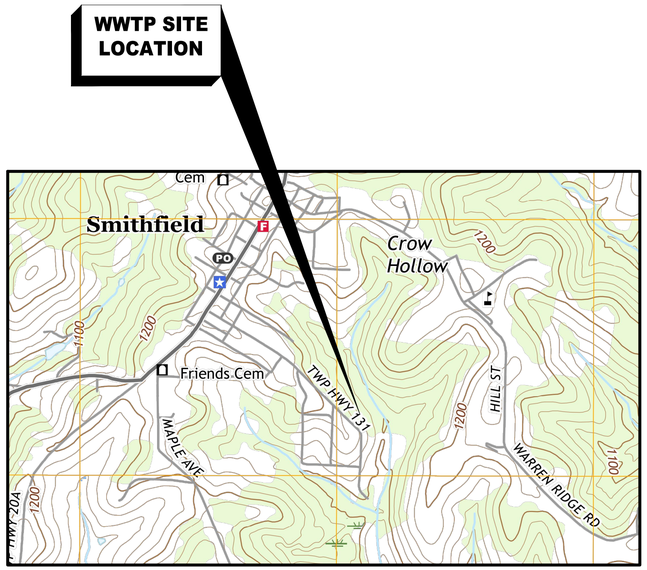


PROJECT LOCATION MAP
NOT TO SCALE

JEFFERSON COUNTY WATER & SEWER DISTRICT
JEFFERSON COUNTY, OHIO

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATIONS REHABILITATION PROJECT

FEBRUARY 2022 – BID PHASE

BOARD OF COUNTY COMMISSIONERS

TONY MORELLI	CHAIRMAN OF THE BOARD
DAVID C. MAPLE, JR.	COUNTY COMMISSIONER
DR. THOMAS E. GRAHAM	COUNTY COMMISSIONER

JEFFERSON COUNTY WATER AND SEWER DISTRICT

MIKE EROSHEVICH — DIRECTOR

CONSULTING ENGINEER

ARCADIS U.S., INC.
6041 WALLACE ROAD EXTENSION, SUITE 300
WEXFORD, PA 15090

ARCADIS Design & Consultancy for natural and built assets

APPROVED _____

MATTHEW McCUTCHEON
SENIOR ENGINEER

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SHEET NO.	GENERAL
G-01	COVER SHEET
G-02	INDEX OF DRAWINGS AND ABBREVIATIONS
G-03	EROSION AND SEDIMENT CONTROL NOTES
G-04	EROSION AND SEDIMENT CONTROL DETAILS
SHEET NO.	**CIVIL**
C-01	EXISTING TOPOGRAPHY PLAN
C-02	EXISTING SITE PLAN
C-03	DEMOLITION PLAN
C-04	SITE PLAN
C-05	UV DISINFECTION DETAIL
C-06	UV TANK MODIFICATIONS
C-07	AERATOR SECTIONS AND DETAILS
C-08	BAFFLE PROFILE, SECTIONS, AND DETAILS
C-09	MISC. DETAILS
SHEET NO.	**PUMP STATIONS**
PS-1	STANDARD PUMP STATION IMPROVEMENT SITE PLANS
PS-2	STANDARD PUMP STATION IMPROVEMENT SITE PLANS
PS-3	STANDARD PUMP STATION IMPROVEMENT SITE PLANS WITH WET WELL REPLACEMENTS
PS-4	PUMP STATION WET WELL STANDARD REHAB DETAIL
PS-5	PUMP STATION WET WELL REPLACEMENT DETAILS
PS-6	PUMP STATION VALVE VAULT DETAILS
PS-7	PUMP STATION MISC. DETAILS
SHEET NO.	**ELECTRICAL**
E-01	LEGEND, SYMBOLS, AND ABBREVIATIONS
E-02	ELECTRICAL SITE PLAN
E-03	EXISTING ONE LINE DIAGRAM
E-04	NEW ONE LINE DIAGRAM
E-05	BLOCK DIAGRAM
E-06	CONTROL BUILDING POWER PLAN
E-07	ONE LINE DIAGRAM, SITE PLAN, AND BLOCK DIAGRAM
E-08	ELECTRICAL DETAILS

GENERAL ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ALUM.	ALUMINUM
APPROX.	APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
@	AT
BV	BALL VALVE
CV	CHECK VALVE
CONC.	CONCRETE
CR	CROSS REFERENCE
EPA	ENVIRONMENTAL PROTECTION AGENCY
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
EA.	EACH
EL.	ELEVATION
ESC	EROSION & SEDIMENT CONTROL
ETC.	ETCETERA
EX., EXIST.	EXISTING
FLG.	FLANGE
FT., '	FEET
GAL.	GALLON(S)
G	GAS
GA.	GAGE
IN., "	INCHES
INF.	INFLUENT
INV.	INVERT
MAG.	MAGNETIC
MAX.	MAXIMUM
MFR.	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN.	MINIMUM
MJ	MECHANICAL JOINT
N	NORTHING
NO., #	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OH	OHIO
PV	PLUG VALVE
PVC	POLY VINYL CHLORIDE
RD.	ROAD
RED.	REDUCER
REINF.	REINFORCEMENT OR REINFORCE
REQ'D.	REQUIRED
SAN	SANITARY
S.F.	SQUARE FEET
SQ.	SQUARE
SS, ST. STL	STAINLESS STEEL
STL.	STEEL
STRUC.	STRUCTURAL
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
VERT.	VERTICAL
W/	WITH
W.S.	WATER SURFACE
W.T.	WATER TIGHT

GENERAL NOTES:
1. BIDDERS ARE REQUIRED TO VISIT THE PROJECT SITE TO REVIEW THE EXISTING CONDITIONS PRIOR TO BIDDING. CONTRACT DOCUMENTS ARE AVAILABLE AT THE OFFICES OF THE OWNER AND THE ENGINEER.
2. ALL WORK SHALL BE CONDUCTED WITHIN THE OWNER'S PRIVATE PROPERTY. PUBLIC RIGHT-OF-WAYS ALONG HARD SURFACED ROADS IN THE PROJECT AREA MAY BE UTILIZED FOR TRANSPORTATION AND SITE ACCESS.
3. TOPOGRAPHIC MAPPING IS IN ACCORDANCE WITH THE ORIGINAL PLANT DRAWINGS.
4. PRIOR TO ANY EARTHWORK OR OTHER CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES.
5. SEEDING AND GRADING LIMITS SHALL INCLUDE ALL AREAS WHICH ARE PART OF THE NEW CONSTRUCTION AND ALL AREAS THAT ARE DISRUPTED BY CONSTRUCTION PROCEDURES, EQUIPMENT, OR VEHICLES.
6. FINAL GRADE SHALL MATCH EXISTING GRADE, UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL INCLUDE MEANS TO PROTECT EXISTING FENCING, CURBS, WALKS, STEPS, ROADWAY, PIPES, CONDUITS, WALLS, BUILDINGS, AND OTHER STRUCTURES OR FACILITIES IN THE VICINITY OF THE CONTRACTOR'S WORK WITH SHEETING, LAGGING, OR OTHER SUITABLE DEVICES. ANY DAMAGE TO EXISTING FACILITIES SHALL BE COMPLETELY RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO OWNER.
8. LOCATION OF BURIED AND EXPOSED UTILITIES AND PHYSICAL FEATURES ARE APPROXIMATE. THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION TO DETERMINE THE EXACT ELEVATION AND LOCATION OF EXISTING FACILITIES. THE CONTRACTOR IS ADVISED NO SUB-SURFACE INVESTIGATION HAS BEEN PERFORMED. FACILITIES SHOWN ON THE DRAWINGS ARE BASED ON INFORMATION PROVIDED BY THE FACILITY OWNER.
9. CONTRACTOR IS ADVISED A TRENCH SHIELD AND/OR SHORING DESIGNED IN ACCORDANCE WITH OSHA STANDARDS SHALL BE USED IN ALL OPEN TRENCH EXCAVATION.
10. CONTRACTOR SHALL COMPLY WITH CLEAN FILL AND ENVIRONMENTAL DUE DILIGENCE REQUIREMENTS WHEN IMPORTING OR EXPORTING ANY FILL MATERIAL FROM THE SITE. CONTRACTOR SHALL EMPLOY GOOD FAITH EFFORTS IN RECYCLING CONSTRUCTION WASTES AND BY-PRODUCTS.

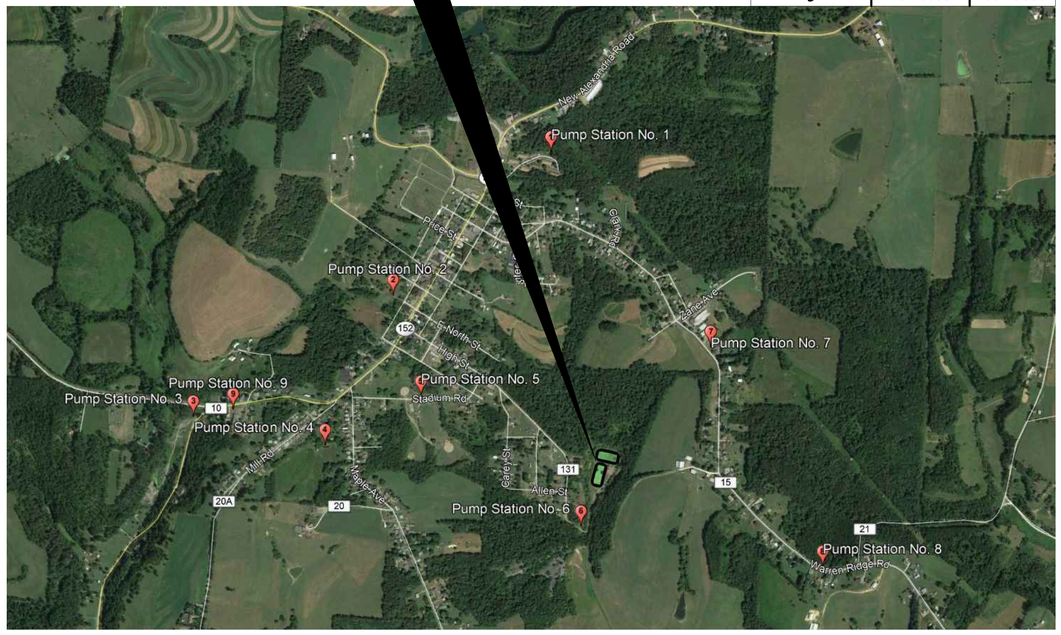
UTILITY NOTES:
1. IN ACCORDANCE WITH OH REVISED CODE 3781.25, CONTRACTOR MUST NOTIFY UTILITIES PRIOR TO CONSTRUCTION USING "ONE CALL". CALL 1-800-362-2764 BEFORE YOU DIG.

IDENTIFYING LETTER FOR GROUP OF DRAWINGS — G-01 — SHEET NUMBER WITHIN GROUP

DRAWING IDENTIFICATION SYSTEM

WWTP SITE LOCATION

Pump Station No.	Latitude	Longitude
1	40.27485	-80.77617
2	40.27011	-80.78303
3	40.26609	-80.79186
4	40.26516	-80.78600
5	40.26677	-80.78184
6	40.26242	-80.77485
7	40.26842	-80.76925
8	40.26114	-80.76439
9	40.26635	-80.79006



SITE MAP

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO
JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_G02
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ROSS

SHEET TITLE

GENERAL

INDEX OF DRAWINGS AND ABBREVIATIONS

SCALE: N.T.S.

G-02

SHEET 2 OF 28

GENERAL NOTES

1. All work must be conducted within the owner's private property as shown on the Drawings which defines the contract boundary.
2. All soil erosion and sediment control practices to be installed prior to any soil disturbance, or in their proper sequence, and maintained until permanent protection is established.
3. In accordance with the ODNR Rainwater and Land Development Specification interim stabilization requirement where it is not possible to permanently stabilize a disturbed area immediately after the final earth moving has been completed or where the activity ceases for more than fourteen (14) days , interim stabilization measures shall be implemented promptly.
4. The CONTRACTOR is responsible to implement procedures which ensure that the proper measures for the recycling or disposal of materials associated with or from the project site will be undertaken in accordance with State and Local Regulations.
5. The CONTRACTOR is responsible to install rock filters for erosion control in all areas where the trench or excavation is located in an existing ditch or located near a small stream or storm water swale area. The CONTRACTOR is responsible to prohibit sediment laden water from entering any waters of the State.
6. The types and locations of control measures needed depend upon the slope of the land and types of drainage system present at the location. Upslope run-off should be diverted around the work area by use of water bars or temporary diversion swales. Sediment barriers should be located downslope of trench, storage piles, or disturbed areas. Such storage piles should not be located in any swale or ditch. Run-off from existing roadway culverts, storm sewers, swales and ditches should be safely conveyed over any open trench. Inlet protection should be provided for any inlet that may receive runoff from a disturbed area.
7. The Storm Water Pollution Prevention Plan (SWPPP), including Drawings and Specifications, was prepared by Arcadis U.S., Inc., 6041 Wallace Road Extension, Suite 300, Wexford, PA 15090.

CONSTRUCTION SEQUENCE

This construction sequence is intended to provide a general course of action during project construction as to conform to all applicable regulatory agencies requirements for temporary and permanent soil erosion and sedimentation control. All necessary parts for the proper and complete execution of the Work whether specifically mentioned or not, pertaining to this SWPPP, are to be performed by the CONTRACTOR. It is not intended that the drawings show every detailed piece of material or equipment. The CONTRACTOR shall comply with all regulatory and specified requirements.

The general construction sequence for work in all areas shall consist of the following:

1. Install erosion and sedimentation control measures in accordance with the ODNR Rainwater and Land Development Specification prior to any earth disturbance.
2. During the excavation and construction of the sewage treatment plant all dewatering discharges must be direct to a silt filtration bag.
3. At the end of every work period the disturbed area must be stabilized and graded so that erosion will be minimized.
4. All erosion and sedimentation control measures must remain in place and be maintained by CONTRACTOR until final restoration of surface areas is completed and any vegetative cover reaches a uniform 70% perennial vegetative coverage across the disturbed area. Maintenance schedule shall conform with the requirements in the ODNR Rainwater and Land Development Specification.

HARD SURFACE AREA CONSTRUCTION SEQUENCE

The general construction sequence for hard surface areas in streets, roads, alleys, etc. shall consist of the following:

1. All inlets downgrade which will receive runoff from the trench area must be protected from sediment with inlet protection properly installed and marked with traffic barricades if necessary. Inlet project shall be per the ODNR Rainwater and Land Development Specification.
2. Any ditches or drainage swales adjacent to or along the trench area must be protected from sediment using silt fence or a similarly approved control measure.
3. During trench operations no excavated trench material shall be placed in any gutters, swales, or ditches. When feasible excavated trench material shall be placed on the upslope side of the trench.
4. When loading any excavated material care must be taken to continually maintain the excess material cleaned off the hard surface by mechanical brooming or manual shoveling and brooming.
5. Upon completion of backfilling the trench line must be stabilized with either stone or cold patch as temporary measures to insure erosion of the trench will not occur.
6. Permanent restoration of the trench line will be required to be completed as soon as possible.

NON-HARD SURFACE AREA CONSTRUCTION SEQUENCE

The general construction sequence for construction not on hard surface areas, berms, yards, woods, trails, etc. shall consist of the following:

1. Where the work leaves the hard surface and extends into a non-hard surface a rock construction entrance must be installed where equipment will access the trenching operation.
2. Prior to any excavation all soil erosion and sedimentation measures must be installed as shown and detailed on the Drawings and as required to support the construction methods in accordance with the regulations.
3. Any top soil stockpiled must be done with the proper silt fence and/or straw bale perimeter.
4. During excavation care must be taken to minimize the disturbed area and pile excavated material within the area of the erosion and sedimentation control measures. When feasible excavated trench material shall be placed on the upslope side of the excavation.
5. Erosion control matting or rip-rap must be used to line the disturbed invert of all swales and drainage ditches, including those crossed or disrupted by the construction immediately after the completion or at the end of the day.
6. Upon completion of the installation of structures and backfilling, the area must be immediately graded and stabilized using temporary methods or if conditions allow, permanent restoration.
7. The day after backfilling the disturbed area must be graded to finished grade and the appropriate temporary erosion and sediment control measures/facility must be installed. Seeding and mulching of all disturbed areas should be done within seven (7) days after structure installation.

CATEGORY "A" OPEN CUT STREAM CROSSING

CONSTRUCTION SEQUENCE:

1. All open cut crossings must be scheduled during low flow periods and be completed in one day.
2. CONTRACTOR shall establish access roads and storage areas for equipment and materials required for the stream crossing, prior to the start of the stream crossing.
3. Place the by-pass pipe or coffer dam in the stream and divert the upstream flow using hand placed sandbags or jersey barriers. Under no circumstance is there to be any excavation prior to the by-passing of stream flow.
4. All excavation of the trench shall be done from the stream banks whenever possible.
5. Excavate the trench and stockpile all excavated material that is suitable for the backfill in a temporary stockpile located outside the channel area. The stockpile area shall be surrounded by a barrier or sediment removal structure to prevent sediment from re-entering the water course. All excavated materials which will not be used for backfill shall be removed to a disposal site outside the flood plain.
6. Trench plugs shall be placed at both ends of the trench where the trench intersects the edge of the waterway. Trench plugs shall be installed during installation of the pipe and shall remain in place and buried.
7. Water which accumulates in the open trench must be pumped and discharged to a filter bag. At no time should dewatering discharges be directed to the stream.
8. After the concrete encasement is in place the excavation will be backfilled in accordance with the Specifications and the invert of the stream stabilized with riprap prior to flow being redirected into it.
9. Any accumulated sediment or loose material above the downstream sand bags or jersey barriers shall be removed from the stream bed prior to removal of the by-pass pipe.
10. Remove the downstream sand bags or jersey barriers, followed by the upstream sand bags or jersey barriers, and finally remove the by-pass pipe.
11. The disturbed bank areas on both sides of the crossing shall be stabilized with riprap to the top of the banks as shown on the stream crossing detail, immediately upon completion of the crossing.
12. Finish grading and stabilize the disturbed areas with temporary soil erosion control measures on the day following pipe installation. The disturbed areas must be seeded and mulched within seven (7) days after installation of pipe. If areas cannot be seeded and mulched due to weather etc. the area will be maintained with the temporary soil erosion control measured until permanent seeding and mulching can occur.

CATEGORY "B" SWALE CROSSING

CONSTRUCTION SEQUENCE:

1. As a general note all swale crossings shall be done during periods of no or low flow and be completed the same day.
2. If there is any flow in the swale a by-pass pipe shall be utilized to carry the flow over and past the proposed ditch line. Hand placed sand bags shall be used to direct the flow into the by-pass pipe. Sand bags shall be used at the downstream end to hold the pipe in place.
3. Excavate the trench and install the piping accordance with the Specifications.
4. Backfill the trench to finished grade and stabilize the disturbed area immediately.
5. In the invert of the swale, use erosion control matting or rip rap to prevent accelerated erosion of the invert.
6. Finish grade and stabilize with temporary soil erosion control measures on the day following pipe installation. The disturbed areas will be seeded and mulched within seven (7) days after installation of the pipe. If areas cannot be seeded and mulched due to weather etc, the areas will be maintained with the temporary soil erosion control measures until permanent seeding and mulching can occur.

CATEGORY "C" CONSTRUCTION WITHIN 50 FT. OR LESS OF STREAM

CONSTRUCTION SEQUENCE:

1. Install the protection barrier along the stream side of the temporary construction easement. Clear only what is necessary to install the protection barrier.
2. Install any other required temporary soil erosion and sedimentation control measures prior to starting any clearing grubbing or construction, i.e. rock construction entrances, filter bag areas, etc.
3. Clear and grub area necessary to construct the sewer. Clearing will be limited to 600' in advanced of the pipe.
4. Excavate and construct the waterline and backfill to grade in accordance with the Specification. All material excavated from the trenching operations shall be cast to the side of the trench away from the stream. Note all dewatering discharges shall be to silt filtration bags located up grade of the silt fence or barrier. excavation will be limited to the amount which can be completed and backfilled in one day.
5. Trench plugs shall be installed and spaced as specified.
6. Finish grade and stabilize with temporary soil erosion control measures on the day following pipe installation. The disturbed areas will be seeded and mulched within seven days after installation of the pipe. If areas cannot be seeded and mulched due to weather etc, the areas will be maintained with the temporary soil erosion control measures until permanent seeding and mulching can occur.

CATEGORY "D" STORM SEWER CROSSING

CONSTRUCTION SEQUENCE:

1. As a general note all storm sewer and culvert crossings shall be done during periods of no or low flow and be completed the same day.
2. If there is any flow in the storm sewer or culvert the pipe shall remain in place during trench operation beneath.
3. Only dry storm sewer or culvert pipes shall be removed to facilitate construction. Storm sewer or culvert pipe shall be re-installed at the end of each work day.
4. Install sediment controls between the trench line and any ditch or swale contributing to the storm sewer or culvert.
5. Excavate the trench and install the piping accordance with the Specifications.
6. Backfill the trench to finished grade, if removed install new storm sewer or culvert, and stabilize the disturbed area immediately.
7. Finish grade and stabilize with temporary soil erosion control measures on the day following pipe installation. The disturbed areas will be seeded and mulched within seven days after installation of the pipe. If areas cannot be seeded and mulched due to weather etc, the areas will be maintained with the temporary soil erosion control measures until permanent seeding and mulching can occur.

MAINTENANCE SCHEDULE

MAINTENANCE OF CONTROL MEASURES

1. The CONTRACTOR will be required to maintain all temporary and permanent erosion and sedimentation control measures during and after the Work is completed in accordance with the requirements of the ODNR Rainwater and Land Development Specification.
2. After any run-off event and at the end of each week, all measures shall be inspected for damages and integrity. Any repairs will be made immediately.
3. Any accumulated sediments must be removed from all straw bale barriers, filter fabric fence, etc. on a routine basis based on the criteria set for in the ODNR Rainwater and Land Development Specification. All accumulated sediments shall be disposed of at an off site approved disposal area.
   - 3.1. Straw bale barrier – clean when uniform accumulated sediments reach one-third the above ground height of the barrier.
   - 3.2. Filter fabric fence – clean when uniform accumulated sediments reach one-half the above ground height of the fence.

PROJECT COMMENCEMENT AND EXPECTED FINAL STABILIZATION DATES

1. The measures above described shall be in place before any excavation work is started. Final stabilization shall be done immediately following the completion of all improvements including road pavement. Refer to guidelines as specified herein, as noted on the Drawings and in the Specifications.

PERMANENT CONTROL MEASURES

1. Permanent measures to control erosion and sedimentation in the vicinity of ditches were set forth above. Permanent control measures in other areas will take the form of restoring the disturbed surface to its original condition and/or grading the fill per contract drawings.
2. CONTRACTOR shall periodically reinspect the areas treated as described above and restore areas that may have been damaged prior to restoration or establishment of permanent vegetation.
3. For disturbed areas remaining dormant for over 1 year or at final grade, permanent erosion controls must be applied within 7 days.
4. For disturbed areas within 50' of a stream at final grade, permanent controls must be installed within 2 days of final grade.

SEEDING SPECIFICATIONS

TEMPORARY SEEDING

SEEDING MIX	SEEDING RATE LBS/ ACRE	SEEDING RATE LBS/ 1000 SF	SEEDING DATES
OATS	128	3	MARCH 1 – AUGUST 15
TALL FESCUE	40	1	
ANNUAL RYEGRASS	40	1	
PERENNIAL RYEGRASS	40	1	MARCH 1 – AUGUST 15
TALL FESCUE	40	1	
ANNUAL RYEGRASS	40	1	
ANNUAL RYEGRASS	55	1.25	MARCH 1 – AUGUST 15
PERENNIAL RYEGRASS	142	3.25	
CREEPING RED FESCUE	17	0.4	
KENTUCKY BLUEGRASS	17	0.4	
RYE	112	3	AUGUST 16 – NOVEMBER 1
TALL FESCUE	40	1	
ANNUAL RYEGRASS	40	1	
WHEAT	120	3	AUGUST 16 – NOVEMBER 1
TALL FESCUE	40	1	
ANNUAL RYEGRASS	40	1	
PERENNIAL RYE	120	3	AUGUST 16 – NOVEMBER 1
TALL FESCUE	40	1	
ANNUAL RYEGRASS	40	1	
ANNUAL RYEGRASS	55	1.25	AUGUST 16 – NOVEMBER 1
PERENNIAL RYEGRASS	142	3.25	
CREEPING RED FESCUE	17	0.4	
KENTUCKY BLUEGRASS	17	0.4	

FERTILIZER: 1,000 POUNDS PER ACRE OF 10-20-20 COMMERCIAL

LIMING: 4,000 POUNDS PER ACRE OF LIMESTONE AS SPECIFIED.

MULCH: 6,000 POUNDS PER ACRE OF MULCH AS SPECIFIED.

NOTES: SEED ALL DISTURBED AREAS WITH THE TEMPORARY SEED MIXTURE EXCEPT THOSE AREAS SHOWN TO BE SEEDED WITH STEEP SLOPE MIXTURE.

DORMANT SEEDINGS

1. From October 1 through November 20, prepare the seedbed, add the required amount of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
2. From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
3. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
4. Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

SEEDING SPECIFICATIONS CONTINUED

PERMANENT SEEDING

SEEDING MIX	SEEDING RATE LBS/ ACRE	SEEDING RATE LBS/ 1000 SF	NOTES
GENERAL USE			
CREEPING RED FESCUE	20-40	1/2-1	FOR CLOSE MOWING &
DOMESTIC RYEGRASS	10-20	1/4-1/2	FOR WATERWAYS WITH
KENTUCKY BLUEGRASS	20-40	1/2-1	<2.0 FT/SEC VELOCITY.
TALL FESCUE	40-50	1-1 1/4	
TURF-TYPE (DWARF) FESCUE	90	2 1/4	
STEEP BANKS OR CUT SLOPES			
TALL FESCUE	40-50	1-1/4	
CROWN VETCH	10-20	1/4 – 1/2	DO NOT SEED LATER
TALL FESCUE	20-30	1/2 – 2/3	THAN AUGUST
FLAT PEA	20-25	1/2 – 3/4	DO NOT SEED LATER
TALL FESCUE	20-30	1/2 – 2/3	THAN AUGUST
ROAD DITCHES AND SWALES			
TALL FESCUE	40-50	1-1 $\frac{1}{4}$	
TURF-TYPE (DWARF) FESCUE	90	2 1/4	
KENTUCKY BLUEGRASS	5	0.1	
LAWNS			
KENTUCKY BLUEGRASS	100-120	2	
PERENNIAL RYEGRASS		2	
KENTUCKY BLUEGRASS	100-120	2	FOR SHADED AREAS
CREEPING RED FESCUE		1-1/2	

NOTES:

1. Seeding should be placed between March 1 to May 31 or August 1 to September 30. If seeding occurs outside of these dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination.
2. Use dormant seeding during winter months (October 1 through November 20).
3. Top soil should be applied where needed to establish vegetation.
4. Soil compaction, infiltration and percolation requirements shall be in accordance with the Contract Specifications.
5. Final grading shall be in accordance with the requirements of the Contract Specifications.
6. Agriculture ground limestone shall be applied to acid soil as recommended by the soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000 square feet or 2 tons per acre.
7. Fertilizer shall be applied as recommended by the soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000 square feet or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
8. The lime and fertilizer shall be worked in the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

STEEP SLOPE SEEDING SPECIFICATIONS (SLOPES GREATER THAN 3:1)

SEED:

MIX	MIN. APPLICATION RATE PROPORTION	PURITY	(POUNDS/ACRE)
CERTIFIED KENTUCKY 31 TALL FESCUE	70%	98%	70
BIRDSFOOT TREFOIL MIXTURE	20%	98%	20
REDTOP	10%	92%	10

FERTILIZER: 1,000 POUNDS PER ACRE OF 10-20-20 COMMERCIAL

LIMING: 12,000 POUNDS PER ACRE LIMESTONE AS SPECIFIED.

MULCH: 6,000 POUNDS PER ACRE OF MULCH AS SPECIFIED.

NOTES: SEED ALL AREAS WITH SLOPES STEEPER THAN 3:1 WITH STEEP SLOPE MIX.

ACTIVATE LEGUMES WITH INOCULATE AS SPECIFIED.

PERMANENT LAWN SEEDING SPECIFICATIONS

SEED:

MIX	MIN. APPLICATION RATE PROPORTION	PURITY	(POUNDS/ACRE)
PERENNIAL RYEGRASS	20%	98%	20
CREEPING RED OR CHEWINGS FESCUE	30%	98%	30
KENTUCKY BLUEGRASS MIXTURE	50%	92%	50

FERTILIZER: 1,000 POUNDS PER ACRE OF 10-20-20 COMMERCIAL

LIMING: 12,000 POUNDS PER ACRE LIMESTONE AS SPECIFIED.

MULCH: 6,000 POUNDS PER ACRE OF MULCH AS SPECIFIED.

NOTES: FOR USE ON AREAS TO BE RESTORED AS PERMANENT LAWNS.

UNIMPROVED PERMANENT SEEDING SPECIFICATIONS

SEED:

MIX	MIN. APPLICATION RATE PROPORTION	PURITY	(POUNDS/ACRE)
CERTIFIED KENTUCKY 31 TALL FESCUE	70%	98%	70
CHEWINGS RED FESCUE	30%	98%	30

FERTILIZER: 1,000 POUNDS PER ACRE OF 10-20-20 COMMERCIAL

LIMING: 12,000 POUNDS PER ACRE LIMESTONE AS SPECIFIED.

MULCH: 6,000 POUNDS PER ACRE OF MULCH AS SPECIFIED.

NOTES: FOR USE ON UNIMPROVED AREAS OF WORK.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_G03
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ARGYROS

SHEET TITLE

GENERAL

EROSION AND SEDIMENT CONTROL NOTES

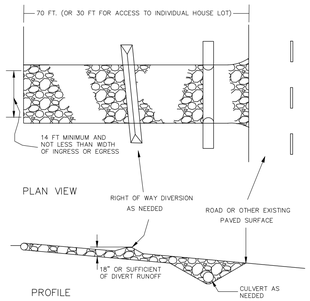
SCALE: N.T.S.

G-03

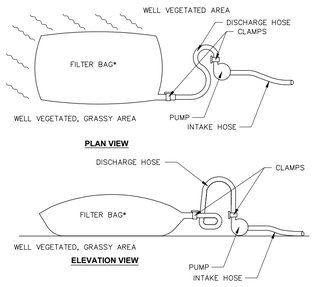
SHEET 3 OF 28

GENERAL NOTES:
1. DETAILS REPRESENT MOST COMMON EROSION AND SEDIMENT CONTROL MEASURES FOR THE WORK. ADDITIONAL CONTROL MEASURE DETAILS CAN BE REFERENCED IN THE RAINWATER AND LAND DEVELOPMENT MANUAL. OTHER CONTROLS THAT MAY BE REQUIRED, DEPENDING ON THE CONTRACTORS MEANS AND METHODS OF CONSTRUCTION INCLUDE:
   1.1. ROCK FILTERS OR APRONS
   1.2. IMPROVED FILTER FABRIC FENCES
   1.3. INLET PROTECTION

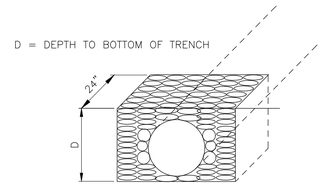
NOTES:
1. MAINTAIN ALL EROSION AND SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH OHIO EPA REQUIREMENTS AND THE RECOMMENDATIONS OF THE MANUFACTURERS OF ANY MATERIALS USED.
2. UPON WRITTEN APPROVAL FROM THE ENGINEER, CONTRACTOR MAY UTILIZE OTHER CONTROL STRUCTURES AS SHOWN IN THE OH "RAINWATER AND LAND DEVELOPMENT MANUAL".
3. REFER TO EROSION AND SEDIMENT CONTROL NOTES AS SHOWN ON THE DRAWINGS AND SPECIFIED FOR PLACEMENT OF CONTROL STRUCTURES.



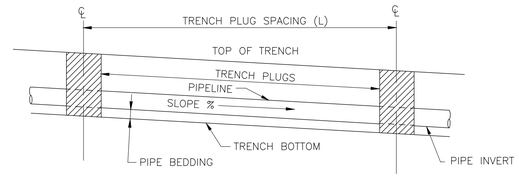
ROCK CONSTRUCTION ENTRANCE
SCALE: NTS



PUMPED WATER FILTER BAG
SCALE: NTS



SECTION VIEW
NO SCALE



ELEVATION
NO SCALE

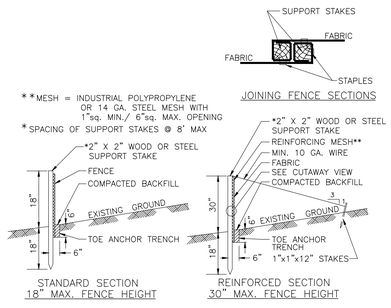
REQUIRED SPACING (L) AND MATERIALS FOR TRENCH PLUGS		
TRENCH SLOPE (%)	L (FEET)	PLUG MATERIAL
0 – 15	*	*
5 – 15	500	**EARTH FILLED SACKS
15 – 25	300	**EARTH FILLED SACKS
25 – 35	200	**EARTH FILLED SACKS
35 – 100	100	**EARTH FILLED SACKS
OVER 100	50	CEMENT FILLED BAGS, (WETTED), OR MORTARED STONE

* TRENCH PLUGS ARE REQUIRED AT ALL STREAM, RIVER, WETLAND, OR WATER–BODY CROSSINGS AND IN AREAS OF KNOWN HIGH GROUNDWATER, REGARDLESS OF TRENCH SLOPE. TRENCH PLUGS ARE REQUIRED ON BOTH SIDES OF A CROSSING.
** TOPSOIL MAY NOT BE USED TO FILL SACKS.

TRENCH PLUG DETAIL
SCALE: NTS

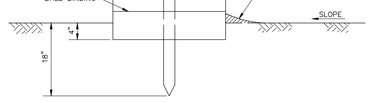
NOTES:
1. TRENCH PLUGS AT STREAM CROSSINGS OR WATER BODY CROSSINGS SHOULD BE CONSTRUCTED FROM IMPERMEABLE MATERIAL TO PREVENT WATER FROM FOLLOWING THE TRENCH LINE DOWNSTREAM.

MAX. SLOPE LENGTHS FOR FILTER FABRIC FENCES		
SLOPE – PERCENT	MAX. SLOPE LENGTH ABOVE FENCES (FT)	
	18" HIGH FENCE	30" HIGH FENCE
2 (OR LESS)	150	500
5	100	250
10	50	150
15	35	100
20	25	70
25	20	55
30	15	45
35	15	40
40	15	35
45	10	30
50	10	25



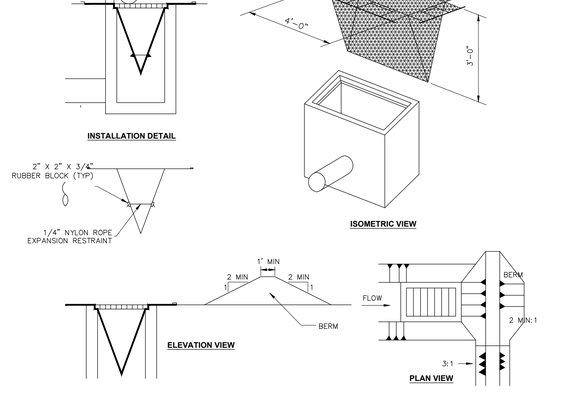
FILTER FENCE BARRIER MAINTENANCE
1. THE FENCE INSTALLATION SHALL BE INSPECTED AFTER EVERY PRECIPITATION EVENT OR AT LEAST ONCE EVERY WEEK. ANY NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY.
2. ACCUMULATED SEDIMENTS SHALL BE REMOVED AS REQUIRED TO KEEP THE FENCE FUNCTIONAL IN ALL CASES REMOVE DEPOSITS WHERE THE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
3. ANY SECTION OF SILT FENCE THAT HAS BEEN UNDERCUT OR OVERTOPPED MUST IMMEDIATELY BE REPLACED WITH A ROCK FILTER OUTLET.
4. FILTER FABRIC WILL BE REPLACED PER MANUFACTURERS RECOMMENDATIONS FOR WEATHERING.
5. FILTER FABRIC FENCE MUST BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8' UP SLOPE AT A 45 DEGREE ANGLE TO THE MAIN BARRIER ALIGNMENT.

FILTER FABRIC FENCE DETAIL
SCALE: NTS



NOTES:
1. STRAW BALE BARRIERS SHOULD NOT BE USED FOR MORE THAN 3 MONTHS.
2. STRAW BALE BARRIERS SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
3. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUND HEIGHT OF THE BARRIER.
4. ANY SECTION OF STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET. SEE STANDARD CONSTRUCTION DETAIL #18.

STRAW BALE BARRIERS
SCALE: NTS



NOTES:
1. MAXIMUM DRAINAGE AREA = 1/2 ACRE.
2. INLET PROTECTION IS NOT REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS REQUIRED FOR ALL INSTALLATIONS.
3. EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR TO REMAIN PERMANENTLY.
4. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS

FILTER BAG INLET PROTECTION
SCALE: NTS

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_G04
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ARGYROS

SHEET TITLE

GENERAL

EROSION AND SEDIMENT CONTROL DETAILS

SCALE: N.T.S.

G–04

SHEET 4 OF 28

VILLAGE OF SMITHFIELD

R. PIZZOFERRATO

75' ±

A. & E. MAZURE

VILLAGE OF SMITHFIELD

R. & J. GRANT

For Detail of Culvert C-1 see Sheet No. 23

79 PINUS SYLVESTRIS (SCOTCH PINE) 3 ROWS OF STAGGERED PLACEMENT

CHLORINE TANKS

PARSHALL FLUME

CHLORINE BUILDING

SPLITTER BOX NO. 2

LAGOON NO. 2

PLANT BASELINE

LAGOON NO. 1

VEHICLE STORAGE BUILDING

CONTROL BUILDING

SPLITTER BOX NO. 1

HIGH POINT OF NEW DITCH ELEV. 1108.50

J. & E. VITEK

JEFFCO RESOURCES

1090 1100 1108 1109 1110 1120 1130 1140

12 14 16 18

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019

PROJECT NO.: 06753016.0000

FILE NAME: 6753016_C01

DESIGNED BY: R. SHEFFLER

DRAWN BY: R. SHEFFLER

CHECKED BY: J. ROSS

SHEET TITLE

CIVIL

EXISTING CONDITIONS TOPOGRAPHY PLAN

SCALE: 0 30' 60'

C-01

SHEET 5 OF 28

User:ADAWSON Spec:AUS-NCSMOD File:G:\PROJECTS\6753016 - JCWSD SMITHFIELD SEWER SYSTEM\CADD\CIVIL\6753016_C01.DWG Scale:1:1 SavedDate:4/20/2020 Time:11:34 Plot Date: Dawson, Andrew W.; 2/7/2022; 16:34 ; Layout:5

R. & J. GRANT

A. & E. MAZURE

R. PIZZOFERRATO

JEFFCO RESOURCES

Forcemain # 6
Refer to plan sheet 21 of sanitary sewer plans.

5' Stub
E. 1106.28

Manhole And 5' Stub Of Pipe Constructed As Part Of Collection System Contract *

10" Dia. DIP

I-C

10' Horizontal Clearance from Sewer Line

Rock Channel Protection, 1'-6" Thick In Outlet of Channel O.D.O.T. 601.07 Type 'C'

Flow Arrow

CHLORINE TANKS

PARSHALL FLUME

8" Dia.

CHLORINE BUILDING

M.H.

8" Dia.

1" Yard Hydrant

No. 1

8" Dia.

No. 2

SPLITTER BOX NO. 2

6" Dia. D.I.P.

6" Dia. DIP

6" Gate Valve & Valve Box

12" Gate Vate & Valve Box

6" Gate Valve & Box

6" x 12" Reducer

12" Dia. DIP Overflow Pipe Elev. 1107.50

12" Dia. D.I.P.

12" x 12" x 12" Tee DIP.

2" Dia. P.E.

10" Dia. DIP

12" Dia. D.I.P.

LAGOON NO. 2
W.S. 1107.00

PLANT BASELINE

LAGOON NO. 1
W.S. 1107.00

1" Dia. W.P.E.

VEHICLE STORAGE BUILDING

CONTROL BUILDING

2" Forcemain

4" Dia.

SPLITTER BOX NO. 1

12" Dia. DIP

4" Dia. DIP

E. 1106.90

3'x4' Pad Of Rock Channel Protection, 1'-6 Thick O.D.O.T. 601.07 Type 'C'

E. 1106.90

New Manhole
E. 1105.50 (In)
E. 1105.40 (Out)

D.I.P.

4" Dia. Sewer At 49.0%
Anchors Spaced 23'-6" Max.

J. & E. VITEK

JEFFCO RESOURCES

E. 1138.27

5' Stub

Manhole And 5' Stub Of Pipe Constructed

LEGEND

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO
JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C02
DESIGNED BY: R. SHEFFLER
DRAWN BY: R. SHEFFLER
CHECKED BY: J ROSS

SHEET TITLE

CIVIL

EXISTING SITE PLAN

SCALE: 0 30' 60'

C-02

SHEET 6 OF 28

R. PIZZOFERRATO

A. & E. MAZURE

R. & J. GRANT

Forcemain # 6
Refer to plan sheet 21 of sanitary sewer plans.

JEFFCO RESOURCES

5' Stub
E. 1106.28

Manhole And 5' Stub Of Pipe Constructed As Part Of Collection System Contract *

10" Dia. DIP

I-C

SEE UV TANK FOR DEMO DETAILS

TELESCOPING VALVE TO BE REPLACED

10' Horizontal Clearance from Sewer Line

TELESCOPING VALVE TO BE REPLACED

6" Dia. DIP

Rock Channel Protection, 1'-6" Thick In Outlet of Channel O.D.O.T. 601.07 Type 'C'

CHLORINE TANKS

PARSHALL FLUME

8" Dia.

CHLORINE BUILDING

M.H.

8" Dia.

1" Yard Hydrant

No. 1

No. 2

SPLITTER BOX NO. 2

6" Dia. D.I.P.

EXISTING AIR MANIFOLDS TO BE REMOVED

6" Gate Valve & Valve Box

12" Gate Vate & Valve Box

6" Gate Valve & Box

6" Dia. DIP

6" X 12" Reducer

EXISTING AIR DISTRIBUTION LINES TO BE REMOVED

12" Dia. DIP Overflow Pipe Elev. 1107.50

12" Dia. D.I.P.

LAGOON NO. 2
W.S. 1104.60

PLANT BASELINE

12" X 12" X 12" Tee DIP.

2" Dia. P.E.

10" Dia. DIP

12" Dia. D.I.P.

LAGOON NO. 1
W.S. 1107.00

EXISTING BAFFLES TO BE REMOVED

EXISTING AERATION TUBING TO BE REMOVED

1" Dia. P.E.

EXISTING AIR MANIFOLDS TO BE REMOVED

VEHICLE STORAGE BUILDING

CONTROL BUILDING

2" Forcemain

4" Dia.

SPLITTER BOX NO. 1

12" Dia. DIP

4" Dia. DIP

E. 1106.90

3'x4' Pad Of Rock Channel Protection, 1'-6 Thick O.D.O.T. 601.07 Type 'C'

E. 1106.90

New Manhole
E. 1105.50 (In)
E. 1105.40 (Out)

D.I.P.

4" Dia. Sewer At 49.0%
Anchors Spaced 23'-6" Max.

J. & E. VITEK

JEFFCO RESOURCES

E. 1138.27

5' Stub

Manhole And 5' Stub Of Pipe Constructed

LEGEND

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C03
DESIGNED BY: R. SHEFFLER
DRAWN BY: R. SHEFFLER
CHECKED BY: J ROSS

SHEET TITLE

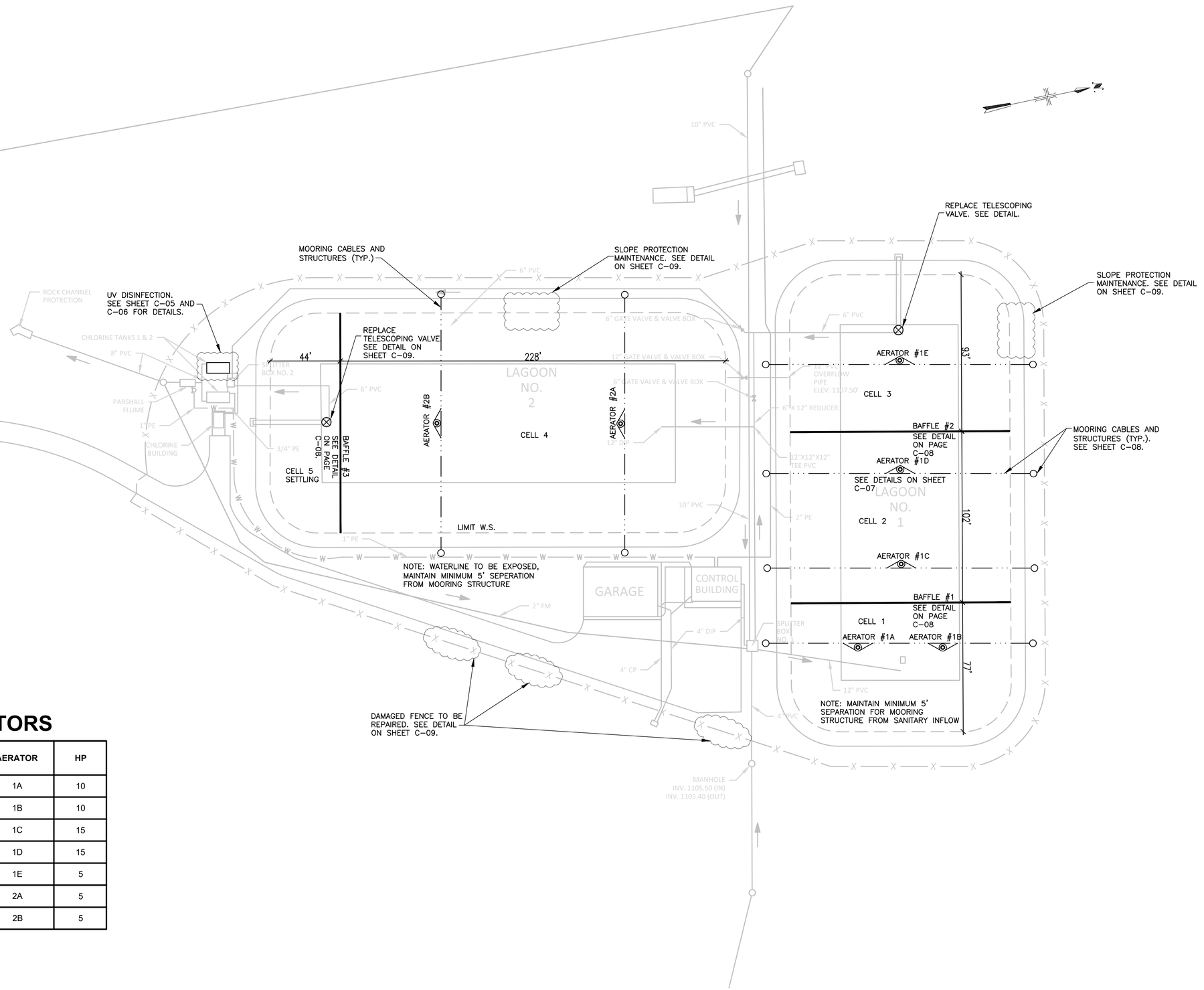
CIVIL

DEMOLITION PLAN

SCALE: 0 30' 60'

C-03

SHEET 7 OF 28



AERATORS

LAGOON #	CELL	AERATOR	HP
1	1	1A	10
	1	1B	10
	2	1C	15
	2	1D	15
	3	1E	5
2	4	2A	5
	4	2B	5

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C04
DESIGNED BY: R. SHEFFLER
DRAWN BY: R. SHEFFLER
CHECKED BY: J. ROSS

SHEET TITLE

CIVIL

SITE PLAN

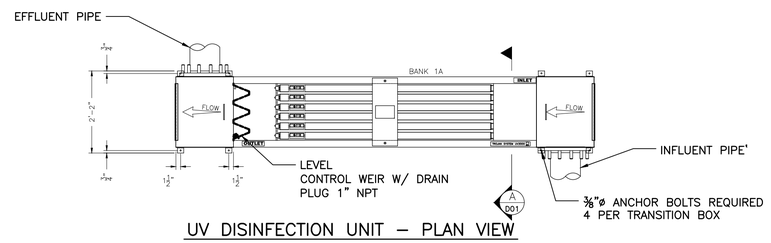
SCALE: 0 30' 60'

C-04

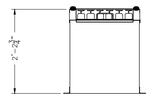
SHEET 8 OF 28

User:ADAWSON Spec:AUS-NCSMOD File:G:\PROJECTS\6753016 - JCWSD SMITHFIELD SEWER SYSTEM\CADD\CIVIL\6753016_C04.DWG Scale:1:0 SavedDate:2/7/2022 Time:15:16 Plot Date: Dawson, Andrew W.: 2/7/2022: 16:38 : Layout:8

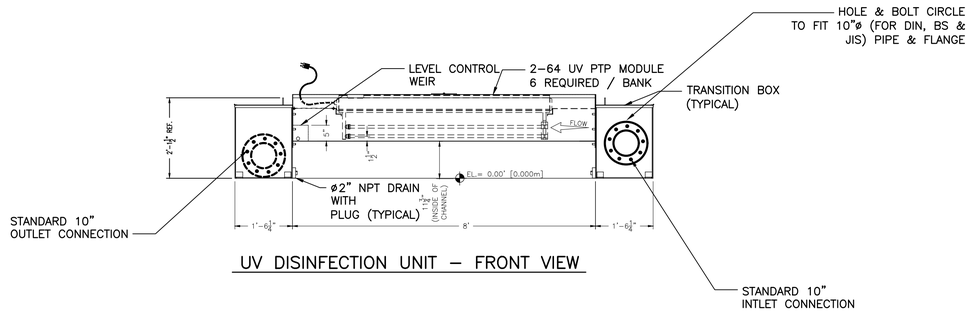
NOTES:
: DO NOT SLOPE CHANNEL FLOOR.
: CHANNEL WIDTH & DEPTH MUST BE KEPT WITHIN A TOLERANCE OF + OR – ¼".
: CONTRACTOR TO REVIEW ALL INSTALLATION INSTRUCTIONS PRIOR TO EQUIPMENT INSTALLATION.
: DO NOT ENCASE THE STEEL CHANNEL IN CONCRETE.



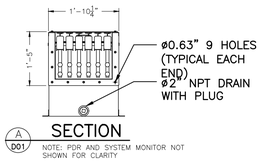
UV DISINFECTION UNIT – PLAN VIEW



END VIEW (TYPICAL)

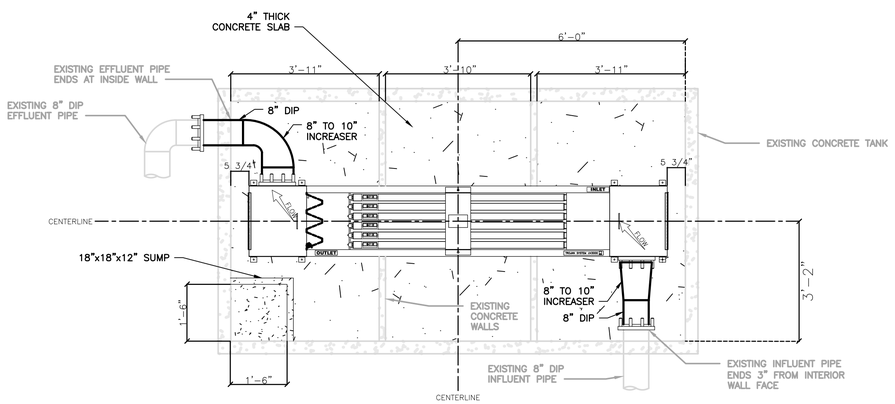


UV DISINFECTION UNIT – FRONT VIEW

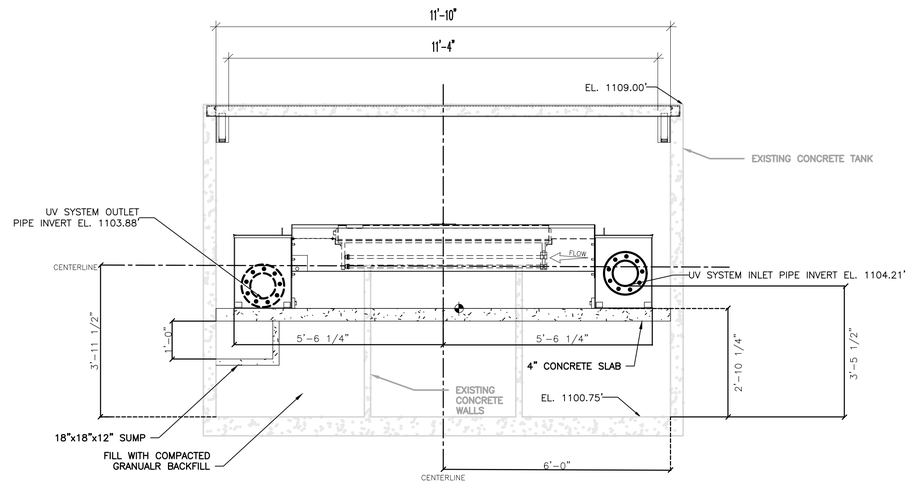


SECTION

NOTE: PDR AND SYSTEM MONITOR NOT SHOWN FOR CLARITY



UV DISINFECTION TANK – PLAN VIEW



UV DISINFECTION TANK – FRONT VIEW

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016_C05-C06
DESIGNED BY:	C. CHAN
DRAWN BY:	C. CHAN
CHECKED BY:	J. ROSS

SHEET TITLE

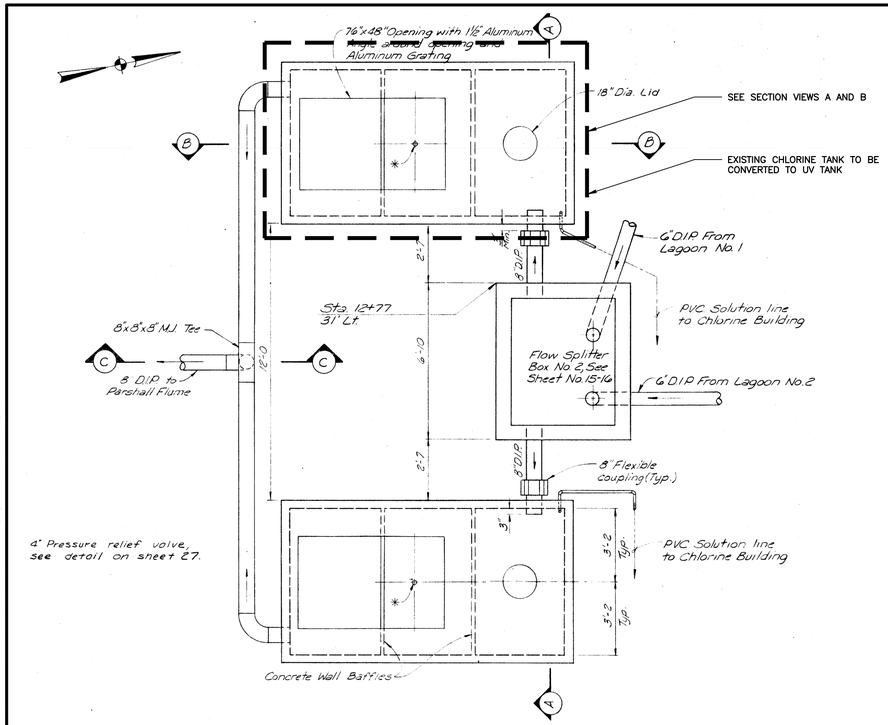
CIVIL

UV DISINFECTION DETAIL

SCALE: 0 2' 4'

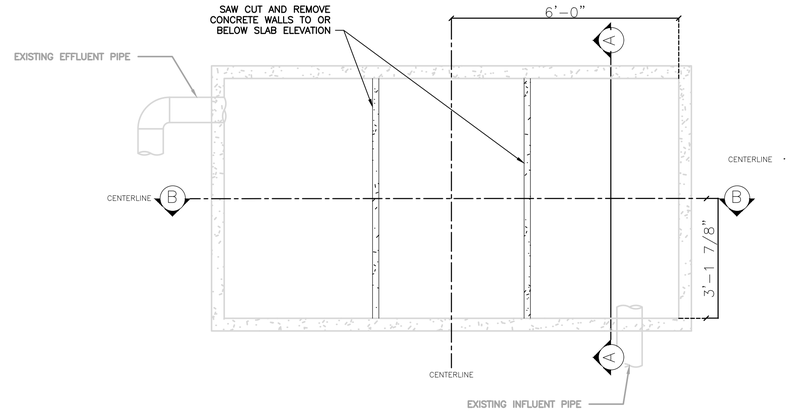
C-05

SHEET 9 OF 28



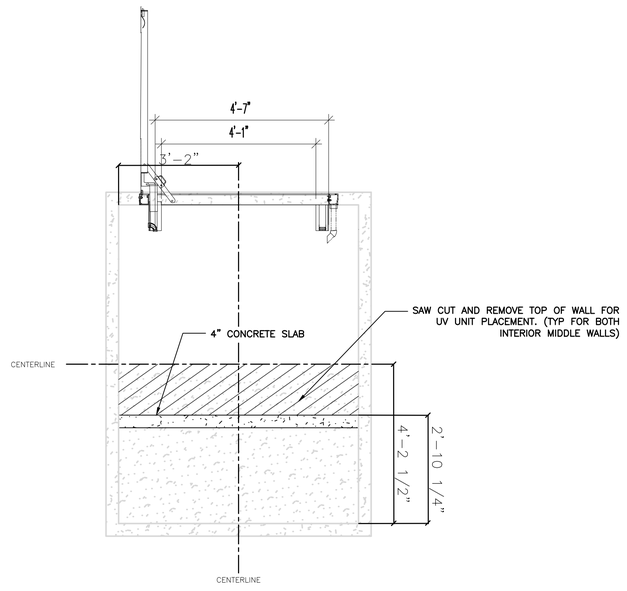
EXISTING CONDITIONS CHLORINE CONTACT TANKS PLAN

SCALE: NTS



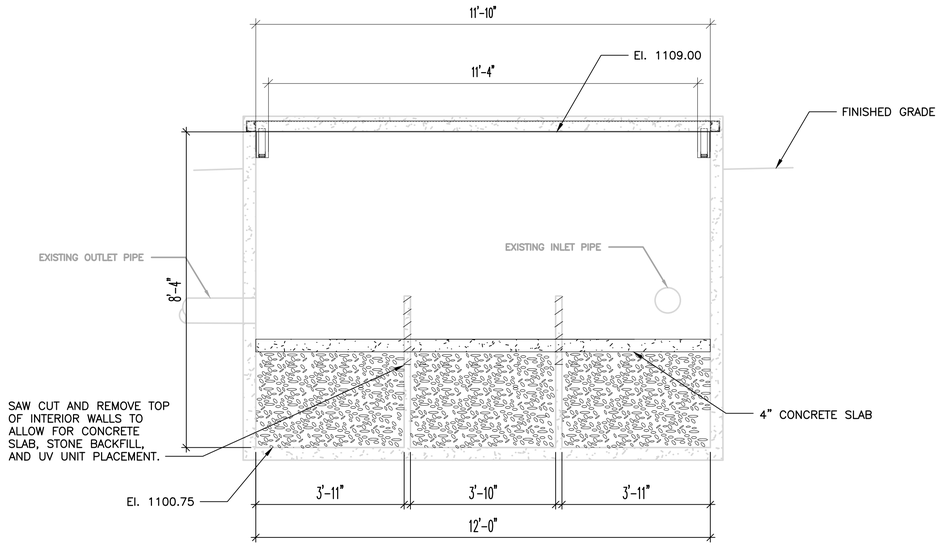
UV PLACEMENT WALL CUT DETAIL – PLAN VIEW

SCALE: 1" = 2'



A UV TANK WALL CUT DETAIL – SECTION

SCALE: 1" = 2'



B UV TANK WALL CUT AND SLAB DETAIL SECTION

SCALE: 1" = 2'

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C05-C06
DESIGNED BY: C. CHAN
DRAWN BY: C. CHAN
CHECKED BY: J. ROSS

SHEET TITLE

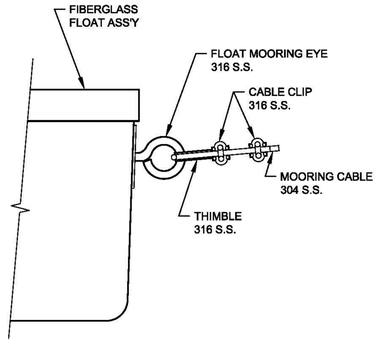
CIVIL

UV TANK MODIFICATIONS

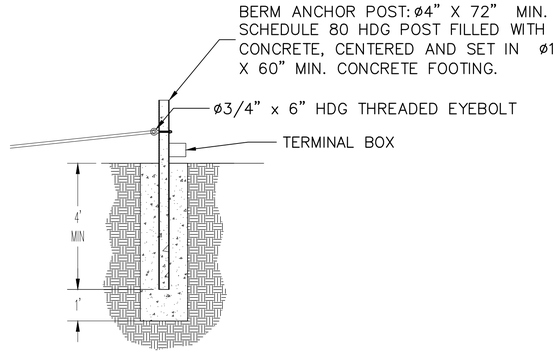
SCALE: AS SHOWN

C-06

SHEET 10 OF 28



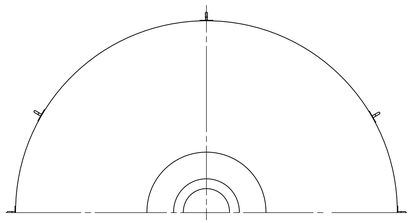
FLOAT MOORING DETAIL

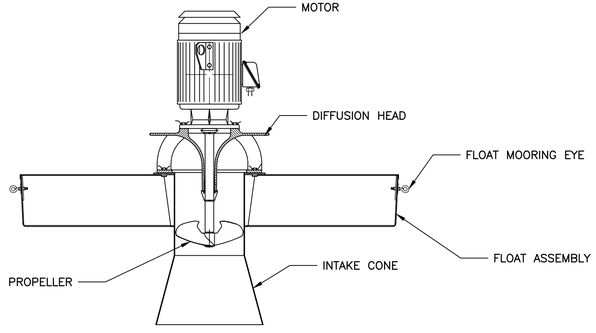


1. ALL FIELD DIMENSIONS AND LOCATIONS SHALL BE CHECKED AND VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION.
2. LOCAL SOIL CONDITIONS VARY. DESIGN BERM ANCHOR POST TO SUIT LOCAL SOIL CONDITIONS.
3. TERMINAL BOXES ARE MOUNTED ONLY ON THE MOORING POSTS AS SHOWN ON THE ELECTRICAL SITE PLAN.

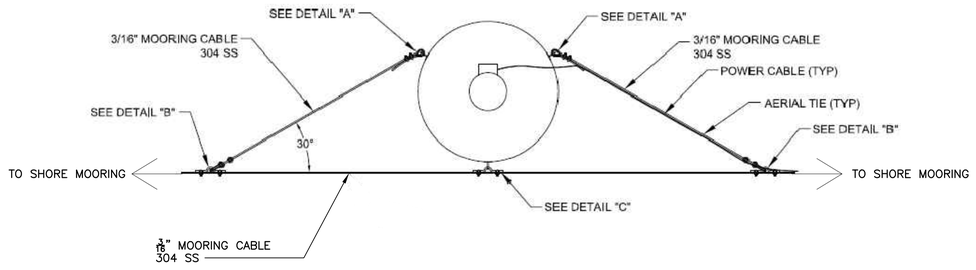
SHORE MOORING DETAIL

SURFACE FLOATING AERATOR			
	MOTOR		
# UNITS	HP	POWER	RPM
3	5	460/480 , 3-PHASE, 60 HERTZ	1800
2	10	460/480 , 3-PHASE, 60 HERTZ	1800
2	15	460/480 , 3-PHASE, 60 HERTZ	1800

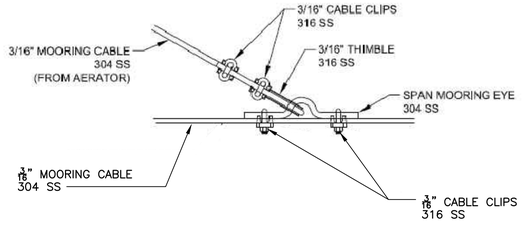




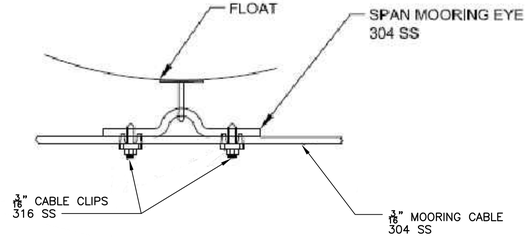
FLOATING AERATOR SECTION



SPAN MOORING DETAIL



DETAIL "B"
SPAN CABLE MOORING DETAIL



DETAIL "C"
FLOAT MOORING TO SPLAN CABLE DETAIL

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C07
DESIGNED BY: C. CHAN
DRAWN BY: C. CHAN
CHECKED BY: J. ROSS

SHEET TITLE

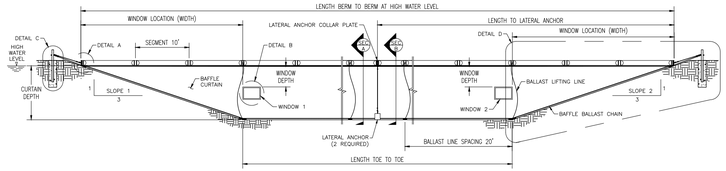
CIVIL

AERATOR SECTIONS AND DETAILS

SCALE: N.T.S.

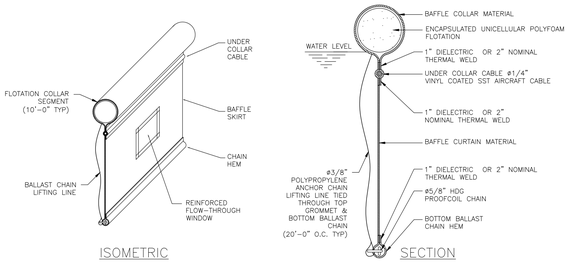
C-07

SHEET 11 OF 28



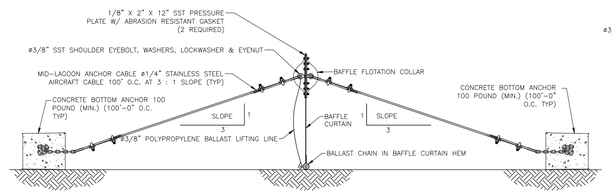
SUBMITTED FLOATING BAFFLE DIMENSIONS														
BAFFLE NUMBER	LENGTH BERM TO BERM	LENGTH TOE TO TOE	DEPTH	SLOPE 1	SLOPE 2	LENGTH TO LATERAL ANCHOR	WINDOW 1 LOCATION WIDTH	WINDOW 1 LOCATION DEPTH	WINDOW 1 WIDTH	WINDOW 1 SIZE DEPTH	WINDOW 2 LOCATION WIDTH	WINDOW 2 LOCATION DEPTH	WINDOW 2 SIZE WIDTH	WINDOW 2 SIZE DEPTH
1	131'-0"	71'-0"	10'-0"	3 : 1	3 : 1	65'-6"	42'-0"	3'-0"	4'-0"	2'-0"	42'-0"	3'-0"	4'-0"	2'-0"
2	131'-0"	71'-0"	10'-0"	3 : 1	3 : 1	65'-6"	42'-0"	3'-0"	4'-0"	2'-0"	42'-0"	3'-0"	4'-0"	2'-0"
3	131'-0"	71'-0"	10'-0"	3 : 1	3 : 1	65'-6"	42'-0"	3'-0"	4'-0"	2'-0"	42'-0"	3'-0"	4'-0"	2'-0"

BAFFLE ELEVATION

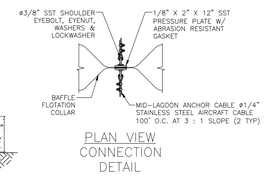


SECTION A

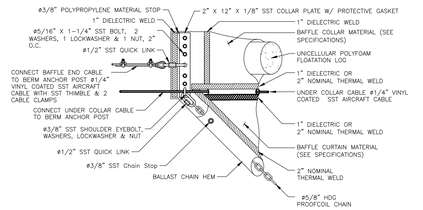
1. ALL DIMENSIONS AND LOCATIONS SHALL BE CHECKED AND VERIFIED BY CONTRACTOR PRIOR TO FABRICATION.
2. BAFFLE SHALL BE FABRICATED FROM ENV-3004-12 (30 MIL POLYESTER REINFORCED EIA).
3. ALL METALS SHALL BE GALVANIZED OR STAINLESS STEEL AS NOTED.
4. ALL THERMOPLASTIC SEAMS SHALL BE DIELECTRIC OR THERMALLY WELDED.
5. UNDER COLLAR CABLE AND END PLATE CABLE TO EXTEND TO BERM ANCHOR, FASTENERS INCLUDED.



SECTION B

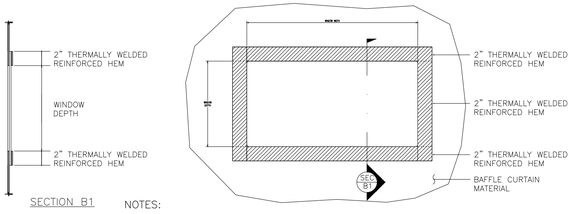


PLAN VIEW
CONNECTION DETAIL



DETAIL A

WINDOW DIMENSIONS			
PEAK FLOW	QUANTITY	WIDTH	DEPTH
77 GPM	1	2'-6"	1'-0"

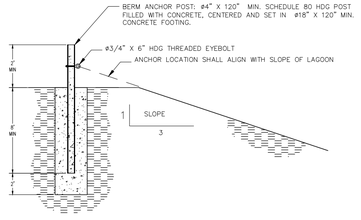


SECTION B1

NOTES:

1. FLOW THROUGH WINDOW AREA SHALL EQUAL A MINIMUM OF ONE (1) SQUARE FOOT PER 30 GPM OF PEAK FLOW.
2. 2" WIDE THERMALLY WELDED HEM REINFORCEMENT SURROUNDING EACH WINDOW OPENING.
3. ALL THERMOPLASTIC SEAMS SHALL BE DIELECTRIC OR THERMALLY WELDED.
4. STANDARD ENVIRONETICS FABRICATION METHODS AND MATERIALS SHALL BE USED IN ALL AREAS NOT DETAILED.

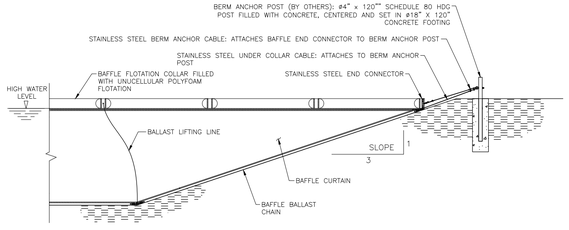
DETAIL B



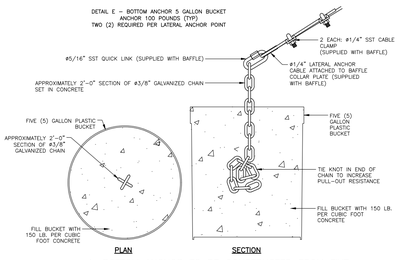
NOTES:

1. ALL FIELD DIMENSIONS AND LOCATIONS SHALL BE CHECKED AND VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION.
2. LOCAL SOIL CONDITIONS VARY. DESIGN BERM ANCHOR POST TO SUIT LOCAL SOIL CONDITIONS.
3. BERM ANCHOR LOCATION SHALL ALIGN WITH BERM SLOPE RATIO.

DETAIL C



DETAIL D



1. BOTTOM ANCHOR TO BE CONSTRUCTED FROM FIVE GALLON PLASTIC BUCKET FILLED WITH CONCRETE.
2. FINISHED ANCHOR SHALL WEIGH A MINIMUM OF 100 POUNDS.

DETAIL E

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_C08
DESIGNED BY: C. CHAN
DRAWN BY: C. CHAN
CHECKED BY: J. ROSS

SHEET TITLE

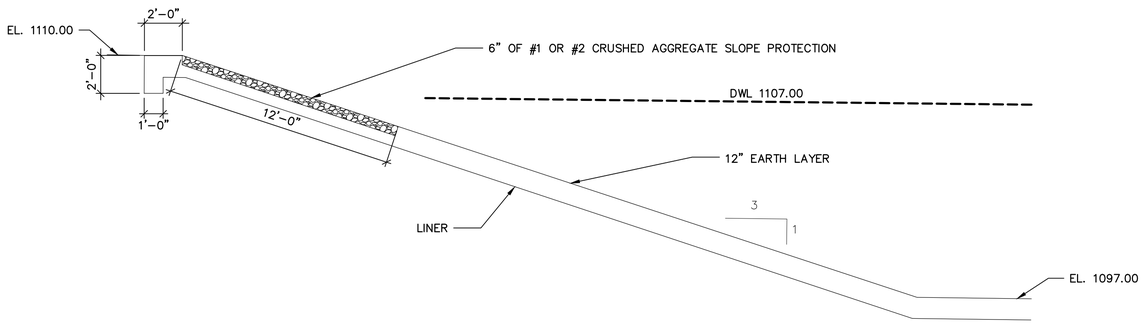
BAFFLE PROFILE, SECTIONS, AND DETAILS

SCALE: N.T.S.

C-08

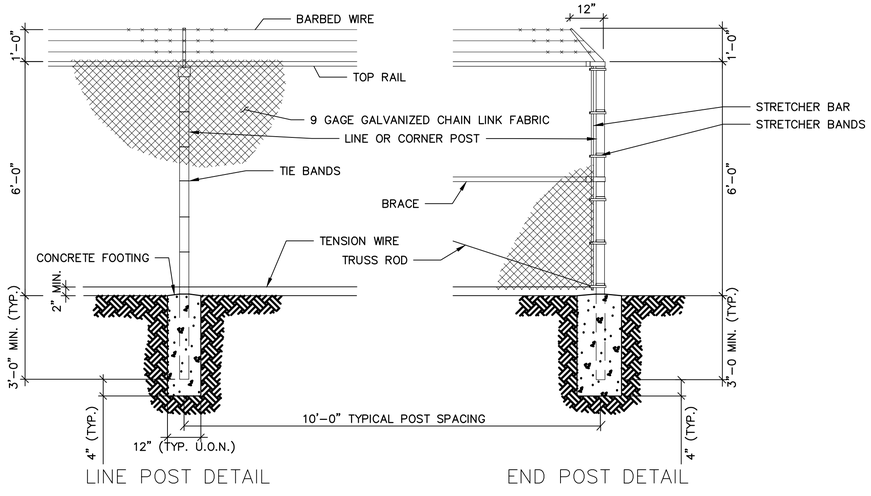
SHEET 12 OF 28

NOTES:
1. IDENTIFIED SLOPE PROTECTION MAINTENANCE LOCATIONS SHOWN ON SHEET C-04.
2. IDENTIFIED SLOPE PROTECTION TO BE REPAIRED TO MEET ORIGINAL DESIGN SHOWN.



TYPICAL SLOPE REPAIR DETAIL

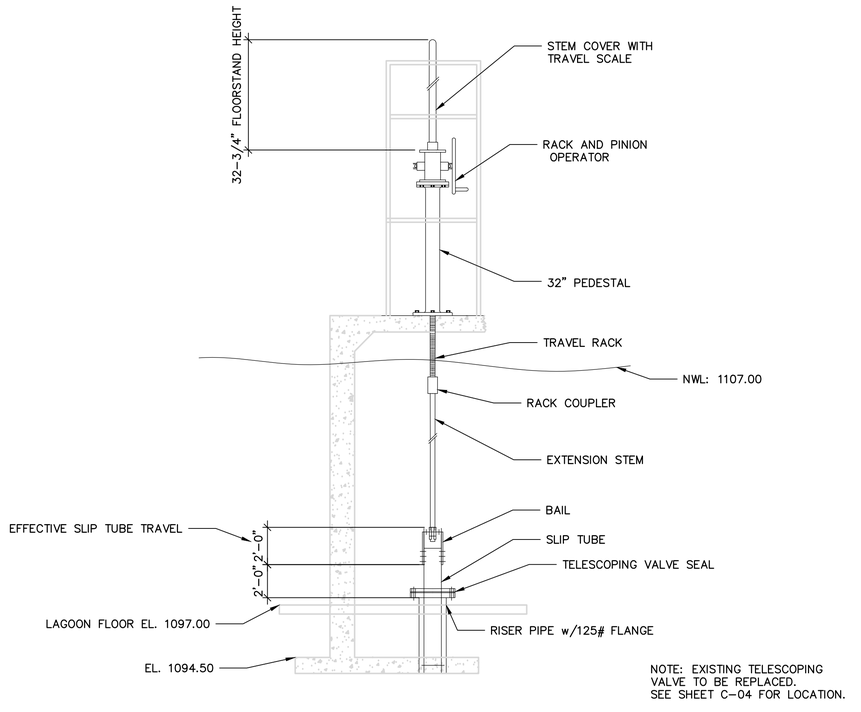
SCALE: 1" = 4'



NOTES:
1. PROVIDE GALVANIZED FINISH ON ALL POSTS, RAILS, AND BRACES. PROVIDE ALUMINUM COATED STEEL FENCE FABRIC.
2. PROVIDE GALVANIZED FINISH ON ALL ACCESSORIES AND HARDWARE.

TYPICAL CHAIN LINK FENCE REPAIR DETAIL

SCALE: NTS



NOTE: EXISTING TELESCOPING VALVE TO BE REPLACED. SEE SHEET C-04 FOR LOCATION.

TELESCOPING VALVE DETAIL AT LAGOON OUTLET

SCALE: NTS

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO
JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016-C09
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ROSS

SHEET TITLE

CIVIL

MISCELLANEOUS DETAILS

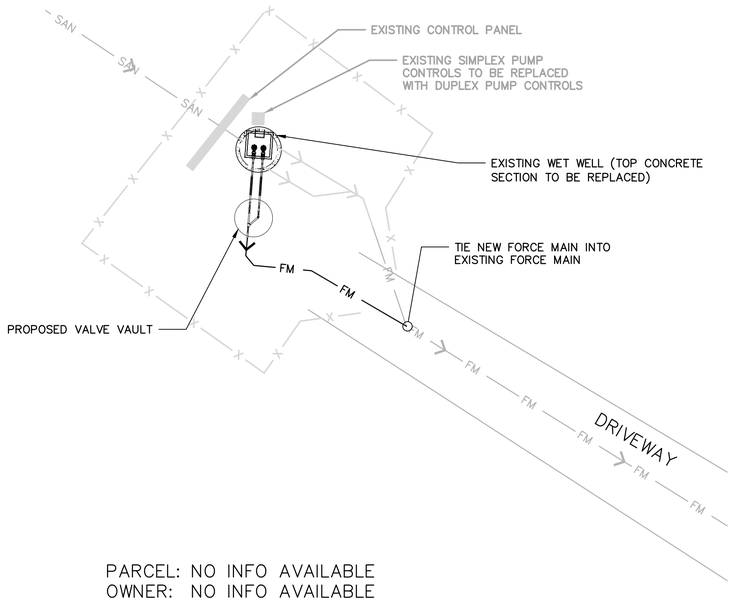
SCALE: AS SHOWN

C-09
SHEET 13 OF 28

LEGEND:

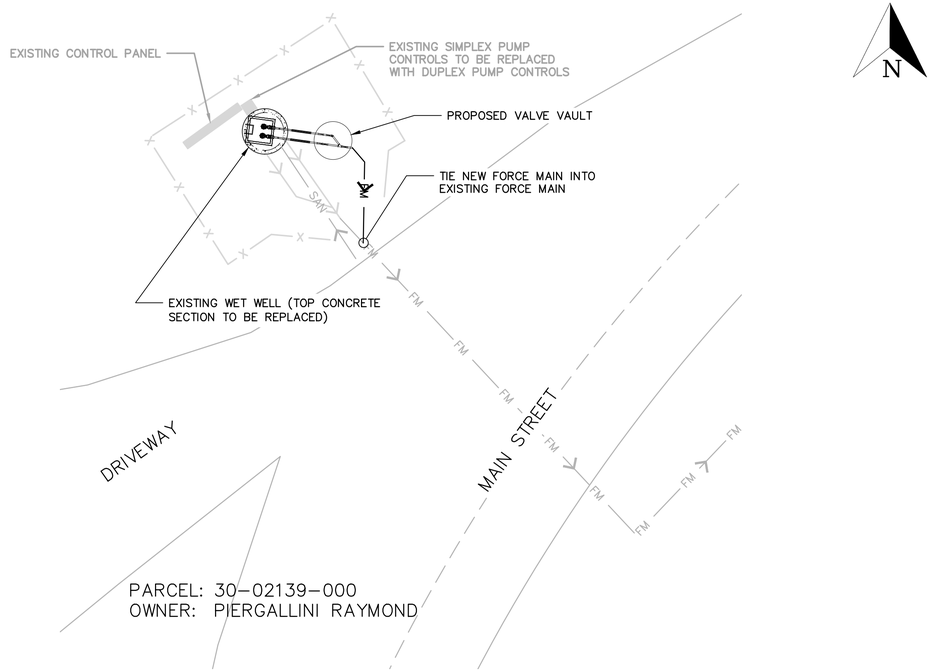
- FM → EXISTING FORCE MAIN (APPROX.)
- FM → PROPOSED FORCE MAIN
- SAN → EXISTING GRAVITY SEWER (APPROX.)

NOTE: LOCATION OF EXISTING FORCE MAIN/GRAVITY SEWER IS APPROXIMATE BASED ON REVIEW OF ORIGINAL PUMP STATION DRAWINGS AND SITE OBSERVATION. CONTRACTOR SHALL POTHOLE AS NECESSARY TO LOCATE CONNECTIONS OF PROPOSED PIPING TO EXISTING PIPING AS WELL AS TO CONFIRM THAT VALVE VAULT PLACEMENT WILL NOT CONFLICT WITH EXISTING PIPING. UPON DETERMINING THE FINAL VALVE VAULT PLACEMENT, CONTRACTOR SHALL MINIMIZE BENDS AND ADJUST FORCE MAIN AS NECESSARY. FORCE MAIN DEPTH ASSUMED TO BE APPROXIMATELY 5–6' DEEP. CONTRACTOR TO FIELD VERIFY DEPTHS.



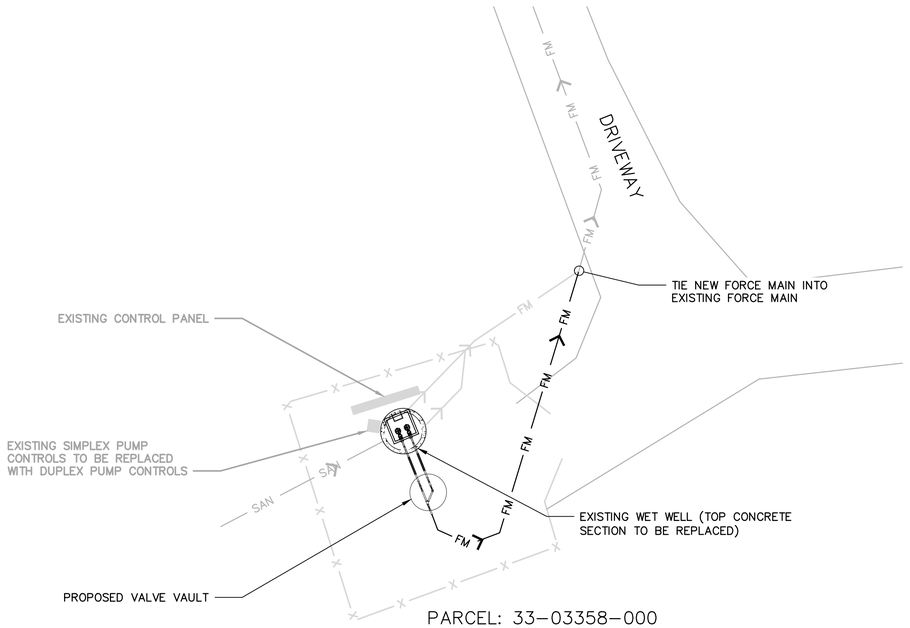
PARCEL: NO INFO AVAILABLE
OWNER: NO INFO AVAILABLE

PUMP STATION NO. 2



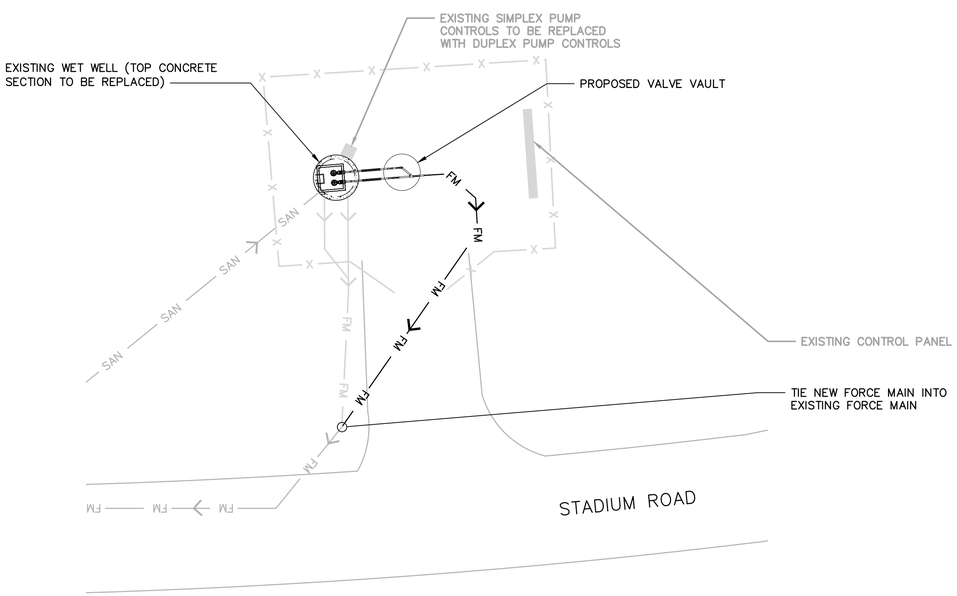
PARCEL: 30–02139–000
OWNER: PIERGALLINI RAYMOND

PUMP STATION NO. 3



PARCEL: 33–03358–000
OWNER: THOMPSON MARSHA A & CHRISTOPHER S DENOBLE

PUMP STATION NO. 4



PARCEL: 33–03677–000
OWNER: SMITHFIELD VILLAGE OF

PUMP STATION NO. 5

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016_PS1–PS3
DESIGNED BY:	J. ARGYROS
DRAWN BY:	A. DAWSON
CHECKED BY:	J. ROSS

SHEET TITLE

CIVIL

STANDARD PUMP STATION IMPROVEMENT SITE PLANS

SCALE: 0 10' 20'

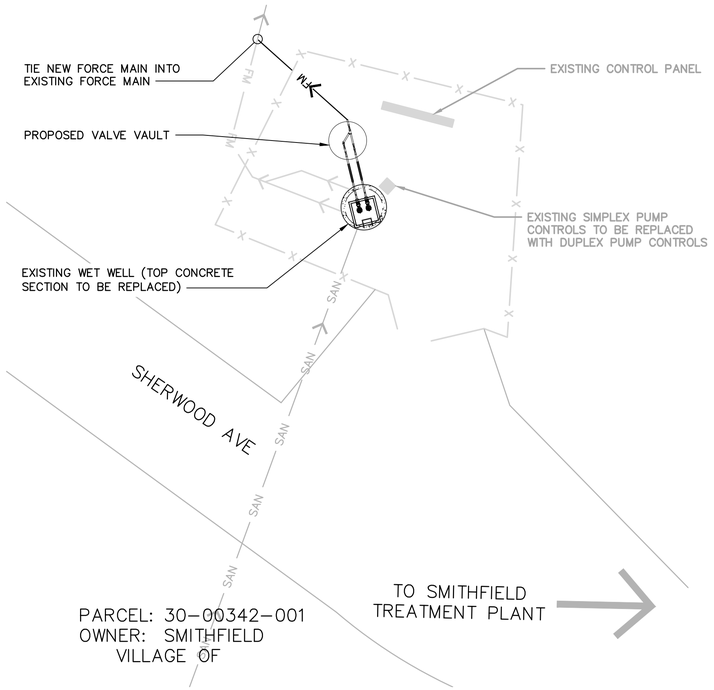
PS–1

SHEET 14 OF 28

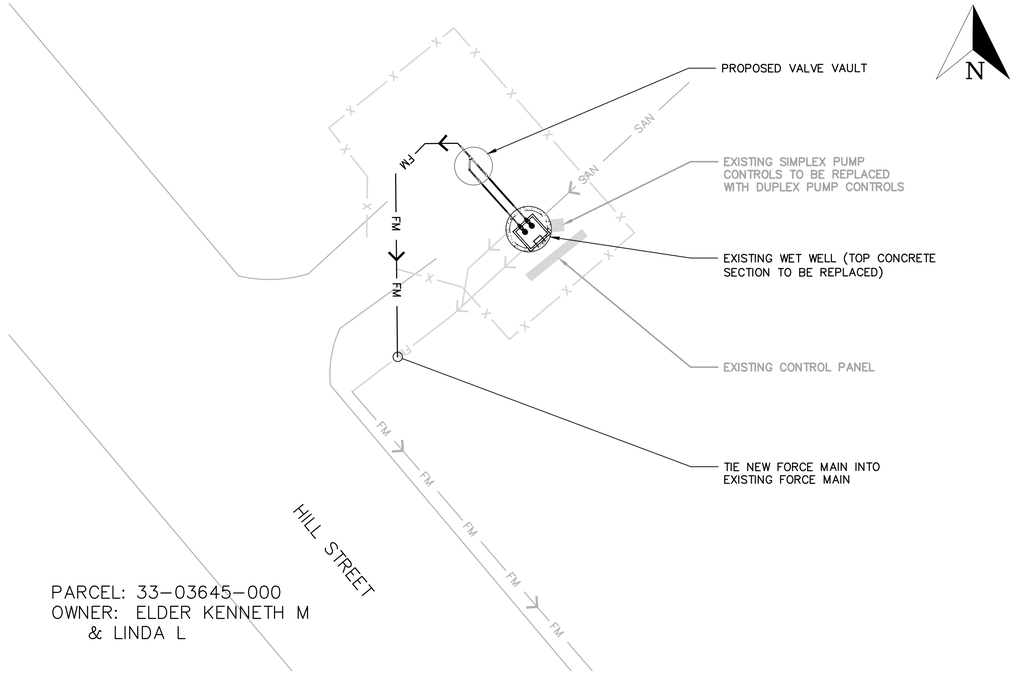
LEGEND:

- FM → EXISTING FORCE MAIN (APPROX.)
- FM → PROPOSED FORCE MAIN
- SAN → EXISTING GRAVITY SEWER (APPROX.)

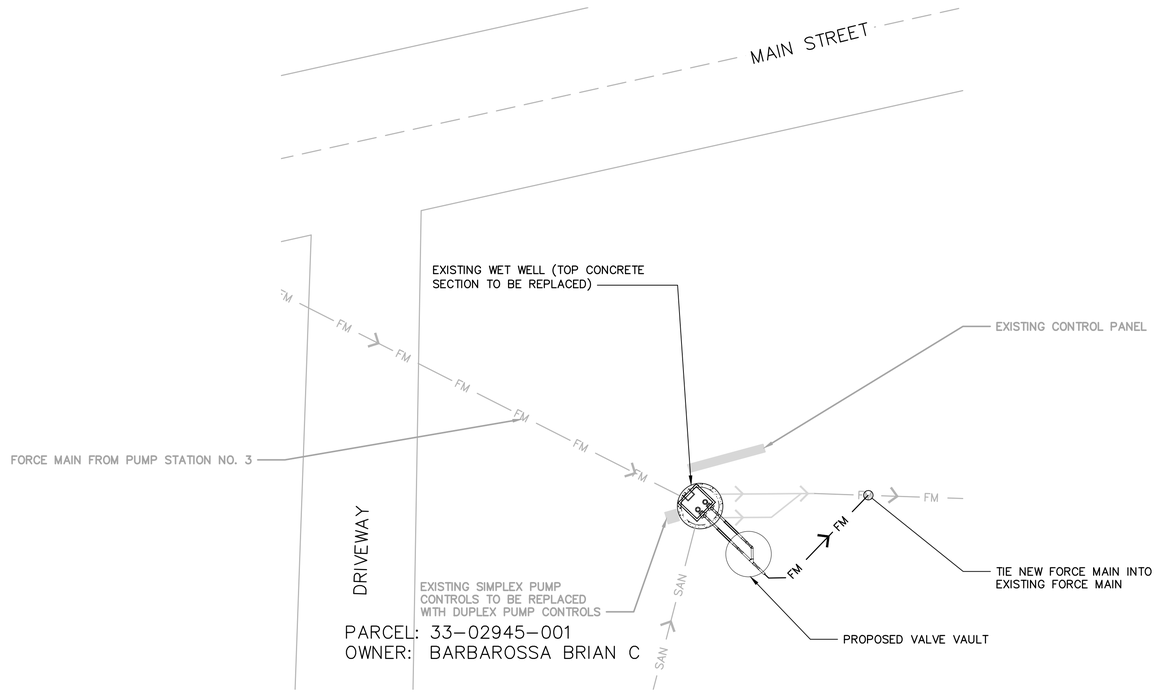
NOTE: LOCATION OF EXISTING FORCE MAIN/GRAVITY SEWER IS APPROXIMATE BASED ON REVIEW OF ORIGINAL PUMP STATION DRAWINGS AND SITE OBSERVATION. CONTRACTOR SHALL POTHOLE AS NECESSARY TO LOCATE CONNECTIONS OF PROPOSED PIPING TO EXISTING PIPING AS WELL AS TO CONFIRM THAT VALVE VAULT PLACEMENT WILL NOT CONFLICT WITH EXISTING PIPING. UPON DETERMINING THE FINAL VALVE VAULT PLACEMENT, CONTRACTOR SHALL MINIMIZE BENDS AND ADJUST FORCE MAIN AS NECESSARY. FORCE MAIN DEPTH ASSUMED TO BE APPROXIMATELY 5–6' DEEP. CONTRACTOR TO FIELD VERIFY DEPTHS.



PUMP STATION NO. 6



PUMP STATION NO. 7



PUMP STATION NO. 9

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016_PS1–PS3
DESIGNED BY:	J. ARGYROS
DRAWN BY:	A. DAWSON
CHECKED BY:	J. ROSS

SHEET TITLE

CIVIL

STANDARD PUMP STATION IMPROVEMENT SITE PLANS

SCALE: 0 10' 20'

PS–2

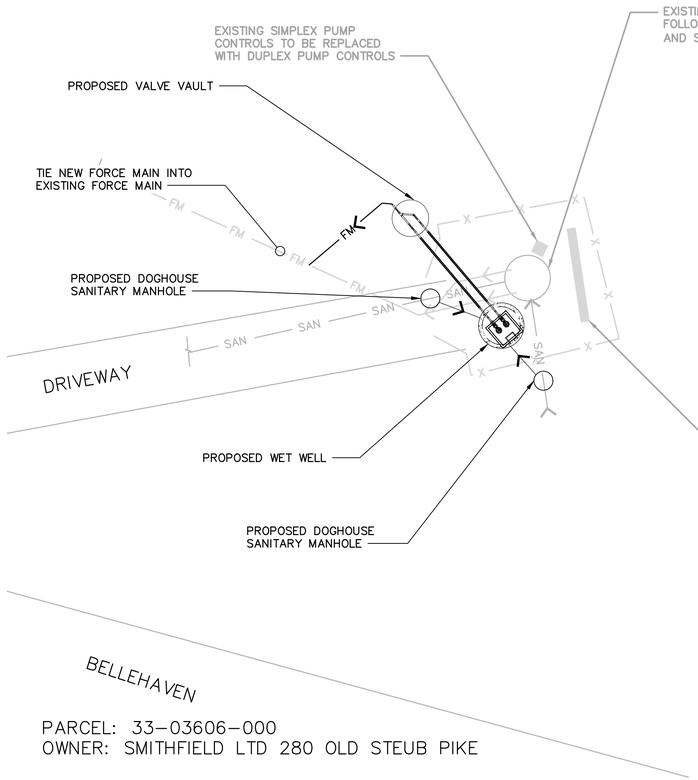
SHEET 15 OF 28

LEGEND:

- FM → EXISTING FORCE MAIN (APPROX.)
- FM → PROPOSED FORCE MAIN
- SAN → EXISTING GRAVITY SEWER (APPROX.)
- SAN → PROPOSED GRAVITY SEWER

NOTE: LOCATION OF EXISTING FORCE MAIN/GRAVITY SEWER IS APPROXIMATE BASED ON REVIEW OF ORIGINAL PUMP STATION DRAWINGS AND SITE OBSERVATION. CONTRACTOR SHALL POTHOLE AS NECESSARY TO LOCATE CONNECTIONS OF PROPOSED PIPING TO EXISTING PIPING AS WELL AS TO CONFIRM THAT VALVE VAULT PLACEMENT WILL NOT CONFLICT WITH EXISTING PIPING. UPON DETERMINING THE FINAL VALVE VAULT PLACEMENT, CONTRACTOR SHALL MINIMIZE BENDS AND ADJUST FORCE MAIN AS NECESSARY. FORCE MAIN DEPTH ASSUMED TO BE APPROXIMATELY 5–6' DEEP. CONTRACTOR TO FIELD VERIFY DEPTHS.

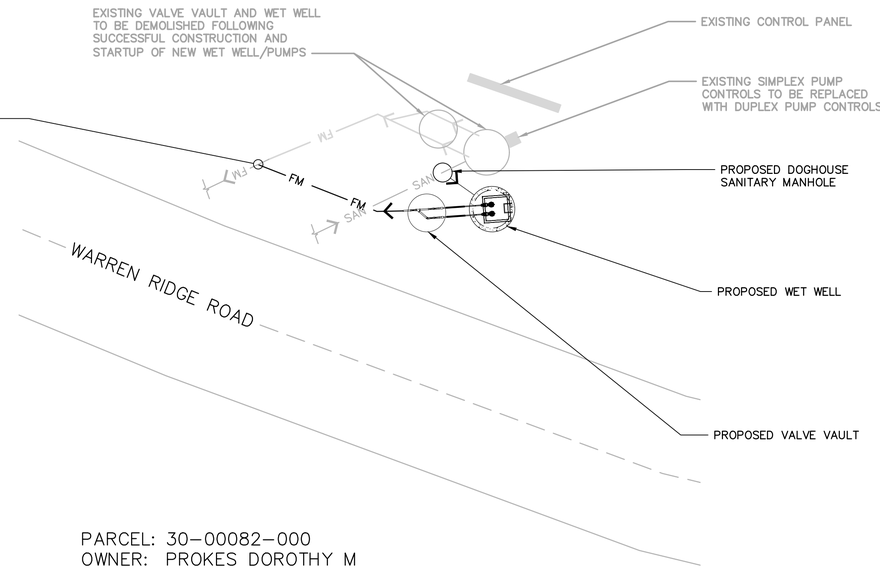
N



PARCEL: 33–03606–000
OWNER: SMITHFIELD LTD 280 OLD STEUB PIKE

PUMP STATION NO. 1

WET WELL INTERIOR



PARCEL: 30–00082–000
OWNER: PROKES DOROTHY M

PUMP STATION NO. 8

WET WELL INTERIOR

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016_PS1–PS3
DESIGNED BY:	J. ARGYROS
DRAWN BY:	A. DAWSON
CHECKED BY:	J. ROSS

SHEET TITLE

CIVIL

STANDARD PUMP STATION IMPROVEMENT SITE PLANS WITH WET WELL REPLACEMENTS

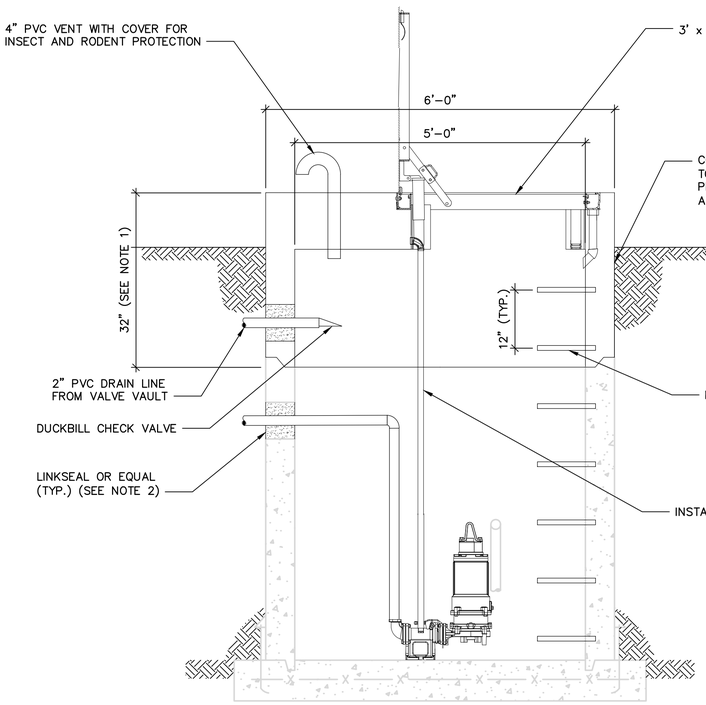
SCALE: 0 10' 20'

PS–3

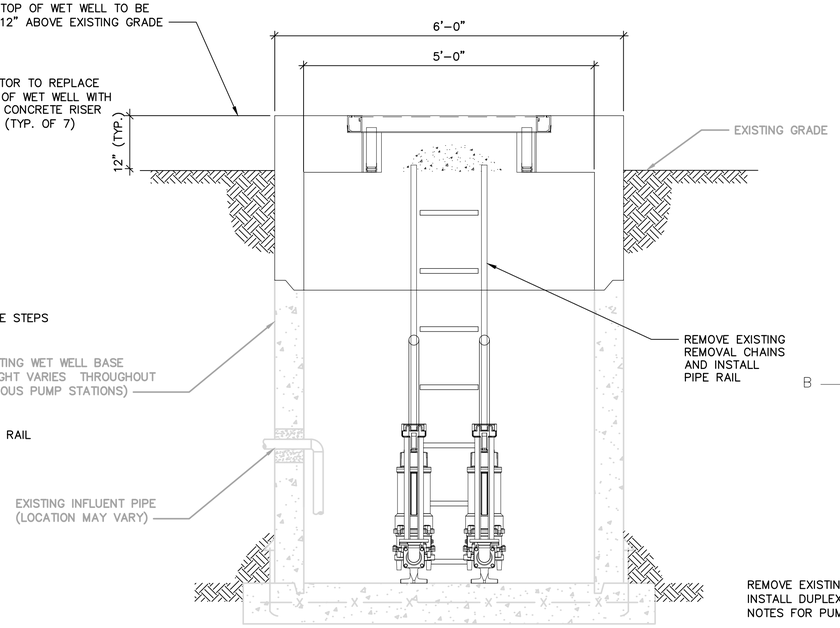
SHEET 16 OF 28

Control Elevations

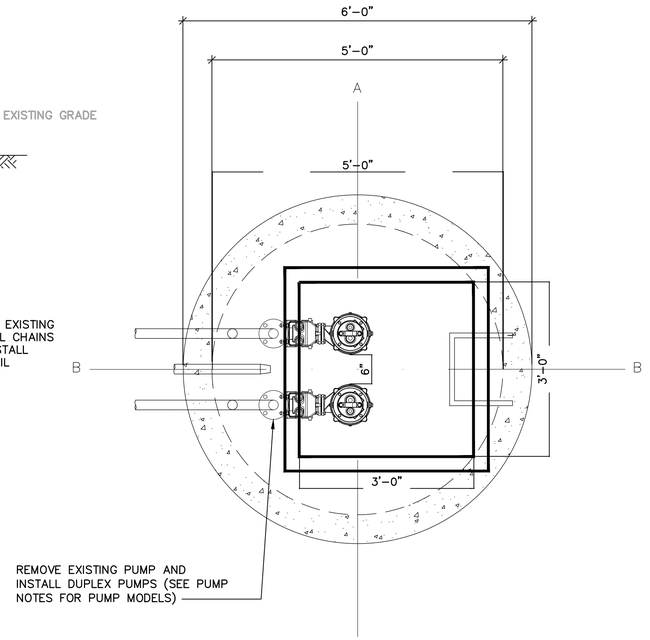
Pump Station No.	Pump Off	Lead Pump On	Lag Pump On	High Water Alarm
1	1177.5	1178.5	1179	1179
2	1184	1185	1185.5	1185.5
3	1058	1059	1059.5	1059.5
4	1169	1170	1170.5	1170.5
5	1152	1153	1153.5	1153.5
6	1076.5	1077.5	1078	1078
7	1222	1223	1223.5	1223.5
8	1202	1203	1203.5	1203.5
9	1112.5	1113.5	1114	1114



SECTION B–B



SECTION A–A



A

STANDARD PUMP STATION WET WELL DETAILS – PUMP STATION 2–7, AND 9

NOTES:
1. DIMENSION ACCURATE FOR PUMP STATIONS 2–5, 7, AND 9. DIMENSION IS 44" FOR PUMP STATION 6.
2. OPENINGS FOR NEW FORCE MAINS SHALL BE COREDRILLED BY CONTRACTOR.
3. CONTRACTOR SHALL GROUT EXISTING HOLES FROM DEMOLISHED FORCE MAINS.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016-PS4-PS6
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ROSS

SHEET TITLE

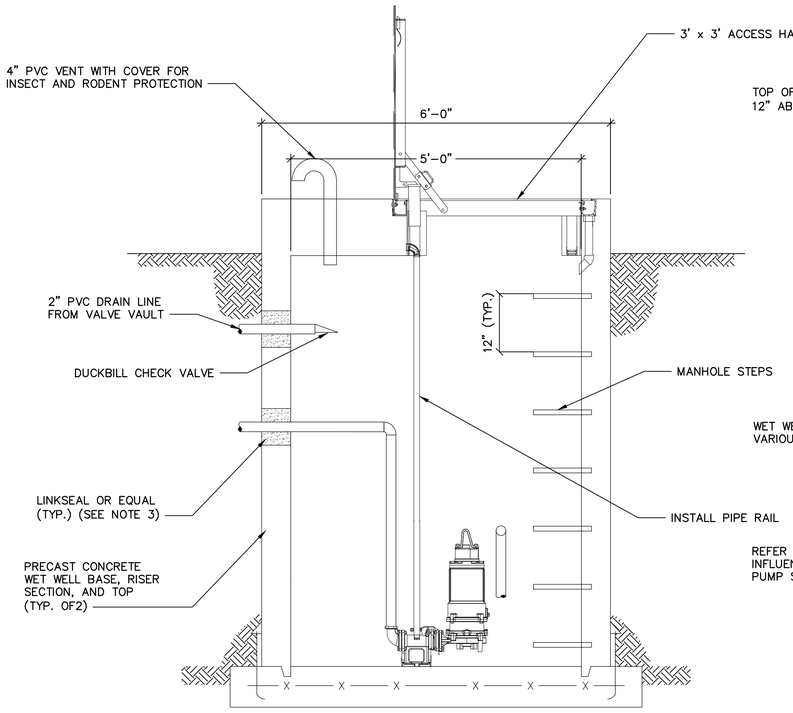
CIVIL

PUMP STATION WET WELL STANDARD REHAB DETAILS

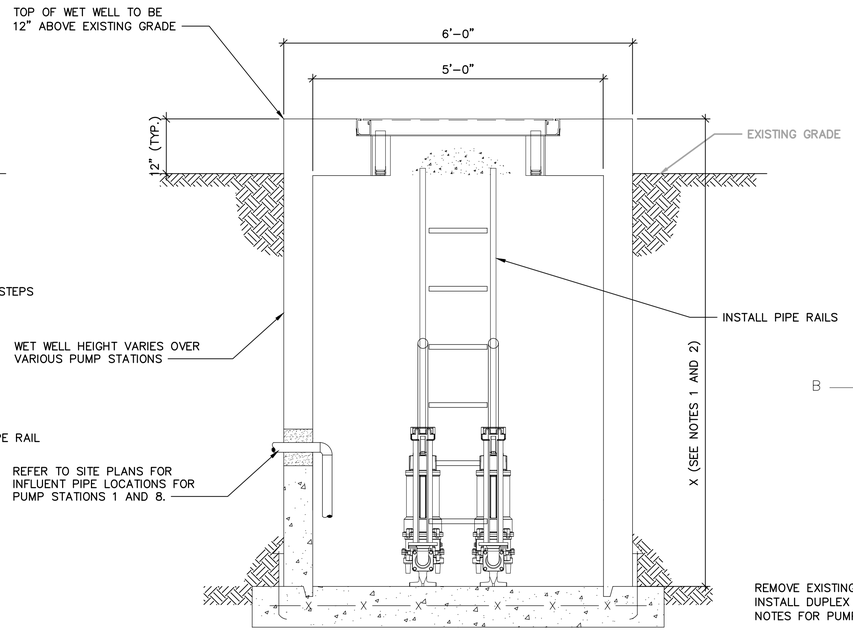
SCALE: AS SHOWN

PS-4

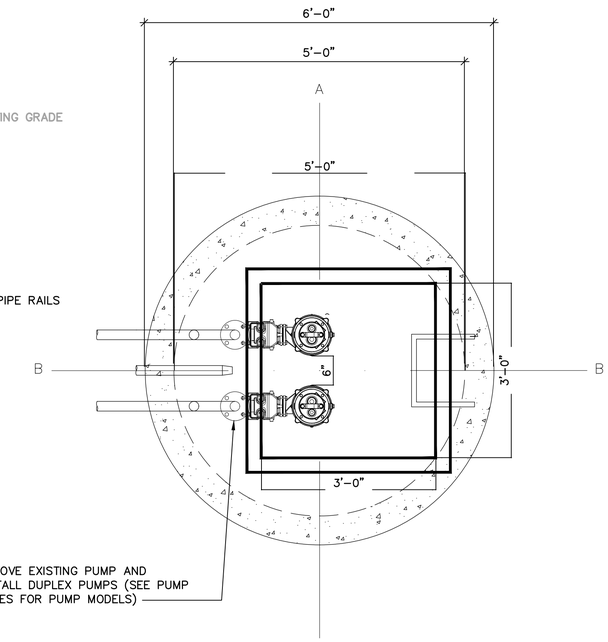
SHEET 17 OF 28



SECTION B–B



SECTION A–A



STANDARD PUMP STATION WET WELL REPLACEMENT DETAILS – PUMP STATIONS 1 AND 8

NOTES:
1. FOR PUMP STATION 1, X = 15.5'
2. FOR PUMP STATION 8, X = 17.0'
3. OPENINGS FOR NEW FORCE MAIN SHALL BE COREDRILLED BY CONTRACTOR.
4. CONTRACTOR SHALL GROUT EXISTING HOLES FROM DEMOLISHED FORCE MAINS.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016-PS4-PS6
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ROSS

SHEET TITLE

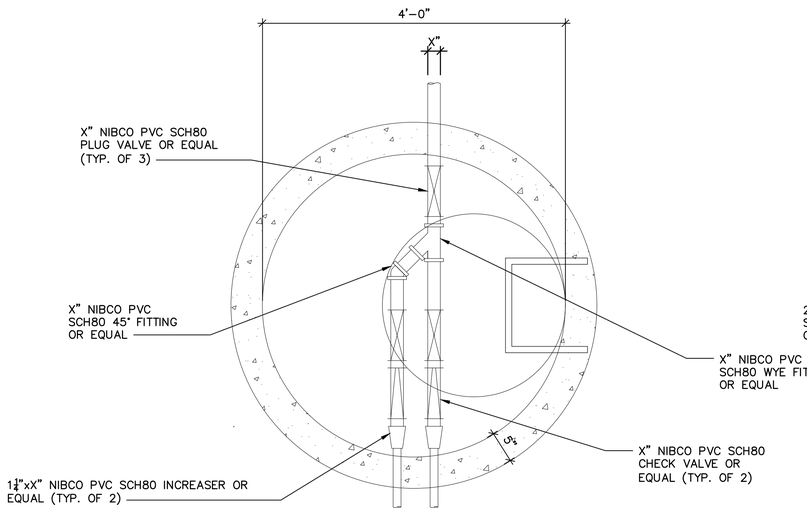
CIVIL

PUMP STATION WET WELL REPLACEMENT DETAILS

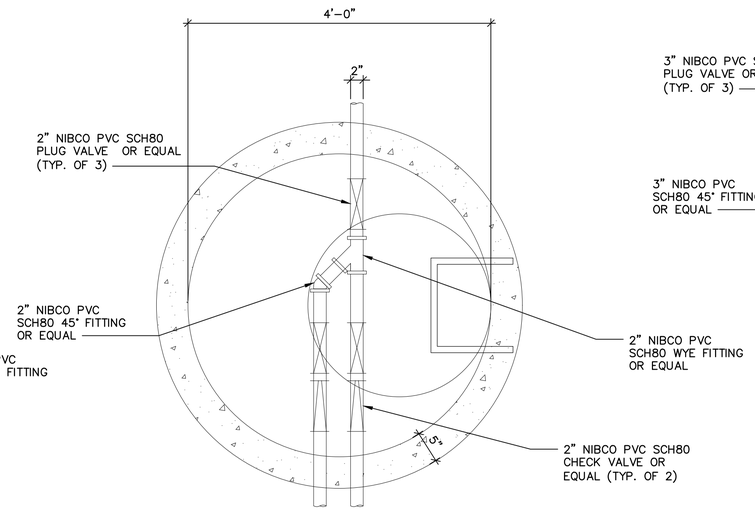
SCALE: AS SHOWN

PS-5

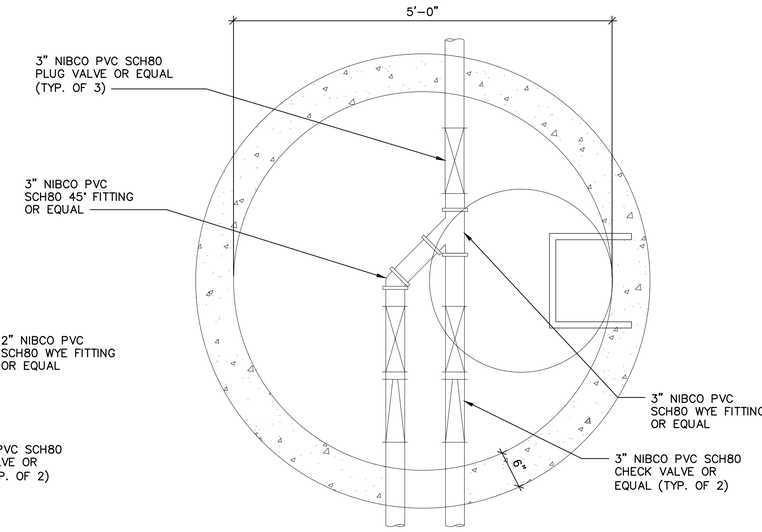
SHEET 18 OF 28



VALVE VAULT PLAN VIEW – NIBCO 1-1/4" TO X" VALVES AND FITTINGS
FOR PUMP STATIONS NO. 7 AND NO. 8

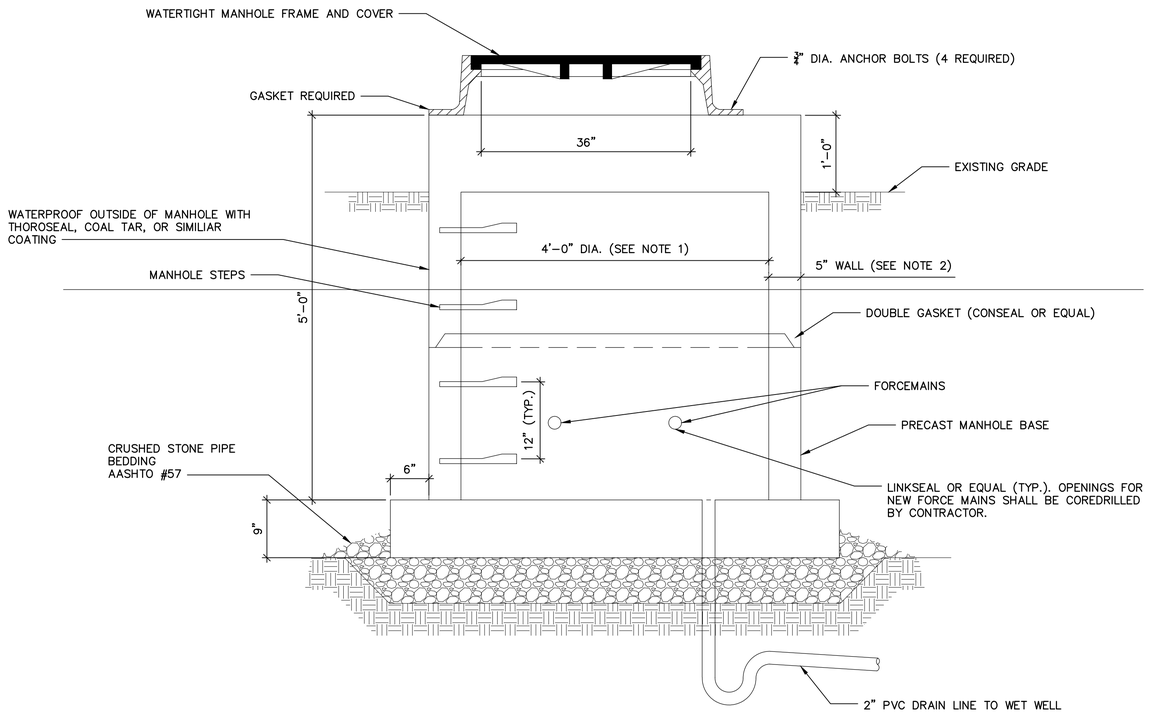


VALVE VAULT PLAN VIEW – NIBCO 2" VALVES AND FITTINGS
FOR PUMP STATIONS NO. 1 THROUGH NO. 6



VALVE VAULT PLAN VIEW – NIBCO 3" VALVES AND FITTINGS
FOR PUMP STATION NO. 9

NOTES:
1. PUMP STATION 7, X = 1-¼".
2. PUMP STATION 8, X = 1-½"



PUMP STATION VALVE VAULT MANHOLE DETAIL

SCALE: 1" = 1'

NOTES:
1. DIMENSION FOR PUMP STATION 9 IS 5'.
2. DIMENSION FOR PUMP STATION 9 IS 6"

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E-78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016-PS4-PS6
DESIGNED BY: A. DAWSON
DRAWN BY: A. DAWSON
CHECKED BY: J. ARGYROS

SHEET TITLE

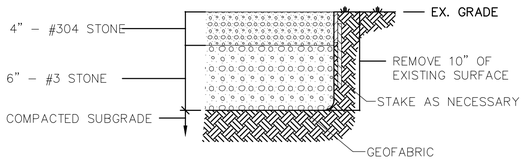
CIVIL

PUMP STATION VALVE VAULT DETAILS

SCALE: AS SHOWN

PS-6

SHEET 19 OF 28

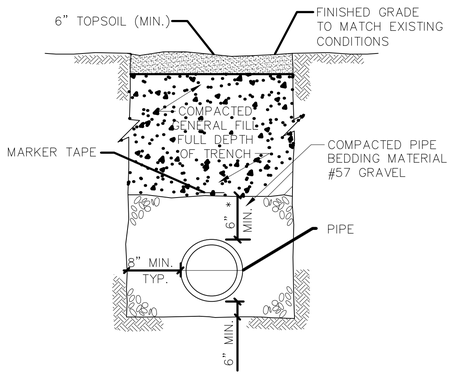


NOTES:

1. COMPACT SUBGRADE PRIOR TO PLACING NON–WOVEN GEOTEXTILE FABRIC.
2. #3 STONE ONLY REQUIRED WHERE SUBBASE HAS BEEN DISTURBED BY TRENCHING OPERATION.
3. CONTOUR #304 TO MATCH EXISTING GRADE AND PROMOTE DRAINAGE.

GRAVEL DRIVEWAY AND PARKING AREA

NOT TO SCALE

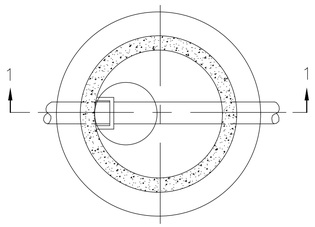


NOTES:

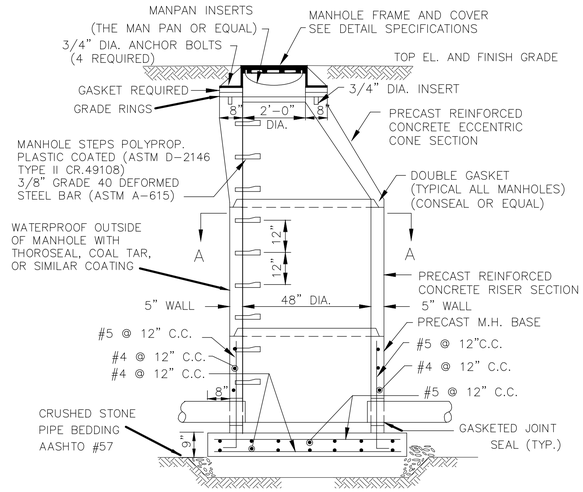
1. CONTRACTOR SHALL UTILIZE SCREENED TOPSOIL IN ANY AREAS WHERE THE TRENCH LINE RUNS THROUGH OR ALONGSIDE PRIVATE PROPERTY.

TRENCH DETAIL UNIMPROVED AREAS

NOT TO SCALE



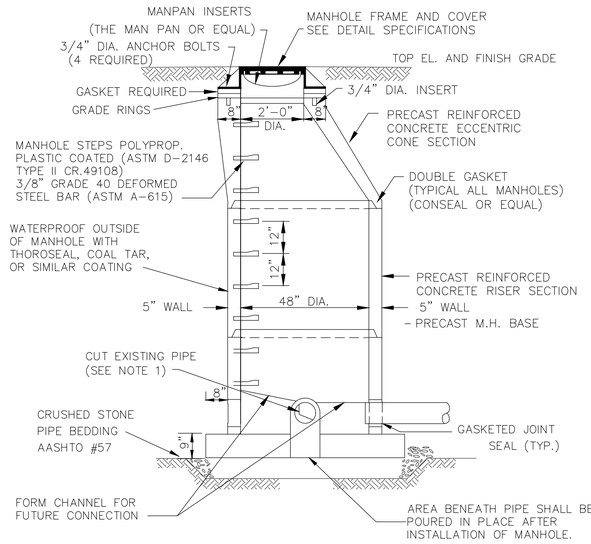
PLAN BELOW A–A



SECTION 1–1

SANITARY MANHOLE DETAIL

NOT TO SCALE



NOTES:

1. WHEN READY TO REDIRECT FLOW, CONTRACTOR SHALL FINALIZE CHANNEL CONCRETE FORMWORK, CUT EXISTING PIPE, AND PLUG EXISTING OUTLET INVERT.
2. REBAR SHALL FOLLOW REQUIREMENTS OF SANITARY MANHOLE DETAIL.

DOGHOUSE SANITARY MANHOLE DETAIL

NOT TO SCALE

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
MATTHEW DANIEL MCCUTCHEON
E–78919
REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016–PS4–PS6
DESIGNED BY:	A. DAWSON
DRAWN BY:	A. DAWSON
CHECKED BY:	J. ARGYROS

SHEET TITLE

CIVIL

PUMP STATION MISCELLANEOUS DETAILS

SCALE: AS SHOWN

PS–7

SHEET 20 OF 28

DIAGRAMS:

- MOTOR STARTER/CONTROLLER (NON-COMBINATION – COMBINATION – MANUAL) RV DENOTES REDUCED VOLTAGE
- LOCAL CONTROL PANEL WITH CONTROLLERS FURNISHED BY EQUIPMENT VENDOR.
- 30 — POWER RECPT. WITH DISCONNECT-600V, 3 PHASE, 4 WIRE NUMBER DENOTES AMPERE RATING
- 30 — POWER RECPT. 600V, 3 PHASE, 4 WIRE
- S — POWER ON-OFF SNAP SWITCH, 1PH, 120V AC, 20A S2-DENOTES, 2 POLE, 240 VOLTS, 20A
- IS — INSTRUMENT SWITCH
- MS — 20A TWO OR THREE POLE MANUAL STARTER,
- PUSH-BUTTON STATION
- PUSH-BUTTON STATION WITH LOCK-OUT FEATURE
- SELECTOR SWITCH
- INDICATING LIGHT
- CS — CONTROL STATION
- H O A — HAND-OFF-AUTO SELECTOR SWITCH CONTROL STATION
- VCS — CONTROL STATION FURNISHED BY EQUIPMENT VENDOR
- LCS — LOCAL CONROL STATION
- A AS — AMMETER – AMMETER SWITCH
- V VS — VOLTMETER – VOLTMETER SWITCH
- SV — SOLENOID VALVE
- F 60/40 — DISCONNECT SWITCH – 480V 3POLE UNFUSED OR FUSED
  F DENOTES FUSING, ONLY WHERE INDICATED.
  H DENOTES FUSED DISCONNECT WITH INTEGRAL RECEPTACLE.
  FIRST NUMBER DENOTES SWITCH AMP RATING.
  SECOND NUMBER DENOTES FUSE SIZE WHEN PROVIDED.
- VFD-B — VARIABLE FREQUENCY DRIVE – VFD –B WHEN INDICATED DENOTES WITH STARTING AND FULL SPEED BYPASS
- J OR J — JUNCTION BOX; SIZE AS REQUIRED BY N.E.C.
- T OR T — TERMINAL BOX; SIZE AS REQUIRED BY N.E.C. AND TO ACCOMODATE ALL TERMINATIONS ON TERMINAL BLOCKS. TERMINATIONS TO INCLUDE SPARE WIRING.
- PB OR PB — PULL BOX; SIZE AS REQUIRED BY N.E.C.
- K1 — LOCK FOR RESPECTIVE KEY INTERLOCK WITH KEY CAPTIVE IN LOCK
- L1 — LOCK FOR RESPECTIVE KEY INTERLOCK
- OT — OVER-TEMPERATURE DEVICE
- M 5 — ELECTRIC MOTOR (NUMBER INDICATES HORSEPOWER).
- MV — MOTORIZED VALVE WITH CONTROLLER BY VENDOR
- PFD — PFD DENOTES PULL FUSE DISCONNECT TYPE
- 600/5 3 — CURRENT TRANSFORMER, RATIO AND QUANTITY DENOTED
- POTENTIAL TRANSFORMER
- STT 800/600 (400P) — FIXED MOUNTED POWER OR MOLDED CASE CIRCUIT BREAKER WITH RMS TYPE SOLID STATE TRIP PROGRAMMER.
  DENOTES PLUG RATING WHEN LESS THAN SENSOR RATING IS REQUIRED
- MMD — MICROPROCESSOR BASED METERING DEVICE

- 100/30 2P — (FRAME SIZE) / (TRIP SIZE)
  THERMAL-MAGNETIC CIRCUIT BREAKER 2P WHEN NOTED DENOTES 2 POLE
- 7A/MCP — AC COMBINATION FULL VOLTAGE NON-REVERSING STARTER (CONTINUOUS AMP RATING) (MOTOR CIRCUIT PROTECTOR) MAGNETIC BREAKER
  MAGNETIC MOTOR STARTER
  OVERLOAD RELAY
- 7A/MCP F S — AC COMBINATION FULL VOLTAGE NON-REVERSING TWO SPEED TWO WINDING STARTER
- 7A/MCP F R — AC COMBINATION FULL VOLTAGE REVERSING STARTER
- 7A/MCP 1S R 2S — AC COMBINATION REDUCED VOLTAGE NON-REVERSING STARTER
  AUTO-TRANSFORMER TYPE STARTER
- RVSS-B — ELECTRONIC REDUCED VOLTAGE SOLID STATE STARTER –RVSS –B DENOTES WITH FULL SPEED BYPASS
- TRANSFORMER– SIZE AS NOTED ON THE DRAWINGS
- DISCONNECT SWITCH WITH FUSING WHERE NOTED
- SUBMERSIBLE CABLES BY VENDOR
- SPD — SURGE PROTECTION DEVICE

PLANS:

- I-2 GFI/SS — DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C. 20 AMP RECEPTACLE DESIGNATIONS, FIRST NUMBER DENOTES PANEL, SECOND NUMBER DENOTES CIRCUIT NUMBER. GF-DENOTES GROUND FAULT INTERRUPTING TYPE. SS-DENOTES SURGE SUPPRESSION TYPE WPU-DENOTES WEATHERPROOF WHILE-IN-USE ENCLOSURE
- SINGLE CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE; 120 VOLTS AC. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
- QUAD CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE; 120 VOLTS AC. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
- POWER RECEPTACLE, 2 POLE, 3 WIRE 250 VOLTS A.C. 20 AMP UNLESS NOTED OTHERWISE ON DRAWINGS.
- S^a — SINGLE POLE SWITCH – LOWER CASE LETTER DENOTES SWITCHING.
- S_2 — TWO POLE SWITCH
- S_3 — THREE-WAY SWITCH

- J LP1-2 / 10 — LETTERS AND NUMBERS INDICATE PANEL AND CIRCUIT NUMBER (LP1-2). CROSS LINES INDICATE NUMBER OF CONDUCTORS. HALF HASH MARKS INDICATES NEUTRAL. NUMBER (10) DENOTES WIRE SIZE WHEN NOT #12 AWG. CONTINUE CONDUIT AND WIRE RUN FROM BOX TO DEVICE IN ROOM OR AREA AS NOTED BY BRANCH CIRCUIT NUMBER. #10 AWG WIRING SHALL BE USED FOR RUNS BETWEEN PANEL AND FIRST LIGHTING FIXTURE OR RECEPTACLE EXCEEDING 50 FEET, UNLESS OTHERWISE NOTED ON DRAWING.
- INDICATES GROUND CONDUCTOR
- C12 — INDICATES HOMERUN AND CONDUIT TAG
- EMH — ELECTRICAL MANHOLE
- EHH — ELECTRICAL HANDHOLE
- TMH — TELEPHONE MANHOLE
- THH — TELEPHONE HANDHOLE
- PC — PHOTOCELL
- 1-3 / a — FLUORESCENT LIGHTING FIXTURE – SURFACE OR PENDANT MOUNTED. FIRST NUMERAL DENOTES LIGHTING PANEL (LP1), SECOND NUMBER DENOTES BRANCH CIRCUIT NUMBER. LOWER CASE LETTER DENOTES SWITCHED CIRCUIT.
- FLUORESCENT LIGHTING FIXTURE WITH BATTERY PACK – SURFACE OR PENDANT MOUNTED.
- PXXX — CONDUIT TAG
  P – POWER
  C – CONTROL
  A – ANALOG
  XXX – CONDUIT UNIQUE IDENTIFIER
- WALL MOUNTED LIGHTING FIXTURE.
- POLE OR STANCHION MOUNTED LIGHTING FIXTURE.
- TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURES
- GF — POLE MOUNTED FIXTURE WITH GF RECEPTACLE
- EM — 2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. LETTER DENOTES FIXTURE TYPE.
- D / 150 / 10'-0" AFF — FIXTURE DESIGNATION SYMBOL. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND TYPE. ALL FIXTURES SHOWN IN A ROOM WITH THIS SYMBOL SHALL BE OF TYPE INDICATED BY LETTER; NUMBER IN SYMBOL INDICATES LAMP WATTAGE AND NUMBER OF LAMPS WHERE MORE THAN ONE (UNLESS OTHERWISE NOTED). NUMBER BELOW SYMBOL INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR OR AS NOTED.
- M 1-24 / M 1-24 / UH 1-24 OR 1-24 — MOTOR, UNIT HEATER-NUMERAL DENOTES LIGHTING PANEL AND BRANCH CIRCUIT NUMBER. MOTOR SYMBOL SHOWN DASHED DENOTES EQUIPMENT LOCATED ON ROOF.
- T — THERMOSTAT
- INDICATES NEW EQUIPMENT/EXPOSED CONDUIT
- INDICATES EXISTING EQUIPMENT/CONDUIT
- INDICATES CONCEALED OR UNDERGROUND EQUIPMENT/CONDUIT
- INDICATES DEMOLITION OR EQUIPMENT TO BE REMOVED
- GROUND ROD
- GROUND TEST POINT
- GROUND GRID CABLE CONNECTION
- GROUND
- #4/0 GROUND CABLE BURIED 2'-6" BELOW GRADE, UNLESS NOTED OTHERWISE

INSTRUMENTS:

- PS 123 — INSTRUMENT DEVICE: LETTERS IDENTIFY DEVICE FUNCTION, NUMBERS WHERE INDICATED DENOTE LOOP NUMBER
- PC — PRESSURE CONTROLLER
- PS — PRESSURE SWITCH (PSH DENOTES PRESSURE SWITCH HIGH AND PSL DENOTES PRESSURE LOW)
- MS — MOISTURE SWITCH
- dPSH — DIFFERENTIAL PRESSURE SWITCH (dPSH DENOTES PRESSURE SWITCH HIGH AND dPSL DENOTES PRESSURE SWITCH LOW)
- CSH — DIAPHRAGM LEAK DETECTOR
- FS — FLOW SWITCH (FSH DENOTES FLOW SWITCH HIGH AND FSL DENOTES FLOW SWITCH LOW)
- ZS — LIMIT SWITCH
- PIT — PRESSURE TRANSMITTER (I DENOTES INDICATING TYPE AND PE DENOTES PRESSURE ELEMENT)
- LIT — LEVEL TRANSMITTER (LE DENOTES LEVEL ELEMENT)
- FIT — FLOW TRANSMITTER (FE DENOTES FLOW ELEMENT)
- AIT — ANALYSIS TRANSMITTER (AE DENOTES ANALYSIS ELEMENT)
- TIT — TEMPERATURE TRANSMITTER (TE DENOTES TEMPERATURE ELEMENT)
- TS — TEMPERATURE SWITCH (TSH DENOTES TEMPERATURE SWITCH HIGH AND TSL DENOTES TEMPERATURE SWITCH LOW)
- LS — LEVEL SWITCH (LSH DENOTES LEVEL SWITCH HIGH AND LSL DENOTES LEVEL SWITCH LOW. LE DENOTES LEVEL ELEMENT)
- VS — VIBRATION SWITCH (VE INDICATES VIBRATION ELEMENT)
- MOV OR MV — MOTORIZED VALVE
- SV OR SV — SOLENOID VALVE
- ZC — STROKE POSITIONER
- SL — STROBE LIGHT

FIRE ALARM SYSTEM:

- FACP — FIRE ALARM CONTROL PANEL
- H — HORN
- F — MANUAL PULL STATION
- SD D — DUCT MOUNTED SMOKE DETECTOR
- SD — SMOKE DETECTOR MULTISENSOR
- END OF LINE RESISTOR
- SD H — THERMAL DETECTOR (FIXED AND RATE OF RISE) H-HIGH TEMPERATURE
- A/V 110 — AUDIO/VISUAL ALARM INDICATOR (HORN/STROBE) NUMBER INDICATES STROBE CANDELLA RATING WHEN OTHER THAN 15
- R — ALARM BEACON LETTER INDICATES COLOR
- FD — FLAME DETECTOR
- H — HEAT DETECTOR

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
CBV	CABLE BY VENDOR, INSTALLED BY CONTRACTOR
CKT	CIRCUIT
CNTRL	CONTROL
CP-1	CONTROL PANEL, NUMBER AS NOTED
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
EC	EMPTY CONDUIT
EL, ELEV	ELEVATION
EP	EXPLOSION PROOF
EXIST	EXISTING
FDR	FEEDER
FIXT	FIXTURE
FVNR	FULL VOLTAGE NON-REVERSING
GAL	GALVANIZED
GND OR G	GROUND
HOA	HAND/OFF/AUTO
JB OR J	JUNCTION BOX, CONDULET, FITTING AS REQUIRED BY NEC, UNLESS NOTED OTHERWISE
KCMIL OR MCM	THOUSAND CIRCULAR MILS
LA	LIGHTNING ARRESTOR
LCP	LOCAL CONTROL PANEL
LTS	LIGHTING
MCC	MOTOR CONTROL CENTER
MTS	MANUAL TRANSFER SWITCH
NA	NON-AUTOMATIC
NCTC	NORMALLY CLOSED, TIME CLOSE
NCTO	NORMALLY CLOSED, TIME OPEN
NOTC	NORMALLY OPEN, TIME CLOSED
NOTO	NORMALLY OPEN, TIME OPEN
NTS	NOT TO SCALE
P/B, PB	PULL BOX
PFD	PULL FUSE DISCONNECT
PNL	PANEL
PFC	POWER FACTOR CORRECTION CAPACITORS
PT	POTENTIAL TRANSFORMER
REC	RECEPTACLE
RVNR	REDUCED VOLTAGE NON-REVERSING
SP	SPARE
SEL	SELECTOR
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEW	THERMOCOUPLE EXTENSION WIRE
TSP	TWISTED SHIELDED PAIR
UON	UNLESS OTHERWISE NOTED
USE	UNDERGROUND SERVICE ENTRANCE CABLE
WP	WEATHERPROOF
WT	WINDING TEMPERATURE RELAY
XFMR	TRANSFORMER
NEC	NATIONAL ELECTRIC CODE
TYP	TYPICAL

GENERAL NOTES:

1. THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO — James Robert Steed — E-55446 — REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E01
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY:

SHEET TITLE

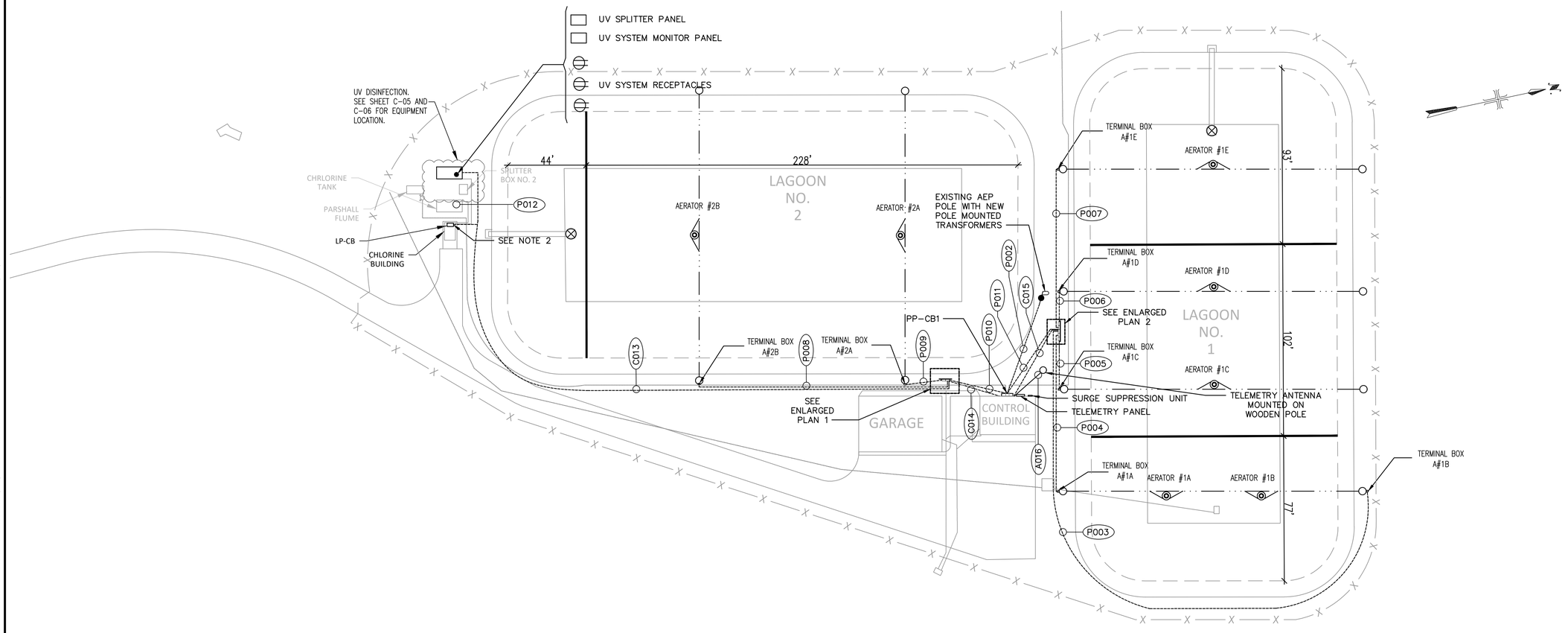
ELECTRICAL

LEGEND, SYMBOLS, AND ABBREVIATIONS

SCALE: NTS

E-01

SHEET 21 OF 28

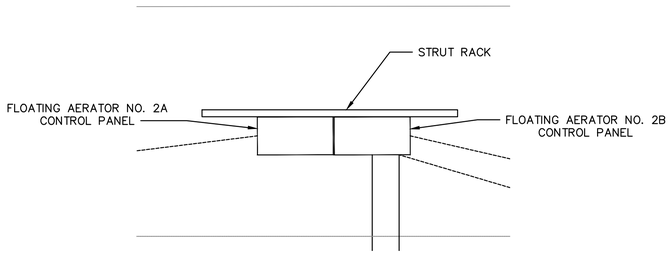


ENLARGED PLAN 1

1" = 30'

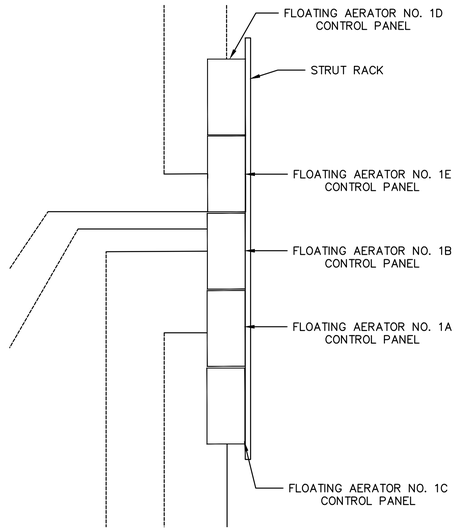
AERATORS

LAGOON #	CELL	AERATOR	HP
1	1	1A	10
	1	1B	10
	2	1C	15
	2	1D	15
	3	1E	5
2	4	2A	5
	4	2B	5



ENLARGED PLAN 1

1/2" = 1'



ENLARGED PLAN 2

1/2" = 1'

NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE DUCT BANK ROUTING, ORIENTATION, AND INSTALLATION WITH EXISTING FIELD CONDITIONS, NEW UNDERGROUND UTILITIES, NEW AND SCHEDULE. SEE GENERAL CIVIL, AND MECHANICAL SHEETS FOR ADDITIONAL SITE INFORMATION.
2. CONTRACTOR SHALL PROVIDE TWO SINGLE POLE, 15A BREAKERS RATED FOR 120 VAC IN LP-CB. BREAKER SHALL BE OEM.
3. PROVIDE NEW GROUND SYSTEM AT CONTROL BUILDING. PROVIDE TWO 10' GROUND RODS AND #4/0 BARE COPPER GROUND WIRE BETWEEN GROUND RODS TO BOND NEW SERVICE TO.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO — James Robert Steed — 85568 — REGISTERED PROFESSIONAL ENGINEER — 4-17-2020

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E02
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

SHEET TITLE

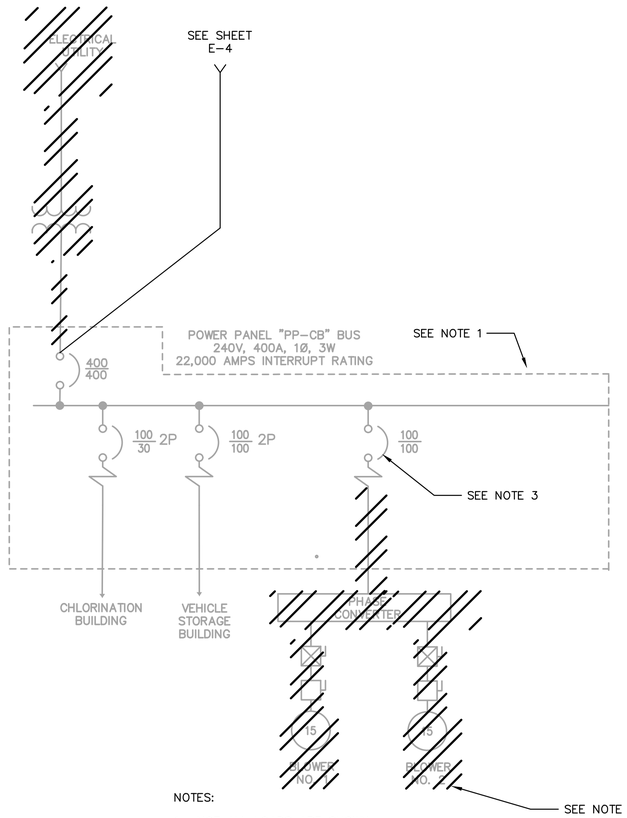
ELECTRICAL

ELECTRICAL SITE PLAN

SCALE: NO SCALE

E-02

SHEET 22 OF 28



NOTES:

1. NOT ALL LOADS ARE SHOWN.
   SEE PP–CB SCHEDULE FOR COMPLETE LIST OF LOADS.
2. REMOVE EXISTING BLOWERS, DISCONNECTS, COMBINATION MOTOR STARTERS, PHASE CONVERTERS, CABLE AND CONDUIT BACK TO SOURCE AS SHOWN
3. DISCONNECT CABLE FROM EXISTING BREAKER. EXISTING BREAKER TO REMAIN AS SPARE.

PP–CB EXISTING ONE LINE DIAGRAM

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE A	KVA PER PHASE B	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	Lights	1.2	10.0	1	1.4		1	1.5	0.18	Recp	20	2
3	20				1		0.2	1	1.5	0.18	Recp	20	4
5	20	RCP -1	1.125	9.4	1	1.3		1	1.5	0.18	Recp	20	6
7	20	EBH-2	1	4.2	2		0.7	1	1.5	0.18	Recp	20	8
						0.5		2	4.2	1	UH-1	30	10
11	20				1		0.5						
13	20	Gas Room VFD And Mode	0.468	3.9	1	0.9		1	3.3	0.4	Control Power	20	14
15		SPACE			1		0.0	1				20	16
17	20	Equip Room VF	0.5	4.2	1	0.5		1				20	18
19	20				1		0.1	1	0.8	0.1	Flow Recorder	20	20
21					1	0.5		1	4.2	0.5	Elec. Water Heater	20	22
23					1		0.0	1				20	24
25	30	Chlorination Building Feeder	3	12.5	2	2.5		2	7.9	1.9	Vehicle Storage Building Feeder	100	26
							2.5						
29	20	Yard Light	0.5	4.2	1	0.5		1				20	30
31	20	Yard Pole Recp			1		0.5	2	4.2	1	EBH-1	20	32
33	100	~~Add A Phase~~ SPARE			2	0.0							
							1.0	1	8.3	1	Sump Pump	20	36
⬡1 37	20	~~SPACE~~ PLC-CB	1	8.3	1	1.0		1			SPACE		38
⬡1 39	20	~~SPACE~~ PLC-CB Utility	0.5	4.2	1		0.5	1			SPACE		40
⬡1 41	20	~~SPACE~~ Telemetry Panel	0.5	4.2	1	0.5		1			SPACE		42
			TOTAL KVA			9.5	5.9						
			GRAND CONNECTED TOTAL KVA				15.4						

PANEL **PP-CB**
LOCATION
BUILDING
NOTES:

SERVICE CHARACTERISTICS
VOLTS: 240/120
PHASE: 1
WIRE: 3
10k MIN AIC SYMM, FULLY RATED ASSEMBLY

A MLO
400 A MCB

EXISTING PP–CB PANEL SCHEDULE

⬡ CODED NOTES:

1. EXISTING SPACE IN EXISTING PANEL PP–CB IS TO BE REPURPOSED AS SHOWN. PROVIDE SINGLE POLE BREAKER WITH RATINGS AS SHOWN. BREAKER SHALL BE TYPE OEM. UPDATE PANEL SCHEDULE FOR NEW EQUIPMENT AS SHOWN.
2. PROVIDE 2/12, 1#12G, 3/4" CONDUIT FOR BRANCH CIRCUITS TO IDENTIFIED EQUIPMENT UNLESS NOTED OTHERWISE.
3. ALL 20A BRANCH CIRCUITS WHICH EXTEND BEYOND 100 FEET IN LENGTH SHALL UTILIZE #10 AWG WIRING THROUGHOUT THE ENTIRE LENGTH OF THE CIRCUIT FOR THE PURPOSE OF LIMITING VOLTAGE DROP AND REDUCING WIRING SYSTEM LOSSES.
4. MULTIPLE 120V 20A BRANCH CIRCUITS MAY BE COMBINED WITHIN A SINGLE CONDUIT TO MINIMIZE THE NUMBER OF HOMERUNS TO PANELBOARD. DO NOT EXCEED SIX CURRENT CARRYING CONDUCTORS PER RACEWAY WHEN USING #12 AWG WIRING. NINE CURRENT CARRYING CONDUCTORS MAY SHARE THE SAME CONDUIT IF ALL CONDUCTOR SIZES ARE INCREASED TO #10 AWG, AND PROVIDED THAT THE CIRCUIT BREAKERS FOR EACH CIRCUIT ARE RATED 20A OR LESS.
5. A SEPARATE GREEN INSULATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH BRANCH CIRCUIT.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

James Steed PE-55448 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO
4/17/2020

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO
JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E03
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

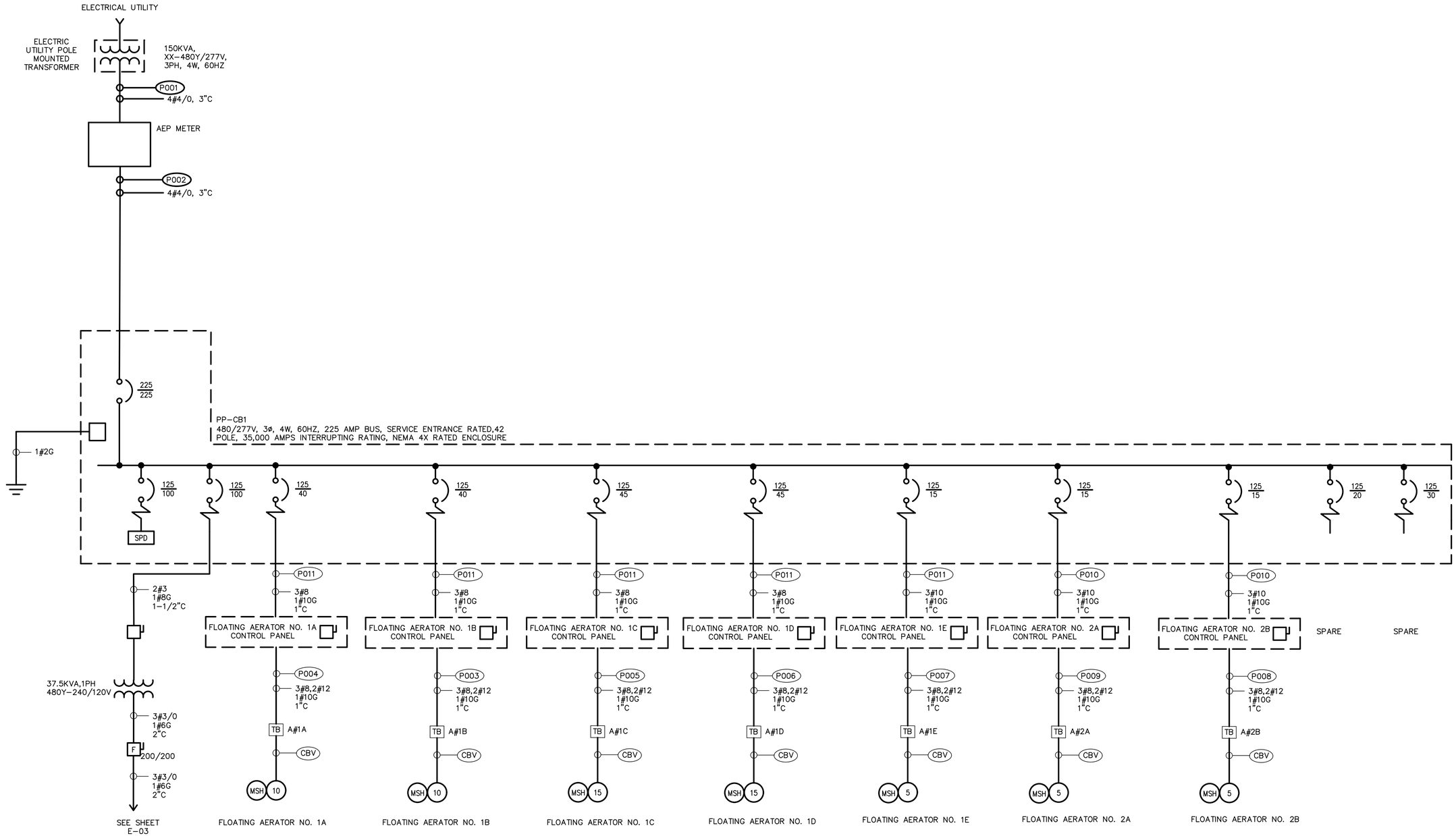
SHEET TITLE

ELECTRICAL

EXISTING ONE LINE DIAGRAM

SCALE: NTS

E–03
SHEET 23 OF 28



ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO James Robert Steed 85446 REGISTERED PROFESSIONAL ENGINEER
4-17-2020

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE:	APRIL 2019
PROJECT NO.:	06753016.0000
FILE NAME:	6753016_E04
DESIGNED BY:	D. PARTI
DRAWN BY:	D. PARTI
CHECKED BY:	J. STEED

SHEET TITLE

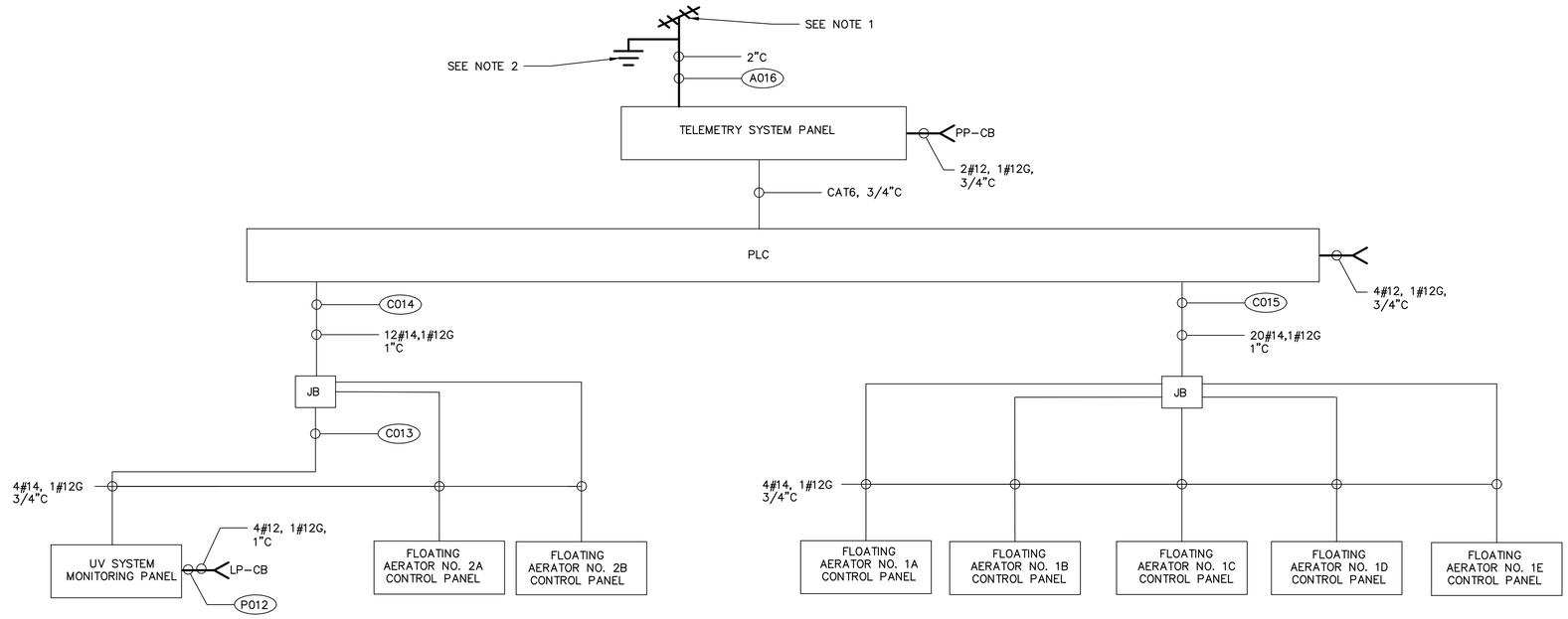
ELECTRICAL

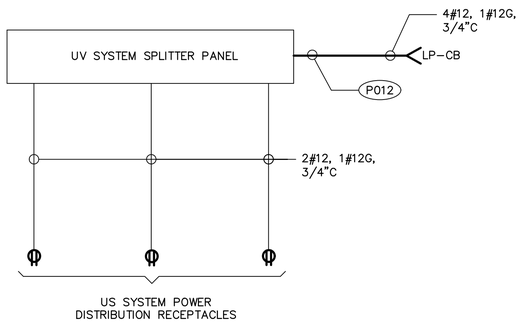
NEW ONE LINE DIAGRAM

SCALE: NO SCALE

E-04

SHEET 24 OF 28





NOTES:

1. TELEMETRY ANTENNA MOUNTED ON WOOD POLE. PROVIDE SUPPORTS, ANCHORS, STAINLESS STEEL MOUNTED BRACKETS, AND ADDITIONAL EQUIPMENT TO INSTALL POLE AND ANTENNA PER MANUFACTURER'S RECOMMENDATION.
2. ANTENNA INSTALLATION INCLUDES SURGE SUPPRESSION UNIT INSTALLED ON THE EXTERIOR OF THE OPERATIONS/BLOWER BUILDING. GROUND ACCESS POINT AND SURGE SUPPRESSION MODULE TO NEW BUILDING GROUND SYSTEM AND SUPPORTING ANTENNA STRUCTURE.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO James Robert Steed 85466 REGISTERED PROFESSIONAL ENGINEER
APR 17 2020

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E05
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

SHEET TITLE

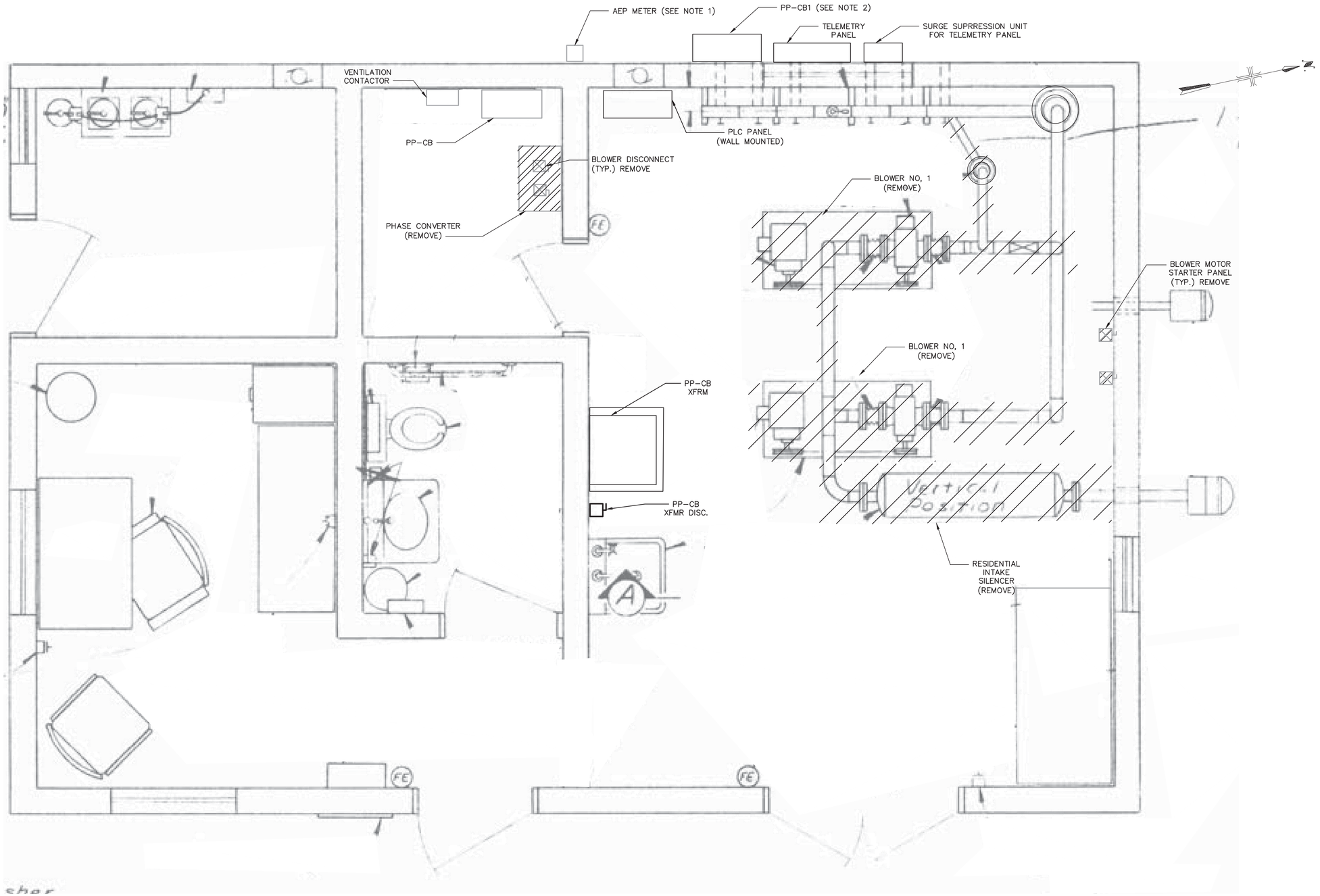
ELECTRICAL

BLOCK DIAGRAM

SCALE:

E-05

SHEET 25 OF 28



CONTROL BUILDING

3/4" = 1'

NOTES:

1. EXISTING AEP METER TO BE REMOVED. CO-ORDINATE WITH UTILITY.
2. PROVIDE GROUND SYSTEM AS PER NOTE 3 ON E-02

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO James Kevin Steed #E-55446 REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E06
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

SHEET TITLE

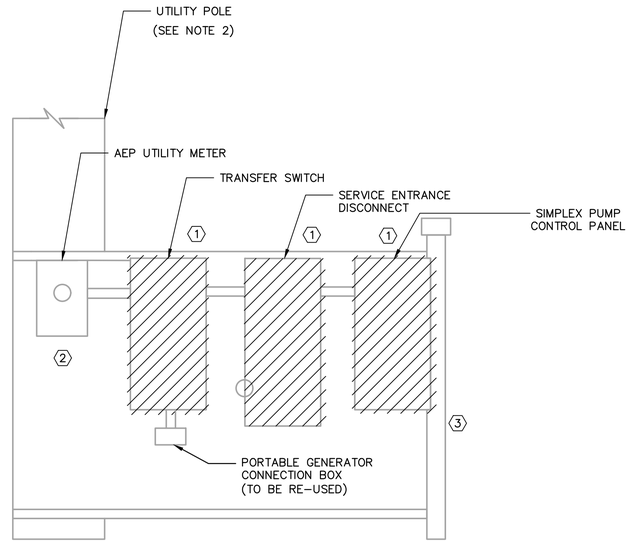
ELECTRICAL

CONTROL BUILDING POWER PLAN

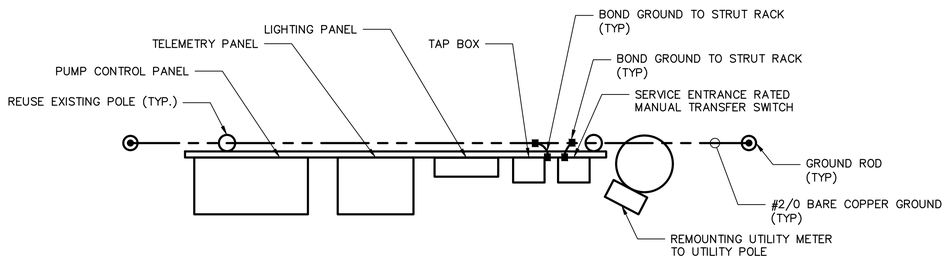
SCALE:

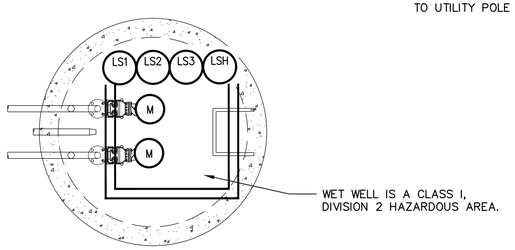
E-06

SHEET 26 OF 28



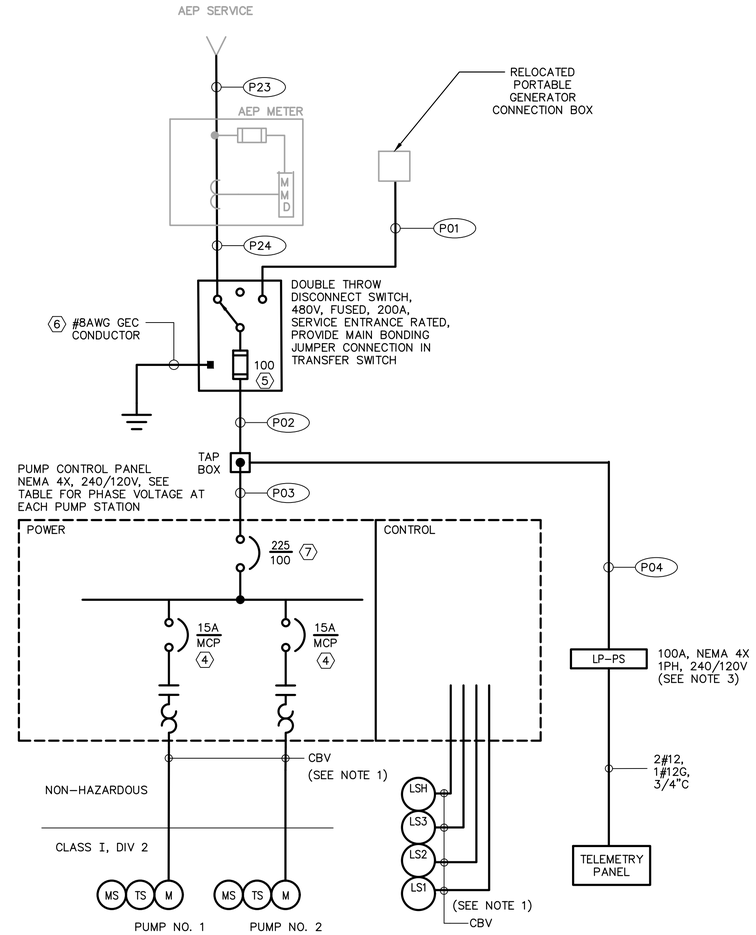
ELEVATION DEMO





TYPICAL PUMP STATION SITE PLAN

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



ONE LINE DIAGRAM

PUMP STATION NO.	XFMR. RATING	PHASE	XFMR. CONFIGURATION	P01 FILL	P02 FILL	P03 FILL	P04 FILL	P23 FILL	P24 FILL
1	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
2	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
3	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
4	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
5	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
6	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
7	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
8	15.0 kVA, 240/120V	SINGLE	CENTER GROUND	3#4, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C	3#3, 1#8G, 1"C
9	37.5 kVA, 240/120V	THREE	HIGH LEG	4#2, 1-1/2"C	3#1, 1#6G, 1-1/2"C	3#1, 1#6G, 1-1/2"C	3#1, 1#6G, 1-1/2"C	3#1, 1#6G, 1-1/2"C	3#1, 1#6G, 1-1/2"C

EXISTING TRANSFORMER RATINGS

⬡ CODED NOTES:

1. EXISTING EQUIPMENT TO BE REMOVED. REMOVE CABLE AND CONDUIT BACK TO SOURCE.
2. EXISTING AEP METER SOCKET TO BE RELOCATED. METER SOCKET TO BE REMOUNTED TO EXISTING UTILITY POLE. COORDINATE WITH AEP.
3. REMOVE WOODEN BACKBOARD SUPPORT ONCE ELECTRICAL EQUIPMENT HAS BEEN REMOVED.
4. PUMP STATION NO. 9 SHALL HAVE MCP WITH RATING OF 30A.
5. FUSE SIZE FOR PUMP STATION NO. 9 SHALL BE 125A.
6. GEC CONDUCTOR FOR PUMP STATION NO. 9 SHALL BE #6 AWG.
7. MAIN BREAKER DISCONNECT TRIP RATING SHALL BE 125A FOR PUMP STATION NO. 9

NOTES:

1. PROVIDE CONDUIT SLEEVE FOR SUBMERSIBLE CABLES (BY VENDOR) OUT OF WETWELL. TRANSITION CABLES TO 4" PVC-COATED RGS CONDUIT DIRECT BURIED TO PUMP CONTROL PANEL. CONDUIT TRANSITION TO VERTICAL SHALL STOP 6" ABOVE GRADE AND CONDUCTORS RUN EXPOSED TO PANEL. CONDUIT SHALL BE SEALED WITH DUCT SEALING COMPOUND TO BE WATERTIGHT.
2. LOCATIONS OF UTILITY POLE AND PROPOSED STRUT RACK WILL VARY BETWEEN PUMP STATIONS. REFER TO PS SHEETS FOR CONSTRUCTION DETAILS.
3. PROVIDE PANELBOARD WITH 100A MAIN CIRCUIT BREAKER, 18 POLES, 100A BUS, TWELVE 1P 15A BREAKERS, AND SURGE PROTECTION DEVICE.
4. DESIGN STRUT RACK PER SECTION 26 05 29.
5. BOTTOM OF ALL STRUT RACK MOUNTED ENCLOSURES SHALL BE AT LEAST 24" AFG.

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO
James Robert Steed
86-55446
REGISTERED PROFESSIONAL ENGINEER
APR 2020

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E07
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

SHEET TITLE

ELECTRICAL

PUMP STATION ONE LINE DIAGRAM, SITE PLAN AND BLOCK DIAGRAM

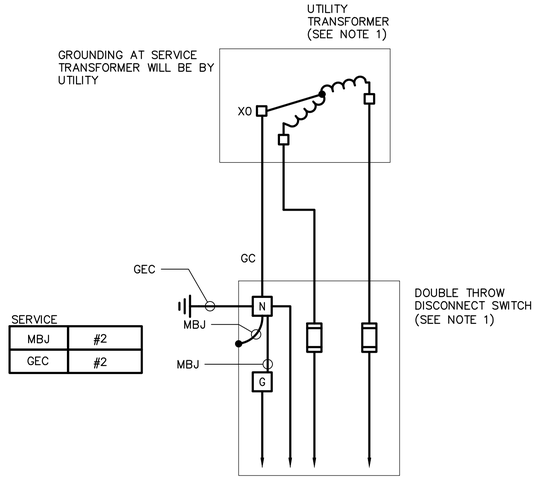
SCALE:

E-07

SHEET 27 OF 28

	FROM	TO
P001	UTILITY TRANSFORMER	UTILITY METER (AEP METER)
P002	AEP METER	PP-CB1
P003	TERMINAL BOX A#1B	FLOATING AERATOR NO. 1B CONTROL PANEL
P004	TERMINAL BOX A#1A	FLOATING AERATOR NO. 1A CONTROL PANEL
P005	TERMINAL BOX A#1C	FLOATING AERATOR NO. 1C CONTROL PANEL
P006	TERMINAL BOX A#1D	FLOATING AERATOR NO. 1D CONTROL PANEL
P007	TERMINAL BOX A#1E	FLOATING AERATOR NO. 1E CONTROL PANEL
P008	TERMINAL BOX A#2B	FLOATING AERATOR NO. 2B CONTROL PANEL
P009	TERMINAL BOX A#2A	FLOATING AERATOR NO. 2A CONTROL PANEL
P010	PP-CB1	LAGOON 2 AERATOR CONTROL PANELS
P011	PP-CB1	LAGOON 1 AERATOR CONTROL PANELS
P012	LP-CB	UV SYSTEM SPLITTER PANEL
C013	UV SYSTEM MONITORING PANEL	STRUT RACK AERATOR JUNCTION BOX
C014	LAGOON 2 AERATOR CONTROL PANELS	PLC
C015	LAGOON 1 AERATOR CONTROL PANELS	PLC
A016	TELEMETRY SYSTEM PANEL	TELEMETRY ANTENNA
P017	PUMP STATION - AEP METER	MANUAL TRANSFER SWITCH
P018	GENERATOR CONNECTION BOX	MANUAL TRANSFER SWITCH
P019	MANUAL TRANSFER SWITCH	TAP BOX
P020	TAP BOX	PUMP CONTROL PANEL
P021	TAP BOX	LP-PS
P022	LP-PS	TELEMETRY PANEL
P023	UTILITY TRANSFORMER	UTILITY METER
P024	UTILITY METER	SERVICE ENTRANCE DISCONNECT

DUCT SCHEDULE

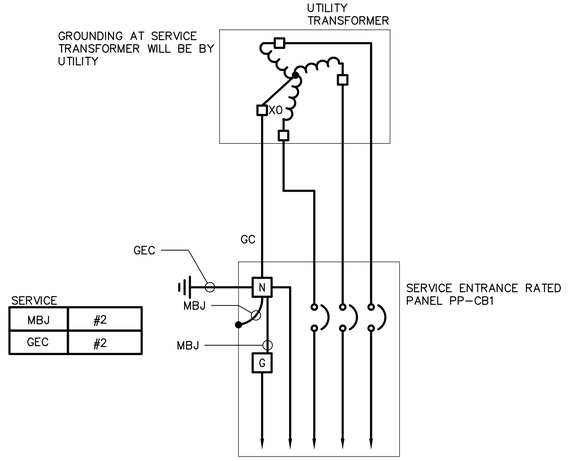


GC – GROUNDED CONDUCTOR
EGC – EQUIPMENT GROUNDING CONDUCTOR
GEC – GROUNDING ELECTRODE CONDUCTOR
MBJ – MAIN BONDING JUMPER
SBJ – SYSTEM BONDING JUMPER
SDS – SEPARATELY DERIVED SYSTEM
SSBJ – SUPPLY SIDE BONDING JUMPER

NEUTRAL AND GROUND CONNECTION SCHEMATIC FOR PUMP STATIONS

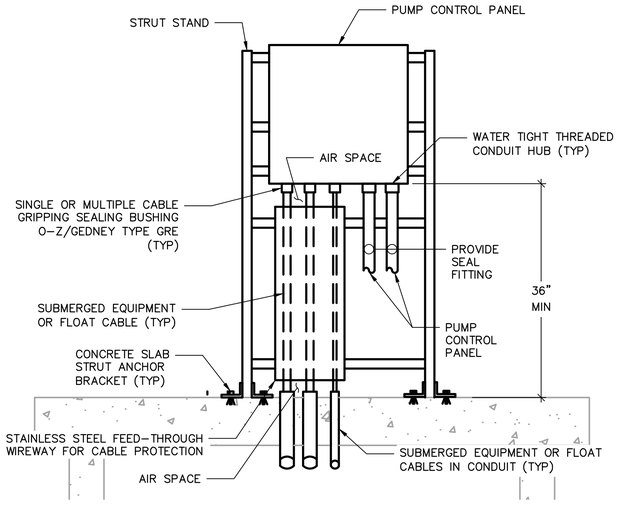
NOTES:

1. SINGLE PHASE TRANSFORMER SHOWN IN DIAGRAM. FOR THREE PHASE TRANSFORMER AT PUMP STATION NO. 9 A THIRD HIGH LEG SHALL BE INSTALLED AS B PHASE AND SHALL BE ORANGE IN COLOR



GC – GROUNDED CONDUCTOR
EGC – EQUIPMENT GROUNDING CONDUCTOR
GEC – GROUNDING ELECTRODE CONDUCTOR
MBJ – MAIN BONDING JUMPER
SBJ – SYSTEM BONDING JUMPER
SDS – SEPARATELY DERIVED SYSTEM
SSBJ – SUPPLY SIDE BONDING JUMPER

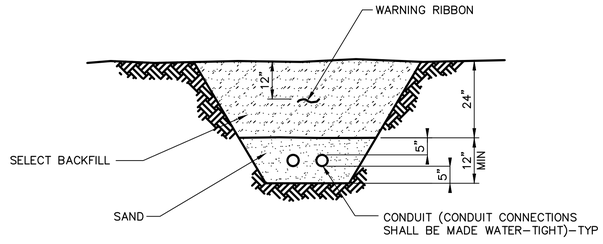
NEUTRAL AND GROUND CONNECTION SCHEMATIC AT WWTP



CONDUIT ENTRY INTO WET WELL

NOTES:

1. PROVIDE SEAL FITTINGS AS REQUIRED FOR CONDUITS PASSING THROUGH HAZARDOUS ZONE.



TYPICAL DIRECT BURIED CONDUIT DETAIL
SCALE: NTS

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

STATE OF OHIO James Robert Steed E-55448 REGISTERED PROFESSIONAL ENGINEER

SEALS

BID PHASE

JEFFERSON COUNTY, OHIO

JEFFERSON COUNTY WATER AND SEWER DISTRICT

SMITHFIELD WASTEWATER TREATMENT PLANT AND PUMP STATION REHABILITATION PROJECT

ARCADIS PROJ. NO. 06753016.0000

NO.	DATE	ISSUED FOR	BY

DATE: APRIL 2019
PROJECT NO.: 06753016.0000
FILE NAME: 6753016_E08
DESIGNED BY: D. PARTI
DRAWN BY: D. PARTI
CHECKED BY: J. STEED

SHEET TITLE

ELECTRICAL

ELECTRICAL DETAILS

SCALE:

E–08

SHEET 28 OF 28