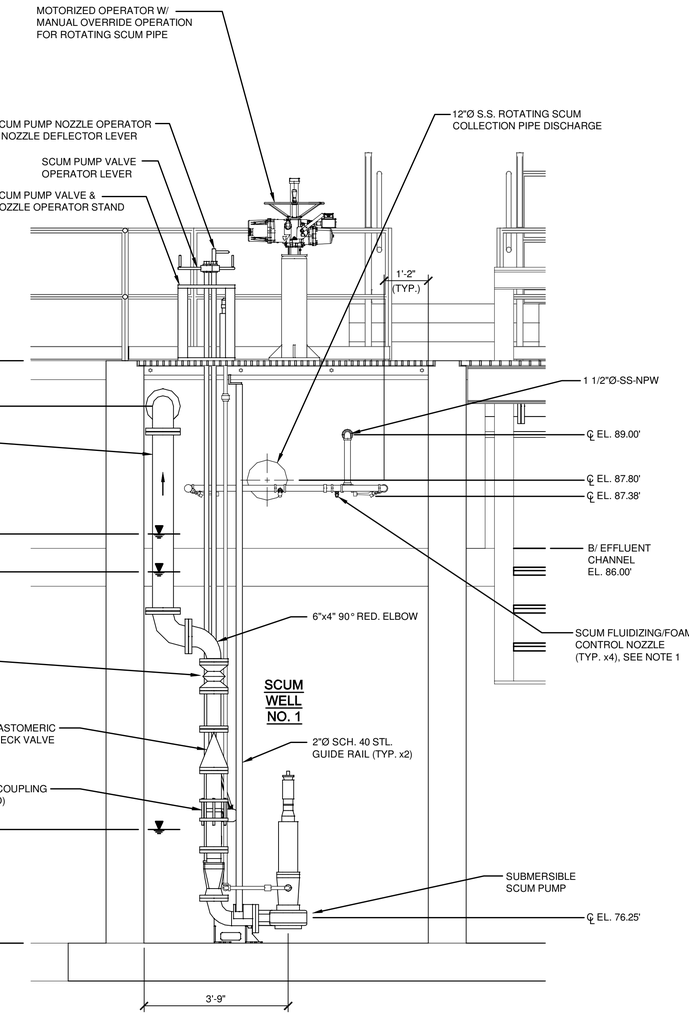
SCUM WELL NO. 1 - TYPICAL DETAIL PLAN

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



1 SECTION

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



2 SECTION

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

DRAWING NOTES:

1. FOAM CONTROL NOZZLES SHALL BE WEIGHTED SWING ARM TYPE NOZZLES MANUFACTURED BY SPRAYING SYSTEMS CO. (MODEL NO. 22561-13035.5) OR EQUAL. REFER TO SPECIFICATION NO. 40 50 23 07.
2. FOAM CONTROL NOZZLES SHALL BE MOUNTED 14" AWAY FROM THE TANK WALL AND 24" ABOVE THE HIGH WATER LEVEL IN THE WELL (HWL=85.38').
3. CONTRACTOR SHALL INSTALL FOAM CONTROL NOZZLES TO DIRECT SPRAY DOWN TO WATER SURFACE.
4. CONTRACTOR TO PROVIDE AND INSTALL S.S. PIPE SUPPORTS AS NECESSARY TO SUPPORT THE SPRAY HEADER.
5. LAYOUT OF EQUIPMENT AND PIPING IN SCUM WELL NO. 1 IS TYPICAL FOR SCUM WELL NO. 2.

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IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
SCUM WELL NO. 1 - TYPICAL DETAIL PLAN & SECTION

FILE NO. 23374.51633 -M328
DATE MARCH 19, 2015
M-328

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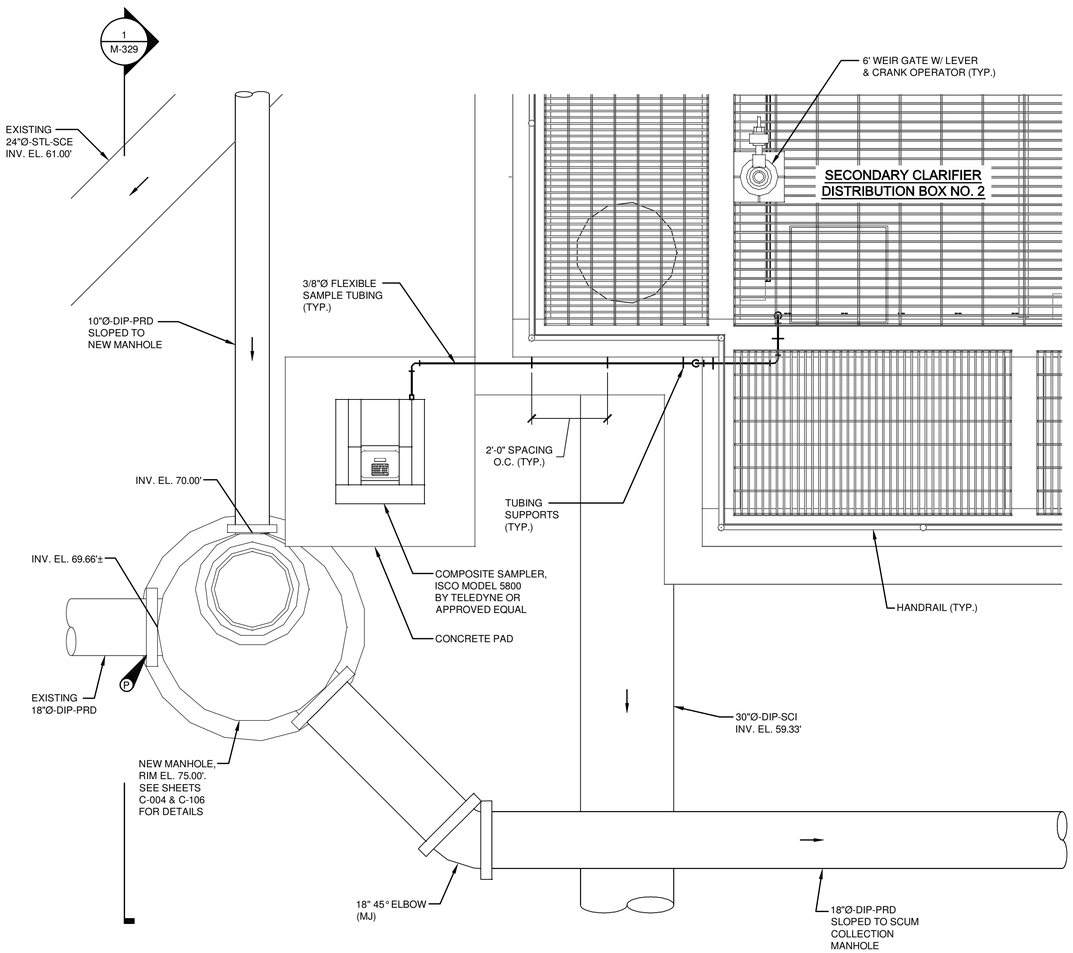
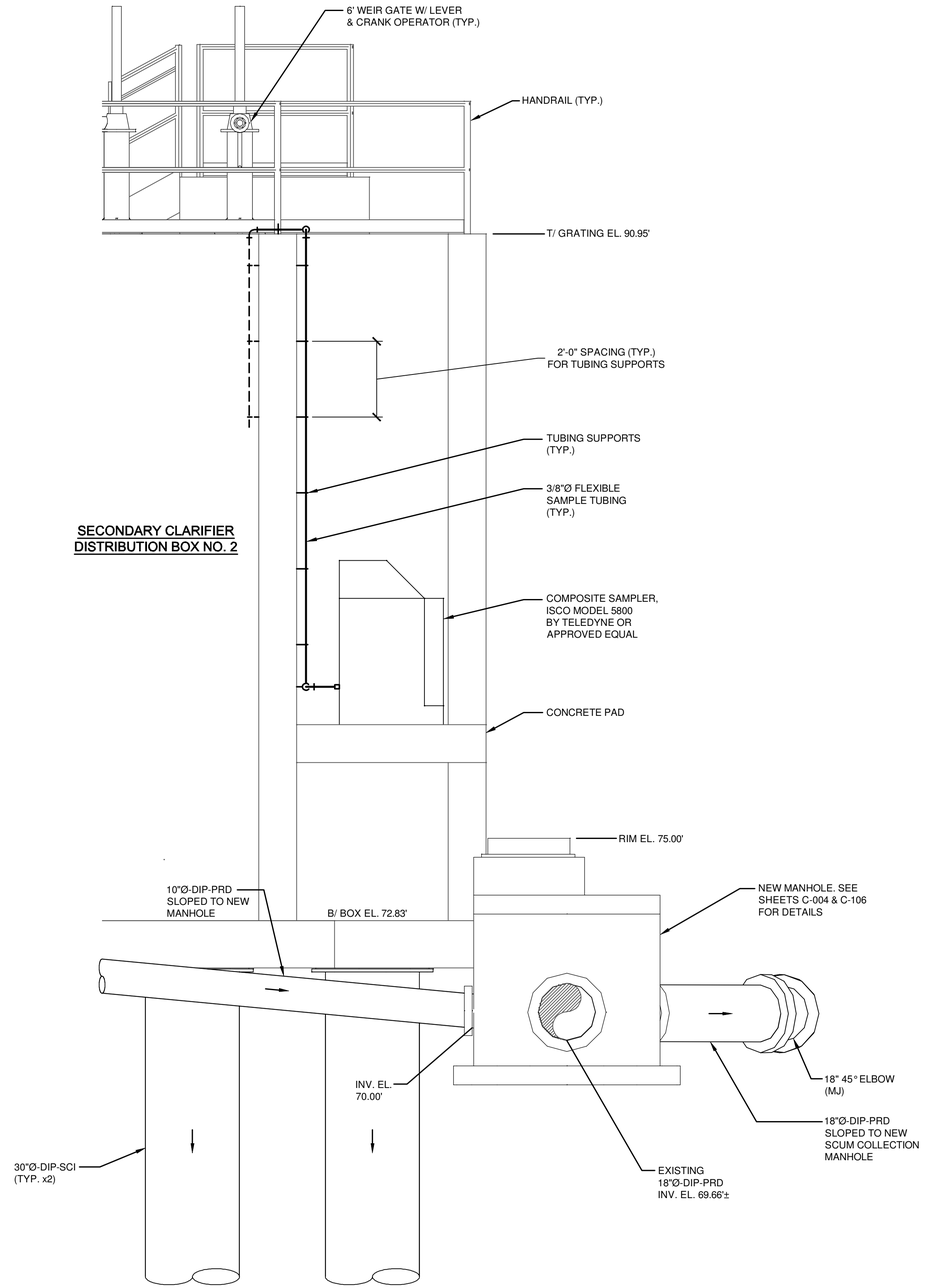


COMPOSITE SAMPLER - DETAIL PLAN

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



1 SECTION

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

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NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
COMPOSITE SAMPLER - DETAIL PLAN & SECTION

FILE NO. 23374.51633 -M329
DATE MARCH 19, 2015
M-329

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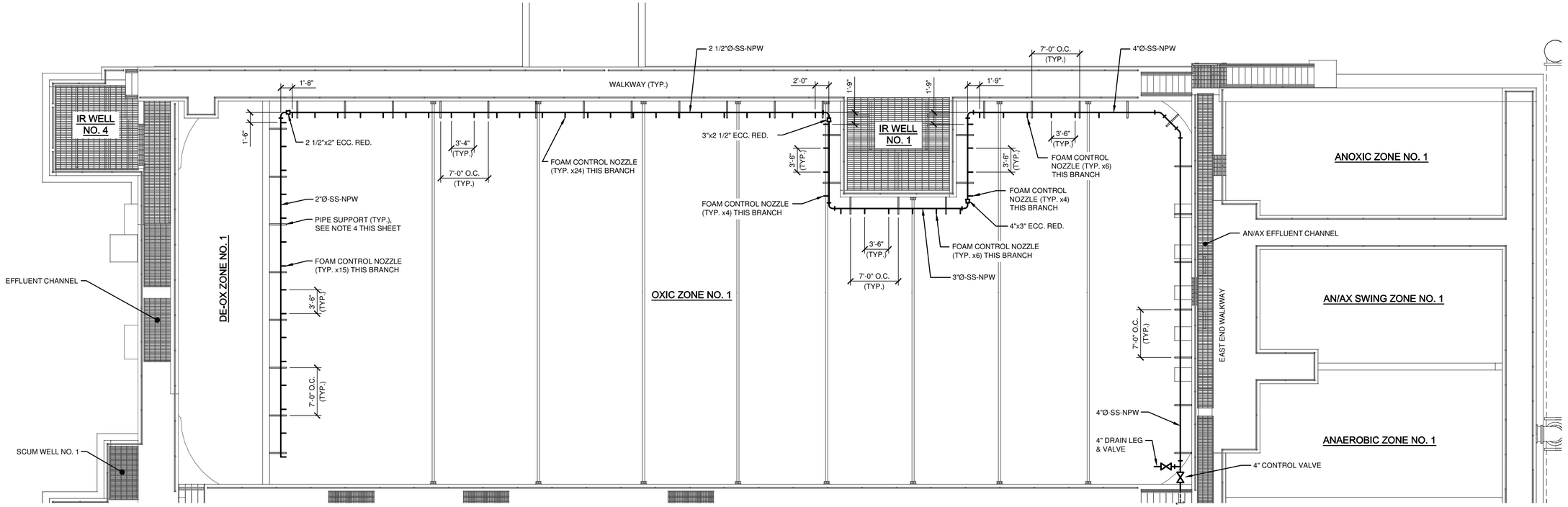
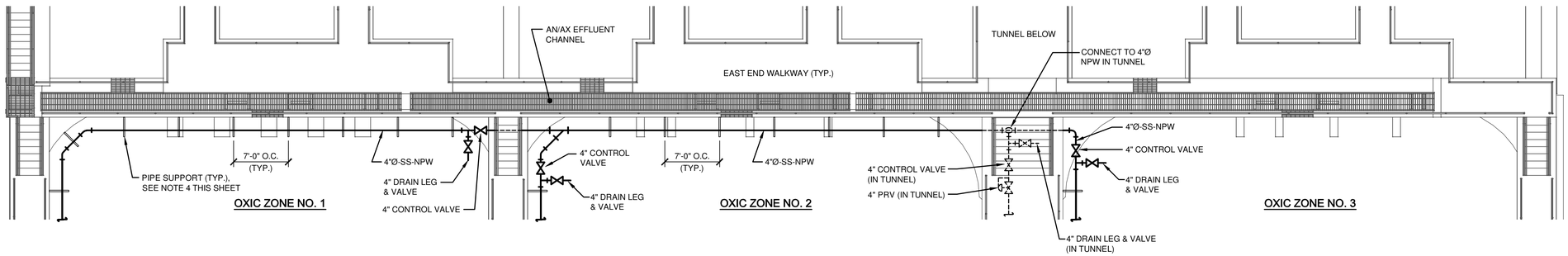


TYPICAL BIOLOGICAL TANK FOAM CONTROL SCHEMATIC

1/8"=1'-0" (8' 4' 0 8')

PLAN NORTH



EAST END BIOLOGICAL TANKS FOAM CONTROL SCHEMATIC

1/8"=1'-0" (8' 4' 0 8')

PLAN NORTH

DRAWING NOTES:

1. FOAM CONTROL NOZZLES SHALL BE WEIGHTED SWING ARM TYPE NOZZLES MANUFACTURED BY SPRAYING SYSTEMS CO. (MODEL NO. 22561-10520) OR EQUAL. REFER TO SPECIFICATION NO. 40 50 23 07.
2. FOAM CONTROL NOZZLES SHALL BE MOUNTED 20" AWAY FROM THE TANK WALL AND 30" ABOVE THE AVERAGE WATER LEVEL IN THE TANK. (WSE IN BIOLOGICAL REACTOR TANKS IS 89.69')
3. CONTRACTOR SHALL INSTALL FOAM CONTROL NOZZLES TO DIRECT SPRAY DOWN TO WATER SURFACE.
4. CONTRACTOR TO PROVIDE AND INSTALL S.S. PIPE SUPPORTS AS NECESSARY TO SUPPORT THE SPRAY HEADERS.

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IN CHARGE OF WJM
DESIGNED BY KAW/PDK
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BIOLOGICAL REACTOR TANKS
FOAM CONTROL SPRAY NOZZLE SCHEMATICS

FILE NO. 23374.51633 -M330
DATE SEPT. 23, 2015

M-330

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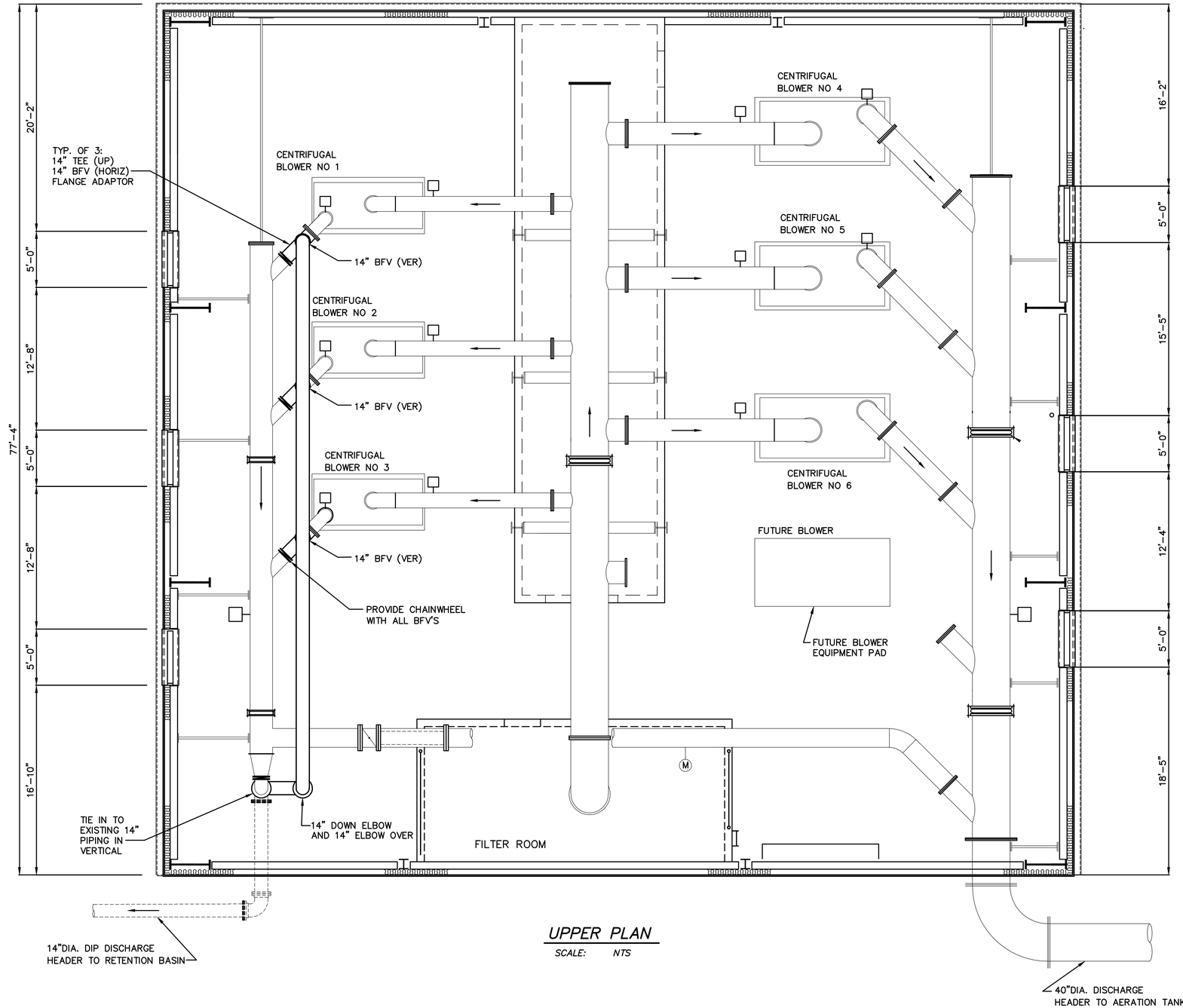

UPPER PLAN

SCALE: NTS

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IN CHARGE OF	WJM		
DESIGNED BY	ISK		
CHECKED BY	WJM		
DRAWN BY	ISK		

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
BLOWER BUILDING

BLOWER BUILDING MODIFICATIONS

FILE NO. 23374.51633 -M331

DATE SEPT. 23, 2015

M-331

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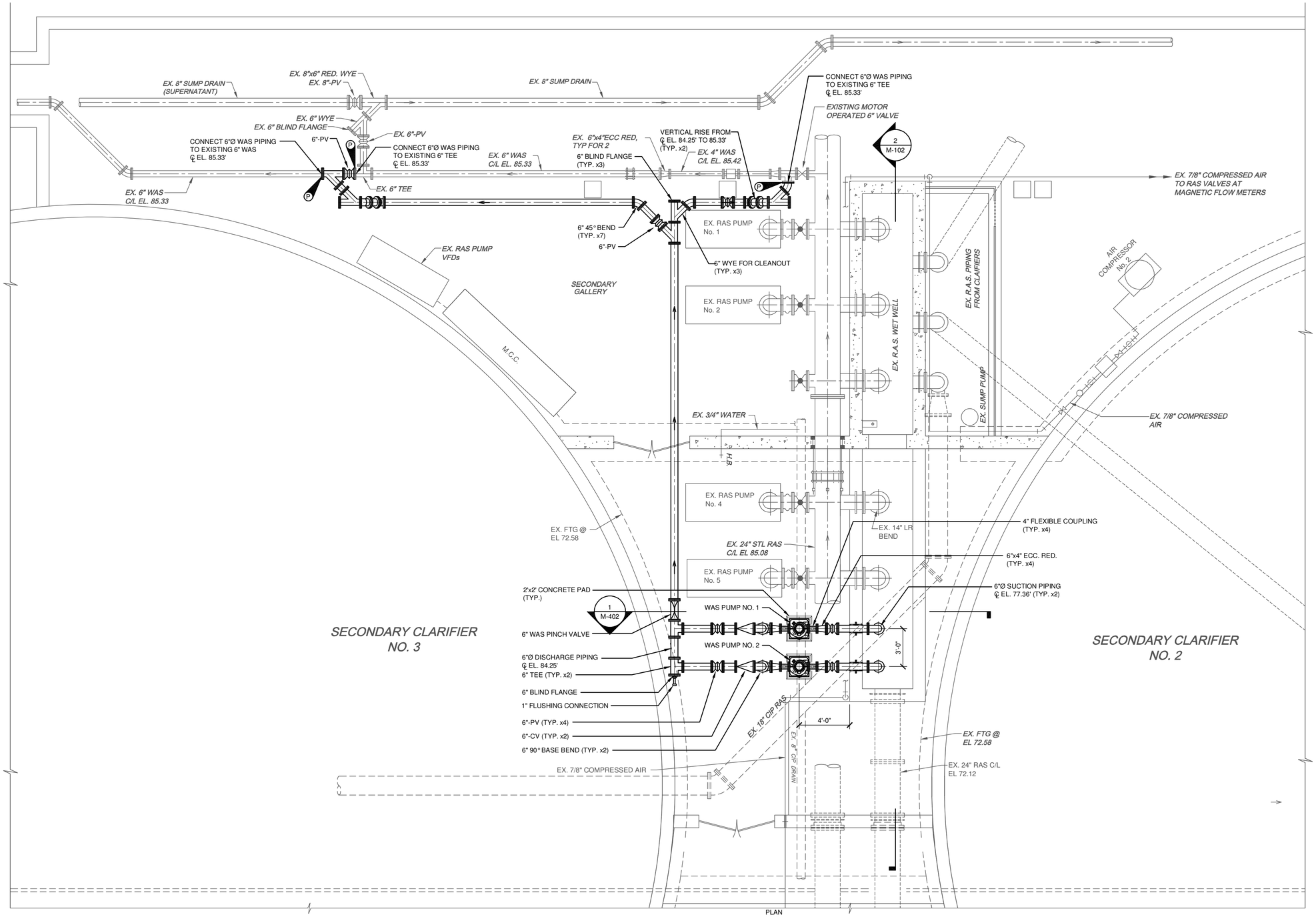

WAS PUMPS - PLAN

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

NOTES:

1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING.
2. ELEVATED VALVES SHALL HAVE CHAINWHEEL OPERATORS.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
SECONDARY GALLERY

WAS PUMPS - PLAN

FILE NO. 23374.51633 -M401
DATE MARCH 19, 2015

M-401

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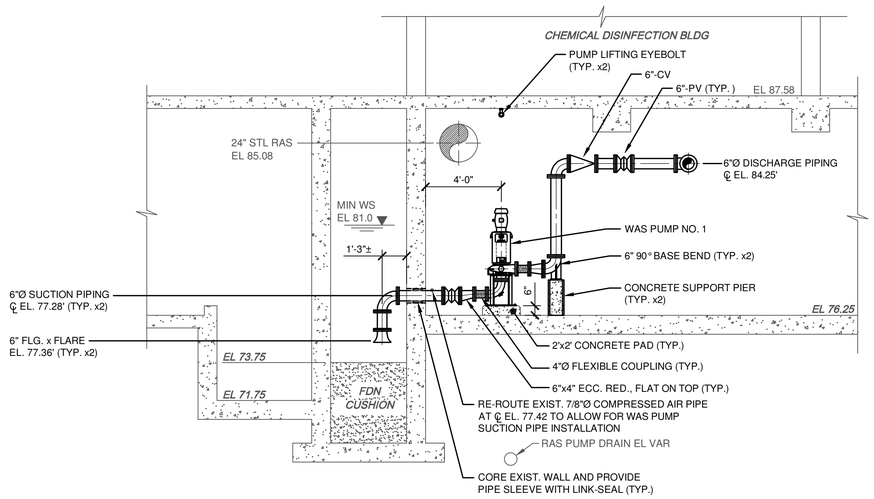
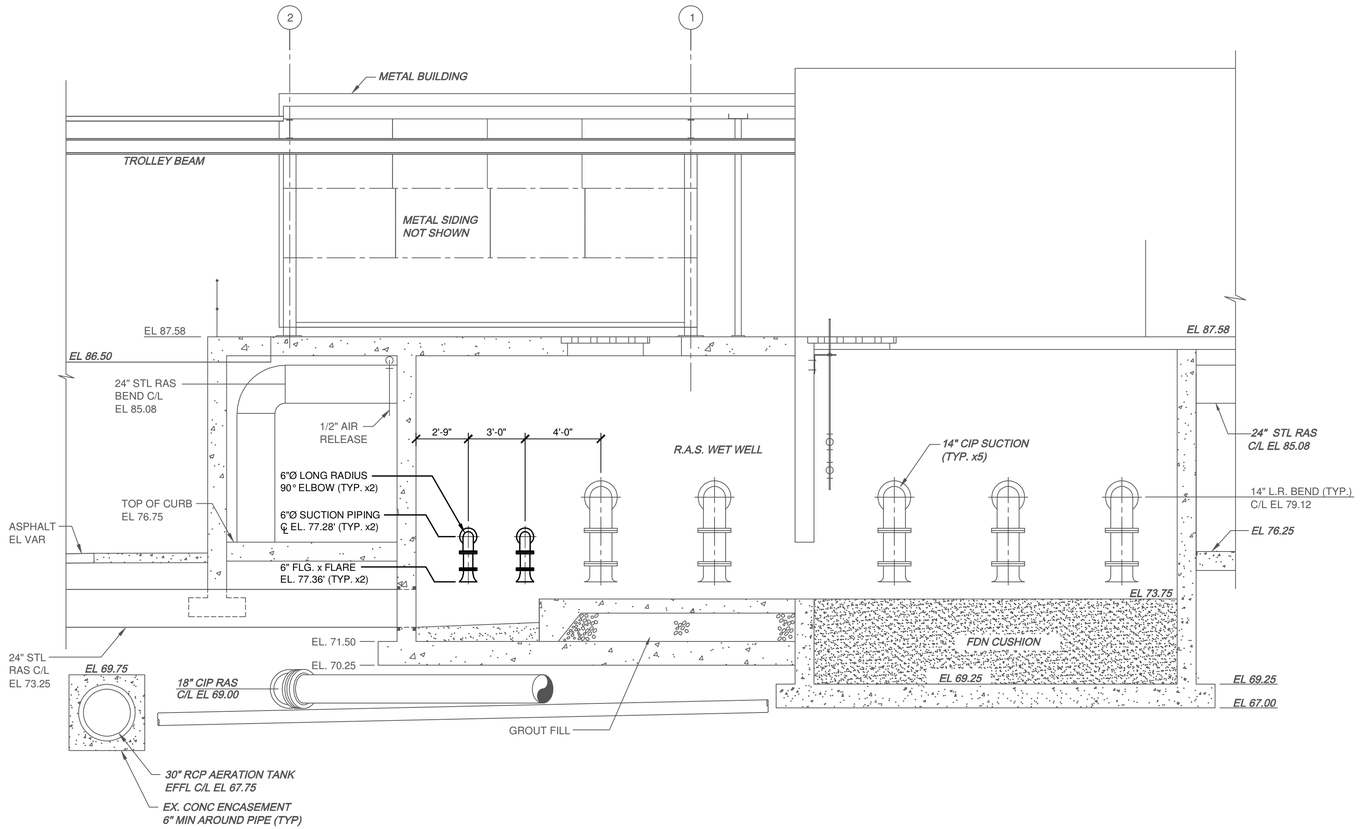


1 SECTION
1/4"=1'-0"



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

NOTES:

1. ELEVATED VALVES SHALL HAVE CHAINWHEEL OPERATORS.

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IN CHARGE OF WJM
DESIGNED BY ISK/KAW
CHECKED BY WJM
DRAWN BY TWL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	WJM
0	03/19/2015	ISSUED FOR OEPA REVIEW	WJM

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
SECONDARY GALLERY

WAS PUMPS - SECTIONS

FILE NO. 23374.51633 -M402
DATE MARCH 19, 2015

M-402

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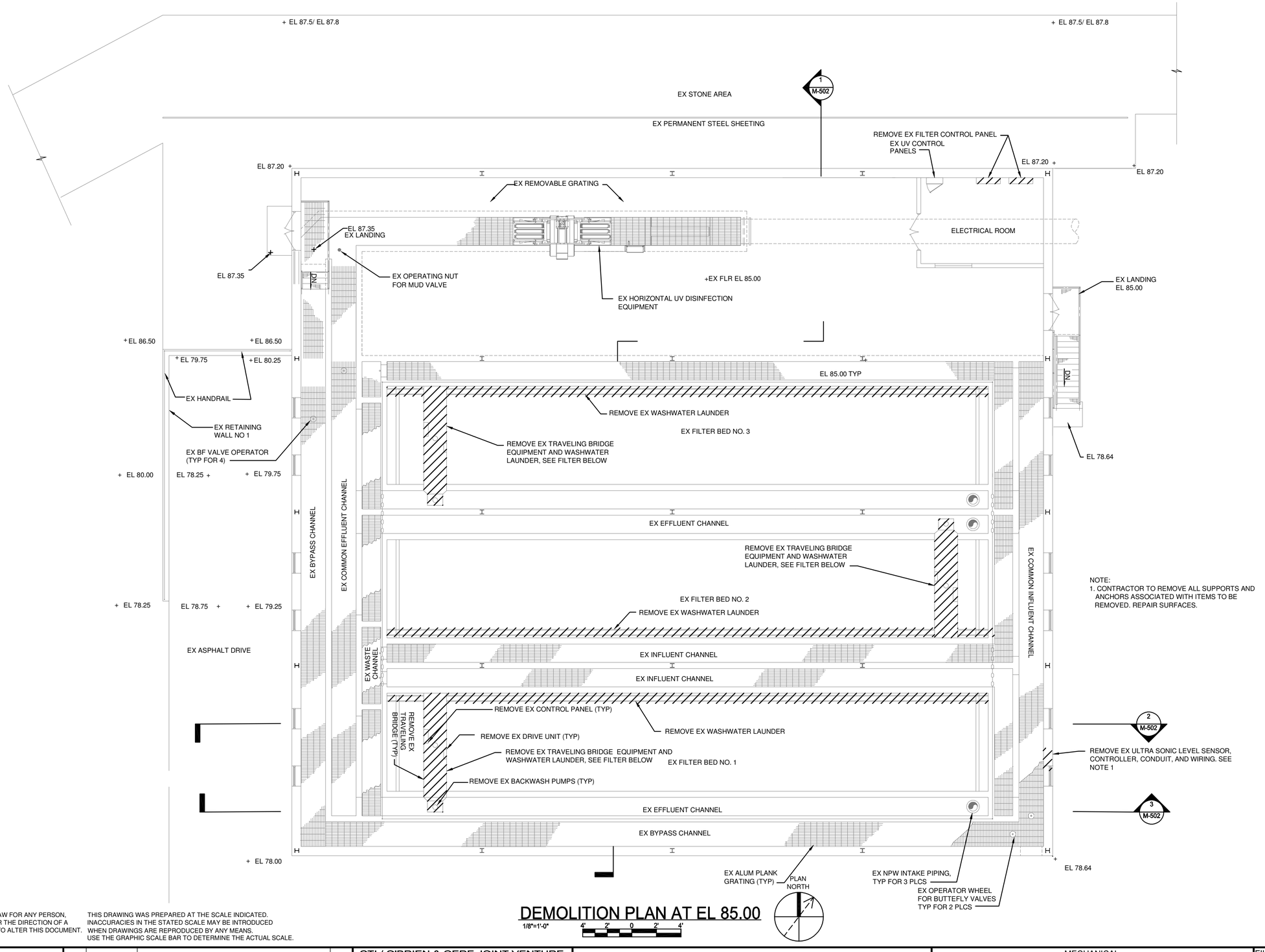

NOTE:
1. CONTRACTOR TO REMOVE ALL SUPPORTS AND ANCHORS ASSOCIATED WITH ITEMS TO BE REMOVED. REPAIR SURFACES.

DEMOLITION PLAN AT EL 85.00

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

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

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CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

DEMOLITION PLAN AT EL 85.00

FILE NO. 23374.51633 -M500
DATE MARCH 19, 2015

M-500

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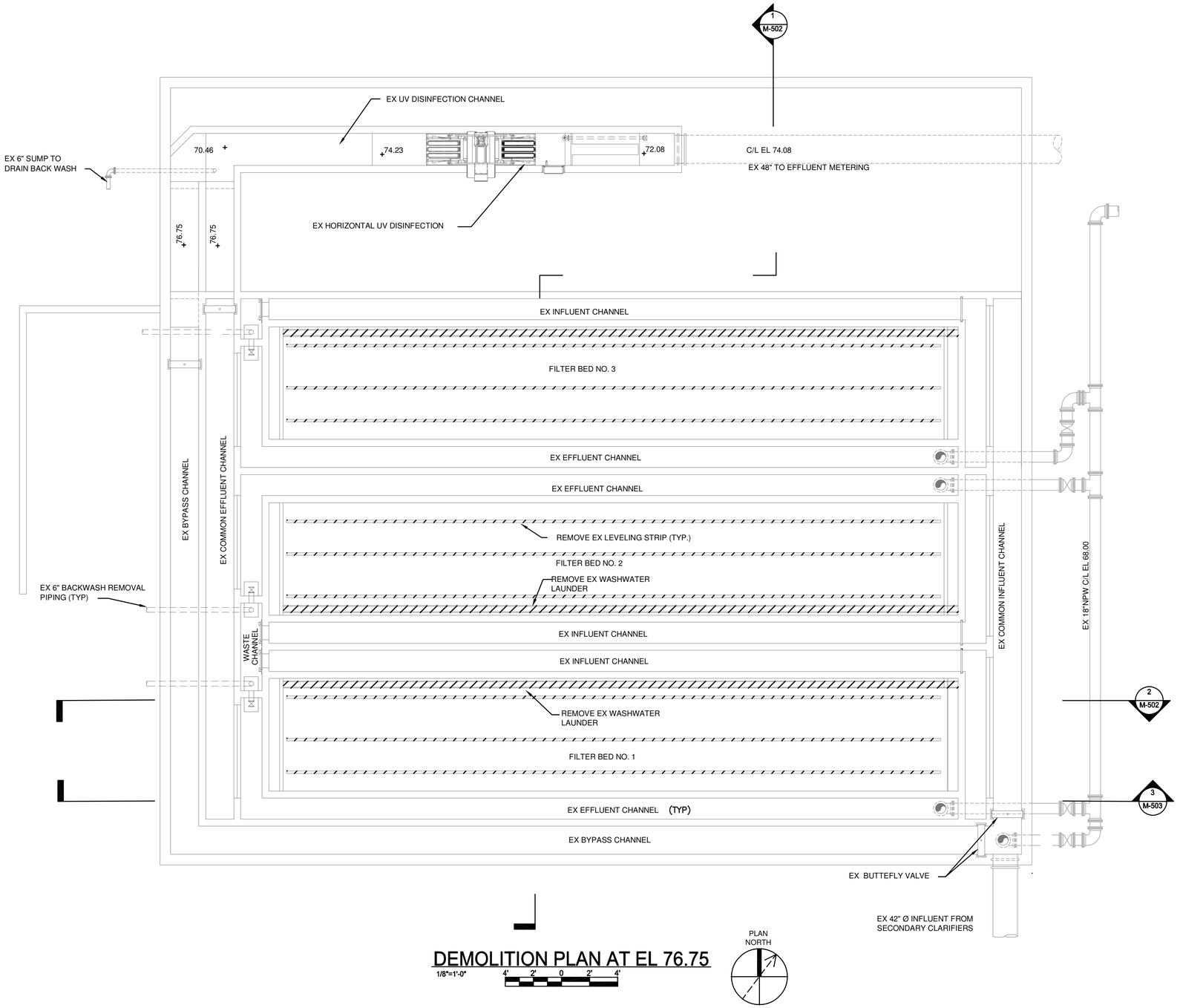

DEMOLITION PLAN AT EL 76.75

1/8"=1'-0"

4' 2' 0 2' 4'

PLAN
NORTH

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

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DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

DEMOLITION PLAN AT EL 76.75

FILE NO. 23374.51633 -M501

DATE MARCH 19, 2015

M-501

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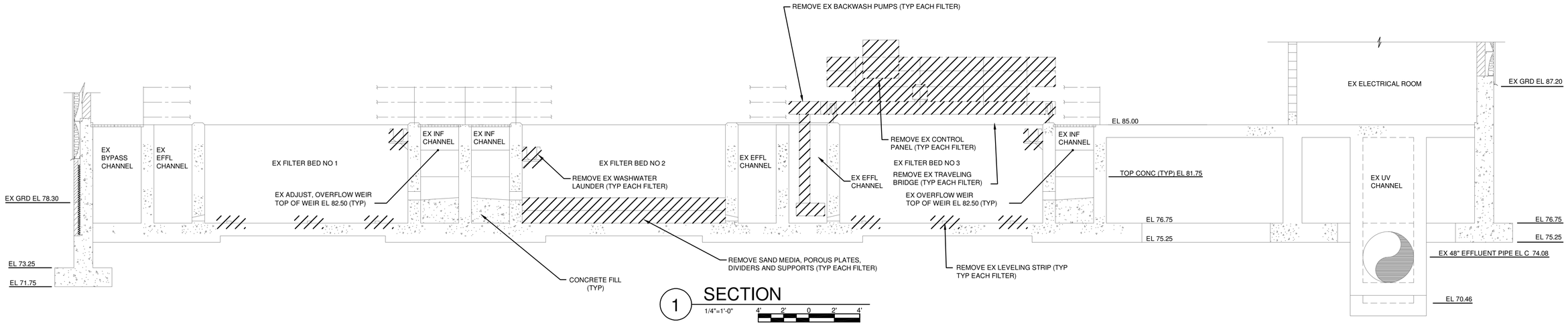

1 SECTION
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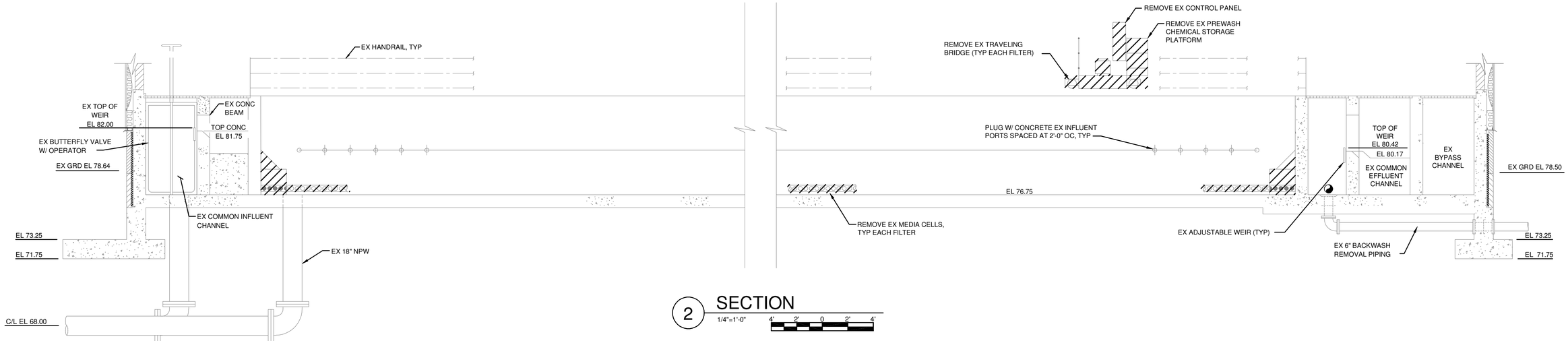

2 SECTION
1/4"=1'-0"

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IN CHARGE OF RWR
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

DEMOLITION SECTIONS

FILE NO. 23374.51633 - M502
DATE MARCH 19, 2015

M-502

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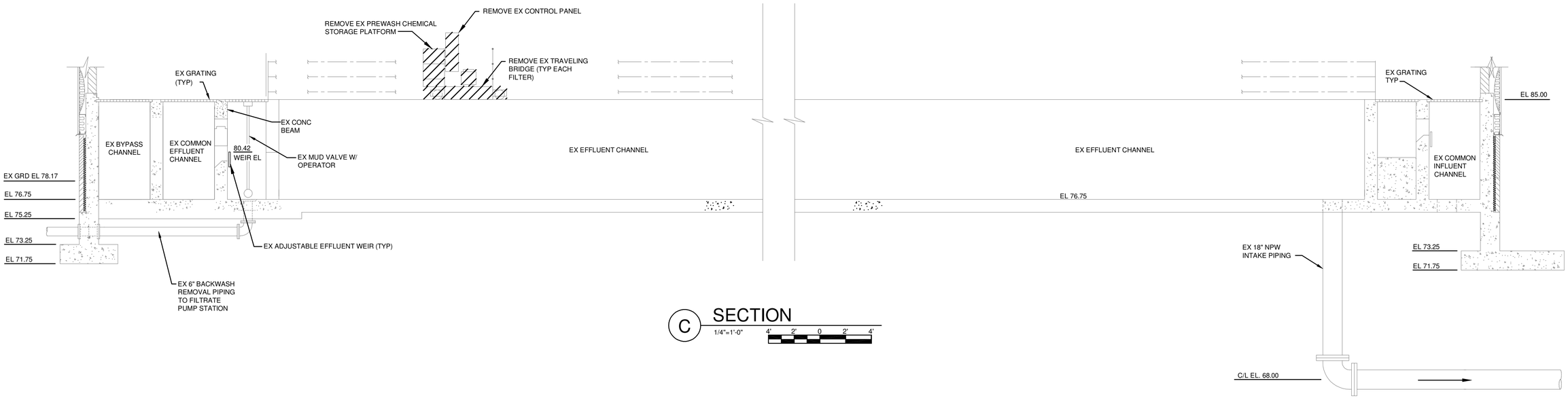

C SECTION

1/4"=1'-0"

4' 2' 0 2' 4'

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DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY GJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

DEMOLITION SECTION

FILE NO. 23374.51633 -M503
DATE MARCH 19, 2015

M-503

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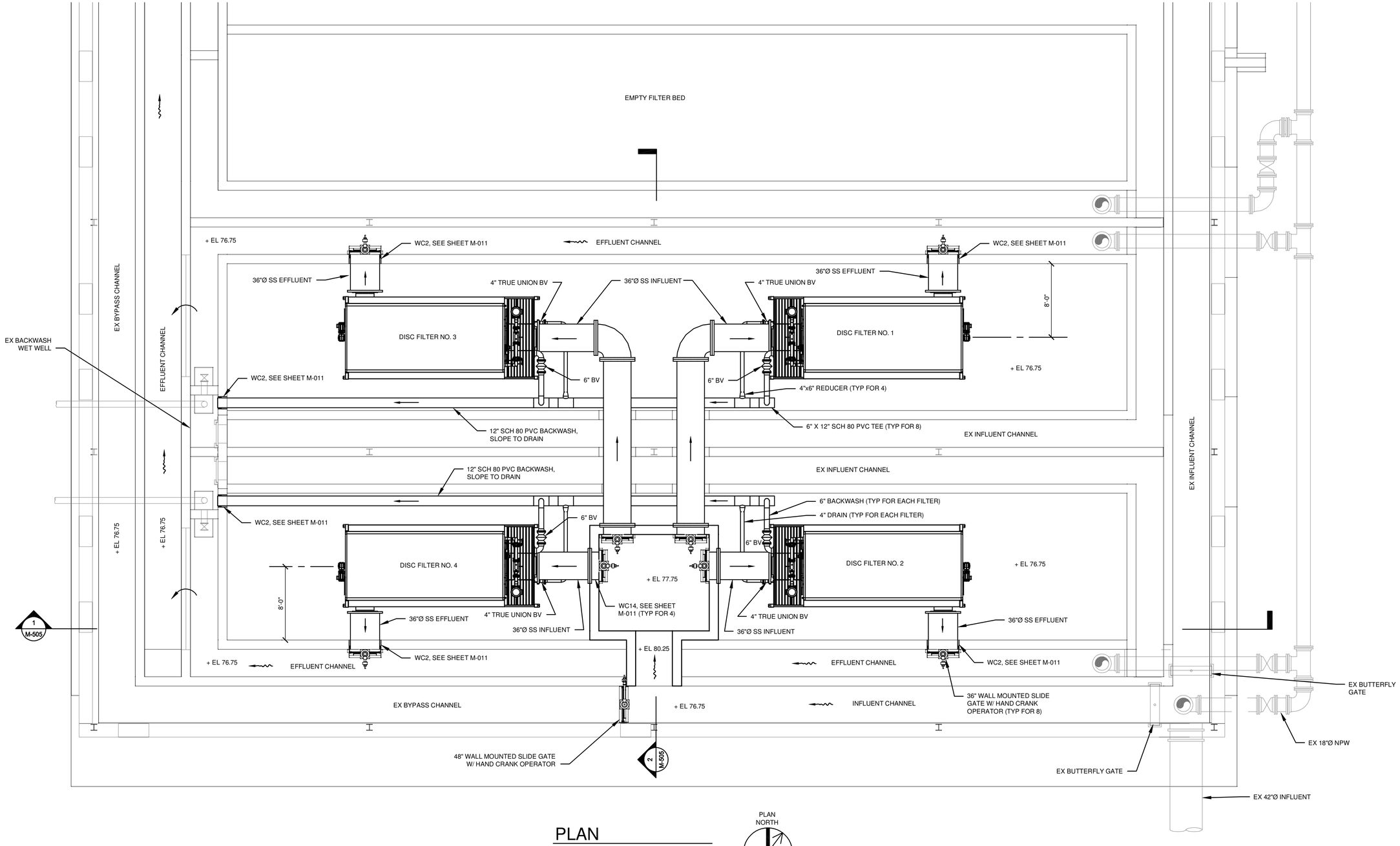

PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

NOTE:
ALUMINUM PLANKING OVER CHANNELS NOT SHOWN FOR CLARITY. SEE SHEET S-504.

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

PLAN

FILE NO. 23374.51633 -M504
DATE MARCH 19, 2015

M-504

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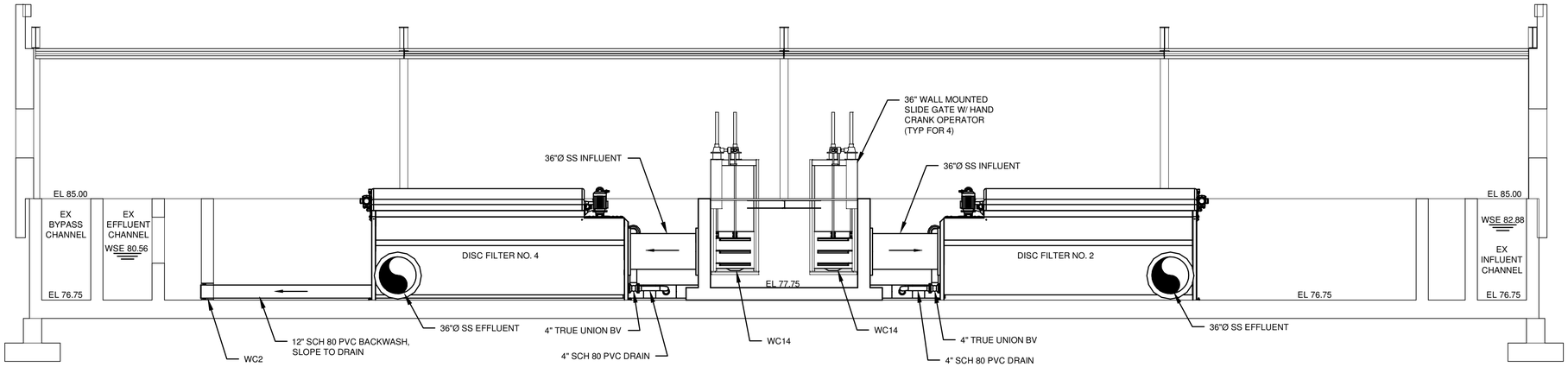
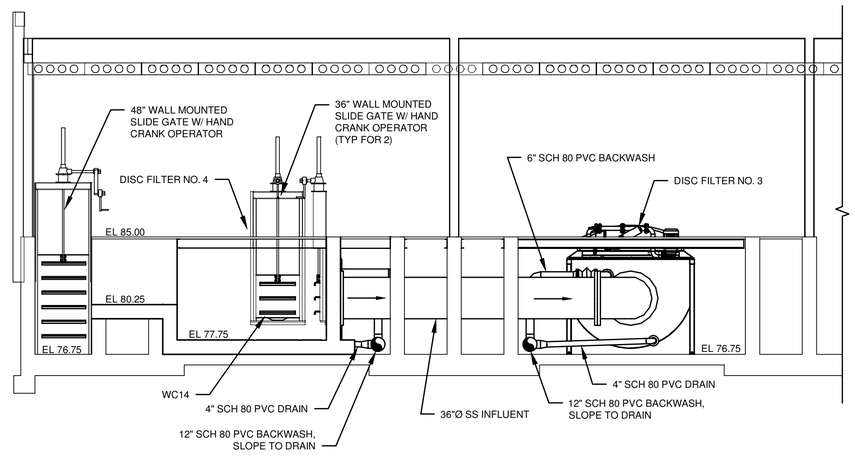


1 SECTION

3/16"=1'-0" 5' 0 5'



2 SECTION

3/16"=1'-0" 5' 0 5'

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
TERTIARY FILTER/UV BUILDING

SECTIONS

FILE NO. 23374.51633 -M505
DATE MARCH 19, 2015

M-505

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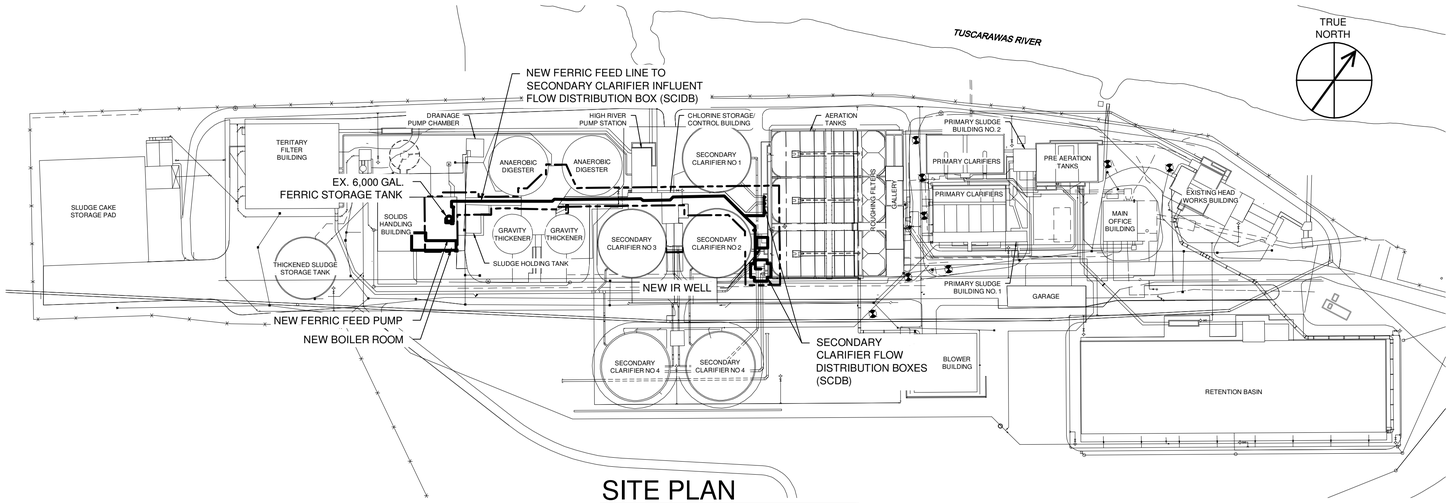
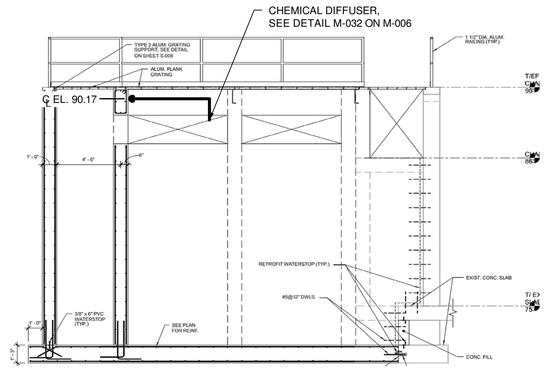


SITE PLAN

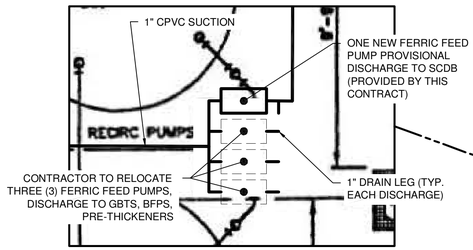
1"=100'-0" 100' 0 100'



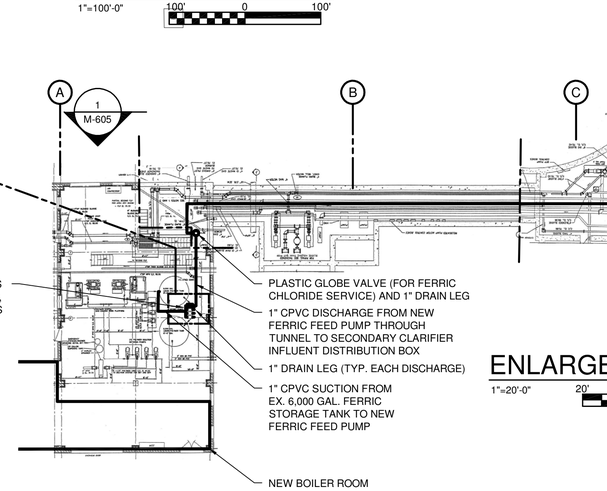
2 SECTION
NOT TO SCALE

SECTION NOTE:

THIS SECTION ORIGINATED FROM S-324.

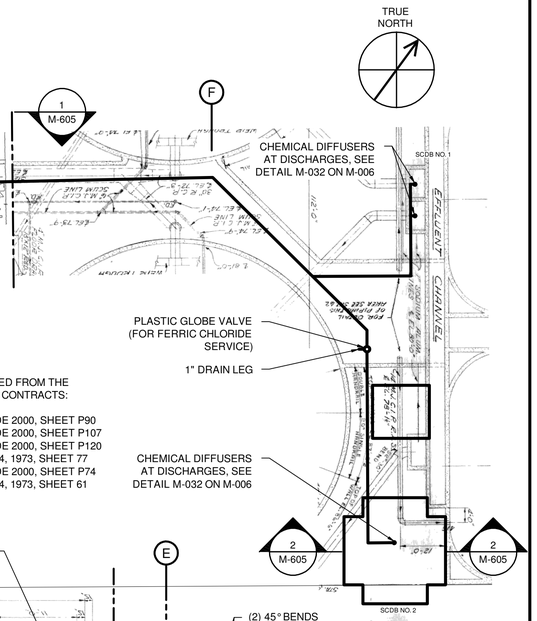


A DETAIL
NOT TO SCALE



ENLARGED PLAN - PROVISIONAL FERRIC FEED ROUTE

1"=20'-0" 20' 0 20'



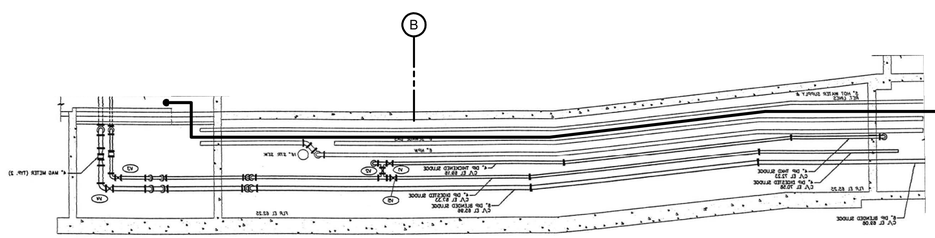
PLAN NOTE:

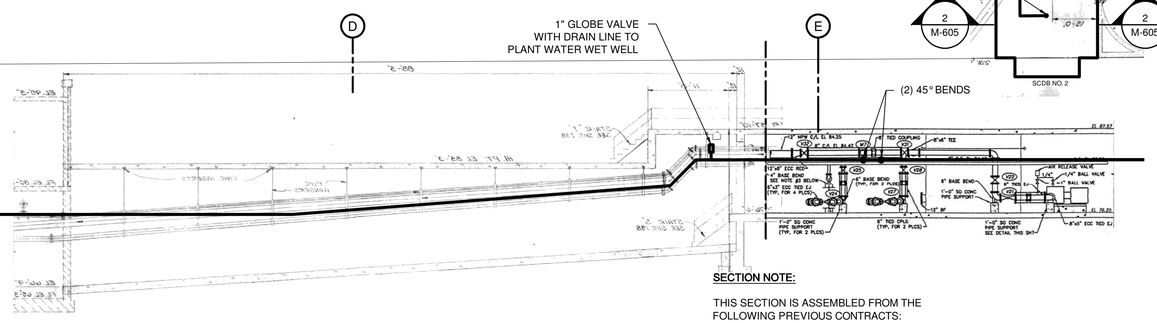
THIS PLAN IS ASSEMBLED FROM THE FOLLOWING PREVIOUS CONTRACTS:

A. CTI WWTP UPGRADE 2000, SHEET P90
B. CTI WWTP UPGRADE 2000, SHEET P107
C. CTI WWTP UPGRADE 2000, SHEET P120
D. WWTP CONTRACT 4, 1973, SHEET 77
E. CTI WWTP UPGRADE 2000, SHEET P74
F. WWTP CONTRACT 4, 1973, SHEET 61

DRAWING NOTES:

1. DOUBLE WALL CONTAINMENT PIPING TO BE USED FOR FERRIC FEED LINE.
2. CONTRACTOR MUST VERIFY EXISTING CONDITIONS.
3. CONTRACTOR SHALL PROVIDE DISTRIBUTION PIPING, VALVING, AND MOUNTING PANEL. THE PANEL LAYOUT, PUMPING SYSTEM AND DISCHARGE PIPING INSTALLATION DETAILS SHALL BE SUBMITTED AS A SHOP DRAWING FOR REVIEW.
4. PIPING TO BE SUPPORTED AS REQUIRED, REFER TO PIPING SUPPORT DETAILS.
5. CONTRACTOR TO AVOID RELATIVE HIGH OR LOW POINTS, EXCEPT WHERE AIR RELIEF / VACUUM VALVES OR DRAIN LEGS ARE LOCATED.





1 SECTION
NOT TO SCALE

SECTION NOTE:

THIS SECTION IS ASSEMBLED FROM THE FOLLOWING PREVIOUS CONTRACTS:

B. CTI WWTP UPGRADE 2000, SHEET P107
C. WWTP CONTRACT 4, 1973, SHEET 77
D. CTI WWTP UPGRADE 2000, SHEET P74

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IN CHARGE OF	WJM			
DESIGNED BY	ISK/KAW			
CHECKED BY	WJM	1	9/23/2015	ISSUED FOR BID — WJM
DRAWN BY	BNL	0	3/19/2015	ISSUED FOR OEPA REVIEW — WJM
		NO.	DATE	REVISION — INT.

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL

PROVISIONAL FERRIC FEED

FILE NO. 23374.51633 - M605

DATE MARCH 19, 2015

M-605

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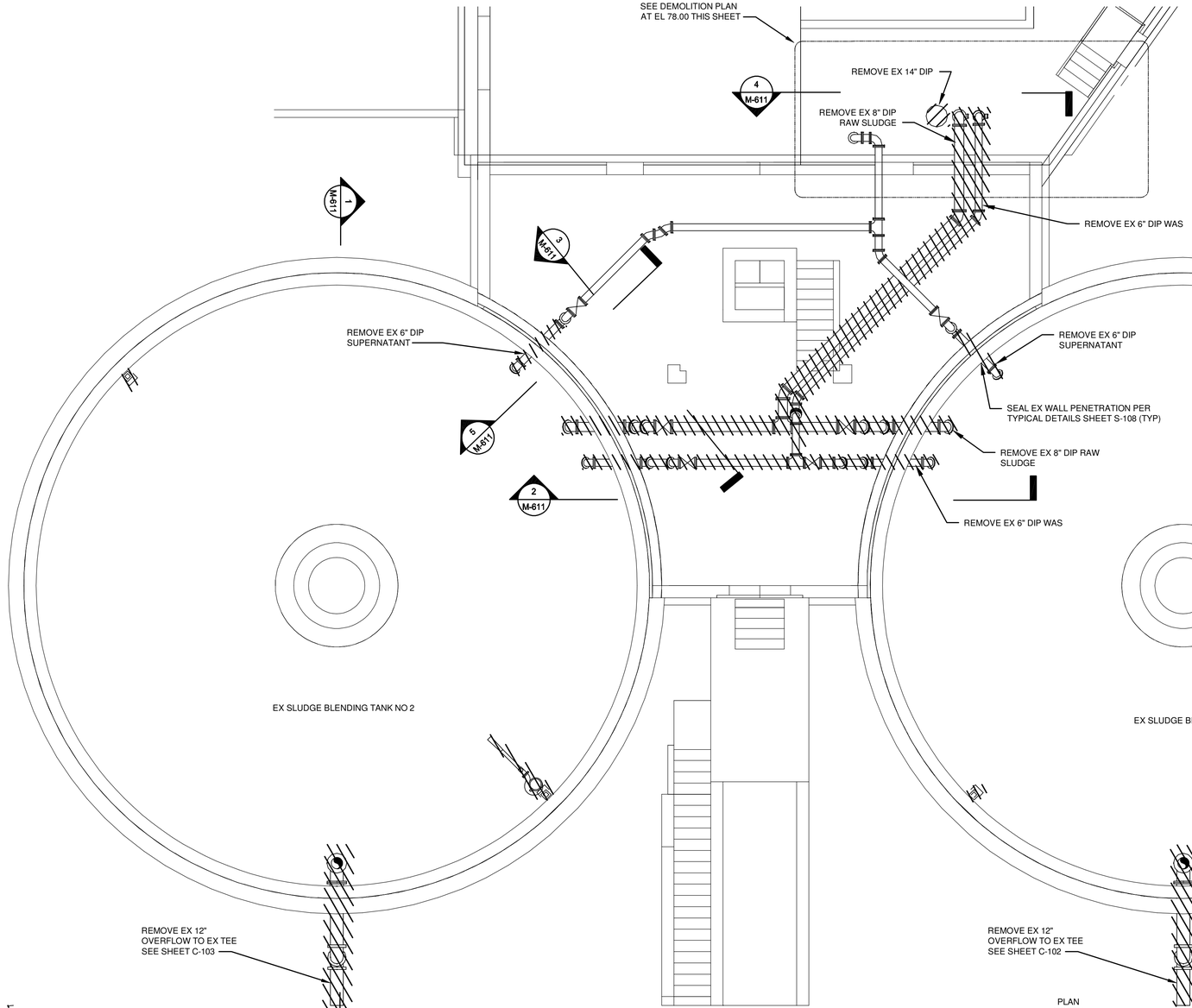
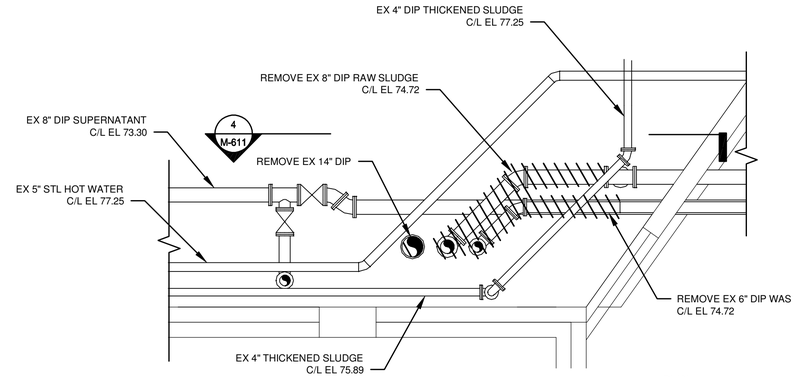


DEMOLITION PLAN AT EL 91.00

3/16"=1'-0" 5' 0 5'



DEMOLITION PLAN AT EL 78.00

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

NOTE:
EX FRP COVER, CATWALKS, HANDRAILS, AND SUPPORTS NOT SHOWN FOR CLARITY.

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IN CHARGE OF WAD
DESIGNED BY TRT
CHECKED BY RWR
DRAWN BY JAM

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	RWR
0	03/19/2015	ISSUED FOR OEPA REVIEW	RWR

CTI / O'BRIEN & GERE JOINT VENTURE
CTI ENGINEERS, INC.
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRE-THICKENING TANKS

DEMOLITION PLANS

FILE NO. 23374.51633 -M610
DATE MARCH 19, 2015

M-610

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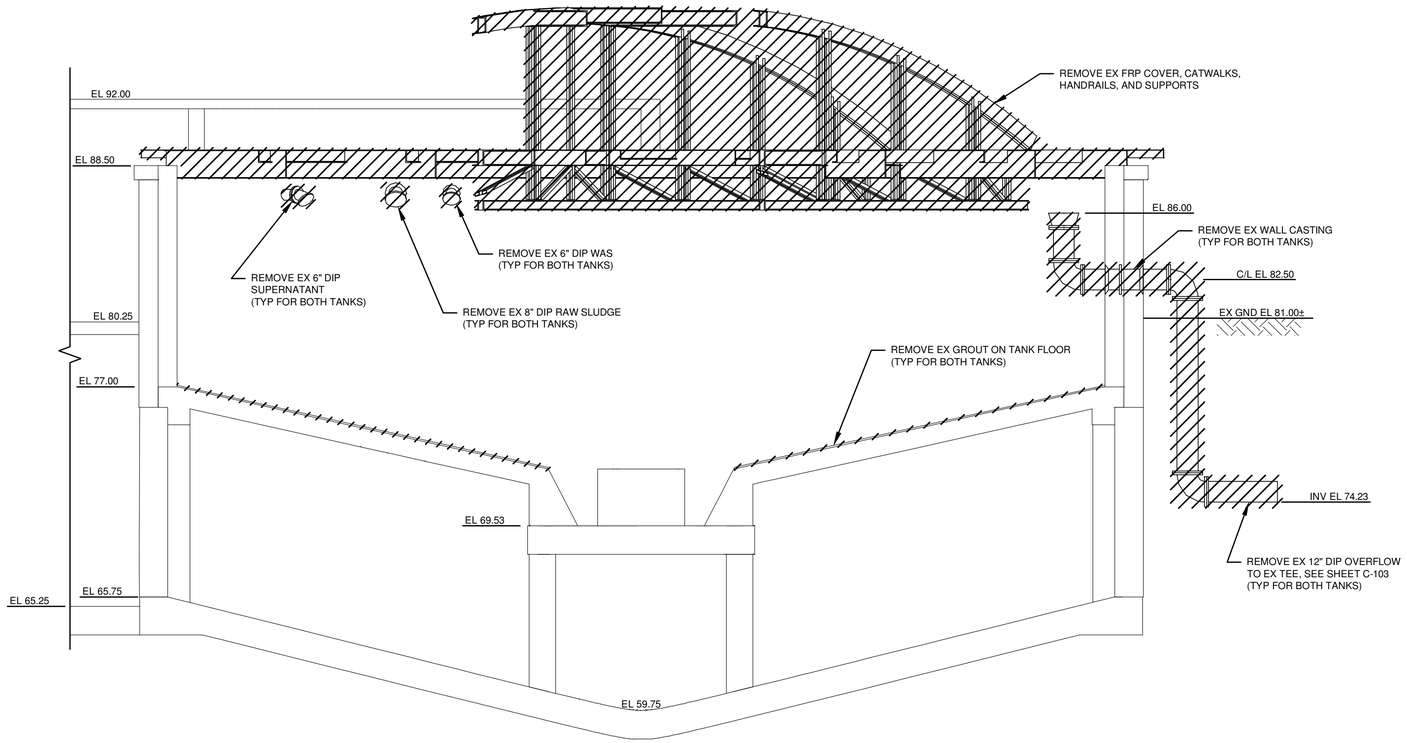
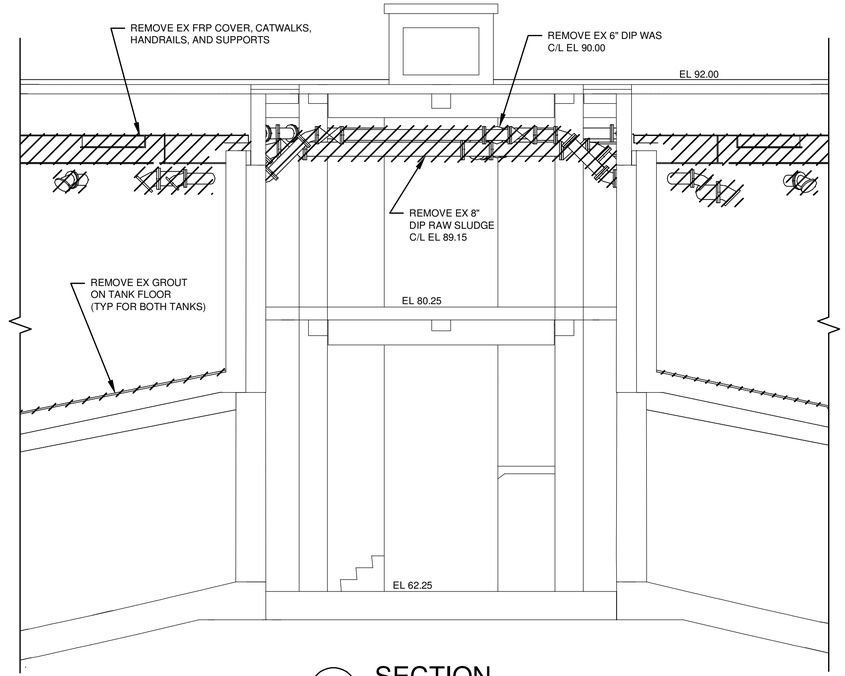
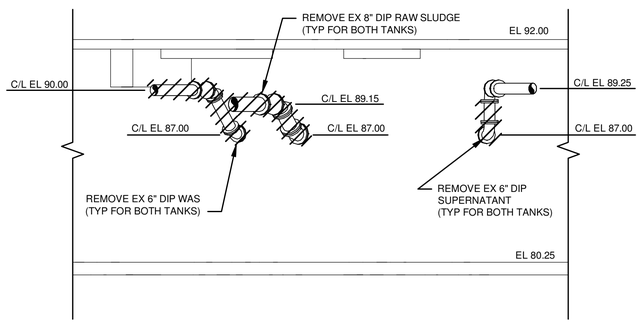
SAVED: 9/21/15 10:23 AM



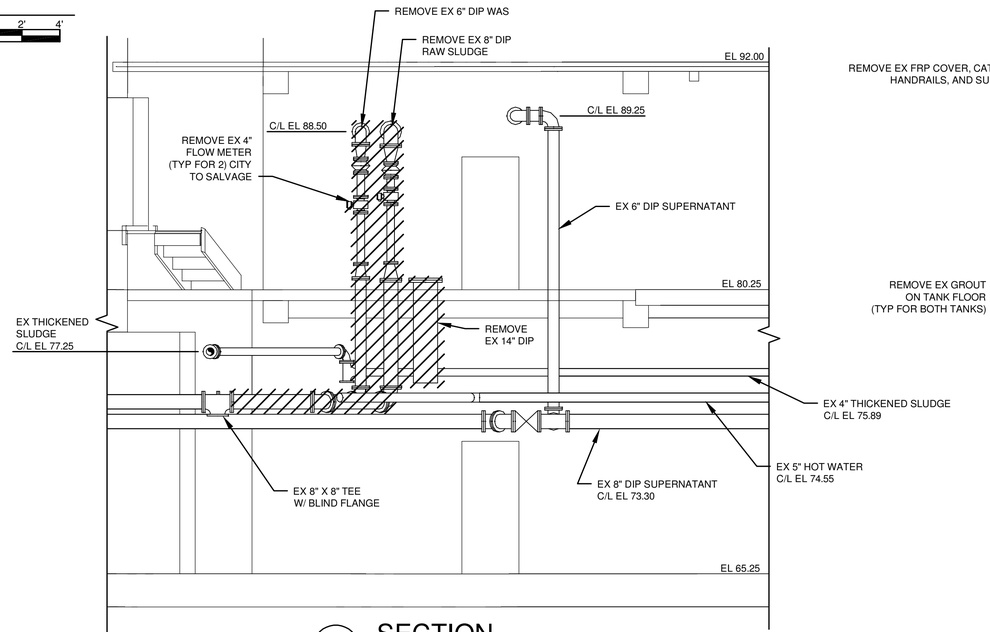
1 SECTION
1/4"=1'-0"



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



3 SECTION
1/4"=1'-0"



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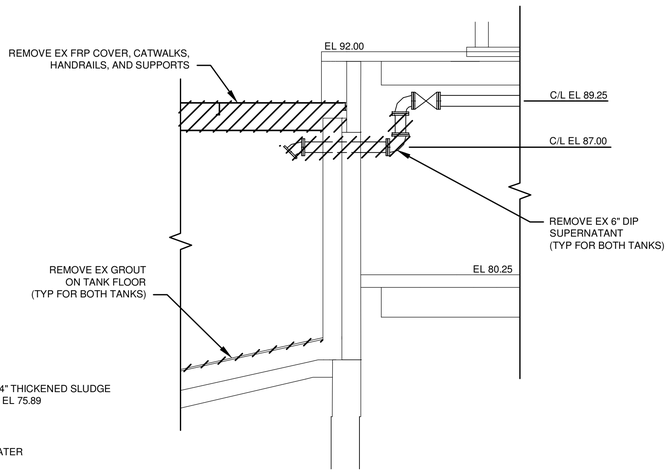

5 SECTION
1/4"=1'-0"

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CHECKED BY RWR
DRAWN BY JAM

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
PRE-THICKENING TANKS

DEMOLITION SECTIONS

FILE NO. 23374.51633 - M611
DATE MARCH 19, 2015
M-611

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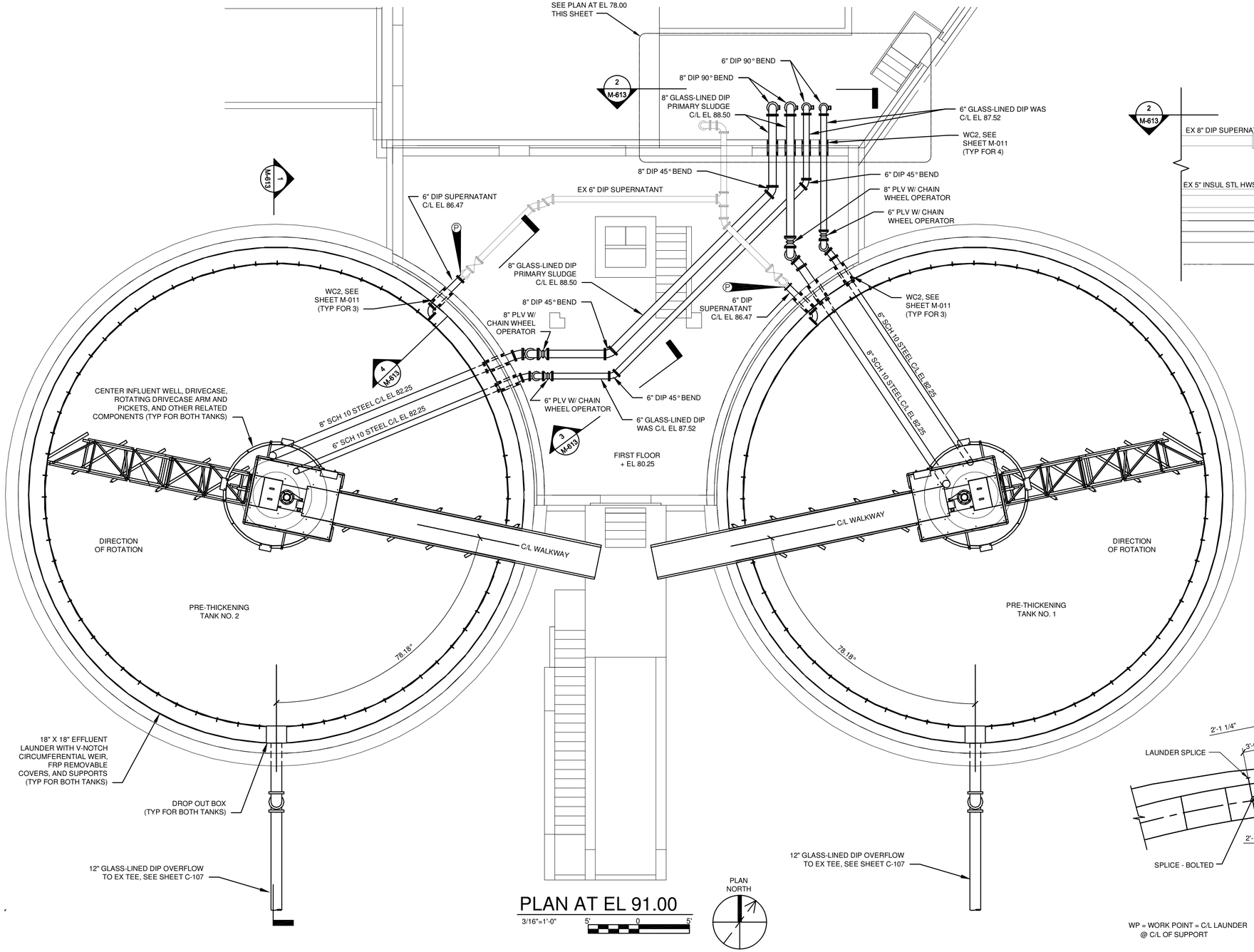
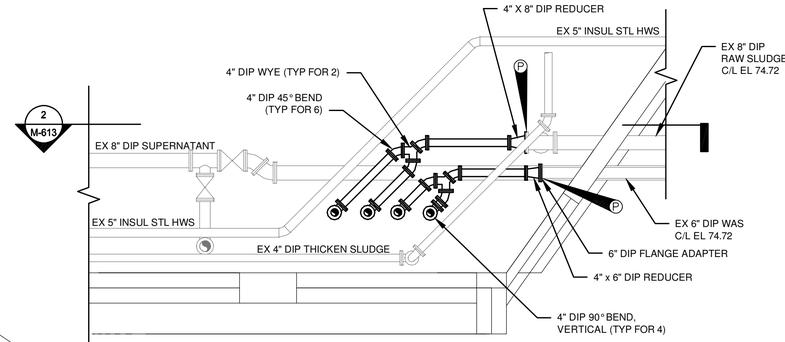


PLAN AT EL 91.00

3/16"=1'-0"

PLAN NORTH

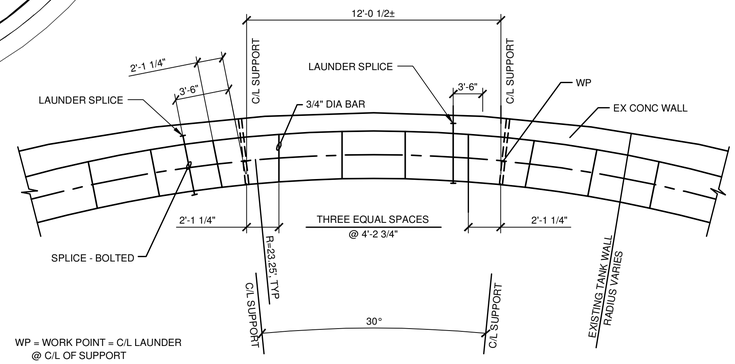


PLAN AT EL 78.00

1/4"=1'-0"

PLAN NORTH

NOTES:
1. CONTRACTOR TO IDENTIFY AND PROPOSE SPECIFIC PIPING SUPPORTS AND SUBMIT AS SHOP DRAWING. PIPES TO BE SUPPORTED FROM ROOF/CEILING, SIMILAR TO DETAIL M-017 ON SHEET M-004.
2. SCHEDULE 10 STEEL PIPE TO BE SUPPLIED BY PRE-THICKENING TANK EQUIPMENT MANUFACTURER.



LAUNDER SUPPORT PLAN VIEW

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MECHANICAL
PRE-THICKENING TANKS

PLANS

FILE NO. 23374.51633 -M612
DATE MARCH 19, 2015

M-612

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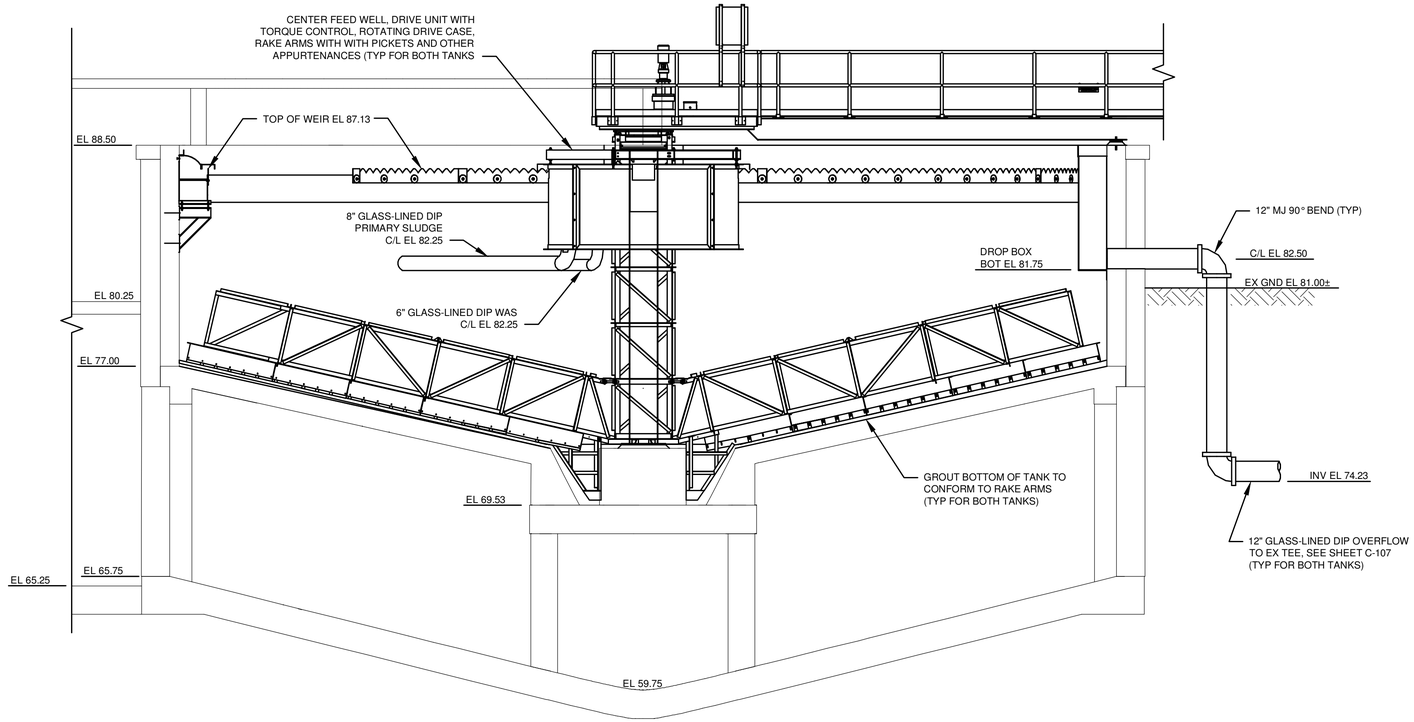

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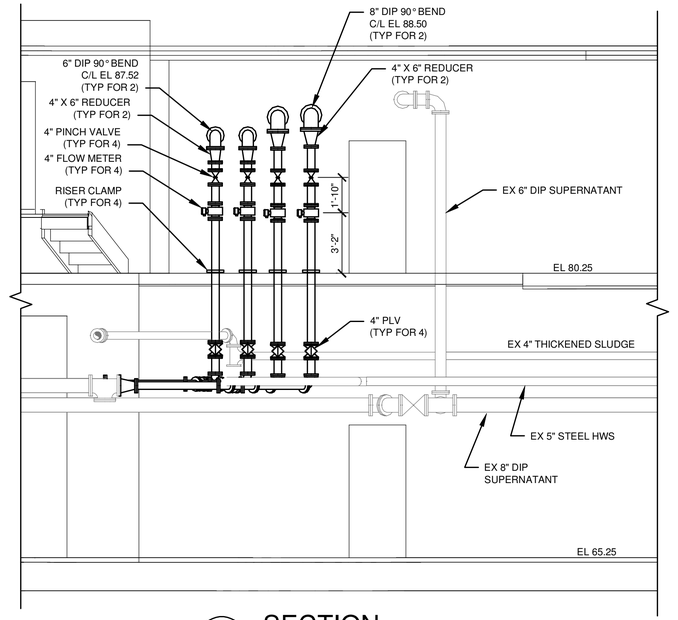

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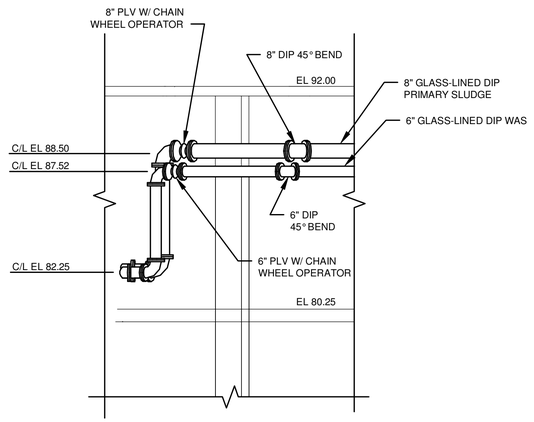

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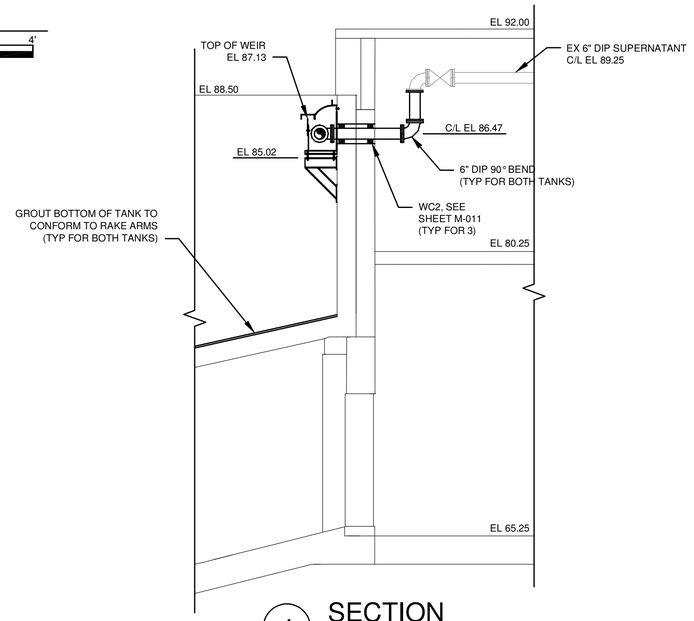

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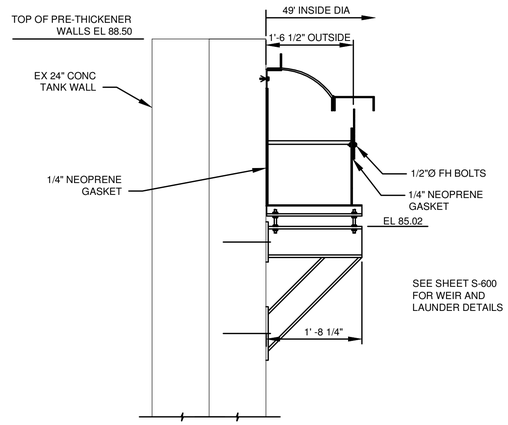

WEIR AND LAUNDER DETAIL
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MASSILLON, OHIO

MECHANICAL
PRE-THICKENING TANKS

SECTIONS AND DETAIL

FILE NO. 23374.51633 -M613
DATE MARCH 19, 2015

M-613

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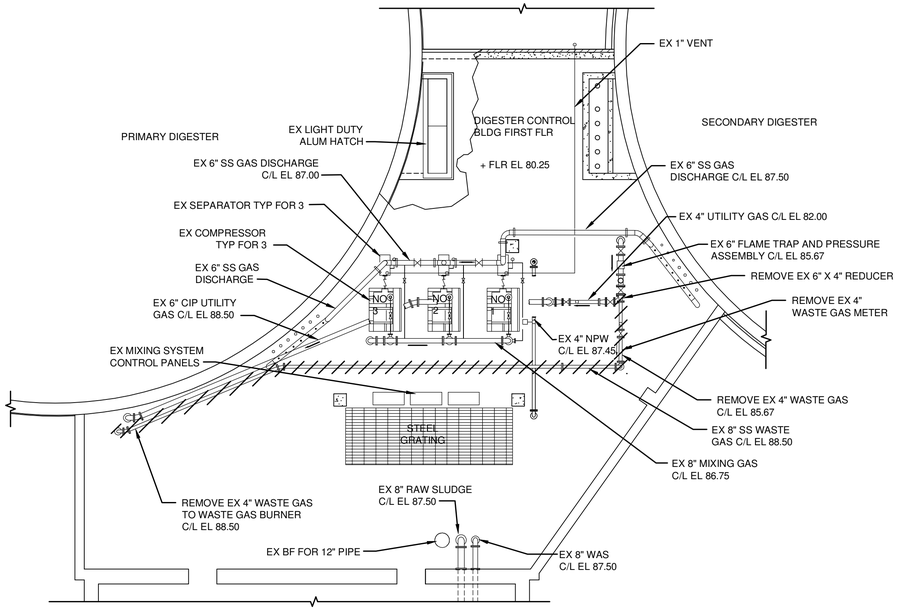
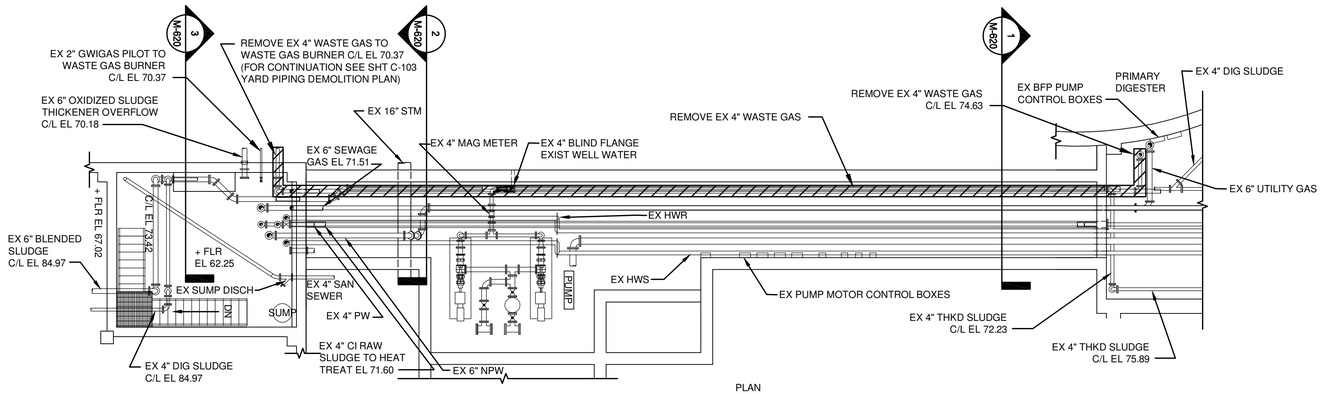


DEMOLITION PLAN AT EL 89.00

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

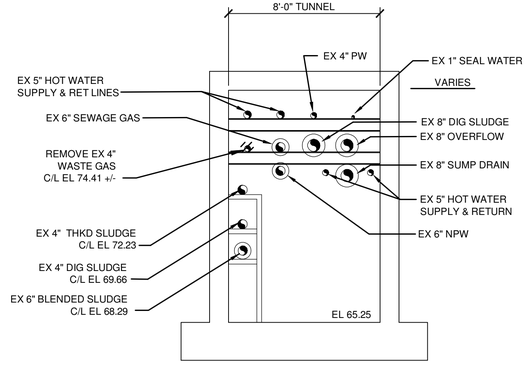
PLAN NORTH



DEMOLITION PLAN AT EL 74.00

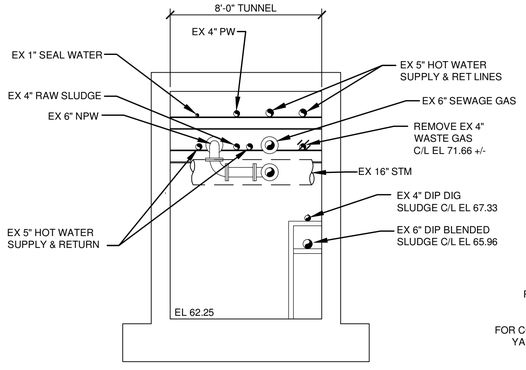
1/8"=1'-0" 8' 4' 0 8'

PLAN NORTH



1 SECTION

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



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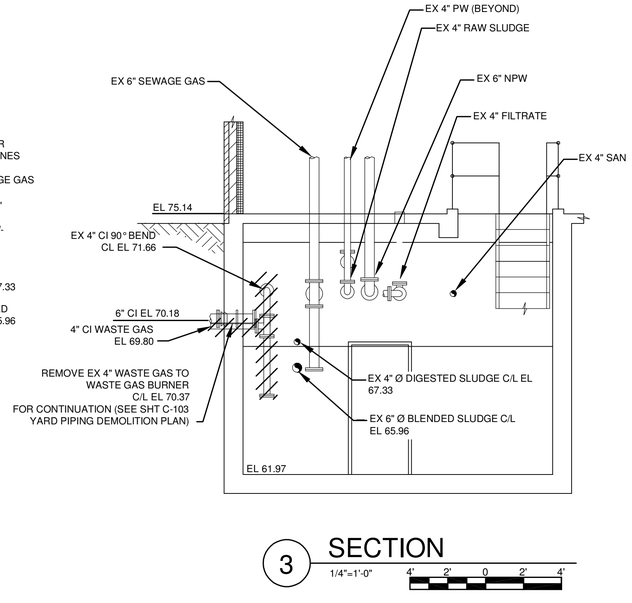

3 SECTION

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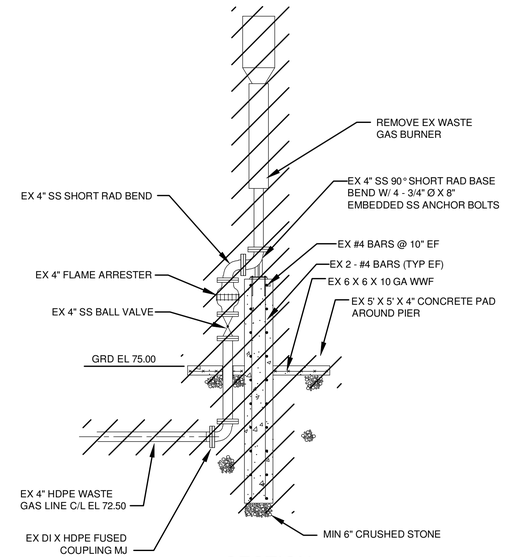

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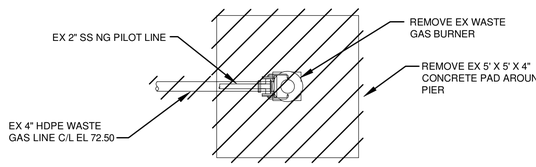

PLAN

EX WASTE GAS BURNER

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

MECHANICAL
WASTE GAS BURNER

DEMOLITION PLANS AND SECTIONS

FILE NO. 23374.51633 -M620
DATE MARCH 19, 2015

M-620

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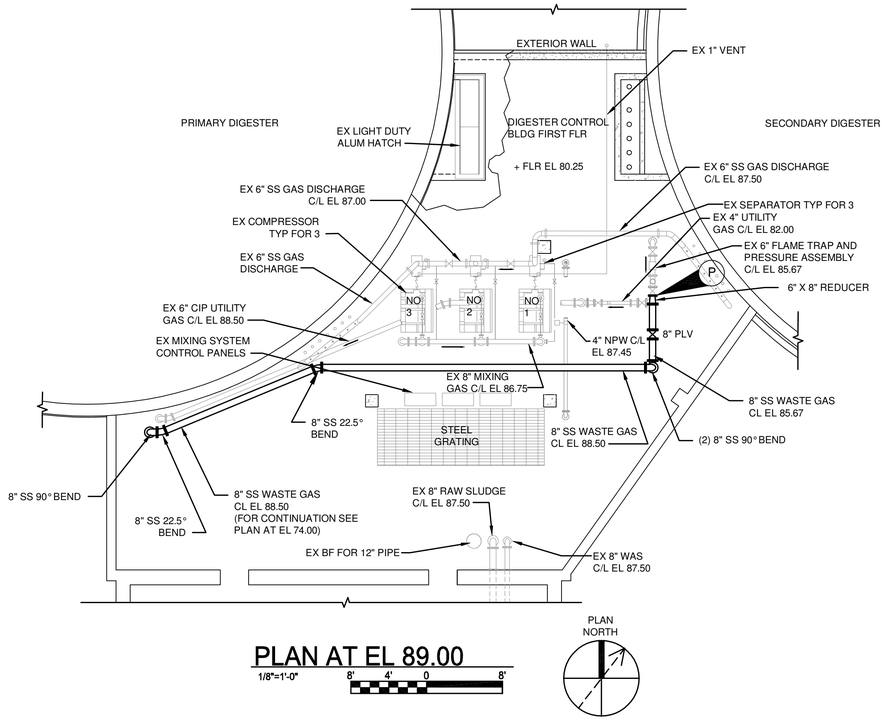
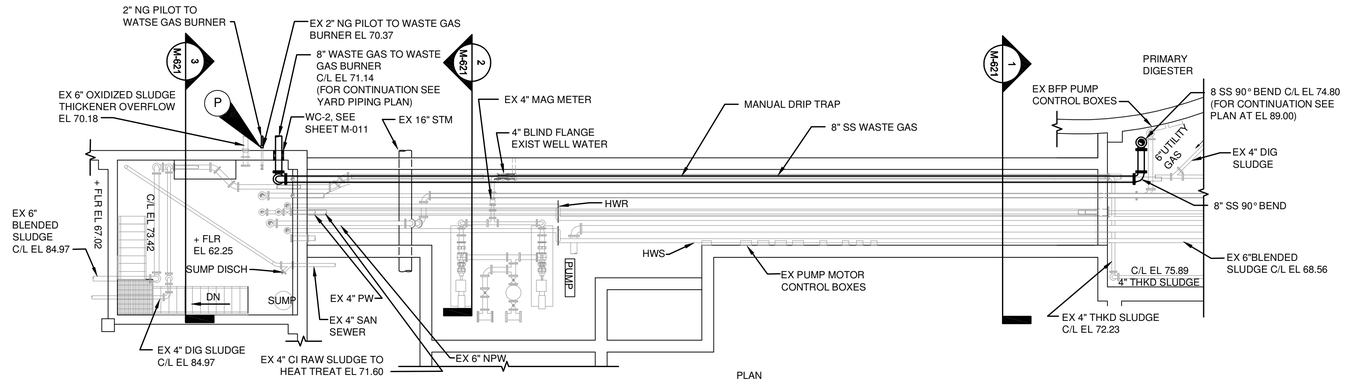


PLAN AT EL 89.00

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

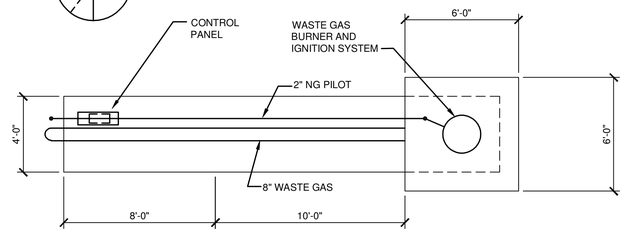
PLAN NORTH



PLAN AT EL 74.00

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

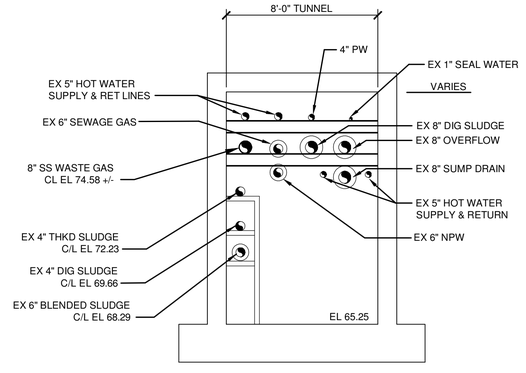
PLAN NORTH



DIGESTER WASTE GAS BURNER PLAN

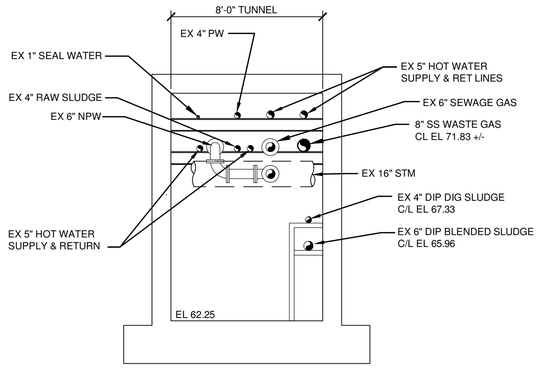
1/4"=1'-0" 4' 2' 0 2' 4'

PLAN NORTH



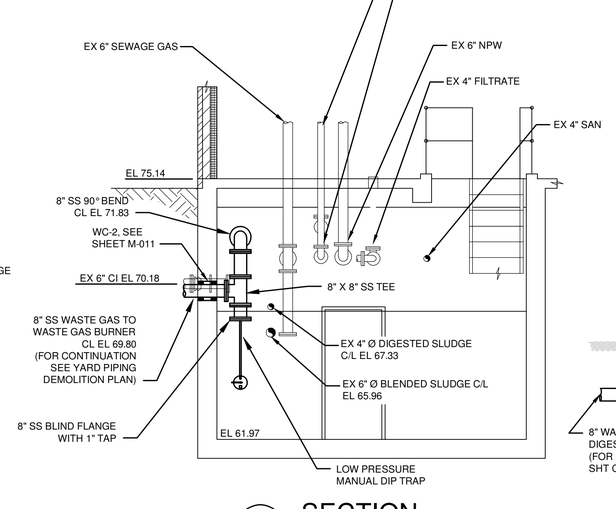
1 SECTION

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



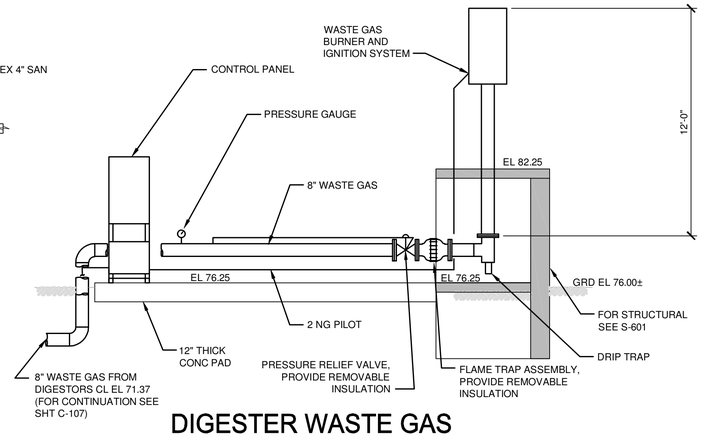
2 SECTION

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



3 SECTION

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



DIGESTER WASTE GAS BURNER ELEVATION

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

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2013 WWTP IMPROVEMENTS
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MECHANICAL
WASTE GAS BURNER

PLANS AND SECTIONS

FILE NO. 23374.51633 -M621
DATE MARCH 19, 2015

M-621

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ABBREVIATIONS

A

ACC	AIR-COOLED CONDENSER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT

B

BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BT	BIOLOGICAL TREATMENT
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
BHWS	BUILDING HOT WATER SUPPLY
BHWR	BUILDING HOT WATER RETURN

C

CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
COL	COLUMN
CO	CLEAN OUT

D

DB	DRY BULB (TEMPERATURE)
DCB	DIGESTER CONTROL BUILDING
DIA	DIAMETER
DN	DOWN
DHWS	DIGESTER HOT WATER SUPPLY
DHWR	DIGESTER HOT WATER RETURN
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT

E

EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST OR EX	EXISTING

F

F	FAN
FCV	FLOW CONTROL VALVE
FD	FLOOR DRAIN OR FIRE DAMPER
FE	FLOW ELEMENT
FIT	FLOW INDICATING TRANSMITTER
F&T	FLOAT & THERMOSTATIC
FL	FLOOR
FDB	DEGREES FAHRENHEIT DRY BULB
FWB	DEGREES FAHRENHEIT WET BULB
FPM	FEET PER MINUTE
FSB	FINE SCREENING BUILDING

G

GHWR	GLYCOL/HOT WATER RETURN
GHWS	GLYCOL/HOT WATER SUPPLY
GPM	GALLONS PER MINUTE

H

HMI	HUMAN - MACHINE INTERFACE
HR	HOUR
HP	HORSE POWER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER

I

I/A	INSTRUMENT AIR
ID	INSIDE DIAMETER
IN	INCH OR INCHES
INSUL	INSULATION OR INSULATED

L

LAT	LEAVING AIR TEMPERATURE
LV	LOUVER
LWT	LEAVING WATER TEMPERATURE

M

MBH	1000 BTU/HR
MERV	MINIMUM EFFICIENCY REPORTING VALVE
MUA	MAKE UP AIR
MUAU	MAKE UP AIR UNIT

N

No or #	NUMBER
NTS	NOT TO SCALE

O

OA	OUTSIDE AIR

P

PEPS	PRIMARY EFFLUENT PUMP STATION
PIT	PRESSURE INDICATING TRANSMITTER
PS	PRESSURE SWITCH
PSPS	PRIMARY SLUDGE PUMP STATION
PW	PLANT WATER
PWE	POWERED WALL EXHAUSTER

R

RL	REFRIGERANT LIQUID
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RPZ	REDUCED PRESSURE ZONE

S

SA	SUPPLY AIR
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SG	SECONDARY GALLERY
SHB	SOLIDS HANDLING BUILDING

T

TSTAT	THERMOSTAT
TYP	TYPICAL

U

UH	UNIT HEATER-( )

V

VD	VOLUME DAMPER
V	VENT

SYMBOLS

- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- BALANCING VALVE
- BALL VALVE
- RELIEF OR SAFETY VALVE
- SOLENOID VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- UNION
- STRAINER
- FLOOR DRAIN
- WATER HEATER

CONTROLS

- SMOKE DETECTOR
- THERMOSTAT
- TEMPERATURE SENSOR
- HUMIDITY SENSOR
- DIGITAL INPUT
- DIGITAL OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT

EQUIPMENT

- IN-LINE PUMP

MISCELLANEOUS

- EXISTING PIPING
- NEW PIPING
- FLOW DIRECTION (OR)
- DIRECTION OF PITCH (S)
- POINT OF CONNECTION (P)

NOTES:

1. THE CONTRACT DRAWINGS FOR HVAC WORK ARE DIAGRAMATIC. INTENDED TO CONVEY THE SCOPE OF WORK AND TO INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATION OF THE WORK
2. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSION'S PRIOR TO START OF WORK.
3. EQUIPMENT IN CLASSIFIED AREAS SHALL BE RATED FOR THE CLASSIFICATION OF THE AREA. REFER TO ELECTRICAL DRAWINGS FOR AREA CLASSIFICATIONS.
4. DIGESTER HOT WATER HEATING SYSTEM SHALL BE AVAILABLE YEAR-ROUND.
5. BUILDING HOT WATER HEATING SYSTEM SHALL BE AVAILABLE DURING HEATING SEASON.
6. COORDINATE SHUTDOWNS FOR TIE-INS WITH OWNER. SHUTDOWN DURATIONS SHALL BE MINIMIZED. PROVIDE VALVING FOR SWITCHOVER.
7. PROVE NEW BOILER SYSTEM OPERATION BEFORE SWITCHOVER FROM EXISTING SYSTEM TO NEW SYSTEM. COORDINATE SWITCHOVER WITH OWNER.

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DRAWN BY KJL

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC

ABBREVIATIONS, SYMBOLS & NOTES

FILE NO. 23374.51633 - H001
DATE MARCH 19, 2015

H-001

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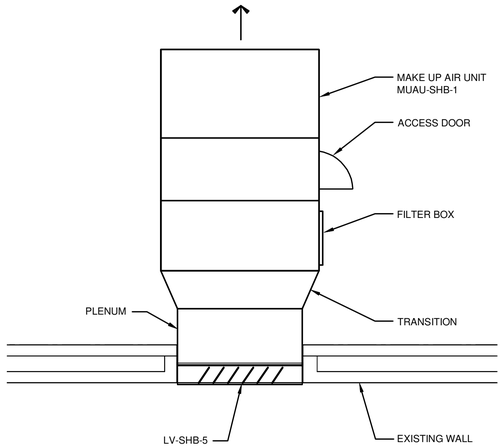
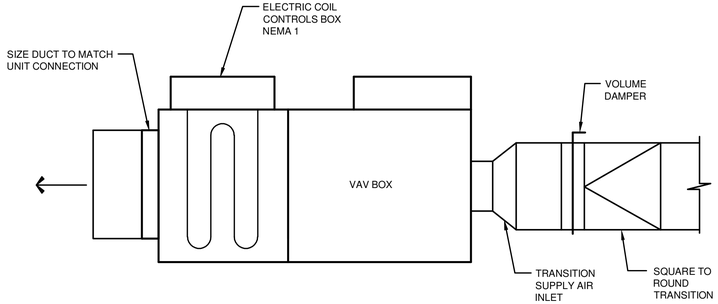


TOP VIEW

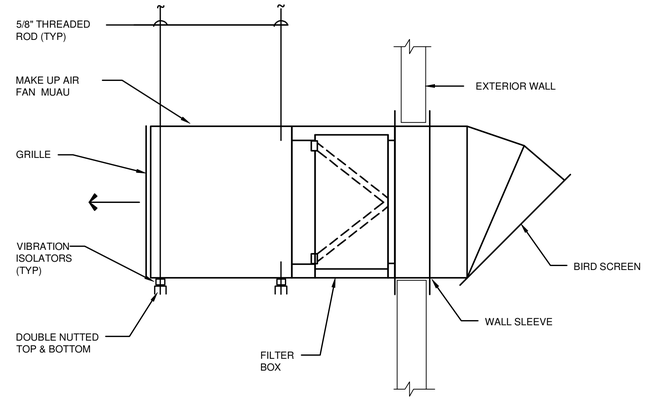


VAV BOX DETAIL

NOT TO SCALE

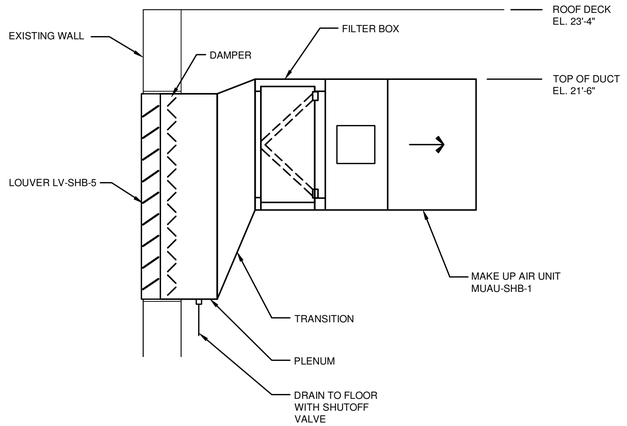
NOTES:

1. PROVIDE ADEQUATE MAINTENANCE CLEARANCE FOR CONTROLS, ETC. ON VAV BOX.
2. DUCT SIZE SHALL BE SAME AS UNIT CONNECTION SIZE IF VAV DISCHARGE DUCT SIZE ISN'T LISTED ON PLAN.



MUAU-FSB-2 DETAIL

NOT TO SCALE



SIDE VIEW

MUAU-SHB-1 DETAIL

NOT TO SCALE

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DESIGNED BY SWM
CHECKED BY JPW
DRAWN BY KJL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC

DETAILS I

FILE NO. 23374.51633 -H002

DATE MARCH 19, 2015

H-002

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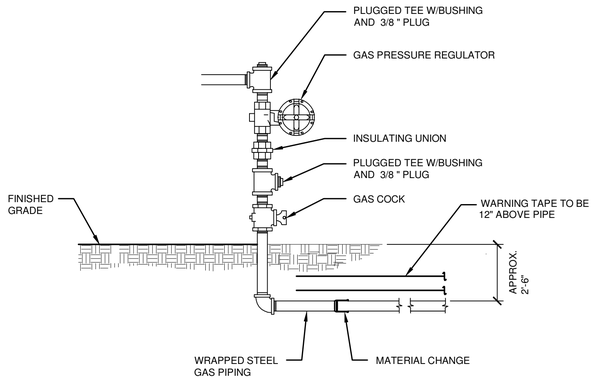
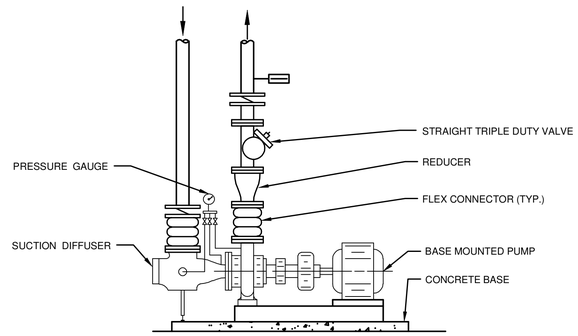


GAS SERVICE ENTRANCE DETAIL

NOT TO SCALE

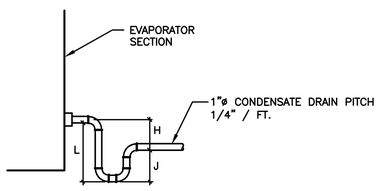
NOTE:

CONTRACTOR SHALL PROVIDE ALL GAS PIPING SYSTEM APPURTENANCES SHOWN IN DETAIL UNLESS OTHERWISE INDICATED.



TYPICAL END SUCTION BASE MOUNTED PUMP DETAIL

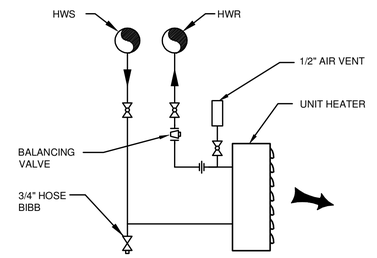
NOT TO SCALE



UNIT TAG	DRAIN PIPE ID (IN)	H (IN)	J (IN)	L (IN)
AHU–A–1	1	3.75	1.875	6.625
RTU–A–1	1	3.75	1.875	6.625

TYPICAL CONDENSATE TRAP DETAIL

NOT TO SCALE



HOT WATER UNIT HEATER PIPING SCHEMATIC

NOT TO SCALE

NOTES:

1. VALVES SHALL BE SAME SIZE AS PIPE.
2. SUPPORT EQUIPMENT FROM STRUCTURE.
3. WALL MOUNT THERMOSTATS 4'-6" ABOVE FINISHED FLOOR ON WALL BEHIND UNIT HEATER FAN INLET.
4. SET THERMOSTAT SETPOINT TO 50°F (ADJUSTABLE RANGE 50°F--90°F).
5. WALL MOUNTED THERMOSTAT SHALL CONTROL UH FAN.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC

DETAILS II

FILE NO. 23374.51633 - H003

DATE MARCH 19, 2015

H-003

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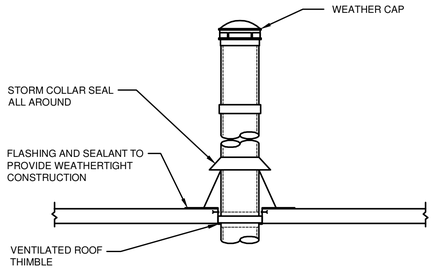
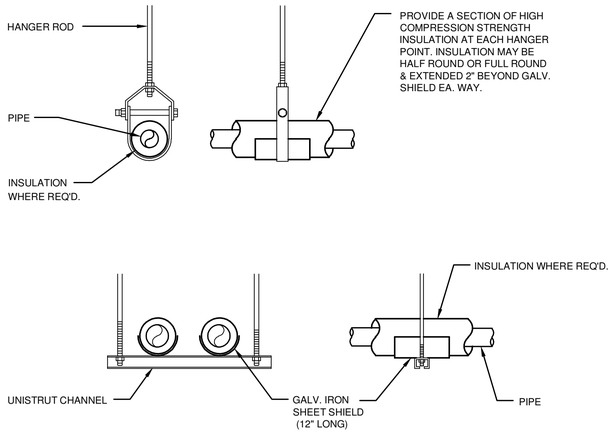


BOILER VENT THRU ROOF DETAIL

NOT TO SCALE

NOTES:

1. BOILER VENTING SHALL BE IN ACCORDANCE WITH BOILER MANUFACTURER'S RECOMMENDATIONS.

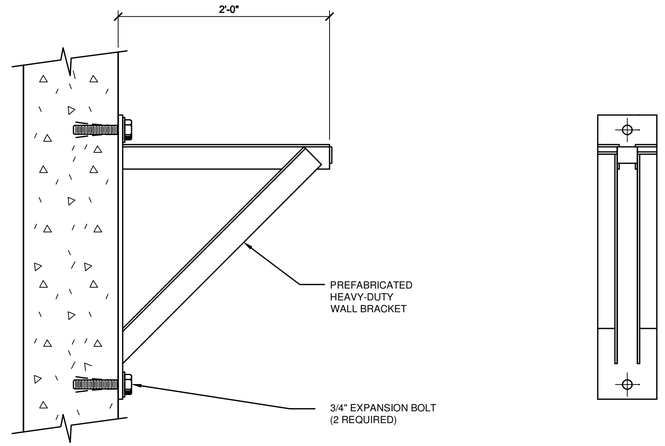


PIPE HANGER DETAIL

NOT TO SCALE

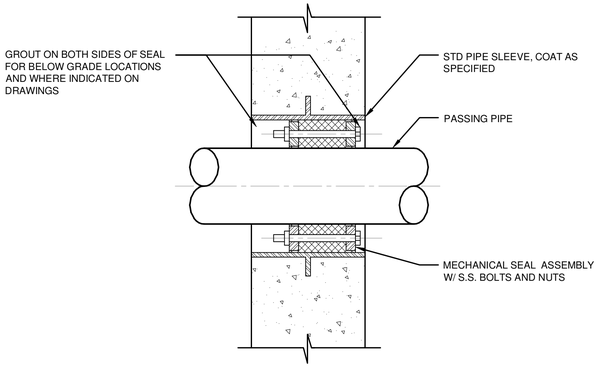
NOTES:

1. ATTACH SUPPORTS FOR ALL PIPING SUSPENDED FROM THE STEEL STRUCTURE TO THE TOP CORD OF JOISTS OR BEAMS.
2. PROVIDE COPPER OR PLASTIC COATED HANGERS FOR NON-INSULATED COPPER PIPE.



WALL SUPPORT BRACKET DETAIL

NOT TO SCALE

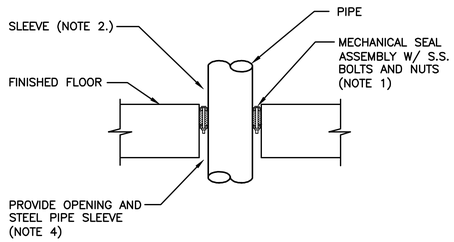


PIPE PENETRATION DETAIL

NOT TO SCALE

NOTES:

1. TYPICAL FOR "FLOOR SLEEVE" AND "WALL SLEEVE" WHERE INDICATED.
2. FOR PENETRATIONS THROUGH NEW FLOORS AND WALLS.

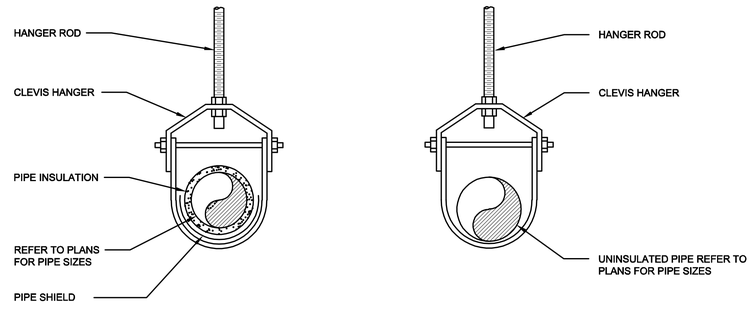


FLOOR SLEEVE DETAIL

NOT TO SCALE

NOTES:

1. FOR PENETRATIONS THROUGH EXISTING FLOORS, WALLS, AND CONCRETE ROOF DECKS.
2. COVER SEAL WITH MASTIC FOR OUTDOOR APPLICATIONS.
3. EXTEND SLEEVE 4" ABOVE FINISHED FLOOR FOR INDOOR APPLICATIONS.
4. COORDINATE OPENING AND SLEEVE SIZES WITH PIPE OUTSIDE DIAMETER AND MECHANICAL SEAL REQUIREMENTS. GROUT SLEEVE INTO PLACE.



PIPE HANGER DETAIL

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CANTON, OH 47702

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DETAILS III

FILE NO. 23374.51633 -H004
DATE MARCH 19, 2015

H-004

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FAN (F) SCHEDULE

NO.	LOCATION	TYPE	AIR FLOW (CFM)	S.P. (WC)	HP	VOLTS/ PHASE	DRIVE	WHEEL (IN.DIA.)	MANUFACTURER / MODEL	REMARKS
F-FSB-1	FINE SCREENING BUILDING	CENTRIFUGAL, INLINE	350	.375	1/6	120/1	DIRECT	–	COOK/80SQ12D	13
F-FSB-2	FINE SCREENING BUILDING	WALL EXHAUSTER	6,100	0.5	2	460/3	BELT	–	COOK/245WH9B	1,2,3,9,10
F-FSB-3	FINE SCREENING BUILDING	WALL EXHAUSTER	6,700	0.5	2	460/3	BELT	–	COOK/245WH9B	1,2,3,9,10
F-PEPS-1	PRIMARY EFFLUENT PUMP STATION	WALL EXHAUSTER	1,000	0.375	1/4	120/1	BELT	–	COOK/135W3B	3,11,13
F-PSPS1-1	PRIMARY SLUDGE PUMP STATION 1	INLINE FAN	500	0.5	1/6	120/1	BELT	12	COOK 14-CVB	4
F-BT-1	BIOLOGICAL TREATMENT AREA	WALL EXHAUSTER	1,000	0.25	1/6	120/1	BELT	12	COOK/120W2B	5,11,13
F-SG-1	SECONDARY GALLERY	INLINE FAN	2600	1.25"	3	460/3	BELT	14	COOK 14-CVB	2,4
F-SG-2	SECONDARY GALLERY	INLINE FAN	3500	0.5	3/4	460/3	BELT	18	COOK 180W68	4,5
F-PSPS1-2	PRIMARY SLUDGE PS 1	ROOF -MTD SUPPLY	550	0.125	1/20	120/1	DIRECT	-	COOK 105KSPD	3,7,8,13
F-SHB-1	BOILER ROOM	ROOF EXHAUSTER	1500	0.5	3/4	460/3	DIRECT	13.5	COOK 135C17	3,8,9,11
F-SHB-2	BOILER ROOM	ROOF EXHAUSTER	1000	0.125	3/4	460/3	DIRECT	13.5	COOK 135C17	3,8,9,11
F-A-1	ADMINISTRATION EXHAUST	ROOF EXHAUSTER	2240	0.75	3/4	460/3	BELT	18	COOK 180ACEB	11,12
F-A-2	ADMINISTRATION RELIEF	ROOF EXHAUSTER	6550	0.5	1.5	460/3	BELT	22.5	COOK 245ACEB	11,12

REMARKS:

1. EXPLOSION PROOF.
2. AMCA TYPE B SPARKPROOF CONSTRUCTION.
3. PROVIDE FAN WITH 120V ACTUATED DAMPER, INTERLOCK WITH FAN OPERATION.
4. MANUAL INLET VANE DAMPER.
5. GRAVITY BACKDRAFT DAMPER
6. NOT USED
7. NOT USED.
8. PROVIDE WITH ROOF CURB.
9. INVERTER DUTY MOTOR.
10. PROVIDE WITH WALL MOUNTED DISCONNECT SWITCH SUITABLE FOR OUTDOOR INSTALLATION.
11. PROVIDE WITH UNIT MOUNTED NEMA 4X DISCONNECT SWITCH.
12. MOUNT UNIT ON EXISTING ROOF CURB.
13. WALL MOUNT SPEED CONTROLLER.

UNIT HEATER (UH) SCHEDULE

NO.	BUILDING	EQUIPMENT TYPE	COIL DATA			FLUID DATA				ELECTRICAL DATA			REMARKS
			MIN. OUTPUT CAPACITY (MBH)	CFM	EAT. (F)	GPM	EWT (F)	LWT (F)	FLUID PRESSURE DROP (FT OF WATER)	HP	VOLTS / PHASE	RPM	
UH-SHB-1	SOLIDS HANDLING BUILDING	HORIZONTAL	78.4	1800	50	7.9	180	160	0.36	1/12	115/ 1	1000	1,2
UH-SHB-2	SOLIDS HANDLING BUILDING	HORIZONTAL	78.4	1800	50	7.9	180	160	0.36	1/12	115/ 1	1000	1,2
UH-SHB-3	SOLIDS HANDLING BUILDING	HORIZONTAL	78.4	1800	50	7.9	180	160	0.36	1/12	115/ 1	1000	1,2
UH-SHB-4	SOLIDS HANDLING BUILDING	HORIZONTAL	78.4	1800	50	7.9	180	160	0.36	1/12	115/ 1	1000	1,2
UH-SHB-5	SOLIDS HANDLING BUILDING	HORIZONTAL	42.8	1120	50	4.7	180	160	0.6	1/12	115/ 1	1550	1,2
UH-SHB-6	SOLIDS HANDLING BUILDING	HORIZONTAL	42.8	1120	50	4.7	180	160	0.6	1/12	115/ 1	1550	1
UH-SHB-7	SOLIDS HANDLING BUILDING	HORIZONTAL	42.8	1120	50	4.7	180	160	0.6	1/12	115/ 1	1550	1,2
UH-SHB-8	SOLIDS HANDLING BUILDING	HORIZONTAL	42.8	1120	50	4.7	180	160	0.6	1/12	115/ 1	1550	1,2
UH-SG-1	SECONDARY GALLERY	HORIZONTAL	254.8	5130	50	28.2	180	160	11.3	1/2	115/ 1	1075	1
UH-SG-2	SECONDARY GALLERY	HORIZONTAL	254.8	5130	50	28.2	180	160	11.3	1/2	115/ 1	1075	1
UH-SG-3	SECONDARY GALLERY	HORIZONTAL	70	1800	50	7.0	180	160	2.8	1/12	115/ 1	1000	1
UH-FSB-1	FINE SCREENING BUILDING	HORIZONTAL	39.1	1,120	50	4.7	180	160	0.6	1/12	115/ 1	1,550	1,3,4
UH-FSB-2	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/ 1	1,550	1,2,3,4
UH-FSB-3	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/ 1	1,550	1,2,3,4
UH-FSB-4	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/ 1	1,550	1,2,3,4
UH-FSB-5	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/ 1	1,550	1,2,3,4
UH-FSB-6	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/ 1	1,550	1,2,3,4
UH-FSB-7	FINE SCREENING BUILDING	HORIZONTAL	9.2	370	50	1.7	180	160	0.8	1/25	115/1	1,550	1,2,3,4

REMARKS
1. CORROSION RESISTANT.
2. EXPLOSION PROOF.
3. BASED ON 180 DEGREES F ENTERING WATER TEMPERATURE, AND 160 DEGREES F LEAVING WATER TEMPERATURE.
4. REMOTE THERMOSTAT.

ELECTRIC UNIT HEATER (EUH) SCHEDULE

NO.	LOCATION	EQUIPMENT TYPE	MIN. HEATING CAPACITY (KW)	VOLTS/ PHASE	MOUNTING HEIGHT	MANUFACTURER/ MODEL		REMARKS
EUH-FSB-1	FINE SCREENING BUILDING	HORIZONTAL DISCHARGE	7.5	460/3	8'-0"	INDEECO	UHIR	1,2
EUH-PEPS-1	PEPS BUILDING	VERTICAL DISCHARGE	5	460/3		INDEECO	UVI	1,2
EUH-PEPS-2	PEPS BUILDING	VERTICAL DISCHARGE	5	460/3		INDEECO	UVI	1,2
EUH-PEPS-3	PEPS BUILDING	HORIZONTAL DISCHARGE, CORROSION RESISTANT	5	460/3	8'-0"	INDEECO	TRIAD	1,2
EUH-PEPS-4	PEPS BUILDING	HORIZONTAL DISCHARGE, CORROSION RESISTANT	5	460/3	8'-0"	INDEECO	TRIAD	1,2
EUH-PSPS1-1	PRIMARY SLUDGE PS NO. 1	HORIZONTAL DISCHARGE, CORROSION RESISTANT	5	460/3	8'-0"	INDEECO	TRIAD	2,4
EUH-PSPS1-2	PRIMARY SLUDGE PS NO. 1	HORIZONTAL DISCHARGE, CORROSION RESISTANT	5	460/3	8'-0"	INDEECO	TRIAD	2,3,4

REMARKS:
1. PROVIDE UNIT-MOUNTED THERMOSTAT.
2. PROVIDE HANGING MOUNTING KIT.
3. PROVIDE WITH REMOTE THERMOSTAT.
4. ADJUST DIFFUSER FOR DOWNWARD DISCHARGE.

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HOT WATER BOILER (B) SCHEDULE

NO.	BOILER LOCATION	SERVES	MINIMUM OUTPUT (BTU/H)	EWT °F	LWT °F	FLOW RATE (GPM)	WATER PRESSURE DROP (FT)	FUEL	FUEL PRESSURE (INCHES W.C.)	ELECTRICAL		WEIGHT (LBS)	MAKE / MODEL NO.	REMARKS
										VOLTS	PHASE			
B-SHB-1	SOLIDS HANDLING BUILDING	DIGESTER HEAT	2,400,000	160	180	240	2.5	DIGESTER GAS	6-11	460	3	3750	BRYAN AB300-W	2,3
B-SHB-2	SOLIDS HANDLING BUILDING	DIGESTER HEAT	2,400,000	160	180	240	2.5	DIGESTER GAS	6-11	460	3	3750	BRYAN AB300-W	2,3
B-SHB-3	SOLIDS HANDLING BUILDING	DIGESTER HEAT	1,800,000	165	180	240	2.5	NATURAL GAS	6-11	460	3	3750	BRYAN AB250-W	2,3
B-SHB-4	SOLIDS HANDLING BUILDING	BUILDING HEAT	3,200,000	160	180	320	4.0	DUAL FUEL	6-11	460	3	7690	BRYAN RV400-W	1,2,3
B-SHB-5	SOLIDS HANDLING BUILDING	BUILDING HEAT	3,200,000	160	180	320	4.0	DUAL FUEL	6-11	460	3	7690	BRYAN RV400-W	1,2,3
B-FSB-1	FINE SCREENS BUILDING	MUAU-FSB-1 & UHS	1,275,000	160	180	127	5.6	NATURAL GAS	11	460	3	700	BRYAN HE-CLM90	2
B-A-1	ADMINISTRATION BUILDING	AHU-A-1 & RTU-A-1	652,000	160	180	66	6.0	NATURAL GAS	11	460	3		BRYAN HE-CLM150	2

REMARKS:
1. DUAL FUEL BOILER SHALL BURN EITHER DIGESTER GAS OR NATURAL GAS.
2. FLEXIBLE TUBE BOILER.
3. SERVO MOTOR BASED BURNER CONTROL SYSTEM.

PUMP (P) SCHEDULE

NO.	LOCATION	SERVES	GPM	PUMP HEAD (FT. W.C)	TEMP-RANGE (°F)	MOTOR ELECTRICAL			TYPE	MANUFACTURER	MODEL	REMARKS
						HP	VOLT/PHASE	RPM				
P-SHB-1	SOLIDS HANDLING BUILDING	BOILER B-SHB-1	240	20	180	2	460/3	1150	INLINE	BELL & GOSSETT	SERIES 80 4x4x9 1/2	
P-SHB-2	SOLIDS HANDLING BUILDING	BOILER B-SHB-2	240	20	180	2	460/3	1150	INLINE	BELL & GOSSETT	SERIES 80 4x4x9 1/2	
P-SHB-3	SOLIDS HANDLING BUILDING	BOILER B-SHB-3	240	20	180	2	460/3	1150	INLINE	BELL & GOSSETT	SERIES 80 4x4x9 1/2	
P-SHB-4	SOLIDS HANDLING BUILDING	BOILER B-SHB-4	320	20	180	3	460/3	1150	INLINE	BELL & GOSSETT	SERIES 80 4x4x9 1/2	
P-SHB-5	SOLIDS HANDLING BUILDING	BOILER B-SHB-5	320	20	180	3	460/3	1150	INLINE	BELL & GOSSETT	SERIES 80 4x4x9 1/2	
P-SHB-6	SOLIDS HANDLING BUILDING	DIGESTER HEAT	240	65	180	7.5	460/3	1150	BASE MTD.	BELL & GOSSETT	SERIES 80 2 1/2 BB	
P-SHB-7	SOLIDS HANDLING BUILDING	DIGESTER HEAT	240	65	180	7.5	460/3	1150	BASE MTD.	BELL & GOSSETT	SERIES 80 2 1/2 BB	
P-SHB-8	SOLIDS HANDLING BUILDING	BUILDING HEAT	320	75	180	10	460/3	1,750	BASE MTD.	BELL & GOSSETT	1510-3BC	
P-SHB-9	SOLIDS HANDLING BUILDING	BUILDING HEAT	320	75	180	10	460/3	1,750	BASE MTD.	BELL & GOSSETT	1510-3BC	
P-SG-1	SECONDARY GALLERY	MUAU-SG-1	27.2	30	180	1/2	460/3	1,750	INLINE	BELL & GOSSETT	SERIES 60 1x1x5 1/4	
P-FSB-1	FINE SCREENING BUILDING	BOILER	123	80	180	5	460/3	1,750	INLINE	BELL & GOSSETT	1.5BC/ E-1510	
P-FSB-2	FINE SCREENING BUILDING	BOILER	123	80	180	5	460/3	1,750	INLINE	BELL & GOSSETT	1.5BC/ E-1510	
P-FSB-3	FINE SCREENING BUILDING	MUAU-FSB-1	95	35	180	1.5	460/3	1,725	INLINE	BELL & GOSSETT	E-90 2AB	
P-A-1	ADMINISTRATION BUILDING	BOILER	66	54	180	1.5	460/3	1,725	INLINE	BELL & GOSSETT	E-90 1.25 AAB	
P-A-2	ADMINISTRATION BUILDING	BOILER	66	54	180	1.5	460/3	1,725	INLINE	BELL & GOSSET	E-90 1.25 AAB	
P-A-3	ADMINISTRATION BUILDING	RTU-A-1	30	33	180	0.5	460/3	1,725	INLINE	BELL & GOSSETT	SERIES 60 1.5x1.5x6.25	

LOUVER (LV) SCHEDULE

NO.	TYPE	DUTY	AIRFLOW CFM	MAXIMUM FREE AREA VELOCITY (FPM)	WIDTH	HEIGHT	MINIMUM FREE AREA VELOCITY (FT)2	MAXIMUM PRESSURE DROP (" WC)	DAMPER ACTUATOR			MANUFACTURER / MODEL	REMARKS
									TYPE	OPERATION	ELECTRICAL (VOLTS / PHASE)		
LV-FSB-1	COMBINATION	INTAKE	450	300	24	24	1.5	0.2	ELECTRIC	TWO POSITION SPRING CLOSE	120/1	RUSKIN ELC6375DAX	1
LV-PEPS-1	COMBINATION	INTAKE	1000	350	32	32	2.9	0.2	ELECTRIC	TWO POSITION SPRING CLOSE	120/1	RUSKIN ELC6375DAX	1
LV-SG-1	COMBINATION	EXHAUST	3500	650	36	48	5.5	0.9	ELECTRIC	TWO POSITION SPRING CLOSE	120/1	RUSKIN ELC6375DAX	1
LV-PSPS-1	COMBINATION	EXHAUST	500	650	16	16	0.75	0.7	ELECTRIC	TWO POSITION SPRING CLOSE	120/1	RUSKIN ELC6375DAX	1
LV-PEPS-2	FIXED OPEN	EXHAUST	50	167	12	12	0.3	0.05	NA	NA	NA	RUSKIN ELC6375DAX	
LV-SHB-1	COMBINATION	INTAKE	5775	700	40	65	8.5	0.7	ELECTRIC	TWO POSITION SPRING OPEN	120/1	RUSKIN ELC6375DAX	1,2
LV-SHB-2	COMBINATION	REMOVABLE ACCESS INTAKE	1050	100	60	96	18.0	0.5	ELECTRIC	TWO POSITION SPRING OPEN	120/1	RUSKIN ELC6375DAX	1,2
LV-SHB-3	COMBINATION	REMOVABLE ACCESS INTAKE	1050	100	60	96	18.0	0.5	ELECTRIC	TWO POSITION SPRING OPEN	120/1	RUSKIN ELC6375DAX	1,2
LV-SHB-4	COMBINATION	REMOVABLE ACCESS INTAKE	800	100	60	96	18.0	0.5	ELECTRIC	TWO POSITION SPRING OPEN	120/1	RUSKIN ELC6375DAX	1,2
LV-SHB-5	COMBINATION	REMOVABLE ACCESS INTAKE	2800	150	84	96	18.0	0.5	ELECTRIC	TWO POSITION SPRING OPEN	120/1	RUSKIN ELC6375DAX	1,2

REMARKS:
1. PROVIDE ACTUATOR WITH LIMIT SWITCHES.
2. LOUVER SHALL BE REMOVABLE, TO FACILITATE EQUIPMENT PASS-THROUGH.

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HVAC EQUIPMENT SCHEDULES

FILE NO. 23374.51633 - H005
DATE MARCH 19, 2015

H-005

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FLOW CONTROL VALVE (FCV) SCHEDULE

NO.	SERVICE	FLUID	FLOW RATE (GPM)	PRESSURE DROP (PSI)	VALVE COEFFICIENT (Cv)	ACTUATOR			REMARKS
						TYPE	OPERATION	VOLTS / PHASE	
FCV-DCB-1	DIGESTER HEAT BYPASS	HW	148.7	5	66.5	PNEUMATIC	MODULATING	N/A	1
FCV-FSB-1	MUAU-FSB-1	HW	94.8	5	42.4	ELECTRIC	MODULATING	120/1	2
FCV-A-1	AHU-A-1	HW	28	5	12.5	PNEUMATIC	MODULATING	N/A	
FCV-A-2	RTU-A-1	HW	35	5	15.7	PNEUMATIC	MODULATING	N/A	

REMARKS:
1. EXPLOSION PROOF.

AIR COOLED CONDENSING UNIT (ACCU) SCHEDULE

NO.	BUILDING	TYPE	COOLING DATA (BTUH)	OUTSIDE AIR TEMPERATURE AT CAPACITY RATING (F)	UNIT ELECTRICAL DATA (SINGLE POINT OF CONNECTION)		MINIMUM SEER	REMARKS
					VOLTAGE /PHASE	FREQUENCY (HZ)		
ACCU-FSB-1	FINE SCREENS BUILDING	AIR-COOLED/DX	24,000	105	208/1	60	13.0	1,2
ACCU-PEPS-1	PEPS BUILDING	AIR-COOLED/DX	33,200	105	208/1	60	13.0	1,2
ACCU-PEPS-2	PEPS BUILDING	AIR-COOLED/DX	33,200	105	208/1	60	13.0	1,2
ACCU-A-1	ADMINISTRATION BUILDING	AIR-COOLED/DX	24,000	95	208/1	60	13.0	1,2
ACCU-A-2	ADMINISTRATION BUILDING	AIR-COOLED/DX	260,000	95	460/3	60		

REMARKS:
1. PROVIDE WITH LOW AMBIENT KIT OPERATION TO -20°F.
2. UNIT IS PAIRED WITH DUCTLESS SPLIT AIR CONDITIONING UNIT.

AIR CONDITIONING UNIT (ACU) SCHEDULE

NO.	BUILDING	LOCATION	TYPE	COOLING DATA	HEATING DATA	ELECTRIC HEAT	FAN DATA			OUTSIDE AIR	UNIT ELECTRICAL DATA (SINGLE POINT OF CONNECTION)			REMARKS
				BTUH TOTAL	BTUH TOTAL	KW	SCFM SA	HP		CFM	VOLTAGE	PHASE	FREQUENCY (HZ)	
ACU-FSB-1	FINE SCREENS BUILDING	ELECTRICAL ROOM	SPLIT/AIR-COOLED	23,000	-	-	1,050	1/15		200	208	1	60	1,2
ACU-PEPS-1	PEPS BUILDING	ELECTRICAL ROOM	SPLIT/AIR-COOLED	33,200	-	-	1,275	1/6		200	208	1	60	1,2
ACU-PEPS-2	PEPS BUILDING	ELECTRICAL ROOM	SPLIT/AIR-COOLED	33,200	-	-	1,275	1/6		200	208	1	60	1,2
ACU-A-1	ADMINISTRATION BUILDING	SERVER ROOM	SPLIT/AIR-COOLED	24,000	-	-	650	-		0	208	1	60	1,2

REMARKS:
1. SNOW STAND (14" ELEVATED PLATFORM FOR CONDENSING UNIT.)
2. PROVIDE WALL MOUNTED TEMPERATURE CONTROLLER.

AIR HANDLING UNIT (AHU) SCHEDULE

NO.	BUILDING	MINIMUM OA (CFM)	FAN				COOLING COIL						HOT WATER COIL						FILTERS		MANUFACTURER /MODEL	REMARKS
			AIRFLOW (CFM	ESP ("WC)	MOTOR (HP)	MOTOR ELECTRICAL (VOLTS / PHASE)	REFRIGERANT (TYPE)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	EAT (°FDB/°FWB)	LAT (°FDB/FWB)	MINIMUM EER	CAPACITY (MBH)	EAT (°F)	LAT (°F)	HOT WATER FLOW (GPM)	EWT (°F)	LWT (°F)	TYPE	MERV / RATINGS		
AHU-A-1	ADMINISTRATION BUILDING	2,240	6,550	2.0	7.5	460/3	R-410A	178	260	80 / 67	55/54	11.0	276	47	85	27.6	180	160	2"	8	TRANE / CSAA 017	1

REMARKS:
1. CONFIGURATION AND DIMENSIONS SUITABLE FOR INSTALLATION IN EXISTING MECHANICAL ROOM, AS SHOWN.

ROOF TOP UNIT (RTU) SCHEDULE

NO.	BUILDING	MINIMUM OA (CFM)	FAN				COOLING COIL						HOT WATER COIL						FLTERS		MANUFACTURER/MODEL	REMARKS
			AIRFLOW (CFM	ESP ("WC)	MOTOR (HP)	MOTOR ELECTRICAL (VOLTS / PHASE)	REFRIGERANT (TYPE)	SENSIBLE CAPACITY (MBH)	TOTAL CAPACITY (MBH)	EAT (°FDB/°FWB)	LAT (°FDB/FWB)	MINIMUM EER	CAPACITY (MBH)	EAT (°F)	LAT (°F)	HOT WATER FLOW (GPM)	EWT (°F)	LWT (°F)	TYPE	MERV / RATINGS		
RTU-A-1	ADMINISTRATION BUILDING	200	3,200	1.5	2	460/3	R-410A	115	202	88/73	55/54	11.0	290	0	83	29	180	160	2"	8	VALENT / VPR-210	1

REMARKS:
1. ROOF CURB.

MAKE-UP AIR UNIT (MUAU) SCHEDULE

NO.	LOCATION	MIN OA (CFM)	FAN				HEATING COIL										FILTERS			MANUFACTURER / MODEL	REMARKS
			AIRFLOW (CFM)	ESP (" WC)	MOTOR (HP)	VOLTS/ PHASE	FLUID	MBH	AIRFLOW (CFM)	EAT (°FDB)	LAT (°FDB)	FLOW (GPM)	EWT (°F)	LWT (°F)	MAX FACE VELOCITY (FPM)	MAX AIR PD (" WC)	MAX WATER PD (FT)	DEPTH	MERV RATING	DESIGN AIR PD (" WC)		
MUAU-SG-1	SECONDARY GALLERY (INDOOR)	5000	5000	1.0	2	480/3	HW	272	5000	0	50	27.2	180	160	500	0.5	8	2"	8	0.5	WING SAS 118	3, 5, 6,
MUAU-FSB-1	FSB ROOF (OUTDOOR)	12,500	12,500	1.5	15	480/3	HW	948	12,500	-20	50	94.8	180	160	500	0.21	13.4	2"	8	0.5	TRANE/CSAA021UB	1,2,4,5 & 6
MUAU-FSB-2	FSB MER (INDOOR)	800	800	0.5	1/4	480/3	HW	79.5	800	-20	50	14.8	180	160	500	-	4.4	2"	8	0.5	WING FAS17	4,5,6,7 & 8
MUAU-SHB-1	BOILER ROOM (INDOOR)	5700	5700	0.5	3/4	480/3	HW	313	5700	0	50	31.3	180	160	500	-	10	NA	NA	NA	WING FAS30	4,5,6 & 7

REMARKS:
1. EXPLOSION PROOF.
2. AMCA TYPE "B" SPARK PROOF FAN.
3. MOUNT CONTROL PANEL ON UNIT.
4. CONTROL PANEL SHALL MOUNT REMOTE FROM UNIT, IN UNCLASSIFIED AREA.
5. COIL SHALL HAVE CORROSION RESISTANT COATING.
6. UNIT CASING SHALL HAVE (INTERNAL AND EXTERNAL) CORROSION RESISTANT FINISH.
7. COMBUSTION AIR MAKE-UP AIR UNIT.
8. INTAKE HOOD.

VARIABLE AIR VOLUME BOXES W/ELEC REHEAT (VAV)

NO.	EQUIPMENT TYPE	LOCATION	SERVES	MIN. CFM	DESIGN CFM	HEATING CAPACITY			DESIGN BASIS	REMARKS
						KW	VOLTS/ PHASE	STAGE	MANUFACTURER/MODEL	
VAV-A-1	SINGLE DUCT, LOW PROFILE	LL MENS RM	LL MENS LOCKER	100	460	3	480/3	2	PRICE/SDVLP	1,2,3
VAV-A-2	SINGLE DUCT, LOW PROFILE	LL LUNCH RM	LL LUNCH ROOM/VENDING	225	915	5	480/3	3	PRICE/SDVLP	1,2,3
VAV-A-3	SINGLE DUCT, LOW PROFILE	1ST FL OFFICE	1ST FL OFFICE/WOMEN'S	100	480	3	480/3	2	PRICE/SDVLP	1,2,3
VAV-A-4	SINGLE DUCT, LOW PROFILE	1ST FL OFFICE	1ST FL OFFICE	225	850	5	480/3	3	PRICE/SDVLP	1,2,3
VAV-A-5	SINGLE DUCT, LOW PROFILE	1ST FL CORRIDOR	ENTRANCE/STAIRS	225	900	5	480/3	3	PRICE/SDVLP	1,2,3
VAV-A-6	SINGLE DUCT, LOW PROFILE	1ST FL MECH RM	1ST FL OFFICE	100	600	3	480/3	2	PRICE/SDVLP	1,2,3
VAV-A-7	SINGLE DUCT, LOW PROFILE	1ST FL MECH RM	2ND FL OFFICE/SAMPLE PREP	132	785	5	480/3	3	PRICE/SDVLP	1,2,3
VAV-A-8	SINGLE DUCT, LOW PROFILE	BACT LAB	2ND FL BACT LAB.	66	385	3	480/3	2	PRICE/SDVLP	1,2,3
VAV-A-9	SINGLE DUCT, LOW PROFILE	BACT LAB	2ND FL STORAGE/OFFICE	132	775	5	480/3	3	PRICE/SDVLP	1,2,3
VAV-A-10	SINGLE DUCT, LOW PROFILE	2ND FL CORRIDOR	2ND FL MENS LOCKER	66	400	3	480/3	2	PRICE/SDVLP	1,2,3

REMARKS:
1. LOW WATT DENSITY ELEMENTS (MAX 35W/IN SQ.), HI GRADE NICKEL-CHROM ALLOY.
2. SINGLE POINT ELECTRICAL CONNECTION.
3. PROVIDE AUTOMATIC & MANUAL RESET THERMAL CUTOUT, MAGNETIC CONTACTORS, AIRFLOW SWITCH.

3. REFRIGERANT SHALL BE R410A.

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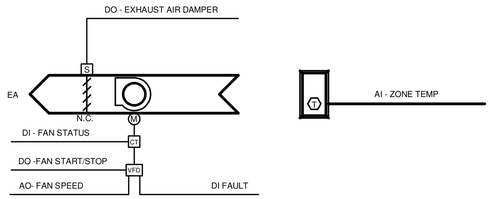

F-SHB-1 CONTROL DIAGRAM

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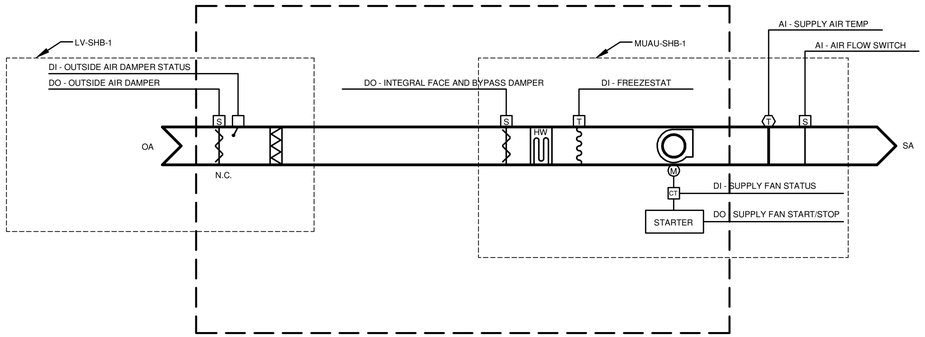

POSITIVE PRESSURIZATION FAN SYSTEM

MUAU-SHB-1 CONTROL DIAGRAM

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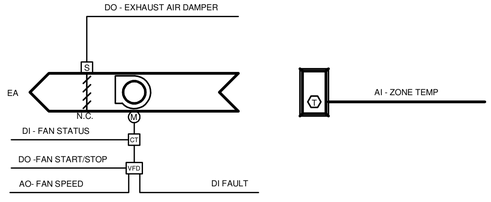

F-SHB-2 CONTROL DIAGRAM

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CONTROL DIAGRAMS

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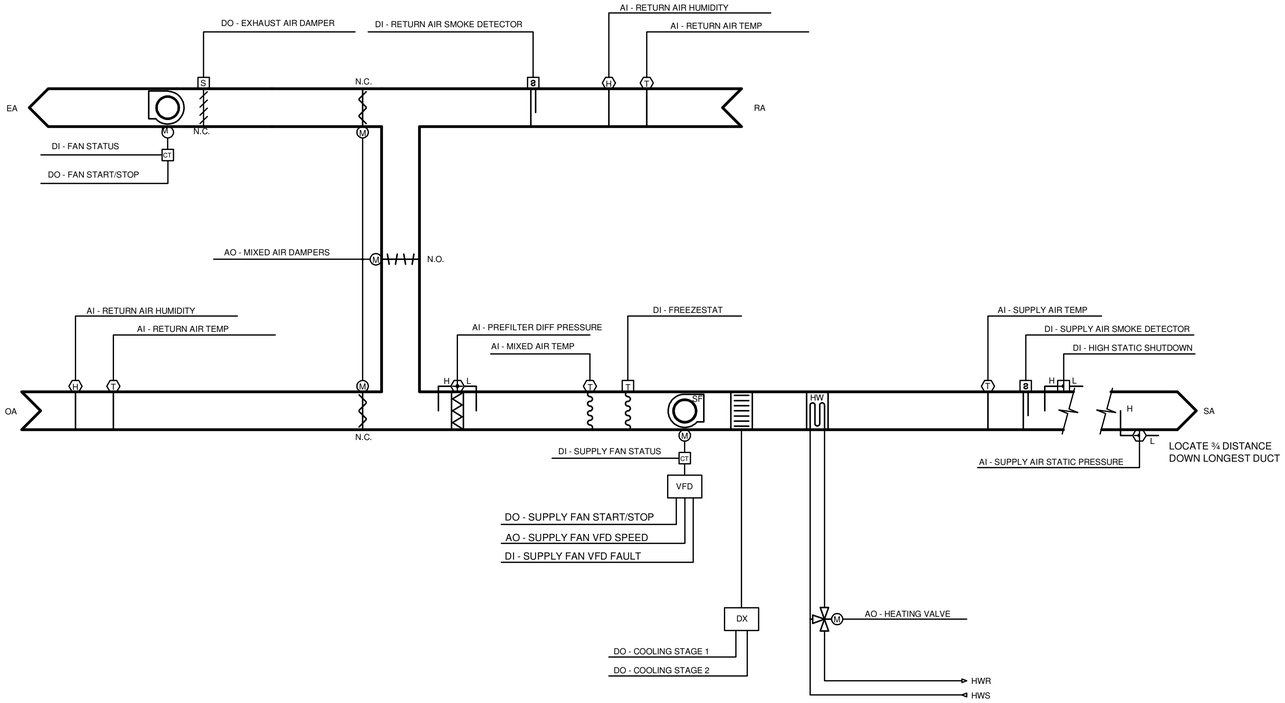

AHU-A-1 CONTROL DIAGRAM

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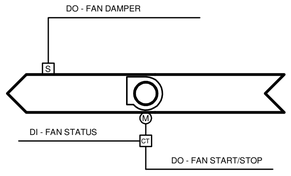

F-A-1 CONTROL DIAGRAM

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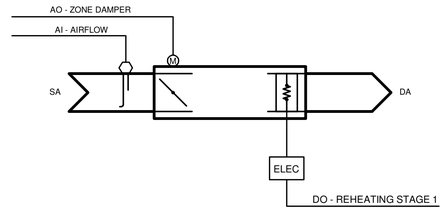

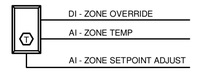

VAV TERMINAL (TYPICAL)

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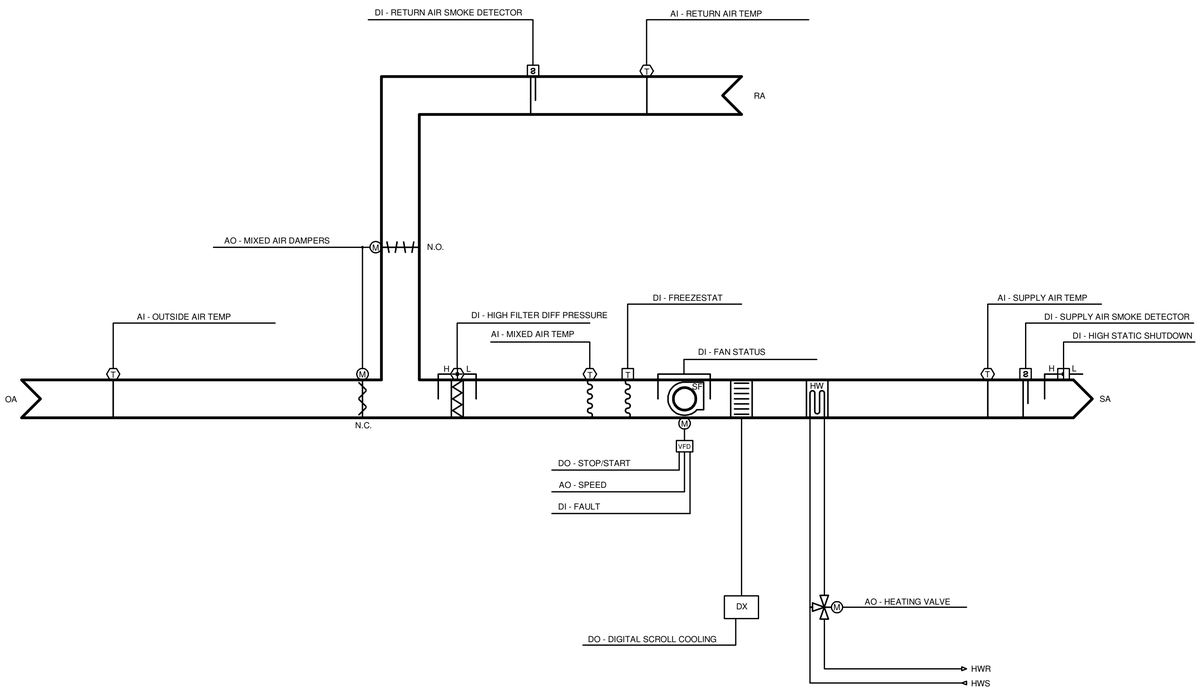

RTU-A-1 LAB CONTROL DIAGRAM

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CONTROL DIAGRAM

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H-008

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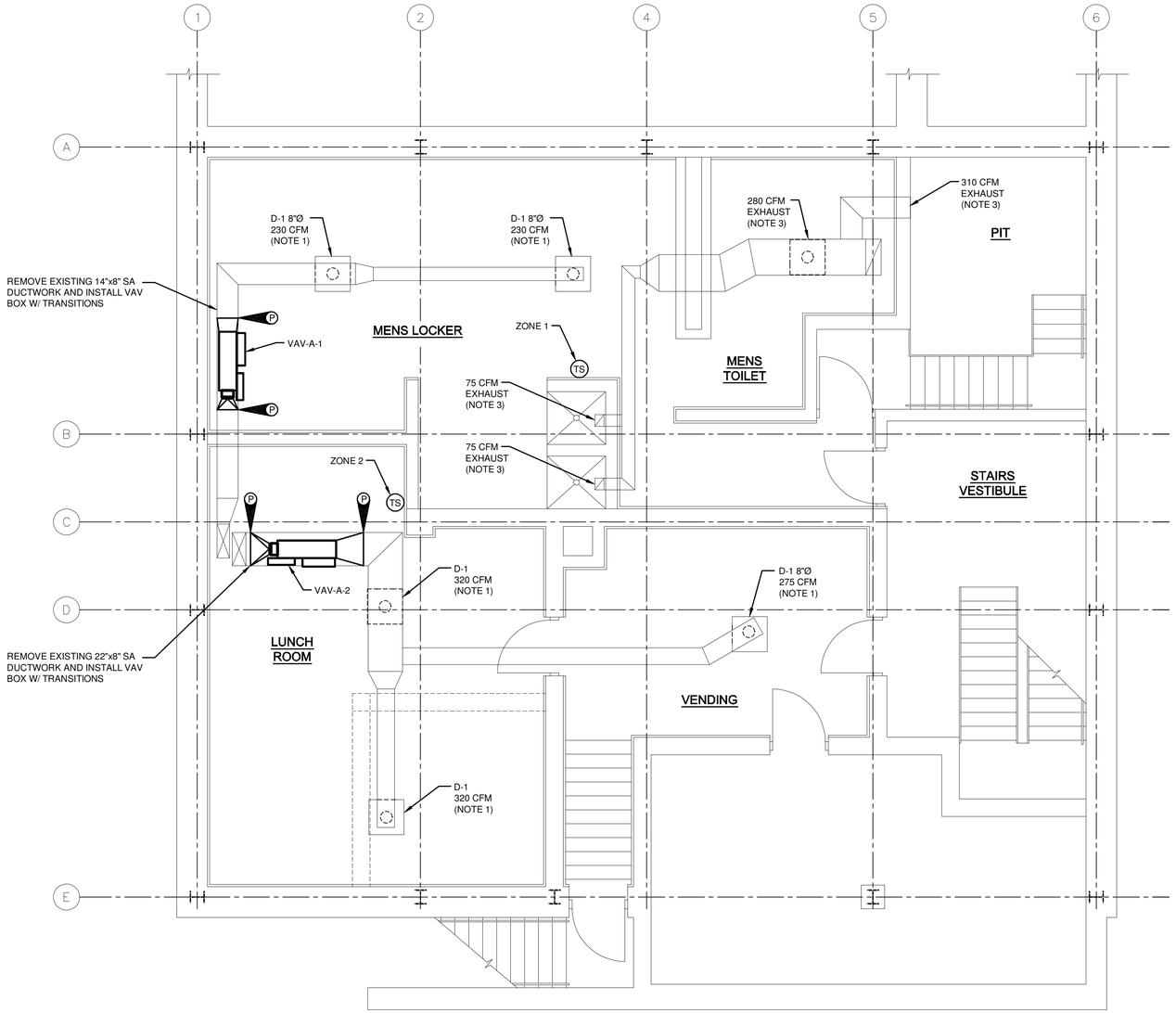

DRAWING NOTES:

1. REMOVE EXISTING DIFFUSER AND CONNECTOR AND INSTALL NEW DIFFUSER AND FLEX CONNECTOR.
2. BALANCE SUPPLY AND EXHAUST AIR FANS .
3. BALANCE RESTROOM EXHAUST SYSTEM TO AIR FLOWS SHOWN.

BASEMENT PLAN

1/4"=1'-0"

PLAN NORTH

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LOWER PLAN

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H-101

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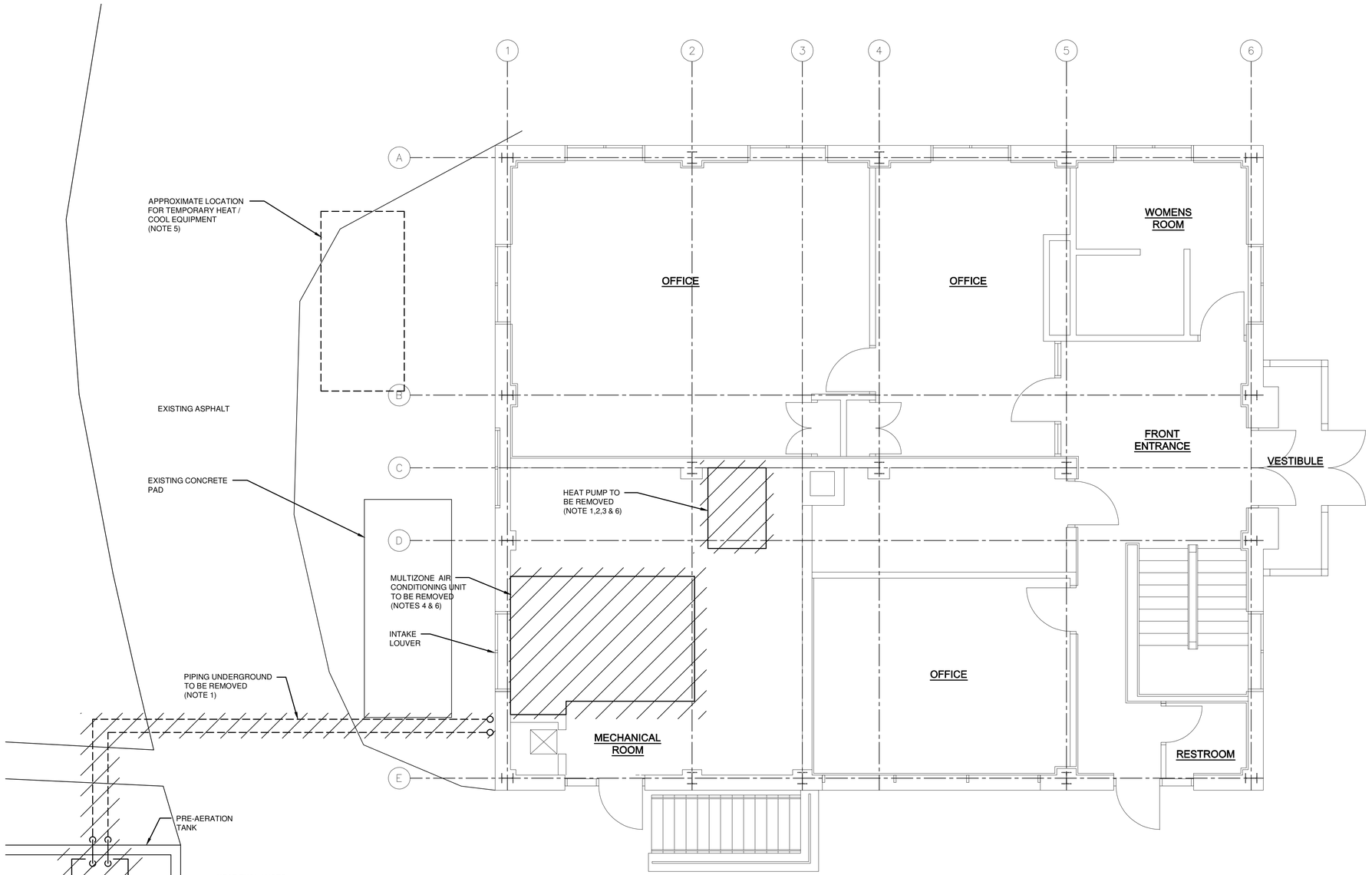

DRAWING NOTES:

1. REMOVE PIPING SYSTEM CIRCULATING GLYCOL SOLUTION FROM HEAT PUMP TO HEAT EXCHANGER IN PRE-AERATION TANK.
2. REMOVE PIPING SYSTEM SYSTEM CIRCULATING WATER TO COIL IN MULTIZONE UNIT.
3. PUMP AND PIPING SYSTEM CIRCULATING WATER TO HYDRONIC TERMINAL UNITS IN ADMINISTRATION BUILDING TO REMAIN.
4. REMOVE OUTSIDE AIR CONNECTION TO PLENUM. REMOVE SUPPLY AIR AND RETURN AIR DUCTWORK TO POINTS INDICATED ON H-103.
5. PROVIDE TEMPORARY HEATING AND COOLING FOR PORTION OF PROJECT WHEN HEAT EXCHANGER MUST BE REMOVED TO PROGRESS FINE SCREENING BUILDING, BUT ADMIN BUILDING HVAC UPGRADES ARE NOT COMPLETE. TEMPORARY HEAT AND COOL SHALL MAINTAIN EXISTING HEAT PUMP LOOP BETWEEN 60°F AND 90°F. COOLING LOAD IS 450,000 BTU/HR. HEATING LOAD IS 450,000 BTU/HR. HEAT PUMP LOOP CONTAINS GLYCOL FOR FREEZE PROTECTION. HEAT PUMP UNIT IS ENVISION MODEL NXW360. ELECTRIC POWER (480 VOLT, 3 PHASE) FOR COOLING IS AVAILABLE AT THE ADMIN BUILDING. NATURAL GAS (7" WC) FOR HEATING IS AVAILABLE AT THE ADMIN BUILDING.
6. PROVIDE TEMPORARY HEATING AND AIR CONDITIONING FOR ADMINISTRATION BUILDING SPACES DURING PERIODS WHEN HVAC SYSTEMS ARE OUT OF SERVICE FOR MODIFICATIONS OF THIS PROJECT.

FIRST FLOOR PLAN

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

PLAN NORTH

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MASSILLON, OHIO

HVAC
ADMINISTRATION BUILDING
FIRST FLOOR
DEMOLITION PLAN

FILE NO. 23374.51633 - H102
DATE MARCH 19, 2015

H-102

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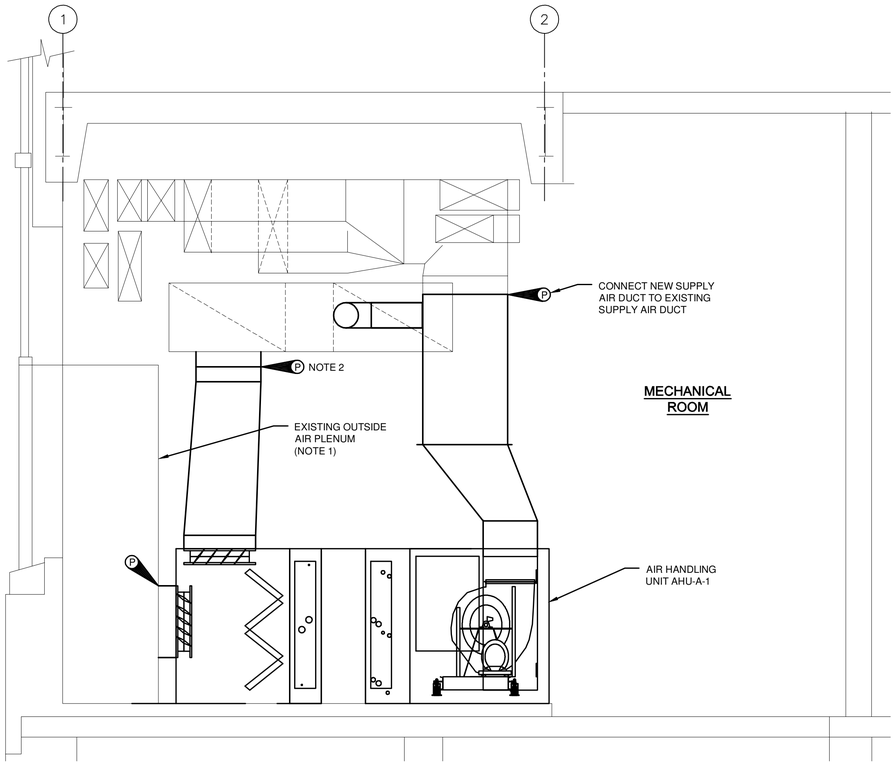
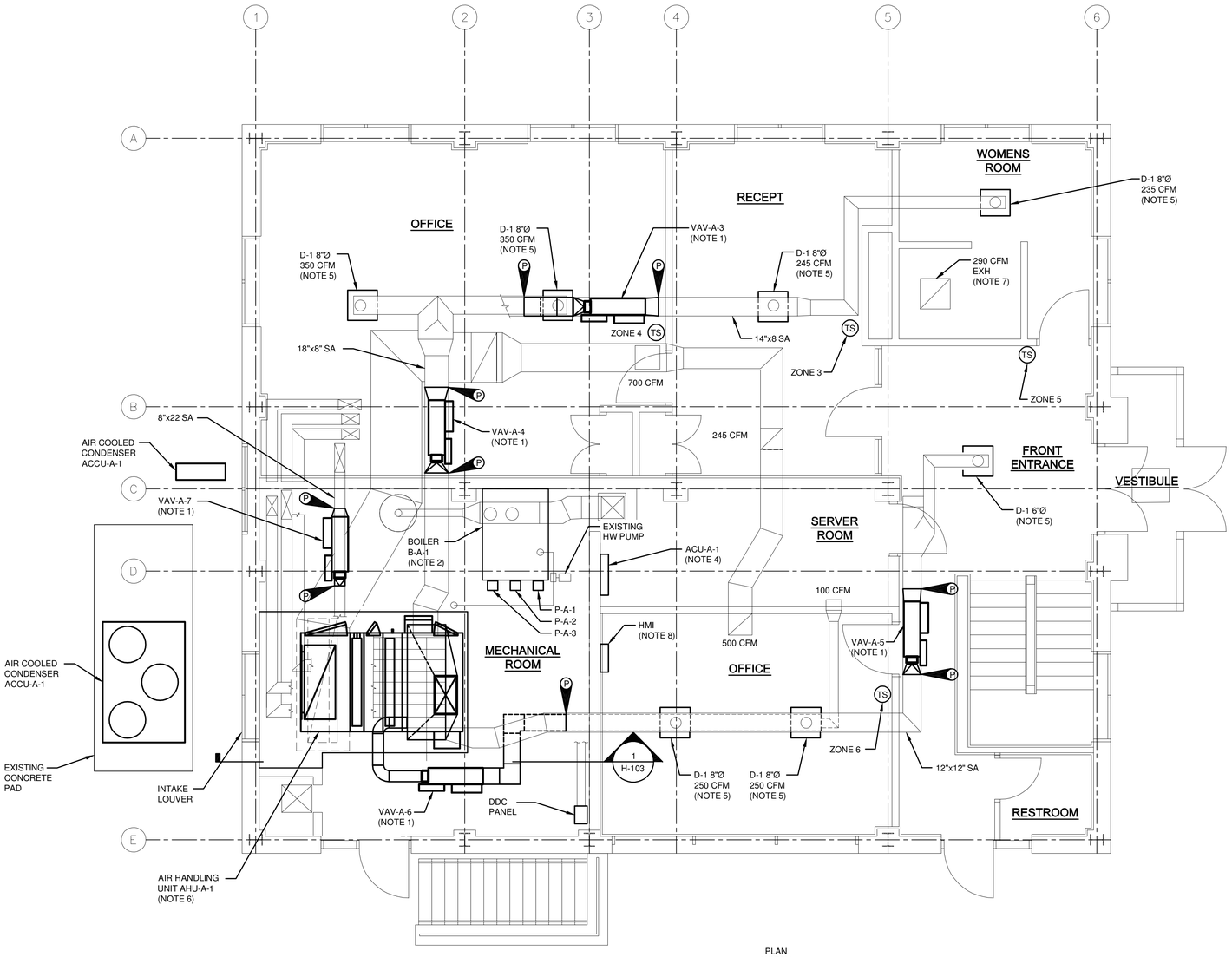


1 SECTION

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

SECTION NOTES:

1. CONNECT AHU-A-1 TO EXISTING OUTSIDE AIR PLENUM.
2. CONNECT NEW RETURN AIR DUCT TO EXISTING RETURN AIR DUCT.



FIRST FLOOR PLAN

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

PLAN NORTH

PLAN NOTES:

1. REMOVE EXISTING SUPPLY AIR DUCT AND INSTALL VAV BOX AND TRANSITIONS.
2. CONNECT BOILER TO EXISTING VENT AND CHIMNEY. REFER TO H-107 FOR BOILER PIPING SYSTEM SCHEMATIC.
3. BALANCE SUPPLY, RETURN AND EXHAUST AIR FLOWS.
4. PROVIDE REFRIGERANT LINES BETWEEN AC UNIT AND OUTDOOR CONDENSER ACC-A-1.
5. REPLACE EXISTING DIFFUSER AND ASSOCIATED FLEX DUCT
6. PROVIDE REFRIGERANT LINES BETWEEN AHU AND ACCU-A-1. PIPE CONDENSATE DRAIN TO FLOOR DRAIN IN MECHANICAL ROOM.
7. BALANCE RESTROOM EXHAUST SYSTEM TO AIR FLOWS SHOWN.
8. PROPOSED LOCATION OF HMI (DDC OPERATOR INTERFACE). COORDINATE FINAL LOCATION WITH OWNER.

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HVAC
ADMINISTRATION BUILDING

FIRST FLOOR PLAN

FILE NO. 23374.51633 - H103
DATE MARCH 19, 2015

H-103

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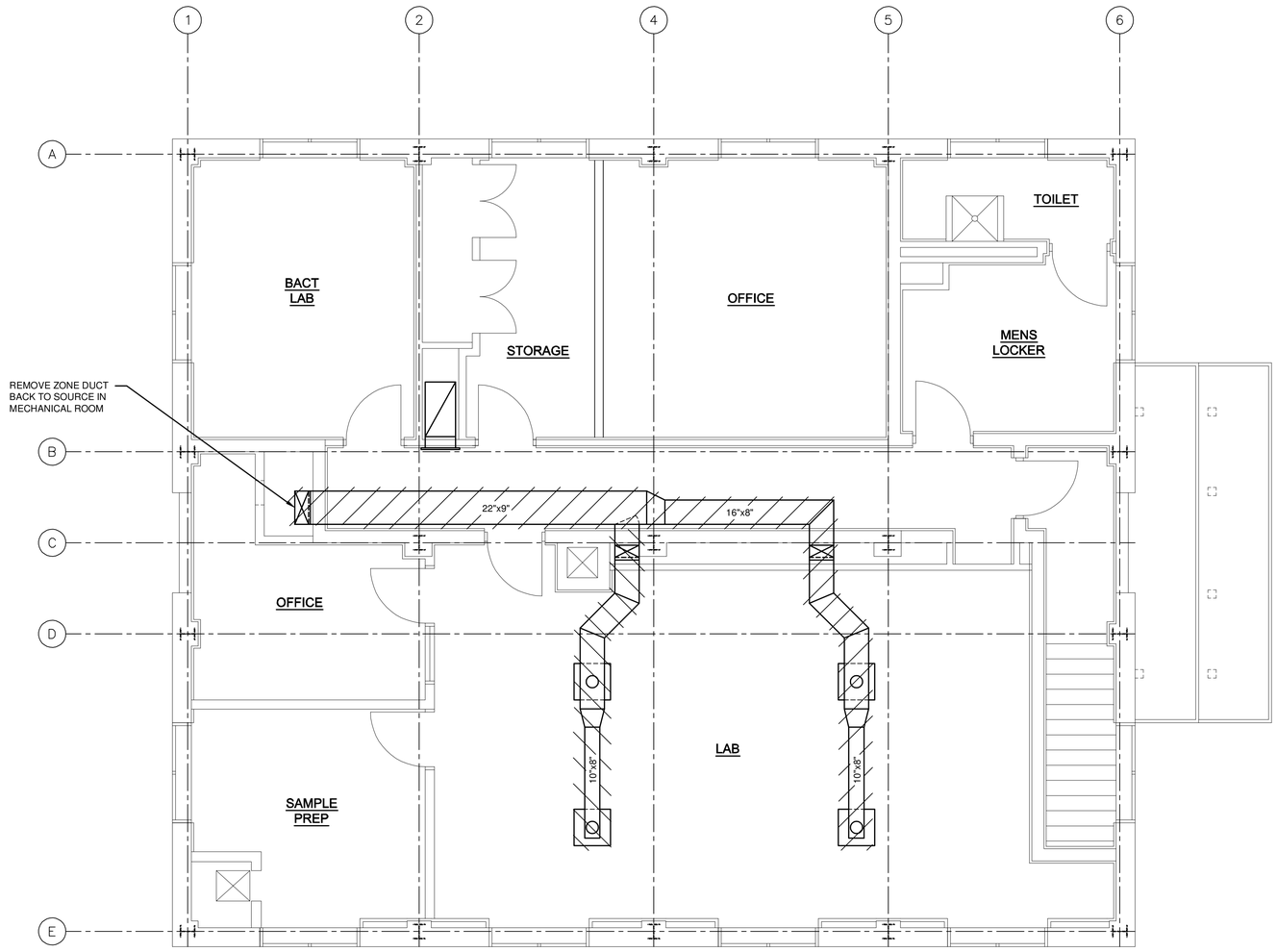

DRAWING NOTES:

1. REMOVE DUCTWORK BACK TO POINT OF DISCONNECTION.

SECOND FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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HVAC
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SECOND FLOOR
DEMOLITION PLAN

FILE NO. 23374.51633 -H104
DATE MARCH 19, 2015

H-104

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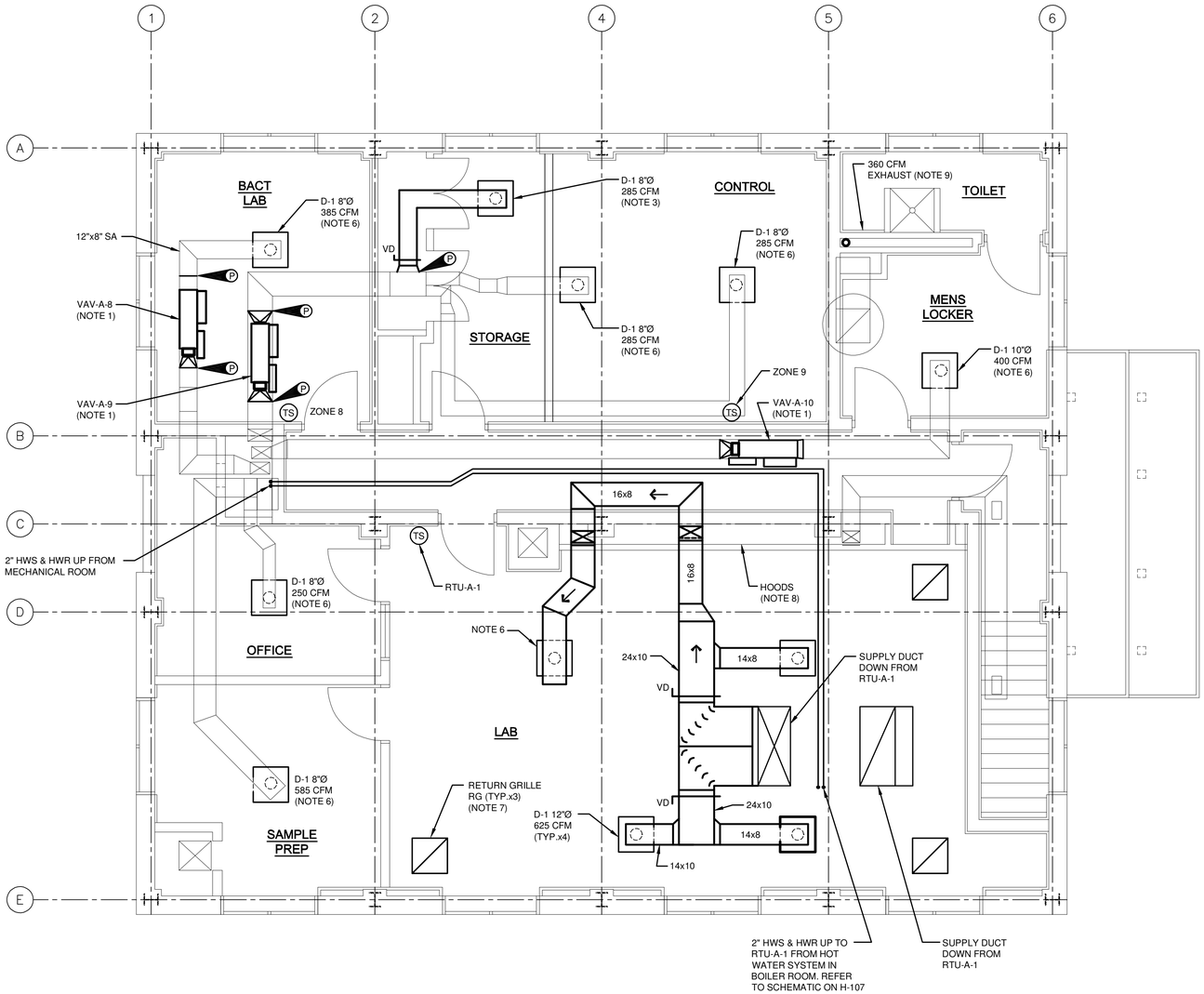

SECOND FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

NOTES:

1. REMOVE EXISTING SUPPLY AIR DUCT AND INSTALL VAV BOX AND TRANSITIONS.
2. EXTEND 10"x8" SA INTO CONTROL ROOM. CAP EXISTING 8"Ø TAKE-OFF.
3. PROVIDE NEW 8"Ø CONTROL TAKE-OFF, 8"Ø SA DUCT AND DIFFUSER TO SERVE STORAGE ROOM.
4. RA DUCT SIZE TO MATCH RTU CONNECTION. PROVIDE ELBOW WITH TURNING VANES IN CEILING PLENUM. PROVIDE WITH DUCT LINER.
5. BALANCE SUPPLY AND EXHAUST AIR FLOWS.
6. REPLACE EXISTING DIFFUSER AND ASSOCIATE FLEX DUCT.
7. PROVIDE TRANSITION ELBOW WITH 24"x12" OUTLET AND DUCT LINER ABOVE CEILING.
8. TWO FUME HOODS AND TWO CANOPY HOODS LOCATED ALONG WALL. INSTALL RELAY AT EACH EXISTING EXHAUST FAN (QTY. 4) AND USE TO PROVIDE INDICATION TO DDC CONTROL SYSTEM THAT FAN IS ON OR OFF.
9. BALANCE RESTROOM EXHAUST SYSTEM TO AIR FLOWS SHOWN.

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SECOND FLOOR PLAN

FILE NO. 23374.51633 -H105
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H-105

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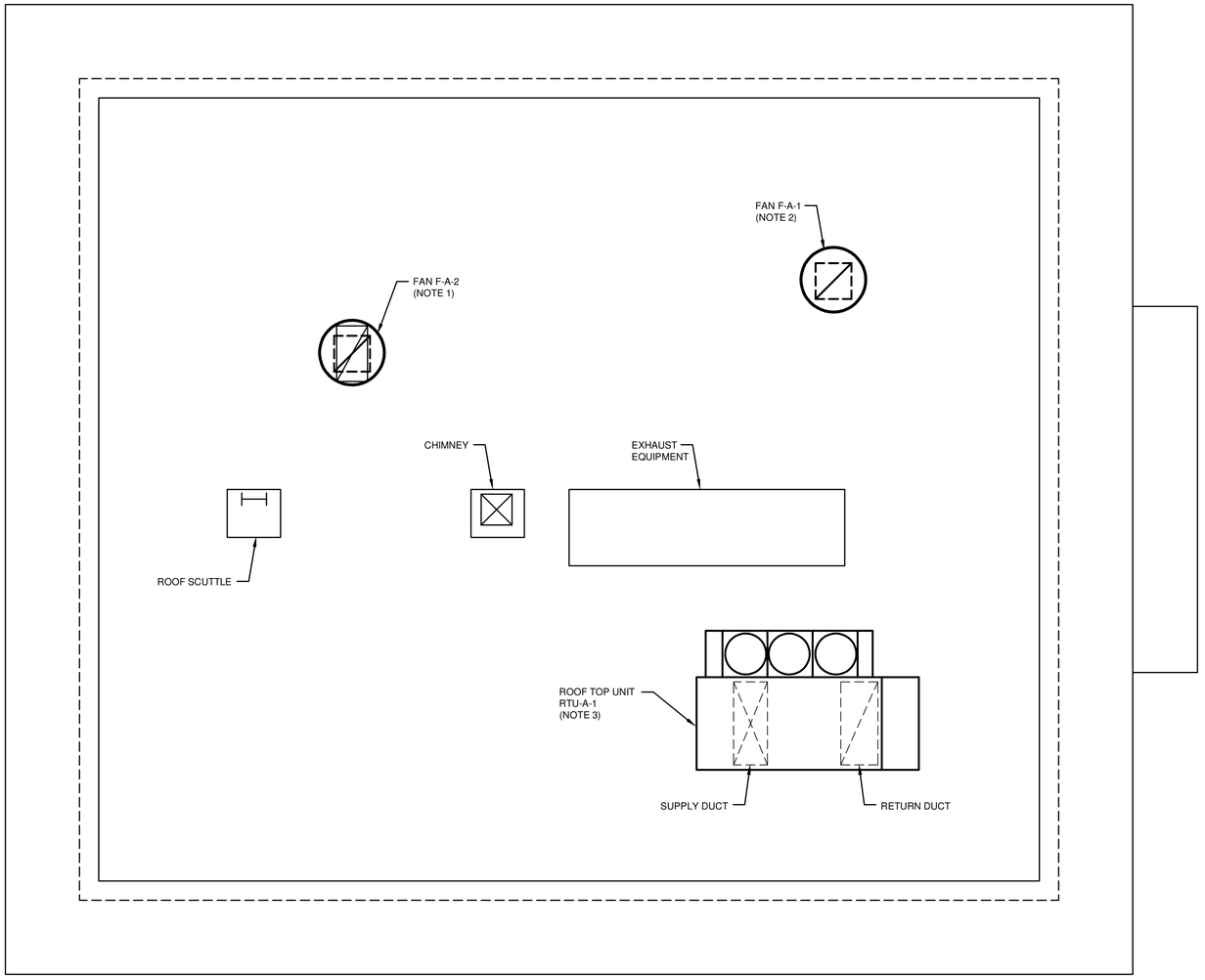
NOTES:

1. REMOVE EXISTING GRAVITY VENT HOOD. PROVIDE CURB ADAPTER TO TRANSITION FROM EXISTING CURB TO NEW FAN.
2. REMOVE EXISTING EXHAUST FAN. REPLACE WITH F-A-1. MOUNT ON EXISTING 30"x30" ROOF CURB.
3. INSTALL NEW ROOF TOP UNIT ON ROOF. PROVIDE ROOF PENETRATIONS AND ROOF FLASHING AS REQUIRED.



ROOF PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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ROOF PLAN

FILE NO. 23374.51633 - H106
DATE MARCH 19, 2015

H-106

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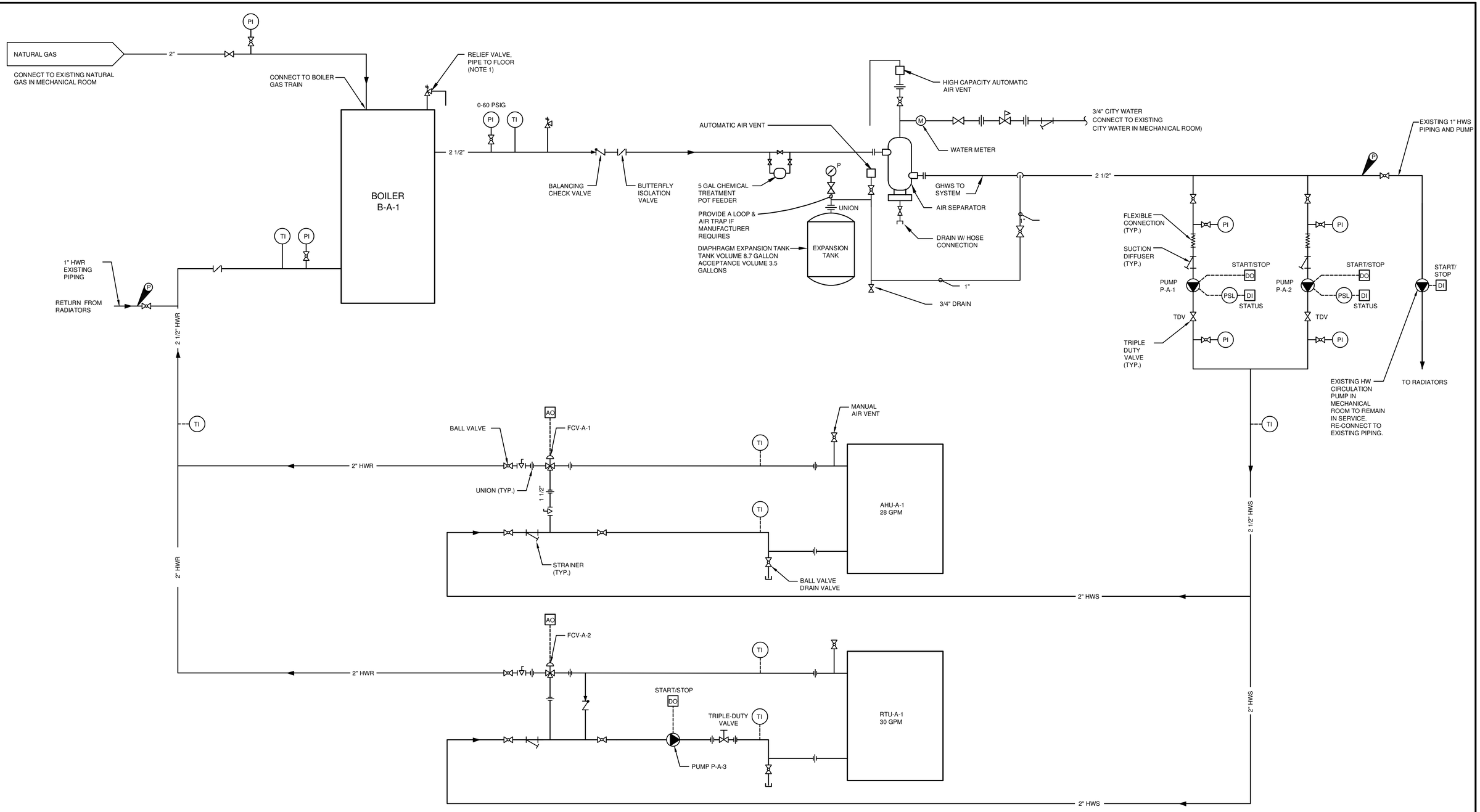

NOTE:

1. ROUTE PIPING ALONG HOUSEKEEPING PAD TO DISCHARGE NEAR FLOOR DRAIN.

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HVAC
ADMINISTRATION BUILDING

HYDRONIC PIPING SCHEMATIC

FILE NO. 23374.51633 -H107
DATE MARCH 19, 2015

H-107

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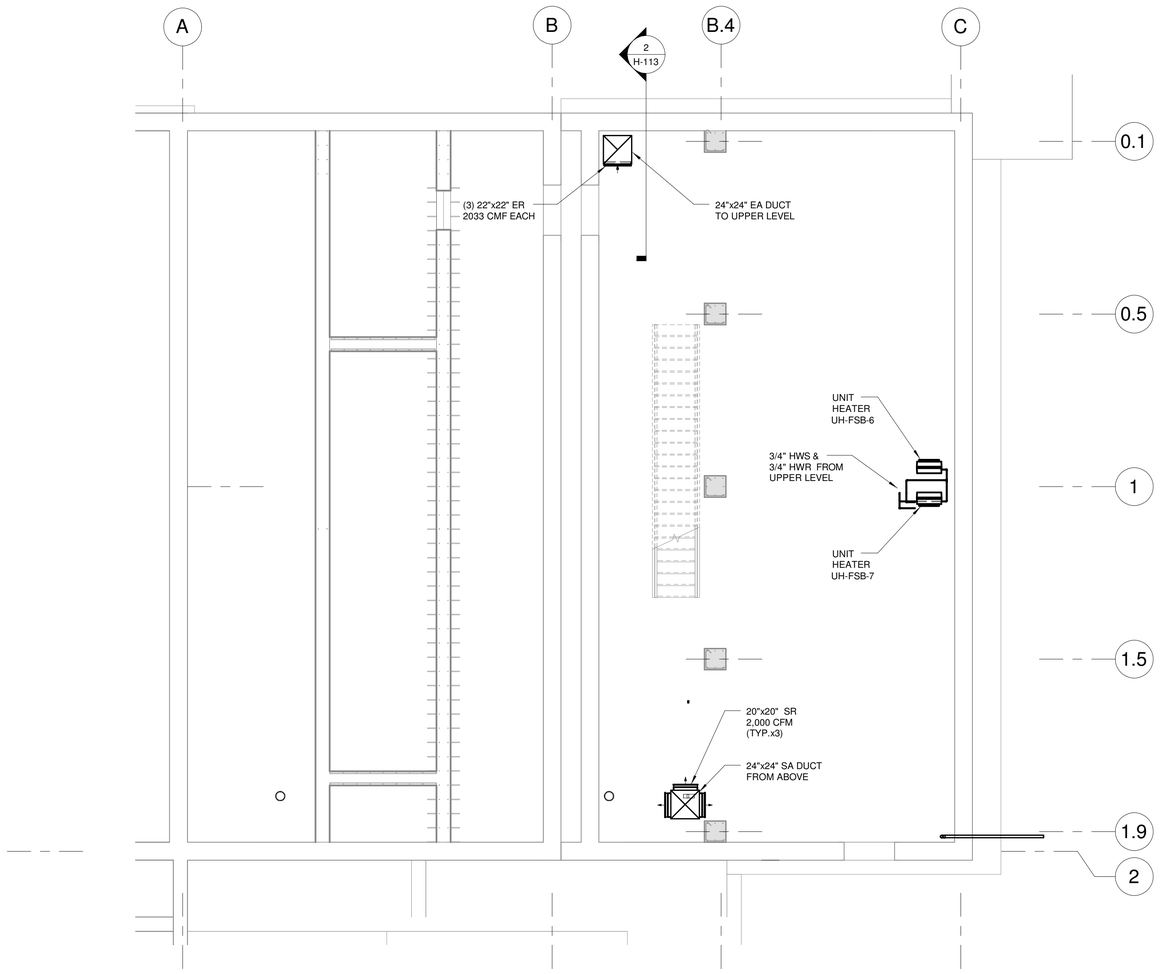

PIPE GALLERY PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

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MASSILLON, OHIO

HVAC
FINE SCREENING BUILDING

PIPE GALLERY PLAN

FILE NO.
23374.51633- H108

DATE
MARCH 19, 2015

H-108

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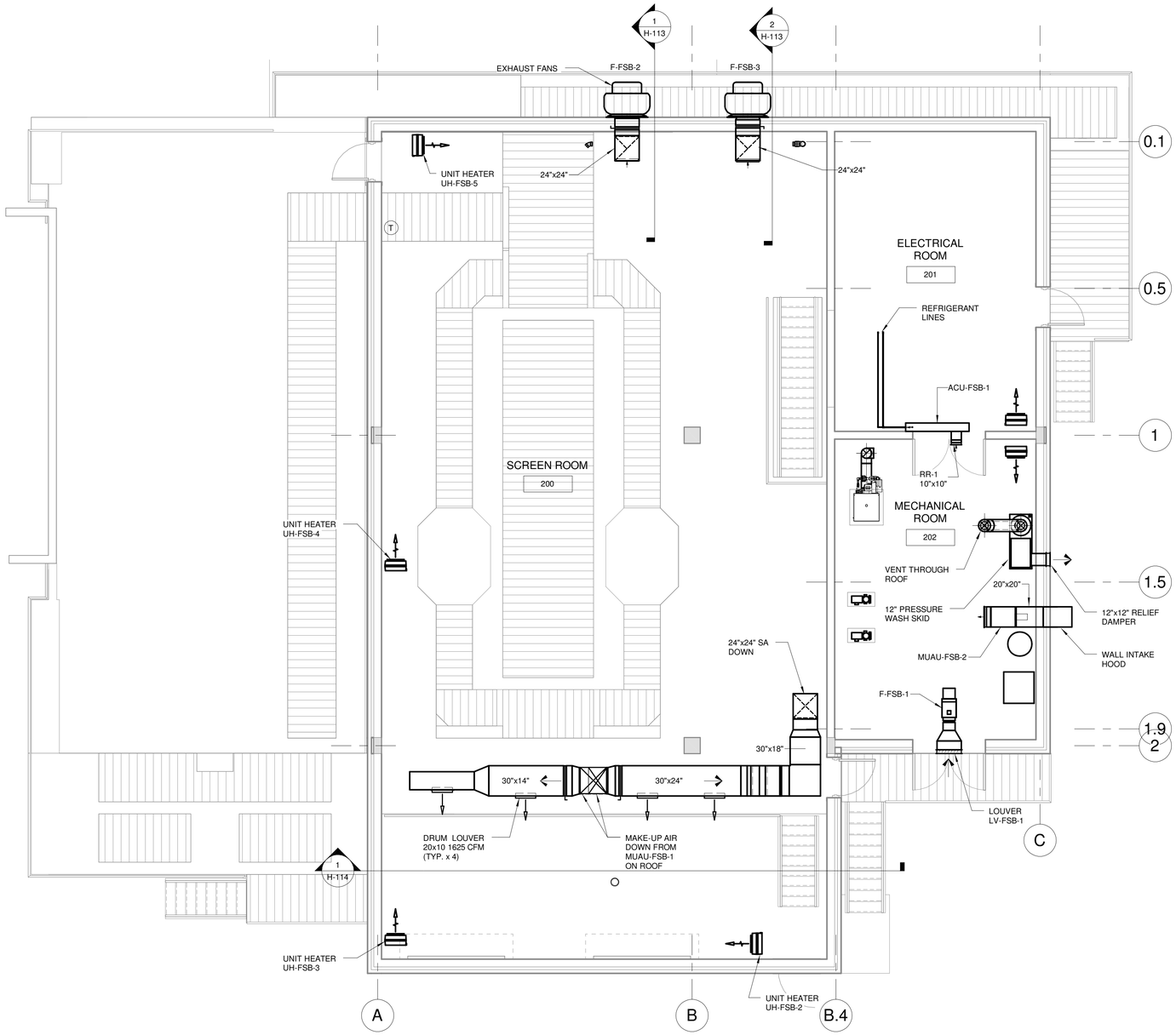

SCREEN LEVEL PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

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PLAN

FILE NO.
23374.51633- H109

DATE
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H-109

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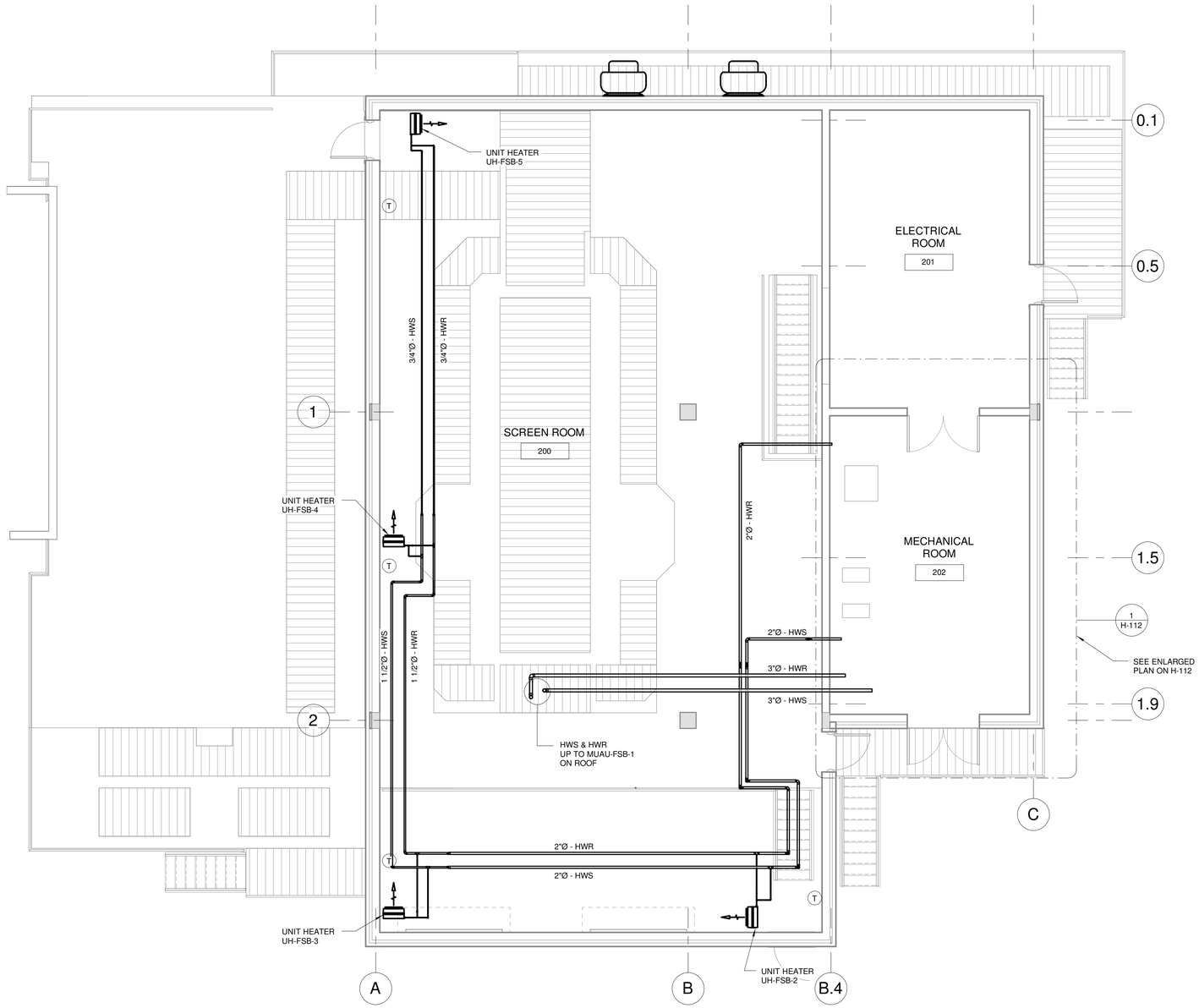

NOTES:

1. REFER TO H-116 FOR PIPING SCHEMATIC.

PLAN
3/16" = 1'-0"
5' 0 5'

PLAN NORTH

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PIPING PLAN

FILE NO. 23374.51633- H110
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H-110

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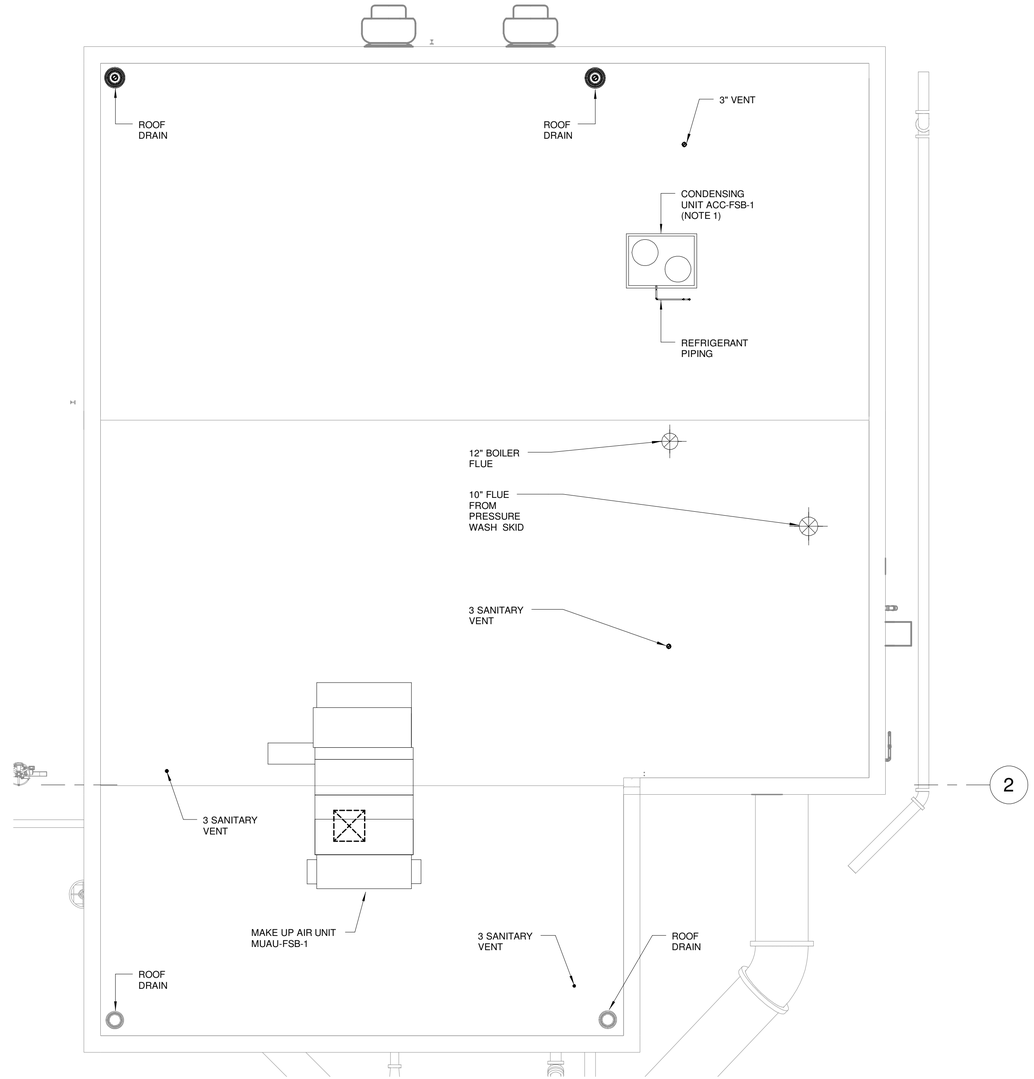

NOTE:

1. PROVIDE MUAU CONFIGURATION TO ACCOMODATE ROOF SUPPORT BEAM AT COLUMN LINE 2.

ROOF PLAN

3/16" = 1'-0" 5' 0 5'

PLAN NORTH

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ROOF PLAN

FILE NO. 23374.51633- H111

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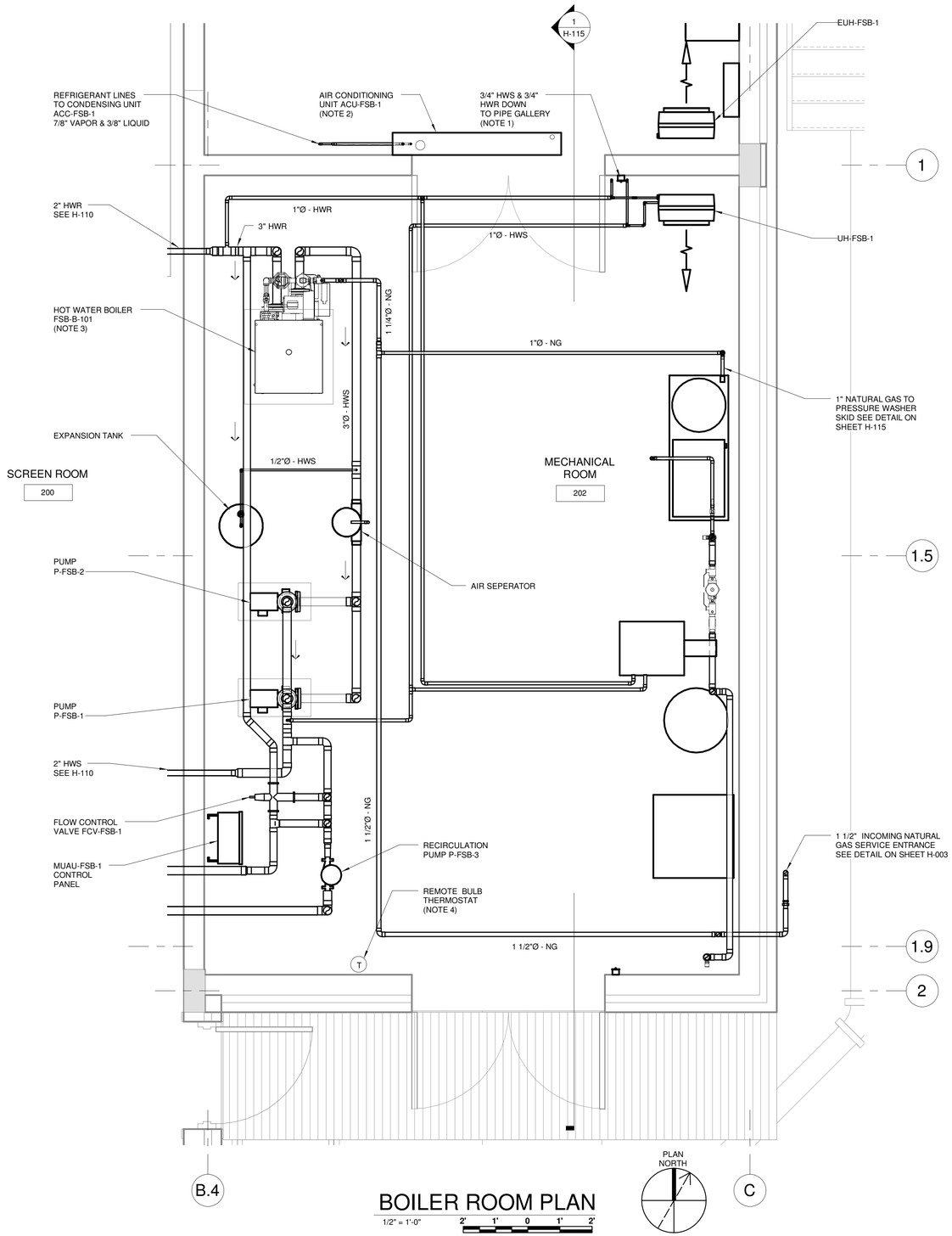

BOILER ROOM PLAN

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

NOTES:

1. SEAL WALL AND FLOOR PENETRATIONS GAS-TIGHT. SEE H-108 FOR CONTINUATION.
2. PIPE CONDENSATE DRAIN THROUGH BOILER ROOM WALL AND TERMINATE AT FLOOR LEVEL NEAR DRAIN BEHIND BOILER.
3. REFER TO PIPING SCHEMATIC ON SHEET H-116.
4. SENSING OUTDOOR AIR TEMPERATURE. PROVIDE WITH WEATHER TIGHT SHIELD.

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MASSILLON, OHIO

HVAC
FINE SCREENING BUILDING

ENLARGED BOILER ROOM PLAN

FILE NO. 23374.51633- H112

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H-112

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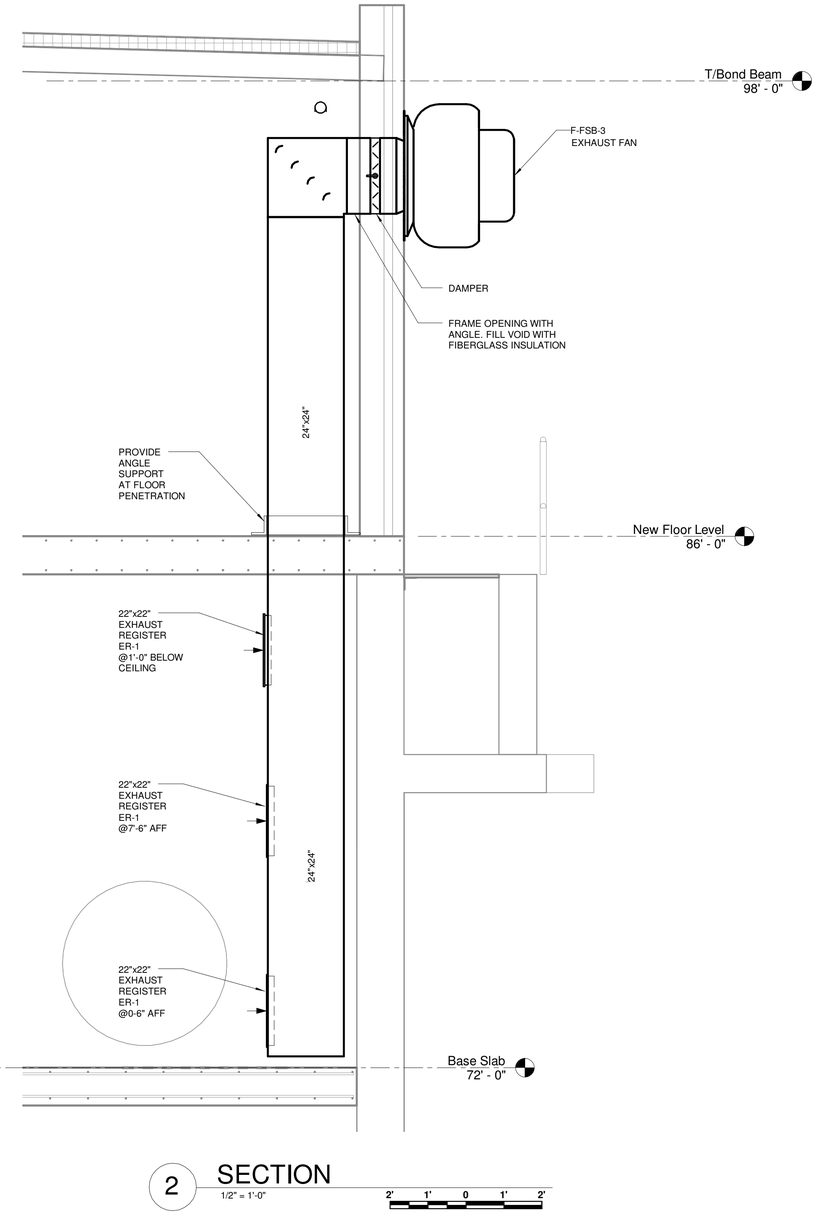
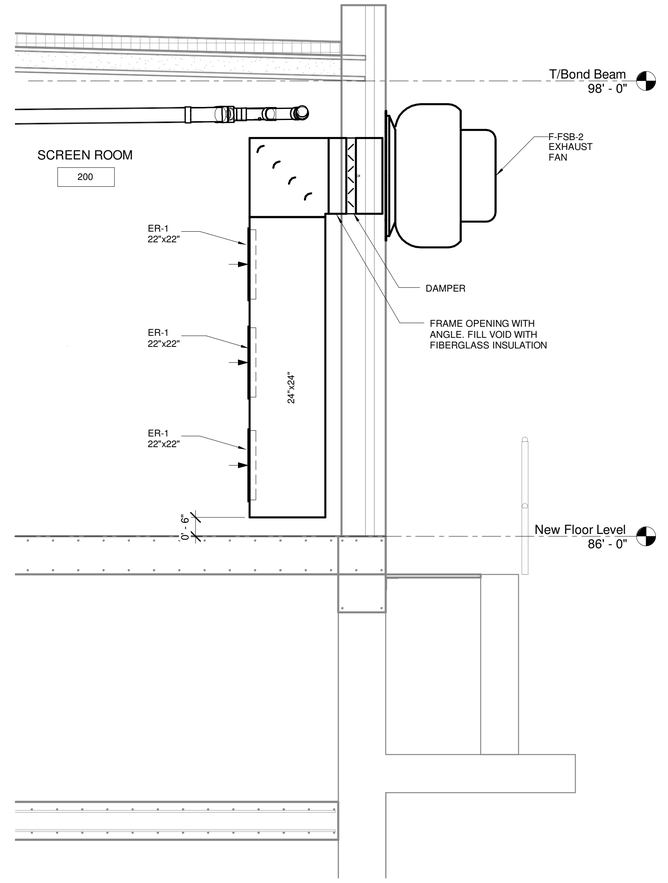


2 SECTION
1/2" = 1'-0"
2' 1' 0 1' 2'



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

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FINE SCREENING BUILDING

SECTIONS I

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MARCH 19, 2015

H-113

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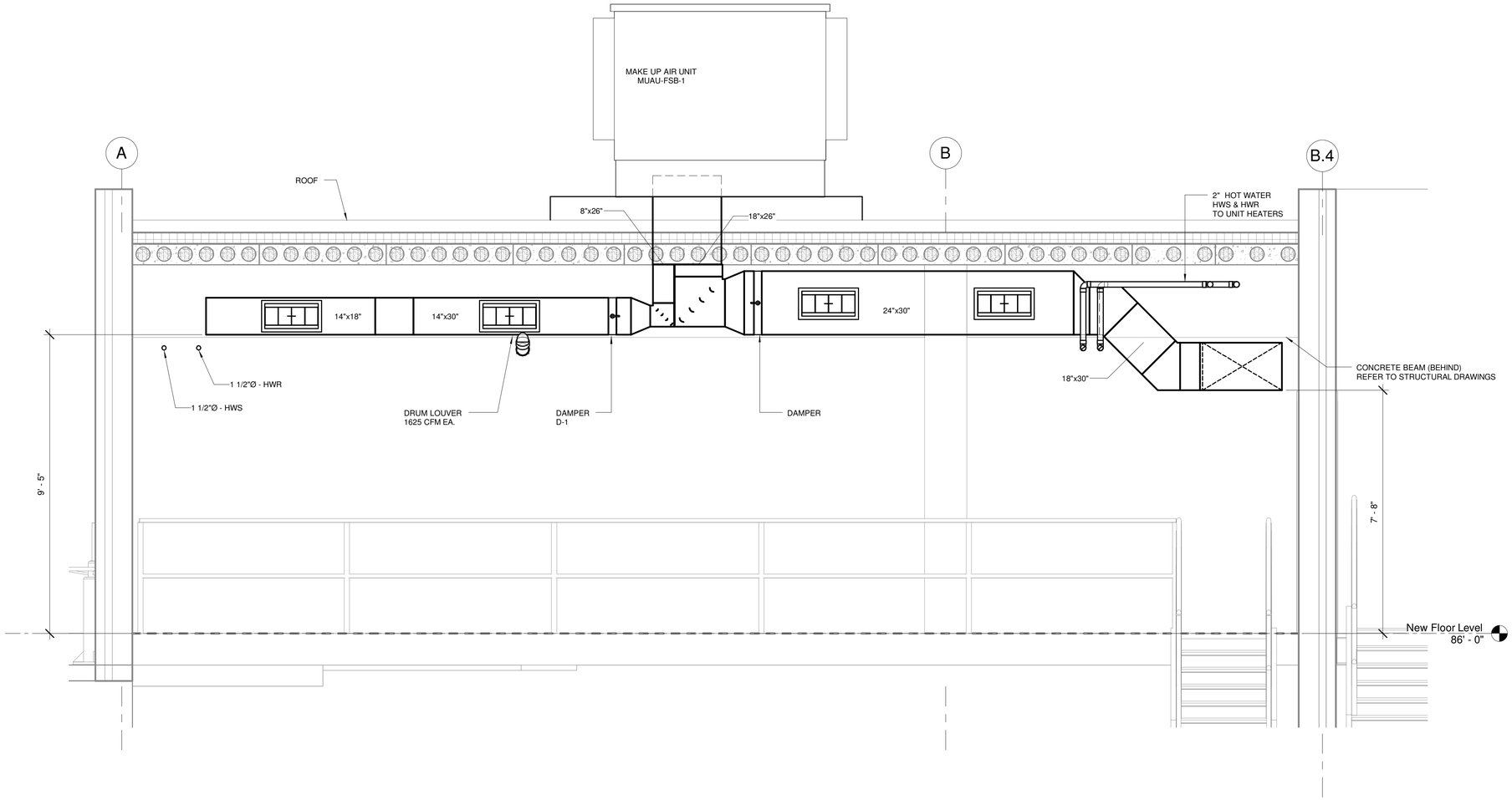

SECTION

1/2" = 1'-0"

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
FINE SCREENING BUILDING

SECTIONS II

FILE NO.
23374.51633- H114

DATE
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H-114

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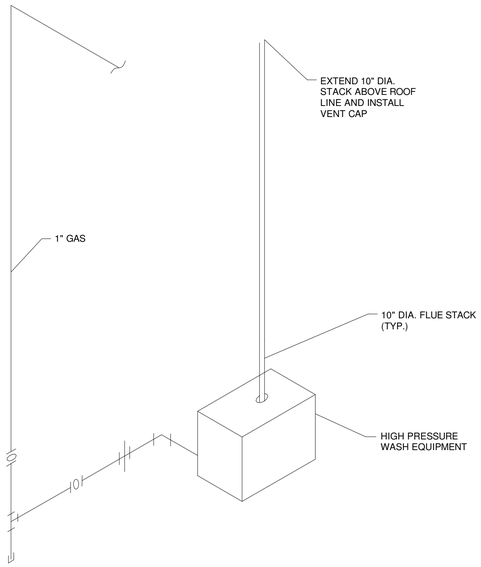
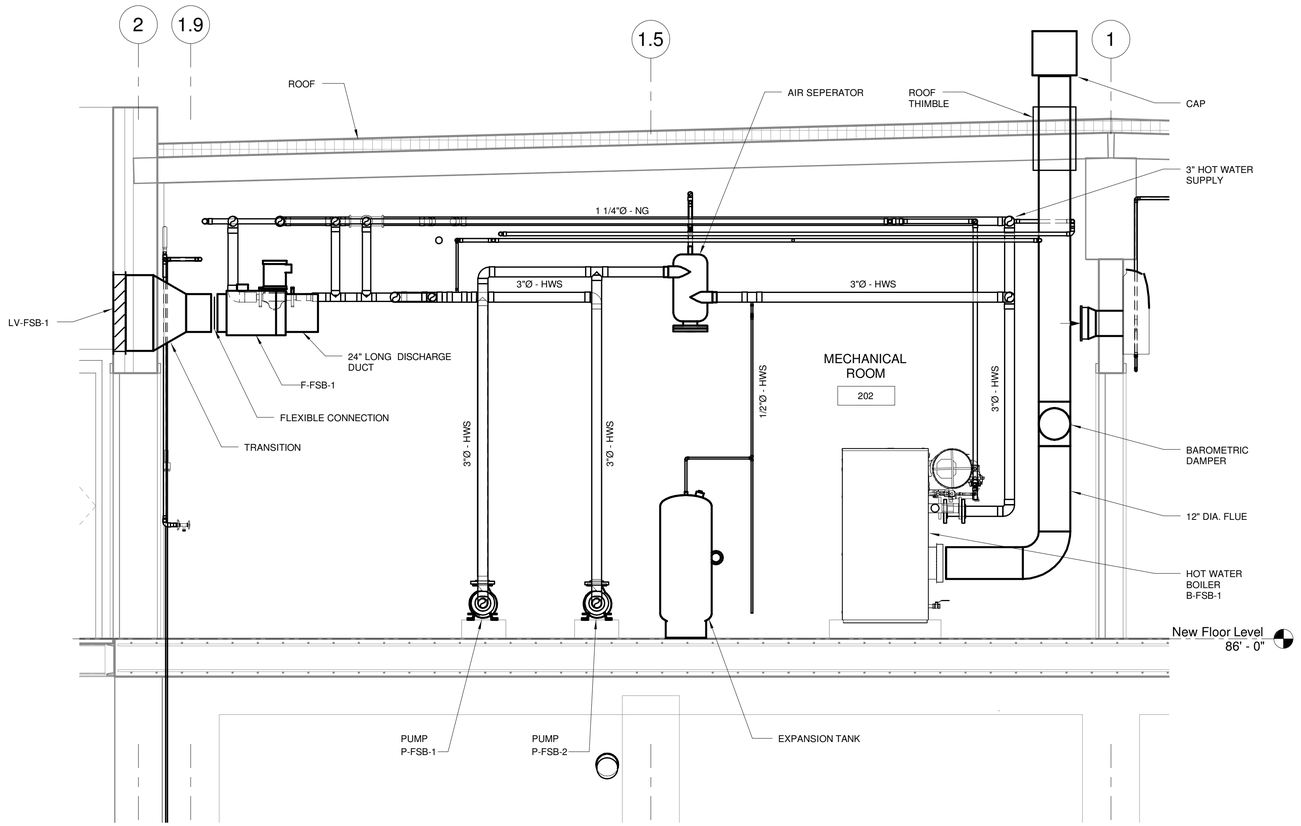


PRESSURE WASH EQUIPMENT DETAIL

12" = 1'-0"

DETAIL NOTE

1. CONTRACTOR SHALL INSTALL DRAFT DIVERTER AND DOWN DRAFT PREVENTION MUST BE INCLUDED PER THE EQUIPMENT MANUFACTURER'S RECOMMENDATION.



1 SECTION

1/2" = 1'-0"

2' 1' 0 1' 2'

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
FINE SCREENING BUILDING

SECTION & DETAIL

FILE NO. 23374.51633- H115

DATE MARCH 19, 2015

H-115

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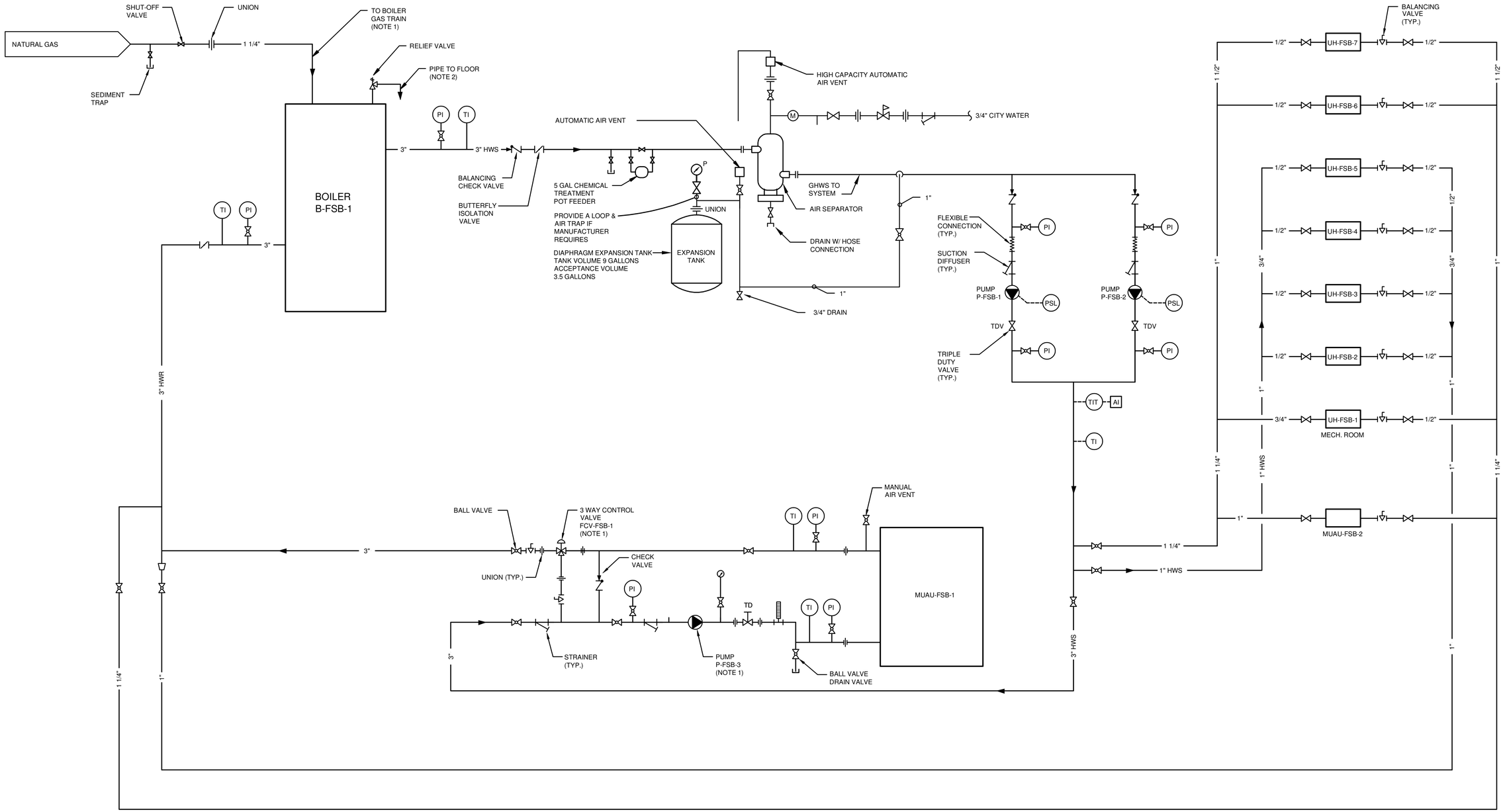

NOTE:

1. PROVIDE DRIP LEG UPSTREAM OF GAS TRAIN.
2. DISCHARGE NEAR FLOOR DRAIN.

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MASSILLON, OHIO

HVAC
FINE SCREENING BUILDING

HYDRONIC PIPING SCHEMATIC

FILE NO. 23374.51633 -H116
DATE MARCH 19, 2015

H-116

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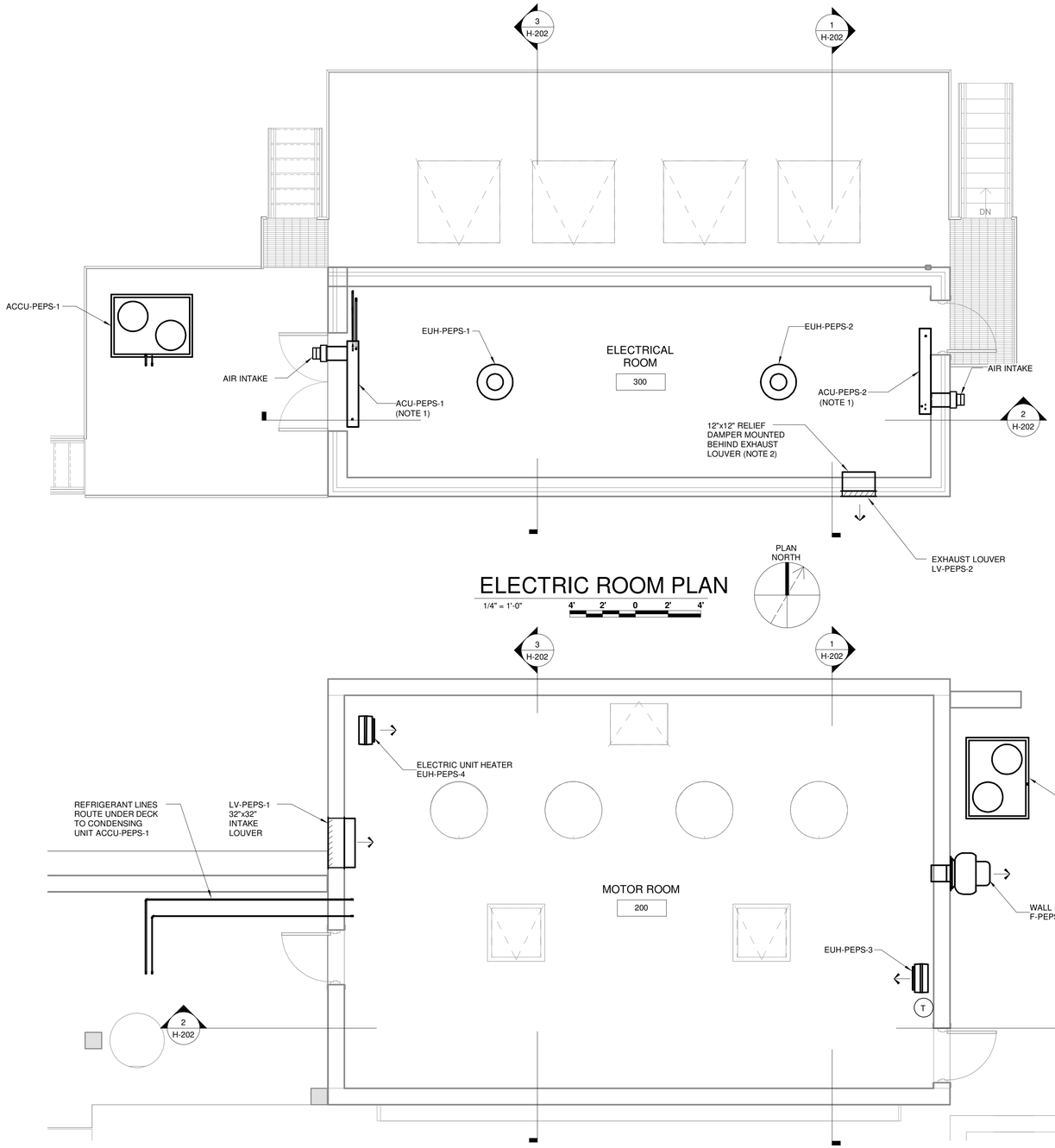

ELECTRIC ROOM PLAN

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

MOTOR ROOM PLAN

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

NOTES:

1. PROVIDE REFRIGERANT LINES ROUTED TO CONDENSING UNIT. PROVIDE CONDENSATE DRAIN ROUTED TO EXTERIOR NEAR FLOOR LEVEL.
2. RELIEF DAMPER SHALL OPEN AT 0.1" WC MAXIMUM.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
PRIMARY EFFLUENT PUMP STATION

PLANS

FILE NO. 23374.51633- H201

DATE MARCH 19, 2015

H-201

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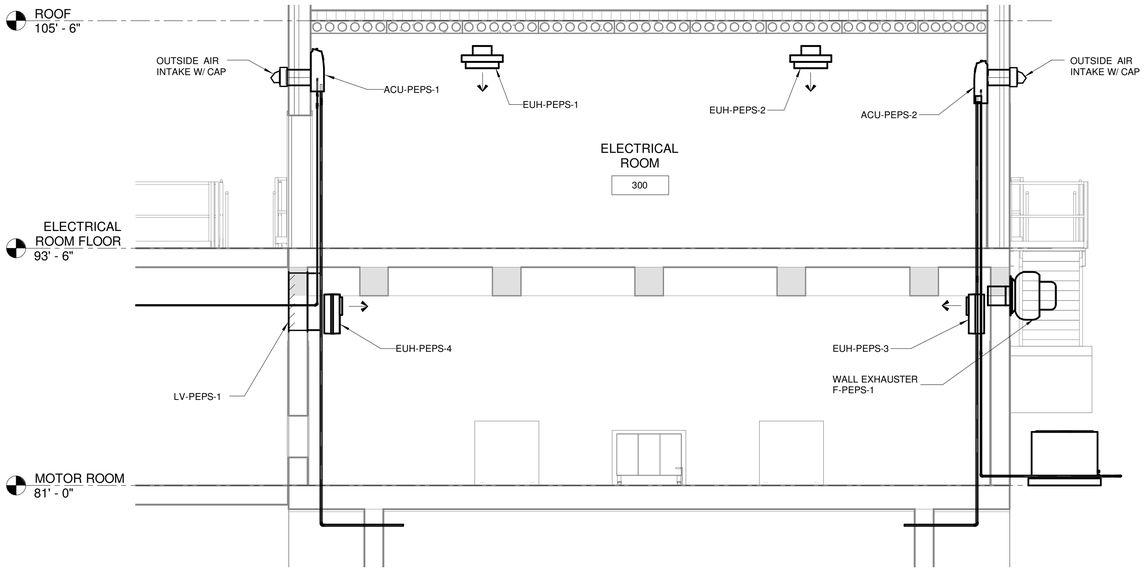
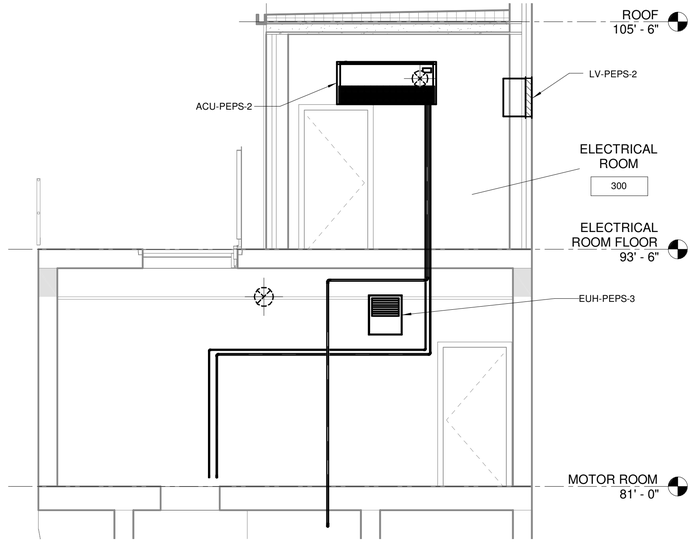
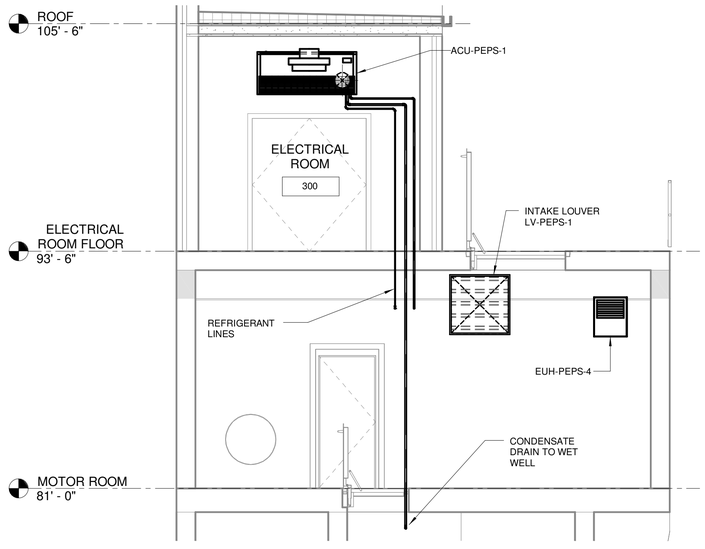


2 SECTION
1/4" = 1'-0"
4' 2' 0 2' 4'



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



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

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
PRIMARY EFFLUENT PUMP STATION

SECTIONS

FILE NO.
23374.51633- H202

DATE
MARCH 19, 2015

H-202

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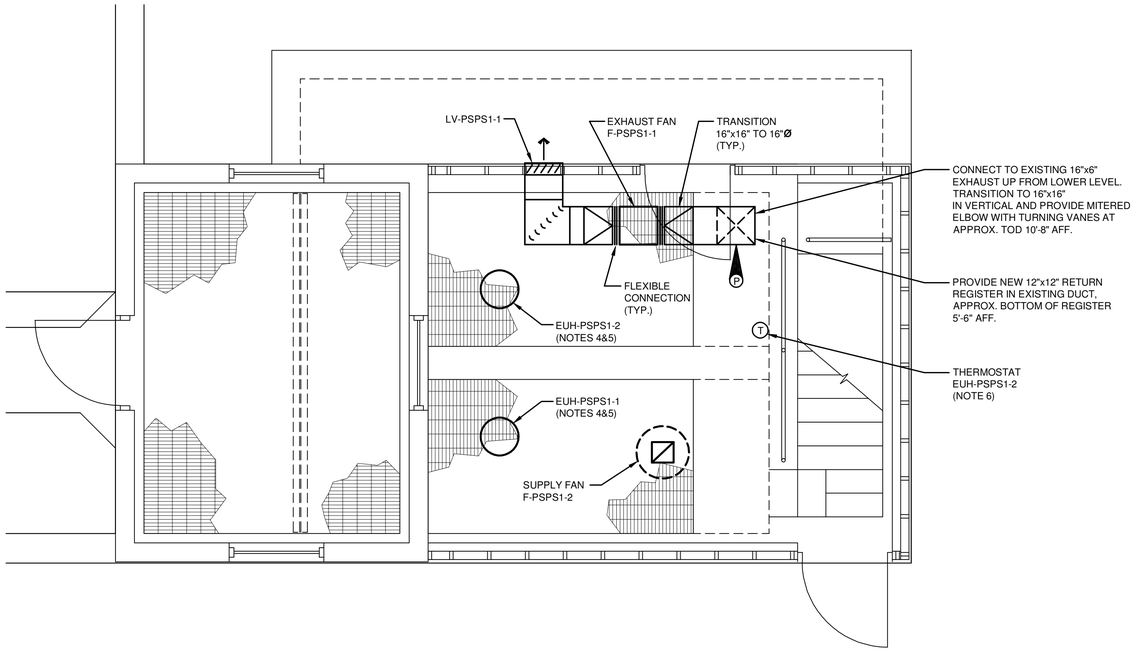
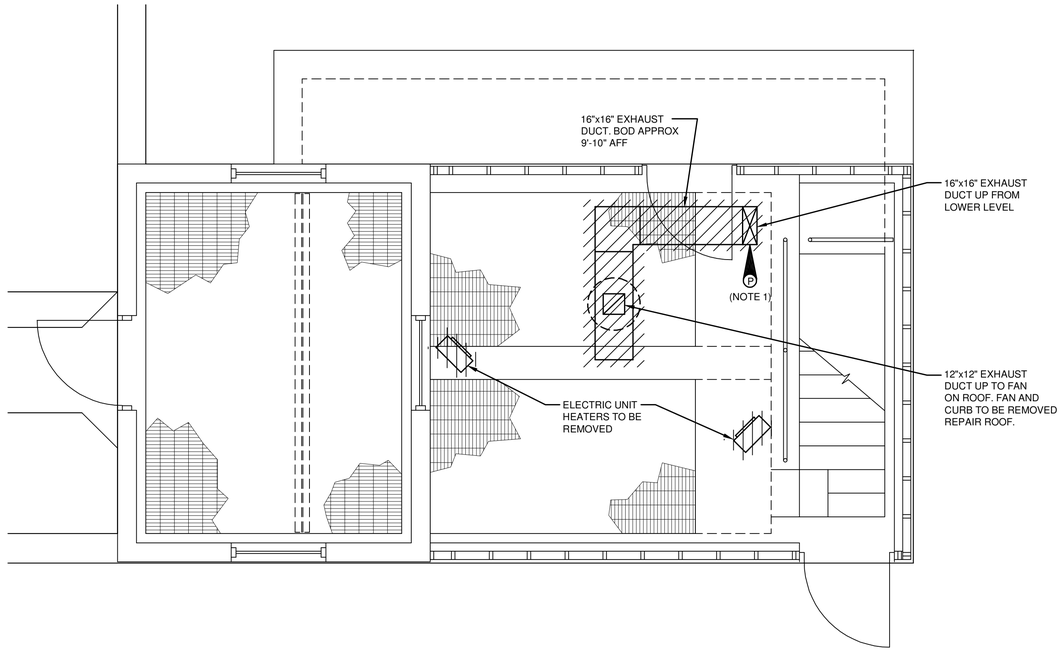


2 INSTALL PLAN

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

PLAN NORTH



1 REMOVALS PLAN

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

PLAN NORTH

MODIFICATION PLAN NOTES:

1. ON LOWER LEVEL REPLACE EXISTING 12"x12" RETURN GRILLE WITH 12"x12" RETURN REGISTER (GRILLE WITH DAMPER)
2. MOUNT FAN TO RAFTERS WITH VIBRATION ISOLATORS. PROVIDE BRACING BETWEEN RAFTERS FOR FAN SUPPORT.\
3. BALANCE RETURN REGISTER AIR FLOW RATES TO 275 CFM AT LOWER LEVEL AND 275 CFM AT UPPER LEVEL.
4. MOUNT UNIT HEATER TO WOOD FRAME RAFTERS.
5. PROVIDE REMOTE THERMOSTAT LOCATED ON WALL IN LOWER LEVEL.
6. MOUNT THERMOSTAT ON WALL IN LOWER LEVEL.

REMOVALS NOTE:

1. REMOVE EXHAUST DUCT BACK TO POINT APPROXIMATELY 7'-0" AFF.

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
PRIMARY SLUDGE PUMP STATION NO. 1
HVAC REMOVALS & INSTALL PLANS

FILE NO. 23374.51633 - H203
DATE MARCH 19, 2015

H-203

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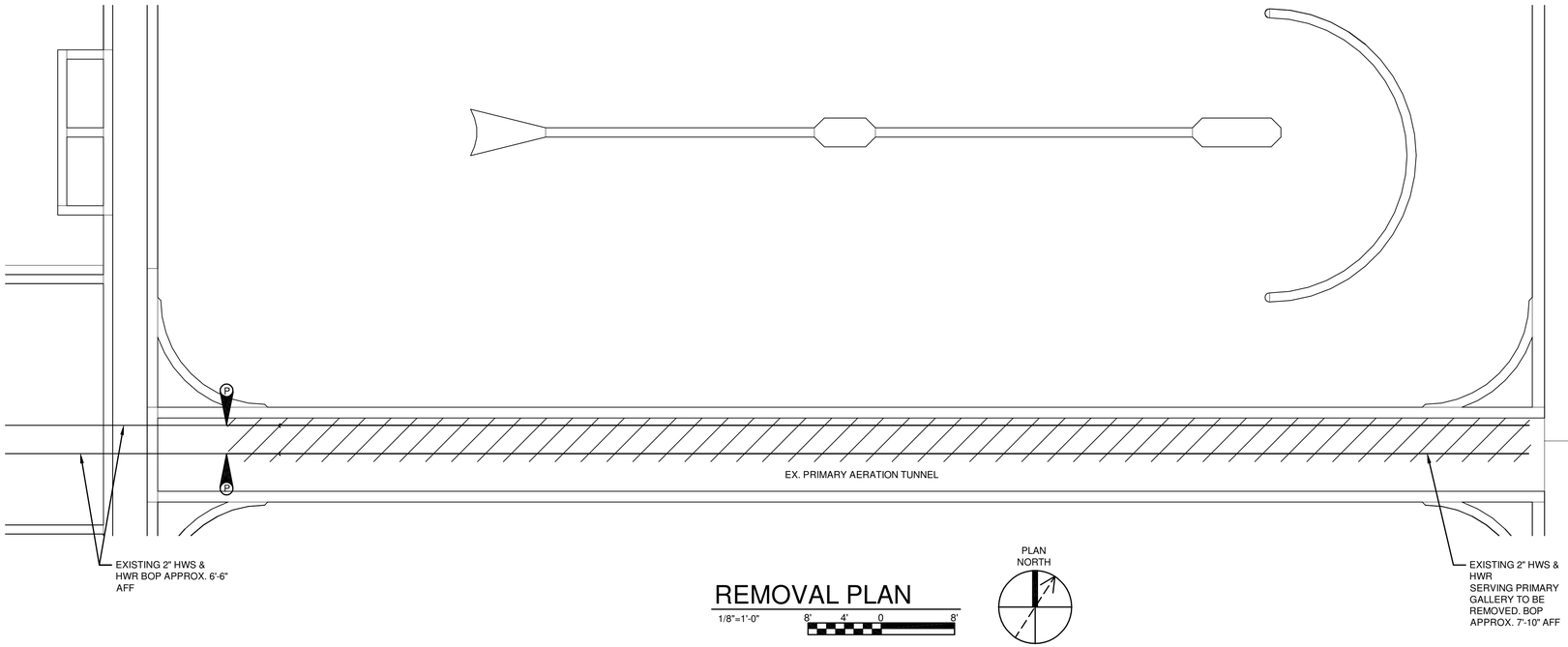
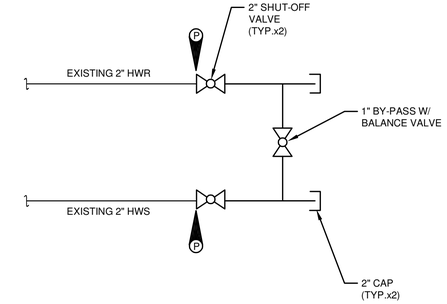


REMOVAL PLAN

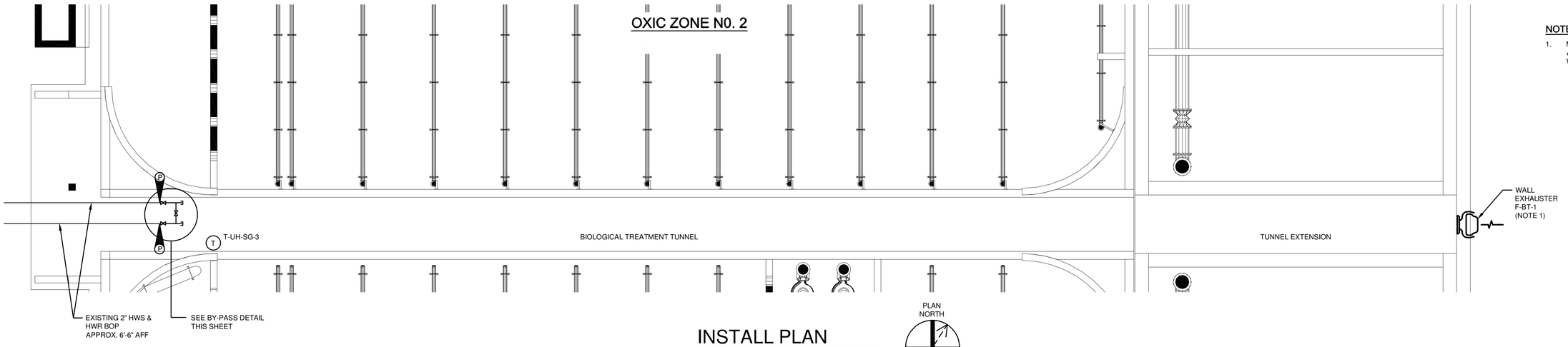
1/8"=1'-0" 8' 4' 0 8'

PLAN NORTH



BY-PASS DETAIL

NOT TO SCALE



INSTALL PLAN

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

PLAN NORTH

NOTES:

1. MOUNT WALL EXHAUSTER ABOVE DOOR. PROVIDE WALL PENETRATION.

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
BIOLOGICAL REACTOR TANKS

REMOVAL & INSTALL PLANS

FILE NO. 23374.51633 - H301
DATE MARCH 19, 2015

H-301

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G F E D C B A

EXISTING BUILDING HEAT BOILERS

BOILER

BOILER

PUMP

PUMP

2.0 METER GRAVITY THICKENER (GBT)

2.0 METER GRAVITY THICKENER (GBT)

GBT CONTROL PANEL

2.0 METER BELT FILTER PRESS(BFP)

2.0 METER BELT FILTER PRESS(BFP)

BFP CONTROL PANEL

E1.5

6" CONVEYOR CAKE DISCHARGE

HWR DOWN FROM ABOVE

HWS & HWR DOWN FROM ABOVE (H-602)

HPHR

EXISTING 2" BOILER HOT WATER RETURN. CUT IN TEE & VALVE (NOTE 1).

EXISTING 2" BOILER HOT WATER RETURN. CUT IN TEE & VALVE (NOTE 1).

5" DHWR UP FROM TUNNEL ENTRANCE (NOTES 1 & 2)

EXISTING 6" DIGESTER GAS UP FROM TUNNEL ENTRANCE TO BE REMOVED. (CONTINUED ON H-603) (NOTE 1)

REMOVE UH-SHB-8 (NOTE 3)

REMOVE UH-SHB-9 (NOTE 3)

UP

UP

DN

DN

TO SECOND FLR

DRAWING NOTES:

1. COORDINATE SHUT DOWN WITH OWNER.
2. REMOVE ABANDONED 2" GALV. STEEL PIPE. CUT 5" DHWR AND INSTALL TEE AT APPROX. 7'-0 AFF. INSTALL SHUT-OFF VALVE DOWNSTREAM. INSTALL SHUT-OFF VALVE WITH BLIND FLANGE ON OUTLET.
3. REMOVE EXISTING HOT WATER UNIT HEATER. REMOVE HWS & HWR RUNOUTS BACK TO MAIN.

FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
1ST FLOOR PRE-REMOVALS & TIE IN PLAN

FILE NO. 23374.51633 - H601

DATE MARCH 19, 2015

H-601

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REMOVE UH-SHB-2 (NOTE 4)

REMOVE UH-SHB-1 (NOTE 4)

12'-0" ROLL UP DOOR

10'-0" ROLL UP DOOR

CO

DN

HWR TO BELOW

EXISTING DIGESTER HEAT BOILERS

EXISTING 2" BUILDING HOT WATER SUPPLY (BHWS). REMOVE PIPE, INSTALL TEE & VALVES (NOTES 1 & 5)

BOILER

BOILER

BOILER

MUAU

EXP. TANK

EXP. TANK

EXP. TANK

BOILER

UP

TO SECOND FLR

UP

EXISTING 6" DIGESTER HOT WATER SUPPLY. (DHWS) INSTALL TEE & VALVES (NOTE 1)

EXISTING 2" BUILDING HOT WATER SUPPLY (BHWS). REMOVE PIPE, INSTALL TEE & VALVES (NOTES 1 & 5)

REMOVE UH-SHB-5 (NOTE 4)

DRAWING NOTES:

1. COORDINATE SHUT DOWN WITH OWNER.
2. DUCT REMOVAL SHALL INCLUDE DUCT, FITTINGS, SUPPORTS, DRAIN PIPING AND ALL OTHER SYSTEM COMPONENTS. PATCH AND REPAIR BUILDING TO MATCH EXISTING.
3. EXISTING 2" PIPE AT EL. 95.00 +/-.
4. REMOVE EXISTING HOT WATER UNIT HEATER. REMOVE HWS & HWR RUNOUTS BACK TO MAIN.
5. RELOCATE EXISTING PUMP TO PROVIDE SPACE FOR NEW COMPONENTS.

REMOVE ABANDONED PIPE HANGERS IN THIS AREA

REMOVE DUCTWORK BACK TO POINT SHOWN AND CAP (NOTE 2)

EXISTING ODOR CONTROL DUCTWORK

EXISTING 2" BOILER HOT WATER RETURN (BHWS) INSTALL TEE & VALVES (NOTE 1)

REMOVE EXISTING UH-SHB-7 AND ASSOCIATED PIPING (NOTE 1)

REMOVE EXISTING UH-SHB-6 AND ASSOCIATED PIPING (NOTE 1)

CAP

REMOVE 42"Ø FRP DUCT (NOTE 2)

NOTE 3

REMOVE EXISTING BOILER HOT WATER SUPPLY AND RETURN PIPING (NOTE 1)

PIPING AT COLUMN TO BE REMOVED AND RECONNECTED SEE ENLARGED PLAN ONE SHEET H-607

REMOVE 18"Ø FRP DUCT

PATCH WALL PENETRATION

REMOVE UH-SHB-3 (NOTE 4)

REMOVE UH-SHB-4 (NOTE 4)

EXISTING 6" NATURAL GAS. REMOVE PIPE FROM VERTICAL RISE INSTALL TEE & VALVE (NOTE 1)

MCC

OVERHEAD DOOR

PLAN NORTH

FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
2ND FLOOR PRE-REMOVALS & TIE IN PLAN

FILE NO. 23374.51633 - H602
DATE MARCH 19, 2015

H-602

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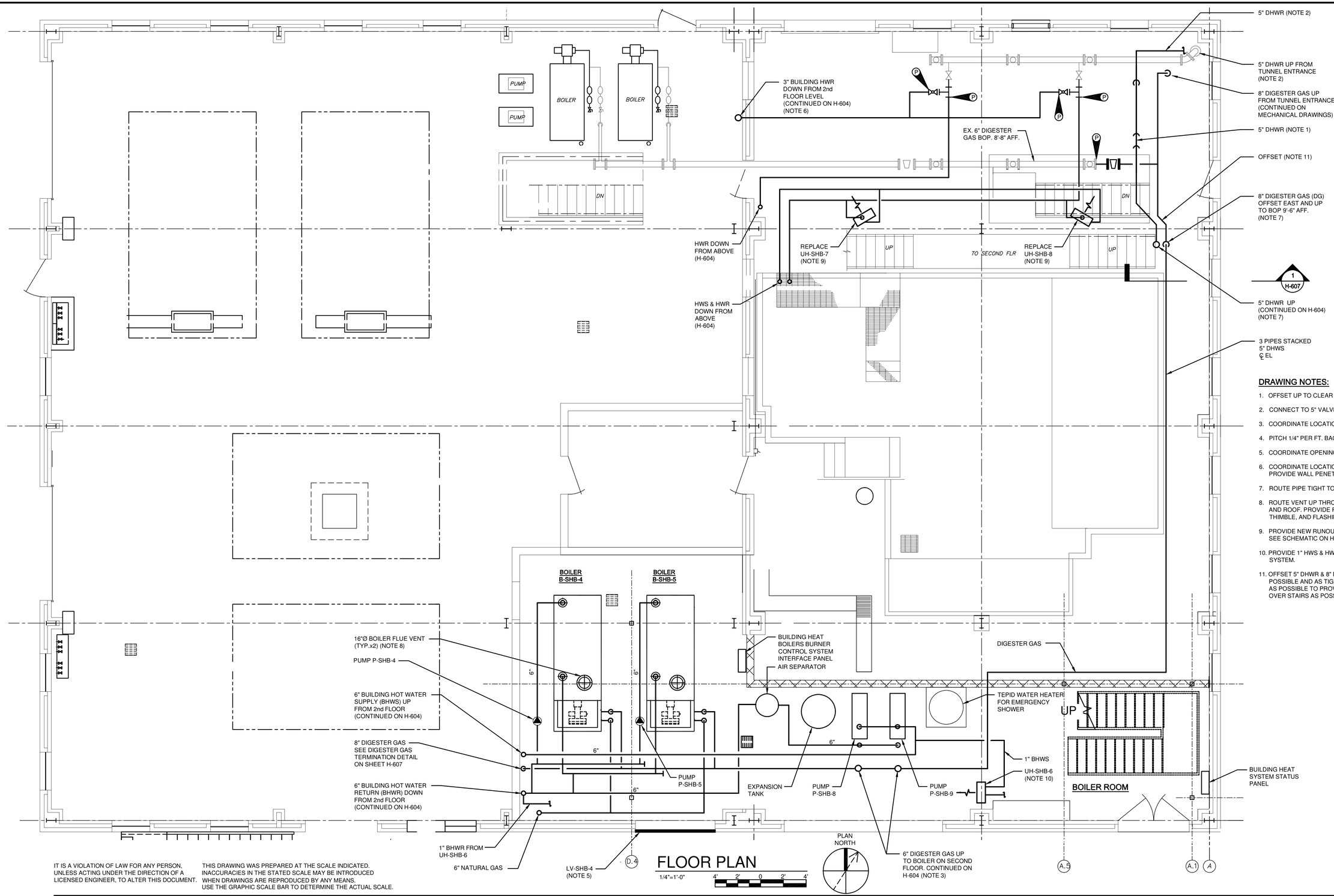

FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

DRAWING NOTES:

1. OFFSET UP TO CLEAR DIGESTER GAS PIPING.
2. CONNECT TO 5" VALVE REFER TO H-601.
3. COORDINATE LOCATION WITH BOILER GAS TRAIN.
4. PITCH 1/4" PER FT. BACK TO TUNNEL ENTRANCE.
5. COORDINATE OPENING WITH STRUCTURAL
6. COORDINATE LOCATION WITH OVERHEAD DOOR. PROVIDE WALL PENETRATION.
7. ROUTE PIPE TIGHT TO MEZZANINE.
8. ROUTE VENT UP THROUGH SECOND FLOOR AND ROOF. PROVIDE ROOF PENETRATION, THIMBLE, AND FLASHING.
9. PROVIDE NEW RUNOUTS FROM MAIN. SEE SCHEMATIC ON H-003.
10. PROVIDE 1" HWS & HWR FROM BUILDING HEAT SYSTEM.
11. OFFSET 5" DHWR & 8" DG AS FAR EAST AS POSSIBLE AND AS TIGHT TO MEZZANINE ABOVE AS POSSIBLE TO PROVIDE AS MUCH CLEARANCE OVER STAIRS AS POSSIBLE.

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MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
1ST FLOOR INSTALL PLAN

FILE NO. 23374.51633 - H603

DATE MARCH 19, 2015

H-603

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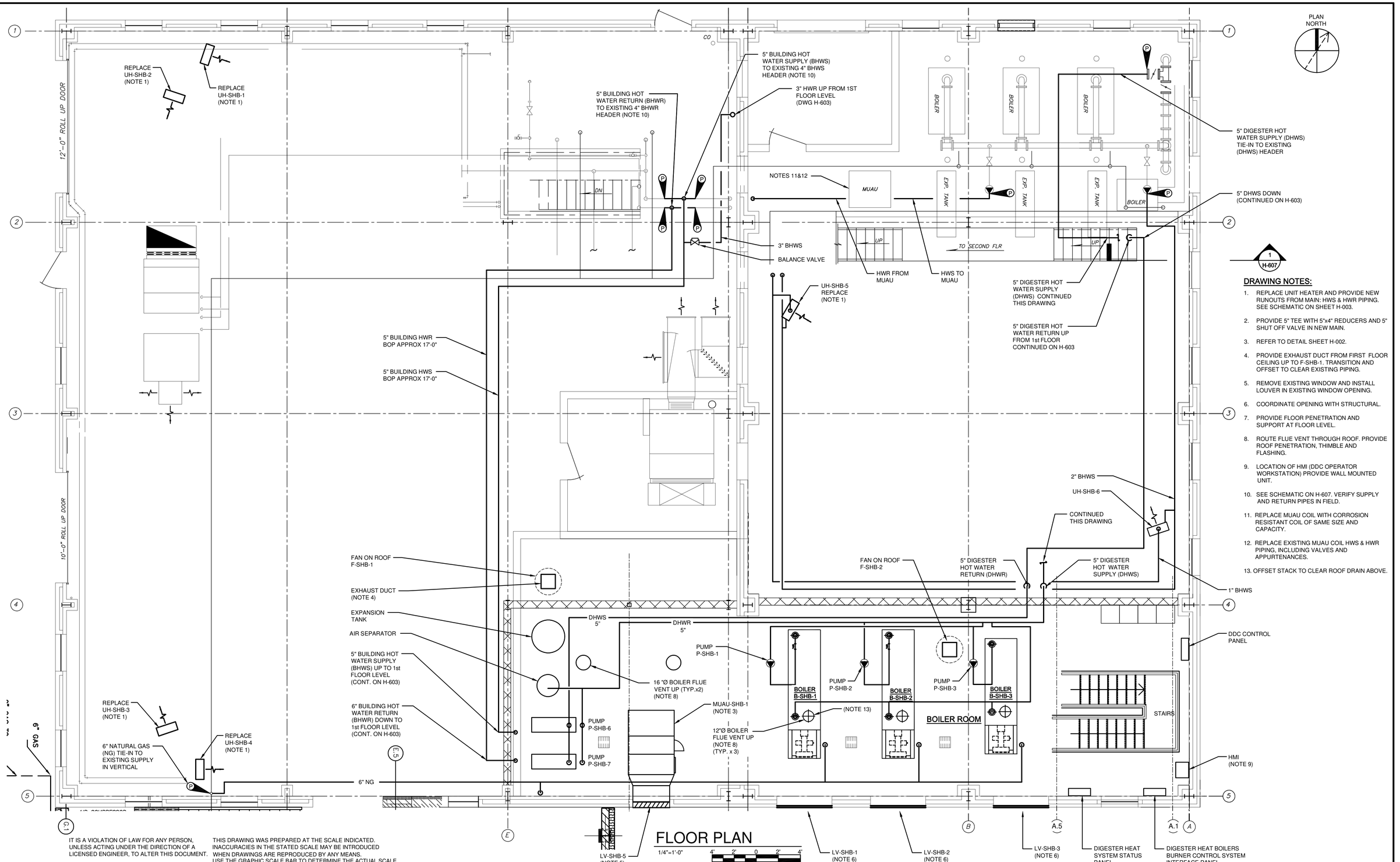

FLOOR PLAN

1/4"=1'-0"

1
H-607

DRAWING NOTES:

1. REPLACE UNIT HEATER AND PROVIDE NEW RUNOUTS FROM MAIN: HWS & HWR PIPING. SEE SCHEMATIC ON SHEET H-003.
2. PROVIDE 5" TEE WITH 5"x4" REDUCERS AND 5" SHUT OFF VALVE IN NEW MAIN.
3. REFER TO DETAIL SHEET H-002.
4. PROVIDE EXHAUST DUCT FROM FIRST FLOOR CEILING UP TO F-SHB-1. TRANSITION AND OFFSET TO CLEAR EXISTING PIPING.
5. REMOVE EXISTING WINDOW AND INSTALL LOUVER IN EXISTING WINDOW OPENING.
6. COORDINATE OPENING WITH STRUCTURAL.
7. PROVIDE FLOOR PENETRATION AND SUPPORT AT FLOOR LEVEL.
8. ROUTE FLUE VENT THROUGH ROOF. PROVIDE ROOF PENETRATION, THIMBLE AND FLASHING.
9. LOCATION OF HMI (DDC OPERATOR WORKSTATION) PROVIDE WALL MOUNTED UNIT.
10. SEE SCHEMATIC ON H-607. VERIFY SUPPLY AND RETURN PIPES IN FIELD.
11. REPLACE MUAU COIL WITH CORROSION RESISTANT COIL OF SAME SIZE AND CAPACITY.
12. REPLACE EXISTING MUAU COIL HWS & HWR PIPING, INCLUDING VALVES AND APPURTENANCES.
13. OFFSET STACK TO CLEAR ROOF DRAIN ABOVE.

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DESIGNED BY SWM
CHECKED BY JPW
DRAWN BY KJL

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
2ND FLOOR INSTALL PLAN

FILE NO. 23374.51633 - H604
DATE MARCH 19, 2015

H-604

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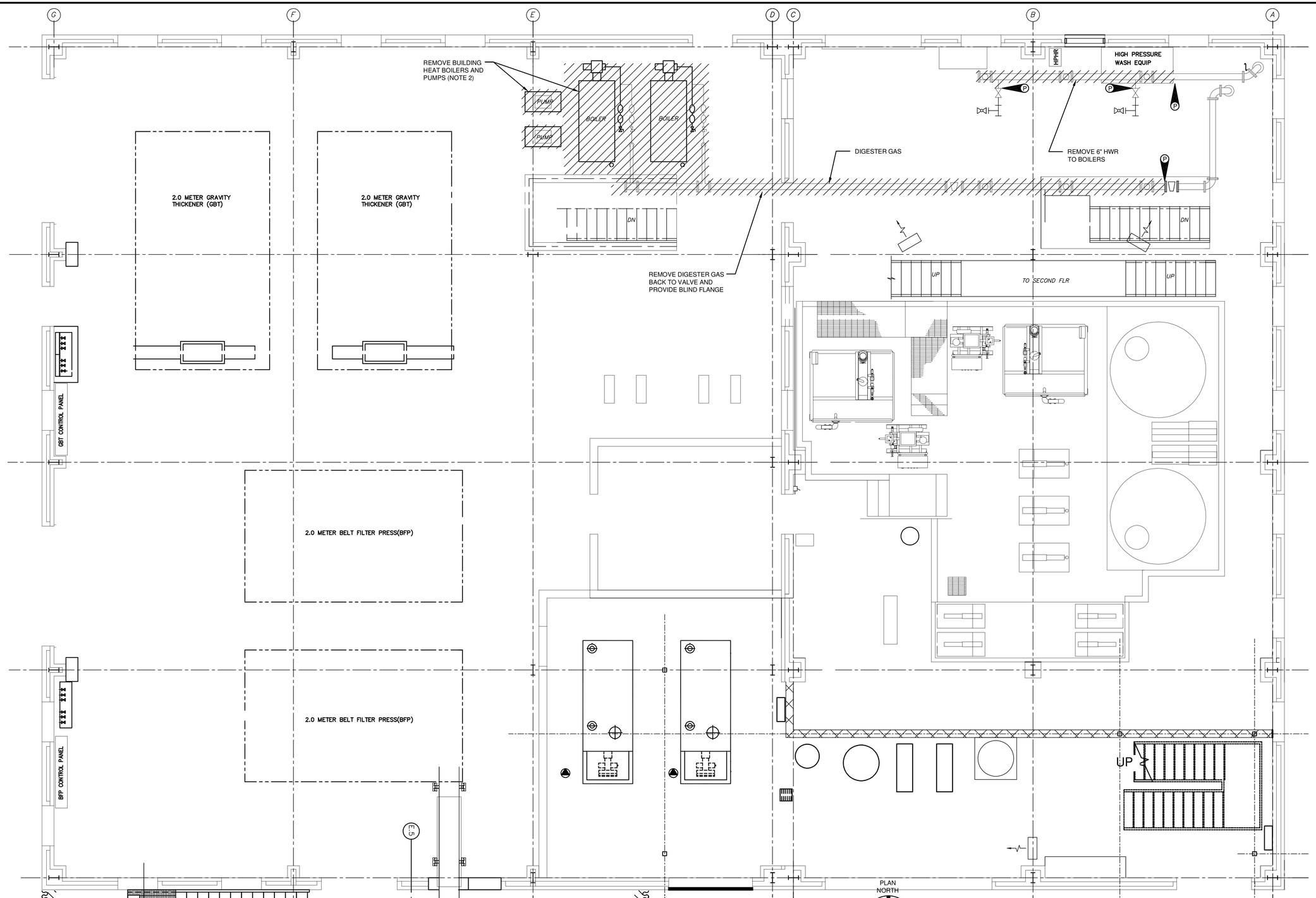

DRAWING NOTES:

1. REMOVE EXISTING DIGESTER HEAT BOILERS, INCLUDING DIGESTER GAS, NATURAL GAS, HOT WATER PIPING, FLUE DUCT, PUMPS AND EXPANSION TANKS. PATCH HOLES IN ROOF.
2. REMOVE EXISTING BUILDING HEAT BOILERS INCLUDING DIGESTER GAS, NATURAL GAS, HOT WATER PIPING, PUMPS FLUE DUCT, AND EXPANSION TANKS. PATCH HOLES IN ROOF.

FLOOR PLAN

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

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
1ST FLOOR
FINAL REMOVALS

FILE NO. 23374.51633 - H605
DATE MARCH 19, 2015

H-605

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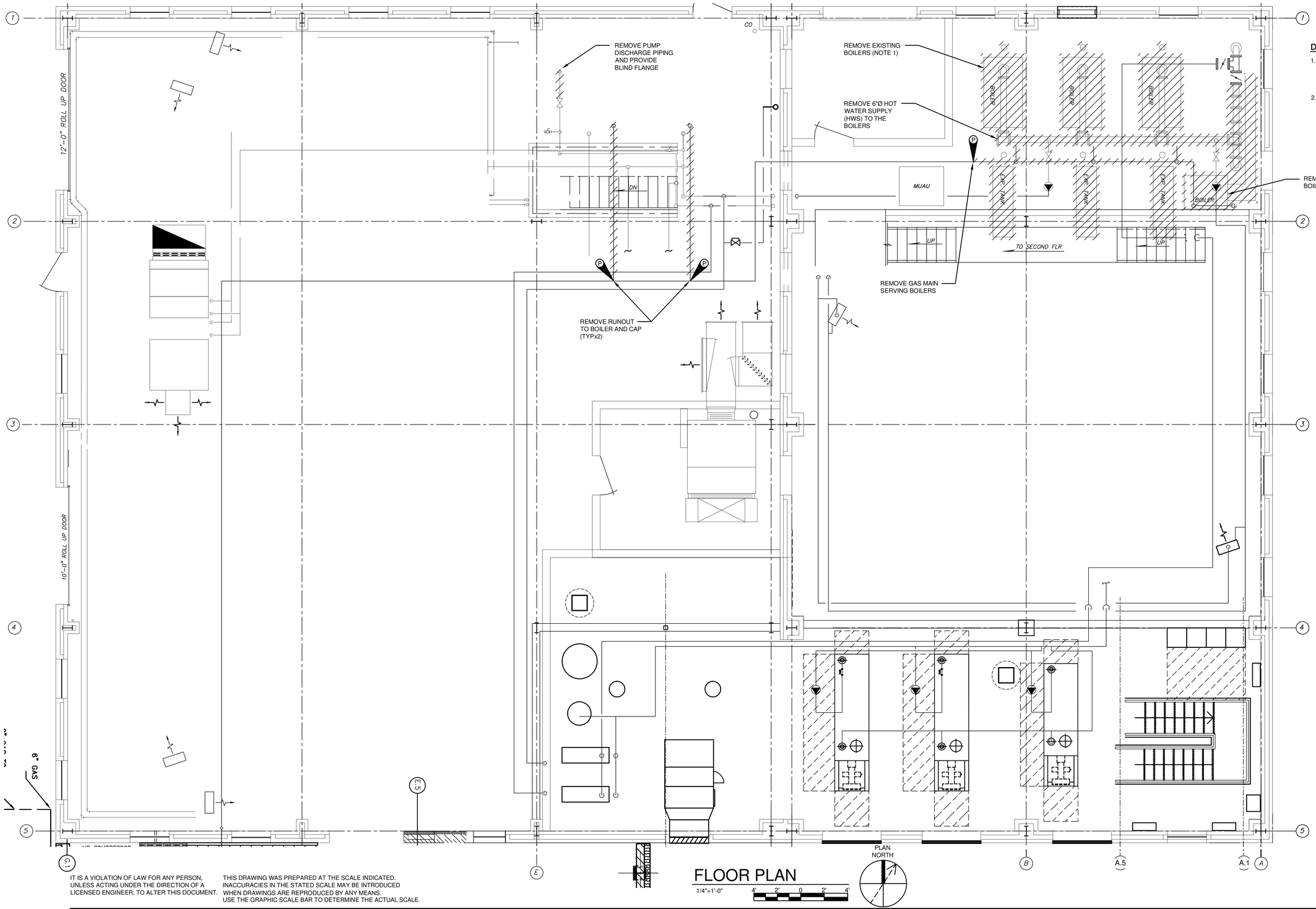

DRAWING NOTES:

1. REMOVE EXISTING DIGESTER HEAT BOILERS, INCLUDING DIGESTER GAS, NATURAL GAS, HOT WATER PIPING, FLUE DUCT, PUMPS AND EXPANSION TANKS. PATCH HOLES IN ROOF.
2. REMOVE EXISTING BUILDING HEAT BOILERS INCLUDING DIGESTER GAS, NATURAL GAS, HOT WATER PIPING, PUMPS FLUE DUCT, AND EXPANSION TANKS. PATCH HOLES IN ROOF.

FLOOR PLAN

1/4"=1'-0"

PLAN NORTH

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING

2ND FLOOR FINAL REMOVALS

FILE NO. 23374.51633 -H606

DATE MARCH 19, 2015

H-606

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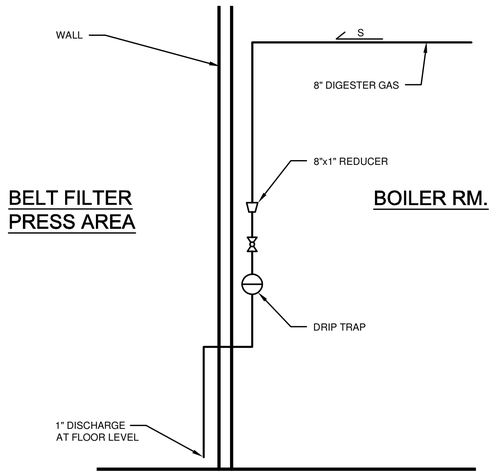

DIGESTER GAS TERMINATION DETAIL

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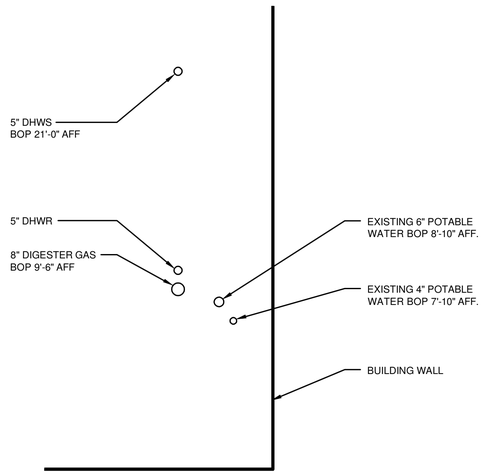

1 SECTION

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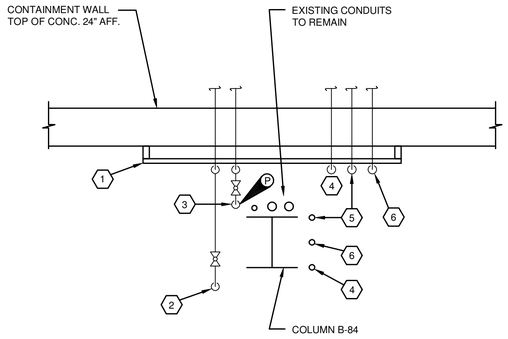

ENLARGED PLAN
POLYMER LINE RELOCATIONS

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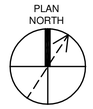
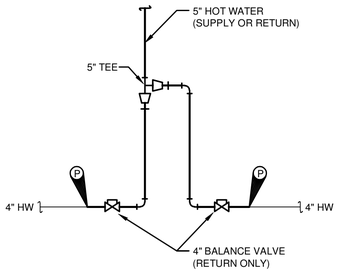


KEYED NOTES:

1. CONSTRUCT VERTICAL LADDER RACK FROM FLOOR TO ROOF DECK. FABRICATE FROM 1-1/2" UNISTRUT. PROVIDE RUNGS FOR PIPE SUPPORT ON 5 FT CENTERS. ATTACH BOTTOM OF RACK TO 24" HIGH CONCRETE CONTAINMENT WALL. ATTACH TOP OF RACK TO ROOF FRAMING. PROVIDE INTERMEDIATE UPPER ATTACHMENTS AS REQUIRED.
2. EXISTING 1" SCH 80 PVC POLYMER FROM PUMP PMP-3 TO BELT FILTER PRESS (BFP). EXISTING FLOW METER AT 6'-5" AFF TO REMAIN. REMOVE PIPING FROM 45-ELBOW AT 8'-9" AFF TO RACK AT 14'-8" AFF. INSTALL 90-ELBOW NORTH AT 8'-9" AFF. MAINTAIN EXISTING VERTICAL STRAIGHT PIPE DIMENSION ABOVE METER. ROUTE 1" PVC NORTH AT 8;-9" AFF TO VERTICAL RACK. PROVIDE BALL VALVE IN HORIZONTAL. ROUTE 1" PVC UP VERTICAL RACK TO APPROXIMATELY 14'-8" AFF. PROVIDE 90-ELBOW NORTH AND TIE-IN TO EXISTING 1" PVC PUMP PMP-3 POLYMER LINE ON RACK TO BFP AREA.
3. EXISTING 1" SCH 80 PVC POLYMER FROM PUMP PMP-4 TO BELT FILTER PRESS (BFP). EXISTING FLOW METER AT 6'-5" AFF TO REMAIN. REMOVE PIPING FROM 45-ELBOW AT 8'-9" AFF TO RACK AT 14'-8" AFF. INSTALL 90-ELBOW NORTH AT 8'-9" AFF. MAINTAIN EXISTING VERTICAL STRAIGHT PIPE DIMENSION ABOVE METER. ROUTE 1" PVC NORTH AT 8'-9" AFF TO VERTICAL RACK. PROVIDE BALL VALVE IN HORIZONTAL. ROUTE 1" PVC UP VERTICAL RACK TO APPROXIMATELY 14'-8" AFF. PROVIDE 90-ELBOW NORTH AND TIE-IN TO EXISTING 1" PVC PUMP PMP-4 POLYMER LINE ON RACK TO BFP AREA.
4. EXISTING 1" SCH 80 PVC POLYMER FROM PUMP PMP-2 TO GRAVITY THICKENER. REMOVE VERTICAL PIPING ON COLUMN B4. INSTALL NEW VERTICAL PIPING ON VERTICAL RACK. RE-CONNECT TO PUMP DISCHARGE PIPING ALONG CONTAINMENT WALL, AND TO PIPING ON RACK TO GRAVITY THICKENERS AT APPROXIMATELY 14'-8" AFF. PROVIDE ½" PVC VALVE AND DRAIN AT BASE OF RISER. RE-CONNECT TO EXIST ½" DRAIN LINE TO TRENCH.
5. EXISTING 1" SCH 80 PVC POLYMER FROM PUMP PMP-1 TO GRAVITY THICKENER. REMOVE VERTICAL PIPING ON COLUMN B4. INSTALL NEW VERTICAL PIPING ON VERTICAL RACK. RE-CONNECT TO PUMP DISCHARGE PIPING ALONG CONTAINMENT WALL, AND TO PIPING ON RACK TO GRAVITY THICKENERS AT APPROXIMATELY 14'-8" AFF. PROVIDE ½" PVC VALVE AND DRAIN LINE AT BASE OF RISER. RE-CONNECT TO EXIST ½" DRAIN LINE TO TRENCH.
6. EXISTING 1" PLANT WATER TO HOSE STATION AND POLYMER FLUSH. REMOVE VERTICAL PIPING ON COLUMN B4. INSTALL NEW VERTICAL PIPING ON VERTICAL RACK. RE-CONNECT TO EXISTING BRANCH LINE AT APPROXIMATELY 16'-6" AFF. PROVIDE VALVE AND UNION AND RE-CONNECT TO EXISTING POLYMER FLUSH LINE. PROVIDE HOSE STATION TO MATCH EXISTING.



HOT WATER TIE-IN SCHEMATIC

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC

ENLARGED PLAN,
SECTION & DETAIL

FILE NO. 23374.51633 - H607

DATE MARCH 19, 2015

H-607

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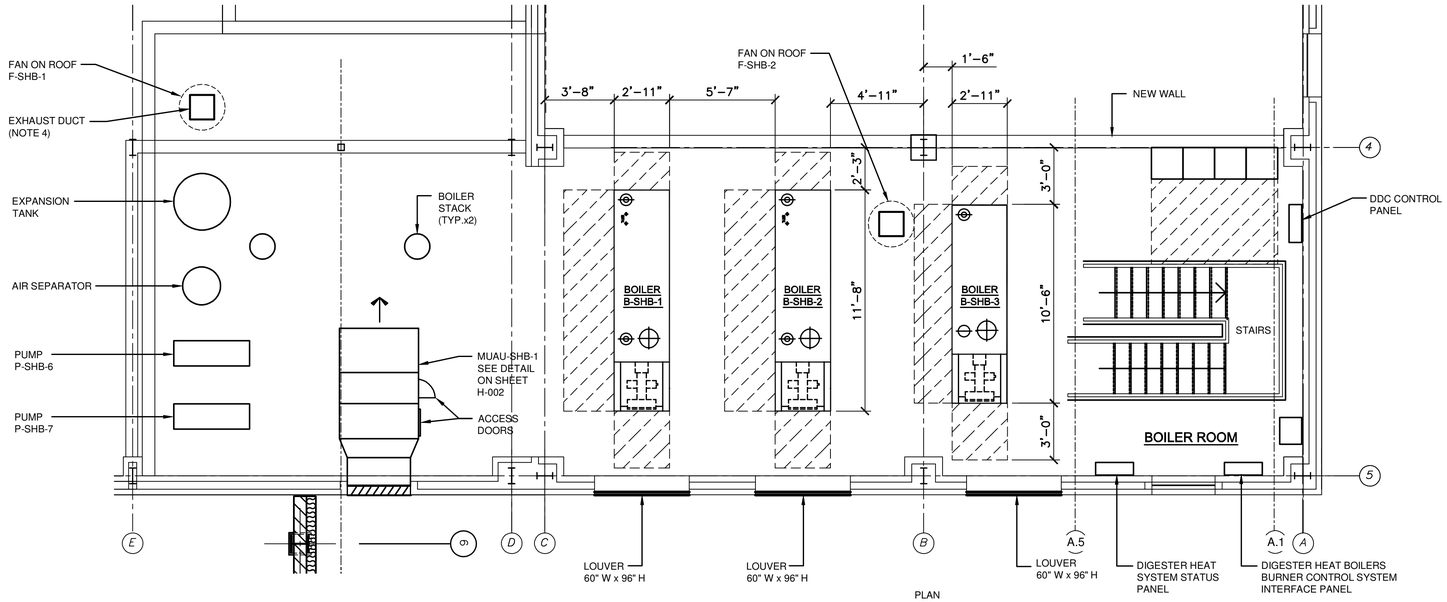
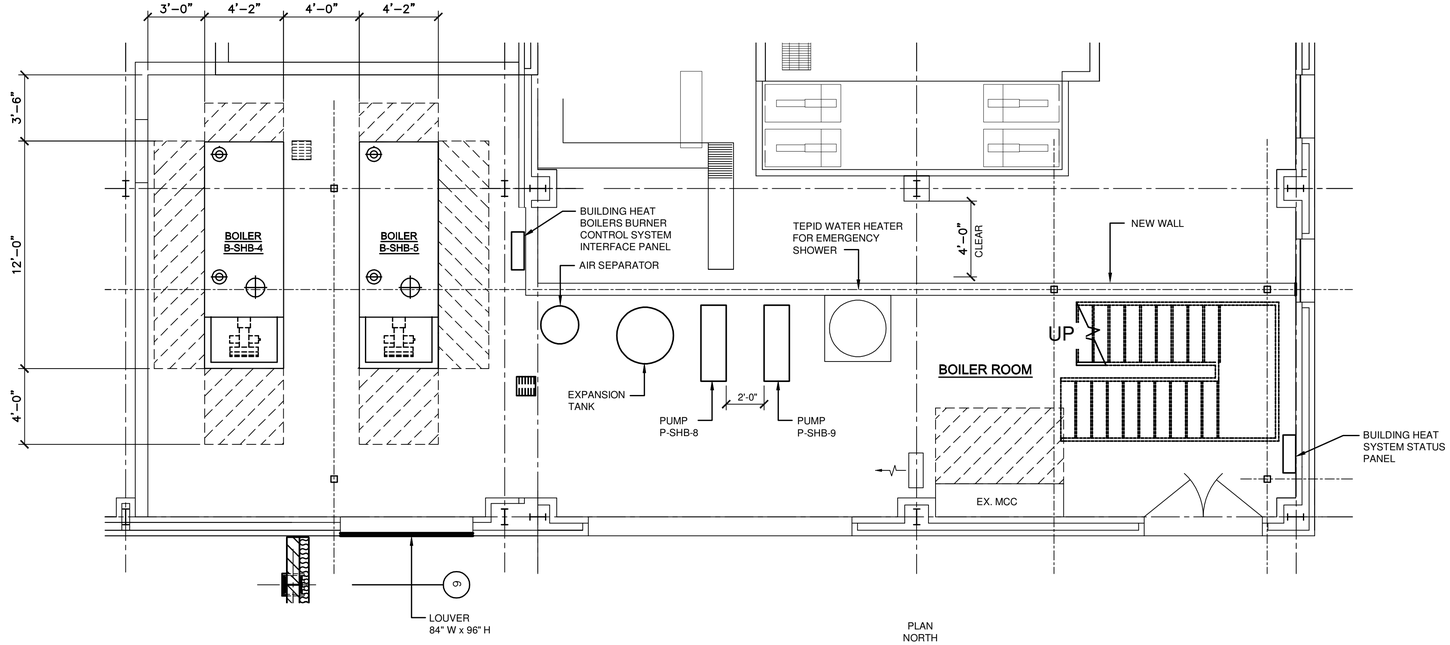


2ND FLOOR PLAN

1/4"=1'-0"

PLAN NORTH



1ST FLOOR PLAN

1/4"=1'-0"

PLAN NORTH

DRAWING NOTES:

1. INSTALL LOUVER IN EXISTING WINDOW OPENING.
2. COORDINATE OPENING WITH STRUCTURAL.
3. ROUTE FLUE VENT THROUGH ROOF. PROVIDE ROOF PENETRATION, THIMBLE AND FLASHING.

B-SHB-1	DIGESTER HEAT, METHANE FIRED
B-SHB-2	DIGESTER HEAT, METHANE FIRED
B-SHB-3	DIGESTER HEAT, NATURAL GAS FIRED
B-SHB-4	BUILDING HEAT, DUAL FUEL
B-SHB-5	BUILDING HEAT, DUEL FUEL

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
BOILER ROOMS GENERAL ARRANGEMENT PLANS

FILE NO. 23374.51633 -H608
DATE MARCH 19, 2015
H-608

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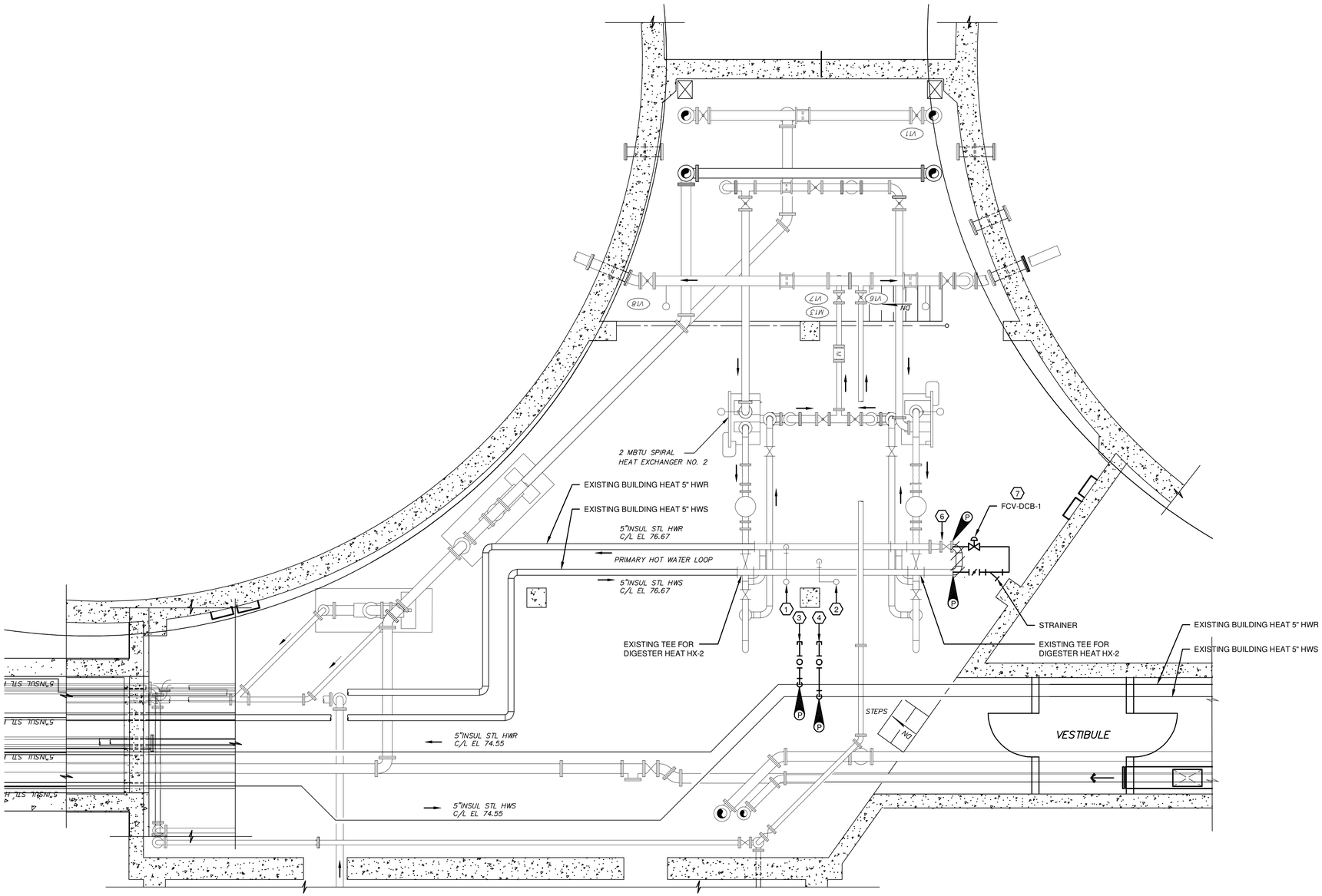

KEYED NOTES:

1. EXISTING 1 1/2" HWR DOWN FROM MUAU ON UPPER LEVEL.
2. EXISTING 1 1/2" HWS UP TO MUAU UPPER LEVEL.
3. CUT IN 5"X5"x3" TEE FOR FUTURE CONNECTION TO DIGESTER CONTROL BUILDING HEATING EQUIPMENT. PROVIDE SHUT-OFF VALVE AND CAP.
4. CUT IN 5"X5"X3" TEE FOR FUTURE CONNECTION TO DIGESTER CONTROL BUILDING HEATING EQUIPMENT. PROVIDE SHUT-OFF VALVE AND CAP.
5. REMOVE ELBOW AT END OF 5" DIGESTER HEAT MAINS. EXTEND HWS AND INSTALL SHUT OFF VALVE, STRAINER AND FLOW CONTROL VALVE.
6. EXISTING BYPASS / BALANCE VALVE TO REMAIN. CHANGE TO FULL-OPEN POSITION ON FCV-DCB-1 IS OPERATIONAL.
7. TAP EXISTING COMPRESSED AIR (INSTRUMENT AIR) SUPPLY SERVING EXISTING 3-WAY VALVE ACTUATORS AND ROUTE TO FCV-DCB-1.

DRAWING NOTE:

1. REFER TO DRAWING H-624 FOR ADDITIONAL INFORMATION.

PLAN
1/4"=1'-0"

PLAN NORTH

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DESIGNED BY	SWM			
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DRAWN BY	KJL	0	03/19/2015	ISSUED FOR OEPA REVIEW

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
DIGESTER CONTROL BUILDING
LOWER LEVEL PIPING PLAN

FILE NO. 23374.51633 -H609
DATE MARCH 19, 2015

H-609

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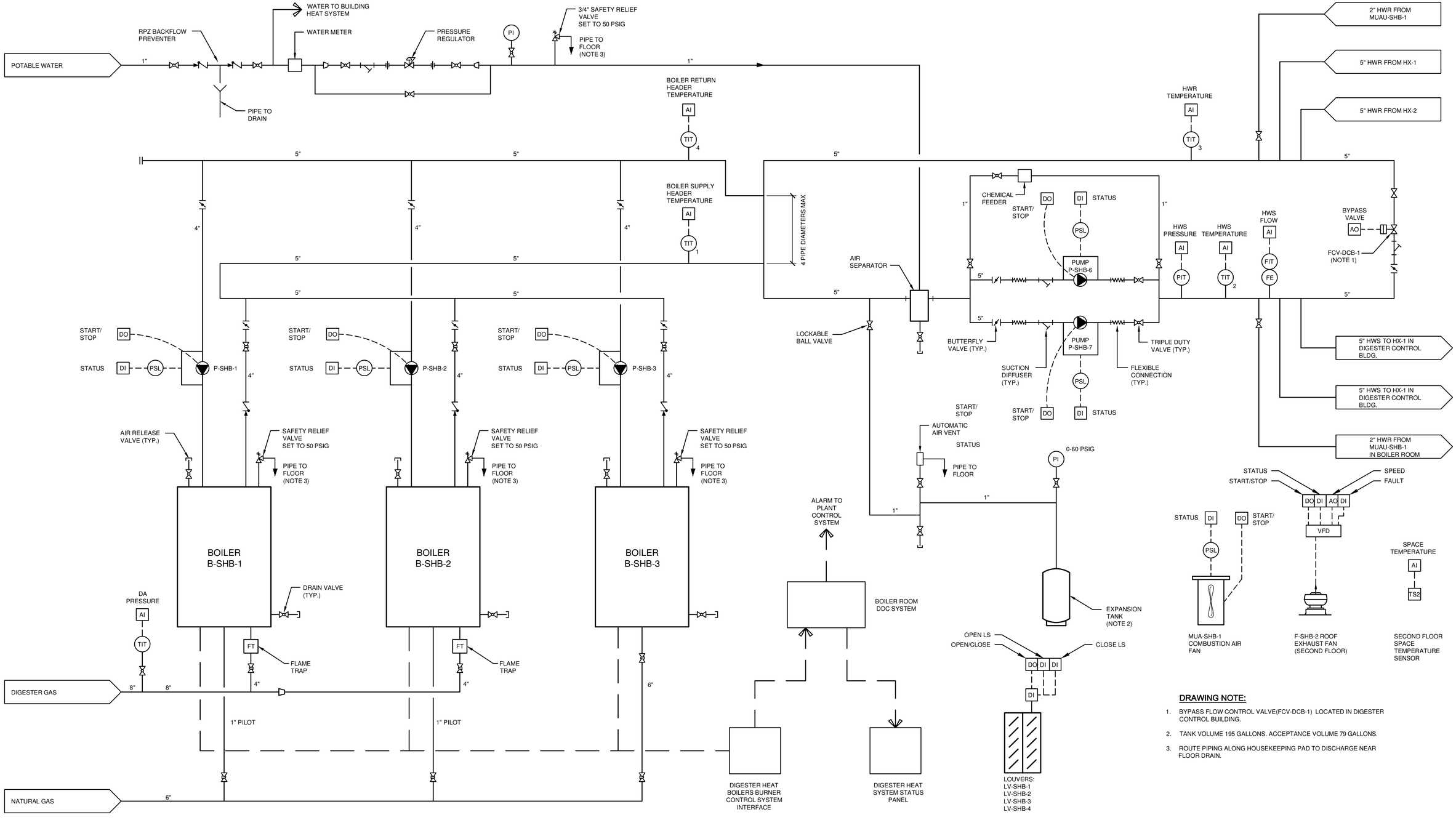

DRAWING NOTE:

1. BYPASS FLOW CONTROL VALVE(FCV-DCB-1) LOCATED IN DIGESTER CONTROL BUILDING.
2. TANK VOLUME 195 GALLONS. ACCEPTANCE VOLUME 79 GALLONS.
3. ROUTE PIPING ALONG HOUSEKEEPING PAD TO DISCHARGE NEAR FLOOR DRAIN.

SCHEMATIC

NOT TO SCALE

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
DIGESTER HEAT BOILERS SCHEMATIC DIAGRAM

FILE NO. 23374.51633 - H610
DATE MARCH 19, 2015
H-610

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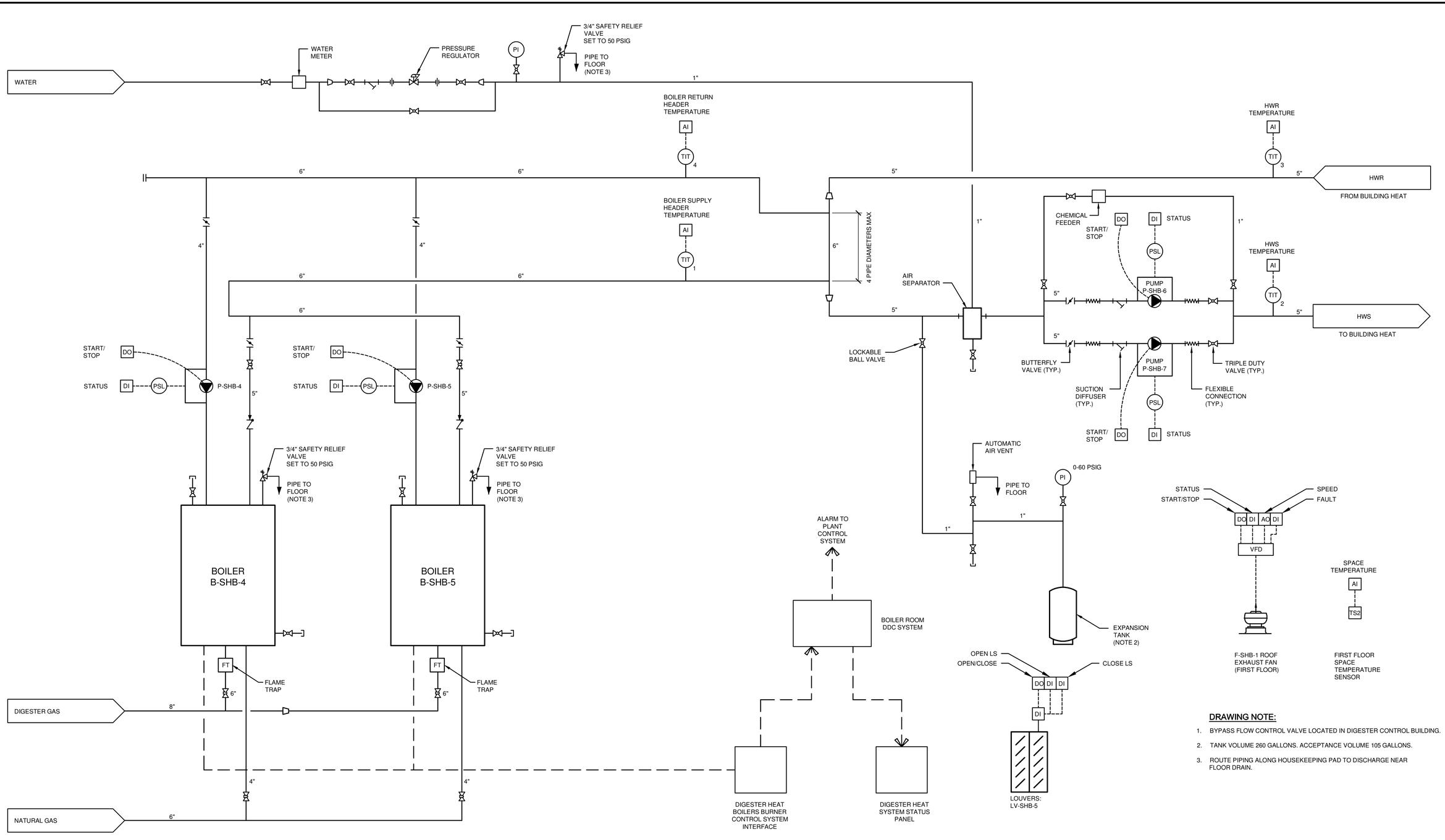

DRAWING NOTE:

1. BYPASS FLOW CONTROL VALVE LOCATED IN DIGESTER CONTROL BUILDING.
2. TANK VOLUME 260 GALLONS. ACCEPTANCE VOLUME 105 GALLONS.
3. ROUTE PIPING ALONG HOUSEKEEPING PAD TO DISCHARGE NEAR FLOOR DRAIN.

SCHEMATIC

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
BUILDING HEAT BOILERS SCHEMATIC DIAGRAM

FILE NO. 23374.51633 -H611
DATE MARCH 19, 2015
H-611

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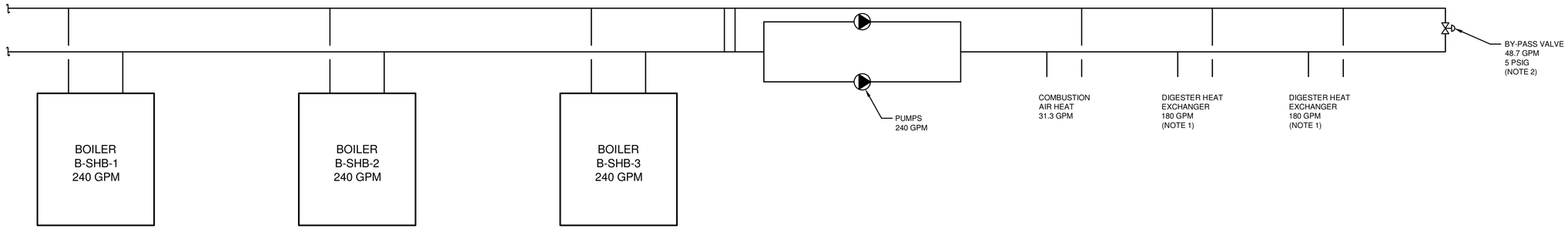
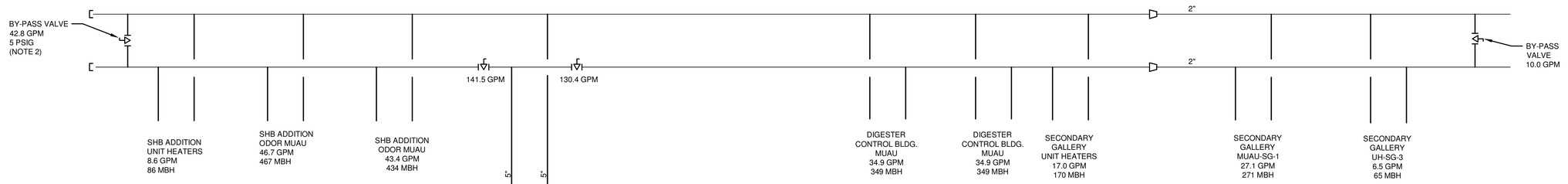


DRAWING NOTES:

1. BALANCE FLOW TO EACH DIGESTER HEAT EXCHANGER INDIVIDUALLY, WITH OTHER EXCHANGER SHUTOFF.
2. BYPASS VALVE SHALL MAINTAIN 180 GPM FLOW IN LOOP, REGARDLESS OF FLOW TO THE HEAT EXCHANGERS.

DIGESTER HEAT DIAGRAM

NOT TO SCALE



BUILDING HEAT DIAGRAM

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

HVAC
SOLIDS HANDLING BUILDING
HOT WATER SYSTEM BALANCING DIAGRAMS

FILE NO. 23374.51633 - H626
DATE MARCH 19, 2015

H-612

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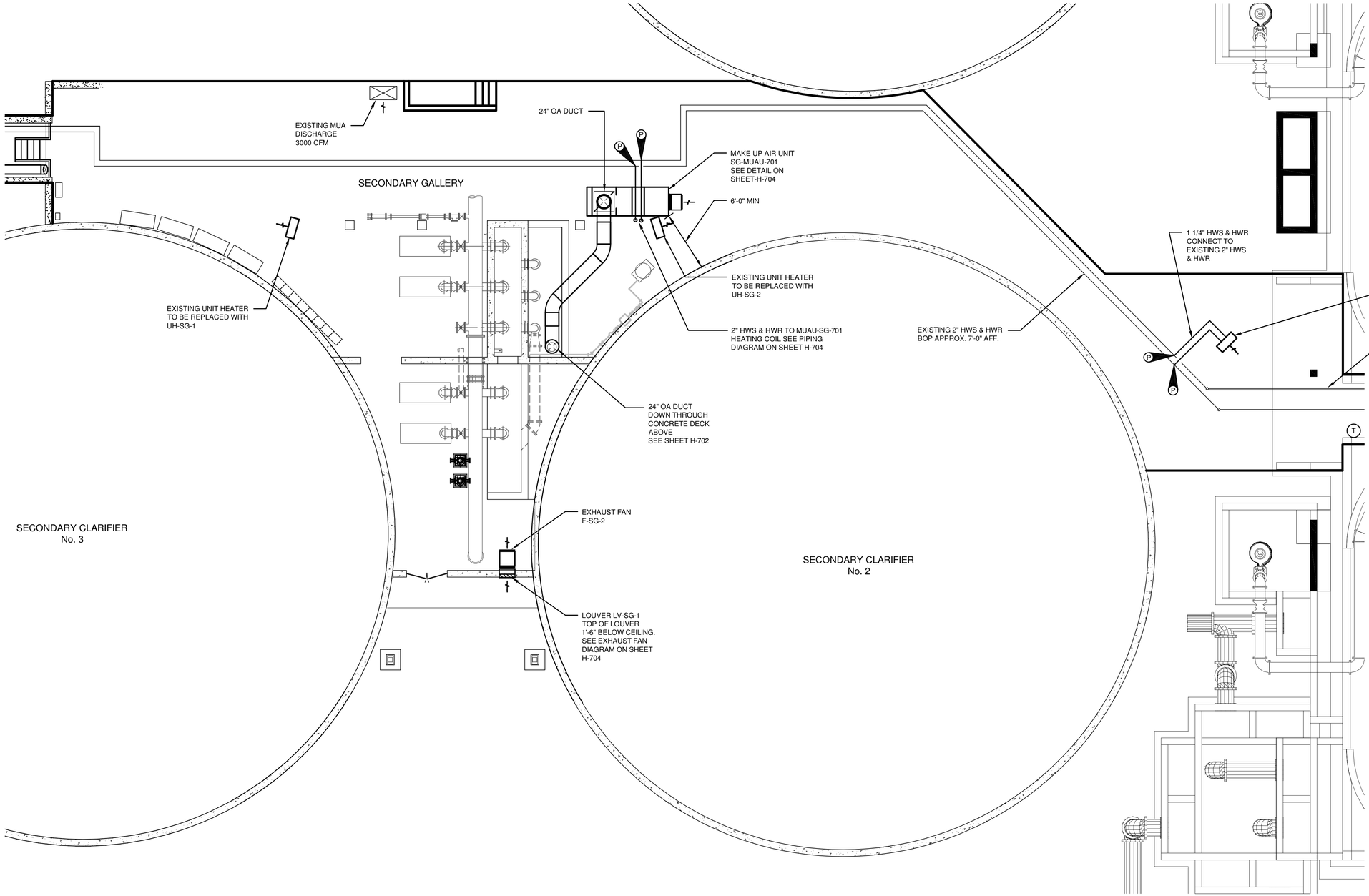

PLAN

1/8"=1'-0"

8' 4' 0 8'

PLAN NORTH

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HVAC
SECONDARY GALLERY

PLAN

FILE NO. 23374.51633 - H701
DATE MARCH 19, 2015

H-701

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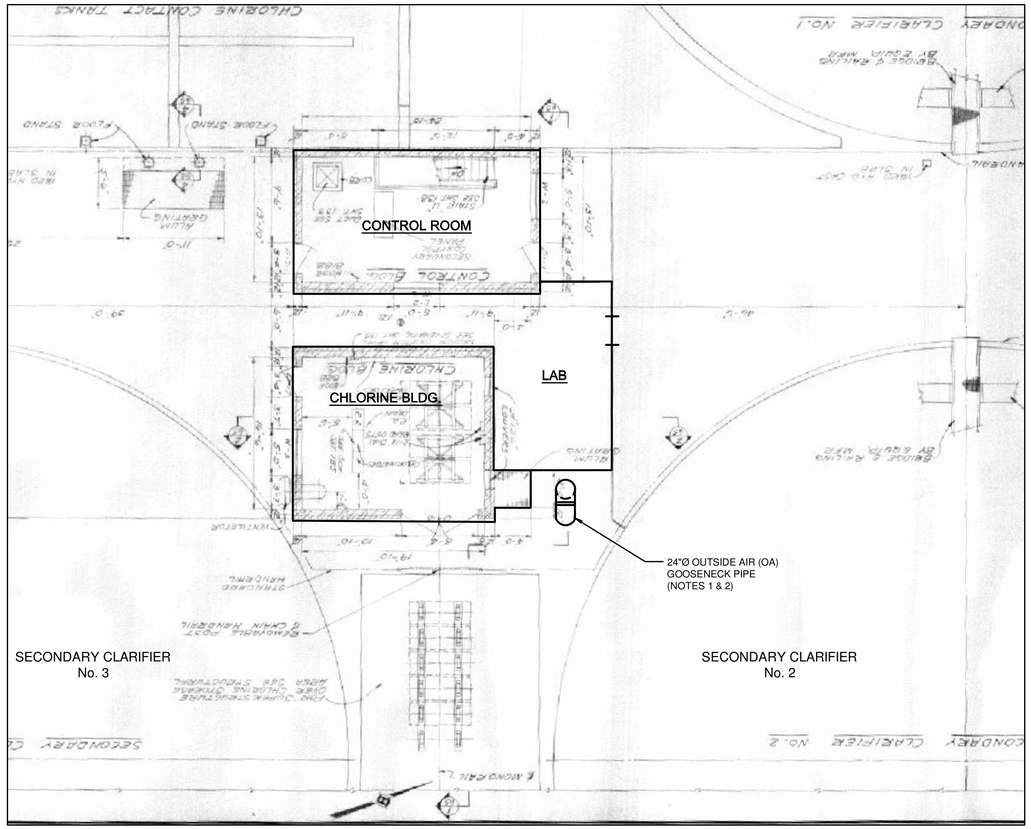


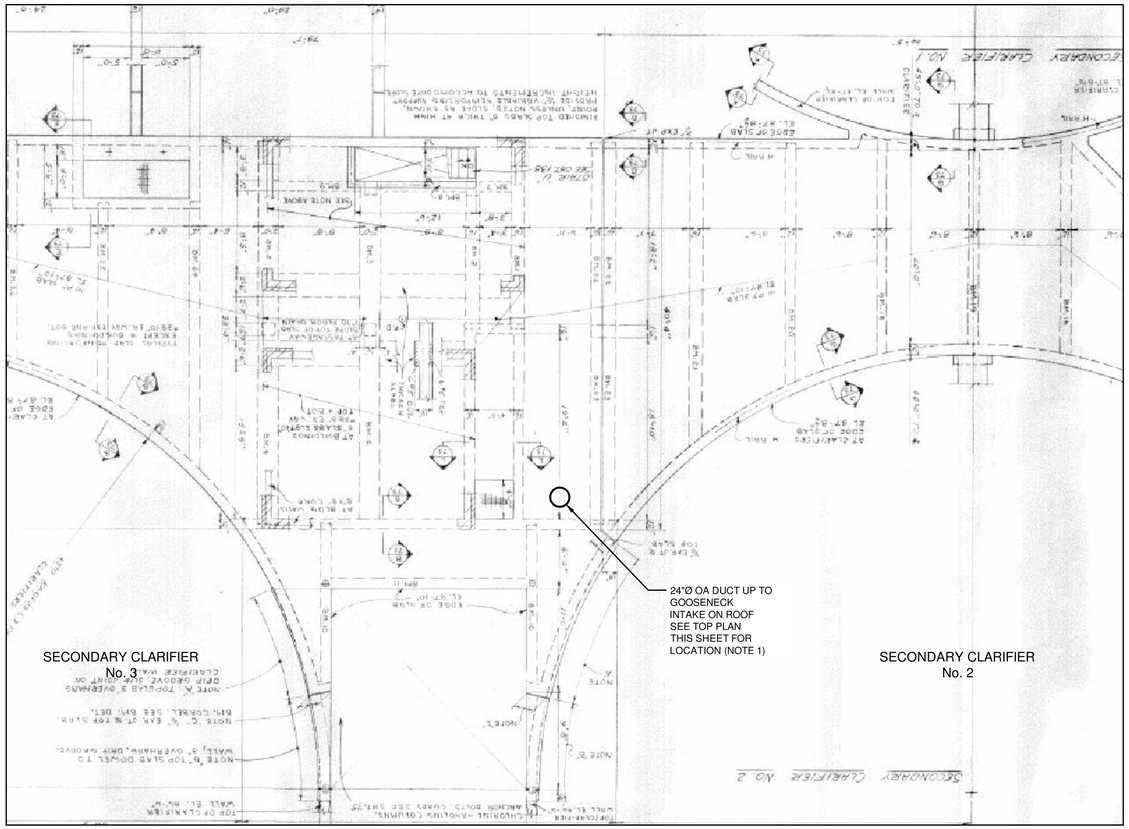
TOP PLAN

1/4"=1'-0"

PLAN NORTH

DRAWING NOTS:

1. ROUTE OUTSIDE AIR PIPE AS CLOSE AS POSSIBLE TO LAB WALL COORDINATE LOCATION WITH EXISTING ENTRY DOOR.
2. COORDINATE PENETRATION LOCATION WITH OWNER.



FRAMING PLAN

1/4"=1'-0"

PLAN NORTH

DRAWING NOTE:

1. MAINTAIN 12" FROM CONCRETE DECK SUPPORT BEAMS AND WALLS.

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FRAMING & TOP PLANS

FILE NO. 23374.51633 - H702
DATE MARCH 19, 2015

H-702

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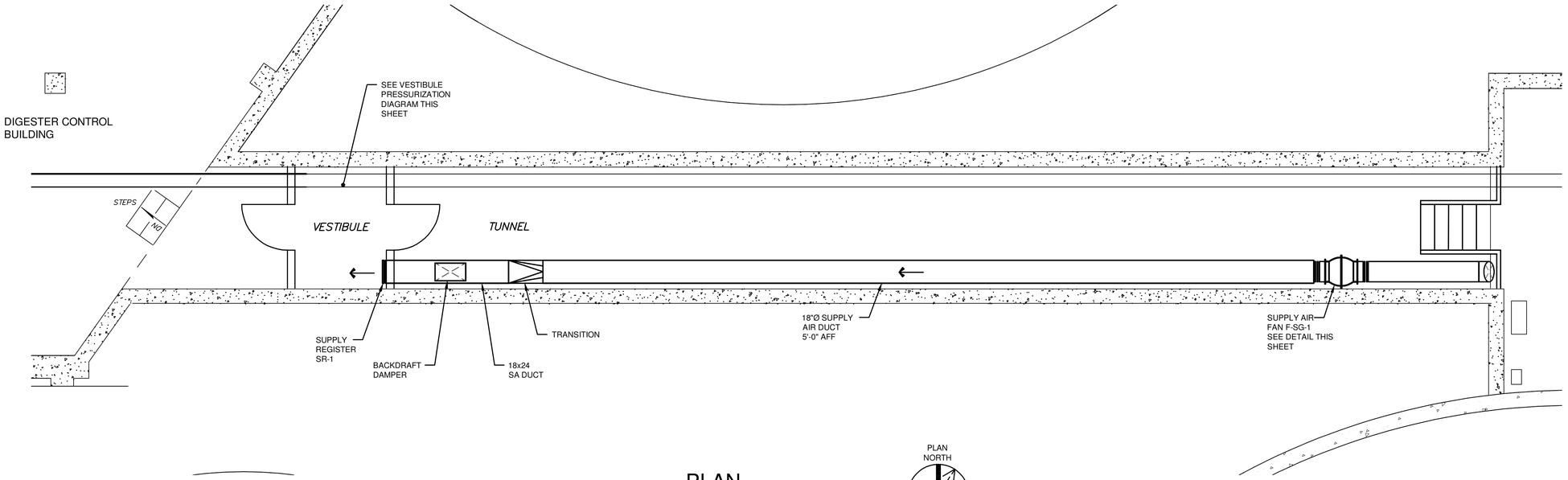


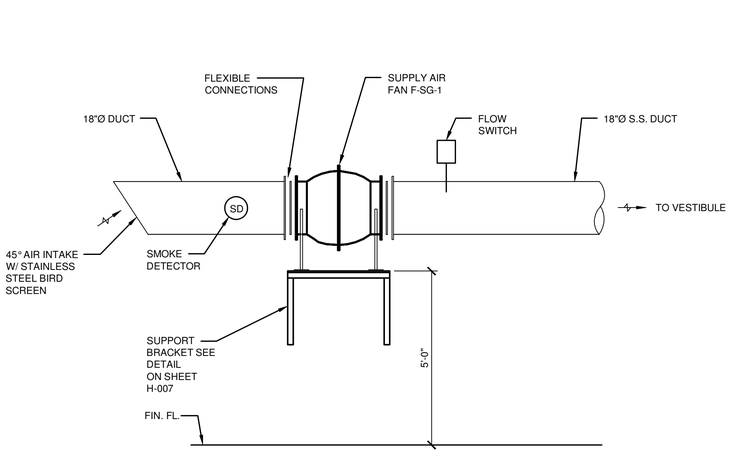
PLAN

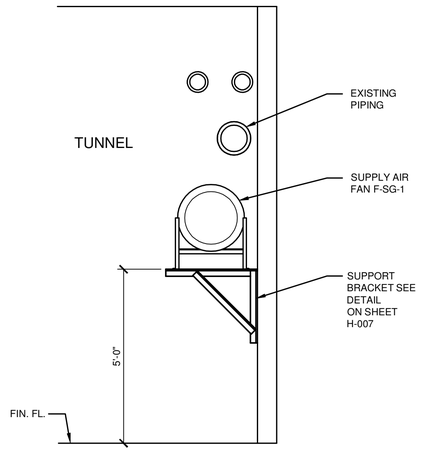
1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

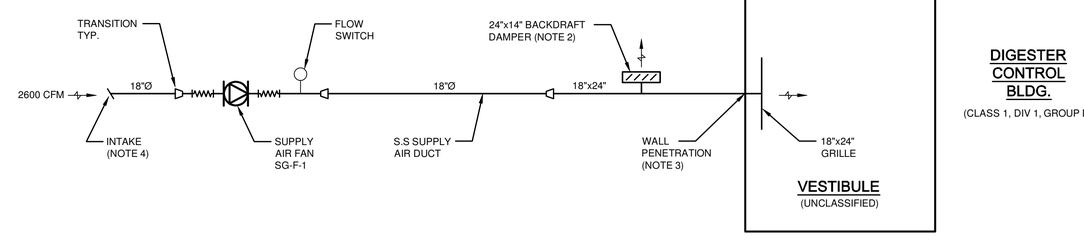
SECONDARY GALLERY





FAN DETAILS

NOT TO SCALE



VESTIBULE PRESSURIZATION SYSTEM DIAGRAM

NOT TO SCALE

NOTES:

1. MOUNT GAGE ON WALL 5'-0" ABOVE FLOOR. GAGE RANGE SHALL BE 0 TO .25 " WC.
2. BACKDRAFT DAMPER SHALL START TO OPEN AT 0.1" WC. MOUNT ON TOP OF DUCT, DISCHARGE UPWARD.
3. SEAL WALL PENETRATION GAS TIGHT.
4. MITER CUT OPENING AT 45° DEGREE ANGLE. COVER PIPING WITH STAINLESS STEEL BIRD SCREEN.

SEQUENCE OF OPERATION

1. FAN SHALL RUN CONTINUOUSLY, AND SHALL DRAW AIR FROM SECONDARY GALLERY.
2. PRESSURE SWITCH SHALL MONITOR FAN OPERATION AND PROVIDE REMOTE ALARM ON FAN FAILURE (THROUGH SCADA SYSTEM).
3. SYSTEM SHALL MAINTAIN A MINIMUM OF 0.1" WC STATIC PRESSURE IN VESTIBULE WHEN DOORS ARE CLOSED. EXCESS AIR SHALL RETURN TO SECONDARY GALLERY THROUGH BACKDRAFT DAMPER.
4. WHEN DOORS ARE OPEN, SYSTEM SHALL MAINTAIN AT LEAST 60 FT/MIN VELOCITY OUT OF VESTIBULE THROUGH EACH OPENING.

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HVAC
SECONDARY GALLERY

TUNNEL PLAN & DETAILS

FILE NO. 23374.51633 - H703
DATE MARCH 19, 2015
H-703

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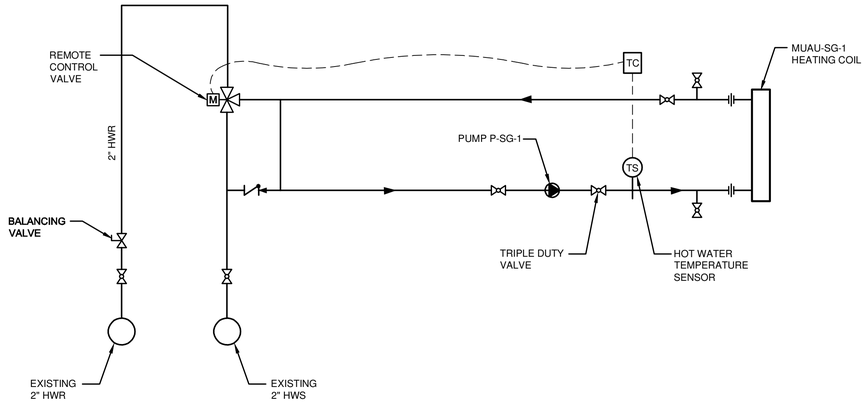
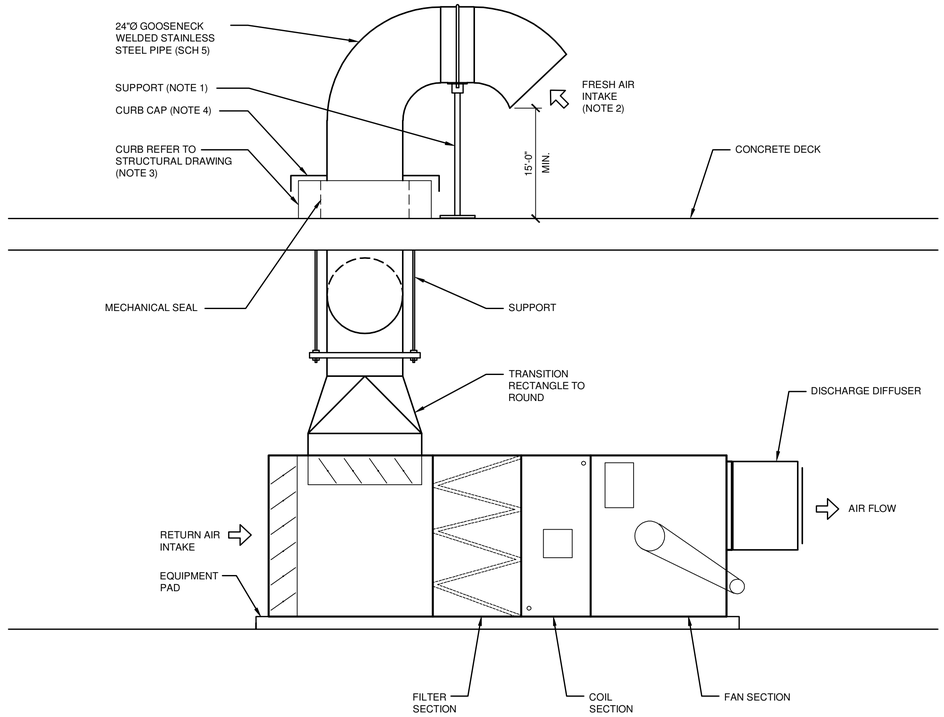


SECONDARY GALLERY MUAU-SG-1 HEATING COIL PIPING DIAGRAM

NOT TO SCALE

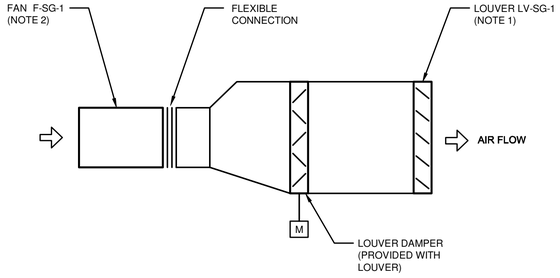


MAKE UP AIR UNIT DETAIL

NOT TO SCALE

NOTES:

1. INTAKE SUPPORT SHALL BE 4" PIPE STANCHION. 4" SCH. 40 SS PIPE WITH FLANGE BASE. ANCHOR FLANGE TO CONCRETE. SADDLE SUPPORT WITH U-BOLT. ALL COMPONENTS SHALL BE STAINLESS STEEL. BRACE INTAKE TO EXISTING CHLORINE BUILDING AT APPROXIMATELY 12'-0" ABOVE DECK.
2. COVER INTAKE WITH STAINLESS STEEL BIRD SCREEN.
3. COORDINATE DECK PENETRATION WITH STRUCTURAL. REFER TO S-008 FOR PIPE PENETRATION DETAIL THROUGH EXISTING CONCRETE. REFER TO S-004 FOR CURB DETAIL.
4. PROVIDE STAINLESS STEEL CURB CAP WELDED TO OA DUCT. PROVIDE POLYURETHANE SEAL BETWEEN CURB CAP AND CURB. CURB CAP SHALL BE 1/4" THICK STAINLESS STEEL PLATE SUITABLE TO SUPPORT INTAKE PIPE ABOVE. FASTEN CURB CAP TO CONCRETE CURB WITH MINIMUM FOUR 1/2" EXPANSION ANCHORS W/ 4" EMBEDMENT. PENETRATION ASSEMBLY SHALL BE WEATHER-TIGHT AND WATER-TIGHT.



SECONDARY GALLERY EXHAUST FAN DIAGRAM

NOT TO SCALE

NOTES:

1. SUSPEND EXHAUST FAN FROM CEILING.

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DIAGRAMS & DETAILS

FILE NO. 23374.51633 - H704
DATE MARCH 19, 2015

H-704

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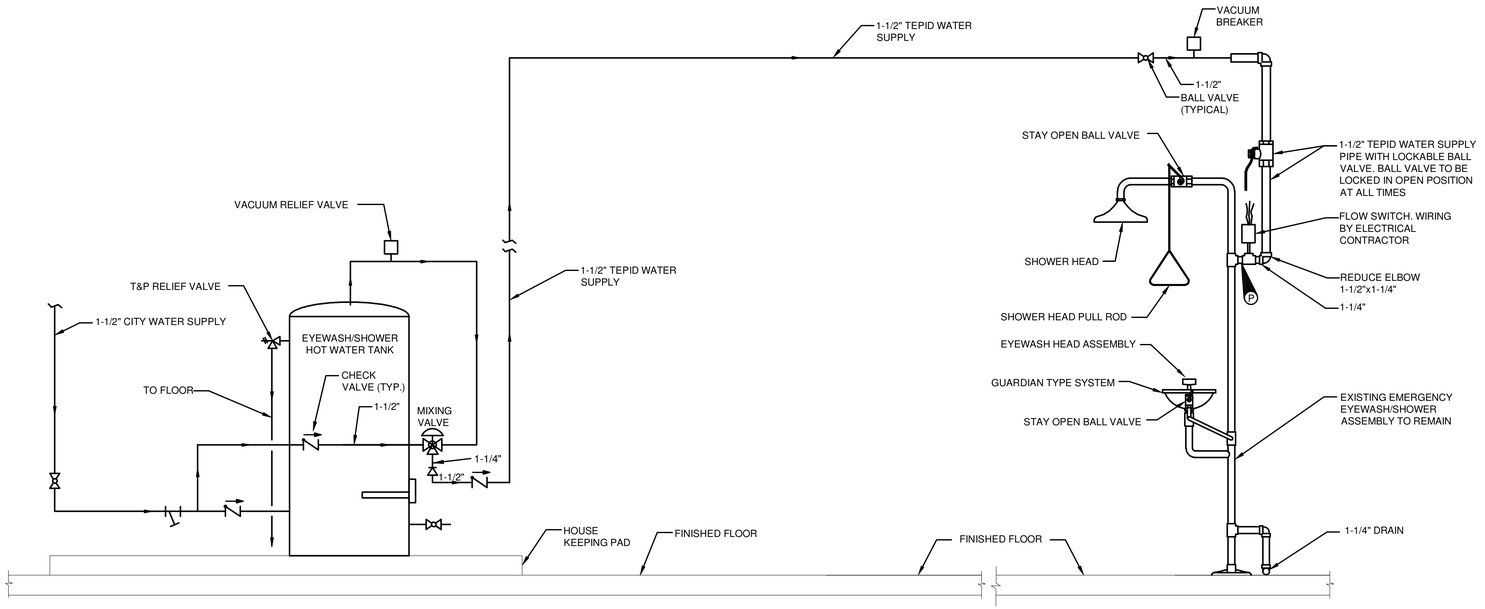
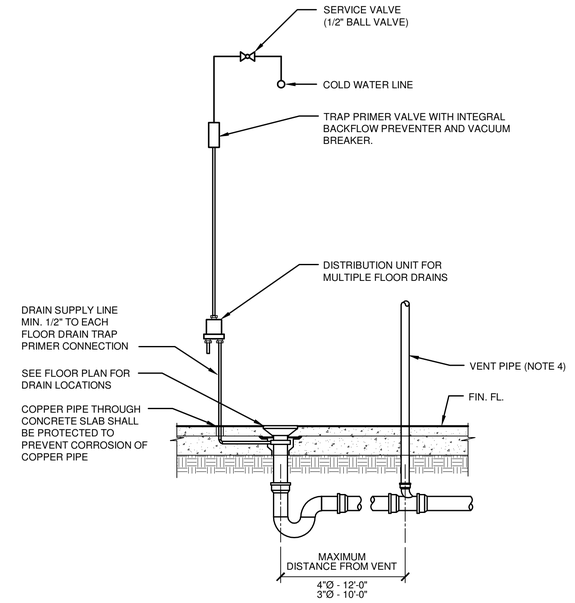


EYEWASH/SHOWER TEPID WATER PIPING SCHEMATIC

NOT TO SCALE

NOTE:

1. ROUTE DRAIN ALONG WALL TO POINT NEAR FLOOR DRAIN.



FLOOR DRAIN TRAP PRIMER CONNECTION DETAIL

NOT TO SCALE

NOTE:

1. TRAP PRIMER VALVE SHALL BE MOUNTED 12: AFF. FOR EVERY 20'-0" HORIZONTAL RUN OF PRIMER PIPING.
2. TRAP PRIMING SYSTEM AUTOMATICALLY PRIMES UP TO FOUR FLOOR DRAINS.
3. TRAP PRIMER VALVE AND DISTRIBUTION UNIT AS MANUFACTURED BY PRECISION PRODUCTS OR EQUAL.
4. ROUTE VENT PIPE ADJACENT TO WALL THROUGH ROOF.

PUMP (P) SCHEDULE

NO.	LOCATION	SERVES	GPM	PUMP HEAD (FT. W.C)	TEMP-RANGE (°F)	MOTOR ELECTRICAL			TYPE	MANUFACTURER	MODEL	REMARKS
						HP	VOLT/PHASE	RPM				
P-PEPS-1	PEPS BUILDING	PUMP SEALS	4	69.2	AMBIENT	1/2	460/3	3,500	VERTICAL MULTI-STAGE PUMP	GOULDS	1SV02FB4D20V3	2
P-FSB-1	FINE SCREENING BUILDING	PLANT WATER	55	92.3	AMBIENT	3	460/3	3,500	VERTICAL MULTI-STAGE PUMP	GOULDS	10SV01FA30V3	1

REMARKS:

1. GOULDS MOTOR MOUNT VARIABLE SPEED PUMP CONTROLLER AND INTEGRATED PUMP PACKAGE. PROVIDE AND MOUNT DISCONNECT. PROVIDE FLOMATIC 2" WAFER CHECK VALVE W/ EPDM SEATS. PROVIDE AND MOUNT DISCONNECT. PROVIDE FLOMATIC 2" WAFER CHECK VALVE W/ EPDM SEATS. PROVIDE GOULDS HYDROPNEUMATIC TANK GOULDS PT-12.
2. GOULDS MOTOR MOUNT VARIABLE SPEED PUMP CONTROLLER AND INTEGRATED PUMP PACKAGE. PROVIDE AND MOUNT DISCONNECT. PROVIDE 2 GALLONS HYDROPNEUMATIC TANK B&G 1BN300LF.

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MASSILLON, OHIO

PLUMBING

PLUMBING DETAILS & SCHEDULE

FILE NO. 23374.51633 - P001
DATE MARCH 19, 2015

P-001

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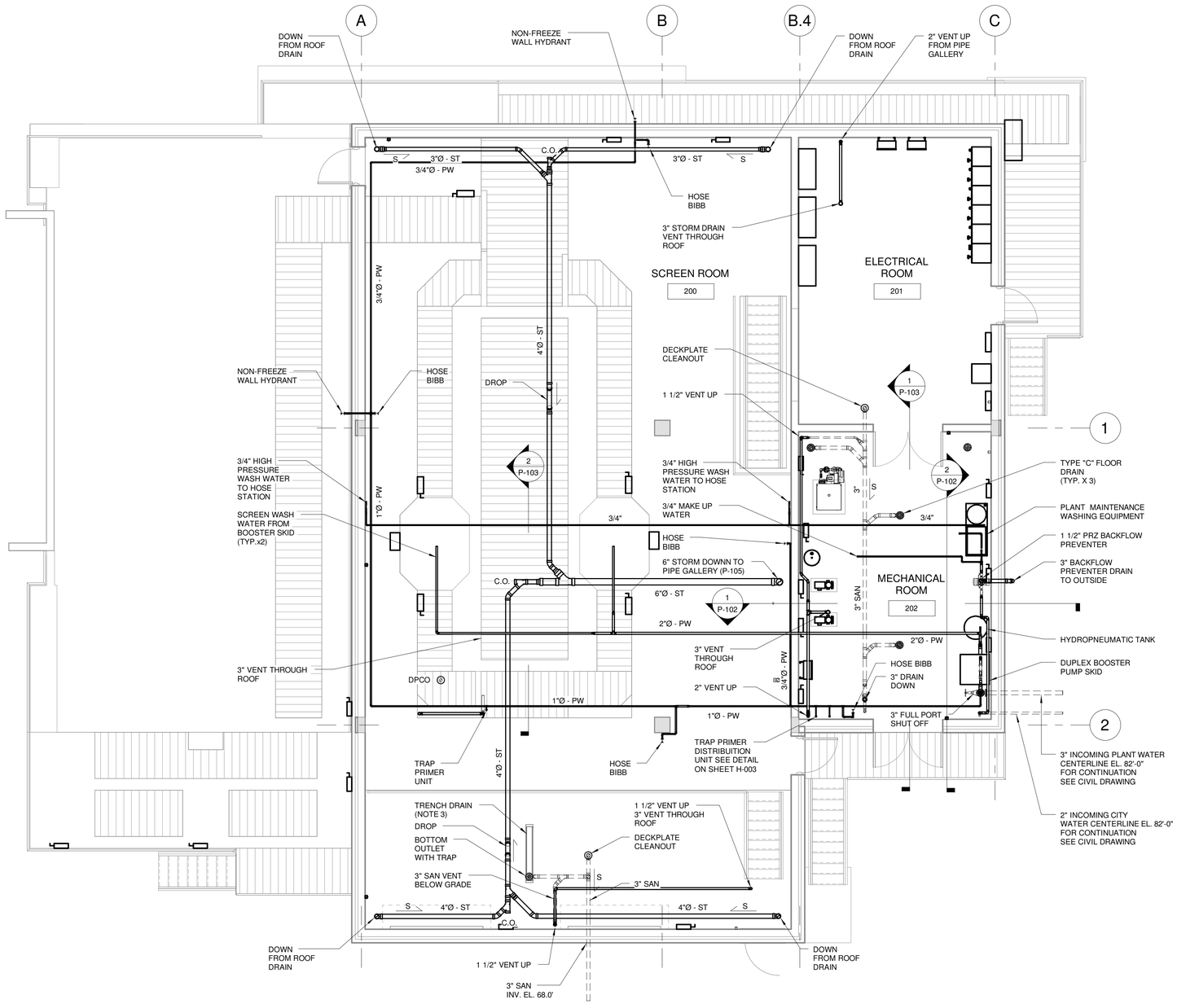

PLAN
3/16" = 1'-0"

5' 0 5'

PLAN NORTH

DRAWING NOTES

1. SLOPE ALL DRAINS AT 1/4" / FT.
2. ALL DRAINS SHALL HAVE TRAPS AND TRAP PRIMERS.
3. COORDINATE LOCATION AND SIZE WITH STRUCTURAL.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
FINE SCREENING BUILDING

WATER & DRAINAGE PLAN

FILE NO. 23374.51633- P101

DATE MARCH 19, 2015

P-101

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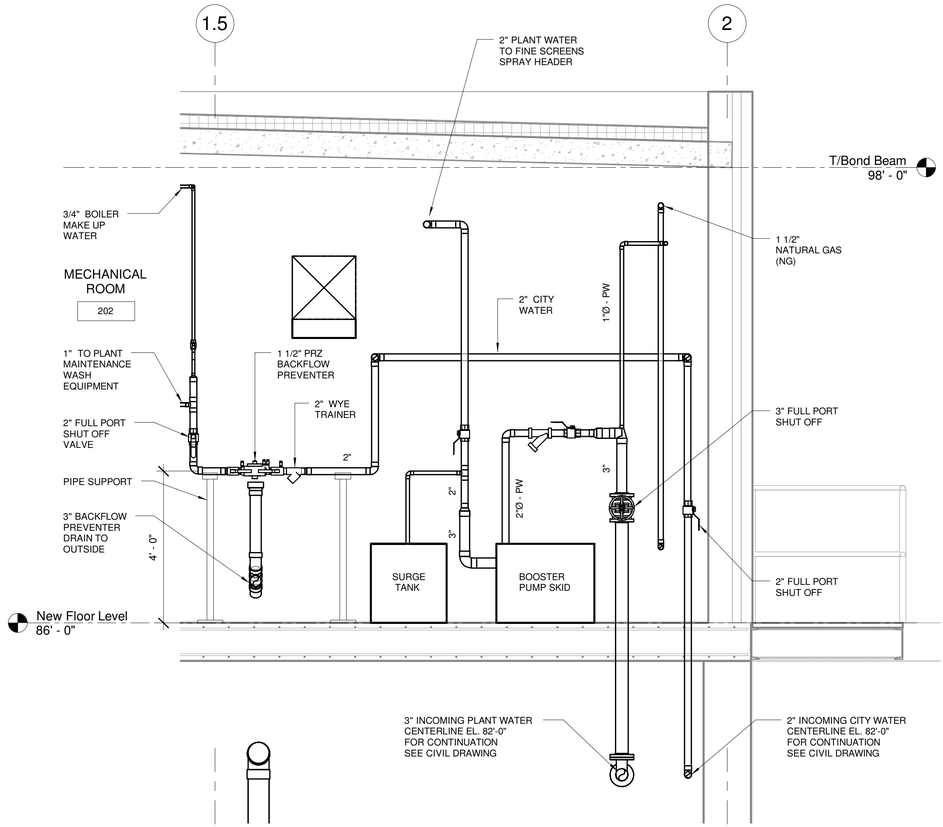
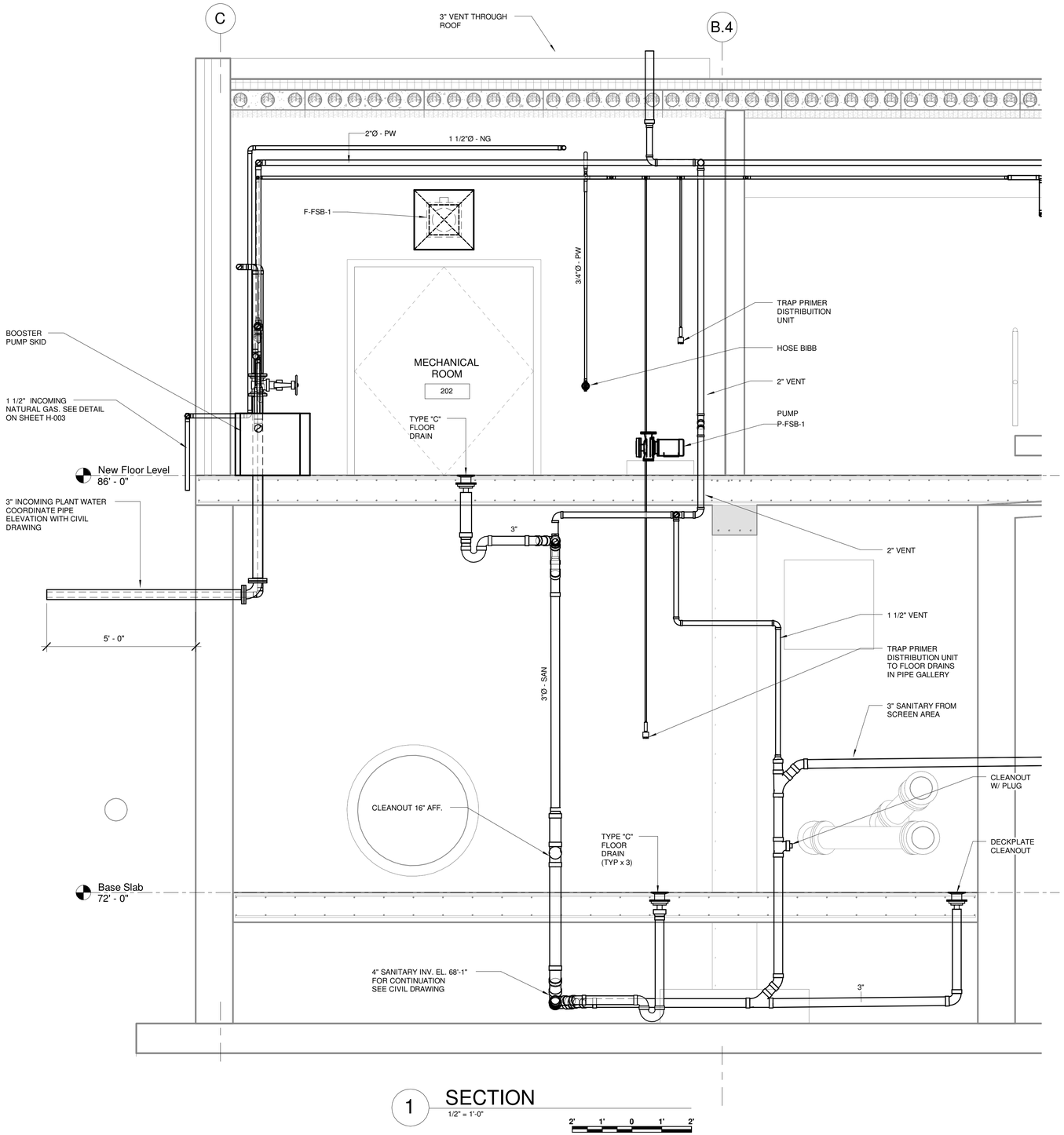


2 SECTION
1/2" = 1'-0"
2' 1' 0 1' 2'



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

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PLUMBING
FINE SCREENING BUILDING

SECTIONS I

FILE NO. 23374.51633- P102

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P-102

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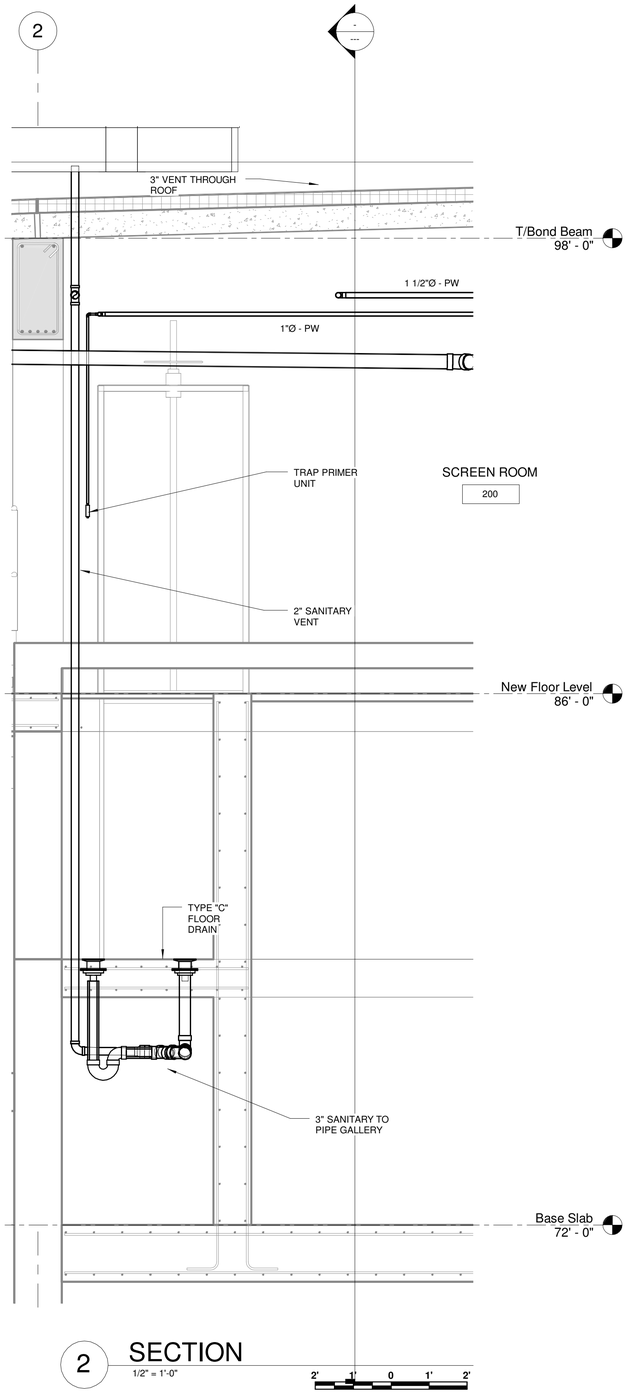

2 SECTION
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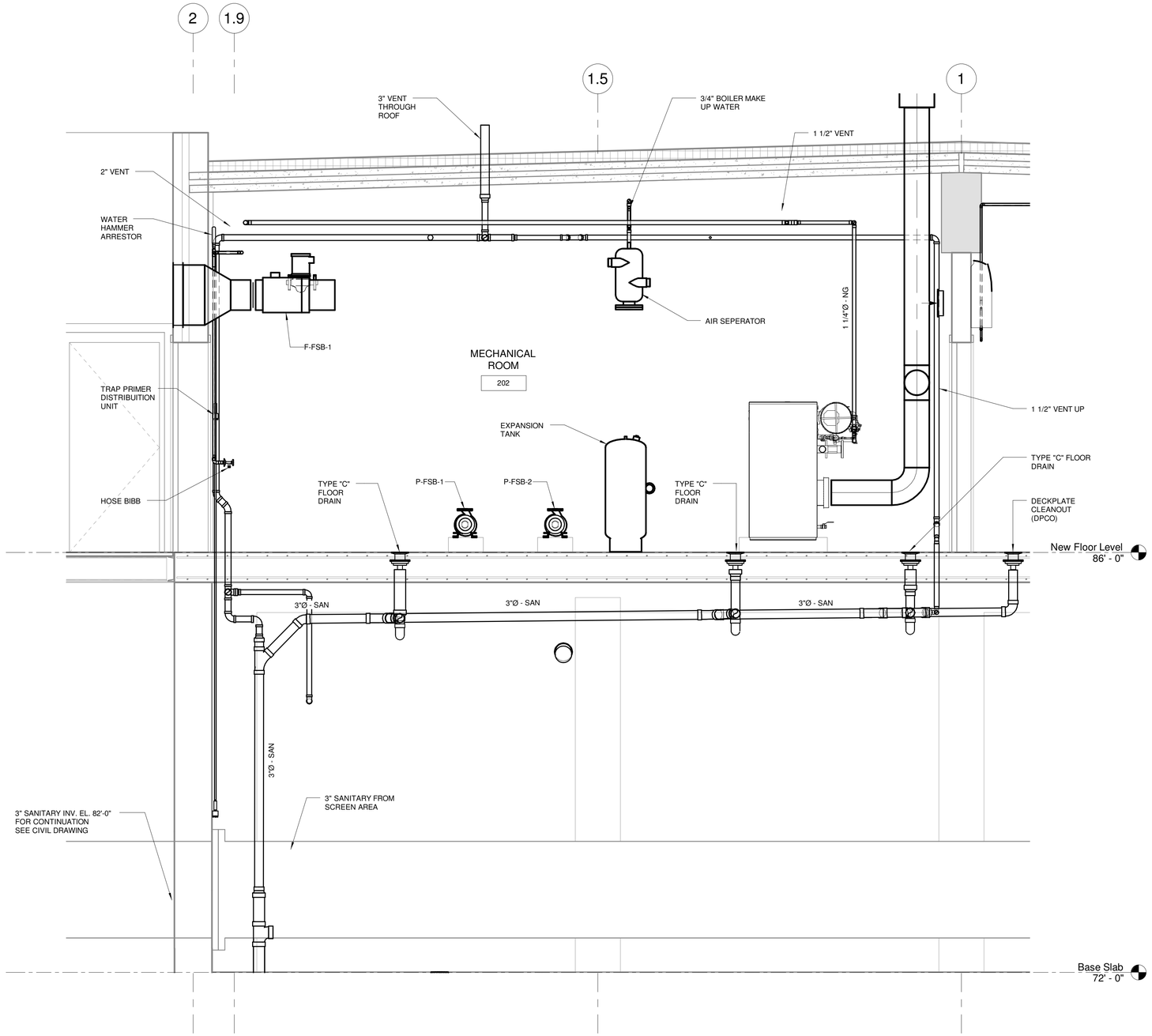
2' 1' 0 1' 2'



1 SECTION
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PLUMBING
FINE SCREENING BUILDING

SECTIONS II

FILE NO. 23374.51633- P103
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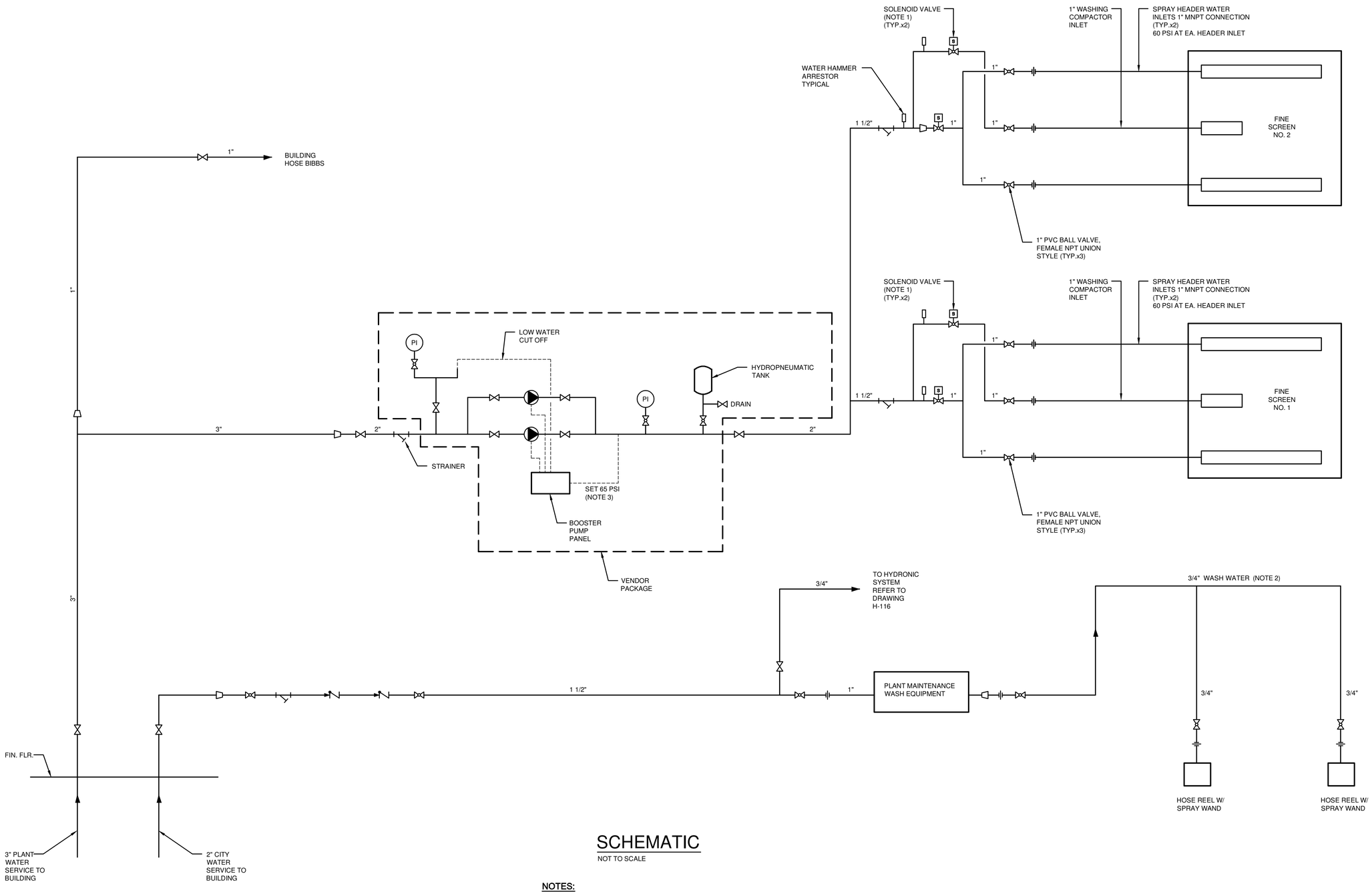

SCHEMATIC

NOT TO SCALE

NOTES:

1. COMPONENT FURNISHED BY FINE SCREEN MANUFACTURER. INSTALLED BY CONTRACTOR.
2. HEATED, HIGH PRESSURE WATER FOR SCREEN WASH.
3. ADJUST SET PRESSURE TO SUIT FINE SCREENING EQUIPMENT REQUIREMENTS.

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PLUMBING
FINE SCREENING BUILDING

PLUMBING SCHEMATIC

FILE NO. 23374.51633 - P104
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P-104

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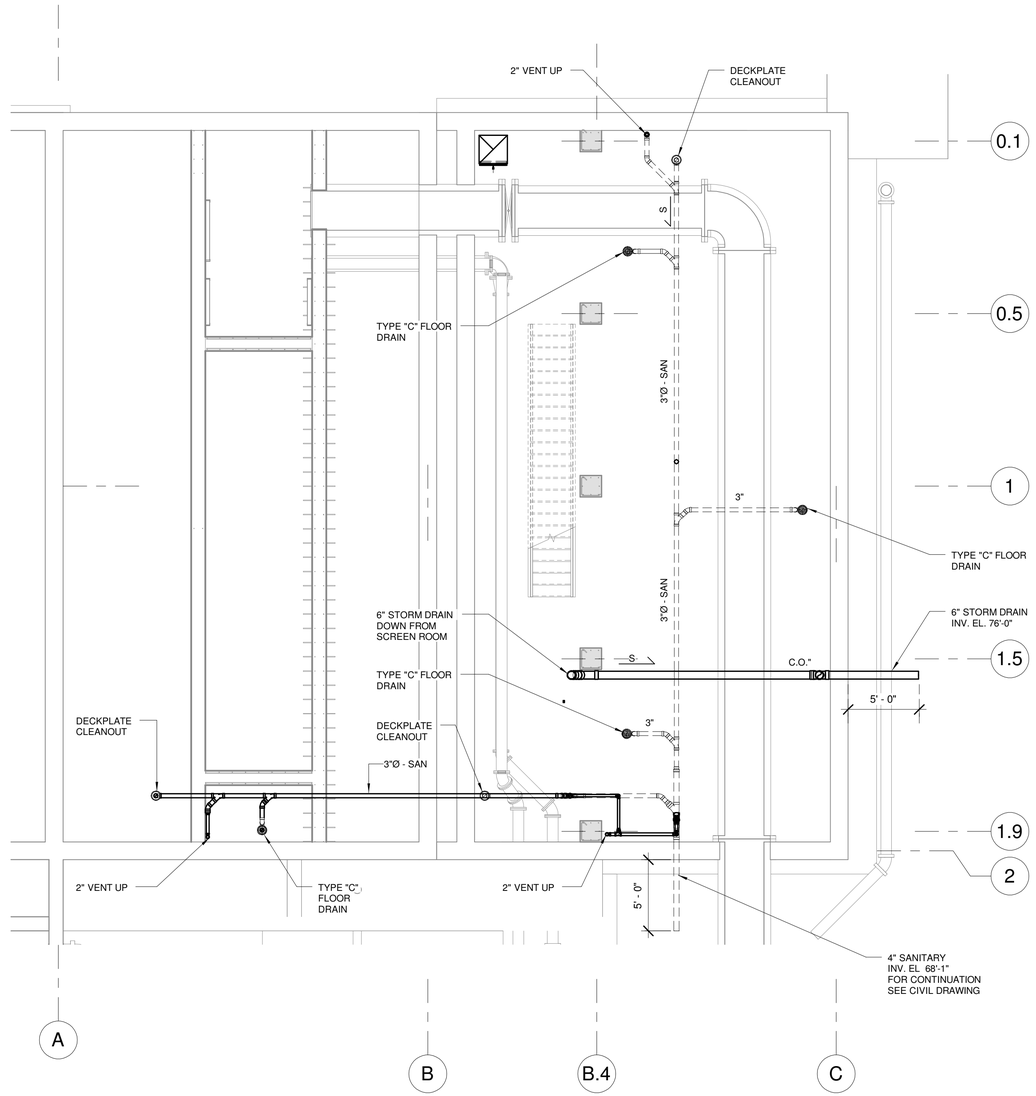

PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

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IN CHARGE OF	DL
DESIGNED BY	KJL
CHECKED BY	JPW
DRAWN BY	KJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
FINE SCREENING BUILDING
PIPE GALLERY DRAINAGE PIPING PLAN

FILE NO. 23374.51633-

DATE MARCH 19, 2015

P-105

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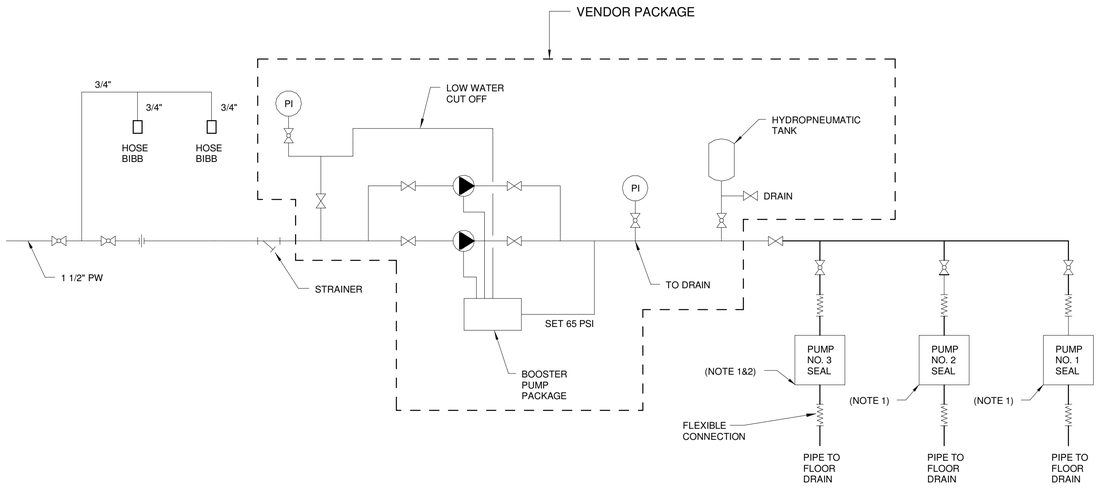
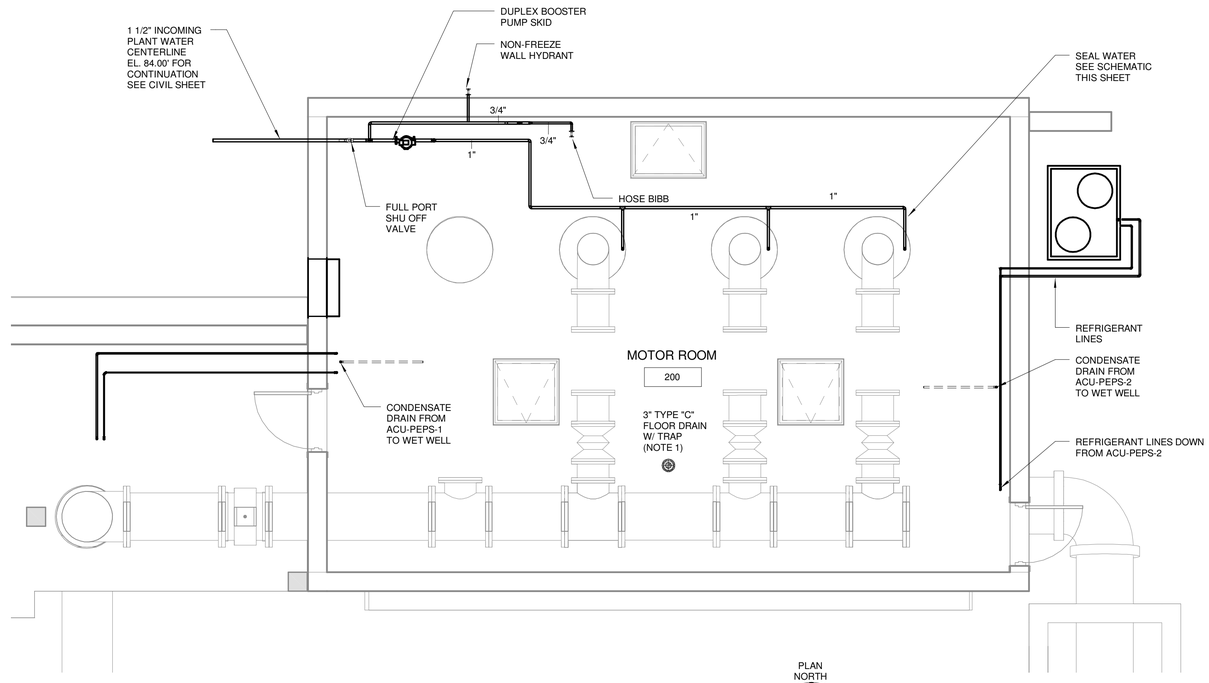


PLANT WATER SCHEAMTIC

NOT TO SCALE

NOTES:

1. PUMP FURNISHED UNDER CONTRACT 18.
2. OMIT SOLENOID VALVE AND PRESSURE REGULATOR. REFER TO TYPICAL SEAL WATER PIPING SCHEMATIC ON M-006.
3. SET BOOSTER PUMP CONTROL TO PRESSURE RECOMMENDED BY SEAL MANUFACTURER.



MOTOR ROOM PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

NOTE*
1. DISCHARGE INTO WET WELL NO TRAP REQUIRED.

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CHECKED BY	JPW
DRAWN BY	KJL

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MASSILLON, OHIO

PLUMBING
PRIMARY EFFLUENT PUMP STATION

MOTOR ROOM PLAN & SCHEMATIC

FILE NO.
23374.51633- P201

DATE
MARCH 19, 2015

P-201

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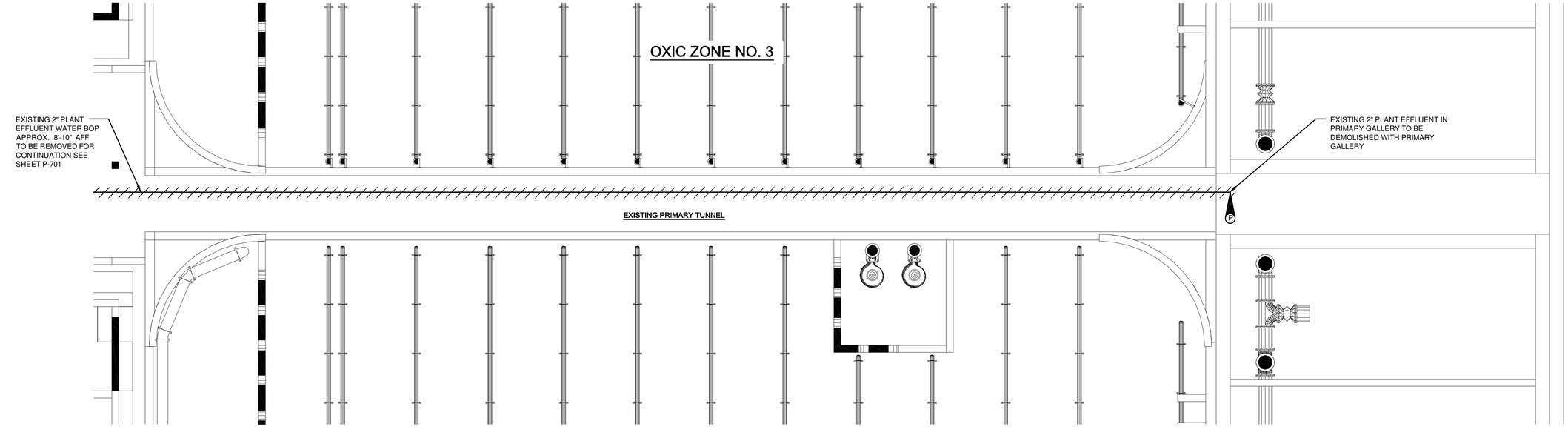

PLAN

1/8"=1'-0"

8' 4' 0 8'

PLAN NORTH

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IN CHARGE OF DL
DESIGNED BY SWM
CHECKED BY JPW
DRAWN BY KJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
BIOLOGICAL REACTOR TANKS

REMOVAL PLAN

FILE NO. 23374.51633 - P301
DATE MARCH 19, 2015

P-301

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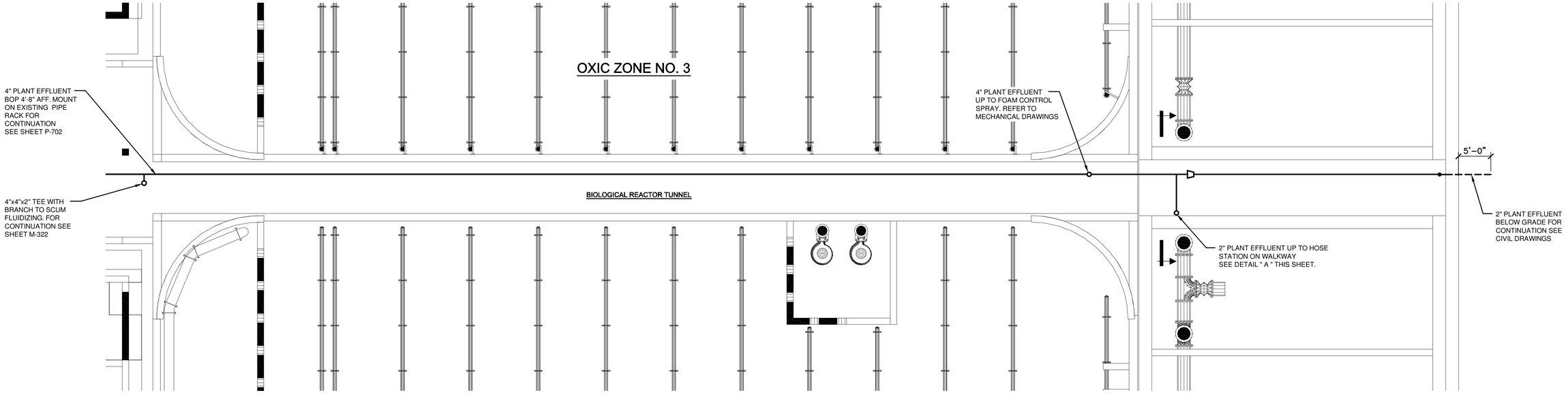
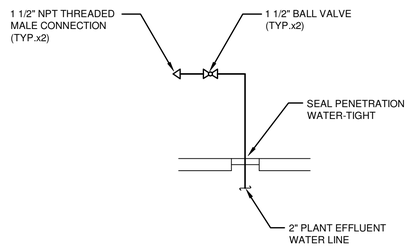


REMOVAL PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

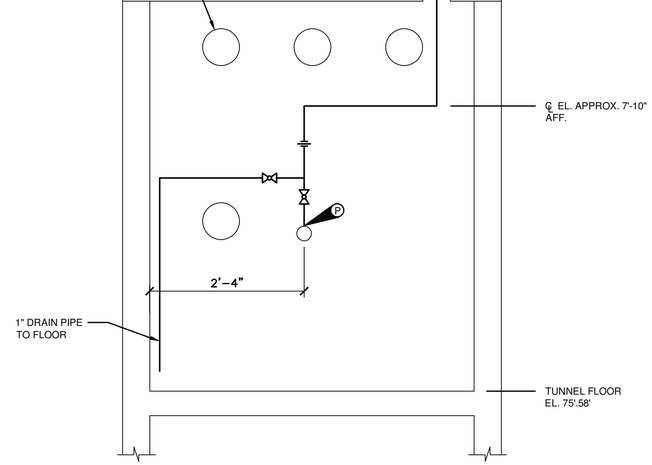


DETAIL "A"

NOT TO SCALE

DETAIL NOTE:

1. ORIENT HOSE STATION TO MINIMIZE INTRUSION INTO WALKWAY.



1 SECTION

NOT TO SCALE

SECTION NOTE:

1. INSTALL HOSE STATION AS CLOSE AS POSSIBLE TO TUNNEL WALL AND HANDRAIL (ABOVE WALKWAY).

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DESIGNED BY SWM
CHECKED BY JPW
DRAWN BY KJL

NO.	DATE	REVISION	INT.
0	09/23/2015	ISSUED FOR BID	DL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
BIOLOGICAL REACTOR TANKS

INSTALL PLAN

FILE NO. 23374.51633 - P302
DATE MARCH 19, 2015

P-302

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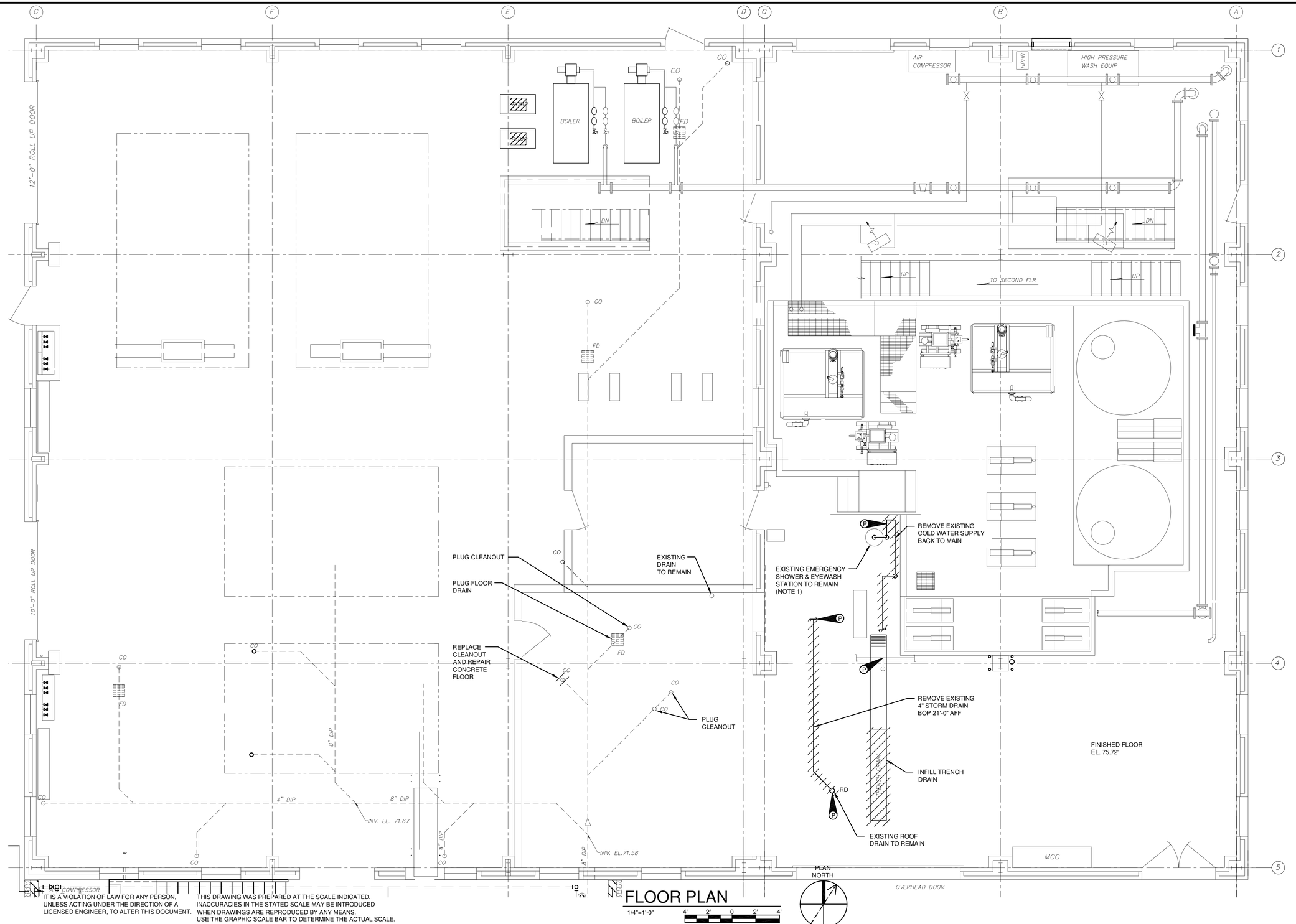

DRAWING NOTES:

1. COORDINATE REMOVALS WITH INSTALLATION OF TEPID WATER SYSTEM TO MINIMIZE SAFETY SHOWER DOWN TIME. REFER TO DRAWING P-602 .

FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

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DRAWN BY KJL

NO.	DATE	REVISION	INT.
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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
SOLIDS HANDLING BUILDING

1ST FLOOR REMOVALS

FILE NO. 23374.51633 - P601
DATE MARCH 19, 2015

P-601

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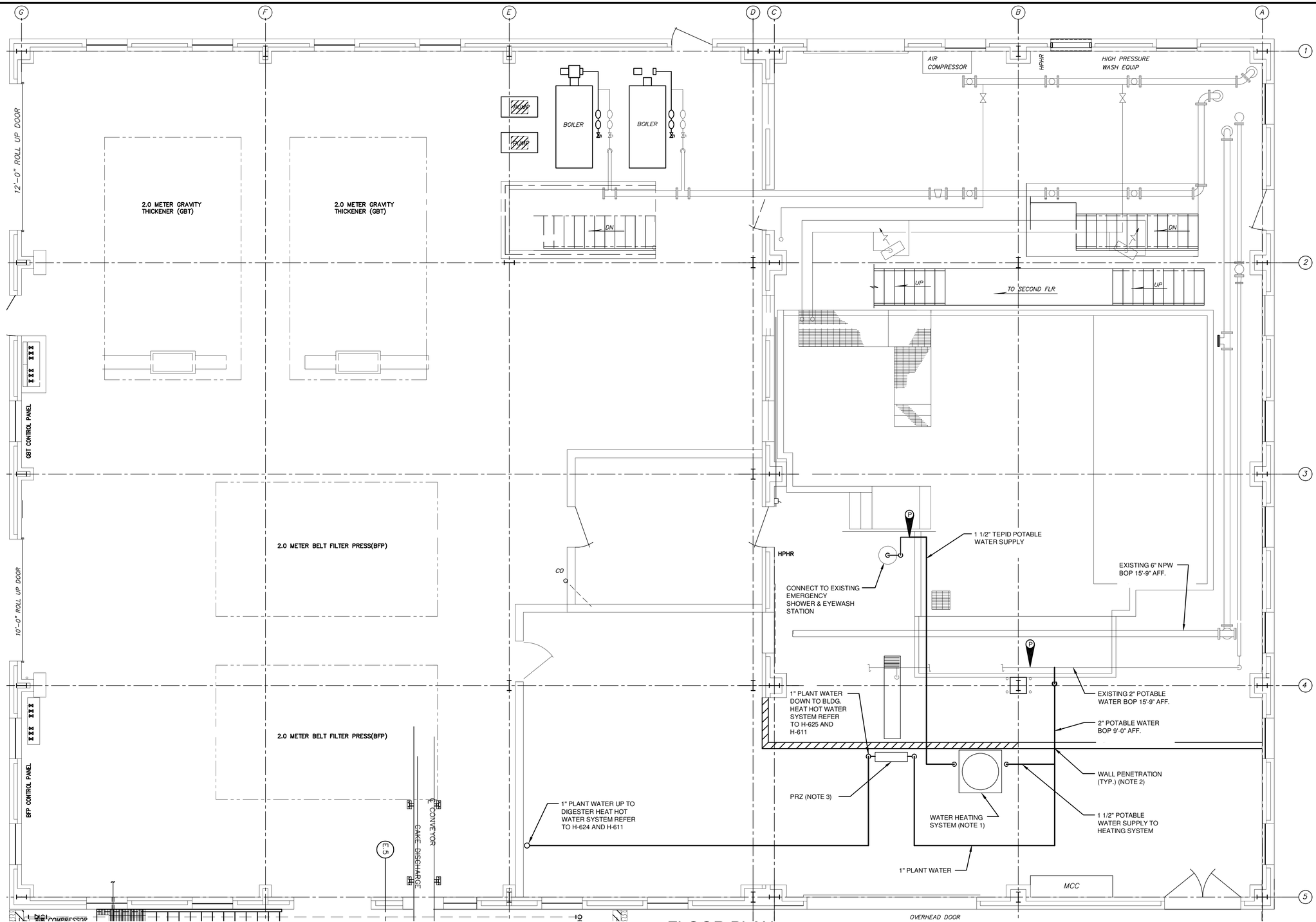

DRAWING NOTE:

1. REFER TO EYEWASH / SHOWER TEPID WATER PIPING SCHEMATIC ON SHEET P-001.
2. SEAL WALL PENETRATION GAS TIGHT.
3. MOUNT RPZ BACKFLOW REVENTER ALONG WALL. PROVIDE REQUIRED CLEARANCES. PROVIDE 3" DRAIN PIPE DIRECT DRAIN TO DISCHARGE TO FLOOR DRAIN.

FLOOR PLAN

1/4"=1'-0"

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IN CHARGE OF	DL		
DESIGNED BY	KJL		
CHECKED BY	JPW		
DRAWN BY	KJL		

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
SOLIDS HANDLING BUILDING
1ST FLOOR
INSTALL PLAN

FILE NO. 23374.51633 - P602
DATE MARCH 19, 2015

P-602

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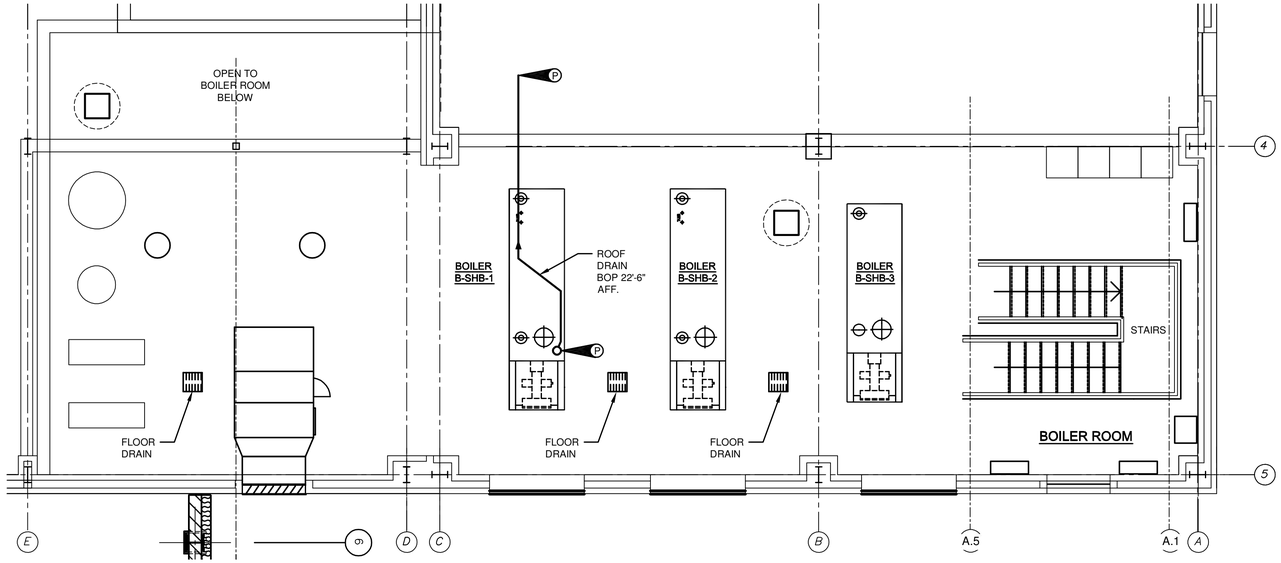


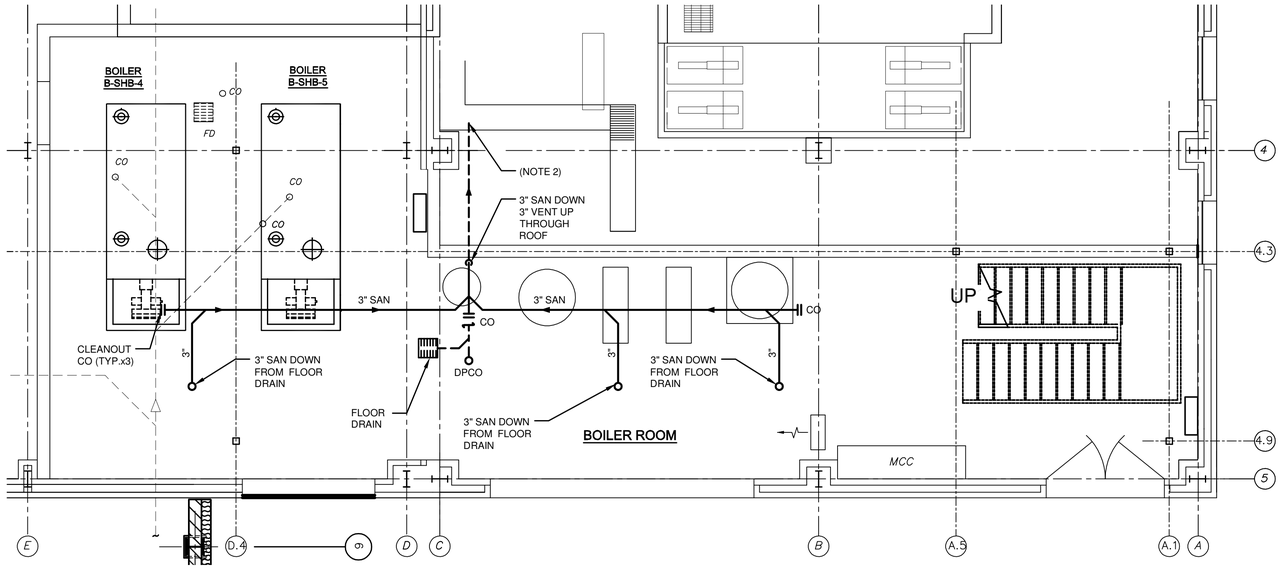
2ND FLOOR PLAN

1/4"=1'-0"

PLAN NORTH

NOTES:

1. PROVIDE CLEANOUT IN VERTICAL.
2. 4" SANITARY DRAIN DISCHARGE INTO EXISTING TRENCH BELOW FLOOR INV. EL. 74.00'



1ST FLOOR PLAN

1/4"=1'-0"

PLAN NORTH

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IN CHARGE OF DL
DESIGNED BY SWM
CHECKED BY JPW
DRAWN BY KJL

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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220 MARKET AVENUE SOUTH
SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
SOLIDS HANDLING BUILDING
BOILER ROOMS SANITARY PIPING PLANS

FILE NO. 23374.51633 - P603
DATE MARCH 19, 2015

P-603

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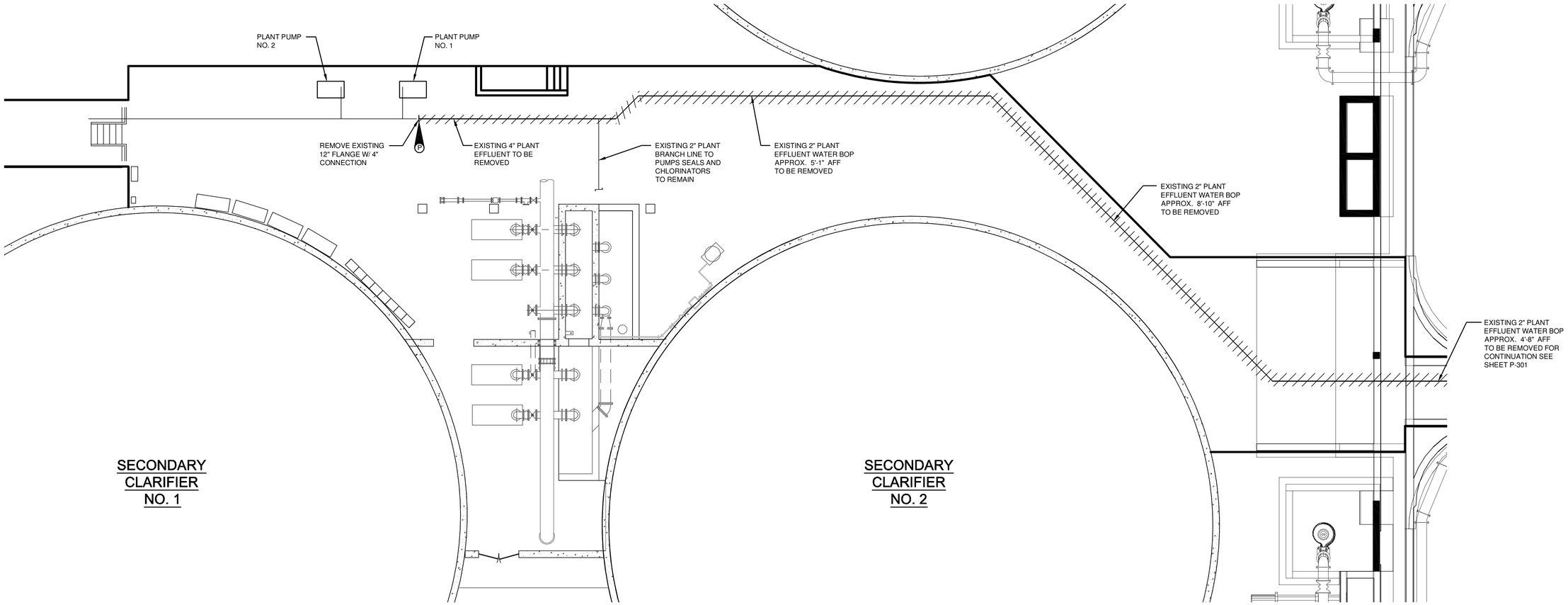

PLAN

1/8"=1'-0"

8' 4' 0 8'

PLAN NORTH

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IN CHARGE OF	JPW			
DESIGNED BY	SWM			
CHECKED BY	JPW			
DRAWN BY	KJL	0	09/23/2015	ISSUED FOR BID	DL
		NO.	DATE	REVISION	INT.

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
SECONDARY GALLERY

REMOVAL PLAN

FILE NO. 23374.51633 - P701

DATE MARCH 19, 2015

P-701

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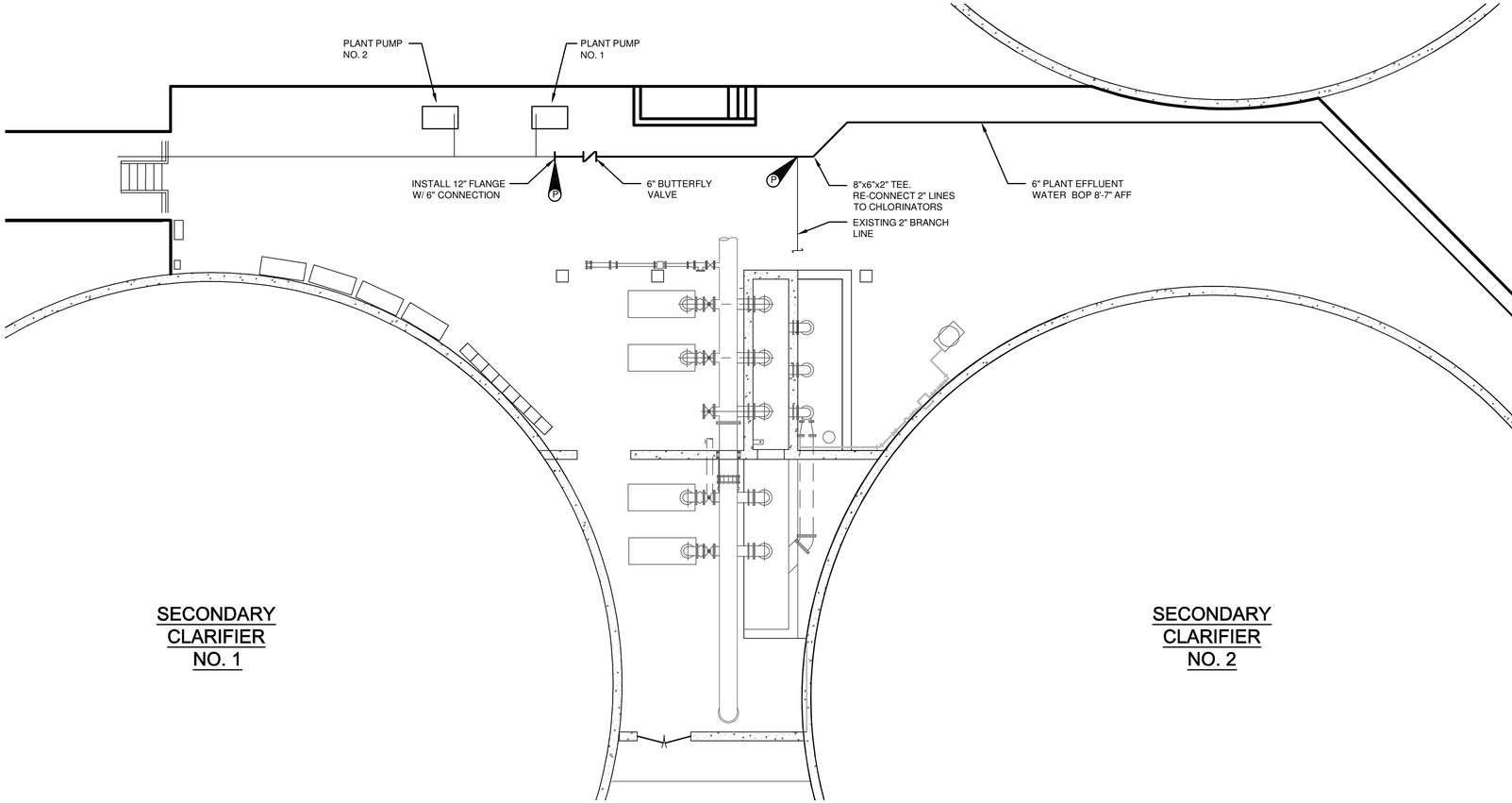
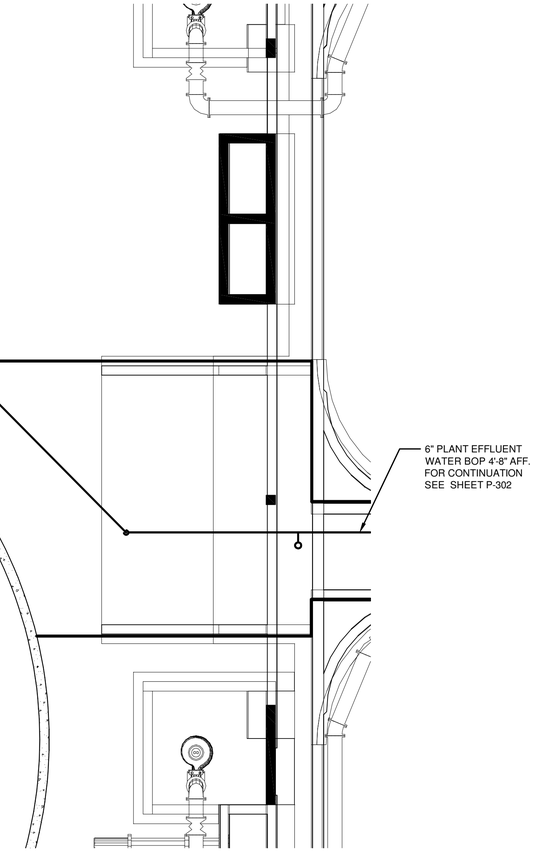


SECONDARY CLARIFIER NO. 1



SECONDARY CLARIFIER NO. 2

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

PLAN NORTH

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IN CHARGE OF	JPW			
DESIGNED BY	SWM			
CHECKED BY	JPW			
DRAWN BY	KJL			
NO.	DATE	REVISION		INT.
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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

PLUMBING
SECONDARY GALLERY

INSTALL PLAN

FILE NO. 23374.51633 -

DATE MARCH 19, 2015

P-702

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SYMBOLS

ONE-LINE AND ELEMENTARY DIAGRAM SYMBOLS

NOTE:

UNLESS OTHERWISE NOTED, ALL SWITCHES AND CONTACTS ARE SHOWN WITH ACTUATING DEVICES IN THE DE-ENERGIZED, OR NON-OPERATED POSITION.

- PUSHBUTTON (MOMENTARY, SPRING RETURN, NORMALLY OPEN CIRCUIT, CLOSE UPON ACTUATION)
- PUSHBUTTON (MOMENTARY, SPRING RETURN, NORMALLY CLOSED CIRCUIT, OPEN UPON ACTUATION)
- MULTI-POSITION SELECTOR SWITCH (X = CONTACT CLOSED; * = SWITCH POSITIONS AS NOTED)
- LIMIT SWITCH (NORMALLY OPEN)
- SWITCH
- TEMPERATURE ACTUATED SWITCH (CLOSED ON RISING TEMPERATURE)
- TEMPERATURE ACTUATED SWITCH (OPEN ON RISING TEMPERATURE)
- PRESSURE ACTUATED SWITCH (CLOSE ON RISING PRESSURE)
- PRESSURE ACTUATED SWITCH (CLOSE ON FALLING PRESSURE)
- TIME DELAY CONTACT (NORMALLY OPEN, TIME DELAY CLOSE)
- TIME DELAY CONTACT (NORMALLY OPEN, TIME DELAY OPEN)
- TIME DELAY CONTACT (NORMALLY CLOSED, TIME DELAY OPEN)
- TIME DELAY CONTACT (NORMALLY CLOSED, TIME DELAY CLOSE)
- CONTACT (NORMALLY CLOSED)
- CONTACT (NORMALLY OPEN)
- INDICATING LIGHT (NON-PUSH-TO-TEST)

* = LENS COLOR:

OP	-OPALESCENT	A	-AMBER
P	-PURPLE	B	-BLUE
R	-RED	C	-CLEAR
W	-WHITE	G	-GREEN
Y	-YELLOW	NE	-NEON
		O	-ORANGE

- RELAY OR CONTACTOR COIL
- MANUAL MOTOR STARTING SWITCH
- POWER CIRCUIT BREAKER
- MOLDED CASE CIRCUIT BREAKER OR MCP
- FUSE
- DRAW-OUT FEATURE
- WIRING ROUTED FROM
- WIRING ROUTED TO
- MOTOR STARTER WITH THERMAL OVERLOAD RELAY (FVNR UNLESS OTHERWISE NOTED)
- FUSED DISCONNECT SWITCH
- NON-FUSED DISCONNECT SWITCH (OR)
- TRANSFORMER
- UNGROUNDED WYE WINDING
- GROUNDED WYE WINDING
- DELTA WINDING
- MOTOR (* = HORSEPOWER)
- GROUND
- CURRENT TRANSFORMER
- VOLTAGE TRANSFORMER
- EQUIPMENT WIRING TERMINAL

LIGHTING SYMBOLS

- WALL MOUNTED FIXTURE
- POST MOUNTED FIXTURE
- S — SINGLE POLE WALL SWITCH
- S 3 — 3-WAY WALL SWITCH
- OS — WALL OCCUPANCY SENSOR (LETTER INDICATES SWITCH GROUP)
- OS — CEILING OCCUPANCY SENSOR
- LV — LOW VOLTAGE LIGHT SWITCH (LETTER INDICATES SWITCH GROUP)
- EMERGENCY BATTERY UNIT
- TS — TIMER SWITCH
- SINGLE FACED EXIT SIGN

GENERAL ELECTRICAL SYMBOLS

- EQUIPMENT OR WIRING TO BE REMOVED
- CONDUIT CONTINUATION
- EXPOSED CONDUIT
- CONDUIT ROUTED IN SLAB, UNDER SLAB, OR DIRECT BURIED WITHOUT CONCRETE ENCASEMENT BELOW FINISHED GRADE
- CONDUIT ROUTED DOWN
- CONDUIT ROUTED UP
- J — JUNCTION BOX
- CONTROL STATION OR CONTROL DEVICE (TYPE AS NOTED)
- ELECTRICAL CONNECTION
- DISCONNECT SWITCH- SEE DISCONNECT SCHEDULE SHEET E-034
- COMBINATION DISCONNECT MOTOR STARTER
- E — BREAK-GLASS TYPE EMERGENCY SHUTOFF
- HOMERUN TO PANELBOARD WITH CIRCUIT NUMBER AS SHOWN
- S M — MANUAL MOTOR STARTING SWITCH
- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE-PEDESTAL (FLOOR) MOUNTED
- QUADRUPLEX RECEPTACLE
- WP — DUPLEX RECEPTACLE WITH WEATHERPROOF COVER
- 480V, 30 AMP RECEPTACLE
- T — THERMOSTAT
- SPD — SURGE PROTECTIVE DEVICE
- CONCRETE ENCASED DUCT BANK (BELOW GRADE)
- SURFACE MOUNTED RACEWAY WITH DEVICES AS INDICATED
- P — POINT OF CONNECTION

ABBREVIATIONS

A	
AFF	ABOVE FINISHED FLOOR
AC	ALTERNATING CURRENT
A	AMPS
AF	AMP FRAME
A.I.C.	AMPS INTERRUPTING CAPACITY
AT	AMPS TRIP
B	
BKR	BREAKER
C	
℄	CENTERLINE
CKT	CIRCUIT
COMPT	COMPARTMENT
COND	CONDUCTOR
C-( )	CONTRACT-(NO.)
CC-( )	CONTROL CONDUIT-(ID)
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR-( )	CONTROL RELAY-(ID)
CT	CURRENT TRANSFORMER
D	
DIA.	DIAMETER
DP	DIFFERENTIAL PRESSURE
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DPM	DIGITAL POWER MONITOR
DC	DIRECT CURRENT
DISC SW	DISCONNECT SWITCH
DP-()	DISTRIBUTION PANEL-(ID)
DPDT	DOUBLE POLE, DOUBLE THROW
E	
EHH-()	ELECTRICAL HAND HOLE - (ID)
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER
EL	ELEVATION
ELU	EMERGENCY LIGHTING UNIT
EMF-( )	EMERGENCY MAIN FEEDER - (ID)
EF	EXHAUST FAN
EX	EXIT SIGN
F	
FSOA	FAST-SLOW-OFF-AUTO
FT	FEET
FL	FLOOR
FWD	FORWARD
FR	FRAME
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	
GPM	GALLONS PER MINUTE
G	GREEN
GRD	GROUND
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
H	
HOA	HAND-OFF-AUTOMATIC
HZ	HERTZ
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER

I	
ID	IDENTIFICATION NUMBER
IMC	INTERNATIONAL MECHANICAL CODE
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
IT	INFORMATION TECHNOLOGY
J	
JB	JUNCTION BOX
K	
KVM	KEYBOARD VIDEO MOUSE
KVA	KILOVOLT AMPERE
KV	KILOVOLT
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
L	
LS	LIMIT SWITCH
LCP-()	LIGHTING CONTROL PANEL - (ID)
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LP-( )	LIGHTING PANEL-(ID)
LP( )-( )	LIGHTING PANEL CIRCUIT (PANEL NO.)-(CKT NO.)
L	LINE CONDUCTOR
M	
MCB	MAIN CIRCUIT BREAKER
MF-( )	MAIN FEEDER - (ID)
MLO	MAIN LUGS ONLY
mA	MILLIAMPERES
MGD	MILLION GALLONS PER DAY
MCP	MOTOR CIRCUIT PROTECTOR
MCC	MOTOR CONTROL CENTER
M	MOTOR STARTER CONTACTOR
MCM	THOUSAND CIRCULAR MILS
MTD	MOUNTED
N	
NEC	NATIONAL ELECTRICAL CODE
N	NEUTRAL CONDUCTOR
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NO.	NUMBER
O	
OL	OVERLOAD
P	
Ø or PH	PHASE
PVC	POLYVINYL CHLORIDE
PT	POTENTIAL TRANSFORMER
PC-( )	POWER & CONTROL CONDUIT - (ID)
P-( )	POWER CONDUIT-(ID)
PRE	POWER ROOF EXHAUSTER
P	POLE
PRESS SW	PRESSURE SWITCH
PCS	PROCESS CONTROL SYSTEM
PLC	PROGRAMMABLE LOGIC CONTROLLER
Q	
QTY	QUANTITY

R	
RECPT	RECEPTACLE
R	RED
RTD	RESISTANCE TEMPERATURE DETECTOR
RAS	RETURN ACTIVATED SLUDGE
REV	REVERSE
RMS	ROOT MEAN SQUARE
S	
SPDT	SINGLE POLE, DOUBLE THROW
SV	SOLENOID VALVE
S/S	START/STOP
SL	STOP LOCKOUT
SST	SOLID STATE STARTER
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
SWB	SWITCHBOARD
SYMM	SYMMETRICAL
T	
T-( )	TRANSFORMER -(ID)
TC-( )	TELECOMMUNICATIONS CONDUIT - (ID) (INCLUDING TELEPHONE, CATV, INTERNET AND OTHER OFF-SITE SYSTEMS)
TEMP	TEMPERATURE
T or T'STAT	THERMOSTAT
TR-( )	TIMING RELAY-(ID)
TMTR	TRANSMITTER
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
U	
UPS	UNITERUPTABLE POWER SUPPLY
UNV	UNIVERSAL
V	
VFD	VARIABLE FREQUENCY DRIVE
VOIP	VOICE OVER INTERNET PROTOCOL
VA	VOLT - AMPERE
VAC	VOLTS ALTERNATING CURRENT
VAR	VOLT AMPERES REACTIVE
VT	VOLTAGE TRANSFORMER
VDC	VOLTS DIRECT CURRENT
W	
W	WATT
WP	WEATHERPROOF
X	
XFMR	TRANSFORMER

GENERAL NOTES:

1. ALL ELECTRICAL EQUIPMENT AND WIRING IS NEW UNLESS OTHERWISE NOTED.
2. WHERE EXISTING EQUIPMENT AND WIRING IS SHOWN TO BE MODIFIED OR REMOVED, FIELD VERIFY EXISTING LOCATIONS, CONNECTIONS AND WIRING TO ENSURE ACTUAL FEATURES ARE AS SHOWN OR NOTED.
3. FIELD VERIFY EXISTING FEATURES AS NECESSARY TO COORDINATE EXECUTION OF THE WORK SHOWN.
4. ELECTRICAL EQUIPMENT SHALL BE MOUNTED WITH OPERATING CONTROLS BETWEEN APPROXIMATELY 4'-0" AND 6'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE SHOWN OR SPECIFIED.
5. ANY INSTRUMENTS THAT ARE MOUNTED IN A HAZARDOUS AREA OR WITHIN A HAZARDOUS ENVELOPE (PER NEC) SHALL BE EXPLOSION PROOF AND WIRED INTRINSICALLY SAFE.

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

SYMBOLS & ABBREVIATIONS

FILE NO. 23374.51633- E001

DATE SEPT. 23, 2015

E-001

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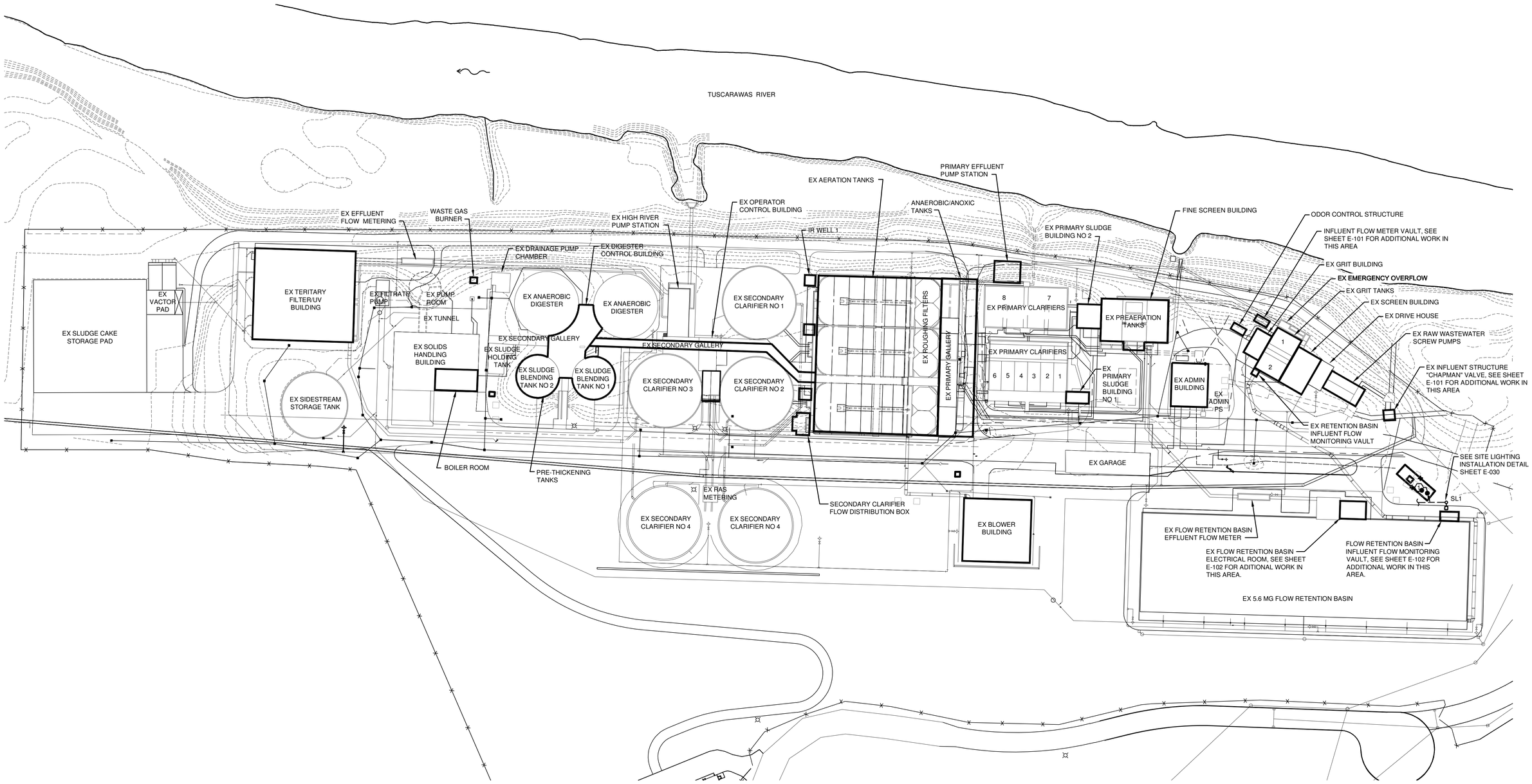

SITE PLAN

1"=60'-0" 60' 0 60'

PLAN NORTH

KEY NOTES:

(1) PROVIDE AND INSTALL 1" CONDUIT W/3-#10, 1-#10GRD FROM LIGHT POLE TO EXISTING LIGHTING CONTACTOR LOCATED IN EX. FLOW RETENTION BASIN ELECTRICAL ROOM. COORDINATE EXACT LOCATION WITH WWTP PERSONNEL.

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CITY OF MASSILLON
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ELECTRICAL

SITE PLAN

FILE NO. 23374.51633 -E002

DATE SEPT. 23, 2015

E-002

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Massillon WWTP – Hazardous Area Classification				
Structure/ Area	**Project Scope**	**Electrical Classification (NFPA 820 Reference)**	**Ventilation Requirements**	**Notes**
Headworks				
Ex. Influent Structure	- Replace 66" sluice gate and motor operator in kind	Class I, Div 2 (Table 4.2 Row 31a)	Not normally ventilated	- Div 2 extends: 18" above structure, 18" around structure, 18" high for10' around on the ground (typical)
Flow Retention Basin Influent Flow Monitoring Vault	- Install new magnetic flow meter to measure bypass flows to the Flow Retention Basin	Class I, Div 2 (Table 4.2 Row 31a)	Not normally ventilated	- Below grade with closed piping - Passive ventilation through hatch (when open)
Ex. Flow Retention Basin - Electrical Room	- Electrical modifications required to install new magnetic flow meter	Unclassified		
Ex. Flow Retention Basin	- Adjust elevation of side water depth on drawings for EPA 1/1 compliance (elevations raised 1 ft in the Storm Flow Basin and 1.75 ft in the Diurnal Basin)	Unclassified (Table 4.2 Row 35)	Open to atmosphere	
Influent Flow Meter Vault	- Replace existing 24" raw influent magnetic flow meter	Class I, Div 2 (Table 4.2 Row 31a)	Not normally ventilated	
Ex. Raw Wastewater Screw Pumps	- Replace screws, upper and lower bearings and influent isolation gates - Reconnect former odor control ductwork to new odor control system	Class I, Div 1 (Table 4.2 Row 16b)	None or less than 12 ACH	
Ex. Screen Building	- Reconnect former odor control ductwork and existing screen enclosures to new odor control system	Class I, Div 1 (Table 5.2, Row 1a)	None or less than 12 ACH	**- Some existing equipment in the building is not rated for Div 1. Upgrades to this equipment to be Div 1 compliant are not included in the project scope.**
Ex. Grit Building	- Reconnect former odor control ductwork to new odor control system - Replace existing odor control blower with new blower located in exterior enclosure adjacent to new Odor Control Structure	Class I, Div 2 Entire area if enclosed (Table 4.2 Row 20a)	None or less than 6 ACH	- New blower installation will meet Div 2 standards.
Fine Screening Building - Screening Room and Dumpster Area	- Construct fine screening building as a structure on top of existing Pre-Aeration Tank; install fine screens in tank, remove raw sewage heat exchanger serving the Administration Building HVAC system, connect new screen enclosures to new odor control ductwork	Class I, Div 2 (Table 5.2, Row 1b)	12 ACH (reduce to 6 ACH during heating season to save energy)	- Fire Extinguisher, Hydrant Protected, Combustible Gas Detector - Exhaust to Odor Control
Fine Screening Building - Electrical Room	- Construct electrical room to serve the Fine Screens Building	Unclassified	Positive Pressurization (@ 50-100 CFM) will be incorporated into the air conditioning system	- Physically separated from screenings process and open wastewater ways
Odor Control Structure	- Connect ventilation to Headworks and Fine Screening Building odor control systems	Class I, Div 2 within 3 feet (Table 4.2 Row 20a)	None. Open to atmosphere	-Unclassified for areas beyond 3 feet. Equipment installed within 3 feet will be Div 2.
Primary Clarification				
Ex. Primary Sludge Pumping Station No. 1- Dry Well	- Add 3 way valve to allow for activation of primary sludge - just in Primary sludge pump station No. 1 or 2 - Extend partition to separate dry well air space from wet well - Renovate existing ventilation system	Unclassified (Table 6.2, Row 9a)	6 ACH	
Ex. Primary Sludge Pumping Station No. 2	- Add 3 way valve to allow for activation of primary sludge - just in Primary sludge pump station No. 1 or 2	Class I, Div 1 (Table 6.2, Row 10a)	Ventilation not required	

Massillon WWTP – Hazardous Area Classification				
Structure/ Area	**Project Scope**	**Electrical Classification (NFPA 820 Reference)**	**Ventilation Requirements**	**Notes**
Primary Effluent Pump Station - Wet Well	- Construct Primary Effluent Pump Station housing Vertical Turbine Solids Handling (VTSH) pumps	Unclassified (Table 5.2 Row 19)	Less than 12 ACH (Passive ventilation with gooseneck pipes above grade)	- Combustible Gas Detector
Primary Effluent Pump Station - Motor Room	- Construct Primary Effluent Pump Station housing Vertical Turbine Solids Handling (VTSH) pumps	Unclassified (Table 5.2 Row 19)	Less than 12 ACH	- Combustible Gas Detector - Mechanical ventilation with intake and exhaust fans controlled by thermostat
Primary Effluent Pump Station - Electrical Room	- Construct electrical room to serve the Primary Effluent Pump Station, Anaerobic / Anoxic Tanks and Aeration Tanks	Unclassified	Positive Pressurization (@ 50-100 CFM) will be incorporated into the air conditioning system	- Physically separated from wet well and open wastewater ways
Biological Treatment				
Anaerobic / Anoxic Tanks	- Construct anaerobic and anoxic treatment tankage with submersible mixers	Class I, Div 2 (Table 5.2 Row 6c)	Open to atmosphere	
Aeration Tanks	- Retrofit existing oxidation ditches to Integrated Fixed-Film Activated Sludge (IFAS) aeration tanks (including modification or addition of baffles, retention sleves, screens, diffused aeration system, internal recycle pumps, piping, valves, gates, etc.)	Unclassified (Table 5.2 Row 7)	Open to atmosphere	
Ex. Blower Building	- Modification to aeration blower system controls: aeration system blower analysis to determine if blower system modifications required or viable - Replace five existing variable frequency drives	Unclassified		
Secondary Clarifier				
Secondary Clarifier Flow Splitter	- Construct new flow splitter box for IFAS effluent, repair existing crack in oxidation ditch effluent channel	Unclassified (Table 5.2 Row 7)	Open to atmosphere	
Ex. Secondary Gallery (East of proposed pressurized vestibule) – RAS/WAS Pumps Ex. Secondary Gallery (East of proposed pressurized vestibule) – RAS/WAS Pumps	- Potential RAS pump motor replacement - WAS pump addition - Separate area from Digester Area with pressurized vestibule in tunnel - Replace existing ventilation and heating system - Replace existing heating hot water piping	Unclassified by ventilation (Table 6.2(a) Row 9b)	6 ACH continuous - recirculate up to 75% exhaust air when unoccupied to save energy.	- Fire Extinguisher, Hydrant Protected, ventilation flow detection with alarm if flow stops, and backup to primary power - Combustible gas detector when including recirculating exhaust air option
	- Construct a Pressurized Vestibule in the tunnel to separate the Div 1 Existing Digester Control Building from the unclassified Existing Secondary Gallery	New vestibule unclassified by pressurization (NFPA 496 for control rooms)	Pressurize 0.1"water column (60ft/min velocity through door openings)	-Differential pressure switch with alarm to sense fan failure and if a door is left open
Tertiary Treatment				
Ex. Tertiary Filter / UV Building	- Install new filter components	Unclassified (Table 5.2 Row 24)	Not required	- Hydrant Protected - No change to ventilation system, design required

Massillon WWTP – Hazardous Area Classification				
Structure/ Area	**Project Scope**	**Electrical Classification (NFPA 820 Reference)**	**Ventilation Requirements**	**Notes**
Solids Handling				
Ex. Solids Handling Building - New Boiler Room	- Construct new boiler room located within the existing Solids Handling Building that is physically separated from the dewatering process - Install boilers for digester and building heating	Unclassified	Vents for boiler combustion air Direct exhaust for interior heat	- (1 or 2) new 6,200,000 Btu/hr digester gas boiler - (1 or 2) new 5,500,000 Btu/hr natural gas boilers - Provisions for (1) future 5,500,000 Btu/hr boiler - 1-hour rated fire walls per Ohio Building Code Table 508.2.5.
Ex. Solids Handling Building - Excluding New Boiler Room Ex. Solids Handling Building - Excluding New Boiler Room	- Removing existing boilers and associated piping, replacing some of the heating hot water piping, and reconnecting existing heating equipment - Potential modifications to ferric chloride piping and pumps	Unclassified by ventilation (Table 6.2(a) Row 12)	6 ACH to meet current standards.	
Ex. Digester Control Building	- Replacing heating hot water piping system and reconnecting existing heating equipment - Minor sludge piping modifications will be performed to continue to discharge raw and waste activated sludge into the pre-thickeners	Class I, Div 1 (Table 6.2(a) Row 17a)	None or less than 12 ACH	
Ex. Sludge Blending Tanks	- Convert into pre-thickening tanks including removal of the existing mixers and tank covers and installation of a sludge collection mechanism with overflow launders and weirs	Class I, Div 2 (Table 6.2(a) Row 11c)	Open to atmosphere	- Div 2 extends: 18" above structure, 18" around structure, 18" high for10' around on the ground
Ex. Waste Gas Burner	- Replacing existing waste gas burner (located a minimum of 50' from existing structures)	Class I, Div 1 (Table 6.2(a) Row 20a)		- Envelope of 10 ft around all fixtures, appurtenances, and housing
Ancillary Facilities				
Ex. Admin. Building	Modify the existing heating and air conditioner system as follows: -Replace the central air conditioner -Replace the central heating system -Modify the controls as required -Replace the Laboratory HVAC with a dedicated roof top unit serving only the Laboratory	Unclassified	10-20 cfm per person	- Modifications due to removal of existing raw sewage heat exchanger currently serving the building needs

ELECTRICAL SEQUENCE OF CONSTRUCTION:

PRIOR TO STARTING CONSTRUCTION ON THE FINE SCREENS BUILDING AND THE PRIMARY EFFLUENT PUMP STATION THE FOLLOWING WORK MUST BE COMPLETED:

- AT THE LOCATION OF THE PROPOSED FINE SCREENS BUILDING (CURRENTLY THE EXISTING PREAERATION TANKS) THE EXISTING MOTOR CONTROL CENTER MCC"A2" SHALL BE DISCONNECTED AND REMOVED. IN ORDER TO DO THIS A NEW TEMPORARY POWER FEED MUST BE PROVIDED FOR THE ADMIN. BUILDING, GARAGE, PRIMARY SLUDGE BUILDING NO.1, PRIMARY SLUDGE BUILDING NO.2 AND THE PRIMARY CLARIFIERS #1 THRU #8.
- THE ADMIN. BUILDING WILL BE POWERED BY A 480V TEMPORARY FEED DIRECTLY FROM EXISTING TRANSFORMER "A2" TO A XXX AMP, NEMA 4X FUSED DISCONNECT TO BE MOUNTED ON THE EXTERIOR EAST WALL OF THE ADMIN. BUILDING.
- THE GARAGE, PRIMARY SLUDGE BUILDING NO.1, PRIMARY SLUDGE BUILDING NO.2 AND THE PRIMARY CLARIFIERS #1 THRU #8 ARE CURRENTLY POWERED FROM EXISTING MOTOR CONTROL CENTER "MCC-A2". THESE STRUCTURES WILL BE POWERED FROM A TEMPORARY OVERHEAD LINE FROM EXISTING TRANSFORMER "E1" LOCATED JUST WEST OF THE BLOWER BUILDING. THE POWER FEED WILL BE CONNECTED TO THE SECONDARY SIDE OF THE TRANSFORMER AND ROUTED OVERHEAD TO A TEMPORARY WEATHERHEAD LOCATED AT PRIMARY SLUDGE BUILDING NO.1 AND ROUTED DOWN TO A XXX AMP SERVICE DISCONNECT SERVICING THE PRIMARY SLUDGE BUILDING NO.1. THE OVERHEAD LINE WILL BE EXTENDED OVER TO PRIMARY SLUDGE BUILDING NO.2 AND SPLICED TO EXISTING CONDUCTORS SERVICING PRIMARY SLUDGE BUILDING NO.2 AFTER TEMPORARY POWER HAS BEEN INSTALLED, EXISTING "MCC-2" LOCATED ON THE PRE-AERATION STRUCTURE WILL BE DE-ENERGIZED AND REMOVED. THE EXISTING CONDUITS FEEDING THE ABOVE REFERENCED STRUCTURES WILL BE FIELD LOCATED AND REMOVED BACK TO A POINT 10'-0" FROM THE PRE-AERATION STRUCTURE (SEE SHEET E-105). AT THIS POINT A NEW ELECTRIC MANHOLE WILL BE INSTALLED AND NEW CONDUITS WILL BE EXTENDED TO THE NEW MOTOR CONTROL CENTER "MCC-FSB-1" BEING INSTALLED IN THE ELECTRICAL ROOM OF THE FINE SCREENS BUILDING.

PRIOR TO STARTING CONSTRUCTION ON THE PRIMARY EFFLUENT PUMP STATION (PEPS) THE FOLLOWING WORK MUST BE COMPLETED:

- THE PRIMARY FEED (12.47KV) FOR TRANSFORMER "C" (LOCATED ON THE EAST SIDE OF THE EXISTING PRIMARY GALLERY) IS FED FROM TRANSFORMER "A2" (LOCATED ON THE EAST SIDE OF THE ADMIN. BUILDING). AT TRANSFORMER "A2" OPEN THE NORMALLY CLOSED SWITCH "B" AND LOCK IN THE OPEN POSITION, DE-ENERGIZING POWER TO TRANSFORMER "C", AT TRANSFORMER "B" OPEN NORMALLY CLOSED SWITCH "A". TRANSFORMER "B" WILL BE TEMPORARILY FED FROM TRANSFORMER "D2", THIS WILL REQUIRE THE CLOSING OF THE NORMALLY OPEN SWITCH "A" AT TRANSFORMER "D1" AND CLOSING THE NORMALLY OPEN SWITCH "B" AT TRANSFORMER "D2".THIS TEMPORARY FEED IS FOR THE DURATION OF PEPS BUILDING CONSTRUCTION ONLY. SEE SHEET E-007 FOR ADDITIONAL INFORMATION.
- TRANSFORMER "C" SHALL BE DISCONNECTED AND RELOCATED TO LOCATION AS SHOWN ON SHEET E-006. THE CONDUIT AND CONDUCTOR WILL BE REMOVED BACK TO THE EXISTING ELECTRIC MANHOLE, NEW 12.47KV PRIMARY CONDUCTOR AND CONDUIT WILL BE INSTALLED FROM THE EXISTING ELECTRIC MANHOLE TO TRANSFORMER "C" NEW LOCATION AS SHOWN. TRANSFORMER "C" WILL BE USED FOR THE INITIAL START-UP OF MCC-PEPS-1 LOCATED IN THE ELECTRIC ROOM OF THE PEPS BUILDING.
- AFTER THE PEPS BUILDING HAS BEEN TESTED AND BROUGHT ON-LINE, TRANSFORMER "B" WILL BE DE-ENERGIZED (OPEN SWITCH "B" AT TRANSFORMER "D2" AND OPEN SWITCH "A" AT TRANSFORMER "D1") AND RELOCATED TO LOCATION AS SHOWN ON SHEET E-006. THE CONDUIT AND CONDUCTOR WILL BE REMOVED BACK TO THE EXISTING ELECTRIC MANHOLE, NEW 12.47KV PRIMARY CONDUCTOR AND CONDUIT WILL BE INSTALLED FROM THE EXISTING ELECTRIC MANHOLE TO TRANSFORMER "B" NEW LOCATION AS SHOWN, NEW CONDUIT AND CONDUCTOR WILL BE INSTALLED FROM TRANSFORMER "B" SWITCH "A" TO TRANSFORMER "C" SWITCH "B", BOTH SWITCHES SHALL BE NORMALLY CLOSED.

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MASSILLON, OHIO

ELECTRICAL

HAZARD CLASSIFICATION

FILE NO. 23374.51633 - E003
DATE SEPT. 23, 2015

E-003

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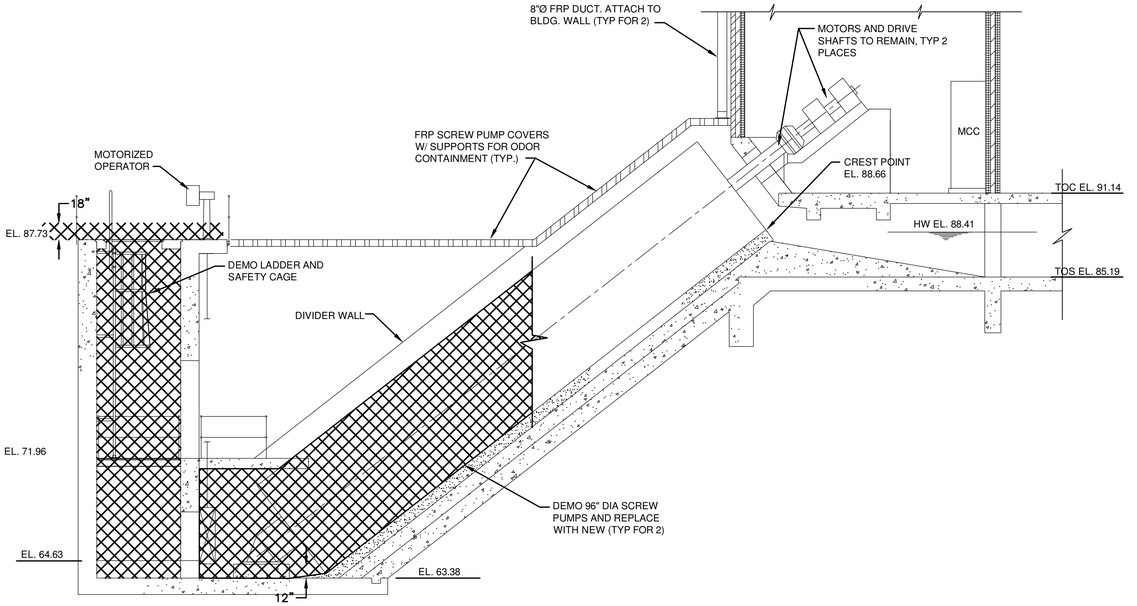
HAZARDOUS CLASSIFICATION LEGEND:

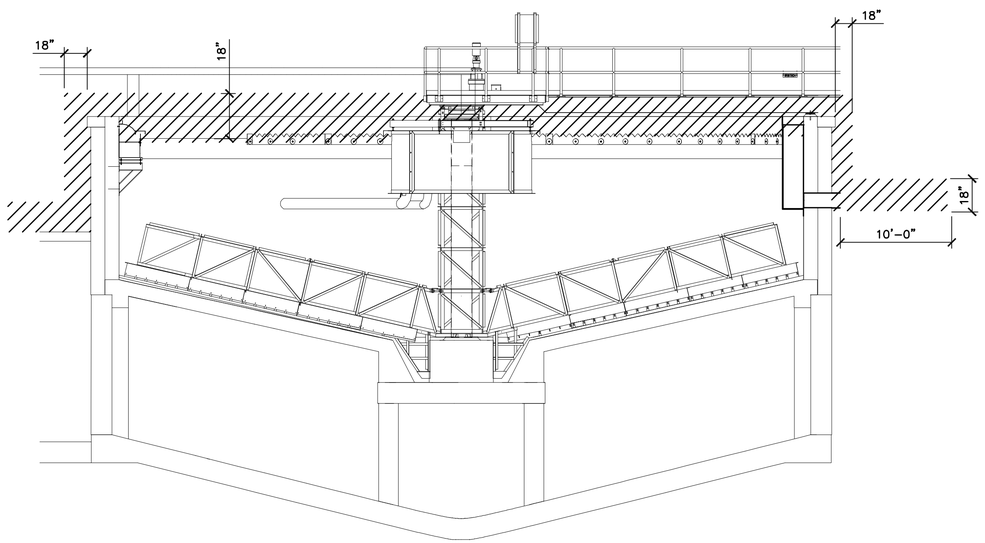
CLASS 1, DIVISION 1

CLASS 1, DIVISION 2



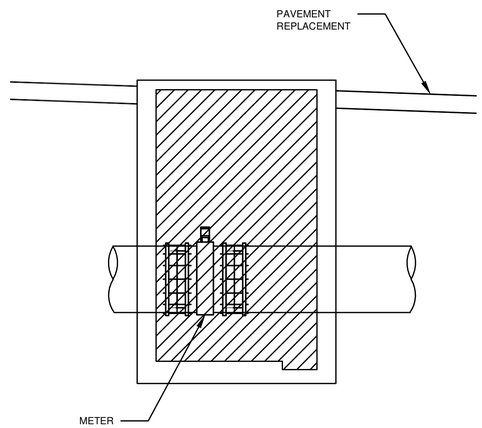
1 SECTION

3/16"=1'-0"



2 EXISTING CONCRETE REPAIR DETAIL

NOT TO SCALE



3 FLOW RETENTION BASIN INFLUENT VAULT SECTION

NOT TO SCALE

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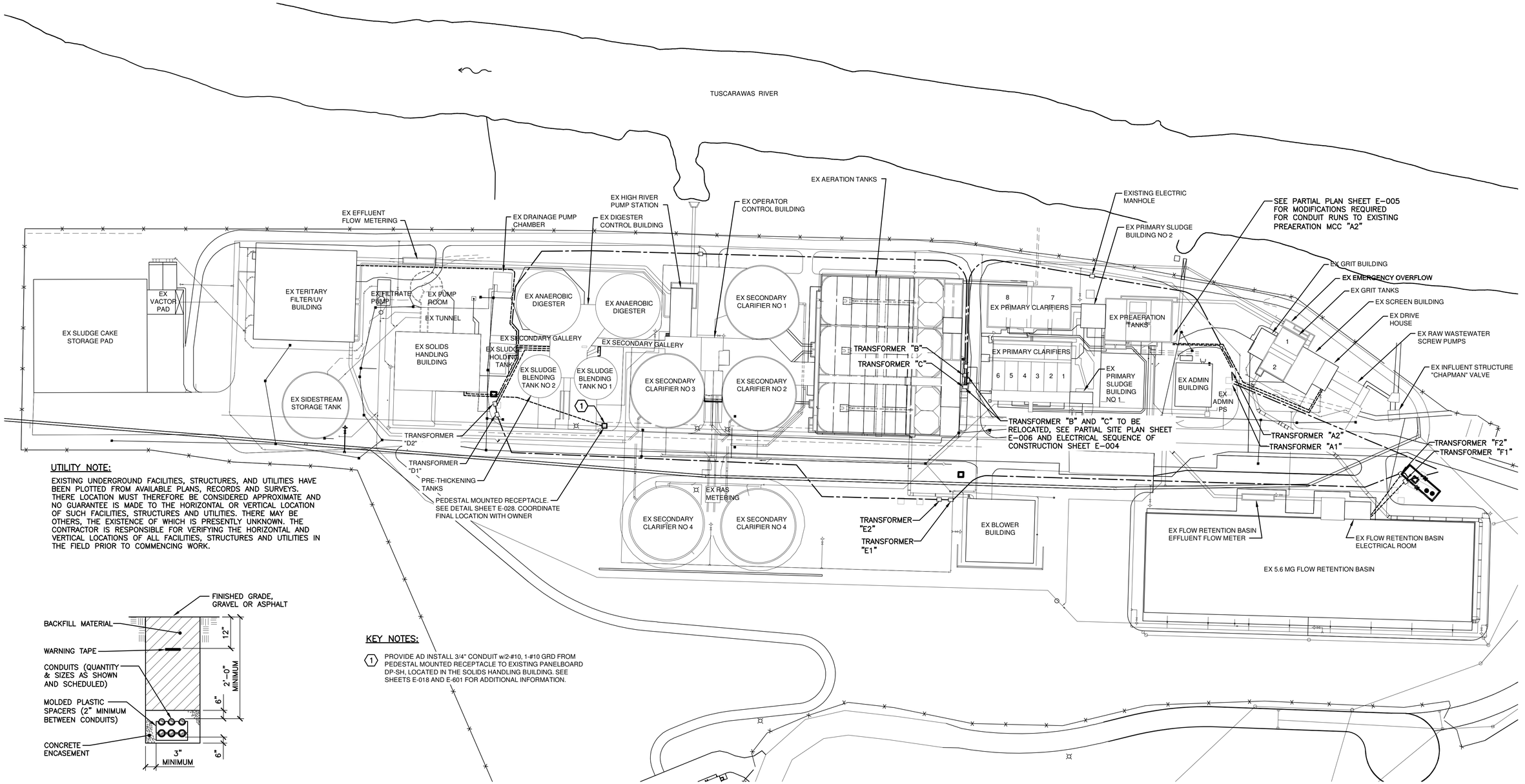

UTILITY NOTE:

EXISTING UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE PLANS, RECORDS AND SURVEYS. THERE LOCATION MUST THEREFORE BE CONSIDERED APPROXIMATE AND NO GUARANTEE IS MADE TO THE HORIZONTAL OR VERTICAL LOCATION OF SUCH FACILITIES, STRUCTURES AND UTILITIES. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY UNKNOWN. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL FACILITIES, STRUCTURES AND UTILITIES IN THE FIELD PRIOR TO COMMENCING WORK.

BURIED CONDUIT DETAIL

NOT TO SCALE

KEY NOTES:

(1) PROVIDE AD INSTALL 3/4" CONDUIT w/2-#10, 1-#10 GRD FROM PEDESTAL MOUNTED RECEPTACLE TO EXISTING PANELBOARD DP-SH, LOCATED IN THE SOLIDS HANDLING BUILDING. SEE SHEETS E-018 AND E-601 FOR ADDITIONAL INFORMATION.

SITE PLAN

1"=60'-0" 60' 0 60'

PLAN NORTH

LEGEND:

---------- EXISTING 480V LINE

——— - ——— EXISTING 12.47KV LINE

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MASSILLON, OHIO

ELECTRICAL

EXISTING PRIMARY POWER DISTRIBUTION

FILE NO. 23374.51633 - E004
DATE SEPT. 23, 2015

E-004

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3-1/C 15KV 4/0 U.G. CABLE WITH PVC JACKET OVER CONCENTRIC NEUTRAL IN 4" PVC SCHEDULE 80 CONDUIT

PROPOSED LOCATION OF RELOCATED TRANSFORMER "B", FIELD COORDINATE ACTUAL LOCATION

PRIMARY EFFLUENT PUMP STATION

PROPOSED LOCATION OF RELOCATED TRANSFORMER "C", FIELD COORDINATE ACTUAL LOCATION

REMOVE CONDUIT AND CONDUCTOR FROM CURRENT TRANSFORMER "C" LOCATION BACK TO EXISTING ELECTRIC MANHOLE

PROVIDE AND INSTALL A NEW MANHOLE EMH-3, SEE DETAIL SHEET E-029. AT MANHOLE SPLICE EXISTING CONDUCTORS WITH NEW USING A WATERTIGHT, SUBMERSIBLE SPLICE KIT USING A THOMAS&BETTS ALUMINUM FLOOD-SEAL COMPRESSION SPLICE KIT OR APPROVED EQUAL.

CC-PEPS-40

PROVIDE AND INSTALL NEW TRANSFORMER PAD, SEE SHEET E-029 FOR TRANSFORMER PAD DETAIL

PROVIDE AND INSTALL A NEW MANHOLE EMH-2, SEE DETAIL SHEET E-029. AT MANHOLE SPLICE EXISTING CONDUCTORS WITH NEW USING A WATERTIGHT, SUBMERSIBLE SPLICE KIT USING A THOMAS&BETTS ALUMINUM FLOOD-SEAL COMPRESSION SPLICE KIT OR APPROVED EQUAL.

FINE SCREEN BUILDING

CC-FSB-02, CC-AB-01

CC-FSB-01, CC-FSB-02 & CC-FSB-35

PROVIDE AND INSTALL NEW TRANSFORMER PAD, SEE SHEET E-029 FOR TRANSFORMER PAD DETAIL

3-1/C 15KV 4/0 U.G. CABLE WITH PVC JACKET OVER CONCENTRIC NEUTRAL IN 4" PVC SCHEDULE 80 CONDUIT

EPB-1

ODOR CONTROL STRUCTURE

PROPOSED ELECTRIC MANHOLE EMH-1, SEE DETAIL SHEET E-029

INFLUENT FLOW METER VAULT

EX. PRIMARY SLUDGE BUILDING NO.2

EXISTING PREAERATION TANKS

PRIMARY CLARIFIERS

8

7

APPROXIMATE LOCATION OF TEMPORARY POWER POLE

CC-FSB-35

CC-FSB-01, CC-AB-01

EXISTING GRIT BUILDING

EXISTING GRIT TANKS

EXISTING SCREEN BUILDING

CC-PEPS-39

PRIMARY CLARIFIERS

1 2 3 4 5 6

SERVICE ENTRANCE DROP TO EX. PRIMARY SLUDGE BUILDING NO.2 SERVICE DISCONNECT SWITCH. SEE OVERHEAD SERVICE ENTRANCE DETAIL ON SHEET E-029

EXISTING ADMIN. BUILDING

EPB-4

ROUTE CONDUITS THRU THE SECONDARY TUNNEL TO THE LAB PCS CONTROL PANEL, FIELD COORDINATE ACTUAL ROUTING WITH OWNER

APPROXIMATE LOCATION OF TEMPORARY POWER POLE

EX. PRIMARY SLUDGE BUILDING NO.1

CC-BB-24

CC-BB-24, CC-PEPS-39

TRANSFORMER "B"

TRANSFORMER "C", RELOCATE TO NEW LOCATION SHOWN ON THIS PLAN

TRANSFORMER "A2"

TRANSFORMER "A1"

EPB-2

EPB-3

SERVICE ENTRANCE DROP TO EX. PRIMARY SLUDGE BUILDING NO.1 SERVICE DISCONNECT SWITCH. SEE OVERHEAD SERVICE ENTRANCE DETAIL ON SHEET E-029

APPROXIMATE LOCATION AND ROUTING OF TEMPORARY POWER

EX. GARAGE

TEMPORARY 40'-0" CLASS 4 POLE IMBEDDED IN GROUND 6'-0" USING AUGER METHOD (TYPICAL FOR 4)

PARTIAL SITE PLAN

1"=20'-0" 20' 0 20'

PLAN NORTH

LEGEND:

- EXISTING 480V LINE
- EXISTING 12.47KV LINE
- PROPOSED 12.47KV LINE
- EQUIPMENT SCHEDULED FOR REMOVAL
- (P) POINT OF CONNECTION

UTILITY NOTE:

EXISTING UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE PLANS, RECORDS AND SURVEYS. THERE LOCATION MUST THEREFORE BE CONSIDERED APPROXIMATE AND NO GUARANTEE IS MADE TO THE HORIZONTAL OR VERTICAL LOCATION OF SUCH FACILITIES, STRUCTURES AND UTILITIES. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY UNKNOWN. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL FACILITIES, STRUCTURES AND UTILITIES IN THE FIELD PRIOR TO COMMENCING WORK.

KEY NOTES:

1. REMOVE CONDUIT DOWN TO FIRST STRAIGHT COUPLING BELOW GRADE. PROTECT CONDUCTORS AND USE FOR CONNECTION TO TEMPORARY SERVICE.
2. ONCE THE MOTOR CONTROL CENTER MCC-FSB-1 HAS BEEN TESTED AND ENERGIZED AT THE NEW FINE SCREENS BUILDING, INSTALL NEW PVC COATED RIGID STEEL CONDUIT FROM FIRST COUPLING BELOW GRADE AND ROUTE CONDUIT UP OUTSIDE OF BUILDING TO EXISTING POWER DISTRIBUTION PANELBOARD LOCATED IN EXISTING PRIMARY SLUDGE BUILDING NO.2. PROVIDE AND INSTALL SEALOFFS AS REQUIRED.
3. INSTALL NEW CONDUCTORS FOR NEW INCOMING SERVICE. SEE CONDUIT AND CONDUCTOR SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE AND QUANTITY. COORDINATE SND SCHEDULE DURATION OF SHUTDOWN WITH THE OWNER FOR INSTALLATION OF NEW CONDUCTORS.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

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CHECKED BY RGH
DRAWN BY JEC

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O'BRIEN & GERE
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

SITE PARTIAL PLAN

FILE NO. 23374.51633 -E005

DATE SEPT. 23, 2015

E-005

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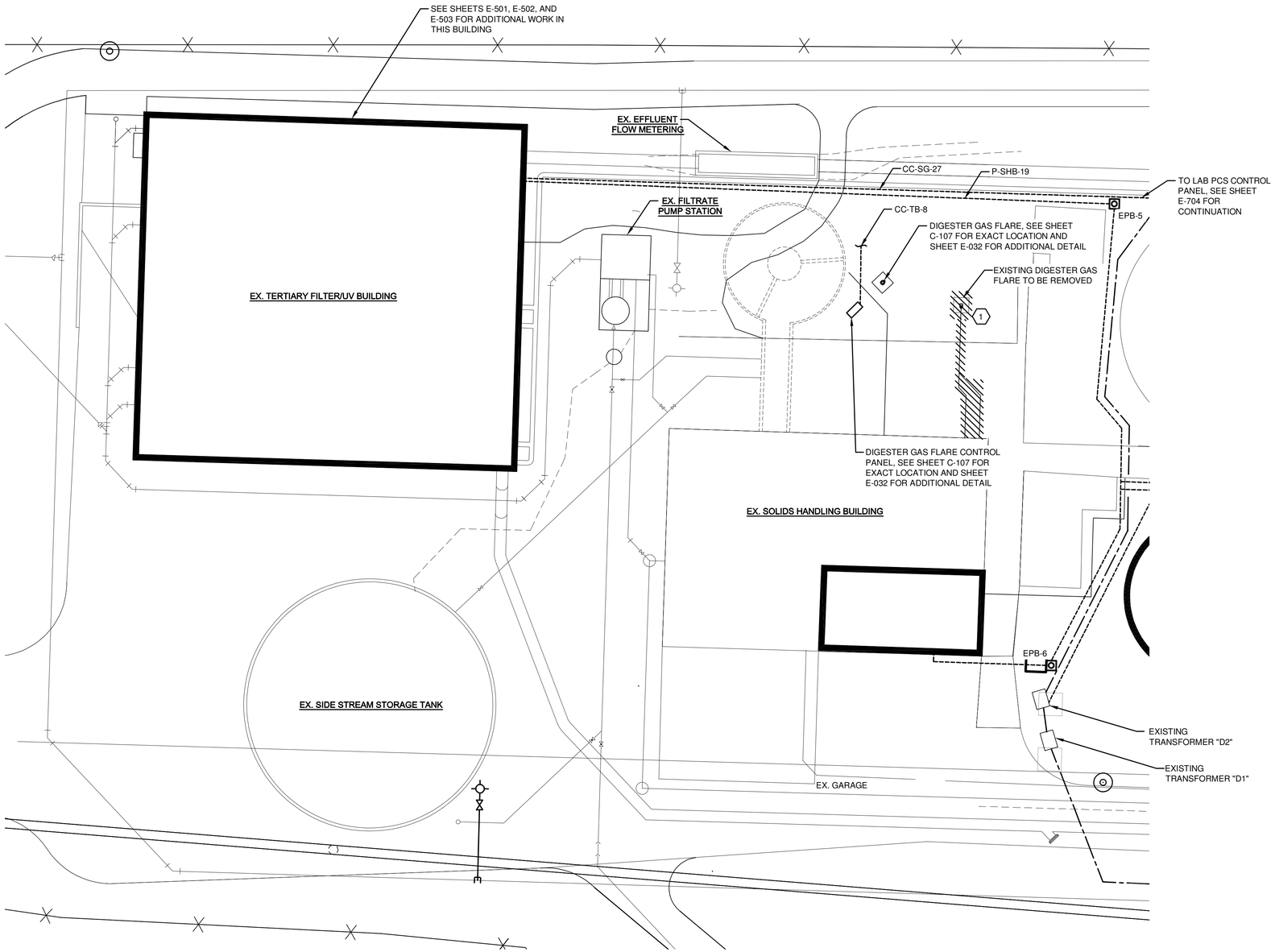

PARTIAL SITE PLAN

1"=20'-0"

PLAN NORTH

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTOR'S WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.

KEYED NOTES:

(1) DISCONNECT AND REMOVE EXISTING CONDUCTORS BACK TO POWER SOURCE, AT SOURCE LABEL CIRCUIT AS SPARE. CONDUIT SHALL BE REOVED TO A POINT 3'-0" BELOW GRADE AND ABANDONED IN PLACE. AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPEWRITTEN PANEL DIRECTORY

UTILITY NOTE:

EXISTING UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE PLANS, RECORDS AND SURVEYS. THERE LOCATION MUST THEREFORE BE CONSIDERED APPROXIMATE AND NO GUARANTEE IS MADE TO THE HORIZONTAL OR VERTICAL LOCATION OF SUCH FACILITIES, STRUCTURES AND UTILITIES. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY UNKNOWN. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL FACILITIES, STRUCTURES AND UTILITIES IN THE FIELD PRIOR TO COMMENCING WORK.

LEGEND:

- EXISTING 480V LINE
- EXISTING 12.47KV LINE
- PROPOSED 12.47KV LINE
- EQUIPMENT SCHEDULED FOR REMOVAL

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

PARTIAL SITE PLAN

FILE NO. 23374.51633 - E006
DATE SEPT. 23, 2015

E-006

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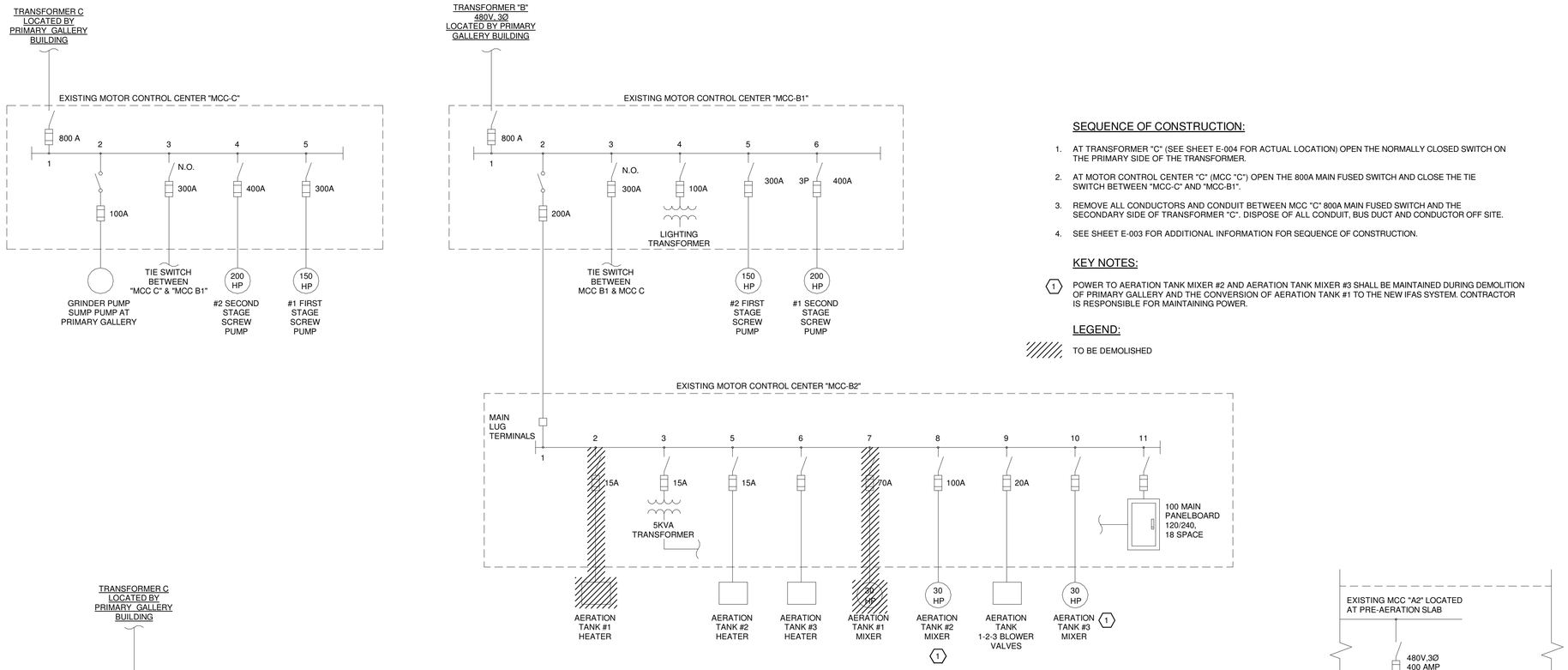


1 EXISTING PRIMARY GALLERY MCC'S

NOT TO SCALE

SEQUENCE OF CONSTRUCTION:

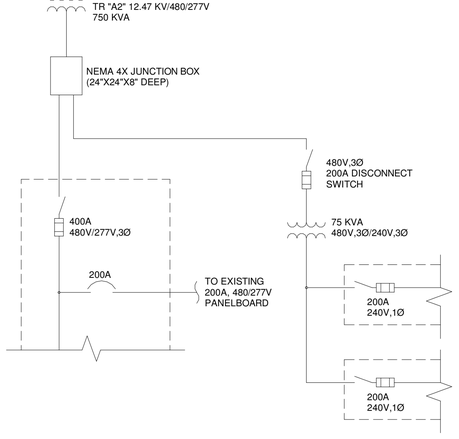
1. AT TRANSFORMER "C" (SEE SHEET E-004 FOR ACTUAL LOCATION) OPEN THE NORMALLY CLOSED SWITCH ON THE PRIMARY SIDE OF THE TRANSFORMER.
2. AT MOTOR CONTROL CENTER "C" (MCC "C") OPEN THE 800A MAIN FUSED SWITCH AND CLOSE THE TIE SWITCH BETWEEN "MCC-C" AND "MCC-B1".
3. REMOVE ALL CONDUCTORS AND CONDUIT BETWEEN MCC "C" 800A MAIN FUSED SWITCH AND THE SECONDARY SIDE OF TRANSFORMER "C". DISPOSE OF ALL CONDUIT, BUS DUCT AND CONDUCTOR OFF SITE.
4. SEE SHEET E-003 FOR ADDITIONAL INFORMATION FOR SEQUENCE OF CONSTRUCTION.

KEY NOTES:

(1) POWER TO AERATION TANK MIXER #2 AND AERATION TANK MIXER #3 SHALL BE MAINTAINED DURING DEMOLITION OF PRIMARY GALLERY AND THE CONVERSION OF AERATION TANK #1 TO THE NEW IFAS SYSTEM. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING POWER.

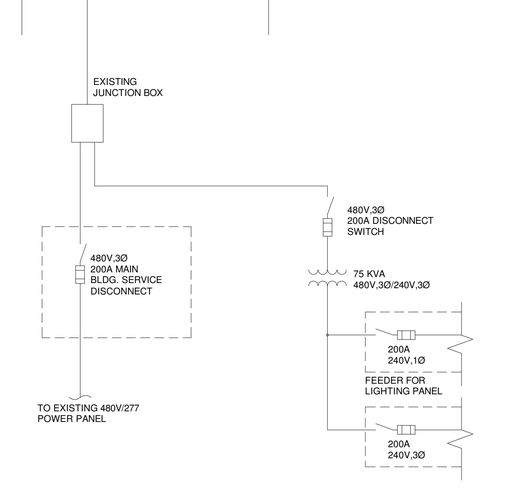
LEGEND:

TO BE DEMOLISHED



2 MODIFIED ADMINISTRATION BLDG. ONE-LINE

NOT TO SCALE



3 EXISTING ADMINISTRATION BLDG. ONE-LINE

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CHECKED BY	RGH
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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
EXISTING PRIMARY GALLERY

ONE-LINE DIAGRAM

FILE NO. 23374.51633- E007

DATE SEPT. 23, 2015

E-007

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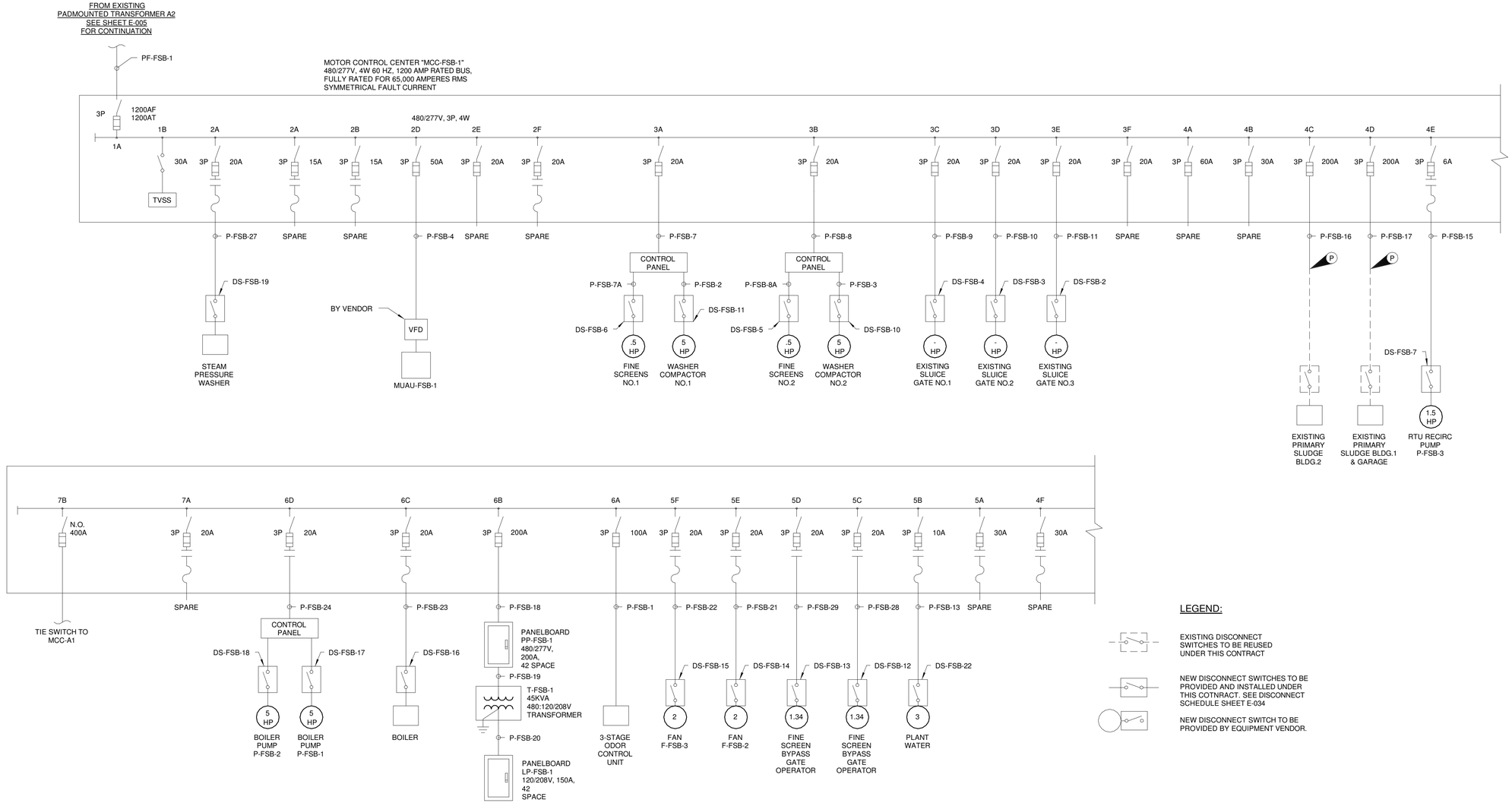

1 FINE SCREENS ONE-LINE

NOT TO SCALE

NOTES:

1. ALL MOTOR STARTERS IN MCC-FSB-1 SHALL BE FVNR UNLESS OTHERWISE NOTED.
2. ALL STARTERS IN MCC-FSB-1 SHALL BE NEMA SIZE 1, UNLESS OTHERWISE NOTED.
3. SEE POWER CONDUIT SCHEDULE SHEET E-020 FOR CONDUIT SIZE AND CONDUCTOR SIZE AND QUANTITIES.
4. SEE SHEET E-017 FOR MOTOR CONTROL CENTER MCC "FSB-1" ELEVATION.

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREENING BUILDING

ONE-LINE DIAGRAM

FILE NO. 23374.51633- E008

DATE SEPT. 23, 2015

E-008

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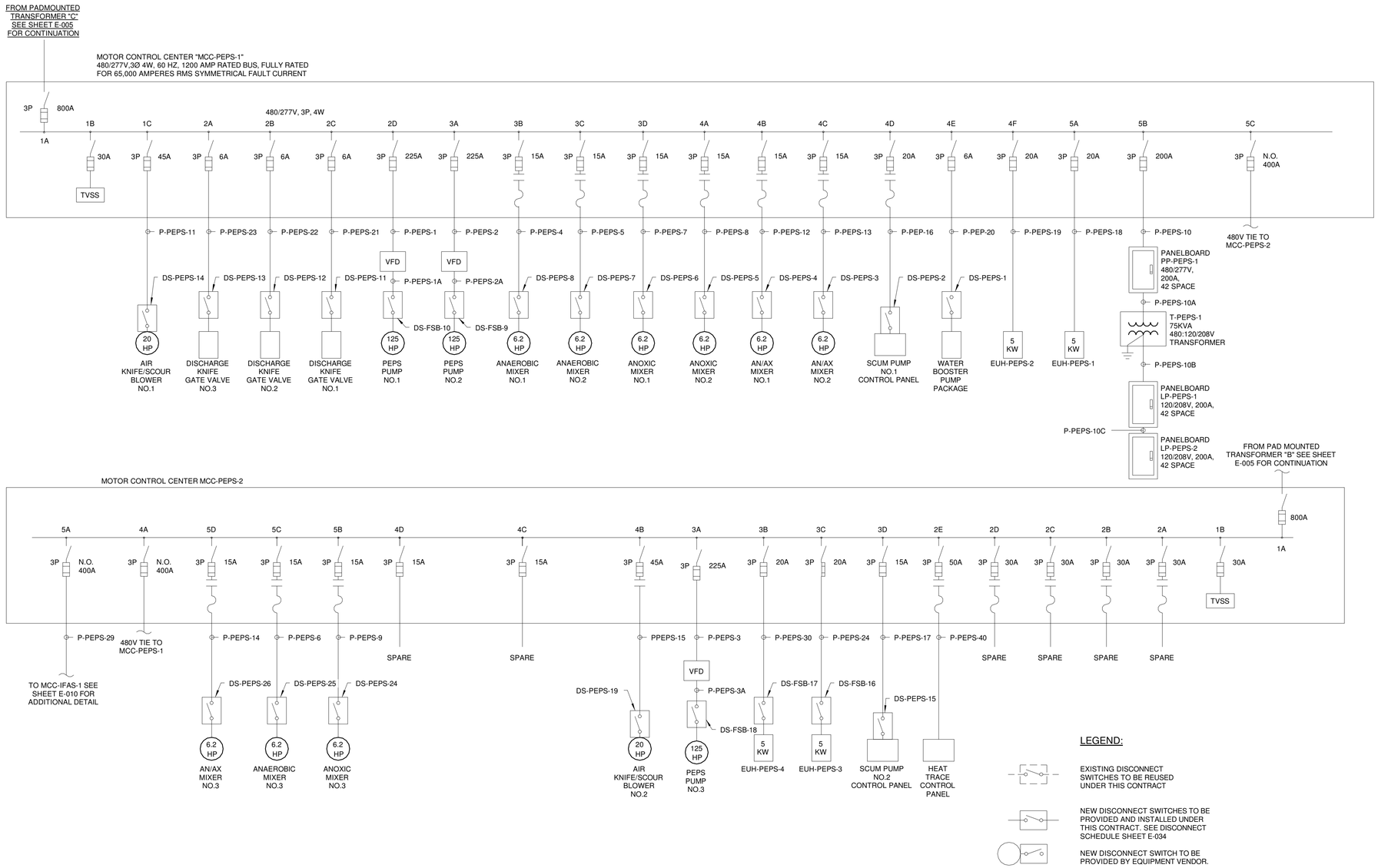

1 PRIMARY EFFLUENT PUMP STATION ONE-LINE

NOT TO SCALE

NOTES:

1. ALL MOTOR STARTERS IN "MCC-PEPS-1" SHALL BE FVNR UNLESS OTHERWISE NOTED.
2. ALL STARTERS IN "MCC-PEPS-1" SHALL BE NEMA SIZE 1, UNLESS OTHERWISE NOTED.
3. SEE POWER CONDUIT SCHEDULE SHEET E-020 AND E-021 FOR CONDUIT SIZE AND CONDUCTOR SIZE AND QUANTITIES.
4. SEE SHEET E-017 FOR MOTOR CONTROL CENTER "MCC-PEPS-1" ELEVATION.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

ONE-LINE DIAGRAM

FILE NO. 23374.51633- E009

DATE SEPT. 23, 2015

E-009

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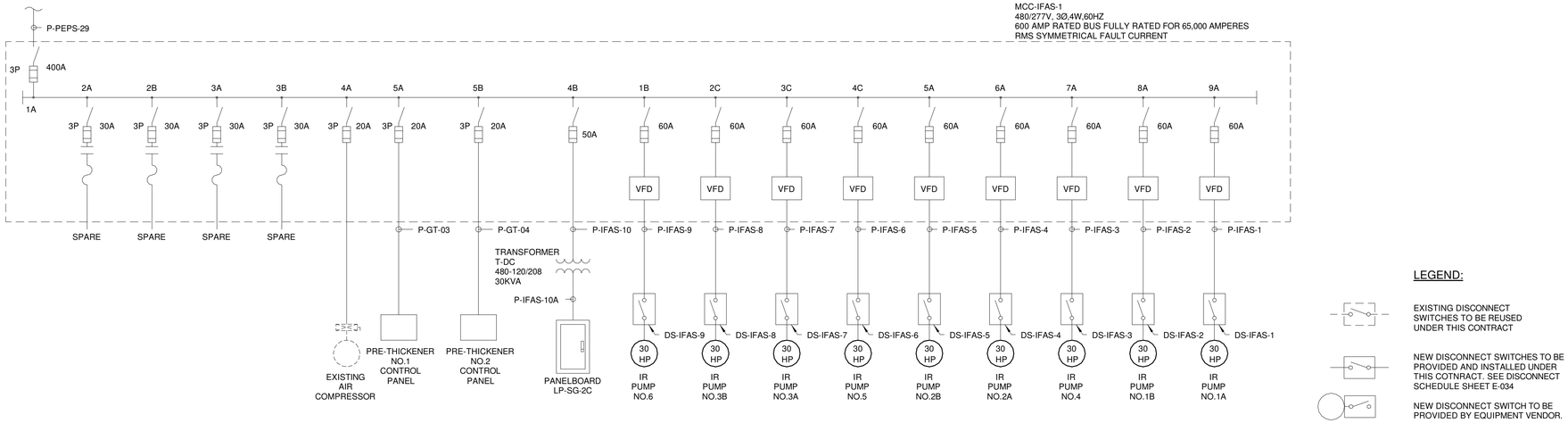


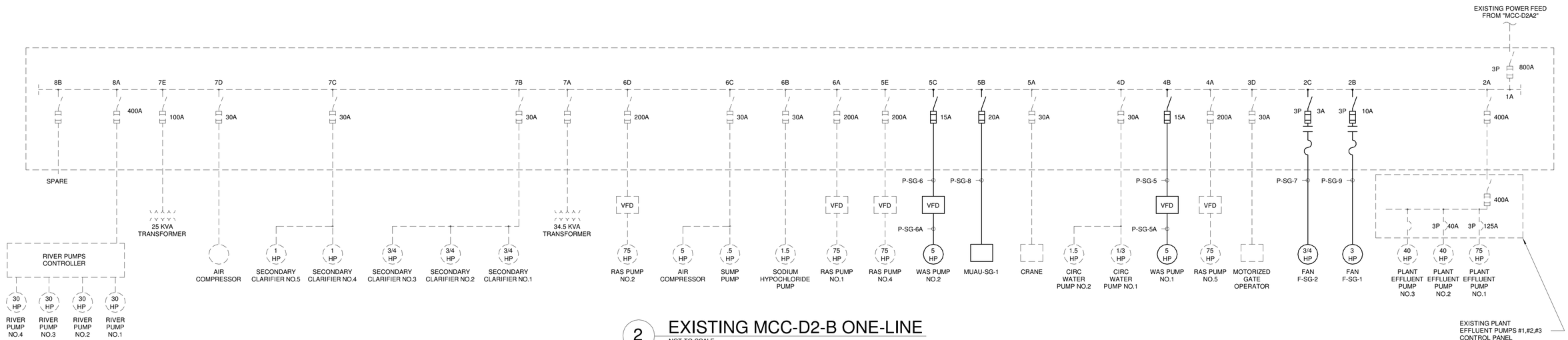
1 IFAS SYSTEM ONE-LINE
NOT TO SCALE

LEGEND:

EXISTING DISCONNECT SWITCHES TO BE REUSED UNDER THIS CONTRACT

NEW DISCONNECT SWITCHES TO BE PROVIDED AND INSTALLED UNDER THIS COTNRACT. SEE DISCONNECT SCHEDULE SHEET E-034

NEW DISCONNECT SWITCH TO BE PROVIDED BY EQUIPMENT VENDOR.



2 EXISTING MCC-D2-B ONE-LINE
NOT TO SCALE

NOTES:

1. ALL MOTOR STARTERS IN "MCC-IFAS-1" AND EXISTING "MCC-D2-B" SHALL BE SHALL BE FVNR UNLESS OTHERWISE NOTED.
2. ALL STARTERS IN "MCC-IFAS-1" AND EXISTING "MCC-D2-B" SHALL BE NEMA SIZE 1, UNLESS OTHERWISE NOTED.
3. SEE POWER CONDUIT SCHEDULE SHEET E-021 AND E-022 FOR CONDUIT SIZE AND CONDUCTOR SIZE AND QUANTITIES.
4. SEE SHEET E-017 FOR MOTOR CONTROL CENTER "MCC-IFAS-1" AND EXISTING "MCC-D2-B" ELEVATIONS.

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ELECTRICAL
SECONDARY GALLERY

ONE-LINE DIAGRAM

FILE NO. 23374.51633- E010
DATE SEPT. 23, 2015

E-010

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MOTOR CONTROL CENTER "MCC-D1-AA"
LOCATED ON SECOND FLOOR OR BOILER BUILDING (SEE SHEET E-602)
480/277V, 3Ø,4W,60 HZ
600A RATED MAIN BUS
FULLY RATED FOR 65,000 AMPERES
RMS SYMMETRICAL FAULT CURRENT

480V, 3P, 3W

4B	4A	3F	3E	3D	3C	3B	3A	2F	2E	2D	2C	2B	2A	1D	1C	1B	1A
20A	20A	20A	20A	20A	20A	3A	3A	25A	25A	20A	20A	10A	10A	20A	6A	6A	6A	400A
						VFD	VFD											
SPARE	SPARE	SPARE	SPARE	P-SHB-20	P-SHB-18	P-SHB-17	P-SHB-16	P-SHB-15	P-SHB-14	P-SHB-13	P-SHB-12	P-SHB-11	P-SHB-10	P-SHB-9	P-SHB-8	P-SHB-7	P-SHB-6	P-SHB-5	P-SHB-4	P-SHB-3	P-SHB-2	P-SHB-1
				DS-SHB-16	DS-SHB-15	DS-SHB-14	DS-SHB-13	DS-SHB-12	DS-SHB-11	DS-SHB-18	DS-SHB-17	DS-SHB-10	DS-SHB-9	DS-SHB-8	DS-SHB-7	DS-SHB-6	DS-SHB-5	DS-SHB-4	DS-SHB-3	DS-SHB-2	DS-SHB-1	
				3/4 HP	3/4 HP	3/4 HP	3/4 HP	3/4 HP	3/4 HP	3/4 HP	3/4 HP	10 HP	10 HP	7.5 HP	7.5 HP	3 HP	3 HP	6 KW	2 HP	2 HP	2 HP	2 HP
				MUAU-SHB-1	HOT WATER BOILER B-SHB-5	HOT WATER BOILER B-SHB-4	HOT WATER BOILER B-SHB-3	HOT WATER BOILER B-SHB-2	HOT WATER BOILER B-SHB-1	ROOF EXHAUSTER F-SHB-2	ROOF EXHAUSTER F-SHB-1	BUILDING HEAT PUMP P-SHB-9	BUILDING HEAT PUMP P-SHB-8	DIGESTER HEAT PUMP P-SHB-7	DIGESTER HEAT PUMP P-SHB-6	BOILER PUMP NO.5 P-SHB-5	BOILER PUMP NO.4 P-SHB-4	WATER HEATER	BOILER PUMP NO.3 P-SHB-3	BOILER PUMP NO.2 P-SHB-2	BOILER PUMP NO.1 P-SHB-1	

FROM EXISTING TRANSFORMER "D1"

3P 1200A 3P,3W 480V

EXISTING MOTOR CONTROL CENTER "MCC-D1-A"

2A	2B	2C	3A	3B	3C	4A	4B	4C	4D	5A	5C	5B
1A	400A	175 A	30A	500A	30A	30A	400A	30A	30A	30A	30A	30A	225A
				FEED TO MCC-D1B			ODOR CONTROL (DISCONNECTED)						P-SHB-19
	THE SWITCH BETWEEN MCC-D1A & MCC-D2A1												
	TERTIARY 480V,3P BREAKER BOX (LOCATED IN TERTIARY/	15A	15A	10A	10A	10A	10A	10A	10A	10A	15A	15A	15A	15A	15A	30A		
		1 HP	1 HP	1 HP	1 HP	3/4 HP	3/4 HP	3/4 HP	4 HP	4 HP	4 HP	4 HP	7.5 HP	7.5 HP			TO NEW POWER PANEL TER-P1 SEE SHEET E-006 FOR CONTINUATION
		POLYMER PREPARATION SYSTEM #1	POLYMER PREPARATION SYSTEM #2	POLYMER SOLUTION METERING PUMP #1	POLYMER SOLUTION METERING PUMP #2	POLYMER SOLUTION METERING PUMP #3	POLYMER SOLUTION METERING PUMP #4	TRANSFER PUMP #1	TRANSFER PUMP #2	TRANSFER PUMP #3	THICKENED SLUDGE WET WELL MIXER #1	THICKENED SLUDGE WET WELL MIXER #2	POLYMER RECIRCULATION PUMP #1	POLYMER RECIRCULATION PUMP #2	DRAINAGE PIT NORTH PUMP	DRAINAGE PIT NORTH PUMP	TRANSFORMER 480/240-240/120V 5 KVA	TRANSFORMER 480/240-240/120V 15 KVA	

1 ONE-LINE
NOT TO SCALE

NOTES:

1. ALL MOTOR STARTERS IN "MCC-D1-AA" AND EXISTING "MCC-D1-A" SHALL BE SHALL BE FVNR UNLESS OTHERWISE NOTED.
2. ALL STARTERS IN "MCC-D1-AA" AND EXISTING "MCC-D1-A" SHALL BE NEMA SIZE 1, UNLESS OTHERWISE NOTED.
3. SEE POWER CONDUIT SCHEDULE SHEET E-021 FOR CONDUIT SIZE AND CONDUCTOR SIZE AND QUANTITIES.
4. SEE SHEET E-017 FOR MOTOR CONTROL CENTER "MCC-D1-AA" AND EXISTING "MCC-D1-A" ELEVATIONS.

LEGEND:

- EXISTING EQUIPMENT
- NEW EQUIPMENT
- EXISTING DISCONNECT SWITCHES TO BE REUSED UNDER THIS CONTRACT
- NEW DISCONNECT SWITCHES TO BE PROVIDED AND INSTALLED UNDER THIS CONTRACT. SEE DISCONNECT SCHEDULE SHEET E-034
- NEW DISCONNECT SWITCH TO BE PROVIDED BY EQUIPMENT VENDOR.

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SOLIDS HANDLING BUILDING

ONE-LINE DIAGRAM

FILE NO. 23374.51633- E011
DATE SEPT. 23, 2015

E-011

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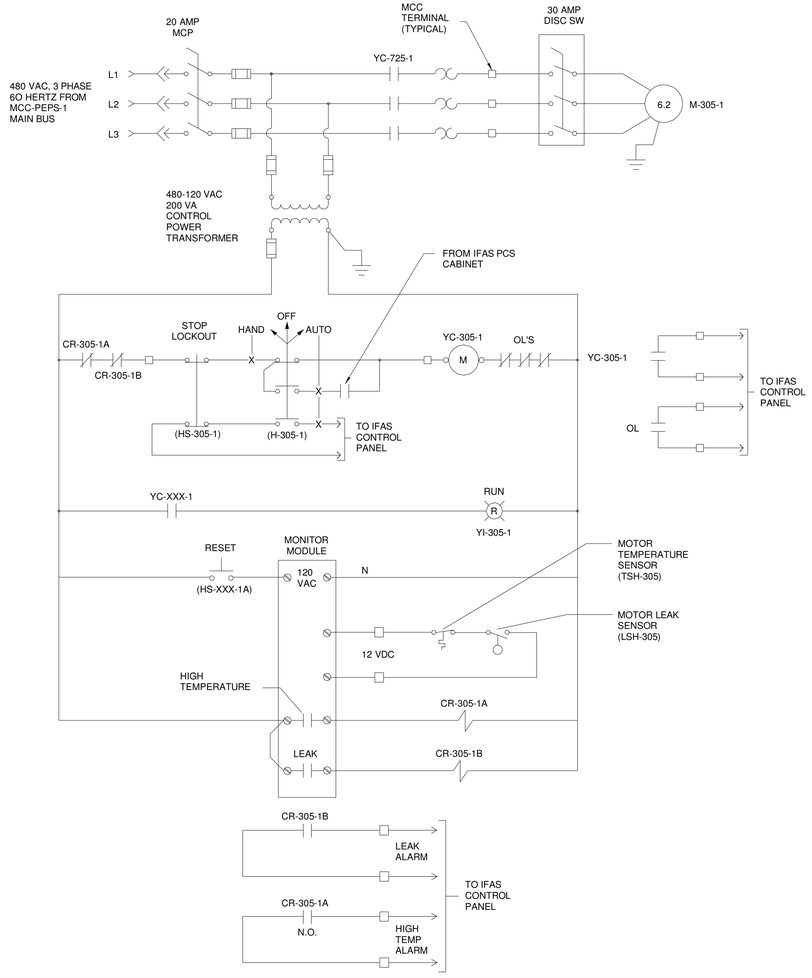
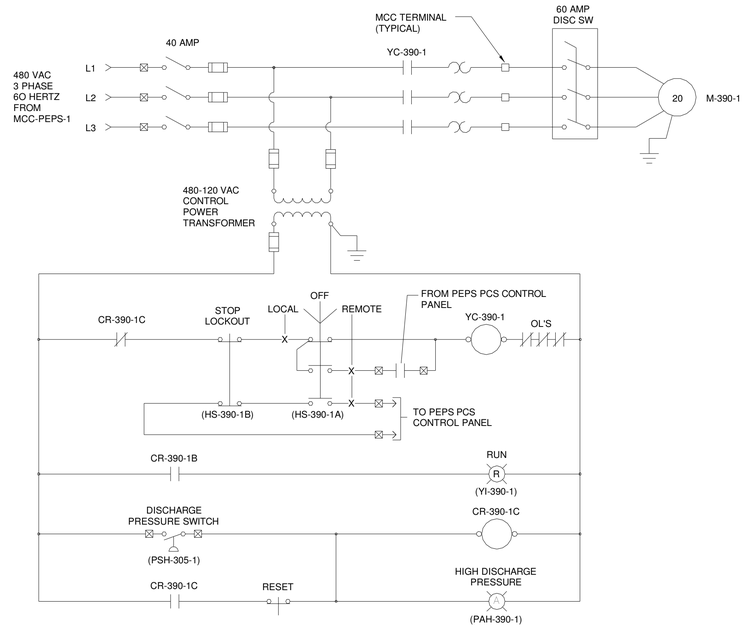


1 ANAEROBIC MIXER NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR:

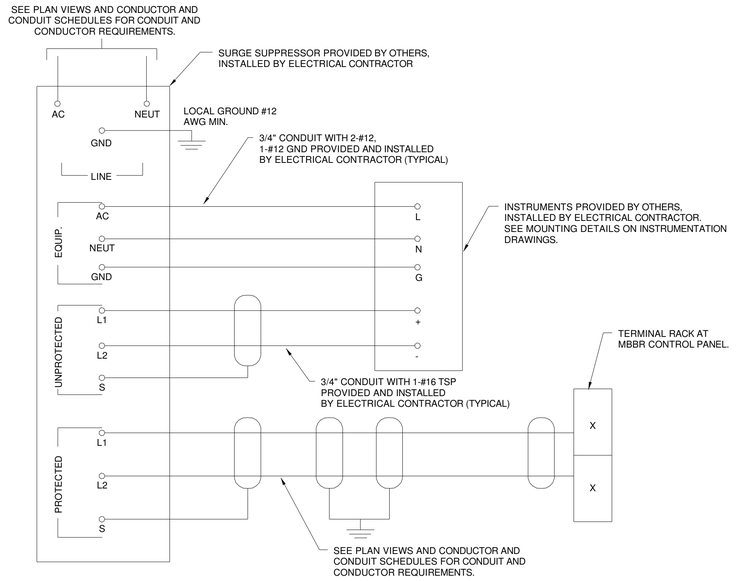
ANAEROBIC MIXER NO.1 AND NO.2
AN/AX SWING MIXER NO.1, NO.2 AND NO.3
ANOXIC MIXER NO.1, NO.2 AND NO.3



2 AIR SCOUR BLOWER NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR: AIR SCOUR BLOWER NO.2



3 INSTRUMENT SURGE SUPPRESSOR WIRING DIAGRAM

NOT TO SCALE

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

ELEMENTARIES

FILE NO. 23374.51633- E012

DATE SEPT. 23, 2015

E-012

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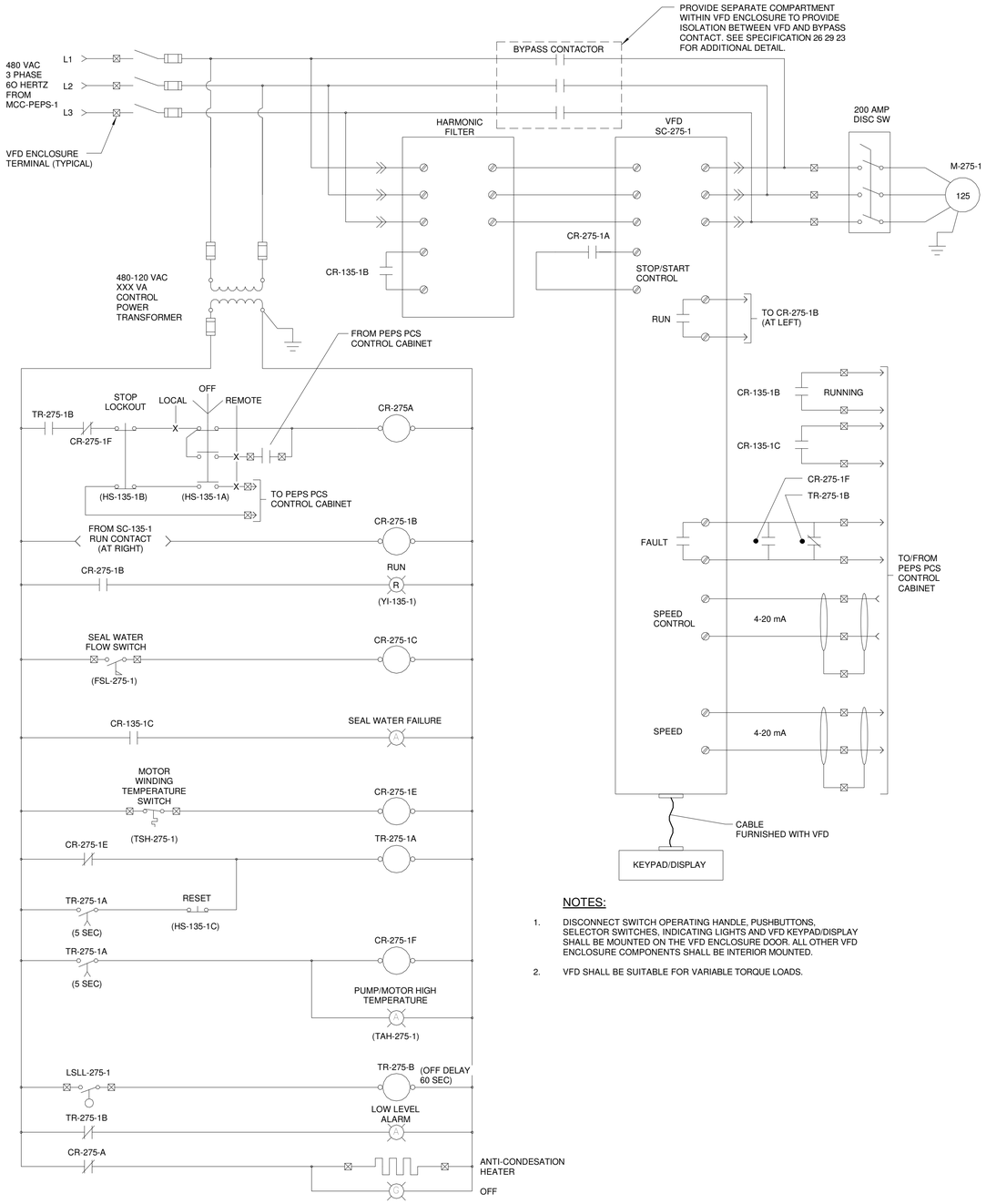


NOTES:

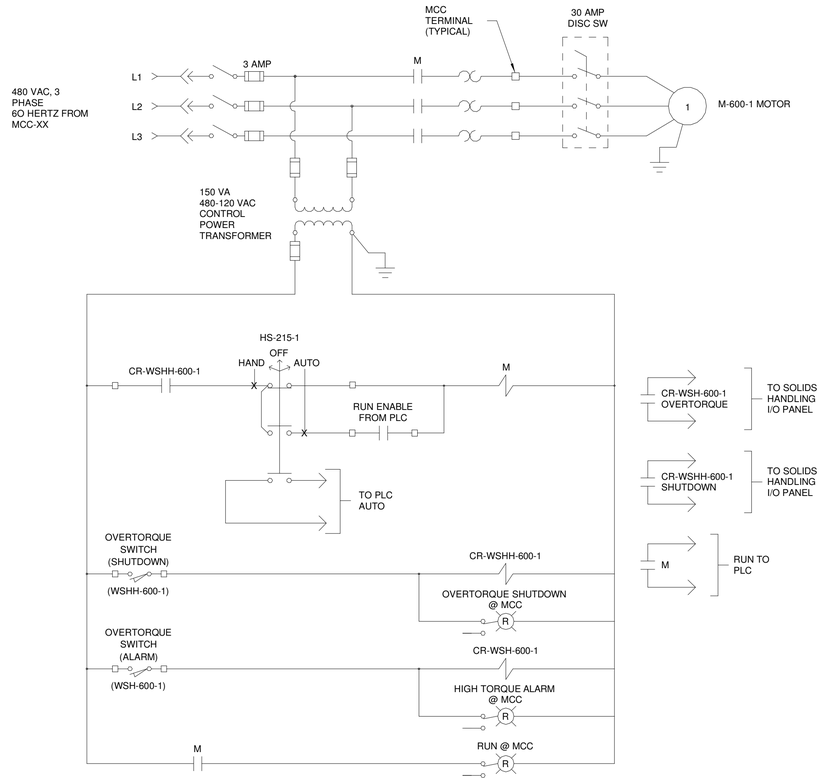
1. DISCONNECT SWITCH OPERATING HANDLE, PUSHBUTTONS, SELECTOR SWITCHES, INDICATING LIGHTS AND VFD KEYPAD/DISPLAY SHALL BE MOUNTED ON THE VFD ENCLOSURE DOOR. ALL OTHER VFD ENCLOSURE COMPONENTS SHALL BE INTERIOR MOUNTED.
2. VFD SHALL BE SUITABLE FOR VARIABLE TORQUE LOADS.

1 PEPS PUMP NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR:

PEPS PUMP NO.2 AND NO.3



2 PRE-THICKENER SCRAPER DRIVE NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR:

PRE-THICKENER SCRAPER DRIVE NO.2

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MASSILLON, OHIO

ELECTRICAL

ELEMENTARIES

FILE NO. 23374.51633- E013

DATE SEPT. 23, 2015

E-013

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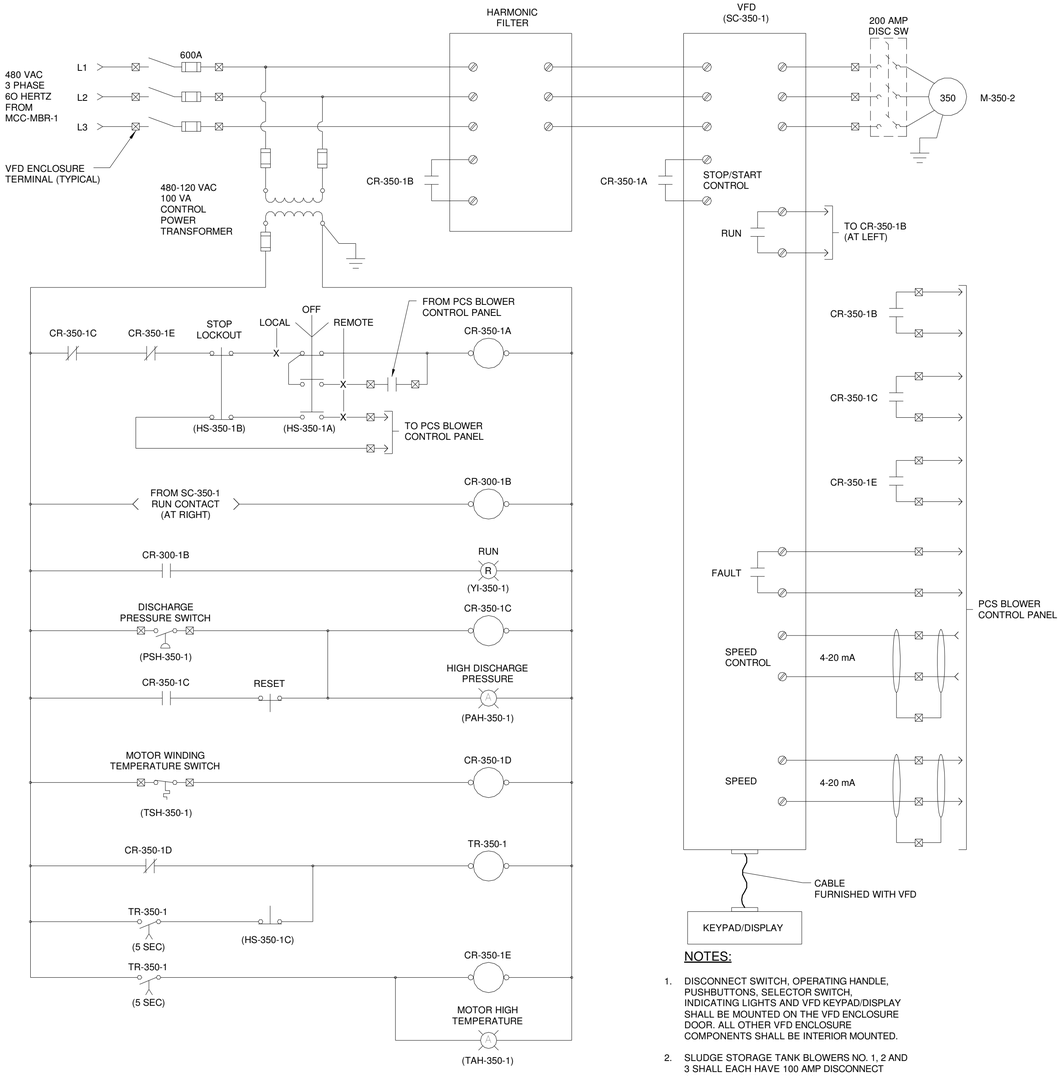


NOTES:

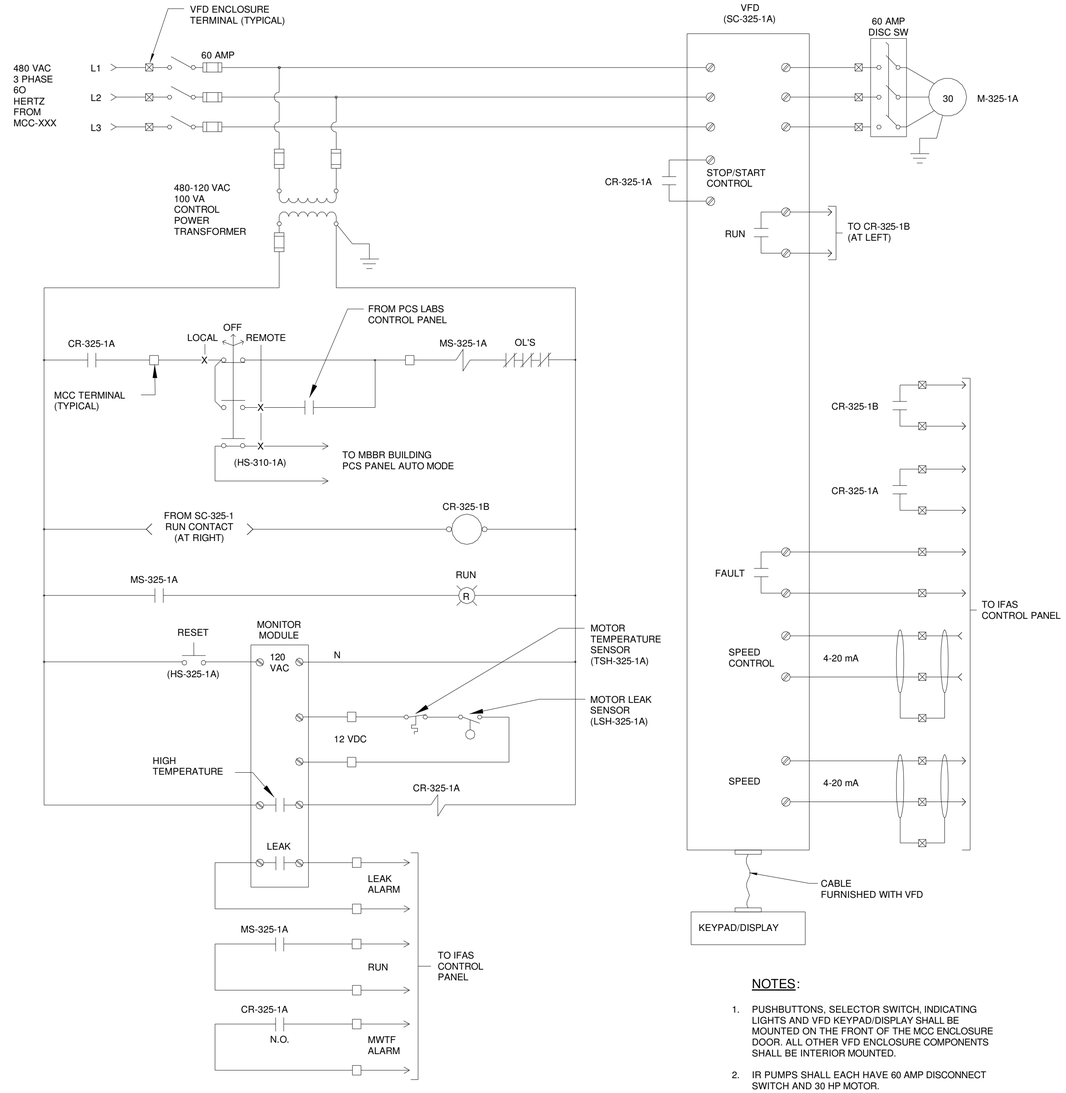
1. DISCONNECT SWITCH, OPERATING HANDLE, PUSHBUTTONS, SELECTOR SWITCH, INDICATING LIGHTS AND VFD KEYPAD/DISPLAY SHALL BE MOUNTED ON THE VFD ENCLOSURE DOOR. ALL OTHER VFD ENCLOSURE COMPONENTS SHALL BE INTERIOR MOUNTED.
2. SLUDGE STORAGE TANK BLOWERS NO. 1, 2 AND 3 SHALL EACH HAVE 100 AMP DISCONNECT SWITCH AND 50 HP MOTORS.
3. VFD'S SHALL BE SUITABLE FOR CONSTANT TORQUE LOADS.

1 IFAS BLOWER NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR:

IFAS BLOWER NO.2
IFAS BLOWER NO.3
EX. EQ BASIN BLOWER NO.1 WITH 200HP MOTOR
EX. EQ BASIN BLOWER NO.2 WITH 200HP MOTOR
EX. EQ BASIN BLOWER NO.3 WITH 200HP MOTOR



NOTES:

1. PUSHBUTTONS, SELECTOR SWITCH, INDICATING LIGHTS AND VFD KEYPAD/DISPLAY SHALL BE MOUNTED ON THE FRONT OF THE MCC ENCLOSURE DOOR. ALL OTHER VFD ENCLOSURE COMPONENTS SHALL BE INTERIOR MOUNTED.
2. IR PUMPS SHALL EACH HAVE 60 AMP DISCONNECT SWITCH AND 30 HP MOTOR.
3. VFD SHALL BE SUITABLE FOR VARIABLE TORQUE LOADS.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE MONITOR MODULE TO MCC SUPPLIER FOR INSTALLATION WITHIN MCC.

2 IR PUMP NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR: IR PUMPS NO.2 THRU NO.9

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

ELEMENTARIES

FILE NO. 23374.51633- E014

DATE SEPT. 23, 2015

E-014

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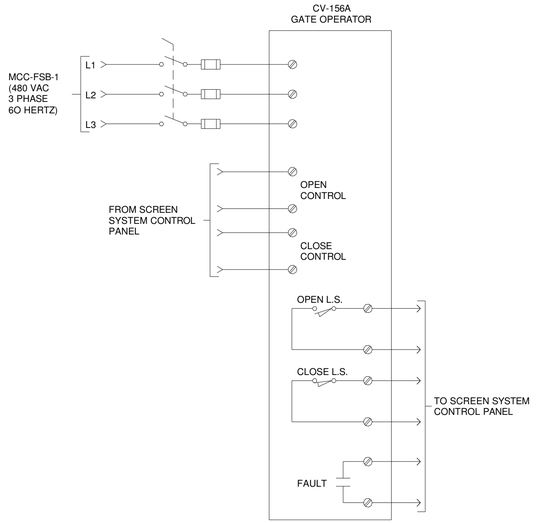
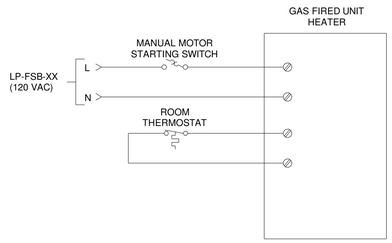


1 GATE VALVE CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL: GATE OPERATOR CV-156B

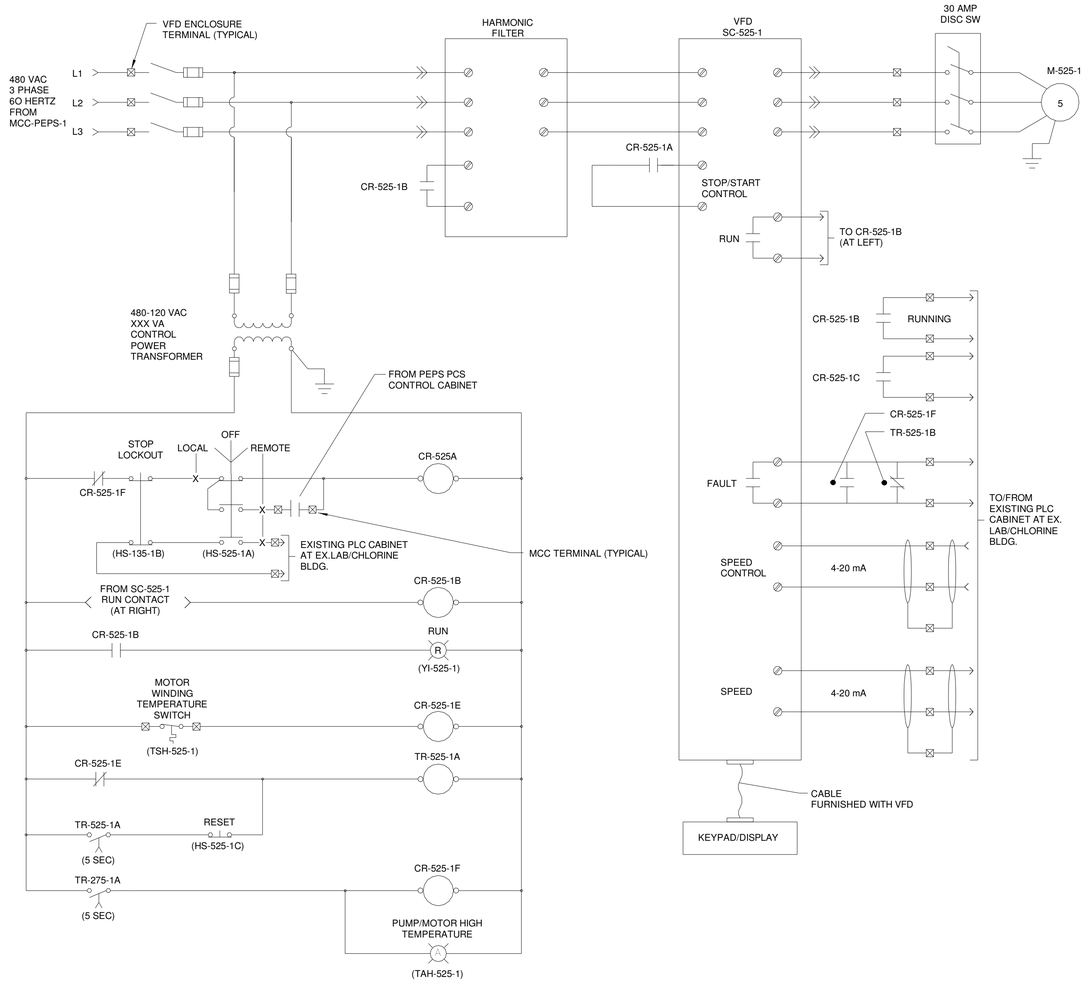


NOTE:

1. PROVIDE 2-#14 IN 3/4" CONDUIT FROM GAS FIRED UNIT HEATER TO ROOM THERMOSTAT

2 GAS UNIT HEATER (GUH) CONTROL ELEMENTARY

NOT TO SCALE



NOTES:

1. DISCONNECT SWITCH OPERATING HANDLE, PUSHBUTTONS, SELECTOR SWITCHES, INDICATING LIGHTS AND VFD KEYPAD/DISPLAY SHALL BE MOUNTED ON THE VFD ENCLOSURE DOOR. ALL OTHER VFD ENCLOSURE COMPONENTS SHALL BE INTERIOR MOUNTED.
2. VFD SHALL BE SUITABLE FOR VARIABLE TORQUE LOADS.

3 WAS PUMP NO.1 CONTROL ELEMENTARY

NOT TO SCALE

TYPICAL FOR:

WAS PUMP NO.3 (M-525-2)

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

ELEMENTARIES

FILE NO.
23374.51633- E015

DATE
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E-015

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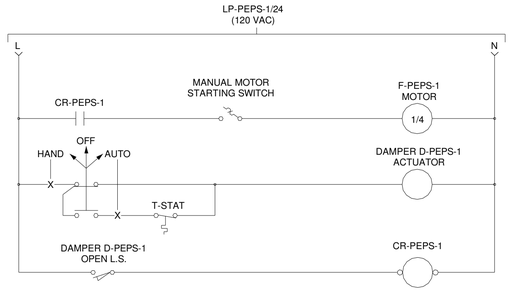

1 POWER WALL EXHAUSTER F-PEPS-1

NOT TO SCALE

NOTE:

PROVIDE AN 8"x 6"x 6" DEEP (MINIMUM) NEMA 12 SURFACE MOUNTED ENCLOSURE FOR F-PEPS-1 HOA SECLECTOR SWITCH (COVER MOUNTED) AND CR-PEPS-1 (INTERIOR MOUNTED).

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CITY OF MASSILLON
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MASSILLON, OHIO

ELECTRICAL

ELEMENTARIES

FILE NO.
23374.51633- E016

DATE
SEPT. 23, 2015

E-016

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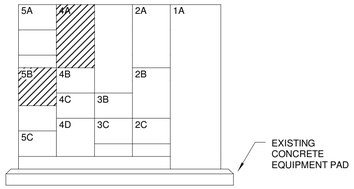
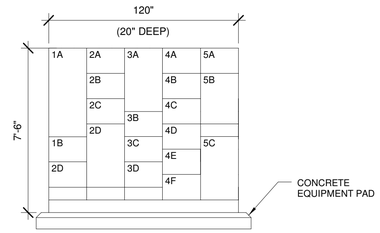


1 EXISTING "MCC-D1-A" ELEVATION

NOT TO SCALE

DETAIL NOTES:

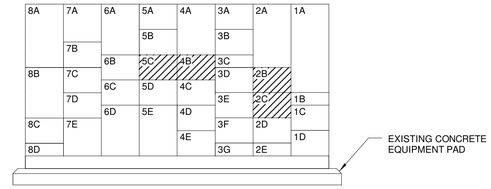
1. SHADED COMPARTMENTS SHALL BE MODIFIED AS INDICATED ON THE EXISTING "MCC-D1-A" ONE-LINE DIAGRAM SHEET E-010



2 FINE SCREENS BUILDING "MCC-FSB-1" ELEVATION

NOT TO SCALE

SEE ONE-LINE SHEET E-008

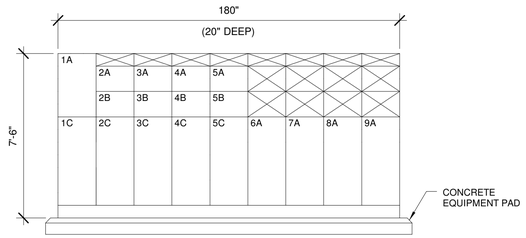


3 EXISTING "MCCD2B" ELEVATION

NOT TO SCALE

DETAIL NOTES:

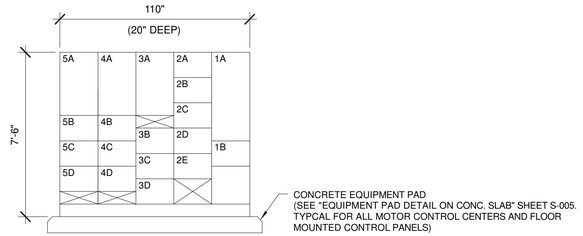
1. SHADED COMPARTMENTS SHALL BE MODIFIED AS INDICATED ON THE EXISTING MCC " D2B" ONE-LINE DIAGRAM SHEET E-010



4 MOTOR CONTROL CENTER "MCC-IFAS-1" ELEVATION

NOT TO SCALE

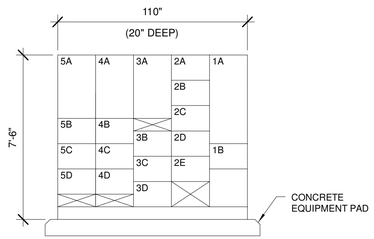
SEE ONE-LINE SHEET E-010



5 PRIMARY EFFLUENT PUMP STATION "MCC-PEPS-1" ELEVATION

NOT TO SCALE

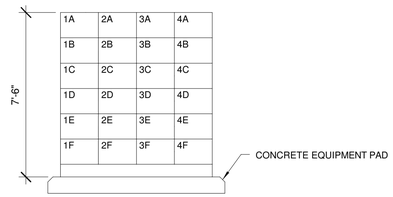
SEE ONE-LINE SHEET E-009



6 PRIMARY EFFLUENT PUMP STATION "MCC-PEPS-2" ELEVATION

NOT TO SCALE

SEE ONE-LINE SHEET E-009



7 MOTOR CONTROL CENTER "MCC-D1-AA" ELEVATION

NOT TO SCALE

SEE ONE-LINE SHEET E-011

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

MCC ELEVATIONS

FILE NO. 23374.51633- E017

DATE SEPT. 23, 2015

E-017

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Branch Panel: LP-FSB-1

Location: ELECTRICAL ROOM 201 **Volts:** 120/208 Wye **A.I.C. Rating:**
Supply From: **Phases:** 3 **Mains Type:**
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 225 A
Enclosure: TYPE 1 **Feeder Conductor Size:** #3/0 **MCB Rating:** 150 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	UH-FSB-5	20 A	1	- kVA	- kVA		1	20 A	UH-FSB-1	2
3	UH-FSB-2	20 A	1		- kVA	- kVA	1	20 A	UH-FSB-3	4
5	UH-FSB-2	20 A	1			- kVA	- kVA	1	20 A	LIGHTING-SPACE 17	6
7	LIGHTING-ELECTRICAL RM	20 A	1	- kVA	- kVA		1	20 A	RECEPTACLES-EXTERIOR	8
9	LIGHTING-EXTERIOR	20 A	1		- kVA	- kVA	1	20 A	RECEPTACLES-	10
11	POWER-ELECTRICAL RM	20 A	1			- kVA	- kVA	1	20 A	LIGHTING-EMRGENCY	12
13	RECEPTACLES-1	20 A	1	- kVA	- kVA		1	20 A	LIGHTING-STORAGE	14
15	LIGHTING-DUMPSTER RM	20 A	1		- kVA	- kVA	1	20 A	FE/FIT-162	16
17	SAMPLER	20 A	1			- kVA	- kVA	1	20 A	PH PROBE	18
19	UH-FSB-6	20 A	1	- kVA	- kVA		1	20 A	COMBUSTIBLE GAS DETECTOR	20
21	UH-FSB-7	20 A	1		- kVA	- kVA	1	20 A		22
23	POWER	20 A	1			- kVA	- kVA	1	20 A	F-FSB-1	24
25	SCREEN ROOM RECEPTACLE	20 A	1	- kVA	- kVA		1	20 A	COMBUSTIBLE GAS DETECTOR	26
27	PCS FSB CONTROL PANEL	20 A	1		- kVA	- kVA	1	20 A	INFLUENT SAMPLER	28
29	SCREEN ROOM RECEPTACLE	20 A	1			- kVA	- kVA	1	20 A	MUAU-FSB-1 PANEL	30
31	OVERHEAD DOOR	20 A	1	- kVA	- kVA		1	20 A	FE/FIT-138	32
33	OVERHEAD DOOR	20 A	1		- kVA	- kVA	1	20 A	FE/FIT-125	34
35						- kVA	- kVA				36
37	ACCU-FSB-1	25 A	3	- kVA	- kVA		3	15 A	ACU-FSB-1	38
39					- kVA	- kVA					40
41						- kVA	- kVA				42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: PP-FSB-1

Location: ELECTRICAL ROOM 201 **Volts:** 480/277 **A.I.C. Rating:** 10 kAIC
Supply From: **Phases:** 3 **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 225 A
Enclosure: TYPE 1 **Feeder Conductor Size:** #3/0 **MCB Rating:** 400 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				- kVA	- kVA					2
3	SPARE	20 A	3		- kVA	- kVA	3	20 A	ACCU-FSB-1	4
5						- kVA	- kVA				6
7	SPARE	20 A	1	- kVA	- kVA					8
9		20 A	1		- kVA	- kVA	3	20 A	MUAU-1	10
11						- kVA	- kVA				12
13	ELECTRIC UNIT HEATER EUH-FSB-1	20 A	3	- kVA	- kVA					14
15					- kVA	- kVA	3	20 A	SPARE	16
17						- kVA	- kVA				18
19	MUAU-FSB-2	20 A	3	- kVA	- kVA					20
21					- kVA	- kVA	3	20 A	SPARE	22
23						- kVA	- kVA				24
25	SPARE	20 A	3	- kVA	- kVA					26
27					- kVA	- kVA	3	20 A	SPARE	28
29						- kVA	- kVA				30
31	SPARE	20 A	3	- kVA	- kVA					32
33					- kVA	- kVA	3	30 A	SPARE	34
35						- kVA	- kVA				36
37	TRANSFORMER T-FSB-1	70 A	3	- kVA	- kVA					38
39					- kVA	- kVA	3	30 A	SPARE	40
41		20 A	1			- kVA	- kVA				42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: LP-ADMIN-1

Location: ADMINISTRATION BUILDING **Volts:** 208/120 **A.I.C. Rating:** 10 kAIC
Supply From: T-ADMIN-1 **Phases:** 3 **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE **Wires:** 4 **Mains Rating:**
Enclosure: NEMA 12 **Feeder Conductor Size:** #3/0 **MCB Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	MECHANICAL LIGHTS	20 A	1	- kVA	- kVA		1	20 A	OUTLETS-MECHANICAL ROOM	2
3	DDC PANEL	20 A	1		- kVA	- kVA	2	20 A	ACU-A-1	4
5	SPARE	20 A	1			- kVA	- kVA				6
7	SPARE	20 A	1	- kVA	- kVA		2	20 A	ACCU-A-1	8
9	SPARE	20 A	1		- kVA	- kVA					10
11	SPARE	20 A	1			- kVA	- kVA	1	20 A	SPARE	12
13	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	14
15	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	16
17	SPARE	20 A	1			- kVA	- kVA	1	20 A	SPARE	18
19	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	20
21	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	22
23	SPARE	20 A	1			- kVA	- kVA	1	20 A	SPARE	24
25	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	26
27	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	28
29	OUTSIDE LIGHTS	20 A	1			- kVA	- kVA	1	40 A	SPARE	30
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: PP-ADMIN-1

Location: ADMINISTRATION BUILDING **Volts:** 480/277 **A.I.C. Rating:** 10 kAIC
Supply From: **Phases:** 3 **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 400 A
Enclosure: NEMA 12 **Feeder Conductor Size:** **MCB Rating:** 400 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				- kVA	- kVA					2
3	VAV-A-3,VAV-A-4	20 A	3		- kVA	- kVA	3	20 A	VAV-A-6, VAV-A-7	4
5						- kVA	- kVA				6
7				- kVA	- kVA					8
9	VAV-A-5	20 A	3		- kVA	- kVA	3	20 A	VAV-A-9	10
11						- kVA	- kVA				12
13				- kVA	- kVA					14
15	VAV-A-8, VAV-A-10	20 A	3		- kVA	- kVA	3	20 A	VAV-A-1, VAV-A-2	16
17						- kVA	- kVA				18
19				- kVA	- kVA					20
21	AHU-A-1	30 A	3		- kVA	- kVA	3	70 A	ACCU-A-1	22
23						- kVA	- kVA				24
25				- kVA	- kVA					26
27	A-RTU-1	40 A	3		- kVA	- kVA	3	20 A	BOILER PUMP P-A-1	28
29						- kVA	- kVA				30
31				- kVA	- kVA					32
33	BOILER B-A-1	20 A	3		- kVA	- kVA	3	20 A	BOILER PUMP P-A-2	34
35						- kVA	- kVA				36
37				- kVA	- kVA					38
39	FAN F-A-1	20 A	3		- kVA	- kVA	3	20 A	RTU-A-1	40
41						- kVA	- kVA				42
43				- kVA	- kVA					44
45	FAN F-A-2	20 A	3		- kVA	- kVA	3	50 A	TRANS. T-AD-2	46
47						- kVA	- kVA				48
49				- kVA	- kVA					50
51	SPARE	30 A	3		- kVA	- kVA	3	20 A	SPARE	52
53						- kVA	- kVA				54
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: EXISTING DP-SH

Location: SOLIDS HANDLING BUILDING **Volts:** 208/120 **A.I.C. Rating:** 10 kAIC
Supply From: XFMR-PPL1 **Phases:** 3 **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 200 A
Enclosure: NEMA 12 **Feeder Conductor Size:** #3/0 **MCB Rating:** 200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	OVERHEAD LIGHTS	20 A	1	- kVA	- kVA		1	20 A	OUTLETS	2
3	NIGHT LIGHTS	20 A	1		- kVA	- kVA	1	20 A	UNIT HEATER- WEST WALL	4
5	OUTLETS-EAST WALL	20 A	1			- kVA	- kVA	1	30 A	SPACE	6
7	LED OUTSIDE LIGHT	20 A	1	- kVA	- kVA		1	20 A	UNIT HEATER- EAST WALL	8
9	SPARE	20 A	1		- kVA	- kVA	1	20 A	LEVEL TRANSMITTER	10
11	SPARE	20 A	1			- kVA	- kVA	1	20 A	HEAT TAPE	12
13	SPARE	20 A	1	- kVA	- kVA		1	20 A	RECEPTACLE	14
15	SPARE	20 A	1		- kVA	- kVA	1	20 A	HEAT TAPE	16
17	OUTSIDE LIGHTS	20 A	1			- kVA	- kVA	1	20 A	WALL PACK LIGHT	18
19	OUTSIDE LIGHTS	20 A	1	- kVA	- kVA		1	20 A	SPARE	20	(1)
21	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	22	
23	SPARE	20 A	1			- kVA	- kVA	1	20 A	SPARE	24	
25	SPARE	20 A	1	- kVA	- kVA		1	20 A	TRANSMITTERS M12, M14, M15	26	
27	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	28	(2)
29	OUTSIDE LIGHTS	20 A	1			- kVA	- kVA	1	40 A	SPARE	30	(4)
31	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	32	(3)
33	SPACE	20 A	1		- kVA	- kVA	1	20 A	SPARE	34	
35	SPACE	20 A	1			- kVA	- kVA	1	20 A	SPARE	36	
37	SPACE	20 A	1	- kVA	- kVA		1	20 A	SPARE	38	
39	SPARE	20 A	2		- kVA	- kVA	1	20 A	SPACE	40	
41						- kVA	- kVA	1	20 A	SPACE	42	
		Total Load:		- kVA	- kVA	- kVA					
		Total Amps:		- A	- A	- A					

KEY NOTES:

(1) UTILIZE SPARE 20A, 1 POLE CIRCUIT BREAKER FOR POWER FEED TO NEW FERRIC FEED PUMP BEING INSTALLED UNDER THIS CONTRACT.

(2) UTILIZE SPARE 20A, 1 POLE CIRCUIT BREAKER FOR POWER FEED TO FIRST FLOOR LIGHTING OF BOILER ROOM. SEE SHEET E-603.

(3) UTILIZE SPARE 20A, 1 POLE CIRCUIT BREAKER FOR POWER FEED TO SECOND FLOOR LIGHTING OF BOILER ROOM.

(4) UTILIZE SPARE 20A, 1 POLE CIRCUIT BREAKER FOR POWER FEED TO PEDESTAL MOUNTED RECEPTACLE AT MANHOLE. SEE SHEET E-004 FOR LOCATION.

NOTES:

POWER PANEL, POWER DISTRIBUTION PANEL AND LIGHTING PANEL HOMERUN WIRING SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:

CIRCUIT BREAKER	MAX DISTANCE	CONDUCTORS	CONDUIT	MAX DISTANCE	CONDUCTORS	CONDUIT	MAX. DISTANCE	CONDUCTORS	CONDUIT
30 AMP/ 3 POLE	125	3-#10, 1-#10 GND	3/4"	200	3-#8, 1-#10 GND	3/4"	300	3-#6, 1-#8 GND	1"
30 AMP/ 2 POLE	125	2-#10, 1-#10 GND	3/4"	200	2-#8, 1-#10 GND	3/4"	300	2-#8, 1-#10 GND	3/4"
30 AMP/ 1 POLE	60	2-#10, 1-#10 GND	3/4"	175	2-#6, 1-#8 GND	1"	250	2-#4, 1-#8 GND	1"
25 AMP/ 3 POLE	125	3-#10, 1-#10 GND	3/4"	200	3-#10, 1-#10 GND	3/4"	300	3-#8, 1-#10 GND	3/4"
25 AMP/ 2 POLE	125	2-#10, 1-#10 GND	3/4"	200	2-#10, 1-#10 GND	3/4"	300	2-#8, 1-#10 GND	3/4"
25 AMP/ 1 POLE	60	2-#10, 1-#10 GND	3/4"	150	2-#8, 1-#10 GND	3/4"	250	2-#6, 1-#8 GND	3/4"
20 AMP/ 3 POLE	60	3-#12, 1-#12 GND	3/4"	150	2-#10, 1-#10 GND	3/4"	250	2-#8, 1-#10 GND	3/4"

LIGHTING PANEL HOMERUNS SHALL BE PERMITTED TO BE CONSOLIDATED. CONTRACTOR SHALL SIZE AND DERATE CONDUCTOR AMPACITIES IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

CONDUITS AND CONDUCTORS BETWEEN DISCONNECTING MEANS, MANUAL MOTOR STARTING SWITCHES OR CONTROL DEVICES AND THE LOADS SERVED SHALL BE THE SAME QUANTITIES AND SIZES AS THE HOMERUN WIRING UNLESS OTHERWISE SCHEDULED, NOTED OR REQUIRED.

NO WIRE OR CABLE SHALL BE PULLED UNTIL AFTER THE CONDUIT SYSTEM HAS BEEN COMPLETELY AND THOROUGHLY SWABBED OF ALL FOREIGN MATERIAL. WHEN PULLING WIRES OR CABLES INTO CONDUITS, ONLY AN APPROVED INERT PULLING COMPOUND MAY BE USED.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

PANELBOARD SCHEDULES

FILE NO. 23374.51633- E018
DATE SEPT. 23, 2015

E-018

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SAVED: 9/22/2015 9:26:03 AM

Branch Panel: LP-PEPS-1

Location: ELECTRICAL ROOM 300 | **Volts:** 120/208 | **A.I.C. Rating:** 10 kAIC
Supply From: | **Phases:** 3 | **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: | **Feeder Conductor Size:** #4/0 | **MCB Rating:** 200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	PLC CONTROL PANEL	20 A	1	- kVA	- kVA		1	20 A	RECEPTACLES- ELECTRICAL ROOM	2
3	LIGHTING- ELECTRICAL ROOM	20 A	1		- kVA	- kVA	1	20 A	HEAT TRACE	4
5	MAG METER FE/FIT-280A	20 A	1			- kVA	1	30 A	LIGHTING- MOTOR ROOM	6
7	AE/AIT-270A	20 A	1	- kVA	- kVA		1	20 A	AE/AIT-270B	8
9	RECEPTACLE-GFI	20 A	1		- kVA	- kVA	1	20 A	EXTERIOR LIGHTING	10
11						- kVA				12
13	FCV-377-3	20 A	3	- kVA	- kVA		3	20 A	FCV-377-1	14
15					- kVA	- kVA				16
17	CV-395-1	20 A	1			- kVA				18
19	CV-395-2	20 A	1	- kVA	- kVA		3	20 A	FCV-377-2	20
21	FE/FIT-280B	20 A	1		- kVA	- kVA				22
23	FE/FIT-280C	20 A	1			- kVA	1	20 A	F-PEPS-1	24
25	FAN F-BT-1	20 A	1	- kVA	- kVA		1	20 A	CV-395-3	26
27	TANK 1 RECEPTACLE	20 A	1		- kVA	- kVA	1	20 A	OXIC ZONE NO.1 LIGHTING	28
29	OXIC ZONE 3 RECEPTACLE	20 A	1			- kVA	1	40 A	OXIC ZONE NO.2 LIGHTING	30
31	OXIC ZONE 3 RECEPTACLE	20 A	1	- kVA	- kVA		1	20 A	OXIC ZONE NO.3 LIGHTING	32
33	SPARE	20 A	1		- kVA	- kVA	1	20 A	TANK 1 RECEPTACLE	34
35	SPARE	20 A	1			- kVA	1	20 A	SPARE	36
37	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	38
39		20 A	2		- kVA	- kVA	1	20 A	SPARE	40
41						- kVA	1	20 A	SPARE	42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

*WITH FEED-THRU LUGS

*PROVIDE AND INSTALL A 30MA GFCI CIRCUIT BREAKER FOR HEAT TRACE POWER

Branch Panel: PP-PEPS-1

Location: ELECTRICAL ROOM 300 | **Volts:** 277/480 WYE | **A.I.C. Rating:**
Supply From: | **Phases:** 3 | **Mains Type:**
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 250 A
Enclosure: TYPE 1 | **Feeder Conductor Size:** | **MCB Rating:** 200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				- kVA	- kVA					2
3	TANK 1 480V RECEPTACLE	30 A	3		- kVA	- kVA	3	30 A	TANK 1 480V RECEPTACLE	4
5						- kVA				6
7				- kVA	- kVA					8
9	TANK 1 480V RECEPTACLE	30 A	3		- kVA	- kVA	3	30 A	OXIC ZONE 2 480V RECEPTACLE	10
11						- kVA				12
13				- kVA	- kVA					14
15	TANK 1 480V RECEPTACLE	30 A	3		- kVA	- kVA	3	30 A	OXIC ZONE 2 480V RECEPTACLE	16
17						- kVA				18
19				- kVA	- kVA					20
21	OXIC ZONE 3 480V RECEPTACLE	30 A	3		- kVA	- kVA	3	30 A	OXIC ZONE 3 480V RECEPTACLE	22
23						- kVA				24
25				- kVA	- kVA					26
27	OCIX ZONE 3 480V RECEPTACLE	30 A	3		- kVA	- kVA	3	30 A	OCIX ZONE 3 480V RECEPTACLE	28
29						- kVA				30
31				- kVA	- kVA					32
33	SPARE	20 A	3		- kVA	- kVA	3	20 A	SPARE	34
35						- kVA				36
37				- kVA	- kVA					38
39	SPARE	30 A	3		- kVA	- kVA	3	125 A	TRANSFORMER T-PEPS-1	40
41						- kVA				42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: LP-IFAS-1

Location: SECONDARY GALLERY | **Volts:** 208/120 | **A.I.C. Rating:** 10 kAIC
Supply From: MCC-IFAS-1 | **Phases:** 3 | **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 100 A
Enclosure: NEMA 12 | **Feeder Conductor Size:** #4/0 | **MCB Rating:** 100 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	AE/AIT-308-1	20 A	1	- kVA	- kVA		1	20 A	AE/AIT-308-2	2
3	AE/AIT-308-3	20 A	1		- kVA	- kVA	1	20 A	AE/AIT-340	4
5	AE/AIT-330-1, AE/AIT-380-1, FE/FIT-327-1	20 A	1			- kVA	1	30 A	AE/AIT-330-2, AE/AIT-380-1, FE/FIT-327-1	6
7	AE/AIT-330-3, AE/AIT-380-3, FE/FIT-327-3	20 A	1	- kVA	- kVA		1	20 A	FE/FIT-519-1, FE/FIT-519-2, FE/FIT-519-3	8
9	PRE-THICKENER TANK LIGHTING	20 A	1		- kVA	- kVA	1	20 A	SECONDARY GALLERY LIGHTING	10
11	SECONDARY GALLERY LIGHTING	20 A	1			- kVA	1	20 A	PLC CABINET PANEL	12
13	RAS LEVEL RELAY CABINET	20 A	1	- kVA	- kVA		1	20 A	SECONDARY GALLERY RECEPTACLES	14
15	SECONDARY GALLERY RECEPTACLE	20 A	1		- kVA	- kVA	1	20 A	FIT-531-1, FIT-531-2	16
17	SPARE	20 A	1			- kVA	1	20 A	FIT-533-1, FIT-533-2	18
19	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	20
21	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	22
23	SPARE	20 A	1			- kVA	1	20 A	SPARE	24
25	SPARE	20 A	1	- kVA	- kVA		1	20 A	SPARE	26
27	SPARE	20 A	1		- kVA	- kVA	1	20 A	SPARE	28
29	SPARE	20 A	1			- kVA	1	20 A	SPARE	30
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Branch Panel: LP-PEPS-2

Location: TERTIARY FILTER BUILDING | **Volts:** 120/208 | **A.I.C. Rating:** 10 kAIC
Supply From: | **Phases:** 3 | **Mains Type:** MAIN LUGS
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 200 A
Enclosure: NEMA 12 | **Feeder Conductor Size:** #4/0 | **MCB Rating:** 200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				- kVA	- kVA					2
3	ACCU-PEPS-1	30 A	3		- kVA	- kVA	3	30 A	ACCU-PEPS-2	4
5						- kVA				6
7				- kVA	- kVA					8
9	ACU-PEPS-1	15 A	3		- kVA	- kVA	3	15 A	ACU-PEPS-2	10
11						- kVA				12
13		20 A	1	- kVA	- kVA		1	20 A		14
15		20 A	1		- kVA	- kVA	1	20 A		16
17		20 A	1			- kVA	1	20 A		18
19		20 A	1	- kVA	- kVA		1	20 A		20
21		20 A	1		- kVA	- kVA	1	20 A		22
23		20 A	1			- kVA	1	20 A		24
25		20 A	1	- kVA	- kVA		1	20 A		26
27		20 A	1		- kVA	- kVA	1	20 A		28
29		20 A	1			- kVA	1	40 A		30
31		20 A	1	- kVA	- kVA		1	20 A		32
33		20 A	1		- kVA	- kVA	1	20 A		34
35		20 A	1			- kVA	1	20 A		36
37		20 A	1	- kVA	- kVA		1	20 A		38
39		20 A	1		- kVA	- kVA	1	20 A		40
41			1			- kVA	1	20 A		42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

Legend:

Branch Panel: PP-TFB-1

Location: TERTIARY FILTER BUILDING | **Volts:** 277/480 Wye | **A.I.C. Rating:** 10 kAIC
Supply From: | **Phases:** 3 | **Mains Type:** CIRCUIT BREAKER
Mounting: SURFACE | **Wires:** 4 | **Mains Rating:** 200 A
Enclosure: NEMA 12 | **Feeder Conductor Size:** #4/0 | **MCB Rating:** 200 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1				- kVA	- kVA					2
3	DISC FILTER NO.1 CONTROL PANEL	50 A	3		- kVA	- kVA	3	50 A	DISC FILTER NO.2 CONTROL PANEL	4
5						- kVA				6
7				- kVA	- kVA					8
9	DISC FILTER NO.3 CONTROL PANEL	50 A	3		- kVA	- kVA	3	50 A	DISC FILTER NO.4 CONTROL PANEL	10
11						- kVA				12
13	SPACE			- kVA	- kVA				SPACE	14
15	SPACE				- kVA	- kVA			SPACE	16
17	SPACE					- kVA			SPACE	18
19	SPACE			- kVA	- kVA				SPACE	20
21	SPACE				- kVA	- kVA			SPACE	22
23	SPACE					- kVA			SPACE	24
25	SPACE			- kVA	- kVA				SPACE	26
27	SPACE				- kVA	- kVA			SPACE	28
29	SPACE					- kVA			SPACE	30
31	SPACE			- kVA	- kVA				SPACE	32
33	SPACE				- kVA	- kVA			SPACE	34
35	SPACE					- kVA			SPACE	36
37	SPACE			- kVA	- kVA				SPACE	38
39	SPACE				- kVA	- kVA			SPACE	40
41	SPACE					- kVA			SPACE	42
		Total Load:		- kVA	- kVA	- kVA				
		Total Amps:		- A	- A	- A				

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IN CHARGE OF: DL
DESIGNED BY: JEC
CHECKED BY: RGH
DRAWN BY: WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

PANELBOARD SCHEDULES

FILE NO. 23374.51633- E019
DATE SEPT. 23, 2015

E-019

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POWER - CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
PF-FSB-1	EXISTING PADMOUNTED TRANSFORMER "A2"	MOTOR CONTROL CENTER MCC-FSB-1	3-4"	9-750 MCM 3-#4/0GRD	PROVIDE AND INSTALL NEW CONDUIT TO NEW EMH-01, CONTRACTOR MAY REUSE EXISTING CONDUIT AS SHOWN ON SHEET E-006.
P-FSB-1	MOTOR CONTROL CENTER MCC-FSB-1	3-STAGE ODOR CONTROL UNIT ELECTRICAL CONTROL PANEL	1 1/2"	3-#2 1-#8GRD	-
P-FSB-2	FINE SCREEN NO.1 CONTROL PANEL	WASHER COMPACTOR NO.1	3/4"	3-#12 1-#12GRD	-
P-FSB-3	FINE SCREENS NO.2 CONTROL PANEL	WASHER COMPACTOR NO.2	3/4"	3-#12 1-#12GRD	-
P-FSB-4	MOTOR CONTROL CENTER MCC-FSB-1	MAKE UP AIR UNIT MUAU-FSB-1 VFD	1"	3-#6 1-#10GRD	-
P-FSB-4A	MAKE UP AIR UNIT MUAU-FSB-1 VFD	MAKE UP AIR UNIT MUAU-FSB-1	1"	3-#6 1-#10GRD	-
P-FSB-5	PANELBOARD LP-FSB-1	ACCU-1	3/4"	3-#12 1-#12GRD	-
P-FSB-6	PANELBOARD LP-FSB-1	ACU-1	3/4"	3-#12 1-#12GRD	-
P-FSB-7	MOTOR CONTROL CENTER MCC-FSB-1	FINE SCREEN NO.1 CONTROL PANEL	3/4"	3-#12 1-#12GRD	-
P-FSB-7A	FINE SCREENS NO.1 CONTROL PANEL	FINE SCREEN NO.1	3/4"	3-#12 1-#12GRD	-
P-FSB-8	MOTOR CONTROL CENTER MCC-FSB-1	FINE SCREENS NO.2 CONTROL PANEL	3/4"	3-#12 1-#12GRD	-
P-FSB-8A	FINE SCREENS NO.2 CONTROL PANEL	FINE SCREEN NO.2	3/4"	3-#12 1-#12GRD	-
P-FSB-9	MOTOR CONTROL CENTER MCC-FSB-1	EXISTING SLUICE GATE NO.1	3/4"	3-#12 1-#12GRD	-
P-FSB-10	MOTOR CONTROL CENTER MCC-FSB-1	EXISTING SLUICE GATE NO.2	3/4"	3-#12 1-#12GRD	-
P-FSB-11	MOTOR CONTROL CENTER MCC-FSB-1	EXISTING SLUICE GATE NO.3	3/4"	3-#12 1-#12GRD	-
P-FSB-12	MOTOR CONTROL CENTER MCC-FSB-1	ELECTRICAL ROOM EUH-FSB-1	3/4"	3-#10 1-#10GRD	-
P-FSB-13	MOTOR CONTROL CENTER MCC-FSB-1	PLANT WATER PUMP P-FSB-XX	3/4"	3-#12 1-#12GRD	-
P-FSB-15	MOTOR CONTROL CENTER MCC-FSB-1	RECIRCULATION PUMP P-FSB-3	3/4"	3-#12 1-#12GRD	-
P-FSB-16	MOTOR CONTROL CENTER MCC-FSB-1	EXISTING PRIMARY SLUDGE BUILDING NO.2	2"	3-#3/0 1-#6GRD	-
P-FSB-17	MOTOR CONTROL CENTER MCC-FSB-1	EXISTING PRIMARY SLUDGE BUILDING NO.1 & GARAGE	2"	3-#3/0 1-#6GRD	-
P-FSB-18	MOTOR CONTROL CENTER MCC-FSB-1	PANELBOARD PP-FSB-1	2"	4-#3/0 1-#6GRD	-
P-FSB-19	PANELBOARD PP-FSB-1	TRANSFORMER T-FSB-1 45 KVA	1"	3-#8 1-#10GRD	-
P-FSB-20	TRANSFORMER T-FSB-1 45 KVA	PANELBOARD LP-FSB-1	1 1/2"	4-#1 1-#6GRD	-
P-FSB-21	MOTOR CONTROL CENTER MCC-FSB-1	FAN F-FSB-2 VFD	3/4"	3-#12 1-#12GRD	VFD IS VENDOR PROVIDED, INSTALLED UNDER THIS CONTRACT
P-FSB-22	MOTOR CONTROL CENTER MCC-FSB-1	FAN F-FSB-3 VFD	3/4"	3-#12 1-#12GRD	VFD IS VENDOR PROVIDED, INSTALLED UNDER THIS CONTRACT
P-FSB-21A	FAN F-FSB-2 VFD	FAN F-FSB-2	3/4"	3-#12 1-#12GRD	-
P-FSB-22A	FAN F-FSB-3 VFD	FAN F-FSB-3	3/4"	3-#12 1-#12GRD	-
P-FSB-23	MOTOR CONTROL CENTER MCC-FSB-1	BOILER	3/4"	3-#12 1-#12GRD	-
P-FSB-24	MOTOR CONTROL CENTER MCC-FSB-1	BOILER PUMP P-FSB-1	3/4"	3-#12 1-#12GRD	-
P-FSB-25	MOTOR CONTROL CENTER MCC-FSB-1	BOILER PUMP P-FSB-2	3/4"	3-#12 1-#12GRD	-
P-FSB-26	MOTOR CONTROL CENTER MCC-FSB-1	MUAU-FSB-2	3/4"	3-#12 1-#12GRD	-
P-FSB-27	NOT USED				-
P-FSB-28	MOTOR CONTROL CENTER MCC-FSB-1	FINE SCREENS BYPASS INLET CHANNEL GATE OPERATOR	3/4"	3-#12 1-#12GRD	-
P-FSB-29	MOTOR CONTROL CENTER MCC-FSB-1	FINE SCREENS BYPASS OUTLET CHANNEL GATE OPERATOR	3/4"	3-#12 1-#12GRD	-
P-FSB-30	MOTOR CONTROL CENTER MCC-FSB-1	INFLUENT GATE FINE SCREENS CHANNEL (EAST SIDE)	3/4"	PULL WIRE	CONDUIT INSTALLED FOR FUTURE CONNECTION BY OTHERS
P-FSB-31	MOTOR CONTROL CENTER MCC-FSB-1	INFLUENT GATE FINE SCREENS CHANNEL (WEST SIDE)	3/4"	PULL WIRE	CONDUIT INSTALLED FOR FUTURE CONNECTION BY OTHERS
P-FSB-32	MOTOR CONTROL CENTER MCC-FSB-1	EFFLUENT GATE FINE SCREENS CHANNEL (EAST SIDE)	3/4"	PULL WIRE	CONDUIT INSTALLED FOR FUTURE CONNECTION BY OTHERS
P-FSB-33	MOTOR CONTROL CENTER MCC-FSB-1	EFFLUENT GATE FINE SCREENS CHANNEL (WEST SIDE)	3/4"	PULL WIRE	CONDUIT INSTALLED FOR FUTURE CONNECTION BY OTHERS
P-FSB-34	FINE SCREEN NO.1 CONTROL PANEL	FINE SCREEN NO.1 LOCAL CONTROL PANEL	3/4"	2-#12 1-#12GRD	-
P-FSB-35	FINE SCREEN NO.2 CONTROL PANEL	FINE SCREEN NO.2 LOCAL CONTROL PANEL	3/4"	2-#12 1-#12GRD	-
P-OC-01	ELECTRICAL CONTROL PANEL	ODOR CONTROL SYSTEM CONTROL PANEL	1"	3-#8 1-#10GRD	-
P-OC-02	ODOR CONTROL SYSTEM CONTROL PANEL	ODOR CONTROL SYSTEM BLOWER			-

POWER - CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
P-OC-03	ODOR CONTROL SYSTEM CONTROL PANEL	FINE SCREEN BUILDING INLINE FAN	3/4"	3-#12 1-#12GRD	-
P-PSPS1-1	EXISTING PANELBOARD DP-PS	PRIMARY ACTIVATION RECYCLE VALVE CV-261	3/4"	3-#12 1-#12GRD	-
P-PSPS1-2	EXISTING PANELBOARD DP-PS	EUH-PSPS1-1	3/4"	3-#12 1-#12GRD	-
P-PSPS1-3	EXISTING PANELBOARD DP-PS	EUH-PSPS1-2	3/4"	3-#12 1-#12GRD	-
P-AD-1	NEW ADMIN BLDG SERVICE DISCONNECT	PANELBOARD PP-ADMIN-1, 400A, 480/277V, 3 PHASE, 4 WIRE	XX	3-#XX 1-#XXGRD	-
P-AD-2	PANELBOARD PP-ADMIN-1, 400A, 480/277V, 3 PHASE, 4 WIRE	EX. POWER PANEL 277/480V, 3 PHASE, 4 WIRE	XX	3-#XX 1-#XXGRD	-
P-AD-3	PANELBOARD PP-ADMIN-1, 400A, 480/277V, 3 PHASE, 4 WIRE	TRANSFORMER T-AD-2 30 KVA, 480V-120/208V	1"	3-#6 1-#10GRD	-
P-AD-4	TRANSFORMER T-AD-2 30 KVA, 480V-120/208V	PANELBOARD LP-ADMIN-1, 100A, 3 PHASE, 4 WIRE	1 1/2"	4-#2 1-#8GRD	-
P-AD-5	PANELBOARD PP-ADMIN-1, CIRCUIT 1,3,5	VAV-A-3, VAV-A-4	3/4"	3-#12 1-#12GRD	-
P-AD-6	PANELBOARD PP-ADMIN-1, CIRCUIT 2,4,6	VAV-A-6, VAV-A-7	3/4"	3-#12 1-#12GRD	-
P-AD-7	PANELBOARD PP-ADMIN-1, CIRCUIT 7,9,11	VAV-A-5	3/4"	3-#12 1-#12GRD	-
P-AD-8	PANELBOARD PP-ADMIN-1, CIRCUIT 8,10,12	VAV-A-9 (BACT LAB)	3/4"	3-#12 1-#12GRD	-
P-AD-9	PANELBOARD PP-ADMIN-1, CIRCUIT 13,15,17	VAV-A-8, VAV-A-10 (CORRIDOR & OFFICE)	3/4"	3-#12 1-#12GRD	-
P-AD-10	PANELBOARD PP-ADMIN-1, CIRCUIT 14,16,18	VAV-A-1, VAV-A-2 (MENS LOCKER & LUNCH ROOM)	3/4"	3-#12 1-#12GRD	-
P-AD-11	PANELBOARD PP-ADMIN-1, CIRCUIT 19,21,23	AIR HANDLING UNIT AHU-A-1 (MECHANICAL ROOM)	3/4"	3-#10 1-#10GRD	-
P-AD-12	PANELBOARD PP-ADMIN-1, CIRCUIT 20,22,24	AIR COOLED CONDENSER ACCU-A-1	1 1/2"	3-#4 1-#8GRD	-
P-AD-13	PANELBOARD PP-ADMIN-1, CIRCUIT 25,27,29	AIR CONDITIONING UNIT ON ROOF A-RTU-1	3/4"	3-#8 1-#10GRD	-
P-AD-14	PANELBOARD PP-ADMIN-1, CIRCUIT 37,39,41	FAN F-A-1 (LOCATED ON ROOF OF ADMINISTRATION BLDG.)	3/4"	3-#12 1-#12GRD	-
P-AD-15	PANELBOARD PP-ADMIN-1, CIRCUIT 43,45,47	FAN F-A-2 (LOCATED ON ROOF OF ADMINISTRATION BLDG.)	3/4"	3-#12 1-#12GRD	-
P-AD-16	PANELBOARD PP-ADMIN-1 CIRCUIT 26,28,30	BOILER PUMP P-A-1	3/4"	3-#12 1-#12GRD	-
P-AD-17	PANELBOARD PP-ADMIN-1, CIRCUIT 32,34,36	BOILER PUMP P-A-2	3/4"	3-#12 1-#12GRD	-
P-AD-18	PANELBOARD PP-ADMIN-1, CIRCUIT 38,40,42	PUMP P-A-3 (RTU-A-1)	3/4"	3-#12 1-#12GRD	-
P-AD-19	PANELBOARD PP-ADMIN-1 CIRCUIT 44,46,48	30 KVA TRANSFORMER T-AD-2	1"	3-#6 1-#10GRD	-
P-HW-1	EXISTING CIRCUIT FROM OLD VALVE OPERATOR	VALVE DISCONNECT DS-HW-1 TO FCV-114-1	LFMC	TO MATCH EXISTING	EXTEND CIRCUIT TO NEW DISCONNECT AND VALVE OPERATOR, USE LFMC CONDUIT, CONDUCTORS TO MATCH EXISTING
P-HW-2	EXISTING CIRCUIT FROM OLD VALVE OPERATOR	VALVE DISCONNECT DS-HW-1 TO FCV-114-1	LFMC	TO MATCH EXISTING	EXTEND CIRCUIT TO NEW DISCONNECT AND VALVE OPERATOR, USE LFMC CONDUIT, CONDUCTORS TO MATCH EXISTING
P-PEPS-1	MOTOR CONTROL CENTER "MCC-PEPS-1"	PEPS PUMP NO.1 VFD	2"	3-#4/0 1-#4GRD	-
P-PEPS-1A	PEPS PUMP NO.1 VFD	PEPS PUMP NO.1 (M-275-1)	3"	3-#4/0 1-#4GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-PEPS-2	MOTOR CONTROL CENTER "MCC-PEPS-1"	PEPS PUMP NO.2 VFD	2"	3-#4/0 1-#4GRD	-
P-PEPS-2A	PEPS PUMP NO.2 VFD	PEPS PUMP NO.2 (M-275-2)	3"	3-#4/0 1-#4GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-PEPS-3	MOTOR CONTROL CENTER "MCC-PEPS-2"	PEPS PUMP NO.3 VFD	2"	3-#4/0 1-#4GRD	-
P-PEPS-3A	PEPS PUMP NO.3 VFD	PEPS PUMP NO.3 (M-275-3)	3"	3-#4/0 1-#4GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-PEPS-4	MOTOR CONTROL CENTER "MCC-PEPS-1"	ANAEROBIC MIXER NO.1 (M-305-1)	3/4"	3-#12 1-#12GRD	-
P-PEPS-5	MOTOR CONTROL CENTER "MCC-PEPS-1"	ANAEROBIC MIXER NO.2 (M-305-2)	3/4"	3-#10 1-#10GRD	-
P-PEPS-6	MOTOR CONTROL CENTER "MCC-PEPS-2"	ANAEROBIC MIXER NO.3 (M-305-3)	3/4"	3-#10 1-#10GRD	-
P-PEPS-7	MOTOR CONTROL CENTER "MCC-PEPS-1"	ANOXIC MIXER NO.1 (M-307-1)	3/4"	3-#12 1-#12GRD	-
P-PEPS-8	MOTOR CONTROL CENTER "MCC-PEPS-1"	ANOXIC MIXER NO.2 (M-307-2)	3/4"	3-#12 1-#12GRD	-
P-PEPS-9	MOTOR CONTROL CENTER "MCC-PEPS-2"	ANOXIC MIXER NO.3 (M-307-3)	3/4"	3-#10 1-#10GRD	-
P-PEPS-10	MOTOR CONTROL CENTER "MCC-PEPS-1"	PANELBOARD PP-PEPS-1 480/277V	2"	3-#3/0 1-#6GRD	-
P-PEPS-10A	PANELBOARD PP-PEPS-1 480/277V	TRANSFORMER T-PEPS-1 45KVA 480-120/208V	1 1/2"	3-#4 1-#8GRD	-
P-PEPS-10B	TRANSFORMER T-PEPS-1 45KVA 480-120/208V	PANELBOARD LP-PEPS-1 120/208V	2"	4-#3/0 1-#6GRD	-
P-PEPS-10C	PANELBOARD LP-PEPS-1 120/208V	PANELBOARD LP-PEPS-2 120/208V	2"	4-#3/0 1-#6GRD	-
P-PEPS-11	MOTOR CONTROL CENTER "MCC-PEPS-1"	AIR KNIFE/SCOUR BLOWER NO.1 MOTOR CONTROLLER	1"	3-#6 1-#10GRD	-
P-PEPS-12	MOTOR CONTROL CENTER "MCC-PEPS-1"	AN/AX SWING MIXER NO.1 (M-306-1)	3/4"	3-#12 1-#12GRD	-

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

POWER CONDUIT SCHEDULE

FILE NO. 23374.51633- E020

DATE SEPT. 23, 2015

E-020

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SAVED: 9/22/2015 8:36:02 AM

POWER - CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
P-PEPS-13	MOTOR CONTROL CENTER "MCC-PEPS-1"	AN/AX SWING MIXER NO.2 (M-306-2)	3/4"	3-#10 1-#10GRD	-
P-PEPS-14	MOTOR CONTROL CENTER "MCC-PEPS-3"	AN/AX SWING MIXER NO.3 (M-306-3)	3/4"	3-#10 1-#10GRD	-
P-PEPS-15	MOTOR CONTROL CENTER "MCC-PEPS-2"	AIR KNIFE/SCOUR BLOWER NO.2 MOTOR CONTROLLER	1"	3-#6 1-#10GRD	-
P-PEPS-16	MOTOR CONTROL CENTER "MCC-PEPS-1"	SCUM PUMP NO.1 CONTROL PANEL	1"	3-#8 1-#10GRD	-
P-PEPS-17	MOTOR CONTROL CENTER "MCC-PEPS-2"	SCUM PUMP NO.2 CONTROL PANEL	1"	3-#8 1-#10GRD	-
P-PEPS-18	MOTOR CONTROL CENTER "MCC-PEPS-1"	UH-PEPS-1	3/4"	3-#12 1-#12GRD	-
P-PEPS-19	MOTOR CONTROL CENTER "MCC-PEPS-1"	UH-PEPS-2	3/4"	3-#12 1-#12GRD	-
P-PEPS-20	MOTOR CONTROL CENTER "MCC-PEPS-1"	WATER BOOSTER PUMP PACKAGE	3/4"	3-#12 1-#12GRD	-
P-PEPS-21	MOTOR CONTROL CENTER "MCC-PEPS-1"	DISCHARGE KNIFE GATE VALVE NO.1 (FCV-281-1)	3/4"	3-#12 1-#12GRD	-
P-PEPS-22	MOTOR CONTROL CENTER "MCC-PEPS-1"	DISCHARGE KNIFE GATE VALVE NO.2 (FCV-281-2)	3/4"	3-#12 1-#12GRD	-
P-PEPS-23	MOTOR CONTROL CENTER "MCC-PEPS-1"	DISCHARGE KNIFE GATE VALVE NO.3 (FCV-281-3)	1"	3-#10 1-#10GRD	-
P-PEPS-24	MOTOR CONTROL CENTER "MCC-PEPS-2"	EUH-PEPS-3	3/4"	3-#12 1-#12GRD	-
P-PEPS-25	PANELBOARD LP-PEPS-2	ACU-PEPS-1	3/4"	3-#12 1-#12GRD	-
P-PEPS-26	PANELBOARD LP-PEPS-2	ACCU-PEPS-1	3/4"	3-#10 1-#10GRD	-
P-PEPS-27	PANELBOARD LP-PEPS-2	ACU-PEPS-2	3/4"	3-#12 1-#12GRD	-
P-PEPS-28	PANELBOARD LP-PEPS-2	ACCU-PEPS-2	3/4"	3-#10 1-#10GRD	-
P-PEPS-29	MOTOR CONTROL CENTER "MCC-PEPS-2"	MOTOR CONTROL CENTER "MCC-IFAS-1"	4"	3-#600 MCM 1-#2GRD	-
P-PEPS-30	MOTOR CONTROL CENTER "MCC-PEPS-2"	EUH-PEPS-4	3/4"	3-#12 1-#12GRD	-
P-PEPS-31	PANELBOARD PP-PEPS-1 CIRCUIT 2,4,6	OXIC BUTTERFLY VALVE NO.1 (FCV-375-1)	3/4"	3-#10 1-#10GRD	-
P-PEPS-32	PANELBOARD PP-PEPS-1 CIRCUIT 8,10,12	OXIC BUTTERFLY VALVE NO.2 (FCV-375-2)	3/4"	3-#12 1-#12GRD	-
P-PEPS-33	PANELBOARD PP-PEPS-1 CIRCUIT 1,3,5	OXIC BUTTERFLY VALVE NO.3 (FCV-375-3)	3/4"	3-#10 1-#10GRD	-
P-PEPS-34	PANELBOARD LP-PEPS-1 CIRCUIT 12,14,16	DEOX BUTTERFLY VALVE NO.1 (FCV-377-1)	3/4"	3-#10 1-#10GRD	-
P-PEPS-35	PANELBOARD LP-PEPS-1 CIRCUIT 18,20,22	DEOX BUTTERFLY VALVE NO.2 (FCV-377-2)	3/4"	3-#12 1-#12GRD	-
P-PEPS-36	PANELBOARD LP-PEPS-1 CIRCUIT 11,13,15	DEOX BUTTERFLY VALVE NO.3 (FCV-377-3)	3/4"	3-#12 1-#12GRD	-
P-PEPS-37	NOT USED				-
P-PEPS-38	NOT USED				-
P-PEPS-39	NOT USED	\\			-
P-PEPS-40	MOTOR CONTROL CENTER "MCC-PEPS-2"	HEAT TRACE CONTROL PANEL	1"	3-#6 1-#10GRD	-
P-PEPS-41	HEAT TRACE CONTROL PANEL	HEAT TRACE FOR FERRIC LINES	3/4"	2-#8 1-#10GRD	-
P-PEPS-42	HEAT TRACE CONTROL PANEL	HEAT TRACE FOR PEPS VERTICAL DISCHARGE (TRAIN 1)	3/4"	2-#12 1-#12GRD	-
P-PEPS-43	HEAT TRACE CONTROL PANEL	HEAT TRACE FOR PEPS VERTICAL DISCHARGE (TRAIN 2)	3/4"	2-#12 1-#12GRD	-
P-PEPS-44	HEAT TRACE CONTROL PANEL	HEAT TRACE FOR PEPS VERTICAL DISCHARGE (TRAIN 3)	3/4"	2-#8 1-#10GRD	-
P-SHB-1	MOTOR CONTROL CENTER "MCC-D1A"	MOTOR CONTROL CENTER "MCC-D1AA"	3"	3-#500 MCM 1-#2GRD	-
P-SHB-2	MOTOR CONTROL CENTER "MCC-D1AA"	BOILER NO.1 PUMP P-SHB-1	3/4"	3-#12 1-#12GRD	-
P-SHB-3	MOTOR CONTROL CENTER "MCC-D1AA"	BOILER NO.2 PUMP P-SHB-2	3/4"	3-#12 1-#12GRD	-
P-SHB-4	MOTOR CONTROL CENTER "MCC-D1AA"	BOILER NO.3 PUMP P-SHB-3	3/4"	3-#12 1-#12GRD	-
P-SHB-5	MOTOR CONTROL CENTER "MCC-D1AA"	WATER HEATER 6 KW	3/4"	3-#12, 1-#12 N 1-#12GRD	-
P-SHB-6	MOTOR CONTROL CENTER "MCC-D1AA"	BOILER NO.4 PUMP P-SHB-4	3/4"	3-#12 1-#12GRD	-
P-SHB-7	MOTOR CONTROL CENTER "MCC-D1AA"	BOILER NO.5 PUMP P-SHB-5	3/4"	3-#12 1-#12GRD	-
P-SHB-8	MOTOR CONTROL CENTER "MCC-D1AA"	DIGESTER HEAT PUMP P-SHB-6	3/4"	3-#12 1-#12GRD	-
P-SHB-9	MOTOR CONTROL CENTER "MCC-D1AA"	DIGESTER HEAT PUMP P-SHB-7	3/4"	3-#12 1-#12GRD	-

POWER - CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
P-SHB-10	MOTOR CONTROL CENTER "MCC-D1AA"	BUILDING HEAT PUMP P-SHB-8	3/4"	3-#10 1-#10GRD	-
P-SHB-11	MOTOR CONTROL CENTER "MCC-D1AA"	BUILDING HEAT PUMP P-SHB-9	3/4"	3-#10 1-#10GRD	-
P-SHB-12	MOTOR CONTROL CENTER "MCC-D1AA"	FAN ON ROOF F-SHB-1	3/4"	3-#12 1-#12GRD	-
P-SHB-13	MOTOR CONTROL CENTER "MCC-D1AA"	FAN ON ROOF F-SHB-2	3/4"	3-#12 1-#12GRD	-
P-SHB-14	MOTOR CONTROL CENTER "MCC-D1AA"	HOT WATER BOILER B-SHB-1	3/4"	3-#12 1-#12GRD	-
P-SHB-15	MOTOR CONTROL CENTER "MCC-D1AA"	HOT WATER BOILER B-SHB-2	3/4"	3-#12 1-#12GRD	-
P-SHB-16	MOTOR CONTROL CENTER "MCC-D1AA"	HOT WATER BOILER B-SHB-3	3/4"	3-#12 1-#12GRD	-
P-SHB-17	MOTOR CONTROL CENTER "MCC-D1AA"	HOT WATER BOILER B-SHB-4	3/4"	3-#12 1-#12GRD	-
P-SHB-18	MOTOR CONTROL CENTER "MCC-D1AA"	HOT WATER BOILER B-SHB-5	3/4"	3-#12 1-#12GRD	-
P-SHB-19	MOTOR CONTROL CENTER "MCC-D1-A"	TERTIARY FILTER BUILDING PANELBOARD TERT-P1	3"	3-#4/0 1-#4GRD	-
P-SHB-20	MOTOR CONTROL CENTER "MCC-D1AA"	MUAU-SHB-1	3/4"	3-#12 1-#12GRD	
P-BB-1	EXISTING MOTOR CONTROL CENTER MCC-E1	DIURNAL FLOW BLOWER NO.3 (DFRTB-3) VFD	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	AT MCC-E1 UTILIZE EXISTING DIURNAL FLOW BLOWER DFRTB-3 COMPARTMENT AND INSTALL NEW CONDUCTORS
P-BB-1A	DIURNAL FLOW BLOWER NO.3 (DFRTB-3) VFD	DIURNAL FLOW BLOWER NO.3 (DFRTB-3)	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	-
P-BB-2	EXISTING MOTOR CONTROL CENTER MCC-E1	DIURNAL FLOW BLOWER NO.2 (DFRTB-2) VFD	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	AT MCC-E1 UTILIZE EXISTING DIURNAL FLOW BLOWER DFRTB-2 COMPARTMENT
P-BB-2A	DIURNAL FLOW BLOWER NO.2 (DFRTB-2) VFD	DIURNAL FLOW BLOWER NO.2 (DFRTB-2)	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	-
P-BB-3	EXISTING MOTOR CONTROL CENTER MCC-E1	IFAS BLOWER NO.3 (EX. AERATION TANK BLWR NO.3) VFD	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	AT MCC-E1 UTILIZE EXISTING AERATION TANK BLOWER ATB-3 COMPARTMENT AND INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-3A	IFAS BLOWER NO.3 (EX. AERATION TANK BLWR NO.3) VFD	IFAS BLOWER NO.3 (EX. AERATION TANK BLWR NO.3)	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-4	EXISTING MOTOR CONTROL CENTER MCC-E2	IFAS BLOWER NO.1 (EX. AERATION TANK BLWR NO.1) VFD	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	AT MCC-E2 UTILIZE EXISTING AERATION TANK BLOWER ATB-1 COMPARTMENT AND INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-4A	IFAS BLOWER NO.1 (EX. AERATION TANK BLWR NO.1) VFD	IFAS BLOWER NO.1 (EX. AERATION TANK BLWR NO.1)	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-5	EXISTING MOTOR CONTROL CENTER MCC-E2	IFAS BLOWER NO.2 (EX. AERATION TANK BLWR NO.2) VFD	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	AT MCC-E2 UTILIZE EXISTING AERATION TANK BLOWER ATB-2 COMPARTMENT AND INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-5A	IFAS BLOWER NO.2 (EX. AERATION TANK BLWR NO.2) VFD	IFAS BLOWER NO.2 (EX. AERATION TANK BLWR NO.2)	EXISTING CONDUIT	6-#300 MCM 2-#1GRD	INSTALL NEW CONDUCTORS (2 PER PHASE)
P-BB-6	EXISTING MOTOR CONTROL CENTER MCC-E2	DIURNAL FLOW BLOWER NO.1 (DFRTB-1) VFD	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	AT MCC-E2 UTILIZE EXISTING DIURNAL FLOW BLOWER DFRTB-1 COMPARTMENT
P-BB-6A	DIURNAL FLOW BLOWER NO.1 (DFRTB-1) VFD	DIURNAL FLOW BLOWER NO.1 (DFRTB-1)	EXISTING CONDUIT	3-#500 MCM 1-#2GRD	-
P-IFAS-1	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.1A	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-2	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.1B	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-3	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.4	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-4	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.2A	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-5	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.2B	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-6	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.5	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-7	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.3A	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-8	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.3B	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-9	MOTOR CONTROL CENTER "MCC-IFAS-1"	IR PUMP NO.6	2 1/2"	3-#4 1-#8GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-IFAS-10	MOTOR CONTROL CENTER "MCC-IFAS-1"	TRANSFORMER T-PEPS-1 30KVA 480-120/208V	2"	3-#6 1-#10GRD	-
P-IFAS-10A	TRANSFORMER T-PEPS-1 30KVA 480-120/208V	PANELBOARD LP-IFAS-1	1 1/2"	4-#2 1-#8GRD	-
P-GT-01	PANELBOARD LP-IFAS-1, CIRCUITS NO.16, 18	FLOW METERS FIT-531-1, FIT-531-2, FIT-533-1, FIT-533-2	3/4"	8-#12 1-#12GRD	SEE PANELBOARD LP-IFAS-1 SCHEDULE, SHEET E-019
P-GT-02	NOT USED				
P-GT-03	MOTOR CONTROL CENTER MCC-IFAS-1	PRE-THICKENER NO.1 SCRAPER DRIVE CONTROL PANEL	3/4"	3-#12 1-#12GRD	MCC-IFAS-1 LOCATED AT SECONDARY GALLERY, SEE SHEET E-702 FOR LOCATION
P-GT-04	MOTOR CONTROL CENTER MCC-IFAS-1	PRE-THICKENER NO.2 SCRAPER DRIVE CONTROL PANEL	3/4"	3-#12 1-#12GRD	MCC-IFAS-1 LOCATED AT SECONDARY GALLERY, SEE SHEET E-702 FOR LOCATION

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DESIGNED BY	JEC
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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

POWER CONDUIT SCHEDULE

FILE NO. 23374.51633- E021

DATE SEPT. 23, 2015

E-021

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POWER - CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
P-GT-05	PRE-THICKENER NO.1 SCRAPER DRIVE CONTROL PANEL	PRE-THICKENER NO.1 SCRAPER DRIVE	3/4"	3-#12 1-#12GRD	-
P-GT-06	PRE-THICKENER NO.2 SCRAPER DRIVE CONTROL PANEL	PRE-THICKENER NO.2 SCRAPER DRIVE	3/4"	3-#12 1-#12GRD	-
P-SRB-1	MOTOR CONTROL CENTER "MCC-F2" POWER PANEL		3/4"	2-#12 1-#12GRD	-
P-TF-1	480V PANELBOARD PP-TF-1A	DISC FILTER DRIVE NO.1 CONTROL PANEL	1"	3-#4 1-#8GRD	-
P-TF-1A	DISC FILTER DRIVE NO.1 CONTROL PANEL	DISC FILTER DRIVE NO.1	3/4"	3-#10 1-#10GRD	-
P-TF-2	480V PANELBOARD PP-TF-1A	DISC FILTER DRIVE NO.2 CONTROL PANEL	1"	3-#4 1-#8GRD	-
P-TF-2A	DISC FILTER DRIVE NO.2 CONTROL PANEL	DISC FILTER DRIVE NO.2	3/4"	3-#10 1-#10GRD	-
P-TF-3	480V PANELBOARD PP-TF-1A	DISC FILTER DRIVE NO.3 CONTROL PANEL	1"	3-#4 1-#8GRD	-
P-TF-3A	DISC FILTER DRIVE NO.3 CONTROL PANEL	DISC FILTER DRIVE NO.3	3/4"	3-#10 1-#10GRD	-
P-TF-4	480V PANELBOARD PP-TF-1A	DISC FILTER DRIVE NO.4 CONTROL PANEL	1"	3-#4 1-#8GRD	-
P-TF-4A	DISC FILTER DRIVE NO.4 CONTROL PANEL	DISC FILTER DRIVE NO.4	3/4"	3-#10 1-#10GRD	-
P-TF-5	DISC FILTER DRIVE NO.1 CONTROL PANEL	BACKWASH PUMP NO.1	1"	3-#4 1-#8GRD	-
P-TF-6	DISC FILTER DRIVE NO.2 CONTROL PANEL	BACKWASH PUMP NO.2	1"	3-#4 1-#8GRD	-
P-TF-7	DISC FILTER DRIVE NO.3 CONTROL PANEL	BACKWASH PUMP NO.3	1"	3-#4 1-#8GRD	-
P-TF-8	DISC FILTER DRIVE NO.4 CONTROL PANEL	BACKWASH PUMP NO.4	1"	3-#4 1-#8GRD	-
P-TF-9	DISC FILTER DRIVE NO.1 CONTROL PANEL	BACKWASH SPRAY BAR NO.1	3/4"	3-#12 1-#12GRD	-
P-TF-10	DISC FILTER DRIVE NO.2 CONTROL PANEL	BACKWASH SPRAY BAR NO.2	3/4"	3-#12 1-#12GRD	-
P-TF-11	DISC FILTER DRIVE NO.3 CONTROL PANEL	BACKWASH SPRAY BAR NO.3	3/4"	3-#12 1-#12GRD	-
P-TF-12	DISC FILTER DRIVE NO.4 CONTROL PANEL	BACKWASH SPRAY BAR NO.4	3/4"	3-#12 1-#12GRD	-
P-TF-13	480V PANELBOARD DP-TF-1A	SUMP PUMP NO.1 CONTROL PANEL	3/4"	3-#12 1-#12GRD	-
P-TF-14	480V PANELBOARD DP-TF-1A	SUMP PUMP NO.2 CONTROL PANEL	3/4"	3-#12 1-#12GRD	-
P-TF-15	SUMP PUMP NO.1 CONTROL PANEL	SUMP PUMP NO.1	3/4"	3-#12 1-#12GRD	-
P-TF-16	SUMP PUMP NO.2 CONTROL PANEL	SUMP PUMP NO.2	3/4"	3-#12 1-#12GRD	-
P-SG-1	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	RAS PUMP NO.1 VFD	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-1A	RAS PUMP NO.1 VFD	RAS PUMP NO.1	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-2	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	RAS PUMP NO.2 VFD	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-2A	RAS PUMP NO.1 VFD	RAS PUMP NO.2	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-3	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	RAS PUMP NO.4 VFD	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-3A	RAS PUMP NO.1 VFD	RAS PUMP NO.4	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-4	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	RAS PUMP NO.5 VFD	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-4A	RAS PUMP NO.1 VFD	RAS PUMP NO.5	EXISTING	3-#1 1-#6GRD	REUSE EXISTING CONDUIT FOR INSTALLATION OF NEW CONDUCTORS
P-SG-5	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	WAS PUMP NO.1 VFD	3/4"	3-#12 1-#12GRD	-
P-SG-5A	WAS PUMP NO.1 VFD	WAS PUMP NO.1	1 1/2"	3-#12 1-#12GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-SG-6	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	WAS PUMP NO.2 VFD	3/4"	3-#12 1-#12GRD	-
P-SG-6A	WAS PUMP NO.2 VFD	WAS PUMP NO.2 VFD	1 1/2"	3-#12 1-#12GRD	VFD CABLE PER SPECIFICATION 26 05 19
P-SG-7	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	FAN F-SG-2	3/4"	3-#12 1-#12GRD	-
P-SG-8	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	MUAU-SG-1	3/4"	3-#12 1-#12GRD	-
P-SG-9	EXISTING MOTOR CONTROL CENTER "MCC-DC2B"	SUPPLY AIR FAN F-SG-1	3/4"	3-#12 1-#12GRD	-

NOTES:

1. WHERE PRACTICAL CONTRACTOR MAY COMBINE CIRCUITS INTO ONE CIRCUIT. WHEN DOING SO CONTRACTOR IS RESPONSIBLE FOR DE-RATING CONDUCTORS AND CONDUIT FILL REQUIREMENTS IN ACCORDANCE WITH ALL APPLICABLE CODES OF THE NATIONAL ELECTRIC CODE (NEC).
2. THE MAXIMUM PULLING TENSION FOR CONDUCTORS OR CABLES SHALL NOT EXCEED THE MAXIMUM RECOMMENDED MANUFACTURER PULLING TENSION. WHEN PULLING CABLES WHICH EXCEED 300 FEET IN LENGTH WITH A MECHANICAL PULLING DEVICE, THE CONTRACTOR SHALL SUBMIT CABLE PULLING CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING OF THE PULL. NO CALCULATIONS ARE REQUIRED IF PULLED BY HAND (MANPOWER ONLY).
3. NO WIRE OR CABLE SHALL BE PULLED UNTIL AFTER THE CONDUIT SYSTEM HAS BEEN COMPLETELY AND THOROUGHLY SWABBED OF ALL FOREIGN MATERIAL. WHEN PULLING WIRES OR CABLES INTO CONDUITS, ONLY AN APPROVED INERT PULLING COMPOUND MAY BE USED.

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

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CTI / O'BRIEN & GERE JOINT VENTURE
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220 MARKET AVENUE SOUTH
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

POWER CONDUIT SCHEDULE

FILE NO. 23374.51633- E022
DATE SEPT. 23, 2015

E-022

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CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-FSB-01	PCS FINE SCREENS CONTROL PANEL	EX. ADMINISTRATION BUILDING ADMIN FLEXLOGIX RIO	2"	1-COAX CABLE	-
CC-FSB-02	PCS FINE SCREENS CONTROL PANEL	PEPS PCS CONTROL PANEL	2"	1-FIBER OPTIC CABLE	-
CC-FSB-03	FINE SCREEN NO.1 CONTROL PANEL	FINE SCREENS CHANNEL NO.1 UPSTREAM LEVEL LE/LIT-160-1A	3/4"	1-#16 TSP	-
CC-FSB-04	FINE SCREEN NO.1 CONTROL PANEL	FINE SCREENS CHANNEL NO.1 DOWNSTREAM LE/LIT-160-1B	3/4"	1-#16 TSP	-
CC-FSB-05	PCS FINE SCREENS CONTROL PANEL	FINE SCREENS FLOW TRANSMITTER FIT-162	3/4"	1-#16 TSP	-
CC-FSB-05A	FINE SCREENS FLOW TRANSMITTER FIT-162	FE-162	3/4"	MANUFACTURER'S CABLE	-
CC-FSB-06	FINE SCREEN NO.2 CONTROL PANEL	FINE SCREENS CHANNEL NO.2 UPSTREAM LEVEL LE/LIT-160-2A	3/4"	1-#16 TSP	-
CC-FSB-07	FINE SCREEN NO.2 CONTROL PANEL	FINE SCREENS CHANNEL NO.2 DOWNSTREAM LE/LIT-160-2B	3/4"	1-#16 TSP	-
CC-FSB-08	PCS FINE SCREENS CONTROL PANEL	FINE SCREENS CONTROL PANEL NO.1	3/4"	10-#14	-
CC-FSB-09	PCS FINE SCREENS CONTROL PANEL	FINE SCREENS CONTROL PANEL NO.1	3/4"	2-#16 TSP	-
CC-FSB-10	PCS FINE SCREENS CONTROL PANEL	FINE SCREENS CONTROL PANEL NO.2	3/4"	10-#14	-
CC-FSB-11	PCS FINE SCREENS CONTROL PANEL	FINE SCREENS CONTROL PANEL NO.3	3/4"	2-#16 TSP	-
CC-FSB-12	PCS FINE SCREENS CONTROL PANEL	AIT-155 TEMP/PH, SAMPLER FC-154 FLOW	1"	3-#16 TSP	-
CC-FSB-13	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTOR AE/AIT-163	3/4"	1-#16 TSP	-
CC-FSB-14	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTOR AE/AIT-163	3/4"	4-#14	2-#14 FOR INTERLOCK TO OUTDOOR WEATHERPROOF HORN STROBE
CC-FSB-15	PCS FINE SCREENS CONTROL PANEL	(2) OCCUPANCY SENSORS	3/4"	2-#12	-
CC-FSB-16	PCS FINE SCREENS CONTROL PANEL	SAMPLER FLOW	3/4"	1-#16 TSP	-
CC-FSB-17	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTOR AE/AIT-164	3/4"	1-#16 TSP	-
CC-FSB-18	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTOR AE/AIT-164	3/4"	2-#14	-
CC-FSB-19	FINE SCREEN NO.1 CONTROL PANEL	WASH WATER SOLENOID VALVE NO.1 (CV-161-1)	3/4"	2-#14	-
CC-FSB-20	FINE SCREEN NO.2 CONTROL PANEL	WASH WATER SOLENOID VALVE NO.2 (CV-161-2)	3/4"	2-#14	-
CC-FSB-21	PCS FINE SCREENS CONTROL PANEL	EMERGENCY BYPASS CHANNEL GATE OPERATROR	3/4"	12-#14	-
CC-FSB-22	PCS FINE SCREENS CONTROL PANEL	EMERGENCY BYPASS CHANNEL GATE OPERATROR	3/4"	12-#14	-
CC-FSB-23	FINE SCREEN NO.1 CONTROL PANEL	FINE SCREEN NO.1 LOCAL CONTROL PANEL	3/4"	12-#14	INCLUDES SPARES
CC-FSB-24	FINE SCREEN NO.2 CONTROL PANEL	FINE SCREEN NO.2 LOCAL CONTROL PANEL	3/4"	12-#14	INCLUDES SPARES
CC-FSB-25	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTION ALARM HORN AND LIGHT	3/4"	8-#14	INCLUDES SPARES
CC-FSB-26	PCS FINE SCREENS CONTROL PANEL	COMBUSTIBLE GAS DETECTION ALARM HORN AND LIGHT	3/4"	8-#14	INCLUDES SPARES
CC-FSB-27	PCS FINE SCREENS CONTROL PANEL	TEMPERATURE SWITCH LOW TSL-166	3/4"	2-#14	-
CC-FSB-28	PCS FINE SCREENS CONTROL PANEL	ELECTRICAL ROOM AC FAIL TSH-168	3/4"	2-#14	-
CC-FSB-29	PCS FINE SCREENS CONTROL PANEL	VENTILATION FAN VFD'S RUN, STATUS, REMOTE & TROUBLE	3/4"	16-#14	8-#14 TO EACH VFD
CC-FSB-30	PCS FINE SCREENS CONTROL PANEL	VENTILATION FAN VFD'S SPEED COMMAND, SPEED FEEDBACK	1"	4-#16 TSP	2-#16 TSP TO EACH VFD
CC-FSB-31	VENTILATION FANS F-FSB-2 & F-FSB-3	TEMPERATURE SWITCH HIGH TSH-169-1 & TSH-169-2	3/4"	4-#14	-
CC-FSB-32	MUAU-FSB-1 VFD	PCS FINE SCREENS CONTROL PANEL	3/4"	1-#16 TSP	SPEED REFERENCE
CC-FSB-33	MUAU-FSB-1 VFD	PCS FINE SCREENS CONTROL PANEL	3/4"	8-#14	INCLUDES SPARES, (RUN & FAULT SIGNAL)
CC-FSB-34	MUAU-FSB-1 VFD	MUAU-FSB-1 CONTROLLER	2"	10-#18-2	-
CC-FSB-35	PCS FINE SCREENS CONTROL PANEL	BLOWER BUILDING PCS CONTROL PANEL	2"	1-FIBER OPTIC CABLE	-

CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-OD-1	ODOR CONTROL ELECTRICAL CONTROL PANEL	EX. RIO CABINET A1 AT HEADWORKS BUILDING	3/4"	4-#14	COORDINATE ACTUAL LOCATION OF EX. RIO CABINET WITH WWTP PERSONNEL
CC-AB-01	ADMIN PCS FIBER PANEL	PEPS PCS CONTROL PANEL	2"	FIBEROPTIC CABLE	-
CC-HW-1	INFLUENT CHANNEL AIR FLOW CONTROLLER	LEVEL LE/LIT-110	3/4"	1-#16 TSP	-
CC-HW-2	INFLUENT CHANNEL AIR FLOW CONTROLLER	FLOW CONTROL VALVE FCV-114-1	3/4"	1-#16 TSP	-
CC-HW-3	INFLUENT CHANNEL AIR FLOW CONTROLLER	FLOW CONTROL VALVE FCV-114-2	3/4"	1-#16 TSP	-
CC-HW-4	INFLUENT CHANNEL AIR FLOW CONTROLLER	EXISTING LI-110 SIGNAL LOCATED AT EX. RIO CABINET A1	3/4"	1-#16 TSP	CONNECT NEW LE/LIT-110 SIGNAL FROM INFLUENT AIR FLOW CONTROLLER TO EX.
CC-PSPS1-1	EXISTING RIO "A2" PANEL	PRIMARY ACTIVATION RECYCLE VALVE CV-261	3/4"	12-#14	-
CC-PSPS1-2	PRIMARY ACTIVATION RECYCLE VALVE CV-261	PRIMARY ACTIVATION RECYCLE VALVE CV-261 REMOTE STATION	3/4"	6-#14	-
CC-PSPS1-3	EXISTING RIO "A2" PANEL	WEATHERPROOF HORN/STROBE YAI-263-1	3/4"	4-#14	-
CC-PSPS1-4	WEATHERPROOF HORN/STROBE YAI-263-1	WEATHERPROOF HORN/STROBE YAI-263-2	3/4"	4-#14	-
CC-PSPS1-5	EXISTING RIO "A2" PANEL	VENTILATION FLOW SWITH HIGH FSH-262	3/4"	2-#14	-
CC-PSPS1-6	EXISTING RIO "A2" PANEL	FLOW TRANSMITTER FIT-265	3/4"	1-#16 TSP	-
CC-PSPS1-7	FLOW TRANSMITTER FIT-265	FLOW ELEMENT FE-265	3/4"	MANUFACTURER'S CABLE	-
CC-PEPS-1	PCS PEPS CONTROL PANEL	PEPS PUMP NO.1 VFD	3/4"	8-#14	-
CC-PEPS-2	PCS PEPS CONTROL PANEL	PEPS PUMP NO.1 VFD	3/4"	2-#16 TSP	-
CC-PEPS-3	PCS PEPS CONTROL PANEL	PEPS PUMP NO.2 VFD	3/4"	8-#14	-
CC-PEPS-4	PCS PEPS CONTROL PANEL	PEPS PUMP NO.2 VFD	3/4"	2-#16 TSP	-
CC-PEPS-5	PCS PEPS CONTROL PANEL	PEPS PUMP NO.3 VFD	3/4"	8-#14	-
CC-PEPS-6	PCS PEPS CONTROL PANEL	PEPS PUMP NO.3 VFD	3/4"	2-#16 TSP	-
CC-PEPS-7	MOTOR CONTROL CENTER MCC-PEPS-1	ANOXIC MIXER NO.1 TSH-307-1, LSH-307-1, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-8	MOTOR CONTROL CENTER MCC-PEPS-1	AN/AX MIXER NO.1 TSH-306-1, LSH-306-1, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-9	MOTOR CONTROL CENTER MCC-PEPS-1	ANAEROBIC MIXER NO.1 TSH-305-1, LSH-305-1, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-10	MOTOR CONTROL CENTER MCC-PEPS-1	ANOXIC MIXER NO.2 TSH-307-2, LSH-307-2, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-11	MOTOR CONTROL CENTER MCC-PEPS-1	AN/AX MIXER NO.2 TSH-306-2, LSH-306-2, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-12	MOTOR CONTROL CENTER MCC-PEPS-1	ANAEROBIC MIXER NO.2 TSH-305-2, LSH-305-2, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-13	MOTOR CONTROL CENTER MCC-PEPS-2	ANOXIC MIXER NO.3 TSH-307-3, LSH-307-3, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-14	MOTOR CONTROL CENTER MCC-PEPS-2	AN/AX MIXER NO.3 TSH-306-3, LSH-306-3, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-15	MOTOR CONTROL CENTER MCC-PEPS-2	ANAEROBIC MIXER NO.3 TSH-305-3, LSH-305-3, LOR	3/4"	10-#14	INCLUDES SPARES
CC-PEPS-16	PCS PEPS CONTROL PANEL	WET WELL NO. 1 LEVEL LE/LIT-270-1	3/4"	1-#16 TSP	-
CC-PEPS-16A	PCS PEPS CONTROL PANEL	WET WELL NO. 1 LEVEL LE/LIT-270-1	3/4"	2-#14, 1-#14 GRD	-
CC-PEPS-17	PCS PEPS CONTROL PANEL	AE/AIT-270A (AMMONIA)	3/4"	1-#16 TSP	-
CC-PEPS-18	PCS PEPS CONTROL PANEL	AE/AIT-270B (NITRATE)	3/4"	1-#16 TSP	-
CC-PEPS-19	PCS PEPS CONTROL PANEL	WET WELL NO.2 LEVEL LE/LIT-270-2	3/4"	1-#16 TSP	-
CC-PEPS-19A	PCS PEPS CONTROL PANEL	WET WELL NO. 2 LEVEL LE/LIT-270-2	3/4"	2-#14, 1-#14 GRD	-
CC-PEPS-20	PCS PEPS CONTROL PANEL	WET WELL NO. 1 LOW LEVEL LSLL-270-1	3/4"	2-#14	-
CC-PEPS-21	PCS PEPS CONTROL PANEL	WET WELL NO.2 LEVEL LOW LSLL-270-2	3/4"	2-#14	-
CC-PEPS-22	MOTOR CONTROL CENTER MCC-PEPS-1	IFAS CONTROL PANEL	2"	80-#14	INCLUDES SPARES

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

CONTROL CONDUIT SCHEDULE

FILE NO. 23374.51633- E023
DATE SEPT. 23, 2015

E-023

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CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE					
DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-PEPS-23	MOTOR CONTROL CENTER MCC-PEPS-2	IFAS CONTROL PANEL	1 1/2"	50-#14	INCLUDES SPARES
CC-PEPS-24	PEPS PCS CONTROL PANEL	IFAS CONTROL PANEL	1"	FIBER OPTIC CABLE	-
CC-PEPS-25	PEPS PUMP NO.1 VFD	PEPS PUMP NO.1 FSL-275-1, HS-275-1, TSH-275-1	3/4"	7-#14	-
CC-PEPS-26	PEPS PUMP NO.2 VFD	PEPS PUMP NO.2 FSL-275-2, HS-275-2, TSH-275-2	3/4"	7-#14	-
CC-PEPS-27	PEPS PUMP NO.3 VFD	PEPS PUMP NO.3 FSL-275-3, HS-275-3, TSH-275-3	3/4"	7-#14	-
CC-PEPS-28	PEPS PCS CONTROL PANEL	FLOW TRANSMITTER FIT-280A	3/4"	1-#16 TSP	-
CC-PEPS-28A	FLOW TRANSMITTER FIT-280A	FE-280A	3/4"	MANUFACTURER'S CABLE	-
CC-PEPS-29	PEPS PCS CONTROL PANEL	FE/FIT-280B	3/4"	1-#16 TSP	-
CC-PEPS-30	PEPS PCS CONTROL PANEL	FE/FIT-280C	3/4"	1-#16 TSP	-
CC-PEPS-31	PEPS PCS CONTROL PANEL	FCV-281-1	3/4"	1-#16 TSP	-
CC-PEPS-32	PEPS PCS CONTROL PANEL	FCV-281-1	3/4"	8-#14	-
CC-PEPS-33	PEPS PCS CONTROL PANEL	FCV-281-2	3/4"	1-#16 TSP	-
CC-PEPS-34	PEPS PCS CONTROL PANEL	FCV-281-2	3/4"	8-#14	-
CC-PEPS-35	PEPS PCS CONTROL PANEL	FCV-281-3	3/4"	1-#16 TSP	-
CC-PEPS-36	PEPS PCS CONTROL PANEL	FCV-281-3	3/4"	8-#14	-
CC-PEPS-37	PEPS PCS CONTROL PANEL	ELECTRICAL ROOM VENTILATION FAIL (TSH-275-3)	3/4"	2-#14	-
CC-PEPS-38	PEPS PCS CONTROL PANEL	ALARM HORN (YAI-276)	3/4"	2-#14	-
CC-PEPS-39	PEPS PCS CONTROL PANEL	LAB PCS CONTROL PANEL	2"	2-FIBEROPTIC CABLES	-
CC-PEPS-40	PEPS PCS CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	2"	1-FIBEROPTIC CABLE	-
CC-PEPS-41	PEPS PCS CONTROL PANEL	IFAS CONTROL PANEL AT PEPS BUILDING	1"	1-FIBEROPTIC CABLE	-
CC-BB-1	EX. DIURNAL FLOW BLOWER NO.1	FE/FIT-355-1, PIT-355-1A & 1B TE/TIT-355-1	1 1/2"	4-#16 TSP	-
CC-BB-2	EX. DIURNAL FLOW BLOWER NO.2	FE/FIT-355-2, PIT-355-2A & 2B, TE/TIT-355-2	1 1/2"	4-#16 TSP	-
CC-BB-3	EX. DIURNAL FLOW BLOWER NO.3	EX. EQ. BASIN BLOWER NO. 3 FE/FIT-355-3, & 3A, TE/TIT-355-3	1 1/2"	4-#16 TSP	-
CC-BB-4	IFAS BLOWER NO.1 CONTROL PANEL	FE/FIT-350-1, PIT-350-1A & 1B, TE/TIT-350-1	1 1/2"	4-#16 TSP	EXISTING AERATION BLOWER NO.4
CC-BB-5	IFAS BLOWER NO.2 CONTROL PANEL	FE/FIT-350-2, PIT-350-2A & 2B, TE/TIT-350-2	1 1/2"	4-#16 TSP	EXISTING AERATION BLOWER NO.5
CC-BB-6	IFAS BLOWER NO.3 CONTROL PANEL	FE/FIT-350-3, PIT-350-3A & 3B, TE/TIT-350-3	1 1/2"	4-#16 TSP	EXISTING AERATION BLOWER NO.6
CC-BB-7	BLOWER BUILDING PCS CONTROL PANEL	PE/PIT-351-1A, PE/PIT-351-1B, & TE/TIT-351-1	1"	3-#16 TSP	-
CC-BB-8	BLOWER BUILDING PCS CONTROL PANEL	IFAS BLOWER NO.1 & NO.2 VFD'S	1 1/2"	4-#16 TSP	-
CC-BB-9	BLOWER BUILDING PCS CONTROL PANEL	IFAS BLOWER NO.1 & NO.2 VFD'S	1"	20-#14	INCLUDES SPARES
CC-BB-10	BLOWER BUILDING PCS CONTROL PANEL	IFAS BLOWER NO.3 VFD	3/4"	10-#14	INCLUDES SPARES
CC-BB-11	BLOWER BUILDING PCS CONTROL PANEL	IFAS BLOWER NO.3 VFD	3/4"	2-#16 TSP	-
CC-BB-12	BLOWER BUILDING PCS CONTROL PANEL	DIURNAL BASIN NO.1, NO.2, NO.3 BLOWER VFD'S	1"	30-#14	INCLUDES SPARES
CC-BB-13	BLOWER BUILDING PCS CONTROL PANEL	DIURNAL BASIN NO.1, NO.2, NO.3 BLOWER VFD'S	1 1/2"	6-#16 TSP	-
CC-BB-14	BLOWER BUILDING PCS CONTROL PANEL	FE/FIT-351-1	3/4"	1-#16 TSP	-
CC-BB-23	EX. RIO CABINET "E1 & E2" NODE 7 BLOWER BUILDING	BLOWER BUILDING PCS CONTROL PANEL	1"	COAX CABLE	-
CC-BB-24	BLOWER BUILDING PCS CONTROL PANEL	LAB PCS CONTROL PANEL	2"	FIBEROPTIC CABLE	-
CC-BB-25	DIURNAL BLOWER NO.1 VARIABLE FREQUENCY DRIVE PANEL	TSH-355-1	3/4"	1-#16 TSP	-
CC-BB-26	BLOWER BUILDING PCS CONTROL PANEL	VT-355-1	3/4"	1-#16 TSP	-

CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE					
DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-BB-27	DIURNAL BLOWER NO.2 VARIABLE FREQUENCY DRIVE PANEL	TSH-355-2	3/4"	1-#16 TSP	-
CC-BB-28	BLOWER BUILDING PCS CONTROL PANEL	VT-355-2	3/4"	1-#16 TSP	-
CC-BB-29	DIURNAL BLOWER NO.3 VARIABLE FREQUENCY DRIVE PANEL	TSH-355-3	3/4"	1-#16 TSP	-
CC-BB-30	BLOWER BUILDING PCS CONTROL PANEL	VT-355-3	3/4"	1-#16 TSP	-
CC-BB-31	IFAS BLOWER NO.1 VARIABLE FREQUENCY DRIVE PANEL	TSH-350-1	3/4"	1-#16 TSP	-
CC-BB-32	BLOWER BUILDING PCS CONTROL PANEL	VT-350-1	3/4"	1-#16 TSP	-
CC-BB-33	IFAS BLOWER NO.2 VARIABLE FREQUENCY DRIVE PANEL	TSH-350-2	3/4"	1-#16 TSP	-
CC-BB-34	BLOWER BUILDING PCS CONTROL PANEL	VT-350-2	3/4"	1-#16 TSP	-
CC-BB-35	IFAS BLOWER NO.3 VARIABLE FREQUENCY DRIVE PANEL	TSH-350-3	3/4"	1-#16 TSP	-
CC-BB-36	BLOWER BUILDING PCS CONTROL PANEL	VT-350-3	3/4"	1-#16 TSP	-
CC-SRB-1	EX. RIO CABINET F1 & F2 AT RETENTION BASIN	FLOW RETENTION BASIN INFLUENT FLOW TRANSMITTER FIT-139	3/4"	1-#16 TSP	COORDINATE ACTUAL LOCATION OF EX. RIO CABINET WITH WWTP PERSONNEL
CC-SRB-2	FLOW RETENTION BASIN INFLUENT FLOW TRANSMITTER FIT-139	FLOW RETENTION BASIN INFLUENT FLOW METER FE-139	3/4"	MANUFACTURERS CABLE	-
CC-IFAS-1	PEPS PCS CONTROL PANEL	IR PUMP NO.1A VFD	3/4"	8-#14	-
CC-IFAS-1A	PEPS PCS CONTROL PANEL	IR PUMP NO.1A VFD	3/4"	2-#16 TSP	-
CC-IFAS-1B	IR PUMP NO.1A VFD	IR PUMP NO.1A (M-325-1A) TSH-325-1A, LSH-325-1A	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-2	PEPS PCS CONTROL PANEL	IR PUMP NO.1B VFD	3/4"	8-#14	-
CC-IFAS-2A	PEPS PCS CONTROL PANEL	IR PUMP NO.1B VFD	3/4"	2-#16 TSP	-
CC-IFAS-2B	IR PUMP NO.1B VFD	IR PUMP NO.1B (M-325-1B) TSH-325-1B, LSH-325-1B	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-3	PEPS PCS CONTROL PANEL	IR PUMP NO.4 VFD	3/4"	8-#14	-
CC-IFAS-3A	PEPS PCS CONTROL PANEL	IR PUMP NO.4 VFD	3/4"	2-#16 TSP	-
CC-IFAS-3B	IR PUMP NO.4 VFD	IR PUMP NO.4 (M-326-1) TSH-326-1, LSH-326-1	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-4	PEPS PCS CONTROL PANEL	IR PUMP NO.2A VFD	3/4"	8-#14	-
CC-IFAS-4A	PEPS PCS CONTROL PANEL	IR PUMP NO.2A VFD	3/4"	2-#16 TSP	-
CC-IFAS-4B	IR PUMP NO.2A VFD	IR PUMP NO.2A (M-325-2A) TSH-325-2A, LSH-325-2A	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-5	PEPS PCS CONTROL PANEL	IR PUMP NO.2B VFD	3/4"	8-#14	-
CC-IFAS-5A	PEPS PCS CONTROL PANEL	IR PUMP NO.2B VFD	3/4"	2-#16 TSP	-
CC-IFAS-5B	IR PUMP NO.2B VFD	IR PUMP NO.2B (M-325-2B) TSH-325-2B, LSH-325-2B	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-6	PEPS PCS CONTROL PANEL	IR PUMP NO.5 VFD	3/4"	8-#14	-
CC-IFAS-6A	PEPS PCS CONTROL PANEL	IR PUMP NO.5 VFD	3/4"	2-#16 TSP	-
CC-IFAS-6B	IR PUMP NO.5 VFD	IR PUMP NO.5 (M-326-2) TSH-326-2, LSH-326-2	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-7	PEPS PCS CONTROL PANEL	IR PUMP NO.3A VFD	3/4"	8-#14	-
CC-IFAS-7A	PEPS PCS CONTROL PANEL	IR PUMP NO.3A VFD	3/4"	2-#16 TSP	-
CC-IFAS-7B	IR PUMP NO.3A VFD	IR PUMP NO.3A (M-325-3A) TSH-325-3A, LSH-325-3A	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-8	PEPS PCS CONTROL PANEL	IR PUMP NO.3B VFD	3/4"	8-#14	-
CC-IFAS-8A	PEPS PCS CONTROL PANEL	IR PUMP NO.3B VFD	3/4"	2-#16 TSP	-
CC-IFAS-8B	IR PUMP NO.3B VFD	IR PUMP NO.3B (M-325-3B) TSH-325-3B, LSH-325-3B	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-9	PEPS PCS CONTROL PANEL	IR PUMP NO.6 VFD	3/4"	8-#14	-

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

CONTROL CONDUIT SCHEDULE

FILE NO. 23374.51633- E024
DATE SEPT. 23, 2015

E-024

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CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE					
DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-IFAS-9A	PEPS PCS CONTROL PANEL	IR PUMP NO.6 VFD	3/4"	2-#16 TSP	-
CC-IFAS-9B	IR PUMP NO.6 VFD	IR PUMP NO.6 (M-326-3) TSH-326-3, LSH-326-3	3/4"	10-#14	INCLUDES SPARES
CC-IFAS-10	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.1 TURBIDITY AE/AIT-308-1	3/4"	1-#16 TSP	-
CC-IFAS-11	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.1 FLOW FE/FIT-328-1	3/4"	1-#16 TSP	-
CC-IFAS-12	IFAS CONTROL PANEL PEPS	IFAS ZONE 1 LEVEL LE/LIT-320-1	3/4"	1-#16 TSP	-
CC-IFAS-13	IFAS CONTROL PANEL PEPS	IFAS ZONE 1 DO AE/AIT-380-1	3/4"	1-#16 TSP	-
CC-IFAS-14	IFAS CONTROL PANEL PEPS	IFAS ZONE 1 PH AE/AIT-330-1	3/4"	1-#16 TSP	-
CC-IFAS-15	IFAS CONTROL PANEL PEPS	IFAS ZONE 1 LEVEL HIGH-HIGH LSHH-320-1	3/4"	2-#14	-
CC-IFAS-16	IFAS CONTROL PANEL PEPS	DE-OX ZONE 1 FLOW FE/FIT-327-1	3/4"	1-#16 TSP	-
CC-IFAS-17	SCUM PUMP NO.1 CONTROL PANEL	SCUM PUMP NO.1 CHAMBER LEVEL LE/LIT-500-1	3/4"	1-#16 TSP	-
CC-IFAS-18	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.2 TURBIDITY AE/AIT-308-2	3/4"	1-#16 TSP	-
CC-IFAS-19	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.2 FLOW FE/FIT-328-2	3/4"	1-#16 TSP	-
CC-IFAS-20	IFAS CONTROL PANEL PEPS	IFAS ZONE 2 LEVEL LE/LIT-320-2	3/4"	1-#16 TSP	-
CC-IFAS-21	IFAS CONTROL PANEL PEPS	IFAS ZONE 2 DO AE/AIT-380-2	3/4"	1-#16 TSP	-
CC-IFAS-22	IFAS CONTROL PANEL PEPS	IFAS ZONE 2 PH AE/AIT-330-2	3/4"	1-#16 TSP	-
CC-IFAS-23	IFAS CONTROL PANEL PEPS	IFAS ZONE 2 LEVEL HIGH-HIGH LSHH-320-2	3/4"	2-#14	-
CC-IFAS-24	IFAS CONTROL PANEL PEPS	DE-OX ZONE 2 FLOW FE/FIT-327-2	3/4"	1-#16 TSP	-
CC-IFAS-25	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.3 TURBIDITY AE/AIT-308-3	3/4"	1-#16 TSP	-
CC-IFAS-26	IFAS CONTROL PANEL PEPS	IFAS ZONE NO.3 FLOW FE/FIT-328-3	3/4"	1-#16 TSP	-
CC-IFAS-27	IFAS CONTROL PANEL PEPS	IFAS ZONE 3 LEVEL LE/LIT-320-3	3/4"	1-#16 TSP	-
CC-IFAS-28	IFAS CONTROL PANEL PEPS	IFAS ZONE 3 DO AE/AIT-380-3	3/4"	1-#16 TSP	-
CC-IFAS-29	IFAS CONTROL PANEL PEPS	IFAS ZONE 3 PH AE/AIT-330-3	3/4"	1-#16 TSP	-
CC-IFAS-30	IFAS CONTROL PANEL PEPS	IFAS ZONE 3 LEVEL HIGH-HIGH LSHH-320-3	3/4"	2-#14	-
CC-IFAS-31	IFAS CONTROL PANEL PEPS	DE-OX ZONE 1 FLOW FE/FIT-327-3	3/4"	1-#16 TSP	-
CC-IFAS-32	IFAS CONTROL PANEL	SCUM PUMP NO.2 CHAMBER LEVEL LE/LIT-500-2	3/4"	1-#16 TSP	-
CC-IFAS-33	IFAS CONTROL PANEL PEPS	IFAS ZONE 1 AERATION FLOW FE/FIT-376-1	3/4"	1-#16 TSP	-
CC-IFAS-34	IFAS CONTROL PANEL PEPS	IFAS ZONE 2 AERATION FLOW FE/FIT-376-2	3/4"	1-#16 TSP	-
CC-IFAS-35	IFAS CONTROL PANEL PEPS	IFAS ZONE 3 AERATION FLOW FE/FIT-376-3	3/4"	1-#16 TSP	-
CC-IFAS-36	SCUM PUMP NO.2 CONTROL PANEL	SCUM PUMP NO.2 CHAMBER LEVEL LE/LIT-500-2	3/4"	1-#16 TSP	-
CC-IFAS-37	IFAS CONTROL PANEL PEPS	AIR SCOUR BLOWER NO.1 & AIR SCOUR BLOWER NO.2	3/4"	16-#14	8-#14 TO EACH AIR SCOUR BLOWER
CC-IFAS-38	NOT USED				
CC-IFAS-39	IFAS CONTROL PANEL PEPS	FCV-375-1, FE/FIT-376-1 VIA JUNCTION BOX	1"	3-#16 TSP	(2) FCV-375-1 POSITION COMMAND, POSITION FEEDBACK, (1) FE/FIT-376-1
CC-IFAS-40	IFAS CONTROL PANEL PEPS	FCV-375-1	3/4"	6-#14	-
CC-IFAS-41	NOT USED				-
CC-IFAS-42	IFAS CONTROL PANEL PEPS	FCV-377-1	3/4"	8-#14	-
CC-IFAS-43	SCUM PUMP NO.1 CONTROL PANEL	SCUM PUMP NO.1 (M-505-1) TSH-505-1, LSH-505-1	3/4"	4-#14	-
CC-IFAS-44	SCUM PUMP NO.1 CONTROL PANEL	CONTROL VALVE CV-501-1	3/4"	12-#14	-
CC-IFAS-45	SCUM PUMP NO.1 CONTROL PANEL	SOLENOID VALVE CV-506-1	3/4"	2-#14	-
CC-IFAS-46	SCUM PUMP NO.1 CONTROL PANEL	LAB PCS CONTROL PANEL	1"	16-#14	INCLUDES SPARES

CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE					
DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-IFAS-46A	SCUM PUMP NO.1 CONTROL PANEL	LAB PCS CONTROL PANEL	3/4"	1-#16 TSP	-
CC-IFAS-47	IFAS CONTROL PANEL PEPS	FCV-375-2, FE/FIT-376-2 VIA JUNCTION BOX	1"	3-#16 TSP	(2) FCV-375-2 POSITION COMMAND, POSITION FEEDBACK, (1) FE/FIT-376-2
CC-IFAS-48	IFAS CONTROL PANEL PEPS	FCV-375-2	3/4"	6-#14	-
CC-IFAS-49	NOT USED				-
CC-IFAS-50	IFAS CONTROL PANEL PEPS	FCV-377-2	3/4"	8-#14	-
CC-IFAS-51	IFAS CONTROL PANEL PEPS	FCV-375-3, FE/FIT-376-3 VIA JUNCTION BOX	1"	3-#16 TSP	(2) FCV-375-3 POSITION COMMAND, POSITION FEEDBACK, (1) FE/FIT-376-3
CC-IFAS-52	IFAS CONTROL PANEL PEPS	FCV-375-3	3/4"	6-#14	-
CC-IFAS-53	NOT USED				-
CC-IFAS-54	IFAS CONTROL PANEL PEPS	FCV-377-3	3/4"	8-#14	-
CC-IFAS-55	SCUM PUMP NO.2 CONTROL PANEL	SCUM PUMP NO.2 (M-505-2) TSH-505-2, LSH-505-2	3/4"	4-#14	-
CC-IFAS-56	SCUM PUMP NO.2 CONTROL PANEL	CONTROL VALVE CV-501-2	3/4"	12-#14	-
CC-IFAS-57	SCUM PUMP NO.2 CONTROL PANEL	SOLENOID VALVE CV-506-2	3/4"	2-#14	-
CC-IFAS-58	SCUM PUMP NO.2 CONTROL PANEL	LAB PCS CONTROL PANEL	1"	16-#14	INCLUDES SPARES
CC-IFAS-59	SCUM PUMP NO.2 CONTROL PANEL	LAB PCS CONTROL PANEL	3/4"	1-#16 TSP	-
CC-IFAS-60	PCS LAB CONTROL PANEL	SAMPLER FC-341	3/4"	1-#16 TSP	-
CC-IFAS-61	IFAS CONTROL PANEL PEPS	AE/AIT-340	3/4"	1-#16 TSP	-
CC-IFAS-62	NOT USED				-
CC-IFAS-63	NOT USED				-
CC-IFAS-64	NOT USED				-
CC-IFAS-65	SCUM PUMP NO.1 CONTROL PANEL	SCUM PUMP NO.1 CHAMBER LEVEL LE/LIT-500-1	3/4"	2-#14, 1-#14 GRD	-
CC-IFAS-66	SCUM PUMP NO.2 CONTROL PANEL	SCUM PUMP NO.2 CHAMBER LEVEL LE/LIT-500-2	3/4"	2-#14, 1-#14 GRD	-
CC-SG-1	WAS PUMP NO.1 VFD	WAS PUMP M-525-1 TSH-525-1	3/4"	2-#14	-
CC-SG-2	WAS PUMP NO.2 VFD	WAS PUMP M-525-2 TSH-525-2	3/4"	2-#14	-
CC-SG-3	SUPPLY AIR FAN F-SG-701 MOTOR STARTER	DUCT SMOKE DETECTOR	3/4"	2-#14	
CC-SG-4	PCS LAB CONTROL PANEL	LE/LIT-512	3/4"	1-#16 TSP, 2-#14, 1-#14 GRD	2-#14 FOR 24VDC POWER TO INSTRUMENT
CC-SG-5	EXISTING RAS PUMP NO.1 VFD	EX. CV-515-1	3/4"	2-#14	-
CC-SG-6	EXISTING RAS PUMP NO.2 VFD	EX. CV-515-2	3/4"	2-#14	-
CC-SG-7	RAS RELAY CONTROL PANEL	LEVEL SWITCH LSLL-512	3/4"	MANUFACTURERS CABLE	-
CC-SG-7A	PCS LAB CONTROL PANEL	RAS RELAY CONTROL PANEL	3/4"	2-#14	-
CC-SG-8	EXISTING RAS PUMP NO.4 VFD	EX. CV-515-4	3/4"	2-#14	-
CC-SG-9	EXISTING RAS PUMP NO.5 VFD	EX. CV-515-5	3/4"	2-#14	-
CC-SG-10	RAS RELAY CONTROL PANEL	PCS CONTROL PANEL	3/4"	2-#14	-
CC-SG-11	RAS RELAY CONTROL PANEL	RAS PUMPS NO.1, 2, 4, 5 VFD's	3/4"	8-#14	2-#14 TO EACH VFD (RUN ENABLE)
CC-SG-12	PCS LAB CONTROL PANEL	FE/FIT-519-1, FE-FIT-519-2, FE/FIT-519-3	1"	3-#16 TSP	-
CC-SG-13	PCS LAB CONTROL PANEL	WAS PUMP NO. 1 VFD & WAS PUMP NO.2 VFD	1"	16-#14	8-#14 TO EACH VFD (RUN, RUN STATUS,LOR IN "REMOTE", TROUBLE)
CC-SG-14	PCS LAB CONTROL PANEL	WAS PUMP NO. 1 VFD & WAS PUMP NO.2 VFD	1"	4-#16 TSP	2-#16 TSP TO EACH VFD (SPEED COMMAND & SPEED FEEDBACK)
CC-SG-15	PCS LAB CONTROL PANEL	WAS PUMP NO. 1 VFD & WAS PUMP NO.2 VFD	1"	2 CAT6 ETHERNET	1-CAT6 TO EACH VFD
CC-SG-16	PCS LAB CONTROL PANEL	VENTILATION FLOW OK FSH-520	3/4"	2-#14	-

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

CONTROL CONDUIT SCHEDULE

FILE NO. 23374.51633- E025
DATE SEPT. 23, 2015

E-025

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CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE

DESIGNATION	FROM	TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-SG-17	PCS LAB CONTROL PANEL	HORN/STROBE LOCATED AT TUNNEL VESTIBULE (YAI-520-4)	3/4"	4-#14	-
CC-SG-18	PCS LAB CONTROL PANEL	HORN/STROBE SECONDARY GALLERY (YAI-520-3)	3/4"	4-#14	LOCATED AT SOUTH ENTRANCE DOOR
CC-SG-19	PCS LAB CONTROL PANEL	HORN/STROBE UPPER LEVEL SECONDARY GALLERY (YAI-520-1)	3/4"	4-#14	LOCATED AT LAB EXTERIOR DOOR (COORDINATE LOCATION IN FIELD)
CC-SG-20	PCS LAB CONTROL PANEL	HORN/STROBE SECONDARY GALLERY EAST (YAI-520-3)	3/4"	4-#14	SECONDARY GALLERY EAST EXTERIOR DOOR (COORDINATE LOCATION IN FIELD)
CC-SG-21	PCS LAB CONTROL PANEL	RAS PUMPS NO.4 & 5 VFD'S	3/4"	16-#14	8-#14 TO EACH VFD, (RUN, RUN STATUS, LOR IN "REMOTE", TROUBLE)
CC-SG-22	PCS LAB CONTROL PANEL	RAS PUMPS NO.4 & 5 VFD'S	1"	4-#16 TSP	2-#16 TSP TO EACH VFD (SPEED COMMAND & SPEED FEEDBACK)
CC-SG-23	PCS LAB CONTROL PANEL	RAS PUMPS NO.4 & 5 VFD'S	1"	2-CAT6 ETHERNET	1-CAT6 TO EACH VFD
CC-SG-24	PCS LAB CONTROL PANEL	RAS PUMPS NO.1 & 2 VFD'S	3/4"	16-#14	8-#14 TO EACH VFD, (RUN, RUN STATUS, LOR IN "REMOTE", TROUBLE)
CC-SG-25	PCS LAB CONTROL PANEL	RAS PUMPS NO.1 & 2 VFD'S	1"	4-#16 TSP	2-#16 TSP TO EACH VFD (SPEED COMMAND & SPEED FEEDBACK)
CC-SG-26	PCS LAB CONTROL PANEL	RAS PUMPS NO.1 & 2 VFD'S	1"	2-CAT6 ETHERNET	1-CAT6 TO EACH VFD
CC-SG-27	PCS LAB CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	2"	1-FIBEROPTIC CABLE	-
CC-SG-28	PCS LAB CONTROL PANEL	MOTOR CONTROL CENTER "MCC-DC2C"	2"	84-#14	-
CC-SG-29	PCS LAB CONTROL PANEL	MOTOR CONTROL CENTER "MCC-DC2C"	3"	20-#16 TSP	-
CC-SG-30	PCS LAB CONTROL PANEL	MOTOR CONTROL CENTER "MCC-DC2C"	2 1/2"	11-CAT6 ETHERNET	-
CC-TB-1	EXISTING UV DISINFECTION CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	3/4"	4-#14	-
CC-TB-2	TERTIARY FILTER BUILDING PCS CONTROL PANEL	AE/AIT-450 ORTHO P, INFLUENT CHANNEL LEVEL LE/LIT-450	3/4"	2-#16 TSP	-
CC-TB-2A	TERTIARY FILTER BUILDING PCS CONTROL PANEL	AE/AIT-450	3/4"	2-#14	-
CC-TB-2B	TERTIARY FILTER BUILDING PCS CONTROL PANEL	LE/LIT-450	3/4"	2-#14, 1-#14 GRD	-
CC-TB-3	DISCFILTER NO.1 FILTER CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	1"	18-#14	INCLUDES SPARES
CC-TB-4	DISCFILTER NO.2 FILTER CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	1"	18-#14	INCLUDES SPARES
CC-TB-5	DISCFILTER NO.3 FILTER CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	1"	18-#14	INCLUDES SPARES
CC-TB-6	DISCFILTER NO.4 FILTER CONTROL PANEL	TERTIARY FILTER BUILDING PCS CONTROL PANEL	1"	18-#14	INCLUDES SPARES
CC-TB-7	TERTIARY FILTER BUILDING PCS CONTROL PANEL	EX. RIO CABINET "D1-2" NODE 5 "SOLIDS HANDLING UNIT 2"	2"	CONTROLNET (COAXIAL CABLE)	RIO CABINET LOCATED AT EX. SOLIDS HANDLING BUILDING CONTROL ROOM
CC-TB-8	TERTIARY FILTER BUILDING PCS CONTROL PANEL	DIGESTER GAS FLARE CONTROL PANEL	3/4"	4-#14	-
CC-TB-9	DISCFILTER NO.1 FILTER CONTROL PANEL	DISCFILTER NO.1 LEVEL LE/LIT-460-1A, LE/LIT-460-1B	3/4"	2-#16 TSP	-
CC-TB-10	DISCFILTER NO.1 FILTER CONTROL PANEL	DISCFILTER NO.1 LEVEL LSH-460-1, PSD-460-1	3/4"	4-#14	-
CC-TB-11	DISCFILTER NO.1 FILTER CONTROL PANEL	BACKWASH PUMP NO.1 HIGH TEMP TSH-460-1	3/4"	2-#14	-
CC-TB-12	DISCFILTER NO.2 FILTER CONTROL PANEL	DISCFILTER NO.2 LEVEL LE/LIT-460-2A, LE/LIT-460-2B	3/4"	2-#16 TSP	-
CC-TB-13	DISCFILTER NO.2 FILTER CONTROL PANEL	DISCFILTER NO.2 LEVEL LSH-460-2, PSD-460-2	3/4"	4-#14	-
CC-TB-14	DISCFILTER NO.2 FILTER CONTROL PANEL	BACKWASH PUMP NO.2 HIGH TEMP TSH-460-2	3/4"	2-#14	-
CC-TB-15	DISCFILTER NO.3 FILTER CONTROL PANEL	DISCFILTER NO.3 LEVEL LE/LIT-460-3A, LE/LIT-460-3B	3/4"	2-#16 TSP	-
CC-TB-16	DISCFILTER NO.3 FILTER CONTROL PANEL	DISCFILTER NO.3 LEVEL LSH-460-3, PSD-460-3	3/4"	4-#14	-
CC-TB-17	DISCFILTER NO.3 FILTER CONTROL PANEL	BACKWASH PUMP NO.3 HIGH TEMP TSH-460-3	3/4"	2-#14	-
CC-TB-18	DISCFILTER NO.4 FILTER CONTROL PANEL	DISCFILTER NO.4 LEVEL LE/LIT-460-4A, LE/LIT-460-4B	3/4"	2-#16 TSP	-
CC-TB-19	DISCFILTER NO.4 FILTER CONTROL PANEL	DISCFILTER NO.4 LEVEL LSH-460-4, PSD-460-4	3/4"	4-#14	-
CC-TB-20	DISCFILTER NO.4 FILTER CONTROL PANEL	BACKWASH PUMP NO.3 HIGH TEMP TSH-460-4	3/4"	2-#14	-
CC-TB-21	TERTIARY FILTER BUILDING PCS CONTROL PANEL	SUMP PUMP CONTROL PANELS NO.1 & NO.2	3/4"	4-#14	HIGH LEVEL ALARMS
CC-TB-22	EX. RIO CABINET "D1" NODE 11 "TERTIARY FILTER UV"	TERTIARY FILTER BUILDING PCS CONTROL PANEL	1"	CONTROLNET (COAXIAL CABLE)	-

CONTROL CIRCUIT - CONDUCTOR AND CONDUIT SCHEDULE

DESIGNATION		TO	CONDUIT SIZE	CONDUCTORS QTY/SIZE	REMARKS
CC-TB-23	FLARE CONTROL PANEL (WASTE GAS BURNER)	FLARE (WASTE GAS BURNER) IGNITER	3/4"	2-#14	-
CC-TB-24	FLARE CONTROL PANEL (WASTE GAS BURNER)	FLARE (WASTE GAS BURNER)	1"	MINIMUM #18 STRANDED	TYPE "K" THERMOCOUPLE WIRE
CC-SHB-1	EX. RIO CABINET "D1-1" NODE 4	FE/FIT-910-1, FE/FIT-910-2	3/4"	2-#16 TSP	COORDINATE ACTUAL LOCATION OF EX. RIO CABINET "D1-1" IN FIELD
CC-GT-01	PCS LABS CONTROL PANEL	FE/FIT-531-1, FE/FIT-531-2, FE/FIT-533-1, FE/FIT-533-2	1"	4-#16 TSP	VIA JUNCTION BOX
CC-GT-02	NOT USED				
CC-GT-03	PCS LABS CONTROL PANEL	PRE-THICKENER TANK NO.1 CONTROL PANEL	3/4"	6-#14	WSH-600-1, WSHH-600-1, RUN STATUS
CC-GT-04	NOT USED				-
CC-GT-05	PCS LABS CONTROL PANEL	PRE-THICKENER TANK NO.1 CONTROL PANEL	3/4"	6-#14	WSH-600-2, WSHH-600-2, RUN STATUS
CC-GT-06	PRE-THICKENER TANK NO.1 CONTROL PANEL	TORQUE SWITCHES WSH-600-1, WSHH-600-1	3/4"	4-#14	-
CC-GT-07	PRE-THICKENER TANK NO.2 CONTROL PANEL	TORQUE SWITCHES WSH-600-2, WSHH-600-2	3/4"	4-#14	-
CC-GT-08	NOT USED				-

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

CONTROL CONDUIT SCHEDULE

FILE NO. 23374.51633- E025
DATE SEPT. 23, 2015

E-026

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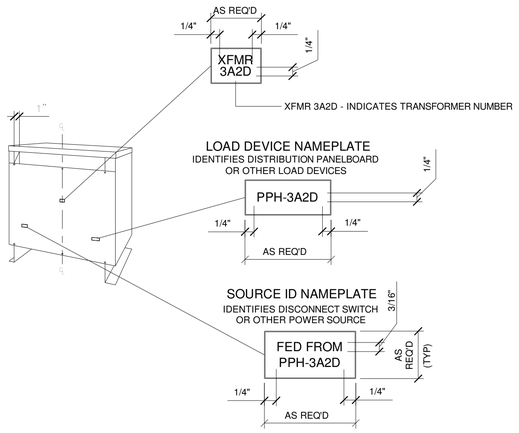
NAMEPLATES
COLOR - WHITE BASE - BLACK LETTERS (NORMAL POWER)
- RED BASE - WHITE LETTERS (EMERGENCY POWER)

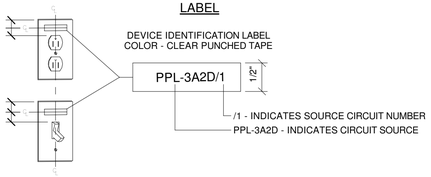
DEVICE IDENTIFICATION NAMEPLATE



NOTES:

1. LETTERS SHALL BE UPPERCASE, CONDENSED BLOCK TYPE.
2. NAMEPLATES SHALL BE ENGRAVED LAMICOID.
3. FASTEN TO NEMA 1, 9, & 12 ENCLOSURE WITH DOUBLE-FACED URETHANE FOAM TAPE 3M #70-0024-8019-5.
4. FASTEN TO NEMA 3R & 4 ENCLOSURE WITH SILICON ADHESIVE.

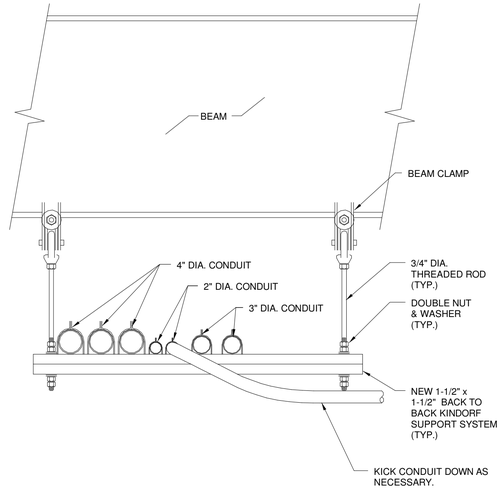
1 TYPICAL TRANSFORMER IDENTIFICATION
NOT TO SCALE



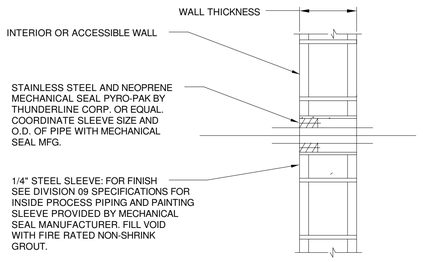
NOTES:

1. PUNCHED TAPE LABELS SHALL BE 1/2" CLEAR TAPE WITH BLACK LETTERING.
2. TAPE SHALL BE BROTHER #TZS111 PUNCHED WITH LABEL MAKER #PT-1200.

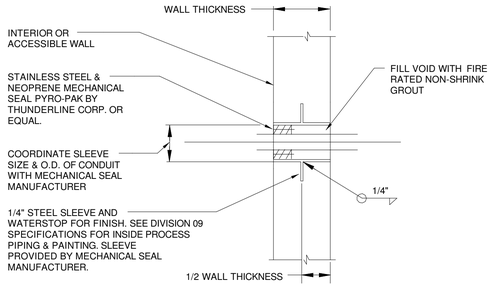
2 TYPICAL LIGHT SWITCH/RECEPTACLE IDENTIFICATION
NOT TO SCALE



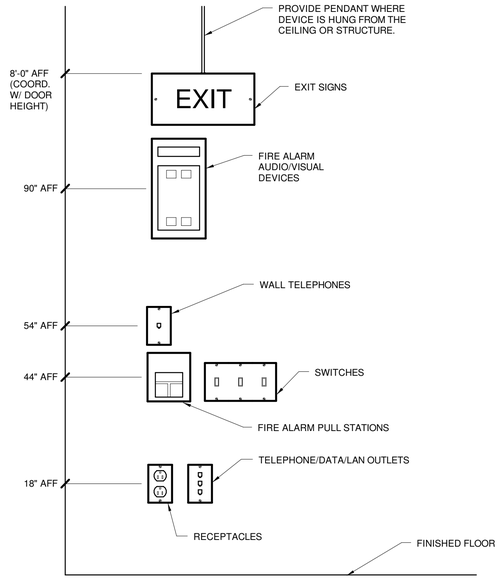
7 KINDORF SUPPORT RACK SECTION AT BEAM
NOT TO SCALE



5 TYPICAL CONDUIT THROUGH FIRE RATED BLOCK WALL
NOT TO SCALE



6 TYPICAL CONDUIT THROUGH FIRE RATED CONCRETE WALL
NOT TO SCALE



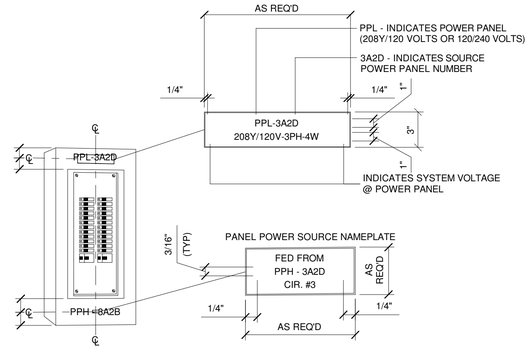
NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT AS NOTED.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL, UNLESS OTHERWISE NOTED.

4 TYPICAL DEVICE MOUNTING HEIGHTS
NOT TO SCALE

NAMEPLATES
COLOR - WHITE BASE - BLACK LETTERS (NORMAL POWER)
- RED BASE - WHITE LETTERS (EMERGENCY POWER)

DEVICE IDENTIFICATION NAMEPLATE



NOTES:

1. LETTERS SHALL BE UPPERCASE, CONDENSED BLOCK TYPE.
2. NAMEPLATES SHALL BE ENGRAVED LAMICOID.
3. FASTEN TO NEMA 1, 9, & 12 ENCLOSURE WITH DOUBLE-FACED URETHANE FOAM TAPE 3M #70-0024-8019-5.
4. FASTEN TO NEMA 3R & 4 ENCLOSURE WITH SILICON ADHESIVE.

3 TYPICAL POWER PANEL IDENTIFICATION
NOT TO SCALE

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ELECTRICAL

DETAILS

FILE NO. 23374.51633- E027

DATE SEPT. 23, 2015

E-027

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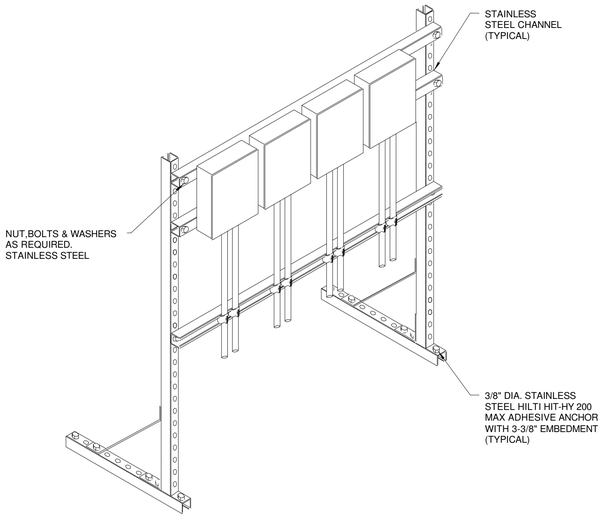
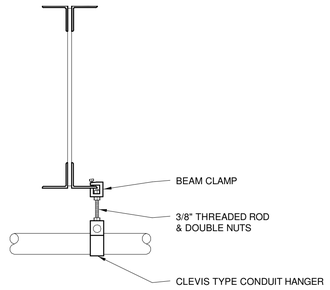
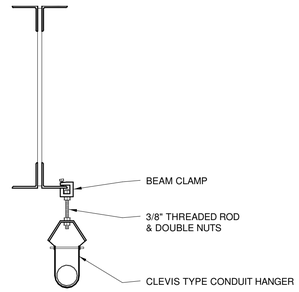


1 EQUIPMENT MOUNTING DETAIL
NOT TO SCALE



CONDUIT PERPENDICULAR TO JOIST/BEAM

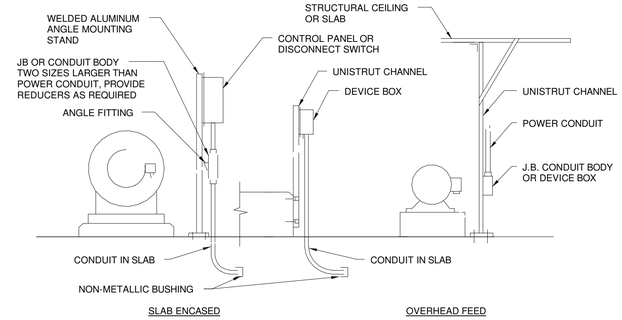


CONDUIT ALONG JOIST/BEAM

NOTES:

1. LIGHT LOAD ONLY MAXIMUM 75 LBS PER HANGER PER 35 FT OF JOIST/BEAM.
2. ALL HANGERS TO BE LOCATED WITHIN 6" OF PANEL CONNECTION POINTS.
3. IF CONDUIT IS LOCATED BETWEEN JOISTS/BEAM, CLAMP A CHANNEL OR ANGLE TO THE CORDS TO SPAN THE JOIST MAXIMUM LOAD AND LOCATION PER NOTES 1 & 2.
4. EXPANSION SHIELDS SHALL BE USED FOR SUPPORT OF THREADED ROD WHERE REQUIRED BY CONSTRUCTION OR SPECIFICALLY SHOWN SHIELDS SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATIONS.

2 LIGHT LOAD SINGLE CONDUIT HANGER
NOT TO SCALE

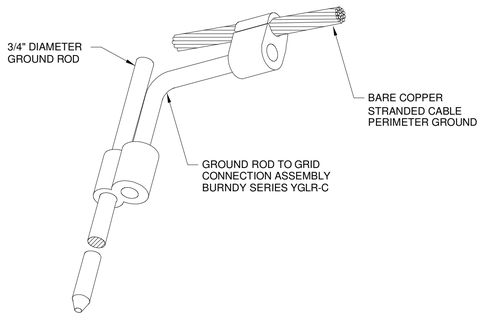


SLAB ENCASED OVERHEAD FEED

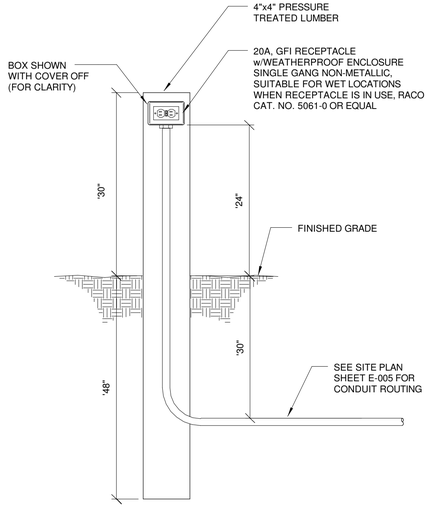
NOTE:

NO CONDUIT SHALL BE PLACED IN OR UNDER CONCRETE SLABS THAT ARE BELOW GRADE. ALL CONDUIT IN BELOW GRADE AREAS SHALL BE INSTALLED EXPOSED.

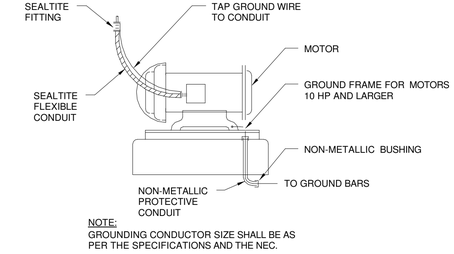
3 TYPICAL ELECTRICAL FEED TO MOTORS
NOT TO SCALE



4 TYPICAL CABLE TO GROUND ROD CONNECTION
NOT TO SCALE

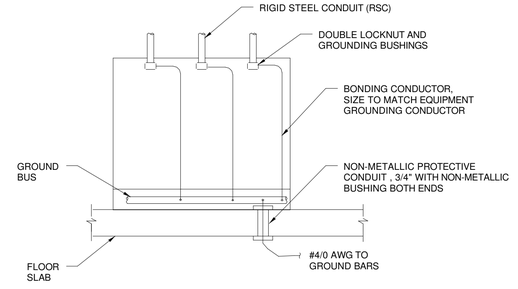


5 RECEPTACLE DETAIL
NOT TO SCALE



NOTE:
GROUNDING CONDUCTOR SIZE SHALL BE AS PER THE SPECIFICATIONS AND THE NEC.

6 TYPICAL GROUNDING FOR ELECTRIC MOTORS
NOT TO SCALE



7 TYPICAL MCC GROUNDING
NOT TO SCALE

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

TYPICAL DETAILS

FILE NO.
23374.51633- E028

DATE
SEPT. 23, 2015

E-028

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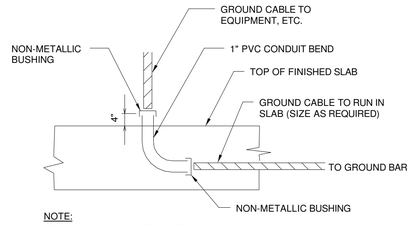
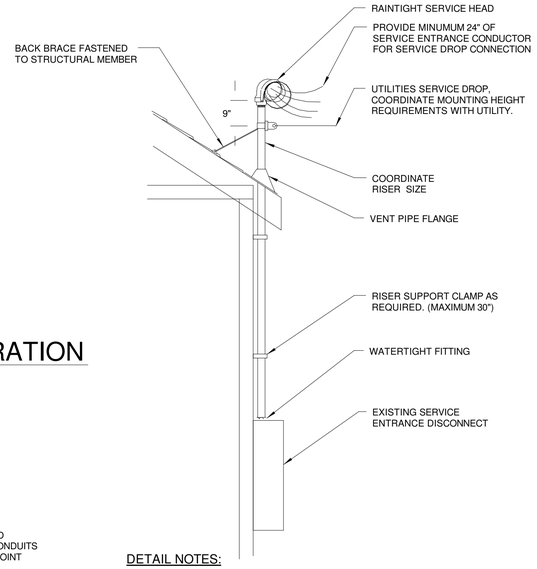


NOTE:
GROUNDING CONDUCTOR SIZE SHALL BE AS PER THE SPECIFICATIONS AND THE NEC.

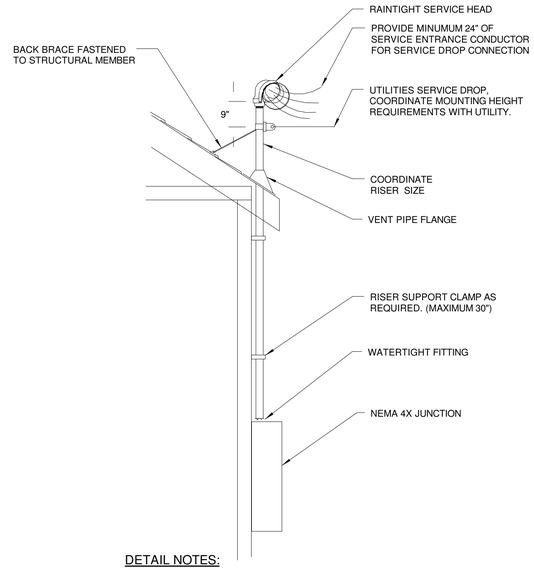
1 TYPICAL GROUND CABLE SLAB PENETRATION
NOT TO SCALE



DETAIL NOTES:

1. SERVICE ENTRANCE SHALL BE IN CONFROMANCE WITH LATEST EDITION OF UTILITY SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS.

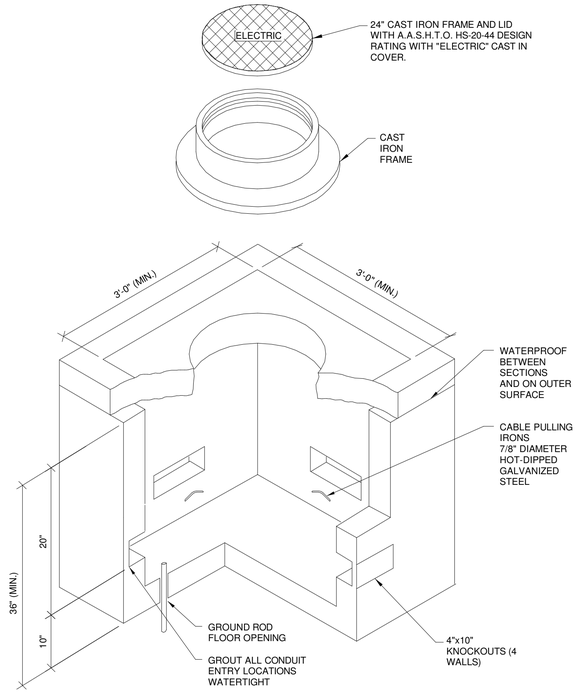
2 OVERHEAD SERVICE PSPS#1 DETAIL
NOT TO SCALE



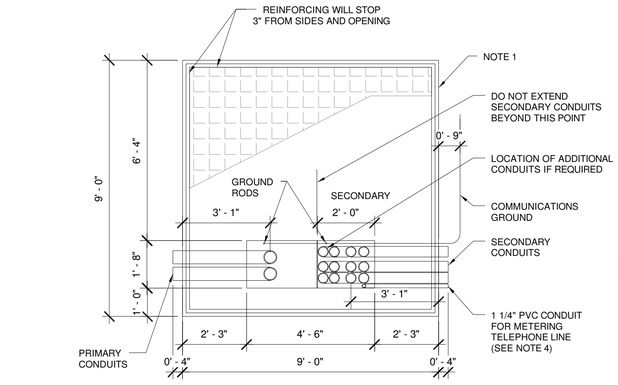
DETAIL NOTES:

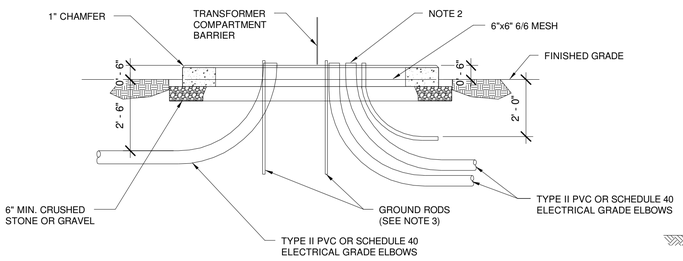
1. SERVICE ENTRANCE SHALL BE IN CONFROMANCE WITH LATEST EDITION OF UTILITY SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS.

3 OVERHEAD SERVICE PSPS#2 DETAIL
NOT TO SCALE



4 PRECAST PULLBOX DETAIL (PB)
NOT TO SCALE

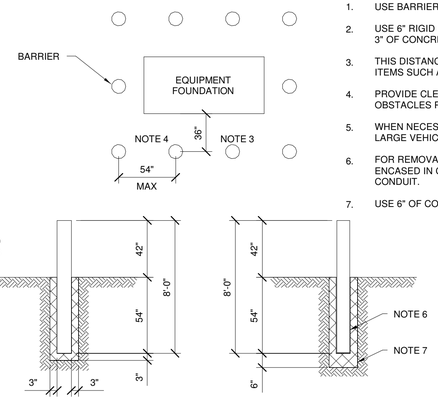




NOTES:

1. REFERENCE CONCRETE PAD FOUNDATION, PAD-MOUNTED TRANSFORMER GENERAL NOTES THIS DWG. CONTRACTOR SHALL VERIFY THAT PAD MEETS UTILITY REQUIREMENTS.
2. SECONDARY CONDUITS SHOULD NOT EXTEND MORE THAN 2" ABOVE TOP OF FOUNDATION. PRIMARY CONDUITS SHOULD BE CUT OFF 2" BELOW TOP OF FOUNDATION TO ALLOW FOR TERMINATING THE CABLES.
3. CONTRACTOR SHALL FURNISH AND INSTALL GROUND RODS AND GROUNDING CONNECTIONS. EXTEND GROUND RODS 2" ABOVE TOP OF FOUNDATION TO ACCOMMODATE GROUND JUMPER.
4. EXTEND 1-1/4" CONDUIT TO LOCATION WHERE TELEPHONE LINE SERVICE CAN BE MADE AVAILABLE.

5 TRANSFORMER DETAIL
NOT TO SCALE



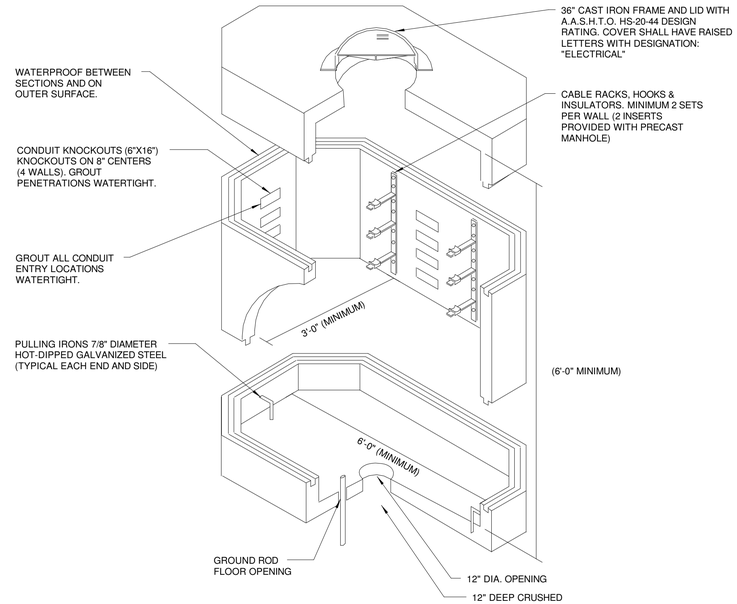
BARRIER DETAIL

REMOVABLE BARRIER DETAIL

DETAIL NOTES:

1. USE BARRIER TO PROTECT EQUIPMENT FROM POSSIBLE DAMAGE FROM VEHICLES.
2. USE 6" RIGID GALVANIZED STEEL CONDUIT, CUT TO 8' AND FILL WITH CONCRETE. ENCASE IN 3" OF CONCRETE, AS SHOWN.
3. THIS DISTANCE MAY BE REDUCED TO 24" PROVIDED CLEARANCES ARE MAINTAINED FOR ITEMS SUCH AS TRANSFORMER RADIATORS AND EQUIPMENT DOOR OPENINGS.
4. PROVIDE CLEARANCE FOR RREMOVAL OR REPLACEMENT OF EQUIPMENT WHEN OVERHEAD OBSTACLES PREVENT REMOVAL OF EQUIPMENT, ONE BARRIER SHALL BE REMOVABLE.
5. WHEN NECESSARY, HEIGHT OF BARRIER ABOVE GROUND MAY BE INCREASED TO PREVENT LARGE VEHICLES FROM STRIKING PAD-MOUNTED EQUIPMENT.
6. FOR REMOVABLE VEHICLE BARRIERS, USE 6" PVC SCHEDULE 40 CONDUIT, CUT TO 54" AND ENCASED IN CONCRETE. INSERT 8' OF 5" GALVANIZED STEEL CONDUIT, WITH CAP, INTO PVC CONDUIT.
7. USE 6" OF COMPACTED STONE OR GRAVEL FOR SUMP.

6 TRAFFIC BARRIER FOR PAD-MOUNTED TRANSFORMER
NOT TO SCALE



7 PRECAST ELECTRIC MANHOLE (EMH)
NOT TO SCALE

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DRAWN BY	WGF

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

TYPICAL DETAILS

FILE NO. 23374.51633- E029

DATE SEPT. 23, 2015

E-029

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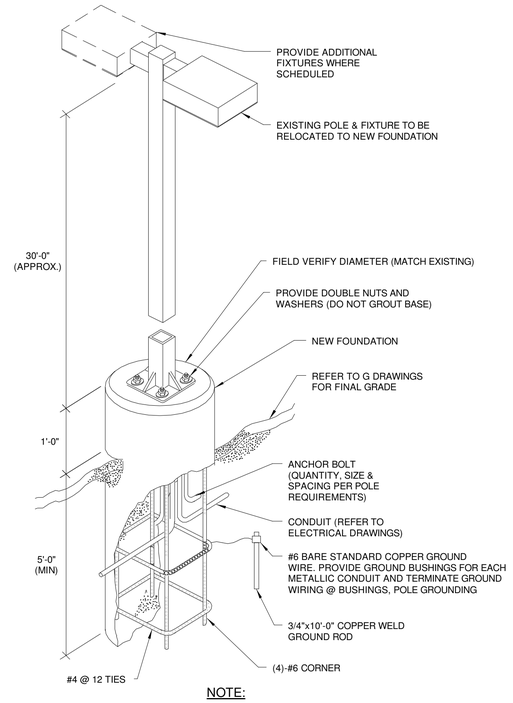
LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	TYPICAL APPLICATION (FOR INFORMATION ONLY)	LAMPS		VOLTAGE	MANUFACTURER	REMARKS
			QUANTITY	TYPE			
LED1	PENDANT MOUNTED, ENCLOSED AND GASKETED 4 FOOT FIBERGLASS HOUSING, LED FIXTURE	NON-HAZARDOUS PROCESS AREAS	2	LED -	120	HUBBELL LIGHTING (COLUMBIA) LXEM4-40HL-RFA-EU-SSL	
LED2	PENDANT MOUNTED EXPLOSION PROOF 4 FOOT, 2 LAMP LED FIXTURE	CHEMICAL ROOM AREAS	2	LED -	120	LARSON ELECTRONICS VT2-232DR-120V-EB81-WL	SUITABLE FOR CLASS 1 HAZARDOUS AREAS
EM1	LED EMERGENCY LIGHTING UNIT WALL MOUNTED	TO BE USED IN NON-HAZARDOUS AREAS	2	PAR36 -	120	HUBBELL LIGHTING EZ-2-D-I-V	
EM2	LED EMERGENCY LIGHTING SUITABLE FOR CLASS 1, DIVISION 2 AREAS	TO BE USED IN HAZARDOUS AREAS	2	PAR36 -	120	HUBBELL LIGHTING C1D2-6V72	
WM1	LED, WALL MOUNTED, EGRESS WALLPACK	BUILDING EXTERIOR	-	LED -	120	HUBBELL LIGHTING (SPAULDING) LMC-30LU-4K-3-035-1-BBU-PC1	- -
X-1	POLYCARBONATE EXITS SELF-POWERED EMERGENCY LED LAMP	TO BE USED IN NON-HAZARDOUS AREAS	-	LED -	120	HUBBELL LIGHTING DUAL-LITE LN4XRWE-I	- -
X-2	SELF-LUMINOUS EXIT SIGNS, INTERNALLY ILLUMINATED BY MAINTENANCE FREE TRITIUM TUBES	TO BE USED IN HAZARDOUS AREAS	-	LED -	120	MULE LIGHTING INC. EGX-1-20-W-R	- -
MH1	LED VAPORTIGHT ENCLOSED AND GASKETED FIXTURE WITH GLOBE AND GUARD	EXTERIOR WALKWAYS AND STAIRS	-	LED -	120	CROUSE-HINDS CHAMP PRO PVM SERIES PVM9LJR1/UNV1 S890	- -
MH2	LED VAPORTIGHT ENCLOSED AND GASKETED FIXTURE WITH GLOBE AND GUARD	EXTERIOR WALKWAYS AND STAIRS	-	LED -	120	CROUSE-HINDS CHAMP PRO PVM SERIES PVM5LJR1/UNV1 S890	- -
WM2	EXISTING RELOCATED LED WALL MOUNTED FIXTURES	SECONDARY GALLERY	-	LED -	120		- -
SL1	SITE LIGHTING LED POLE MOUNTED FIXTURES	GENERAL SITE LIGHTING	-	LED -	120	HUBBELL LIGHTING - SPAULDING LIGHTING CIMARRON LED CL1-A-60LU-4K-3-DB-PRU	- -

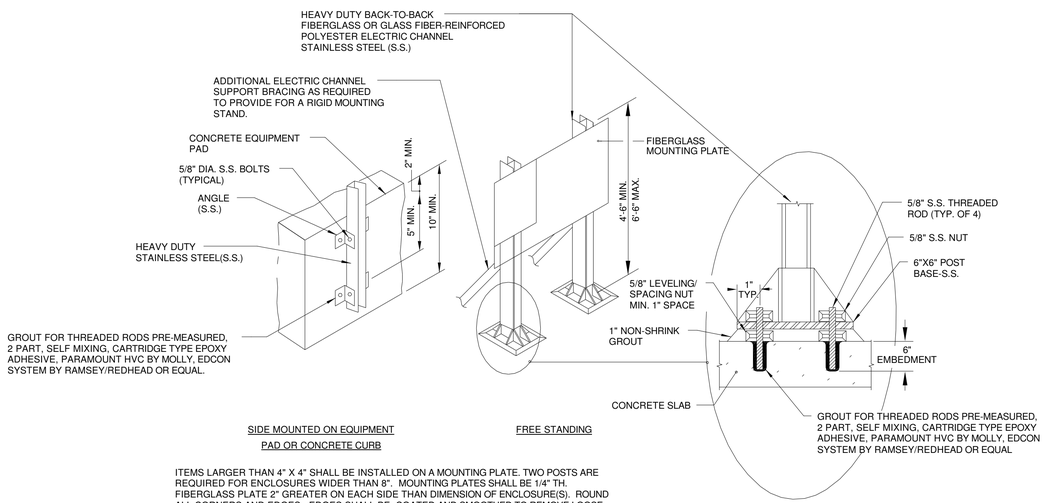


NOTE:

1. ORIENT ANCHOR BOLTS SO FIXTURE IS ON WEST SIDE OF POLE.

4 SITE LIGHT FIXTURE & POLE BASE DETAIL

NOT TO SCALE



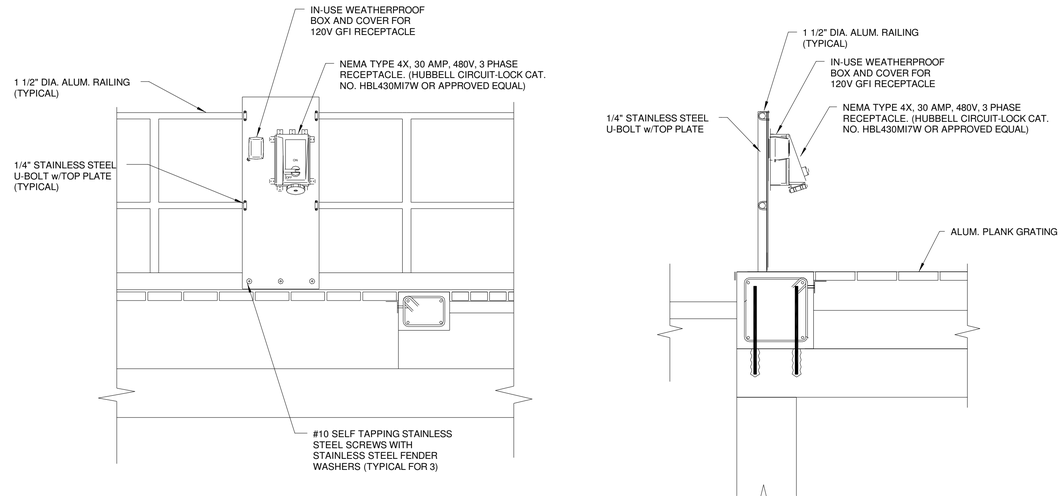
SIDE MOUNTED ON EQUIPMENT PAD OR CONCRETE CURB

FREE STANDING

ITEMS LARGER THAN 4" X 4" SHALL BE INSTALLED ON A MOUNTING PLATE. TWO POSTS ARE REQUIRED FOR ENCLOSURES WIDER THAN 8". MOUNTING PLATES SHALL BE 1/4" TH. FIBERGLASS PLATE 2" GREATER ON EACH SIDE THAN DIMENSION OF ENCLOSURE(S). ROUND ALL CORNERS AND EDGES. EDGES SHALL BE COATED AND SMOOTHED TO REMOVE LOOSE FIBERS. EQUIPMENT MOUNTING SHALL BE WITH S. S. FASTENERS. SINGLE POST MOUNTING PLATES AND MULTIPLE POST MOUNTING PLATES SHALL BE SECURED TO POSTS VIA 3/8" DIA. S.S. FASTENERS. ALL S.S. FASTENERS SHALL BE TYPE 316.

1 TYPICAL NON-METALLIC MOUNTING PANELS

NOT TO SCALE



2 RECEPTACLE MOUNTING DETAIL

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

TYPICAL LIGHTING DETAILS & SCHEDULE

FILE NO. 23374.51633- E030

DATE SEPT. 23, 2015

E-030

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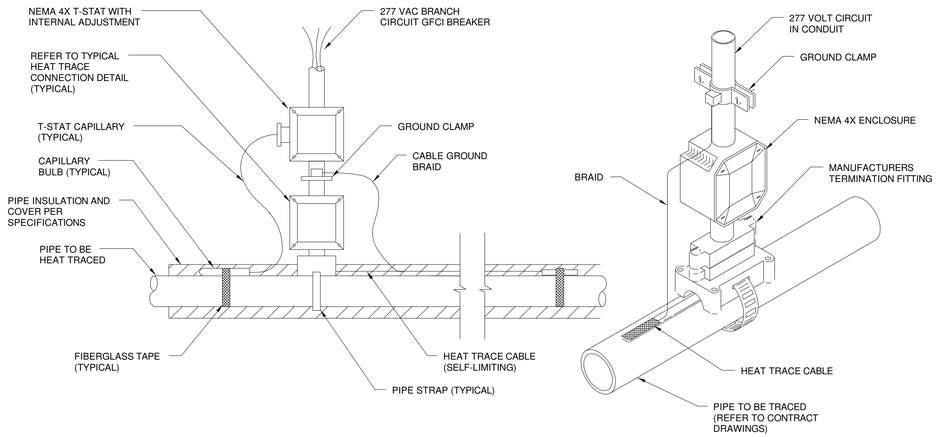
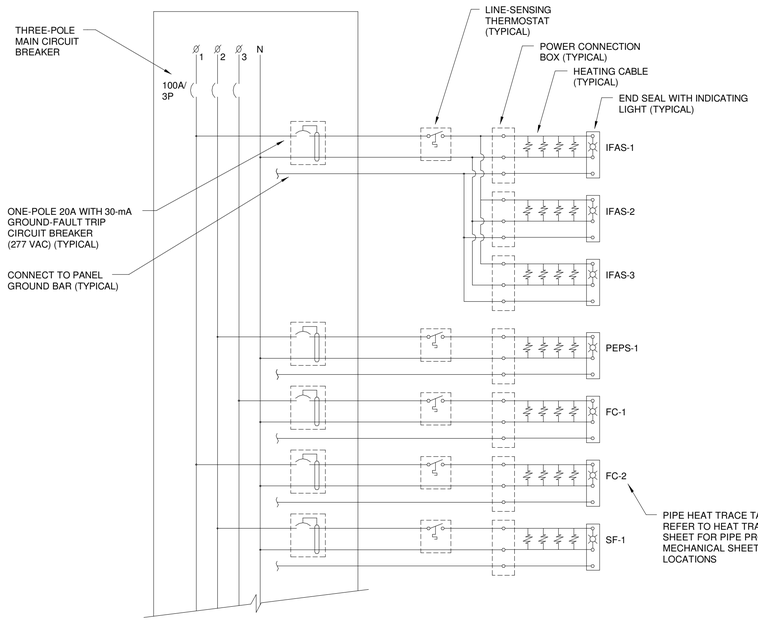
HEAT TRACE SCHEDULE

HEAT TRACE TAG NO.	LOCATION	NOMINAL DIAMETER (in.)	PIPE MATERIAL	LENGTH (ft.)	MAINTAIN (°F)	MINIMUM AMBIENT (°F)	INSULATION THICKNESS (in.)	HEAT LOSS (w/ft.)	OUTPUT (w/ft.)	LENGTH (ft.)	VOLTAGE	NOINAL CURRENT (amps)	SERVICE
OC-1	ODOR CONTROL STRUCTURE (RECIRC. DISCHARGE)	2"	PVC	26	40	-10	2"	1.37	2.8	65	120	1.4	-
OC-2	ODOR CONTROL STRUCTURE (SUMP OVERFLOW)	2"	PVC	6	40	-10	2"	1.37	2.8	28	120	0.9	-
OC-3	ODOR CONTROL STRUCTURE (RECIRC. SUCTION)	3"	PVC	6	40	-10	2"	1.77	2.7	25	120		-
OC-4	ODOR CONTROL STRUCTURE (CONDENSATE DRAIN)	1"	PVC	6	40	-10	1"	1.74	3.01	17	120	0.6	
IFAS-1	PEPS VERTICAL DISCHARGE (TRAIN 1)	20"	DIP	12	40	-10	2"	7.9	8.8	33	120	3.2	PEPS DISCHARGE
IFAS-2	PEPS VERTICAL DISCHARGE (TRAIN 2)	20"	DIP	12	40	-10	2"	7.9	8.8	33	120	3.2	PEPS DISCHARGE
IFAS-3	PEPS VERTICAL DISCHARGE (TRAIN 3)	20"	DIP	12	40	-10	2"	7.9	8.8	33	120	3.2	PEPS DISCHARGE
PEPS-1	AIR RELEASE VALVE & 30"x30" TEE	30"	S STL	3	40	-10	2"	10.72	12.6	20	120	2.1	
FC-1	FERRIC NEW SCDB	1"CARRIER/3" CONTAINMENT	CPVC	40	40	-10	2"	3.09	3.42	68	120	3.7	
FC-2	FERRIC EX. SCDB	1"CARRIER/3" CONTAINMENT	CPVC	40	40	-10	2"	3.09	3.42	68	120	3.7	
SF-1	SCUM FLUIDIZING FEED PIPING	1 1/2"	S STL	140	40	-10	2"	1.75	3.42	162	120	9.2	



1 TYPICAL HEAT TRACE INSTALLATION DETAIL

NOT TO SCALE



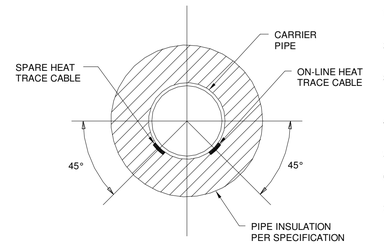
4 PEPS BLDG HEAT TRACE ONE-LINE

NOT TO SCALE

HEAT TRACE CONTROL PANELS

MANUFACTURER: RAYCHEM TYCO THERMAL CONTROLS DIGITRACE

HEAT TRACE PANEL HT-PEPS-1:
LINE SENSING HEAT TRACE CONTROL PANEL, FACTORY PRE-WIRED FOR QUICK INSTALLATION. UL LISTED 18 CIRCUIT BREAKER LOOP LINE SENSING TEMPERATURE/MONITOR HEAT TRACE PANEL. INCLUDE: THREE-POLE DOOR-INTERLOCKED DISCONNECT SWITCH, HIGH/LOW TEMPERATURE ALARMS, LOW CURRENT ALARMS, ON/OF CONTROL, TERMINAL BLOCKS FOR FIELD CONNECTIONS, PANEL POWER ON LIGHT. NEMA 12 ENCLOSURE, 18-20A, 120V, 30mA, GFI THERMAL MAGNETIC CIRCUIT BREAKERS. HEAT TRACE PANEL SYSTEM SHALL BE HTPI-120/208-18-2-8/1P (20)-12-50-G

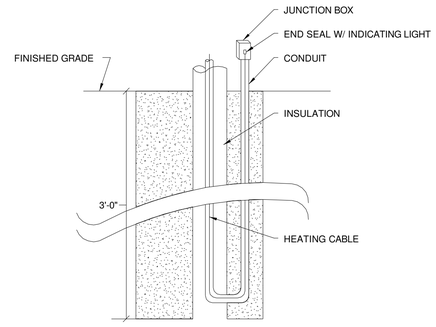


HEAT TRACE NOTES:

1. CONTRACTOR SHALL ENSURE THAT ALL EQUIPMENT AND PIPING HAS BEEN INSTALLED AND TESTED PRIOR TO INSTALLATION OF HEATING CABLE.
2. APPLY "CAUTION-ELECTRIC HEAT TRACE" LABELS TO PIPE INSULATION WEATHER BARRIER ON 10'-0" INTERVALS MINIMUM.
3. HEAT TRACE TO BE INSTALLED ON ALL EXPOSED PORTIONS OF PIPE RUNS INDICATED IN SCHEDULE. WHERE PIPES GO BELOW GRADE, THEY SHALL BE HEAT TRACED A MINIMUM OF 3'-0" BELOW GRADE. SEE DETAIL THIS SHEET.
4. ALL HEAT TRACE CABLE SHALL BE INSTALLED IN CONTINUOUS LENGTHS, NO SPLICES ARE ACCEPTABLE.
5. ALL TRACED PIPE SHALL BE INSULATED IN ACCORDANCE WITH SPECIFICATIONS.
6. LOW TEMPERATURE T-STAT SHALL BE LOCATED AT THE OPPOSITE END OF A TRACED PIPE FROM THE TRACE CONNECTION POINT.
7. INFORMATION PROVIDED ON HEAT TRACE SCHEDULE IS FOR BIDDING PURPOSES ONLY, CONTRACTOR SHALL FIELD VERIFY ALL PIPE SIZES AND LENGTHS PRIOR TO ORDERING AND INSTALLING HEAT TRACE CABLE AND POWER CONNECTIONS.

2 TYPICAL HORIZONTAL PIPING HEAT TRACE DETAIL

NOT TO SCALE



3 HEAT TRACE BELOW GRADE INSTALLATION DETAIL

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ELECTRICAL

HEAT TRACE SCHEDULE

FILE NO. 23374.51633- E031

DATE SEPT. 23, 2015

E-031

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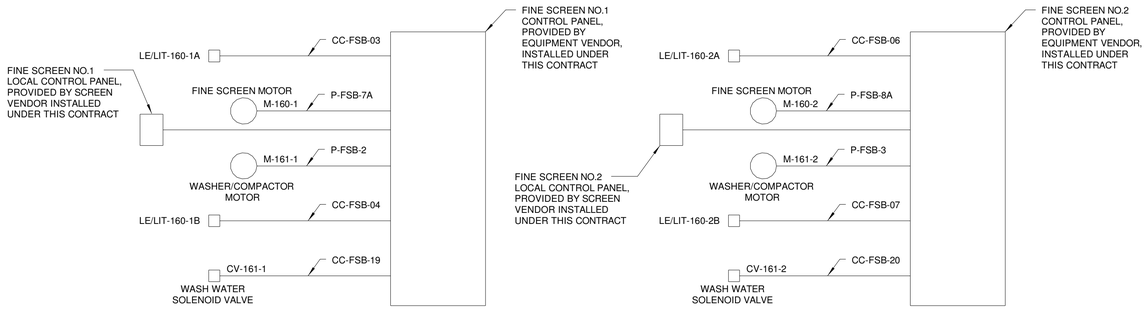
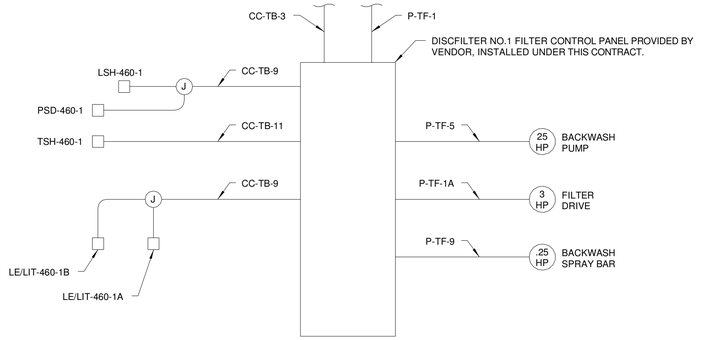


NOTE:

1. SEE SHEETS E-020 AND E-023 FOR CONDUIT SIZE AND CONDUCTOR QUANTITIES.

1 FINE SCREENS NO.1 & NO.2 WIRING DIAGRAM

NOT TO SCALE

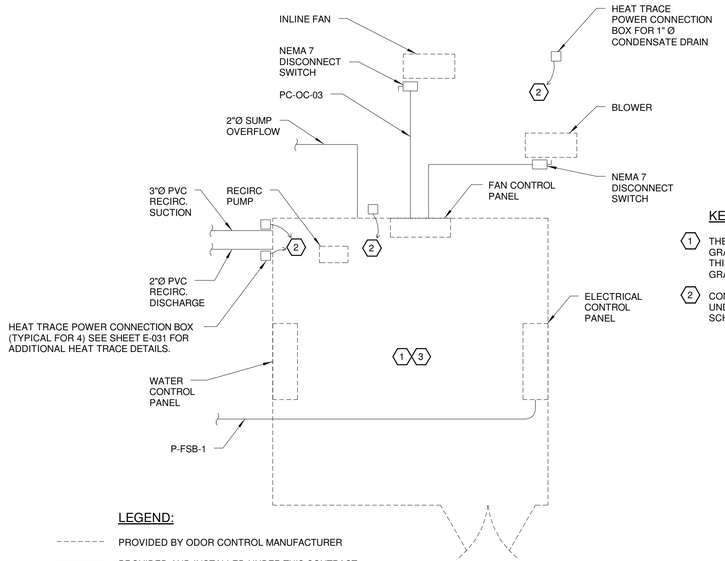


NOTE:

1. TYPICAL FOR DISCFILTERS NO.2, NO.3 AND NO.4
2. REFER TO CONDUIT SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE AND QUANTITIES.

2 DISC FILTER NO.1 CONTROL PANEL WIRING DIAGRAM

NOT TO SCALE



LEGEND:

- PROVIDED BY ODOR CONTROL MANUFACTURER
- PROVIDED AND INSTALLED UNDER THIS CONTRACT

KEY NOTES:

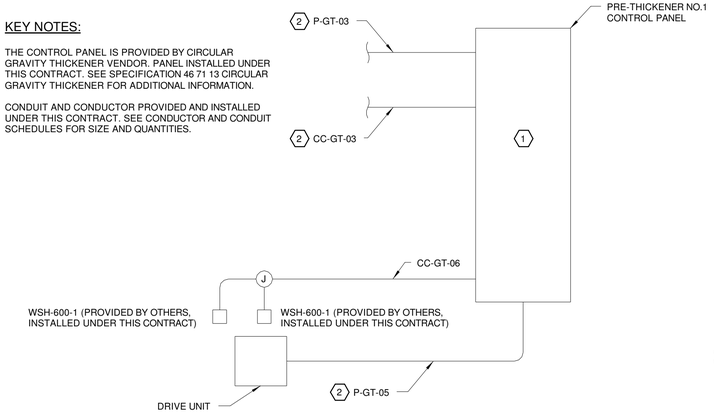
1. BUILDING IS FACTORY EQUIPED AND PRE-WIRED. THIS INCLUDES ELECTRICAL CONTROL PANEL, FAN CONTROL PANEL, WATER CONTROL PANEL, INTERIOR AND EXTERIOR LIGHTING, INTERIOR AND EXTERIOR RECEPTACLES AND RECIRCULATION PUMP. SEE SPECIFICATION 13 42 13, FIBERGLASS REINFORCED POLYESTER (FRP) MODULAR TYPE BUILDING.
2. PROVIDE 3/4" CONDUIT AND 2-#12, 1-#12 GROUND FROM POWER HEAT TRACE CONNECTION BOX TO ELECTRICAL CONTROL PANEL. TERMINATE AT 20A, 1 POLE, 30mA CIRCUIT BREAKERS PROVIDED BY VENDOR AS PART OF THE ODOR CONTROL PACKAGE.
3. REFER TO SPECIFICATION 44 31 21 "ODOR CONTROL SYSTEMS" FOR ADDITIONAL INFORMATION.

3 ODOR CONTROL WIRING DIAGRAM

NOT TO SCALE

KEY NOTES:

1. THE CONTROL PANEL IS PROVIDED BY CIRCULAR GRAVITY THICKENER VENDOR. PANEL INSTALLED UNDER THIS CONTRACT. SEE SPECIFICATION 46 71 13 CIRCULAR GRAVITY THICKENER FOR ADDITIONAL INFORMATION.
2. CONDUIT AND CONDUCTOR PROVIDED AND INSTALLED UNDER THIS CONTRACT. SEE CONDUCTOR AND CONDUIT SCHEDULES FOR SIZE AND QUANTITIES.

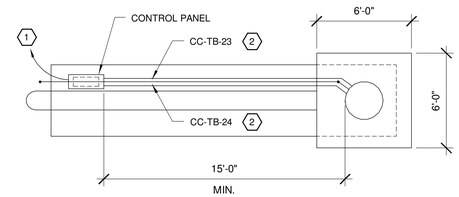


4 PRE-THICKENER NO.1 WIRING DIAGRAM

NOT TO SCALE

KEY NOTES:

1. UTILIZE EXISTING SPARE 20A/1P CIRCUIT BREAKER AT EXISTING PANELBOARD PB-TF2. AT COMPLETION OF PROJECT PROVIDE A TYPEWRITTEN UPDATED PANELBOARD DIRECTORY.
2. PROVIDE CONDUIT SEAL-OFFS EXPLOSION PROOF JUNCTION BOXES, ETC. AS NECESSARY TO CONNECT EQUIPMENT.



5 DIGESTER WASTE GAS BURNER WIRING DIAGRAM

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DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

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1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

RISER DIAGRAMS

FILE NO. 23374.51633- E032

DATE SEPT. 23, 2015

E-032

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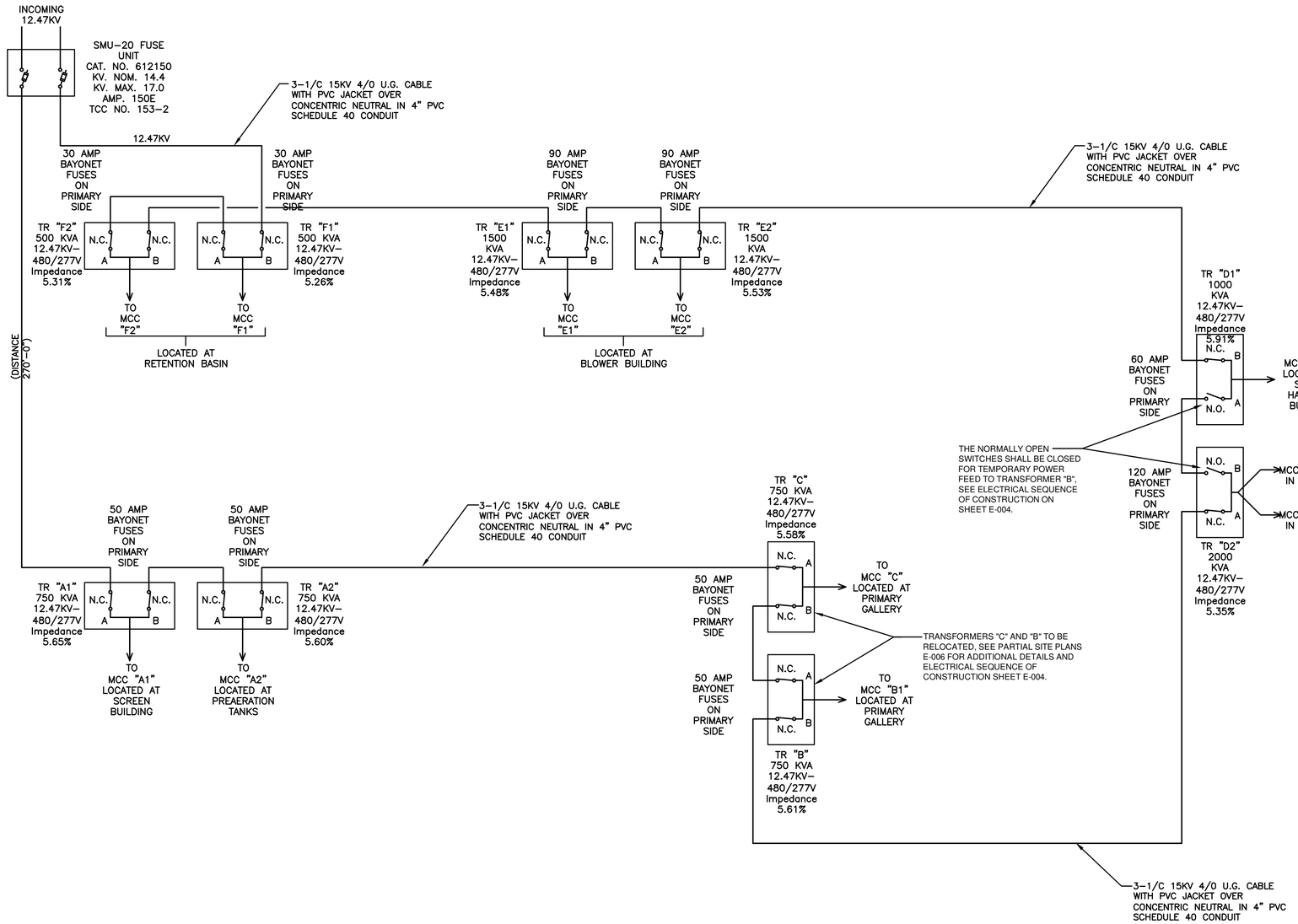

EXISTING TRANSFORMER ONE-LINE

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

EXISTING TRANSFORMER ONE-LINE

FILE NO. 23374.51633 - E033
DATE SEPT. 23, 2015

E-033

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DISCONNECT SWITCH SCHEDULE

DISCONNECT SWITCH NUMBER	INSTALLATION: SWITCH LOCATION	MOUNTING	NEMA ENCLOSURE	VOLTAGE	ELECTRICAL CHARACTERISTICS: FRAME/FUSE RATING	*TYPE OR EQUAL	POLES	NEUTRAL BAR	REMARKS
DS-IS-1	INFLUENT STRUCTURE SLUICE GATE	MOUNT ADJACENT TO SLUICE GATE OPERATOR	NEMA 4X	480			3		
DS-SG-1	WAS PUMP NO.1	MOUNT ADJACENT TO PUMP	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SG-2	WAS PUMP NO.2	MOUNT ADJACENT TO PUMP	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-1	ELECTRIC UNIT HEATER	WALL MOUNTED	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-2	EXISTING SLUICE GATE NO.3	HAND RAIL MOUNTED	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-3	EXISTING SLUICE GATE NO.2	HAND RAIL MOUNTED	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-4	EXISTING SLUICE GATE NO.1	HAND RAIL MOUNTED	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-5	FINE SCREENS NO.2	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-6	FINE SCREENS NO.1	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-7	CONDENSING UNIT ACCU-FSB-1	MOUNTED AT UNIT	NEMA 4X	240	30A	SQUARE D	3		NON-FUSED
DS-FSB-8	NOT USED								
DS-FSB-9	MUAU-FSB-1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-10	WASHER COMPACTOR NO.2	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-11	WASHER COMPACTOR NO.1	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-12	FINE SCREEN BYPASS GATE OPERATOR	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		BY VENDOR
DS-FSB-13	FINE SCREEN BYPASS GATE OPERATOR	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		BY VENDOR
DS-FSB-14	FAN F-FSB-1	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		BY VENDOR
DS-FSB-15	FAN F-FSB-2	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		BY VENDOR
DS-FSB-16	BOILER	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-17	BOILER PUMP P-FSB-1	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-18	BOILER PUMP P-FSB-2	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-19	STEAM PRESSURE WASHER	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-20	MUAU-FSB-2	MOUNTED AT UNIT	NEMA 12	480	30A	-	3		BY VENDOR
DS-FSB-21	RECIRCULATION P-FSB-3	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-22	PLANT WATER	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-23	OVERHEAD DOOR OPERATOR	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-FSB-24	OVERHEAD DOOR OPERATOR	MOUNTED AT UNIT	NEMA 7	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-1	WATER BOOSTER PUMP PACKAGE	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-2	SCUM PUMP NO.1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		BY VENDOR
DS-PEPS-3	AN/AX MIXER NO.2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-4	AN/AX MIXER NO.1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-5	ANOXIC MIXER NO.2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-6	ANOXIC MIXER NO.1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-7	ANAEROBIC MIXER NO.2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-8	ANAEROBIC MIXER NO.1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-9	PEPS PUMP NO.2	MOUNTED AT UNIT	NEMA 12	480	300A	SQUARE D	3		NON-FUSED
DS-PEPS-10	PEPS PUMP NO.1	MOUNTED AT UNIT	NEMA 12	480	300A	SQUARE D	3		NON-FUSED
DS-PEPS-11	DISCHARGE KNIFE GATE VALVE NO.1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-12	DISCHARGE KNIFE GATE VALVE NO.2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-13	DISCHARGE KNIFE GATE VALVE NO.3	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-14	AIR KNIFE/SCOUR BLOWER NO.1	MOUNTED AT UNIT	NEMA 4X	480	60A	SQUARE D	3		BY VENDOR
DS-PEPS-15	SCUM PUMP NO.2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		BY VENDOR
DS-PEPS-16	EUH-PEPS-3	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-17	EUH-PEPS-4	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-18	PEPS PUMP NO.3	MOUNTED AT UNIT	NEMA 12	480	300A	SQUARE D	3		NON-FUSED
DS-PEPS-19	AIR KNIFE/SCOUR BLOWER NO.2	MOUNTED AT UNIT	NEMA 4X	480	60A	SQUARE D	3		BY VENDOR
DS-PEPS-20	NOT USED								
DS-PEPS-21	ACCU-PEPS-1	MOUNTED AT UNIT	NEMA 4X	240	30A	SQUARE D	3		NON-FUSED
DS-PEPS-22	NOT USED								
DS-PEPS-23	ACCU-PEPS-2	MOUNTED AT UNIT	NEMA 4X	240	30A	SQUARE D	3		NON-FUSED
DS-PEPS-24	ANOXIC MIXER NO.3	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-25	ANAEROBIC MIXER NO.3	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-PEPS-26	AN/AX MIXER NO.3	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-ADMIN-1	A-RTU-1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-ADMIN-2	ACCU-A-1	MOUNTED AT UNIT	NEMA 4X	240	30	SQUARE D	3		NON-FUSED

DISCONNECT SWITCH SCHEDULE

DISCONNECT SWITCH NUMBER	INSTALLATION: SWITCH LOCATION	MOUNTING	NEMA ENCLOSURE	VOLTAGE	ELECTRICAL CHARACTERISTICS: FRAME/FUSE RATING	*TYPE OR EQUAL	POLES	NEUTRAL BAR	REMARKS
DS-IFAS-1	IR PUMP NO.1A	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-2	IR PUMP NO.1B	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-3	IR PUMP NO.4	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-4	IR PUMP NO.2A	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-5	IR PUMP NO. 2B	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-6	IR PUMP NO.5	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-7	IR PUMP NO.3A	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-8	IR PUMP NO.3B	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-IFAS-9	IR PUMP NO.6	HAND RAIL MOUNTED	NEMA 4X	480	60A	SQUARE D	3		NON-FUSED
DS-SHB-1	BOILER NO.1 PUMP P-SHB-1	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-2	BOILER NO.2 PUMP P-SHB-2	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-3	BOILER NO.3 PUMP P-SHB-3	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-4	WATER HEATER	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-5	BOILER NO.4 PUMP P-SHB-4	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-6	BOILER NO.5 PUMP P-SHB-5	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-7	DIGESTER HEAT PUMP P-SHB-6	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-8	DIGESTER HEAT PUMP P-SHB-7	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-9	BUILDING HEAT PUMP P-SHB-8	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-10	BUILDING HEAT PUMP P-SHB-9	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-11	HOT WATER BOILER B-SHB-1	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-12	HOT WATER BOILER B-SHB-2	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-13	HOT WATER BOILER B-SHB-3	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-14	HOT WATER BOILER B-SHB-4	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-15	HOT WATER BOILER B-SHB-5	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-16	MUAU-SHB-1	MOUNTED AT UNIT	NEMA 12	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-17	ROOF EXHAUSTER F-SHB-1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-SHB-18	ROOF EXHAUSTER F-SHB-2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		NON-FUSED
DS-HW-1	FLOW CONTROL VALVE FCV-114-1	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		FUSED
DS-HW-2	FLOW CONTROL VALVE FCV-114-2	MOUNTED AT UNIT	NEMA 4X	480	30A	SQUARE D	3		FUSED

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

DISCONNECT SWITCH SCHEDULES

FILE NO. 23374.51633- E026
DATE SEPT. 23, 2015

E-034

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ITEMS TO BE SALVAGE AS PART OF DEMOLITION:

THE FOLLOWING ITEMS HAVE BEEN REQUESTED BY MASSILLON WWTP PERSONNEL TO BE SALVAGED AND TURNED OVER TO THE WWTP PERSONNEL (COORDINATE ACTUAL LOCATION OF ALL EQUIPMENT WITH WWTP PERSONNEL) CONTRACTOR IS RESPONSIBLE FOR DISCONNECTING , REMOVAL AND RELOCATION OF EQUIPMENT TO A STORAGE AREA DESIGNATED BY WWTP PERSONNEL:

TERTIARY BUILDING:
THREE STAINLESS STEEL DISCONNECT SWITCHES THAT FEED THE BRIDGES
THREE CONTROL CABINETS FOR THE BRIDGES
SIEMENS MILLTRONICS FLOW METER ON EAST WALL

SOLIDS BUILDING DOWNSTAIRS HEAT BOILERS:
FIVE STAINLESS STEEL DISCONNECTS FOR BOILERS AND PUMPS THAT ARE ON THE WALL (ABANDONE AND LEAVE IN PLACE), REMOVE WIRING BACK TO POWER SOURCE AND LABEL AS SPARE.

SOLIDS BUILDING UPSTAIRS HEAT BOILERS:
TWO HOT WATER PUMP COMBINATION MOTOR STARTER BOXES

BLENDING TANKS TO BE CONVERTED OVER TO THICKENERS:
TWO SIEMENS RADAR DETECTORS
TWO PRECISION DIGITAL PANEL METERS AND ENCLOSURES
TWO HUBBELL DISCONNECTS
TWO MIXER CONTROL CABINETS LABELED MIXER 1 CONTROL CABINET AND MIXER 2 CONTROL CABINET.

TRICKLING TOWERS:
TWO RED STROBES

FIRST STAGE CONTROL ROOM:
LED LIGHT ABOVE DOOR
RED STROBE ON THE EAST SIDE OF ROOM
TWO LUBE MOTOR CONTROL BOXES PLUS THE MOTORS/PUMPS

PRIMARY GALLERY:
AIR COMPRESSOR AND COMBINATION MOTOR STARTER TO BE DISCONNECTED AND RELOCATED, SEE SHEET E-702 FOR NEW LOCATION. PROVIDE NEW HOUSE KEEPING PAD AND RECONNECT POWER TO MCC-IFAS-1. SEE ONE-LINE SHEET E-010. RECONNECT EXISTING AIR LINES, COORDINATE THIS WORK WITH WWTP PERSONNEL.

SECOND FLOOR PRIMARY GALLERY:
TWO FIRE EXTINGUISHERS
NODE 3 SCADA ENCLOSURE AND COMPONENTS
FIVE FLUORESCENT LIGHT FIXTURES
THREE BUCKETS FROM MCC-C (COORDINATE WITH WWTP PERSONNEL)
FOUR BUCKETS FROM MCC-B2 (COORDINATE WITH WWTP PERSONNEL)
GRINDER PUMP STAINLESS STEEL DISCONNECT
TWO LED WALL PACKS

3RD FLOOR PRIMARY GALLERY:
FOUR LED WALL PACKS
TWO PRECISION DIGITAL PANEL METERS AND THEIR ENCLOSURES
ONE FIRE EXTINGUISHER

4TH FLOOR PRIMARY GALLERY:
ONE FIRE EXTINGUISHER
TWO LUBE PUMPS AND MOTORS
FOUR FLUORESCENT LIGHT FIXTURES
TWO LUBE PUMP CONTROL CABINETS

SECONDARY GALLERY
AIR COMPRESSOR, SEE SHEET E-701 FOR ADDITIONAL DETAIL

EXISTING PREAERATION (NEW FINE SCREEN BUILDING LOCATION):
LED POLE AND LIGHT
SEVEN MCC BUCKETS (COORDINATE WITH WWTP PERSONNEL)
PREAERATION BLOWER #1 (15 HP)

BLOWER BUILDING VFD REPLACEMENT:
CIRCUIT BOARDS AND FUSES FROM FIVE OF THE VFD'S
EQ BASIN CONTROL CABINET
AERATION CONTROL CABINET

MISCELLANEOUS ITEMS:
TWO 300 WATT VIVID LIGHT FIXTURES (LOCATED ON THE EAST SIDE OF THE AERATION TANKS ON 50 FT POLES)

ADMINISTRATION BLDG. MECHANICAL ROOM:
UNIT POWER 60A DISCONNECT SWITCH
TONER STARTER
BLOWER STARTER

SOLIDS HANDLING BLDG.-NEW BOILER AREA:
(4) LEF LIGHT FIXTURES FROM NEW BOILER AREA

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

DEMOLITION NOTES

FILE NO. 23374.51633- E035
DATE SEPT. 23, 2015

E-035

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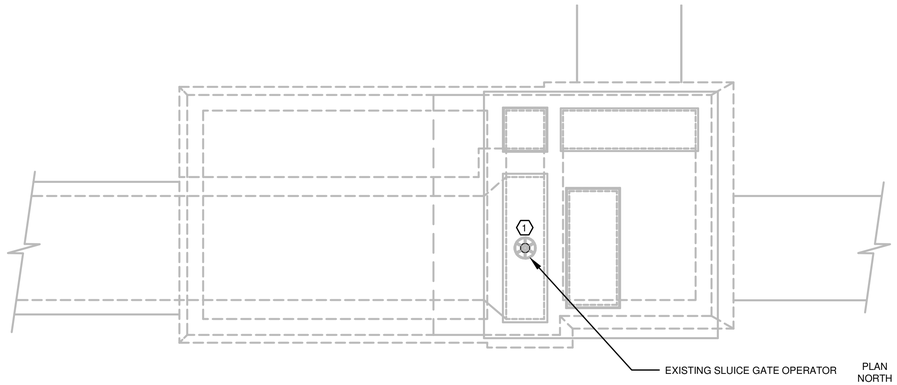
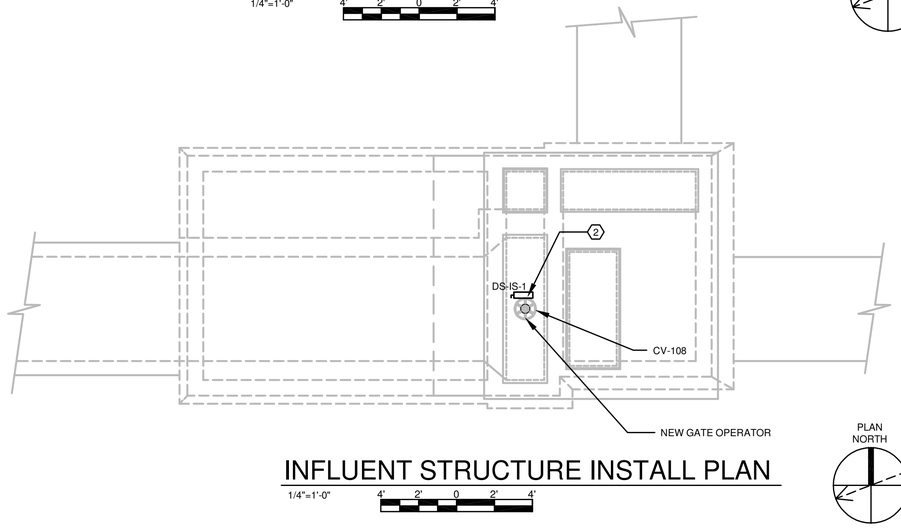


PLAN NORTH

INFLUENT STRUCTURE DEMOLITION PLAN

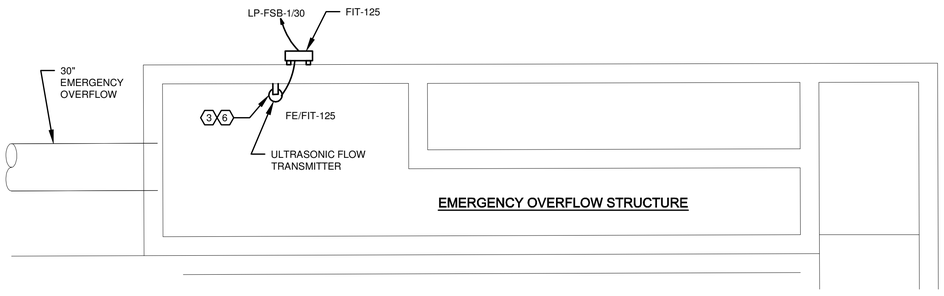
1/4"=1'-0" 4' 2' 0 2' 4'



PLAN NORTH

INFLUENT STRUCTURE INSTALL PLAN

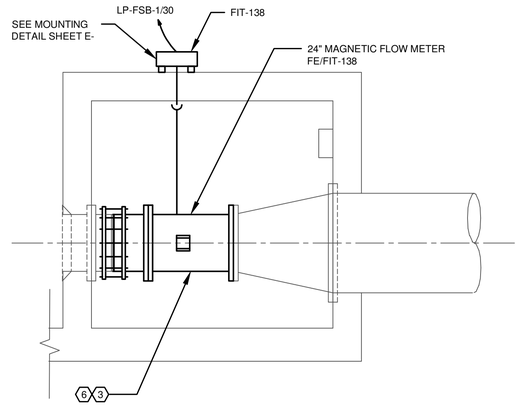
1/4"=1'-0" 4' 2' 0 2' 4'



PLAN NORTH

EX. EMERGENCY OVERFLOW STRUCTURE

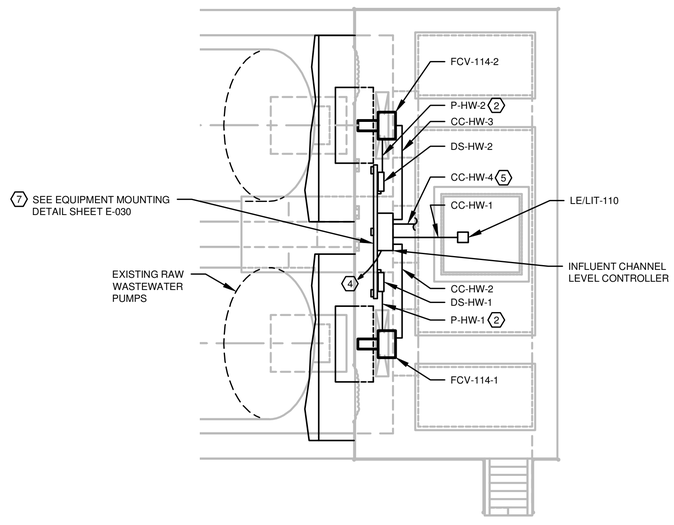
1/4"=1'-0" 4' 2' 0 2' 4'



PLAN NORTH

EXISTING INFLUENT FLOW METER VAULT

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



PLAN NORTH

INFLUENT STRUCTURE INSTALL PLAN

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

AREA CLASSIFICATION
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.

KEY NOTES:

1. DISCONNECT EXISTING SLUICE GATE. CONDUIT AND CONDUCTOR TO BE REUSED FOR INSTALLATION NEW SLUICE GATE OPERATOR. PROTECT CONDUIT AND CONDUCTOR FROM DAMAGE.
2. PROVIDE AND INSTALL NEMA 4X FUSED DISCONNECT SWITCH, RE-USE EXISTING CONDUIT AND CONDUCTOR. EXTEND CIRCUIT AS REQUIRED FOR CONNECTION TO DISCONNECT SWITCH AND GATE OPERATOR.ALL NEW CONDUIT SHALL BE PVC COATED RIGID STEEL CONDUIT, CONDUCTOR TO MATCH EXISTING.
3. RE-USE EXISTING CONDUIT AND CONDUCTOR. EXTEND 120V CIRCUIT AS REQUIRED FOR CONNECTION TO 24" FLOW METER FE/FIT-138. ALL NEW CONDUIT SHALL BE PVC COATED RIGID STEEL CONDUIT, CONDUCTOR SHALL MATCH EXISTING. (TYPICAL FOR FLOW METER FE/FIT-125 LOCATED AT EX. EMERGENCY OVERFLOW STRCUTURE. SEE INSTRUMENTATION DWG. I-101)
4. EXTEND EXISTING 120V CIRCUIT AS REQUIRED TO INFLUENT CHANNEL AIR FLOW CONTROLLER. CONDUIT AND CONDUCTOR TO MATCH EXISTING.
5. NEW LEVEL SIGNAL LE/LIT-110, PROVIDE AND INSTALL A NEMA 4X JUNCTION BOX WITH TERMINAL STRIP FOR TERMINATION OF NEW LEVEL SIGNAL LE/LIT-110. SIGNAL TO BE EXTENDED TO EX. RIO CABINET AI AT HEADWORKS BUILDING BY OTHERS.
6. NEW FLOW SIGNAL FE/FIT-138 TO INTERCEPT EXISTING FI-138 SIGNAL. PROVIDE NEMA 4X JUNCTION BOX, SIZE AS REQUIRED AND SPLICE SIGNAL WITH WATERPROOF SPLICE KIT. ALL NEW CONDUIT SHALL BE PVC COATED RIGID STEEL CONDUIT, CONDUCTOR TO MATCH EXISTING. (TYPICAL FOR NEW FLOW SIGNAL FE/FIT-125 LOCATED AT EX. SECONDARY BYPASS. SEE INSTRUMENTATION DWG. I-101)
7. ALL CHANNELS, CLAMPS, BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
HEADWORKS

INFLUENT MODIFICATIONS

FILE NO. 23374.51633 -E101
DATE SEPT. 23, 2015

E-101

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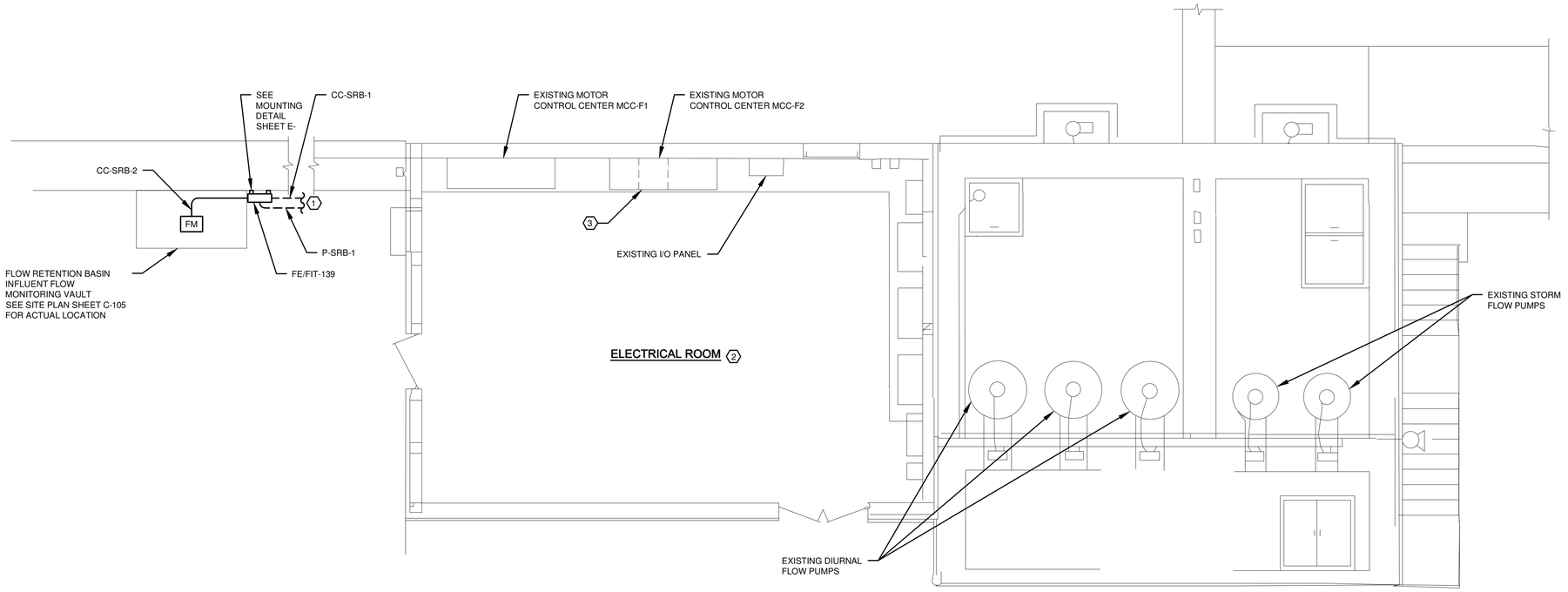

PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

KEYED NOTED:

1. FOR BIDDING PURPOSES ASSUME 140'-0" FOR CONDUIT P-SRB-1 AND 150'-0" FOR CONDUIT CC-SRB-1.
2. ALL EQUIPMENT SHOWN IN ELECTRIC ROOM IS EXISTING UNLESS OTHERWISE NOTED.
3. AT EXISTING 120V PANEL BOARD LOCATED AT EXISTING "MCC-F2" UTILIZE EXISTING 20A, 1P CIRCUIT BREAKER FOR POWER TO FLOW RETENTION BASIN INFLUENT FLOW METER. SCALE AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPE WRITTEN PANEL DIRECTORY.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
RETENTION BASIN PUMPING STATION

INSTALL PLAN

FILE NO. 23374.51633 - E102
DATE SEPT. 23, 2015

E-102

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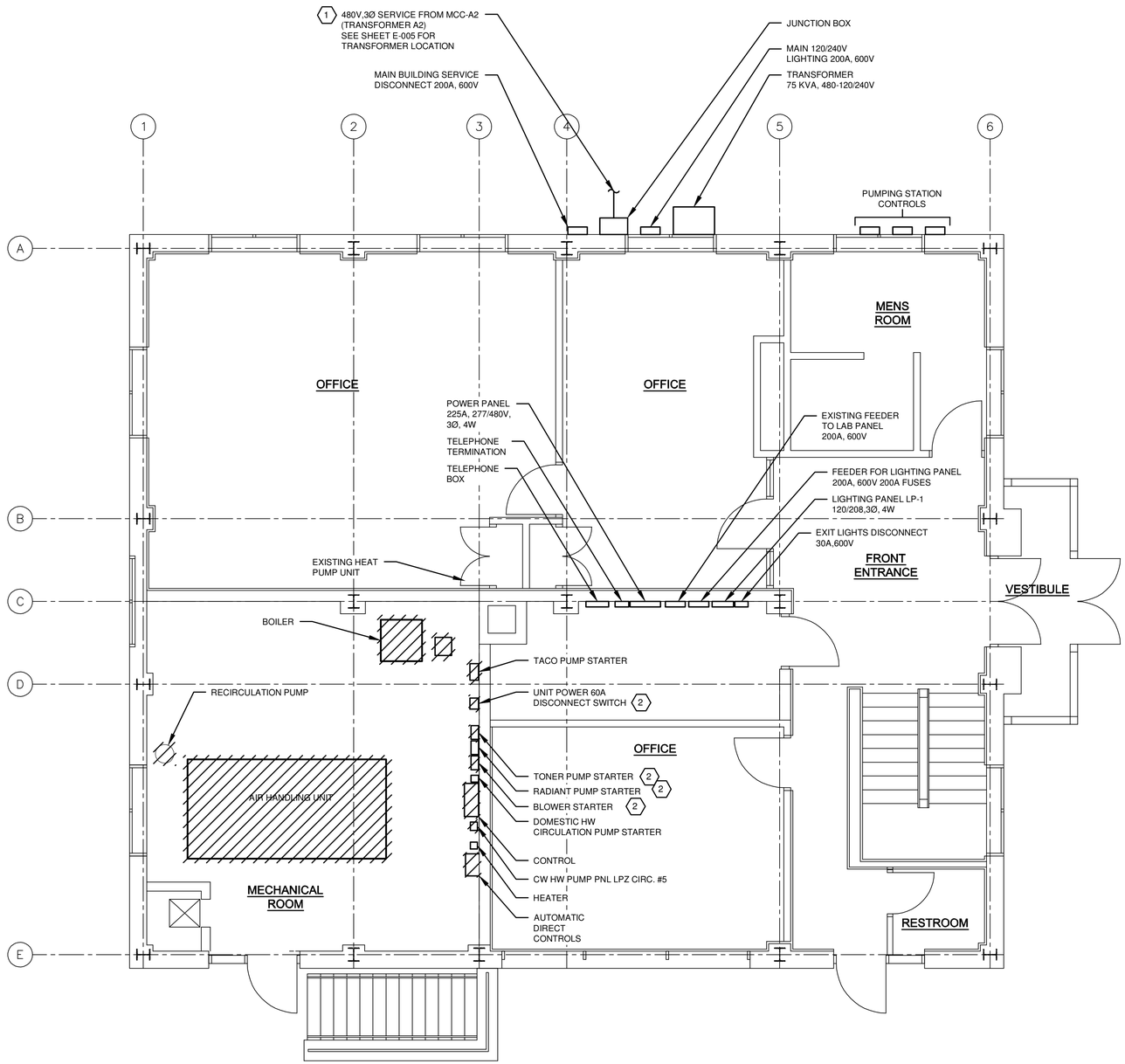

FIRST FLOOR PLAN

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

PLAN NORTH

KEYED NOTES:

1. SERVICE IS CURRENTLY FROM EXISTING "MCC-A2" LOCATED AT PRE-AERATION STRUCTURE. DISCONNECT AND REMOVE CONDUCTORS FROM "MCC-A2" 400A MAIN BUILDING FUSED SWITCH.
2. EQUIPMENT SHALL BE DISCONNECTED AND TURNED OVER TO OWNER.

DEMOLITION NOTES:

1. ALL STRUCTURES AND EQUIPMENT SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT CURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.
7. COORDINATE ELECTRICAL REMOVALS WITH REMOVAL OF EQUIPMENT BY OTHER CONTRACTS TO MAINTAIN EQUIPMENT AND SYSTEMS IN OPERATION UNTIL THEIR DECOMMISSIONING.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

LEGEND:

TO BE DEMOLISHED

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DRAWN BY WGF

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
ADMINISTRATION BUILDING
FIRST FLOOR
DEMOLITION PLAN

FILE NO. 23374.51633 - E103
DATE SEPT. 23, 2015

E-103

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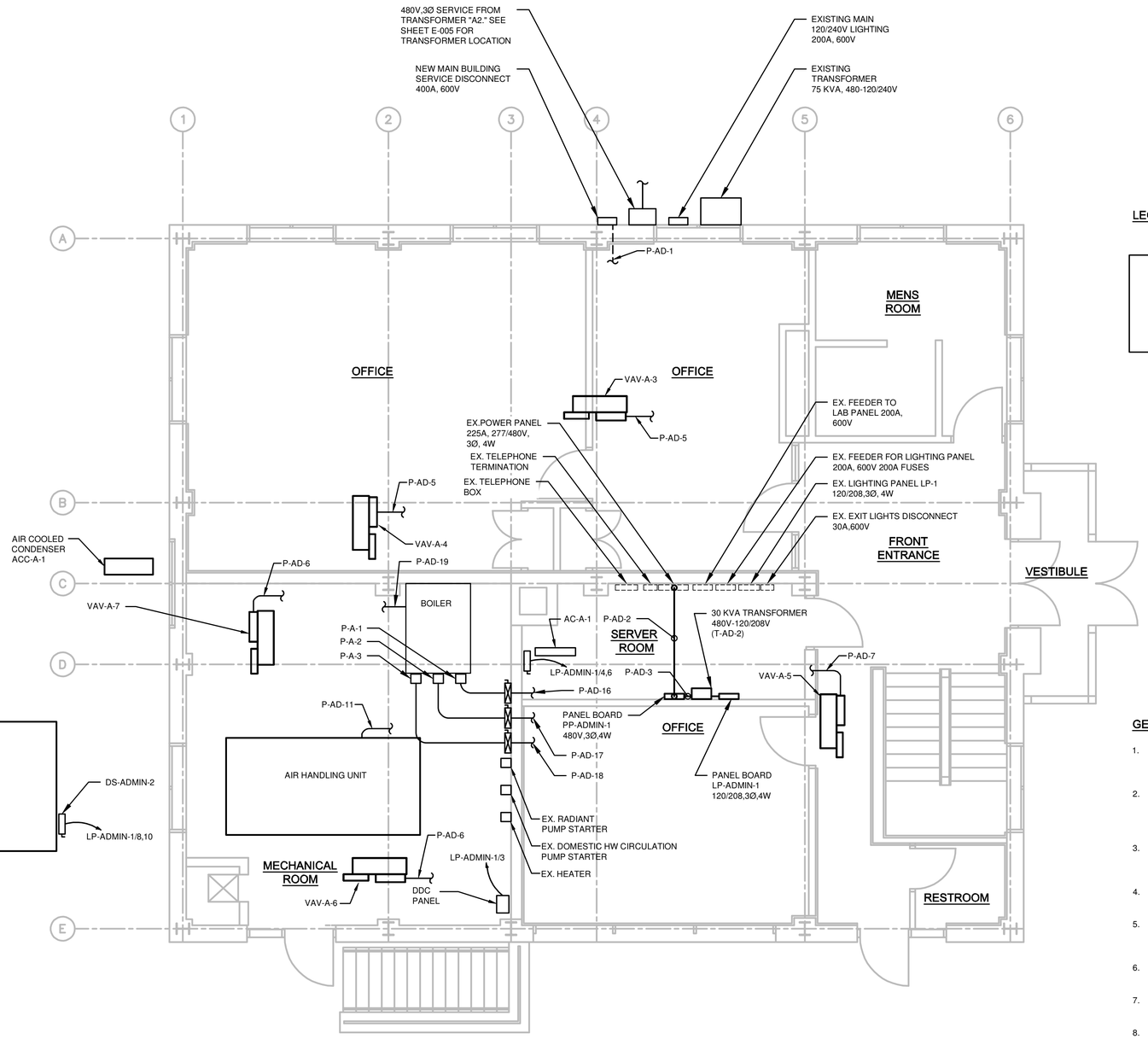


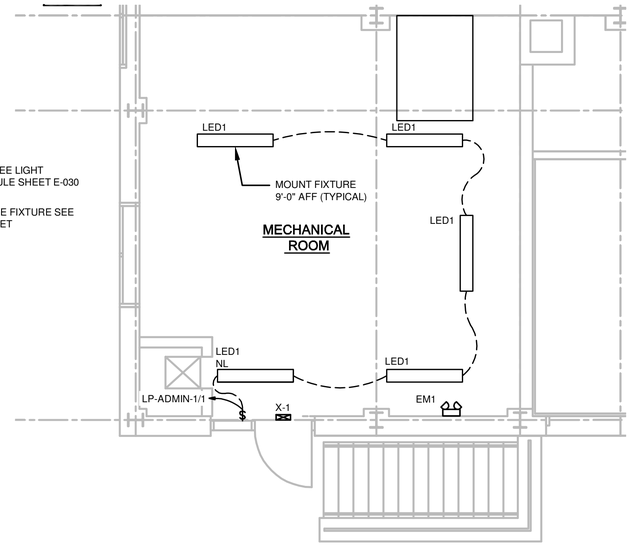
FIRST FLOOR PLAN

1/4"=1'-0" 4' 2' 0 2' 4' PLAN NORTH

LEGEND:

LED1 / NL — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030

NIGHT LIGHT TYPE FIXTURE SEE NOTE 5 THIS SHEET



LIGHTING PLAN

1/4"=1'-0" 4' 2' 0 2' 4' PLAN NORTH

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. WHERE TRENCHING FOR ELECTRICAL IS REQUIRED, CONTRACTOR SHALL VERIFY EXISTENCE OF UNDERGROUND OBSTRUCTIONS PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. ALL SPLICES IN UNDERGROUND CONDUCTORS (I.E. PULLBOXES AND MANHOLES) SHALL BE WATERPROOF AND SUBMERSIBLE, THOMAS & BETTS FLOOD-SEAL IN-LINE COMPRESSION SPLICE KITS.
6. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110,26(A)(1).
7. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP, ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.
8. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020 AND E-023, FOR POWER AND CONTROL WIRING REQUIREMENTS AND PANELBOARD SCHEDULE LP-ADMIN-1 AND PP-ADMIN-1 ON SHEET E-018 FOR POWER CIRCUIT DESIGNATIONS.
9. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXISTING LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT.
3. REFER TO PANEL BOARD SCHEDULE ON DRAWING E-XXX.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
6. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
7. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
8. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
9. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
ADMINISTRATION BUILDING
FIRST FLOOR- POWER & LIGHTING PLANS

FILE NO. 23374.51633 - E104
DATE SEPT. 23, 2015

E-104

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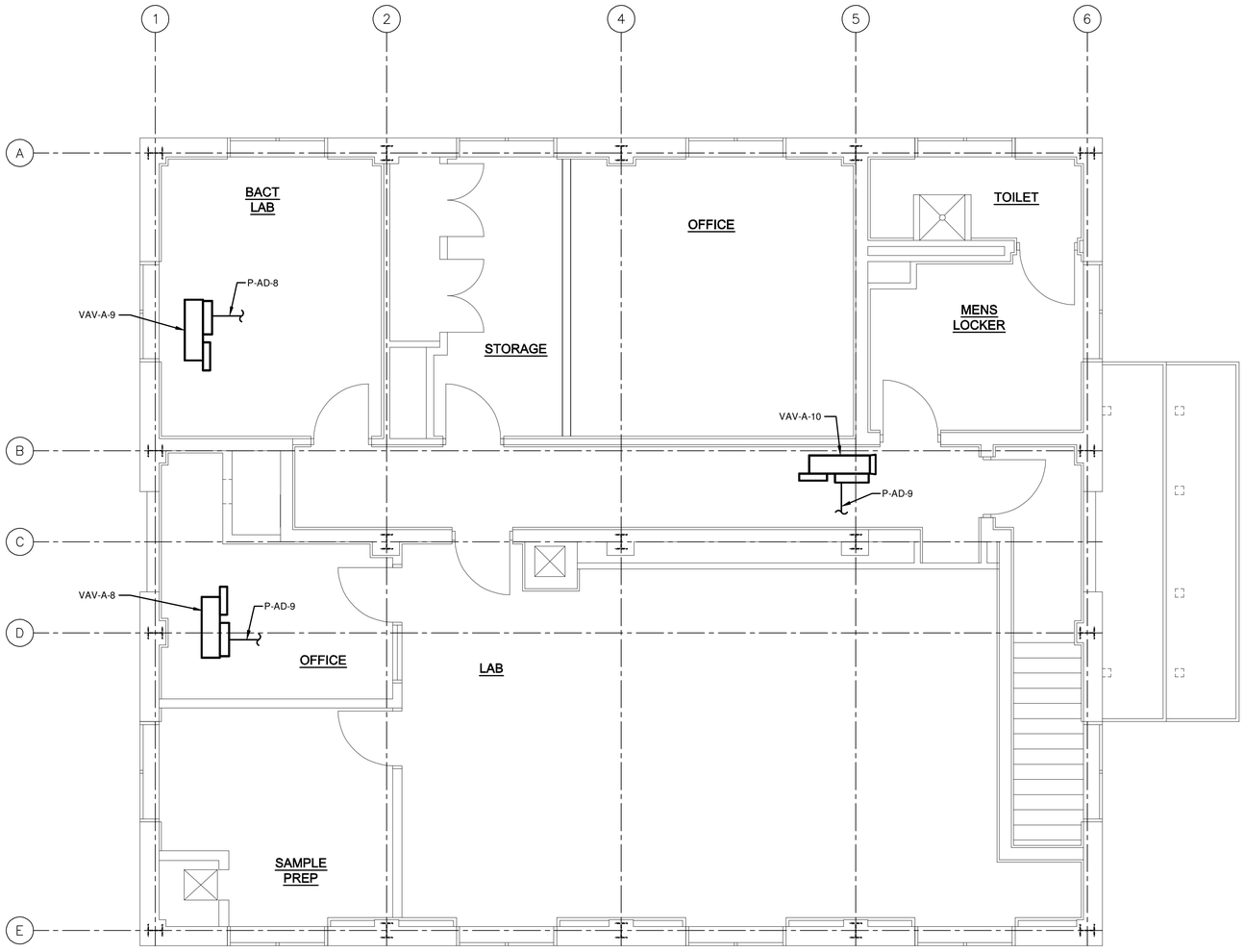

PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

PLAN NORTH

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. WHERE TRENCHING FOR ELECTRICAL IS REQUIRED, CONTRACTOR SHALL VERIFY EXISTENCE OF UNDERGROUND OBSTRUCTIONS PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. ALL SPLICES IN UNDERGROUND CONDUCTORS (I.E. PULLBOXES AND MANHOLES) SHALL BE WATERPROOF AND SUBMERSIBLE, THOMAS & BETTS FLOOD-SEAL IN-LINE COMPRESSION SPLICE KITS.
6. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110,26(A)(1).
7. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP, ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.
8. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020, FOR POWER WIRING REQUIREMENTS AND PANELBOARD SCHEDULE LP-ADMIN-1 AND PP-ADMIN-1 ON SHEET E-018 FOR POWER CIRCUIT DESIGNATIONS.
9. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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CITY OF MASSILLON
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MASSILLON, OHIO

ELECTRICAL
ADMINISTRATION BUILDING

SECOND FLOOR PLAN

FILE NO. 23374.51633 - E105
DATE SEPT. 23, 2015

E-105

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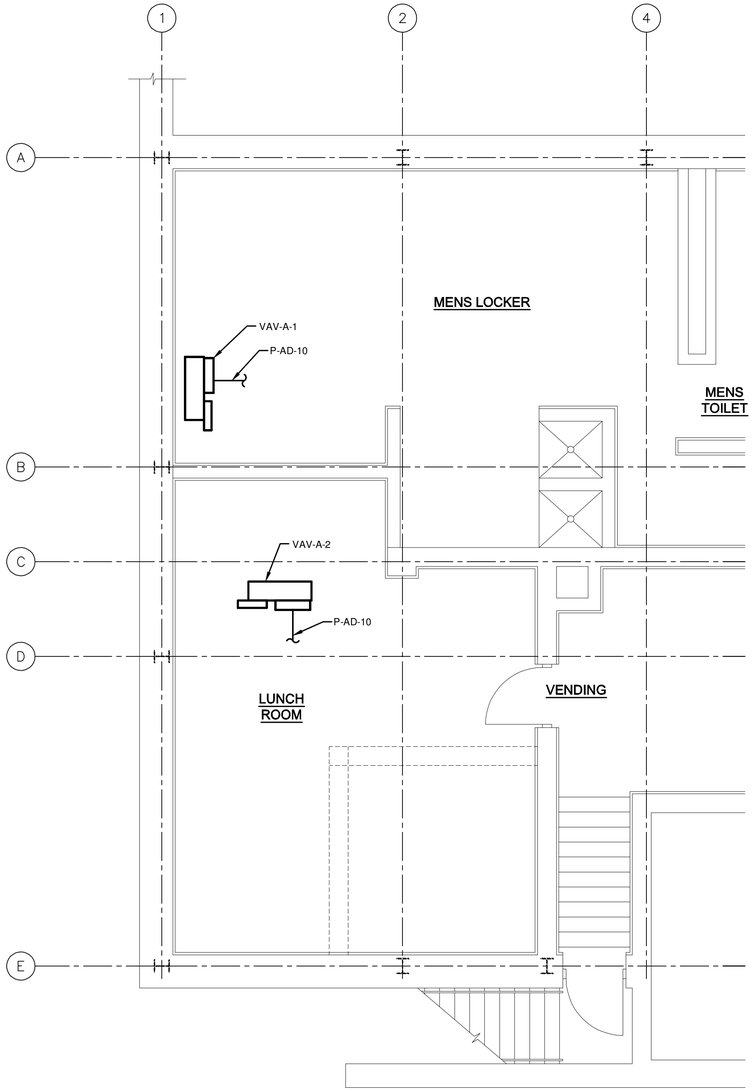
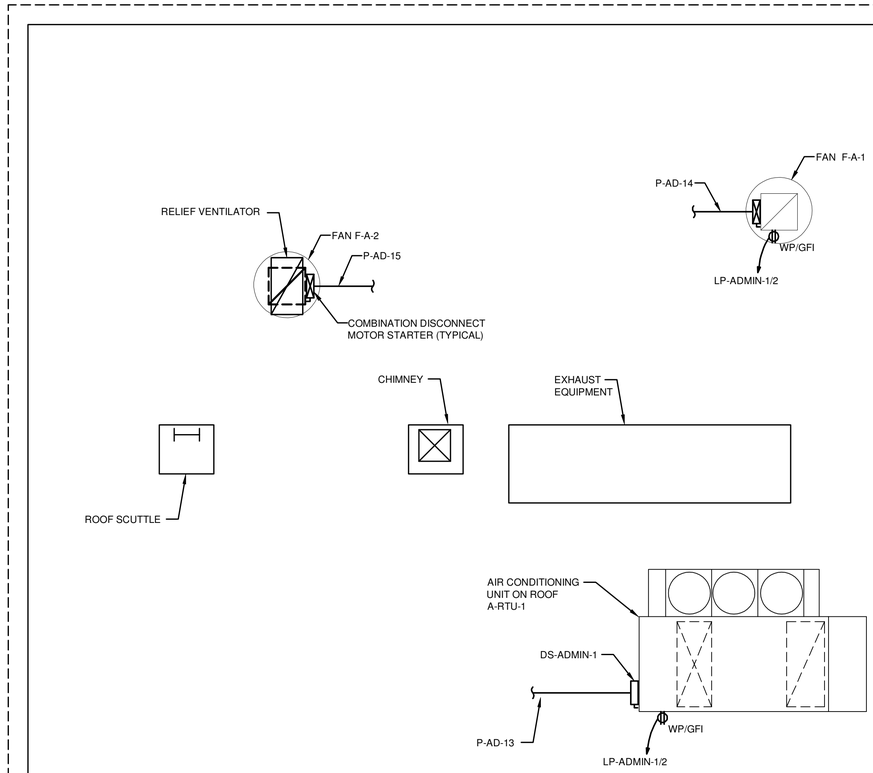


LOWER PLAN

1/4"=1'-0"

PLAN NORTH



ROOF PLAN

1/4"=1'-0"

PLAN NORTH

AREA CLASSIFICATION:
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
ADMINISTRATION BUILDING

LOWER PLAN & ROOF PLAN

FILE NO. 23374.51633 - E106

DATE SEPT. 23, 2015

E-106

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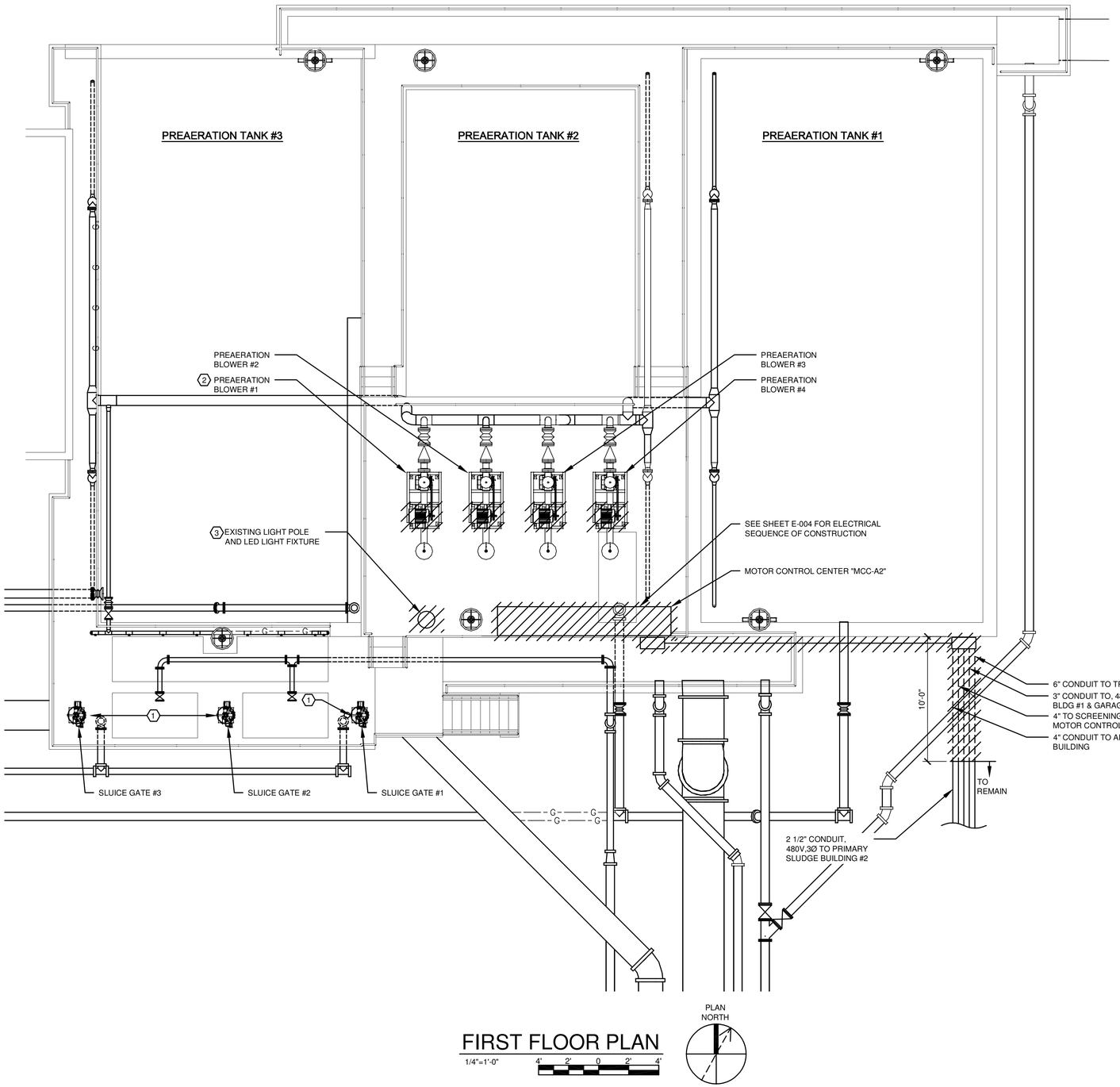

FIRST FLOOR PLAN

1/4"=1'-0"

4' 2' 0 2' 4'

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.

KEY NOTES:

1. SLUICE GATE OPERATORS TO REMAIN AND BE REUSED. REMOVE CONDUIT AND CONDUCTOR BACK TO MOTOR CONTROL CENTER "MCC-A2"
2. EXISTING PREAERATION BLOWER #1 MOTOR (15 HP) SHALL BE DISCONNECTED AND TURNED OVER TO OWNER. CONTRACTOR SHALL MOVE TO OWNER'S DESIGNATED STORAGE AREA.
3. EXISTING LIGHT POLE AND LED LIGHT FIXTURE TO BE DISCONNECTED AND TURNED OVER TO OWNER. CONTRACTOR SHALL MOVE TO OWNER'S DESIGNATED STORAGE AREA.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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DRAWN BY WGF

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1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRE-AERATION

FIRST FLOOR-DEMOLITION PLAN

FILE NO. 23374.51633 - E107
DATE SEPT. 23, 2015

E-107

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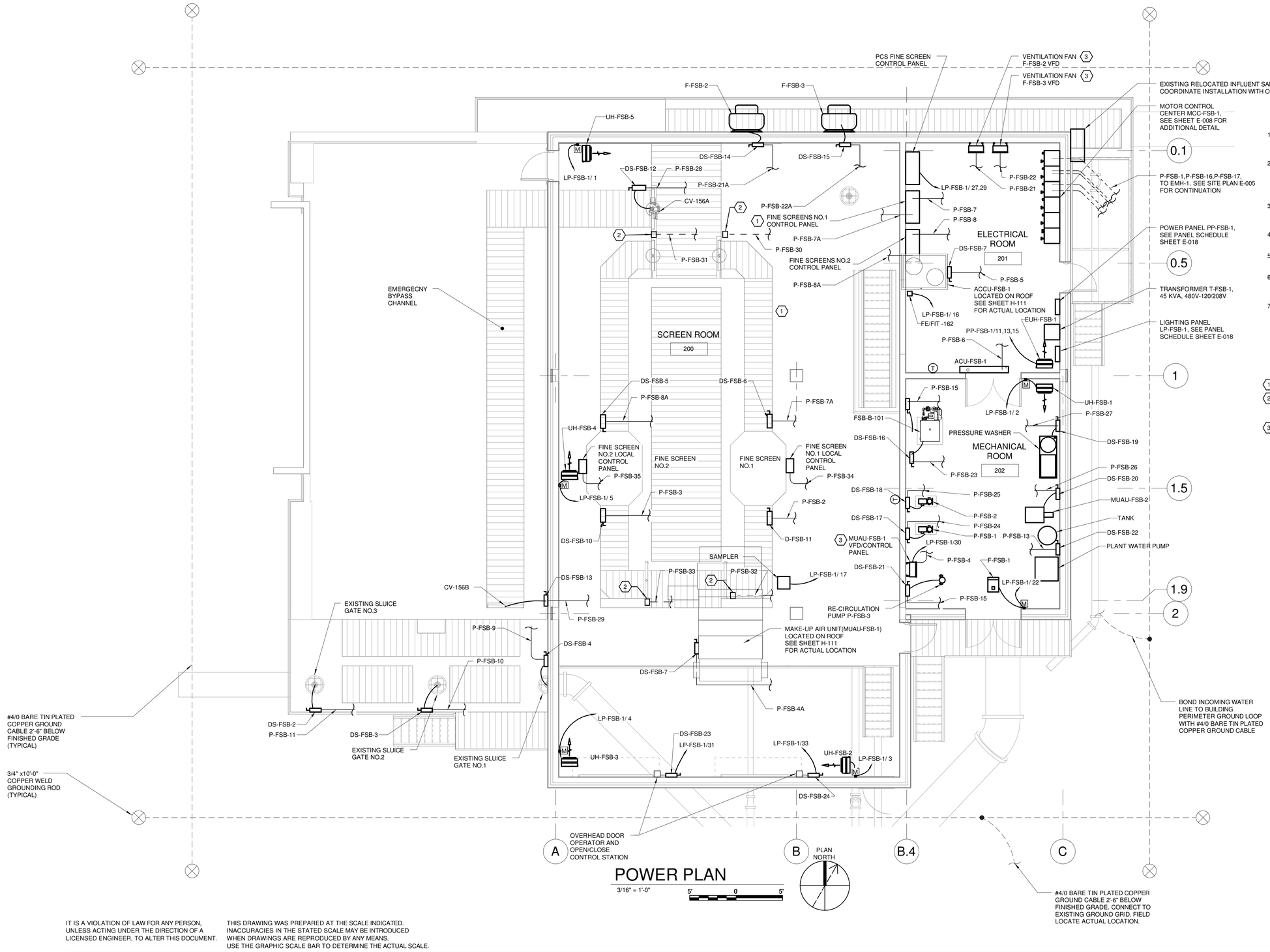

POWER PLAN

3/16" = 1'-0"

5' 0 5'

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND LOCAL CODES. THE CONTRACTOR SHALL HAVE THE COMPLETE INSTALLATION INSPECTED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CORRECT ANY DEFICIENCIES NOTED BY SUCH INSPECTION.
3. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
4. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
6. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020, FOR WIRING REQUIREMENTS AND PANELBOARD SCHEDULE PP-FSB-1 AND LP-FSB-1 ON SHEET E-018 FOR POWER CIRCUIT DESIGNATIONS.
7. COORDINATE ALL HVAC CONTROL REQUIRMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR, LOW VOLTAGE CONDUCTORS ARE BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

KEY NOTE:

1. SEE FINE SCREEN SYSTEM RISER DIAGRAMS, SHEET E-032.
2. STUB UP 3" ABOVE FINISHED FLOOR AND SEAL GAS TIGHT. CONDUITS ARE FOR FUTURE CONNECTION TO GATE OPERATORS BY OTHERS.
3. THE VARIABLE FREQUENCY DRIVES (VFD) ARE PROVIDED BY EQUIPMENT VENDOR, INSTALLED UNDER THIS CONTRACT.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

GROUNDING NOTES:

1. THIS GROUNDING SYSTEM IS SHOWN DIAGRAMATICALLY, EXACT LOCATION OF CABLE, GROUND RODS AND CONNECTIONS SHALL BE DETERMINED IN THE FIELD.
2. REFER TO SPECIFICATION SECTION 26 05 26 "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS" FOR ADDITIONAL GROUNDING REQUIREMENTS.

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREENING BUILDING

FIRST FLOOR POWER PLAN

FILE NO. 23374.51633- E108

DATE SEPT. 23, 2015

E-108

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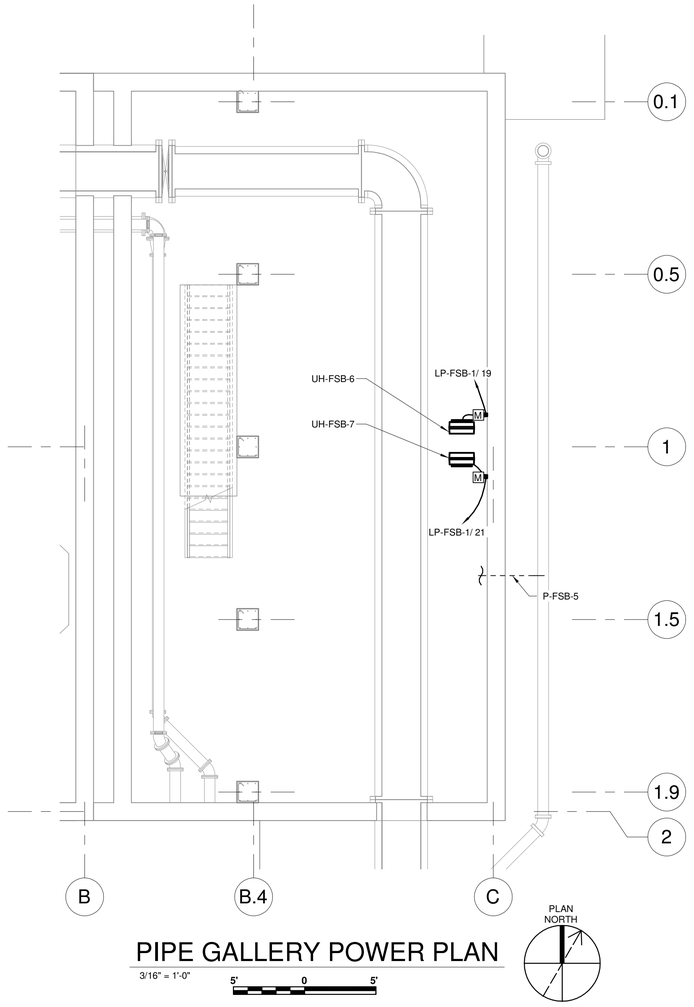

PIPE GALLERY POWER PLAN

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND LOCAL CODES. THE CONTRACTOR SHALL HAVE THE COMPLETE INSTALLATION INSPECTED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CORRECT ANY DEFICIENCIES NOTED BY SUCH INSPECTION.
3. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
4. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
6. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020, FOR WIRING REQUIREMENTS AND PANELBOARD SCHEDULE PP-FSB-1 AND LP-FSB-1 ON SHEET E-018 FOR POWER CIRCUIT DESIGNATIONS.
7. COORDINATE ALL HVAC CONTROL REQUIRMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR, LOW VOLTAGE CONDUCTORS ARE BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF	DL			
DESIGNED BY	JEC			
CHECKED BY	RGH	1	09/23/2015	ISSUED FOR BID
DRAWN BY	WGF	0	03/19/2015	ISSUED FOR OEPA REVIEW

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREENING BUILDING

PIPE GALLERY POWER PLAN

FILE NO. 23374.51633- E109

DATE SEPT. 23, 2015

E-109

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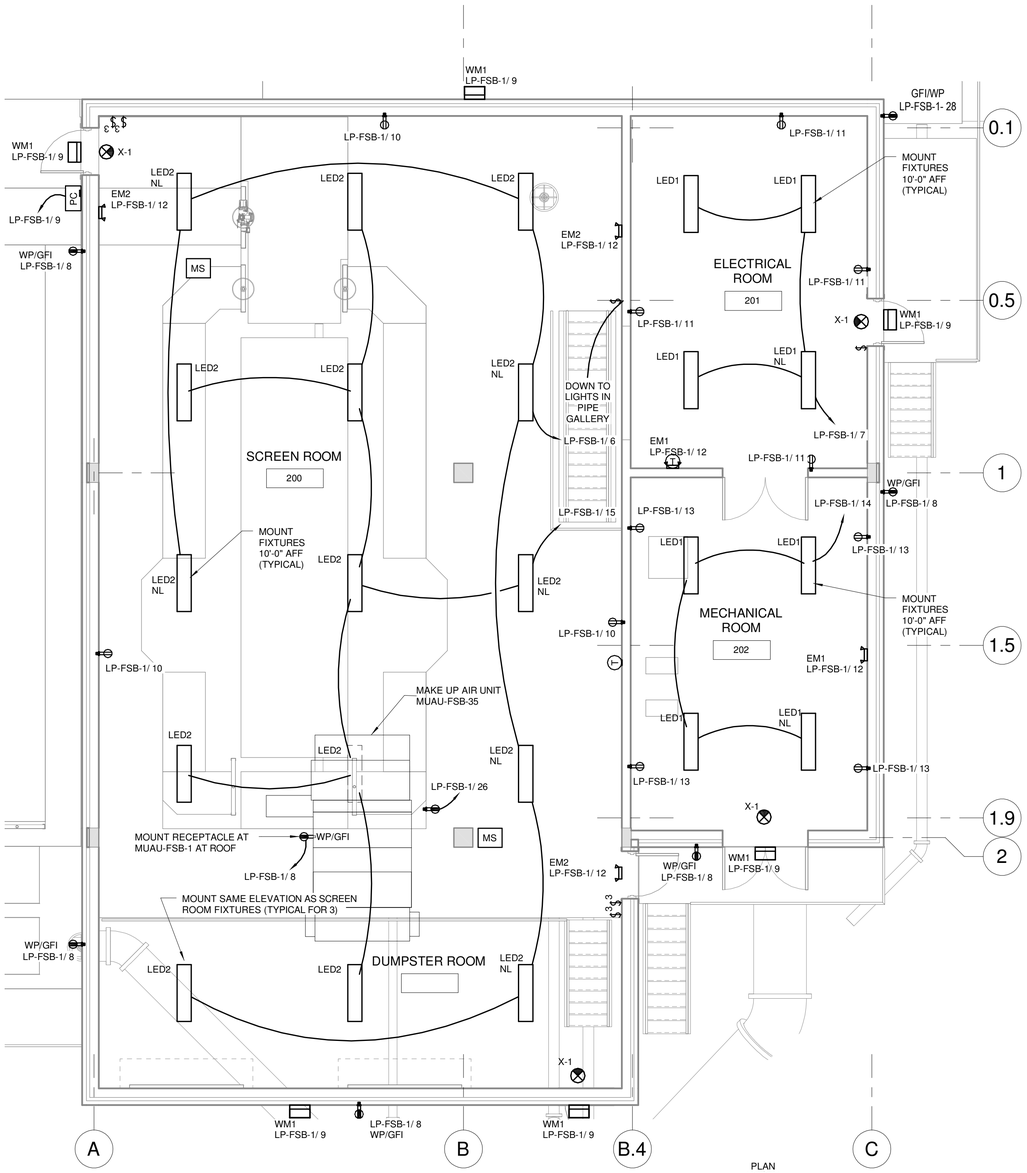

FIRST FLOOR LIGHTING

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. REFER TO PANELBOARD SCHEDULE ON DRAWING E-XXX.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
6. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
7. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
8. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
9. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
10. REPLACE AT THE TIME OF SUBSTANTIONAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.
11. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

LEGEND:

LED2 / NL — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030.
NIGHT LIGHT TYPE FIXTURE SEE NOTE 5 THIS SHEET

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREENING BUILDING

FIRST FLOOR LIGHTING PLAN

FILE NO. 23374.51633- E110
DATE SEPT. 23, 2015

E-110

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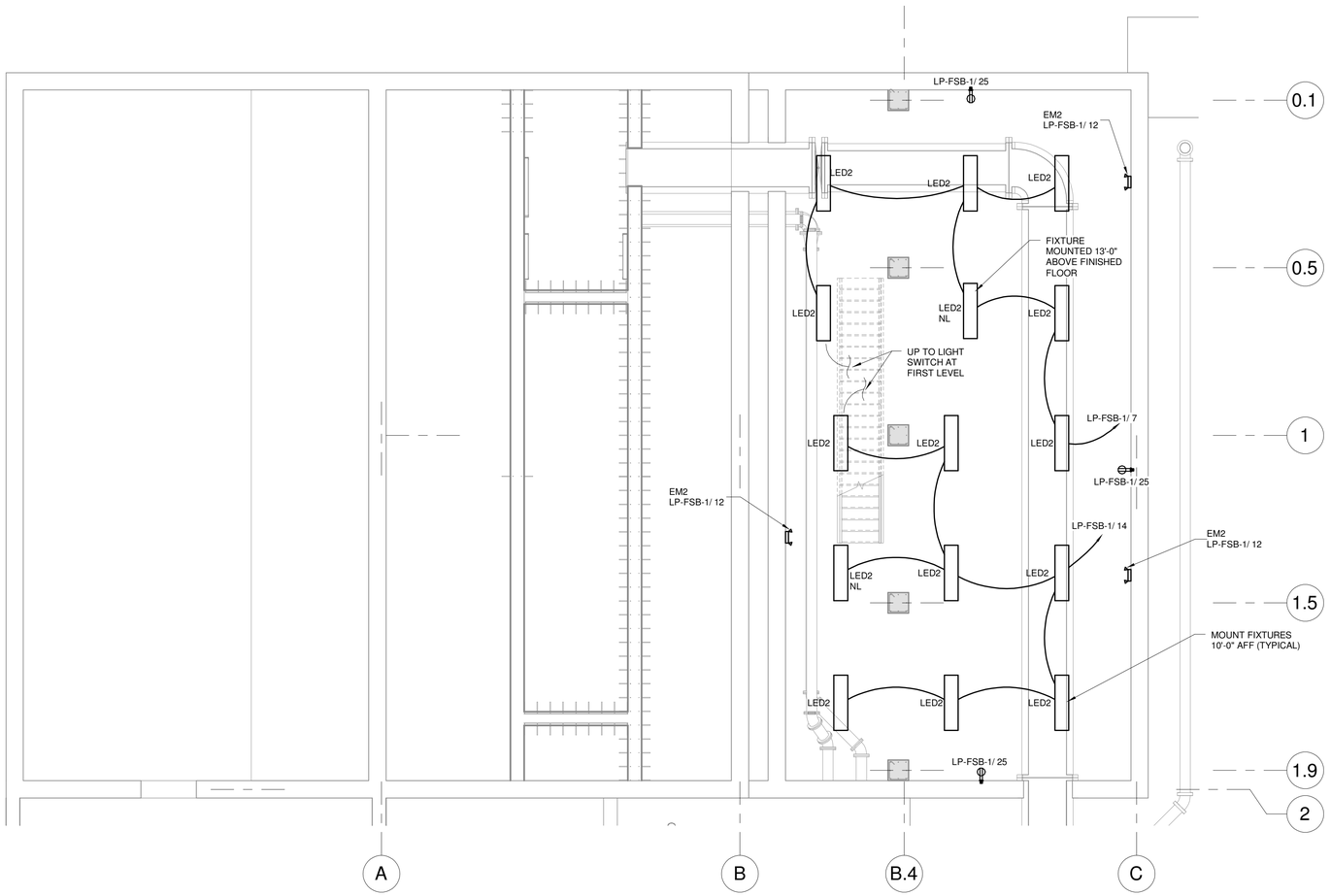

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. REFER TO PANELBOARD SCHEDULE ON DRAWING E-018.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
6. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
7. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
8. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
9. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
10. REPLACE AT THE TIME OF SUBSTANTIONAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.
11. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

LEGEND:

LED2 / NL — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030.
NIGHT LIGHT TYPE FIXTURE SEE NOTE 5 THIS SHEET

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

PIPE GALLERY LIGHTING

3/16" = 1'-0"

5' 0 5'

PLAN NORTH

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DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREENING BUILDING

PIPE GALLERY LIGHTING PLAN

FILE NO. 23374.51633- E111
DATE SEPT. 23, 2015

E-111

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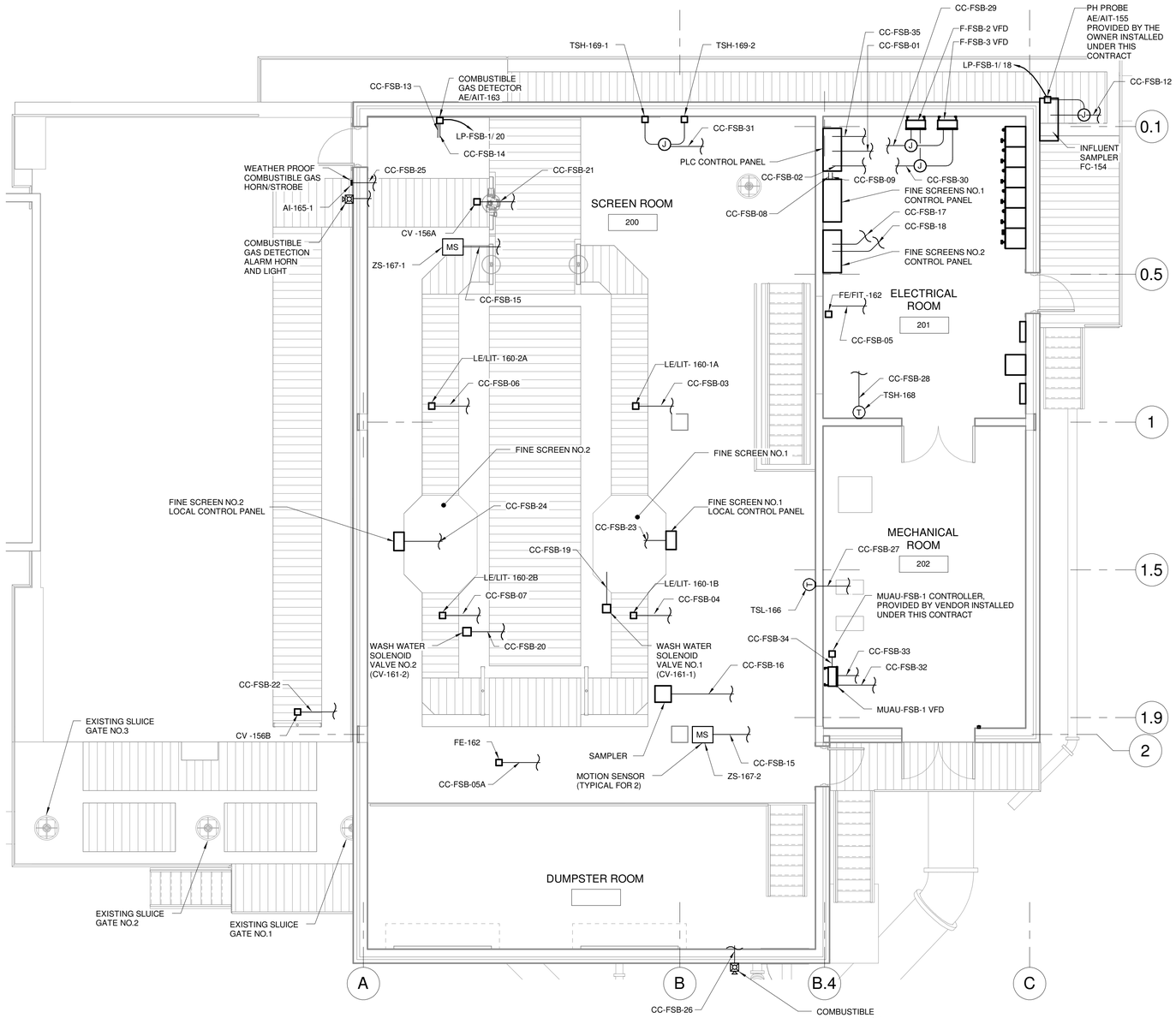
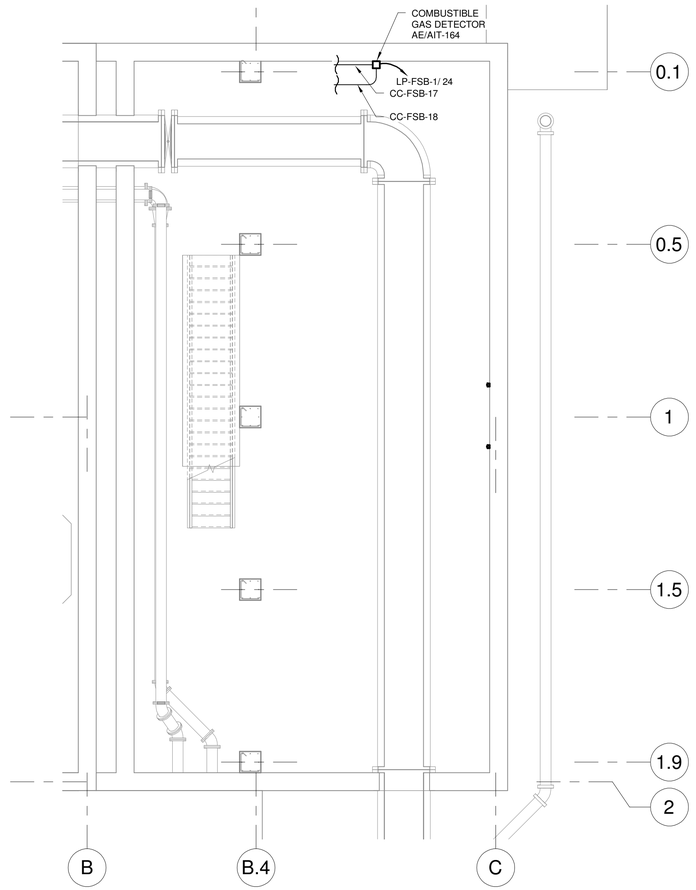


1 CONTROL PLAN

3/16" = 1'-0"

5' 0 5'



2 PIPE GALLERY CONTROL PLAN

3/16" = 1'-0"

5' 0 5'

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
FINE SCREEN BUILDING

CONTROL PLANS

FILE NO. 23374.51633- E112

DATE SEPT. 23, 2015

E-112

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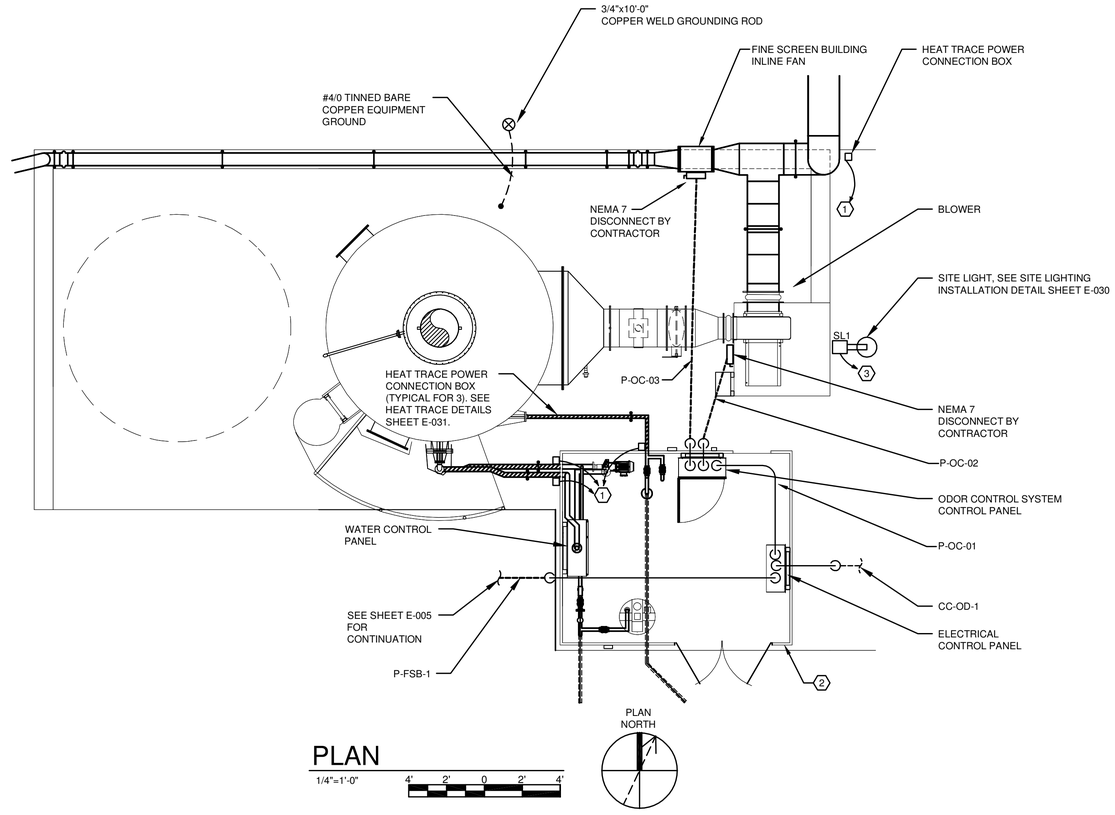

KEYED NOTES:

1. PROVIDE 3/4" CONDUIT WITH 2-#12, 1-#12GRD TO ELECTRICAL CONTROL PANEL, UTILIZE 20A, 1 POLE, 30MA GFI CIRCUIT BREAKERS FOR POWER TO HEAT TRACE CIRCUITS (TYPICAL; FOR 3).
2. ODOR CONTROL SYSTEM IS A PACKAGE SYSTEM PROVIDED BY OTHERS, INSTALLED UNDER THIS CONTRACT. PROVIDE CONDUIT AND CONDUCTOR AS SHOWN AND SCHEDULED. SEE RISER DIAGRAM SHEET E-032.
3. PROVIDE AND INSTALL 3/4" CONDUIT W/2-#12, 1-#12GRD FROM LIGHT POLE TO ELECTRICAL CONTROL PANEL LOCATED IN ODOR CONTROL BUILDING. UTILIZE 120V CIRCUIT FOR SITE LIGHT POWER.

NOTES:

AREA WITHIN 3 FEET OF LEAKAGE SOURCES SUCH AS FANS, DAMPERS, FLEXIBLE CONNECTIONS, FLANGES, PRESSURIZED UN-WELDED DUCTWORK, AND ODOR-CONTROL VESSELS IS A CLASS 1, DIVISION 2 GROUP D HAZARDOUS AREA. AREAS BEYOND THE 3 FEET IS UNCLASSIFIED.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-004 FOR ROOM/AREA CLASSIFICATION.

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
ODOR CONTROL

POWER PLAN

FILE NO. 23374.51633 -E113
DATE SEPT. 23, 2015

E-113

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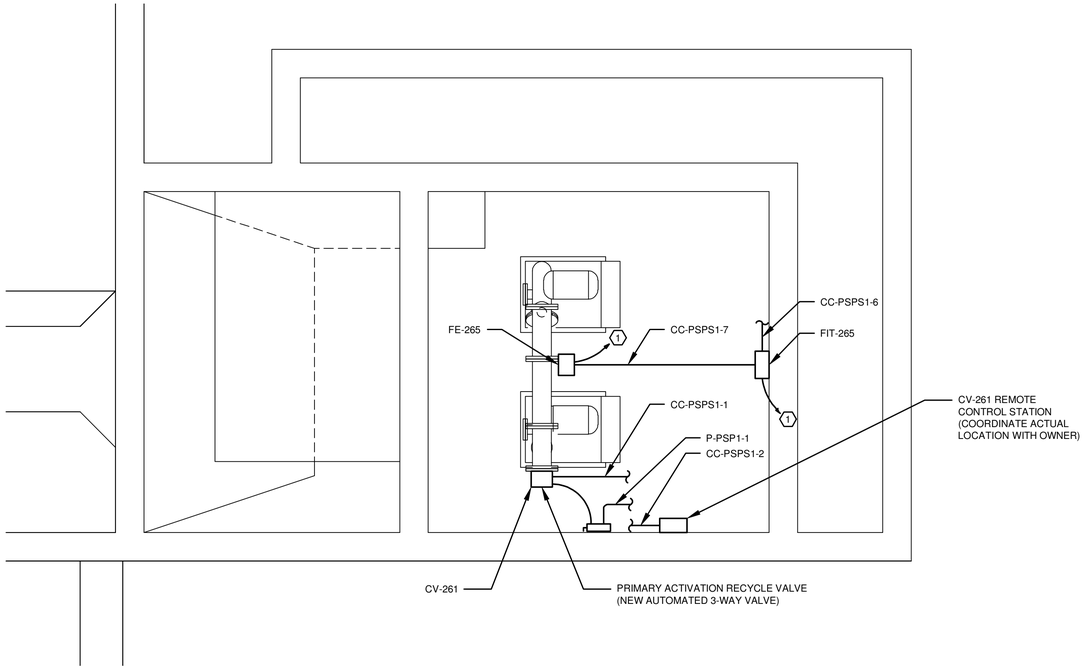

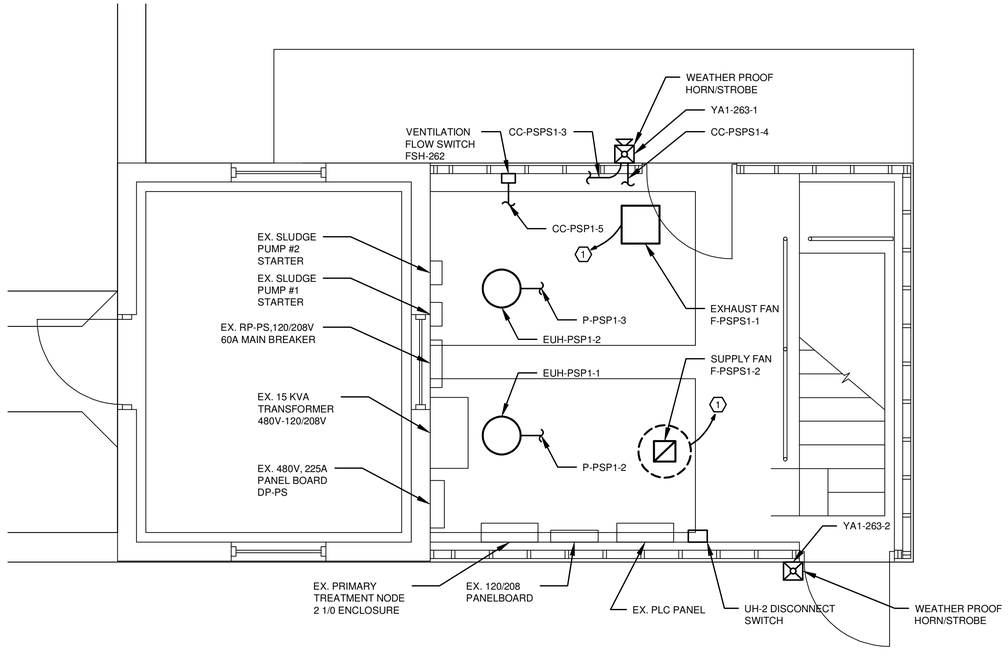

1 LOWER LEVEL PLAN
3/8"=1'-0"

PLAN NORTH

2 UPPER LEVEL PLAN
3/8"=1'-0"

PLAN NORTH

GENERAL NOTES:

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2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AND LOCAL CODES. THE CONTRACTOR SHALL HAVE THE COMPLETE INSTALLATION INSPECTED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CORRECT ANY DEFICIENCIES NOTED BY SUCH INSPECTION.
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4. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
6. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020 AND SHEET E-023, FOR WIRING REQUIREMENTS.
7. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS ARE BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

KEY NOTES:

(1) AT EXISTING PANELBOARD "RP-PS" PROVIDE AND INSTALL 1P,20A CIRCUIT BREAKER. CIRCUIT BREAKER TO BE COMPATIBLE WITH EXISTING PANELBOARD. AT COMPLETION OF PROJECT PROVIDE A TYPE WRITTEN UPDATED PANEL DIRECTORY.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF DL
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DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY SLUDGE PUMP STATION

UPPER & LOWER POWER PLANS

FILE NO. 23374.51633 - E201
DATE SEPT. 23, 2015

E-201

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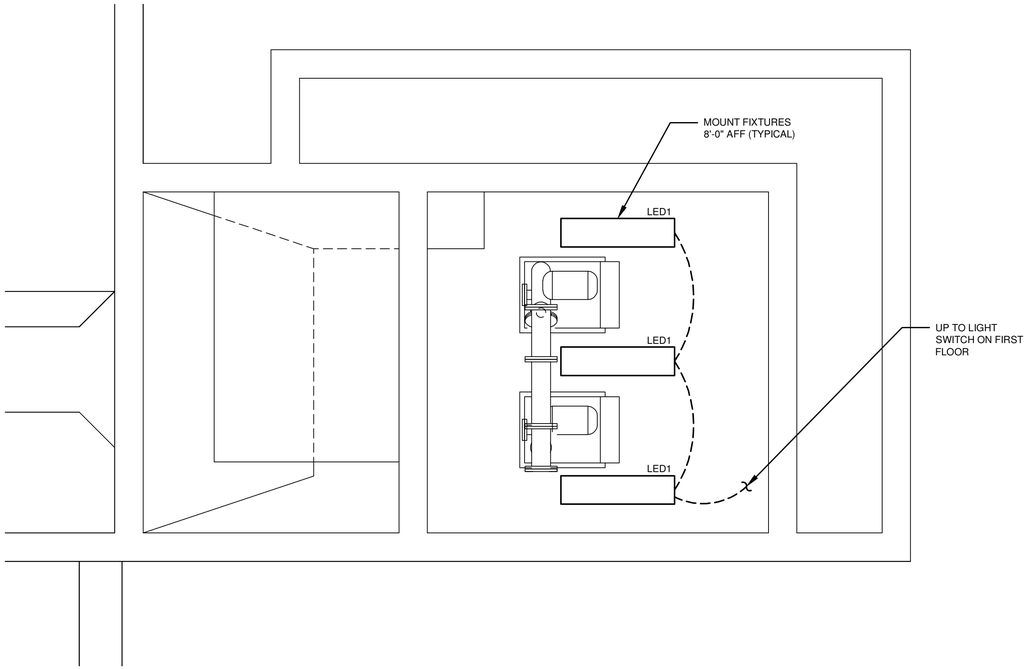
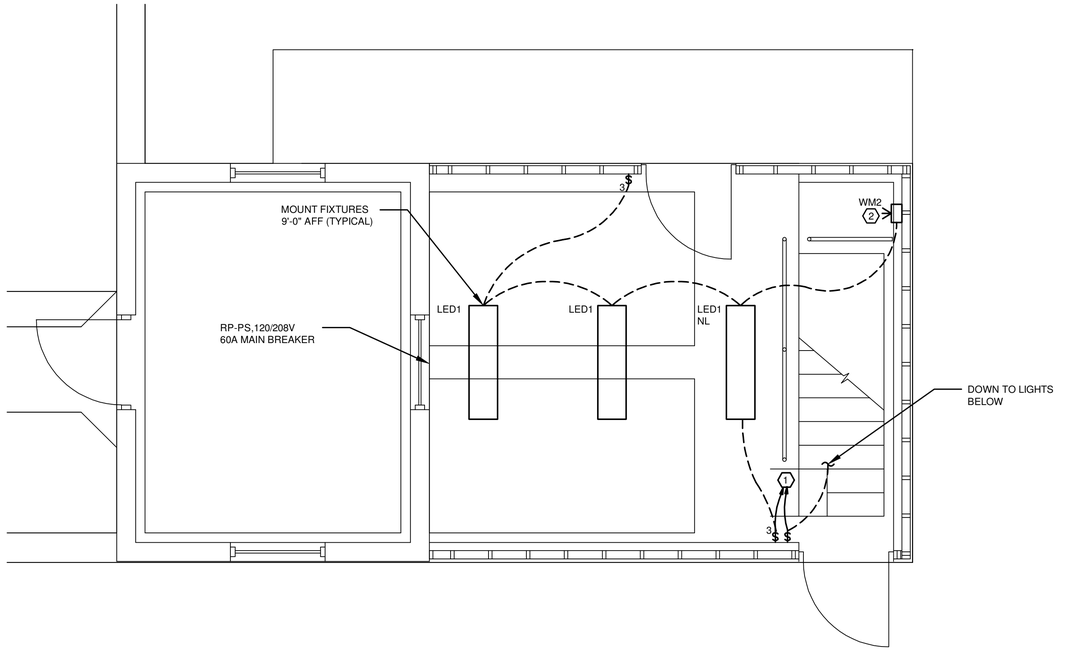


1 LOWER LEVEL PLAN

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

PLAN NORTH



2 UPPER LEVEL PLAN

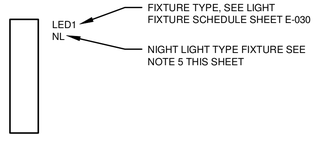
3/8"=1'-0" 4' 2' 0 2' 4'

PLAN NORTH

KEY NOTES:

1. AT EXISTING PANELBOARD "RP-PS" PROVIDE AND INSTALL 1P,20A CIRCUIT BREAKER. CIRCUIT BREAKER TO BE COMPATIBLE WITH EXISTING PANELBOARD. AT COMPLETION OF PROJECT PROVIDE A TYPE WRITTEN UPDATED PANEL DIRECTORY.
2. THE "WM2" FIXTURE IS A EXISTING LED LIGHT FIXTURE THAT WAS REMOVED FROM EX. PRIMARY GALLERY AREA. CONTRACTOR SHALL CLEAN AND RE-INSTALL AT LOCATION SHOWN. FIXTURE SHALL BE MOUNTED 8'-0" ABOVE LOWER LANDING.

LEGEND:



GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXISTING LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT.
3. REFER TO PANEL BOARD SCHEDULE ON DRAWING E-XXX.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
6. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
7. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
8. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
9. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL

UPPER & LOWER LIGHTING PLANS

FILE NO. 23374.51633 - E202
DATE SEPT. 23, 2015

E-202

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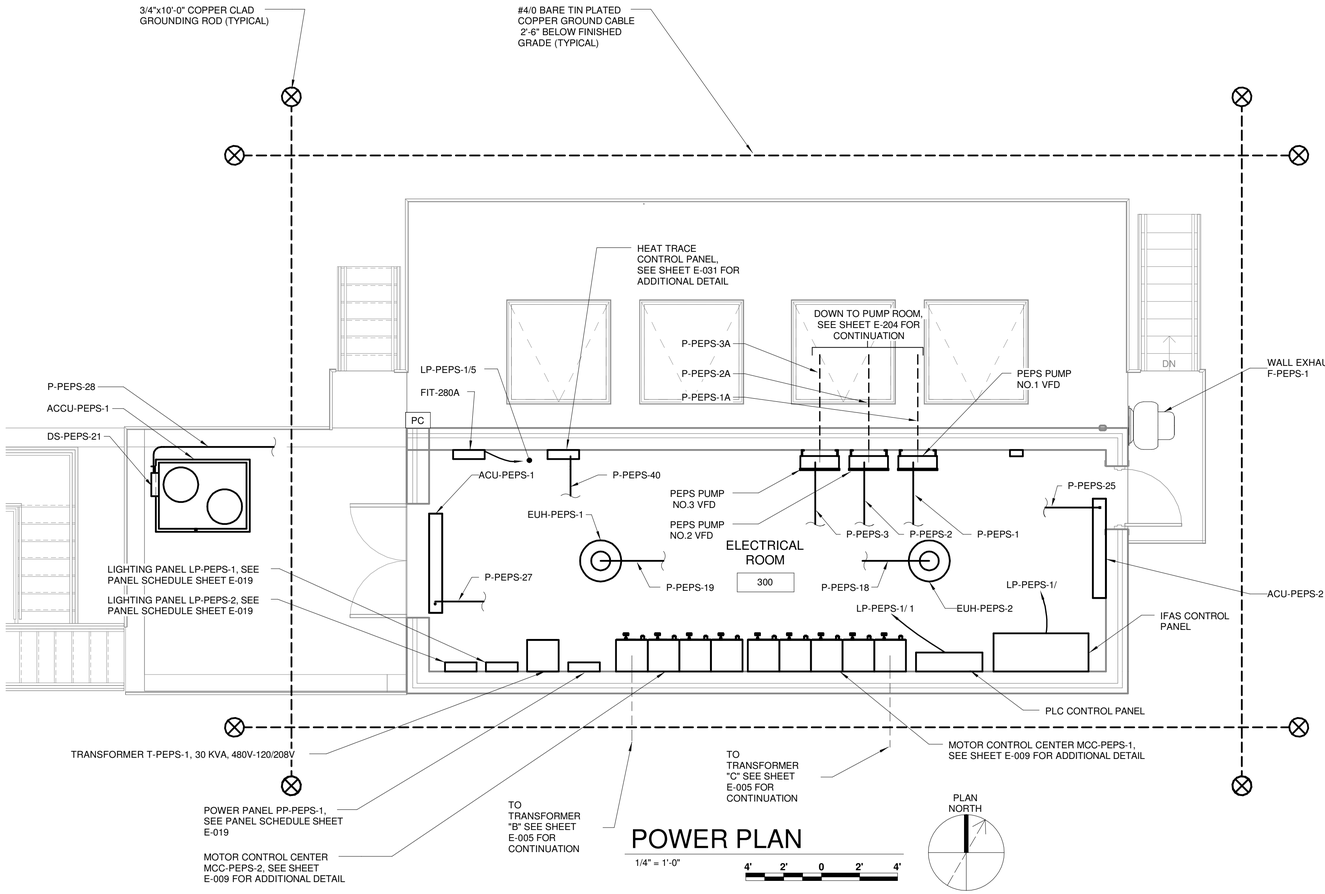

POWER PLAN

1/4" = 1'-0"

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. SELECTED CONDUITS HAVE BEEN OMITTED FROM THE ELECTRICAL ROOM ON THIS DRAWING FOR CLARITY. REFER TO ONE-LINE DIAGRAMS, PANEL SCHEDULES AND CONDUIT SCHEDULES ELSEWHERE IN THE DRAWING FOR REQUIREMENTS.
6. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020, E-021 FOR WIRING REQUIREMENTS AND PANELBOARD SCHEDULE LP-PEPS-1 ON SHEET E-019 FOR 120VAC POWER CIRCUIT DESIGNATIONS.
7. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
8. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF	DL			
DESIGNED BY	JEC			
CHECKED BY	RGH			
DRAWN BY	WGF			

NO.	DATE	REVISION	INT.
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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

POWER PLAN

FILE NO. 23374.51633- E203

DATE SEPT. 23, 2015

E-203

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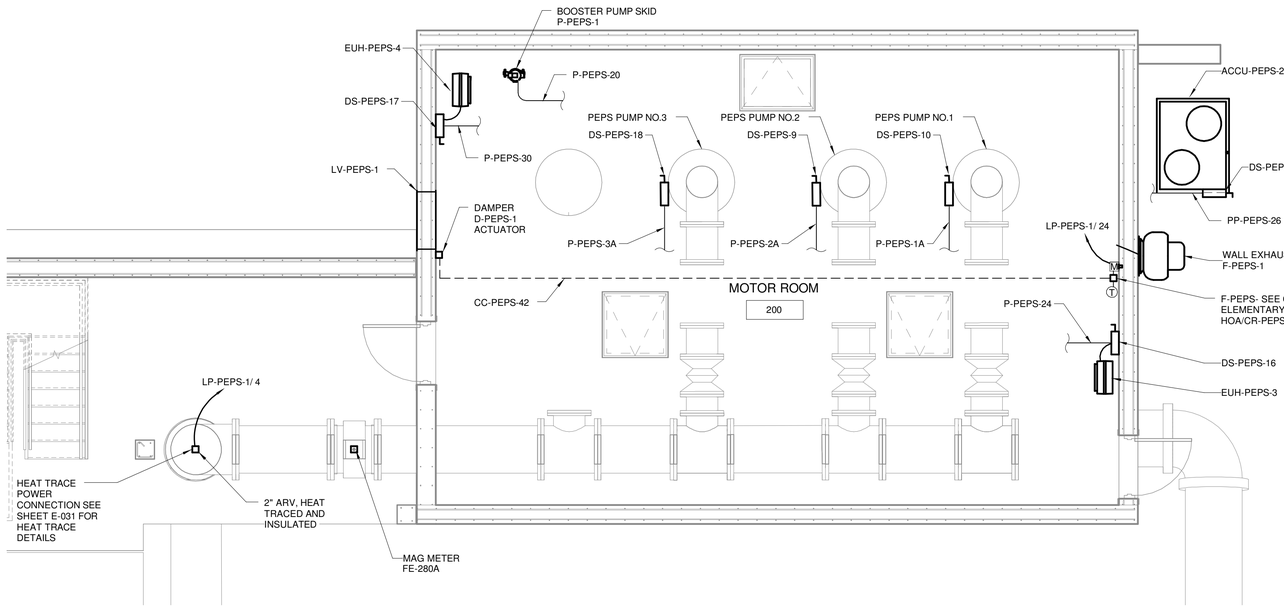
GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-020 ANDE-021 FOR WIRING REQUIREMENTS AND PANELBOARD SCHEDULES LP-PEPS-1 AND PP-PEPS-1 ON SHEET E-019 FOR POWER CIRCUIT DESIGNATIONS.
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
7. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.



POWER PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

PUMP ROOM POWER PLAN

FILE NO. 23374.51633- E204

DATE SEPT. 23, 2015

E-204

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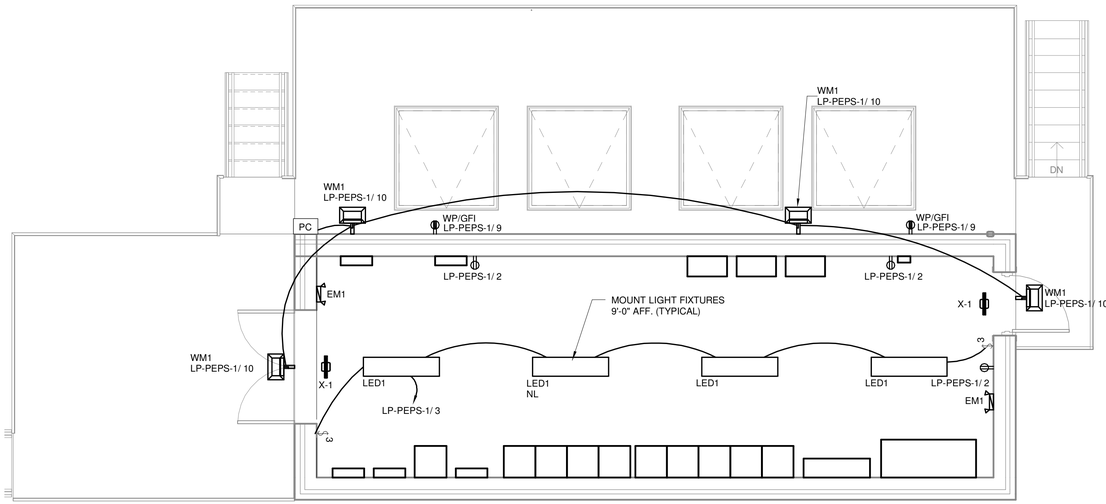
GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. REFER TO PANELBOARD SCHEDULE ON DRAWING E-019.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
6. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
7. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
8. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND
9. PLUMB.
10. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
11. REPLACE AT THE TIME OF SUBSTANTIAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.

    OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.



LIGHTING PLAN- ELECTRICAL ROOM

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

LEGEND:

LED1 — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030.
NL — NIGHT LIGHT TYPE FIXTURE SEE NOTE 5 THIS SHEET

PC — PHOTOCELL

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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DESIGNED BY	JEC
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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

LIGHTING PLAN

FILE NO. 23374.51633- E205
DATE SEPT. 23, 2015

E-205

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SAVED: 9/22/2015 8:38:24 AM

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. REFER TO PANELBOARD SCHEDULE ON DRAWING E-019.
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
6. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
7. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
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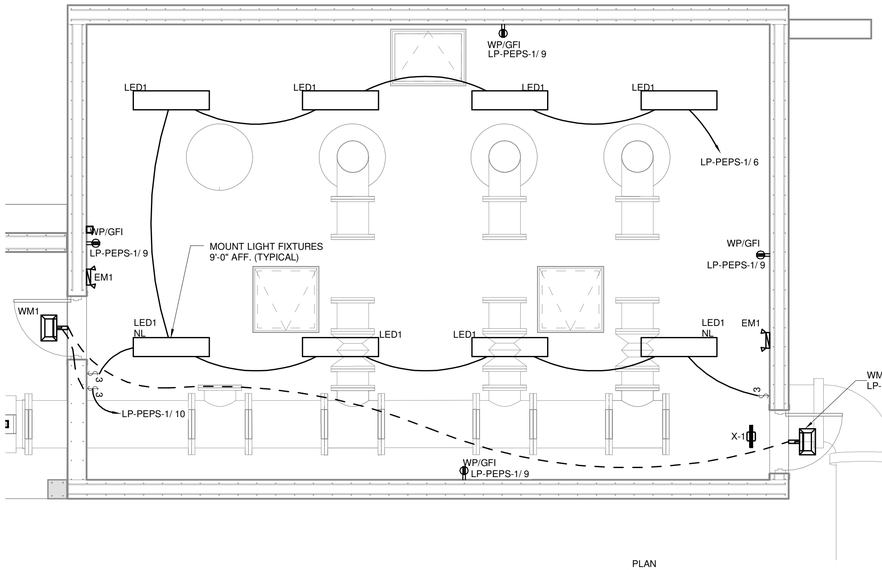
9. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
10. REPLACE AT THE TIME OF SUBSTANTIAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.
11. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.



LIGHTING PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

LEGEND:

LED1 / NL — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030. / NIGHT LIGHT TYPE FIXTURE SEE NOTE 5 THIS SHEET

PC — PHOTOCELL

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

PUMP ROOM LIGHTING PLAN

FILE NO. 23374.51633- E206

DATE SEPT. 23, 2015

E-206

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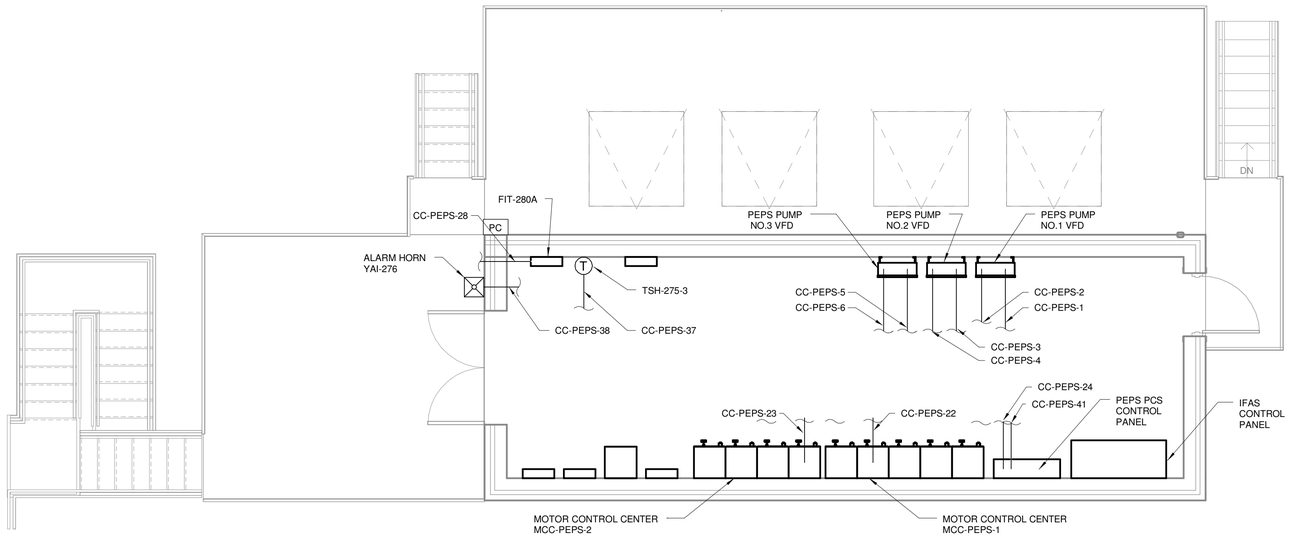
GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-023 AND E-024 FOR CONTROL WIRING REQUIREMENTS AND PANELBOARD SCHEDULES LP-PEPS-1 ON SHEET E-019 FOR 120VAC POWER CIRCUIT DESIGNATIONS.
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
7. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.



CONTROL PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

CONTROL PLAN

FILE NO. 23374.51633- E207

DATE SEPT. 23, 2015

E-207

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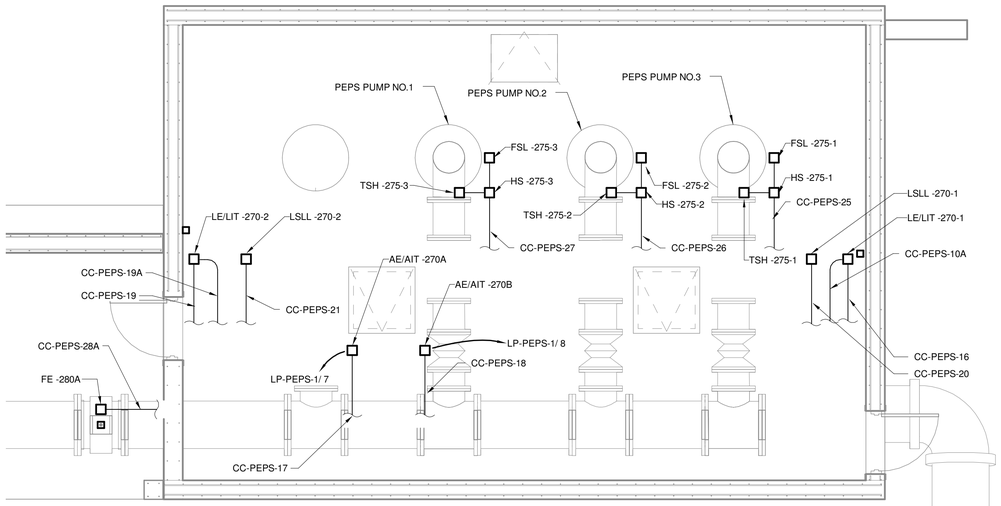
SAVED: 9/22/2015 8:38:26 AM

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S AGENT, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-023 AND E-024 FOR CONTROL WIRING REQUIREMENTS AND PANELBOARD SCHEDULES LP-PEPS-1 ON SHEET E-019 FOR 120VAC POWER CIRCUIT DESIGNATIONS.
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
7. SPARE CONDUITS FROM DUCT BANKS SHALL TERMINATE 6" AFF WITH CAP ADJACENT TO ELECTRICAL ROOM EXTERIOR WALL.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.



CONTROL PLAN

1/4" = 1'-0"

4' 2' 0 2' 4'

PLAN NORTH

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRIMARY EFFLUENT PUMP STATION

PUMP ROOM CONTROL PLAN

FILE NO. 23374.51633- E208

DATE SEPT. 23, 2015

E-208

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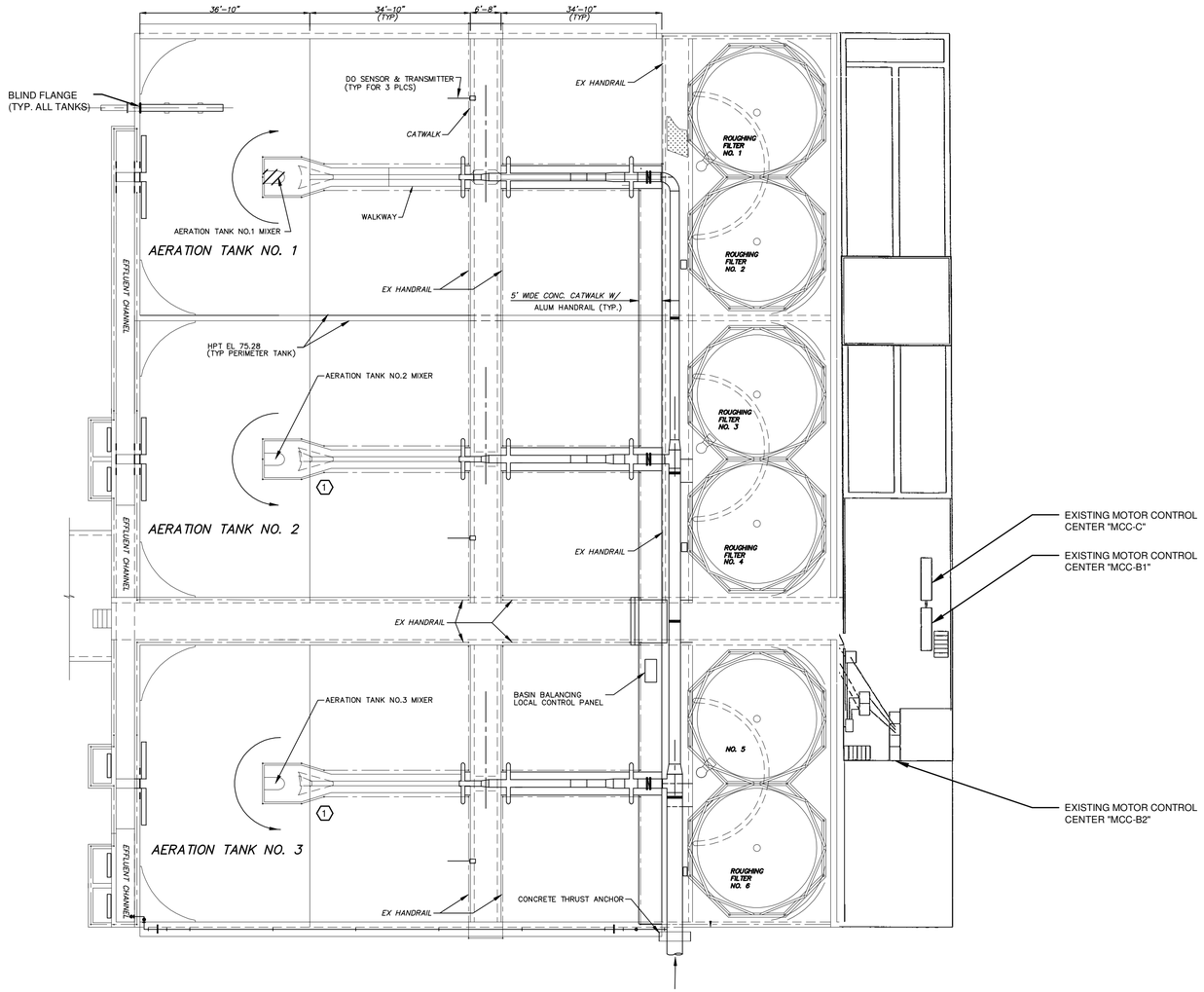

PLAN
1/16"=1'-0"
16' 8' 0 16'

PLAN NORTH

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.
7. COORDINATE ELECTRICAL REMOVALS WITH REMOVAL OF EQUIPMENT BY OTHER CONTRACTS TO MAINTAIN EQUIPMENT AND SYSTEMS IN OPERATION UNTIL THEIR DECOMMISSIONING.

LEGEND:

TO BE DEMOLISHED

KEY NOTES:

(1) AERATION TANK NO.2 MIXER AND AERATION TANK NO.3 MIXER SHALL HAVE POWERED MAINTAINED WHILE AERATION TANK NO.1 IS DEMOLISHED AND CONVERTED TO THE IFAS SYSTEM.

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CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
EXISTING AERATION TANKS

DEMOLITION PLAN

FILE NO. 23374.51633 - E301
DATE SEPT. 23, 2015

E-301

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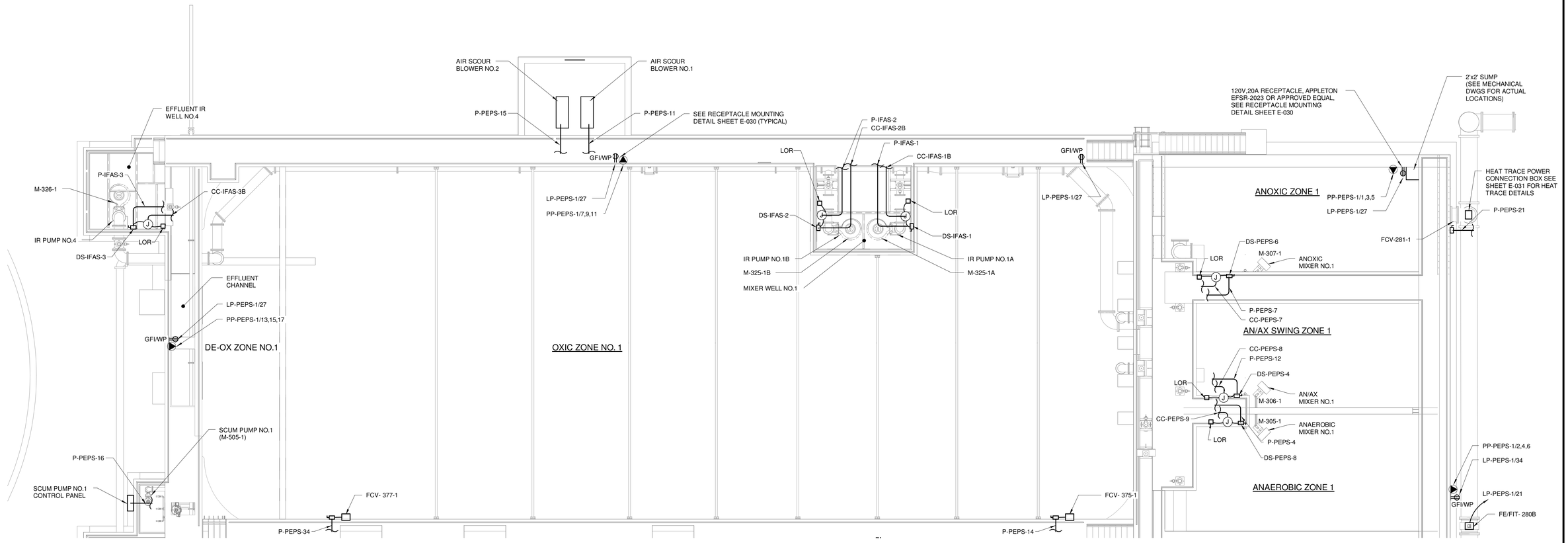

TANK NO.1 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL ROUTE CONDUITS BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL CODES. THE CONTRACTOR SHALL HAVE THE COMPLETE INSTALLATION INSPECTED BY THE AUTHORITY HAVING JURISDICTION AND SHALL CORRECT ANY DEFICIENCIES NOTED BY SUCH INSPECTION.
4. WHERE PRACTICAL CONTRACTOR MAY COMBINE CIRCUITS INTO ONE CONDUIT. WHEN DOING SO, CONTRACTOR IS RESPONSIBLE FOR DE-RATING CONDUCTORS AND CONDUIT FILL REQUIREMENTS IN ACCORDANCE WITH ALL APPLICABLE CODES OF THE NEC.
5. CONDUITS FOR EQUIPMENT LOCATED ON/IN IFAS ZONE NO.2 SHALL BE ROUTED ON HAND RAILS, UNDER WALKWAYS OR BY OTHER MEANS SO AS NOT TO OBSTRUCT TRAVEL OR CREATE TRIPPING HAZARDS.
6. SEE PIPING & INSTRUMENTATION DIAGRAM SHEETS FOR INSTRUMENT MOUNTING DETAILS.
7. EQUIPMENT AND INSTRUMENT LOCATIONS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE ACTUAL LOCATION WITH MECHANICAL DRAWINGS AND FIELD VERIFY ACTUAL LOCATION.
8. SEE SHEET E-018 FOR RECEPTACLE HOME RUN REQUIREMENTS ON CONDUCT AND CONDUCTOR SIZE.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.1

POWER PLAN

FILE NO. 23374.51633- E302

DATE SEPT. 23, 2015

E-302

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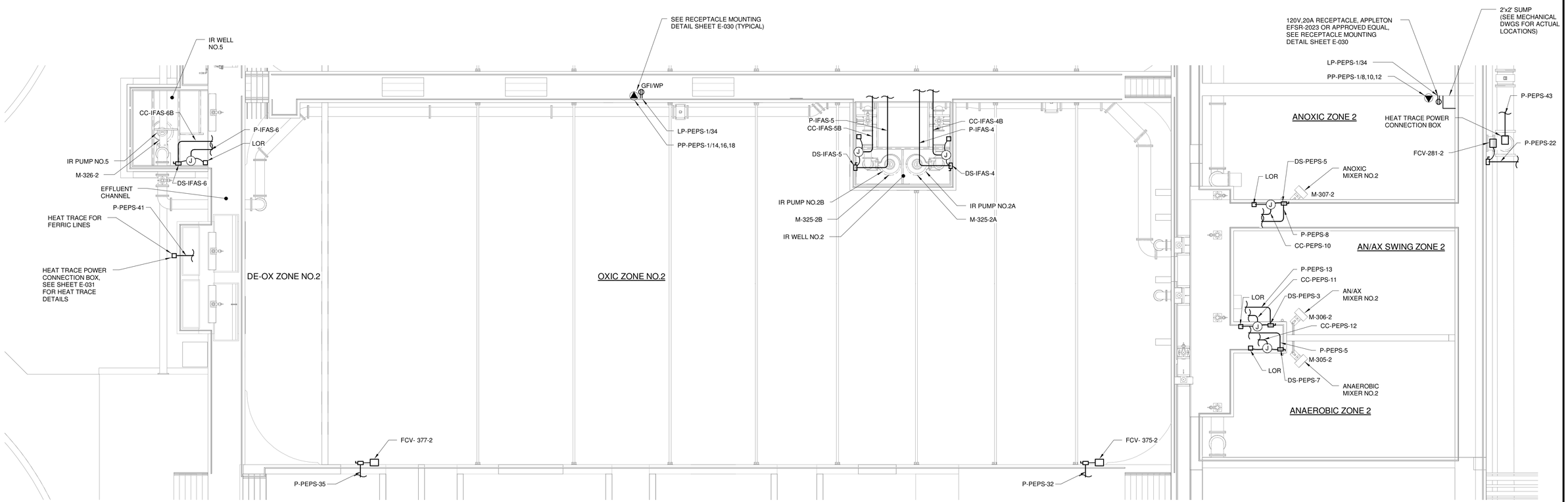

TANK NO.2 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL ELECTRICAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
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6. SEE PIPING & INSTRUMENTATION DIAGRAM SHEETS FOR INSTRUMENT MOUNTING DETAILS.
7. EQUIPMENT AND INSTRUMENT LOCATIONS SHOWN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE ACTUAL LOCATION WITH MECHANICAL DRAWINGS AND FIELD VERIFY ACTUAL LOCATION.
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AREA CLASSIFICATION:
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IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.2

POWER PLAN

FILE NO. 23374.51633- E303

DATE SEPT. 23, 2015

E-303

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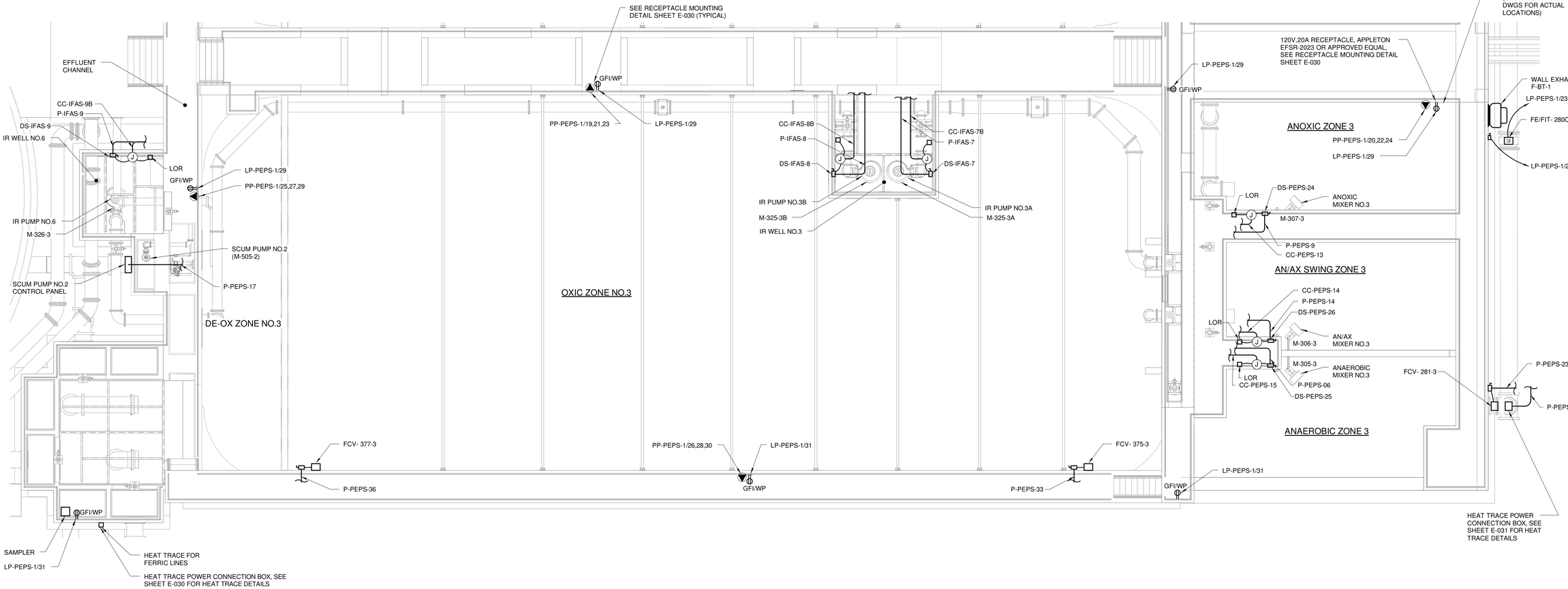

TANK NO.3 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL ELECTRICAL NOTES:

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DESIGNED BY	JEC			
CHECKED BY	RGH			
DRAWN BY	WGF			
NO.	DATE	REVISION		INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW		DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.3

POWER PLAN

FILE NO. 23374.51633- E304

DATE SEPT. 23, 2015

E-304

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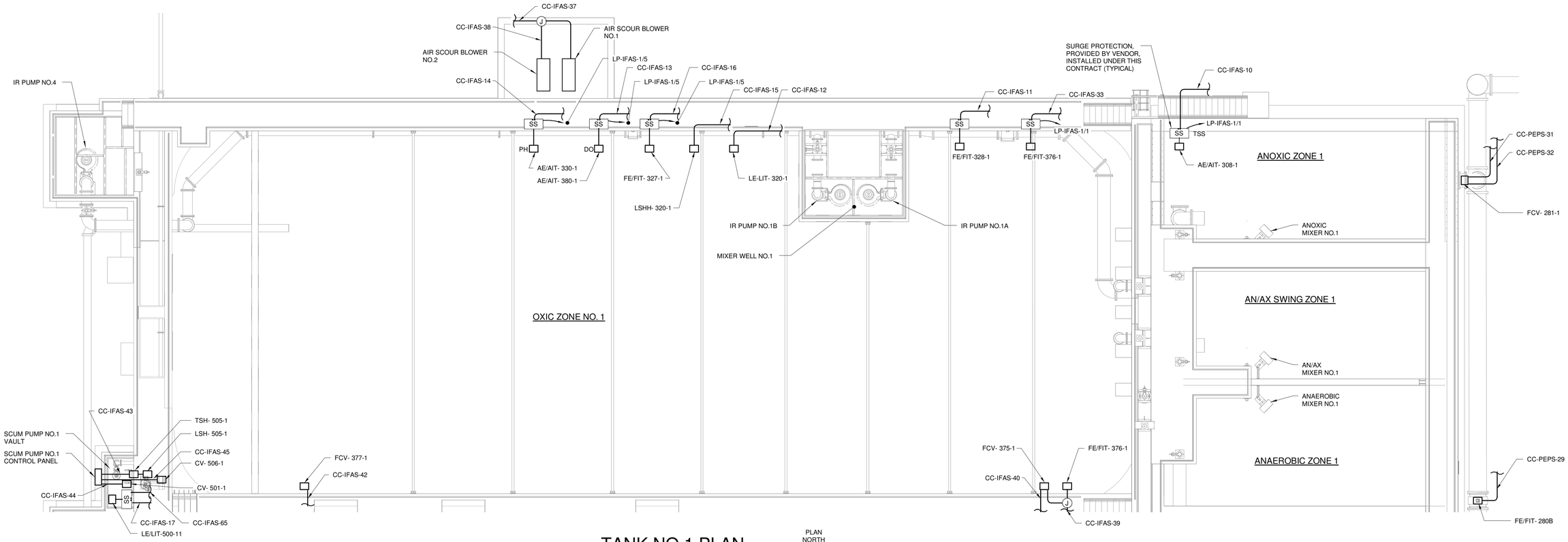

TANK NO.1 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL NOTES:

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3. SEE INSTRUMENTATION SHEETS FOR INSTRUMENT MOUNTING DETAILS.
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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.1

CONTROL PLAN

FILE NO. 23374.51633- E305

DATE SEPT. 23, 2015

E-305

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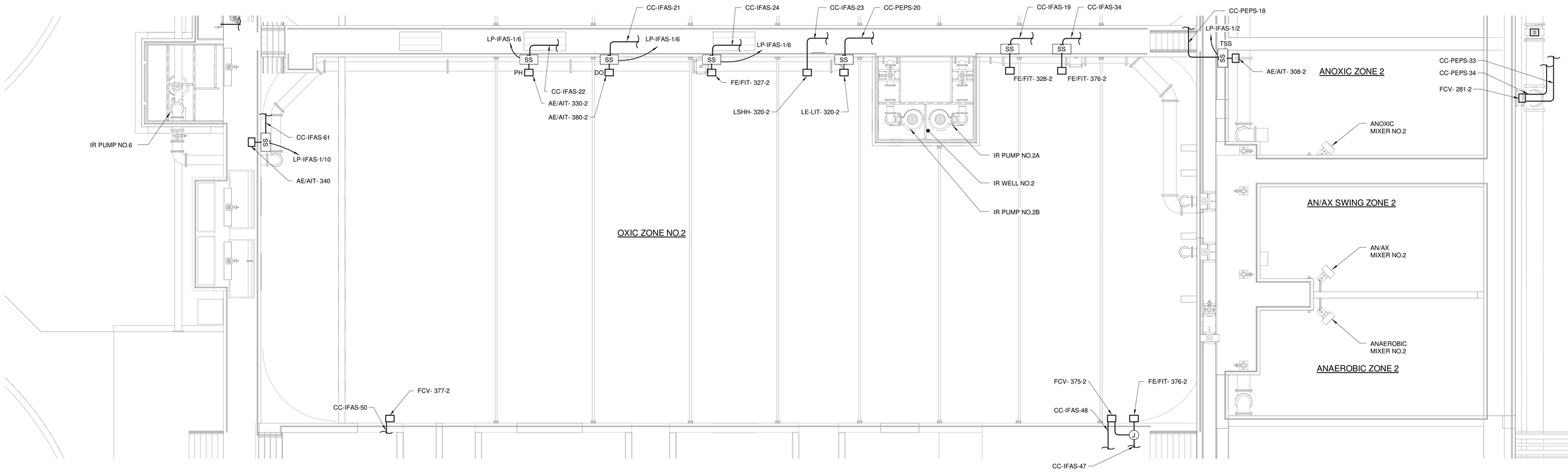

TANK NO.2 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL NOTES:

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.2

CONTROL PLAN

FILE NO. 23374.51633- E306

DATE SEPT. 23, 2015

E-306

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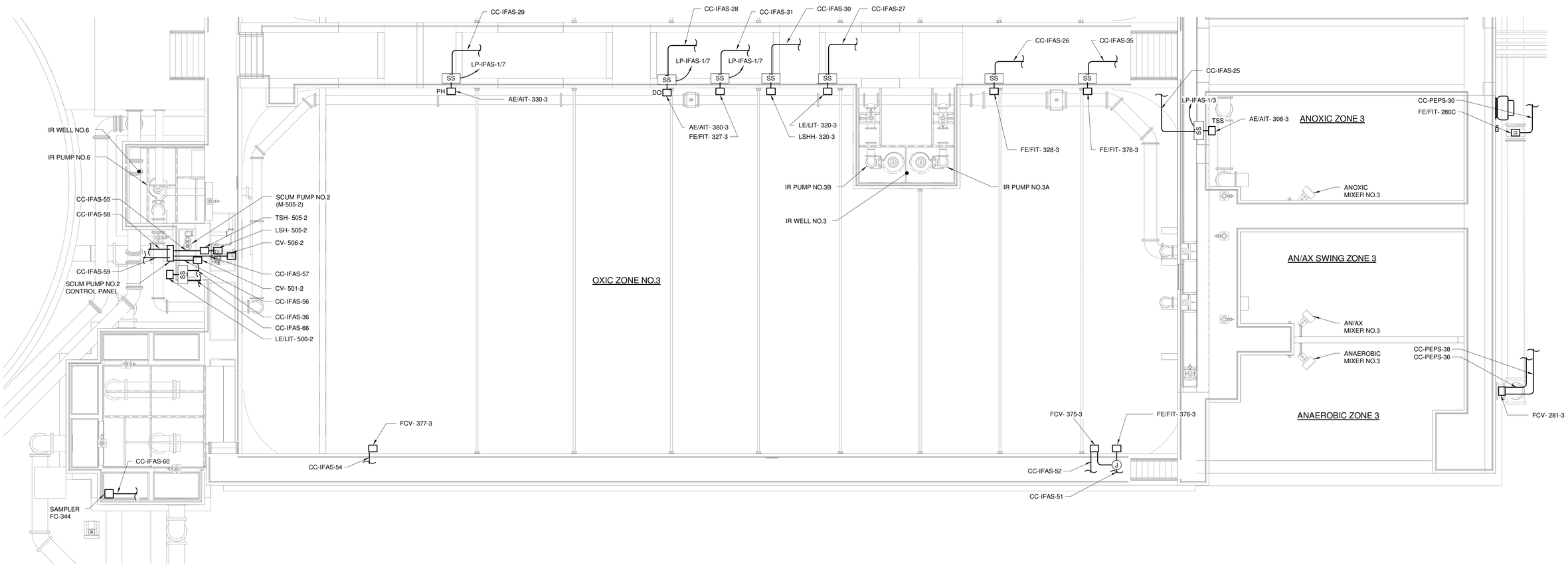

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TANK NO.3 PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

AREA CLASSIFICATION:
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	0	03/19/2015	ISSUED FOR OEPA REVIEW	DL
	NO.	DATE	REVISION	INT.

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANK NO.3

CONTROL PLAN

FILE NO. 23374.51633- E307

DATE SEPT. 23, 2015

E-307

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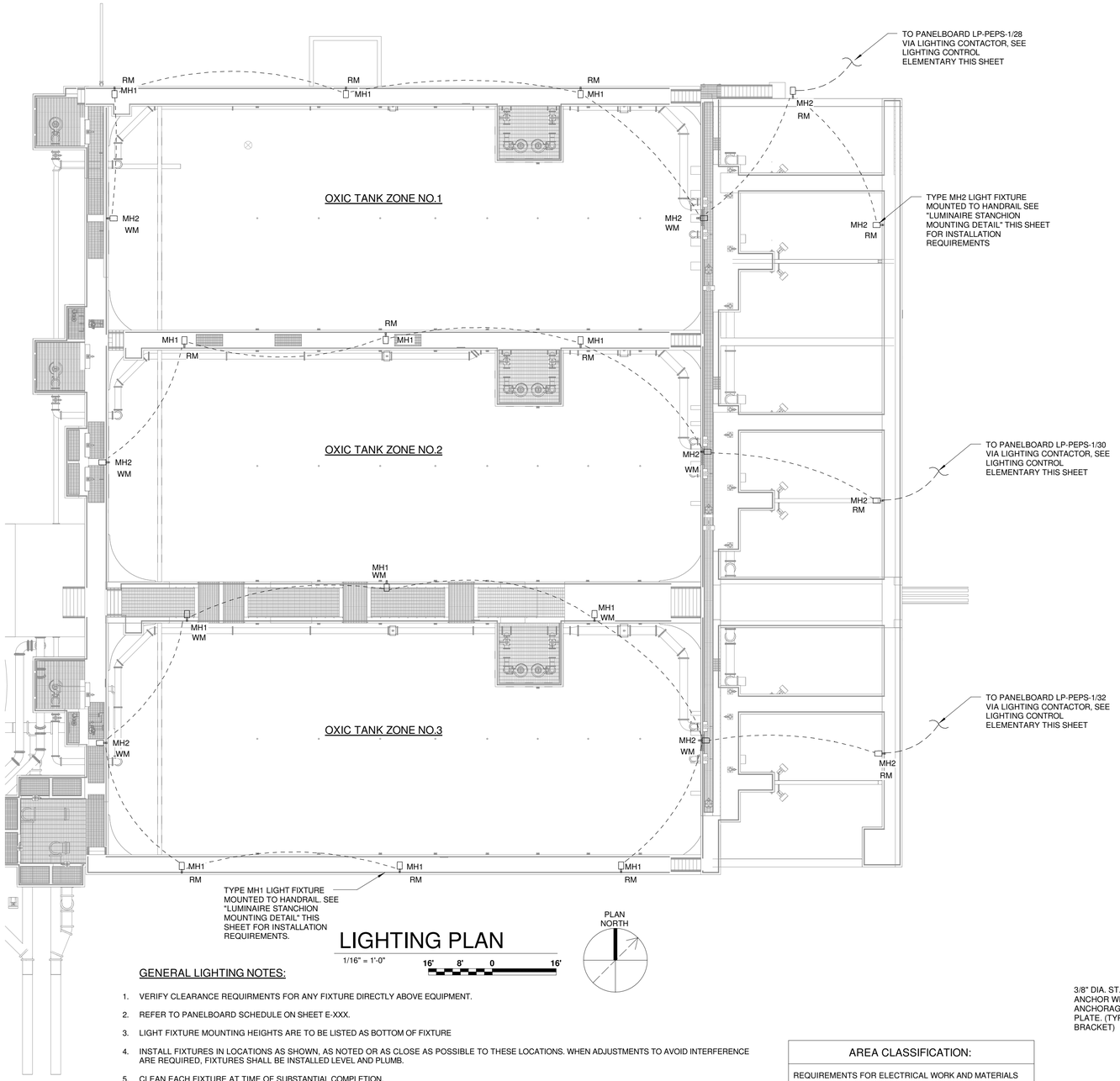


LIGHTING PLAN

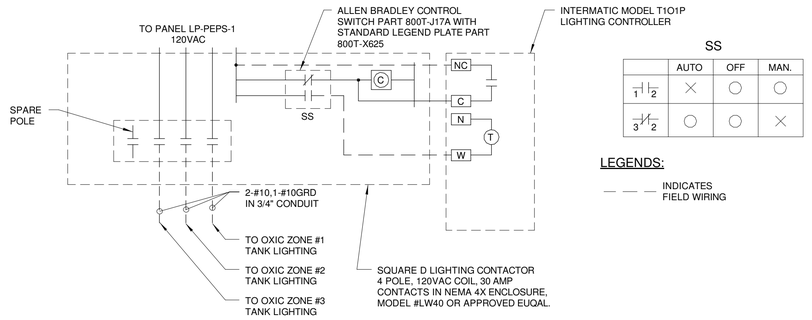
1/16" = 1'-0"

16' 8' 0 16'

GENERAL LIGHTING NOTES:

1. VERIFY CLEARANCE REQUIRMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT.
2. REFER TO PANELBOARD SCHEDULE ON SHEET E-XXX.
3. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE
4. INSTALL FIXTURES IN LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
5. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
6. REPLACE AT TIME OF SUBSTANTIAL COMPLETEION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM SPARE LAMPS BEING PROVIDED.
7. OPREATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.



SS

	AUTO	OFF	MAN.
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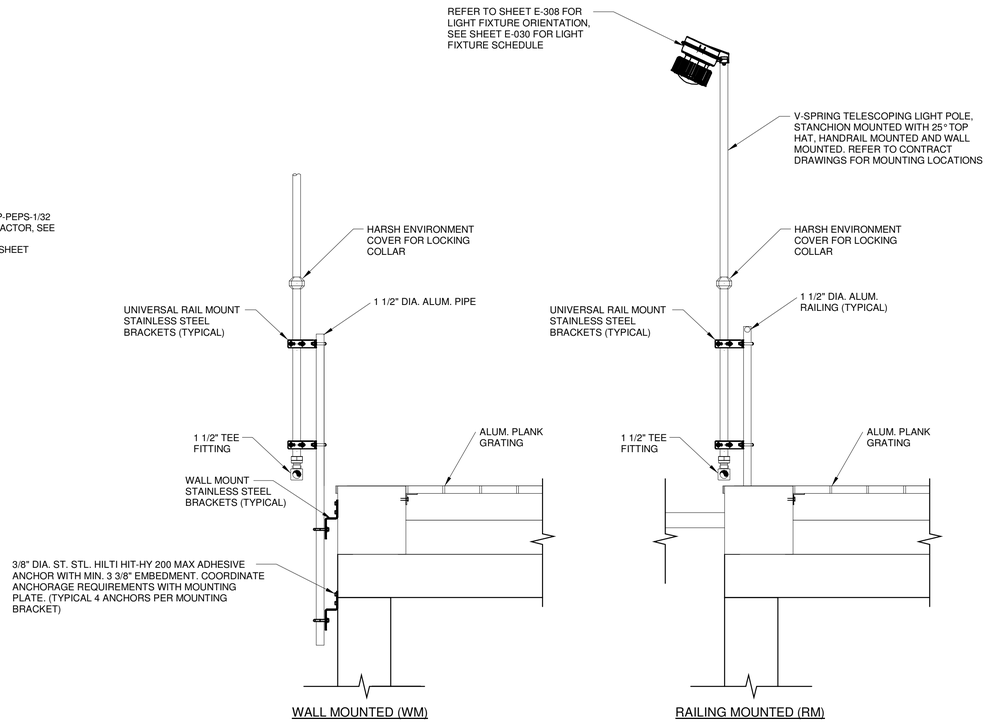
3 2	○	○	X

LEGENDS:

— — — INDICATES FIELD WIRING

3 LIGHTING CONTROL ELEMENTARY

NOT TO SCALE



2 LUMINAIRE STANCHION MOUNTING DETAIL

NOT TO SCALE

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
BIOLOGICAL REACTOR TANKS
IFAS ZONE NO.1,2 & 3 LIGHTING PLAN

FILE NO. 23374.51633- E308
DATE SEPT. 23, 2015

E-308

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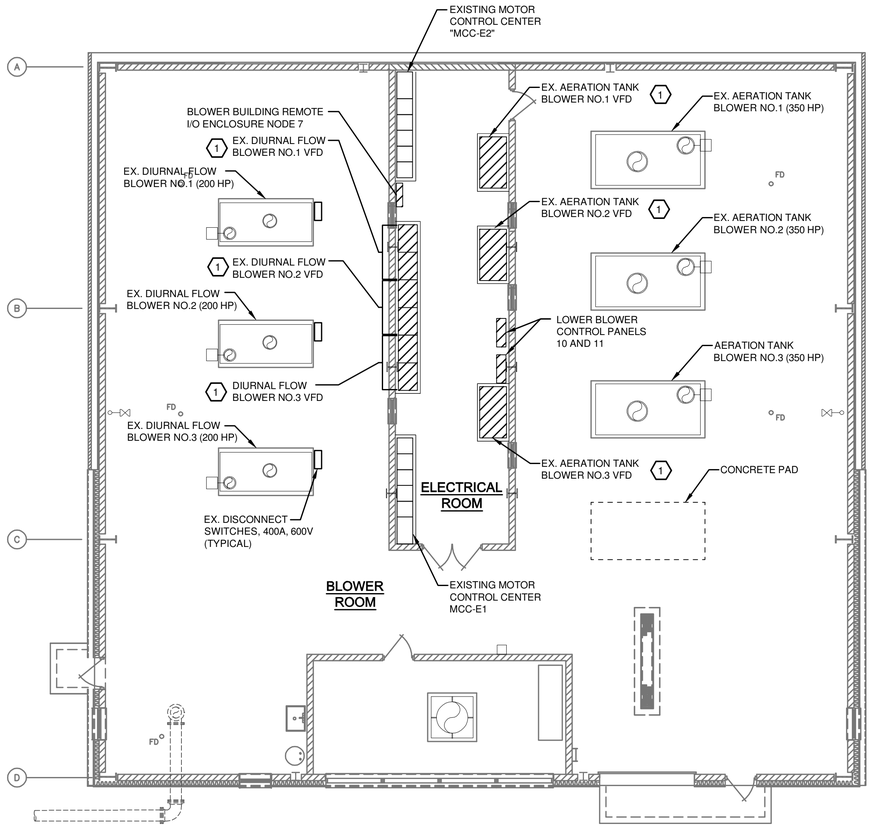


LOWER LEVEL PLAN

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

PLAN NORTH

AREA CLASSIFICATION
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES, TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.

SALVAGE ITEMS:

THE OWNER WOULD LIKE THE FOLLOWING ITEMS REMOVED AND TURNED OVER TO THE OWNER FOR REUSE IN THE FUTURE:

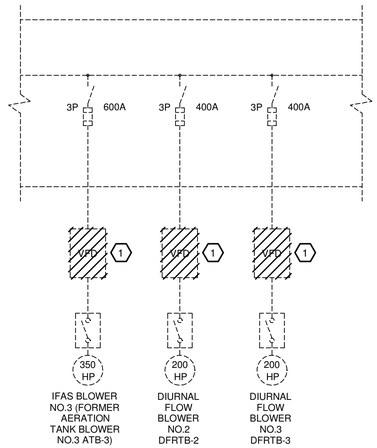
- CIRCUIT BOARDS AND FUSES FROM FIVE OF THE VFD's (COORDINATE WITH OWNER)
- EQ BASIN CONTROL CABINET
- AERATION CONTROL CABINET

KEY NOTES:

(1) EXISTING VFD'S TO BE REMOVED AND TURNED OVER TO THE OWNER. REMOVE EXISTING CONDUCTORS BACK TO RESPECTIVE MCC'S AND DISCONNECT. CONDUIT TO BE REUSED FOR INSTALLATION OF NEW CONDUCTORS FOR NEW VFD'S (SEE SHEET E-309) BEING INSTALLED.

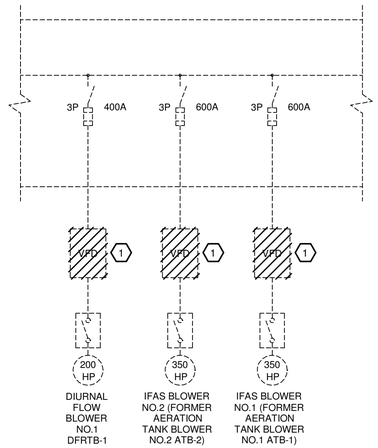
LEGEND:

TO BE REMOVED



EX. MOTOR CONTROL CENTER "MCC-E1" PARTIAL ONE-LINE

NOT TO SCALE



EX. MOTOR CONTROL CENTER "MCC-E2" PARTIAL ONE-LINE

NOT TO SCALE

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MASSILLON, OHIO

ELECTRICAL
EXISTING BLOWER BUILDING

DEMOLITION PLAN

FILE NO. 23374.51633 - E309
DATE SEPT. 23, 2015

E-309

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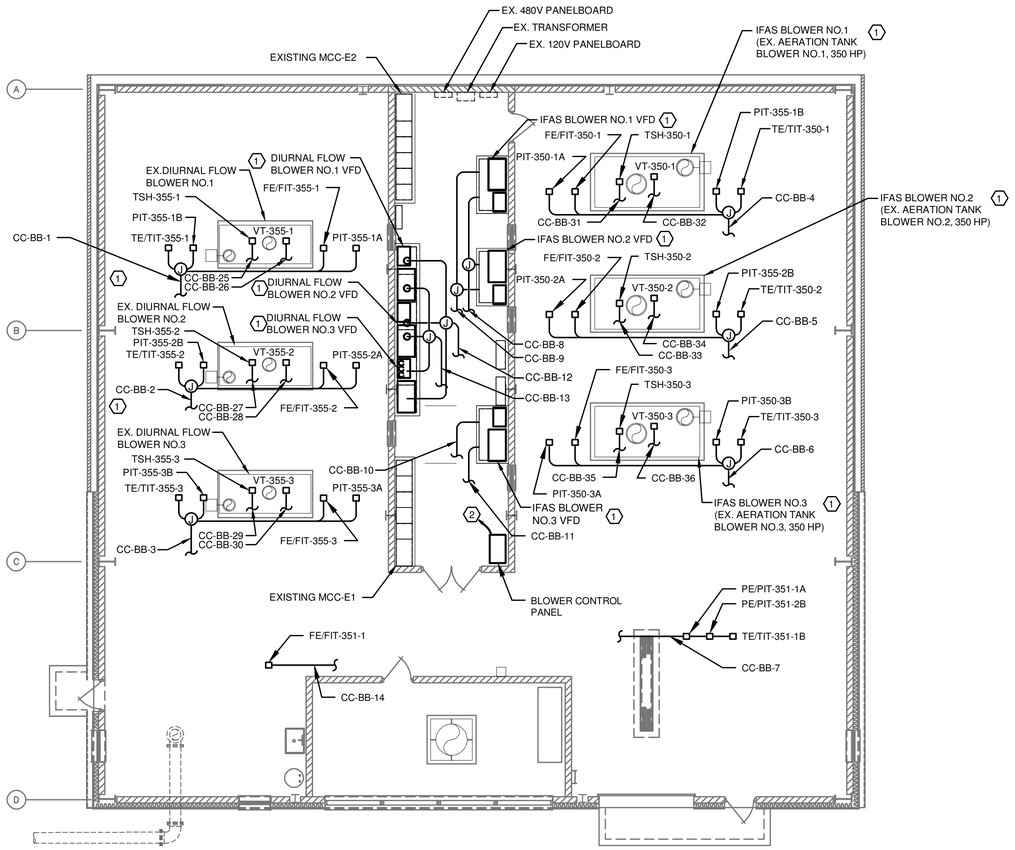


LOWER LEVEL PLAN

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

PLAN NORTH

AREA CLASSIFICATION

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION

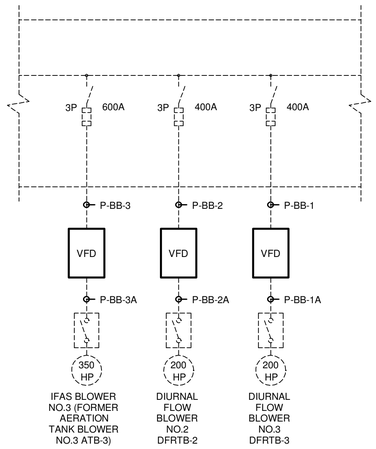
GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT AND WIRE SCHEDULES SHEETS E-024 FOR POWER AND CONTROL WIRING REQUIREMENTS.

KEY NOTES:

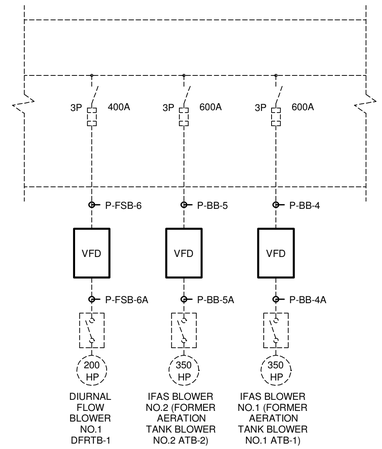
(1) REUSE EXISTING CONDUIT, PRIOR TO INSTALLING NEW CONDUCTOR, CLEAN AND SWAB CONDUIT OF ANY DIRT OR DEBRIS. SEE POWER CONDUIT SCHEDULE AND CONTROL CONDUIT SCHEDULE FOR CONDUCTOR SIZE AND QUANTITIES.

(2) UTILIZE EXISTING SPARE 20A, 1P CIRCUIT BREAKER FOR POWER TO BLOWER CONTROL PANEL. AT COMPLETION OF PROJECT PROVIDE A TYPE WRITTEN UPDATED PANEL DIRECTORY.



EX. MOTOR CONTROL CENTER "MCC-E1" PARTIAL ONE-LINE

NOT TO SCALE



EX. MOTOR CONTROL CENTER "MCC-E2" PARTIAL ONE-LINE

NOT TO SCALE

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
EXISTING BLOWER BUILDING

INSTALL PLAN

FILE NO. 23374.51633 - E310
DATE SEPT. 23, 2015

E-310

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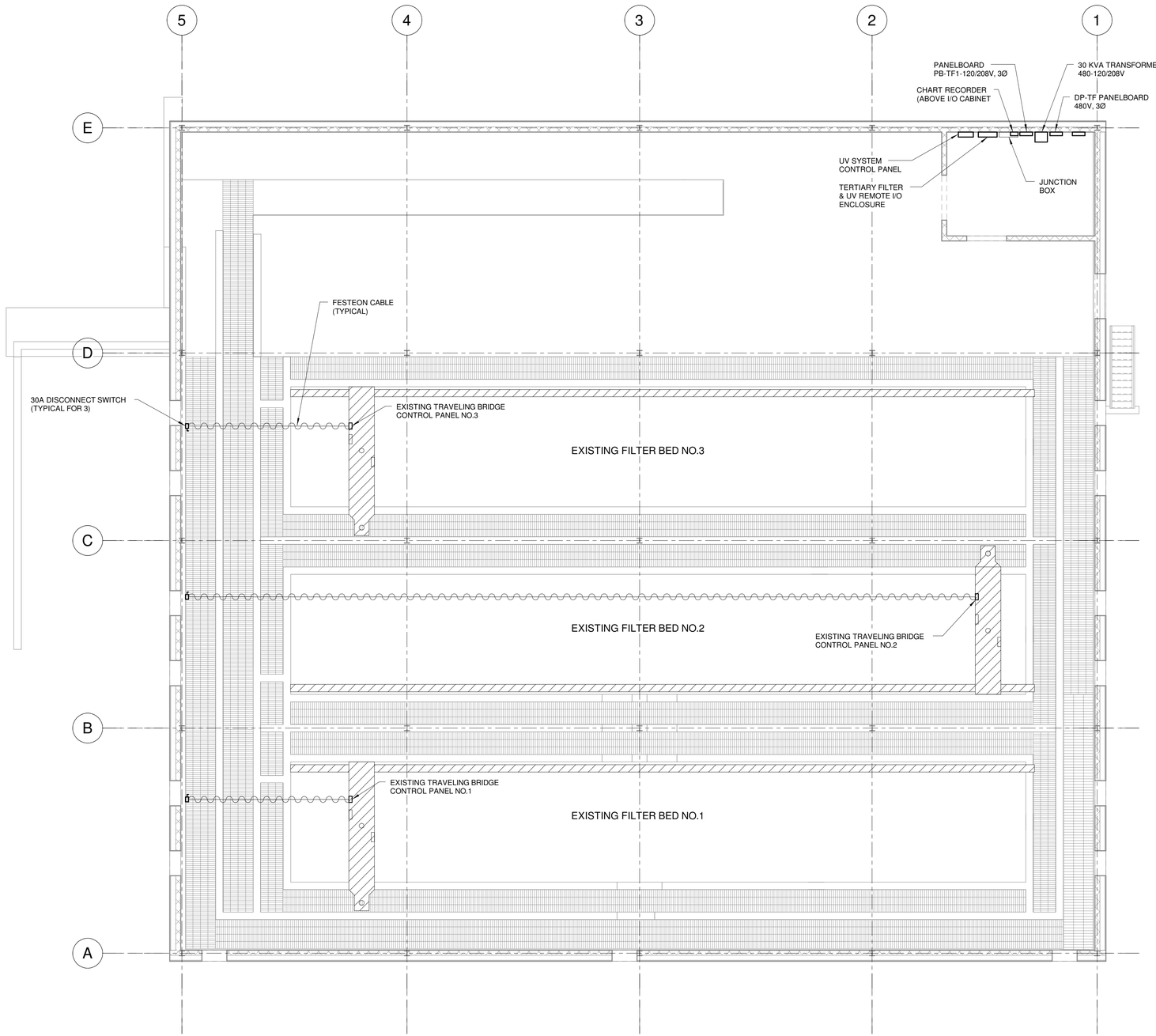

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.
7. COORDINATE ELECTRICAL REMOVALS WITH REMOVAL OF EQUIPMENT BY OTHER CONTRACTS TO MAINTAIN EQUIPMENT AND SYSTEMS IN OPERATION UNTIL THEIR DECOMMISSIONING.

DEMOLITION PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF	DL
DESIGNED BY	JEC
CHECKED BY	RGH
DRAWN BY	WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FIR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
TERTIARY FILTER BUILDING

DEMOLITION PLAN

FILE NO. 23374.51633- E501

DATE SEPT. 23, 2015

E-501

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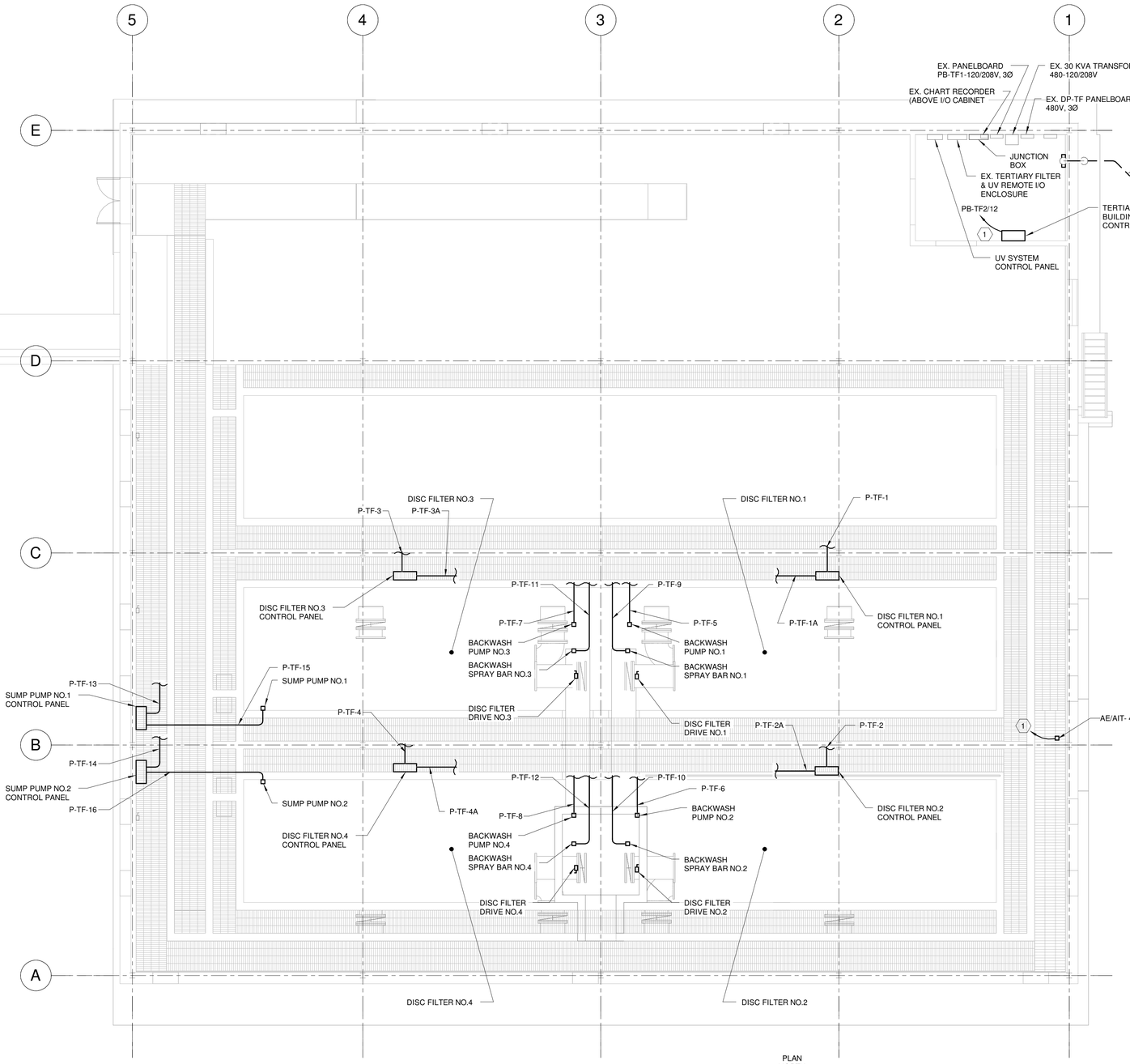

KEY NOTES:

1. UTILIZE EXISTING SPARE 20A/1P CIRCUIT BREAKER AT EXISTING PANELBOARD PB-TF2. AT COMPLETION OF PROJECT A TYPE WRITTEN UPDATED PANELBOARD DIRECTORY

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.
7. COORDINATE ELECTRICAL REMOVALS WITH REMOVAL OF EQUIPMENT BY OTHER CONTRACTS TO MAINTAIN EQUIPMENT AND SYSTEMS IN OPERATION UNTIL THEIR DECOMMISSIONING.

POWER PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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CHECKED BY	RGH
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NO.	DATE	REVISION	INT.
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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
TERTIARY FILTER BUILDING

POWER PLAN

FILE NO. 23374.51633- E502

DATE SEPT. 23, 2015

E-502

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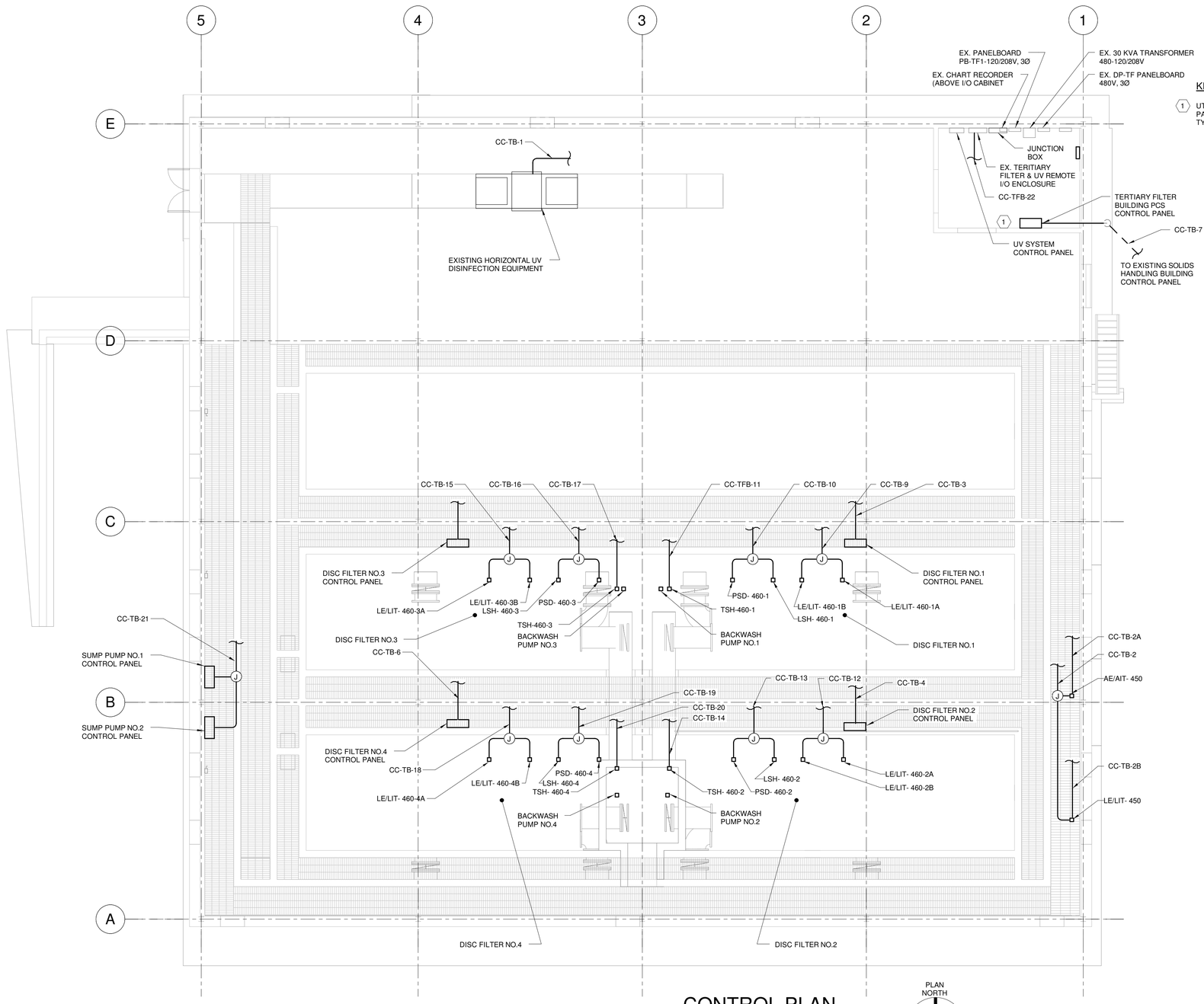

KEY NOTES:

1. UTILIZE EXISTING SPARE 20A/1P CIRCUIT BREAKER AT EXISTING PANELBOARD PB-TF2. AT COMPLETION OF PROJECT PROVIDE A TYPE WRITTEN UPDATED PANELBOARD DIRECTORY

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. WHERE TRENCHING FOR ELECTRICAL IS REQUIRED, VERIFY EXISTENCE OF UNDERGROUND OBSTRUCTIONS PRIOR TO EXCAVATION.
4. VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
5. ALL SPLICES IN UNDERGROUND CONDUCTORS (I.E. PULLBOXES AND MANHOLES) SHALL BE WATERPROOF AND SUBMERSIBLE, THOMAS & BETTS FLOOD-AEAL IN-LINE COMPRESSION SPLICE KITS.
6. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
7. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-025, FOR CONTROL WIRING REQUIREMENTS
8. WHERE PRACTICAL CONTRACTOR MAY COMBINE CIRCUITS INTO ONE CONDUIT (ANALOG SIGNALS AND DISCRETE SIGNALS MUST BE IN SEPARATE CONDUITS). CONTRACTOR IS RESPONSIBLE FOR FILL REQUIREMENTS IN ACCORDANCE WITH ALL APPLICABLE CODES OF NEC.
9. SEE INSTRUMENT SHEETS FOR INSTRUMENT MOUNTING DETAILS.
10. INSTRUMENT LOCATIONS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL COORDINATE ACTUAL LOCATION WITH MECHANICAL DRAWINGS AND FIELD VERIFY ACTUAL LOCATIONS.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

CONTROL PLAN

1/8" = 1'-0"

8' 4' 0 8'

PLAN NORTH

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
TERTIARY FILTER BUILDING

CONTROL PLAN

FILE NO. 23374.51633- E503

DATE SEPT. 23, 2015

E-503

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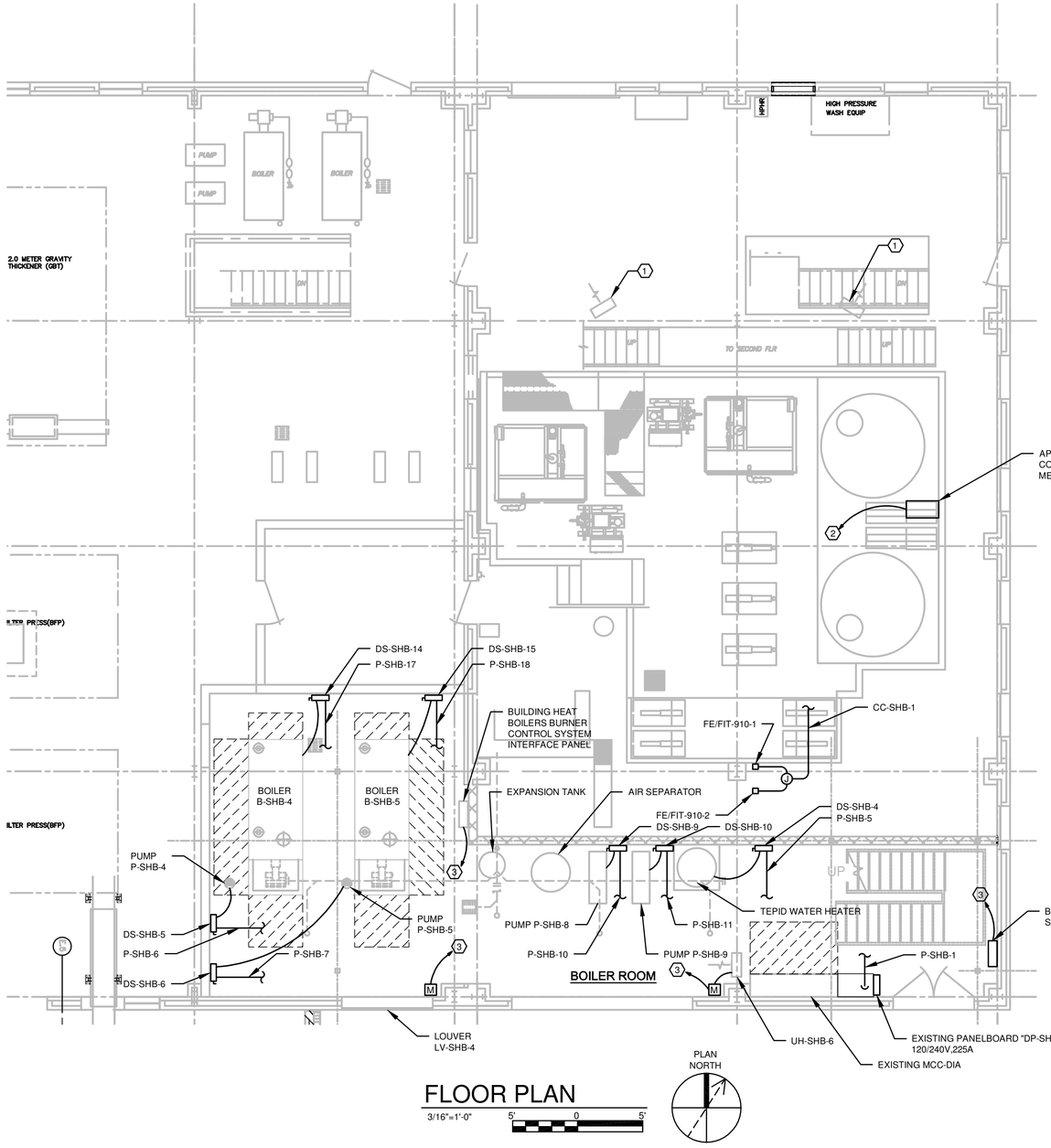

FLOOR PLAN

3/16"=1'-0"

5' 0 5'

KEYED NOTED:

1. DISCONNECT EXISTING UNIT HEATERS AND RECONENCT NEW UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTORS. PROVIDE AND INSTALL NEMA 7 MANUAL MOTOR STARTERS.
2. UTILIZE EXISTING SPACE IN EXISTING 120/240V PANEL BOARD "DP-SH" AND PROVIDE AND INSTALL A 20A, 2 POLE CIRCUIT BREAKER FOR POWER TO NEW FERRIC FEED PUMP. CIRCUIT BREAKER SHALL BE COMPATIBLE WITH EXISTING PANELBOARD.
3. UTILIZE EXISTING SPARE CIRCUIT BREAKER LOCATED IN PANELBOARD "DP-SH". AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPE WRITTEN PANEL DIRECTORY.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SOLIDS HANDLING BUILDING

FIRST FLOOR POWER PLAN

FILE NO. 23374.51633 - E601
DATE SEPT. 23, 2015

E-601

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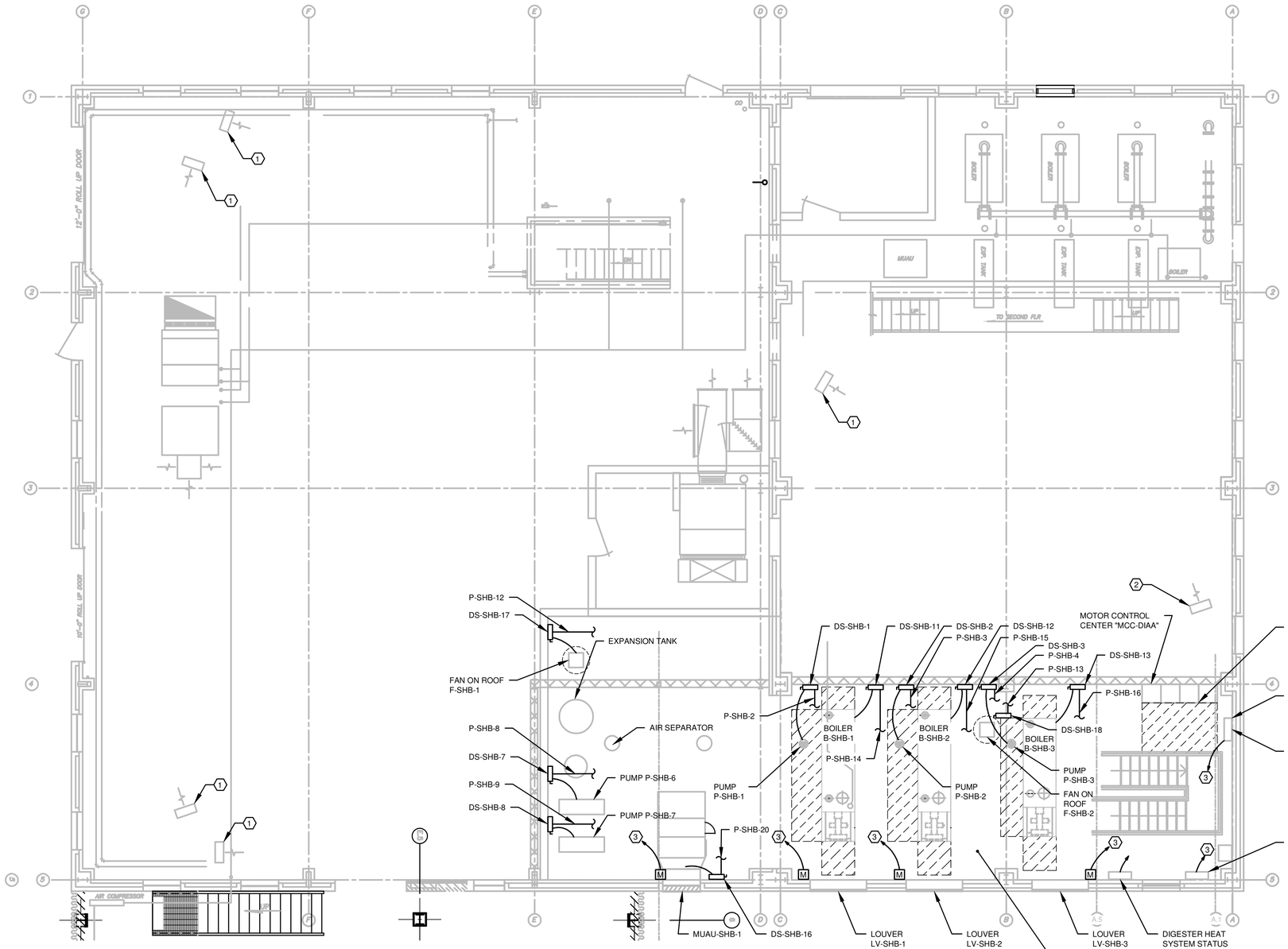

KEYED NOTED:

1. DISCONNECT EXISTING UNIT HEATERS AND RECONNECT NEW UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTORS. PROVIDE AND INSTALL NEMA 7 MANUAL MOTOR STARTERS.
2. DISCONNECT EXISTING UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTOR. EXTEND CIRCUIT AS NECESSARY FOR POWER CONNECTION TO NEW UNIT HEATER. CONDUIT AND CONDUCTOR TO MATCH EXISTING. PROVIDE AND INSTALL NEMA 7 MANUAL MOTOR STARTER.
3. UTILIZE EXISTING SPARE CIRCUIT BREAKER LOCATED IN PANELBOARD "DP-SH". AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPE WRITTEN PANEL DIRECTORY. (MAXIMUM LOAD PER CIRCUIT BREAKER IS 10 AMPS)

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

POWER PLAN

3/16"=1'-0" 5' 0 5'

PLAN NORTH

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SOLIDS HANDLING BUILDING

SECOND FLOOR POWER PLAN

FILE NO. 23374.51633 - E602
DATE SEPT. 23, 2015

E-602

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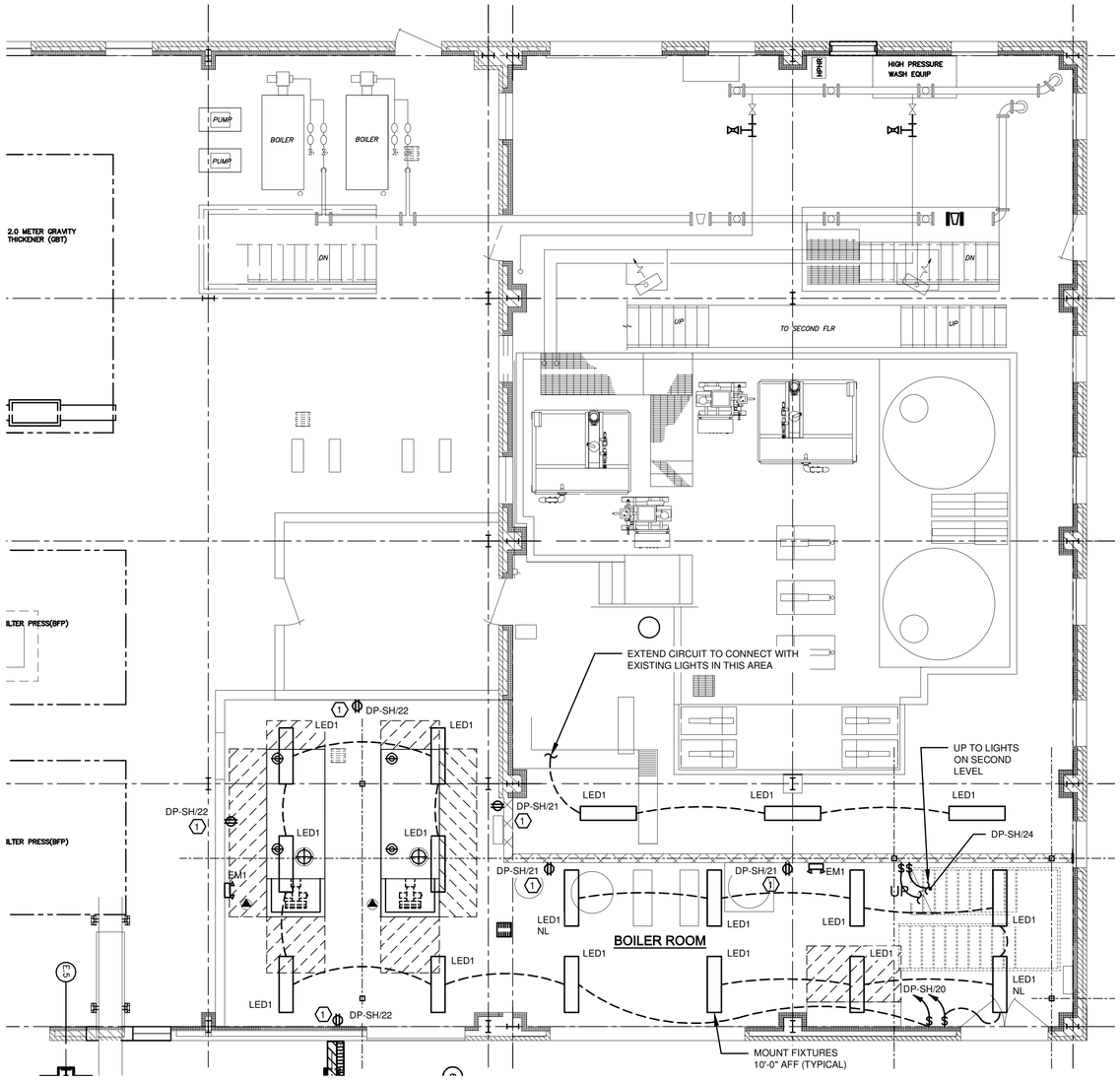


LIGHTING PLAN

3/16"=1'-0" 5' 0 5'

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
4. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
5. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
6. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
7. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED
8. LEVEL AND PLUMB.
9. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
10. REPLACE AT THE TIME OF SUBSTANTIAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.
11. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

KEYED NOTED:

(1) UTILIZE EXISTING SPARE CIRCUIT BREAKER CIRCUIT AS DESIGNATED AT DEVICE LOCATED IN PANELBOARD "DP-SH". AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPE WRITTEN PANEL DIRECTORY.

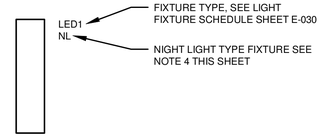
DEMOLITION NOTES:

1. PROVIDE REMOVAL OF (4) PENDANT MOUNTED EXISTING LED FIXTURES AND (2) WALL PACK TYPE FIXTURES WITHIN NEW BOILER ROOM AREA. FIXTURES SHALL BE TURNED OVER TO OWNER. REMOVE ALL CONDUIT AND WIRING ASSOCIATED WITH REMOVED LIGHT FIXTURES BACK TO POWER SOURCE AND LABEL CIRCUIT BREAKERS AS SPARE. AT COMPLETION OF PROJECT PROVIDE A TYPE WRITTEN UPDATED PANEL DIRECTORY.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

LEGEND:



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IN CHARGE OF DL
DESIGNED BY JEC
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NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/15/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
O'BRIEN & GERE
220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SOLIDS HANDLING BUILDING

FIRST FLOOR LIGHTING PLAN

FILE NO. 23374.51633 - E603
DATE SEPT. 23, 2015

E-603

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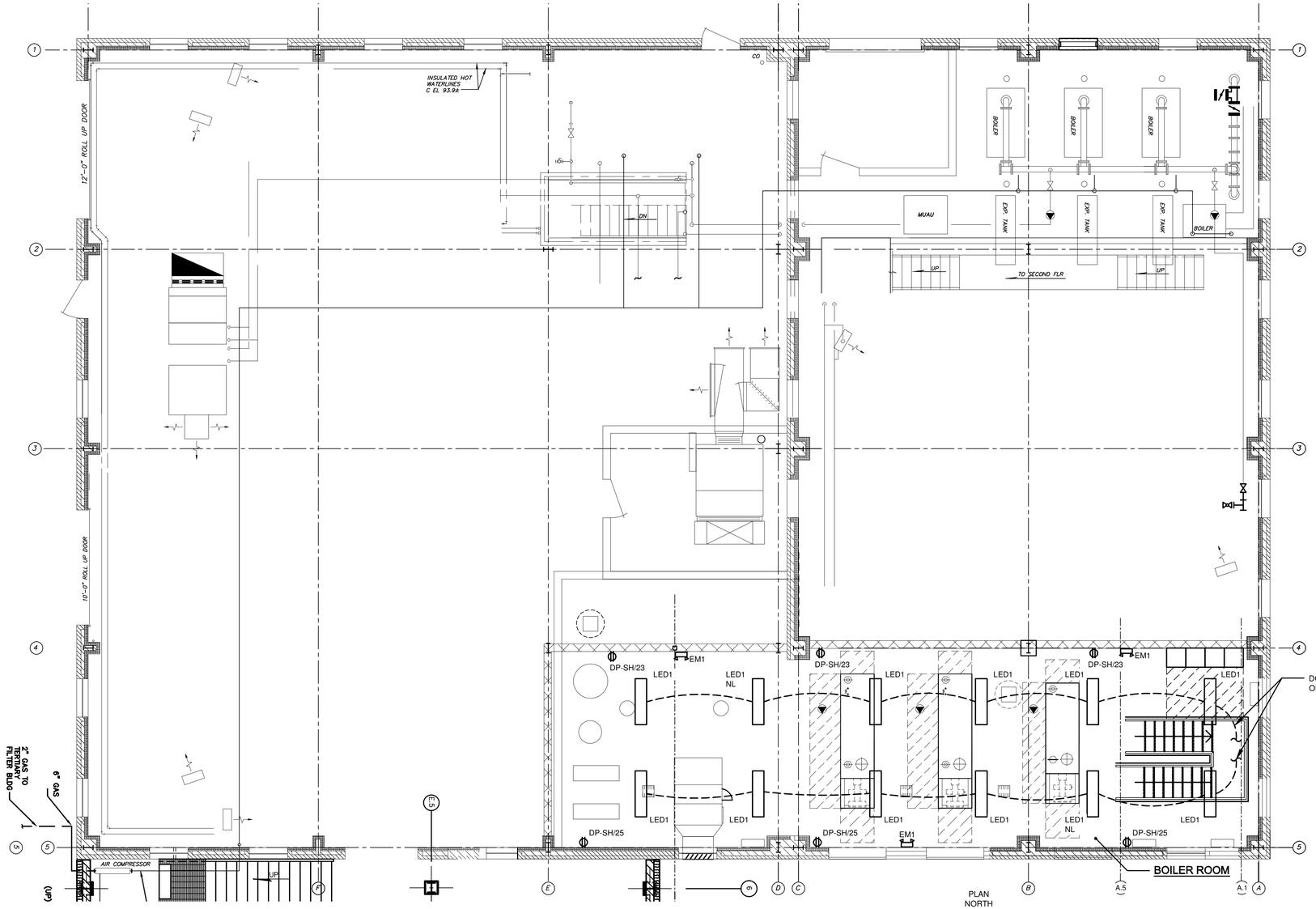

LIGHTING PLAN

3/16""=1'-0" 5' 0 5'

PLAN NORTH

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
4. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
5. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
6. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
7. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
8. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
9. REPLACE AT THE TIME OF SUBSTANTIONAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.
10. OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

KEYED NOTED:

(1) UTILIZE EXISTING SPARE CIRCUIT BREAKER LOCATED IN PANELBOARD "DP-SH". AT COMPLETION OF PROJECT PROVIDE A UPDATED TYPE WRITTEN PANEL DIRECTORY.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

LEGEND:

LED1 / NL — FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030

NIGHT LIGHT TYPE FIXTURE SEE NOTE 4 THIS SHEET

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IN CHARGE OF DL
DESIGNED BY JEC
CHECKED BY RGH
DRAWN BY WGF

NO.	DATE	REVISION	INT.
1	09/23/2015	ISSUED FOR BID	DL
0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

CTI / O'BRIEN & GERE JOINT VENTURE
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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SOLIDS HANDLING BUILDING

2ND FLOOR LIGHTING PLAN

FILE NO. 23374.51633 - E604
DATE SEPT. 23, 2015

E-604

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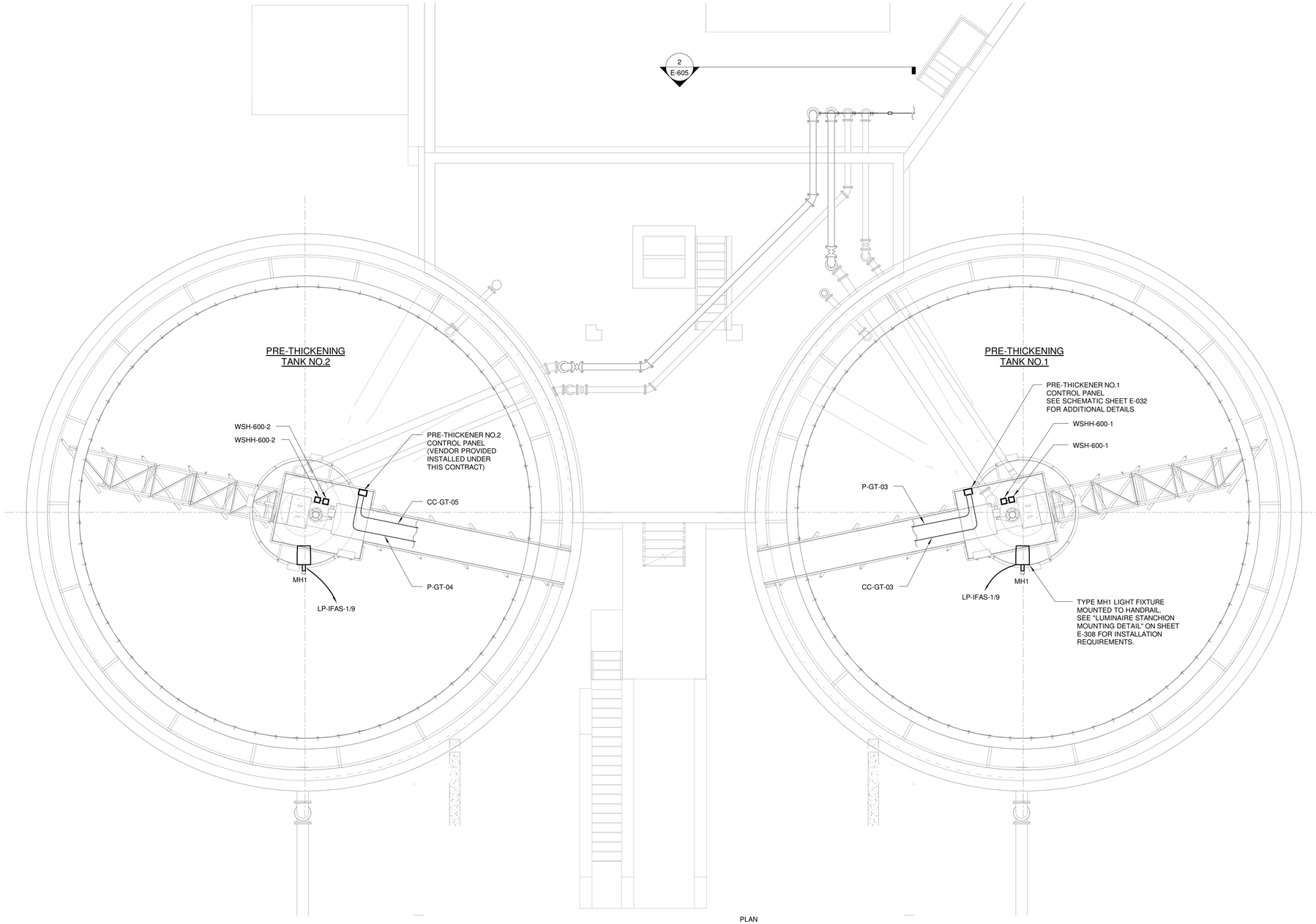
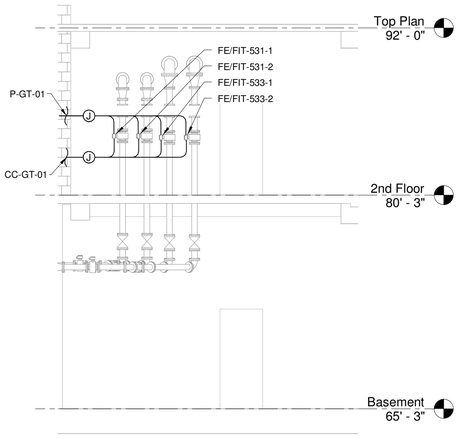


UPPER LEVEL PLAN

3/16" = 1'-0" 5' 0 5'

PLAN NORTH



2 SECTION

3/16" = 1'-0" 5' 0 5'

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26 (A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-021, E-022 AND E-026 FOR WIRING REQUIREMENTS .
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.

AREA CLASSIFICATION:

REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
PRE-THICKENERS

UPPER LEVEL

FILE NO. 23374.51633- E606

DATE SEPT. 23, 2015

E-605

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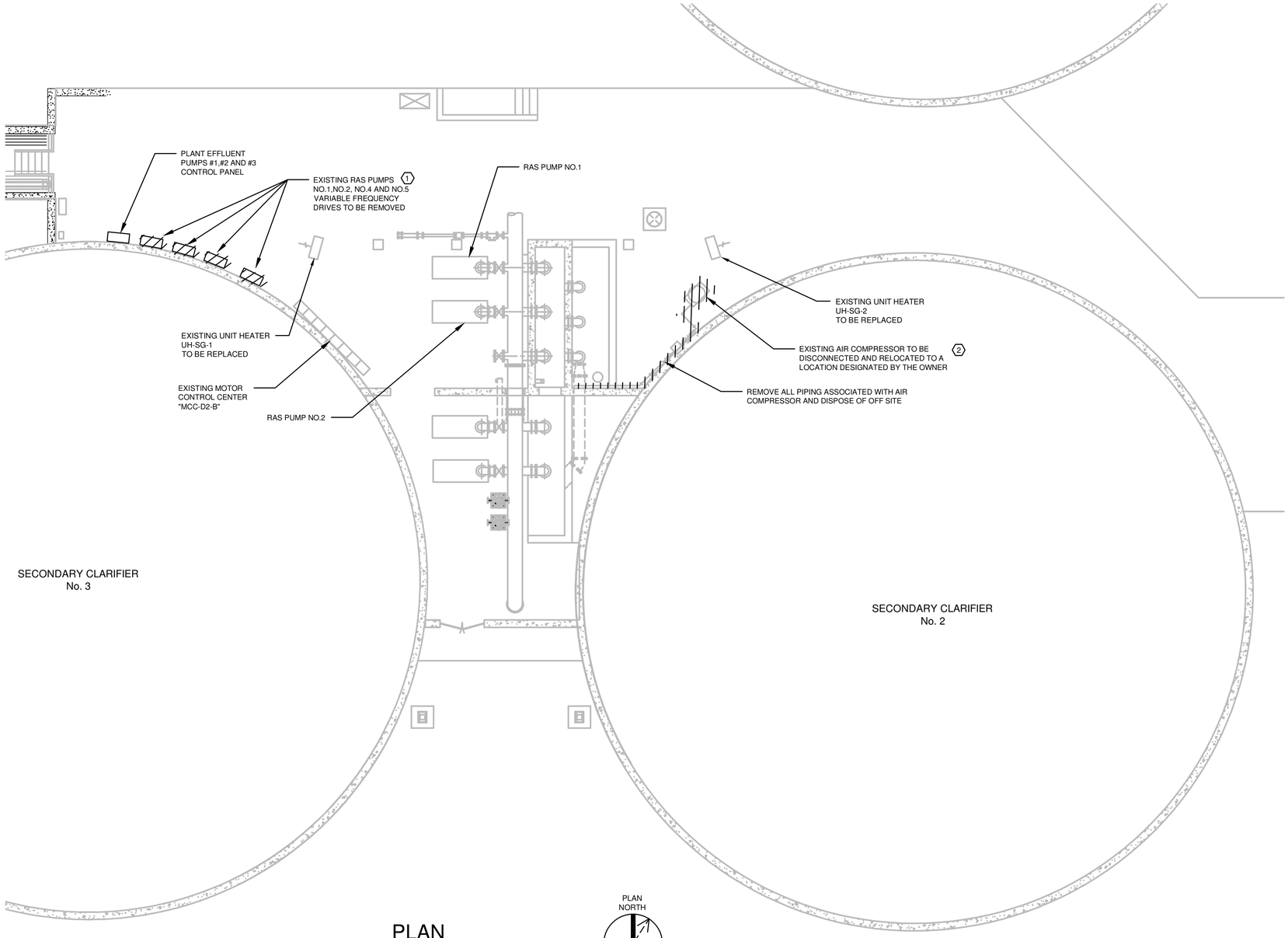

PLAN
1/8"=1'-0"
8' 4' 0 8'

PLAN
NORTH

DEMOLITION NOTES:

1. ALL STRUCTURES SHOWN ON THIS SHEET ARE EXISTING.
2. EXISTING CONDITIONS ARE TAKEN FROM FIELD OBSERVATIONS AND PRIOR DESIGN DOCUMENTS WHERE AVAILABLE AND ARE NOT GUARANTEED. PRIOR TO SUBMITTING BID, VISIT SITE TO SEE EXISTING CONDITIONS AND DIFFICULTIES THAT MAY AFFECT DEMOLITION WORK. NOT ALL DEVICES TERMINATIONS, JUNCTION BOXES AND WIRING HAVE BEEN SHOWN.
3. WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING DEMOLITION AS A RESULT OF THE CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS, SUBJECT TO THE OWNER'S APPROVAL AND AT NO COST TO THE OWNER.
4. PROVIDE REMOVAL OF ALL EXISTING WIRING, ASSOCIATED WITH EQUIPMENT SHOWN OR NOTED FOR REMOVAL. WHERE PRACTICAL THE EXISTING CONDUIT SHALL REMAIN IN PLACE AND BE REUSED FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING CONDUIT DURING CONSTRUCTION.
5. EXISTING CONDUIT SCHEDULED FOR REUSE SHALL BE CLEANED AND SWABBED OF ANY DEBRIS PRIOR TO INSTALLING NEW CONDUCTORS.
6. REMOVED EQUIPMENT AND MATERIALS NOT DESIGNATED FOR RETURN TO THE OWNER OR FOR REINSTALLATION SHALL BE DISPOSED OF OFF SITE.
7. COORDINATE ELECTRICAL REMOVALS WITH REMOVAL OF EQUIPMENT BY OTHER CONTRACTS TO MAINTAIN EQUIPMENT AND SYSTEMS IN OPERATION UNTIL THEIR DECOMMISSIONING.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

DEMOLITION NOTES:

1. CONDUIT SERVING RAS PUMPS NO.1, NO.2, NO.4, AND NO.5 SHALL BE LEFT IN PLACE AND REUSED.
2. REMOVE CONDUIT AND CONDUCTOR FROM AIR COMPRESSOR BACK TO MOTOR CONTROL CENTER "MCC-D2-B" DISCONNECT. PROVIDE NEW CONDUIT AND WIRE FOR POWER TO RELOCATED AIR COMPRESSOR. CONDUIT TO BE PVC-COATED RIGID STEEL, SIZE TO MATCH EXISTING. CONDUCTOR SIZE TO MATCH EXISTING.

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY

DEMOLITION PLAN

FILE NO. 23374.51633 - E701
DATE SEPT. 23, 2015

E-701

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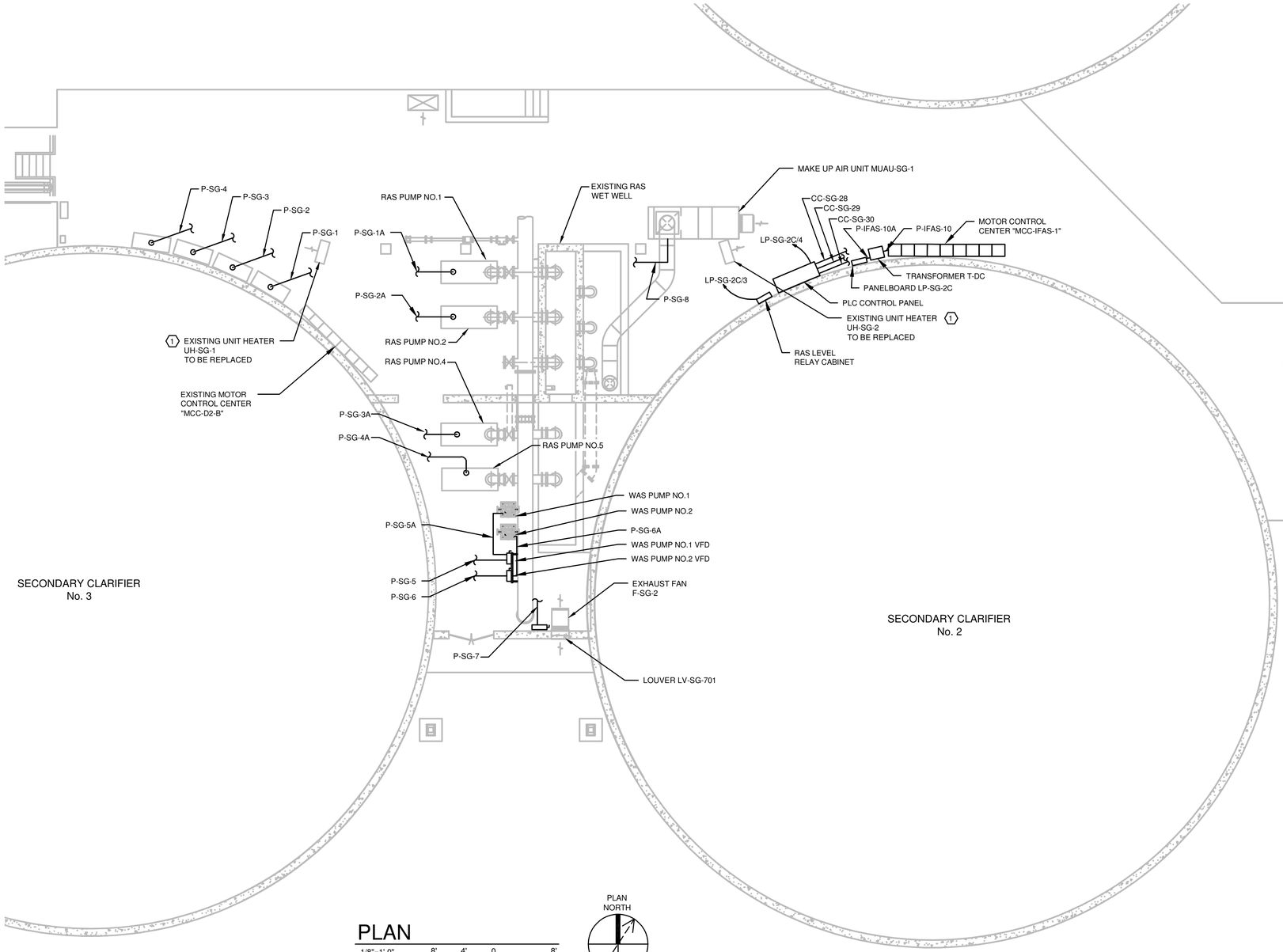

PLAN

1/8"=1'-0"

8' 4' 0 8'

PLAN NORTH

GENERAL NOTES:

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2. CONDUIT ROUTINGS SHOWN ARE SCHEMATIC ONLY, CONTRACTOR SHALL ROUTE CONDUIT BASED ON ACTUAL FIELD CONDITIONS AND IN COORDINATION WITH ALL OTHER EQUIPMENT BEING INSTALLED UNDER THIS CONTRACT.
3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-022 AND E-025, FOR POWER AND CONTROL WIRING REQUIREMENTS AND PANEL BOARD SCHEDULE LP-SG-2C ON SHEET E-019 FOR 120 VAC POWER CIRCUIT DESIGNATIONS.
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
7. SELECTED CONDUITS HAVE BEEN OMITTED FROM THE TUNNEL AREA ON THIS DRAWING FOR CLARITY. REFER TO ONE-LINE DIAGRAMS, PANEL SCHEDULES AND CONDUIT SCHEDULES ELSEWHERE IN THE DRAWINGS FOR REQUIREMENTS.

KEYED NOTED:

1 DISCONNECT EXISTING UNIT HEATERS AND RECONENCT NEW UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTORS. PROVIDE AND INSTALL NEMA 12 MANUAL MOTOR STARTERS.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY

POWER PLAN

FILE NO. 23374.51633 -E702
DATE SEPT. 23, 2015

E-702

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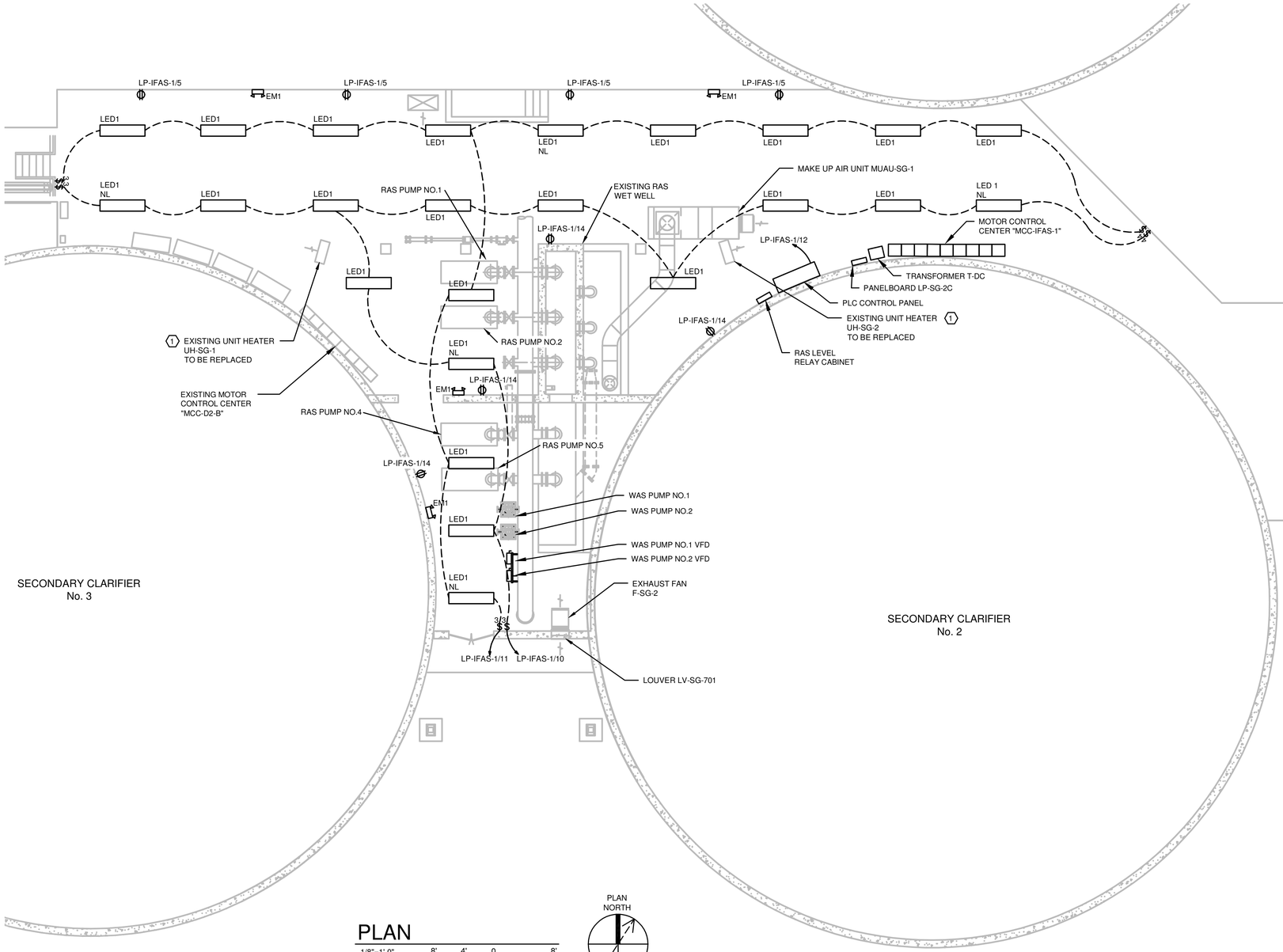

PLAN
1/8"=1'-0"
8' 4' 0 8'

PLAN NORTH

UNIT HEATER UH-SG-3

GENERAL LIGHTING NOTES:

1. PROVIDE CONDUIT SLEEVE FOR EXTERIOR LIGHTING AND DEVICES.
2. VERIFY CLEARANCE REQUIREMENTS FOR ANY FIXTURE DIRECTLY ABOVE EQUIPMENT
3. REFER TO PANELBOARD TO SCHEDULE ON DRAWING E-019
4. WALL MOUNTED EXIT SIGNS TO BE MOUNTED 8'-0" AFF AND CIRCUITED TO PANEL AS SCHEDULED.
5. NIGHT LIGHT CIRCUIT IS ON THE UN-SWITCHED CIRCUIT, WIRE THIS CIRCUIT DIRECTLY TO THE CIRCUIT BREAKER ASSIGNED.
6. EMERGENCY LIGHT IS TO BE CIRCUITED TO THE HOT LEG OF THE CIRCUIT FEEDING THE LIGHTS IN THE SAME AREA.
7. LIGHT FIXTURE MOUNTING HEIGHTS ARE TO BE LISTED AS BOTTOM OF FIXTURE.
8. INSTALL FIXTURES AT LOCATIONS AS SHOWN, AS NOTED OR AS CLOSE AS POSSIBLE TO THESE LOCATIONS. WHEN ADJUSTMENTS TO AVOID
9. INTERFERENCE ARE REQUIRED, FIXTURES SHALL BE INSTALLED LEVEL AND PLUMB.
10. CLEAN EACH FIXTURE AT TIME OF SUBSTANTIAL COMPLETION.
11. REPLACE AT THE TIME OF SUBSTANTIAL COMPLETION ANY LAMPS THAT ARE OUT, REPLACEMENT LAMPS SHALL NOT COME FROM THE SPARE LAMPS BEING PROVIDED.

OPERATE EACH FIXTURE AFTER INSTALLATION AND CONNECTION. INSPECT FOR AND REPAIR ALL IMPROPER CONNECTIONS AND OPERATION.

KEYED NOTED:

1. DISCONNECT EXISTING UNIT HEATERS AND RECONENCT NEW UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTORS. PROVIDE AND INSTALL NEMA 12 MANUAL MOTOR STARTERS.

LEGEND:

LED1 NL
- FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE SHEET E-030
- NIGHT LIGHT TYPE FIXTURE SEE NOTE 4 THIS SHEET

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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0	09/23/2015	ISSUED FOR BID	DL

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY

LIGHTING PLAN

FILE NO. 23374.51633 -E702A
DATE SEPT. 23, 2015

E-702A

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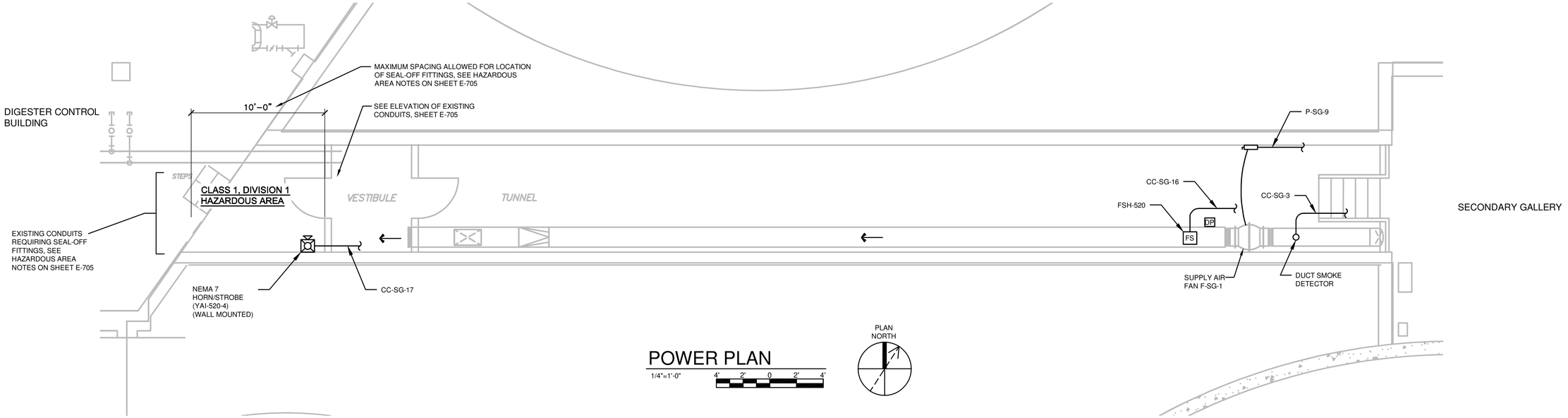
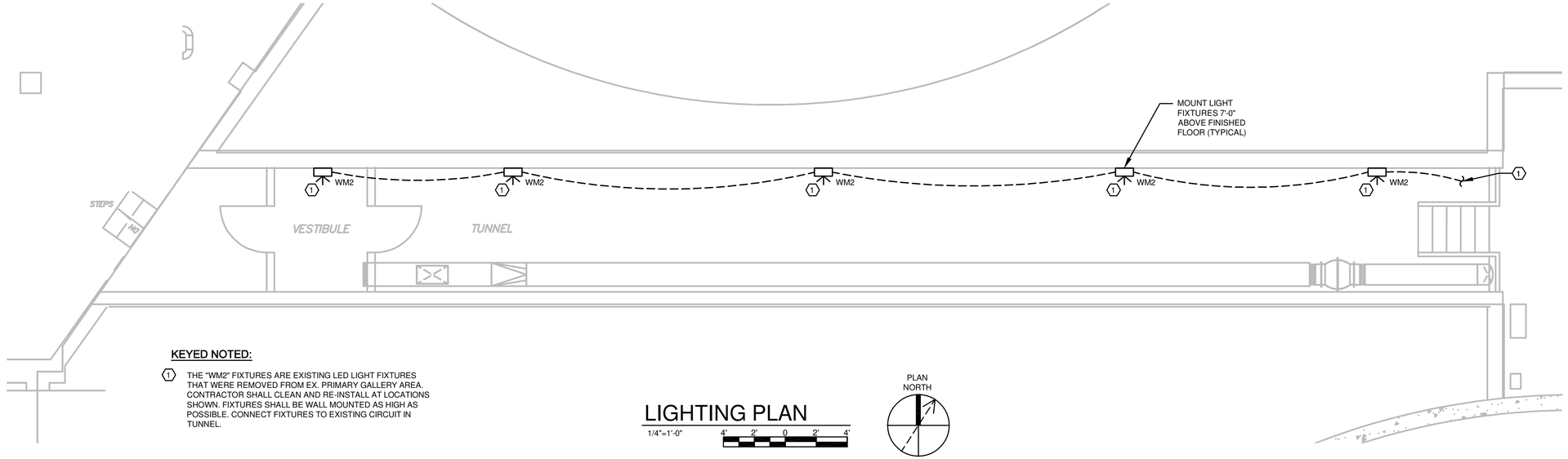


POWER PLAN

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

PLAN NORTH

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.



KEYED NOTED:

1. THE "WM2" FIXTURES ARE EXISTING LED LIGHT FIXTURES THAT WERE REMOVED FROM EX. PRIMARY GALLERY AREA. CONTRACTOR SHALL CLEAN AND RE-INSTALL AT LOCATIONS SHOWN. FIXTURES SHALL BE WALL MOUNTED AS HIGH AS POSSIBLE. CONNECT FIXTURES TO EXISTING CIRCUIT IN TUNNEL.

LIGHTING PLAN

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

PLAN NORTH

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY
TUNNEL POWER PLAN & LIGHTING PLANS

FILE NO. 23374.51633 - E703
DATE SEPT. 23, 2015

E-703

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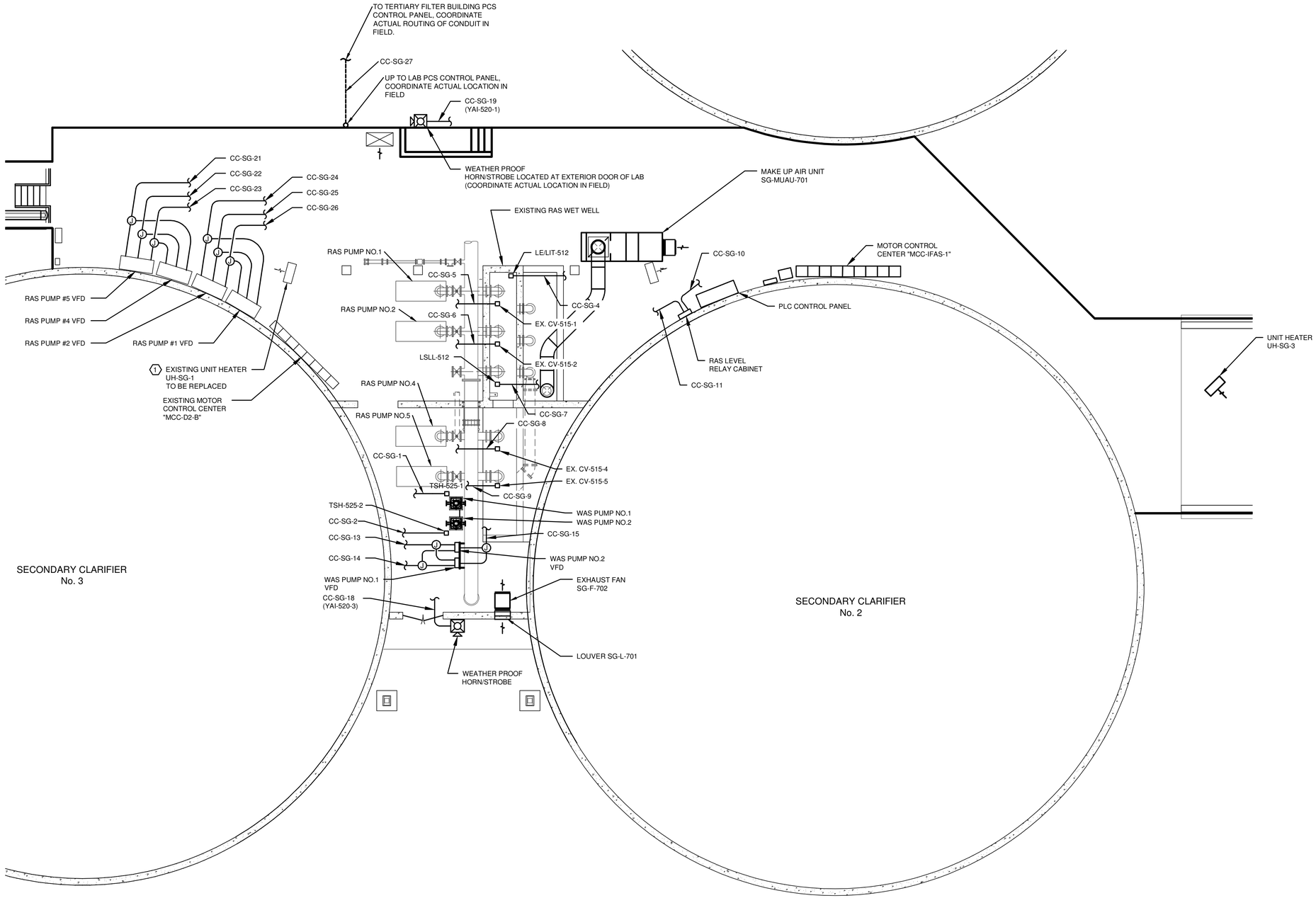

GENERAL NOTES:

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3. CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND DIMENSIONS NOT SPECIFICALLY CALLED OUT ON THE DRAWINGS OR OTHERWISE NOTED.
4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-025, FOR CONTROL WIRING REQUIREMENTS .
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
7. SELECTED CONDUITS HAVE BEEN OMITTED FROM THE TUNNEL AREA ON THIS DRAWING FOR CLARITY. REFER TO ONE-LINE DIAGRAMS, PANEL SCHEDULES AND CONDUIT SCHEDULES ELSEWHERE IN THE DRAWINGS FOR REQUIREMENTS.

KEYED NOTES:

1 DISCONNECT EXISTING UNIT HEATERS AND RECONENCT NEW UNIT HEATERS. UTILIZE EXISTING CONDUIT AND CONDUCTORS. PROVIDE AND INSTALL NEMA 12 MANUAL MOTOR STARTERS.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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

PLAN NORTH

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0	03/19/2015	ISSUED FOR OEPA REVIEW	DL

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY

CONTROL PLAN

FILE NO. 23374.51633 - E704
DATE SEPT. 23, 2015

E-704

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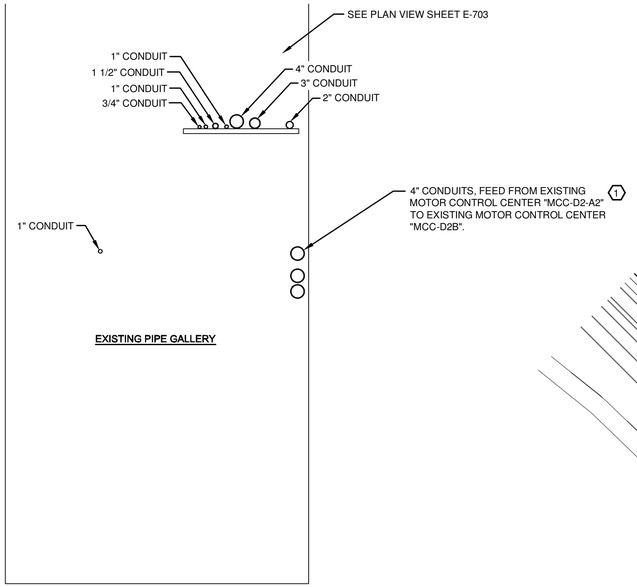
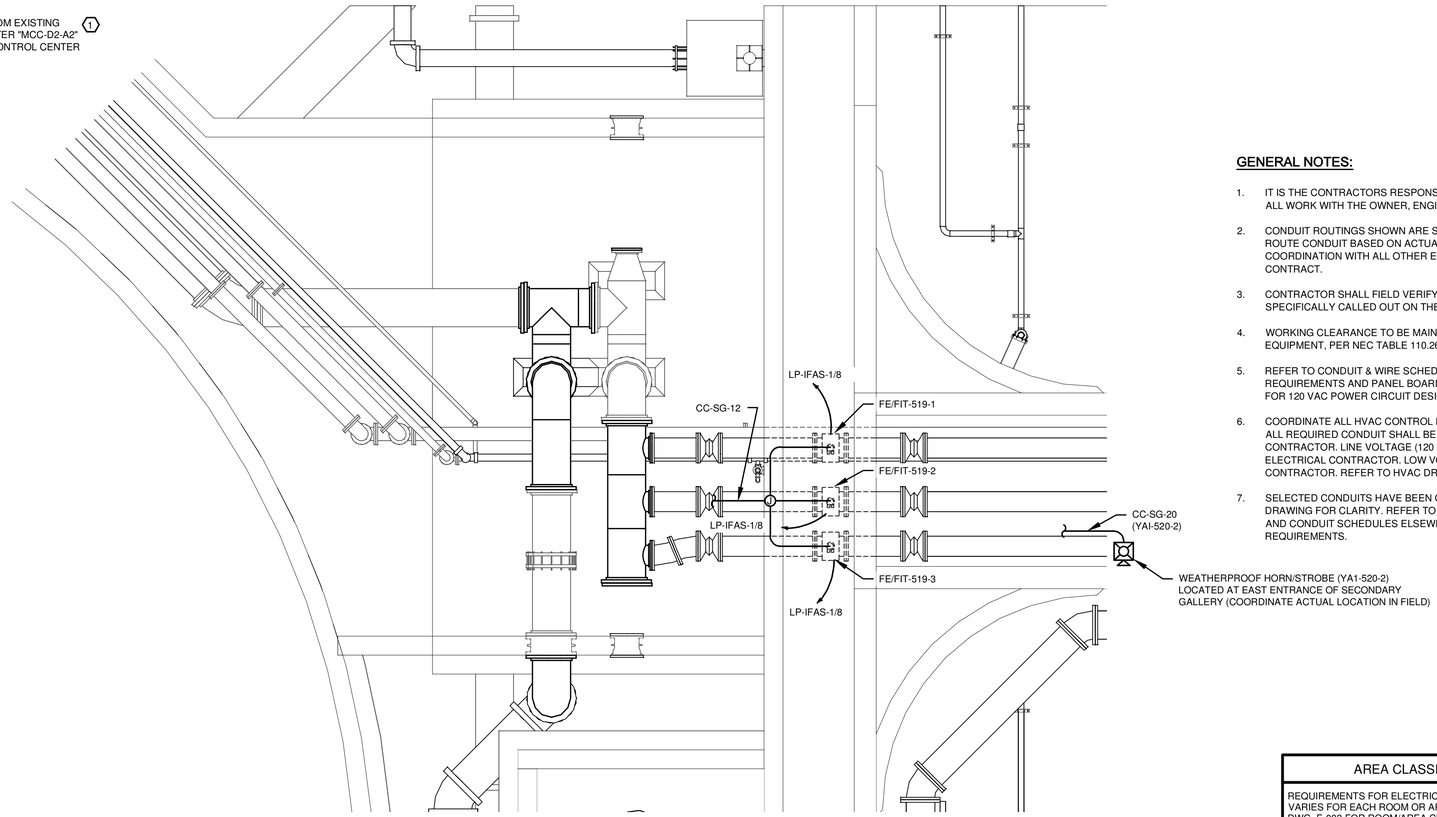


ELEVATION

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



PIPE GALLERY WEST - ENLARGED PLAN

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

PLAN NORTH

GENERAL NOTES:

1. IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER, ENGINEER AND OTHER CONTRACTORS.
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4. WORKING CLEARANCE TO BE MAINTAINED IN FRONT OF ELECTRICAL EQUIPMENT, PER NEC TABLE 110.26(A)(1).
5. REFER TO CONDUIT & WIRE SCHEDULE SHEET E-025, FOR CONTROL WIRING REQUIREMENTS AND PANEL BOARD SCHEDULE LP-IFAS-1 ON SHEET E-019 FOR 120 VAC POWER CIRCUIT DESIGNATIONS.
6. COORDINATE ALL HVAC CONTROL REQUIREMENTS WITH HVAC CONTRACTOR. ALL REQUIRED CONDUIT SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. LINE VOLTAGE (120 VAC) CONDUCTORS ARE BY THE ELECTRICAL CONTRACTOR. LOW VOLTAGE CONDUCTORS BY THE HVAC CONTRACTOR. REFER TO HVAC DRAWINGS FOR THE CONTROL SEQUENCE.
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HAZARDOUS AREA NOTES:

1. THERE ARE CURRENTLY EXISTING CONDUITS THAT ARE ROUTED THROUGH A CLASS 1, DIVISION 1, HAZARDOUS AREA., THESE CONDUITS SHALL BE MODIFIED TO INCLUDE SEAL-OFF FITTINGS. GENERALLY CONDUIT 3" AND SMALLER THAT IS LOCATED ON THE CONDUIT TRAPEZE HANGER IS ABANDONED, THE ABANDONED WIRING MAY BE REMOVED, COORDINATE THIS WORK WITH WWTP PERSONNEL. ONE EXISTING 2-INCH CONDUIT SHALL REMAIN IN PLACE FOR FUTURE POWER WIRING, PROVIDE AND INSTALL A SEAL-OFF ON THIS CONDUIT AND CAP AT EACH END. ONE EXISTING 1-INCH SHALL REMAIN IN PLACE FOR FUTRUE COMMUNICATION WIRING, PROVIDE AND INSTALL A SEAL-OFF ON THIS CONDUIT AND CAP AT EACH END.
2. A CONDUIT SEAL-OFF SHALL BE REQUIRED IN EACH CONDUIT RUN LEAVING A CLASS 1, DIVISION 1 LOCATION. SEAL-OFF SHALL BE LOCATED WITHIN 10 FEET OF THE BOUNDARY. THE CONDUIT RUN BETWEEN THE CONDUIT SEAL-OFF AND THE POINT AT WHICH THE CONDUIT LEAVES THE DIVISION 1 LOCATION SHALL CONTAIN NO UNIONS, COUPLINGS, BOXES OR OTHER FITTINGS EXCEPT FOR A LISTED EXPLOSIONPROOF REDUCER INSTALLED AT THE CONDUIT SEAL.
3. PROVIDE AND INSTALL JUNCTION BOXES AS REQUIRED FOR MODIFICATION OF CONDUCTORS AND CONDUITS TO INSTALL SEAL-OFF FITTINGS. JUNCTION BOXES INSTALLED WITHIN CLASS 1, DIVISION 1 HAZARDOUS AREAS SHALL BE NEMA 7. CARE SHALL BE TAKEN WHEN MODIFING EXISTING CONDUCTORS TO PREVENT ANY DAMAGE. DAMAGED CONDUCTORS SHALL BE REPLACED AT NO COST TO THE OWNER.
4. THE MODIFICATIONS TO CONDUITS SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES OF THE NEC.

KEY NOTES:

(1) CONTRACTOR SHALL MAINTAIN POWER TO EXISTING MOTOR CONTROL CENTER "MCC-D2B" AT ALL TIMES. PROVIDE TEMPORARY POWER AS REQUIRED TO MAINTAIN POWER TO EXISTING "MCC-D2B". COORDINATE WITH WWTP PERSONNEL.

AREA CLASSIFICATION:
REQUIREMENTS FOR ELECTRICAL WORK AND MATERIALS VARIES FOR EACH ROOM OR AREA. REFER TO THE TABLE DWG. E-003 FOR ROOM/AREA CLASSIFICATION.

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CHECKED BY JEC
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

ELECTRICAL
SECONDARY GALLERY

CONTROL PLAN

FILE NO. 23374.51633 - E705
DATE SEPT. 23, 2015

E-705

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ABBREVIATIONS

AI	ANALOG INPUT
AL	ALARM
AO	ANALOG OUTPUT
COMB	COMBUSTIBLES
CP	CONTROL PANEL
DI	DISCRETE INPUT
DO	DISCRETE OUTPUT
ESPB	EMERGENCY STOP PUSHBUTTON
FOR/REV	FORWARD / REVERSE
I/O	INPUT/OUTPUT
LOR	LOCAL-OFF-REMOTE
N.T.S.	NOT TO SCALE
OSC	OPEN / STOP / CLOSE
PCS	PROCESS CONTROL SYSTEM
SS	START / STOP
TEMP	TEMPERATURE
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
XMTR	TRANSMITTER
ZSO	POSITION SWITCH OPEN
ZSC	POSITION SWITCH CLOSED

FOR ADDITIONAL ABBREVIATIONS SEE ELECTRICAL, GENERAL, AND MECHANICAL DRAWINGS.

INSTRUMENT IDENTIFICATION TABLE

ISA-S5.1-1984

LETTER	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS (2)		ALARM		
B				CLOSE, STOP, DECREASE (1)	
C	CONTROL			CONTROL	
D	DENSITY	DIFFERENTIAL		OPEN, START, INCREASE (1)	
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FAIL (1)
G			GLASS, VIEWING DEVICE		
H	HAND				HIGH (OPENED)
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW (CLOSED)
M	MOTOR, MOTION (1)	MOMENTARY		MOTOR (1)	MIDDLE OR INTERMEDIATE
N					ON OR OPERATE (1)
O			ORIFICE, RESTRICTION		OVERLOAD (1)
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	PUMP (1)	
Q	EVENT, QUANTITY (2)	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (2)		MULTIFUNCTION (2)	MULTIFUNCTION (2)	MULTIFUNCTION (2)
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (2)		UNCLASSIFIED (2)	UNCLASSIFIED (2)	UNCLASSIFIED (2)
Y	STATE, PRESENCE			RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION			DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

(1) USER'S CHOICE

(2) WHEN USED, SYMBOL OR SIGNAL LINE IS ANNOTATED.

MOTORS AND ACTUATORS

X: H = HYDRAULIC ACTUATOR
P = PNEUMATIC ACTUATOR
S = SOLENOID ACTUATOR
M = MOTORIZED ACTUATOR

MOTORIZED

PUMPS AND EQUIPMENT

SUBMERSIBLE PUMP

ROTARY LOBE PUMP

PROGRESSIVE CAVITY PUMP

SUBMERSIBLE CENTRIFUGAL PUMP

CENTRIFUGAL PUMP

POSITIVE DISPLACEMENT BLOWER

DIAPHRAGM TYPE METERING PUMP

PERISTALTIC METERING PUMP

CENTRIFUGAL FAN

VERTICAL TURBINE SOLIDS HANDLING

IRRIGATION PUMP

EXPLANATORY NOTATIONS

HAND SWITCHES

XXX — SELECTOR SWITCH

NOTE XXX:

ES	=	EMERGENCY STOP	OCR	=	OPEN-CLOSE-REMOTE
FOR/REV	=	FORWARD-REVERSE	OSC	=	OPEN-STOP-CLOSE
HOA	=	HAND-OFF-AUTOMATIC	RL	=	RAISE-LOWER
LOR	=	LOCAL-OFF-REMOTE	SS	=	START-STOP

INSTRUMENT LINE SYMBOLS

FIRST LETTER
SUCCEEDING LETTERS
LOOP N0. MODIFIER (USED WITH TWO OR MORE INSTRUMENTS HAVING THE SAME FUNCTIONAL LOOP IDENTIFICATION)
LOOP NO.

FIELD MOUNTED DEVICE

FACE OF PANEL MOUNTED DEVICE

INTERNALLY MOUNTED DEVICE

MOTOR CONTROLLER MOUNTED DEVICE

FIELD MOUNTED INDICATOR LIGHT

MOTOR CONTROLLER MOUNTED INDICATOR LIGHT DEVICE

PANEL MOUNTED INDICATOR LIGHT

FURNISHED UNDER CONTRACT NO. 1 TO BE INSTALLED UNDER THIS CONTRACT

PRIMARY ELEMENTS

PRESSURE GAUGE

VENTURI FLOW METER

MAGNETIC FLOW METER

THERMAL MASS FLOW METER/SWITCH

FLOAT SWITCH

ULTRASONIC LEVEL PROBE

CAPACITANCE PROBE

HYDROSTATIC PRESSURE

SINGLE ELEMENT ANALYSIS PROBE

ROTAMETER

RADAR FREE SPACE AND GUIDED WAVE

PROPELLER FLOW METER

VALVES AND GATES

BUTTERFLY VALVE

GLOBE VALVE

BALL VALVE

GATE VALVE

KNIFE GATE VALVE

PLUG VALVE

PINCH VALVE

REDUCER

SLUICE GATE

DIAPHRAGM VALVE

SWING CHECK VALVE

PRESSURE RELIEF VALVE

COMBINATION AIR/VACUUM RELEASE

CAP

ATMOSPHERIC VENT

PRESSURE REDUCING REGULATOR W/EXTERNAL PRESSURE TAP

PRESSURE REDUCING REGULATOR SELF-CONTAINED

DIAPHRAGM SEAL

BACK PRESSURE VALVE

DRAIN

PULSATION DAMPENER

MUD VALVE

FLANGE

BACKFLOW PREVENTER

DUPLEX BASKET STRAINER

3-WAY VALVE

INPUT/OUTPUT SYMBOLS

ANALOG INPUT

ANALOG OUTPUT

DISCRETE INPUT

DISCRETE OUTPUT

LINE SYMBOLS

PRIMARY PROCESS FLOW

ELECTRICAL SIGNAL (HARDWIRED)

ELECTRICAL SIGNAL (TWISTED SHIELDED PAIR)

EN — 10/100 BASE T ETHERNET

ES — ELECTRICAL POWER SUPPLY

INTERLOCK

CONTINUATION ARROW WITH PROCESS STREAM IDENTIFICATION

GRAPHICAL BREAK TO PHYSICALLY CONTINUOUS (SYMBOL MAY BE SCALED)

GENERAL NOTES:

1. IN GENERAL, BOLD LINE WEIGHT (OR BOLD TEXT) INDICATES NEW WORK. EXISTING STRUCTURES AND EQUIPMENT ARE CALLED FOR AS "EXISTING" AND/OR INDICATED IN LIGHT LINE WEIGHT. INDIVIDUAL DRAWINGS MAY HAVE SPECIFIC NOTATIONS FOR CLARITY BETWEEN NEW AND EXISTING WORK. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL CLARITY BETWEEN NEW AND EXISTING WORK.
2. REFER TO MOTOR CONTROL WIRING DIAGRAMS FOR ADDITIONAL MOTOR CONTROLLER REQUIREMENTS.
3. SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
4. "HAZARDOUS" CLASSIFIED AREAS ARE PRESENT AS IDENTIFIED ON E-003. ALL NEW WORK AND EQUIPMENT SHALL BE SUITABLE FOR THE INSTALLED LOCATION. INSTRUMENTATION MOUNTED IN HAZARDOUS AREAS OR WITHIN HAZARDOUS ENVELOPES (AS IDENTIFIED IN NEC) SHALL BE EXPLOSION PROOF AND WIRED INTRINSICALLY SAFE PER NEC REQUIREMENTS.
5. SEE MECHANICAL DETAILS FOR SEAL WATER PIPING AND ACCESSORIES, PRESSURE GAUGES, AND OTHER MECHANICAL APPURTENANCES.
6. LOOP NUMBERS FROM PREVIOUS CONTRACTS ARE NOT BEING CARRIED FORWARD
7. UNLESS OTHERWISE INDICATED, REMOTE TRANSMITTERS/DISPLAYS/ANALYZERS SHALL BE LOCATED IN CLOSE PROXIMITY TO PROCESS BEING MEASURED. MOUNTED AT ACCESSIBLE ELEVATIONS.

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DESIGNED BY MPM
CHECKED BY SAT
DRAWN BY BNL

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CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION

SYMBOLS AND ABBREVIATIONS

FILE NO. 23374.51633 -I001
DATE MARCH 19, 2015

I-001

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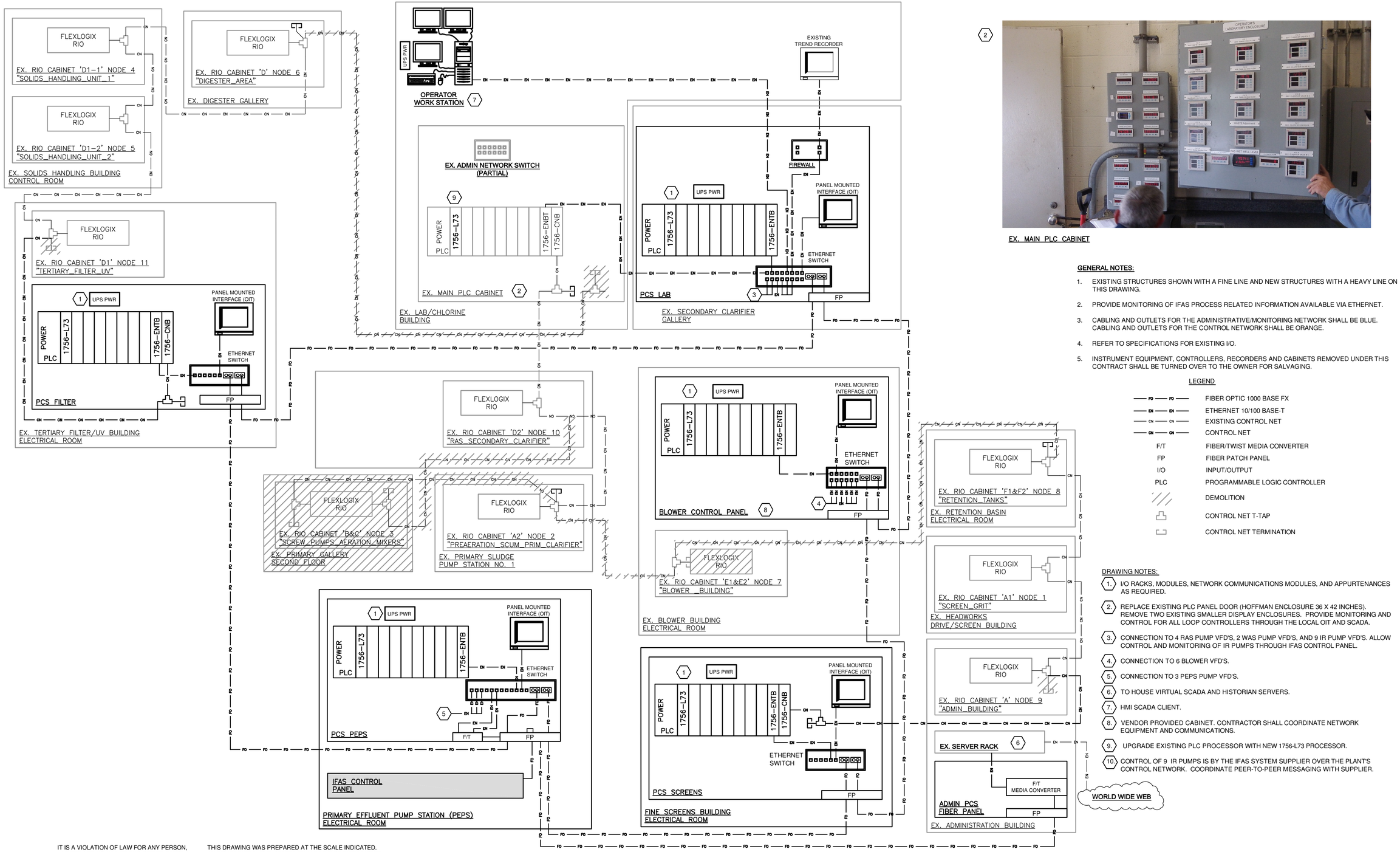

EX. MAIN PLC CABINET

GENERAL NOTES:

1. EXISTING STRUCTURES SHOWN WITH A FINE LINE AND NEW STRUCTURES WITH A HEAVY LINE ON THIS DRAWING.
2. PROVIDE MONITORING OF IFAS PROCESS RELATED INFORMATION AVAILABLE VIA ETHERNET.
3. CABLING AND OUTLETS FOR THE ADMINISTRATIVE/MONITORING NETWORK SHALL BE BLUE. CABLING AND OUTLETS FOR THE CONTROL NETWORK SHALL BE ORANGE.
4. REFER TO SPECIFICATIONS FOR EXISTING I/O.
5. INSTRUMENT EQUIPMENT, CONTROLLERS, RECORDERS AND CABINETS REMOVED UNDER THIS CONTRACT SHALL BE TURNED OVER TO THE OWNER FOR SALVAGING.

LEGEND

FO — FO	FIBER OPTIC 1000 BASE FX
EN — EN	ETHERNET 10/100 BASE-T
CN — CN	EXISTING CONTROL NET
CN — CN	CONTROL NET
F/T	FIBER/TWIST MEDIA CONVERTER
FP	FIBER PATCH PANEL
I/O	INPUT/OUTPUT
PLC	PROGRAMMABLE LOGIC CONTROLLER
	DEMOLITION
	CONTROL NET T-TAP
	CONTROL NET TERMINATION

DRAWING NOTES:

1. I/O RACKS, MODULES, NETWORK COMMUNICATIONS MODULES, AND APPURTENANCES AS REQUIRED.
2. REPLACE EXISTING PLC PANEL DOOR (HOFFMAN ENCLOSURE 36 X 42 INCHES). REMOVE TWO EXISTING SMALLER DISPLAY ENCLOSURES. PROVIDE MONITORING AND CONTROL FOR ALL LOOP CONTROLLERS THROUGH THE LOCAL OIT AND SCADA.
3. CONNECTION TO 4 RAS PUMP VFD'S, 2 WAS PUMP VFD'S, AND 9 IR PUMP VFD'S. ALLOW CONTROL AND MONITORING OF IR PUMPS THROUGH IFAS CONTROL PANEL.
4. CONNECTION TO 6 BLOWER VFD'S.
5. CONNECTION TO 3 PEPS PUMP VFD'S.
6. TO HOUSE VIRTUAL SCADA AND HISTORIAN SERVERS.
7. HMI SCADA CLIENT.
8. VENDOR PROVIDED CABINET. CONTRACTOR SHALL COORDINATE NETWORK EQUIPMENT AND COMMUNICATIONS.
9. UPGRADE EXISTING PLC PROCESSOR WITH NEW 1756-L73 PROCESSOR.
10. CONTROL OF 9 IR PUMPS IS BY THE IFAS SYSTEM SUPPLIER OVER THE PLANT'S CONTROL NETWORK. COORDINATE PEER-TO-PEER MESSAGING WITH SUPPLIER.

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INSTRUMENTATION

PROCESS CONTROL ARCHITECHTURE

FILE NO. 23374.51633 -I002

DATE MARCH 19, 2015

I-002

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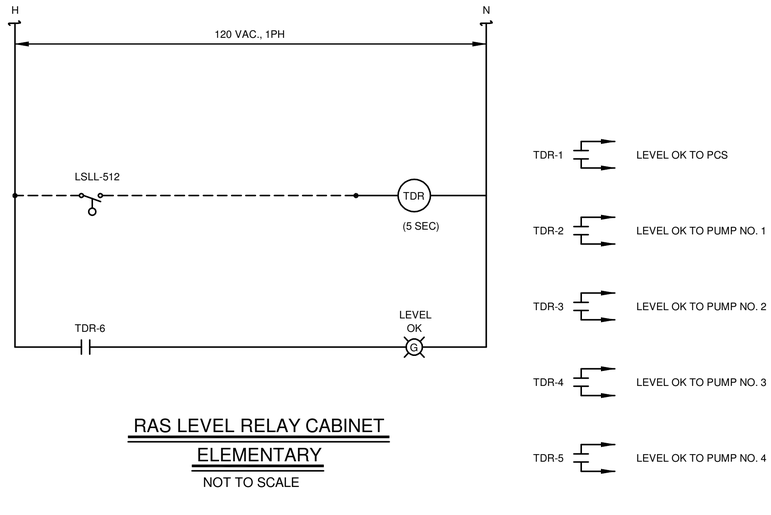
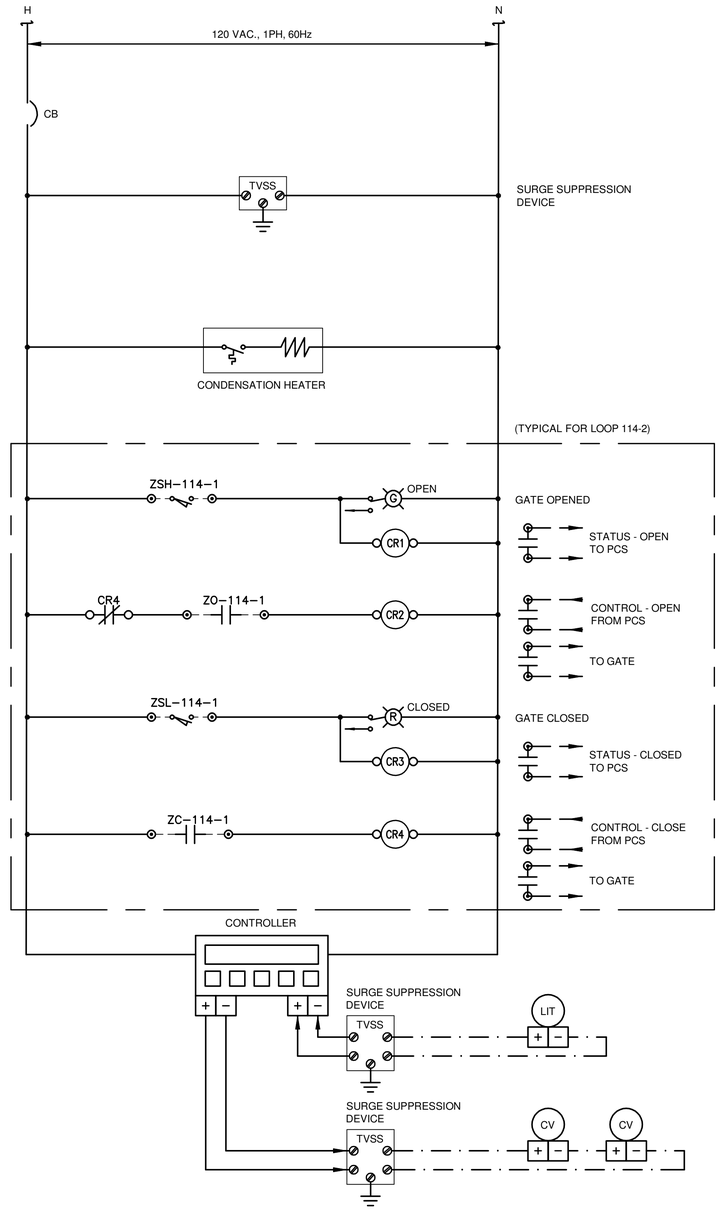


RAS LEVEL RELAY CABINET
ELEMENTARY
NOT TO SCALE



INFLUENT CHANNEL LEVEL CONTROLLER ELEMENTARY
NOT TO SCALE

NOTES:

1. PROVIDE A NEMA 4X STAINLESS STEEL ENCLOSURE AND LOCATE IN THE FIELD AS SHOWN IN THE ELECTRICAL DRAWINGS.
2. PROVIDE SPARE TERMINAL BLOCKS WITHIN ENCLOSURE FOR FUTURE GATE CONTROL. EACH VALVE SHALL BE PROVIDED WITH 6 DISCRETE AND 2 ANALOG TERMINALS.
3. PROVIDE OPENED INDICATION, CLOSED INDICATION, OPEN COMMAND, CLOSE COMMAND, GATE FAULT, LOR IN REMOTE IN SCADA FOR FUTURE INTEGRATION.
4. COORDINATE WIRING REQUIREMENTS WITH GATE ACTUATOR MANUFACTURER.

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MASSILLON, OHIO

INSTRUMENTATION

RAS RELAY AND INFLUENT CHANNEL DETAILS

FILE NO. 23374.51633 - I003
DATE MARCH 19, 2015

I-003

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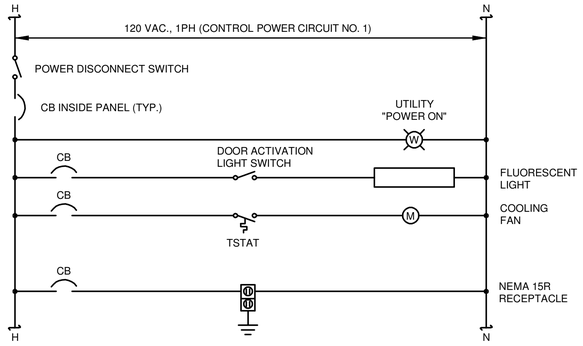
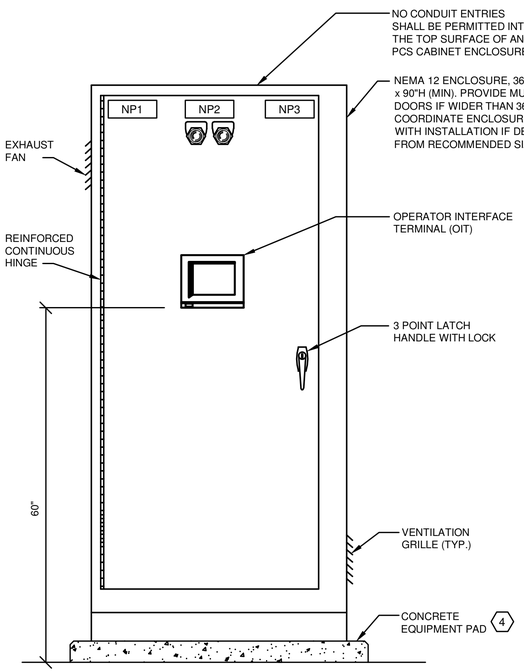


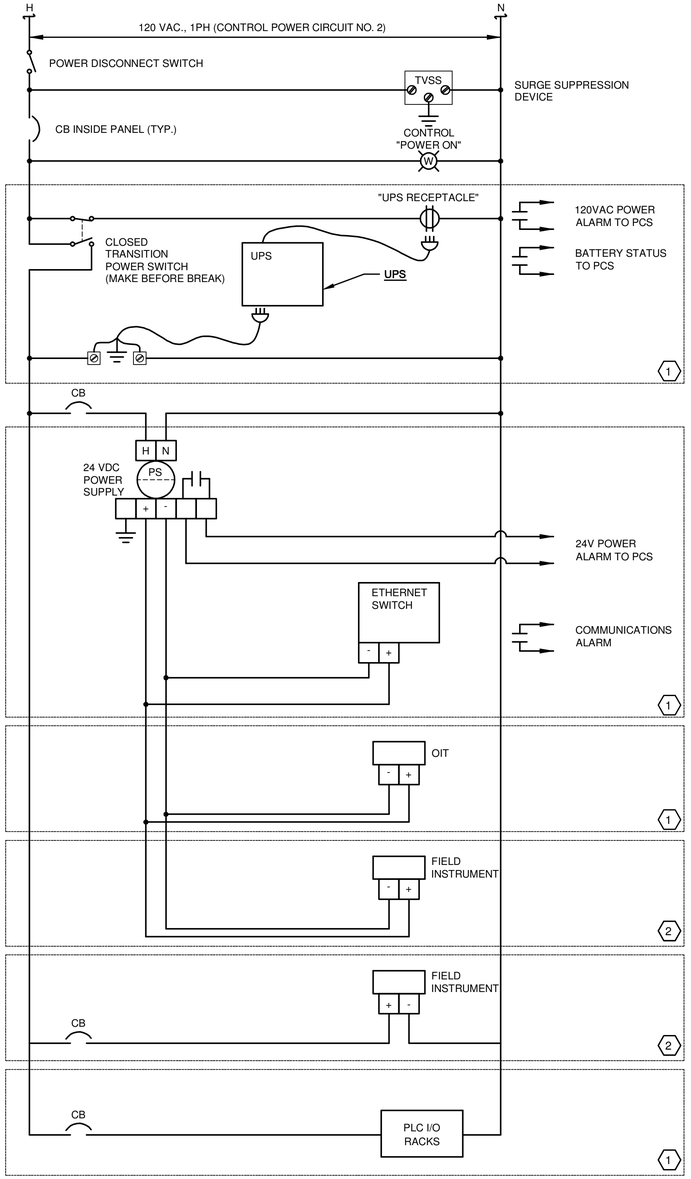


PROCESS CONTROL SYSTEM (PCS)
CABINET ELEVATION

NOT TO SCALE

PCS CABINET NAMEPLATE LEGEND	
NP#	DESCRIPTION
1	PCS CABINET NO.#
2	UTILITY POWER ON CONTROL POWER ON
3	CAUTION - THIS PANEL IS FED FROM MULTIPLE POWER SOURCES

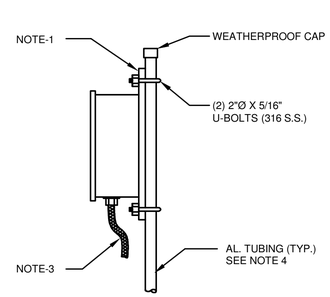
5



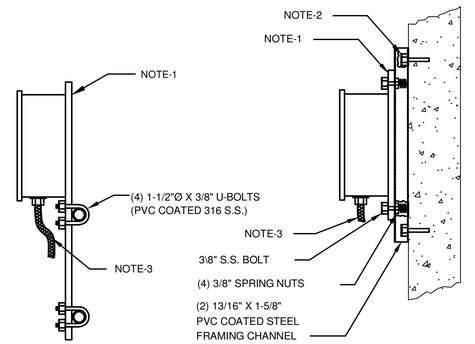
PROCESS CONTROL SYSTEM (PCS)
CABINET ELEMENTARY

DRAWING NOTES:

1. PROVIDE AS SCHEDULED OR SHOWN ON THE CONTRACT DRAWINGS.
2. EQUIPMENT LOCATED IN THE FIELD AS SCHEDULED OR SHOWN ON THE CONTRACT DRAWINGS.
3. SEE THE SPECIFICATION AND CONTRACT DRAWINGS FOR ADDITIONAL REQUIREMENTS FOR SPECIFIC INSTALLATIONS.
4. DIRECT THE COORDINATION OF CONDUIT STUB UP LOCATIONS.
5. PCS CABINET NAMES AT EACH LOCATION



A EQUIPMENT MOUNTING RACK (EMR)



B RAILING MOUNTING

C WALL MOUNTING

TYPICAL
CONTROL PANEL & INSTRUMENT
MOUNTING DETAILS

NOT TO SCALE

DETAIL NOTES:

1. USE 1/4" ALUMINUM PLATE. DIMENSION TO SUIT INSTRUMENT BEING USED AND QUANTITY OF INSTRUMENTS ON PLATE
2. USE (4) 3/8" S.S. ANCHOR BOLTS TO MOUNT FRAMING CHANNEL TO WALL
3. ALL CONDUIT FROM TRANSMITTERS TO BE LIQUID TIGHT 3/4" FLEXIBLE TO J-BOX
4. EQUIPMENT MOUNTING RACKS SHALL BE CONSTRUCTED OF (2-4") SQUARE AL. TUBING SET VERTICLE, JOINED BY HORIZONTAL AL. PLATE AS REQUIRED TO SUPPORT CONTROL PANELS AND EQUIPMENT.
5. TOP-ENTRY CONDUIT IS NOT PERMITTED.

GENERAL NOTES:

1. PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS TO CONTACTS IN HAZARDOUS LOCATIONS AS REQUIRED.

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION

DETAILS 1

FILE NO. 23374.51633 -I004
DATE MARCH 19, 2015

I-004

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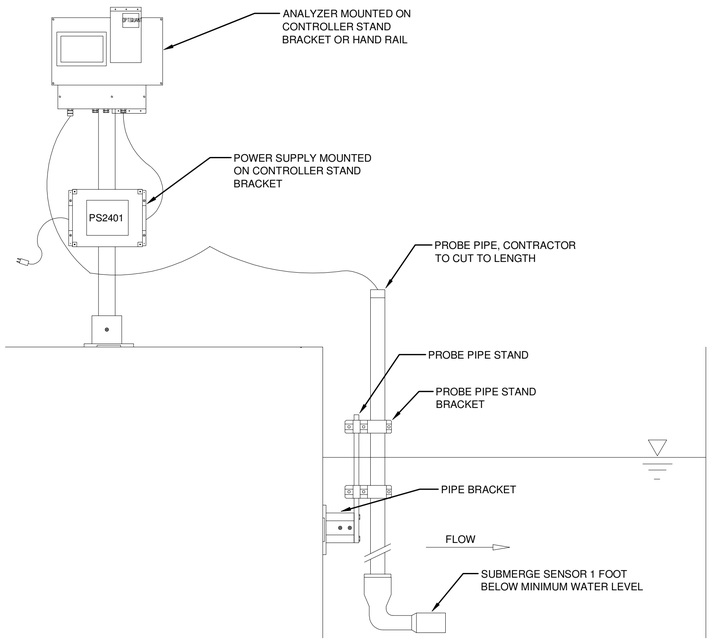
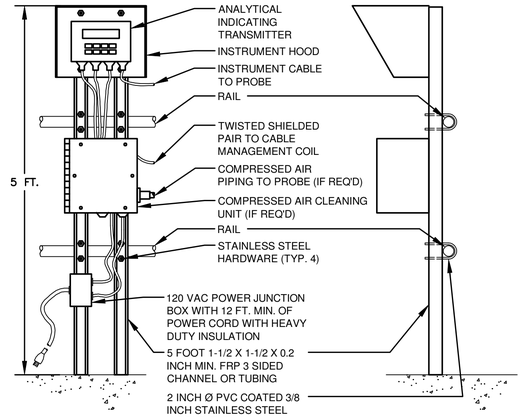


TURBIDITY PROBE DETAIL

NOT TO SCALE

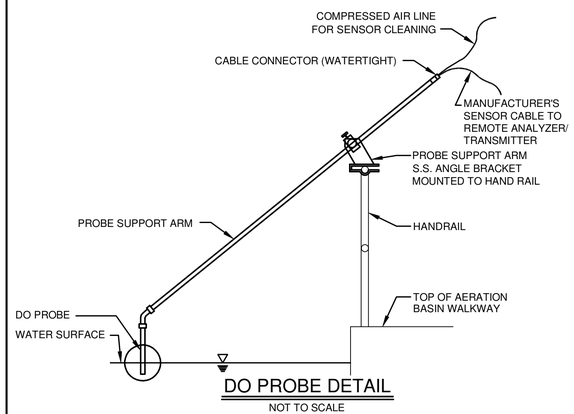


NOTES:

1. EXCESS CABLING SHALL BE SECURED.
2. COORDINATE POWER FEED REQUIREMENTS WITH ELECTRICAL WORK.

TYPICAL RELOCATABLE EQUIPMENT MOUNTING RACK

NOT TO SCALE

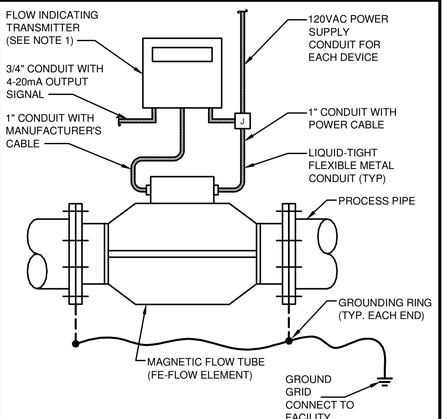


DO PROBE DETAIL

NOT TO SCALE

NOTES:

1. WATER SURFACE ELEVATION SHALL BE FIELD VERIFIED TO OBTAIN APPROPRIATE SENSOR CABLE LENGTH AND PROBE SUPPORT ARM CONFIGURATION.



NOTES:

1. FLOW INDICATING TRANSMITTER SHALL BE EITHER WALL MOUNTED OR EQUIPMENT RACK MOUNTED AS SHOWN ON PLANS. UNITS SHALL BE FASTENED WITH STAINLESS STEEL MOUNTING BRACKET AND HARDWARE.
2. CONTRACTOR TO FURNISH A SPOOL PIECE OF EQUIVALENT LENGTH, MATERIAL, AND FLANGE FOR TEMPORARY REPLACEMENT OF EACH NEW MAGNETIC FLOW METER.

MAGNETIC FLOW METER DETAIL

NOT TO SCALE

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SUITE 750
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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION

DETAILS 2

FILE NO. 23374.51633 - I005

DATE MARCH 19, 2015

I-005

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EX. RIO CABINET A1
AT HEADWORKS

SEE KEY NOTE 3

TYP. FOR 2

ZO 114-1 OPEN
ZC 114-1 CLOSE
YA 114-1 TROUBLE
ZH 114-1 OPENED
ZL 114-1 CLOSED
YI 114-1 LOR IN "REMOTE"
LI 110 FLOW

XI 115 ENABLE

TYP. FOR 2

MN 115-2 RUNNING STATUS
YA 115-2 LUBE OIL PUMP ALARM

EX. MOTOR STARTER

MN 120-1 BAR SCREEN NO. 1 RUNNING STATUS
MN 120-2 BAR SCREEN NO. 2 RUNNING STATS
MN 121 BAR SCREEN CONVEYOR RUNNING
WH 120-1 BAR SCREEN NO. 1 OVER TORQUE
LAH 120-1 BAR SCREEN NO. 1 HIGH LEVEL ALARM
WH 120-2 BAR SCREEN NO. 2 OVER TORQUE
LAH 120-2 BAR SCREEN NO. 2 HIGH LEVEL ALARM
LH 120-1 BAR SCREEN NO. 1 LEVEL HIGH
LH 120-2 BAR SCREEN NO. 2 LEVEL HIGH

EX. MECH. BAR SCREEN CONTROL PANEL

FI 125 FLOW

JUNCTION BOX

TYP. FOR 2

MN 130-2 COLLECTOR RUNNING STATUS
XAH 130-2 COLLECTOR ALARM
MN 131-2 ORGANIC RETURN PUMP NO. 2 RUNNING STATUS

EX. GRIT TANK NO. 2 CONTROL PANEL

MN 137-1 G.T.S.C. NO. 1 RUNNING STATUS
YA 137-1 G.T.S.C. NO. 1 ALARM
MN 137-2 G.T.S.C. NO. 2 RUNNING STATUS
YA 137-2 G.T.S.C. NO. 2 ALARM
MN 136 G.S.T.C. RUNNING STATUS
YA 136 G.S.T.C. ALARM

EX. DEWATERING GRIT CONTROL PANEL

FI 138 FLOW

SEE NOTE 2

ZO 126 OPEN
ZC 126 CLOSE
YA 126 TROUBLE
ZH 126 OPENED
ZL 126 CLOSED
YI 126 LOR IN "REMOTE"

JUNCTION BOX

INFLUENT CHANNEL LEVEL CONTROLLER (2)
LIC 110
ZLH 114-1
ZLL 114-1
ZLH 114-2
ZLL 114-2

ES

LEVEL
POSITION

YI - ZLH - ZLL - HS - LOR
CV 108 YS - ZSH - ZSL - HS - OSC
M ###

66" MOTOR OPERATED SLUICE GATE ASSEMBLY

66" INFLUENT

66" CONC

LIT 110
LE 110

EX INFLUENT STRUCTURE

M ###
INFLUENT SCREW PUMP NO. 2

YI - ZLH - ZLL - HS - LOR
CV 114-2 YS - ZSH - ZSL - HS - OSC
M

M ###
INFLUENT SCREW PUMP NO. 1

42" MOTOR OPERATED SLUICE GATE ASSEMBLY

EX CHANNEL

LE 120-2
LE 120-1

EX MECHANICAL BAR SCREEN NO. 2

EX MECHANICAL BAR SCREEN NO. 1

M ### M 120-2
M ### M 120-1
M ###

EX BAR SCREEN CONVEYOR

M 121
SCREENINGS/ GRIT TO OFFSITE

EX CHANNEL

1 FIT 125 ES

M 130-2
M 131-2
M 131-1
M 130-1

EX. GRIT TANK NO. 2
EX. GRIT TANK NO. 1

EX ORGANIC RETURN PUMP
EX ORGANIC RETURN PUMP

EX GRIT TANK SCREW CONVEYOR NO. 2
EX GRIT TANK SCREW CONVEYOR NO. 1

EX GRIT SCREW TRANSFER CONVEYOR

SCREENINGS/GRIT TO OFFSITE

42" INFLUENT TO FRB

FIT 138 ES

M ###

FE 138
M

EX INFLUENT FLOW METER VAULT

42" TO FSB

EX 24" X 42" REDUCER

EX 6" DRAIN

CV 126
M

1 WEIR / BAFFLE

FE 125

30" BYPASS

EX SECONDARY BYPASS

I-103

I-104

DRAWING NOTES:

1. REPLACE EXISTING INSTRUMENT.
2. PROVIDE TERMINAL BLOCKS WITHIN CONTROL PANEL FOR OPENED INDICATION, CLOSED INDICATION, OPEN COMMAND, CLOSE COMMAND, GATE FAULT, LOR IN REMOTE.
3. PROVIDE PLC PROGRAMMING AND SCADA INTEGRATION FOR FUTURE LEVEL AND GATE CONTROL. WIRING AND TERMINATIONS BETWEEN PANELS BY OWNER.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.
2. REUSE EXISTING I/O FOR NEW "BYPASS GATE TO RIVER" ACTUATOR (ACTUATOR N.I.C.).

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SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

HEADWORKS

FILE NO. 23374.51633 -I101
DATE MARCH 19, 2015

I-101

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EX. RIO CABINET A1
AT HEADWORKS

AL 100

LL 101

YA 101

HEADWORKS GAS ALARM

LOW NUTRIENT LEVEL

ALARM

EX GAS CONTROL PANEL

OXYGEN

COMBUSTIBLES

H2S

CO2

AE 100A

AE 100B

AE 100C

AE 100D

ELECTRICAL CONTROL PANEL (ECP)**

FRP BUILDING
SEE NOTE 2

FAN CONTROL PANEL**

WATER CONTROL PANEL **

CLEAN AIR

AIT - pH**

2"

1/2"

DPG - **

PI - **

M 102

PROCESS AIR FROM FINE SCREENS

8"

8"x12"

12"x20"

FINE SCREEN BUILDING INLINE FAN **

M 101

PROCESS AIR FROM HEADWORKS

20"

FAN **

BIOTRICKLING FILTER TOWER**

3"

M -

IRRIGATION PUMP **

RECIRCULATION PUMP **

PI - **

LSL - **

FI - **

S **

1"

MAKE-UP WATER

HEAT TRACE PIPING (TYP.)

LSL - **

4"

TO DRAIN

NUTRIENT TANK **

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.
2. ON THIS DRAWING, PUMP, VALVES, ACTUATORS, VESSELS, CONTROL PANELS AND FIELD INSTRUMENTS NOTED WITH AN ASTERISK (**) ARE BEING FURNISHED BY ODOR CONTROL SYSTEM MANUFACTURER. ALL OTHER EQUIPMENT IS BY THE CONTRACTOR.

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

HEADWORKS ODOR CONTROL

FILE NO. 23374.51633 -I102

DATE MARCH 19, 2015

I-102

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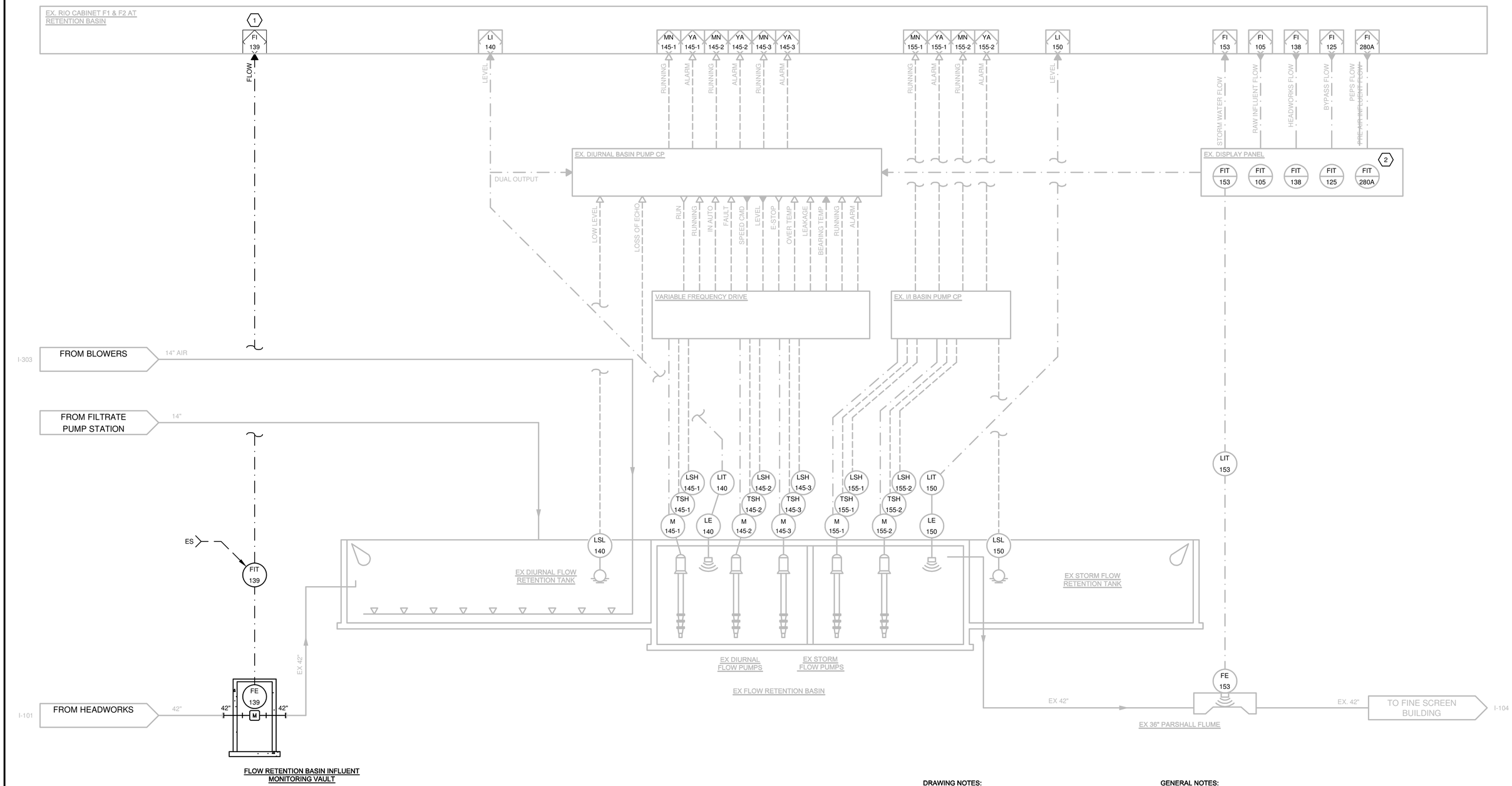

FLOW RETENTION BASIN INFLUENT MONITORING VAULT

DRAWING NOTES:

1. USE EXISTING SPARE INPUT.
2. PROVIDE NEW NAME PLATE. SCALE DISPLAY AS REQUIRED.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.

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MASSILLON, OHIO

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PIPING & INSTRUMENTATION DIAGRAM

FLOW RETENTION BASIN

FILE NO. 23374.51633 -I103
DATE MARCH 19, 2015

I-103

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PCS FINE SCREENS

TYP. FOR 2 (156A & 156B)

TYP. FOR 2 (160-1, 2 & 161-1, 2)

TYP. FOR 2

ZO 156A OPEN
ZC 156A CLOSE
YA 156A TROUBLE
ZH 156A OPENED
ZL 156A CLOSED
YI 156A LOR IN 'REMOTE'
YI - ZLH - ZLL - HS - LOR
CV 156A
YS - ZSH - ZSL - HS - OSC

FC 154 FLOW
TI 155 TEMPERATURE
TI 155 PH
ES
SAMPLER
1
AIT 155
AE 155

LI 160-1A INFLUENT LEVEL
MN 160-1 SCREEN RUNNING
MN 161-1 COMPACTOR RUNNING
LI 160-1B EFFLUENT LEVEL
YI 160-1 IN AUTO
YA 160-1 TROUBLE
FINE SCREEN NO. 1 CP **
FINE SCREEN NO. 1 LOCAL CONTROL PANEL **

FI 162 FLOW
TL 166 TEMP LOW
ZI 167 OCCUPANCY
TH 168 ELECTRICAL ROOM TEMP. HIGH
TSL 166
ZS 167-1
ZS 167-2
TSH 168

YA 163 TROUBLE
AI 163 COMBUSTIBLE
AIT 163
AE 163 COMB.
YA 164 ALARM
YA 164 TROUBLE
AI 164 COMBUSTIBLE
AIT 164
AE 164 COMB.
HS 165 SILENCE
YAI 165-1 HORN/ STROBE
YAI 165-2 ALARM

MC 169-1 RUN
MN 169-1 RUNNING STATUS
YI 169-1 LOR IN 'REMOTE'
YA 169-1 TROUBLE
SC 169-1 SPEED COMMAND
SI 169-1 SPEED FEEDBACK
VARIABLE FREQUENCY DRIVE PANEL
HIGH TEMP ALARM
TSH 169-1
M 169-1
TSH 169-2
M 169-2
VENTILATION FANS

FROM EX ADMIN PUMP STATION 8"
FROM EX FILTRATE/ SIDESTREAM EX. 8"
I-103 FROM EX FLOW RETENTION BASIN EX. 42"
I-101 FROM EX GRIT BUILDING EX. 42"

INFLUENT CHANNEL
42" KGV
12"x8"
12"
8"
8"
PH 42"

LIT 160-1A **
LE 160-1A **
M 160-1 **
M 161-1 **
LIT 160-1B **
LE 160-1B **
CHANNEL
FINE SCREEN NO. 1 **
WASHER COMPACTOR NO. 1 **
SCREENINGS TO OFFSITE
CV 161-1 ** S
6"
EX 6" X 8"
EX. 8" WAS FROM EX PRIMARY GALLERY
ES
FIT 162
6" PLV
CV 161-2 ** S
PLANT WATER
SAMPLE POINT
LIT 160-2A **
LE 160-2A **
M 160-2
M 161-2 **
LIT 160-2B **
LE 160-2B **
FINE SCREEN DISTRIBUTION CHAMBER
MANUAL SLUICE GATE (TYP. x 7)
CHANNEL
FINE SCREEN NO. 2 **
WASHER COMPACTOR NO. 2 **
SCREENINGS TO OFFSITE
4"x6"
FE 162
CV 156B M
EMERGENCY BYPASS CHANNEL
CHANNEL
4" PLV
4" PLV
EX. 24" TO EX PRIMARY CLARIFIERS 1-6
EX. 30" TO EX PRIMARY CLARIFIERS 7-8

DRAWING NOTES:

1. TO BE PROVIDED BY CITY FOR INSTALLATION UNDER THIS CONTRACT.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET. ALL INSTRUMENTATION WORK SHOWN ON THIS SHEET IS NEW.
2. ON THIS DRAWING, MOTORS, SCREEN EQUIPMENT, SOLENOIDS, CONTROL PANELS AND INSTRUMENTATION NOTED WITH AN ASTERISK (**) ARE BEING FURNISHED BY BAND SCREEN SUPPLIER. ALL OTHER EQUIPMENT IS BY THE CONTRACTOR.

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MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

FINE SCREEN BUILDING

FILE NO. 23374.51633 -I104

DATE MARCH 19, 2015

I-104

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EX. RIO 'A2' AT THE PRIMARY SLUDGE PUMP STATION NO. 1

MN 260-2 / YA 260-2 — RUNNING STATUS / ALARM

EX. MOTOR STARTER

MN 260-1 / YA 260-1 — RUNNING STATUS / ALARM

EX. MOTOR STARTER

ZO 261 — OPEN
ZC 261 — CLOSE
YA 261 — TROUBLE
ZH 261 — OPENED
ZL 261 — CLOSED
YI 261 — LOR IN 'REMOTE'
FI 265 — FLOW
FI 262 — VENTILATION OK
HS 263 — SILENCE / HORN
STROBE

REMOTELY MOUNTED CONTROL STATION
YI 261
ZLH 261
ZLL 261
HS 261 — LOR
HS 261 — OSC

FSH 262

YAI 263-1
YAI 263-2

PCS CABINET
YI 900-1 — 120V POWER OK
JL 900-1 — UPS BATTERY LOW
YA 900-1 — UPS FAULT

PCS CABINET (INTERNAL EQ.)

FROM PRIMARY SLUDGE PUMPING STATION NO. 2 — 8" PS

8" PS — TO SLUDGE PRE-THICKENERS

FIT 265 — ES
ZSL 261
ZSH 261
YS 261
CV 261
FE 265

M 260-1 — 4" CKV — 4" PLV — 8" — 8"x4" — 4" PV — CLEANOUT
6" PLV — 3"x6" — EX. RAW SLUDGE PUMP #1

M 260-2 — 4" CKV — 4" PLV
6" PLV — 3"x6" — EX. RAW SLUDGE PUMP #2

4" PLV — 4" PS — RECYCLE TO PRIMARY CLARIFIER NO. 1

4" PLV — 4" PS — RECYCLE TO PRIMARY CLARIFIER NO. 2

DRAWOFF FROM PRIMARY CLARIFIERS 1-6 — 8"

SLUDGE DRAWOFF WELL — 6"

EX. PRIMARY SLUDGE PUMP STATION NO. 1

DRAWING NOTES:

1. ADD NEW MODULE WITHIN EXISTING CABINET TO FACILITATE NEW DISCRETE OUTPUTS.
2. USE EXISTING SPARE INPUT.
3. TYPICAL FOR EACH NEW PCS CABINET.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

PRIMARY ACTIVATION

FILE NO. 23374.51633 -I202
DATE MARCH 19, 2015

I-202

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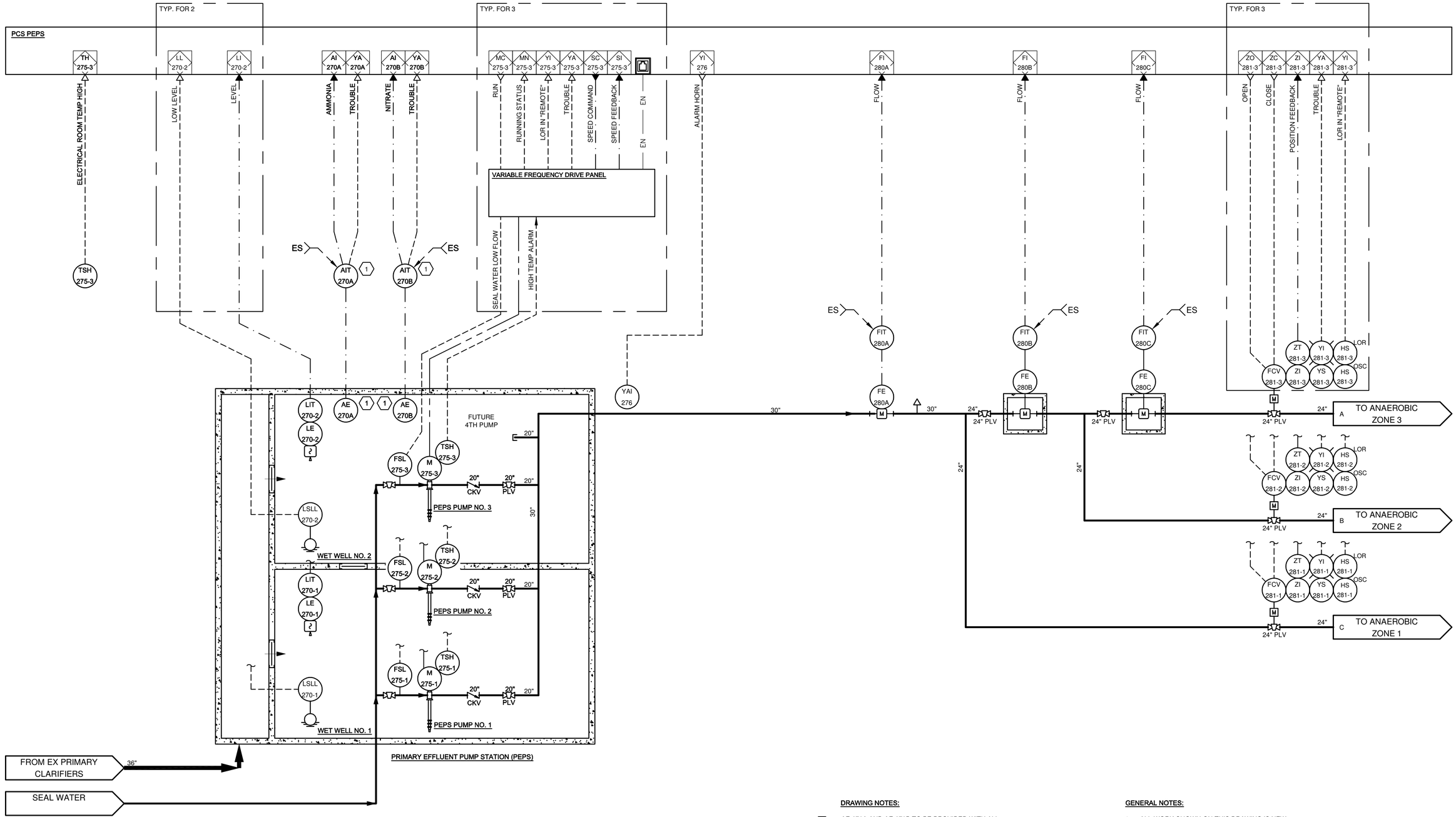

DRAWING NOTES:

(1) AE-270A AND AE-270B TO BE PROVIDED WITH ALL MOUNTING HARDWARE AND CABLE GUIDES REQUIRED TO FACILITATE MONITORING IN EITHER WET WELL.

GENERAL NOTES:

1. ALL WORK SHOWN ON THIS DRAWING IS NEW.

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INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM
PRIMARY EFFLUENT PUMP STATION (PEPS)

FILE NO. 23374.51633 -I203
DATE MARCH 19, 2015

I-203

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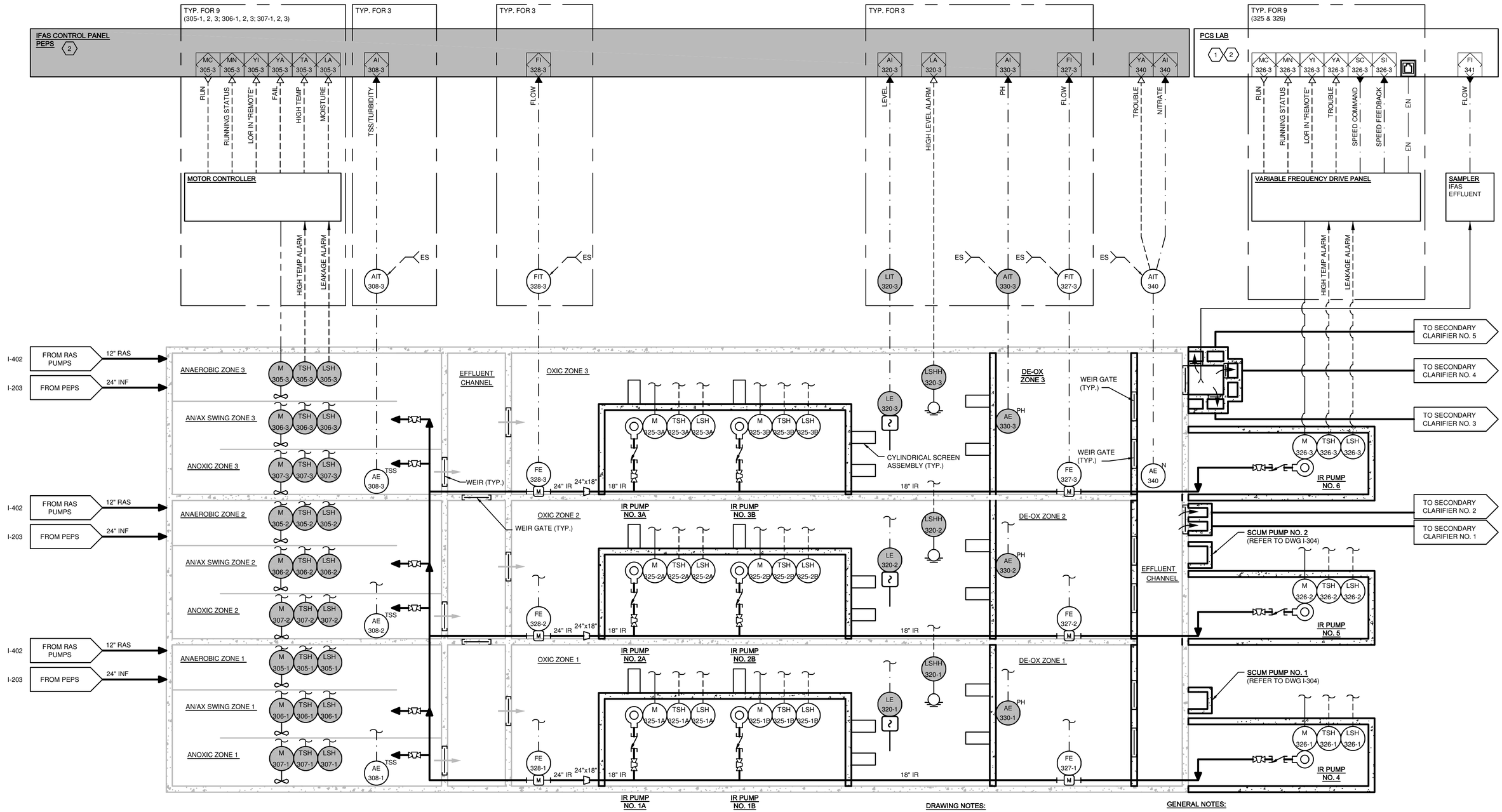

DRAWING NOTES:

1. PROVIDE MONITORING OF THE IFAS SYSTEM AT THE PCS LAB OIT.
2. CONTROL OF THE IR PUMPS IS BY THE IFAS SYSTEM SUPPLIER, THROUGH ETHERNET BASED MESSAGING. COORDINATE REQUIREMENTS WITH SYSTEM SUPPLIER.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN IN GRAY AND NEW PIPING AND EQUIPMENT ARE SHOWN IN BLACK ON THIS SHEET. ALL INSTRUMENTATION WORK SHOWN ON THIS SHEET IS NEW.
2. TOTAL NUMBER OF DROP LEGS ARE NOT SHOWN FOR CLARITY. REFER TO MECHANICAL DRAWINGS FOR QUANTITY AND PIPING CONFIGURATION.

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IFAS LIQUID STREAM

FILE NO. 23374.51633 -I301
DATE MARCH 19, 2015

I-301

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IFAS CONTROL PANEL
PEPS

TYP. FOR 3 | TYP. FOR 3 | TYP. FOR 3 | TYP. FOR 3

FI 376-3 — AIR FLOW — FIT 376-3

ZC 375-3 — POSITION COMMAND — FCV 375-3
ZI 375-3 — POSITION FEEDBACK — ZT 375-3 — ZI 375-3
YA 375-3 — TROUBLE — YA 375-3 — YS 375-3
ZH 375-3 — OPENED — ZLH 375-3 — ZSH 375-3
ZL 375-3 — CLOSED — ZLL 375-3 — ZSL 375-3
YI 375-3 — LOR IN "REMOTE" — HS 375-3 (LOR) — HS 375-3 (OSC)

AI 380-3 — DO CONCENTRATION — ES — AIT 380-3

YA 377-3 — TROUBLE — YA 377-3 — CV 377-3
ZH 377-3 — OPENED — ZLH 377-3 — YS 375-3
ZL 377-3 — CLOSED — ZLL 377-3 — ZSH 375-3
YI 377-3 — LOR IN "REMOTE" — HS 377-3 (LOR) — ZSL 375-3 — HS 377-3 (OSC)

I-303 FROM BLOWER BUILDING — 40"

3" — 40"x30" — 20" — FE 376-3 ΔT — 20"x12" M 12"x20" — 12" BFV — 20"

AIR GRID MANIFOLDS (TYP. OF 13) — 6" — CYLINDRICAL SCREEN ASSEMBLY (TYP.)

OXIC ZONE — IR PUMPS — DE-OX ZONE

AE 380-3 DO — 3" — M — 2" — EFFLUENT CHANNEL — IR PUMPS

3" — 30"x24" — 20" — FE 376-2 ΔT — FCV 375-2 — 20"x12" M 12"x20" — 12" BFV — 20"

FCV 377-2 — M — 2" — IR PUMPS

3" — 24"x20" — 20" — FE 376-1 ΔT — FCV 375-1 — 20"x12" M 12"x20" — 12" BFV — 20"

FCV 377-1 — M — 2" — IR PUMPS

I-303 FROM AIR SCOUR BLOWERS — 3" — 3"

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN IN GRAY AND NEW PIPING AND EQUIPMENT ARE SHOWN IN BLACK ON THIS SHEET. ALL INSTRUMENTATION WORK SHOWN ON THIS SHEET IS NEW.
2. TOTAL NUMBER OF DROP LEGS ARE NOT SHOWN FOR CLARITY. REFER TO MECHANICAL DRAWINGS FOR QUANTITY AND PIPING CONFIGURATION.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE.

IN CHARGE OF	WJM			
DESIGNED BY	MPM			
CHECKED BY	SAT	1	9/23/2015	ISSUED FOR BID — DL
DRAWN BY	BNL	0	3/19/2015	ISSUED FOR OEPA REVIEW — DL
		NO.	DATE	REVISION — INT.

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220 MARKET AVENUE SOUTH
SUITE 750
CANTON, OH 47702

CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

IFAS AERATION

FILE NO. 23374.51633 -I302
DATE MARCH 19, 2015

I-302

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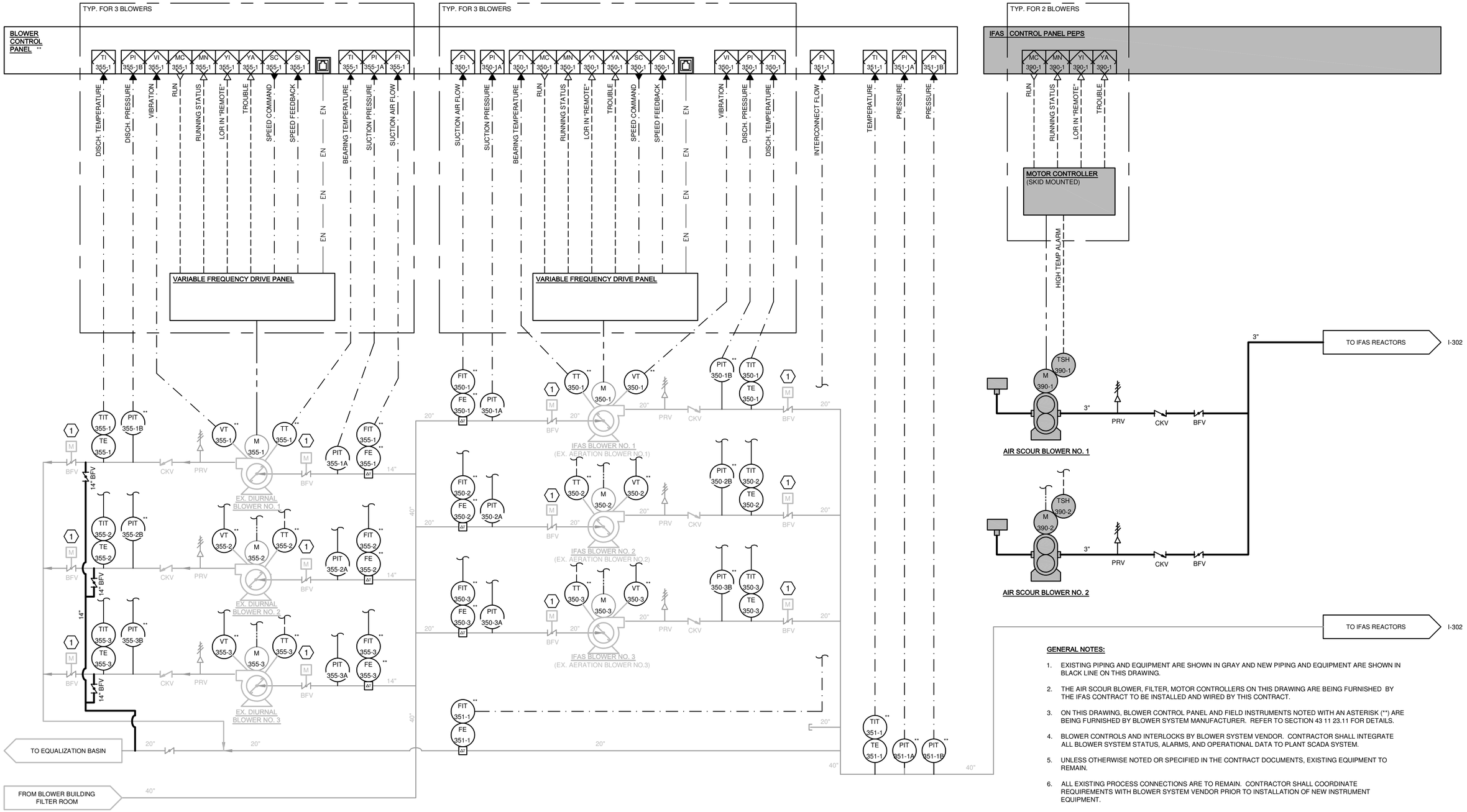

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN IN GRAY AND NEW PIPING AND EQUIPMENT ARE SHOWN IN BLACK LINE ON THIS DRAWING.
2. THE AIR SCOUR BLOWER, FILTER, MOTOR CONTROLLERS ON THIS DRAWING ARE BEING FURNISHED BY THE IFAS CONTRACT TO BE INSTALLED AND WIRED BY THIS CONTRACT.
3. ON THIS DRAWING, BLOWER CONTROL PANEL AND FIELD INSTRUMENTS NOTED WITH AN ASTERISK (**) ARE BEING FURNISHED BY BLOWER SYSTEM MANUFACTURER. REFER TO SECTION 43 11 23.11 FOR DETAILS.
4. BLOWER CONTROLS AND INTERLOCKS BY BLOWER SYSTEM VENDOR. CONTRACTOR SHALL INTEGRATE ALL BLOWER SYSTEM STATUS, ALARMS, AND OPERATIONAL DATA TO PLANT SCADA SYSTEM.
5. UNLESS OTHERWISE NOTED OR SPECIFIED IN THE CONTRACT DOCUMENTS, EXISTING EQUIPMENT TO REMAIN.
6. ALL EXISTING PROCESS CONNECTIONS ARE TO REMAIN. CONTRACTOR SHALL COORDINATE REQUIREMENTS WITH BLOWER SYSTEM VENDOR PRIOR TO INSTALLATION OF NEW INSTRUMENT EQUIPMENT.

DRAWING NOTES:

(1) EXISTING MOTORIZED VALVES ARE NOT POWERED OR MONITORED.

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DESIGNED BY MPM
CHECKED BY SAT
DRAWN BY BNL

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0	3/19/2015	ISSUED FOR OEPA REVIEW	DL

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INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

BLOWER MODIFICATION

FILE NO. 23374.51633 - I303
DATE MARCH 19, 2015

I-303

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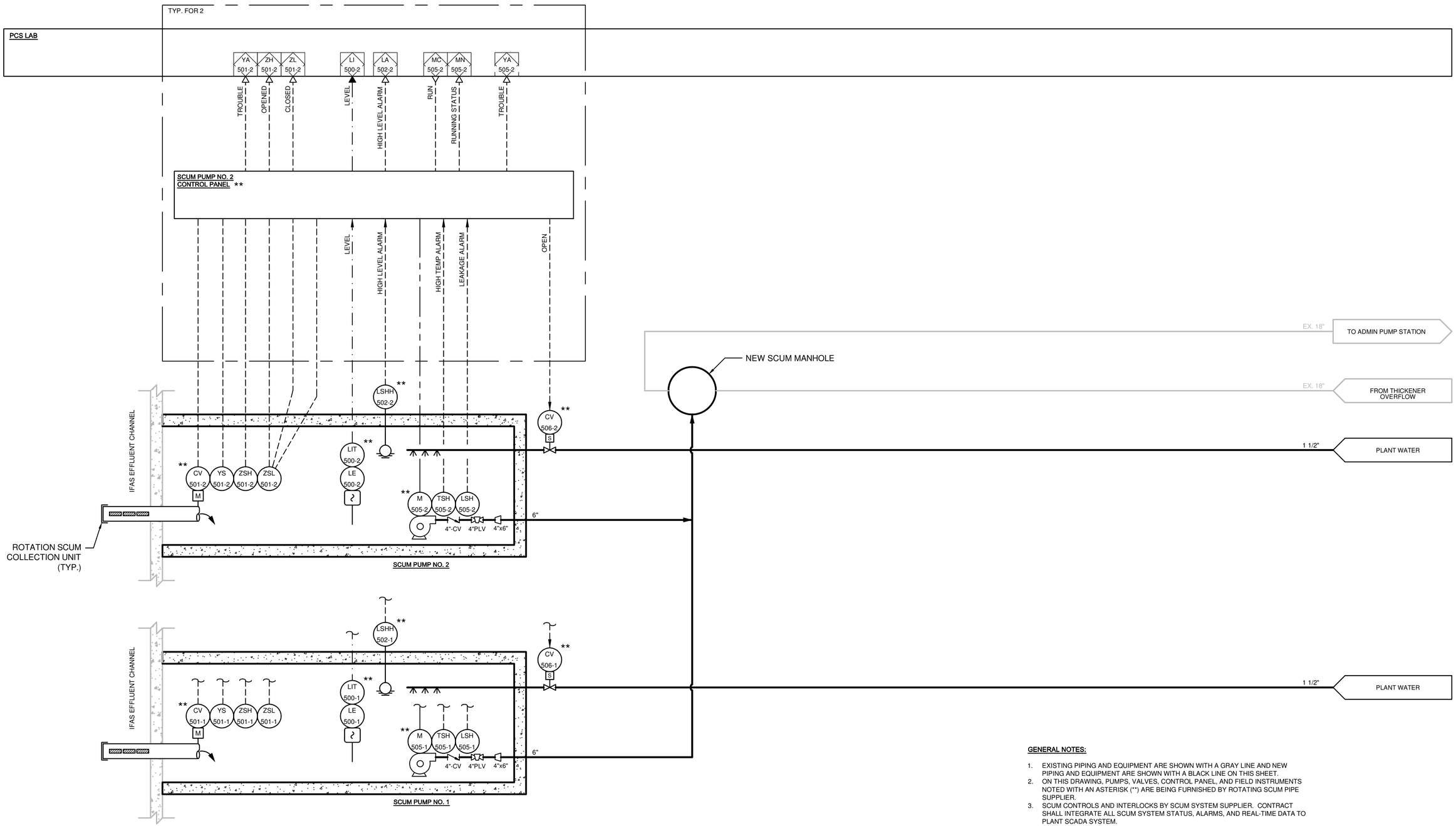

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.
2. ON THIS DRAWING, PUMPS, VALVES, CONTROL PANEL, AND FIELD INSTRUMENTS NOTED WITH AN ASTERISK (**) ARE BEING FURNISHED BY ROTATING SCUM PIPE SUPPLIER.
3. SCUM CONTROLS AND INTERLOCKS BY SCUM SYSTEM SUPPLIER. CONTRACT SHALL INTEGRATE ALL SCUM SYSTEM STATUS, ALARMS, AND REAL-TIME DATA TO PLANT SCADA SYSTEM.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

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MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

SCUM PUMPING

FILE NO. 23374.51633 - I304
DATE MARCH 19, 2015

I-304

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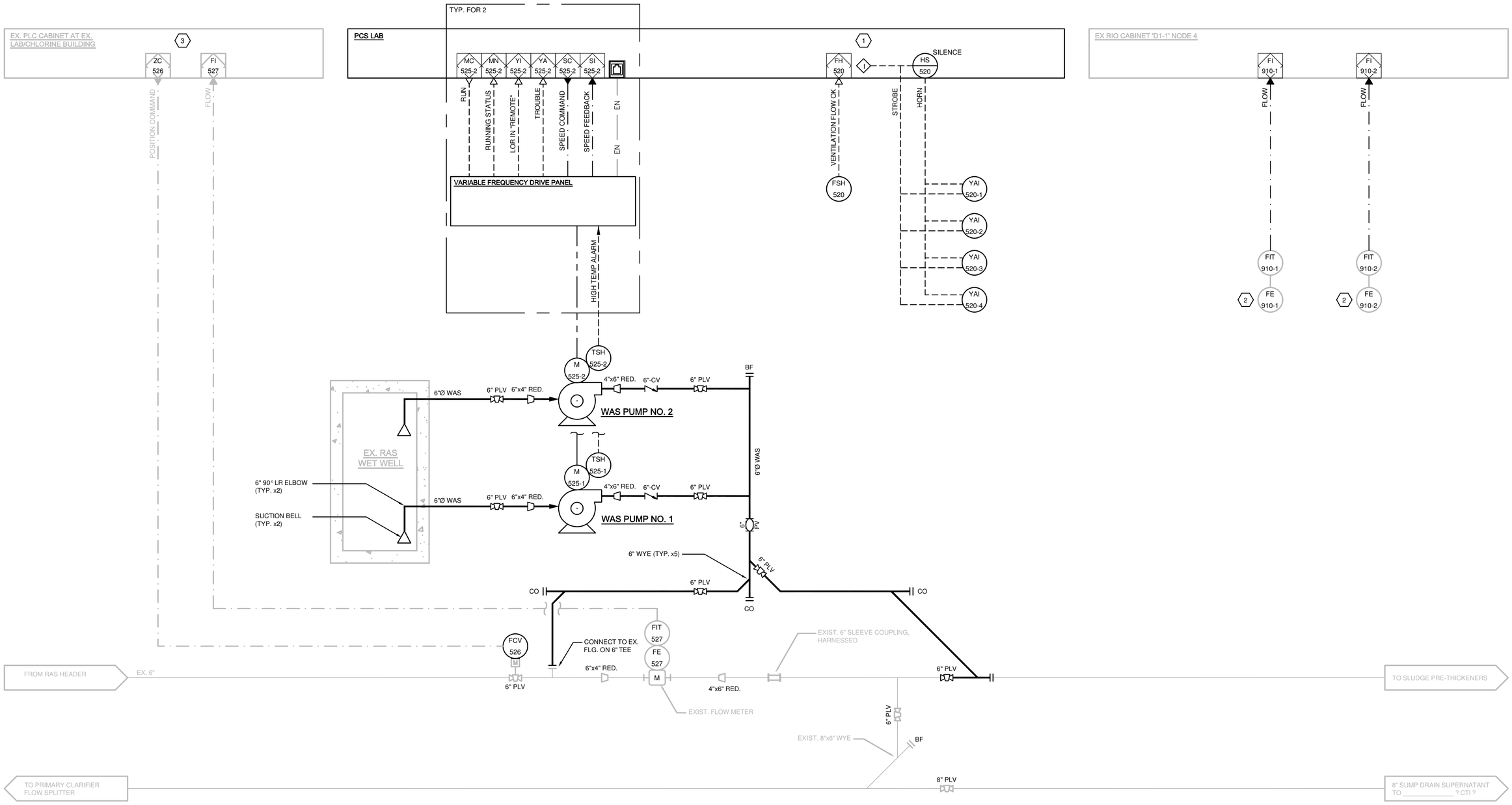

DRAWING NOTES:

1. PROVIDE 4 CONTACT INTERPOSING RELAY.
2. USE PREVIOUS UPGRADE DRAWINGS TO COORDINATE POLYMER SYSTEM PROCESS GRAPHICS WITH PLANT OPERATIONS STAFF.
3. REMOVE EX. LOOP CONTROLLER FOR ZC-526 AND FI-527. RECONNECT TO EX. PLC I/O.

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.

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2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

WASTE ACTIVATED SLUDGE (WAS)

FILE NO. 23374.51633 - I401
DATE MARCH 19, 2015
I-401

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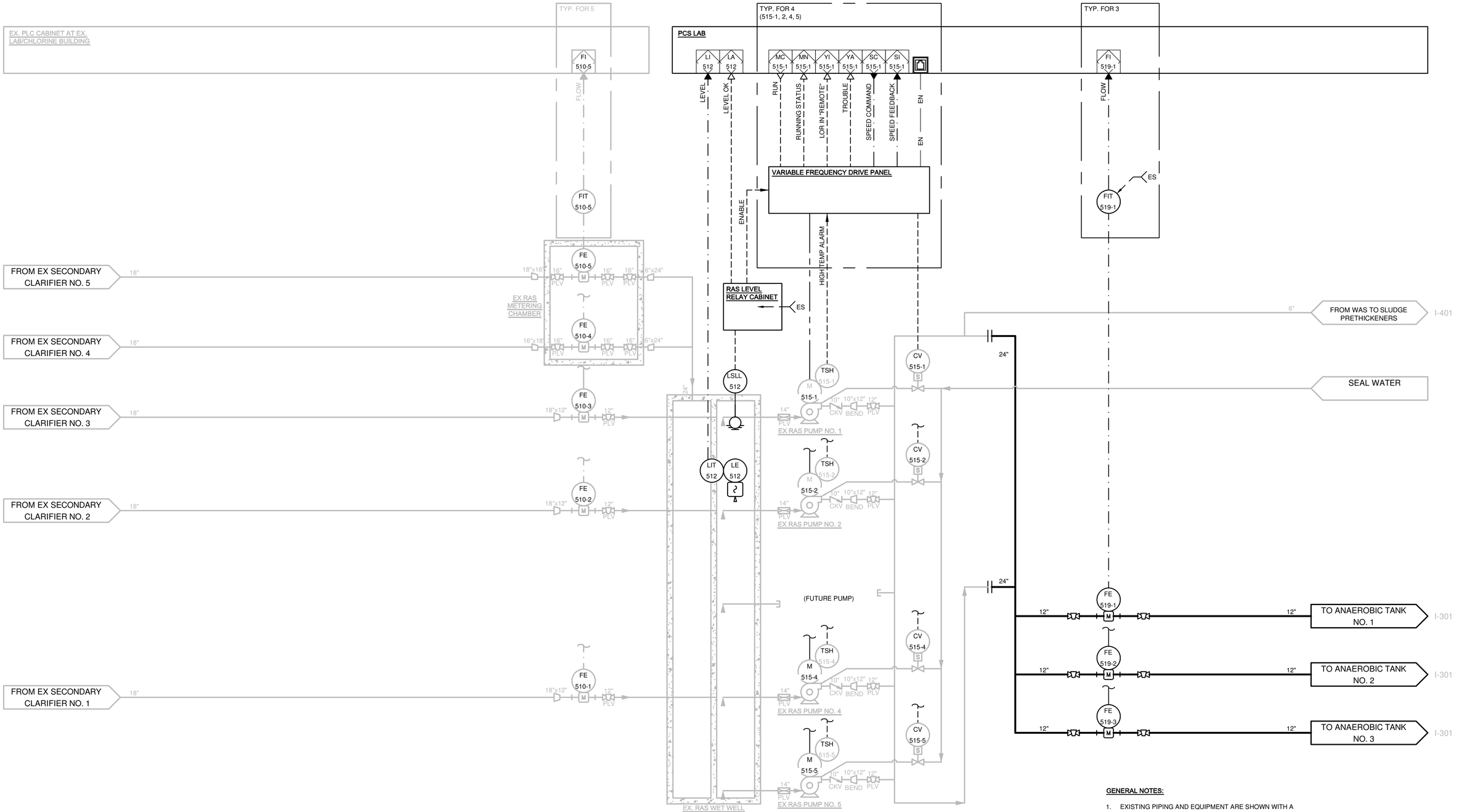

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INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

RETURN ACTIVATED SLUDGE (RAS)

FILE NO. 23374.51633 -I402
DATE MARCH 19, 2015

I-402

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PCS FILTER

AI 450 · YA 450 — ORTHO P · TROUBLE

ES → AIT 450 (ORTHO P) · AE 450

TYP. FOR 4

YI 460-2 · MN 460-2B · YA 460-2B · MN 460-2A · YA 460-2A · LH 460-2 — SYSTEM IN AUTO · BW PUMP RUNNING · BW PUMP FAULT · FILTER RUNNING · FILTER FAULT · HIGH LEVEL

DISC FILTER NO. 2 CONTROL PANEL **

LI 450 — CHANNEL LEVEL

TYP. FOR 2

LAH 465-2 — HIGH LEVEL ALARM

SUMP PUMP CONTROL PANEL

EX. RIO CABINET 'D1' AT THE TERTIARY FILTER BUILDING

MN 490 · YA 490 — RUNNING · ALARM

EX UV DISINFECTION CONTROL PANEL

42" FROM EX SECONDARY CLARIFIERS — 42"

LIT 450 · LE 450

48" SLIDE GATE

18" PLV · 18" PLV

PSD 460-2 ** · INF. CHANNEL · 36" SG · EX. BYPASS CHANNEL · PSD 460-4 **

36" SG · EFF. CHANNEL · EFF. CHANNEL · 36" SG

EX. INFLUENT CHANNEL

EX 18"

TSH 460-2 · M 460-2A ** · LE/LT 460-2B ** · LSH 460-2 ** · LE/LT 460-2A **

DISC FILTER NO. 2 **

M 460-2B ** · BW PUMP **

36" SG · 36" SG · 36" SG · 36" SG

LE/LT 460-4A ** · LSH 460-4 ** · LE/LT 460-4B ** · TSH 460-4 · M 460-4A ** · M 465-2 · M 460-4B **

DISC FILTER NO. 4 **

BW PUMP **

EX. 6" BACKWASH DRAIN

BACKWASH WET WELL

12" BACKWASH · 12" BACKWASH

M 465-1

EX. 6" BACKWASH DRAIN

TSH 460-1 · M 460-1A ** · LE/LT 460-1B ** · LSH 460-1 ** · LE/LT 460-1A **

DISC FILTER NO. 1 **

PSD 460-1 ** · BW PUMP ** · M 460-1B **

LE/LT 460-3A ** · LSH 460-3 ** · LE/LT 460-3B ** · M 460-3A ** · TSH 460-3

DISC FILTER NO. 3 **

M 460-3B ** · BW PUMP ** · PSD 460-3 **

18" PLV

36" SG · EFFLUENT CHANNEL · 36" SG

BYPASS CHANNEL

18" PLV

EMPTY FILTER BED

EFFLUENT CHANNEL · EX. BYPASS CHANNEL

EX 10" DRAIN · EX 6" DRAIN

10" — 10" TO EX FILTRATE PUMP STATION

EX. 6" BACKWASH DRAIN

EX 6" DRAIN

18" TO EX NON-POTABLE WET WELL — 18"

48" TO EX EFFLUENT 36" PARSHALL FLUME — 48"

EXISTING UV DISINFECTION

CO

GENERAL NOTES:

1. EXISTING PIPING AND EQUIPMENT ARE SHOWN WITH A GRAY LINE AND NEW PIPING AND EQUIPMENT ARE SHOWN WITH A BLACK LINE ON THIS SHEET.
2. ON THIS DRAWING, PUMPS, VALVES, CONTROL PANEL, AND FIELD INSTRUMENTS NOTED WITH AN ASTERISK (**) ARE BEING FURNISHED BY FILTER SUPPLIER. ALL OTHER EQUIPMENT BY CONTRACTOR.

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DRAWN BY	BNL	0	3/19/2015	ISSUED FOR OEPA REVIEW

NO.	DATE	REVISION	INT.
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0	3/19/2015	ISSUED FOR OEPA REVIEW	DL

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

TERTIARY FILTER BUILDING

FILE NO. 23374.51633 -I501

DATE MARCH 19, 2015

I-501

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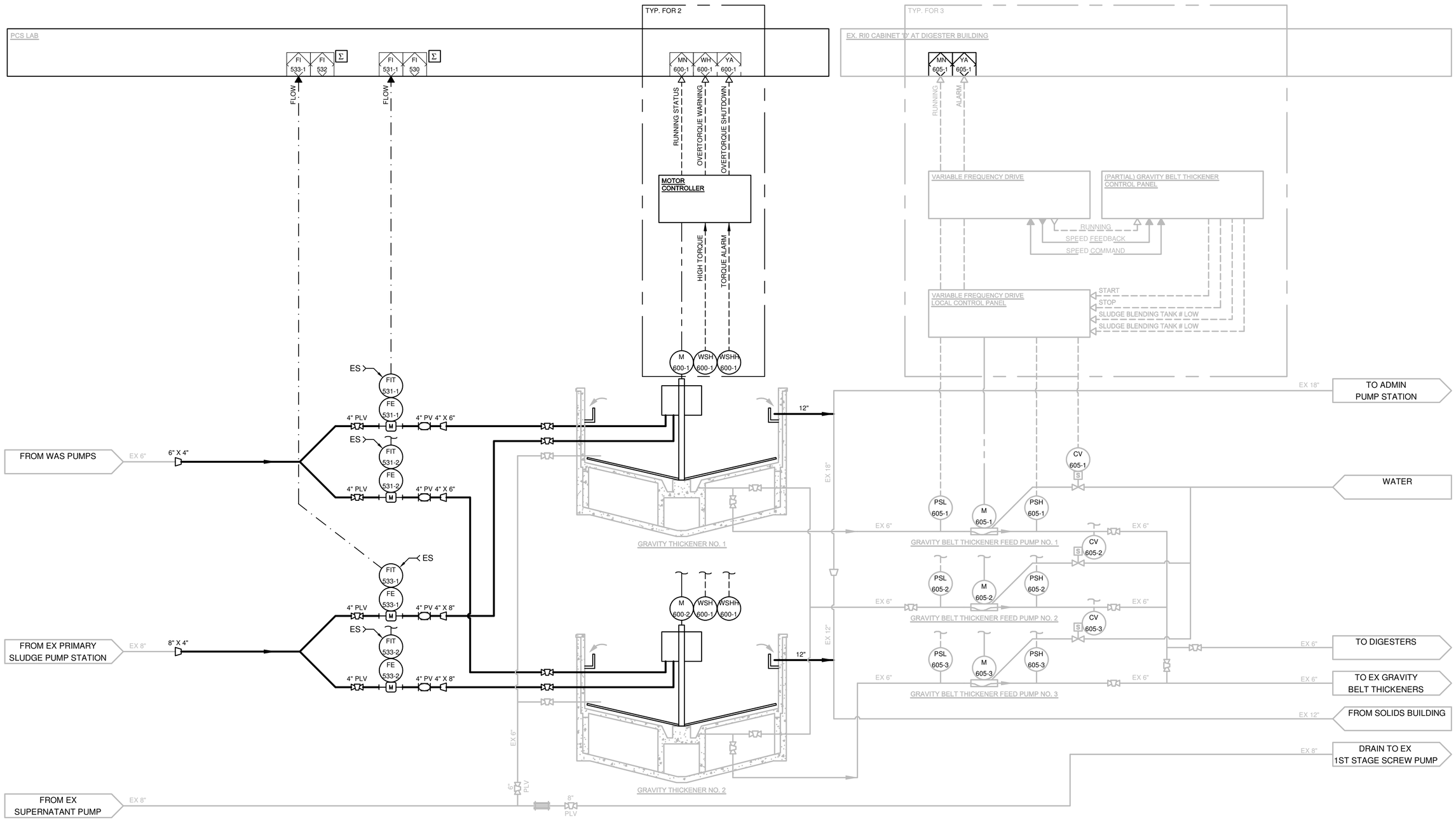

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CITY OF MASSILLON
2013 WWTP IMPROVEMENTS
MASSILLON, OHIO

INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM

PRE-THICKENERS

FILE NO. 23374.51633 -I601
DATE MARCH 19, 2015

I-601

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