STAFFORD CONSULTANTS INCORPORATED

Engineering, Design, and Consulting
Planning and Environmental Services

June 15, 2016

File: 16-9998.01

Guy L. Nisbet, Buyer Supervisor
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

Dear Mr. Nisbet,

RE: Request of Expression of Interest from Qualified Architect / Engineering Firms:
Watoga – A/E Services Riverside Campground Wastewater Plant
Solicitation No. 0310 DNR1600000021

Stafford Consultants Incorporated (SCI) and Clingenpeel/McBrayer & Associates, Incorporated (CMA) are interested in providing engineering services for your recently advertised Watoga Riverside Campground Wastewater Treatment Plant (WWTP) Replacement Project.

We have very recent and pertinent experience with replacing two elementary school WWTP's in Mercer County West Virginia (Spanishburg and Oakvale). And a 22,000 gallon alternative technology WWTP installation for the New Haven Public Service District (NHPSD) located in the community of Winona, West Virginia. The Mercer County Board of Education provided written recommendation following the project due to the projects low cost and the plants ease of use. We would love to provide the same level of services to the State of West Virginia on your project.

Enclosed you will find our Expression of Interest documentation including both firm's qualifications, experience, management services, staffing, and related completed projects in West Virginia as per your request. If you are in need of any more information, please, do not hesitate to contact us.

Sincerely,

Jhonattan W. Schloeter
Project Manager

Edward L. Shutt, P.E.
President

Enclosure:
1. Expression of Interest

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 214528

Doc Description: Addendum No.01:Watoga-A/E-Riverside Campground Wastewater

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2016-06-07	2016-06-16 13:30:00	CEOI 0310 DNR1600000021	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Stafford Consultants, Inc.
P.O. Box 5849
Princeton, WV 24740
304-425-9555

FOR INFORMATION CONTACT THE BUYER

Guy Nisbet
(304) 558-2596
guy.l.nisbet@wv.gov

Signature X Edward L Shott FEIN # 55-0656181 DATE June 15, 2016

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Addendum

Addendum No.01 issued to publish and distribute the following attached information to the vendor community.

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Expression of Interest

The West Virginia Purchasing Division is soliciting Expression of Interest for The Division of Natural Resources WVDNR, from qualified firms to provide architectural/engineering services to provide necessary engineering and other related professional services to design and provide construction contract administration services to replace a wastewater treatment plant at Watoga State Park as defined within the attached documentation.

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES PARKS & RECREATION-PEM SECTION 324 4TH AVE SOUTH CHARLESTON WV25305 US	DIVISION OF NATURAL RESOURCES WEST VIRGINIA STATE PARKS 324 4TH AVE SOUTH CHARLESTON WV 25303-1228 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Wastewater engineering		

Comm Code	Manufacturer	Specification	Model #
81101527			

Extended Description :

A/E services for the replacement of the Riverside Campground at Watoga State Park.

SOLICITATION NUMBER: CEOI 0310 DNR1600000021
Addendum Number: No.01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✓] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. Vendor submitted questions and Agency responses.

No other Changes.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

CEOI DNR1600000021
Watoga-A/E services Riverside Campground Wastewater Plant
Vendor submitted Questions and Agency responses
06/03/2016

Q.1 Section Three, provision 2.1(b) requires the EOI to present, "a clear plan to ensure this project can be constructed within the project budget." Please provide the project budget.

A.1 The owner will provide the budget to the awarded firm. It is against State law to disclose Budget amount for solicitations. The vendor does not need to know the budget to describe to the owner their process they would follow to insure the project is constructed within the project budget.

Q.2 Does this project budget include the engineering design budget?

A.2 The owner will provide the budget to the highest scored awarded firm.

Q.3. Does this project budget include the engineering during construction budget?

A.3 The owner will provide the budget to the highest scored-awarded firm.

Q.4. Section Three, provision 2.1(c) requires the EOI to present, "a clear plan to ensure this project will be constructed within the agreed construction period." Please provide the construction period.

A.4 The construction period will be agreed with the highest scored awarded firm.

Q.5 What is the source of funding for this project?

A.5 State Agency funds

Q.6 Can the current environmental discharge permit for the existing wastewater treatment plant be provided to interested parties prior to the bid opening?

A.6 The NPDES permit for this facility is registered under the WVDEP NPDES General E-Permit program, general permits can be viewed on the WV DEP website (http://www.dep.wv.gov/WWE/permit/general/Documents/2015%20Sewage%2050%2c000%20gpd%20GP.pdf) . Specific to this facility is the attached Discharge Monitoring Report and Sludge Monitoring Report.

Q.7 Can any relevant Notices of Violation, Consent Orders, or other compliance documentation for the existing wastewater treatment plant be provided to interested parties prior to the bid opening?

A.7 None

Q.8 Can interested parties visit the site prior to the bid opening, and if so, with whom shall we coordinate this site visit?

A.8 Site visits are not possible at this time of the solicitation. Once the agency begins the Negotiation process with the highest scoring vendor then site visit would be possible.

Q.9. How many copies of the EOI are required to be submitted?

A.9. This is outlined on Page 8 Item 6 of the Instructions to Vendors submitting Bids; One (1) original and three (3) convenience copies.

Q.10 Is this Contract set aside for preferred vendors such as small, women-owned, or minority-owned businesses?

A.10 WV. Code 5A-3-37 does not provide Vendor preference for Architect/Engineering or Construction Projects.

Q.11 Why is Builders Risk insurance required for this Contract?

A.10 Builders Risk insurance is not required for this contract.

Q.12 What is the "Other insurance as required in the State Supplemental Conditions to AIA Document B101-2007, Article 2?"

A.12 See Attached State Supplemental Conditions to AIA Document B101-2007.

Q.13 What is "Vendor Preference" per WV code 5A-3-37? And should we apply using the "Vendor Preference Certificate form attached hereto" which was not attached?

A.13 Vendor Preference is not applicable for Architect/Engineering or Construction Projects, http://www.legis.state.wv.us/legisdocs/code/05a/WVC%20%205%20A-%20%203%20%20-%20%2037%20%20.htm

Q.14 Can DNR provide existing wastewater treatment and associated infrastructure plans for Watoga, or if that is unavailable, provide a description of the existing facilities?

A.14 From the EOI, Section 3 Number 1, "The existing facility is a 1970's era 10,500 gallon per day extended aeration plant."

WRD 2A-82

LIMITATION CATEGORY: 1

GEN. PMT. REGISTRATION NO. WVG551276

STATE OF WEST VIRGINIA
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
DISCHARGE MONITORING REPORT

Final Limitations

FACILITY NAME: (WATOGA STATE PARK RIVER CAMPGROUND) WV DIVISION OF

LOCATION OF FACILITY: MARLINTON; Pocahontas County

PERMIT NO.: WV0103110 OUTLET NO.: 001

WASTELOAD FOR THE MONTH OF:

CERTIFIED LABORATORY NAME:

CERTIFIED LABORATORY ADDRESS:

INDIVIDUAL PERFORMING ANALYSIS:

Parameter		Quantity		Units	N.E.	Other Units			CEL*	Units	N.E.	Measurement Frequency	Sample Type
50050 (ML-1) RF-B Flow,In Conduit or thru plant Year Round	Reported												
	Permit Limits	N/A	N/A			N/A	N/A	0.0105 Max. Daily	N/A	mgd		1/quarter	Estimated
00310 (ML-B) RF-B BOD, 5-Day 20 Deg.C Year Round	Reported												
	Permit Limits	Rpt Only Avg. Monthly	Rpt Only Max. Daily	Lbs/Day		30 Avg. Monthly	60 Max. Daily	75 Inst. Max.	N/A	mg/l		1/quarter	Grab
00530 (ML-A) RF-B Total Suspended Solids Year Round	Reported												
	Permit Limits	Rpt Only Avg. Monthly	Rpt Only Max. Daily	Lbs/Day		30 Avg. Monthly	60 Max. Daily	75 Inst. Max.	N/A	mg/l		1/quarter	Grab
74055 (ML-A) RF-B Coliform, Fecal Year Round	Reported												
	Permit Limits	N/A	N/A			200 Mon. Geo. Mean	400 Max. Daily	500 Inst. Max.	N/A	Cnts/100m		1/quarter	Grab
00400 (ML-A) RF-B pH Year Round	Reported												
	Permit Limits	N/A	N/A			6 Inst. Min.	N/A	9 Inst. Max.	N/A	S.U.		1/quarter	Grab
00600 (ML-A) RF-C Nitrogen, Total (as N) Year Round	Reported												
	Permit Limits	N/A	N/A			Rpt Only Avg. Monthly	Rpt Only Max. Daily	Rpt Only Inst. Max.	N/A	mg/l		1/6 months	Grab
00665 (ML-A) RF-C Phosphorus, Total Year Round	Reported												
	Permit Limits	N/A	N/A			Rpt Only Avg. Monthly	Rpt Only Max. Daily	Rpt Only Inst. Max.	N/A	mg/l		1/6 months	Grab
50060 (ML-A) RF-B Chlorine, Total Residual Year Round	Reported												
	Permit Limits	N/A	N/A			28 Avg. Monthly	57 Max. Daily	70 Inst. Max.	N/A	ug/l		1/quarter	Grab

* CEL = Compliance Evaluation Level

Name of Principal Executive Officer	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of a fine and imprisonment for knowing violations.	Date Completed
Title of Officer		Signature of Principal Executive Officer or Authorized Agent

STATE OF WEST VIRGINIA
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
SMALL FACILITY SEWAGE SLUDGE MANAGEMENT REPORT

FACILITY NAME (WATOGA STATE PARK RIVER CAMPGROUND)WV DIVISION OF NAT
ADDRESS 1900 Kanawha Blvd East, Bldg 3 Room 723, Charleston, WV 25305-0662

DESIGN FLOW 10,500 gpd
REGISTRATION NO. WVG551276
REPORT YEAR _____

LIQUID SLUDGE

Amount Removed From Facility This Year(Gallons) _____
Liquid Sludge Removed By _____

Frequency of Removal(Occurrences per Year) _____
Septage Hauler Registration Number _____

DRY SLUDGE AND SAND

Amount of Dry Sewage Sludge, Sand, or Other Filter Media Removed This Year(Tons) _____
Location of Disposal _____

Method of Disposal _____

POLISHING POND CLEANING

Amount Removed This Year(Gallons) _____
Method of Disposal _____

Liquid Sludge Removed By _____
Location of Disposal _____

ADDITIONAL COMMENTS OR EXPLANATION _____

_____

_____

I certify under penalty of law that the sewage management practices are requirements of Federal regulations 40 CFR Part 503 and state sludge regulations Title 33, Series 2 have been met and that all sewage sludge disposed from this facility during this reporting period is reconciled and accounted for in this sewage sludge management report. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that these requirements have been met.

I also certify that this document and all the attachments were prepared under my direction or supervision, and that this information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that these are significant penalities for false certification including the possibility of fine and imprisonment.

OFFICIAL _____

SIGNATURE _____

TITLE _____

DATE _____

State of West Virginia

Supplementary Conditions to AIA Document B101-2007
Standard Form of Agreement Between Owner and Architect

The following Supplementary Conditions modify the Standard Form of Agreement Between Owner and Architect, AIA Document B101-2007 Edition. Where a portion of the Agreement is modified or deleted by these Supplementary Conditions, the unaltered portions of the Agreement shall remain in effect.

ARTICLE 1
INITIAL INFORMATION

§1.1 Make the following change to Section 1.1:

In the first sentence, delete "optional" and substitute "mandatory".

§1.3 Make the following changes to Section 1.3:

In the second sentence, delete "shall" and substitute "may" and delete the period at the end of the sentence and add ", if applicable."

ARTICLE 2
ARCHITECT'S RESPONSIBILITIES

§ 2.5 Make the following changes to Section 2.5:

Delete the second sentence in its entirety.

Change Sections 2.5.1 through 2.5.4 to specify the following minimum insurance requirements:

.1 General Liability: $1,000,000 per occurrence, $2,000,000 aggregate;

.2 Automobile Liability: $1,000,000 combined single limit;

.3 Workers Compensation: West Virginia Statutory requirements including West Virginia Code §23-4-2 (Mandolidis); and

.4 Professional Liability: $1,000,000 each occurrence on a claims made basis.

Add the following Sections to Article 2:

§2.6 The format and minimum standard of quality to be used by the Architect in preparing specifications for the Project shall be AIA MASTERSPEC or equal, and the Architect shall use the CSI Masterformat numbering system.

§2.7 The Architect shall satisfy the requirements for the lawful practice of architecture in the State of West Virginia.

§2.8 The Architect shall review laws, codes and regulations applicable to the Architect's services and shall comply in the design of the Project with applicable provisions and standards of the West Virginia Building Code, the West Virginia Fire Code and the Americans with Disabilities Act (ADA). The most stringent application of these codes and standards shall apply. In the design of the Project, the Architect shall comply with the requirements imposed by governmental authorities having jurisdiction.

ARTICLE 3
SCOPE OF ARCHITECT'S BASIC SERVICES

§3.1.2 Make the following change to Section 3.1.2:

In the third sentence, after "shall" add "thoroughly review the services and information for completeness and sufficiency".

§3.1.6 Delete Section 3.1.6 in its entirety and substitute the following:

§3.1.6 The Architect shall furnish and submit substantially completed construction documents to all governmental agencies having jurisdiction over the Project, shall assist the Owner in securing their approval, and shall incorporate changes in the Construction Documents as may be required by such authorities.

Add the following Section to Article 3:

§3.1.7 The Architect is responsible for the coordination of all drawings and design documents relating to Architect's design used on the Project, regardless of whether such drawings and documents are prepared or provided by Architect, by Architect's consultants, or by others. If preliminary or design development Work has been performed by others, Architect is nevertheless fully responsible for and accepts full responsibility for such earlier Work when Architect performs subsequent phases of the basic services called for under this Agreement, as fully as if the preliminary, schematic, and design development Work had been performed by the Architect itself. Architect is responsible for coordination and internal checking of all drawings and for the accuracy of all dimensional and layout information contained therein, as fully as if each drawing were prepared by Architect. Architect is responsible for the completeness and accuracy of all drawings and specifications submitted by or though Architect and for their compliance with all applicable codes, ordinances, regulations, laws, and statutes.

§3.2 SCHEMATIC DESIGN PHASE SERVICES

§3.2.2 Make the following change to Section 3.2.2:

In the second sentence, after the word "Architect" add "shall review such information to ascertain that it is consistent with the requirements of the Project and".

§3.4 CONSTRUCTION DOCUMENTS PHASE SERVICES

§ 3.4.2 Delete Section 3.4.2 in its entirety and substitute the following:

§3.4.2 Construction drawings, specifications, or other Construction Documents submitted by Architect must be complete and unambiguous and in compliance with all applicable codes, ordinances, statutes, regulations, and laws. By submitting the same, Architect certifies that Architect has informed the Owner of any tests, studies, analyses, or reports that are necessary or advisable to be performed by or for the Owner at that point in time. Architect shall confirm these facts in writing to the Owner.

§3.5 BIDDING OR NEGOTIATION PHASE SERVICES

§ 3.5.1 Make the following change to Section 3.5.1:

In the first sentence, delete the period at the end of the sentence and add "which may include the development and distribution of a prequalification process."

§3.6 CONSTRUCTION PHASE SERVICES

§ 3.6.1 GENERAL

§ 3.6.1.1 Delete the last sentence in its entirety and substitute the following:

The State of West Virginia's Supplementary Conditions to the General Conditions of the Contract for Construction shall be adopted as part of the Contract Documents and shall be enforceable under this Agreement.

Add the following Section to 3.6.1:

§3.6.1.4 The Architect shall be responsible for conducting progress meetings as needed and for the preparation, distribution, and accuracy of minutes pertaining thereto to all parties as directed by the Owner.

§3.6.2 EVALUATIONS OF THE WORK

§3.6.2.1 Delete the second sentence in its entirety and substitute the following:

Although the Architect is not required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work, the Architect shall carefully review the quality and quantity of the Work at appropriate intervals during construction as part of the Architect's design and contract administration services, shall issue written reports of such reviews to the Owner, Owner representatives, and the Contractor, and further shall conduct any additional reviews at any other time as reasonably requested by the Owner. The Architect shall neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents

§ 3.6.2.2 Delete the first sentence of 3.6.2.2 in its entirety and substitute the following:

The Architect shall have the authority and obligation to reject Work that does not conform to the Contract Documents.

§3.6.2.4 Delete Section 3.6.2.4 it its entirety and substitute the following:

§3.6.2.4 The Architect shall render initial decisions on claims, disputes or other matters in question between the Owner and Contractor as provided in the Contract Documents. However, the Owner, with advice and assistance from the Architect, shall make final decisions on matters relating to aesthetic effect.

§3.6.4 SUBMITTALS

§3.6.4.2 Make the following changes to Section 3.6.4.2:

Delete the first sentence in its entirety and substitute the following:

The Architect shall review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples. The Architect's review of Contractor's submittals must determine the following: (1) if such submittals are in compliance with applicable laws, statutes, ordinances, codes, orders, rules, regulations; and (2) if the Work affected by and represented by such submittals is in compliance with the requirements of the Contract Documents. Architect shall promptly notify the Owner and Contractor of any submittals that do not comply with applicable laws, statutes, ordinances, codes, orders, rules, regulations, or requirements of the Contract Documents. Architect is responsible for determining what aspects of the Work will be the subject of shop drawings or submittals. Architect shall not knowingly permit such aspects of the Work to proceed in the absence of approved shop drawings and submittals. The Architect's action shall be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner,

Contractor or separate contractors, while allowing sufficient time in the Architect's professional judgment to permit adequate review.

In the second sentence, delete the words "or performance".

§3.6.4.5 Make the following change to Section 3.6.4.5:

Add ", including a submittal log," after "The Architect shall maintain a record of submittals".

§3.6.5 CHANGES IN THE WORK

§3.6.5.2 Make the following changes to Section 3.6.5.2:

Section 3.6.5.2 shall now be Section 3.6.5.3. Section 3.6.5.2 shall read as follows:

§3.6.5.2 If the Architect and the Owner determine that the implementation of the requested change would result in a material change to the Contract that may cause an adjustment in the Contract Time or Contract Sum, the Architect shall make a recommendation to the Owner who may authorize further investigation of such change.

§ 3.6.5.3 Add the following to the end of Section 3.6.5.3:

Additionally, the Architect shall review and, upon request by Owner, provide written documentation of the same of all change order requests and proposals with respect to the following criteria:

.1 confirm proposed change is a material change to the Contract;

.2 confirm appropriate credits are included for Work not completed;

.3 verify that the proposed additional cost or credit is reasonable with respect to industry standards. Cost verifications may, as authorized by Owner, include independent estimates and/or consultations with contractors and vendors; and

.4 confirm that the appropriate back up documentation is included and mathematically correct including mark ups and taxes pursuant to the requirements of the Contract Documents.

ARTICLE 4
ADDITIONAL SERVICES

ANY PROVISION OF AN AIA DOCUMENT LISTED HEREIN, EXHIBIT, OR DESCRIPTION FOR ADDITIONAL SERVICES THAT CONFLICTS WITH THESE SUPPLEMENTARY CONDITIONS IS NULL AND VOID.

§4.3.1 Make the following changes to Section 4.3.1:

.6 Before the semicolon insert ", provided such alternate bids or proposals are not being used for budget control"

.9 Delete this provision in its entirety.

§4.3.2 Make the following changes to Section 4.3.2:

.3 Before the semicolon insert ", but only to the extent that such services required or requested from the Architect represent a material change in the services that would otherwise be required of the Architect for completion of the Project"

.4 Before the semicolon insert ", provided such claims are not the result of the Architect's action, inaction, errors, or omissions"

ARTICLE 5
OWNER'S RESPONSIBILITIES

§5.2 Make the following change to Section 5.2:

In the first sentence, after "The Owner" add ", with Architect's assistance,"

Add the following Section to Article 5:

§5.3.1 The Owner has the right to reject any portion of the Architect's Work on the Project, including but not limited to Schematic Design Documents, Design Development Documents, Construction Documents, or the Architect's provision of services during the construction of the Project, or any other design Work or documents on any reasonable basis, including, but not limited to aesthetics or because in the Owner's opinion, the construction cost of such design is likely to exceed the budget for Cost of the Work. If at any time the Architect's Work is rejected by the Owner, the Architect must proceed when requested by the Owner, to revise the design Work or documents prepared for that phase to the Owner's satisfaction. These revisions shall be made without adjustment to the compensation provided hereunder, unless revisions are made to Work previously approved by the Owner under previous phases, in which case such revision services will be paid as a Change in Services. Should there be substantial revisions to the original program after the approval of the Schematic Design Documents, which changes substantially increase the scope of design services to be furnished hereunder, such revision services will be paid as a Change in Services. The Architect must so notify the Owner of all Changes in Services in writing and receive approval from Owner before proceeding with revisions necessitated by such changes. No payment, of any nature whatsoever, will be made to the Architect for additional Work or Changes in Services without such written approval by Owner.

§5.5 Make the following changes to Section 5.5:

In the first sentence, delete "shall" and substitute "may".

Add the following sentence at the end of Section 5.5:

The Owner may, in its sole discretion, request that the Architect secure these services by contracting with a third party.

§5.6 Make the following change to Section 5.6:

In the third sentence, delete "shall" and substitute "may".

§5.7 Make the following change to Section 5.7:

At the beginning of this sentence, insert "Unless otherwise provided in this Agreement,"

§5.9 Add the following sentence to the beginning of Section 5.9:

The Owner shall be entitled to rely on the accuracy and completeness of services and information provided by the Architect.

ARTICLE 6
COST OF WORK

§6.3 Delete Section 6.3 in its entirety and substitute the following:

§6.3 In preparing estimates for the cost of the Work, the Architect shall be permitted to include contingencies for design, bidding and price escalation, and in consultation with the Owner, to determine what materials, equipment, component systems and types of construction to be included in the Construction Documents, to make reasonable adjustments in the scope of the Project and to include in the Contract Documents alternate bids as may be necessary to adjust the estimate of Cost of the Work to meet the Owner's adjusted budget. If an increase in the Contract Sum occurring after execution of the Contract for Construction caused the Project budget to be exceeded, the Project budget shall be increased accordingly.

§6.7 Delete Section 6.7 in its entirety and substitute the following:

§6.7 If the Owner chooses to proceed under Section 6.6.2, the Architect, without additional compensation, shall assist the Owner in rebidding or renegotiating the Project within a reasonable time. If the Owner chooses to proceed under Section 6.6.4, the Architect, without additional compensation, shall modify the documents which the Architect is responsible for preparing under this Agreement as necessary to comply with the Owner's budget for the Cost of the Work, and shall assist the Owner in rebidding or renegotiating the Project within a reasonable time. The modification of such documents and the rebidding or renegotiating of the Project shall be the limit of the Architect's responsibility under Section 6.6.

ARTICLE 7
COPYRIGHTS AND LICENSES

§7.3 Make the following changes to Section 7.3:

In the first sentence, insert "irrevocable, royalty-free, right and" after the word "nonexclusive" and delete the words "solely and exclusively".

Delete the last sentence of Section 7.3 and substitute the following:

Upon completion of the Project, or upon termination of this Agreement for any reason prior to the completion of the Project, Owner shall be entitled to retain copies of all Instruments of Service and shall have an irrevocable, royalty-free, right and license to use all of the Instruments of Service for any and all purposes related to the Project in any manner the Owner deems fit, including the following:

a. Electronics Filing and Archiving for the purpose of record keeping at Owner designated areas;
b. Any future renovation, addition, or alteration to the Project; and
c. Any future maintenance or operations issue as it pertains to the Project.

Architect or Architect's Consultants shall not be responsible for any modifications to the Work made by Owner or Owner's representatives using the Architect's Instruments of Service.

§7.3.1 Delete the second sentence of Section 7.3.1.

ARTICLE 8
CLAIMS AND DISPUTES

§8.1 GENERAL

§8.1.1 Delete Section 8.1.1 in its entirety and substitute the following:

§8.1.1 Causes of action between the parties to this Agreement pertaining to acts or failures to act shall be deemed to have accrued and the applicable statutes of limitations shall commence to run pursuant to applicable provisions of the West Virginia Code.

§8.1.3 Make the following change to Section 8.1.3:

At the beginning of the first sentence, insert "Unless otherwise agreed by the Parties,"

Add the following Section to Article 8:

§8.1.4 The Owner may suffer financial loss if the Architect's services are not completed within the schedule approved by the Owner in accordance with Section 3.1.3. If so provided, the

Architect shall be liable for and shall pay the Owner, as liquidated damages and not as a penalty, any sum(s) stated in Section 1.1 of this Agreement or in Section A.1.4 of Exhibit A.

Allowances may be made for delays beyond the control of the Architect. All delays and adjustments to the Architect's schedule must be properly documented and approved by the Owner in accordance with Section 3.1.3.

§8.2 MEDIATION

§8.2 Make the following changes to Section 8.2:

§8.2.1 In both instances where it appears, delete "binding dispute resolution" and substitute "litigation in a court of competent jurisdiction."

§8.2.2 Delete this Section in its entirety and substitute the following:

The parties shall endeavor to resolve their Claims by non-binding mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement.

§8.2.4 Delete this Section in its entirety and substitute the following:

If the parties do not resolve a dispute through mediation pursuant to this Section 8.2, the method of binding dispute resolution shall be in accordance with Section 8.3.

§8.3 ARBITRATION

§8.3 Delete Section 8.3 in its entirety and substitute the following:

§8.3 SETTLEMENT OF CLAIMS

§8.3.1 Notwithstanding any provision to the contrary in this Agreement, all references to arbitration are hereby deleted.

§8.3.2 Any claim, dispute or other matter in question arising out of this Agreement which cannot be settled between the parties shall, in the case of the Architect, be submitted to the West Virginia Court of Claims, and in the case of the Owner, to the Circuit Court of Kanawha County or any other court of competent jurisdiction as the Owner may elect.

ARTICLE 9
TERMINATION OR SUSPENSION

§9.1 Make the following changes to Section 9.1:

In the first sentence, after "If the Owner fails to make payments to the Architect" add "of undisputed amounts". In the third sentence, after "In the event of a suspension of services," add "in accordance herewith". In the fourth sentence, after "Before resuming services, the Architect shall be paid all sums due prior to suspension and" add "shall negotiate with the Owner for".

§9.2 Make the following changes to Section 9.2:

In the first sentence, after "If the Owner suspends the Project" add "for more than 30 consecutive days".

Delete the last two sentences in Section 9.2 and substitute the following:

When the Project is resumed, the Owner and the Architect shall negotiate the amount of any compensation the Owner will pay the Architect for expenses incurred in the interruption and resumption of the Architect's services. The Owner and the Architect shall negotiate any adjustments to the Architect's fees for the remaining services and the time schedules for completion.

§9.6 Make the following changes to Section 9.6:

Delete "and all Termination Expenses as defined in Section 9.7".

§9.7 Delete Section 9.7 in its entirety and substitute the following:

§9.7 Service performed under this Agreement may be continued in succeeding fiscal years for the term of the Agreement contingent upon funds being appropriated by the Legislature for this service. In the event funds are not appropriated or otherwise available for this service, the Agreement shall terminate without penalty on June 30. After such date the Agreement becomes null and void.

Add the following Section to Article 9:

§9.9 In the event of any termination under this Article, the Architect consents to the Owner's selection of another architect of the Owner's choice to assist the Owner in any way in completing the Project. Architect further agrees to cooperate and provide any information requested by Owner in connection with the completion of the Project and consents to and authorizes the making of any reasonable changes to the design of the Project by Owner and such other architect as Owner may desire. Any services provided by Architect that are requested by Owner after termination will be fairly compensated by Owner in accordance with Article 11.

ARTICLE 10
MISCELLANEOUS PROVISIONS

§10.2 Make the following changes to Section 10.2:

At the end of the sentence, delete the period and add ", as modified by the State of West Virginia Supplementary Conditions to the AIA

Document A201-2007, General Conditions of the Contract for Construction."

§10.3 Add the following sentence to the end of Section 10.3:

The Architect shall execute all consents reasonably required to facilitate such assignment.

§10.6 Add the following sentence to the end of Section 10.6:

The Architect shall immediately report to the Owner's project manager the presence, handling, removal or disposal of, or exposure of persons to and location of any hazardous material which it discovers.

§10.8 Add the following sentence to the end of Section 10.8:

Notwithstanding the foregoing, the Owner may disclose any information specifically required by law.

ARTICLE 11
COMPENSATION

§11.4 Make the following changes to Section 11.4:

After the word "shall", insert "not exceed a multiple of 1.15 times the amount billed to the Architect for such Additional Services" and delete the rest of that sentence.

§11.7 Delete Section 11.7 in its entirety and substitute the following:

§11.7 The Architect's rates and multiples for service as set forth in this Agreement shall remain in effect for the life of this Agreement unless unforeseen events which are not the fault of the Architect delay the Project completion. In such event, an equitable adjustment in the Architect's rates may be negotiated with the Owner.

§11.8 COMPENSATION FOR REIMBURSABLE EXPENSES

§11.8.1 Delete Sections 11.8.1.4 and 11.8.1.5 in their entirety and substitute the following:

§11.8.1.4 The expense of reproductions, postage and handling of bidding documents shall be a Reimbursable Expense, however, the expense of reproductions, plots, standard form documents, postage, handling, and delivery of Instruments of Service for the Owner's use and for review of governmental agencies having jurisdiction over the Project shall not be a Reimbursable Expense but shall be covered in the Architect's Compensation under §11.1.

§11.8.2 Delete Section 11.8.2 in its entirety and substitute the following:

§11.8.2 For Reimbursable Expenses described in Section 11.8.1.1, compensation to the Architect shall be at actual cost and shall be made pursuant to the Owner's travel regulations. For those expenses described in Sections 11.8.1.2 through 11.8.1.11, the compensation shall be computed as a multiple of 1.15 times the expenses incurred by the Architect, the Architect's employees and consultants.

§11.10 PAYMENTS TO THE ARCHITECT

§11.10.1 Delete Section 11.10.1 in its entirety.

§11.10.2 Delete Section 11.10.2 in its entirety and substitute the following:

§11.10.2 Payments are due and payable thirty (30) days from the date of receipt of the Architect's invoice by the Owner. Amounts unpaid sixty (60) days after the date of receipt of the invoice shall bear interest at the rate prescribed by the West Virginia Code.

§11.10.3 Delete Section 11.10.3 in its entirety.

ARTICLE 13
SCOPE OF THE AGREEMENT

Add the following Section to 13.2:

§13.2.4 State of West Virginia Supplementary Conditions to AIA Document B101-2007, Standard Form of Agreement Between Owner and Architect

END OF SUPPLEMENTARY CONDITIONS TO AIA DOCUMENT B101-2007

The Owner and Architect hereby agree to the full performance of the covenants contained herein.

IN WITNESS WHEREOF, the Owner and Architect have entered into this Agreement as of the date and year as written below.

Owner:		Architect:	
By:		By:	Edward L. Hall
Title:		Title:	President
Date:		Date:	6-15-16

APPROVED AS TO FORM THIS 1st DAY OF June, 2009

DARRELL V. McGRAW, JR., ATTORNEY GENERAL

BY: Dawn E. Warfield
DEPUTY ATTORNEY GENERAL

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0310 DNR1600000021

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Stafford Consultants, Inc.
Company

Authorized Signature

June 15, 2016
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Name, Title)
Edward L. Shutt, President
(Printed Name and Title)
P.O. Box 5849, Princeton WV 24740
(Address)
304-425-9555 / 304-425-9557
(Phone Number) / (Fax Number)
eshutt@staffordconsultantsinc.com
(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Stafford Consultants, Inc.
(Company)

Edward L Shutt Edward L. Shutt, President
(Authorized Signature) (Representative Name, Title)

Edward L. Shutt, President
(Printed Name and Title of Authorized Representative)

June 15, 2016
(Date)

304-425-9555 / 304-425-9557
(Phone Number) (Fax Number)

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Stafford Consultants, Inc.

Authorized Signature: _____ Date: June 15, 2016

State of West Virginia

County of Mercer, to-wit:

Taken, subscribed, and sworn to before me this 15 day of JUNE, 2016

My Commission expires February 27, 2024.

AFFIX SEAL HERE

NOTARY PUBLIC _____

OFFICIAL SEAL
Notary Public, State of West Virginia
Howard Berry
Stafford Consultants Inc.
1105 Mercer St.
Princeton, WV 24740
My commission expires February 27, 2024

STAFFORD CONSULTANTS INCORPORATED

1105 MERCER STREET P.O. BOX 5849
PRINCETON, WEST VIRGINIA 24740
(304) 425-9555

EXPRESSION OF INTEREST

STATE OF WEST VIRGINIA: A/E SERVICES WATOGA RIVERSIDE CAMPGROUND
WASTEWATER PLANT

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1.0 PROJECT INFORMATION

"The State of West Virginia is seeking Expression of Interest from Architectural / Engineering firms for basic professional services consistent with wastewater treatment plants design and replacement. Services would specifically include designing, securing permits, bidding, construction administration, and preparing all other related documents for replacements of an existing 10,500 gallon per day extended aeration wastewater sewage plant at Watoga State Park in, Pocahontas County. Expression of Interest shall include firm's qualifications, experience, management services, staffing, and related completed projects in West Virginia. Procurement of services will be in accordance with W.Va. Code, Chapter 5G, Article 1."

2.0 STAFFORD CONSULTANTS INCORPORATED: *SERVICES & HISTORY*

Stafford Consultants, Incorporated (Stafford) is a civil engineering firm located in Princeton, WV. Stafford was formed in 1985 from a core group of employees of Gates Engineering Company. After many successful years of operation, Gates Engineering Company was bought by a large design/build firm that later decided to divest the consultant engineering firm. Stafford has proudly provided civil engineering services to municipalities and Public Service Districts in southern West Virginia over the past thirty years; mostly specializing in water and wastewater system design, structural design, and land development.

We pride ourselves on strong project management and client communication. Our number one priority is ensuring each client has every project completed satisfactorily within time and budget constraints. Currently, Stafford employs a total full time staff of 16, including three registered professional engineers. Our high ratio of professional to total employees is indicative of the importance we place on providing professional service to our clients.

Our communication plan will involve the following steps/procedures from initial conception to project closeout and warranty period service.

We propose the first and critical phase for a successful project for replacement of the 10,500 gallon per day wastewater plant will involve the following steps:

1. The Division of Natural Resources (DNR) provides Stafford Consultants, Inc. (SCI) all available mapping, geotechnical reports, design reports, operation and testing reports, WVDEP NPDES discharge monitoring reports, special test reports, and WVDEP inspection reports for the period beginning January 1, 2013 thru June 30, 2016.
2. The Division of Natural Resources (DNR) provides SCI its more detailed scope statement for reviews and comments.
3. Conduct an on-site meeting at Watoga State Park to review the existing wastewater treatment plant and sources of wastewater including any pump station.

4. Stafford Consultants, Inc. and the Division of Natural Resources develop a revised project scope statement similar to Exhibit I. This would better define the issues to be addressed such as any additional testing to identify wastewater strength and characteristics, sources of grease, disposal of wipes, etc. which may hinder efficiency of the waste stream treatment.
5. This Scope Statement would identify alternative technologies such as Orenco Systems or similar type treatment systems which can also function at low or no flows in the winter months when the campground usage is very low or non-existent. We have found these alternative technologies to be very efficient and cost effective in schools, small rural communities and parks.
6. Once the scope statement is agreed upon SCI will provide a detailed cost proposal for each phase of work. This will provide man hours / classification / billing rates and a detailed estimate of expenses so the both parties can sit across the table and negotiate the scope of services and the resulting fees.
7. The scope statement will identify the DNR's desired schedule for completion for the work and anticipated plant start up dates for the facility.
8. We would envision the following potential phases of the work:
    g. Preliminary Engineering Report
    h. Engineering Survey Phase
    i. Preliminary Design Phase
    j. Final Contract Document Phase Documents
    k. Bidding / Negotiation Phase
    l. Construction Administration

    Optional Phases may be:
        1) Additional Geotechnical Work
        2) Resident Project Representation Phase
        3) Operational Phase
        4) Warranty Period Services
9. During the preparation of the Preliminary Engineering Report phase, SCI will obtain and request the Owner for the information needed to complete the report.

    a. Identify, consult with, and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project designed or specified by Engineer, including but not limited to mitigating measures identified in the environmental assessment.

    b. Identify and evaluate all reasonable alternate solutions available to Owner and, after consultation with Owner, recommend to Owner those solutions which in Engineer's judgment meet Owner's requirements for the Project.

    c. Prepare a report (the "Report") which will, as appropriate, contain schematic layouts, sketches, and conceptual design criteria with appropriate exhibits to indicate the agreed-to requirements, considerations involved, and those alternate solutions available to Owner

which Engineer recommends. For each recommended solution Engineer will provide the following, which will be separately itemized: opinion of probable Construction Cost; proposed allowances for contingencies; the estimated total costs of design, professional, and related services to be provided by Engineer and its Consultants; and, on the basis of information furnished by Owner, a summary of allowances for other items and services included within the definition of Total Project Costs.

d. Perform or provide the following additional Study and Report Phase tasks or deliverables:

   i. Provide Project Management Plan which establish schedules for deliverables, construction, and plant start-up

   ii. Engineering Surveys / Mapping of the project area with 2-foot interval contours, existing utilities, and finished elevations of all existing facilities.

   iii. Provide a walkthrough and field investigation of the site with the project team to include the WV Department of Environmental Protection.

e. Furnish four (4) review copies of the Report and any other deliverables to Owner within __ calendar days of the Effective Date and review it with Owner. Within ___ calendar days of receipt, Owner shall submit to Engineer any comments regarding the Report and any other deliverables.

f. Revise the Report and any other deliverables in response to Owner's comments, as appropriate, and furnish four (4) copies of the revised Report and any other deliverables to the Owner within 30 calendar days of receipt of Owner's comments.

g. Engineer's services under the Study and Report Phase will be considered complete on the date when the revised Report and any other deliverables have been delivered to Owner.

10. After acceptance by Owner of the Report and any other deliverables, selection by Owner of a recommended solution and indication of any specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner, and upon written authorization from Owner, Engineer shall:
    1. Prepare Preliminary Design Phase documents consisting of final design criteria, preliminary drawings, outline specifications, and written descriptions of the Project.
    2. Provide necessary field surveys and topographic and utility mapping for design purposes. Utility mapping will be based upon information obtained from DNR.
    3. Advise Owner if additional reports, data, information, or services of the types are necessary and assist Owner in obtaining such reports, data, information, or services.
    4. Based on the information contained in the Preliminary Design Phase documents, prepare a revised opinion of probable Construction Cost, and assist Owner in collating the various cost categories which comprise Total Project Costs.
    5. Furnish five (5) review copies of the Preliminary Design Phase documents and any other deliverables to Owner within ___ calendar days of authorization to proceed with this

phase, and review them with Owner. Within ___ calendar days of receipt, Owner shall submit to Engineer any comments regarding the Preliminary Design Phase documents and any other deliverables.

6. Revise the Preliminary Design Phase documents and any other deliverables in response to Owner's comments, as appropriate, and furnish to Owner five (5) copies of the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other deliverables within ___ calendar days after receipt of Owner's comments.

Engineer's services under the Preliminary Design Phase will be considered complete on the date when the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other deliverables have been delivered to Owner.

11. Final Design Phase

After acceptance by Owner of the Preliminary Design Phase documents, revised opinion of probable Construction Cost as determined in the Preliminary Design Phase, and any other deliverables subject to any Owner-directed modifications or changes in the scope, extent, character, or design requirements of or for the Project, and upon written authorization from Owner, Engineer shall:

1. Prepare final Drawings and Specifications indicating the scope, extent, and character of the Work to be performed and furnished by Contractor.
2. Provide technical criteria, written descriptions, and design data for Owner's use in filing applications for permits from or approvals of governmental authorities having jurisdiction to review or approve the final design of the Project; assist Owner in consultations with such authorities; and revise the Drawings and Specifications in response to directives from such authorities.
3. Advise Owner of any adjustments to the opinion of probable Construction Cost known to Engineer.
4. Perform or provide the following additional Final Design Phase tasks or deliverables:
    a. Provide Soils Evaluation Services if deemed necessary.
5. Prepare and furnish bidding documents for review by Owner, its legal counsel, and other advisors, and assist Owner in the preparation of other related documents. Within ____ days of receipt, Owner shall submit to Engineer any comments.
6. Revise the bidding documents in accordance with comments and instructions from the Owner, as appropriate, and submit five (5) final copies of the bidding documents, a revised opinion of probable Construction Cost, and any other deliverables to Owner within ___ calendar days after receipt of Owner's comments and instructions.

Engineer's services under the Final Design Phase will be considered complete on the date when the submittals required have been delivered to Owner.

In the event that the Work designed or specified by Engineer is to be performed or furnished under more than one prime contract, or if Engineer's services are to be separately sequenced with the work of one or more prime Contractors (such as in the case of fast-tracking), Owner and Engineer shall, prior to commencement of the Final Design Phase, develop a schedule for performance of Engineer's services during the Final Design, Bidding or Negotiating, Construction, and Post-Construction Phases in order to sequence and coordinate properly such services as are applicable to the work under such separate prime contracts. This schedule is to be prepared and included in or become an amendment to Exhibit A whether or not the work under such contracts is to proceed concurrently.

The number of prime contracts for Work designed or specified by Engineer upon which the Engineer's compensation has been established under this Agreement is ____.

12. *Bidding or Negotiating Phase*

After acceptance by Owner of the bidding documents and the most recent opinion of probable Construction Cost as determined in the Final Design Phase, and upon written authorization by Owner to proceed, Engineer shall:

1. Assist Owner in advertising for and obtaining bids or proposals for the Work and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-bid conferences, if any, and receive and process contractor deposits or charges for the bidding documents.
2. Issue addenda as appropriate to clarify, correct, or change the bidding documents.
3. Provide information or assistance needed by Owner in the course of any negotiations with prospective contractors.
4. Consult with Owner as to the acceptability of subcontractors, suppliers, and other individuals and entities proposed by prospective contractors for those portions of the Work as to which such acceptability is required by the bidding documents.
5. If bidding documents require, the Engineer shall evaluate and determine the acceptability of "or equals" and substitute materials and equipment proposed by bidders.
6. Attend the Bid opening, prepare Bid tabulation sheets, and assist Owner in evaluating Bids or proposals and in assembling and awarding contracts for the Work.

The Bidding or Negotiating Phase will be considered complete upon commencement of the Construction Phase or upon cessation of negotiations with prospective contractors (except as may be required if Exhibit F is a part of this Agreement).

13. *Construction Phase*

Upon successful completion of the Bidding and Negotiating Phase, and upon written authorization from Owner, Engineer shall:

1. General Administration of Construction Contract: Consult with Owner and act as Owner's representative as provided in the Construction Contract. The extent and limitations of the duties, responsibilities, and authority of Engineer as assigned in the Construction Contract shall not be modified, except as Engineer may otherwise agree in writing. All of Owner's instructions to Contractor will be issued through Engineer, which shall have authority to act on behalf of Owner in dealings with Contractor to the extent provided in this Agreement and the Construction Contract except as otherwise provided in writing.
2. Resident Project Representative (RPR): Provide the services, if requested, of an RPR at the Site to assist the Engineer and to provide more extensive observation of Contractor's work.
3. Pre-Construction Conference: Participate in a Pre-Construction Conference prior to commencement of Work at the Site.
4. Schedules: Receive, review, and determine the acceptability of any and all schedules that Contractor is required to submit to Engineer, including the Progress Schedule, Schedule of Submittals, and Schedule of Values.
5. Baselines and Benchmarks: As appropriate, establish baselines and benchmarks for locating the Work which in Engineer's judgment are necessary to enable Contractor to proceed.
6. Visits to Site and Observation of Construction: In connection with observations of Contractor's Work while it is in progress:
    a. Make visits to the Site at intervals appropriate to the various stages of construction, as Engineer deems necessary, to observe as an experienced and qualified design professional the progress of Contractor's executed Work. Such visits and observations by Engineer, and the Resident Project Representative, if any, are not intended to be exhaustive or to extend to every aspect of Contractor's Work in progress or to involve detailed inspections of Contractor's Work in progress beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling, and similar methods of general observation of the Work based on Engineer's exercise of professional judgment, as assisted by the Resident Project Representative, if any. Based on information obtained during such visits and observations, Engineer will determine in general if the Work is proceeding in accordance with the Contract Documents, and Engineer shall keep Owner informed of the progress of the Work.
    b. The purpose of Engineer's visits to, and representation by the Resident Project Representative, if any, at the Site, will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for Owner a

greater degree of confidence that the completed Work will conform in general to the Contract Documents and that Contractor has implemented and maintained the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Engineer shall not, during such visits or as a result of such observations of Contractor's Work in progress, supervise, direct, or have control over Contractor's Work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by Contractor, for security or safety at the Site, for safety precautions and programs incident to Contractor's Work, nor for any failure of Contractor to comply with Laws and Regulations applicable to Contractor's furnishing and performing the Work.

7. Defective Work: Reject Work if, on the basis of Engineer's observations, Engineer believes that such Work (a) is defective under the standards set forth in the Contract Documents, (b) will not produce a completed Project that conforms to the Contract Documents, or (c) will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
8. Clarifications and Interpretations; Field Orders: Issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of Contractor's work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents. Subject to any limitations in the Contract Documents, Engineer may issue field orders authorizing minor variations in the Work from the requirements of the Contract Documents.
9. Change Orders and Work Change Directives: Recommend change orders and work change directives to Owner, as appropriate, and prepare change orders and work change directives as required.
10. Shop Drawings and Samples: Review and approve or take other appropriate action in respect to Shop Drawings and Samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto. Engineer shall meet any Contractor's submittal schedule that Engineer has accepted.
11. Substitutes and "or-equal": Evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor.
12. Inspections and Tests: Require such special inspections or tests of Contractor's work as deemed reasonably necessary, and receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Contract Documents. Engineer's review of such certificates will be for the purpose of determining that the

results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. Engineer shall be entitled to rely on the results of such tests.

13. Applications for Payment: Based on Engineer's observations as an experienced and qualified design professional and on review of Applications for Payment and accompanying supporting documentation:
    a. Determine the amounts that Engineer recommends Contractor be paid. Such recommendations of payment will be in writing and will constitute Engineer's representation to Owner, based on such observations and review, that, to the best of Engineer's knowledge, information and belief, Contractor's Work has progressed to the point indicated, the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe Contractor's Work. In the case of unit price work, Engineer's recommendations of payment will include final determinations of quantities and classifications of Contractor's Work (subject to any subsequent adjustments allowed by the Contract Documents).
    b. By recommending any payment, Engineer shall not thereby be deemed to have represented that observations made by Engineer to check the quality or quantity of Contractor's Work as it is performed and furnished have been exhaustive, extended to every aspect of Contractor's Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment including final payment will impose on Engineer responsibility to supervise, direct, or control Contractor's Work in progress or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with Laws and Regulations applicable to Contractor's furnishing and performing the Work. It will also not impose responsibility on Engineer to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any portion of the Work in progress, materials, or equipment has passed to Owner free and clear of any liens, claims, security interests, or encumbrances, or that there may not

be other matters at issue between Owner and Contractor that might affect the amount that should be paid.

14. Contractor's Completion Documents: Receive, review, and transmit to Owner maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, Shop Drawings, Samples and other data approved as provided, and transmit the annotated record documents which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. The extent of such review by Engineer will be limited.
15. Substantial Completion: Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, in company with Owner and Contractor, visit the Project to determine if the Work is substantially complete. If after considering any objections of Owner, Engineer considers the Work substantially complete, Engineer shall deliver a certificate of Substantial Completion to Owner and Contractor.
16. Final Notice of Acceptability of the Work: Conduct a final visit to the Project to determine if the completed Work of Contractor is acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall also provide a notice in the form (the "Notice of Acceptability of Work") that the Work is acceptable to the best of Engineer's knowledge, information, and belief and based on the extent of the services provided by Engineer under this Agreement.

Duration of Construction Phase: The Construction Phase will commence with the execution of the first Construction Contract for the Project or any part thereof and will terminate upon written recommendation by Engineer for final payment to Contractors.

3.0 STAFFORD CONSULTANTS INCORPORATED: *EXPERIENCE*

When you choose Stafford, you also choose our extensive background and our wealth of prior experience. Stafford has considerable experience with both public and private water and wastewater treatment plants and distribution/collection systems. Projects undertaken have ranged in size from small projects involving a construction cost of approximately $5,000 to large projects in the range of $20 million.

Recently, Stafford completed two (2) wastewater treatment plant (WWTP) replacement projects for the Mercer County Board of Education. These projects replaced the WWTP's at the Spanishburg Elementary School (234 Students/Staff) (please refer to **Appendix C** for example plans of this project) and the Oakvale Elementary School (134 Students/Staff). Both of these projects were designed and constructed within an eight (8) month time frame due to the time constrains set by the Client to have the existing WWTP removed and the proposed WWTP installed during the schools summer break (June-August). Both of these projects were very similar to your project. The Mercer County Board of Education

provided a written letter of recommendation based upon our Stafford's ability to provide both a cost effective solution as well as an easy to use and maintain system (please refer to **Appendix D**). We feel that the approach employed for the Mercer County Board of Education will be equally successful for the State of West Virginia if Stafford is selected for your project. The photograph on the cover of this expression of interest is of the new Oakvale Elementary School Wastewater Treatment Plant. Please refer to **Appendix E** for photos and project information on the Oakvale and Spanishburg Elementary School Projects.

Stafford has recently completed the approval process on a brand new 22,000 gallon wastewater treatment plant and collection system using alternative technology to reduce the projects construction cost and operation and maintenance cost. This project is for the New Haven Public Service District (NHPSD) and its located in Fayette county in the community of Winona, West Virginia (please refer to **Appendix C** for example plans of this project). Stafford has served the NHPSD from beginning to end providing preliminary designs, preliminary engineering services, final design and engineering services, submitted all required permits such as WVDOH, WVDEP NPDES stormwater and discharge, U.S. Army Corps, and Public Lands, and they have all been approved. SCI will provide services during the bidding process, during construction, and post constructions services per our agreement with the owner.

Full scale wastewater treatment plant projects designed and administered by Stafford includes the Town of Athens SBR Treatment Plant, improvements and expansion of the City of Princeton WWTP, the Town of Alderson WWTP Upgrade, major improvements to the WWTP and six wastewater pump stations in Ansted, the Bramwell Public Service District system in Mercer County, the City of Welch WWTP and many other significant collection and treatment systems.

During the course of the past water and wastewater projects, Stafford has obtained the necessary approvals from the respective government agencies.

4.0 STAFFORD CONSULTANTS INCORPORATED: *PROJECT TEAM*

When working with Stafford, you will also get a project team whose staff has over 300 years of combined experience in wastewater design. Resumes of Stafford's Key Team Members can be found in Appendix A. Stafford has teamed up with Clingenpeel/McBrayer & Associates, Inc. (CMA) in the past several years (please refer to **Appendix B**). CMA provides HVAC, plumbing, fire protection, and electrical engineering services. Their role would be to provide all the necessary mechanical and electrical engineering for the project.

The varied activities of Stafford are guided by its principles. Mr. Edward L. Shutt, P.E., will serve as Principal for Stafford on this project. Mr. Shutt is well known in the industry for his expertise in funding assistance and project management. Sonny Berry will serve as Director of Construction. Sonny has over twenty-five years of experience dealing with projects of this nature and will be a valuable asset in the quality control/quality assurance of the project. Each of these team members are native West

Virginians and are available to work closely with you throughout the design and construction of your project.

Members of the Stafford project team include:

▪ Edward L. Shutt, P.E.	Project Principal
▪ Jhonattan W. Schloeter	Project Manager
▪ James R. Bolton, P.E. (Retired)	Quality Assurance Officer
▪ Kenneth R. Crowe, P.E.	Chief Structural Engineer
▪ Mathew W. Peters	Project Engineer / Surveying
▪ Howard Berry	Contract Administrator / Designer
▪ Kevin Smith	Engineering Technician / Drafting
▪ Mitch Corey	Resident Project Representative (RPR)

Please see **Appendix F** for Project Team Diagram

5.0 BENEFITS OF WORKING WITH STAFFORD

Based upon our staff's experience during the past 30 years with wastewater projects, we have developed an excellent working relationship with the West Virginia Department of Environmental Protection, West Virginia Bureau of Public Health, and other government agencies. This relationship has resulted in prompt approval of submissions such as applications, design reports, Plans and Specifications, payment requests, change orders, and amendments. We believe our relationship and past experience with these West Virginia Departments will be beneficial to you during the development and construction of this project.

One area of increasing concern in public projects is the amount of claims filed by contractors. You cannot stop claims from being filed; however, efforts should be taken by the project team prior to construction to minimize the financial impact of any potential claims. Once every project is designed, it undergoes a Quality Control review to ensure each plan's accuracy and double checks items that could lead to a potential claim. We also document every issue in the field meticulously, to protect our clients from a potential claim. We will make every effort to minimize construction contractor claims.

Appendix A

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

EDWARD L. SHUTT, P.E., P.L.S.
PRESIDENT

EDUCATION:

Virginia Polytechnic Institute
Graduate School (1974-1975)

Virginia Polytechnic Institute and State University
Bachelor of Science, Civil Engineering (1969)

REGISTRATIONS/AFFILIATIONS:

Registered Professional Engineer in West Virginia (1977) and Professional Surveyor in West Virginia (1995)

EXPERIENCE:

Stafford Consultants Incorporated (1985 to present)
Gates Engineering Company (1977 to 1985)
Region I Planning and Development Council (1975 to 1977)
Pentree Incorporated (1972 to 1975)
Unites States Army (1970 to 1972)

PRINCIPAL IN CHARGE:

- Operating officer in charge of design, construction administration activities, and quality assurance. Responsibilities have involved conceptual planning, preliminary engineering, final design, financing, bidding and negotiations, construction administration, supervision of resident project representation and final closeout for projects ranging from $250,000 to $44,000,000 in size.

- Design/Quality Assurance Review for various projects.

- Expert Witness in construction claims, change orders, and engineering standards of practice.

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

KENNETH R. CROWE, P.E.
VICE PRESIDENT

EDUCATION:

West Virginia Institute of Technology
Bachelor of Science, Civil Engineering (1976)

REGISTRATIONS/AFFILIATIONS:

Registered Professional Engineer in
West Virginia (1980) and Virginia (1981)

EXPERIENCE:

Stafford Consultants Incorporated (1985 to present)
Gates Engineering Company (1981 to 1985)
Westmoreland Coal Company (1976 to 1981)

PROJECT MANAGER AND LEAD STRUCTURAL AND/OR SITE ENGINEER:

- 25 projects for the WVDoH including Mullens Overhead Bridge, Cass Arch Bridge (*WVDoH Small Bridge Engineering Excellence Award Winner*), Mineral Wells Interchange Overpass Bridge (*WVDoH Small Bridge Engineering Achievement Award Finalist*), Camden Avenue I-77 Bridge, Devil's Backbone Bridge, Grapevine Creek Bridge (*WVDoH Small Roadway Engineering Excellence Award Winner*), North Lewisburg Road Widening (*WVDoH Small Roadway Engineering Achievement Award Finalist*), and Tabb's Station Bridge.
- Chuck Mathena Center for the Arts in Princeton, WV
- Merriman Athletic Facilities building at Virginia Tech
- Private skybox addition at Mountaineer Field at West Virginia University
- Mercer County Health Center in Green Valley, WV
- Oakvale Elementary School in Oakvale, WV
- North Central Advanced Technology Center in Marion County, WV
- Marshall University married student housing renovations in Huntington, WV
- Bluefield High School roof replacement in Bluefield, WV
- City of Princeton sidewalk replacement (5 projects) in Princeton, WV
- Town of Alderson sidewalk replacement (3 projects) in Alderson, WV
- 21 mine reclamation projects for the WVDEP, including Williamson Nursing Home Slide, Milburn Red Dog Pile, Mill Branch Refuse Piles, Canebrake Complex, and Matoaka Refuse Pile.
- Cameron High School in Cameron, WV – site work
- Weirton Elementary School in Weirton, WV – site work

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

HOWARD "SONNY" BERRY
DIRECTOR OF CONSTRUCTION ADMINISTRATION

EDUCATION:
West Virginia Institute of Technology - Degree Bachelor of Arts
Beckley College- Degree Associate of Science Mining Technology

EXPERIENCE:

Stafford Consultants Incorporated (1985 to present)
Gates Engineering Company (1984 to 1985)
Trion Construction Company (1983 to 1984)
Republic Supply Company (1981 to 1983)
Roger Hornsby Const. Co. (1980 to1981)
Riverton Coal Company (1977 to 1980)
Ben Bob Incorporated (1975 to 1977)

DIRECTOR OF CONSTRUCTION ADMINISTRATION:

Directs activities related to project construction contract administration, including shop drawings process, field observations, reports, change orders and pay requests. Other related activities include development and improvement of the contract administration process with emphasis on efficiency, quality assurance, and rapid project close-out.

Directs and supervises construction administration operations and personnel including field personnel. Accumulates, evaluates and presents feedback information related to necessary changes in construction documents. Conducts on-site observations and prepares reports and resolves construction administration problems for larger projects. Coordinates architecture/engineering team to monitor project completion for compliance with the contract documents. Reviews project drawings, bonds and other pre and post-construction submittals/procedures for approval. Assembles and verifies construction change order information for approval. Reviews contractor payment requests. Maintains favorable working relationship with client and contractor.

Over the last 20 years, has administered over $101 million in water, wastewater, utility development, and sports facilities projects, including:

- New Haven PSD, Fayette County – regional water project 27 contracts - $25 million in total construction cost with over 120 miles of water line, services, storage tanks, pump stations, and PRV's.
- City of Welch, McDowell County – wastewater collection system – $14 million in total construction cost with nearly 15 miles of gravity collection lines, 443 manholes, pressure lines, pump stations, and a 1.125 MGD treatment plant.
- City of Summersville, Nicholas County – waterline extension and treatment plant - $9 million with multiple tanks, distributions lines, etc.
- Oakvale Road PSD, Mercer County – Mercer/Summers regional waterline project - $6.5 million in distribution lines, storage tanks, booster stations, pressure reducing stations, etc.
- City of Princeton – $10 million Wastewater Plant Upgrade.
- Cooper Land Development (Glade Springs) – water, pressure sewer, gas, and telephone installation contracts while monitoring Storm Water Construction compliance.

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

JAMES R. BOLTON, P.E. (RETIRED)
PROJECT ENGINEER

EDUCATION:

Bluefield State College
BS, Civil Engineering (1975)

REGISTRATIONS/AFFILIATIONS:

Registered Professional Engineer in West Virginia (Retired)

EXPERIENCE:

Stafford Consultants Incorporated (1985 to present)
Gates Engineering Company (1978-1985)
J.H. Milam, Inc. (1975-1978)
Corte Construction Company (1975)

QUALITY ASSURANCE AND SPECIAL PROJECTS:

- Responsible for "in-house" quality assurance reviews of preliminary and final bidding documents, reports and Feasibility Studies.
- Responsible for "as needed" design services related to water and wastewater projects, augmenting and assisting Stafford's "in-house" personnel.

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

MATTHEW W. PETERS
ENGINEERING TECHNICIAN

EDUCATION:

Bluefield State College
BS, Civil Engineering Technology (2010)
Bluefield State College
BS, Architectural Engineering Technology (2009)

REGISTRATIONS/AFFILIATIONS:

None

EXPERIENCE:

Stafford Consultants Incorporated (2009 to present)

TECHNICIAN AND DESIGNER:

- City of Princeton, Mercer County – wastewater treatment plant upgrade
- Town of Alderson, Greenbrier County – water treatment plant upgrade
- City of Welch, McDowell County – North Welch Wastewater Expansion
- City of Welch, McDowell County – Contracts 8B, 8C, 8D Stormwater/Sanitary Separation Projects
- Big Bend Public Service District, Summers County – Water System Expansion

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

JHONATTAN SCHLOETER
ENGINEERING TECHNICIAN

EDUCATION:

Bluefield State College
BS, Civil Engineering
AS, Architectural Engineering

REGISTRATIONS/AFFILIATIONS:

None

EXPERIENCE:

Stafford Consultants Incorporated (July 2014 to present)
Potesta and Associates (2009-2014)
Bowman Consulting (2005-2009)

TECHNICIAN AND DESIGNER:

- Cabela's Retail Store, storm water design and site layout
- Carmuse Railroad Spur, grading, storm water design, detention pond sizing and design
- McDowell County PSD, water study reports
- Logan County PSD, water study reports
- J.F. Allen Asphalt Plant, wash basin design and construction drawings
- Stone Energy, compaction testing, soils description, and generated geotechnical report
- ECOLAB, designed sediment basins
- Tetra Technologies, designed concrete loading area and chemical tank foundation, construction drawings
- Shelvas Way - Independent Living Home Subdivision, layout, grading, and storm water designs
- Dollar General Store, layout and grading design, storm water pipe, ponds, and inlets design, geotechnical report
- New Haven Public Service District, STEP/STEG waste water system design
- Mercer County Board of Education Oakvale Elementary School Wastewater Treatment Plant Replacement Project
- Mercer County Board of Education Spanishburg Elementary School Wastewater Treatment Plant Replacement Project

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

MITCHELL F. COREY
RESIDENT PROJECT REPRESENTATIVE

EDUCATION:

Montgomery High School (1970)

REGISTRATIONS/AFFILIATIONS:

None

EXPERIENCE:

Stafford Consultants Incorporated (1985 to present)
Gates Engineering Company (1979 to 1985)
Slab Fork Coal Company (1978 to 1979)
West Virginia Division of Highways (1976 to 1978)

RESIDENT PROJECT REPRESENTATIVE:

- Wilderness Public Service District, Nicholas County
- New Haven Public Service District, Fayette County
- McDowell County PSD, McDowell County - Berwind waterline replacement
- Logan County PSD, Logan County - Crawly Creek waterline extension
- Logan County PSD, Logan County – Regional Jail waterline extension
- Logan County PSD, Logan County – Huff Creek waterline extension
- Logan County PSD, Logan County – Garrett Fork waterline extension
- Logan County PSD, Logan County – Anchor Road waterline extension and storage tank
- Danville PSD, Boone County
- Town of Alderson, Greenbrier County – water treatment plant
- City of Summersville, Nicholas County - water storage tank foundation, waterlines, and sanitary sewer
- Cooper Land Development – Glade Springs Village – utilities (water, sanitary sewer, electrical)
- Oakvale Road PSD – waterline extension
- Bluewell PSD, Mercer County – Windmill Gap waterline extension

STAFFORD CONSULTANTS INCORPORATED
Engineering, Design, Consulting, Planning, & Environmental Services

KEVIN G. SMITH
DESIGNER/CADD TECHNICIAN

EDUCATION:

Raleigh County Vocational Ed. Center (1979)

REGISTRATIONS/AFFILIATIONS:

Civil I and Civil II Certificates

EXPERIENCE:

Stafford Consultants Incorporated (1998 to present)
Computects and DBD Professional Group (1998)
G. A. Tice Incorporated (1992 to 1997)
ESP Associates (1986 to 1992)
G. O. Bledsoe Incorporated (1981 to 1986)
Holly, Kenny, Shott (1980 to 1981)

DESIGNER AND CADD TECHNICIAN:

Assists with all phases of project development, from initial site suryey to preparation of base mapping, project layout (roadways, parking, water, and sewer), geometric layout, erosion & sediment control plans, profiles, structural plans, and detail sheets. Projects include:

- 12 projects for the WVDoH including Coalfields Expressway, Grapevine Creek Bridge, Hutchinson Branch Bridge, Cass Arch Bridge, Mullens Bridge, North Lewisburg Roadway Widening, Bellepoint Road Widening, West Webster Road Intersection, and Craigsville Intersection.
- Chapmanville Regional High School in Chapmanville, Logan County (site layout)
- Parkersburg South High School in Parkersburg, Wood County (site layout)
- Williamstown High School in Williamstown, Wood County (site layout)
- Bayer Federal Credit Union in Moundsville, Marshall County (site layout)
- Hilltop Elementary School in Sherrard, Marshall County (site layout)
- Cameron High School in Cameron, Marshall County (site layout)
- Weir High School Stadium in Weirton, Hancock County (site layout)
- Oak Glen High School Stadium in New Manchester, Hancock County (site layout)
- Weirton Elementary School in Weirton, Hancock County (site layout)
- Oakvale Elementary School in Oakvale, Mercer County (site layout and structural)
- Mercer County Health Center in Green Valley, Mercer County (site layout and structural)
- North Central Advanced Technology Center in Fairmont, Marion County (structural)

Appendix B

CMA
ENGINEERING

Firm Profile

824 Cross Lanes Dr. Charleston, WV

5 Riddle Court, Morgantown, WV

Services

CMA Engineering is a West Virginia based small business firm, providing services in the areas of HVAC, plumbing, fire protection and electrical engineering. Incorporated in 1986, our firm has always believed that a successful project requires a comprehensive approach. This includes all facets of project development, starting with master planning, working closely with the client, developing the completed construction documents, and working with contractors during the bidding and construction administration phases. However, our depth of expertise goes far beyond the traditional design/bid/build service. CMA Engineering is a proven leader in the design/build delivery method. From developing the performance design criteria for owners to designing the mechanical, electrical and plumbing systems for contractors, CMA has an impressive portfolio of design/build experience.

CMA Engineering maintains its reputation of design and service quality by keeping informed of the latest innovations and technical trends regarding energy-efficiency and sustainability in mechanical, electrical and plumbing design. CMA is the engineer on record for the design/build team for the new West Virginia Consolidated DEP Office Building, the first LEED certified building in the State. Our staff includes an accredited professional for the Leadership in Environmental and Energy Design (LEED) and we incorporate the most efficient and sustainable "green" designs in all of our projects.

History

CMA Engineering has provided engineering design services on numerous projects of varying size and complexity. Clients include architects, industrial companies, governmental agencies, contractors, engineers, developers and private organizations. With offices strategically located in Charleston and Morgantown, our professional staff can provide clients with exceptional hands-on services for planning, meetings, site visits and construction administration without effecting the project's budget.

Experience

For thirty years, CMA has provided mechanical, electrical and plumbing design and contract administration services to various government facilities throughout the State. These facilities and projects range from the design of the WVDOH proto-type District 10 complex , which included the office headquarters, maintenance facility and sign shop, and whose design has been used as a basis for the new facilities in District 1, 6, 7, 8, and 9; to the electrical upgrades at Canaan State Ski Resort to the mechanical. electrical and plumbing design of the new WVNG Elkins Readiness Center. Many times, special site-related issues have complicated design due to remote locations, poor water quality or pressure, unreliable local power systems, etc. CMA has consistently met the challenges and exceeded expectations by customizing design to address all concerns while staying within project schedules and budgets.

CMA Engineering

824 Cross Lanes Drive Charleston WV, 25313
(304) 343-0316 phone (304) 343-5146 fax

5 Riddle Court Morgantown, WV 26505
(304) 598-2558 phone (304) 598-2472 fax

Timothy L. Cox, P. E., CBCP

President
Mechanical Engineer
(304) 598-2558
tcox@cmawv.com

Education

University of Colorado

Boulder, Colorado

Bachelor of Science in Mechanical Engineering

Registrations/Professional Affiliations

Registered Professional Engineer in WV, VA, MD, KY

Association of Energy Engineers-CBCP

CPD (Certified in Plumbing Engineering)

Member of ASHRAE

American Society of Plumbing Engineers

National Association of Fire Protection Engineers

WV Society of Healthcare Engineers

WV Chapter of A.I.A.

Experience

Timothy Cox, President and Senior Mechanical Engineer of CMA Engineering, brings 30 years of mechanical and plumbing design experience to our clients. Timothy is a Certified Building Commissioning Professional through Association of Energy Engineers.

Project Experience

Design/Build-Criteria Development

Morgantown Events Center

West Virginia University Intermodal Parking

Marshall University Parking Facility

Yeager Airport Facility

Educational Facilities K-12

New Rainelle Elementary School

New Lewisburg Elementary School

Salem Middle School Classroom Addition

Water Treatment Plants

Coalwood WTP Addition

Alderson WTP Addition

West Virginia University-Open End Contract since 1999

Coliseum Life Safety Renovations

New Soccer Stadium

New Wrestling Training Facility

Engineering Science Building Addition & Renovations

Military Experience

New Moorefield Readiness Center

New Elkins Readiness Center

Mylan Pharmaceuticals, Morgantown, WV

Various projects including HVAC plumbing, fire sprinkler and controls for new North Plant expansion, office building, fluid bed addition, parking garage and weighing and packaging

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Daniel L. Ellars, P. E., LEED AP BD+C

Principal
Electrical Engineer
(304) 343-0316
dellars@cmawv.com

Education

West Virginia University Institute of Technology
Montgomery, WV
Bachelor of Science in Electrical Engineering

West Virginia State University
Institute, WV
Bachelor of Science in Business Administration

Registrations/Professional Affiliations

Registered Professional Engineer in WV, PA

Leadership in Energy & Environmental Design-
Accredited Professional-Building Design and Construction

U..S. Green Building Council

National Fire Protection Association

Institute of Electrical & Electronics Engineers

Experience

Daniel Ellars, senior electrical engineer, brings 25 years of electrical design and project management experience to our clients. Mr, Ellars had 17 years of experience with American Electric Power providing advice and coordination for new construction, additions, renovations and energy audits. Dan also served as the project manager for AEP's prime and emergency power systems program to provide on-site power generation to small and large, commercial and industrial customers across AEP's seven state territory.

Project Experience

WTP/WWTP Projects

Rainelle WTP
Welch WTP
Wilderness WTP
Mercer County Schools WWTP
Huttonsville PSD WTP
Romney WTP
Alderson FPC WWTP
Chevron Creek Pump Station

Recreational Facilities

Summit Bechtel National Scout Reserve
Canaan Valley Ski Resort

Emergency Power Systems Design

WVNG-Dunbar Armory
WVNG-Welch Armory
WVNG-Bluefield Armory
Davis Memorial Hospital Addition
Monongalia County Law Enforcement Facility

Military Experience

New Moorefield Readiness Center
New Elkins Readiness Center
St. Albans Armory-Addition and Renovations
Gassaway Armory-Addition and Renovations

WV Department of Transportation

New District 1 Administration Building
New District 8 Administration Building
Interstate Lighting Upgrades
WVDOH-Utility Study for all 10 Districts

CMA Engineering

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Matthew C. Corathers, P.E.

Mechanical Engineer
(304) 598-2558
mcorathers@cmawv.com

Education

West Virginia University

Morgantown, WV

Bachelor of Science in Mechanical Engineering

Registrations/Professional Affiliations

Registered Professional Engineer in WV

Member of ASHRAE

WV Society of Healthcare Engineers

Experience

Matthew Corathers, mechanical engineer, joined CMA's professional staff in 2008.

Project Experience

West Virginia University

New two-story Child Care Facility

Engineering Science Building– Laboratory Renovations

West Virginia National Guard

New Elkins Readiness Center

New Moorefield Readiness Center

Clarksburg/Weston Armories Renovations

West Virginia Department of Highways

New District 8 Equipment Shop

New District 7 Administrative Office Building

New District 7 Equipment Shop

Hospital Experience

Davis Memorial Hospital-New Addition

Monongalia General Hospital-Renovations to IT Workroom Cooling

United Hospital Center-New MRI facility

VA Hospital, Clarksburg, WV-Renovations to Dental Lab

Mercer County Nursing Home-Addition

Court Houses

Randolph County Courthouse-Mechanical design for completion of two-story addition and modifications of the existing second floor to be used by the Family Court

Monongalia County Family Court-Renovations

Educational Facilities

Harrison County Schools-Fire Alarm replacement at Robert C. Byrd High School, Nutter Fort Elementary and Lost Creek Elementary

University High School-HVAC Upgrades for use as a middle school

New Rainelle Elementary School-HVAC Design

Larry A. Weese

Plumbing Designer
(304) 343-0316
lweese@cmawv.com

Education

West Virginia University
Morgantown, WV
Master of Science, Bachelor of Science-
Division of Forestry

Professional Development

Various seminars and technical sessions

Experience

Larry Weese brings 20 years of mechanical and plumbing design and project management experience to our clients.

Project Experience

WV Department of Highways

New District 1 Administration Building
New District 8 Administration Building
New District 7 Administration Building
New District 7 Equipment Shop

WV National Guard

New Elkins Readiness Center
New Moorefield Readiness Center
New Summersville Readiness Center
New Lewisburg Readiness Center
St. Albans Armory Renovations and Addition
Gassaway Armory Renovations and Addition

Emergency Response Facilities

Randolph County 911-New Facility
Mason County 911-New Facility
Raleigh County 911-New Facility
Orchard Manor Fire Station-New Facility

Industrial Experience

Standard Laboratories-Laboratory Addition
Dow Process Control-New Facility
Diamond Electric-Expansion

CMA Engineering

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CMA
ENGINEERING

Water Treatment Plants

Huttonsville PSD Water Treatment Plant

CMA Engineering provided design services and contract administration duties for a new water treatment plant to serve both the nearby community and the existing Huttonsville Correctional Center. The new plant consists of of two one-story buildings at a total of 14,400 square feet that houses the filters, filter controls, raw water intake, sedimentation basins, all associated chemical feed and processing equipment, labs, offices, storage rooms, garages, pump rooms, employee break room and restrooms. The facility is all-electric with a 750KW diesel-fired engine/ generator set sized for full emergency power for the plant.

Romney Water Treatment Plant

CMA provided design and contract administration services for electrical service upgrades and relocations including an on-site, standby emergency power system and consolidation of services to serve a remote raw collection pumping station. Over a half-mile of underground cables and conduit were designed to provide emergency power to the pump station to increase reliability during flood conditions.

Rowlesburg Water Treatment Plant

CMA provided design and contract administration services for an on-site, standby emergency power system and upgrades related to enclosure of an existing sedimentation basin.

Coalwood PSD Water Treatment Plant

CMA provided MEP design and contract administration services for two (2) additions to an existing water treatment plant. The existing plant is a one-story building of 2,300 square feet of which about 1,000 square feet was renovated to accommodate new equipment and office upgrades. An 1, 100 square foot addition to the office portion was made consisting of a new conference room, kitchen, file room and mechanical space. A 600 square foot addition was made to the plant portion to house a new additional filter, precipitator, clearwell and high service pumps, doubling the footprint of the plant area. The existing high-service pumps were replaced and, along with the new additional high-service pumps, were upgraded with new variable-frequency-drive (VFD) controls. The facility is all electric with a new 200 KW diesel-fired engine generator set sized for full emergency power for the building.

CMA Engineering

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5 Riddle Court Morgantown, WV 26505
(304) 598-2558 phone (304) 598-2472 fax

CMA
ENGINEERING

Water Treatment Plants

Welch Water Treatment Plant

CMA provided design and contract administration services for a complete replacement of the electrical service and power distribution system for an existing 4,400 square foot water treatment plant including new high-service pumps with variable-frequency-drive (VFD) controls, LED lighting and branch circuit wiring throughout. A new roof-top HVAC unit with gas heat and electric cooling and new gas-fired unit heaters provide the space heating for the renovated facility. The existing well pumps were retained and upgraded with new VFD controls. Coordination was required with concurrent replacement of the roof and structural supports for the entire building. The existing 400 KW diesel-fired engine/ generator set was relocated from inside the building to outside and installed in a new weathertight enclosure. A new service-entrance-rated automatic transfer switch was installed to serve the new systems to provide full emergency power for the plant.

Alderson FPC Waste Water Treatment Plant

CMA provided design and contract administration duties for a new 900 square foot tertiary treatment building and associated outdoor plant processing equipment, renovations of the existing 700 square foot headworks building, and installation of a new 300 KW diesel-fired engine/generator set to provide emergency power to the majority of the overall facility, complementing the existing engine/generator set dedicated to the remaining original portion of the plant. A new lift station and ultraviolet treatment equipment were installed. The headworks building has explosion-proof LED lighting. All new indoor and outdoor lighting is LED. All new pumps, fans and motors have VFD controls. The new building is all-electric with electric unit heaters and ventilation. New underground cables and conduits were installed to provide the power and telecommunications/controls/data requirements for the new process equipment.

Rainelle Water Treatment Plant

CMA provided design and contract administration services for upgrades to a 1,000 square foot single-story water treatment plant to serve a new replacement filtration system and aerator.

Summersville WTP and Raw Water Intake Station

CMA provided design services and contract administrative duties for the addition a new 450 KW diesel-fired engine/generator set for an existing water treatment plant and a new 450 LW diesel-fired engine/generator set for an existing river intake pump station. The plant's three (3) 100 HP high service pumps were upgraded with new variable-frequency-drives (VFD) controls. All of the new equipment was installed in weatherproof enclosures outdoors to replace the facilities' existing power service entrance systems. The existing underground service-entrance cables and conduits were intercepted and rerouted to the new equipment.

Chevron Grave Creek Pump Station

CMA provided design services and contract administrative duties for a new pumping station which includes a 430 square foot pump and controls equipment enclosure building elevated above the wet well with an adjacent metering vault and locations with a switch for a large portable engine/generator set (up to 1,500 KW) to be brought in and connected when required. All lighting is LED. The pump station employs three (3) 400 HP pumps, with only two pumps ever running at a time with one pump in reserve.

Mercer County Schools WWTP

CMA provided design services and contract administrative duties for replacement of small eastewater treatment plants at two (2) schools., Oakvale Elementary and Spanishburg Elementary. Each location's existing plants were replaced with a new packaged plant. Each new plant included ultraviolet (UV) treatment applications. At each site, new underground conduits were installed between the control panels at the new plants and the schools to allow telecommunications cables to be installed between control panels and each schools' telephone connection boards to provide telemetry and allow for remote control and monitoring of the equipment. The existing power company provided service at the Oakvale site upgraded to serve the new plant. At the Spanishburg site, the existing plant was served from the school's power distribution system. The existing feeder circuit was removed and a new power company provided service was installed to serve the new plant.

CMA
ENGINEERING

Meadow Creek Waste Water Treatment Plant

CMA provided design services and contract administrative duties for replacement of a small wastewater treatment plant with a new 900 square foot packaged plant utilizing the existing pumps. A manual transfer switch was installed for connection to a portable generator for full emergency power for the plant. Individual power services were provided for seven (7) new grinder stations, two (2) of which have manual transfer switches for connection to portable emergency generators.

Winona Waste Water Treatment Plant

CMA provided design and contract administrative duties for a new packaged water treatment plant including a 400 square foot building to house the power distribution equipment, controls, ultraviolet treatment units, filters and mixing tank. The facility is all– electric with a 20 KW diesel-fired engine/generator set sized for full emergency power for the plant.

Wilderness Water Treatment Plant/Whitewater Booster Station

CMA provided design services and contract administrative duties for a new 1,060 square foot filter press building at an existing water treatment plant and a new 140 square foot booster station building in the area. All lighting is LED. The filter press building has two (2) dehumidification units for increased moisture control. The booster station has variable-frequency-drive (VFD) controls on its pumps and a new 45 KW propane-fired engine/generator set sized for full emergency power

CMA
ENGINEERING

WTP & WWTP Experience

(Partial Listing)

Romney WTP
Rowlesburg WTP
Buffalo WTP
Phillipi WWTP
Phillipi WWTP Garage
Montgomery WWTP
Hinton WTP-Raw Water Intake
Chapmanville WWTP
Fayetteville WWTP
Oceana WWTP
Ellenboro-Lamberston PSD WWTP
City of Beckley WWTP
Piney Creek WWTP
Mason WWTP
Tygart Lake Park-WWTP
Holly River WTP
St. Albans WWTP
Clay County WTP
Weston WWTP
Winfield WTP
Mingo County WWTP

Huttonsville WTP
Jane Lew WTP
Crab Orchard WWTP
Boone-Raleigh WTP
Weirton WWTP
Fairmont WTP
Belmont WWTP
Bradley WWTP
Belington WWTP
Belington WTP
Sissonville PSD WWTP
Preston PSD WTP
Chapmanville WTP
Walton WTP
Elkins WWTP
Williamson WWTP
Glenville WTP
Williamstown WWTP
Shinnston WWTP
Ripley WWTP
Keystone WTP

CMA Engineering

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CMA
ENGINEERING

Renovations

Canaan Valley Ski Resort

CMA Engineering provided the electrical designs and specifications for the recently completed renovations and upgrades for the winter ski facilities at Canaan Valley Resort and Conference Center. The improvements included interior remodeling of three of the existing buildings for skier services and support adjacent to two of the three main lift stations, plus a new skier warming and rest station for the relocated tube run park. Interior remodeling work included lighting, HVAC and plumbing fixture replacements. Exterior work included renovations of an outdoor plaza for skiers with pole lights and a fire pit. Two new skier conveyors were added at the site, one for a new beginners slope area and one for the new tube run park. Exterior, weatherproof, pad-mounted 480-volt, three-phase switchgear was installed at the base of the two main lifts to serve the new conveyor, site lighting and new snow making equipment for the ski slopes and at a water booster pumping station at the mid-point elevation. Similar switchgear and a transformer were installed to serve the new buildings at the tube run park, site lighting, conveyor and snowmaking equipment for the tube run slopes. New exterior lighting fixtures and hinged poles were installed adjacent to the new conveyors to provide night use of the facilities. Two existing 208-volt, three-phase power services were upgraded for the improvements. Power services for the existing buildings were upgraded to provide both ground-fault and surge protection. CMA worked closely with Monongahela Power, the local power utility, on the power services and improvements and coordinated with another electrical design consultant at the site to provide new fiber-optic telecommunications services between the ski area facilities and the Park's main lodge while other renovations were in progress at the lodge.

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CMA
ENGINEERING

New Construction

Summit Bechtel National Scout Reserve

CMA Engineering provided the electrical designs and specifications for the recently completed Summit Bechtel National Scout Reserve (SBNSR) at Mount Hope, WV. SBNSR is to serve as the new permanent home and headquarters for the Boy Scouts of America (BSA) for their quadrennial National and World Jamborees and for their annual High Adventures and other various activities and events. CMA was instrumental in the early design phases of the project to ascertain the specific needs of the BSA for the facility, to identify required power loads, and to prioritize these loads in order of their necessity. Working closely with the BSA, with a host of their national and international consultants, and with American Electric Power (AEP), CMA compiled load data and made calculations of various power scenarios for the campus. A maximum of 7 MegaWatts was allowed for the facility and the designs were completed based on value. As a result, over 20 miles of single-phase and three-phase medium-voltage cables and the associated conduits were installed underground along the roadways for the new campus comprising six different campsites and a core area spread over more than 1,000 acres. When completed, the core area is to include an amphitheater, bus terminals, visitor's center, zip -line stations, and a museum and headquarters office building for the BSA. Three separate medium-voltage circuits were provided to the west end of the site by AEP and a switching station was set up at the east end to serve the dozens of loop-fed, pad-mounted transformers which were distributed around the site at key locations to minimize voltage drop and to provide a high level of power reliability. All power and telecommunications cabling and conduits are underground. Six cellular towers on the site work in conjunction with 125 individual wireless stations at the campsites to provide wireless capabilities to all of the occupants. CMA also provided lighting and power design for the 375 bath houses on site and coordinated the interconnections between them and the campus infrastructure. The BSA recently christened the site this past summer of 2013 with its first National Scout Jamboree.

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CMA
ENGINEERING

West Virginia National Guard

Emergency Power Projects

Welch Armory

CMA Engineering provided electrical design services for the replacement of the existing 400-amp, 120.208-volt, 3-phase, 4-wire service with 1000 amp, relocated metering equipment to the exterior of the building, and the addition of an emergency standby engine/generator set and manual transfer switch for emergency power. Electrical construction budget $53,000.

Dunbar Armory

CMA Engineering provided electrical engineering design services for the replacement of existing 600 AMP electric service and entrance located in Unit Supply Room with new 1000Amp panel and entrance to be located in Boiler Room, new 200 kw emergency generator and emergency distribution panel, new duplex receptacles with isolated ground for voice and data systems and relocated existing phone and fire alarm panels from Unit Supply Room to Boiler Room. Electrical construction budget $120,000, does not include generator.

Bluefield Armory

CMA Engineering provided electrical design services for the upgrade of the present electrical power service (800-amp,120/208-volt, 3-phase, 4-wire) to 1200-amp and the addition of a 150kw diesel-fired emergency standby engine/ generator set with a 600-amp, 3-pole manual transfer switch. Electrical construction cost $160,000, includes generator.

CMA Engineering

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CMA
ENGINEERING

Parks & Recreation

Beech Fork State Park

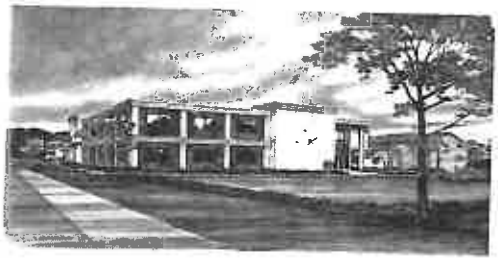
CMA Engineering providing mechanical, electrical and plumbing design services for 8 new cabins, a new bathhouse, 237 camping sites and sewage treatment system.

Jackson's Mill

CMA Engineering providing mechanical, electrical and plumbing design services for renovations to the Assembly Hall, Northern Panhandle Cottage, Lewis Cottage, Dining Hall and the Air Strip Buildings.

Ayash Center, St. Albans

CMA Engineering provided design for HVAC, plumbing, fire sprinkler, fire alarm systems, communication systems, lighting and electrical power for new 26,900sf community center which included gymnasium, wrestling room, fitness room, locker rooms and an open area for aerobics, dance and gymnastics.



Jefferson County Community Center

CMA Engineering provided mechanical, electrical and plumbing design for new 18,900sf community center which included gymnasium with bleacher seating, lobby area, activity rooms, office space, a full service kitchen, storage and comfort facilities.

CMA Engineering

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CMA
ENGINEERING

Parks & Recreation

Chief Logan State Park

CMA Engineering provided mechanical, electrical, plumbing and fire protection design services for the new lodge and the new conference center.

Canaan Valley Resort-Ski Base Lodge

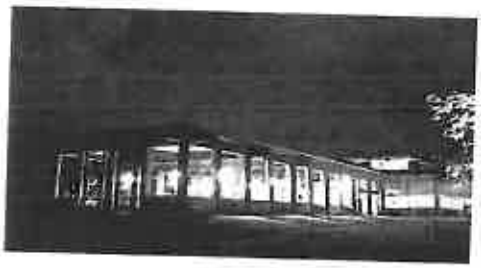
CMA Engineering provided design services for the HVAC, electrical and plumbing systems for the new guest service facility.

New River Gorge

CMA Engineering provided mechanical, electrical and plumbing design services for the new Visitors Center at the New River Gorge.

North Bend State Park

CMA Engineering provided mechanical, electrical and plumbing design services for renovations to the Lodge.



Snowshoe Mountain Resort

CMA Engineering provided design for HVAC, electrical, plumbing , fire alarm and fire sprinkler systems for new Allegheny Springs Lodge. CMA also provided engineering services for the fit-out of such restaurants as the Foxfire Grille, Junction Restaurant and Village Bistro located at the Village in Snowshoe.

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CMA
ENGINEERING

WVDOH Projects

WVDOH-District 1 Administrative Office

CMA Engineering provided mechanical, electrical and plumbing design services for the new three-story, 28,000 square foot office building to serve the WV Division of Highways administrative personnel for District One. The project also included design of the addition of a 10 foot wide by 75 foot long elevated enclosed walkway (bridge) between the new building and an existing building on the site. The construction documents were re-used from an earlier project designed and built in 1997 (District 10 Complex), but was updated to reflect recent changes in the Divisions operational requirements and updates in the various applicable codes and standards and to accommodate the new facility layout. Completed in 2014.

WVDOH-District 9 Administrative Office

CMA Engineering provided mechanical, electrical and plumbing design services for the new three-story, 30,000 square foot office building to serve the WV Division of Highways administrative personnel for one of the ten districts in the State. The construction documents were re-used from an earlier project designed, but was updated to reflect recent changes in the Divisions operational requirements and updates in the various applicable codes and standards. Increases in the emergency power system design included service for a fire pump to serve the fire protection sprinkler system needs for the building. During design and development of the site, it was discovered that the available water utility's water service pressure was inadequate for the sprinkler system. The building's emergency power system capacity was increased to provide the required power for the fire pump. Completed in 2010.

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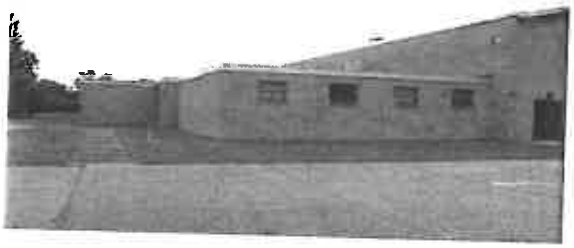
CMA
ENGINEERING

WV National Guard Renovation Projects

Gassaway Armory

CMA Engineering provided mechanical, electrical and plumbing, design services for the renovation of 24,170 square feet of a single story structure including a 10,900 square feet drill hall and the addition of a new 4,180 sf single story facility to house lockers, storage space, a lobby, corridors and office space. The design included upgrades to plumbing and electrical utilities as well as new HVAC systems and controls for the addition and renovated areas; new power, lighting and communications design; and modifications to the fire alarm, fire sprinkler, security and other systems. Construction was accomplished while the facility was fully occupied. Completed in 2010.



St. Albans Armory

CMA Engineering provided mechanical, electrical and plumbing, design services for the renovation of 16,407 sf of a single story facility and a single story addition of 13,940 sf composed primarily of office space, storage space, a lobby and corridors. The project also included the addition of a free-standing, insulated metal building (approximately 1,760sf) divided into three bays for vehicular storage. A new electric fire pump and associated water storage tank were added to address low water pressure problems at the site. Construction was accomplished while the facility was fully occupied. Completed in 2011.

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Appendix C

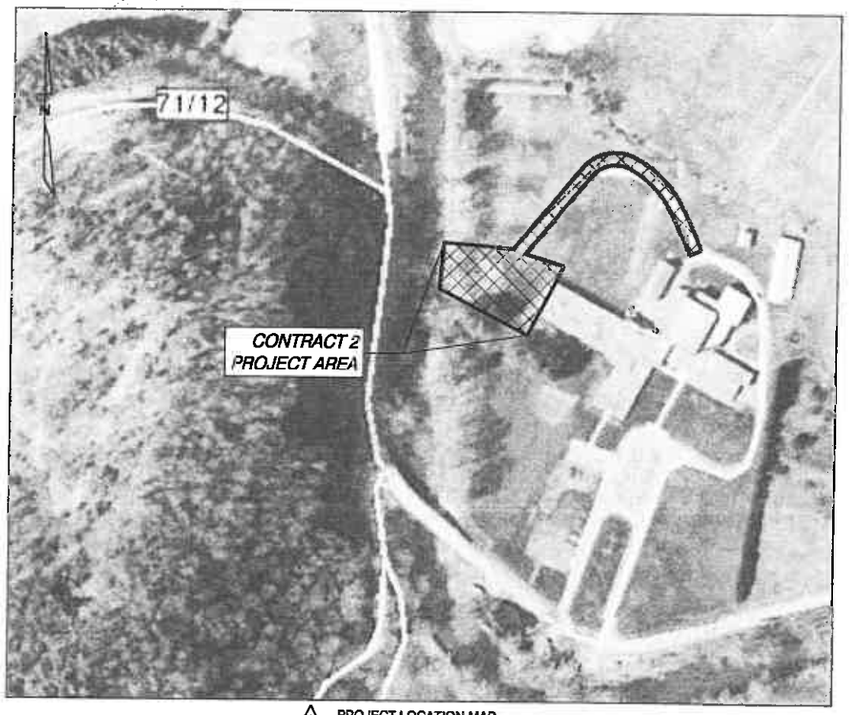
MERCER COUNTY BOARD OF EDUCATION

SPANISHBURG ELEMENTARY SCHOOL WWTP REPLACEMENT PROJECT

SPANISHBURG, WV

CONTRACT NO. 2

SPANISHBURG ELEMENTARY SCHOOL WWTP REPLACEMENT PROJECT



⚠1 PROJECT LOCATION MAP

DRAWING INDEX	
SHT. NO.	DESCRIPTION
SPANISHBURG WWTP REPLACEMENT PLANS AND DETAILS [CONTRACT 2]	
1	TITLE SHEET
2	EXISTING / DEMOLITION PLAN
3	PROPOSED PLAN
⚠1 3A	SEWER PROFILES
4-5	DETAILS SHEET
E1	ELECTRICAL DRAWING

ADDENDUM 1

FOR BIDDING AND CONSTRUCTION

DATE

EDWARD L. SHUTT, P.E.
PRESIDENT

NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	4/20/2015	JWS
⚠1	REVISION No. 1 PER WVDEP COMMENTS	5/12/2015	JWS

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

TITLE SHEET

DRAWN	CHECKED	APPROVED	DATE	SCALE
JWS	KRC		4/14/2015	SHOWN

PROJECT NUMBER: 14 - 7420.21

SHEET NUMBER: 1

REV. NO.

S:\PROJECTS\7420 - Spanishburg School\Drawings\01 - Title Sheet.dwg

GENERAL NOTES

1. PROPERTY LINES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY. THEY WERE OBTAINED FROM EXISTING TAX MAPS RECORDS AND HAVE NOT BEEN FIELD SURVEYED.

2. EXISTING UTILITY LINES

2.1 UTILITY LINES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY. THEY WERE ESTABLISHED USING A COMBINATION OF FIELD SURVEYING, AERIAL SURVEYING, AND MARKING OF PLANS BY EXISTING UTILITIES. THEREFORE, TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. ANY PERSON USING THESE PLANS IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE LOCATION AND TYPE OF UNDERGROUND UTILITIES.

2.2 CONTRACTOR SHALL NOTIFY MISS UTILITY AND APPLICABLE UTILITIES PRIOR TO EXCAVATION.

- 2.2.1 WATER: WEST VIRGINIA AMERICAN WATER
- 2.2.2 ELECTRICAL UTILITY: AMERICAN POWER COMPANY
- 2.2.3 TELEPHONE UTILITY: FRONTIER COMMUNICATIONS
- 2.2.4 INTERNET: CISCO COMMUNICATIONS
- 2.2.5 GAS: FARRELLGAS
- 2.2.6 CABLE: SUDDENLINK

2.3 CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING WATER LINES, GAS LINES, STORM SEWER LINES, WVDOH CULVERTS, SEWER LINES, ELECTRIC LINES, TELEPHONE LINES, AND ANY OTHER UNDERGROUND UTILITIES THAT CROSS PROPOSED SEWER TRENCHES OR ARE WITHIN TEN FEET OF PROPOSED SEWER LINES PRIOR TO BEGINNING SEWER CONSTRUCTION.

2.4 CONTRACTOR IS RESPONSIBLE FOR TEMPORARY BRACING OF EXISTING UTILITY POLES AS NEEDED TO AVOID DAMAGE DURING CONSTRUCTION.

2.5 ALL SANITARY SEWER LINES SHALL GO UNDER EXISTING WATER DISTRIBUTION LINES. IF A HORIZONTAL SEPARATION OF 10 FEET BETWEEN THE WATER AND SEWER LINES CANNOT BE BE MAINTAINED, THE THE VERTICAL SEPARATION OF 18" (1.50 FT) (BOTTOM OF THE WATER LINE TO THE TOP OF THE SEWER LINE) MUST BE MAINTAINED. IF NEITHER REQUIREMENTS CANNOT BE MET, THEN THE SEWER LINE MUST BE CONSTRUCTED SO THAT: (1) THE 2 LINES WILL CROSS BETWEEN JOINTS, (2) THE SEWER LINE WILL BE ENCASED (NON-CONCRETE ENCASEMENT) FOR A MINIMUM OF 10 FEET ON EITHER SIDE OF THE CROSSING, (3) AND THE SEWER LINE WILL BE CONSTRUCTED OF THE SAME PRESSURIZED-TYPE PIPE AS WATER LINE AT THE CROSSING.

3. SURVEY DATA: COORDINATES & ELEVATIONS

3.1 HORIZONTAL DATA: ALL HORIZONTAL DATA IS ON THE WEST VIRGINIA STATE PLANE COORDINATE SYSTEM: NAD83 - WEST VIRGINIA - SOUTH PROJECTION

3.2 VERTICAL DATA: ALL ELEVATION DATA IS ON THE NAVD88 COORDINATE SYSTEM.

4. THE CONTRACTOR SHALL ARRANGE FOR ITS OWN STAGING AREAS.

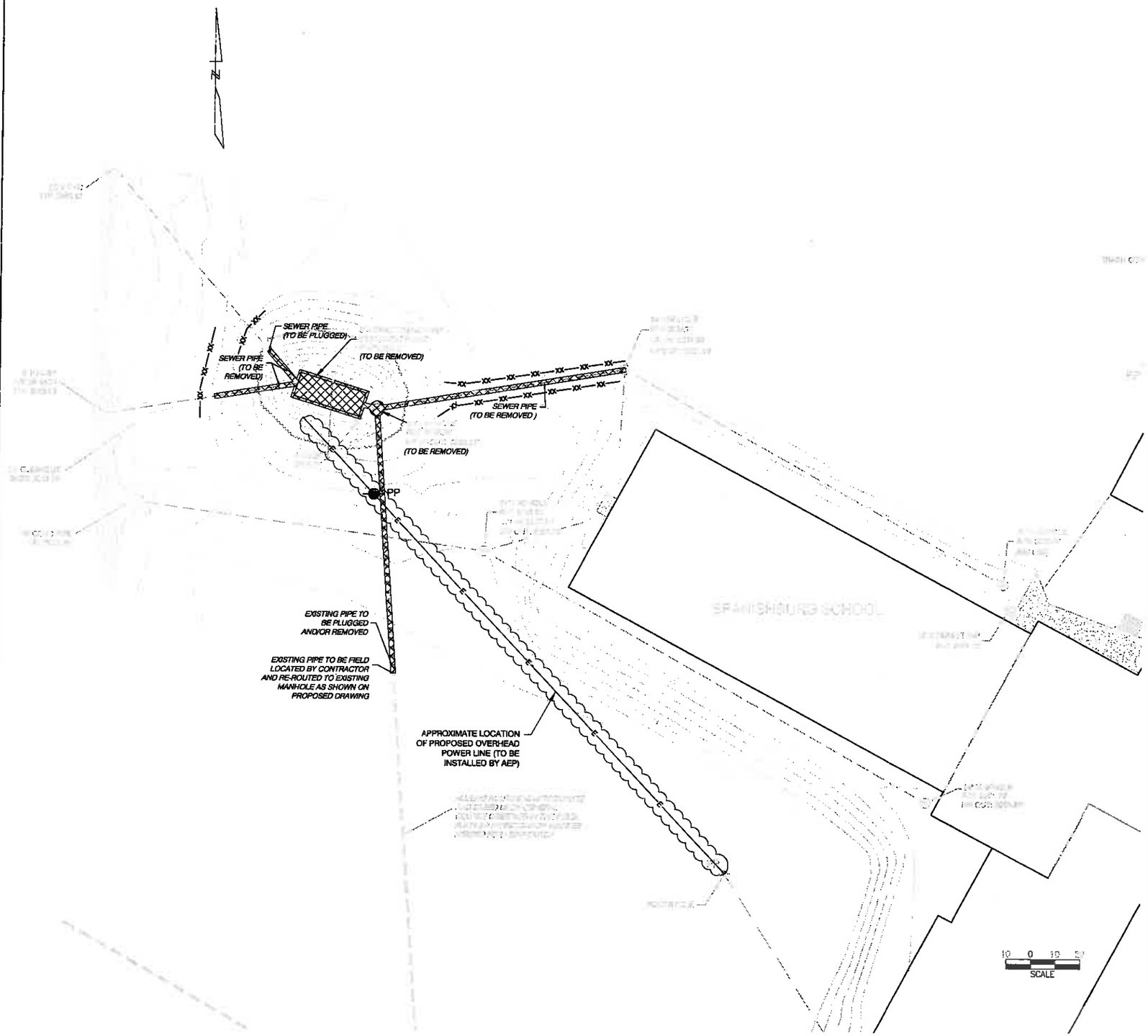
5. CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO ITS PRE-CONSTRUCTION CONDITION.

6. PAYMENT FOR SEWER LINES WILL INCLUDE TRENCHING, BACKFILL, AND ROAD REPAIR (WERE APPLICABLE).

7. ALL PROPOSED SEWER LINES SHALL HAVE A MINIMUM OF 36" OF COVER UNLESS OTHERWISE NOTED.

LEGEND FOR PLAN SHEETS

- EXISTING FENCE
- EXISTING SEWER LINE
- EXISTING STORM LINE
- 1370 EXISTING CONTOURS
- PP EXISTING POWER POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING STORM INLET
- EXISTING CONCRETE
- EXISTING RIPRAP
- DEMOLITION - TO BE REMOVED
- XX XX SILT FENCE
- E PROPOSED OVERHEAD ELECTRIC LINE (TO BE INSTALLED BY AEP)
- PP PROPOSED POWER POLE (TO BE INSTALLED BY AEP)
- ADDENDUM 1



NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	4/20/2015	JWS
1	REVISION No. 1 PER WVDEP COMMENTS	6/12/2015	JWS

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

EXISTING / DEMOLITION PLAN

DRAWN	CHECKED	APPROVED	DATE	SCALE
JWS	KRD		4/14/2015	SHOWN

PROJECT NUMBER: 14-7420.21

SHEET NUMBER
2

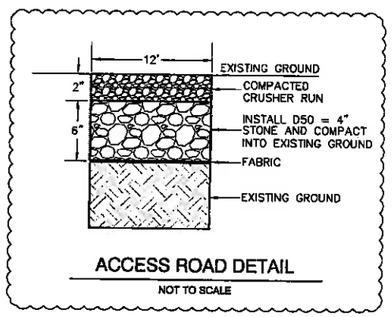
REV. NO.

S:\PROJECTS\7420 - Spanishburg School\Drawings\02 - Existing_Demolition Plan.dwg

S:\PROJECTS\17420 - Spanishburg School\Drawings\03 - Proposed Plan.dwg

LEGEND FOR PLAN SHEETS

- EXISTING FENCE
- EXISTING SEWER LINE
- EXISTING STORM LINE
- 1370 EXISTING CONTOURS
- PP EXISTING POWER POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER METER
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING STORM INLET
- EXISTING CONCRETE
- EXISTING RIPRAP
- PROPOSED GRAVEL FINISH
- S PROPOSED SEWER LINE
- PROPOSED FENCE
- XX SILT FENCE
- PROPOSED CONDUIT WITH PULL ROPE
- PROPOSED UNDERGROUND CABLES
- E PROPOSED OVERHEAD ELECTRIC LINE (TO BE INSTALLED BY AEP)
- PP PROPOSED POWER POLE (TO BE INSTALLED BY AEP)
- ADDENDUM 1



ACCESS ROAD DETAIL

NOT TO SCALE

N

APPROXIMATE LOCATION OF PROPOSED GRAVEL ACCESS ROAD. COORDINATE WITH THE MERCER COUNTY BOARD OF EDUCATION FOR EXACT LOCATION.

2,000 GALLONS
RE-CIRCULATION TANK
GROUND ELEV: 2,067.00
TOP OF TANK: 2,063.00
BOTTOM OF TANK: 2,056.71
INVERT IN: 2,062.50
INVERT OUT: 2,063.50

AX100 POD
TOP OF AX100: 2067.50
GROUND: 2,067.00
INVERT IN: 2,066.00
INVERT OUT: 2,064.00

EX. SEWER TO BE PLUGGED

TIE PROPOSED 4"PVC INTO EXISTING 6" SEWER APPROXIMATE INVERT: 2,056.08

VENT FAN

4" PVC

2" PVC

6" PVC

8,000 GALLON HOLDING FIBERGLASS TANK
GROUND ELEV: 2,067.00
TOP OF TANK: 2,061.50
BOTTOM OF TANK: 2,053.50
INVERT IN: 2,060.50 ⚠1
INVERT OUT: 2,062.00

PROPOSED 10'X6' SHED FOR UV SYSTEM, T-COM, AND ELECTRICAL PANEL (SEE DETAIL DRAWING)

(TO BE RAISED)

PROPOSED PUMP BASIN (SEE DETAIL DRAWING & SPECIFICATIONS) ⚠1

SILT FENCE (SEE DETAIL SHEET FOR INSTALLATION)

PROPOSED GRAVEL FINISH TO EXTEND 1FT BEYOND PROPOSED FENCE (SEE DETAIL DRAWING)

PROPOSED CONDUIT WITH PULL ROPE. (SEE DETAIL DRAWING)

EXISTING PIPE TO BE FIELD LOCATED BY CONTRACTOR INSTALL A TYPE "S" DRAIN INLET AND RE-ROUT EXISTING STORM DRAIN TO EXISTING MANHOLE AS SHOWN

PROPOSED STORM SEWER LINE TO BE TIED INTO EXISTING MANHOLE WITH A MINIMUM OF 0.5% SLOPE

APPROXIMATE LOCATION OF PROPOSED OVERHEAD POWER LINE (TO BE INSTALLED BY AEP)

SPANISHBURG SCHOOL

ALL PROPOSED PUMPS ARE TO BE DUPLEX PUMPS.
HOLDING TANK - DUPLEX 1/2 HP
RE-CIRCULATION TANK - DUPLEX 3/4 HP
PUMP BASIN - DUPLEX 1/2 HP

10 0 10 20
SCALE

NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	4/20/2015	JWS
	REVISION No. 1 PER WVDEP COMMENTS	5/12/2015	JWS

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

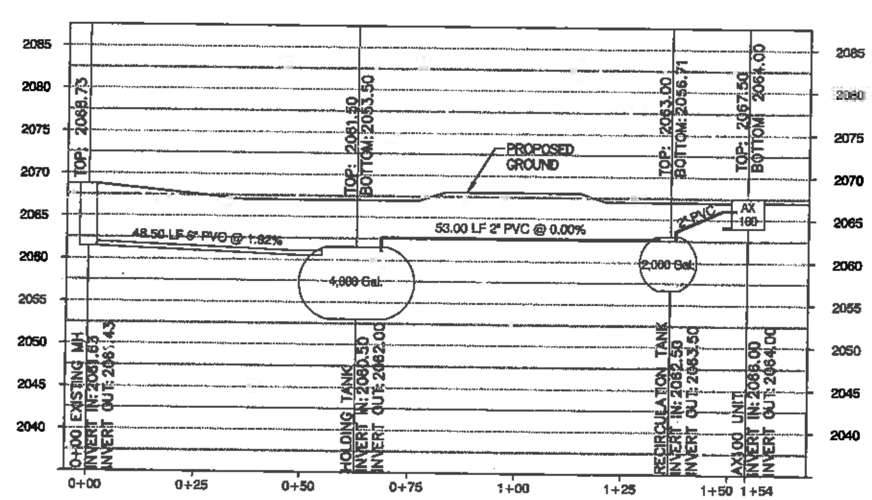
PROPOSED PLAN

DRAWN: JWS
CHECKED: VRC
APPROVED:
DATE: 4/14/2015
SCALE: SHOWN
PROJECT NUMBER: 14 - 7420.21

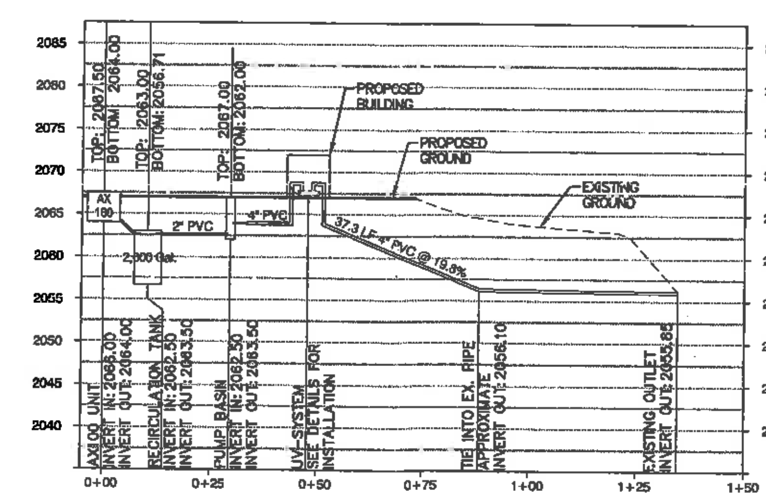
SHEET NUMBER
3

REV. NO.

S:\PROJECTS\7420 - Spanishburg School\Drawings\03 - Proposed Plan.dwg



⚠ SEWER LINE IN PROFILE



⚠ SEWER LINE IN PROFILE

NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	4/20/2015	JWS
⚠	REVISION No. 1 PER WVDEP COMMENTS	5/12/2015	JWS

STAFFORD CONSULTANTS INCORPORATED

ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

SEWER PROFILES

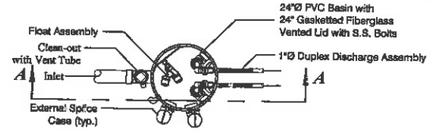
DRAWN	CHECKED	APPROVED	DATE	SCALE
JWS	KSC		4/14/2015	SHOWN

PROJECT NUMBER: 14-7420.21

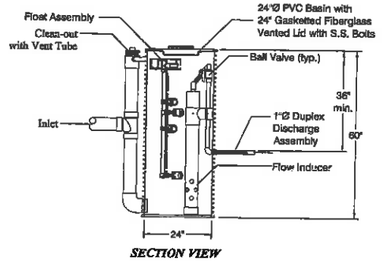
SHEET NUMBER

3A

REV. NO.



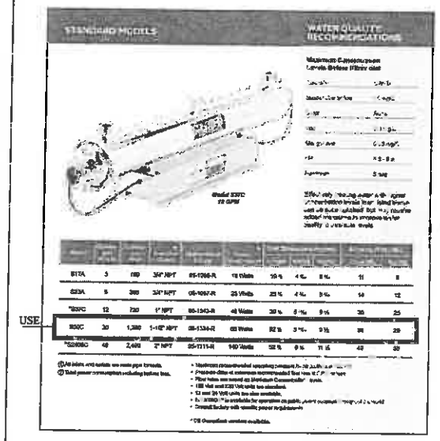
TOP VIEW



SECTION VIEW

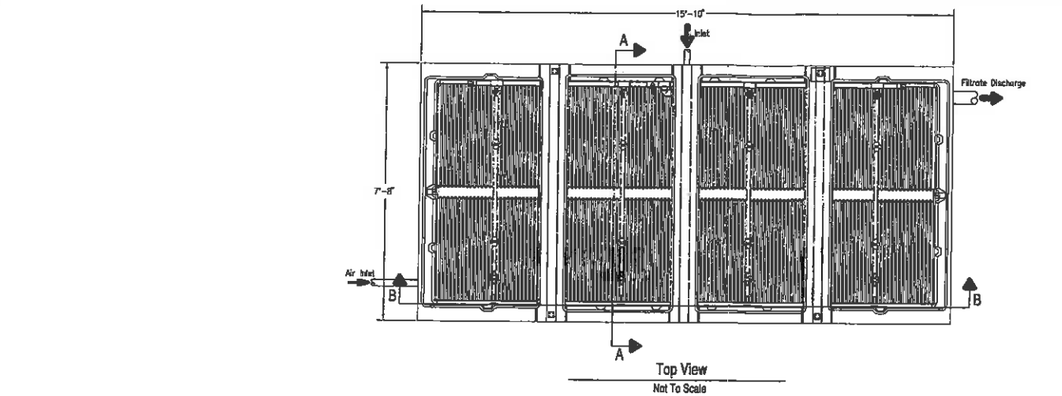
Pump Bains Detail

Not To Scale



Commercial Pressurazied UV System S50C

Not To Scale

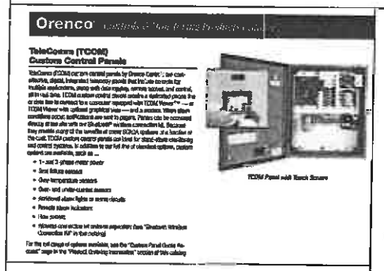


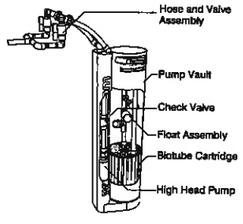
Top View
Not To Scale

Section A-A
Not To Scale

Section B-B
Not To Scale

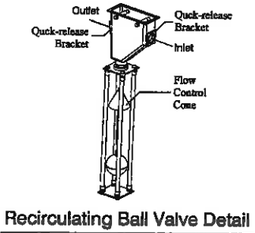
AX100 DETAILS





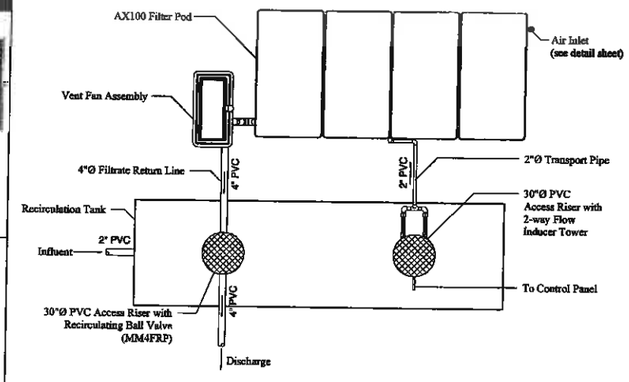
Duplex Pump Vault Detail

Not To Scale



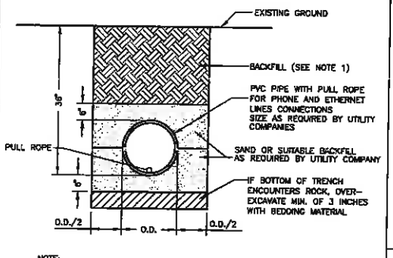
Recirculating Ball Valve Detail

Not To Scale



Wastewater Treatment Plant

Not To Scale

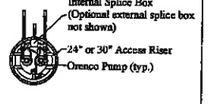


NOTE:

1. SUITABLE MATERIAL FROM EXCAVATION: NO DEBRIS, STICKS, TIMBER, WOOD, TRASH OR ORGANIC MATERIAL. NO PARTICLES GREATER THAN 6 INCHES. BACKFILL TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY OF THE BACKFILL MATERIAL.

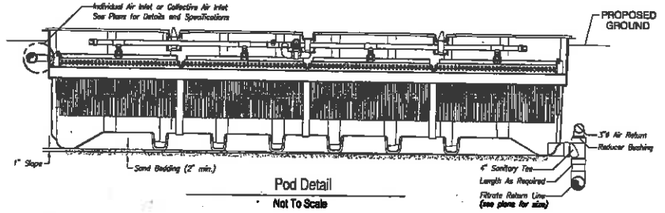
Conduit Bedding Detail

Not To Scale



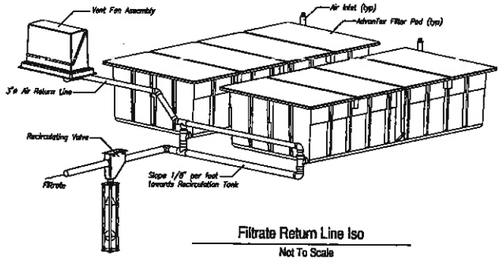
Duplex Flow Inducer Typical Plumbing

Not To Scale



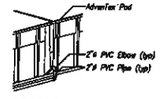
Pod Detail

Not To Scale



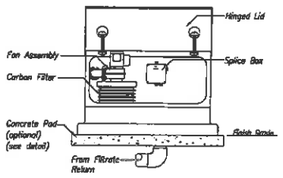
Filtrate Return Line Iso

Not To Scale



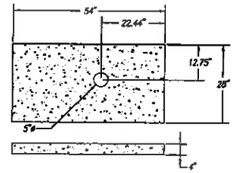
Typical Pod Inlet Connection

Not To Scale



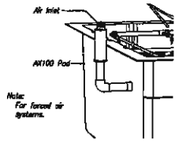
Above Ground Fan Assembly

Not To Scale



Optional Fan Assy Pad Detail

Not To Scale



Individual Air Inlet Option

Not To Scale

AX100 VENTILATION DETAILS

NO.	REVISIONS	DATE	BY

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

DETAILS SHEET

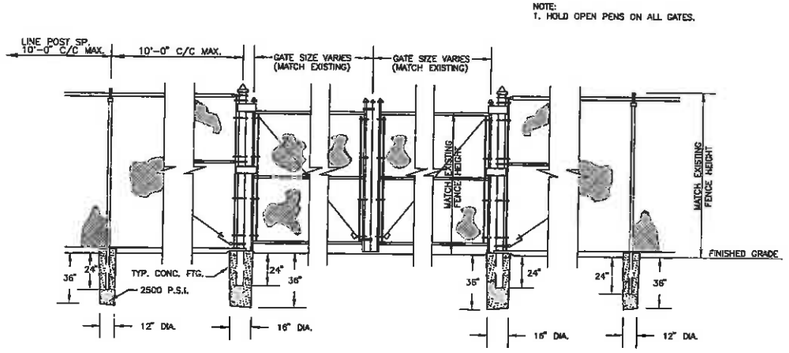
DRAWN	CHECKED	APPROVED	DATE	SCALE
ANS	KRD		4/14/2015	SHOWN

PROJECT NUMBER: 14 - 7419.21

SHEET NUMBER: 4

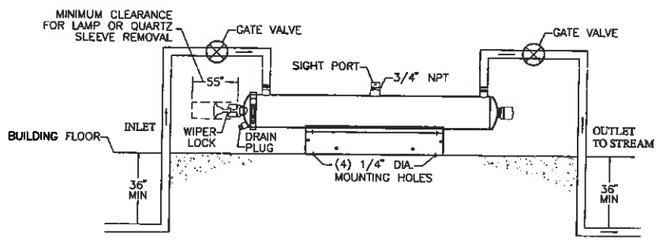
REV. NO.

S:\PROJECTS\7420 - Spanishburg School\Drawings\04 - Details.dwg



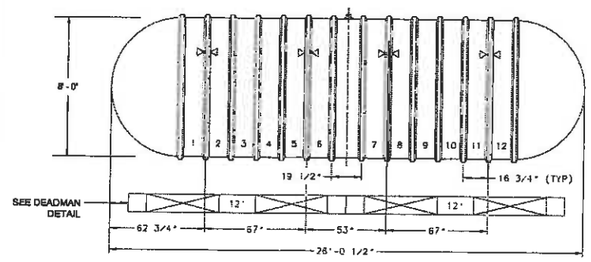
Chain Link Fence & Gate Detail

Not To Scale



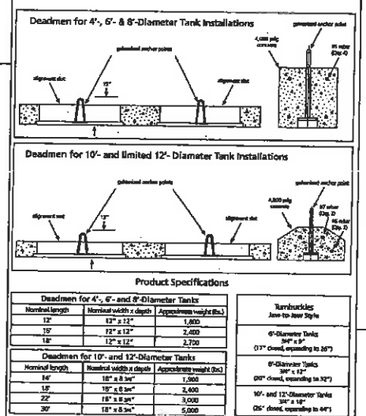
Ultraviolet System Detail

Not To Scale



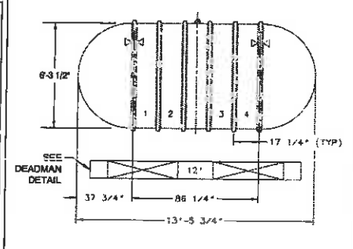
8' Diameter Fiberglass Tank

8,000 Gallon Capacity
Not To Scale



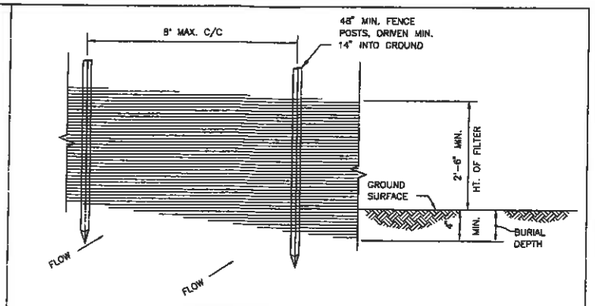
Deadman Installation Detail

Not to Scale



6' Diameter Fiberglass Tank

2,000 Gallon Capacity
Not To Scale

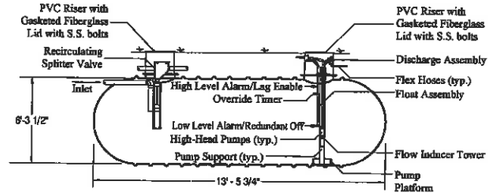


NOTES:

1. WHEN TWO SECTIONS OF SILT FENCE JOIN, OVERLAP ACCORDING TO MANUFACTURERS PUBLISHED RECOMMENDATIONS.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN HALF OF EXPOSED SILT FENCE IS COVERED WITH SEDIMENT.
3. POSTS SHALL BE CONSTRUCTED OF STEEL EITHER "I" OR "U" TYPE OR 1.5" HARDWOOD.
4. FILTER CLOTH SHALL BE "FILTER X", "MIRAFI 100X", "LINQ GTF 180" OR APPROVED EQUAL.
5. ALL SILT FENCE SHALL BE CHECKED ON A WEEKLY BASIS AND AFTER ANY SIGNIFICANT RAINFALL (IN EXCESS OF 1/2") WITHIN A 24-HOUR PERIOD. DAMAGED SILT FENCE MUST BE REPAIRED WITHIN 24 HOURS; SOONER, IF ADDITIONAL RAINFALL IS EXPECTED.

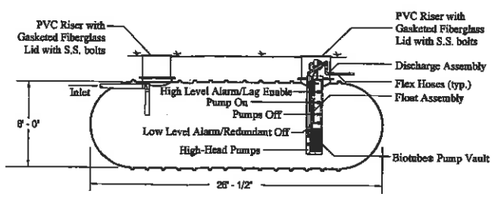
SILT FENCE DETAIL

NO SCALE



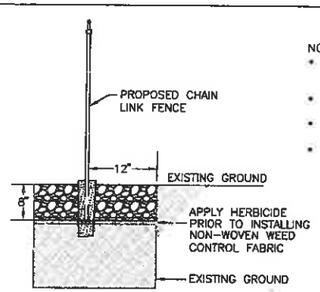
2,000 Gallon Fiberglass Recirculation Tank

Not To Scale



8,000 Gallon Fiberglass Holding Tank

Not To Scale

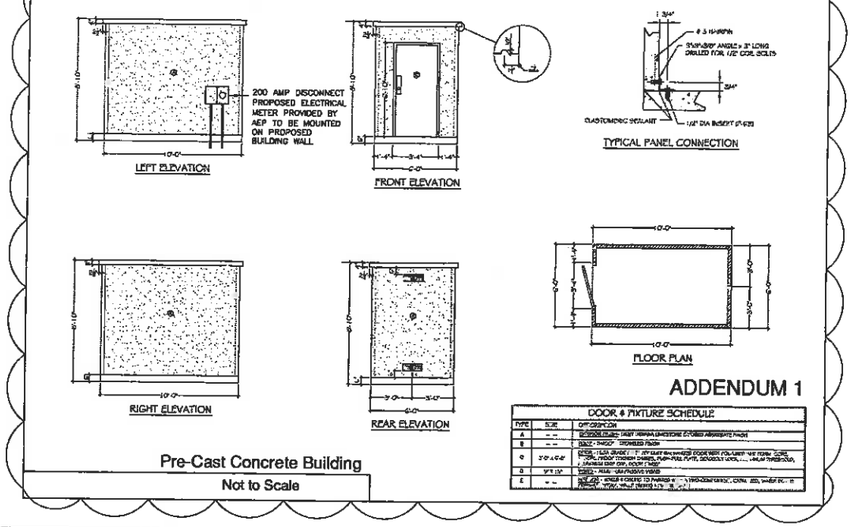


NOTES:

- DIG 8" OF SOIL AROUND THE PERIMETER AS SHOW ON PROPOSED PLAN SHEET.
- APPLY HERBICIDE TO THE PERIMETER OF THE SITE.
- INSTALL NON-WOVEN WEED CONTROL FABRIC.
- PLACE 8" OF GRAVEL TO MATCH GRADE SHOWN ON PROPOSED PLAN SHEET.

Gravel instalation Detail

Not To Scale



Pre-Cast Concrete Building

Not to Scale

NO.	REVISIONS	DATE	BY
1	ADDENDUM 1	4/20/2015	JWS
2	REVISION No. 1 PER WVDEP COMMENTS	5/12/2015	JWS

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

DETAILS SHEET

DRAWN	CHECKED	APPROVED	DATE	SCALE
JWS	KRC		4/14/2015	SHOWN

PROJECT NUMBER: 14-7419.21

SHEET NUMBER

5

REV. NO.

PLAN NOTES:

Ⓐ ELECTRICAL CONTRACTOR IS TO COORDINATE WITH OWNER TO LOCATE THE EXISTING 60-AMP, 2-POLE CIRCUIT BREAKER IN PANEL "K" IN THE KITCHEN IN THE EXISTING SCHOOL BUILDING. DISCONNECT BREAKER AND MARK AS SPARE. REMOVE WIRING FROM BREAKER TO EXISTING WASTEWATER TREATMENT PLANT. REMOVE EXPOSED CONDUITS AND ABANDON CONCEALED OR BURIED CONDUITS IN PLACE. DISCONNECT AND REMOVE EXISTING SAFETY SWITCHES AND OTHER SWITCHGEAR SERVING EQUIPMENT AND DEVICES TO BE REMOVED. SEE SITE EXISTING/DEMOLITION PLAN DRAWING FOR DETAILS.

Ⓑ ELECTRICAL CONTRACTOR IS TO COORDINATE WITH POWER COMPANY THROUGH OWNER'S DESIGNATED REPRESENTATIVE FOR THE APPLICATION AND DETAILS OF THE NEW PROPOSED POWER SERVICE. POWER COMPANY TO DETERMINE AND APPROVE APPROACH AND ROUTING FOR NEW OVERHEAD SERVICE LINES AND INSTALL POLES AND CABLES FOR LINE EXTENSIONS AS REQUIRED. POWER COMPANY TO ADVISE OWNER OF ADDITIONAL CHARGES, IF ANY, FOR THIS WORK TO BE PAID BY OWNER.

Ⓒ NEW AERIAL SERVICE DROP BY POWER COMPANY.

Ⓓ PROVIDE 3 #3/0 IN 2" MAST WITH WEATHERPROOF HEAD COORDINATE WITH POWER COMPANY ON ALL DETAILS.

Ⓔ OBTAIN 200-AMP, 120/240-VOLT, 1-PHASE, 3-WIRE METER BASE FROM VENDOR APPROVED BY POWER COMPANY. POWER COMPANY IS TO PROVIDE AND INSTALL METER.

Ⓕ PROVIDE 3 #3/0 IN 2" CONDUIT.

Ⓖ GROUND PER NEC.

Ⓗ PROVIDE TWO (2) 1" CONDUITS, ONE FOR EACH PUMP MOTOR, WITH 2 #10 WITH #10 GROUND. BURY CONDUITS AT 36" BELOW GRADE TO TOP OF CONDUIT WITH A MINIMUM OF 3" OF SEPARATION BETWEEN THEM.

Ⓘ COORDINATE WITH EQUIPMENT SUPPLIER/INSTALLER TO PROVIDE CORRECT QUANTITY, TYPE AND SIZE OF CONTROL/SIGNALING CABLES IN A MINIMUM OF A 1" CONDUIT. BURY CONDUITS AT 24" BELOW GRADE TO TOP OF CONDUIT WITH A MINIMUM OF 3" OF SEPARATION BETWEEN THEM.

Ⓙ ELECTRICAL CONTRACTOR IS TO COORDINATE WITH THE PREFERRED TELECOMMUNICATIONS COMPANY (TELEPHONE OR CABLE) THROUGH THE OWNER'S DESIGNATED REPRESENTATIVE FOR THE APPLICATION OF NEW SERVICE, IF REQUIRED. PROVIDE 2" TO 4" MAST (PER TELECOMMUNICATIONS COMPANY'S DIRECTIONS) WITH PULL-WIRE FOR TELECOMMUNICATIONS PROVIDER TO INSTALL THEIR SERVICE-ENTRANCE CABLING. SEE PLAN NOTE "K" ON THIS DRAWING.

Ⓚ SEE PLAN NOTE "J" ON THIS DRAWING. MAKE WALL PENETRATION AND EXTEND CONDUIT FOR SERVICE TO CONTROL PANEL OR AS DIRECTED BY EQUIPMENT SUPPLIER/INSTALLER.

Ⓛ ELECTRICAL CONTRACTOR IS TO COORDINATE WITH THE OWNER AND THEIR PREFERRED TELECOMMUNICATIONS COMPANY (TELEPHONE OR CABLE) AND/OR TELECOMMUNICATIONS EQUIPMENT PROVIDER OR COORDINATOR FOR CONNECTION TO EXISTING TELECOMMUNICATIONS SYSTEM(S) INSIDE SCHOOL BUILDING, IF REQUIRED. CONTRACTOR IS TO FIELD VERIFY CONNECTION LOCATION INSIDE OF SCHOOL BUILDING AND ALL CABLE AND CONDUIT REQUIREMENTS, LENGTHS AND ROUTES TO EXTEND THE TELECOMMUNICATIONS CIRCUIT(S) TO THE OUTSIDE OF THE BUILDING AND THEN TRANSITION TO UNDERGROUND INSTALLATION TO THE SHED AT THE PLANT SITE. PROVIDE TWO (2) CONDUITS (MINIMUM OF 1"), ONE ACTIVE AND ONE SPARE WITH PULL-WIRE. BURY CONDUITS AT 24" BELOW GRADE TO TOP OF CONDUIT WITH 3" OF SEPARATION BETWEEN THEM. WHEREVER THEY PASS BELOW A PAVED WALKWAY, DRIVEWAY OR ROADWAY, ENCASE IN A CONCRETE DUCT BANK WITH A MINIMUM OF 3" OF CONCRETE COVER WITH #4 REBAR REINFORCEMENT RUNNING PARALLEL WITH THE CONDUITS AT ALL FOUR CORNERS WITH #4 PERPENDICULAR TIES EVERY 4-FEET ON CENTER.

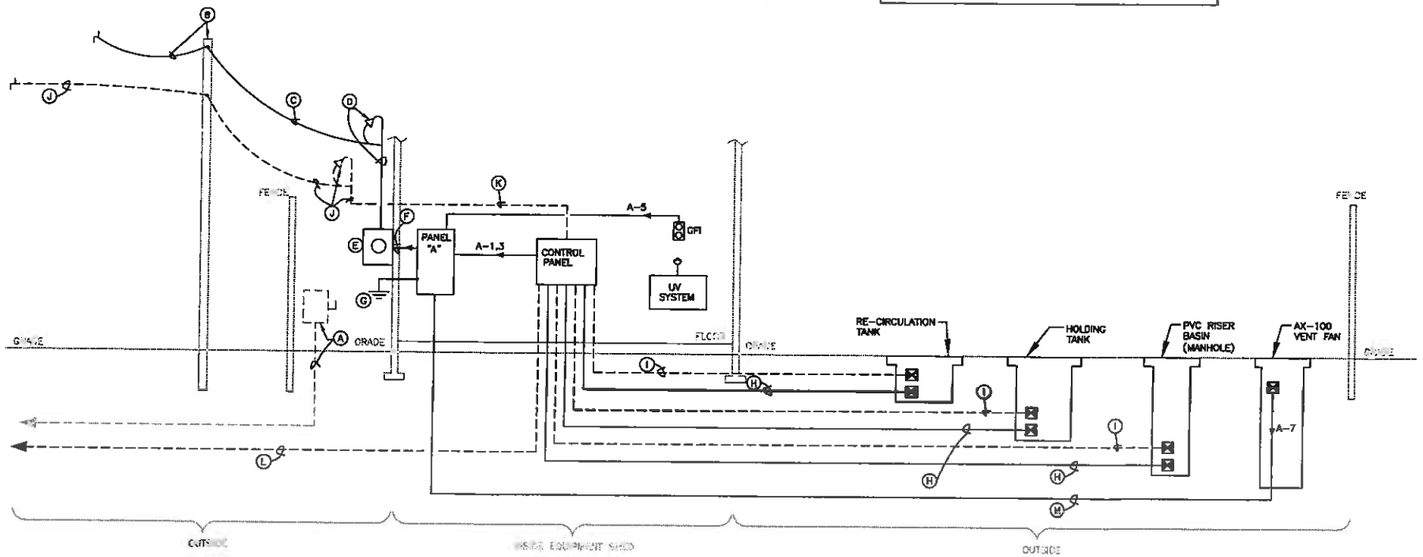
Ⓜ BURY CONDUIT AT 36" BELOW GRADE TO TOP OF CONDUIT.

PANEL: "A"	
LOCATION: EQUIPMENT SHED	
120/240 VOLTS, 1 PHASE, 3 WIRE	
☐ MAIN LUG ONLY	☒ MAIN BREAKER
BUS RATING: AMPS	MAIN BREAKER: 200 AMPS
MINIMUM INTERRUPTING CAPACITY: 10,000 AMPS SYM.	
☐ FLUSH MOUNT	☒ SURFACE MOUNT
PROVIDE IF CHECKED:	☐ ISOLATED GROUND BUS
☒ EQUIPMENT GROUND BUS	☐ GUTTER TAPS
☐ SUB-FEED LUGS	☐ THROUGH-FEED LUGS

COND. SIZE ②	WIRE SIZE ①	C/B TRIP AMPS	CRT. NO.	NEUTRAL L1	NEUTRAL L2	CRT. NO.	C/B TRIP AMPS	WIRE SIZE ①	COND. SIZE ②
	8	2	1			2	20		
		50	3			4	20		
		20	5			6	20		
1"	10	20	7			④ 8	20		
		20	9 ④			10	20		
		20	11 ④			12	20		
			13 ⑤			⑤ 14			
			15			16			
			17			18			
			19			20			
			21			22			
			23			24			
			25			26			
			27			28			
			29			30			
			31			32			
			33			34			
			35			36			
			37			38			
			39			40			

① ALL WIRE SIZE: #12 AWG MINIMUM EXCEPT AS NOTED
② ALL CONDUIT SIZE: 3/4 INCH MINIMUM EXCEPT AS NOTED
③ GROUND FAULT INTERRUPTING CIRCUIT BREAKER
④ SPARE CIRCUIT BREAKER
⑤ SPACE ONLY

NOTE:
ELECTRICAL CONTRACTOR IS TO COORDINATE WITH EQUIPMENT SUPPLIER/INSTALLER ON SIZE OF CIRCUIT BREAKER, WIRE AND CONDUIT TO SERVE CIRCUIT #A-1,3 AND MAKE MODIFICATIONS TO CIRCUIT AS REQUIRED.



SPANISHBURG ELEMENTARY SCHOOL - ELECTRICAL RISER DIAGRAM FOR WWTP

NO SCALE

NOTE: SEE SITE PLAN DRAWINGS FOR LOCATIONS AND ROUTING OF ALL CABLING AND CONDUITS.

NO	REVISIONS	DATE	BY
1	ADDENDUM NO. 1	4/20/16	DLE

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

WWTP REPLACEMENT PROJECT
MERCER COUNTY BOARD OF EDUCATION
SPANISHBURG, MERCER COUNTY, WEST VIRGINIA

PROPOSED PLAN

DRAWN	CHECKED	APPROVED	DATE	SCALE
STAFF	DLE		4/20/2016	AS NOTED

PROJECT NUMBER: 14-7416.21

SHEET NUMBER: E1

REV. NO.

DANIEL LEE ELAINE REGISTERED 13743 PROFESSIONAL ENGINEER 4-20-16

G:\CMA\2014\15113 SPANISHBURG MERCER CO SCH\15113-E1.dwg

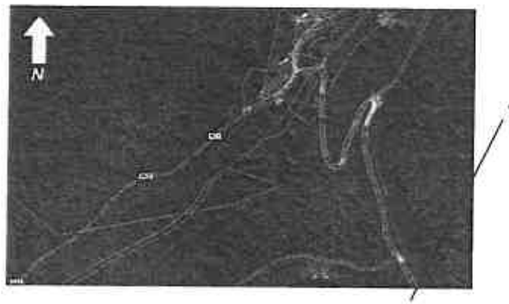
APPLICANT/ OWNER:
NEW HAVEN
PUBLIC SERVICE DISTRICT
84 JARRETT COURT
FAYETTEVILLE, WV 25840

WVIJDC PROJECT No.: 2015S-1601
WVCWSRF PROJECT No.: C-547850

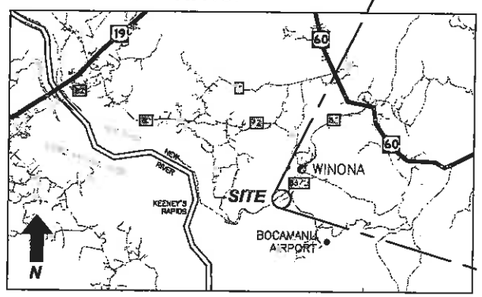
WASTEWATER MANAGEMENT FACILITY

KEENEY'S CREEK ROAD; WINONA,
FAYETTE COUNTY WEST VIRGINIA, 25942
MAY 5, 2016

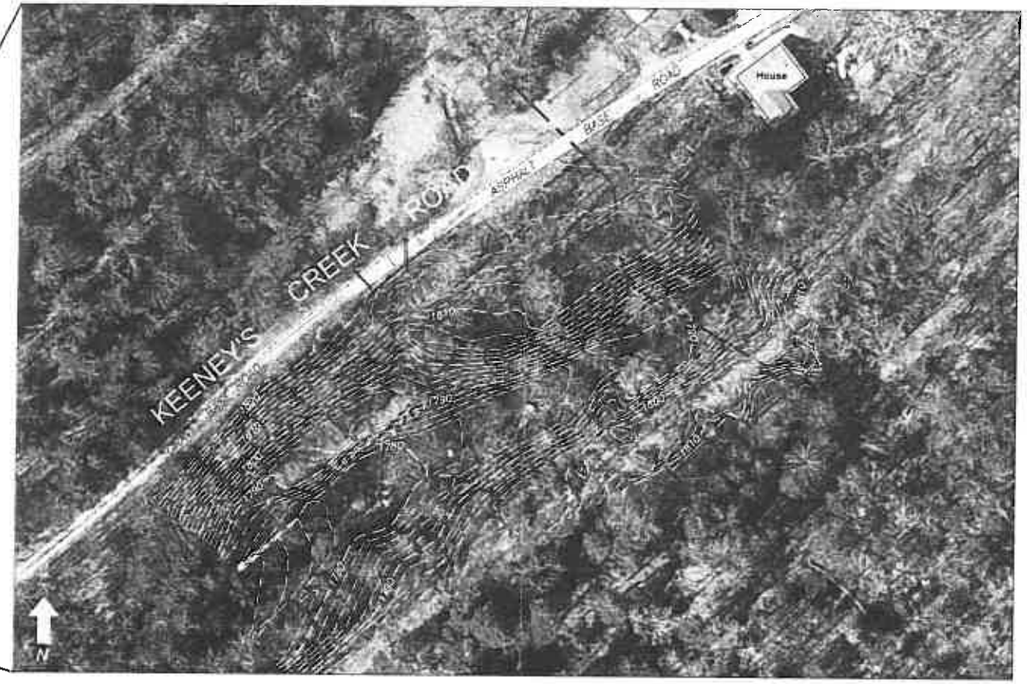
PARCEL MAP - N.T.S.



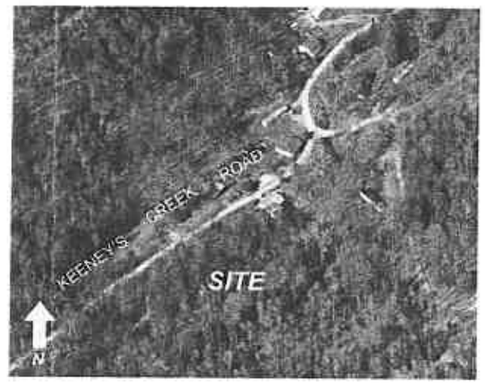
LOCUS MAP - N.T.S.



EXISTING SITE SCALE IN FEET 50 0 50 100



OBLIQUE AERIAL PHOTO



INDEX OF DRAWINGS

SHEET #	SHEET NAME
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2	PROPOSED GRADING PLAN - WATERLOO
2A	PROPOSED GRADING PLAN, ADVANTEX
3	WASTEWATER TREATMENT AND DISPOSAL SYSTEMS - SITE PLAN LAYOUT, WATERLOO
3A	WASTEWATER TREATMENT AND DISPOSAL SYSTEMS - SITE PLAN LAYOUT, ADVANTEX
4	WASTEWATER TREATMENT PLANT LAYOUT - WATERLOO BIOFILTER
4A	WASTEWATER TREATMENT PLANT LAYOUT - ADVANTEX AX100
5	WASTEWATER TREATMENT PLANT HYDRAULIC PROFILE - WATERLOO BIOFILTER
5A	WASTEWATER TREATMENT PLANT HYDRAULIC PROFILE - ADVANTEX AX100
6	WATERLOO BIOFILTER SYSTEM DETAILS
6A	ADVANTEX AX100 SYSTEM DETAILS
7	FILTRATION, DISINFECTION ALKALINITY FEED SYSTEMS PLAN / PROFILE
8	BUILDING PLAN, DETAILS, NOTES
8A	FOUNDATION PLAN, SECTION AND NOTES
9	BUILDING ELEVATIONS
10	OUTFALL PLAN, PROFILE & DETAILS
10A	OUTFALL CASCADE DETAILS
11	STANDARD DETAILS AND EQUIPMENT
12	PROCESS AND INSTRUMENTATION DIAGRAM - WATERLOO BIOFILTER
12A	PROCESS AND INSTRUMENTATION DIAGRAM - ADVANTEX AX100
13	WASTEWATER TREATMENT PLANT ELECTRICAL LAYOUT - WATERLOO BIOFILTER
13A	WASTEWATER TREATMENT PLANT ELECTRICAL LAYOUT - ADVANTEX AX100
14	ELECTRICAL POWER AND CONTROLS RACEWAY RISER DIAGRAM - WATERLOO BIOFILTER
14A	ELECTRICAL POWER AND CONTROLS RACEWAY RISER DIAGRAM - ADVANTEX AX100
15	BUILDING ELECTRICAL PLAN, DETAILS AND NOTES
16	ELECTRICAL RISER DIAGRAMS AND SCHEDULES

SUBCONTRACTOR:

LOMBARDO ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS/CONSULTANTS
188 CHURCH STREET
NEWTON, MA 02458
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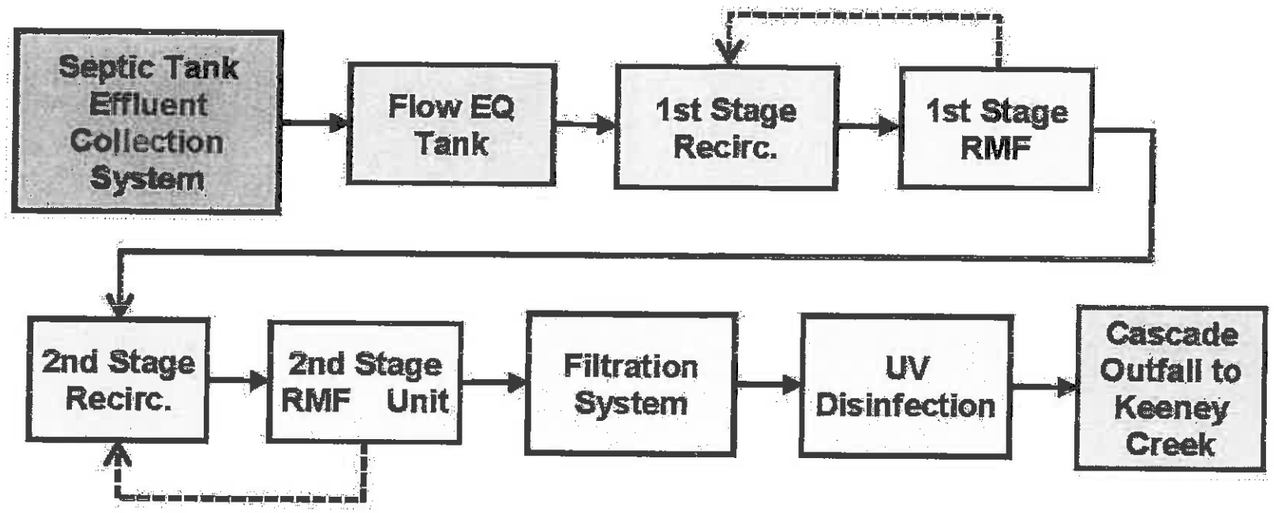
STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

PIO STEPHEN LOMBARDO REGISTERED 009363 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 5-5-16



WASTEWATER SYSTEM - SCHEMATIC

GENERAL NOTES:

1. The coordinates shown on these drawings refer to the West Virginia State System of Plan Coordinates.

2. Elevations shown on these drawings are based on the United States Coast and Geodetic Survey Datum.

3. Where bracing or relocating of power or telephone poles is required, such work will be the responsibility of the contractor. Where noted on the Drawings, Contractor shall install and leave in place, sheeting and shoring for a distance of 5 feet along the trench or excavation length on both sides of the poles.

4. Unless indicated on the drawings, top of manholes shall be set in field to confirm to existing grade.

5. The Contractor shall be responsible for removing and replacing any existing fences, driveways, etc. damaged or removed by them during construction.

6. The existing utilities and obstructions shown are from the best available records and shall be verified by the Contractor to his own satisfaction before start of construction. The New Haven Public Service District (Owner) does not warrant or guarantee the correctness or the completeness of the information given. Necessary precautions shall be taken by the Contractor to protect existing services and mains, and any damage to them due to his negligence shall be repaired immediately at the Contractor's expense.

7. The Contractor shall notify the Miss Utility - Tel No. 1-800-245-4848 five (5) days before starting work shown on these drawings. All underground gas and electric facilities will be staked out, as necessary by the Contractor. For water line location service, contact WV American Water at 1-800-685-8660.

8. The Contractor shall notify Pioneer- Tel. No. 1-800-704-2000 five (5) days before starting work shown on these drawings.

9. All construction shall be accomplished in accordance with West Virginia Department of Environmental Protection (WVDEP) Standard Details and Specifications unless otherwise noted.

10. Pipe elevations shown on these drawings refer to inverts, unless otherwise noted.

11. All work shall comply with all applicable provisions of the WVDEP, especially for soil erosion and sediment control.

12. The Contractor shall at the end of each day sweep the pavement of public right-of-ways adjacent to construction activities to keep all dirt, stones, and debris off the public right-of-ways.

13. The Contractor shall restore and stabilize flow channels and culvert crossings by placing a six inch layer of 1 ½ inch aggregate 1 foot upstream over trench cut and any other area of the flow channel disturbed by construction activities.

14. Erosion control measures shall be used in accordance with best management practices for all excavations and in compliance with WVDEP regulations.

LEGEND:

LEGEND:

PROPERTY LINE:
STREET CENTERLINE:
MONUMENT:
BASIS OF BEARINGS (B.O.B.)
ENCROACHMENT (ENCR.)
CLEAR: (CLR.)
STREET LIGHT (ST.LT.):
ASPHALT (A/C):
BUILDING:
CHAIN LINK FENCE (C.L.F.):
WOOD FENCE:
PICKET FENCE:
WROUGHT IRON FENCE:
WATER LINE:
CONCRETE (CONC.):
MANHOLE (M.H.):
MONITORING WELL (M.W.):
IRRIGATION CONTROL VALVE: (I.C.V.)
CURB DRAIN (CD)
DRAIN INLET: (DI)
TREES:
PROPOSED FINISH GRADE

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRprinceton, WEST VIRGINIA

PRO. STEPHEN LOMBARDO 008303 REGISTERED STATE OF PROFESSIONAL ENGINEER
5-5-16

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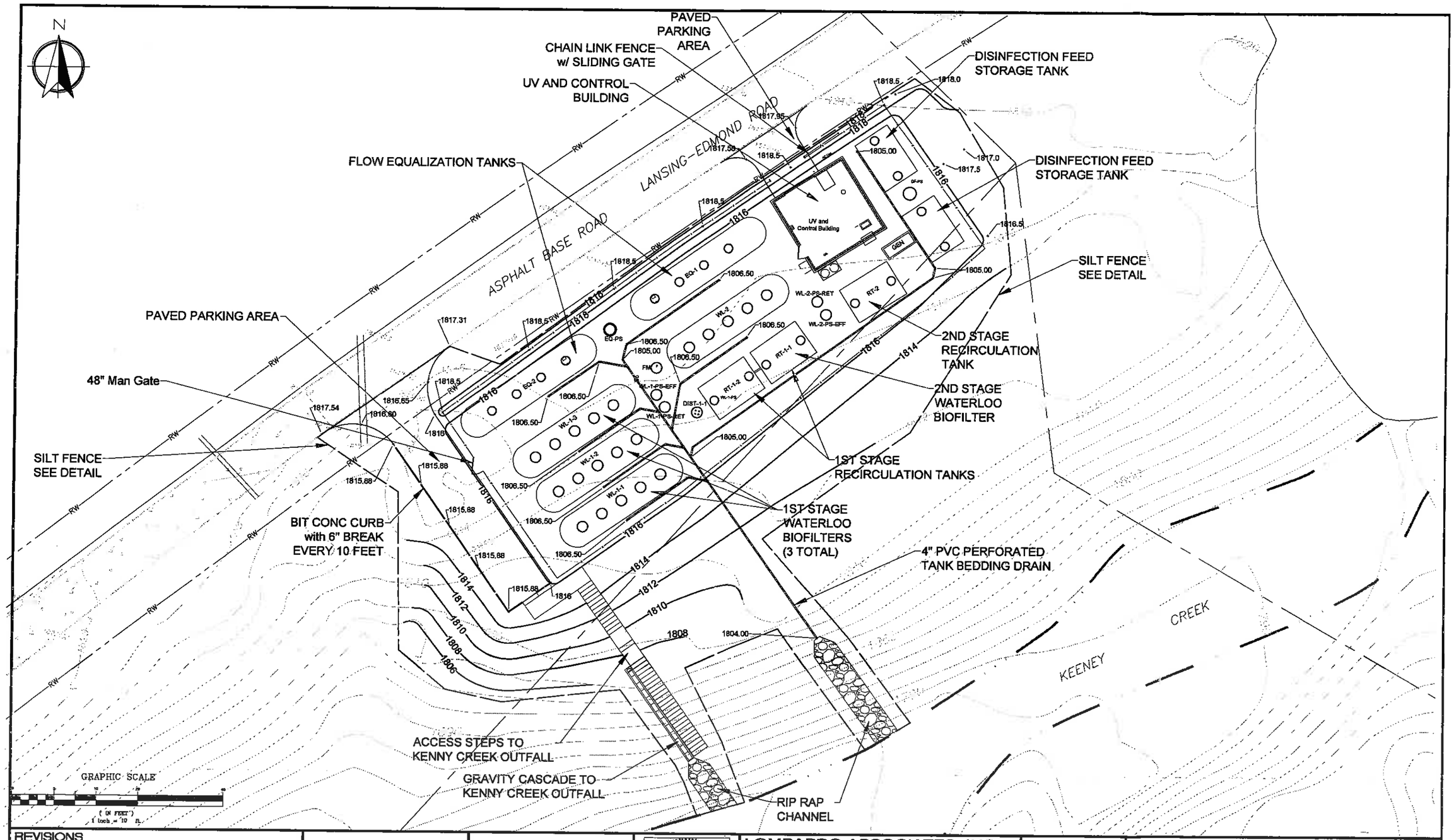
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY: CAR
DRAWN BY: PJP
APPROVED BY: PSL

1
SHEET 1 OF 16

Sheet 1 - General Notes, Legend & Process Flow Diagram

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

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ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

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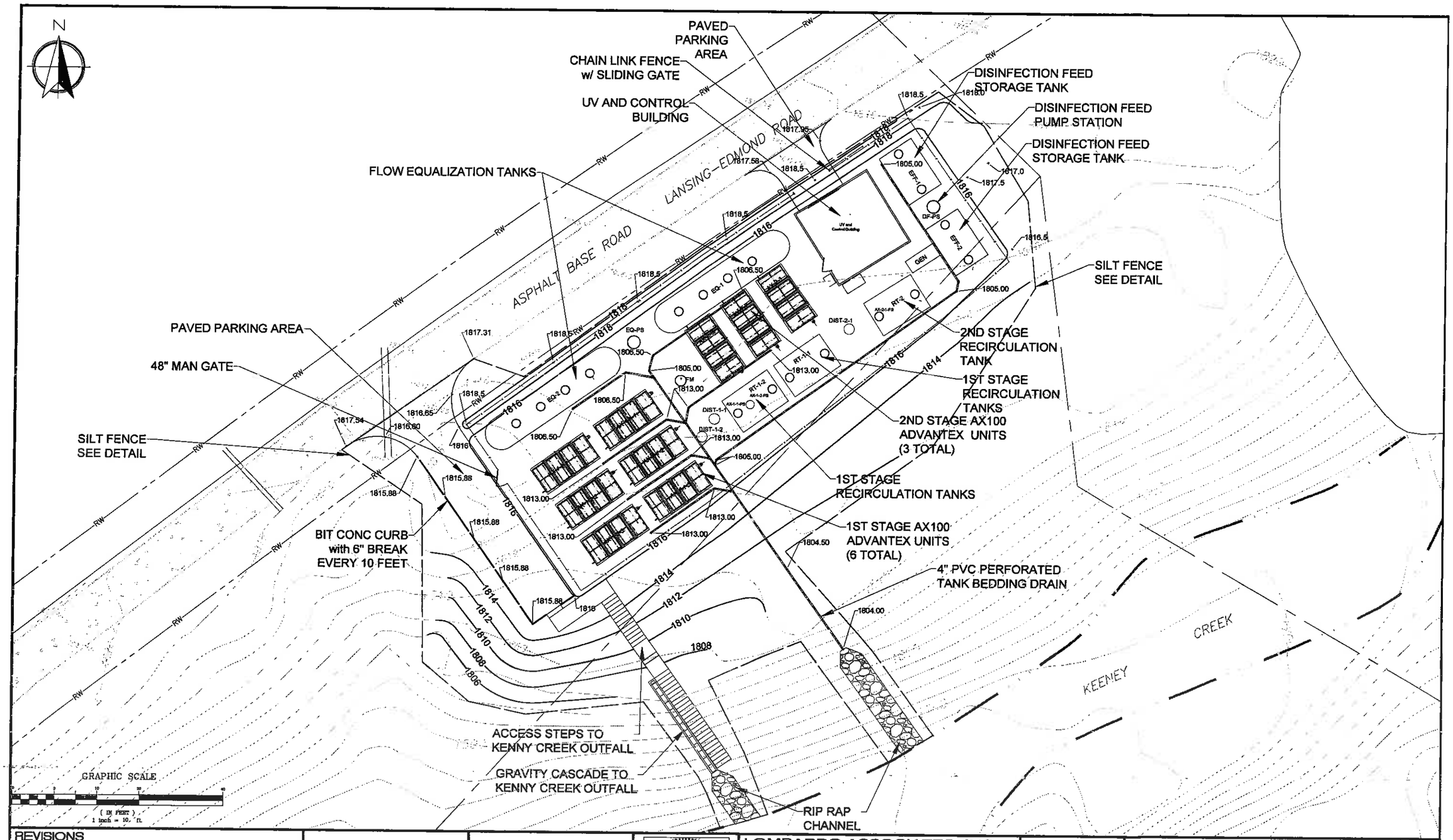
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 5602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

2
SHEET 2 OF 16

Sheet 2 - Wastewater Treatment and Disposal Systems
Proposed Grading Plan - Waterloo
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



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PRINCETON, WEST VIRGINIA

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Web Site: www.Lombardoassociates.com

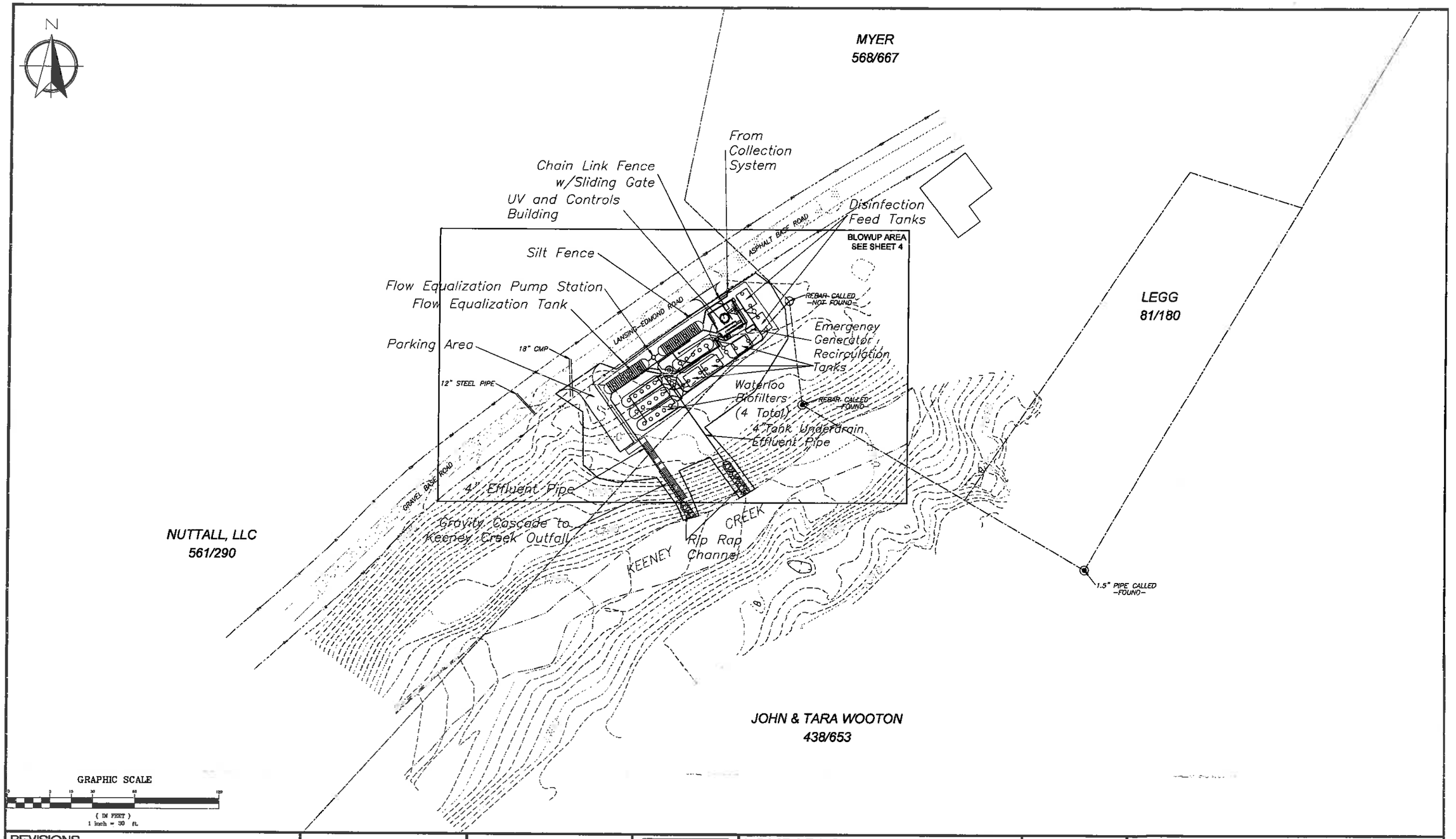
SCALE: AS NOTED	DATE: 05 MAY 2015
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 6602
DESIGNED BY: GAR	DRAWN BY: PJP
APPROVED BY: PSL	

2A
SHEET 2A OF 16

Sheet 2A - Wastewater Treatment and Disposal Systems
Proposed Grading Plan, Advantex

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



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STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

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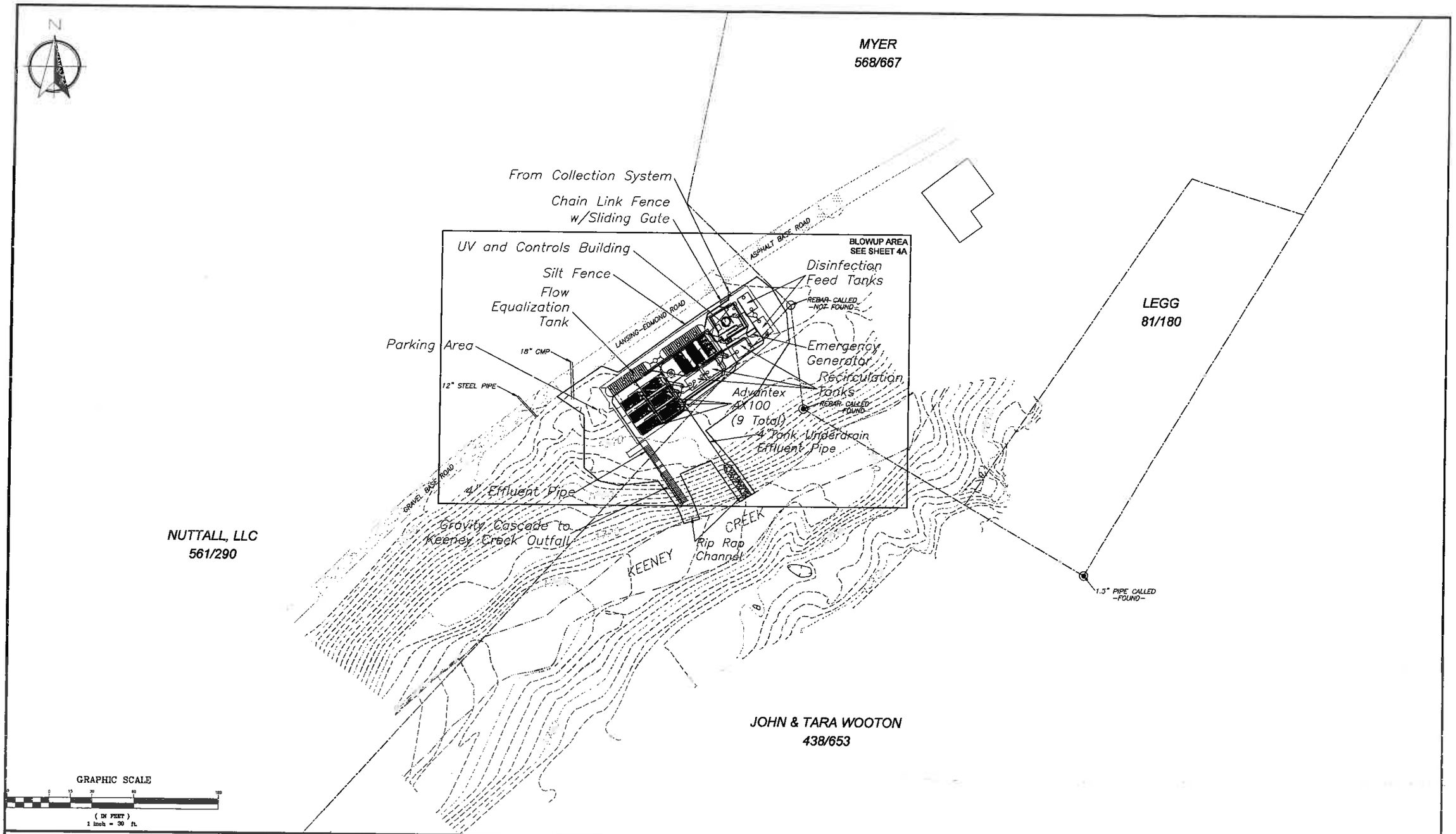
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 5602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

3
SHEET 3 OF 16

Sheet 3 - Wastewater Treatment and Disposal Systems
Site Plan Layout, Waterloo

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



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STAFFORD CONSULTANTS INCORPORATED
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PRINCETON, WEST VIRGINIA

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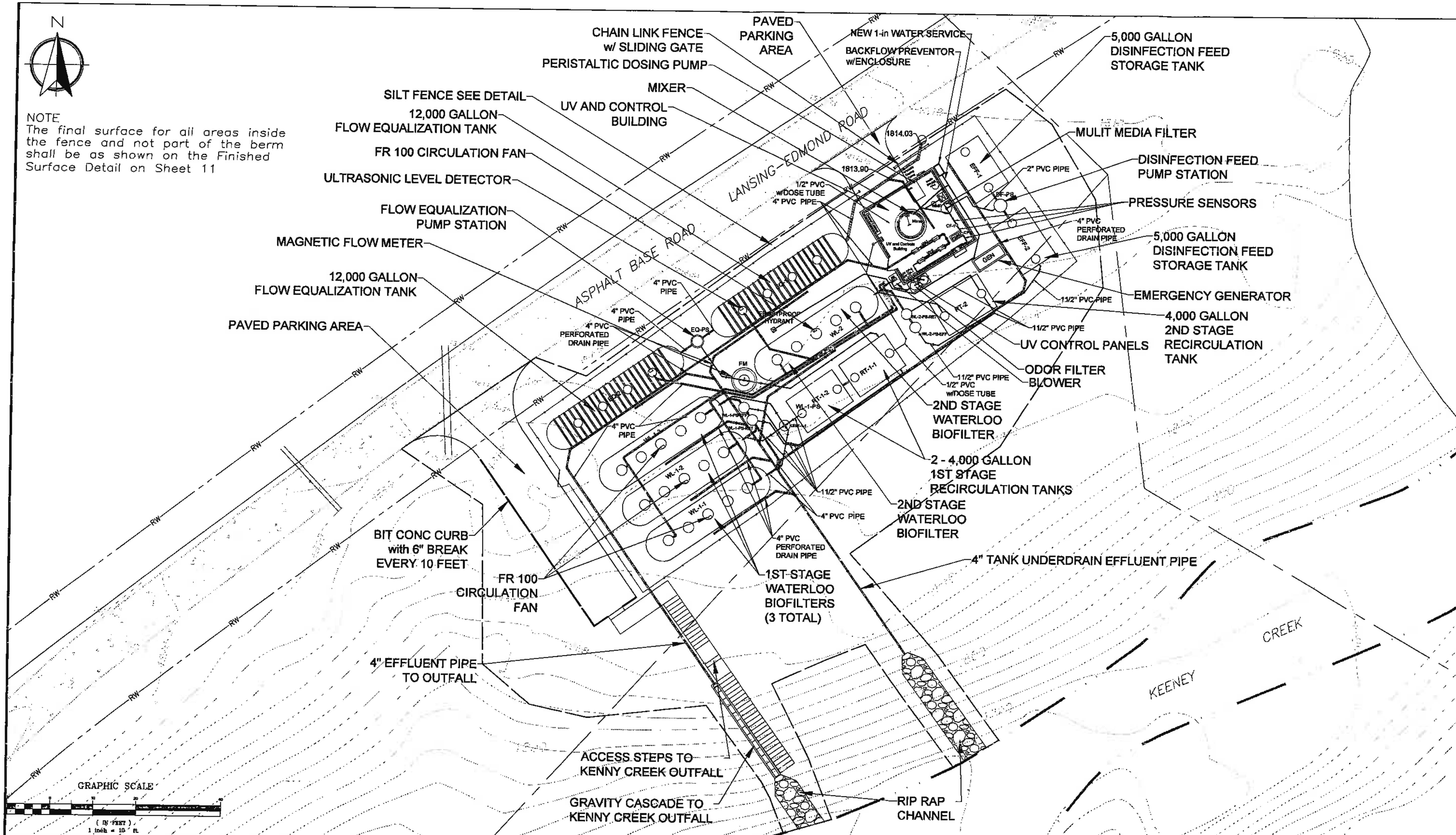
SCALE: AS NOTED	DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 5602
DESIGNED BY: GAR	DRAWN BY: PJP
APPROVED BY: PSL	

3A
SHEET3A OF 16

Sheet 3A - Wastewater Treatment and Disposal Systems
Site Plan Layout, Advantex

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



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PRINCETON, WEST VIRGINIA

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PROJECT NO.: 6602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

4
SHEET 4 OF 16

Sheet 4 - Wastewater Treatment Plant Layout
Waterloo Biofilter

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

N

NOTE
The final surface for all areas inside the fence and not part of the berm shall be as shown on the Finished Surface Detail on Sheet 11

CHAIN LINK FENCE w/ SLIDING GATE
PAVED PARKING AREA
FROM COLLECTION SYSTEM
BACKFLOW PREVENTOR w/ENCLOSURE
NEW 1-in WATER SERVICE
5,000 GALLON DISINFECTION FEED STORAGE TANK
PERISTALTIC DOSING PUMP
MIXER
UV AND CONTROL BUILDING
SILT FENCE SEE DETAIL
MULIT MEDIA FILTER
12,000 GALLON FLOW EQUALIZATION TANK
LANSING-EDMOND ROAD
1814.03
1813.90
DISINFECTION FEED PUMP STATION
2" PVC PIPE
1/2" PVC w/DOSE TUBE
4" PVC PIPE
DUCT HEATER
ULTRASONIC LEVEL DETECTOR
PRESSURE SENSORS
FLOW EQUALIZATION PUMP STATION
ASPHALT BASE ROAD
4" PVC PERFORATED DRAIN PIPE
5,000 GALLON DISINFECTION FEED STORAGE TANK
MAGNETIC FLOW METER
4" PVC PIPE
EMERGENCY GENERATOR
12,000 GALLON FLOW EQUALIZATION TANK
4" PVC PIPE
UV CONTROL PANELS
PAVED PARKING AREA
4" PVC PERFORATED DRAIN PIPE
4" PVC PIPE
4,000 GALLON 2ND STAGE RECIRCULATION TANK
1/2" PVC w/DOSE TUBE
4" PVC PIPE
ODOR FILTER BLOWER
2ND STAGE ADVANTEX UNITS (3 TOTAL)
2 - 4,000 GALLON 1ST STAGE RECIRCULATION TANKS
4" PVC PIPE
1 1/2" PVC PIPE
FROST PROOF HYDRANT
BIT CONC CURB with 6" BREAK EVERY 10 FEET
4" PVC PERFORATED DRAIN PIPE
4" PVC PIPE
4" TANK UNDERDRAIN EFFLUENT PIPE
1ST STAGE ADVANTEX UNITS (6 TOTAL)
4" EFFLUENT PIPE TO OUTFALL
CREEK
KEENEY
ACCESS STEPS TO KENNY CREEK OUTFALL
GRAVITY CASCADE TO KENNY CREEK OUTFALL
RIP RAP CHANNEL
GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

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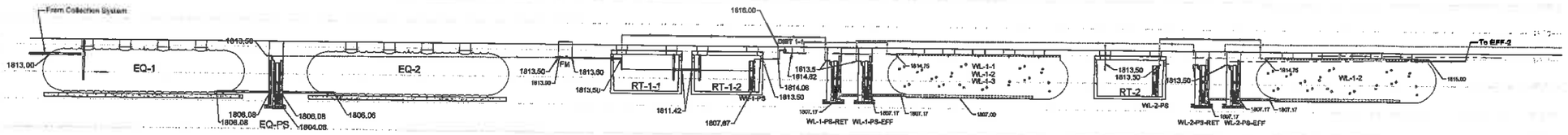
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

4A
SHEET4A OF 16

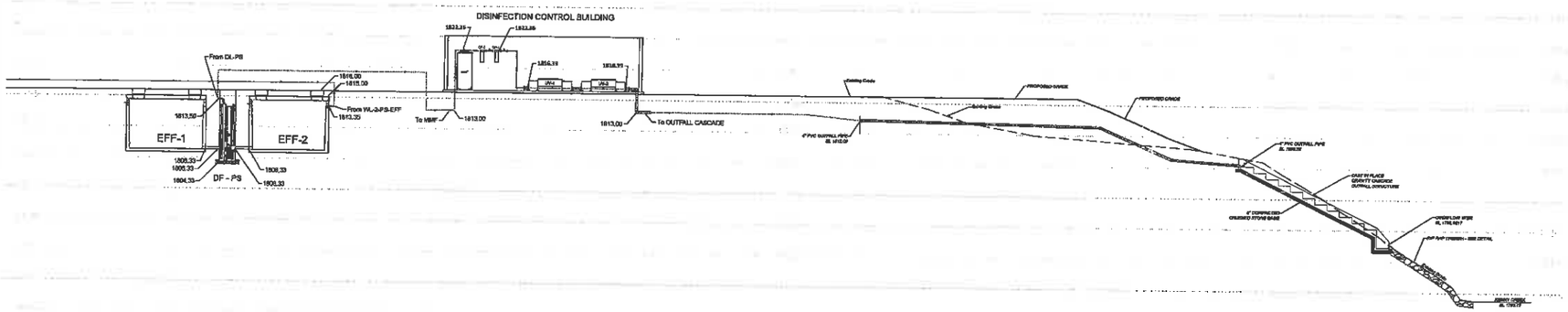
Sheet 4A - Wastewater Treatment Plant Layout
Advantex
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



OUTFALL PROFILE
SCALE: 1"=10' HOR
1"=10' VERT

Inlet, Outlet Invert Elevations, Tank Outside Top and Bottom Elevations					
Description	Label	Invert Elevations		Tank top	Tank Bottom
		Inlet	Outlet		
Equalization Tank - 1	EQ-1	1813.00	1806.08	1813.75	1806.08
Equalization Tank - 2	EQ-2	1806.08	1806.08	1813.75	1806.08
Equalization Tank P.S.	EQ-PS	1806.08	1813.00	1816.00	1804.08
Flow Meter	FM	1813.50	1813.00	1816.00	1812.00
Recirculation Tank 1st Stage-1	RT-1-1	1813.50 (both inlets)	1811.42	1815.00	1807.17
Recirculation Tank 1st Stage-2	RT-1-2	1811.42	1813.50	1815.00	1807.17
Waterloo 1st Stage-PS	WL-1-PS	1811.42	1815.33	1816.00	1807.67
Waterloo 1st Stage-1-1	WL-1-1	1814.75	1807.17	1815.00	1807.00
Waterloo 1st Stage-1-2	WL-1-2	1814.75	1807.17	1815.00	1807.00
Waterloo 1st Stage-1-3	WL-1-3	1814.75	1807.17	1815.00	1807.00
Waterloo 1st Stage Eff to 2nd Stage RT-2	WL-1-PS-EFF	1807.17	1813.00	1816.00	1806.16
Waterloo 1st Stage PS Recycle to RT-1	WL-1-PS-RET	1807.17	1813.00	1816.00	1806.16
Distribution Valve 2-1	DIST-1-1	1814.08	1814.02	1816.00	1815.00
Recirculation Tank 2nd Stage	RT-2	1813.50	1813.50	1815.00	1809.16
Waterloo 2nd Stage-PS	WL-2-PS	1813.50	1813.50	1816.00	1807.67
Waterloo 2nd Stage	WL-2	1814.75	1807.17	1815.00	1807.00
Waterloo 2nd Stage Effluent PS to Disinfection Feed Tank Stage	WL-2-PS-EFF	1807.17	1813.50	1816.00	1806.16
Waterloo 2nd Stage PS Recycle to RT-2	WL-2-PS-RET	1807.17	1813.50	1816.00	1806.16
Eff (Disinfection Feed) Storage Tank - 1	EFF-1	1806.33	1806.33	1815.00	1805.83
Eff (Disinfection Feed) Storage Tank - 2	EFF-2	1813.35	1806.33	1815.00	1805.83
Disinfection Feed PS	DF-PS	1806.33	1813.50	1816.00	1804.33
Multi Media Filter	MMF	1822.36	1822.36	NA	NA
Cartridge Filter - 1	CF-1	1822.36	1822.36	NA	NA
Cartridge Filter - 2	CF-2	1822.36	1822.36	NA	NA
UV Disinfection - 1	UV-1	1816.39	1816.39	NA	NA
UV Disinfection - 2	UV-2	1816.39	1816.39	NA	NA
Outfall Pipe to Cascade	Out	1813.00	1813.00	NA	NA
Cascade		1805.26	1797.92	NA	NA



OUTFALL PROFILE
SCALE: 1"=10' HOR
1"=10' VERT

OUTFALL PROFILE
SCALE 1"=5

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

PROFESSIONAL ENGINEER REGISTERED STEPHEN LOMBARDO 009383 STATE OF WEST VIRGINIA

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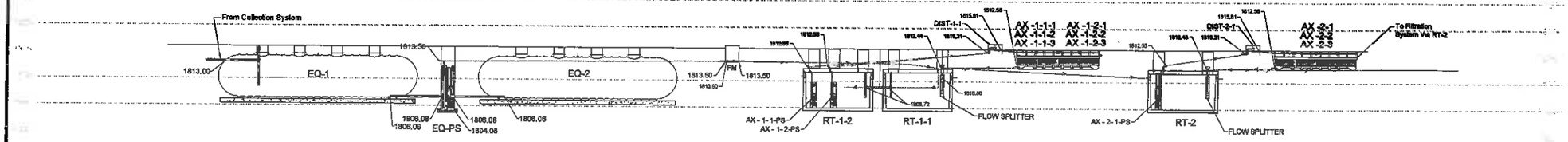
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 8602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

5
SHEET 5 OF 16

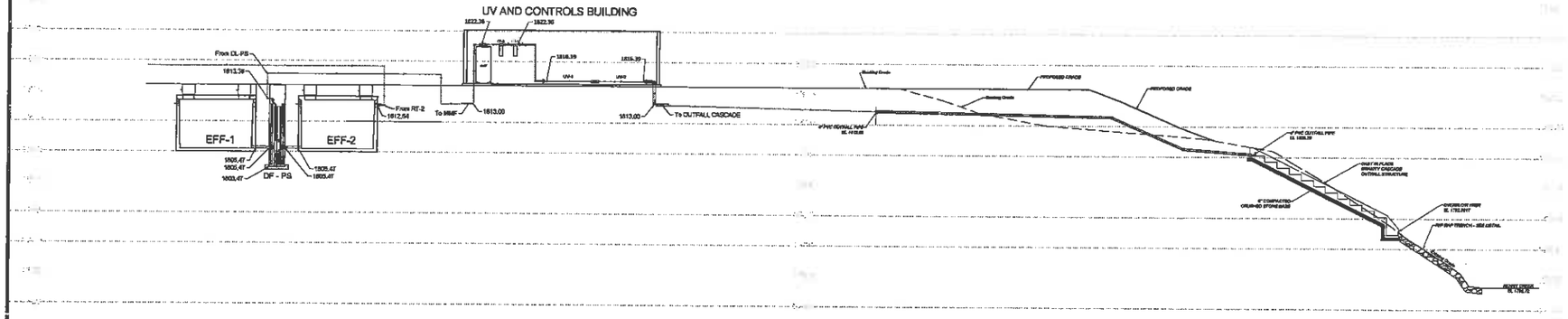
Sheet 5 - WASTEWATER TREATMENT PLANT
WATERLOO HYDRAULIC PROFILE
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



OUTFALL PROFILE
SCALE: 1"=10' HOR
1"=10' VERT

Inlet, Outlet Invert Elevations, Tank Outside Top and Bottom Elevation					
Description	Label	Invert Elevations: Inlet	Outlet	Tank Top	Tank Bottom
Equalization Tank - 1	EQ-1	1813.00	1806.08	1813.75	1806.08
Equalization Tank - 2	EQ-2	1806.08	1806.08	1813.75	1806.08
Equalization Tank P.S.	EQ-PS	1806.08	1813.00	1816.00	1804.08
Flow Meter	FM	1813.50	1813.00	1816.00	1812.00
Recirculation Tank 1st Stage-1	RT-1-1	1812.44 [FM] - 1810.80 (1st Stage AX)	1811.42	1812.30	1804.46
Recirculation Tank 1st Stage-2	RT-1-2	1812.55	1812.30	1812.30	1804.46
Advantex 1st Stage-PS - 1	AX-1-1-PS	1804.96	1812.56	1812.30	1804.46
Distribution Valve 1-1	DIST-1-1	1815.31	1815.81	1817.01	1815.00
Advantex 1st Stage-PS - 2	AX-1-2-PS	1804.96	1812.55	1812.30	1804.46
Distribution Valve 1-2	DIST-1-2	1815.31	1815.81	1817.01	1815.00
Recirculation Splitter Valve	RSV-1	1812.48	1812.48	1816.00	NA
Advantex 1st Stage-1-1	AX-1-1-1	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-1-2	AX-1-1-2	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-1-3	AX-1-1-3	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-2-1	AX-1-2-1	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-2-2	AX-1-2-2	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-2-3	AX-1-2-3	1815.59	1812.56	1816.00	1812.42
Recirculation Tank 2nd Stage-1	RT-2	1815.59	1812.56	1812.30	1804.46
Advantex 2nd Stage-PS	AX-2-1-PS	1804.96	1812.55	1812.30	1804.46
Distribution Valve 2-1	DIST-2-1	1815.31	1815.81	1817.01	1815.00
Advantex 2nd Stage-2-1	AX-2-1	1815.59	1812.56	1816.00	1812.42
Advantex 2nd Stage-2-2	AX-2-2	1815.59	1812.56	1816.00	1812.42
Advantex 2nd Stage-2-3	AX-2-3	1815.59	1812.56	1816.00	1812.42
Recirculation Splitter Valve	RSV-2	1812.48	1812.48	1816.00	NA
Eff (Disinfection Feed) Storage Tank - 1	EFF-1	1805.47	1805.47	1818.18	1804.97
Eff (Disinfection Feed) Storage Tank - 2	EFF-2	1812.64	1805.47	1814.14	1804.97
Disinfection Feed PS	DF-PS	1805.47	1813.50	1915.00	1803.47
Multi Media Filter	MMF	1822.36	1822.36	NA	NA
Cartridge Filter - 1	CF-1	1822.36	1822.36	NA	NA
Cartridge Filter - 2	CF-2	1822.36	1822.36	NA	NA
UV Disinfection - 1	UV-1	1816.39	1816.39	NA	NA
UV Disinfection - 2	UV-2	1816.39	1816.39	NA	NA
Outfall Pipe to Cascade	Out	1813.00	1813.00	NA	NA
Cascade		1805.26	1792.92	NA	NA



OUTFALL PROFILE
SCALE: 1"=10' HOR
1"=10' VERT

OUTFALL PROFILE
SCALE: 1"=5'

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

STEPHEN LOMBARDO 869363 REGISTERED PROFESSIONAL ENGINEER STATE OF WEST VIRGINIA 5-5-15

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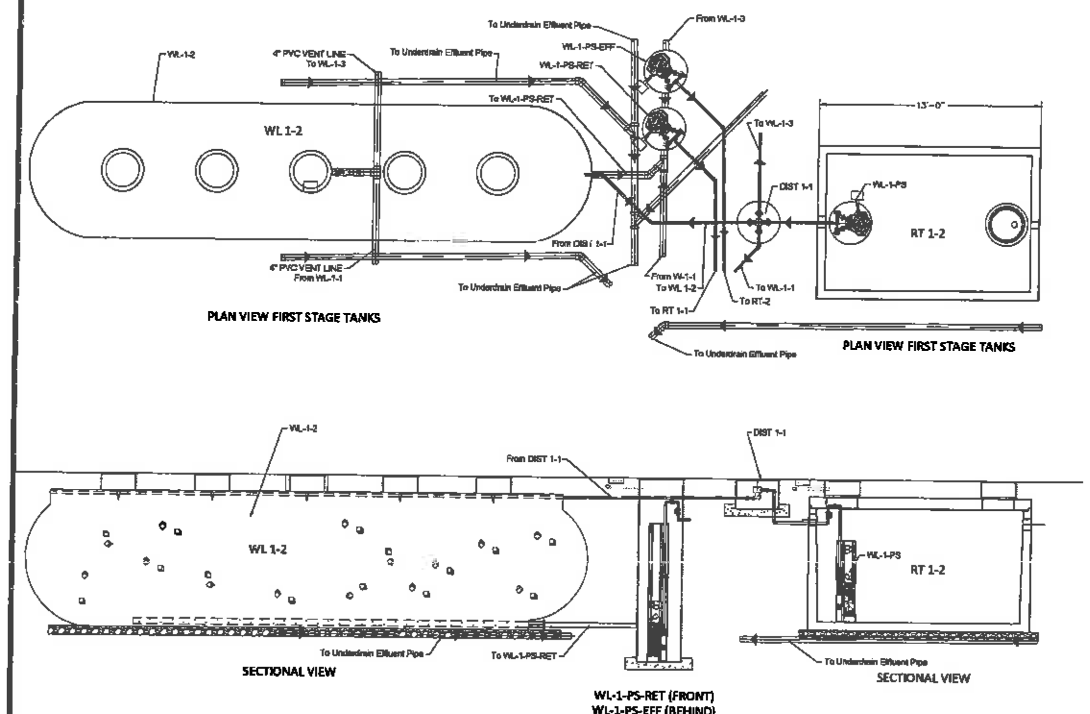
PROJECT NO.: 6602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

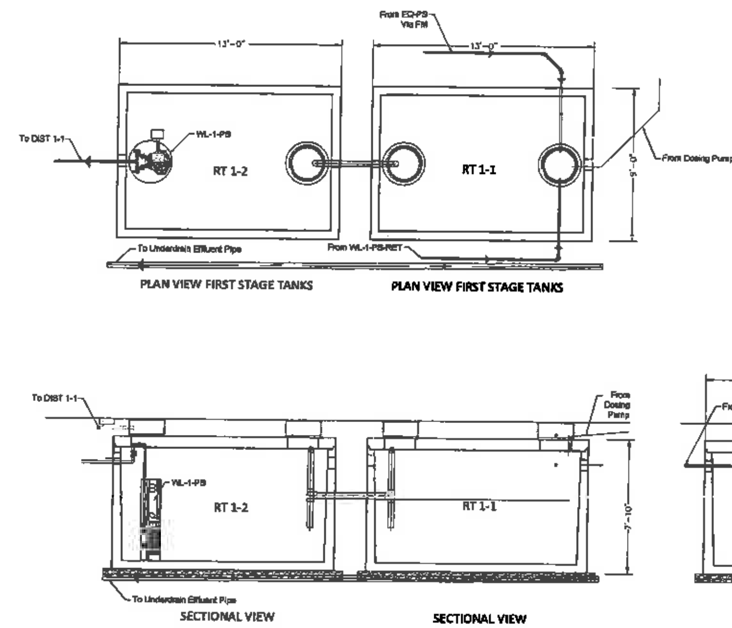
5A
SHEET5A OF 16

Sheet 5A - WASTEWATER TREATMENT PLANT
ADVANTEX HYDRAULIC PROFILE
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

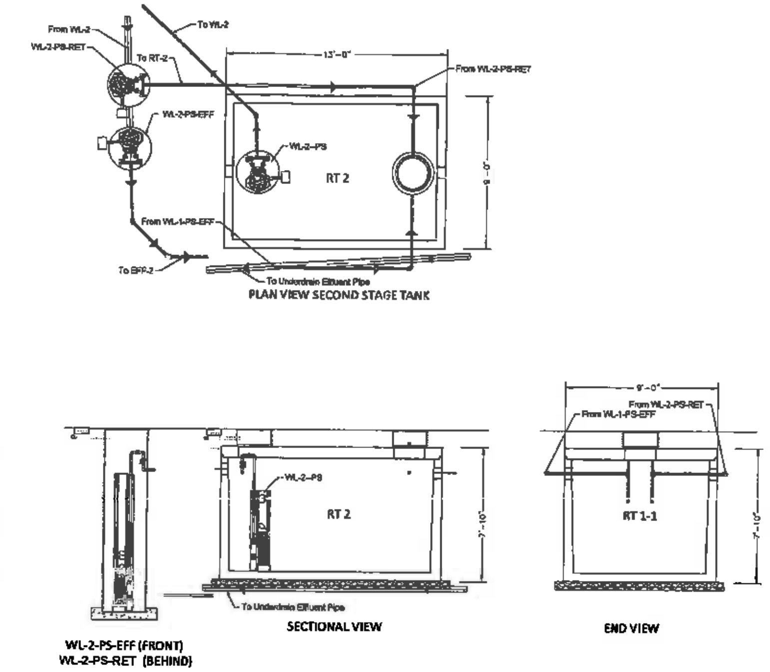
PREPARED FOR:
New Haven PSD



1ST STAGE WATERLOO BIOFILTER

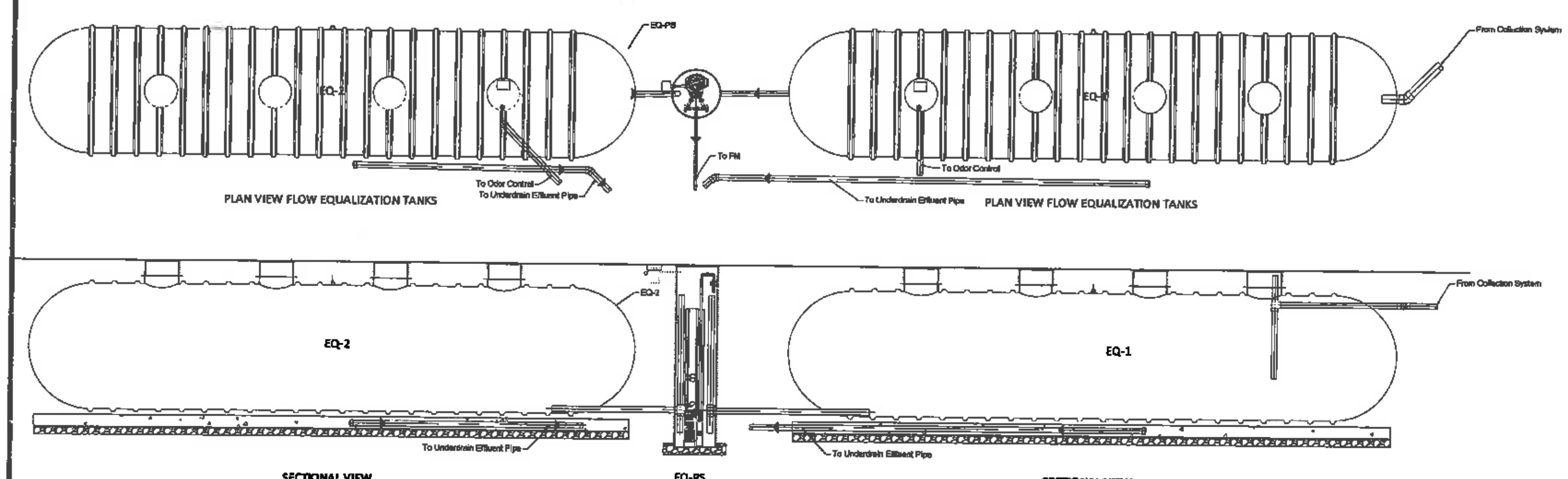


FIRST STAGE RECIRCULATION TANKS



SECOND STAGE RECIRCULATION TANK

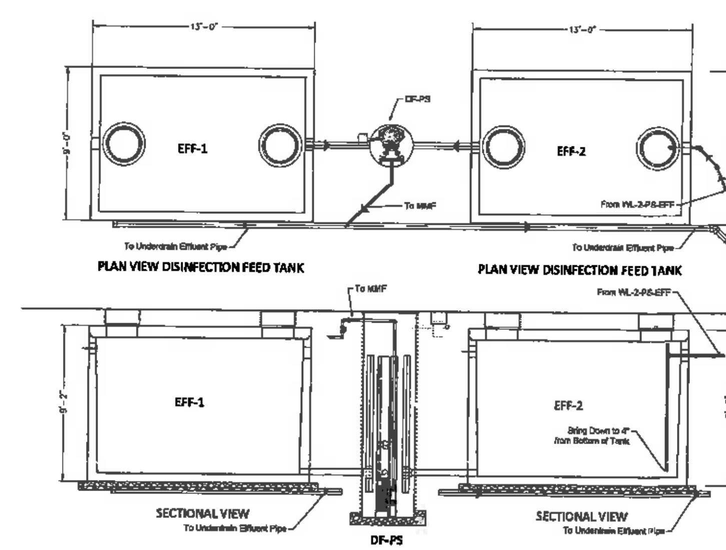
Inlet, Outlet Invert Elevations, Tank Outside Top and Bottom Elevations					
Description	Label	Invert Elevations		Tank Top	Tank Bottom
		Inlet	Outlet		
Equalization Tank - 1	EQ-1	1812.00	[illegible]	[illegible]	[illegible]
Equalization Tank - 2	EQ-2	[illegible]	[illegible]	[illegible]	1806.08
Equalization Tank PS	EQ-PS	[illegible]	[illegible]	[illegible]	1804.05
Flow Meter	FM	[illegible]	[illegible]	[illegible]	[illegible]
Recirculation Tank 1st Stage 1	RT 1-1	[illegible]	[illegible]	[illegible]	[illegible]
Recirculation Tank 1st Stage 2	RT 1-2	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 1st Stage PS	WL-1-PS	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 1st Stage 1-1	WL-1-1	1814.75	[illegible]	[illegible]	[illegible]
Waterloo 1st Stage 1-2	WL-1-2	1814.75	[illegible]	[illegible]	[illegible]
Waterloo 1st Stage 1-3	WL-1-3	1814.75	[illegible]	[illegible]	1807.06
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 1st Stage PS [illegible]	WL-1-PS-RET	[illegible]	[illegible]	[illegible]	[illegible]
Distribution Valve 2-1	DIST 2-1	[illegible]	[illegible]	[illegible]	[illegible]
Recirculation Tank 2nd Stage	RT 2	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 2nd Stage PS	WL-2-PS	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 2nd Stage	WL-2	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 2nd Stage Effluent PS to Disinfection Feed Tank [illegible]	WL-2-PS-EFF	[illegible]	[illegible]	[illegible]	[illegible]
Waterloo 2nd Stage PS [illegible]	WL-2-PS-RET	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Disinfection Feed Storage Tank 1	EFF-1	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Disinfection Feed Storage Tank 2	EFF-2	[illegible]	[illegible]	1815.00	1805.81
Disinfection Feed PS	DF-PS	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Filter	[illegible]	1822.96	[illegible]	NA	NA
Cartridge Filter 1	CF-1	[illegible]	[illegible]	NA	NA
Cartridge Filter 2	CF-2	1822.36	[illegible]	NA	NA
UV Disinfection 1	UV-1	[illegible]	[illegible]	NA	NA
UV Disinfection 2	UV-2	[illegible]	[illegible]	NA	NA
Outlet Pipe to Cascade	Out	1813.00	[illegible]	NA	NA
Cascade		[illegible]	[illegible]	NA	NA



GRAPHIC SCALE

(IN FEET)
1 inch = 5 ft.

FLOW EQUALIZATION TANKS



DISINFECTION FEED STORAGE TANKS

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

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ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

LOMBARDO ASSOCIATES, INC.
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E-mail: pjo@Lombardoassociates.com
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SCALE: AS NOTED | DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY | PROJECT NO.: 6602
DESIGNED BY: GAR | DRAWN BY: PJP | APPROVED BY: PSL

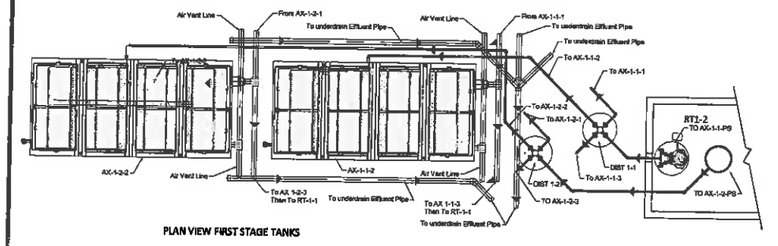
6

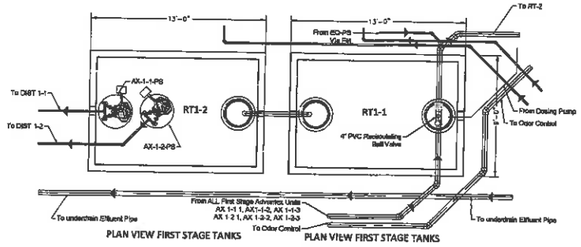
SHEET 6 OF 16

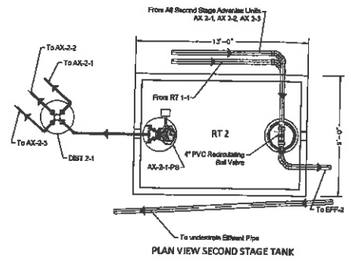
Sheet 6 - Waterloo Biofilter System Details

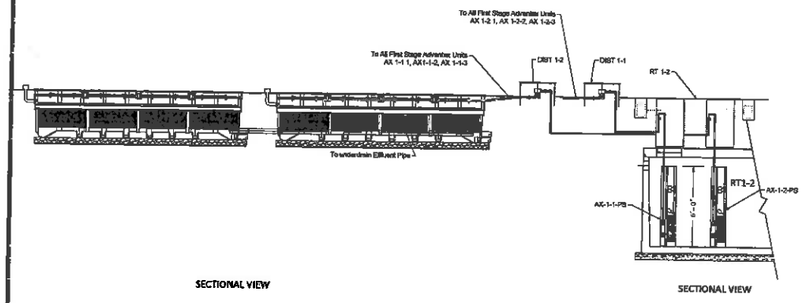
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

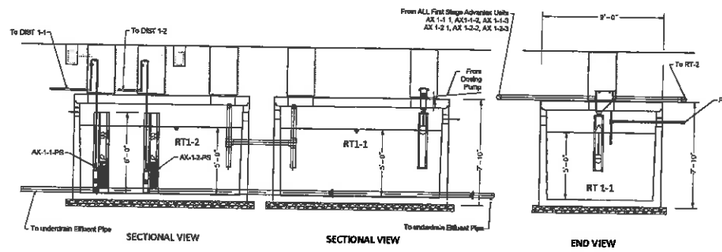




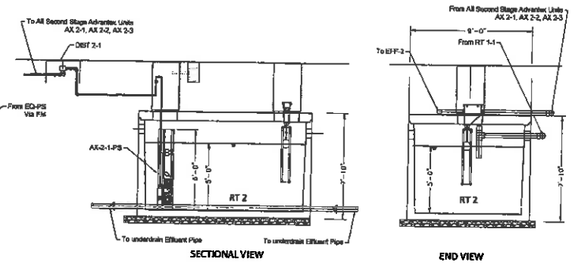




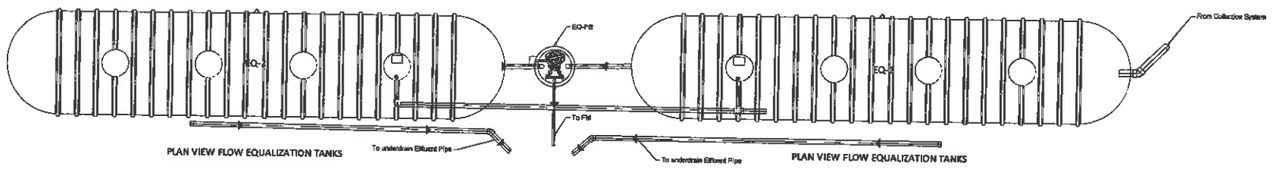
FIRST STAGE ADVANTEX

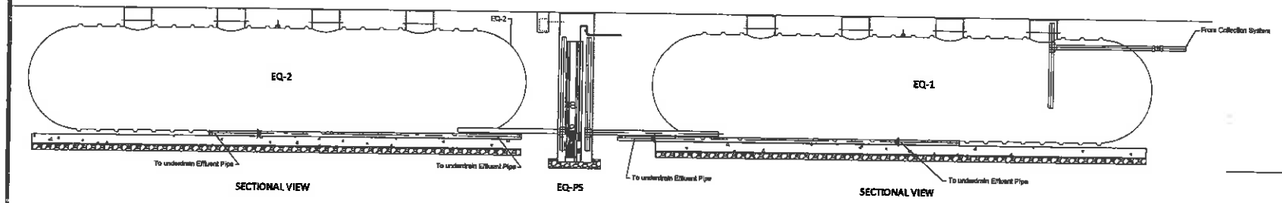


FIRST STAGE RECIRCULATION TANKS



SECOND STAGE RECIRCULATION TANK

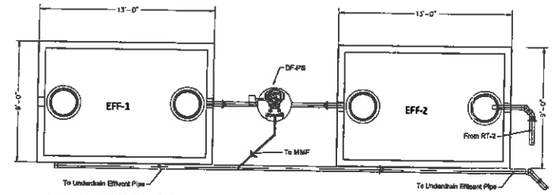


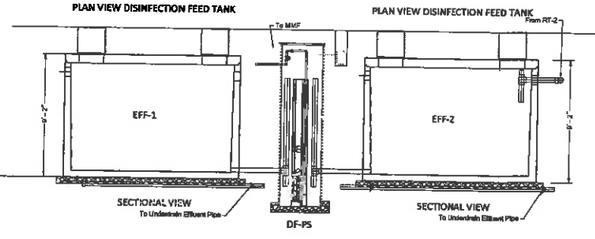


GRAPHIC SCALE

(IN FEET)
1 inch = 5 ft.

FLOW EQUALIZATION TANKS





DISINFECTION FEED STORAGE TANKS

Inlet, Outlet Invert Elevations, Tank Outside Top and Bottom Elevations

Description	Label	Invert Elevations		Tank Top	Tank Bottom
		Inlet	Outlet		
Equalization Tank - 1	EQ-1	1813.00	1808.08	1813.75	1808.08
Equalization Tank - 2	EQ-2	1806.08	1808.08	1813.75	1808.08
Equalization Tank P.S.	EQ-PS	1806.08	1813.00	1815.00	1809.08
Flow Meter	FM	1812.97	1812.00	1815.00	1812.08
Recirculation Tank 1st Stage-1	RT-1-1	1812.94 (FM) 1810.88 (1st Stage AX)	1811.42	1812.50	1804.46
Recirculation Tank 1st Stage-2	RT-1-2	1812.55	1812.55	1812.50	1804.46
Advantex 1st Stage PS - 1	AX-1-1-PS	1804.96	1812.55	1812.50	1804.46
Distribution Valve - 1	DIST-1-1	1815.81	1815.81	1817.01	1815.00
Advantex 1st Stage PS - 2	AX-1-2-PS	1804.96	1812.55	1812.50	1804.46
Distribution Valve 1-2	DIST-1-2	1815.31	1815.81	1817.01	1815.00
Recirculation Splitter Valve	RSV-1	1812.48	1812.48	1816.00	NA
Advantex 1st Stage-1-1	AX-1-1-1	1815.95	1812.56	1816.00	1812.42
Advantex 1st Stage-1-2	AX-1-1-2	1815.68	1812.56	1816.00	1812.42
Advantex 1st Stage-1-3	AX-1-1-3	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-2-1	AX-1-2-1	1815.59	1812.56	1816.00	1812.42
Advantex 1st Stage-2-2	AX-1-2-2	1815.95	1812.56	1816.00	1812.42
Advantex 1st Stage-2-3	AX-1-2-3	1815.68	1812.56	1816.00	1812.42
Recirculation Tank 2nd Stage-1	RT-2	1815.59	1812.56	1813.50	1804.46
Advantex 2nd Stage-PS	AX-2-1-PS	1804.96	1812.56	1813.50	1804.46
Distribution Valve 2-1	DIST-2-1	1815.81	1815.81	1817.01	1815.00
Advantex 2nd Stage-2-1	AX-2-1	1815.59	1812.56	1816.00	1812.42
Advantex 2nd Stage-2-2	AX-2-2	1815.68	1812.56	1816.00	1812.42
Advantex 2nd Stage-2-3	AX-2-3	1814.59	1812.56	1816.00	1812.42
Recirculation Splitter Valve	RSV-2	1812.48	1812.48	1816.00	NA
EFF (Disinfection Feed) Storage Tank - 1	EFF-1	1805.47	1814.14	1816.00	1804.97
EFF (Disinfection Feed) Storage Tank - 2	EFF-2	1812.64	1805.47	1814.14	1804.97
Disinfection Feed PS	DF-PS	1805.47	1813.50	1816.00	1803.47
Multi Media Filter	MMF	1812.36	1812.36	NA	NA
Cartridge Filter - 1	CF-1	1812.36	1812.36	NA	NA
Cartridge Filter - 2	CF-2	1812.36	1812.36	NA	NA
UV Disinfection - 1	UV-1	1816.39	1816.39	NA	NA
UV Disinfection - 2	UV-2	1816.39	1816.39	NA	NA
Outfall Pipe to Cascade	OHL	1812.00	1811.00	NA	NA
Cascade		1809.36	1798.92	NA	NA

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

PHILIP STEPHEN LOMBARDO REGISTERED 008383 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 5-5-16

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Web Site: www.Lombardoassociates.com

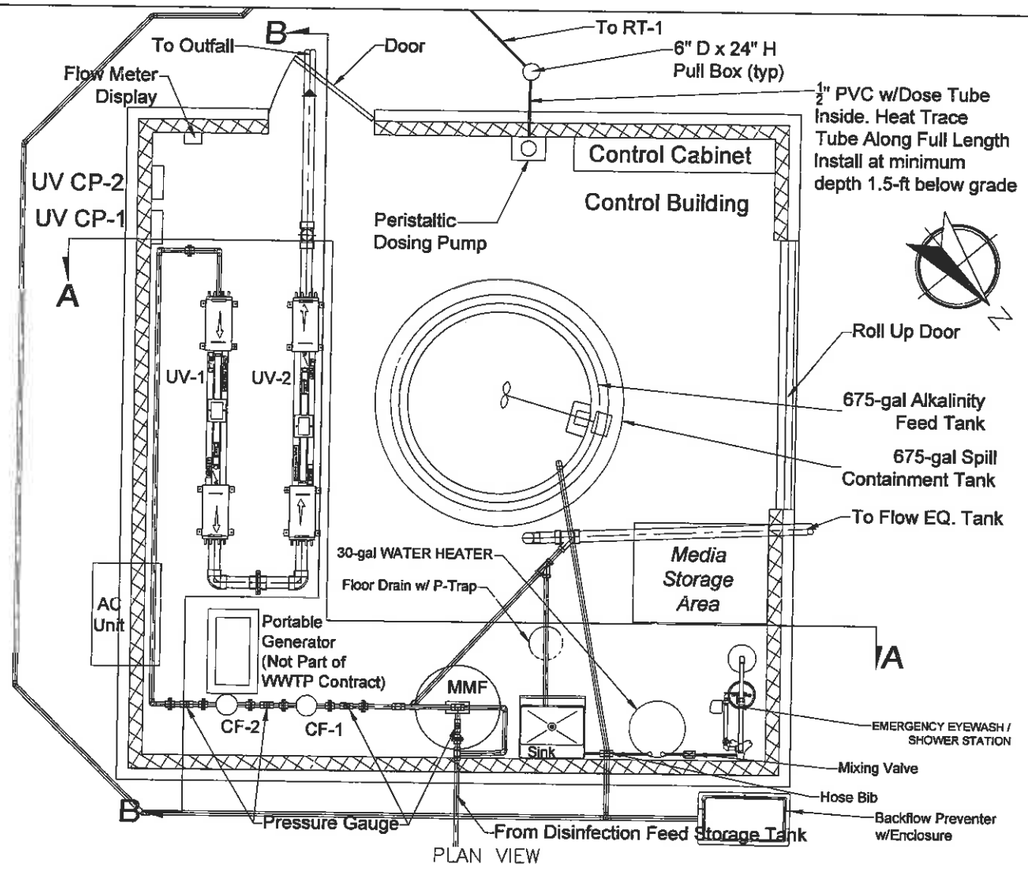
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 5602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

6A
SHEET6A OF 16

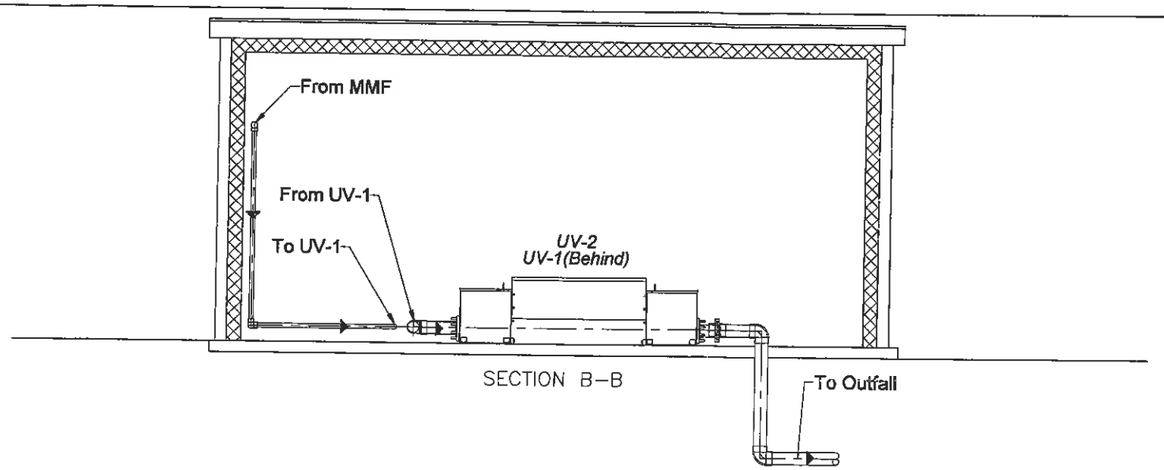
Sheet 6A - Advantex System Details

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

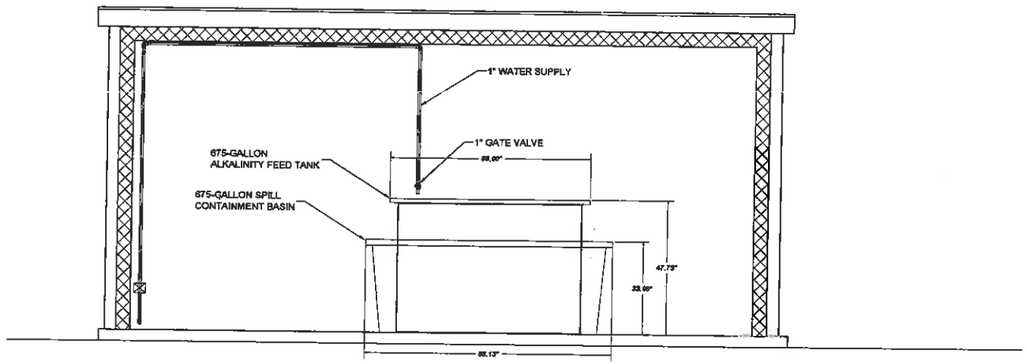
PREPARED FOR:
New Haven PSD



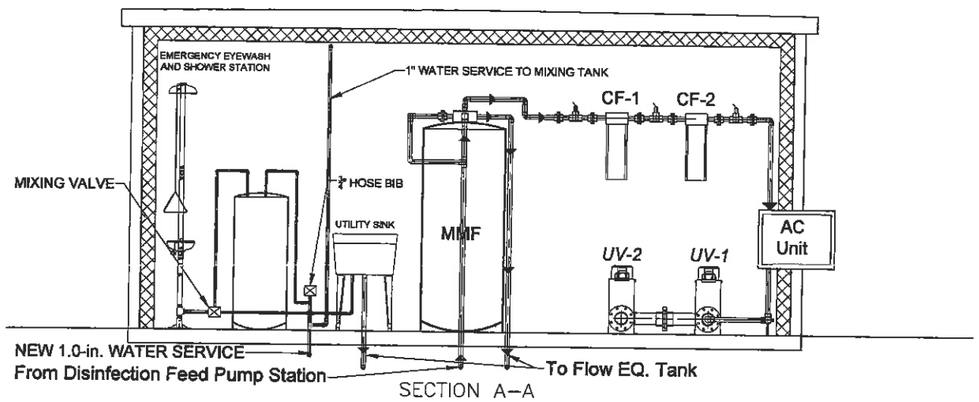
PLAN VIEW



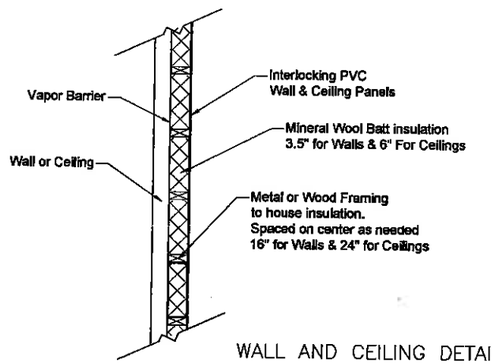
SECTION B–B



ALKALINITY FEED TANK AND WATER SUPPLY DETAIL



SECTION A–A



WALL AND CEILING DETAIL
NOT TO SCALE

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

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ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

REGISTERED PROFESSIONAL ENGINEER
008383
STATE OF WEST VIRGINIA
5-5-16

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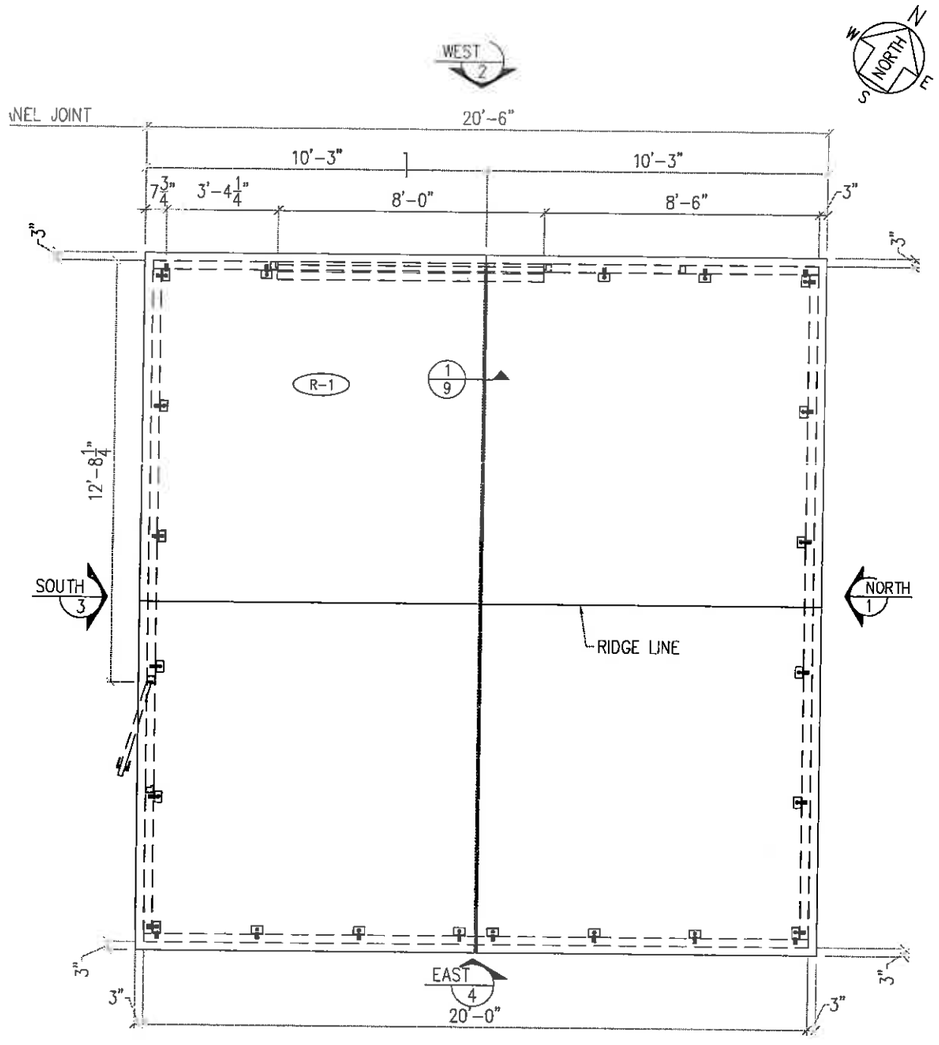
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

7
SHEET 7 OF 16

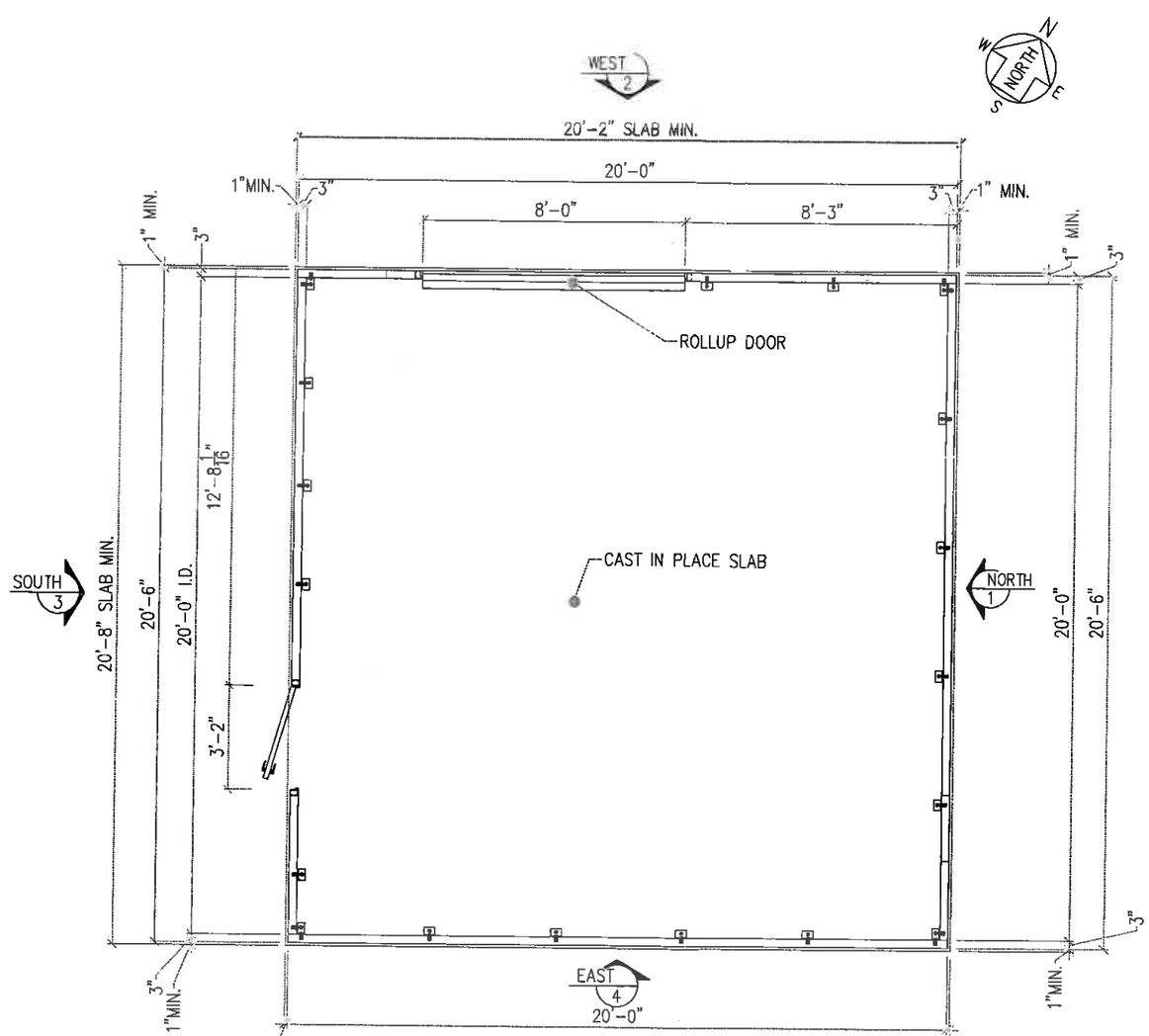
Sheet 7 - Filtration,Disinfection and Alkalinity Feed System Plan / Profile

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



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



GROUND LEVEL PLAN
1/2"=1'-0"

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

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PRINCETON, WEST VIRGINIA

PHILIP STEPHEN LOMBARDO
REGISTERED
009383
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER
5-5-16

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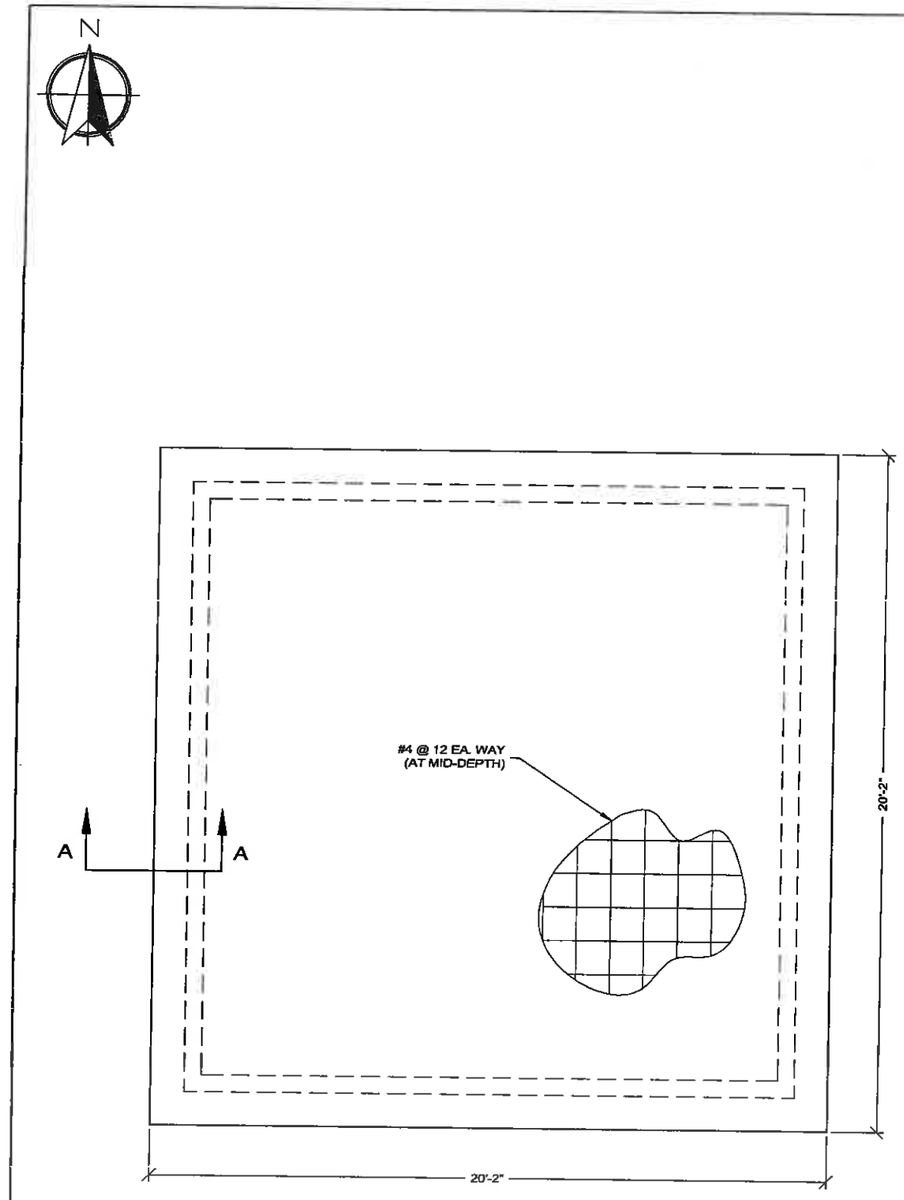
SCALE: AS NOTED	DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 8602
DESIGNED BY: GAR	DRAWN BY: PJP
APPROVED BY: PSL	

8
SHEET 8 OF 16

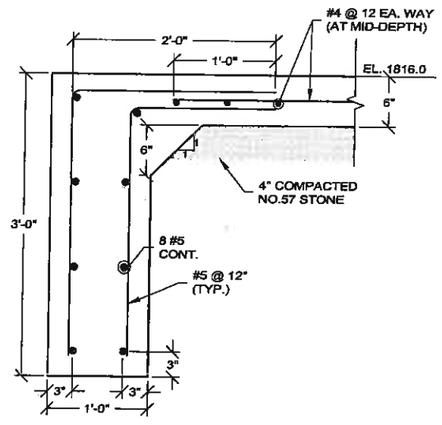
Sheet 08 - Building Plan Details and Notes

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



FLOOR SLAB PLAN
SCALE: ½" = 1'-0"



SECTION A-A
SCALE: 1-½" = 1'-0"

CONTROL CENTER NOTES

GENERAL

1. CONSTRUCTION AND DESIGN TO BE IN ACCORDANCE WITH THE 2012 IBC.
2. CONTRACTOR TO FURNISH AND INSTALL EASI-SPAN PRECAST CONCRETE BUILDING COMPRISED OF SIDES AND ROOF.
3. CONTRACTOR TO FURNISH BUILDING PLANS AND CALCULATIONS.
4. CONSTRUCTION TYPE IA NON-COMBUSTIBLE.

DESIGN

1. SEISMIC;
   SITE CLASS C
   SOIL TYPE SC
   Fa = 1.6
   Fv = 2.4
   I = 1.0
2. WIND;
   WIND SPEED = 80 mph
   EXPOSURE C
   I = 1.0
3. LOADS;
   ROOF LIVE LOAD = 20 psf
   ROOF SNOW LOAD = 30 psf

ACCESSORIES

1. DOORS: 1@ 3'-0"x7'-0"
   1 DOUBLE DOOR @ 6'-0"x7'-0" WITH LOUVERS.
   HOLLOW CORE METAL DOORS
   CLOSURES AND LOCKS.
2. ROOF ACCESS: 5'-0"x5'-0" HATCH WITH CLAMPING HOLDOWNS.
3. EXHAUST FAN: 120V, SIZED FOR 6 AIR CHANGES PER HOUR.

CAST-IN-PLACE CONCRETE CONSTRUCTION

1. CONCRETE: f'c = 4,000 psi @ 28 DAY.
2. REINFORCEMENT: GRADE 60.
3. CURE PER ACI RECOMMENDATIONS.
4. FINISH SLAB WITH STEEL TROWEL FINISH.
5. APPLY 2-COATS FLOOR HARDENER.
6. ANCHOR BOLTS TO BE HILTI-HY150 EPOXY ANCHORS, EMBED 4.0 INCHES. MIN.

EARTHWORK

1. EXCAVATE TO SLAB/ FOOTING SUBGRADE, REMOVE UNSUITABLE MATERIAL AND FILL WITH CRUSHED GRAVEL.
2. SCARIFY AND RECOMPACT SUBGRADE TO 95% STANDARD PROCTOR DENSITY.
3. LAY 10 MIL. MOISTURE BARRIER BELOW SLAB. LAP ALL JOINTS. 6" MIN.

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

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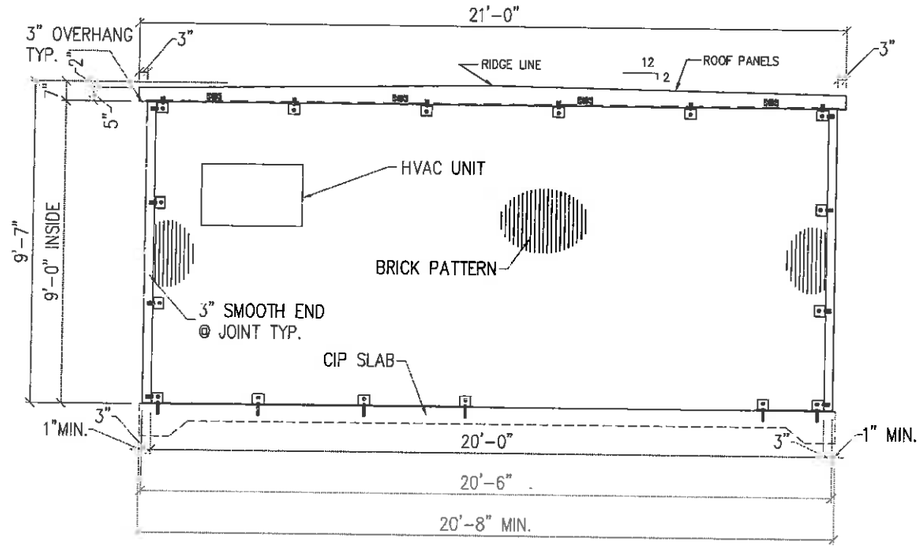
SCALE: AS NOTED	DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 5602
DESIGNED BY: SCI	DRAWN BY: SCI
APPROVED BY: SCI	

8A
SHEET 8A OF 16

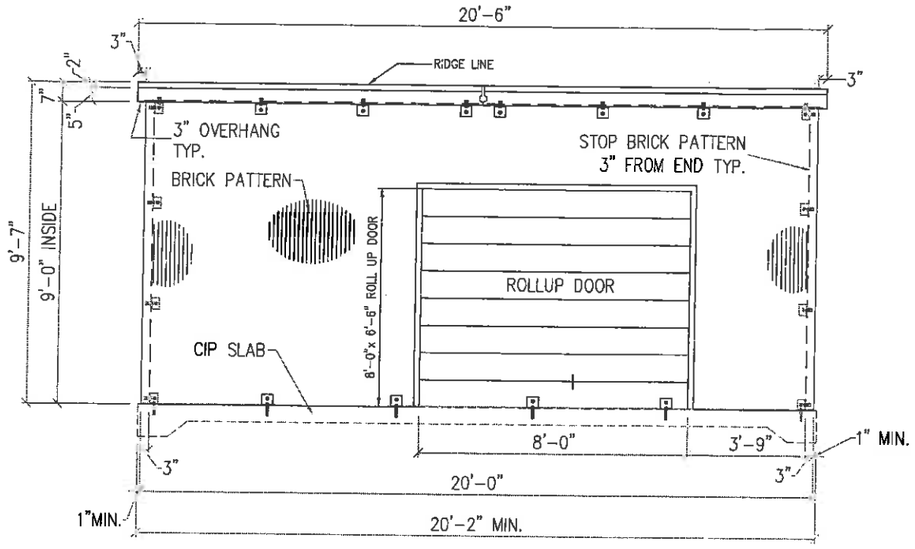
Sheet 8A - Foundation Plan, Section, and Notes

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

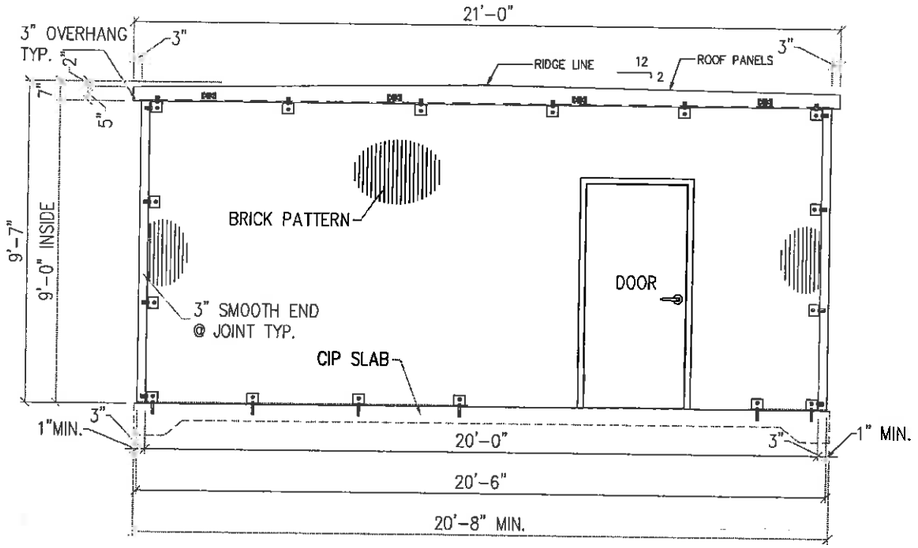
PREPARED FOR:
New Haven PSD



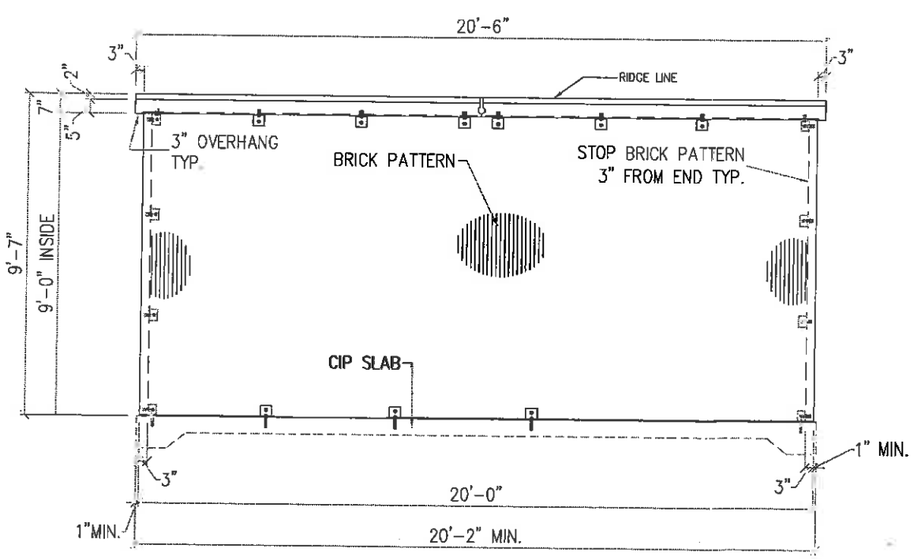
NORTH ELEVATION
1/2"=1'-0"



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



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



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

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

STEPHEN LOMBARDO REGISTERED PROFESSIONAL ENGINEER 009363 STATE OF WEST VIRGINIA

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Web Site: www.Lombardoassociates.com

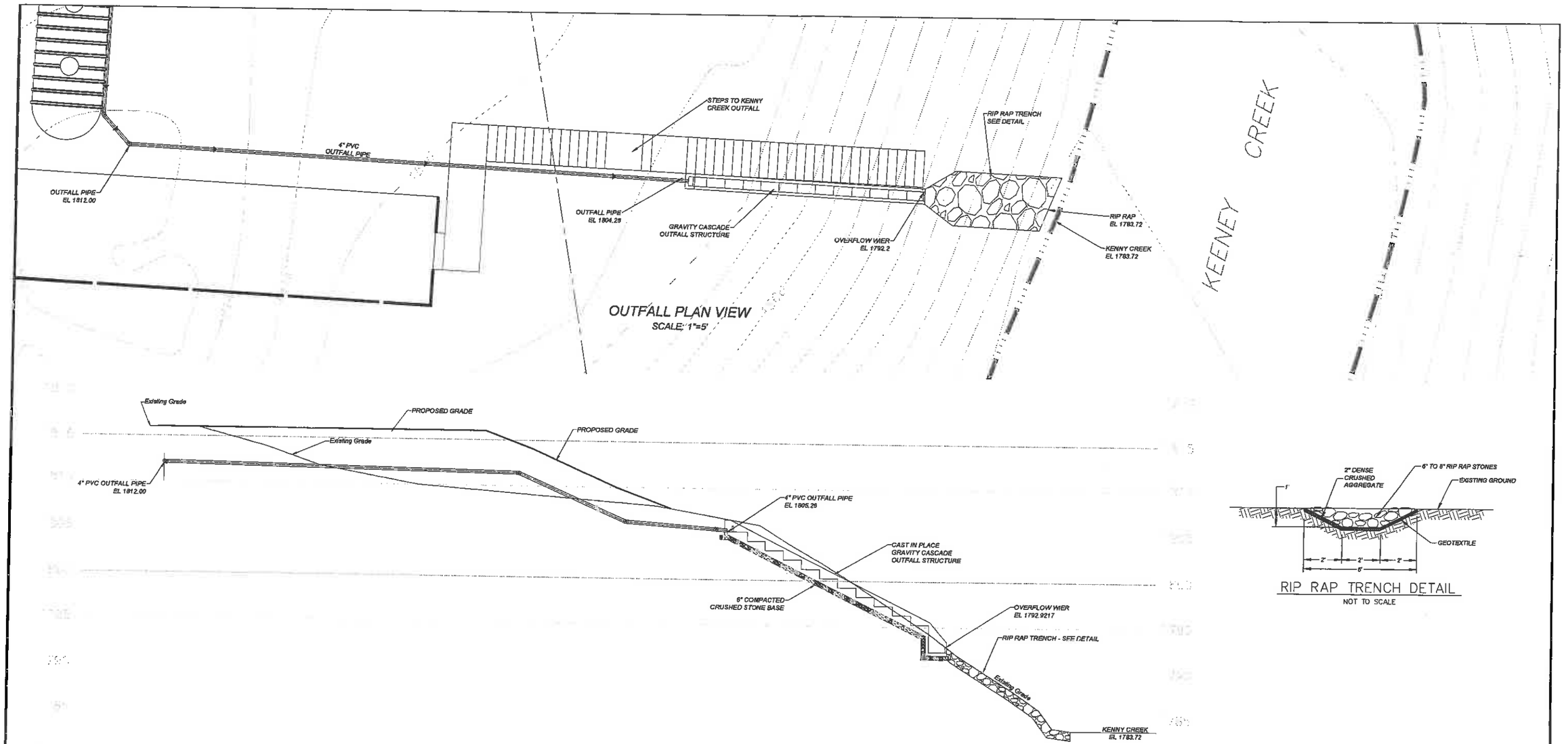
SCALE:	DATE:
AS NOTED	05 MAY 2018
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 5602
DESIGNED BY: GAR	DRAWN BY: PJP
APPROVED BY: PSL	

9
SHEET 9 OF 16

Sheet 9 - Building Elevations

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



OUTFALL PLAN VIEW
SCALE: 1"=5'

RIP RAP TRENCH DETAIL
NOT TO SCALE

GRAPHIC SCALE
(IN FEET)
1 inch = 5 ft.

OUTFALL PROFILE
SCALE: 1"=5'

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

STEPHEN LOMBARDO REGISTERED P.E. 009383 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER 5-5-16

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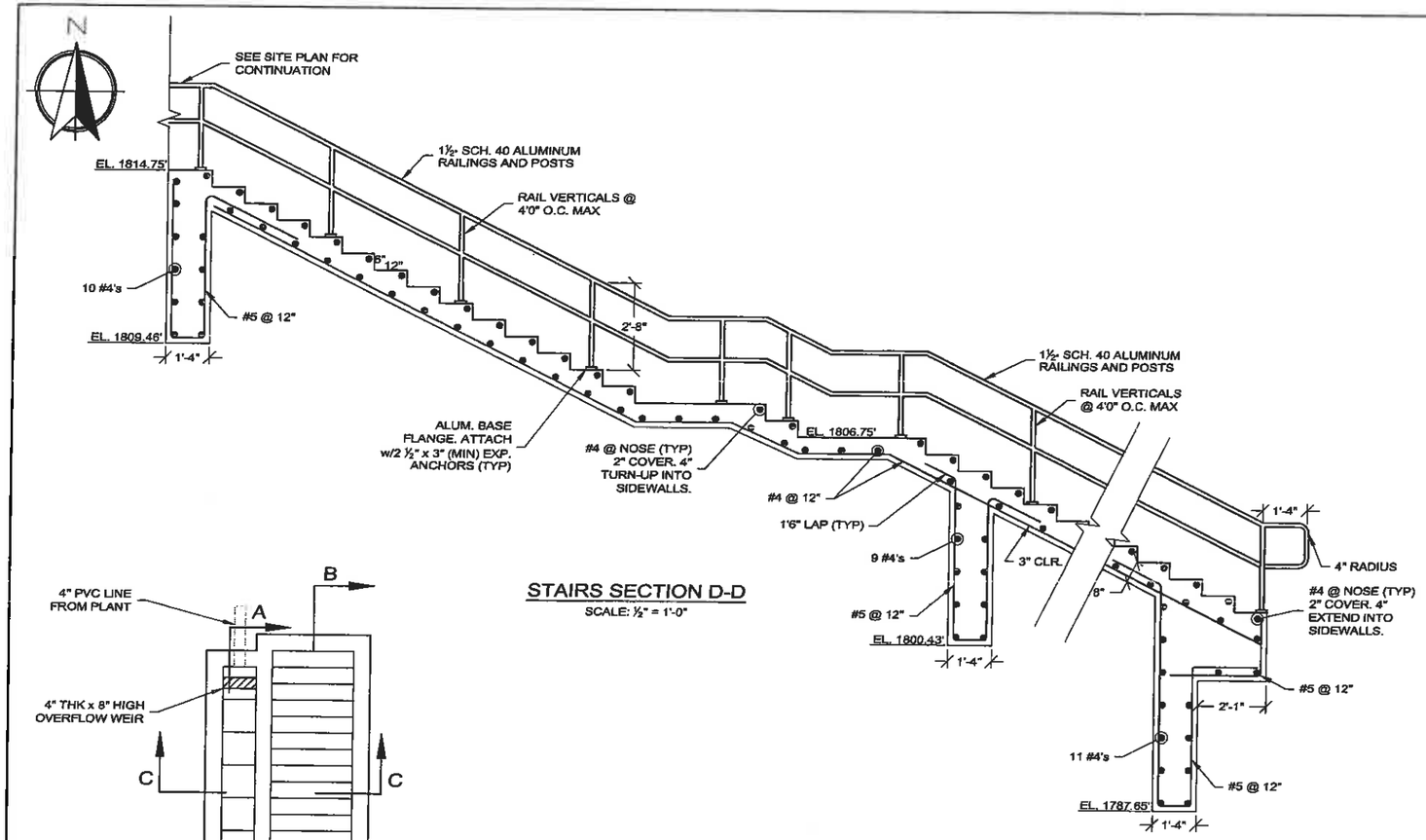
SCALE: AS NOTED
DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

10
SHEET 10 OF 16

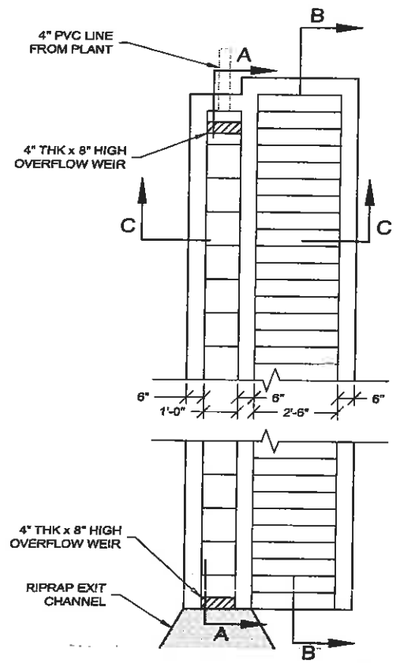
Sheet 10 - Outfall Plan, Profile and Details

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

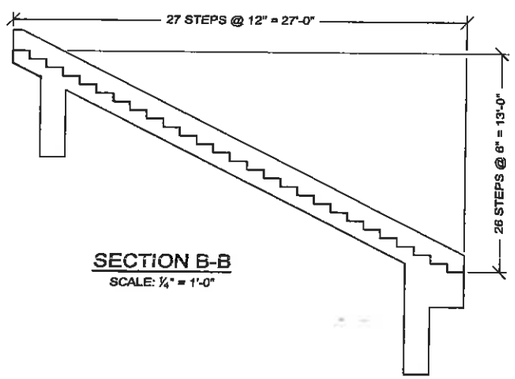
PREPARED FOR:
New Haven PSD



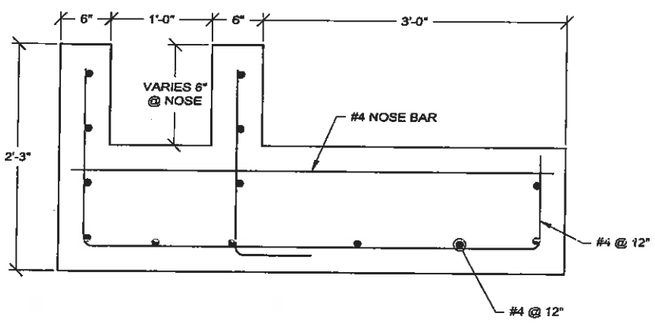
STAIRS SECTION D-D
SCALE: ½" = 1'-0"



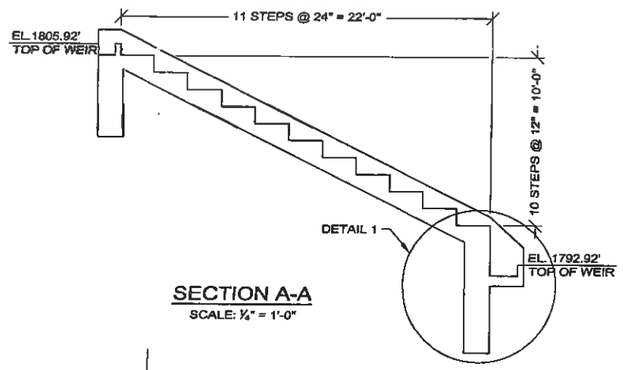
PLAN VIEW - CASCADE STEPS
SCALE: ½" = 1'-0"



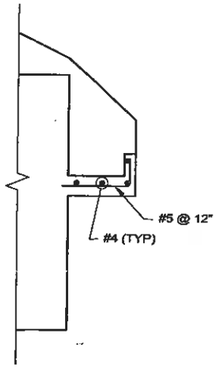
SECTION B-B
SCALE: ¼" = 1'-0"



SECTION C-C
SCALE: 1½" = 1'-0"



SECTION A-A
SCALE: ¼" = 1'-0"



DETAIL 1
SCALE: ½" = 1'-0"

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRprinceton, WEST VIRGINIA

KENNETH R. CROSIER — PROFESSIONAL ENGINEER

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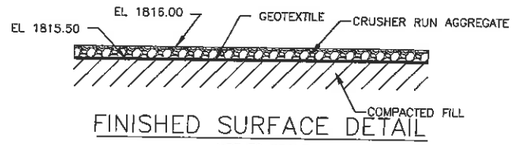
SCALE: AS NOTED	DATE: 05 MAY 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY	PROJECT NO.: 6602
DESIGNED BY: SCI	DRAWN BY: SCI
APPROVED BY: SCI	

10A
SHEET10AOF 16

Sheet 10A - Outfall Cascade Details

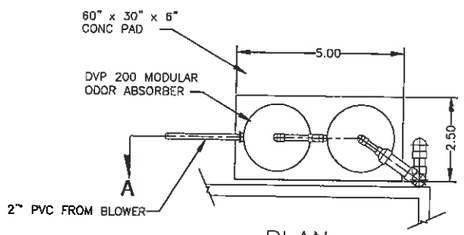
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



FINISHED SURFACE DETAIL

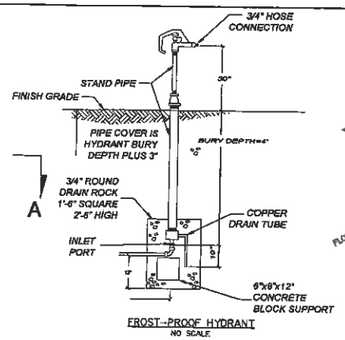
NOT TO SCALE



PLAN

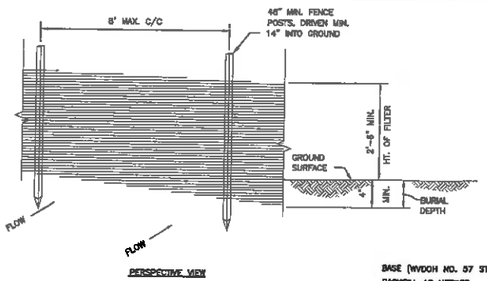
ODOR ABSORBER

NOT TO SCALE

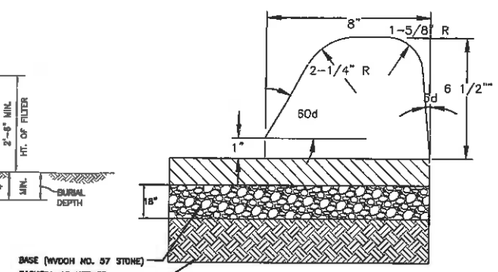


FROST-PROOF HYDRANT

NO SCALE

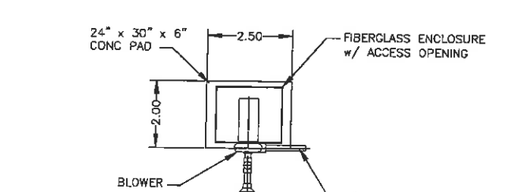


PERSPECTIVE VIEW



BITUMINOUS CURB DETAIL

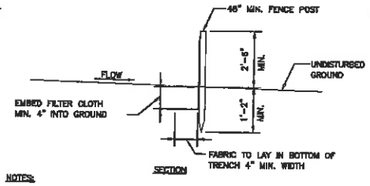
NOT TO SCALE



PLAN

ODOR ABSORBER BLOWER

NOT TO SCALE



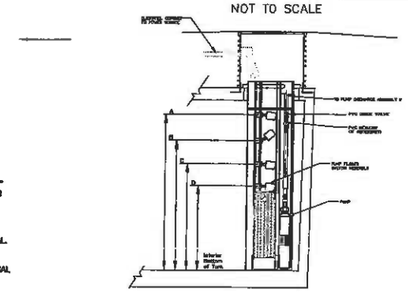
SECTION

NOTES:

1. WHEN TWO SECTIONS OF SILT FENCE JOIN, OVERLAP ACCORDING TO MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN HALF OF EXPOSED SILT FENCE IS COVERED WITH SEDIMENT.
3. POSTS SHALL BE CONSTRUCTED OF STEEL EITHER "T" OR "U" TYPE OR 1.5" HARDWOOD.
4. FILTER CLOTH SHALL BE "FILTER X", "MIRAFI 100X", "LINQ GTF 180" OR APPROVED EQUAL.
5. ALL SILT FENCE SHALL BE CHECKED AFTER ANY SIGNIFICANT RAINFALL (IN EXCESS OF 1/2"). DAMAGED SILT FENCE MUST BE REPAIRED WITHIN 24 HOURS; SOONER, IF ADDITIONAL RAINFALL IS EXPECTED.

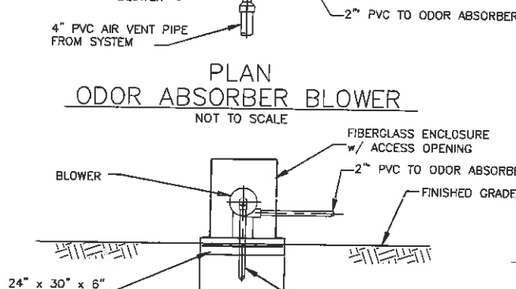
SILT FENCE DETAIL

NO SCALE



4 FLOAT OPERATION PUMP FLOAT ELEVATIONS

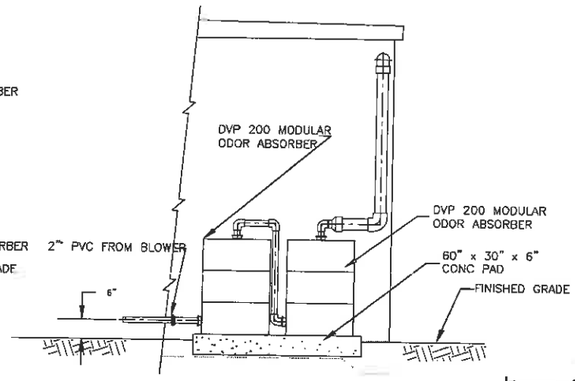
NOT TO SCALE



SECTION

ODOR ABSORBER BLOWER

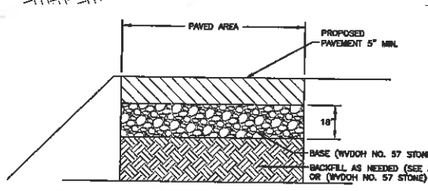
NOT TO SCALE



SECTION A-A

ODOR ABSORBER

NOT TO SCALE

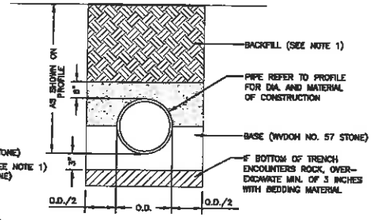


NOTE:

1. SUITABLE MATERIAL FROM EXCAVATION; NO DEBRIS, STICKS, TIMBER, WOOD, TRASH OR ORGANIC MATERIAL. NO PARTICLES GREATER THAN 6 INCHES. BACKFILL TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY OF THE BACKFILL MATERIAL.

PAVEMENT DETAIL

NO SCALE

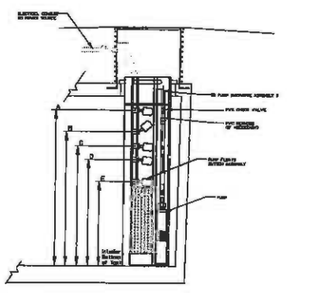


NOTE:

1. SUITABLE MATERIAL FROM EXCAVATION; NO DEBRIS, STICKS, TIMBER, WOOD, TRASH OR ORGANIC MATERIAL. NO PARTICLES GREATER THAN 6 INCHES. BACKFILL TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY OF THE BACKFILL MATERIAL.

PIPE BEDDING DETAIL

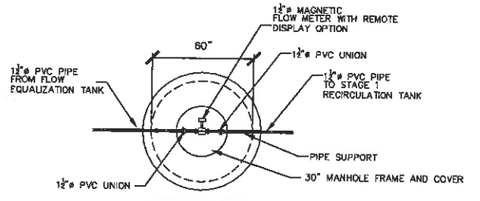
NO SCALE



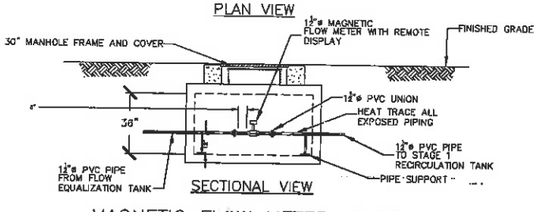
FIVE FLOAT OPERATION PUMP FLOAT ELEVATIONS

NOT TO SCALE

FLOAT ELEVATIONS (Shown as inches from the INTERIOR BOTTOM of the TANK)

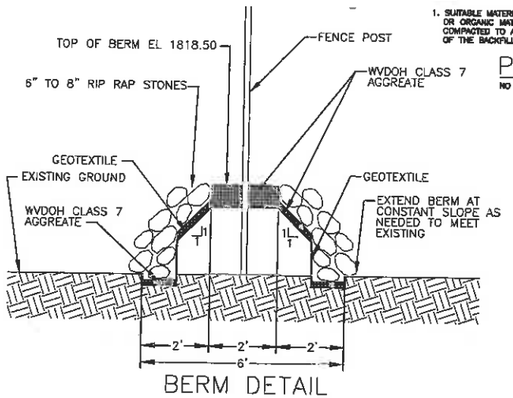


PLAN VIEW



SECTIONAL VIEW

MAGNETIC FLOW METER VAULT



BERM DETAIL

NOT TO SCALE

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED

ENGINEERING DESIGN AND CONSULTING

PRINCETON, WEST VIRGINIA

REGISTERED PROFESSIONAL ENGINEER — STEPHEN LOMBARDO — 009363 — STATE OF WEST VIRGINIA

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SCALE: AS NOTED

DATE: 05 MAY 2015

PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY

PROJECT NO.: 6602

DESIGNED BY: GAR

DRAWN BY: PJP

APPROVED BY: PSL

11

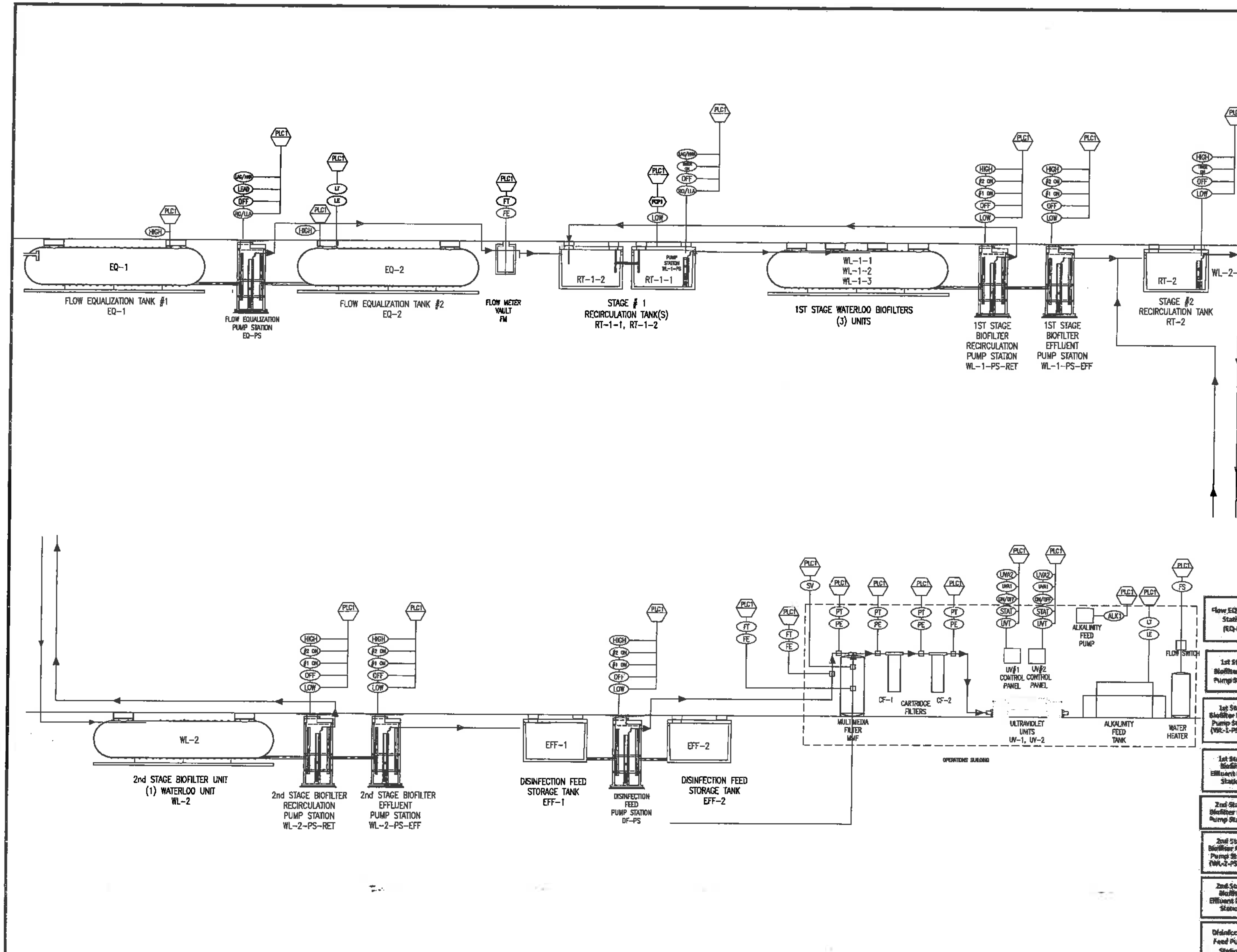
SHEET 11 OF 16

Sheet 11 - Standard Details & Equipment

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:

New Haven PSD



		Signal	Description
INPUTS	EQ-PS	LAG/HLA-1	LAG Pump ON / High Level Alarm Float
		LEAD-1	Lead Pump ON Float
		OFF-1	OFF Float
		RO/LLA-1	Redundant OFF / Low Level Alarm
	WL-1-PS	OVR/HLA-1	Override Timer setting / High Level Alarm
		ON-1	Timer ON (Normal Timer Settings)
		OFF-1	Pumps OFF
		RO/LLA-1	Redundant OFF / Low Level Alarm
	WL-1-PS-RET	OVR/HLA-1	Override Timer setting / High Level Alarm
		ON-1	Timer ON (Normal Timer Settings)
		OFF-1	Pumps OFF
		RO/LLA-2	Redundant OFF / Low Level Alarm
	WL-1-PS-EFF	LAG/HLA-4	LAG Pump ON / High Level Alarm Float
		LEAD-4	Lead Pump ON Float
		OFF-4	OFF Float
		RO/LLA-5	Redundant OFF / Low Level Alarm
	WL-2-PS	OVR/HLA-2	Override Timer setting / High Level Alarm
		ON-2	Timer ON (Normal Timer Settings)
		OFF-2	Pumps OFF
		RO/LLA-3	Redundant OFF / Low Level Alarm
	WL-2-PS-RET	OVR/HLA-1	Override Timer setting / High Level Alarm
		ON-1	Timer ON (Normal Timer Settings)
		OFF-1	Pumps OFF
		RO/LLA-2	Redundant OFF / Low Level Alarm
	WL-2-PS-EFF	LAG/HLA-4	LAG Pump ON / High Level Alarm Float
		LEAD-4	Lead Pump ON Float
		OFF-4	OFF Float
		RO/LLA-5	Redundant OFF / Low Level Alarm
	DF-PS	LAG/HLA-4	LAG Pump ON / High Level Alarm Float
		LEAD-4	Lead Pump ON Float
		OFF-4	OFF Float
		RO/LLA-6	Redundant OFF / Low Level Alarm
	Instrumentation	FM-1	Wastewater Flow Meter
		HLA-6	Flow EQ #1 High Water Alarm
		HLA-7	Flow EQ #2 High Water Alarm
		LV-1	Flow EQ Level Sensor
		PR-1	Multi Media Filter Inlet Pressure
		PR-2	Multi Media Filter Outlet Pressure
		PR-3	10 Micron Filter Outlet Pressure
		PR-4	5 Micron Filter Outlet Pressure
		PR-5	5 Micron Filter Outlet Pressure
		FM-2	Filtration system flow meter
		FM-3	Backwash flow meter
		UVS-1	UV #1 ON/OFF Status
		UVS-2	UV #2 ON/OFF Status
		UVT-1	UV #1 Intensity Sensor
		UVT-2	UV #2 Intensity Sensor
		UV1A-1	UV #1 Alarm #1
		UV1A-2	UV #1 Alarm #2
		UV2A-1	UV #2 Alarm #1
		UV2A-2	UV #2 Alarm #2
		LV-2	Soda Ash Tank Level Sensor
		FS-1	Safety Station Flow Switch Status

	Signal	Description
OUTPUTS	P-1	EQ-1 Pump #1 ON/OFF Signal
	P-2	EQ-2 Pump #1 ON/OFF Signal
	P-3	BF-1 Pump #1 ON/OFF Signal
	P-4	BF-1 Pump #2 ON/OFF Signal
	P-5	BR-1 Pump #1 ON/OFF Signal
	P-6	BR-1 Pump #2 ON/OFF Signal
	P-7	BE-1 Pump #1 ON/OFF Signal
	P-8	BE-1 Pump #2 ON/OFF Signal
	P-9	BF-2 Pump #1 ON/OFF Signal
	P-10	BF-2 Pump #2 ON/OFF Signal
	P-11	BR-2 Pump #1 ON/OFF Signal
	P-12	BR-2 Pump #2 ON/OFF Signal
	P-13	BE-2 Pump #1 ON/OFF Signal
	P-14	BE-2 Pump #2 ON/OFF Signal
	P-15	DF-1 Pump #1 ON/OFF Signal
	P-16	DF-2 Pump #2 ON/OFF Signal
	UV-1	UV 1 ON/OFF
	UV-2	UV 2 ON/OFF
	BW-1	Initiate Backwash Signal
	SV-1	Backwash Feed Solenoid Valve ON/OFF Signal
	BW-1	[illegible] State Backwash Signal
	ALK-1	Alkalinity Feed Pump Signal, 4-20 mA

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

PIO STEPHEN LOMBARDO REGISTERED 009383 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER
5-5-16

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PROJECT NO.: 6602
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DRAWN BY: PJP
APPROVED BY: PSL

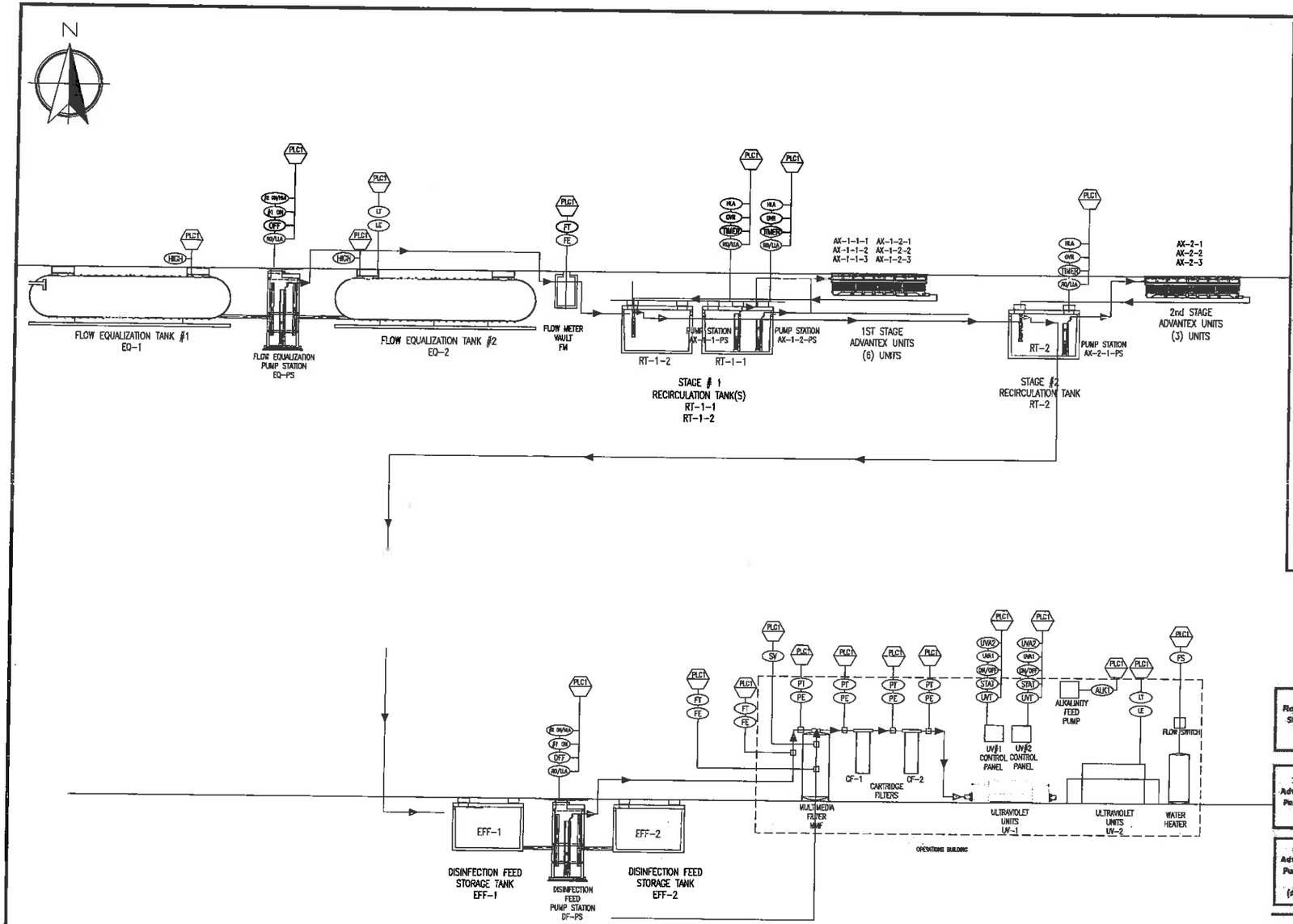
12

SHEET 12 OF 16

Sheet 12 - Process and Instrumentation Diagram
Waterloo Biofilter

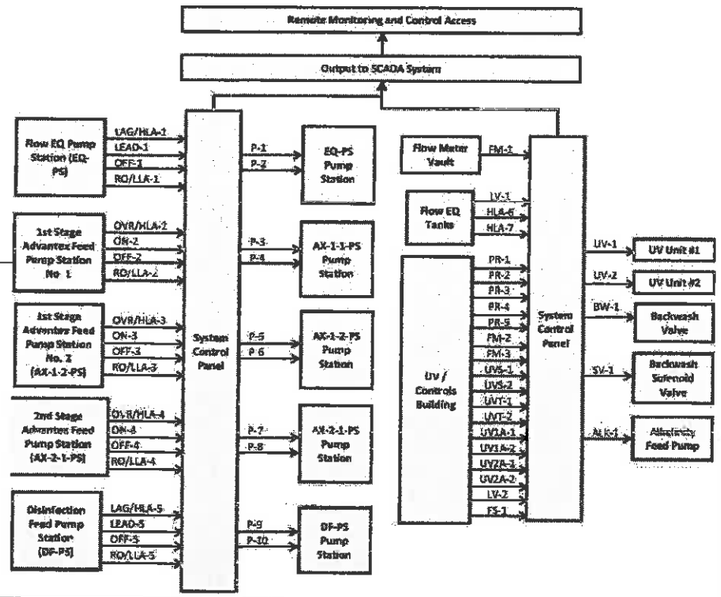
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



	Signal	Description
INPUTS – EQ-PS	LAG/HLA-1	LAG Pump ON / High Level Alarm Float
	LEAD-1	Lead Pump ON Float
	OFF-1	OFF Float
	RO/LLA-1	Redundant OFF / Low Level Alarm
INPUTS – AX-1-1-PS	OVR/HLA-2	Override Timer setting / High Level Alarm
	ON-2	Timer ON (Normal Timer Settings)
	OFF-2	Pumps OFF
	RO/LLA-2	Redundant OFF / Low Level Alarm
INPUTS – AX-1-2-PS	OVR/HLA-3	Override Timer setting / High Level Alarm
	ON-3	Timer ON (Normal Timer Settings)
	OFF-3	Pumps OFF
	RO/LLA-3	Redundant OFF / Low Level Alarm
INPUTS – AX-2-1-PS	OVR/HLA-4	Override Timer setting / High Level Alarm
	ON-4	Timer ON (Normal Timer Settings)
	OFF-4	Pumps OFF
	RO/LLA-4	Redundant OFF / Low Level Alarm
INPUTS – DF-PS	LAG/HLA-5	LAG Pump ON / High Level Alarm Float
	LEAD-5	Lead Pump ON Float
	OFF-5	OFF Float
	RO/LLA-5	Redundant OFF / Low Level Alarm
INPUTS – Instrumentation	FM-1	Wastewater Flow Meter
	HLA-6	Flow EQ #1 High Water Alarm
	HLA-7	Flow EQ #2 High Water Alarm
	LV-1	Flow EQ Level Sensor
	PR-1	Multi-Media Filter Inlet Pressure
	PR-2	Multi-Media Filter Outlet Pressure
	PR-3	10-Micron Filter Outlet Pressure
	PR-4	5-Micron Filter Outlet Pressure
	PR-5	5-Micron Filter Outlet Pressure
	FM-2	Filtration system flow meter
	FM-3	Backwash flow meter
	UVS-1	UV #1 ON/OFF Status
	UVS-2	UV #2 ON/OFF Status
	UVT-1	UV #1 Intensity Sensor
	UVT-2	UV #2 Intensity Sensor
	UV1A-1	UV #1 Alarm #1
	UV1A-2	UV #1 Alarm #2
	UV2A-1	UV #2 Alarm #1
	UV2A-2	UV #2 Alarm #2
	LV-2	Soda Ash Tank Level Sensor
	FS-1	Safety Station Flow Switch Status

	Signal	Description
OUTPUTS	P-1	FE-1 Pump #1 ON/OFF Signal
	P-2	FE-2 Pump #2 ON/OFF Signal
	P-3	AX-1 Pump #1 ON/OFF Signal
	P-4	AX-1 Pump #2 ON/OFF Signal
	P-5	AX-2 Pump #1 ON/OFF Signal
	P-6	AX-2 Pump #2 ON/OFF Signal
	P-7	AX-3 Pump #1 ON/OFF Signal
	P-8	AX-3 Pump #2 ON/OFF Signal
	P-9	DF-1 Pump #1 ON/OFF Signal
	P-10	DF-2 Pump #2 ON/OFF Signal
	UV-1	UV-1 ON/OFF
	UV-2	UV-2 ON/OFF
	BW-1	Initiate Backwash Signal
	SV-1	Alkalinity Feed Pump Signal, 4-20 mA
	ALK-1	Alkalinity Feed Pump Signal, 4-20 mA



REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

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DATE: 05 MAY 2016
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PROJECT NO.: 5602
DESIGNED BY: GAR
DRAWN BY: PJP
APPROVED BY: PSL

12A
SHEET12A OF 16

Sheet 12A - Process and Instrumentation Diagram Advantex

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

LEGEND:

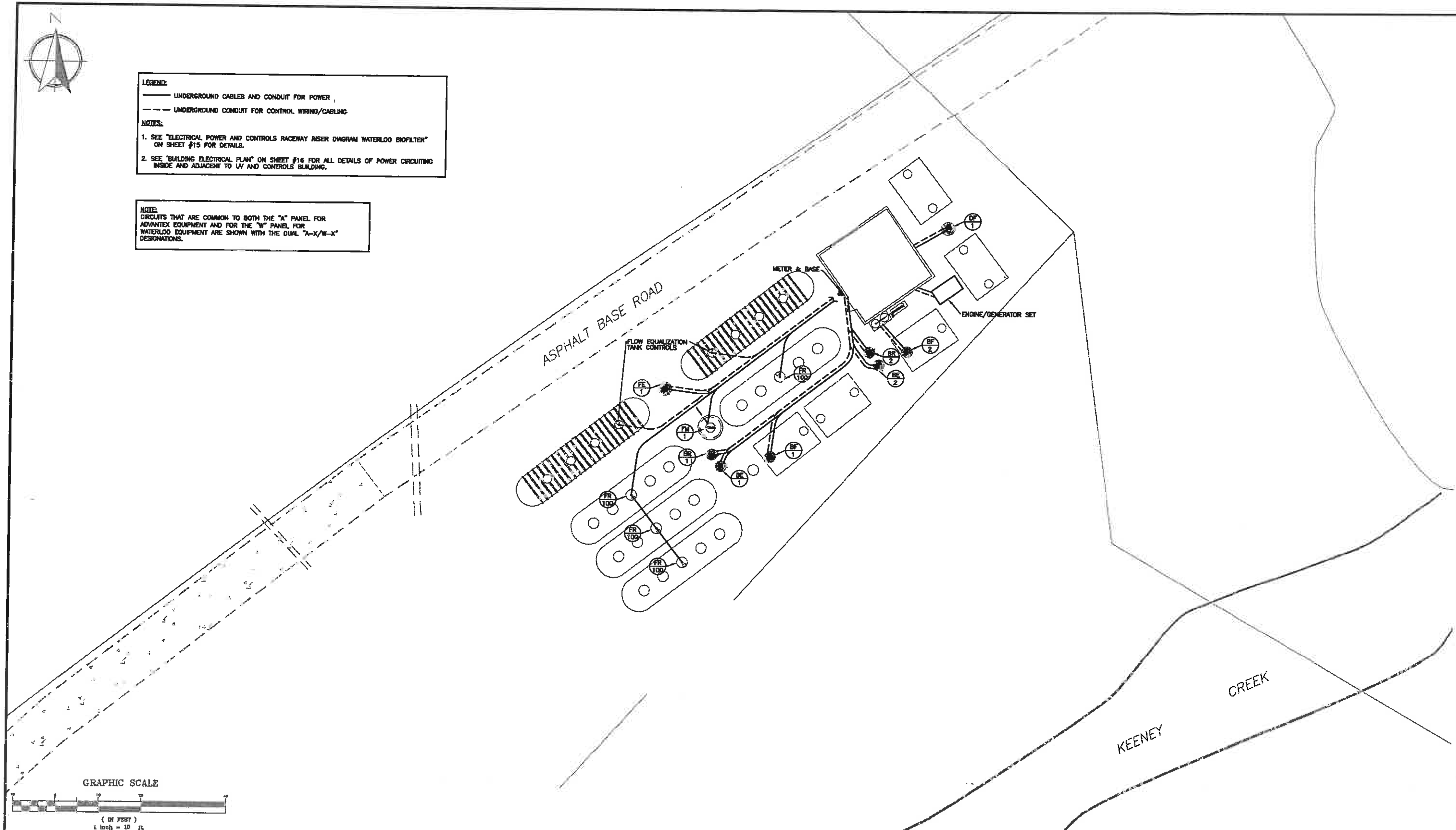
——— UNDERGROUND CABLES AND CONDUIT FOR POWER

— — — UNDERGROUND CONDUIT FOR CONTROL WIRING/CABLING

NOTES:

1. SEE "ELECTRICAL POWER AND CONTROLS RACEWAY RISER DIAGRAM WATERLOO BIOFILTER" ON SHEET #15 FOR DETAILS.
2. SEE 'BUILDING ELECTRICAL PLAN" ON SHEET #16 FOR ALL DETAILS OF POWER CIRCUITING INSIDE AND ADJACENT TO UV AND CONTROLS BUILDING.

NOTE:
CIRCUITS THAT ARE COMMON TO BOTH THE "A" PANEL FOR ADVANTEX EQUIPMENT AND FOR THE "W" PANEL FOR WATERLOO EQUIPMENT ARE SHOWN WITH THE DUAL "A-X/W-X" DESIGNATIONS.



REVISIONS

NO.	DATE	DESCRIPTION	BY	APPR.

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PRINCETON, WEST VIRGINIA

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SCALE: AS NOTED
DATE: 31 MARCH 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY:
DRAWN BY: STAFF
APPROVED BY: DLE

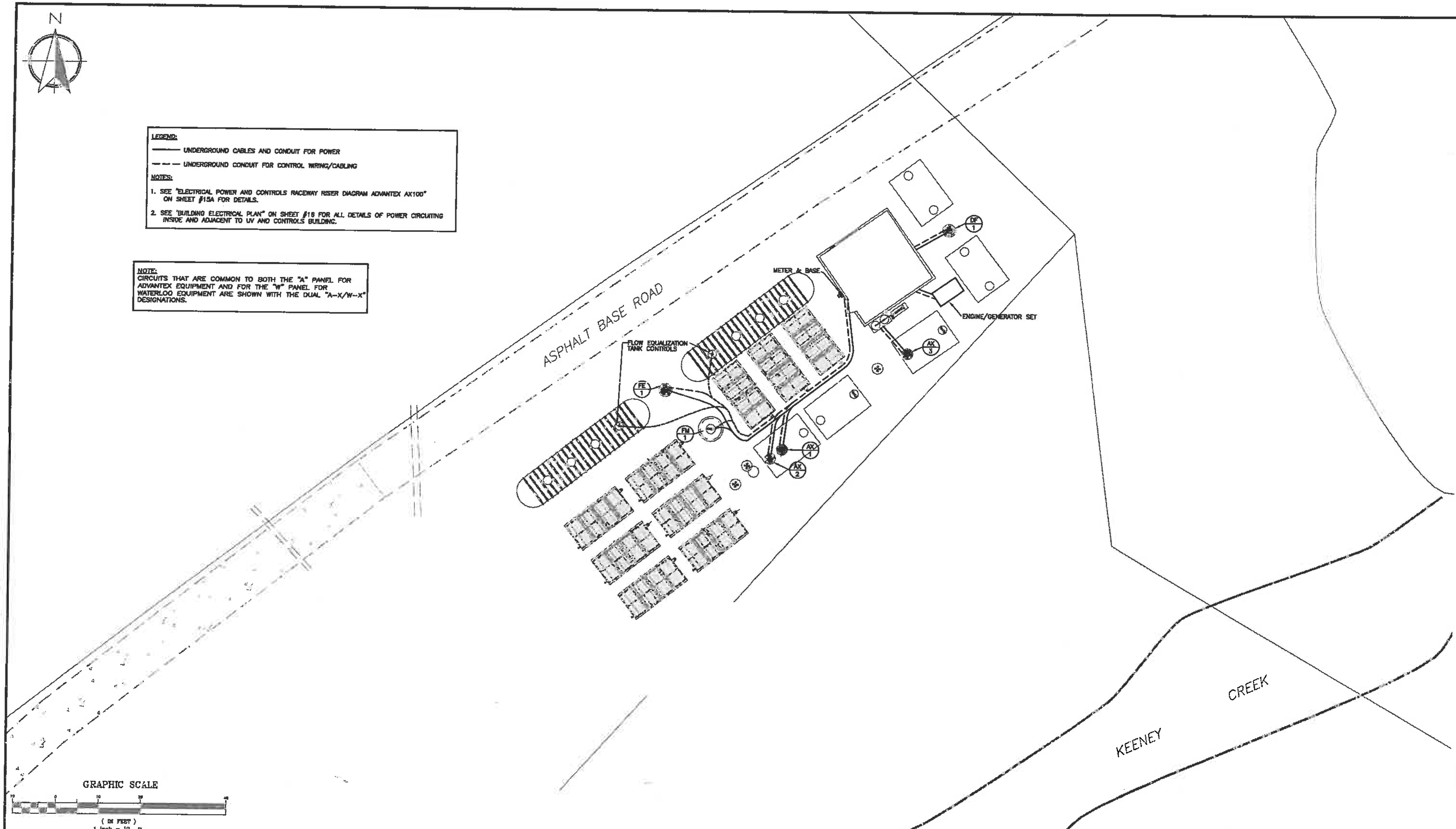
13

SHEET 13 OF 16

Sheet 13 - Wastewater Treatment Plant Electrical Layout
Waterloo Biofilter

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD



LEGEND:

——— UNDERGROUND CABLES AND CONDUIT FOR POWER

— — — UNDERGROUND CONDUIT FOR CONTROL WIRING/CABLING

NOTES:

1. SEE "ELECTRICAL POWER AND CONTROLS RACEWAY RISER DIAGRAM ADVANTEX AX100" ON SHEET #15A FOR DETAILS.
2. SEE "BUILDING ELECTRICAL PLAN" ON SHEET #16 FOR ALL DETAILS OF POWER CIRCUITING INSIDE AND ADJACENT TO UV AND CONTROLS BUILDING.

NOTE:
CIRCUITS THAT ARE COMMON TO BOTH THE "A" PANEL FOR ADVANTEX EQUIPMENT AND FOR THE "W" PANEL FOR WATERLOO EQUIPMENT ARE SHOWN WITH THE DUAL "A-X/W-X" DESIGNATIONS.

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DATE: 31 MARCH 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY:
DRAWN BY: STAFF
APPROVED BY: DLE

13A
SHEET 13A OF 16

Sheet 13A - Wastewater Treatment Plant Electrical Layout
Advantex AX100

Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

N

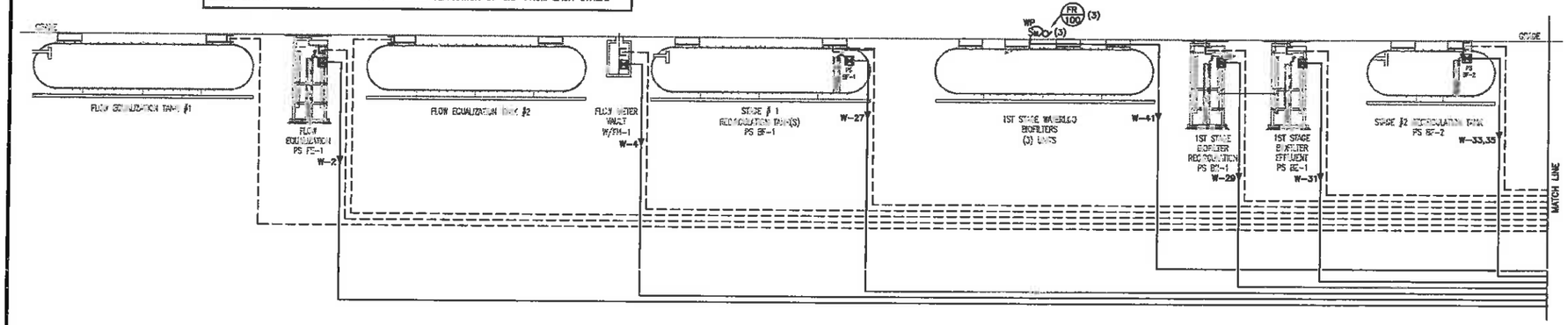
LEGEND:

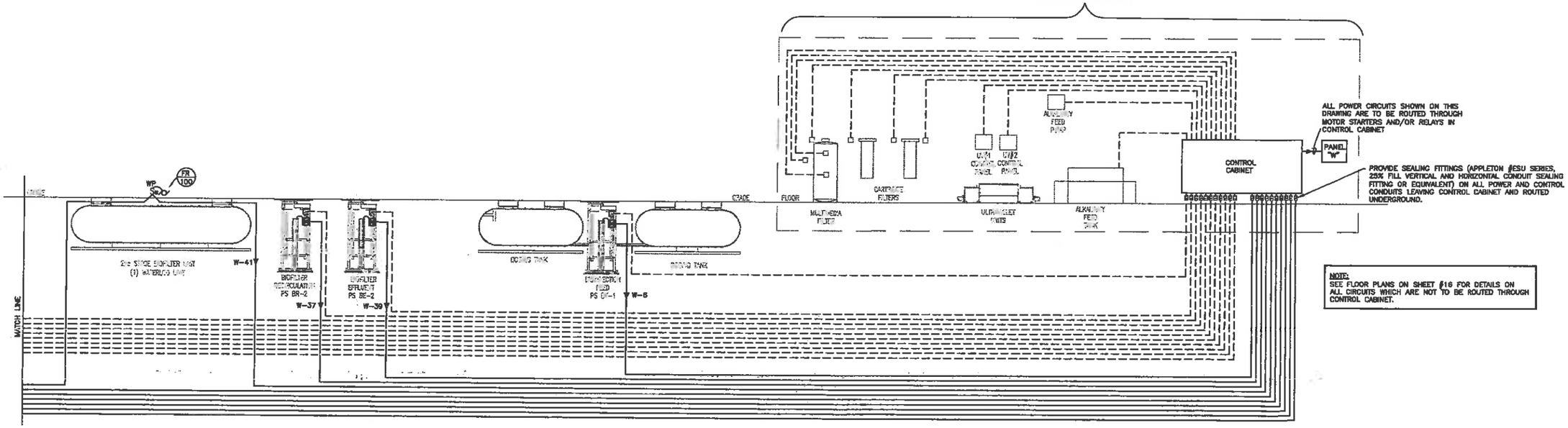
——— CABLES AND CONDUIT FOR POWER

– – – CONDUIT FOR CONTROL WIRING/CABLING

NOTES:

1. COORDINATE WITH CONTROLS AND EQUIPMENT SUPPLIER/INSTALLER TO PROVIDE CORRECT QUANTITY, TYPE, AND SIZE OF CABLES/WIRES AND CONDUITS FOR CONTROLS AND SIGNALS. ALL CONTROLS CONDUIT IS TO BE A MINIMUM OF 1".
2. ALL CONTROLS CONDUIT IS TO BE BURIED AT A MINIMUM OF 24" BELOW GRADE TO TOP OF CONDUIT.
3. ALL POWER CIRCUIT CONDUIT IS TO BE BURIED AT A MINIMUM OF 36" BELOW GRADE TO TOP OF CONDUIT.
4. ALL POWER CONDUITS ARE TO BE KEPT AT A MINIMUM SEPARATION OF 12" FROM ALL CONTROLS CONDUITS.
5. ALL CONDUITS ARE TO BE KEPT AT A MINIMUM SEPARATION OF 6.5" FROM EACH OTHER.





NOTE:
SEE FLOOR PLANS ON SHEET #16 FOR DETAILS ON ALL CIRCUITS WHICH ARE NOT TO BE ROUTED THROUGH CONTROL CABINET.

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SCALE: AS NOTED
DATE: 31 MARCH 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 8602
DESIGNED BY:
DRAWN BY: STAFF
APPROVED BY: DLE

14
SHEET 14 OF 16

Sheet 14 - Electric Power and Controls Raceway Riser Diagram
Waterloo Biofilter
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

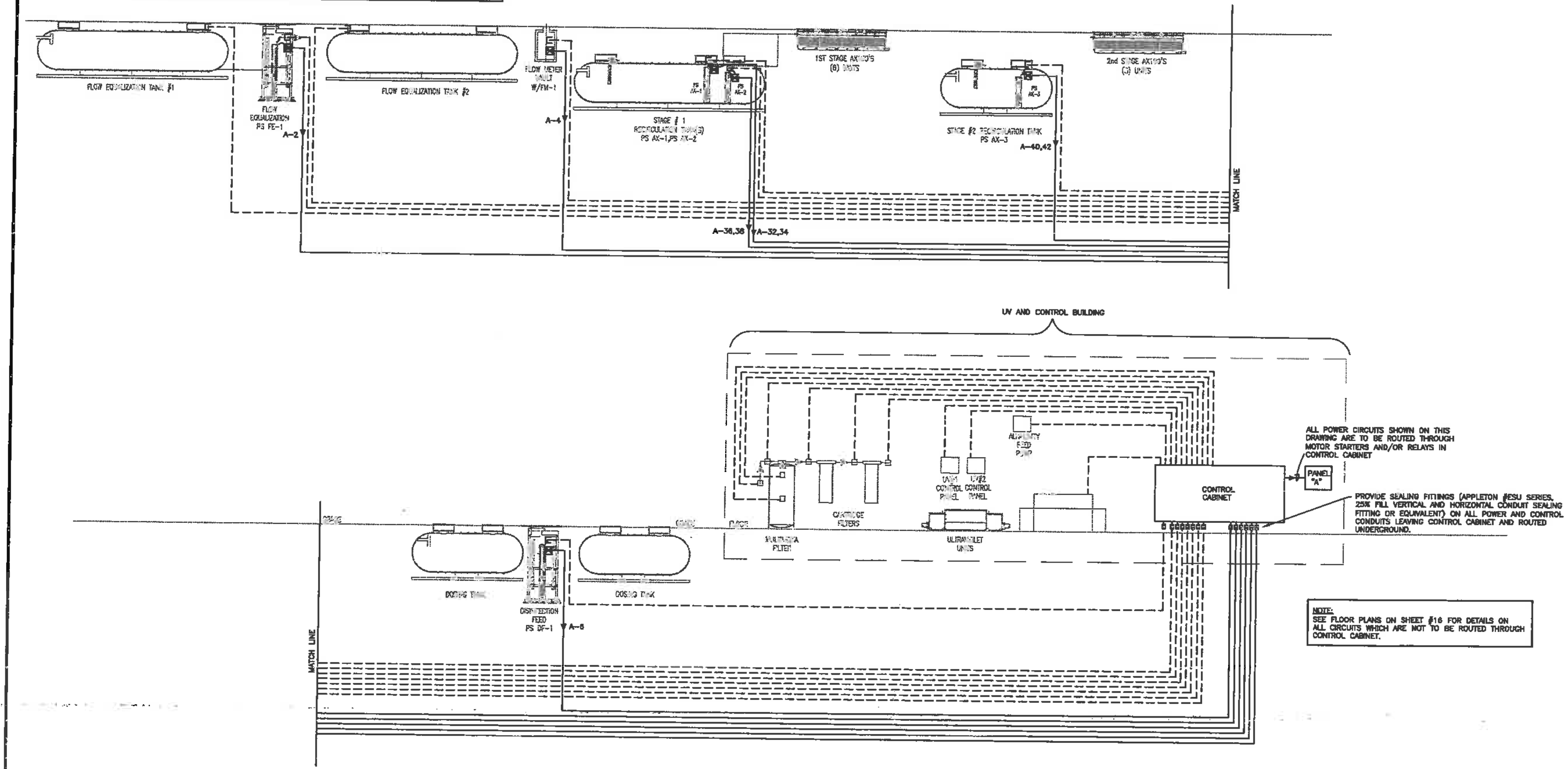
LEGEND:

——— CABLES AND CONDUIT FOR POWER

– – – CONDUIT FOR CONTROL WIRING/CABLING

NOTES:

1. COORDINATE WITH CONTROLS AND EQUIPMENT SUPPLIER/INSTALLER TO PROVIDE CORRECT QUANTITY, TYPE, AND SIZE OF CABLES/WIRES AND CONDUITS FOR CONTROLS AND SIGNALS. ALL CONTROLS CONDUIT IS TO BE A MINIMUM OF 1".
2. ALL CONTROLS CONDUIT IS TO BE BURIED AT A MINIMUM OF 24" BELOW GRADE TO TOP OF CONDUIT.
3. ALL POWER CIRCUIT CONDUIT IS TO BE BURIED AT A MINIMUM OF 36" BELOW GRADE TO TOP OF CONDUIT.
4. ALL POWER CONDUITS ARE TO BE KEPT AT A MINIMUM SEPARATION OF 12" FROM ALL CONTROLS CONDUITS.
5. ALL CONDUITS ARE TO BE KEPT AT A MINIMUM SEPARATION OF 6.5" FROM EACH OTHER.



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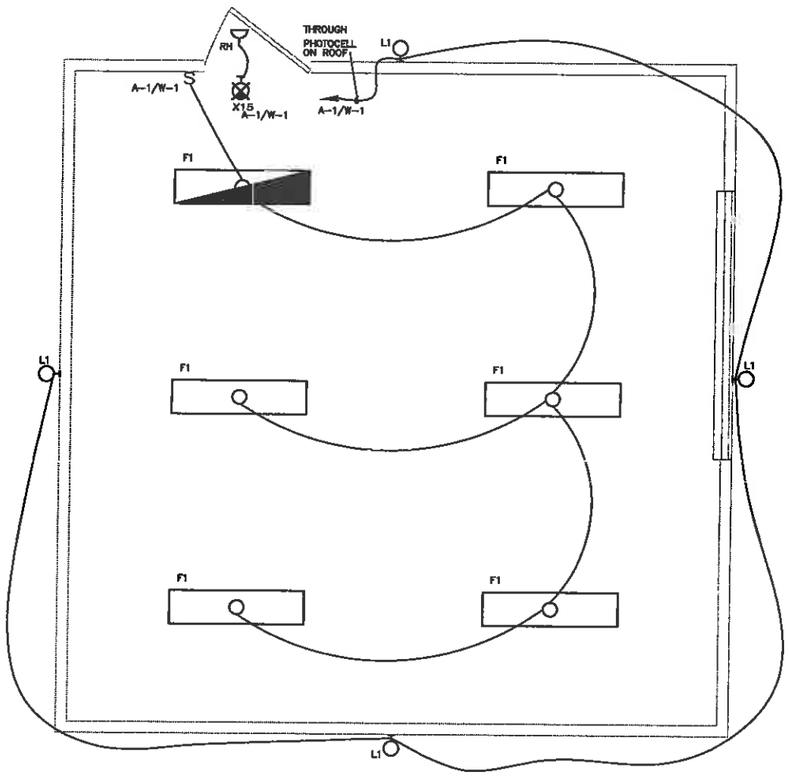
DATE: 31 MARCH 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY:
DRAWN BY: STAFF
APPROVED BY: OLE

14A
SHEET14A OF 16

Sheet 14A - Electric Power and Controls Raceway Riser Diagram
Advantex AX 100
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR: New Haven PSD

NOTE:
CIRCUITS THAT ARE COMMON TO BOTH THE "A" PANEL FOR ADVANTEX EQUIPMENT AND FOR THE "W" PANEL FOR WATERLOO EQUIPMENT ARE SHOWN WITH THE DUAL "A-X/W-X" DESIGNATIONS.



LIGHTING FLOOR PLAN

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

LIGHTING FIXTURE SCHEDULE

MARK	LAMPS/TYPE	MOUNTING	MANUFACTURER	SERIES	DESCRIPTION	NOTES
F1	4,000 LUMEN LED 4,100° K	SURFACE OR PENDANT	LITHONIA	#VAP LED	8"x54"L, POLYCARBONATE HOUSING, GASKETED, WET LOCATION AND IP65 RATED, CLEAR POLYCARBONATE LENS WITH RIB DETAIL	MOUNT AS HIGH AS POSSIBLE
L1	2100 LUMEN 4000°K LED	WALL	LITHONIA	#TWR1	13"W x 9"H x 8"D, CAST ALUMINUM, DARK BRONZE HOUSING, PRISMATIC GLASS LENS, 6 KV SURGE PROTECTION	MOUNT AS HIGH AS POSSIBLE
X15	LED	UNIVERSAL	LITHONIA	#LHQM	SINGLE FACED THERMOPLASTIC RED LETTER EXIT W/ BATTERY PACK, ONE WEATHERPROOF REMOTE HEAD #ELA-AFNR WITH 2-6W 6V XENON LAMPS	

GENERAL COORDINATION NOTE:

THE ELECTRICAL CONTRACTOR IS TO COORDINATE WITH THE MECHANICAL CONTRACTOR AND THE SUPPLIERS/INSTALLERS OF ALL EQUIPMENT BOTH INSIDE THE BUILDING AND OUTSIDE ON THE SITE TO VERIFY EXACT LOCATIONS, MOUNTING HEIGHTS, AND ALL OTHER DETAILS TO PROVIDE CORRECT INSTALLATIONS AND FULLY FUNCTIONING SYSTEMS.

PLAN NOTES:

(A) PROVIDE TELECOMMUNICATIONS CONNECTION BOARD AND POWER CONNECTION PER PLAN NOTES "R" AND "S" ON SHEET #18.

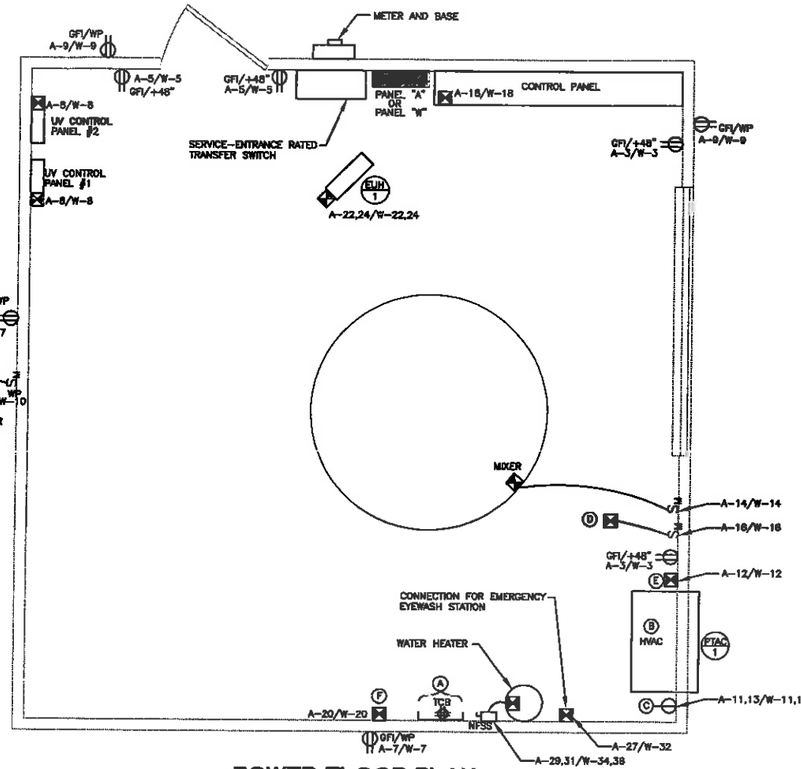
(B) PROVIDE HVAC UNIT PER SCHEDULE ON THIS DRAWING. SEE PLAN NOTE "C" ON THIS DRAWING.

(C) ELECTRICAL CONTRACTOR IS TO COORDINATE WITH MECHANICAL CONTRACTOR AND/OR HVAC EQUIPMENT SUPPLIER TO PROVIDE CORRECT RECEPTACLE CONFIGURATION FOR CORDED PLUG ON HVAC UNIT.

(D) PROVIDE POWER FOR ALKALINITY FEED PUMP. COORDINATE WITH EQUIPMENT SUPPLIER FOR EXACT MOUNTING HEIGHT, LOCATION AND ALL DETAILS.

(E) PROVIDE POWER CONNECTION FOR HEAT TRACE WIRING. COORDINATE WITH SUPPLIER/INSTALLER OF TUBING TO BE PROTECTED FOR EXACT MOUNTING HEIGHT, LOCATION AND ALL DETAILS.

(F) PROVIDE POWER CONNECTION FOR CONTROL VALVE. COORDINATE WITH EQUIPMENT SUPPLIER/INSTALLER FOR EXACT MOUNTING HEIGHT, LOCATION AND ALL DETAILS.



POWER FLOOR PLAN

SCALE: 1/2" = 1'-0"
NOTE: SEE RISER DIAGRAMS ON SHEET #16 FOR DETAILS

ELECTRIC UNIT HEATER SCHEDULE

MARK	MFR.	MODEL NO.	HTG. KW INPUT-@ SEA LEVEL	TEMP RISE °F	FAN HP	FAN RPM	FAN CFM	ELEC. CHAR.	REMARKS
EUH-1	RAYWALL	WD - SERIES 21WDST01	3.3	26	---	---	400	230/1Ø/14 AMP	1,2

1. PROVIDE WITH FUSED DISCONNECT, INTEGRAL THERMOSTAT (ADJUSTABLE - 65°F), SUMMER FAN SWITCH, AND MOUNTING HARDWARE.
2. HORIZONTAL DISCHARGE UNIT. MOUNT AS HIGH AS POSSIBLE.

PTAC UNIT SCHEDULE

MARK	MFR.	MODEL NO.	CFM MAX/MIN	VOLTS/PHASE	MOCP	TOTAL COOLING CAPACITY MBH	HEATING CAPACITY MBH	REMARKS
PTAC-1	FREDRICH	PDH-07K	345/295	230V/1Ø	16	7.7	8.3	1,2

1. HEATPUMP UNIT WITH INTEGRAL THERMOSTAT. PROVIDE ALL WIRING/CONDUIT AND CONTROL DEVICES.
2. PROVIDE WITH WALL SLEEVE ASSEMBLY TO MOUNT UNIT. CONTRACTOR TO PROVIDE SUPPORTS, WALL SLEEVE AND PIPING PENETRATIONS. PROVIDE OTHER ACCESSORIES PER SPECIFICATIONS. SET UNIT WITH BOTTOM A MINIMUM OF 24"AFF.
3. FURNISH POWER CONNECTION, 75 CFM OA VENT.

REVISIONS

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APPROVED BY: DLE

15
SHEET 15 OF 16

Sheet 15 - Building Electrical Plan, Details and Notes
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR:
New Haven PSD

PANEL: "A" (FOR ADVANTEX EQUIPMENT)							
LOCATION: UV AND CONTROLS BUILDING							
120/240 VOLTS, 1 PHASE, 3 WIRE							
☐ MAIN LUG ONLY				☒ MAIN BREAKER			
BUS RATING: AMPS				MAIN BREAKER: 200 AMPS			
MINIMUM INTERRUPTING CAPACITY: 10,000 AMPS SYM.							
☐ FLUSH MOUNT				☒ SURFACE MOUNT			
PROVIDE IF CHECKED:				☐ ISOLATED GROUND BUS			
☒ EQUIPMENT GROUND BUS				☐ GUTTER TAPS			
☐ SUB-FEED LUGS				☐ THROUGH-FEED LUGS			
COND. SIZE ②	WIRE SIZE ①	C/B TRIP AMPS	CRT. NO. (NEUTRAL L1 L2)	CRT. NO.	C/B TRIP AMPS	WIRE SIZE ①	COND. SIZE ②
		20	1	2	20		
		20	3	4	20		
		20	5	6	20		
		20	7	8	20		
		20	9	10	20		
		2	11	12	20		
		15	13	14	20		
		20	15	16	20		
1"		20	17	⑥ 18	20		
1"		20	19	20	20		
		20	21 ④	22	2		
		20	23 ④	24	20		
		20	25 ④	26	20		
		20	27	④ 28	20		
	10	2	29	④ 30	20		
		30	31	32	2		
			33 ⑤	34	20		
			35	36	2		
			37	38	20		
			39	40	2		
			41	42	20		

① ALL WIRE SIZE: #12 AWG MINIMUM EXCEPT AS NOTED
② ALL CONDUIT SIZE: 3/4 INCH MINIMUM EXCEPT AS NOTED
③ GROUND FAULT INTERRUPTING CIRCUIT BREAKER
④ SPARE CIRCUIT BREAKER
⑤ SPACE ONLY
⑥ VERIFY BREAKER, WIRING AND CONDUIT SIZES WITH CONTROL PANEL SUPPLIER.

PROVIDE INTEGRAL SURGE PROTECTIVE DEVICE (SUPPRESSOR) BOLTED TO BUS BARS PER SPECIFICATION SECTION #16442.

PANEL: "W" (FOR WATERLOO EQUIPMENT)							
LOCATION: UV AND CONTROLS BUILDING							
120/240 VOLTS, 1 PHASE, 3 WIRE							
☐ MAIN LUG ONLY				☒ MAIN BREAKER			
BUS RATING: AMPS				MAIN BREAKER: 200 AMPS			
MINIMUM INTERRUPTING CAPACITY: 10,000 AMPS SYM.							
☐ FLUSH MOUNT				☒ SURFACE MOUNT			
PROVIDE IF CHECKED:				☐ ISOLATED GROUND BUS			
☒ EQUIPMENT GROUND BUS				☐ GUTTER TAPS			
☐ SUB-FEED LUGS				☐ THROUGH-FEED LUGS			
COND. SIZE ②	WIRE SIZE ①	C/B TRIP AMPS	CRT. NO. (NEUTRAL L1 L2)	CRT. NO.	C/B TRIP AMPS	WIRE SIZE ①	COND. SIZE ②
		20	1	2	20		
		20	3	4	20		
		20	5	6	20		
		20	7	8	20		
		20	9	10	20		
		2	11	12	20		
		15	13	14	20		
		20	15	16	20		
1"		20	17	⑥ 18	20		
1"		20	19	20	20		
		20	21 ④	22	2		
		20	23	24	20		
		20	25	26	20		
		20	27	④ 28	20		
		20	29	④ 30	20		
		20	31	32	20		
		2	33	34	2	10	
		20	35	36	30		
		20	37	⑤ 38			
		20	39	40			
		20	41	42			

① ALL WIRE SIZE: #12 AWG MINIMUM EXCEPT AS NOTED
② ALL CONDUIT SIZE: 3/4 INCH MINIMUM EXCEPT AS NOTED
③ GROUND FAULT INTERRUPTING CIRCUIT BREAKER
④ SPARE CIRCUIT BREAKER
⑤ SPACE ONLY
⑥ VERIFY BREAKER, WIRING AND CONDUIT SIZES WITH CONTROL PANEL SUPPLIER.

PROVIDE INTEGRAL SURGE PROTECTIVE DEVICE (SUPPRESSOR) BOLTED TO BUS BARS PER SPECIFICATION SECTION #16442.

PLAN NOTES

Ⓐ CONTRACTOR IS TO COORDINATE WITH OWNER'S REPRESENTATIVE TO APPLY FOR NEW UTILITY SERVICE.

Ⓑ APPALACHIAN POWER COMPANY IS TO PROVIDE OVERHEAD LINES, SERVICE POLE, AND TRANSFORMER AS NEEDED FOR ONE (1) 200-AMP, 120/240-VOLT, 1-PHASE, 3-WIRE SERVICE. CONTRACTOR IS TO COORDINATE WITH APPALACHIAN POWER COMPANY ON ALL REQUIREMENTS FOR POWER SERVICE.

Ⓒ CONTRACTOR IS TO PROVIDE METER BASE, SERVICE ENTRANCE CABLES, AND MAST WITH WEATHERPROOF SERVICE HEAD PER APPALACHIAN POWER COMPANY'S REQUIREMENTS. CONTRACTOR IS TO PROVIDE TERMINATIONS IN METER BASE. APPALACHIAN POWER COMPANY IS TO PROVIDE METER AND MAKE TERMINATIONS AT WEATHERPROOF SERVICE HEAD.

Ⓓ PROVIDE 3 #3/0 IN 2" CONDUIT.

Ⓔ PROVIDE 200-AMP, 2-POLE, 120/240-VOLT, 1-PHASE, 3-WIRE, SERVICE-ENTRANCE-RATED, AUTOMATIC TRANSFER SWITCH IN NEMA 1A GASKETED ENCLOSURE.

Ⓕ GROUND PER NEC.

Ⓖ PROVIDE 25 KW, DIESEL-FIRED, ENGINE/GENERATOR SET, 120/240-VOLTS, 1-PHASE, 3-WIRE (CUMMINS #C25-D6 OR EQUIVALENT). STARTING CAPACITY OF 39 SKW AND 57 SKVA, WITH SHUNT EXCITER AND ONE (1) 125-AMP, 2-POLE OUTPUT CIRCUIT BREAKER IN WEATHERPROOF ENCLOSURE WITH SUB-BASE FUEL TANK SIZED FOR A MINIMUM CAPACITY OF 250 GALLONS.

Ⓗ PROVIDE REINFORCED CONCRETE BASE PER EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS.

Ⓘ PROVIDE 3 #3/0 WITH #4 GROUND IN 2" CONDUIT.

Ⓙ PROVIDE 3 #1 WITH #6 GROUND IN 1-1/2" CONDUIT BURIED AT 36" BELOW GRADE TO TOP OF CONDUIT.

Ⓚ PROVIDE CIRCUIT FOR BATTERY CHARGER. CONNECT TO CIRCUIT #A-17 OR #W-17. BURY CONDUIT AT 30" BELOW GRADE TO TOP OF CONDUIT.

Ⓛ PROVIDE CIRCUIT FOR ENGINE BLOCK HEATER. CONNECT TO CIRCUIT #A-19 OR #W-19. BURY CONDUIT AT 30" BELOW GRADE TO TOP OF CONDUIT.

Ⓜ MAINTAIN 6.5' OF SEPARATION BETWEEN CONDUITS.

Ⓝ CONTRACTOR IS TO COORDINATE WITH FRONTIER COMMUNICATIONS ON ALL REQUIREMENTS FOR TELECOMMUNICATIONS SERVICE.

Ⓞ PROVIDE ONE (1) 4" MAST WITH WEATERPROOF SERVICE HEAD AND 4" CONDUIT TO ABOVE TELECOMMUNICATIONS CONNECTION BOARD WITH PULL WIRE.

Ⓟ CONTRACTOR IS TO COORDINATE WITH SUDDENLINK ON ALL REQUIREMENTS FOR CABLE TV AND/OR INTERNET SERVICE.

Ⓠ PROVIDE ONE (1) 2" MAST WITH WEATERPROOF SERVICE HEAD AND 2" CONDUIT TO ABOVE TELECOMMUNICATIONS CONNECTION BOARD WITH PULL WIRE.

Ⓡ PROVIDE TELECOMMUNICATIONS CONNECTION BOARD (TCB), PLYWOOD, 16" WIDE BY 6'-0" TALL BY 3/4-INCH THICK WITH BOTTOM EDGE AT 12" AFF. PROVIDE TWO (2) COATS OF GRAY PAINT.

Ⓢ PROVIDE QUAD RECEPTACLE ON BOTTOM OF TCB AT 18" AFF AND CONNECT TO CIRCUIT #A-15 OR #W-15.

Ⓣ PROVIDE GROUNDING BUS BAR WITH GROUND PER SPECIFICATION #16060.

Ⓤ PROVIDE ONE (1) 1" CONDUIT BURIED AT 24" BELOW GRADE TO TOP OF CONDUIT. COORDINATE WITH EQUIPMENT SUPPLIER FOR QUANTITY, TYPE AND SIZES OF CABLES/WIRING REQUIRED.

Ⓥ PROVIDE CIRCUIT #A-26 OR #W-26 TO SERVE HEAT TRACE CABLING.

Ⓦ PROVIDE JUNCTION BOX TO SPLIT CIRCUIT.

Ⓧ EXTEND 2 #12 WITH #12 GROUND TO HEAT TRACE CABLING APPLIED TO DOSING TUBE FROM PERISTALTIC DOSING TANK/PUMP TO RECIRCULATING PUMP #2. PROVIDE 50 LINEAR FEET OF HEAT TRACE CABLING TO BE BURIED WITH DOSING TUBE (CHROMOLOX #SRL OR EQUIVALENT PER SPECIFICATIONS), 3 WATTS/LINEAR FOOT. INSTALL HEAT TRACE CABLING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE WITH DOSING TUBE SUPPLIER/INSTALLER ON ALL DETAILS.

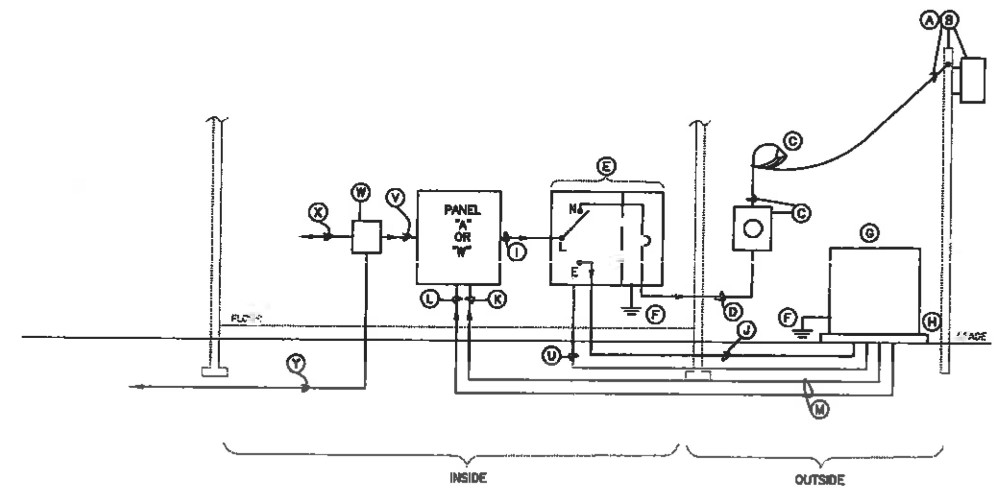
Ⓨ EXTEND 2 #12 WITH #12 GROUND IN 1" CONDUIT BURIED AT 24" BELOW GRADE TO TOP OF CONDUIT UP TO 70 FEET TO SERVE HEAT TRACE CABLING IN METER VAULT. PROVIDE 12 LINEAR FEET OF HEAT TRACE CABLING INSIDE METER VAULT (CHROMOLOX #SRL OR EQUIVALENT PER SPECIFICATIONS), 3 WATTS/LINEAR FOOT. INSTALL HEAT TRACE CABLING PER MANUFACTURER'S WRITTEN INSTRUCTIONS. COORDINATE WITH PIPING SUPPLIER/INSTALLER AT METER VAULT ON ALL DETAILS.

EMERGENCY POWER SYSTEM EQUIPMENT NOTE:

THE EMERGENCY POWER SYSTEM SHOWN ON THE DRAWINGS INCLUDING THE ENGINE/GENERATOR SET, TRANSFER SWITCH, FUEL TANK, BATTERY CHARGER, BLOCK HEATER AND RELATED CONTROLS, CONTROL WIRING, POWER WIRING, AND ALL OTHER RELATED ACCESSORIES ARE A BASIS OF DESIGN. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR FOR A FULLY FUNCTIONING AND COMPLETE SYSTEM. IF AN EQUIVALENT SYSTEM FROM THE SAME MANUFACTURER OR A DIFFERENT MANUFACTURER IS SUBMITTED AND APPROVED, THEN THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL REVISIONS, DELETIONS, ADJUSTMENTS, OR ADDITIONS TO THESE DRAWINGS AND MUST SUBMIT DETAILED DOCUMENTATION OF THOSE ITEMS IN THE SHOP DRAWING REVIEW PROCESS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL EQUIPMENT, MATERIALS, LABOR AND ACCESSORIES TO PROVIDE A FULLY FUNCTIONAL AND COMPLETE EMERGENCY POWER SYSTEM REGARDLESS OF CHOICE OF MANUFACTURER.

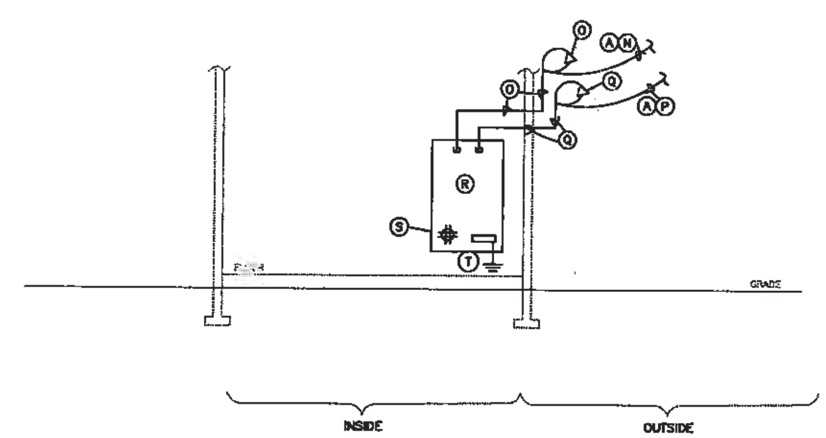
LIGHTNING PROTECTION NOTE:

PROVIDE COMPLETE LIGHTNING PROTECTION SYSTEM PER SPECIFICATION SECTION #16800. COORDINATE REQUIREMENTS OF LIGHTNING PROTECTION SYSTEM WITH GROUNDING SYSTEM AND PANELBOARD SUPPRESSORS FOR FULLY FUNCTIONING SYSTEM.



ELECTRICAL POWER SERVICE ENTRANCE RISER DIAGRAM

NTS



ELECTRICAL TELECOMMUNICATIONS RISER DIAGRAM

NTS

REVISIONS				
NO.	DATE	DESCRIPTION	BY	APPR.

STAFFORD CONSULTANTS INCORPORATED
ENGINEERING DESIGN AND CONSULTING
PRINCETON, WEST VIRGINIA

CMA ENGINEERING
Clingenpeel/McBrayer & Assoc. Inc.

LOMBARDO ASSOCIATES, INC.
Environmental Engineers/Consultants
188 Church St
Newton, Massachusetts 02467
(617) 964-2924 Fax: (617) 332-5477
E-mail: pio@Lombardoassociates.com
Web Site: www.Lombardoassociates.com

SCALE: AS NOTED
DATE: 31 MARCH 2016
PROJECT: WINONA WASTEWATER MANAGEMENT FACILITY
PROJECT NO.: 6602
DESIGNED BY:
DRAWN BY: STAFF
APPROVED BY: DLE

16
SHEET 16 OF 16

Sheet 16 - Electrical Riser Diagrams and Schedules
Winona Wastewater Management Facility
Keeney's Creek Rd, WV

PREPARED FOR: New Haven PSD

Appendix D

PURCHASING DEPARTMENT
1403 Honaker Avenue, Princeton, West Virginia
(304) 487-1551, Fax (304) 425-5011
Deborah S. Akers, Ed.D., Superintendent
Bids are posted at: http:\\boe.merc.k12.wv.us/purchasing

October 14, 2015

To Whom It May Concern:

The Mercer County Board of Education was required to replace two the three sewage treatment plants that were in operation during 2015. We contacted Stafford Consultants to assist us in analyzing our needs, writing bid specifications and managing the projects.

Both systems were extremely aged and the schools they served had changed significantly since their original installation. Due to that fact, Stafford asked us to consider a new option, a packaged wastewater treatment plant. They arranged for us to attend an informational meeting locally with Orenco.

We were extremely impressed with Orenco and after we discussed this with Stafford, they assisted us in obtaining cost estimates. We found these systems to be a very cost effective option and therefore, proceeded to bid these systems.

Stafford prepared the specifications and drawings and the bids came in very close to original estimates. A contractor installed both systems during the summer of 2015. We had no change orders other than vendor requested. The contractor and our personnel were impressed with the ease of installation and operation.

We are extremely pleased with the work Stafford did for the Board of Education on this project, as is also the case with the many projects Stafford has done for us over the years. The systems are functioning as expected and much easier to maintain than the traditional treatment plants. We would highly recommend Stafford Consultants as well as Orenco.

Regards,

Leslie Wellman

Leslie M. Wellman, CPA
Director of Purchasing

Appendix **E**

SIMILAR PROJECTS FOR THE MERCER COUNTY BOARD OF EDUCATION

Oakvale Elementary

- Students & Staff = 134
- Design Flow = 1,340 GPD
- Primary Treatment
  - 4,000 Gallon Holding Tank
- Recirculation Tank
  - 1,500 Gallon
- Secondary Treatment
  - (3) AX20 Units
- Telecommunication
  - T-Com Unit
- Disinfection Treatment
  - Pressurized Commercial UV

Spanishburg Elementary

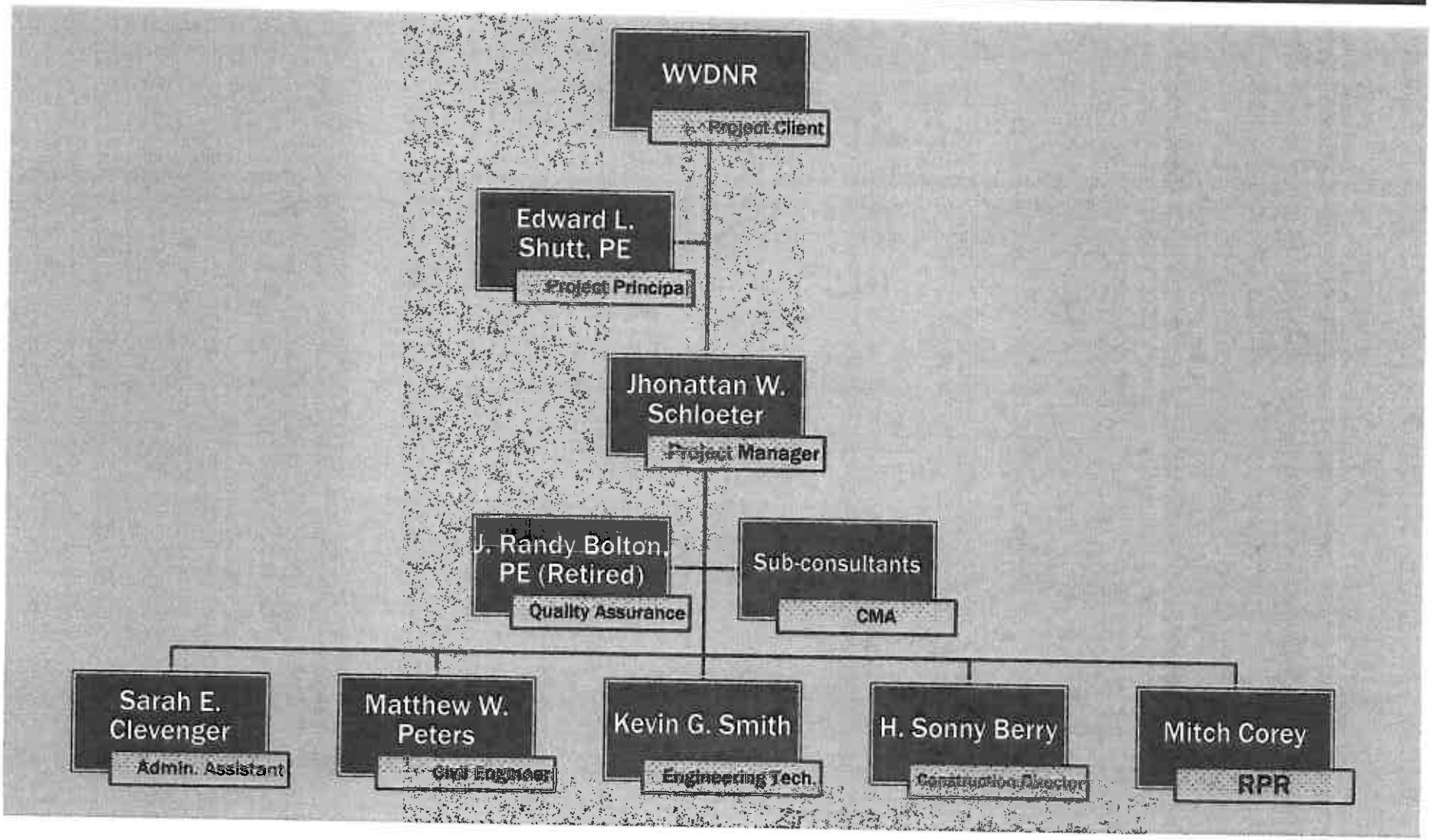
- Students & Staff = 234
- Design Flow = 2,340 GPD
- Primary Treatment
  - 8,000 Gallon Holding Tank
- Recirculation Tank
  - 2,000 Gallon
- Secondary Treatment
  - (1) AX100 Unit
- Telecommunication
  - T-Com Unit
- Disinfection Treatment
  - Pressurized Commercial UV

Total Construction Cost for both Schools = $325,000

SPANISHBURG ELEMENTARY WWTP DURING CONSTRUCTION

Appendix F

PROJECT TEAM



Appendix G

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/26/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
The James B. Oswald Company
1100 Superior Avenue, Suite 1500
Cleveland OH 44114

CONTACT NAME: Patricia A. Cholewa
PHONE (A/C, No, Ext): 216-839-2800 **FAX (A/C, No):** 216-839-2815
E-MAIL ADDRESS: PCholewa@oswaldcompanies.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Phoenix Insurance Company	25623
INSURER B : Travelers Indemnity Co of Amer	25666
INSURER C : Travelers Indemnity Company	25658
INSURER D : Hartford Fire Insurance Co.	19682
INSURER E : XL Specialty Insurance Co.	37885
INSURER F :	

INSURED
STAFF-2
Stafford Consultants, Inc.
1105 Mercer St., POB 5848
Princeton WV 24740-5849

COVERAGES **CERTIFICATE NUMBER:** 158817152 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY	Y	Y	6808C116376	5/1/2016	5/1/2017	EACH OCCURRENCE	$1,000,000
	[X] COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$1,000,000
	[ ] CLAIMS-MADE [X] OCCUR						MED EXP (Any one person)	$10,000
	[X] Non-Contributory						PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$2,000,000
	[ ] POLICY [ ] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$2,000,000
								$
B	AUTOMOBILE LIABILITY	Y	Y	BA1D890082	5/1/2016	5/1/2017	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	[ ] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[X] HIRED AUTOS [X] NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
	[X] AI Primary							$
C	[X] UMBRELLA LIAB [X] OCCUR	Y	Y	CUP8C116597	5/1/2016	5/1/2017	EACH OCCURRENCE	$4,000,000
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$
	[ ] DED [X] RETENTION $ 10,000							$
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N			45WECBS1444	11/9/2015	11/9/2016	[X] WC STATU-TORY LIMITS [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N] (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$1,000,000
							E.L. DISEASE - POLICY LIMIT	$1,000,000
E	Professional Liability Claims Made Retro Date: 9/3/1985	N	Y	DPR9804200	5/1/2016	5/1/2017	Each Claim Aggregate	$1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Additional Insured and Waiver of Subrogation as designated above is provided when required of the Named Insured by written contract or agreement.

CERTIFICATE HOLDER

Specimen
For Purposes of Evidencing
Coverage Only WV 24740-5849

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Patricia A Cholewa

Appendix H

CERTIFICATE OF *Authorization*

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

The West Virginia State Board of Registration for Professional Engineers having verified the person in responsible charge is registered in West Virginia as a professional engineer for the noted firm, hereby certifies

STAFFORD CONSULTANTS, INC.
C00477-00

Engineer in Responsible Charge: EDWARD L SHUTT - WV PE 007314

has complied with section §30-13-17 of the West Virginia Code governing the issuance of a Certificate of Authorization. The Board hereby notifies you of its certification with issuance of this Certification of Authorization for the period of:

January 1, 2016 - December 31, 2017

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE, PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.

IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA UNDER ITS SEAL AND SIGNED BY THE PRESIDENT OF SAID BOARD.

BOARD PRESIDENT

Appendix I

PROJECT SCOPE STATEMENT

PROJECT INFORMATION

PROJECT ENGINEER:	Stafford Consultants Incorporated (Stafford)
PROJECT CLIENT:	[redacted]
PROJECT NAME:	Huntington Drive Sewer Relocation
PROJECT NUMBER:	14-7423.21
PROJECT MANAGER:	Matthew W. Peters

PROJECT OBJECTIVE

This project is being undertaken to design, prepare construction drawings, and stakeout for the relocation of an existing sewer main adjacent to Huntington Drive that traverses through New Peoples Banks property. [redacted]'s intentions are to relocate the existing sewer line for easier maintenance, easier sewer lateral connections for future development on adjacent lots, and to replace the existing clay pipe with junction cleanouts with polyvinyl chloride (PVC) pipe and sanitary sewer manholes.

PROJECT SCOPE

In order to accomplish the project objective described above, Stafford will complete the following work:

1. Stafford will perform a land survey to supplement their existing mapping.
2. Stafford will design the proposed sewer line relocation and prepare construction drawings.
   a. Upon request by the [redacted] the proposed layout will be modified or revised. This function will be billed in accordance with the amount of time it takes to accomplish (refer to Schedule of Fees).
3. Stafford will attend up to (2) meetings with [redacted] to discuss proposed design and layout.
4. Stafford will stake out the location of proposed sewer manholes.

SCOPE RELATED PROJECT ASSUMPTIONS & REQUESTS

The following assumptions have been made during the preparation of this scope.

[redacted] will:

1. Have all existing utilities marked within the project area prior to land survey by Stafford.
2. Contact AEP to obtain the approximate depth of the existing underground electric line prior to any groundbreaking, design, or land surveying.
3. Excavate two (2) exploratory pits at the following locations prior to land survey by Stafford:
   a. The existing sewer main at the last cleanout upstream to be replaced.
   b. The existing sewer service line connection point from New Peoples Bank.
4. Contact Stafford two (2) days in advance prior to land survey request.
5. Obtain all necessary easements and right-of-entries with the current property owner.
   a. Coordinate lot line change between lots five (5) and six (6).
6. Contract or perform all construction work related to this project.

The following requests were made by [redacted]:

1. Proposed line to run through lots three (3) and four (4) through the grass bank area (between Huntington Drive and the abandoned asphalt parking area).
2. Manhole to replace existing cleanouts.

3. Manhole slightly upstream of connection to sewer main on Oakvale Road (due to inaccessibility to main because of an existing trench drain).

PROJECT DELIVERABLES

During completion of the Project, Stafford will prepare the following deliverables:

1. Proposed Construction Drawing Plan & Profile
2. Right-of-Way Plans for proposed Relocation
3. Physically Stake out Proposed Manhole Locations on Site

ACCEPTANCE OF PROJECT SCOPE

Please review the Project Scope Statement thoroughly prior to approval.

Prepared by: _____ **Date:** October 13, 2014
Project Manager

Approved by: _____ **Date:** _____
President – Stafford Consultants, Inc.

Approved by: _____ **Date:** _____
General Manager – [redacted]

Appendix J

JUNE 2016 *PROJECT STATUS UPDATE*

I. PROJECT INFORMATION

A.	**PROJECT CLIENT:**	City of _____ (City)
B.	**PROJECT ENGINEER:**	Stafford Consultants Incorporated (Stafford)
C.	**PROJECT NAME:**	Hinkle Mountain & Little Laurel Extensions & Ex. System Renovations
D.	**SCI PROJECT NO.:**	15-7450.08 / 15-7451.08 / 15-7452.08
E.	**WVIJDC PROJECT NO.:**	2014W-1529
F.	**USACE PROJECT NO.:**	451067
G.	**WVDO CDGB SCBG NO.:**	15SCBG0008

II. MONTHLY ACCOMPLISHMENTS *(JUNE 2016)*

A. OVERALL

1. *[Stafford, City, Region IV PDC, and WVDO]* Kickoff meeting to discuss SCBG requirements.
2. *[Stafford and Region IV PDC]* Updated the project Schedule B on May 23, 2016 based on the loss of anticipated SEARCH Grant funding and the reallocation of WVIJDC Supplemental Grant Funding to DWTRF Loan.

B. 7450.08 – PRELIMINARY DESIGN (APPROXIMATELY 95% COMPLETE – AWAITING REVIEW COMMENTS FROM CITY)

1. *[Stafford]* Completed the Preliminary Design drawings and specifications and transmitted them to the City of _____ for review on May 9, 2016. They were delivered to _____ on May 10, 2016.
2. *[Stafford]* Met with the City on May 19, 2016 to discuss the review of preliminary documents. Preliminary documents were not reviewed.
3. *[Stafford]* Visited the existing Lynn Street Booster Station with David A. Moore (Chief Water Treatment Plant Operator) on May 24, 2016. Discussed the opportunity to replace the existing booster station in this project and consolidate it into the new booster station. (This would be a scope change). The decision on whether or not to consolidate this station into the proposed Hinkle Mountain Booster Station will be made during the Final Design Phase of the project.

C. 7451.08 – PRELIMINARY DESIGN (20% COMPLETE)

1. *[Stafford]* On May 24, 2016, met with the Chief Water Treatment Plant Operator (David A. Moore) to discuss overall project scope. Took numerous photographs of the existing water treatment plant and took measurements of the "tank room" for the preliminary design.
    i. *Potential Scope Increase: While on site, Mr. Moore expressed adamant interest in the project including a Pre-Sedimentation Tank at Water Treatment Plant. Currently, the water treatment plant has no pre-sedimentation tank. Raw water enters into a very small rapid mix tank before it proceeds into the first flocculator. During turbidity upsets in the North Fork Cherry River, Mr. Moore has problems keeping turbidity levels within acceptable ranges. A pre-sedimentation basin/tank would almost certainly alleviate this problem.*
2. *[Stafford]* Scanned in flocculator operation and maintenance manuals taken from plant on May 24, 2016.

3. *[Stafford]* Began drafting existing conditions plan of tank room for proposed flocculator and filter work.

D. 7452.08 – PRELIMINARY DESIGN (20% COMPLETE)

1. *[Stafford]* Discussed inspection company options with City of _____. Requested advisement by May 23, 2016 from the City on which company they would prefer that we select for the inspection. Currently awaiting a response from the City (have followed up).
2. *[Stafford]* Intend to assume the level of rehabilitation needed based upon previous tanks of similar construction in West Virginia for the Preliminary Design Phase[1]. After receiving the inspection results, the proposed rehabilitation design will be modified and refined in Final Design. We have elected to take this approach so as not to delay the project.

III. DELAYS & ISSUES

A. 7450.08 - PRELIMINARY DESIGN REVIEW

1. *[City]* Stafford requested for the City to provide us with comments on the Preliminary Design at the May 19, 2016 meeting. We have yet to receive those comments. This will delay the preliminary design schedule.
2. *[Monkey]* Still needs to provide user agreements/declination statements. Stafford is proceeding on with easement maps on this project, which may include lines that serve customers that have declined water. This will cause rework which will delay the project and increase project budgets.

B. 7452.08 – TANK INSPECTION

1. *[City]* Stafford requested that the City of _____ provide an answer on May 23, 2016 as to which company they would prefer we select for the tank inspection. No answer has been received. As a result, Stafford will proceed with preliminary design making assumptions which may later impact the anticipated scope of rehabilitation work required[2]. Without having the inspection, we can either delay the project or assume that certain rehabilitation measures will be necessary.

IV. SCHEDULE (CURRENT LOOK AHEAD)

A. PRELIMINARY DESIGN (15-7450, 15-7451, 15-7452)

1. ***Contingent upon City's Action*** *[Stafford]* Coordinate and hire sub-consultant for tank inspection.

[1] Assume that the tank will need to be blasted to a near white finish and coated (interior and exterior). Install new fence around site perimeter. Address any drainage issues on site. Replace existing tank roof rafters due to corrosion.

[2] For example, if the tank inspection reveals the tank is not salvageable, a scope increase will obviously occur. This will in turn substantially increase the project cost.

2. ***Contingent upon City's Action*** *[Stafford]* Address preliminary design comments for Hinkle Mountain & Little Laurel Waterline Extension (15-7450) and complete preliminary design phase of project.
3. **June 17, 2016** *[Stafford]* Submit Preliminary Design Review Set to City of _____ for Water Treatment Plant (15-7451) and Existing Finished Water Storage Tank Renovations (15-7452).

B. RIGHT-OF-WAYS & LAND ACQUISITIONS (15-7450, 15-7451, 15-7452)

1. **June 10, 2016** *[Stafford]* Provide 80% complete easement maps to project attorney for Hinkle Mountain and Little Laurel Waterline Extensions (15-7450).
2. **June 13, 2016** *[Project Attorney]* Begin title work for required easements.

C. ENVIRONMENTAL CLEARANCE (15-7450)

1. **June 2016**: *[Stafford]* Prepare and submit Section 106 Checklist for the WV State Historic Preservation Office (SHPO).

D. FUNDING & FINANCES (15-7450, 15-7451, 15-7452)

1. **May 9, 2016 – June 30, 2016**: *[J. Kelsh, T. Dingess, Mayor]* Develop a written plan of action to address and correct revenue deficiencies in the water and sewer systems. This is imperative so that the Rule 42 can be included in the Rural Development Service (RUS) application which needs to show adequate rates and bond coverage.
2. **July 2016**: *[City / Region IV PDC]* Secure West Virginia Drinking Water Treatment Revolving Fund (DWTRF) binding commitment letter.
3. **May 2016**: *[Region IV PDC]* Resubmit the project to the West Virginia Infrastructure and Jobs Development Council (WVIJDC) for approval of the revised funding strategy.
4. **July 2016**: *[City / Region IV PDC]* Secure West Virginia Drinking Water Treatment Revolving Fund (DWTRF) binding commitment letter.

V. PROJECT SCOPE & HISTORY

A. PROJECT SCOPE *(NOT ALL INCLUSIVE)*

1. **15-7450**: Hinkle Mountain & Little Laurel Waterline Extensions: *This project's intent and scope is to provide water service via a waterline extension from the existing City of _____ water distribution system to the areas of Hinkle Mountain and Little Laurel. It is expected that this extension will require an elevated finished water storage tank, a pressure reducing station, and a booster station.*
2. **15-7451**: Water Treatment Plant Renovations: *This project aims to remedy deficiencies at the City of _____'s Water Treatment Plant, including the following: replacement of filter media, recalibration or replacement of master meter, repair of damaged flocculator mechanism, acquisition of miscellaneous spare parts (fluoride feeder pump, two different metering pumps, and a chlorinator) and a spare booster station pump.*

3. **15-7452:** Existing Finished Water Storage Tank Renovations: *This project aims to remedy deficiencies at the City of _____'s existing Lynn Street Finished Water Storage tank.*[3]

B. PROJECT HISTORY

1. In 1994 – 1995 a group of citizens in the Hinkle Mountain area began the arguably long process of obtaining public drinking water. In 1995, the City selected Stafford as the Engineer for the Hinkle Mountain Waterline Extension project. Between 1995 and 2011 the project went through a series of starts and stops as administrations and priorities in the City changed over time. In 2011 – 2012, the local citizens, led by their spokesperson, Steven F. Khuri (aka "Monkey"), decided to launch a public relations campaign with the Nicholas County Commission (NCC) and the City of _____ to finally secure water service. The NCC pledged $100,000 towards the project. In 2013 – 2014 the project received WVIJDC approval. In late 2014, the United States Army Corps of Engineers (USACE) provided Section 340 grant funding, which was applied for, for the project. The NCC allowed their pledge to be used as match funding for the Section 340 USACE grant. These funds (Section 340 Grant and NCC Pledge) were to be used for the preliminary engineering and final contract document preparation for the Hinkle Mountain and Little Laurel Waterline Extension project. In March 2016, Governor Earl Ray Tomblin approved a $200,000 Small Cities Block Grant (SCBG) to fund a portion of the preliminary design and final contract documents for the Water Treatment Plant Renovations project (15-7451) and the Existing Finished Water Storage Tank Renovations project (15-7452). The City and Region IV PDC are currently taking actions to secure the release of SCBG funding by no later than June 2016. Unfortunately an attempt by the City and Region IV PDC to obtain United States Department of Agriculture RUS SEARCH Grant funding was unsuccessful due in part to some technicalities with their funding requirements and mostly due to their funding being depleted. The current anticipated funding sources are as follows:

Source of Funds	Status	Type	Amount
Nicholas County Commission	Committed	Grant	$ 100,000
WVIJDC Soft Cost	Committed	Grant	$ 25,000
USACE Section 340	Committed	Grant	$ 200,000
SCBG	Committed	Grant	$ 200,00
SCBG	*Will Apply*	Grant	$ 1,300,000
DWTRF Principal Forgiveness	*Will Apply*	Loan	$ 500,000
DWTRF	*Will Apply*	Loan	$ 3,185,000
USDA RUS	*Will Apply*	Grant	$ 500,000
USDA RUS	*Will Apply*	Loan	$ 520,000
		Total:	**$ 6,530,000**

[3] *Currently, the scope of work only encompasses renovation of the existing tank. This scope assumes that the tank is repairable. If the upcoming tank inspection reveals that the tank is not salvageable, this scope will have to be reevaluated and revised.*

VI. INTENDED RECIPIENTS

Sherry L. Adams	Chris E. Jarrett	Patty Neff
R. G. Bragg	Mayor Robert C. Johnson	Sharanna G. Romans, PMP
Michelle L. Cochran	James V. Kelsh	Benjamin J. Savage, PE
Paul E. Daniels, PE	Steven F. Khuri *(aka Monkey)*	Amanda Smarr
Robert W. DeCrease, PE	Angela R. King	Ann Spencer
Todd Dingess, CPA	Janna Lowery	April Storm
Bobby Dooley	Katy M. Mallory, PE	John C. Stump, Esq.
James W. Ellars, PE	Kevin M. Meadows	Audrey Suman
Jonathan M. Fowler, PE	John R. Miller	John Tuggle, PE
Sammee L. Gee, Esq.	Teresa Miller	Kelly A. Workman
Roger G. Hanshaw	Mikele Moore	

Prepared by: Matthew W. Peters **Date:** June 15, 2016

Matthew W. Peters, Project Manager

Appendix **K**

STAFFORD CONSULTANTS, INC.
P.O. BOX 5849
PRINCETON, WV 24740

	ELS
	HB

DAILY FIELD REPORT

Project: _____ **Date:** _____

_____ **File No.** _____

Contractor: _____ **Weather** _____

_____ **Temperature** _____

Contractor Hours _____ **AM to** _____ **PM=** _____ **Hours**

Description of Work: _____

Remarks: _____

Contractor Personnel

Contractor Equipment

SCI Personnel **Name** **Title** **Hours**

Visitors

Prepared By: _____ **Date:** _____

Reviewed By: _____ **Date:** _____

MAY 2016 MONTHLY PERFORMANCE REPORT
COUNTY ROUTE 9 WATERLINE EXTENSION PROJECT
AML # 403

PREPARED BY: STAFFORD CONSULTANTS, INC

REPORT DATE: June 7, 2016

REPORT PERIOD: May 1, 2016 through May 27, 2016

A. Project Name: Contract 1 AML Eligible and AML Non Eligible Whitewater Road Interconnect, Contract 1 Mt. Lookout AML Non Eligible, Contract 2 AML Non Eligible Water Storage Tank and Contract 3 AML Non Eligible Water Treatment Plant Solids Handling.

B. Description Of The Nature Of The Problem:
WVDEP has determined that the area of the PSD County Route 9 Waterline Extension is impacted from pre-1977 coal mining operations. The Summersville Lake area demands during the recreational season has the potential of experiencing flow deficiencies, due to development in the Mt. Lookout area storage capacity, pressure and flow required changes in the system hydraulics and storage capacity and the water treatment plant suffered from a lack of solids removal during the treatment process.

C. Proposed Reclamation Procedures:
The proposed solution was the construction of a public water extension from the PSD public and a metered connection to the Gauley River PSD water system to provide a safe reliable drinking water source. Based upon an application received from Public Service District received in April 2015, WVDEP awarded a sub grant to PSD in the amount of $157,560.50 for the AML eligible construction costs of the County Route 9 Waterline Extension in Nicholas County. The U.S. Department of the Interior, Office of Surface Mining awarded WVDEP the FY 2015 Abandoned Mine Lands Simplified Grant for this purpose.
With additional DWTRF monies and PSD funding an additional water storage tank and reconfiguring of the distribution piping to provide increased storage and pressure in the Mt. Lookout area and the addition of a sedimentation basin and plant upgrades at the water storage tank were designed to address those deficiencies.

D. Sub-grant Award Date: June 10, 2015

E. Consultant Information:
Stafford Consultants, Inc. Edward L. Shutt, P.E. P.O. Box 5849 Princeton, WV 24740

F. Pre-Bid Date: May 14, 2015

G. Bid Opening Date: May 28, 2015 11:00 am local prevailing time.

H. Name Of Contractor Bid Was Awarded To:

Contract 1 Tribute Contracting and Consultants, LLC
Contract 2 Welding, Inc.
Contract 3 Breckenridge Corporation

I. Contractor Amount Or Bid Amount:

Contract 1
- Total Contract Bid $874,506.00
- AML Eligible portion of Contract $315,121.00
- AML portion @ 50% impacted $157,560.50

Contract 2
- Total Contract Bid $337,916.00

Contract 3
- Total Contract Bid $1,023,900.00

J. Pre-Construction Meeting: August 12, 2015

K. Notice To Proceed Date: August 12, 2015

L. Change Order Number (Cumulative):

Contract 1
- Change Order No. 1 Non AML Eligible (-$70,000.00)
- Change Order No. 2 Non AML Eligible $18,915.28
- Change Order No. 3 AML Eligible (-$27,481.14)
- Change Order No. 4 Non AML Eligible Mt. Lookout (-$12,722.00)
- Change Order No. 5 Pending AML Eligible (-$2,660.00)
- Change Order No. 6 Pending Non AML Eligible $1,464.96

Contract 2
- Change Order No. 1 Non AML Eligible $8,538.00
- Change Order No. 2 Non AML Eligible (-8,931.15) & one hundred thirteen (113) calendar days

Contract 3
- Change Order No. 1 (-$17,000.00)
- Change Order No. 2 (-$9,670.00)
- Change Order No. 3 $1,599.00
- Change Order No. 4 (-$11,200.00)
- Change Order No. 5 $750.00 & fifty-two (52) calendar days

M. Actual Cumulative Project Accomplishments:

Contract 1 AML Eligible

The contractor mobilized to the site August 18, 2105. For the project through April 30, 2016 the

following work has been accomplished:

The Contractor completed work on Change Order No. 3. The AML Eligible portion of the project has achieved substantial completion. An inspection was held on November 5, 2015 and the One Year Warranty period began on November 5, 2015. Retainage remains at 2.5% on this portion of the project.

Contract 1 AML Non Eligible
Item 15220-1 92% LS Booster Station and Site Work
Item 16213-1 90% LS Emergency Power
The contractor has left the site and will return once the electrical and telephone service is available. We have notified the contractor that as of June 5 Electrical and telephone service have been installed.

The PSD is coordinating with the power company for installation of the electrical service to the booster station since the building is complete. The estimated time for electrical service is by the end of May 2016. Currently it is estimated the booster station will be in service in June 2016.

Contract 1 Mt. Lookout Road Non AML Eligible
The contractor has requested a substantial completion inspection on the Mt. Lookout Non AML portion of the project. The inspection will be performed along with the Whitewater booster station when it is readied. The Mt. Lookout Road Non AML Eligible area was placed into service on January 4, 2016.

The Payment for pay application No. 8 is allotted as follows:

- Whitewater Road Non AML Eligible $ 52,836.34 less retainage = $51,207.71
- Whitewater Road AML Eligible $0.00 less 2.5% retainage =$0.00 @ 50% = $0.00
- Whitewater Road AML Eligible other sources $0.00 less 2.5% retainage @50% = $0.00
- Mt. Lookout Non AML $0.00 less 5% retainage = $0.00.

Change Order No. 4 has been executed for a net decrease in the contract price of (-$12,722.00) for quantity adjustments and additional months for the engineers field office since that item was deleted from Contracts 2 & 3.

Change Order No 5 has been issued to the contractor for a net decrease in the AML Eligible portion of the project for quantity adjustments in the amount of -$2,660.00.

Change Order No 6 has been issued to the contractor for a net increase in the Non AML Eligible portion of the project for quantity adjustments in the amount of $1,464.96.00

We have received written acceptance of the work from the WVDOH.

Contract 2
The contractor returned to the site to complete punch list work.
The following work has been completed:

Item 15025-1	1	LS	Pipeline Cleaning
Item 15020-1	1	LS	Pipeline Disinfection
Item 15210-1	100%	LS	Connection to existing 6" Main
Item 15220-1	100 %	LS	100,000 gal Welded Steel Water Storage Tank
Item 15240-1	100 %	LS	100,000 gal. Welded Steel Water Storage Tank Foundation
Item 15240-4	100 %	LS	Tank Site Grading / Site Piping and Valves / Control Valves and Vault
Item 15240-5	100%	LS	4" Master Meter & Vault
Item 15150-1	4	Ea	8" Valve & Box
Item 15120-1	340	LF	8" ASTM CL 160
Item 15180-1	100%	Ea	8" Connection – Fire Hydrant
Item 15180-4	1	Ea.	Removal of Existing Fire Hydrant
Item 15190-4	1	Ea	Test tap
Item 02540-1	100%	LS	Erosion and Sediment Control
Item 01510-1	100%	LS	Mobilization/Demobilization
Item 02830-1	225	LF	6" Security Fencing
Item 02830-2	616	LF	Temporary Livestock Fencing
Item 02830-3	470	LF	Farm Fencing

Change Order No. 1

Item 15250-1	2	Ea.	Mt. Nebo Hydro mixer #2

Change Order No. 2

Item 15250-1	1	LS	Hydro Mixers increased freight & installation costs
Item 15130-3	2	Ea	6" valve & box
Item 15240-4	1	Ea	Additional vlv. on exist tank and valving (sketch 2-2)
Item 15240-4	1	Ea	Sensing line connection, electrical conduits (sketch 3-1)
Item 15240-4	1	Ea.	New tank drain extension & 16" culvert

Change Order No. 2 was revised for an adjustment in the contract price of -$8,931.15 and an increase in the Contract Time for completion of one hundred thirteen (113) calendar days to accommodate mixer installation in at the Mt. Nebo Storage Tanks.

A crack on the tank outlet pipe flange inside the tank was repaired but the effect of the prepared sand base due to wash out has not yet been fully determined. The contractor's design engineer has offered his opinion for consideration. Oiled masonry sand was pushed back under the tank floor in an attempt to replace sand washed out by leak.

The Mt. Lookout tank was placed back into service on March 27, 2016.

The Contractor has provided a letter extending the warranty period on the Mt. Lookout tank to May 31, 2017.

Contract 3
An inspection has been performed establishing the Substantial Completion Date as February 18, 2016. A certificate was issued on March 3, 2016 along with a tentative list of items to be completed.

Change Order No. 5 for an increase in the contract price of $750.00 and an increase in the contract time of fifty two (52) calendar days for an enclosure for the pump drive controller was issued to the contractor. This work along with reclamation work has been performed this period. The contractor has provided all closeout documents.

The Owner continues to withhold $1.00 in retainage to keep contract open for change order work requested by the PSD. Breckenridge Corporation and the District has executed Change Order No. 6 for an increase in the Contract Price of $45,253.00 and an increase I the Contract time of one hundred twenty nine (129) calendar days to add four (4) mixers to four tanks to address water quality issue. Lesley Taylor has requested WVIJDC approval.

Record Drawings have been prepared by Stafford and delivered to the Owner for all contracts. Region IV should submit a written request to the WVDEP for a release of the NPDES stormwater permit. A/E amendments are required for adjustments to several budget line item and the change on scope of work for Contract No.3.

The PSD will be making a request to the DWTRF / WVIJDC for purchase of filter media replacement and for purchase of a raw water quality analyzer as part of the source water protection plan.

The District has also requested consideration of quick connects for the emergency generators.

Stafford Consultants, Inc. has submitted A/E Amendments no. 5 for fee adjustments.

N. Final Inspection Date: The contract time for Final Completion is 270 calendar days. The Final Completion Date is May 8, 2016 The AML Award Performance Period expires June 9, 2016. The AML Grant needs to be closed out ASAP to limit the outing cost for monthly performance reports.

O. Cost-to-Date: The total cost of the work performed to date including stored materials remains as follows:

Contract 1 Whitewater Road Non AML Eligible $265,675.00 less $13,633.75 retainage = $252,041.25

Whitewater Road AML Eligible $278,579.86 less retainage =$271,615.36 @ 50% = $135,807.68

Whitewater Road AML Eligible other sources $278,579.86 less retainage =$271,615.36 @ 50% =$135,807.68
Mt. Lookout Non AML $185,203.28 less $9,260.16 retainage = $175,943.12

Contract 2 AML Non Eligible $337,522.85 less 0% retainage is $337,522.85

Contract 3 AML Non Eligible $988,379.00 less $1.00 retainage is $988,378.00

P. Final Project Cost: The Contract 1 Adjusted Contract Amount through Change Order 6 will be $782,023.10; the AML portion will be $284,979.86 @ 50% impacted. The Contract 2 Contract Amount through Change Order No 2 is $337,522.85.00. The Contract 3 Adjusted Contract Amount through Change Order No. 6 is $1,033,632.00.