



**General Notes and Construction Specifications**

- All water and sewer main construction shall be consistent with the local municipality requirements as well as all testing and disinfection requirements of Kentucky DEP.
- The contractor shall obtain, erect, maintain and remove all signs, barricades, flagmen and other control devices as may be necessary for the purpose of regulating, warning or guiding traffic. Placement and maintenance of all traffic control devices shall be in accordance with the latest revision of the Manual on Uniform Traffic Control Devices.
- Location of utilities shown on plans are approximate only, and are not necessarily complete. Contractor shall make his own investigations as to location of all existing underground structures, cables, utilities and pipe lines.
- If existing utility lines of any nature are encountered which conflict in location with new construction, the contractor shall notify the engineer and owner so that the conflict may be resolved.
- The contractor shall notify One Call at least 48 hours prior to construction so that each utility company can stake out any underground improvements that they may have which might interfere with the proposed construction.
- The contractor shall be required to make arrangements for the proper bracing, shoring and other required protection of all roadways, structures, poles, cables and pipe lines, before construction begins. He shall be responsible for any damage to the streets or roadways and associated structures and shall make repairs as necessary to the satisfaction of the engineer and owner at his own expense.
- The contractor shall be responsible for the protection of all private and public utilities even though they may not be shown on the plans. Any utility that is damaged during construction shall be repaired or replaced to the satisfaction of the engineer and owner by the contractor at his own expense.
- The contractor shall examine the plans and specifications, visit the site of the work and inform himself/herself fully with the work involved, general and local conditions, all federal, state and local laws, ordinances, rules and regulations and all other pertinent items which may affect the cost and time of completion of this project before submitting a proposal.
- All work and materials shall be in accordance with code requirements.
- Prior to submitting his bid, the contractor shall call the attention of the engineer to any material or equipment he deems inadequate and to any item of work omitted on the plans.
- Structures for valve vaults for water mains shall be in accordance with the improvement plans and the applicable municipality construction requirements. Where granular trench backfill is required around these structures, the cost shall be considered as incidental and shall be included in the contract unit price for the structure.
- Frame and cover or grates for water main structures shall be as indicated within these improvement plans.
- All final adjustments of casting will be accomplished by the use of precast concrete adjusting rings set in butyl rope joint sealant, mortar joints will not be allowed. Total height of adjusting rings used shall not exceed twelve (12") inches. cost for adjustment is considered incidental.
- The contractor shall be responsible to place on grade and coordinate with other contractors all underground structure frames such as catch basins, inlets, manholes, hydrants, buffalo boxes, valves, etc. No additional compensation shall be paid and said adjustments shall be considered incidental to other items of construction.
- The contractor shall restore any area disturbed to a condition equal to or better than its original use. This shall include finish grading, establishment of a vegetative cover (seeding or sod), general cleanup and pavement replacement.
- All trenches caused by the construction of all utilities and the excavation around catch basins, manholes, inlets and other appurtenances which occur within the limits of existing or proposed pavements, sidewalks and curb and gutters or where the edge of the trench shall be within two (2') feet horizontally of said improvements shall be backfilled with compacted granular trench backfill or with approved suitable select material and properly compacted to 100% of maximum density as determined by the standard proctor dry density (ASTM d 698) compaction test. When granular material is required, the cost shall be considered incidental and shall be included in the contractors bid.
- The depth of backfill shall be measured from the top of the pipe embedment to the finished subgrade or as noted on the plans.
- The contractor shall be responsible for providing safe and healthful working

- conditions throughout the construction of the proposed improvements.
- The engineer will be given forty-eight (48) hours notice for any staking that is to be done. The cost of stakeout is the responsibility of the contractor.
  - The contractor shall inform the engineer and owner before work commences on each category of construction, i.e. water main, grading, pavement and drainage improvement. A twenty-four (24) hour notice shall be given for any item that requires final testing and inspection such as water mains or sanitary sewers.
  - The engineer will furnish the contractor with lines and grades necessary to the proper prosecution and control of the work. The contractor shall call the attention of the engineer to any errors or discrepancies which may be suspected in lines and grades which are established by the engineer, and shall not proceed with the work until any lines and grades which are believed to be in error have been verified or corrected by the engineer or his representative.
  - All survey monuments damaged or removed during construction of this project shall be replaced by the surveyor and said cost of replacement shall be paid by the contractor.
  - The contractor will have in his possession on the job site a copy of the plans and specifications during construction.
  - If approval for any items is required, the contractor shall contact the engineer for approval prior to ordering.
  - Any drain and/or field tile encountered by the contractor during the installation of the improvements shall be returned to original condition. This work to be considered incidental to the contract.
  - All road signs, street signs and traffic signs which need to be relocated or moved due to construction shall be taken down and stored by the contractor at his own expense, except those which are necessary for proper traffic control which shall be temporarily reset until completion of construction operations. After completion of the work, the contractor shall reset, at his expense, all said signs.
  - The contractor shall dispose of all excess excavation, unsuitable and unusable materials offsite and at an approved location in a manner that public or private property will not be damaged or endangered. This work is considered as incidental to the cost of the project. Contractor to follow any local, state, and federal guidelines for disposing of material off site.
  - No trench excavations will be permitted to remain open over any weekend, night, or any time site is left unattended.
  - Band-seal style couplings shall be used when joining sewer pipes of dissimilar materials.
  - As-built drawings shall be prepared by the contractor and submitted to the engineer as soon as the site improvements are completed. Any change in length, location or alignment shall be shown in red. As-builts will be performed by a licensed surveyor. It will include the tops and flowlines of all storm and sanitary structures.
  - The contractor is responsible for coordinating any required inspections with the engineer and city or state agency.
  - Special attention is drawn to the fact that the standard specifications requires the contractor to have a competent superintendent on the project site at all times, irrespective of the amount of work sublet. The superintendent shall be capable of reading and understanding the plans and municipality construction specifications, shall have full authority to execute orders to expedite the project, shall be responsible for scheduling and have control of all work as the agent of the contractor. Failure to comply with this provision will result in a suspension of work as provided in the contract documents.
  - The engineer and owner are not responsible for the construction means, methods, techniques, sequences or procedures, time of performance, programs or for any safety precautions used by the contractor. The contractor is solely responsible for execution of his work in accordance with the contract documents and specifications.
  - The utilities shown hereon were plotted from available information and do not necessarily reflect the actual existence, non-existence, size, type, or location of these or other utilities. The contractor shall be responsible for verifying the actual location of all utilities. All utilities shall be located in the field prior to any construction of improvements. These provisions shall in no way absolve any party from complying with the underground facility safety and damage prevention act.
  - All materials and methods of construction to meet the specifications submitted for the construction permit.
  - Construction should not commence until all permits have been received from all

- governing agencies.
- No land disturbance activities can be completed until all land disturbance permitting has been acquired. It is the responsibility of the contractor to verify permits are in place prior to activities. Contractor will be responsible for any fines that are incurred due activities completed prior to having necessary permitting in place.
  - All fill material shall be made of selected earth materials, free from broken masonry, rock, frozen earth, rubbish, organic material and debris.
  - Grading contractor shall keep existing roadways clean of mud and debris at all times. If the city or owner has to clean the roads it will be at the expense of the contractor.
  - All graded areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by all local and state agencies and permits.
  - No grade shall exceed a 3:1 slope except where noted.
  - Interim stormwater drainage control in the form of siltation control measures are required.
  - Adequate temporary off-street parking shall be provided for construction employees. Parking on non-surfaced areas shall be prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked onto the pavement causing hazardous roadway and driving conditions.
  - The contractor shall, at all times, contain mud and other spoils on the site. No vehicle, trailer or construction equipment is to deposit mud or any other material on public streets. Project will be stopped if streets are not cleaned immediately.
  - Public roadways shall be kept open to traffic during all phases of construction of improvements. No driving lanes shall be closed without prior written permission from the governing agency.
  - The contractor shall furnish, maintain, and remove traffic control devices for the purpose of regulating, warning, and directing traffic during construction in the public roadways. All flagmen, barricades, warning signs, etc. shall conform to the manual for uniform traffic control devices.
  - No investigation has been performed by the engineer regarding hazardous waste, underground conditions or utilities affecting the tract of land shown herein.
  - This plan is not a survey in any sort and shall not constitute a boundary survey.
  - Onsite utilities have been shown based on documents obtained from public entities.
  - See MEP/Arch. plans for site lighting and electrical design/layout.
  - Contractor shall comply with all OSHA requirements for safety and construction.
  - All utility trenches in paved areas shall be compacted to the requirements of the specific paving specification. Only granular material shall be used in utility trenches under paved areas.
  - All unsurfaced areas shall receive a minimum of 6" of topsoil. Contractor shall seed, fertilize, mulch, and maintain all disturbed areas until stabilization is provided meeting the technical specifications and/or direction of the Engineer.
  - The contractor is responsible for maintenance of sediment control bmps throughout the entire project.
  - All sewer laterals shall have a 2% minimum slope.
  - All storm sewer covers shall have the words "Storm Drain" cast in the top in letters three inches high. All sanitary sewer covers shall have "Sanitary Sewer" meeting same specification.
  - All frames, grates and covers shall be ductile iron, conforming to ASTM A48, Class 30 and shall be designed for heavy duty traffic.
  - Manhole steps shall be constructed of polypropylene conforming to ASTM D 4101 and shall meet current state and federal safety standards. Steps shall be Neenah R-1981-N or approved equal.
  - Pre-cast manholes shall be at least 48" diameter and conform with ASTM C478 and to design dimensions. All lift hole shall be thoroughly wetted and completed filled with mortar and smoothed. Structures shall be free of fractures or cracks.

- All joints between pre-cast elements on manholes shall be made with an approved bitumastic material or an approved rubber gasket. Contractor shall submit shop drawings to engineer for approval prior to ordering.
- All storm sewer 12" to 30" in diameter shall be Corrugated Polyethylene Pipe (CPP) or High Density Polypropylene (HDPP).
    - CPP pipe and fittings shall conform to ASTM F405 and F667 and shall have a circular cross-section and have a smooth wall interior.
    - End sections shall be polyethylene flared type with toe plates.
    - Joints shall be provided with neoprene or manufacturer's standard gaskets and meet ASTM F2881. Pipes up to shall be water tight according to D3212. Spigots shall have gaskets meeting the requirements of ASTM F477.
    - All CPP or HDPP shall be installed using embedment material meeting North Carolina Department of Transportation requirements.
    - Installation to conform to ASTM D2321 and pipe manufacturer's recommendations for backfill, bedding, installation, and minimum cover requirements.
    - Clean joints thoroughly, and coat bell, spigot and gasket with recommended lubricant before jointing.
  - Dual wall and triple wall polypropylene pipe (HDPP) shall conform to the requirements of AASHTO M330 "Standard Specification for Polypropylene Pipe, ASTM F2736 (Dual wall) for sizes 12" to 30" and ASTM F2764 (Triple wall) for sizes 30" to 60". All polypropylene pipe shall be installed according with ASTM F2321 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications."



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**GENERAL NOTES**

TIMBERLAND WHITE  
TIMBERLAND DRIVE  
PADUCAH, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804  
ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718



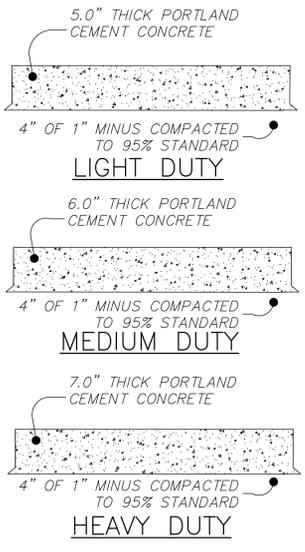
SEAL DATE: 09/29/2020  
DRAWN BY: BJK  
PROJ NUMBER: 542-B  
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DRAWING NO: C02

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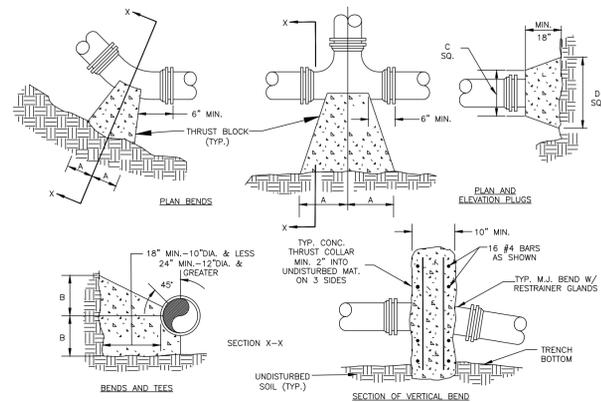




- NOTES:**
1. PORTLAND CEMENT CONCRETE SHALL COMPLY WITH CURRENT DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI, AIR ENTRAINMENT OF 5 TO 7 PERCENT, AND SLUMP BETWEEN 1 TO 3 INCHES.
  2. SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF STANDARD PROCTOR (PER ASTM D-698)
  3. SEE GEOTECHNICAL REPORT FOR PAVEMENT SPECIFICATION REQUIREMENTS.
  4. MAXIMUM JOINT SPACING SHALL BE 24 TIMES THE CONCRETE THICKNESS WITH SLABS BE NO GREATER THAN 2:1 LENGTH TO WIDTH.
  5. NON-REINFORCED CONCRETE PAVING, CONTRACTOR TO USE SMOOTH DOWELS AT CONSTRUCTION JOINTS.
  6. SEE GEOTECHNICAL REPORT FOR ALL COMPACTION, POURING, AND MATERIAL REQUIREMENTS. IF A CONFLICT EXISTS, THE GEOTECHNICAL REPORT GOVERNS.
  7. PROOF ROLL SUBGRADE DOUBLE TANDOM AXLE TRUCK PRIOR TO PLACING ROCK BASE MATERIAL.
  8. CONCRETE CURING SHALL BE PROVIDED PER ASTM C-309 OR MODOT SPECIFICATIONS, WHICHEVER IS GREATER.
  9. JOINT SEALER PER MODOT SPECIFICATIONS.
  10. WEATHER PROVISIONS SHALL COMPLY TO MODOT STANDARD CONSTRUCTION REQUIREMENTS.



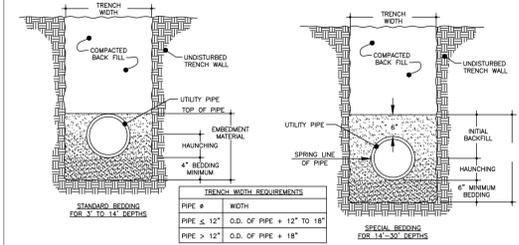
**CONCRETE SECTION DETAILS**  
Not To Scale



- NOTES:**
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
  2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
  3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
  4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
  5. THRUST BLOCKS WITH "8" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4" OF COVER.

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND			11 1/4° BEND				TEE		PLUG	
	A	B	A	B	A	B	C	A	B	C	D	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	6"	11"	9"	10"	6"		
6"	18"	12"	8"	10"	8"	8"	8"	8"	8"	11"	10"	12"	18"		
8"	18"	13"	10"	10"	8"	8"	8"	8"	8"	11"	12"	12"	24"		
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"			
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"			
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"			
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"			
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"			

**THRUST BLOCK CONSTRUCTION**  
Not To Scale



**TRENCH WIDTH REQUIREMENTS**

PIPE Ø	WIDTH
PIPE ≤ 12"	O.D. OF PIPE + 12" TO 18"
PIPE > 12"	O.D. OF PIPE + 18"

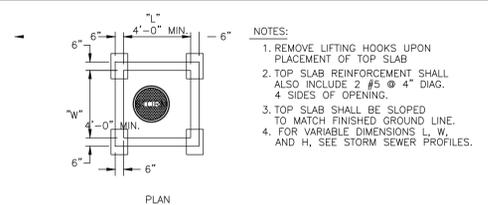
**TRENCH DEPTH REQUIREMENTS**

UTILITY	MIN. DEPTH
WATER	42"
ELECTRIC	36"
SANITARY	36"

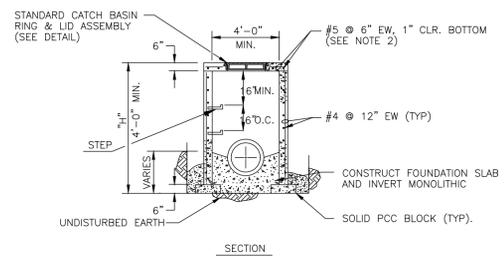
**PIPE REQUIREMENTS**

UTILITY	Ø TO 1"	1" TO 16"	16" TO 30"	> 30"
GAS	SEE UTILITY COMPANY			
WATER	SEE UTILITY CO.			
ELECTRIC	PVC	PVC	N/A	N/A
STORM	CONCRETE	HDPE	CONCRETE	CONCRETE
SANITARY	DUCTILE	CLASS 200 DUCTILE	N/A	N/A

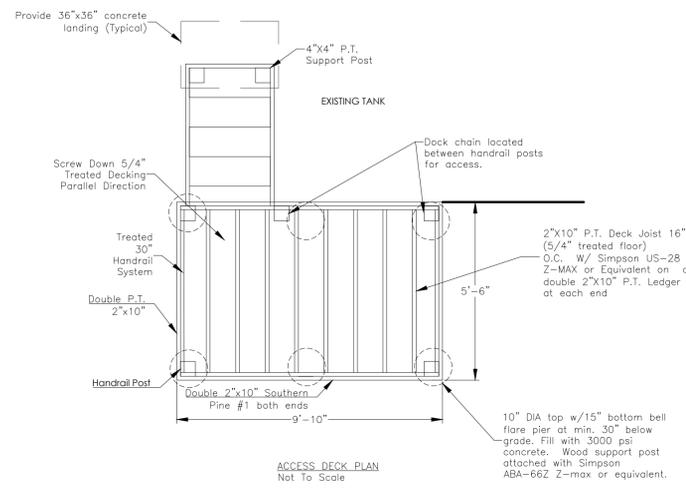
**UTILITY TRENCHING & BEDDING DETAIL**  
Not To Scale



- NOTES:**
1. REMOVE LIFTING HOOKS UPON PLACEMENT OF TOP SLAB
  2. TOP SLAB REINFORCEMENT SHALL ALSO INCLUDE 2 #5 @ 4" DIAG. 4 SIDES OF OPENING.
  3. TOP SLAB SHALL BE SLOPED TO MATCH FINISHED GROUND LINE.
  4. FOR VARIABLE DIMENSIONS L, W, AND H, SEE STORM SEWER PROFILES.

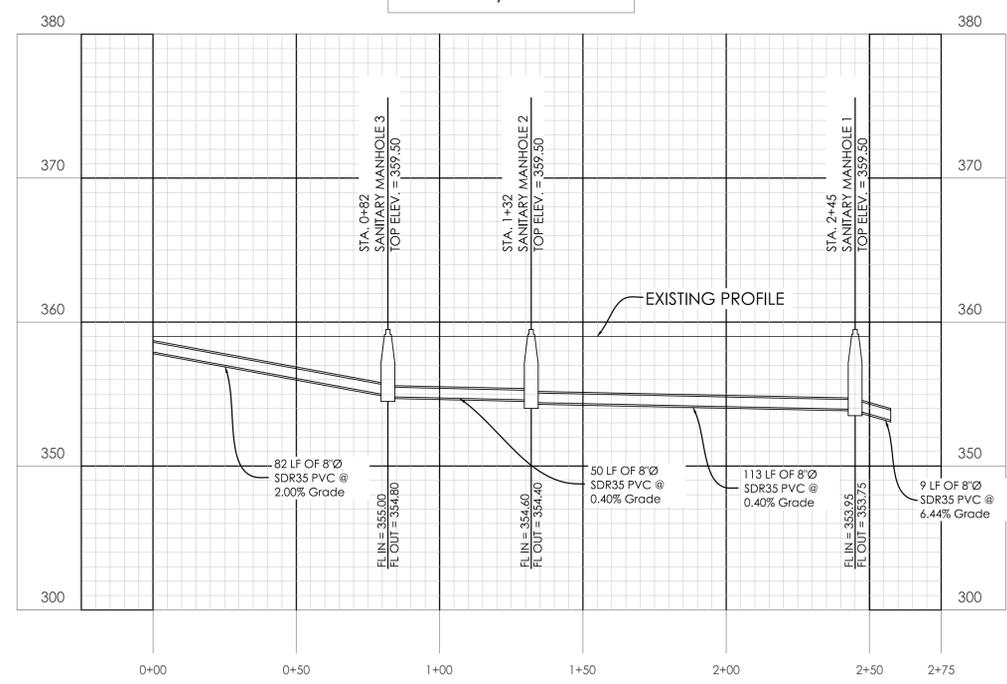


**STORM MANHOLE DETAIL**  
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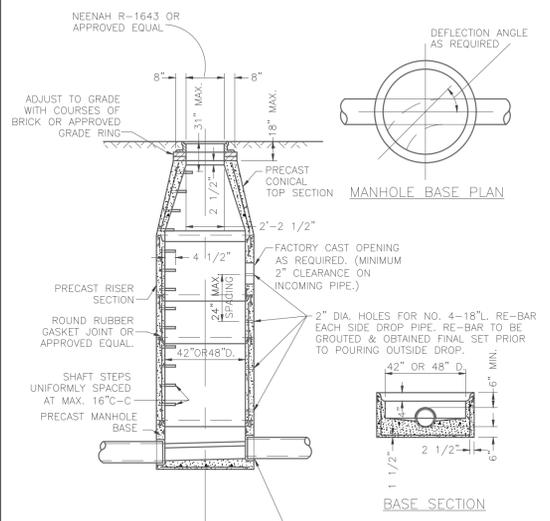


**ACCESS DECK PLAN**  
Not To Scale

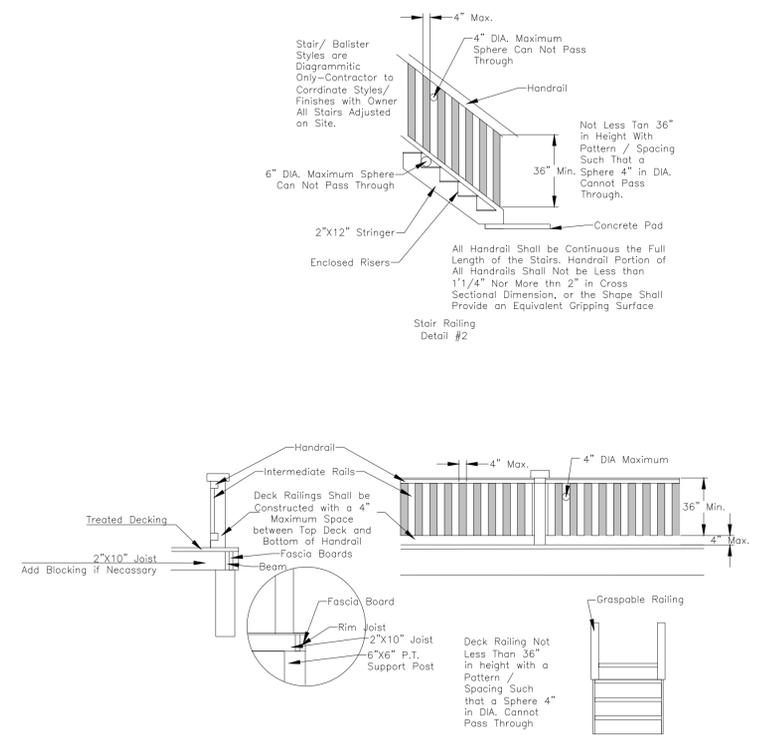
**Sanitary PROFILE**



**EFFLUENT SANITARY SEWER PROFILE**



**PRE-CAST CONCRETE MANHOLE FOR SEWERS 8\"/>**



**WOOD DECK AND STAIR DETAIL (TVL-681,682 AND P-621 ACCESS PLATFORM)**

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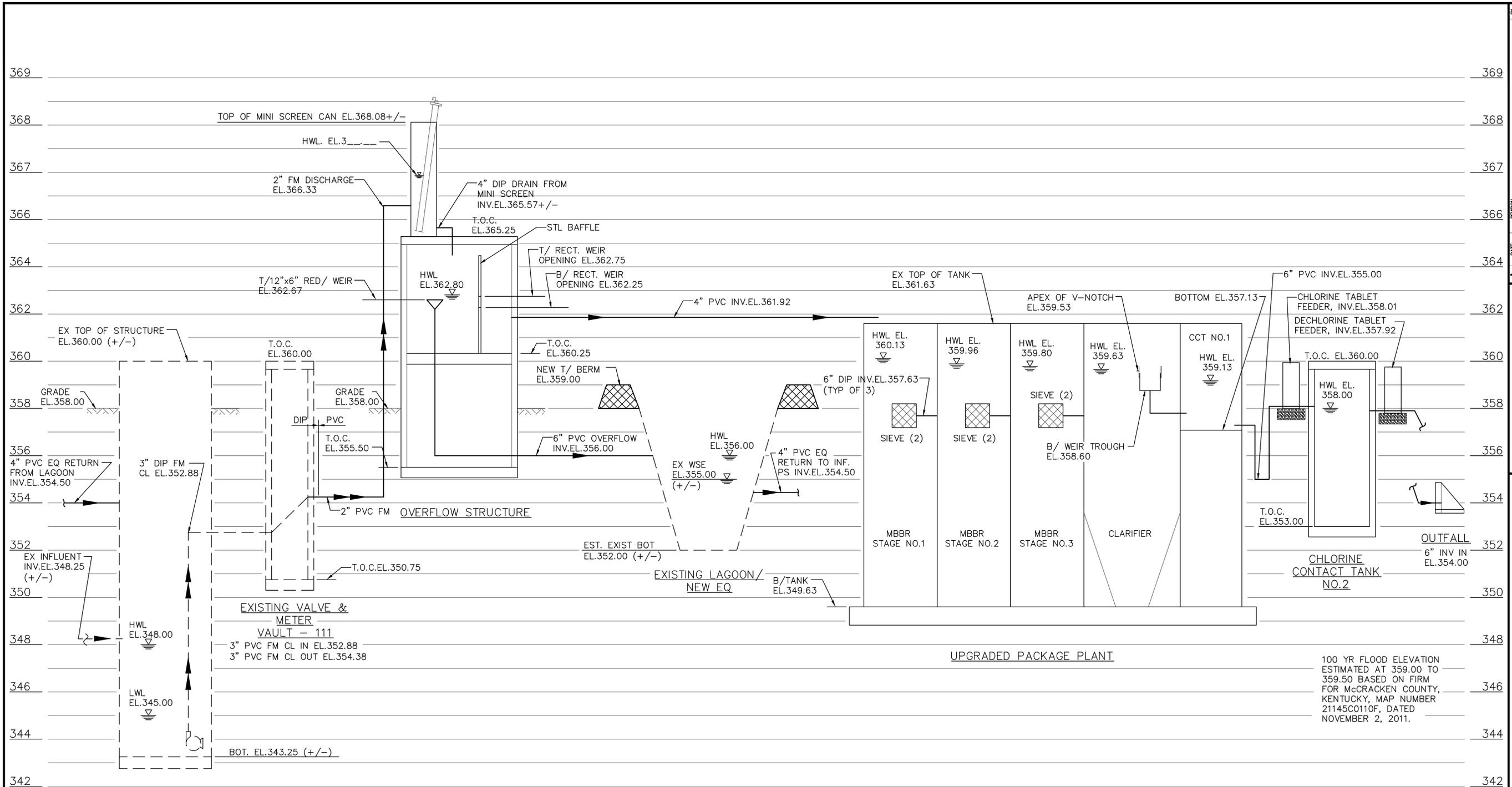
**DETAIL SHEET**  
TIMBERLAND WHITE  
TIMBERLAND DRIVE  
PADUCAH, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804  
ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718



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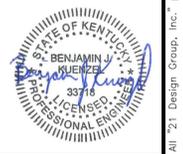
**WASTEWATER HYDRAULIC PROFILE**  
 VERTICAL SCALE: 1" = 2'-0" HORIZONTAL SCALE: NONE



**HYDRAULIC PROFILE**

TIMBERLAND WWTF  
 6500 US 60 WEST  
 PADUCAH, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4808  
 ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718



SEAL DATE: 09/29/2020  
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**DESIGN CRITERIA:**

**RAW INFLUENT FLOW AND INFLUENT PUMP STATION**  
 ADF Q = 25,000 GPD  
 POF Q = 75,000 GPD  
 PHF Q = 100,000 GPD

**MBBR INFLUENT FLOW (DOWNSTREAM EQUALIZATION)**  
 25,000 GPD  
 50,000 GPD  
 50,000 GPD

**EXISTING INFLUENT PUMP STATION**  
 DIMENSIONS: 4' DIA x 3' OPERATING RANGE  
 P-111 - 69.4 GPM @ 17 FT TDH  
 P-112 - 69.4 GPM @ 17 FT TDH

**MBBRs**  
 DIMENSIONS: (3) EA OF 6'x11.25'x10.17' (AVG WATER DEPTH)  
 TOTAL VOLUME: 15,400 GAL.  
 HRT @ ADF: 14.8 HRS.  
 HRT @ PDF: 7.4 HRS  
 MEDIA FILL: 30%  
 TOTAL SURF AREA: 8,745 M<sup>2</sup>

**AEROBIC DIGESTER NO.1**  
 DIMENSIONS: 12'x11.25'x10.33' (HWL)  
 TOTAL VOLUME: 10,431 GAL.  
 VOL/POP. EQ.: 6.6 CF/PE  
 EST. SRT.: 70 DAYS  
 SCFM: 42 SCFM (AT 30 SCFM/1,000 CF)

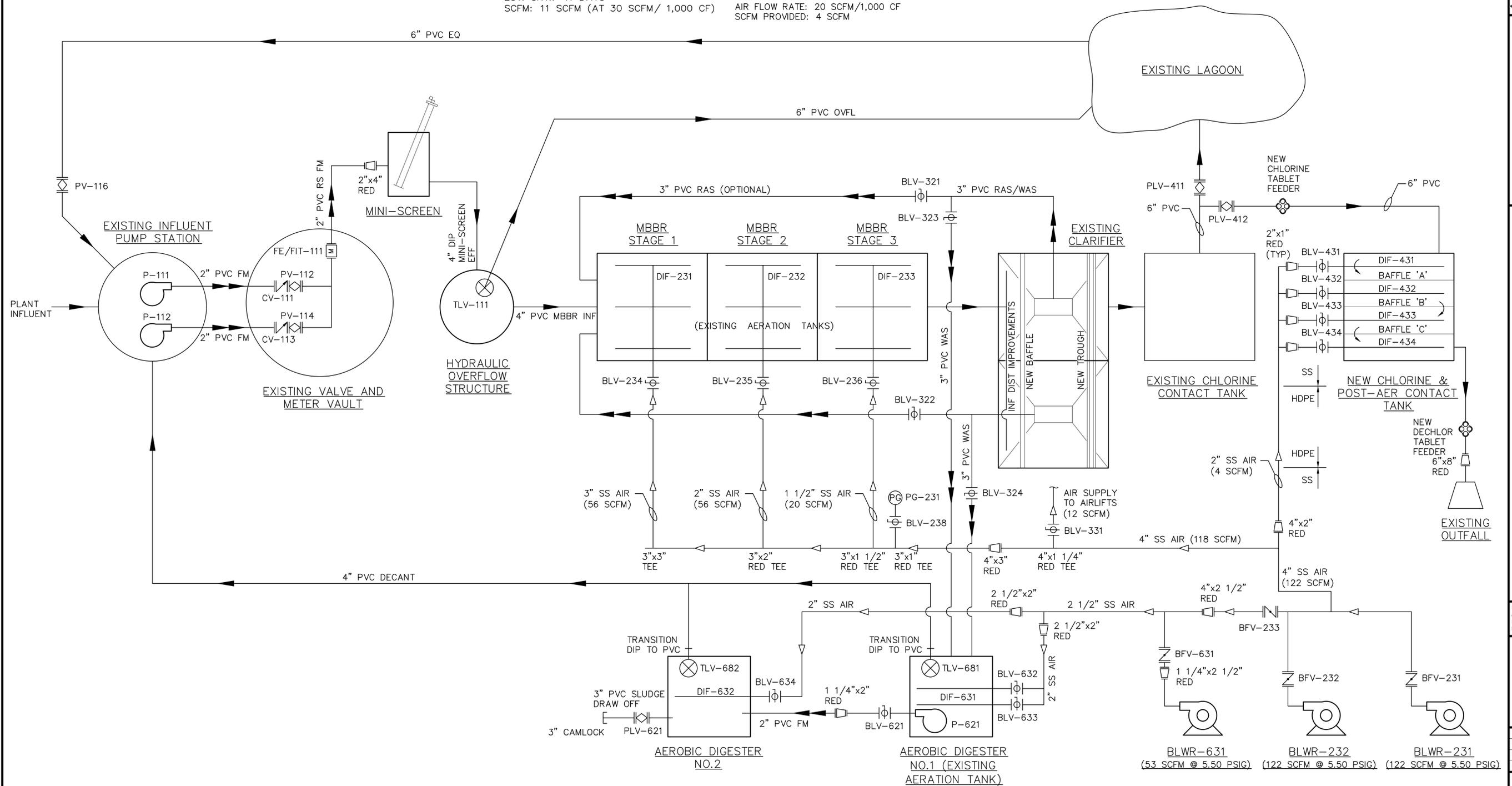
**AEROBIC DIGESTER NO.2**  
 DIMENSIONS: 3.25'x11.25'x10.17' (HWL)  
 TOTAL VOLUME: 2,825 GAL.  
 VOL/POP. EQ.: 1.8 CF/PE  
 EST. SRT.: 41 DAYS  
 SCFM: 11 SCFM (AT 30 SCFM/1,000 CF)

**CLARIFIERS:**  
 DIMENSIONS: (2) EA OF 5.5'x7.7'x10' WATER DEPTH  
 SURFACE AREA: 85 SQ SF  
 SOR @ PDF: 590 GPD/SF  
 SOR @ PHF: 590 GPD/SF  
 WEIR LENGTH: 22.3 FT.  
 WEIR OVERFLOW RATE: @ PHF: 2,239 GPD/FT.

**EXISTING CHLORINE CONTACT TANK NO.1**  
 DIMENSIONS: 3'x11.25'x3.17' (HWL)  
 TOTAL VOLUME: 800 GAL.  
 HRT: 23 MINUTES  
 TABLET FEEDER RELOCATED DOWNSTREAM; CCT NO.1 TO BE USED AS BACKUP.

**NEW CHLORINE CONTACT TANK NO.2/ POST-AERATION**  
 DIMENSIONS: 6'x6'x5' (HWL)  
 TOTAL VOLUME: 1,346 GAL.  
 HRT: 39 MINUTES  
 CCT NO.2 USED FOR POST-AERATION  
 AIR FLOW RATE: 20 SCFM/1,000 CF  
 SCFM PROVIDED: 4 SCFM

**OVERFLOW STRUCTURE**  
 DIMENSIONS: 6'x6'x7'  
 MBBR INFLUENT RECTANGULAR WEIR 3" WIDE, INV. EL.362.75, TOP OF OPENING EL.363.25.  
 OVERFLOW WEIR (TO LAAGOON) AT EL.363.17



**PROCESS FLOW DIAGRAM**  
 TIMBERLAND WWTF  
 6500 US 60 WEST  
 PADUCAH, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4808  
 ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718



SEAL DATE: 09/29/2020  
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**FOUNDATION NOTES:**

- THE FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT. CONTRACTOR WILL BE FURNISHED WITH GEOTECHNICAL REPORT FOLLOWING WRITTEN REQUEST.
- ALL SOIL SUPPORTED FOOTINGS SHALL BE FOUNDED UPON UNDISTURBED NATURAL SUBGRADE WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 3,000 PSF AS FIELD VERIFIED AND APPROVED BY THE CONTRACTOR'S SOIL TESTING LABORATORY. FINAL, EXACT ELEVATIONS AND SOIL BEARING CAPACITIES SHALL BE FIELD DETERMINED AND VERIFIED BY THE CONTRACTOR'S SOIL TESTING LABORATORY AND REVIEWED BY THE ENGINEER DURING CONSTRUCTION.
- SHOULD UNACCEPTABLE SOIL BE FOUND AT THE BEARING ELEVATION, THE SOIL SHOULD BE REMOVED TO A LEVEL OF ACCEPTABLE MATERIAL. THE OVER EXCAVATION WIDTH SHALL EXTEND Laterally AT LEAST 12" BEYOND THE FOUNDATION EDGE FOR EACH 12" OF OVER EXCAVATION DEPTH. THE OVER EXCAVATION SHALL BE BACKFILLED WITH COMPACTED GRANULAR FILL AND TESTED BY THE CONTRACTOR'S TESTING AGENCY.
- SOIL SUBGRADE FOR ALL FOOTINGS AND SLABS SHALL BE INSPECTED AND APPROVED BY THE CONTRACTOR'S SOIL TESTING LABORATORY PRIOR TO PLACING FOUNDATION CONCRETE OR CONCRETE MUD SUBS.
- ALL FOOTING SUBGRADES AS REQUIRED AND ALL SLAB SUBGRADES INCLUDING PIT SLABS SHALL BE COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT BASED ON LABORATORY DESIGNED ASTM D1557. ALL BACKFILL AROUND AND ABOVE ALL FOUNDATION ELEMENTS, FOOTINGS, CAPS, MATS AND PITS SHALL BE COMPACTED TO 90 PERCENT OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT BASED ON LABORATORY DESIGNATION ASTM D1557.
- ALL ORGANIC AND/OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS AND BACKFILLED WITH ACCEPTABLE GRANULAR FILL, COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY. FILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 12 INCHES IN LOOSE THICKNESS.
- DO NOT BACKFILL AGAINST BASEMENT WALLS UNTIL GROUND FLOOR AND LOWER LEVEL SLABS AVE BEEN PLACED AND THE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH.
- NO MUD SLABS, FOOTINGS OR SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST ENTER A FOOTING EXCAVATION AFTER SUBGRADE APPROVAL THE SUBGRADE SHALL BE RE-INSPECTED BY THE CONTRACTOR'S SOIL TESTING LABORATORY AFTER REMOVAL OF WATER OR FROST.
- THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING OF CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
- THE CONCRETE FOR EACH ISOLATED FOOTING SHALL BE PLACED IN ONE (1) CONTINUOUS PLACEMENT.
- ALL SLAB AND FOOTING MUD SLABS SHALL BE THOROUGHLY CLEANED IMMEDIATELY PRIOR TO THE FOUNDATION CONCRETE PLACEMENT.
- ALL SLABS-ON-GRADE SHALL BE PLACED OVER A MINIMUM OF 6 INCH COMPACTED GRANULAR FILL MATERIAL OVER COMPACTED SOIL SUBGRADE.
- THE ANTICIPATED GROUND WATER ELEVATION IS APPROXIMATELY 896.50. THE CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING. THE VERY LOOSE TO LOOSE GRANULAR SOILS SHOULD BE DENIFIED AFTER DEWATERING, AS PER THE DIRECTIVE OF THE SOILS TESTING AGENCY.

**CONCRETE NOTES:**

- ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, ACI 301 AND ACI 350. THESE DOCUMENTS SHALL BE AVAILABLE IN THE FIELD OFFICE.
- EXCEPT WHERE OTHERWISE INDICATED, CONCRETE TYPES AND MINIMUM 28-DAY COMPRESSIVE STRENGTHS SHALL BE 4000 PSI.
- CEMENT SHALL CONFORM TO ASTM C150 TYPE 1. USE ONLY ONE BRAND OF CEMENT PER ALL EXPOSED TO VIEW CONCRETE. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- ALL CONCRETE SHALL BE AIR ENTRAINED (4 - 6%) WITH A WATER CEMENT RATIO OF 0.4 (MAX) AND MAY CONTAIN A SUPER PLAST AGENT.
- REINFORCING BARS SHALL CONFORM TO ASTM A515, GRADE 60.
- ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE 'MANUAL OF STANDARD PRACTICE FROM DETAILING REINFORCED CONCRETE STRUCTURES', ACI 315. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED.
- CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, SPACING AND PLACEMENT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
- THE CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS SHOWING THE LOCATIONS OF ALL CONSTRUCTION JOINTS, REVEALS, CURBS, SLAB DEPRESSIONS, SLEEVES, OPENINGS, ETC. ALONG WITH THE CONCRETE POUR SEQUENCE SCHEDULES. THE MAXIMUM DISTANCE BETWEEN JOINTS SHALL BE 40 FT.
- ALL REINFORCING SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, LATEST EDITION, BUT IN NO CASE SHALL BE LESS THAN 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE. ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY. WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE. THE LOCATION OF SPLICES FOR HORIZ. BARS SHALL BE STAGGERED BY A MIN. OF 3 FT. WITHIN THE SECTION. SPLICES SHALL NOT LINE UP WITHIN ANY 4 ADJACENT ROWS.
- CONCRETE TESTING WILL BE PERFORMED BY THE CONTRACTOR'S TESTING LABORATORY IN ACCORDANCE WITH ACI 301 EXCEPT AS FOLLOWS: FOR COMPRESSIVE STRENGTH TEST, TAKE ONE SET OF THREE (3) SPECIMENS FOR EACH 50 CUBIC YARDS OR FRACTION THEREOF OF EACH CONCRETE CLASS PLACED IN ANY ONE DAY. TEST ONE (1) SPECIMEN AT 7 DAYS, ONE (1) SPECIMEN AT 28 DAYS, AND KEEP ONE (1) IN RESERVE.
- PROVIDE SHEAR KEY AND WATERSTOP AT ALL CONSTRUCTION & CONSTRUCTION JOINTS.
- PROVIDE CONTROL/CONSTRUCTION JOINTS IN SLABS ON GRADE NO FURTHER THAN 15 FEET APART
- FOLLOW ACI GUIDELINES FOR BOTH HOT & COLD WEATHER CONCRETING.

**MISCELLANEOUS NOTES:**

- NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- REFER TO ARCHITECTURAL, MECHANICAL, PROCESSING OR MANUFACT. DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS. PROVIDE REINFORCING AROUND OPENINGS PER TYPICAL DETAILS.
- THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED. BACKFILLING SHALL NOT BE ALLOWED UNTIL WALLS REACH DESIGN STRENGTH.
- BACKFILL SHALL NOT BE PLACED AGAINST WALLS UNTIL FLOOR SLABS ARE INSTALLED AND HAVE REACHED 75% STRENGTH (MIN.).
- THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR SHALL FURNISH ALL TEMPORARY BRACING AND/OR SUPPORTS REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.
- DO NOT SCALE THESE DRAWINGS, USE DIMENSIONS.
- THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, ETC. UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.
- ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS AND AMBIGUITIES IN THE PLANS AND SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED, OR A WRITTEN INTERPRETATION OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE ENGINEER BEFORE THE AFFECTED WORK PROCEEDS.
- THESE DRAWINGS AND GENERAL NOTES ARE TO BE USED IN CONJUNCTION WITH WRITTEN SPECIFICATIONS PROVIDED. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- REMOVE ALL LOOSE AND UNSTABLE MATERIAL BELOW STRUCTURES. ALL AREAS TO BE REVIEWED BY OWNERS TESTING AGENCY PRIOR TO COMMENCEMENT OF WORK. PROVIDE A MINIMUM OF 12" COMPACTED GRANULAR FILL BELOW ALL STRUCTURES.
- PROVIDE GUARDRAILS AT ALL PITS, WALKWAYS AND SLAB EDGES SEE C & P DRAWINGS FOR FURTHER INFORMATION.
- PROVIDE HYDROPHILIC RUBBER WATERSTOP AT ALL NEW TO EXISTING CONDITIONS.
- ALL FILL SHALL BE PLACED IN APPROPRIATE LIFTS AND COMPACTED PER GEOTECHNICAL REPORT IN ORDER TO OBTAIN A BEARING CAPACITY OF 300 PSF. ALL FILL SHALL BE TESTED BY THE CONTRACTOR'S TESTING AGENCY.

**PRECAST NOTES:**

- THE PRECAST MANUFACTURER SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL PRECAST CONCRETE ELEMENTS AND CONNECTIONS. THIS DESIGN SHALL MEET THE LOAD AND MATERIAL CRITERIA PRESENTED IN THE PLANS AND SPECIFICATIONS. DETAILS SHOWN ARE SCHEMATIC ONLY. FINAL DESIGN OF ELEMENTS AND CONNECTIONS SHALL BE MADE BY THE PRECAST MANUFACTURER. IN ADDITION, THE DESIGN SHALL BE PERFORMED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF KENTUCKY. SIGNED & SEALED DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- THE PRECAST ERECTOR SHALL BE RESPONSIBLE TO ADEQUATELY BRACE THE STRUCTURE DURING CONSTRUCTION.
- THE PRECAST ERECTOR SHALL BE RESPONSIBLE FOR THE PROPER HANDLING OF PRECAST ELEMENTS SO THAT THESE MEMBERS ARE NOT DAMAGED DUE TO HANDLING, BRACING, ALIGNING OR OTHER FORCES.
- MINIMUM CONCRETE REQUIREMENTS:  

MIN 28 DAY COMPRESSIVE STRENGTH:	5,000 PSI
ENTRAINED AIR:	6 ± 1%
W/C (MAX)	0.40
- PRECAST SUPPLIER SHALL PROVIDE ADDITIONAL REINFORCING AROUND EMBEDDED CONNECTION ITEMS TO SUPPORT ANY VERTICAL OR HORIZONTAL LOADINGS WHICH MAY DEVELOP INCLUDING THOSE FROM ERECTION.
- PRECAST SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY ELECTRICAL, HEATING AND PLUMBING SUBCONTRACTORS TO COORDINATE LOCATION OF SUPPORT INSERTS, BLOCKOUTS, CONDUITS, ETC.
- ALL INSERTS IN PRECAST ELEMENTS SHALL BE PROVIDED BY PRECAST SUPPLIER.
- PRECAST BEAMS SUPPORTING MASONRY SHALL HAVE A DEFLECTION LIMITATION OF L/600 AND 0.3 INCHES FOR LIVE LOAD PLUS SUPERIMPOSED DEADLOAD.
- PROVIDE 1 LAYER WIRE MESH IN CONCRETE TOPPING.
- PRECAST CONCRETE CEILINGS SHALL BE AIR TIGHT AT LOCATIONS NOTED.

**STRUCTURAL STEEL NOTES:**

- ALL STRUCTURAL STEEL PLATES, SHAPES AND BARS SHALL CONFORM TO ASTM A572 GR 50, UNLESS NOTED OTHERWISE. COLD FORMED TUBING SHALL CONFORM TO ASTM A500 GRADE B. PIPES SHALL CONFORM TO ASTM A53 TYPE E OR S. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 OR ASTM A36.
- ALL BOLTS (OTHER THAN ANCHOR BOLTS), NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325. BOLTS USED IN LATERAL LOAD RESISTING CONNECTIONS SHALL BE SLIP CRITICAL TYPE, DESIGNED FOR INDICATED FORCES WITHOUT STRESS INCREASES.
- ALL WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO AWS D1.1 'STRUCTURAL WELDING CODE', LATEST EDITION. ALL WELDING ELECTRODES SHALL BE E70XX.
- ALL CONNECTIONS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. THE CONNECTIONS SHALL BE DESIGNED BY, OR UNDER THE SUPERVISION OF, A LICENSED STRUCTURAL ENGINEER IN THE STATE OF KENTUCKY. DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES, UNLESS SPECIFICALLY NOTED. ADVISE THE ENGINEER IMMEDIATELY IF THE INFORMATION ON THE DRAWINGS IS NOT SUFFICIENT FOR COMPLETE DESIGN OF CONNECTIONS.
- THE FABRICATOR / ERECTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW, ENGINEERED AND CHECKED DRAWINGS SHOWING SHOP FABRICATION DETAILS, FIELD ASSEMBLY DETAILS AND ERECTION DIAGRAMS FOR ALL STRUCTURAL STEEL. WITH EACH SUBMITTAL OF SHOP DRAWINGS, THE FABRICATOR'S ENGINEER SHALL CERTIFY THAT THE CONNECTIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AISC SPECIFICATIONS AND THE CONTRACT DOCUMENTS. CERTIFIED MILL TEST REPORTS SHALL ALSO BE SUBMITTED.
- MINIMUM SHEAR CAPACITIES: CONNECTIONS SHALL BE DESIGNED FOR THE BEAM REACTIONS INDICATED. IN CASES WHERE REACTIONS ARE NOT INDICATED, PROVIDE AT LEAST ONE HALF OF THE UNIFORM LOAD CARRYING CAPACITY OF THE BEAM WITH THE ASSUMPTION OF FULLY BRACED COMPRESSION FLANGE.
- THE DEPTH OF A SIMPLE SHEAR CONNECTION SHALL NOT BE LESS THAN ONE HALF OF THE NOMINAL DEPTH OF THE BEAM. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2).
- ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP. PROVIDE CAMBER, OR SHORING AS INDICATED ON THE DRAWINGS.
- AFTER FABRICATION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS. STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED PER ASTM SPECIFICATIONS.
- THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

**DESIGN LOADS:**

FLOOR LIVE LOADS -	150 PSF
WALKWAY	100 PSF
ROOF LIVE LOAD -	30 PSF
ROOF SNOW LOADS -	
$P_g = 25$ PSF	
$P_f = 18$ PSF	
$C_e = 1.0$	
$C_t = 1.0$	
$L = 1.1$	
WIND DESIGN DATA -	
MIN 28 DAY COMPRESSIVE STRENGTH:	5,000 PSI
ENTRAINED AIR:	6 ± 1%
W/C (MAX)	0.40
BASIC WIND SPEED (3-SECOND GUST) =	90 MPH
ASCE 7-05	
$I_e = 1.15$	
EXPOSURE B	
COMPONENTS & CLADDING =	25 PSF
EARTH QUAKE DESIGN DATA	
OCCUPANCY CATEGORY =	II
$I_e = 1.25$	
$S_s = 0.178$ g	
$S_1 = 0.083$ g	
SITE CLASSIFICATION =	D
$S_{D5} = 0.204$ g	
$S_{D1} = 0.133$ g	
SEISMIC DESIGN CATEGORY =	C

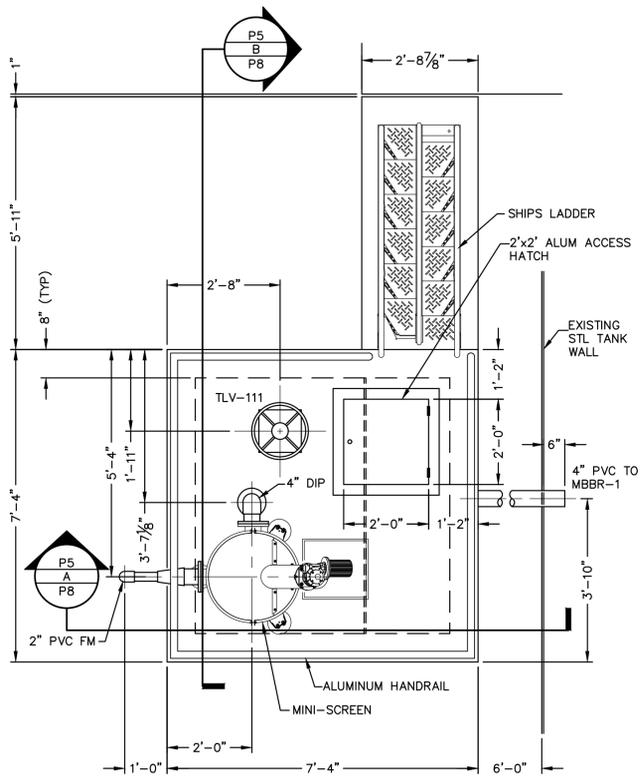
**ABBREVIATIONS:**

A	ARCHITECTURAL	GAL	GALLON	PSI	POUNDS PER SQUARE INCH
ABBREV	ABBREVIATION	GALV	GALVANIZED	PT	POINT
ABON	ABANDONED	GBT	GRAVITY BELT THICKENER	PV	PLUG VALVE
AC	TO BE ABANDONED, CAP OPEN END	GEN	GENERATOR	PVC	POLYVINYL CHLORIDE
ADF	AVERAGE DAILY FLOW	GLDIP	GLASS LINED DUCTILE IRON PIPE	PWMT	PAVEMENT
AE	ANALYZER ELEMENT	GND	GROUND	PVRV	PRESSURE VACUUM RELIEF VALVE
AFF	ABOVE FINISH FLOOR	GPM	GALLONS PER MINUTE	PW	POTABLE WATER
AGG	AGGREGATE	GPD	GALLONS PER DAY	R	RADIUS
AIT	ANALYZER INDICATING TRANSMITTER	GRD	GRAD	ROW	RIGHT-OF-WAY
AL	ALUMINUM, AIR LIFT	GRD	GRINDER	RAS	RETURN ACTIVATED SLUDGE
ALUM	ALUMINUM SULFATE	GRDR	GRATING	RCP	REINFORCED CONCRETE PIPE
ALT	ALTERNATE	GRTG	GATE VALVE	RD	ROOF DRAIN
APPROX	APPROXIMATE(LY)	H	HIGH	RED	REDUCER REDUCING
AR	AIR RELEASE	HB	HOSE BIBB	REF	REFERENCE
ARV	AIR RELEASE VALVE	HDC	HOT DIP GALVANIZED	REQD	REQUIRED
ASPH	ASPHALT	HOPE	HIGH DENSITY POLYETHYLENE	REV	REVISION
AVG	AVERAGE	HDR	HEADER	RJ	RESTRAINED JOINT
B/	BOTTOM OF	HGT	HEIGHT	RK	RAILING
CEV	BACK CHECK VALVE	HH	HANDHOLE	RM	ROOM
BF	BLIND FLANGE	HORIZ	HORIZONTAL	RND	ROUND
BFP	BELT FILTER PRESS	HP	HIGH POINT; HORSE POWER	RR	RAILROAD
BFV	BUTTERFLY VALVE	HR	HOUR	RS	RAW SEWAGE
BITUM	BITUMINOUS	HRT	HYDRAULIC RETENTION TIME	RSPS	RAW SEWAGE PUMP STATION
BLDG	BUILDING	HVAC	HEATING, VENTILATION & AIR CONDITIONING	RW	RAW WATER
BLV	BALL VALVE	HW	HOT WATER; HANDWHEEL	RWGV	RESILIENT WEDGE GATE VALVE
BLWR	BLOWER	HWL	HIGH WATER LEVEL	S	SOUTH; STAIRS; STRUCTURAL
BM	BENCHMARK	ID	INSIDE DIAMETER	SA	SANITARY
BYP	BYPASS	IN	INCH	SC	SCUM; SCREW CONVEYOR
CB	CATCH BASIN; CURB BOX	INF	INFLUENT	SCFM	STANDARD CUBIC FEET/ MINUTE
CC	CENTER TO CENTER	INSTR	INSTRUMENT(ATION)	SCH	SCHEDULE
CEB	CONCRETE EQUIPMENT BASE	INSUL	INSULATION	SCRN	SCREEN
CF	CUBIC FEET; COMPRESSION FITTING	INVT	INVERT	SEC	SECTION
CL2	CHLORINE	IP	IRON PIPE	SF	SQUARE FEET
CL2G	CHLORINE (GAS)	JT	JOINT	SFP	SLUDGE FEED PUMP
CL2L	CHLORINE (LIQUID)	LAB	LABORATORY	SG	SLUICE GATE
CL2S	CHLORINE (SOLUTION)	LAD	LADDER	SJT	SHEET
CL2V	CL2 VENT	LAV	LATERAL	SLJ	SOLDERED JOINT; SWEATED JOINT
CI	CAST IRON	LAT	LATERAL	SLG	SLIDE GATE
CISP	CAST IRON SOIL PIPE	LAV	LAVATORY	SM	STATIC MIXER
CL	CLEAR	LB	POUND	SMH	SANITARY MANHOLE
CMF	CORRUGATED METAL PIPE	LBS	POUNDS	SN	SUPERNATANT
CMU	CONCRETE MASONRY UNIT	CLP	LOCAL CONTROL PANEL	SOR	SURFACE OVERFLOW RATE
CO	CLEANOUT	LD	LEVEL TRANSDUCER	SP	SPACE(D); SAMPLE PORT
CONC	CONCRETE, CONCENTRIC	LE	LEVEL ELEMENT	SPEC	SPECIFICATION, SPECIFIED
CPGL	COUPLING	LF	LINEAR FEET	SPL	SAMPLE; SAMPLE LINE
CPVC	CORONA LINED POLYVINYLCHLORIDE PIPE	LONG	LONG	SQ	SQUARE
CSP	CORRUGATED STEEL PIPE	LIT	LEVEL INDICATING TRANSMITTER	SR	SLUDGE RETURN
CT	CONTACT TANK (PAA)	LM	LEVEL TRANSMITTER	SS	STAINLESS STEEL
CTW	CLOSE TO WALL	LP	LEVEL ELEMENT	SSK	SERVICE SINK
CU	COPPER; CUBIC	LR	LONG RADIUS	ST	STORM
CUP	CUPPER PIPE	LS	LUMP SUM; LEVEL SWITCH	STA	STATION
CV	CHECK VALVE (SWING TYPE)	LSH	LEVEL SWITCH HIGH	STD	STANDARD
CW	CHAINWHEEL CLOCKWISE	LST	LEVEL SWITCH LOW	STL	STEEL
CY	CUBIC YARDS	LT	LIGHT	SW	SOLVENT WELDED
		LWL	LOW WATER LEVEL	SWK	SIDEWALK
		M	MOTOR; MECHANICAL; METER	SWP	SCREENINGS WASHING PRESS
		MAX	MAXIMUM	SY	SQUARE YARDS
D	DOOR	MATL	MATERIAL	T	TANK; TELEPHONE
DEM	DEMOLITION	MBBR	MOVING BED BIOLOGICAL REACTOR	T/	TOP OF
DET	DETAIL	MBS	MANUAL BAR SCREEN	TBLV	TRUE UNION BALL VALVE
DI	DUCTILE IRON	MCC	MOTOR CONTROL CENTER	T&B	TOP AND BOTTOM
DIA	DIAMETER	MECH	MECHANICAL	T	TRENCH DRAIN
DIF	DIFFUSER	MF	MAGNETIC FLOW METER	TE	TEMPERATURE ELEMENT
DIP	DUCTILE IRON PIPE	MFR	MANUFACTURER	TEL	TELEPHONE
DISCH	DISCHARGE	MFT	MAGNETIC FLOW TRANSMITTER	TEMP	TEMPERATURE; TEMPORARY
DN	DOWN	MGD	MILLION GALLONS PER DAY	TEMP	TEMPERATURE INDICATING TRANSMITTER
DO	DISSOLVED OXYGEN	MH	MANHOLE	TF	TERTIARY FILTER
DP	DEEP	MIN	MINIMUM	TP	TRANSFER PUMP
DR	DRAIN	MISC	MISCELLANEOUS	THD	THREAD(ED)
DS	DIGESTED SLUDGE	MJ	MECHANICAL JOINT	THK	THICK(NESS)
DV	DIAPHRAGM VALVE	MLSS	MIXED LIQUOR SUSPENDED SOLIDS	TLV	TELESCOPING VALVE
DWG	DRAWING	MON	MONUMENT	TOC	TOP OF CONCRETE
		MTD	MOUNTED	TWAS	THICKENED WASTE ACTIVATED SLUDGE
		MV	MUD VALVE	TYP	TYPICAL
E	ELECTRIC(AL); EAST	N	NORTH	UH	UNIT HEATER
EA	EACH	NACL	SODIUM CHLORIDE	ULS	ULTRASONIC LEVEL SENSOR
ECC	ECCENTRIC	NAOH	SODIUM HYDROXIDE	ULT	ULTRASONIC LEVEL TRANSDUCER
EFF	EFFLUENT	NC	NORMALLY CLOSED	UN	UNION
EJ	EXPANSION JOINT	NO	NORMALLY OPEN; NUMBER	UNO	UNLESS NOTED OTHERWISE
EL	ELEVATION	NPT	NATIONAL PIPE THREAD (TAPER)	UV	ULTRAVIOLET
ENG	ENGINEER	NPW	NON-POTABLE WATER	V	VALVE
EO	ELECTRIC OPERATOR	NRS	NON-RISING STEM	VAC	VACUUM
EOP	EDGE OF PAVEMENT	NTS	NOT TO SCALE	VAR	VARIOUS; VARIABLE
EQ	EQUAL(LY)	NWL	NORMAL WATER LEVEL	VB	VALVE BOX
EQPM	EQUIPMENT	OC	ON CENTER	VCP	VITRIFIED CLAY PIPE
ES	EXTENDED STEM	OD	OUTSIDE DIAMETER; OXIDATION DITCH	VERT	VERTICAL
ESMT	EASEMENT	OE	OVERHEAD ELECTRIC	VFD	VARIABLE FREQUENCY DRIVE
EXH	EXHAUST	OPNG	OPENING	VF	VERIFY IN FIELD
EX	EXISTING	OQ	OXYGEN REDUCTION POTENTIAL	VLV	VALVE
EXP	EXPANSION	OVF	OVERFLOW	VOL	VOLUME
		P	PUMP	VSD	VARIABLE SPEED DRIVE
		PAA	PEROXYACETIC ACID	VT	VENT
		PC	POINT OF CURVE	VTR	VENT THROUGH ROOF
		PCC	PORTLAND CEMENT CONCRETE	W	WINDOW; WIDE; WEST
		PCCP	PRESSURE CONCRETE CYLINDER PIPE	W/	WITH
		PD	PUMP DISCHARGE	W/O	WITHOUT
		PDF	PEAK DAILY FLOW	WAS	WASTE ACTIVATED SLUDGE
		PE	PLAIN END	WC	WATER CLOSET
		PERF	PERFORATED	WH	WATER HEATER
		PFD	PROCESS FLOW DIAGRAM	WJ	WELDED JOINT
		PFU	POLYMER FEED UNIT	WL	WATER LEVEL
		PG	PRESSURE GAUGE	WM	WATER MAIN
		PHF	PEAK HOURLY FLOW	WT	WEIGHT
		PHOS	PHOSPHATE	WTP	WATER TREATMENT PLANT
		PI	PRESSURE INDICATOR	NW	WASTEWATER
		PL	PLATE; PROPERTY LINE	WWTP	WASTEWATER TREATMENT PLANT
		PLC	PROGRAMMABLE LOGIC CONTROLLER	XFER	TRANSFER
		POLY	POLYMER	YD	YARD
		PP	POWER POLE	YH	YARD HYDRANT
		PR	PROCESS	YV	YARD VALVE
		PROP	PROPOSED		
		PVRV	PRESSURE RELIEF VALVE		
		PS	PUMP STATION		

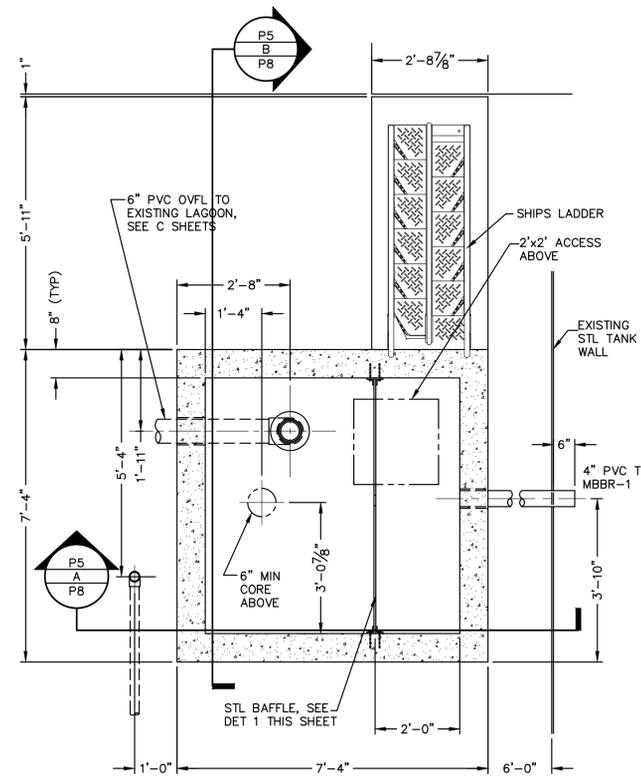
**PROCESS AND SHEET LEGEND:**

	SECTION		PROCESS LINE		FLANGED GATE VALVE		REDUCER AND SIZE
X	X = SHEET WHERE SECTION IS REFERENCED		AIR LINE		FLANGED PLUG VALVE		MAGNETIC FLOW METER
Y	Y = SHEET WHERE SECTION IS SHOWN		WATER LINE		FLANGED BUTTERFLY VALVE		PRESSURE GAUGE
1	1 = SECTION NUMBER		POLYMER LINE		FLANGED GLOBE VALVE		BLOWER
	DETAIL		BUILDING OR AREA LIMITS		FLANGED CHECK VALVE		PUMP
X	X = SHEET WHERE DETAIL IS REFERENCED		DIRECTIONAL FLOW ARROW		FLANGED KNIFE GATE VALVE		
Z	Z = SHEET WHERE DETAIL IS SHOWN			<			

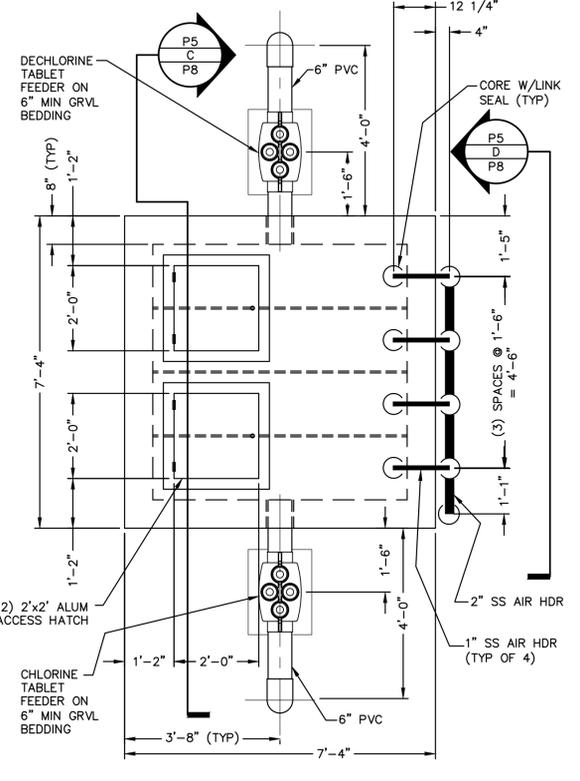




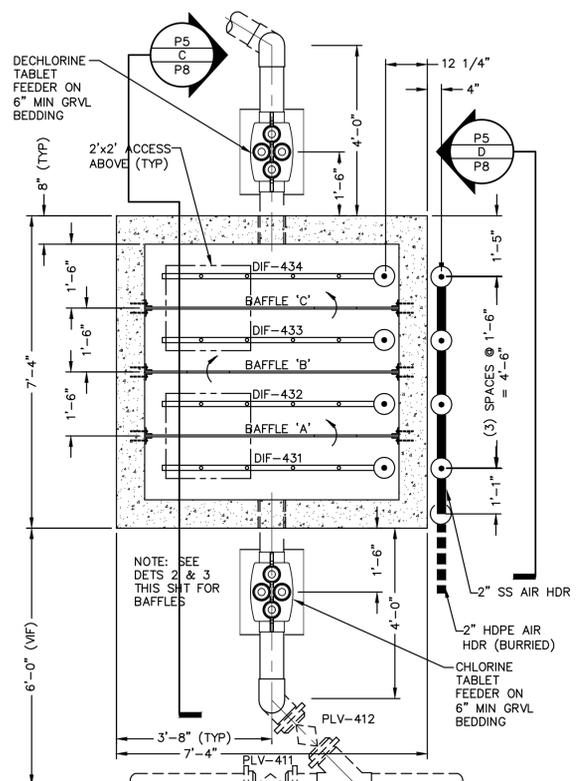
OVERFLOW STRUCTURE UPPER PLAN  
SCALE: 1/2" = 1'-0"



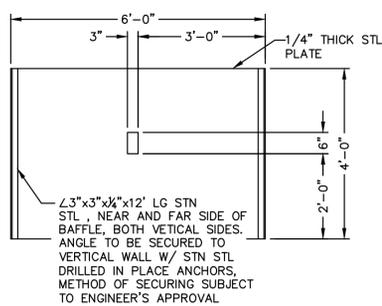
OVERFLOW STRUCTURE LOWER PLAN  
SCALE: 1/2" = 1'-0"



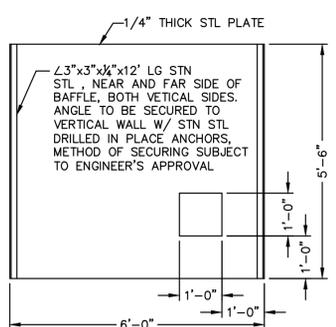
CHLORINE CONTACT TANK NO.2  
UPPER PLAN  
SCALE: 1/2" = 1'-0"



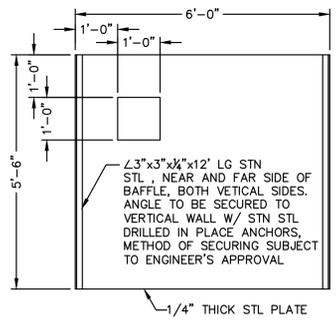
CHLORINE CONTACT TANK NO.2  
LOWER PLAN  
SCALE: 1/2" = 1'-0"



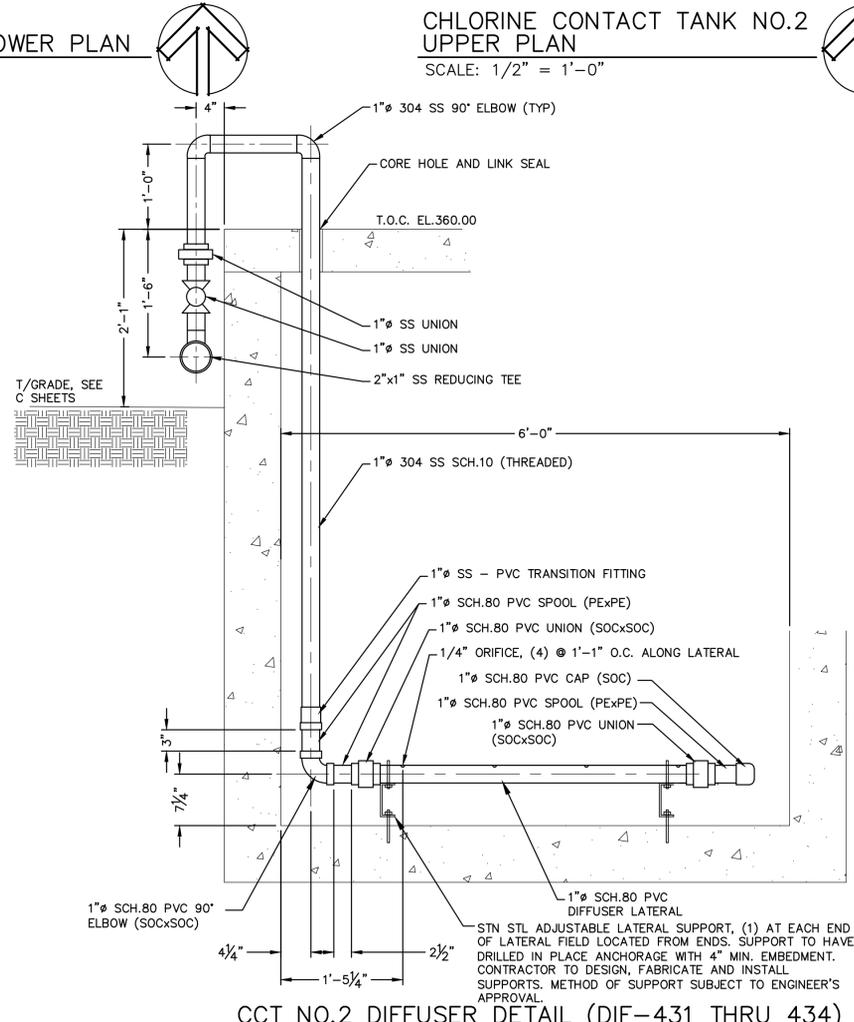
OVFL STRUCTURE BAFFLE  
SCALE: 1/2" = 1'-0"



CCT NO.2 BAFFLE A & C  
SCALE: 1/2" = 1'-0"



CCT NO.2 BAFFLE B  
SCALE: 1/2" = 1'-0"



CCT NO.2 DIFFUSER DETAIL (DIF-431 THRU 434)  
SCALE: 1" = 1'-0"

- DIFFUSER DESCRIPTIONS:**
- DIF-431 1" CPVC AIR LATERAL (4'-4" MIN LENGTH); (4) 1/4" ORIFICES ON 13" CENTERS.
  - DIF-432 1" CPVC AIR LATERAL (4'-4" MIN LENGTH); (4) 1/4" ORIFICES ON 13" CENTERS.
  - DIF-433 1" CPVC AIR LATERAL (4'-4" MIN LENGTH); (4) 1/4" ORIFICES ON 13" CENTERS.
  - DIF-434 1" CPVC AIR LATERAL (4'-4" MIN LENGTH); (4) 1/4" ORIFICES ON 13" CENTERS.

- NOTES:**
- DIMENSIONS ARE BASED ON PRECAST UNITS HAVING 8" WALLS AND 6" TOP SLABS, WHERE APPLICABLE. CONTRACTOR TO ADJUST DIMENSIONS ACCORDINGLY.
  - CONTRACTOR TO PROVIDE PIPE SUPPORTS AS REQUIRED. SUPPORT LOCATIONS AND TYPES ARE SUBJECT TO ENGINEER'S APPROVAL.
  - CONTRACTOR TO DESIGN AND FABRICATE STN STL BAFFLE W/ STN STL ANGLE SUPPORTS. PROVIDE NEOPRENE GASKETS WHERE ANGLE IS IN CONTACT W/ CONCRETE AND SUPPLY STN STL DRILLED IN PLACE ANCHORS W/ 3" MIN EMBEDMENT. BAFFLE ANCHORING SYSTEM SUBJECT TO ENGINEER'S APPROVAL.
  - SEE DRAWING P9 FOR PIPE PENETRATION DETAILS AND REQUIREMENTS.
  - SEE HYDRAULIC PROFILE SHEET P1 FOR PIPE INV. ELEVATIONS.



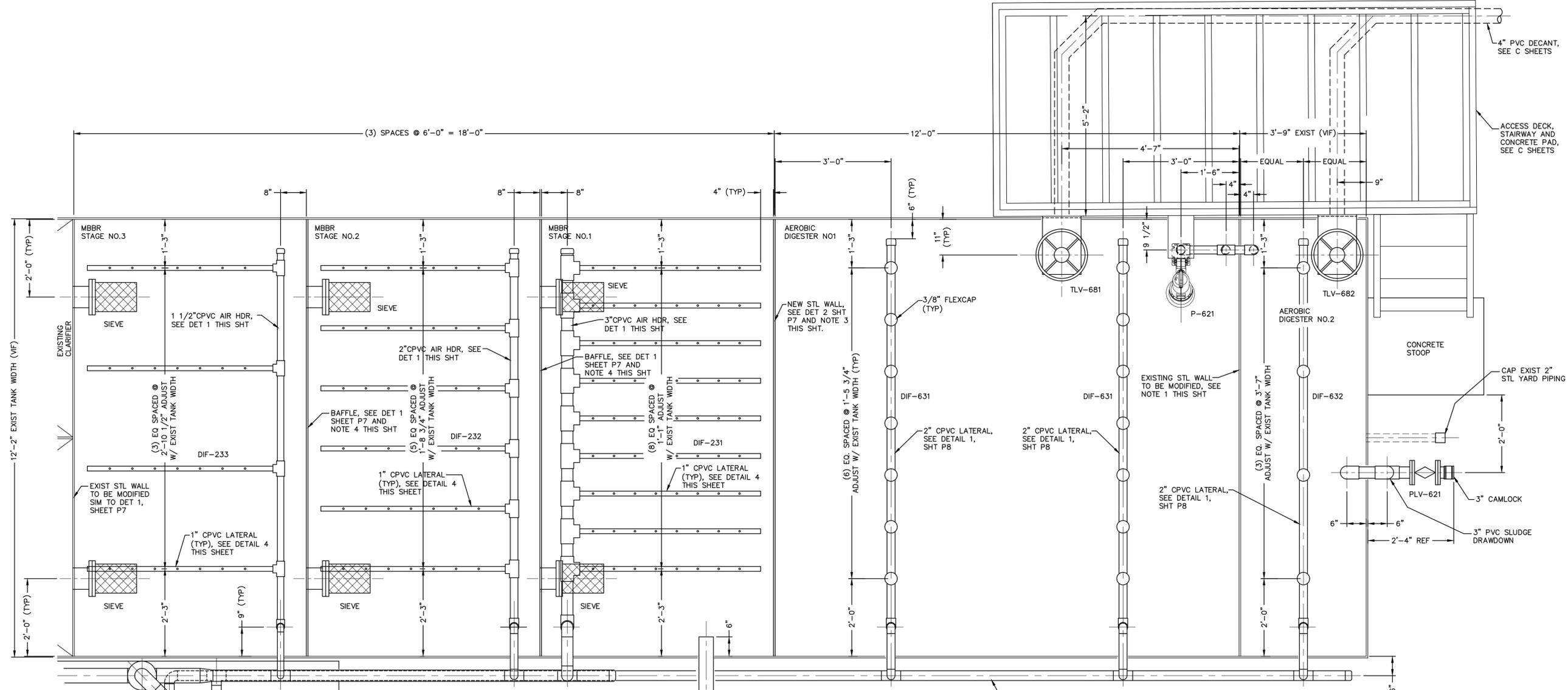
CHLORINE CONTACT TANK NO. 2 AND  
OVERFLOW STRUCTURE PLANS, SECTIONS AND DETAILS

TIMBERLAND WHITE  
6500 US 60 WEST  
PADUCAH, KY

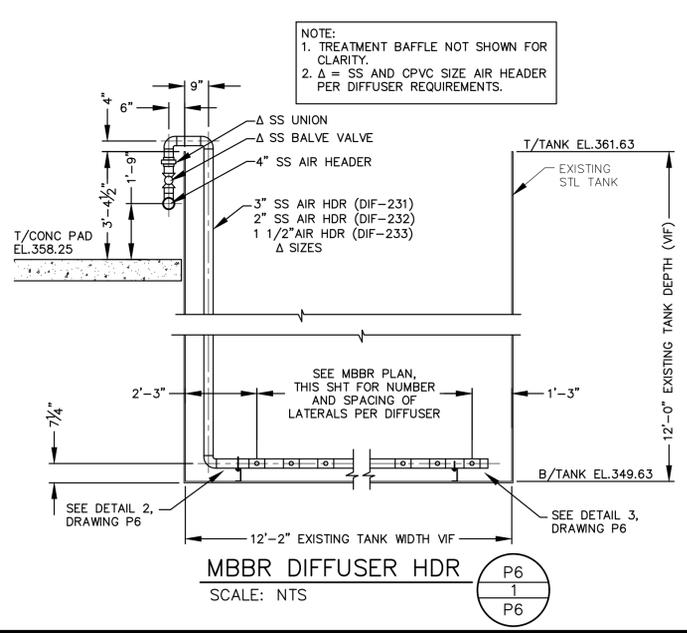
ENGINEERING CERTIFICATE OF AUTHORITY NO. 4808  
ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY  
BENJAMIN J. KUENZEL  
33718  
LICENSED PROFESSIONAL ENGINEER

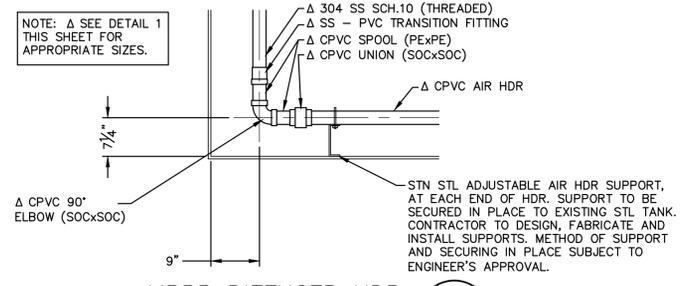
SEAL DATE: 09/29/2020  
DRAWN BY: DDG  
PROJ NUMBER: 0542-99  
DATE: 09/11/2020  
DRAWING NO: P5



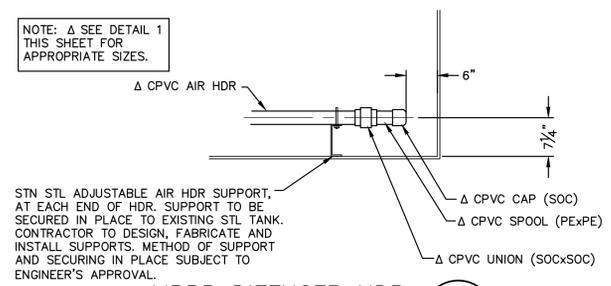
**AEROBIC DIGESTER 1 AND 2, MBBR STAGE 1, 2 AND 3 PLAN**  
SCALE: 3/4" = 1'-0"



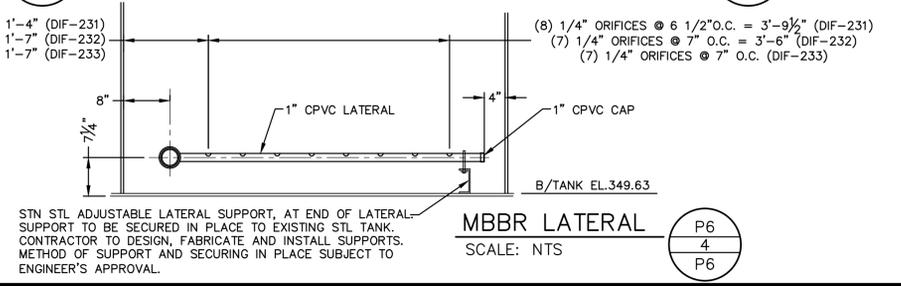
**MBBR DIFFUSER HDR**  
SCALE: NTS



**MBBR DIFFUSER HDR**  
SCALE: NTS



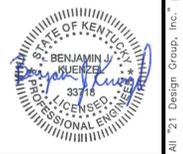
**MBBR DIFFUSER HDR**  
SCALE: NTS



**MBBR LATERAL**  
SCALE: NTS

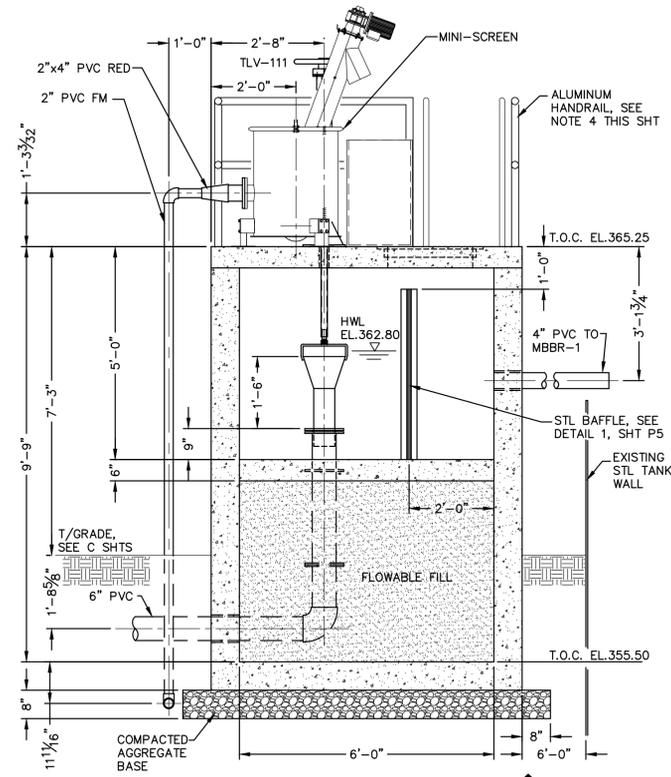
- DIFFUSER DESCRIPTIONS:**
- DIF-231 3" CPVC HEADER, (9) 1" CPVC AIR LATERALS (4'-4" MIN LENGTH); (8) 1/4" ORIFICES ON 6 1/2" CENTERS EACH LATERAL.
  - DIF-232 2" CPVC HEADER, (6) 1" CPVC AIR LATERALS (4'-4" MIN LENGTH); (7) 1/4" ORIFICES ON 7" CENTERS EACH LATERAL.
  - DIF-233 1 1/2" CPVC HEADER, (4) 1" CPVC AIR LATERAL (4'-4" MIN LENGTH); (7) 1/4" ORIFICES ON 7" CENTERS EACH LATERAL.
  - DIF-631 (2) 2" CPVC AIR LATERAL (LENGTH AS SHOWN); (7) 3/8" FLEX CAP ON 1'-4" CENTERS.
  - DIF-632 (1) 2" CPVC AIR LATERAL (LENGTH AS SHOWN); (4) 3/8" FLEX CAP ON 2'-8" CENTERS.

- NOTES:**
- CONTRACTOR TO LOCATE AND SEAL LEAK BETWEEN EXISTING PACKAGE PLANT TANK AND EXISTING AEROBIC DIGESTER TANK NO.2 PRIOR TO DRAINING DOWN EXISTING PACKAGE PLANT FOR MODIFICATIONS.
  - CONTRACTOR TO PROVIDE PIPE SUPPORTS AS REQUIRED. SUPPORT LOCATIONS AND TYPES ARE SUBJECT TO ENGINEER'S APPROVAL.
  - CONTRACTOR TO DESIGN, FABRICATE AND INSTALL NEW STL WALL BETWEEN MBBR STAGE 1 AND AEROBIC DIGESTER NO.1. WALL TO BE STIFFENED AS NEEDED AND ATTACHED AT ENDS AS SHOWN IN DETAIL. STIFFENING AND INSTALLATION METHOD SUBJECT TO ENGINEER'S APPROVAL PRIOR TO FABRICATION.
  - CONTRACTOR TO DESIGN, FABRICATE AND INSTALL MBBR STL BAFFLES. BAFFLES TO BE STIFFENED AS NEEDED AND ATTACHED AT ENDS AS SHOWN IN DETAIL. STIFFENING AND INSTALLATION METHOD SUBJECT TO ENGINEER'S APPROVAL PRIOR TO FABRICATION.
  - SEE HYDRAULIC PROFILE SHEET P1 FOR PIPE INV. ELEV.



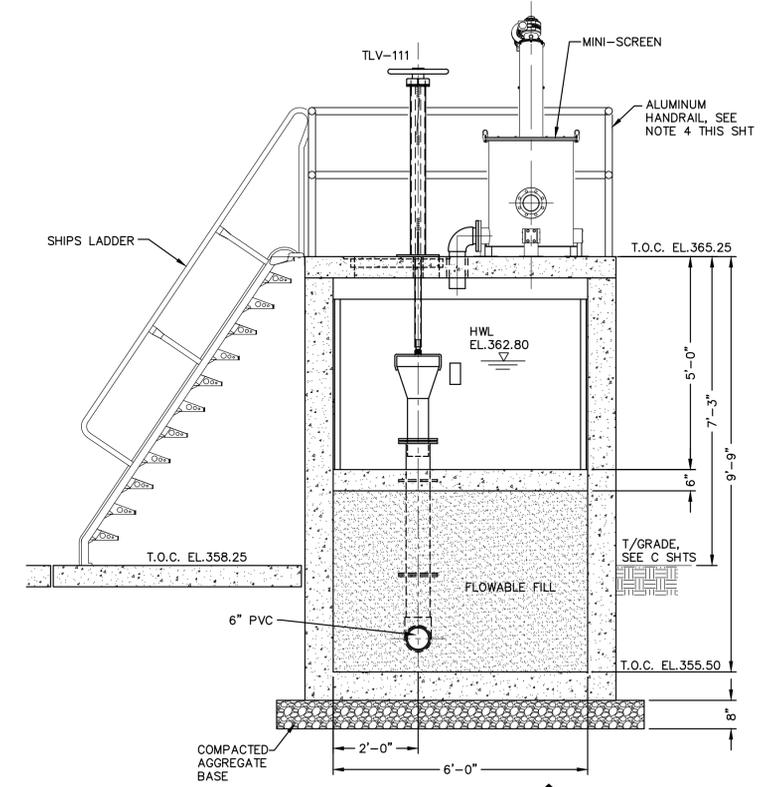
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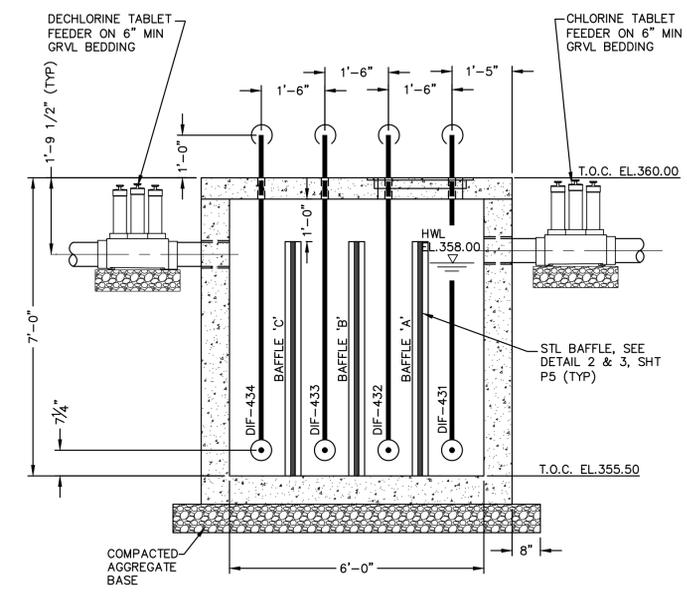
**OVERFLOW STRUCTURE SECTION**  
SCALE: 1/2" = 1'-0"

P5  
A  
P8



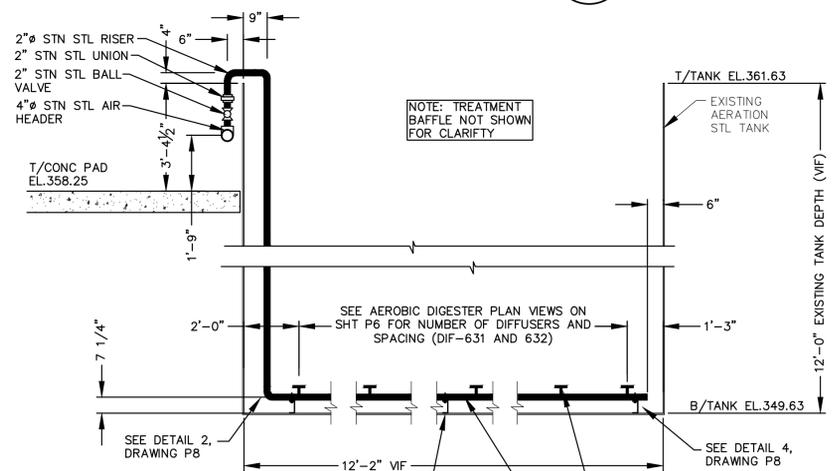
**OVERFLOW STRUCTURE SECTION**  
SCALE: 1/2" = 1'-0"

P5  
B  
P8



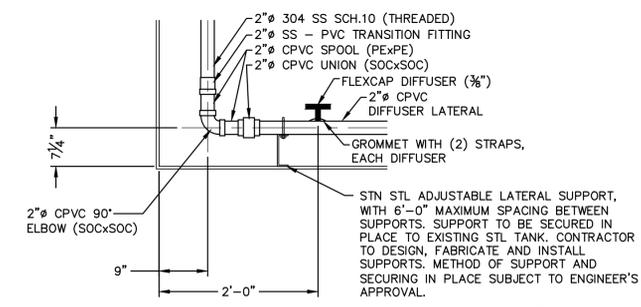
**CCT NO.2 SECTION**  
SCALE: 1/2" = 1'-0"

P5  
C  
P8



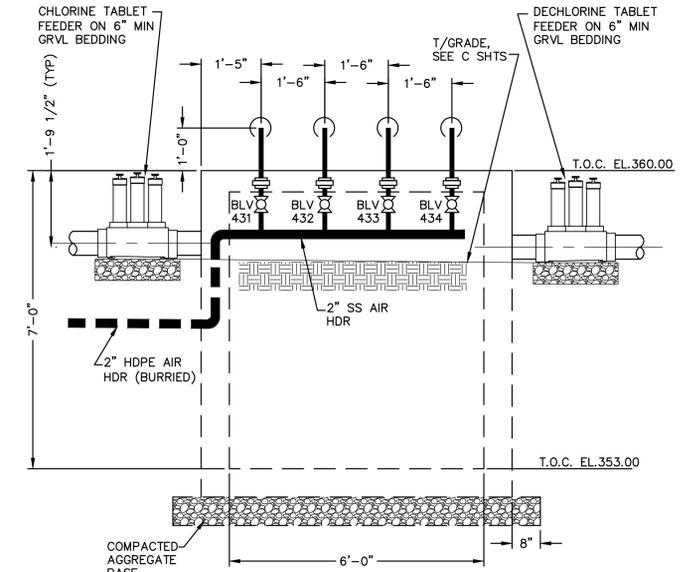
**DIGESTER DIFFUSER LATERAL**  
SCALE: NTS

P6  
1  
P8



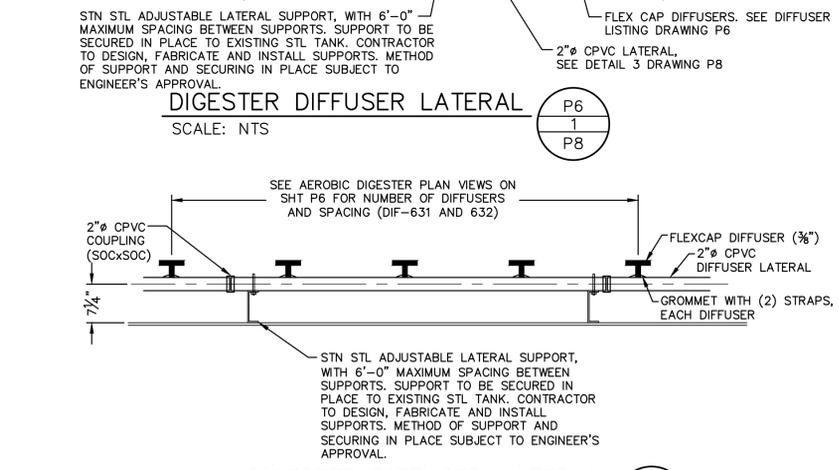
**DIGESTER DIFFUSER LATERAL**  
SCALE: NTS

P6  
2  
P8



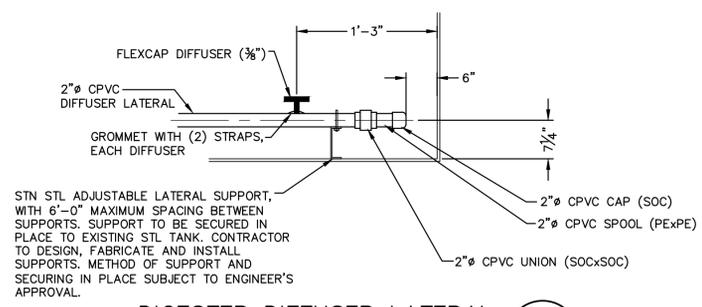
**CCT NO.2 SECTION**  
SCALE: 1/2" = 1'-0"

P5  
D  
P8



**DIGESTER DIFFUSER LATERAL**  
SCALE: NTS

P6  
3  
P8



**DIGESTER DIFFUSER LATERAL**  
SCALE: NTS

P6  
4  
P8

- NOTES:**
- DIMENSIONS ARE BASED ON PRECAST UNITS HAVING 8" WALLS AND 6" TOP SLABS, WHERE APPLICABLE. CONTRACTOR TO ADJUST DIMENSIONS ACCORDINGLY.
  - CONTRACTOR TO PROVIDE PIPE SUPPORTS AS REQUIRED. SUPPORT LOCATIONS AND TYPES ARE SUBJECT TO ENGINEER'S APPROVAL.
  - CONTRACTOR TO DESIGN AND FABRICATE STN STL BAFFLE W/ STN STL ANGLE SUPPORTS. PROVIDE NEOPRENE GASKETS WHERE ANGLE IS IN CONTACT W/ CONCRETE AND SUPPLY STN STL DRILLED IN PLACE ANCHORS W/ 3" MIN EMBEDMENT. BAFFLE ANCHORING SYSTEM SUBJECT TO ENGINEER'S APPROVAL.
  - CONTRACTOR TO PROVIDE AND INSTALL A DOUBLE SAFETY CHAIN AT HANDRAIL ATOP SHIPS LADDER ACCESS POINT COMPLETE WITH HARDWARE AND DISCONNECT CLAMPS..
  - SEE DRAWING P9 FOR PIPE PENETRATION DETAILS AND REQUIREMENTS.
  - SEE HYDRAULIC PROFILE SHEET P1 FOR PIPE INV. ELEV.

**DESIGN GROUP INC.**  
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**PROCESS SECTIONS**

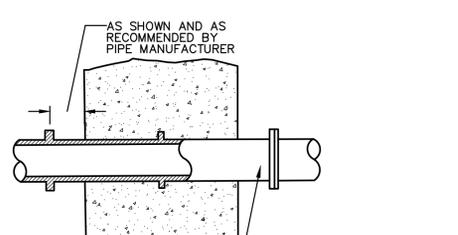
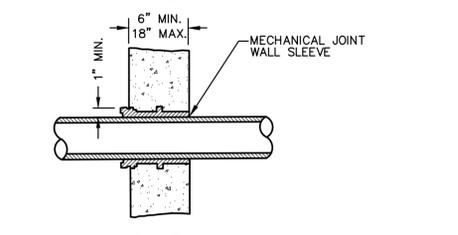
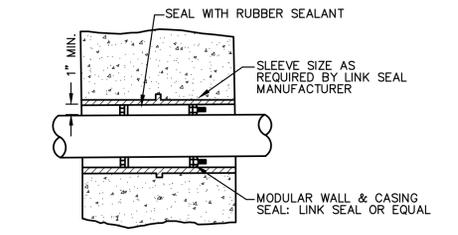
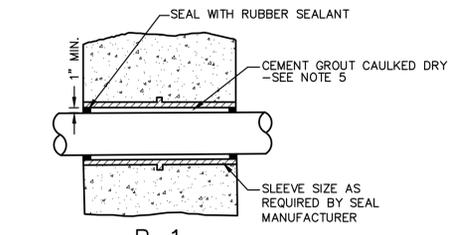
TIMBERLAND WWTF  
6500 US 60 WEST  
PADUCAH, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4808  
ENGINEERING LICENSE: BENJAMIN J. KUENZEL, PE33718



SEAL DATE: 09/29/2020  
DRAWN BY: DDG  
PROJ NUMBER: 0542-19  
DATE: 09/21/2020  
DRAWING NO: P8

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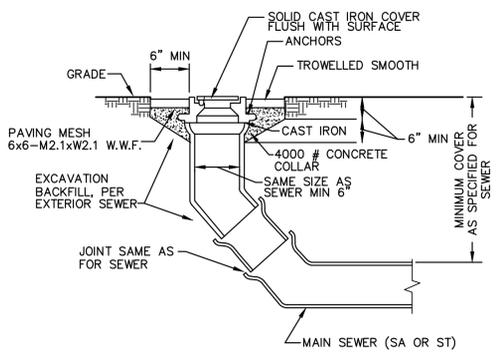


CONDITION	PIPE MATERIAL			
	STEEL	COPPER	PVC	IRON
EARTH TO PASSAGE	N/A	P-1	P-2	P-3
LIQUID TO PASSAGE	P-2	N/A	P-2	P-4
LIQUID TO EARTH	P-2	N/A	P-2	P-4
PASSAGE TO PASSAGE	P-1	P-1	P-1	P-1
LIQUID TO LIQUID	P-2	N/A	P-2	P-4

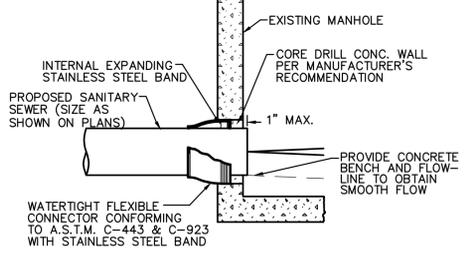
P-2 MAY BE USED IN LIEU OF P-1 AND P-3.  
P-4 MAY BE USED IN LIEU OF P-3 AND IF CALLED FOR ON THE DRAWINGS P-4 SHALL BE USED IN LIEU OF P-3.

- NOTES:
- WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, THE METHOD USED SHALL CONFORM TO THE STANDARD DETAILS AS SHOWN ON THIS DRAWING, EXCEPT WHERE SPECIAL DETAILS ARE SHOWN.
  - PASSAGE SHALL MEAN ANY ROOM, GALLERY, TUNNEL OR SIMILAR ENCLOSED SPACE IN WHICH PIPES RUN.
  - ALL SLEEVES SHALL BE CAST IRON UNLESS OTHERWISE NOTED.
  - FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
  - CEMENT GROUT CAULKING MAY BE ELIMINATED FOR PASSAGE TO PASSAGE PENETRATIONS.
  - LIQUID SHALL MEAN AN ELEVATION 1'-6" ABOVE MAXIMUM WATER ELEVATION.

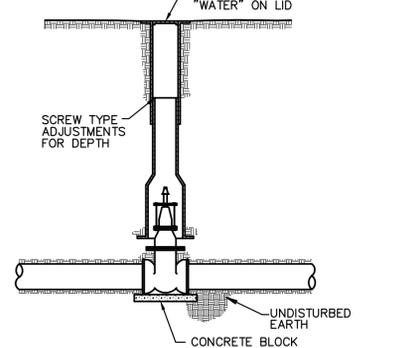
**PIPE THROUGH WALLS DETAILS**  
SCALE: N.T.S.



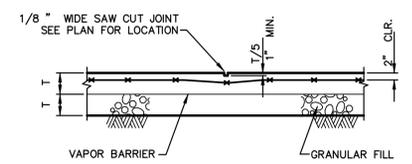
**TYPICAL YARD CLEANOUT**  
SCALE: N.T.S.



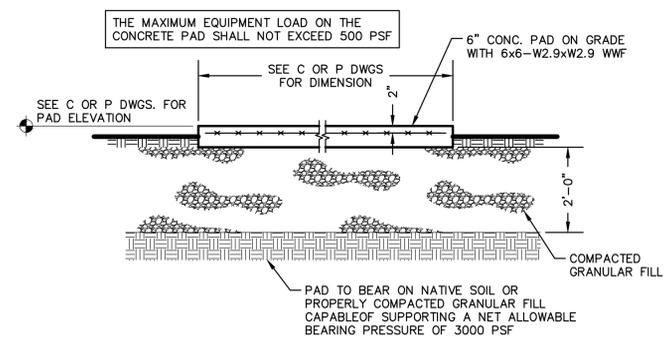
**PIPE TO MANHOLE CONNECTION**  
SCALE: N.T.S.



**TYPICAL VALVE BOX INSTALLATION**  
SCALE: N.T.S.

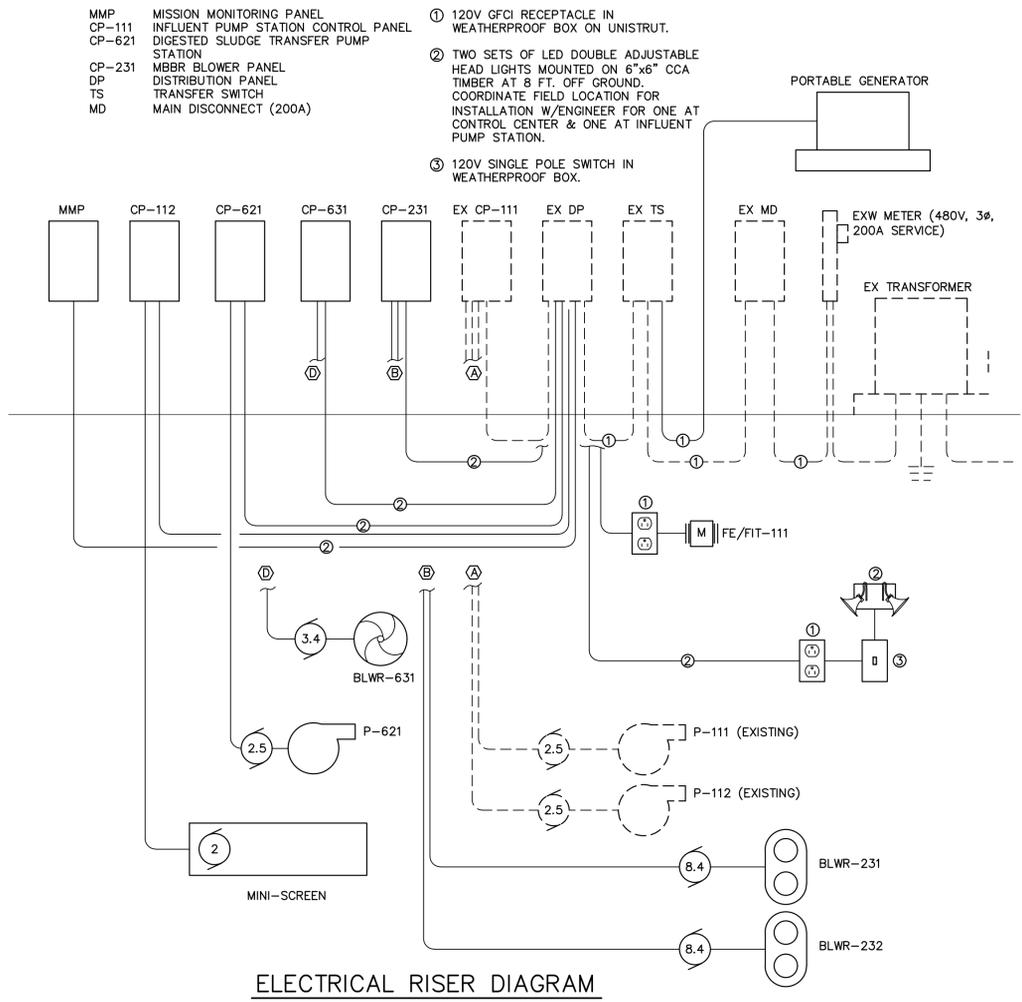


**TYPICAL SLAB ON GRADE CONTROL JOINT**  
SCALE: N.T.S.



**TYPICAL EXTERIOR EQUIPMENT PAD ON GRADE**  
SCALE: N.T.S.

- MMP MISSION MONITORING PANEL
- CP-111 INFLUENT PUMP STATION CONTROL PANEL
- CP-621 DIGESTED SLUDGE TRANSFER PUMP STATION
- CP-231 MBBR BLOWER PANEL
- DP DISTRIBUTION PANEL
- TS TRANSFER SWITCH
- MD MAIN DISCONNECT (200A)



**ELECTRICAL RISER DIAGRAM**

- ELECTRICAL RISER DIAGRAM NOTES:**
- CONTRACTOR IS REQUIRED TO INSPECT EXISTING ELECTRICAL SYSTEM, VERIFY EXISTING METER SIZE, AND VERIFY WIRE, CONDUCTOR AND CONDUIT SIZING REQUIREMENTS PRIOR TO SUBMITTING BID.
  - CONTRACTOR TO SUBMIT ELECTRICAL LAYOUT AND DESIGN TO ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.
  - IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL ELECTRICAL EQUIPMENT NECESSARY FOR THE ENTIRE PROJECT INCLUDING ANY TRANSFORMER NEEDS.
  - IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL INSTRUMENTATION AND CONTROL PANELS NECESSARY FOR THE ENTIRE PROJECT.
  - UNISTRUT TO BE PROVIDED AS NEEDED TO INSTALL ALL ELECTRICAL AND CONTROL PANEL EQUIPMENT.
  - ALL CONDUIT SHALL BE SIZED AND PROVIDED BY CONTRACTOR. CONDUIT AND CONDUIT SIZING SHALL MEET ALL NEC CODE REQUIREMENTS FOR ABOVE AND BELOW GRADE INSTALLATION.
  - ALL WIRE AND CONDUCTORS SHALL BE ENCLOSED IN CONDUIT.
  - ALL WIRE SHALL BE COPPER EXCEPT ALUMINUM WILL BE ALLOWED UP TO THE DISTRIBUTION PANEL.

**REMOTE WIRELESS MONITORING AND CONTROL REQUIREMENTS:**

REMOTE WIRELESS MONITORING UNIT SHALL BE M850 SERIES UNIT PROVIDED BY MISSION COMMUNICATIONS (SALES REPRESENTATIVE IS JEFF CLARKE WITH HYDRO-KINETICS; 314-647-6104).

- DIGITAL INPUTS
  - a. P-111 RUN; P-111 FAIL
  - b. P-112 RUN; P-112 FAIL
  - c. P-621 RUN; P-621 FAIL
  - d. P-461 RUN; P-461 FAIL
  - e. BLWR-631 RUN; BLWR-631 FAIL
  - f. BLWR-232 RUN; BLWR-232 FAIL
- ANALOGUE INPUTS
  - a. FE/FIT-111 FLOW (INFLUENT METER)
  - b. BLWR-631 SPEED
  - c. BLWR-231 SPEED
  - d. BLWR-232 SPEED



**PROCESS DETAILS AND ELECTRICAL RISER DIAGRAM**  
TIMBERLAND WWTF  
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