

**HOME SEWAGE TREATMENT SYSTEMS (HSTS)
INSTALLATION OR SEWER TAP-IN
GENERAL SPECIFICATION PACKET
FOR THE**

**SENECA COUNTY
2020 HSTS
REPAIR/REPLACEMENT and
SEWER TAP-IN
PROGRAM**

ADMINISTERED BY:
SENECA REGIONAL PLANNING COMMISSION
ON BEHALF OF Seneca County General Health District

OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA)
FUNDED PROJECT

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SECTION A

BID FORMS

SUMMARY OF DOCUMENT REQUIREMENTS

Please take note of the paperwork needed under all three categories.

BID SHALL CONTAIN

- A signed proposal, with the full name and title (if appropriate) of the person submitting the bid. If the signature is not legible, print the name under the signature of the person signing the proposal.
- In the case of corporations not chartered in Ohio, a proper certificate of the Secretary of State, certifying that such corporation is authorized to do business in Ohio.
- Non-Collusion Affidavit
- Contractor Equal Employment Opportunity Certification
- Certification Regarding Debarment, Suspension, and Other Responsibility Matters
- American Iron and Steel Acknowledgement
- Affidavit of Personal Property Tax Status
- Corporate Resolution, only if a corporation
- Bid Guarantee (Bond, or certified check, cashier's check or letter of credit)

LOWEST BEST BIDDER WILL BE REQUESTED TO PROVIDE THE FOLLOWING BEFORE A CONTRACT IS DEVELOPED

- Certificate of Insurance, listing Seneca County as an additional insured
- Certificate of Ohio Workers' Compensation
- Performance bond, certified check, letter of credit, or bid guarantee

CONTRACT/AGREEMENT SHALL CONTAIN

- Signed Contract
- Certificate of Insurance listing Seneca County General Health District as an additional insured with thirty (30) days cancellation & original signature
- Current Workers' Compensation Certificate
- Affidavit of Personal Property Tax Status
- Contractor Equal Employment Opportunity Certification
- Certification Regarding Debarment, Suspension, and Other Responsibility Matters
- American Iron and Steel Acknowledgement
- Payment and Performance Bond (if a Bid and Contract Bond was not provided)
- Request for Taxpayer Identification and Certification – Form W-9 (One time only request)

Base Bid

Property Address; Margaret Schalk, 929 S TR 109, Tiffin, OH 44883

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$0.00
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

Base Bid

Property Address; Sharon Todd, 9515 E TR 58, Bloomville, OH 44818

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$0.00
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

Base Bid

Property Address; Toni Tanner, 11101 W TR 112, Fostoria, OH 44830

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$125
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

Base Bid

Property Address; Jessica Wyandt, 8705 SR 4, Attica, OH 44807

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$125
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

Base Bid

Property Address; Seth Craig, 3638 E CR 50, Tiffin, OH 44883

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$0.00
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

Base Bid

Property Address; Angela Lowe, 6625 CR 6, New Riegel, OH 44853

Pricing for: NPDES

1. Permit	\$424
2. Septic Design Review (NPDES ONLY)	\$125
3. EPA Permit (NPDES ONLY)	\$200
4. Sewer Tap Fee	\$ _____
5. Required Electrical Upgrades	\$ _____
6. Required Plumbing Upgrades	\$ _____
7. System Installation or Tap-in	\$ _____
8. Other (list work) _____	\$ _____
_____	\$ _____
Bid Grand Total	\$ _____

Signature: _____

Company Name: _____

Address: _____

Telephone Number: _____

Email: _____

Date: _____

NONCOLLUSION AFFIDAVIT

State of _____

County/City of _____

BID Identification: _____

BUSINESS/AGENT _____, being first duly sworn, deposes and says that he is _____ (sole owner, a partner, president, secretary, etc.) of _____, the party making the foregoing BID; that such BID is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such BID is genuine and not collusive or sham; that said BIDDER has not directly or indirectly induced or solicited any other BIDDER to put in a false or sham BID, and has not directly or indirectly colluded, conspired, connived, or agreed with any BIDDER or anyone else to put in a sham BID, or that anyone shall refrain from bidding; that said BIDDER has not in any manner, directly or indirectly, sought by agreement, communications or conference with anyone to fix the BID price of said BIDDER or of any other BIDDER, or to fix any overhead, profit, or cost element of such BID price, or of that of any other BIDDER, or to secure any advantage against the OWNER awarding the contract or anyone interested in the proposed contract; that all statements contained in such BID are true; and, further, that said BIDDER has not, directly or indirectly, submitted his BID price or any breakdown thereof, or the contents thereof, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, BID depository, or to any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said BIDDER in his general business.

Signed:

Subscribed and sworn to before me this ____ day of _____, 20____.

Seal of Notary

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

INSTRUCTIONS

Under Executive Order 12549 an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program or a sub-agreement thereunder for \$25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or sub-agreement participant thereunder must complete the attached certification provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Go to www.epls.gov to access the Excluded Parties List System (EPLS). The EPLS includes information regarding entities debarred, suspended, proposed for debarment, excluded or disqualified under the non-procurement common rule, or otherwise declared ineligible from receiving Federal contracts, certain subcontracts, and certain Federal assistance and benefits. This information may include names, addresses, DUNS numbers, Social Security Numbers, Employer Identification Numbers or other Taxpayer Identification Numbers, if available and deemed appropriate and permissible to publish by the agency taking the action.

Where to Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification or explanation with its application to the appropriate EPA Headquarters, Regional office, or Ohio EPA, as required in the applications.

A prospective prime contractor must submit a complete certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a complete certification or explanation to the prime contractor for the project.

Applicants may reproduce these materials as needed and provide them to their prospective prime contractor, who, in turn, may reproduce and provide them to prospective subcontractors.

Additional copies / assistance may be requested from:

Ohio EPA

Division of Environmental and Financial Assistance

P.O. Box 1049

Columbus, Ohio 43216-1049

(614) 644-2798

www.epa.state.oh.us/defa/

Certification Regarding Debarment, Suspension, and Other Responsibility Matters

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three (3) year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal of State antitrust statues or commission if embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (b) of this certification;
- (d) Have not within a three (3) year period preceding this application / proposal had one or more public transactions (Federal, State, or local) terminated for cause or default; and
- (e) Will not utilize a subcontractor or supplier who is unable to certify (a) through (d) above.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to ten thousand dollars (\$10,000) or imprisonment for up to five (5) years, or both.

Type Name & Title of Authorized Representative

Signature of Authorized Representative

I am unable to certify to the above statements. My explanation is attached.

**AFFIDAVIT OF CONTRACTOR OR SUPPLIER OF NON-DELINQUENCY OF
PERSONAL PROPERTY TAXES
O.R.C. 5719.042**

STATE OF OHIO:
SS:
TO: County of Seneca

The undersigned, being first duly sworn, having been awarded a contract by you for

2019 Seneca HSTS Repair/Replacement and Tap-ins

hereby states that we are not charged at the time the bid was submitted with any delinquent personal property taxes on the general tax list of personal property of any county in which you as a taxing district have territory and that we were not charged with delinquent personal property taxes on any such tax list.

In consideration of the award of the above contract, the above statement is incorporated in said contract as a covenant of the undersigned.

Business/Agent Representative Signature

Sworn to before me and subscribed in my presence this ____ day of _____, 20____.

Notary Public Signature

Contractor Equal Employment Opportunity Certification

During the performance of this contract, the undersigned agrees as follows:

1. The undersigned will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, military status, disability, age, genetic information or sexual orientation. The undersigned will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, military status, disability, age, genetic information or sexual orientation. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The undersigned agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this equal opportunity (federally assisted construction) clause.
2. The undersigned will, in all solicitations or advertisements for employees placed by or on behalf of the undersigned, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, military status, disability, age, genetic information or sexual orientation.
3. The undersigned will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the undersigned's commitment under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The undersigned will comply with all provisions of Executive Order No. 11246 of September 24, 1965; and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The undersigned will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and relevant orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency of the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
6. In the event of the undersigned's non-compliance with the equal opportunity (federally assisted construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part, and the undersigned may be declared ineligible for further Government contracts of federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rules, regulations, or order of the Secretary of Labor, or as provided by law.
7. The undersigned will include this equal opportunity (federally assisted construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, so that such provision will be binding upon each subcontract or vendor. The undersigned will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a sub-contractor or vendor, as a result of such direction by the administering agency the undersigned may request the United States to enter into such litigation to protect the interest of the United States.

(Signature)

(Date)

(Name and Title of Signer, please type)

(Firm Name)

American Iron and Steel Acknowledgement

The Contractor acknowledges to and for the benefit of

("Purchaser") and the State of Ohio (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney's fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Signature

Date

Name and Title of Authorized Signatory, Please Print or Type

Bidder's Firm

Check here if the WPCLF or WSRLA applicant will be requesting an individual waiver for non- American made iron and steel products. Please note that the waiver box does not need to be marked for nationwide waivers.

SAMPLE

CORPORATE RESOLUTIONS

_____, Secretary of _____,
an _____ corporation hereby certifies that the following is true and correct copy of a resolution
duly adopted by the Board of Directors of _____
on _____, 20____, to wit:

“Resolved that of this Company, namely, _____
Be hereby is authorized and directed to enter into any and all contracts, bid guaranty and performance
bonds with the Board of Health District, Seneca County, Ohio for the purpose of furnishing labor and
materials as to _____

_____ at such price and upon such terms and conditions, including any amendments or modifications thereto,
as said _____ in his sole discretion shall deem best, and
that said actions shall be binding upon the corporation.

Resolved, further, that said _____, and he further is hereby authorized
and directed to execute and deliver unto said Board of Health District other instruments which in his
discretion he shall deem necessary to carry out the foregoing resolution.”

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of said corporation at
_____, this _____ day of _____, 20____ and I further certify that said
resolution is still in full force and effect.

Secretary

{SEAL}

SECTION B

INSTRUCTION TO BIDDERS

1. BID PACKAGE

Included in this package are the Instructions to Bidders, Construction Contract & Contract Forms, Equal Employment Opportunity, General Conditions for Seneca County 2020 HSTS Repair/Replacement and Tap-in Projects, and Basis of Payment.

2. INSPECTION OF SITE

Each bidder shall visit the sites of the proposed work and fully acquaint himself with the existing conditions there relating to the project work, and should inform himself to the facilities involved, the difficulties and restrictions attending the performance of the contract. The bidder shall thoroughly examine and familiarize himself with the Technical Specifications for Sewer Tap-in or HSTS Repair/Replacement (which include approved Design) and all other contents of the Bid Package. The contractor, by the execution of the contract, shall, in no way, be relieved of any obligation by his failure to familiarize himself with the Bid Package or the Contractor's failure to visit the site and acquaint himself with the conditions there existing and the Seneca County Board of Health, Tiffin, Ohio, will be justified in rejecting any claim based on facts regarding which he should have been on notice as a result thereof. A telephone number for the applicant or their representative is provided, and we request the courtesy of notification before visiting the site.

3. ESTIMATE OF COST

The estimate of cost is included at the bottom of the Technical Specification page provided with the Letter requesting bids for each property.

4. COMMENCEMENT AND PROCEDURE

The Contractor shall schedule and commence work upon receipt of the "Notice to Proceed" issued by the Seneca Regional Planning Commission on behalf of the Seneca County Board of Health.

5. COMPLETION DATE SCHEDULED

The Contractor shall complete all work by the date listed in the Technical Specifications and Contract or earlier.

6. BIDS

All Bids must be submitted on forms supplied by the Seneca County Board of Health, Tiffin, Ohio, and shall be subject to all requirements of the Specifications. All bids must be regular in every respect. The Seneca County Board of Health, Tiffin, Ohio, may consider as irregular any Bid Sheet on which there is an alteration for or departure from the original Bid Sheet and at its option may reject the same.

This requirement shall not operate to bar the bidder from filing with his proposal a separate statement of any desired effect, which statement will be considered by the Seneca County Board of Health, Tiffin, Ohio, on its merits.

If the contract is awarded, it will be awarded by the Seneca County Board of Health, Tiffin, Ohio, to a responsible bidder on the basis of the lowest best bid for all work and materials, as listed in the Bid Sheet and being the most favorable to the Seneca County Board of Health, Tiffin, Ohio. The contract will require the completion of work in accordance with the Specifications.

7. BONDING REQUIREMENTS

Each bid must be accompanied by certified check, cashier's check, or letter of credit of the bidder, or a bid bond prepared on the form of bid bond meeting the requirements set in ORC 153.54/ORC 307.88, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of ten percent (10%) of the bid. Such certified check, cashier's check, letter of credit, or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within thirty (30) days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid. Attorneys-in fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

In the case where a certified check, cashier's check, or letter of credit were submitted, Contractor shall furnish the Health District with a payment and performance bond in an amount at least equal to one hundred percent of the contract price pursuant to ORC §153.54.

8. NON-COLLUSION AFFIDAVIT

Each bidder submitting a bid to the Seneca County General Health District shall execute a Non-Collusion Affidavit.

9. WAGES AND SALARIES

These projects do NOT require Prevailing Wage.

10. EQUAL EMPLOYMENT OPPORTUNITY

Attention of bidders is particularly called to the requirement ensuring that employees and applicants for employment are not discriminated against because of their race, color, national origin, sex, religion, military status, disability, age, genetic information or sexual orientation. Contractor is to sign the "Contractor Equal Employment Opportunity Certification" included in Section A of the bid documents.

11. LIST OF SUBCONTRACTORS

Whenever applicable, the Bidder shall submit a list of subcontractors which will be involved in this project.

12. TERMS OF PAYMENT

Terms of payment are provided in Section F of this General Specifications packet.

13. CONTRACT AWARD

The Health District further declares that they will award the contract for this project based on the lowest and best base bid. No single factor will control the Board's decision to award, and the Board reserves the right to exercise its full discretion.

14. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

A requirement of the Ohio EPA is the acknowledgement and signing of the "Certification Regarding Debarment, Suspension, and Other Responsibility Matters" form included in Section A of these bid documents.

The Contractor is certifying that:

1. They are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transaction by any Federal department or agency.

2. They have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. They are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with the commission of any of the offenses enumerated in #2 above;

4. Have not within a three (3) year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for abuse or default; and

5. Will not utilize a subcontractor or supplier who is unable to certify 1 – 4 above.

15. VIOLATING FACILITIES CLAUSES

The Independent Contractor must agree to comply with all applicable standards, orders or requirements under Section 306 of the Clean Air Act, 42 USC 1857 (h), Section 508 of the Clean Water Act, 33 USC 1368, Executive Order 11738, and EPA regulations, 40 CFR Part 32, which prohibits the use under non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities.

16. CHANGE ORDERS

All Changes Orders under this contract, regardless of costs and funding source, must be submitted to the Seneca Regional Planning Commission under consultation with the Seneca County General Health District will determine the necessity of the change complete the Contract Change Order form which will be signed by the Contractor, the Board of Seneca County General Health District prior to being submitted to the Ohio EPA for approval. No work may commence on work that requires a Change Order until the completely executed form has been received by the Board of Health and/or Seneca Regional Planning Commission. The Change Order form and the Change Order Instructions are found in Section D.

17. COMPLETION OF PROJECT

Itemized Invoice for materials and labor matching the format submitted in the bid shall be submitted within ten (10) days of the project completion. Project completion includes the submission of as-built drawings to the Health District.

18. EXECUTION OF CONTRACT WITHIN 10 DAYS

Where the Seneca County General Health District accept a bid but the bidder fails or refuses to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material within ten (10) days after receipt or notification of award, the bidder and the surety on any bond shall, except as provided in Section 153.54(G), Ohio Revised Code, be liable for the amount of the difference between his bid and that of the next lowest bidder, but not in excess of the liability specified in Section 153.54(B)(1) or 153.54(C), Ohio Revised Code.

Entering into “a proper contract” means that within ten (10) days after receipt of notification of award, the successful bidder shall file with the Seneca Regional Planning Commission the following documents exactly in the manner specified:

1. Signed Contract, with Certified Corporate Resolution or notarized statement of Partnership or as Sole Owner.

2. A performance bond for the full amount of the Contract...if the bid guaranty was a certified check, or letter of credit.
3. Certificate of Insurance
4. Current Ohio Worker's Compensation Certificate
5. An affidavit in conformance with ORC Section 5719.042 stating the bidder had no delinquent personal property taxes at the time of the bid.
6. Request for Taxpayer Identification and Certification - Form W-9.

Upon failure to file the documents listed above, in the form and manner specified by the County, within said ten (10) days, the bidder and the surety on any bond shall be liable to the County in an amount not to exceed ten (10) percent of the bid and the Seneca County General Health District will award the contract to the next lowest bidder or re-advertise for same.

DEFINITIONS

The following may be used interchangeably in the specifications:

County/Seneca County/Seneca County General Health District/Health District/Owner/Bid/Proposal
Project/Work

RELATED LAWS, REGULATIONS

It is expected that bidders on County construction are familiar with applicable local, State and Federal laws, ordinances and regulations. Consequently, only special State or Federal agency regulations, if any, are included in the specifications.

OHIO SALES TAX

The Health District is exempt from the payment of the Ohio Sales and Use Tax. Consequently, the cost of such is not to be included in the proposal.

PERMITS, FEES

The Contractor shall obtain and pay for all permits, fees and licenses necessary for the performance of his work on the project, and the cost of such may be included in the proposal.

SUBCONTRACTORS

Subcontractors at any tier are required to comply with the County's Insurance Specifications which, unless stated differently, are the same as those required of Prime Contractors.

LIQUIDATED DAMAGES

The County will suffer additional costs if the project is not substantially completed within the time specified. As a condition to the acceptance of the Contract, each contractor and its surety shall be liable for and pay the County liquidated damages in the amount of five hundred dollars (\$500.00) for each day the Project remains in an unfinished condition beyond the Time for Completion set forth in these Instructions to Bidders. Such amount may be deducted by the County from any payment due or to become due to said Contractor. Nothing under this section shall prohibit the County from recovery of damages for delay under other provisions of the Contract documents.

Punch list items must be completed within thirty (30) days after a substantial completion acceptance, signified by a written inspection report by the County's representative, to avoid imposing liquidated damaged penalties.

The said amount is fixed because of the impracticability and extreme difficulty of determining and fixing the actual additional costs the County would in such event sustain, and said amount is agreed to be the amount of damages which the County would sustain and shall not be treated as retainage.

Time is of the essence for each and every portion of the Project and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act. Where an additional time is allowed for the completion of any Work, the new time fixed by such extension shall control.

The Contractor shall not be charged with liquidated damages when the County determines the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the County, providing the Contractor shall, within ten (10) days from the beginning of such delay, notify the County, in writing, of the causes of delay.

All such extensions of time shall be by fully executed Change Orders.

UNIT PRICES

When unit prices are requested, the following applies:

The unit prices specified in the unit price bid column will govern the award of the contract. The bidder shall make the calculations in the total amount bid column and also add up the total. However, the unit price specified together with the approximate quantities shall determine the total amount of the bid. If there is an error made in the extensions by the bidder, the total shall be changed as only the unit prices shall govern.

ADDENDUM

Any interpretation, correction or change in the plans and specifications will be made by addendum. When an addendum is required the Architect/Seneca County General Health District and Seneca Regional Planning Commission, or the County, will forward it to those who earlier obtained a complete set of plans and specifications, 1) by mail, 2) email, or 3) by personal delivery, obtaining a signed receipt for same. No addendum will be issued to bidders having incomplete sets of plans and specifications.

PROPOSAL FORM

The proposal form included in the Specifications shall be used by all bidders. All blanks on the form shall be stated in both words and figures, and in the event of any discrepancy between the two, the amount written in words shall govern. Any interlineations, alteration or erasure shall be initialed by the signer of the proposal.

WITHDRAWAL OF BIDS

Bids may be withdrawn at any time prior to the time for opening.
No bids may be withdrawn for sixty (60) days after the opening.

LATE BIDS

No bids, regardless of the circumstances, will be accepted if submitted after the advertised opening. Such bids will be returned unopened to the bidder.

BID OPENING

Date shall be as provided in the Request to Bid Letter. Usually, immediately after all bids are opened and read, the Watershed Specialist will refer them to the Seneca County General Health District for detailed tabulation, evaluation and recommendation, after which the award will be made.

AWARD OF CONTRACT

Contracts will be awarded by Resolution of the Seneca County General Health District within sixty (60) days of bid opening, or, if necessary, rejected, or extended as provided by statute. All bidders will receive a copy of such Resolution.

UNDERGROUND UTILITY FACILITIES (SECTION 153.64 ORC)

The Prime Contractor(s), so identified in the Underground Utility Facilities section of the Specifications, shall, at least two working days, excluding Saturdays, Sundays, and legal holidays, prior to commencing construction operations in the project area which may involve underground utility facilities, cause notice to be given to the Registered Underground Utility Projection Services (“Services”) and the Owners of underground facilities shown on the plans and specifications who are not members of such Services, in writing, by telephone, or in person. Where notice is given in writing by certified mail, the return receipt, signed by any person to whom the notice is delivered, shall be conclusive proof of notice.

The Owner of the underground utility facility shall, within forty-eight (48) hours, excluding Saturdays, Sundays, and legal holidays, after notice is received, stake, mark, or otherwise designate the location of the underground utility facilities in the construction area in such manner as to indicate their course together with the approximate depth at which they were installed. The marking or locating shall be coordinated to stay approximately two (2) days ahead of the planned construction.

The Contractor shall immediately notify the occupants of nearby premises as to any emergency that he may create or discover at or near such premises. The Contractor shall report immediately to the Owner or operator of the underground facility any break or leak on its lines or any dent, gouge, groove, or other damage to such lines or to their coating of cathodic protection, made or discovered in the course of their excavation.

The Prime Contractor(s) so identified in the Specifications, regardless of his subcontractors at any tier, is solely responsible for complying with these requirements for underground utility facilities in the project area.

SECTION C
CONSTRUCTION CONTRACT AND CONTRACT FORMS
CONTRACT SERVICE AGREEMENT

This agreement made this _____ day of _____, 2020 by and between: **COMPANY NAME**, hereinafter designated as “Independent Contractor” and, the Seneca County General Health District, hereinafter designated as “Health District”;

In consideration of their mutual promises contained herein, and for other good and valuable consideration, it is hereby agreed as follows:

1. Independent Contractor agrees to perform the following services, to-wit: The Independent Contractor shall complete *the installation of a **TYPE OF INSTALLATION OR TAP-IN** following the emergency installation of a septic tank due to health and safety concerns, and complete abandonment of the former home and sewage treatment system (HSTS)* which shall include all supervision, technical personnel, labor, materials, machinery, tools, equipment and services, including utility and transportation services, obtain all required permits and perform and complete all work required for the service embraced in the project: **namely the property of CLIENT NAME, ADDRESS**. This project shall be called the **WPCLF HSTS Agreement #00-2020**.

2. The Health District shall pay the Independent Contractor a fee of \$AMOUNT IN NUMBERS (AMOUNT SPELLED OUT dollars and 00) for the above mentioned services – contract not to exceed \$TOTAL AMOUNT.

3. All work shall be completed within ninety (90) days from the date of the Notice to Proceed and within Seneca County General Health District regulations. Final bill and required documentation will be due to the administrator no later than ten (10) days following final approval by the Seneca County General Health District and completion of site work. The Health District agrees to pay the said assigned funds to the Independent Contractor in accordance with the following method:

- A. The contract(s) has been executed by all parties and a copy submitted to Ohio Environmental Protection Agency (EPA), and
- B. The installation of the HSTS has been inspected by the local Health District and a final inspection certification has been issued, and
- C. A payment request that documents the costs incurred for the individual home sewage treatment system (HSTS) improvements are submitted by the local government agency to Ohio EPA (the payment request must be accompanied by the local Health District final inspection certification), and
- D. The Ohio EPA reviews and approves the submissions and directs the Ohio Water Development Authority to disburse of approved amounts to the local government agency.

4. Independent Contractor shall perform said services in a professional manner to the satisfaction of the Board of Health and having passed a final inspection performed by the Seneca County General Health District, Division of Environmental Health.

5. It is further agreed by and between the parties hereto that the Independent Contractor shall indemnify and hold the Health District, its officials, employees, and staff harmless from any and all losses, damages, claims, suits, or contingent or direct liabilities that may arise as a result of any and all acts performed or that fail to be performed by the Independent Contractor during the term or arising out of this agreement.

6. *General Liability:* In addition to such fire and other physical damage insurance as the Independent Contractor elects to carry for his own protection, he shall also secure and maintain in the name of the Owner, the government agency sponsoring the Project, Subcontractors, the Consulting Engineer and any other parties having an interest in the Project, as named insured as their interest may appear; a general liability policy for fire, extended coverage, vandalism and malicious mischief in the amount of one hundred percent (100%) of the value of the complete parts of the Project and Materials in storage, except that such coverage shall not be required in connection with sewer, water main or paving construction. Pump or lift station construction shall not be considered sewer or water main construction for purposes of this paragraph.

7. *Workers' Compensation:* The Independent Contractor shall provide Workers' Compensation Insurance for all employees engaged in Work who may come within the protection of the workers' compensation law, and, where applicable, employer's General Liability Insurances for employees not so protected and shall require all Subcontractors to provide corresponding insurance.

The Independent Contractor shall indemnify the Owner and the Consulting Engineer against any and all liabilities, costs and expenses due to accidents or other occurrences covered by the workers' compensation law.

8. *Independent Contractor's Motor Vehicle Bodily Injury and Property Damage Liability Insurance:* Insurance to cover liability arising from the use and operation of motor vehicles in connection with the performance of the Contract (as customarily defined in liability insurance policies), whether they be owned, hired or non-owned by the Independent Contractor, as follows:

a. Bodily Injury Liability: \$500,000 for each person; limit of \$1,000,000 for each occurrence.

b. Property Damage Liability: \$500,000 for each occurrence.

9. *Independent Contractor's Public Liability and Property Damage Liability Insurance:* Independent Contractor's Public Liability Insurance providing a limit of not less than \$500,000 for all damages arising out of bodily injuries, including accidental death to one person, and a total limit of \$1,000,000 for all damages arising out of bodily injuries, including accidental death, to two or more

persons in any one occurrence. Independent Contractor's Property Damage Liability Insurance providing for a limit on not less than \$500,000 for all damages to or destruction of property.

Coverage under this policy shall include, to the limits indicated above, the collapse or damage to any structure, building or its contents, public or private utility, or pavement during construction and for two (2) years thereafter.

Whenever Work under the Contract is to be done in the vicinity of existing underground utilities or structures, coverage under the policy shall also include, to the limits indicated, all damages to said underground utilities or structures during construction and for a period of two (2) years thereafter. Whenever Work under the Contract is to be done by blasting, coverage under the policy shall also include, to the limits indicated above, all damages of any kind whatsoever caused by blasting.

10. Independent Contractor's Protective Public Liability and Property Damage Liability Insurance: Independent Contractor's Protective Public Liability and Property Damage Liability Insurance for operations performed by Subcontractors providing for coverage and limits corresponding to those described in subparagraph 9.

11. Owner's Protective Public Liability and Property Damage Liability Insurance: Regular Owner's Protective Public Liability and Property Damage Liability Insurance for operations performed by the Independent Contractor or any Sub-contractor providing for coverage and limits corresponding to those described in subparagraph 9.

This policy shall be written in the name of the Owner as a separate policy from those specified elsewhere herein.

12. Railroad Protective Liability Insurance: If any of the Work under this Contract is on railroad R/W, the Independent Contractor shall at its sole cost and expense, procure and provide, for and in behalf of each railroad company. Protective Liability Insurance (AARAASHO form) with minimum limits per occurrence of not less than \$2,000,000 for bodily injury, death and/or property damage, subject to an aggregate limit of \$6,000,000 per annum. The policy shall name each railroad company as the insured and be issued to the Independent Contractor. Each railroad company shall be provided with a copy of each policy of insurance prior to commencement of any work.

13. Bid Security: Each bid must be accompanied by performance bond, certified check, letter of credit, or bid guarantee prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of ten percent (10%) of the bid. Such cash, checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within thirty (30) days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid. Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

14. *Performance and Payment Bonds*: Simultaneously with his/her delivery of the executed contract, the Independent Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner. The bond shall be for one hundred percent (100%) of the contract price. A Payment Bond and Performance Bond are required. Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney. Under certain conditions, and within the limits of State and local laws and regulations, the Owner may waive the requirement that the Payment and Performance Bond be underwritten by a surety company and may authorize in lieu thereof, a personal bond backed by a letter of credit from a local lending institution for the full value of the Contract.

15. Independent Contractor shall at his own cost provide hospitalization for himself and for the benefit of his employees and/or agents, and shall be liable for all state, local and federal income taxes and the reporting of same to the appropriate taxing agencies.

16. Independent Contractor and his agents or employees shall not be eligible for sick leave, vacation, hospitalization, or fringe benefits extended to regular employees of Seneca County.

17. Independent Contractor shall be responsible for all workers' compensation and unemployment compensation for its employees or agents. Independent Contractor shall provide, prior to beginning service, a certificate evidencing that workers' compensation and unemployment compensation are in effect. Independent Contractor shall maintain workers' compensation and unemployment compensation during the term of this contract.

18. Independent Contractor shall provide paid receipts to the Health District evidencing that all materials and supplies used in or provided by Independent Contractor have been paid, and Independent Contractor shall provide waivers of lien in an appropriate form at the conclusion of each job as requested by the Health District. The Health District is authorized to withhold from the Independent Contractor any and all funds necessary to satisfy any claims brought against the Health District by any materialmen or persons performing services under this contract.

19. The Independent Contractor agrees to comply with all applicable standards, orders or requirements under Section 306 of the Clean Air Act, 42 USC 1857 (h), Section 508 of the Clean Water Act, 33 USC 1368, Executive Order 11738, and EPA regulations, 40 CFR Part 32, which prohibits the use under non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities.

20. The signatories agree to ensure that the Director or its duly authorized agents shall have the right at all reasonable times to enter upon the Project Site(s) and Project Facilities, and to examine and inspect the same and to exercise the Director's rights pursuant to the WPCLF Assistance Agreement.

21. In the event of a conflict between the contract and the WPCLF Assistance Agreement, the provisions of the WPCLF Assistance Agreement shall prevail.

This contract may be terminated by the Health District at their discretion.

This is an agreement for services to be provided by an Independent Contractor. The Health District is not concerned with controlling method, manner and/or mode of the duties to be performed by Independent Contractor, but only the result of the Independent Contractor's work. The parties hereto further agree that this is a Personal Service Contract as set forth under Ohio Revised Code Section 145.012(A)(1) and Ohio Administrative Code 145-1-42; said Independent Contractor expressly waives for himself and his agents or employees any rights, claims, or demands that he or his agents or employees may have for any benefit under the Public Employees' Retirement System of the State of Ohio.

The executed document shall contain:

- a. This Agreement
- b. Contractor Equal Employment Opportunity Certification
- c. Certification regarding Debarment, Suspension, and Other Responsibility Matters
- d. Affidavit of Non-delinquency of personal property taxes.
- e. American Iron and Steel Acknowledgement

SENECA COUNTY
GENERAL HEALTH DISTRICT

INDEPENDENT CONTRACTOR NAME
COMPANY NAME

Health Commissioner

Independent Contractor

Approved as to form:
Seneca County Asst. Prosecutor

WORKERS' COMPENSATION

The Contractor shall comply with the Ohio Workmen's Compensation Act for all of their employees engaged in work under this Contract.

NOTICE REQUIREMENT

All insurance policies and certificates shall include an endorsement providing thirty (30) days prior written notice to the County of cancellation, policy lapse, material change or reduction of coverage. The Contractor shall cease operations on the occurrence of any such cancellation, policy lapse, material change, or reduction, and shall not resume operations until new insurance is in force, and a new Certificate of Insurance is filed with and approved by the County, and he is again authorized to proceed.

Such cessation of operations shall not excuse the Contractor's obligation to complete his work within the time specified in this contract.

INDEMNIFICATION CLAUSE

The Independent Contractor agrees to indemnify and save the Health District, County, its officials, officers, agents, and employees harmless from any and all losses, claims, actions, costs, expenses, judgments, subrogation's, or other damages resulting from injury to any person (including injury resulting in death), or damage (including loss or destruction) to property of whatsoever nature of any person, firm, or corporation arising out of the errors, omissions or negligent acts of the Contractor in the performance of the terms of this Contract by the Contractor, including but not limited to the Contractor's employees, agents, subcontractors, sub-subcontractors, and others designated by the Contractor to perform work or services in, about, or attendant to, the work and services under the terms of this contract.

CERTIFICATES OF INSURANCE

The Contractor shall file a Certificate of Insurance for all coverage required in these Insurance Specifications on the ACORD 25 Form (preferred), and a copy of his current Workers' Compensation Certificate, with the County before starting work on the project, and shall keep such Certificates current and on file with the County for the life of this Contract.

BID GUARANTEE

The requirements for a bid guarantee (which can be a bond or a certified check, cashier's check, or letter of credit) are covered in the ORC 153.54/ORC 307.88

PAYMENT AND PERFORMANCE BONDS

The requirements for a Payment and Performance Bond are covered in ORC 153.54/ORC 307.89.

NOTICE TO PROCEED

The Contractor shall not commence work under this contract until he has obtained all the insurance required herein, has submitted appropriate Certificates of Insurance to and received approval of the County as evidenced by a Notice to Proceed issued on their behalf by the Seneca Regional Planning Commission

SUBCONTRACTORS

These Insurance Specifications apply equally to all subcontractors and sub-subcontractors at any tier during the period of their work on the project.

The Prime Contractor shall be solely responsible for his subcontractor's liability if he permits the Sub to work on the project without the Sub having been issued a Notice to Proceed by the Seneca Regional Planning Commission on behalf of the Health District.

State of Ohio
WATER POLLUTION CONTROL LOAN FUND (WPCLF/SRF) HSTS

CONTRACT CHANGE ORDER

RECIPIENT _____ CHANGE ORDER NBR _____

LOAN NUMBER _____ CONTRACT _____

OWDA PROJECT No. _____ DATE _____

Description of Change
(include address):

APPROVED BY: _____ DATE: _____
(Health District Representative)

ACCEPTED BY: _____ DATE: _____
(Contractor)

(Company)

Original Contract Amt		
Previous Changes (+ / --)		
This Change (+ / --)		
Adjusted Contract Amt		

Ohio EPA Acceptance	
	Date

CHANGE ORDER INSTRUCTIONS:

All Change Orders for this work, regardless of costs, must be submitted to Ohio EPA for review.

Changes Requiring Prior Approval

Any change which substantially modifies the Project Facilities as specified in the Ohio EPA approved Facilities Plan and Final Permit to Install or Final Plan Approval (when applicable) or alters the direct or indirect impact of the Project Facilities upon the environment must be incorporated into a Change Order. One copy of the Change Order prior to execution is to be submitted to Ohio EPA for review and prior approval of the acceptability of the change. "Prior to execution" means before the Change Order is signed by the Owner.

Ohio EPA will review the Change Order and inform the Owner of the technical, environmental and operational acceptability of the change, and give the Owner permission to proceed with the proposed work.

All Other Changes

Change Orders not requiring prior approval as described above must be submitted to Ohio EPA within one

(1) month of the time at which they are approved by the Owner. Change Orders for WPCLF projects should be submitted to the Division of Environmental and Financial Assistance (DEFA).

Change Order Approval Process

After the Change Order is executed, one (1) copy of the Change Order, including the supporting documentation, is to be sent to Ohio EPA for final review. The HSTS Change Order form must have original signatures.

Health Departments should submit change orders electronically to the DEFA Engineer who reviewed and approved their project.

After the Change Order is accepted and eligible costs determined, Ohio EPA will return a signed copy of the HSTS Change Order form.

Payments for Change Order Work

The Owner is precluded from submitting to the OWDA payment requests for Eligible Project Costs associated with the Change Orders until the Ohio EPA's approval of the Change Orders has been obtained.

NOTICE TO PROCEED

To: _____

Date: _____

PROJECT Description:

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20__, on or before _____, 20__, and you are to complete the WORK no later than the date of completion set within the contract is therefore _____

Owner

By: _____

Name: _____

Title: _____

On behalf of the Seneca County General Health District

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____ on this _____ day of _____, 20__.

By: _____

Name: _____

Title: _____

SECTION D

EQUAL EMPLOYMENT OPPORTUNITY

A. Activities and Contracts Not Subject to Executive Order 11246, as Amended

(Applicable to Federally assisted construction contracts and related subcontracts \$10,000 and under)

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, military status, disability, age, genetic information or sexual orientation. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, national origin, military status, disability, age, genetic information or sexual orientation. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.
2. **The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of this non-discrimination clause.** The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.
3. Contractors shall incorporate foregoing requirements in all subcontracts.

B. Executive Order 11246 (Contracts/Subcontracts above \$10,000)

1. Section 202 Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

- (1)The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment, or recruitment advertising; layoff or termination, rates of pay or other forms of compensation; and selection for training, including apprenticeship. **The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Owner setting forth the provisions of this non discrimination clause.**
- (2)The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin.
- (3)The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contractor or understanding, a notice to be provided by the Owner advising the said labor union or workers' representatives of the contractor's commitment under this section, and shall post

copies of the notice in conspicuous places available to employees and applicants for employment.

- (4)The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5)The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the Ohio Department of Development's Office of Local Government Services (OLGS), the U.S. Department of Labor and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and others.
- (6)In the event of the contractor's non-compliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rules, regulations or order of the Secretary of Labor, or as otherwise provided by law.
- (7)The contractor will include the provisions of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such provisions, including sanctions for non-compliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Department, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

2. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246). (Applicable to contracts/subcontracts exceeding \$10,000)

- (1)The Offerer's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
- (2)The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trace on all construction work in the covered area, are as follows:

Goals for Minority Participation	Goals for Female Participation
10.0%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered areas. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative

action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

(3)The Contractor shall provide written notification to the Manager of the Office of Local Government Services, Ohio Department of Development, P.O. Box 1001, Columbus, OH 43266-0101 within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

(4)As used in this Notice, and in the contract resulting from this solicitation, the "covered area" _____ county Ohio.

3. Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

(1)As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer Identification Number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
- d. "Minority" includes:
 - (i) Black: all persons having origins in any of the Black African racial groups not of Hispanic origin;
 - (ii) Hispanic: all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race;
 - (iii) Asian and Pacific Islander: all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands; and
 - (iv) American Indian or Alaskan Native: all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

(2)Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

- (3) If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
- (4) The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonable be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
- (5) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- (6) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to the training programs approved by the U.S. Department of Labor.
- (7) The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have

- employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source of community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority & female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
 - i. Direct its recruitment efforts, both oral and written, to minority female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc. such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- q. Covered construction contractors performing contracts in geographical areas where they do not have a federal or federally assisted construction contract shall apply at the minority and female goals established for the geographical area where the contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting offices.

(8) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7q). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7q of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation shall not be a defense for the Contractor's non-compliance.

(9) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially

desperate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

- (10)The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.
- (11)The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
- (12)The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- (13)The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- (14)The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by OLGS and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
- (15)Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

SECTION E GENERAL CONDITIONS

Local Health Department Regulations were distributed to each registered installer at time of registration.

Local regulations can also be viewed at

https://www.senecahealthdept.org/sewage-systems?page_id=10

Technical specifications are referenced in the local regulations and state technical requirements can be viewed at the Ohio Department of Health website:

<https://www.odh.ohio.gov/odhprograms/eh/sewage/Law%20and%20Rule%20Page/sewrules.aspx>

Specifications for Sewer Tap-ins will be governed by the owner of the Sanitary Sewer of the specific location and will be provided to all bidders at the time of bidding.

SECTION F BASIS OF PAYMENT

Payment Methods

Contractors will be reimbursed for work performed only after:

- (1) The contract(s) has been executed by all parties and a copy submitted to Ohio EPA, and
- (2) the installation of the HSTS has been inspected by the local Health District and a final inspection certification has been issued, and
- (3) a payment request that documents costs incurred for the individual HSTS improvements is submitted by the local government agency to Ohio EPA (the request must be accompanied by the local Health District final inspection certification, and the signed contract page), and
- (4) the Ohio EPA reviews and approves the submissions and directs the Ohio Water Development Authority to disburse of approved amounts to the local government agency.

This process may take up to 4-6 weeks.

TECHNICAL SPECIFICATIONS

Technical Specifications for HSTS System Installations at

1. Margaret Schalk, 419-937-2572
2. Seth Craig, 567-207-7319
3. Joe Todd, 419-618-0574
4. Toni Tanner, 419-957-8281
5. Jessica Wyandt, 419-569-1279
6. Angela Lowe, 567-938-1299

BID DUE FRIDAY FEBRUARY 26, 2021 AT NOON

The **ITEMIZED** bid for the installation of a HSTS system and will need to include all costs associated with:

1. Obtain on behalf of the homeowner purchase an installation permit which will require submitting both application and fee *(\$250 tap in fee and a \$234 Water meter purchased from the city of Fostoria) * If applicable. For NPDES systems; Septic Design Review of \$125, an EPA Permit of \$200 and the Permit to the Health Department of \$424. For Septic Tank Only, please see \$235 Alternation Permit Fee.
2. ** Labor, materials and equipment to install the HSTS system as designed and meeting current standards and requirements of the Seneca County General Health District, Ohio Department of Health and Ohio EPA
3. **List as an itemized price on the bid sheet**, any electrical or plumbing upgrades or alterations necessary to achieve a fully functional system as indicated in the approved design.
4. The closure of the existing system as indicated on the approved design or as indicated by the Seneca County General Health District.
5. For final approval, site must be graded and seeded upon completion. This contract is with the Seneca County General Health District and not with the homeowner so any deviation from this will require a change order following the guidance provided in the Specifications packet provided. The Seneca County General Health District and Ohio Environmental Protection Agency will have to approve the requested Change Order which can take as long as 3-4 weeks for approval. No invoices are accepted for any portion of payment until all Change Orders are fully approved.

6. Upon completion provide the required as-built drawings to the Seneca County General Health District.

Please note that all materials and/or equipment specified within the approved design can be installed as specified or with comparable materials/equipment as approved and acceptable by the Seneca County General Health District. Any questions relating to acceptable materials and/or equipment contact the Seneca County General Health District.

Items not eligible to be covered through this contract are as follows:

1. Abandonment of drinking water wells.
2. Administrative Costs
3. Annual Contractor permit fees
4. Insurance Costs
5. Operation and Maintenance permit fees
6. Performance and Payment Bond costs
7. Tax

Estimated cost of systems

929 S TR 109 - \$14,000.00

3638 E CR 50 - \$14,000.00

7515 E TR 58. - \$14,000.00

11101 W TR 112 - \$14,000.00

8705 SR 4. - \$14,000.00

6625 CR 6. - \$14,000.00

Contract completion will be within sixty (60) days with the understanding these need to be completed as early as possible to ensure grant funds are expended.

Please submit bids by one of the following: mail to: Seneca Regional Planning Commission, 71 S Washington St, Suite 1104, Tiffin, OH 44883 or email to cjwatkins@senecarpc.org Attn: Charlene Watkins



GEOPHYTA

Home Septic System Site Evaluation And Replacement System Design

For:

Seneca County WPCLF (Margaret Schalk)

929 S. T.R. 109
Tiffin, OH 44883

Property Location:

929 S. T.R. 109
Tiffin, OH 44883

Hopewell Township, Seneca County

**NPDES - Jet J500 ATU Tank & Spoerr 750gal Dose Tank W/ UV Disinfection
& Reaeration**

By:

**Nathan Wright (Soil Scientist)
Seth V. Layne (Designer)**

*Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464*

419-547-8538

September 22, 2020

To The Homeowner:

A septic system is designed based on all the information you provide and Geophyta Inc collects at the site. It must be accurate. This information includes local soil limits and topography, plus existing and future locations of your home, number of bedrooms, out buildings, driveways, drinking water wells, ponds, septic systems, and property lines. Geophyta Inc. relies on this information to construct detailed design drawings that must meet local health department regulations before installation.

Any design changes required by the local health department to meet existing regulations are the responsibility of Geophyta Inc.

Any information changes made by you after the initial site inspection are your responsibility and will result in additional charges to you above the original quote for services. These charges may include additional site inspection work, system redesign, and resubmitted drawings.

To The Installer:

The registered installer of this septic system design is responsible for preparing an “as-built” record, as stated in the Ohio Administrative Code Chapter 3701-29-09, Par. F (p.32) of the “Sewage Treatment System Rules,” Ohio Department of Health, January 1, 2015. Additionally, the installer is responsible for measuring and recording distal pressure head and float switch settings as baseline measures for future operation and maintenance of any pressure distribution system (3701-29-15, Appendix B, Par. VI(p.93) of above referenced rules.

If the installer requests “as-built” record creation from Geophyta Inc., additional charges will be billed to the installer by Geophyta Inc. and must be arranged prior to installation.

Geophyta Inc. must assume that any registered installer has the knowledge, equipment, ability, and experience to properly layout, install, and create as-built drawings for any septic system design approved by a local board of health. This includes the ability to read detailed design prints with an associated bill of materials. For this reason, any Geophyta Inc project supervision prior to or during installation will be billed to the installer.

Any product substitution made by the installer that is not specifically permitted in the design prints may result in Health Dept. disapproval and will result in additional re-design costs billed to the installer.

HSTS Site/Soil Evaluation Information Sheet, Geophyta, Inc.

Customer:

Name:	MARGARET M. SCHALK
Address:	929 S.T.R. 109
City, State:	TIFFIN, OHIO 44883
Home Phone:	419-937-2572
Cell Phone:	—
Email:	MSCHALK48@gmail.com

Property:

Parcel #:	
Current Owner:	JANE ↑
Address:	
City, State, Zip:	
Lot Size:	
Right of Ways?	—
Easements?	—

Existing or Proposed or Lot Split: (circle one)

House Size: Rooms	2 bedrooms	electric:	overhead or <u>buried</u>
House Dim.w/Garage:	ft.xft.	phone:	overhead, <u>buried</u> ; n/a
Garage Size:	cars, ft.xft.	gas :	natural, <u>propane</u> n/a
Water Source:	<u>well</u> ; public; cistern	garden/hot tub:	yes <u>no</u>
Water Softener:	no <u>yes</u> <small>Not into system</small>		
Outbuildings:	<u>no</u> yes, size:	geothermal heat/cooling system	<u>no</u> ; yes: (horizontal or vertical)
Pond:	<u>no</u> yes, size:		
System Type:	new or <u>replacement</u>	Sump pump:	<u>no</u> yes
Replacement Reason:	<u>failed</u> ; addition; n/a	Discharge where?	

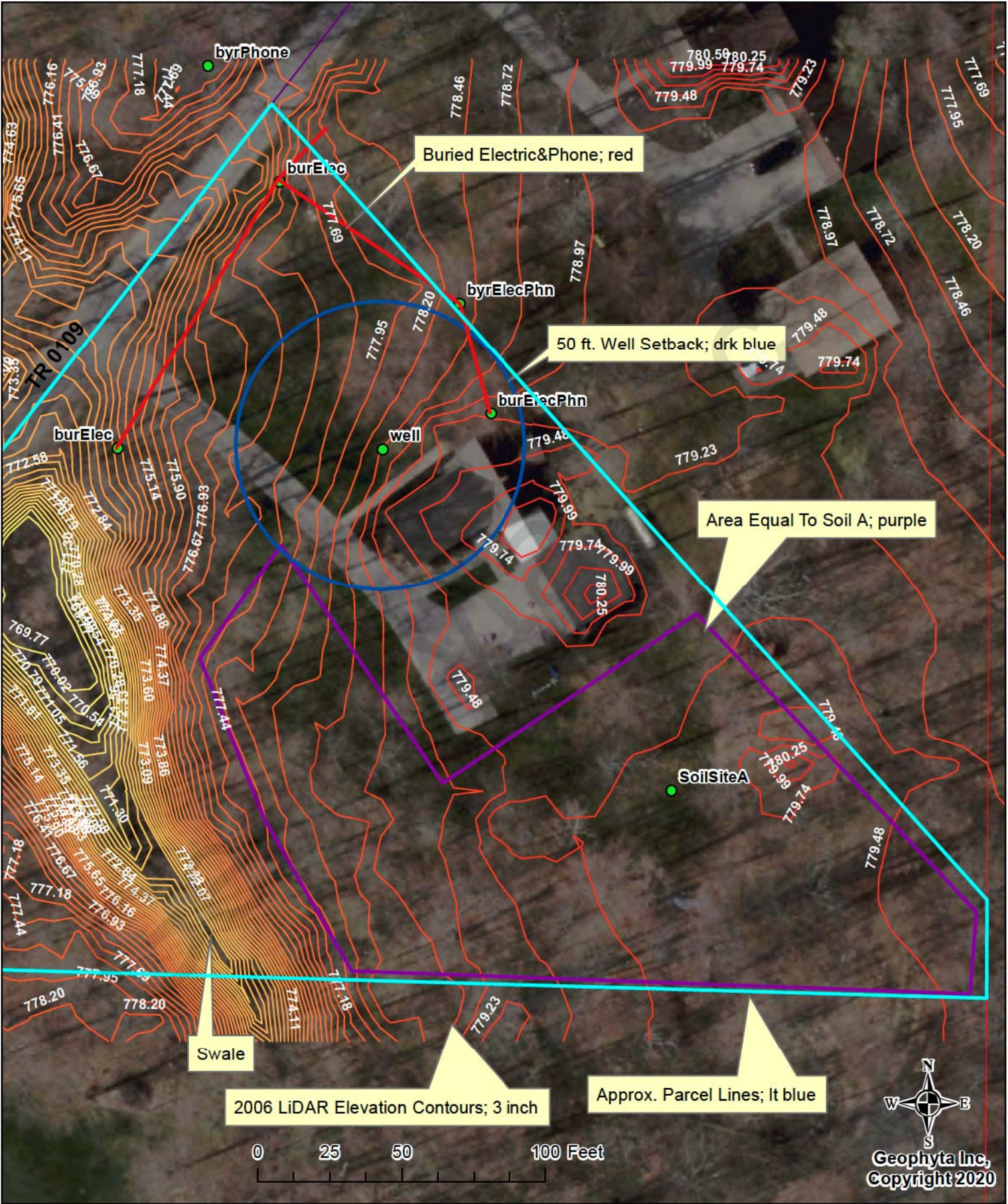
Comments:

I agree that the above information is accurate and can be used by Geophyta, Inc. to prepare a site/soil evaluation for septic system suitability. The site/soils report is for information purposes to be used by a designer and your local health department. This report does not guarantee build ability of a lot or approval of any septic system design. This is not a property boundary survey.

Margaret M. Schalk 9/3/20
 Customer Signature Date

Copyright, 2020
 Geophyta, Inc.

HSTS Site/Soil Evaluation - 929 S. T.R. 109

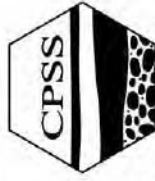


Site and Soil Evaluation for Sewage Treatment and Dispersal

County: Seneca
 Township / Sec.: Hopewell
 Property Address: 929 S. T.R. 109
 OR Location: Tiffin
 Applicant Name: Margaret Schalk
 Address: 929 S. T.R. 109
Tiffin OH 44883

Land Use / Vegetation: Residential Turf
 Landform: Glacial Till Plain
 Position on Landform: Flat
 Percent Slope: 0 - 1
 Shape of Slope: Linear - Linear
 Approximate Soil Type: Blount SiL

Control #:20- SEN - 28A - 258 - 258



Certification #: 19395

Date: 3-Sep-20
 Evaluator: Nathan Wright
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464
 Phone#: 419-547-8538
 Method: Pit Auger Probe; 1 1/4" dia.
 Test Hole #: A
 Latitude/Longitude: 83°16'0.286"W 41°6'34.535"N

Signature: *Nathan Wright*

Soil Profile		Estimating Soil Saturation				Estimating Soil Permeability				Other Soil Features	
		Munsell Color (hue, value, chroma)		Redoximorphic Features		Texture		Structure			
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Grade	Size	Type (shape)	Consistence
A	0.0 - 2.5	10YR 2/2	5% 7.5 YR 4/6	5% 10YR 4/1	SiL	15	0	2 - mod	fine	gr	v. friable
Eg	2.5 - 9.0	10YR 6/2	20% 10YR 5/6	matrix	SiL	25	0	1 - weak	fine	sbk	friable
Btg	9.0 - 14.0	10YR 4/2	40% 7.5YR 4/6	matrix	SCL	30	10	1 - weak	medium	sbk	friable
Bt	14.0 - 25.0	10YR 4/4	none	15% 10YR 5/2	SiC	45	0	1 - weak	medium	sbk	firm
C	25.0 - 48.0	10YR 5/4	none	10% 10YR 5/2	SiCL	35	10	2 - mod	medium	sbk	firm
Limiting Conditions		Depth to (in.)	Descriptive Notes		Remarks / Risk Factors:						
Perched Seasonal Water Table		0.0	Restricted in Eg, Btg, Bt, and C		No Tyler Values						
Apparent Water Table		>48			PSWT < 8"						
Highly Permeable Material		>48									
Bedrock		>60	By Tile Probe								
Other Restrictive Layer		14.0	SiC and weak ststructure								

Note : The evaluation shall include a complete site plan or site drawing including all requirements in paragraphs (B)(1) through (B)(4) of OAC 3701-29-08.

Landforms
Upland*
Terrace
Flood Plain
Lake Pain
Beach Ridge
*Includes glacial till plain and end moraine

Position on Landform
Depression
Flat
Knoll
Crest
Hillslope
Footslope

Shape of Slope
Convex
Concave
Linear
Complex

Horizon Nomenclature		
Master Horizons	Horizon Suffixes	Horizon Modifiers
O Predominantly organic matter (litter & humus)	a Highly decomposed organic matter	Numerical Prefixes: Used to denote lithologic discontinuities.
A Mineral, organic matter (humus) accumulation, loss of Fe, Al, clay	b Buried genetic horizon	
E Mineral, loss of Si, Fe, Al, clay, organic matter	d Densic layer (physically root restrictive)	Numerical Suffixes: Used to denote subdivisions within a master horizon.
B Subsurface accumulation of clay, Fe, Al, Si, humus; sesquioxides; loss of CaCO ₃ ; subsurface soil structure	e Moderately decomposed organic matter	
C Little or no pedogenic alteration, unconsolidated earthy material, soft bedrock	g Strong gley	
R Hard bedrock	i Slightly decomposed organic matter	
	p Plow layer or artificial disturbance	
	r Weathered or soft bedrock	
	t Illuvial accumulation of silicate clay	
	w Weak color or structure within B	
	x Fragipan characteristics	

Soil Texture	
Texture Class Abbreviations	Textural Class Modifiers
Course Sand cos	Gravelly GR
Sand s	Fine Gravelly FGR
Fine Sand fs	Medium Gravelly MGR
Very Fine Sand vfs	Coarse Gravelly CGR
Loamy Coarse Sand lcos	Very Gravelly VGR
Loamy Sand ls	Extremely Gravelly XGR
Loamy Fine Sand lfs	Cobbly CB
Loamy Very Fine Sand lvfs	Very Cobbly VCB
Coarse Sandy Loam cosl	Extremely Cobbly XCB
Sandy Loam sl	Stony ST
Fine Sandy Loam fsl	Very Stony VST
Very Fine Sandy Loam vfsl	Extremely Stony XST
Loam l	Bouldery BY
Silt Loam sil	Very Bouldery VBY
Silt si	Extremely Bouldery XBY
Sandy Clay Loam scl	Channery CN
Clay Loam cl	Very Channery VCN
Silty Clay Loam sicl	Extremely Channery XCN
Sandy Clay sc	Flaggy FL
Silty Clay sic	Very Flaggy VFL
Clay c	Extremely Flaggy XFL

*Estimate approximate clay percentage within 5 percent

Soil Structure					
Grade	Size	Type (Shape)			
Structureless	0	Very Fine	vf	Granular	gr
Weak	1	Fine	f	Angular Blocky	abk
Moderate	2	Medium	m	Subangular Blocky	sbk
Strong	3	Coarse	co	Platy	pl
		Very Coarse	vc	Prismatic	pr
		Extr. Coarse	ec	Columnar	cpr
		Very Thin*	vn	Single Grain	sg
		Thin*	tn	Massive	m
		Thick*	tk	Cloddy	CDY
		Very Thick*	vk		

* The sizes Very Thin, Thin, Thick, and Very Thick, are used when describing platy structure only. Substitute thin for fine, and thick for coarse when describing platy structure.

Moist Consistence	
Loose	l
Very Friable	vfr
Friable	fr
Firm	fi
Very Firm	vfi
Extremely Firm	efi

For a more detailed explanation on describing and sampling soils, please refer to the "Field Book for Describing and Sampling Soils" Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors) 2002. Field book for describing and sampling soils, version 2.0. Natural Resources Conservation Service, USDA, National Soil Survey Center, Lincoln, NE.

GEOPHYTA

7-Sep-20

Margaret Schalk
929 S.T.R. 109
Tiffin, OH 44883

RE: HSTS Site/Soil Evaluation for 929 S.T.R. 109, Tiffin, Hopewell Twp., Seneca County

Margaret,

This is a follow-up letter to an HSTS Site/Soil Evaluation performed on 3-Sep-20 at the above property.

This soil evaluation revealed the presence of large areas of poorly drained soils in a localized drainage basin. Soil Site A exhibited 0.0 inches to perched, seasonal water table (PSWT). Also, this entire area of wooded soil expressed its wetness with the presence of surfacing tree roots. This site represents a very high failure risk for on-site treatment and absorption of septic effluent.

The only option that remains is an NPDES treatment system as permitted by the Ohio EPA. It appears the only option is to discharge an NPDES system to the ravine along the west parcel line.

Sincerely,

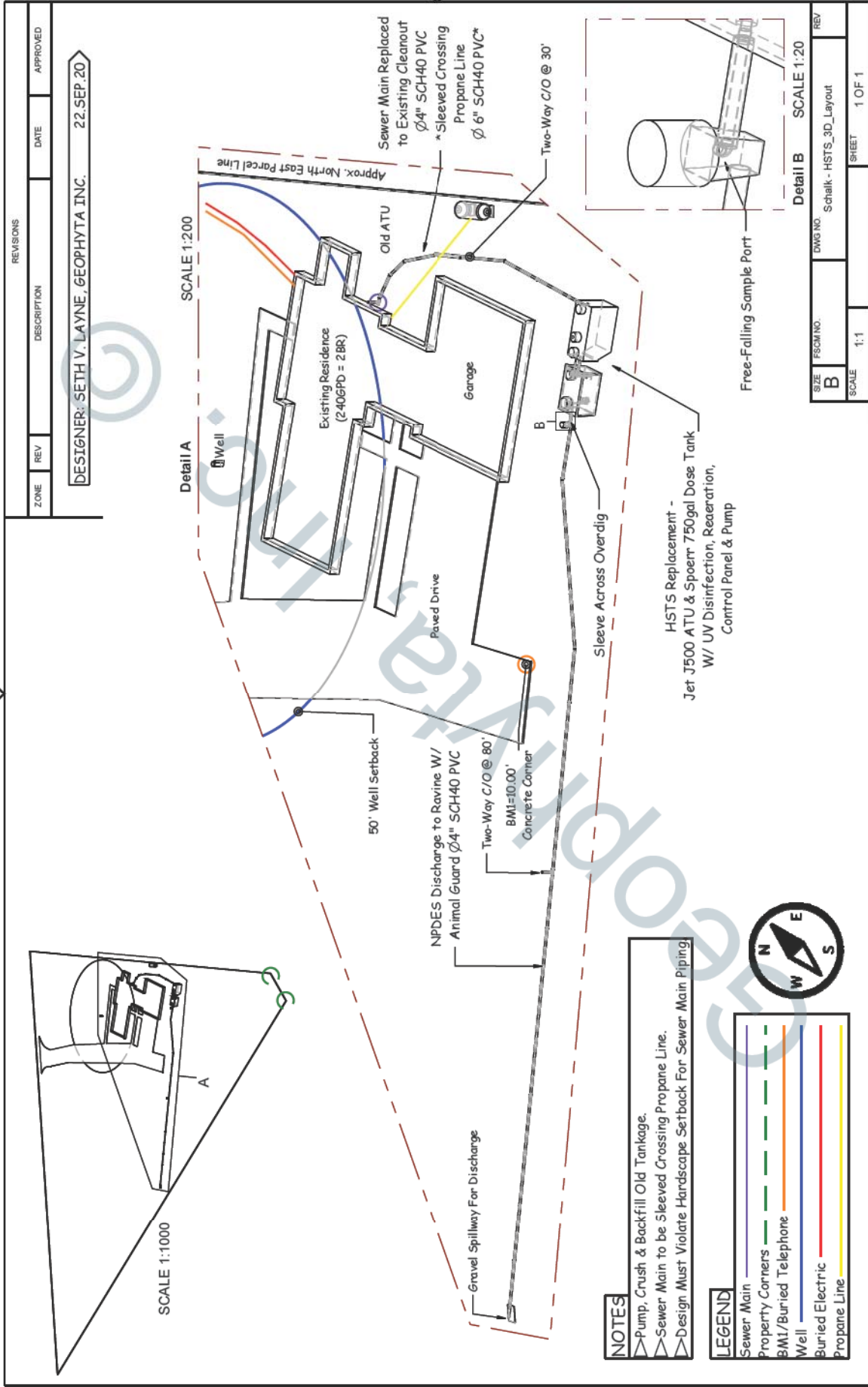


Nathan Wright

Certified Soil Scientist, CPSS-19395
Registered Septic System Designer

HSTS Replacement Layout - 929 S. T.R. 109

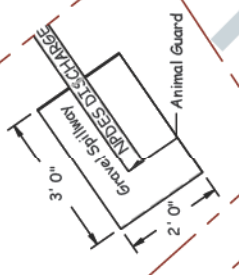




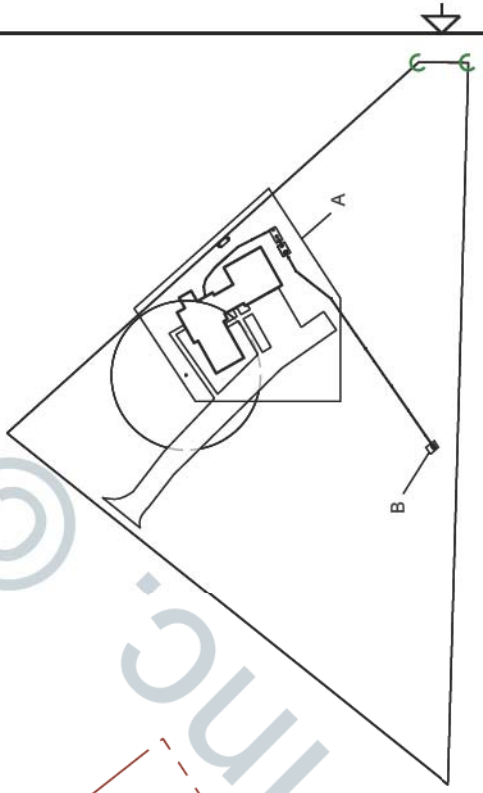
SIZE	FSCM NO.	DWG NO.	REV
B		Schalk - HSTS_3D_Layout	
SCALE	1:1	SHEET	1 OF 1

REVISIONS		DATE		APPROVED	
ZONE	REV	DESCRIPTION			
DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 22.SEP.20					

Detail B
SCALE 1:30



Detail A
SCALE 1:200



SCALE 1:1000

NOTES
 > Discharge Length May Vary to Ravine
 > All Components to be Min. 10' From Property Lines & Handscapes

LEGEND

Sewer Main	— (Blue line)
Property Corners	— (Green dashed line)
BMI/Buried Telephone	— (Orange line)
Well	— (Blue line)
Buried Electric	— (Red line)
Propane Line	— (Yellow line)



SIZE	FSCM NO.	DWG NO.	Schalk - HSTS_Top	REV
B				
SCALE	1:1		SHEET	1 OF 1

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
		DESIGNER: SETH V. LAYNE, GEOPHYTA INC.	22.SEP.20

VIEW POINT
 ELEVATION VIEW - EAST TO WEST
 NORTH →

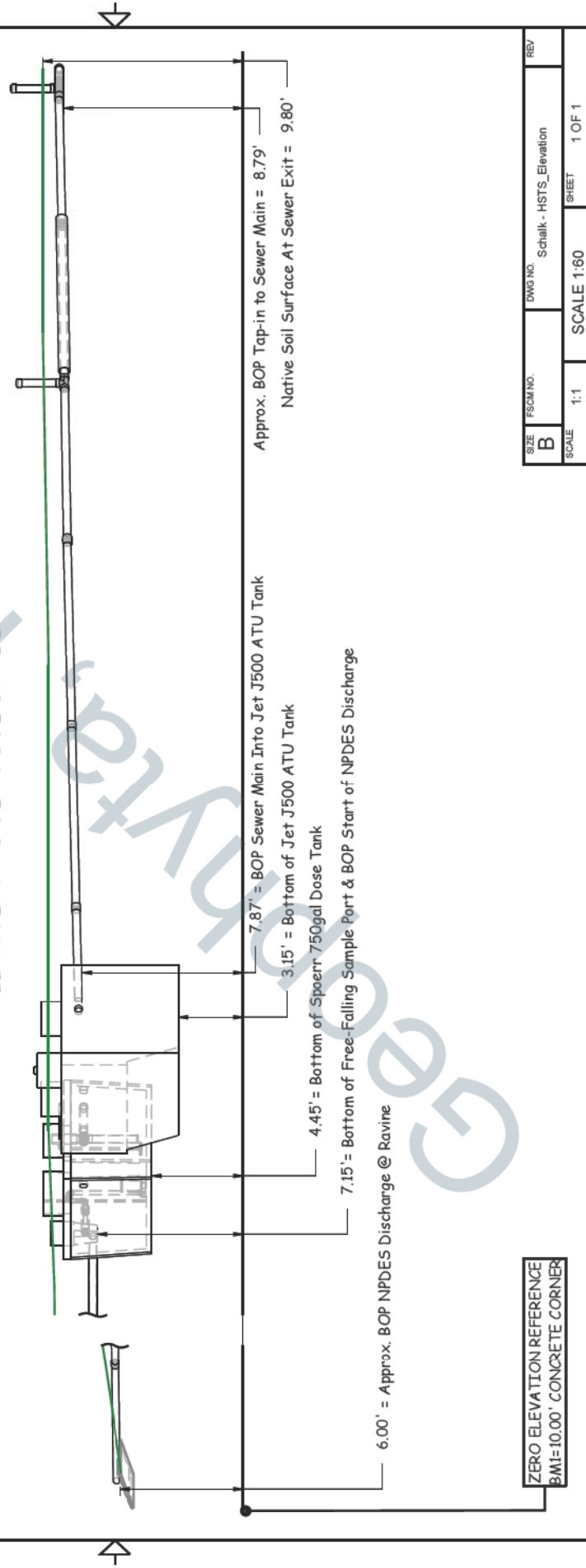
NOTES

- > Sewer Main to Have Suggested Fall or Min. .125"/1'
- > NPDES Discharge to Have Suggested Fall or 1"/100'
- > Discharge Outlet Invert Min. 4" Above Ground Surface

LEGEND

- Native Soil Surface
- Zero Elevation Reference

*** ALL RISERS TO BE ABOVE GRADE***

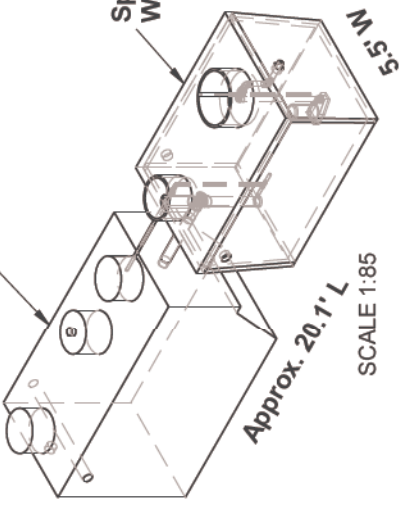


SIZE	FSCM NO.	DWG NO.	Schalk - HSTS_Elevation	REV
B				
SCALE	1:1	SCALE	1:60	SHEET
				1 OF 1

ZERO ELEVATION REFERENCE
 B.M.1=10.00' CONCRETE CORNER

REVISIONS		
ZONE	REV	DESCRIPTION
		Drawn By Nathan Wright, Geophyta Inc.
		DATE 26-Jun-17
		APPROVED

Jet J500 ATU tank



Approx. 20.1' L
SCALE 1:85

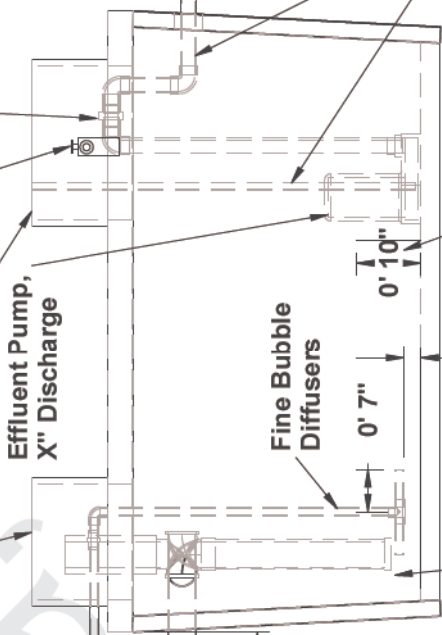
Spoerr 750 gal Pump Tank
W/UV Disinfection & Re-Aeration

Risers As Grade Requires;
6, 12, 18, or 24"

1/2" Dia. Sch40
Air Delivery Tube

4" Dia. Sch40 PVC

Risers As Grade Requires;
6, 12, 18, or 24"



Tank Interior Petcock
Sampling Port.
(See Detail Photo)

Union Quick Disconnect.
No Backflow Preventer.

1/4" Drainback
Hole Required
For Anti-Siphoning

Float Tree Rail

Pump Off Effluent Level
(High Level Alarm Varies By Design)

Minimum Bubbler Ht.

Jet M952 UV Disinfection Device

2' 0"

4' 6"

Jet J500 Aeration Treatment Unit
(See Jet Manufacturer Print For Detail)

4' 9"

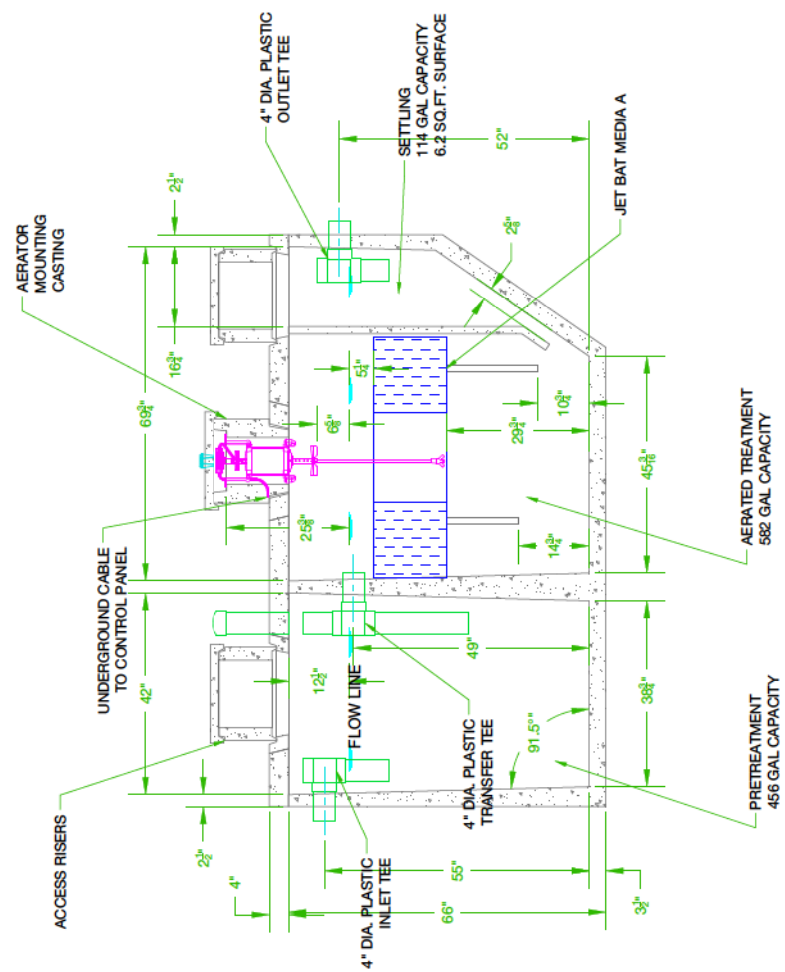
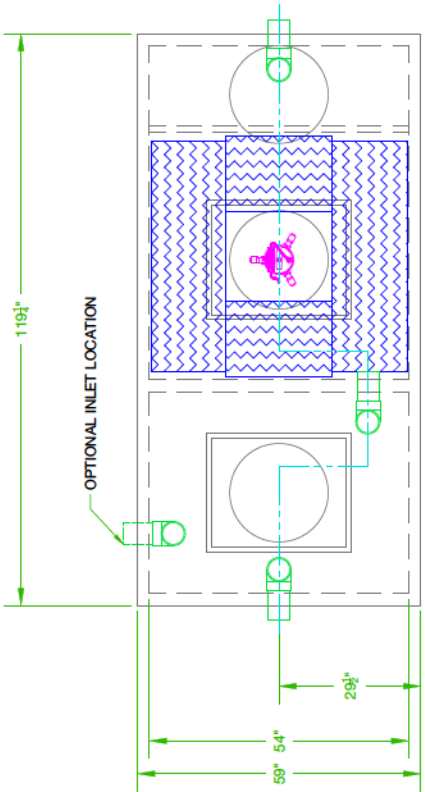
Actual Distance & Individual
Connectors May Vary
Depending On Site Needs -
Site Drawings Take Precedence.

SCALE 1:30

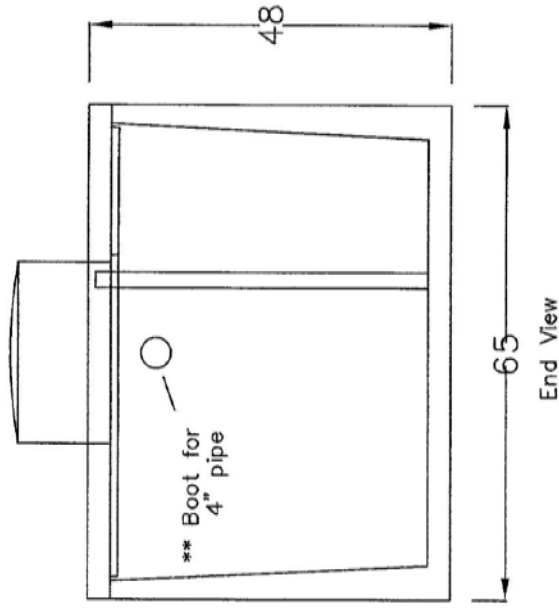
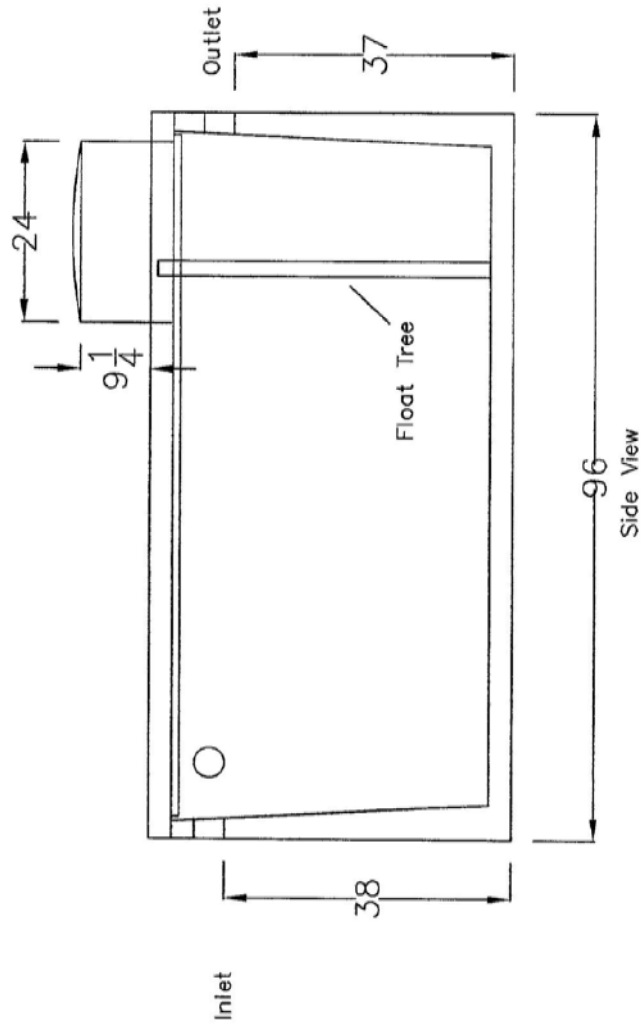
See Bill Of Materials For All Component Details

SIZE	FSCM NO.	DWG NO.	REV
A		Jet J500-P750-RAD W/750 gal Pump Tank W/Sample Petcock	
SCALE	1:1	SHEET	1 OF 1

- NOTES:
1. AERATOR MODEL 700LL MUST BE USED IN CONTINUOUS OPERATION
 2. DEVELOP RISERS TO GRADE OR WITHIN 12" BELOW GRADE
 3. PLASTIC RISERS CAST INTO THE TANK LID MAY BE USED IN PLACE OF CONCRETE RISERS



REV/ECD/DATE	1407/08/14/14	REDRAWN	N J K
DESCRIPTION	Jet® Wastewater Treatment Solutions <i>Founded on Innovation. Anchored by Service.™</i>		
DRAWN BY:	N J K	DATE	08/14/14
APPROVED BY:		DATE:	
MATERIAL:			
SCALE:	1 : 20		
SIZE:	G		
UNLESS OTHERWISE SPECIFIED:	ALL DIMENSIONS ARE IN INCHES		
DECIMAL:	± .005		
FRACTIONAL:	± 1/64		
DEGREE:	± 1°		
TITLE:	J-500 RESIDENTIAL WWTP ONE PIECE TANK CASTING		
USED ON:			
DRAWING NUMBER:	J-500		
PROPERTY OF JET INC. AND MAY NOT BE REPRODUCED, COPIED OR USED WITHOUT WRITTEN PERMISSION.	REV: -		



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 Any reproduction in part or as a whole without the written permission of Spoerr Precast Concrete Inc. is prohibited.

Spoerr Precast Concrete Inc.
 2020 Caldwell St
 Sandusky, OH 44870
 800-252-5205

Concrete 4500 PSI @ 28 Days
 Max cover on top of tank 48"
 Inlet/Outlet boots for 4" pipe
 Boots meet ASTM C923
 Sealant: Meets ASTM C990
 **Optional 4x2 slip reducer available
 22.3 gallon/inch

750 Gallon Pump Tank Excavation 6' 6" x 9'		09/22/09		

UV Disinfection Lamp

Item	Part Number
UV Disinfection Lamp Assembly	9520034
Replacement UV lamp	9990115
UV Control Panel Assembly	9520038

Specifically designed to disinfect the effluent from small aerobic treatment plants, the Ultraviolet Disinfection Unit can reduce fecal coliform bacteria levels to well below the most stringent U.S. treatment standards, even when the upstream treatment plant is operating in a mild upset condition. Designed to disinfect residential wastewater, UV disinfection units are safe and harmless. There are no adverse effects from overexposing the effluent to germicidal ultraviolet light because UV disinfection does not form by-products.

The disinfection chamber couples directly to the aerobic plant 4" discharge pipe and is permanently installed below grade. When fully inserted, the sub-assembly is properly positioned by pins mounted near the top of the disinfection chamber. This well-defined flow path gives the proper fluid exposure time.

The light source is mounted in the center of an anodized aluminum frame that divides the disinfection chamber in half. The frame seals against the inner surface of the disinfection chamber and prevents flow by-pass. To control the lamp's surface temperature, the ultraviolet light is surrounded by a clear fused quartz tube. When the disinfection chamber is filled with water, the ultraviolet light can operate continuously, whether or not water is flowing. Continuous operation within a lamp surface temperature range of 105-120° F provides optimum ultraviolet light output and long lamp life.

The disinfection sub-assembly, which extends approximately one foot above grade, is watertight. This protects the electrical connections against a fluid backup that could cause the wastewater effluent level to rise to the maximum height of the upstream treatment plant.

The UV system operates on 120vAC and consumes less than 25 Watts. A green LED indicator on the junction box confirms the operating status of the UV system.

Maximum flow through the unit is rated at 3 gallons per minute (gpm), or 4,320 gallons per day (gpd), with the following effluent conditions:

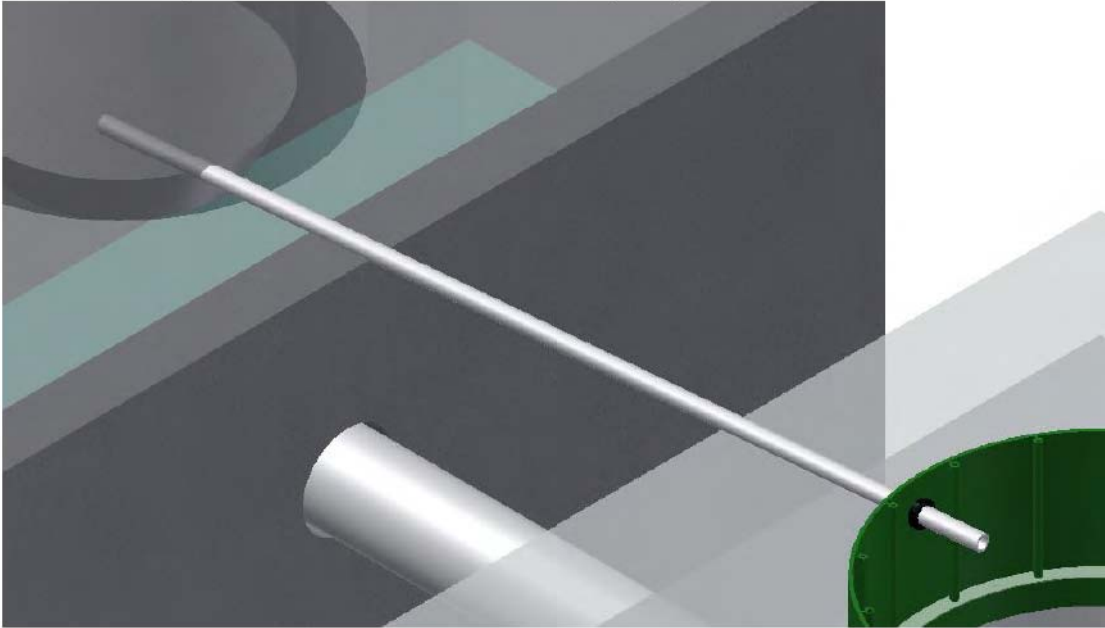
Suspended Solids < 30 mg/liter - 5-day BOD < 30 mg/liter

Under the above conditions, fecal coliform reduction exceeds 3-logs, or 99.9%, at the end of the UV lamp life (one year of continuous operation).

Fecal coliform counts in the home aerobic treatment effluent typically range from 800 - 20,000 colony-forming units (CFU) per 100ml. CFUs measure viable fungal and bacterial cells.



1. Install the treatment system and pump tank to be aerated.
2. Install the compressor in a dry, vented enclosure. The clarifier access riser may be used as the enclosure if a removable baseplate and vents are placed in the riser.
3. Use the provided $\frac{1}{2}$ " pipe to run between the compressor enclosure and the access riser for the pump tank. If necessary, use the black grommets to seal around the pipe where it leaves the compressor enclosure or enters the pump tank.



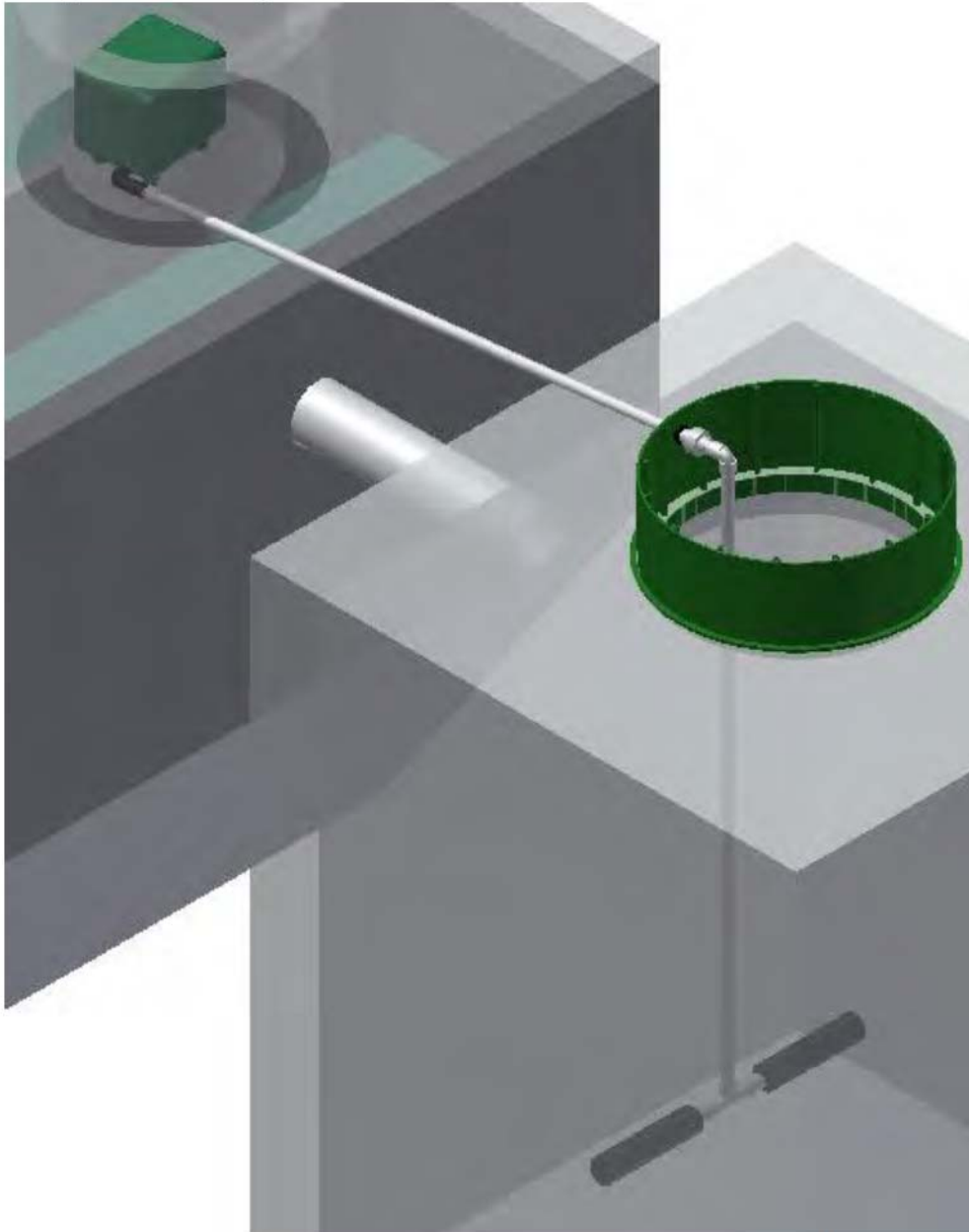
4. Glue the threaded adapter to the end of the $\frac{1}{2}$ " pipe in the enclosure. Connect one end of the black hose provided with the compressor to the compressor and the other end to the threaded adapter. Secure both ends with the spring clips provided with the compressor.



5. Glue the union to the compressor pipe in the pump tank.
6. Using a short piece of $\frac{1}{2}$ " pipe connect the $\frac{1}{2}$ " elbow to the union on the compressor pipe.
7. Using thread seal tape, thread the diffusers to each end of the tee assembly.



8. Glue one of the two long pipes to the sidearm of the tee.
9. Place the diffuser assembly in the pump tank and glue the top of the long pipe to the elbow on the air supply line. The diffusers should be about 3" off the bottom of the tank, cut drop pipe to length if necessary.



10. Run power conduit to the compressor enclosure. The compressor will require a single phase 120 volt power source. The provided cord grip may be used to run the compressor power cord into a watertight junction box to make connections.

Jet Inc. Model 197 Control Panel Installation and Users Manual

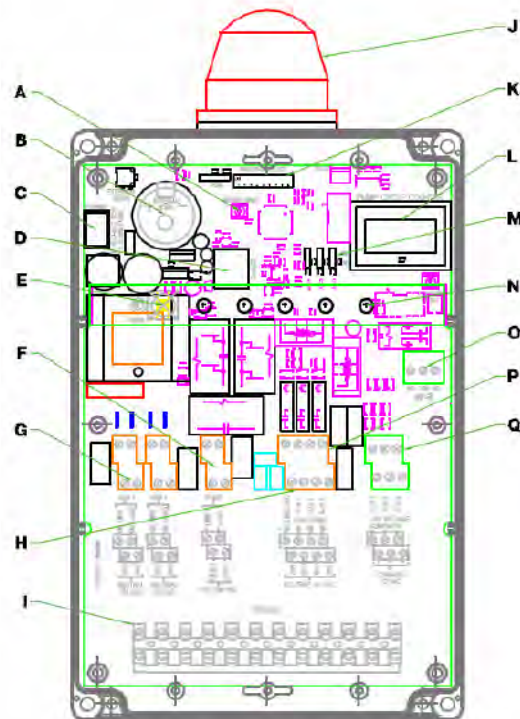
The Jet Incorporated Aerator control panel monitors and controls the operation of Jet system aerators and additional components. The panel can be configured to control single or dual aeration systems. A single aerator system controls the operation of one aerator. A dual aerator system can control two aerators, or one aerator and one re-aeration compressor.

In addition to the aerator control circuits, the control panel also contains the following circuits or features:

- Two aerator/compressor control circuits
- Two auxiliary available output circuits
- Three auxiliary input circuits with normally open or normally closed selection
- One power indicator LED, and four additional error indicator LED's
- An alarm buzzer with circuit board provision for an alternate or externally mounted buzzer
- A 9-position DIP switch for selection of configuration options
- User accessible reset switch and circuit board master reset switch
- Alarm mode Auto-Dialer power and control interface
- Circuit board mounted power switch and fuse
- Dry contact for Jet Wi-Fi messenger or cellular.

Control Panel Features

- A. Master Reset Button
- B. Internal Horn
- C. On/Off Switch
- D. Optional Dialer Interface
- E. External Reset Button
- F. Pump Power Supply Contacts
- G. Aerator Power Supply Contacts
- H. Alarm Power Supply Contacts
- I. Ground Buss
- J. Central Alarm Beacon
- K. DIP Switch Array
- L. Event Counter (Optional)
- M. Auxiliary Alarm Settings (NC/NO)
- N. Indicator Light Array
- O. Optional Wi-Fi Alarm Contacts
- P. Auxiliary Output Contacts
- Q. Auxiliary Input Contacts



Demand Dosing Calculations to Sample Port			
Owner: Schalk	Design		
	Target	Comment	
Main Design:			
Flow Rate Total (gpm)	42.0		
Diameter (in)	1.50	SCH40 PVC	
Length (ft)	7.375	Includes All Main Piping	
Gal. per Foot of Pipe (Clemons, 1991)	0.106		
Total Main Volume (gal)	0.78		
# Std 90deg Elbows	3		
Std 90deg Elbow Pipe Length Equivalent (ft)	8.0		
# Std 45deg Elbows	0		
Std 45deg Elbow Pipe Length Equivalent (ft)	3.0		
# Std Tees	0		
Std Tee Pipe Length Equivalent (ft)	9.0		
# Quick Disconnects	1		
Quick Disconnect Pipe Length Equivalent (ft)	1.0		
# Full Flow Ball Valves	0		
Ball Valves Pipe Length Equivalent (ft)	0.9		
Total Length Equivalent (pipe&fittings) (ft)	32.4		
Head Loss per 100 ft.(ft.)(Otis et al, 1978)(Zoeller)	8.90		
Total Main Head Loss (ft)	2.88		
Dose Volume:			
Drainback Volume: Main (gal)	0.0	No Drainback	
Dose Volume (gal)	48.0		
TOTAL dose (gal)	48.0		
Daily Design Flow (DFR)(120gal/day/bedroom)	240.0		
Is Dose <=1/4 of Daily Design Flow?	yes		
Is Dose <1/8 of Daily Design Flow?	no		
Total Dynamic Head:			
Static Lift - Main Ht. Above Surface (ft)	0.00	-	
Static Lift - Depth to Pump Off Below Surface (ft)	4.11	4.94 - .83	
Static Lift - Topo Difference (ft.)	-1.2	-	
Total Pipe & Fittings Headloss (ft)	2.9	-	
Network Loss (5ft head x 1.3) (ft)(includes laterals)	0.0	-	
Total Head Loss (ft)	5.8		
Dose Tank Parameters			
Volume (gal)	750	34.0	inches effluent
Gallons Per Inch in Tank	22.30		
Demand Dose Settings:			
Total Gallons Per Pump Cycle	48.0	2.15	inches
Avg. Pump Cycles Per 24 Hrs.	5.0		
Avg. Pump On Time - seconds	69		
Avg. Pump Off Time - hours	4.8		
Pump Off Effluent Ht. from bottom (in)	10.0	(to prevent tank flotation)	
Pump On Effluent Ht. from Bottom (in)	12.2		
High Level Alarm Ht. from bottom (in.)	16.2	1.7	= days reserve after alarm

Every pump tested in water to ensure pump meets performance curve.



FEATURES/BENEFITS

PERFORMANCE

- Heads up to 20' TDH
- Flows up to 42 GPM

MOTOR

- High efficient, 115v, oil filled, permanent split capacitor motor with upper and lower ball bearings and thermal overload protection
- Constant bearing lubrication
- Maximum motor cooling
- Runs cooler and lasts longer
- Internal overload protection
- Quiet operation
- Fasteners and shaft made from rugged, corrosion resistant stainless steel

SEAL DESIGN

- Mechanical with secondary dynamic lip seal
- Provides added leakage protection

IMPELLER DESIGN

- Non-clog style vortex impeller
- Designed to help reduce clogging by foreign material

POWER CORD

- Sealed entry quick disconnect power cords
- Prevents water from entering the motor housing through a cut cord
- Available in lengths up to 100'

SWITCH

- Piggy-back switch design
- Defective switches can be diagnosed over the phone
- Pump can be operated manually or supplied with other piggy-back switches
- Switch can be replaced without having to replace the pump

APPLICATIONS

Basements, dewatering, and septic systems

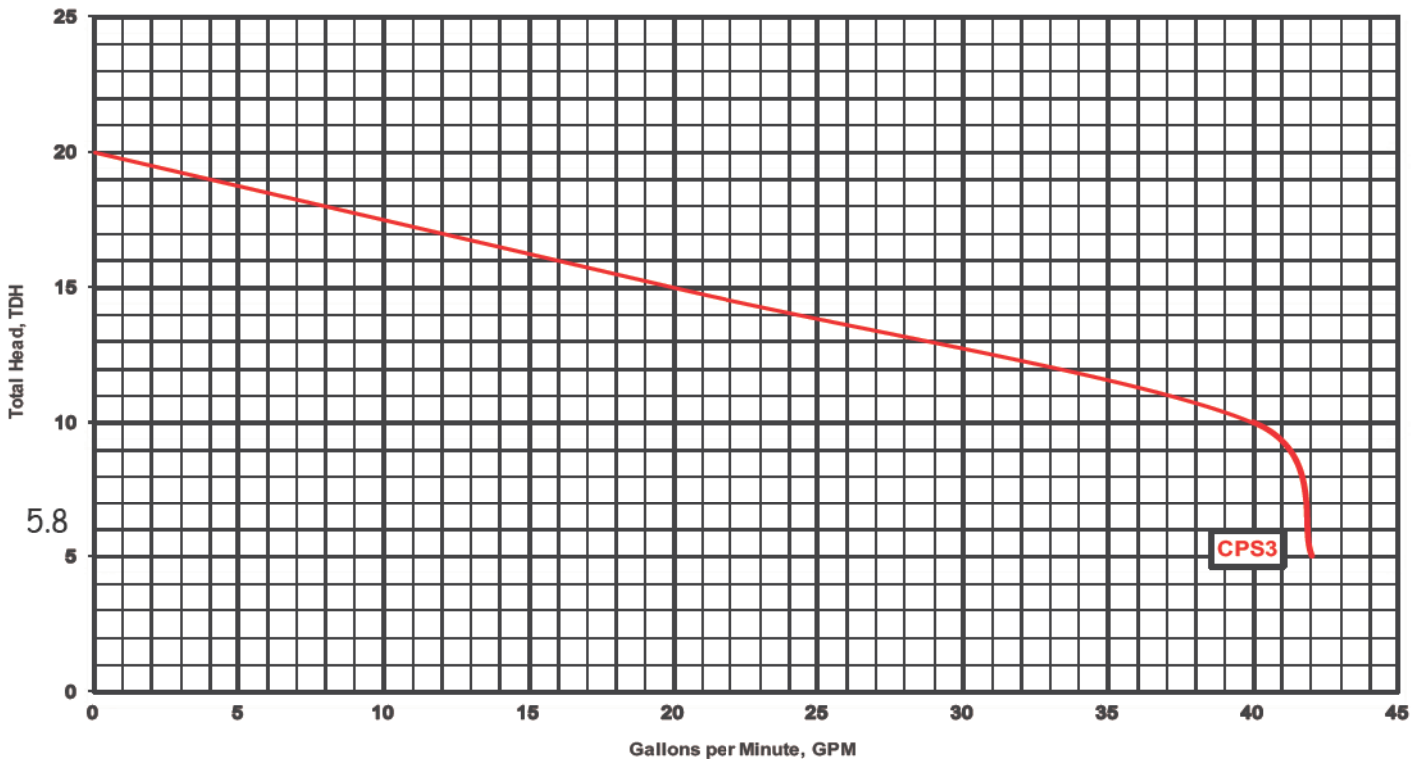


Wide-Angle Float

Vertical Float

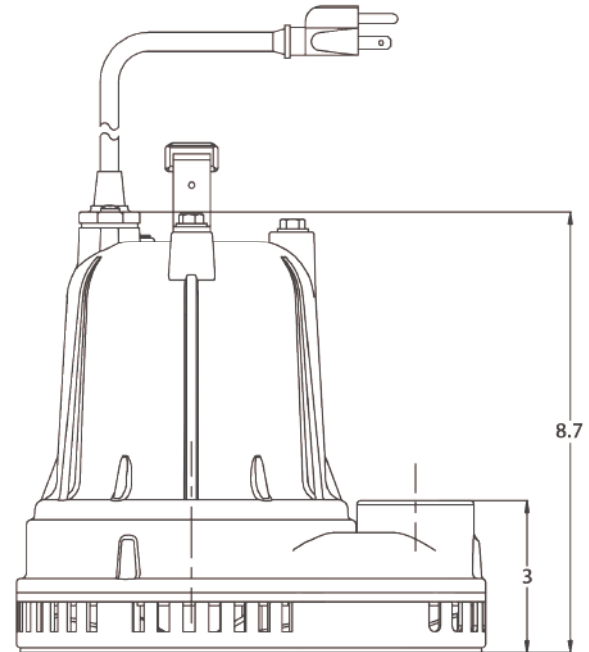
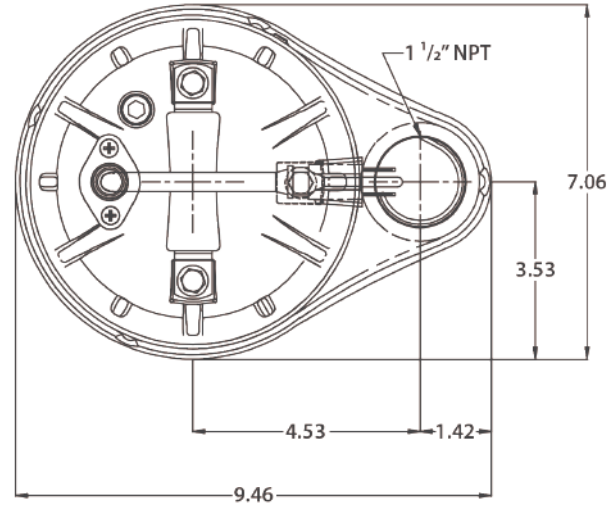
1/3 HP submersible pumps, built for reliability, handle up to 1/4" solids with 1 1/2" discharge

PERFORMANCE CURVE



TECHNICAL DATA

DISCHARGE	1-1/2" NPT. vertical standard
SOLIDS HANDLING	1/4"
LIQUID TEMPERATURE	140 Degrees F. (Intermittent)
MOTOR HOUSING	Cast Iron
VOLUTE	Cast Iron
SEAL PLATE	Cast Iron
IMPELLER	Engineered glass filled thermoplastic/ Vortex
SHAFT	Nickel plated steel
SHAFT SEAL (SINGLE SEAL)	Mechanical with secondary dynamic lip seal, carbon rotating face, ceramic stationary face, Buna-N elastomer, 300 series stainless steel hardware
BEARINGS (UPPER & LOWER)	Single row, ball, oil lubricated
HARDWARE	300 Series stainless steel
O-RINGS	Buna-N
CORD	10' Length standard. Up to 100' available. (UL/CUL) Listed 16 AWG, Type SJTW
MOTOR (SINGLE PHASE)	1/3 HP 1750 RPM, 60 Hz, NEMA L Includes overload protection in the motor, oil filled, class B permanent split capacitor
WEIGHT	25 lbs. (Manual)



MODEL(S) INFORMATION

MODEL	HP	VOLTS	PHASE	AMPS	CORD LENGTH	SWITCH
CPS3-11	1/3	115	1	4	10'	Manual
CPS3-12	1/3	115	1	4	20'	Manual
CPS3-13	1/3	115	1	4	30'	Manual
CPS3-15	1/3	115	1	4	50'	Manual
CPS3A-11	1/3	115	1	4	10'	Wide-Angle Float
CPS3A-12	1/3	115	1	4	20'	Wide-Angle Float
CPS3A-13	1/3	115	1	4	30'	Wide-Angle Float
CPS3V-11	1/3	115	1	4	10'	Vertical Float
CPS3V-12	1/3	115	1	4	20'	Vertical Float
CPS3V-13	1/3	115	1	4	30'	Vertical Float

Re-Aeration Tank Interior Sampling Petcock for NPDES Systems



This photo is of a sampling petcock located inside the re-aeration tank riser. For convenience, it is mounted on the “gooseneck” pipe riser, just before the union quick disconnect.

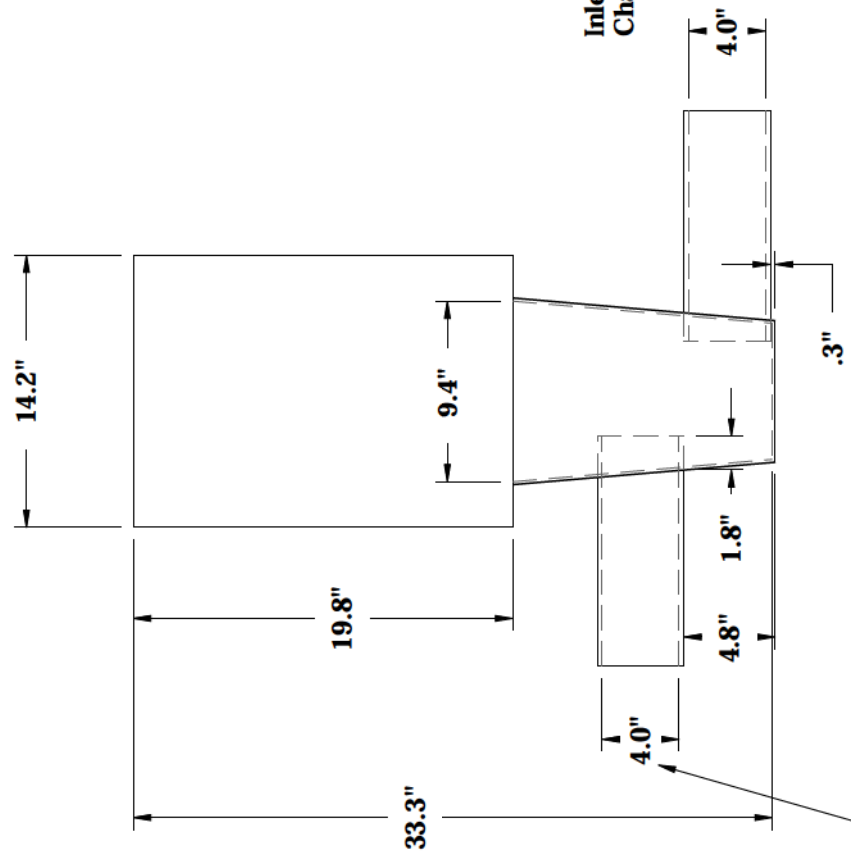
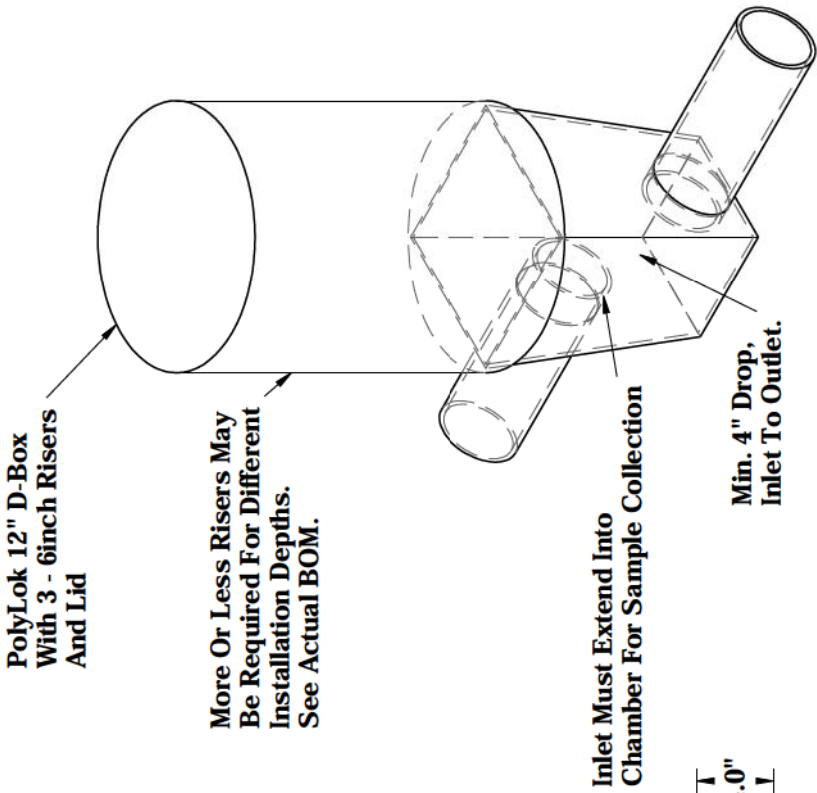
This unit is an approved substitute for a free falling sample port where effluent discharge cannot be accomplished with a gravity discharge line.

Strict adherence to sampling techniques and protocols are required.

Install, operate, maintain, and sample in accordance with applicable statutes, regulations, practices, requirements, restrictions, and prohibitions.



REVISIONS			
ZONE	REV	DESCRIPTION	DATE
		Drawn By Nathan Wright, Geophyta Inc.	31-Dec-15
			APPROVED



Pipe Diameter Will Range From 1.5" - 4.0" Dia. See BOM For Actual

SIZE	FSCM NO.	DWG NO.	REV
A			Free Falling Sampling Port - NPDES
SCALE	SHEET		
1:10			

Bill of Materials - 929 S. T.R. 109, HSTS Replacement - NPDES Jet-J500 ATU & Spoerr 750gal Dose Tank W/ UV Disinfection & Reaeration				
Quantity	Part Name	Section	Comment	
1	SCH40PVC4inchTtwo-Way Cleanout Tee SxSxS	Sewer Main Replaced to Existing Cleanout	Two-Way Cleanout (Tee)	
1	SCH40PVC4inchpipe2ft.		Two-Way Cleanout (Tee to Cap)	
1	SCH40PVC4inchCap		Two-Way Cleanout (Cap)	
3	SCH40PVC4inchCoupler		See Design	
1	SCH40PVC4inch15DegreeEll			
3	SCH40PVC4inch22.5DegreeEll	Sewer Main Sleeve Crossing Propane Line		
3	SCH40PVC4inchpipe5ft.			
5	SCH40PVC4inchpipe10ft.			
1	SCH40PVC6inchpipe10ft.			
1	Pretreatment Tank		ATU Tank	Jet J500 ATU Tank or Equiv. W/ 12" Risers
1	SCH40PVC4inchpipe3ft.	ATU to Dose		
1	Dose Tank	Dose Tank	Spoerr 750gal Dose Tank or Equiv. W/ 12" Risers	
1	UV Disinfection Lamp	UV Disinfection Lamp	Jet Model No. 9520034 UV Lamp	
1	SCH40PVC1inchUnionSxS	Reaeration Assembly	Quick Disconnect	
1	SCH40PVC1inchTeeSxSxS			
1	SCH40PVC1inch90DegreeEll			
1	SCH40PVC1inchpipe46inch			
1	SCH40PVC1inchpipe4.0ft.			
1	SCH40PVC1inchpipe2.25inch			
2	SCH40PVC1inchpipe5.8inch			
1	Jet Model 197 Panel (Pump Lockout, Visual/Audible Alarm)		ATU, Reaeration & Pump Controller	Jet Model No. 197 Control Panel W/ Event Counter
~80 ft.	2 conductor w/ground, 14 gauge UG wire			Pump Circuit; Standalone Breaker
~80 ft.	2 conductor w/ground, 14 gauge UG wire			Alarm Circuit, Added To House Lighting Breaker
~80 ft.	Plastic conduit, to contain 6-14ga		Pump & Alarm Circuit	
1	SCH40PVC1.5inchQuick Disconnect		(Allow Pump Removal/Replacement)	
1	SCH40PVC1.5inchCheck Valve		Air-Lock Hole Between Check Valve & Pump	
1	Petcock Sampling Port For 1.5inch Discharge		Before Quick Disconnect	
1	SCH40PVC1inchpipe5ft. L. Float Tree	Dose Pump Assembly	Float Tree	
1	Effluent Pump1.5inchNPT 0.3HP		Champion CPS3-11 Effluent Pump or Equiv.	
1	SCH40PVC1.5inchAdapter MNPT to Soc		Pipe Adapter to Pump	
1	SCH40PVC1.5inchpipe12inch W/ 0.25" Weephole		1/4" Weep Hole	
2	SCH40PVC1.5inch90DegreeEll			
2	SCH40PVC1.5inchpipe3inch			
1	SCH40PVC1.5inchpipe6.5inch			
1	SCH40PVC1.5inchpipe40inch			See Detail Print

SCH40PVC1.5inchCoupler		Force Main to Sample Port	Config. By Installer
1	SCH40PVC1.5inchCoupler		
1	SCH40PVC1.5inch90DegreeEl	Force Main to Sample Port Sleeve	
1	SCH40PVC1.5inchpipe2ft.		
1	SCH40PVC4inchpipe2ft.		
1	PolyLok 12" D-Box W/ (2) 6" Riser W/ Insulated Lid		
1	SCH40PVC4inchTwo-Way Cleanout Tee SxSxS	Free-Falling Sample Port	Two-Way Cleanout (Tee)
1	SCH40PVC4inchpipe2ft.		
1	SCH40PVC4inchCap	NIPDES Discharge	Two-Way Cleanout (Tee to Cap)
12	SCH40PVC4inchCoupler		Two-Way Cleanout (Cap)
2	SCH40PVC4inch22.5DegreeEl		Length May Vary
16	SCH40PVC4inchpipe10ft.L		Installer Preference
1	Animal Guard @ Outlet	Gravel Spillway For Discharge	~.07 yd.^3 @ .1 Tons #57 Stone
~	Gravel Spillway		
Additional Notes			
Pump, Crush & Backfill Old Tankage			
-	Grass Seed	2 lbs./1000 ft.^2 K. Bluegrass	Tankage & Piping
-	Straw Mulch For Grass Establishment	Homeowner's Choice	
-	Grass Establishment Fertilizer	10 lbs. 20-10-10/1000 ft.^2	
Call OUPS before you dig.			
Installer substitution of materials not specified in this Bill Of Materials may void Health Dept. approval of this design and will result in a re-design fee and is the sole responsibility of the installer.			
Design Prints Take Precedence Over This Bill of Materials. This is a best estimate of materials required and is provided as a convenience to installers. This BOM is not required for design approval.			

Operation and Maintenance Procedures

Home Septic Treatment Systems With Processing Through An Aeration Treatment Unit, Disinfection, And Effluent Discharge

Home septic treatment systems are biologically based systems. They rely on both anaerobic and aerobic microorganisms to process human waste. These systems may utilize processing, storage, and pumping tanks. Also, the processed effluent may be disinfected before discharge to a storm drain, ditch, or stream. In some cases, a soil absorption component, the leachfield, also processes, treats, and disperses septic effluent. Any abuse of this biological treatment system will result in less efficient sewage treatment and early failure of your new system.

Improper operation and/or maintenance of your home septic treatment system will result in its failure.

Geophyta, Inc. strongly recommends that a homeowner hire a professional service provider to inspect and maintain your system. Your county health department has a list of registered service providers. Make sure that your service provider has septic tank and leachfield maintenance experience.

1) Homeowner Responsibility:

- a) The system owner is responsible for the continuous operation and maintenance of this home septic treatment system
- b) Your county health department may require third-party inspection and maintenance of your home septic treatment system.
- c) Home Interior Design & Appliance Selection:
 - i) Install water conserving fixtures such as low flow shower heads, low flow toilets, and front loading washers.
 - ii) Space out water use throughout the day and week. Avoid doing all laundry in one day.
 - iii) Repair all water leaking fixtures.
 - iv) Eliminate garbage disposals, or limit their use. Collect food scraps with sink strainers for disposal as trash or for composting; this includes coffee grounds.
 - v) DO NOT pipe sump pump output into your sewer line.
- d) Home Landscaping Limitations:
 - i) Do not pipe roof downspouts or any other rainwater drainage into the septic or dose tanks.
 - ii) Divert all downspouts or other rainwater drainage away from your entire septic system.
 - iii) Divert all downspouts or other rainwater drainage away from the leachfield area.

- iv) Do not drive or park cars, boats, heavy equipment, or other vehicles on or near septic system tanks and leachfield areas.
- v) Do not add additional soil fill on or near the leachfield. This will limit air movement into the soil needed for effluent treatment and may cause system failure.
- vi) Limit lawnmower traffic on the leachfield when soil is excessively wet.
- vii) Do not plant any deep rooted plants on top of or near your leachfield soil absorption area.
- e) Home Resident Responsibilities:
 - i) Only flush or drain bio-degradable human waste, toilet paper, laundry and dish and personal care soaps, and water into your home septic treatment system.
 - ii) Severely limit disposal of food fats, oils, and greases. These will clog your system.
 - iii) Do not flush or drain undiluted bleach, cleansers, or drain cleaners.
 - iv) Do not flush any non-biodegradable items. For example, plastic items.
 - v) Do not flush or drain motor oils, greases, anti-freezes, cleaners, etc.
 - vi) Do not flush cat litter.
 - vii) Do not flush paper towels, facial tissue, cigarette butts, disposable diapers, sanitary napkins, tampons, or condoms.
 - viii) Do not flush prescription or over-the-counter drugs. Antibiotics and cancer treatment drugs are very harmful to your home septic treatment system.
 - ix) Do not dump solvents like dry cleaning fluid, pesticides, photographic chemicals, paint thinner down the drain.
 - x) Don't use septic tank additives, unless health department approved.
 - xi) Don't drain a hot tub or large amounts of water into your septic system.
- f) Home Improvement/Expansion:
 - i) Contact your county sanitarian before adding new driveways, decks, patios, pools, and outbuildings not identified on your original layout plan to make sure all setback distances from your septic system tanks and mound are met.
 - ii) Contact your county sanitarian before adding bedrooms and/or increasing your home occupancy. This may overload your septic system. Septic system expansion may be required to prevent failure.
- g) Homeowner Cautions:
 - i) **DO NOT ENTER TANKS WITHOUT PROPER SAFETY EQUIPMENT.** Septic and dose tanks contain noxious and deadly gases.
 - ii) Pump or dose tanks and control boxes contain electrical components. **ELECTRICAL SHOCK HAZARD CAN EXIST WITH IMPROPERLY WIRED OR FAILING COMPONENTS.**
 - iii) Always keep tank fall guards in place, except for the time needed to replace components when safety equipment is present.
 - iv) Always replace and secure septic and dose tank lids after completing any inspection.
 - v) Any disconnection or removal of filters, screens, floats, alarms, and/or control panels will result in system failure.
 - vi) Contact your county sanitarian for allowed homeowner maintenance and repair of your septic system.

2) Inspection & Maintenance Requirements:

- a) Perform inspection & maintenance **every six months**.
- b) Review Baseline Operation and Maintenance Data:
 - i) The installer of your system set and recorded all float/liquid level heights, pump down times, cycles per day, and distal head pressures required in the design specifications.
 - ii) Review all previous six month inspection data.
- c) Identify any house additions, patios, pools, ponds, driveways, outbuildings, etc. added since the last inspection that may impact the home septic treatment system. Draw a sketch of these differences.
- d) Inspect the house sewer main two-way cleanout tee bottom:
 - i) Check for clogging.
 - ii) Check for continuous clear water flows from the home.
- e) Evaluate Aeration Treatment Tank & Pump Tank:
 - i) Measure sludge and scum depths; pump tank when cumulative thickness is 1/3 of the tank depth.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Clean & inspect any tank outlet filter.
 - v) Make sure lids are securely attached to risers.
- f) Evaluate Pump/Dose Tank & Pumping Equipment:
 - i) Measure sludge and scum depths; pump tank when septic tank is pumped.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Inspect and assure proper functioning of floats or other liquid level controls.
 - v) Clean and inspect dose pump outlet filter. May not be present in some designs.
 - vi) Inspect and assure proper condition and functioning of the effluent pump.
 - vii) Make sure lids are securely attached to risers.
- g) Evaluate Drain Fields:
 - i) Inspect all leachfield soil inspection tubes for surface condition, surface color, and depth of ponded effluent, if present.
 - ii) Look for surfacing effluent.
 - iii) Look for excessively moist soil around leachfield area.
 - iv) Identify appropriate vegetative cover.
 - v) Look for surface disturbances, compaction, abnormal settling, and erosion.
 - vi) Identify any deep rooted vegetation recently planted near the leachfield area.
- h) Switch leachfield resting trench in D-box:
 - i) Determine a rotation sequence for closing off flow to the resting trench/trenches.
 - ii) Open the previously rested leach trench.
 - iii) Close the next trench in sequence for resting.
- i) Measure Pump Run Time and/or Drawdown:
 - i) For demand dosed systems, verify original design effluent drawdown depth.

- ii) For time dosed systems, verify original design pump run time.
- iii) For systems with a cycle counter or run time meter, record the current values.
- j) Test Alarms:
 - i) Evaluate proper function of low liquid level alarm.
 - ii) Evaluate proper function of high liquid level alarm and warning light.

3) Findings & Repairs:

- a) All findings during inspection and maintenance must be recorded.
- b) Any system adjustments must be recorded.
- c) Any system deficiencies, worn out components, and/or damage must be repaired to return your septic system to a properly functioning state.
- d) All repairs must be recorded.

GEOPHYTA

Home Septic System Site Evaluation And Replacement System Design

For:

Seneca County WPCLF (Seth Craig)

**3638 E. C.R. 50
Tiffin, OH 44883**

Property Location:

**3638 E. C.R. 50
Tiffin, OH 44883**

Clinton Township, Seneca County

**NPDES - Jet J500 ATU Tank & Spoerr 750 Dose Tank W/ UV Disinfection &
Reaeration to ATL Dispersal Zone**

By:

**Nathan Wright (Soil Scientist)
Seth V. Layne (Designer)**

**Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464**

419-547-8538

October 01, 2020

To The Homeowner:

A septic system is designed based on all the information you provide and Geophyta Inc collects at the site. It must be accurate. This information includes local soil limits and topography, plus existing and future locations of your home, number of bedrooms, out buildings, driveways, drinking water wells, ponds, septic systems, and property lines. Geophyta Inc. relies on this information to construct detailed design drawings that must meet local health department regulations before installation.

Any design changes required by the local health department to meet existing regulations are the responsibility of Geophyta Inc.

Any information changes made by you after the initial site inspection are your responsibility and will result in additional charges to you above the original quote for services. These charges may include additional site inspection work, system redesign, and resubmitted drawings.

To The Installer:

The registered installer of this septic system design is responsible for preparing an “as-built” record, as stated in the Ohio Administrative Code Chapter 3701-29-09, Par. F (p.32) of the “Sewage Treatment System Rules,” Ohio Department of Health, January 1, 2015. Additionally, the installer is responsible for measuring and recording distal pressure head and float switch settings as baseline measures for future operation and maintenance of any pressure distribution system (3701-29-15, Appendix B, Par. VI(p.93) of above referenced rules.

If the installer requests “as-built” record creation from Geophyta Inc., additional charges will be billed to the installer by Geophyta Inc. and must be arranged prior to installation.

Geophyta Inc. must assume that any registered installer has the knowledge, equipment, ability, and experience to properly layout, install, and create as-built drawings for any septic system design approved by a local board of health. This includes the ability to read detailed design prints with an associated bill of materials. For this reason, any Geophyta Inc project supervision prior to or during installation will be billed to the installer.

Any product substitution made by the installer that is not specifically permitted in the design prints may result in Health Dept. disapproval and will result in additional re-design costs billed to the installer.

HSTS Site/Soil Evaluation Information Sheet, Geophyta, Inc.

Customer:

Name:	Seth Craig
Address:	3638 East County Road 50
City, State:	Tiffin Ohio
Home Phone:	567-207-7319
Cell Phone:	567-207-7319
Email:	scraig6127@gmail.com

Property:

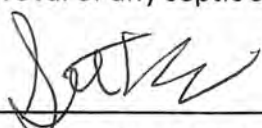
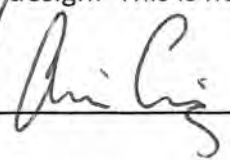
Parcel #:	D17000228840000
Current Owner:	Seth Craig / Arvin Craig
Address:	3638 E. County Road 50
City, State, Zip:	Tiffin Oh 44883
Lot Size:	.65 acres
Right of Ways?	
Easements?	

Existing or Proposed or Lot Split: (circle one)

House Size: Rooms	3 bedrooms	electric:	<u>overhead</u> or buried
House Dim.w/Garage:	70x28 ft.xft.	phone:	overhead; buried, <u>n/a</u>
Garage Size:	1/2 cars, 24x24 ft.xft.	gas:	natural propane <u>n/a</u> ^{Fuel oil}
Water Source:	<u>well</u> ; public; cistern	garden/hot tub:	yes <u>no</u>
Water Softener:	no <u>yes</u>		
Outbuildings:	no <u>yes</u> , size: 12x12	geothermal heat/cooling system:	<u>no</u> ; yes: (horizontal or vertical)
Pond:	no <u>yes</u> , size:		
System Type:	new or <u>replacement</u>	Sump pump:	no <u>yes</u>
Replacement Reason:	failed; addition; n/a	Discharge where?	

Comments: We were adding a clean out and the backhoe caved in the septic tank

I agree that the above information is accurate and can be used by Geophyta, Inc. to prepare a site/soil evaluation for septic system suitability. The site/soils report is for information purposes to be used by a designer and your local health department. This report does not guarantee build ability of a lot or approval of any septic system design. This is not a property boundary survey.

 /
 
9-3-20

 Customer Signature Date

Copyright, 2020
Geophyta, Inc.

Site and Soil Evaluation for Sewage Treatment and Dispersal

County: Seneca
 Township / Sec.: Clinton
 Property Address: 3638 E. C.R. 50
 OR Location: Tiffin
 Applicant Name: Seth Craig
 Address: 3638 E. C.R. 50
Tiffin OH 44883
 Phone #: 567-207-7319
 Lot #: _____
 Test Hole #: A
 Latitude/Longitude: 83°5'59.33"W 41°6'33.227"N
 Method: _____ Pit _____ Auger Probe; 1 1/4" dia.

Land Use / Vegetation: Residential Turf
 Landform: Glacial Till Plain
 Position on Landform: Hillslope
 Percent Slope: 2 - 3
 Shape of Slope: Linear - Linear
 Approximate Soil Type: Blount / Pewamo SiL

Date: 3-Sep-20
 Evaluator: Nathan Wright
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464
 Phone#: 419-547-8538



Certification #: _____

Signature: _____
Nathan Wright

Soil Profile		Estimating Soil Saturation				Estimating Soil Permeability					
		Munsell Color (hue, value, chroma)		Redoximorphic Features		Texture		Structure		Other Soil Features	
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Size	Grade		Type (shape)
A	0.0 - 7.0	10YR 2/2	none	none	SiL	25	0	medium	2 - mod	gr	friable
ABt1	7.0 - 9.5	10YR 2/2	5% 10YR 4/6	10% 10YR 4/1	SiCL	30	0	fine	2 - mod	sbk	firm
ABt2	9.5 - 21.0	10YR 2/1	10% 10YR 5/3	20% 10YR 4/1	SiC	45	0	medium	1 - weak	sbk	firm
Cg1	21.0 - 27.5	10YR 6/1	15% 10YR 5/6	matrix	SiCL	30	0	medium	1 - weak	sbk	firm
Cg2	27.5 - 48.0	10YR 5/1	30% 10YR 4/6	matrix	SiCL	35	5	medium	1 - weak	sbk	firm
Limiting Conditions		Depth to (in.)	Remarks / Risk Factors: Values for Sand Mound w/ Perimeter Drain								
Perched Seasonal Water Table		7.0	Tyler Table: A horizon (0.0 - 7.0) ILR: SiL, HLLR: SiL								
Apparent Water Table		>48	ILR(>30mg/L) = 0.6 gal/day/ft ² , ILR(<30mg/L) = 0.8 gal/day/ft ²								
Highly Permeable Material		>48	HLLR = 2.7 gal/day/ft								
Bedrock		>60	3 bedroom min. required absorption area = 600 sq.ft.								
Other Restrictive Layer		9.5	5xW Soil Absorption Box: 23"W x 133"L								

Note : The evaluation shall include a complete site plan or site drawing including all requirements in paragraphs (B)(1) through (B)(4) of OAC 3701-29-08.

Landforms
Upland*
Terrace
Flood Plain
Lake Plain
Beach Ridge
*Includes glacial till plain and end moraine

Position on Landform
Depression
Flat
Knoll
Crest
Hillslope
Footslope

Shape of Slope
Convex
Concave
Linear
Complex

Horizon Nomenclature		
Master Horizons	Horizon Suffixes	Horizon Modifiers
O Predominantly organic matter (litter & humus)	a Highly decomposed organic matter	Numerical Prefixes: Used to denote lithologic discontinuities.
A Mineral, organic matter (humus) accumulation, loss of Fe, Al, clay	b Buried genetic horizon	
E Mineral, loss of Si, Fe, Al, clay, organic matter	d Densic layer (physically root restrictive)	Numerical Suffixes: Used to denote subdivisions within a master horizon.
B Subsurface accumulation of clay, Fe, Al, Si, humus; sesquioxides; loss of CaCO ₃ ; subsurface soil structure	e Moderately decomposed organic matter	
C Little or no pedogenic alteration, unconsolidated earthy material, soft bedrock	g Strong gley	
R Hard bedrock	i Slightly decomposed organic matter	
	p Plow layer or artificial disturbance	
	r Weathered or soft bedrock	
	t Illuvial accumulation of silicate clay	
	w Weak color or structure within B	
	x Fragipan characteristics	

Soil Texture	
Texture Class Abbreviations	Textural Class Modifiers
Course Sand cos	Gravelly GR
Sand s	Fine Gravelly FGR
Fine Sand fs	Medium Gravelly MGR
Very Fine Sand vfs	Coarse Gravelly CGR
Loamy Coarse Sand lcos	Very Gravelly VGR
Loamy Sand ls	Extremely Gravelly XGR
Loamy Fine Sand lfs	Cobbly CB
Loamy Very Fine Sand lvfs	Very Cobbly VCB
Coarse Sandy Loam cosl	Extremely Cobbly XCB
Sandy Loam sl	Stony ST
Fine Sandy Loam fsl	Very Stony VST
Very Fine Sandy Loam vfsl	Extremely Stony XST
Loam l	Bouldery BY
Silt Loam sil	Very Bouldery VBY
Silt si	Extremely Bouldery XBY
Sandy Clay Loam scl	Channery CN
Clay Loam cl	Very Channery VCN
Silty Clay Loam sicl	Extremely Channery XCN
Sandy Clay sc	Flaggy FL
Silty Clay sic	Very Flaggy VFL
Clay c	Extremely Flaggy XFL

*Estimate approximate clay percentage within 5 percent

Soil Structure					
Grade	Size	Type (Shape)			
Structureless 0	Very Fine vf	Granular gr			
Weak 1	Fine f	Angular Blocky abk			
Moderate 2	Medium m	Subangular Blocky sbk			
Strong 3	Coarse co	Platy pl			
	Very Coarse vc	Prismatic pr			
	Extr. Coarse ec	Columnar cpr			
	Very Thin* vn	Single Grain sg			
	Thin* tn	Massive m			
	Thick* tk	Cloddy CDY			
	Very Thick* vk				

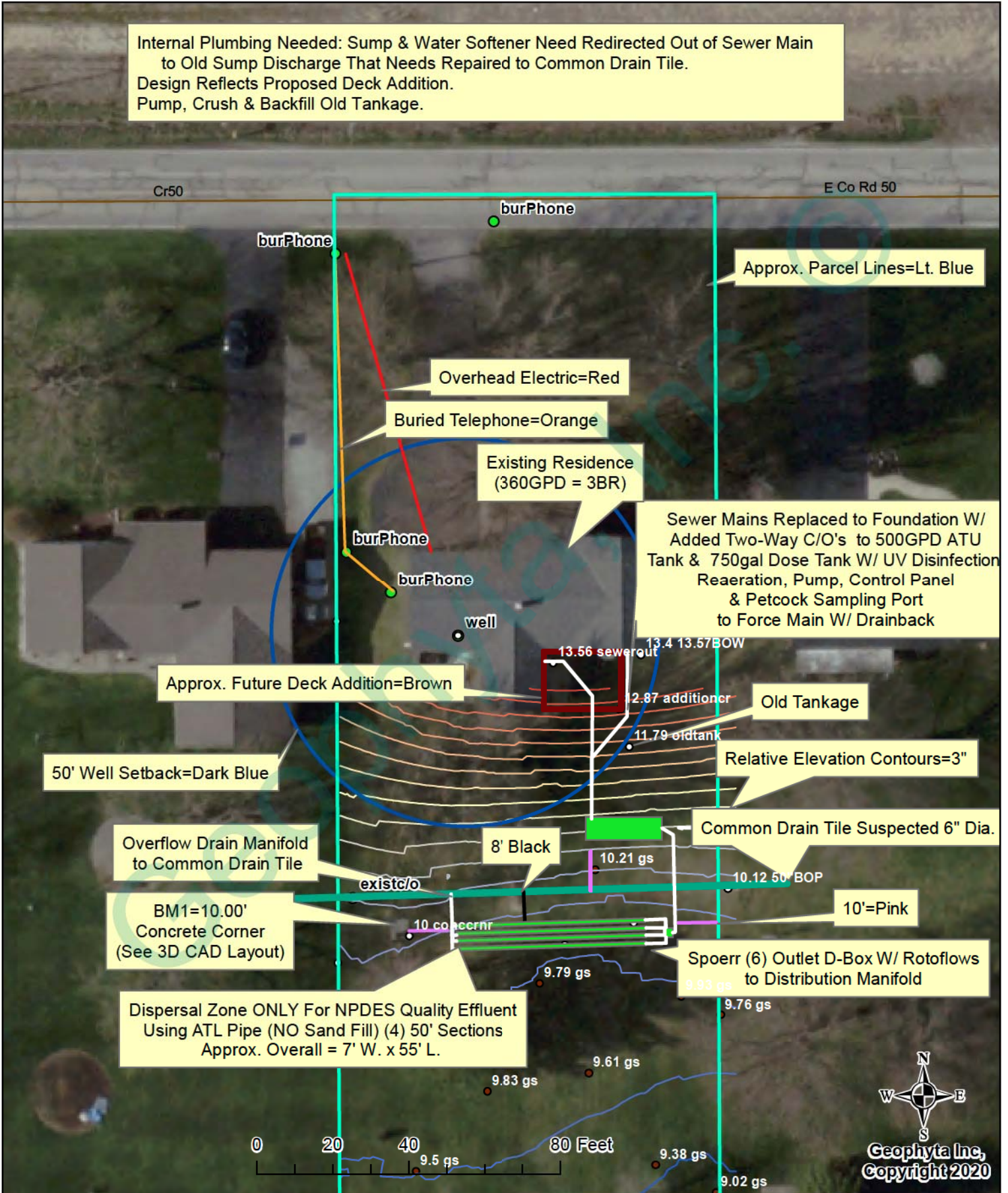
* The sizes Very Thin, Thin, Thick, and Very Thick, are used when describing platy structure only. Substitute thin for fine, and thick for coarse when describing platy structure.

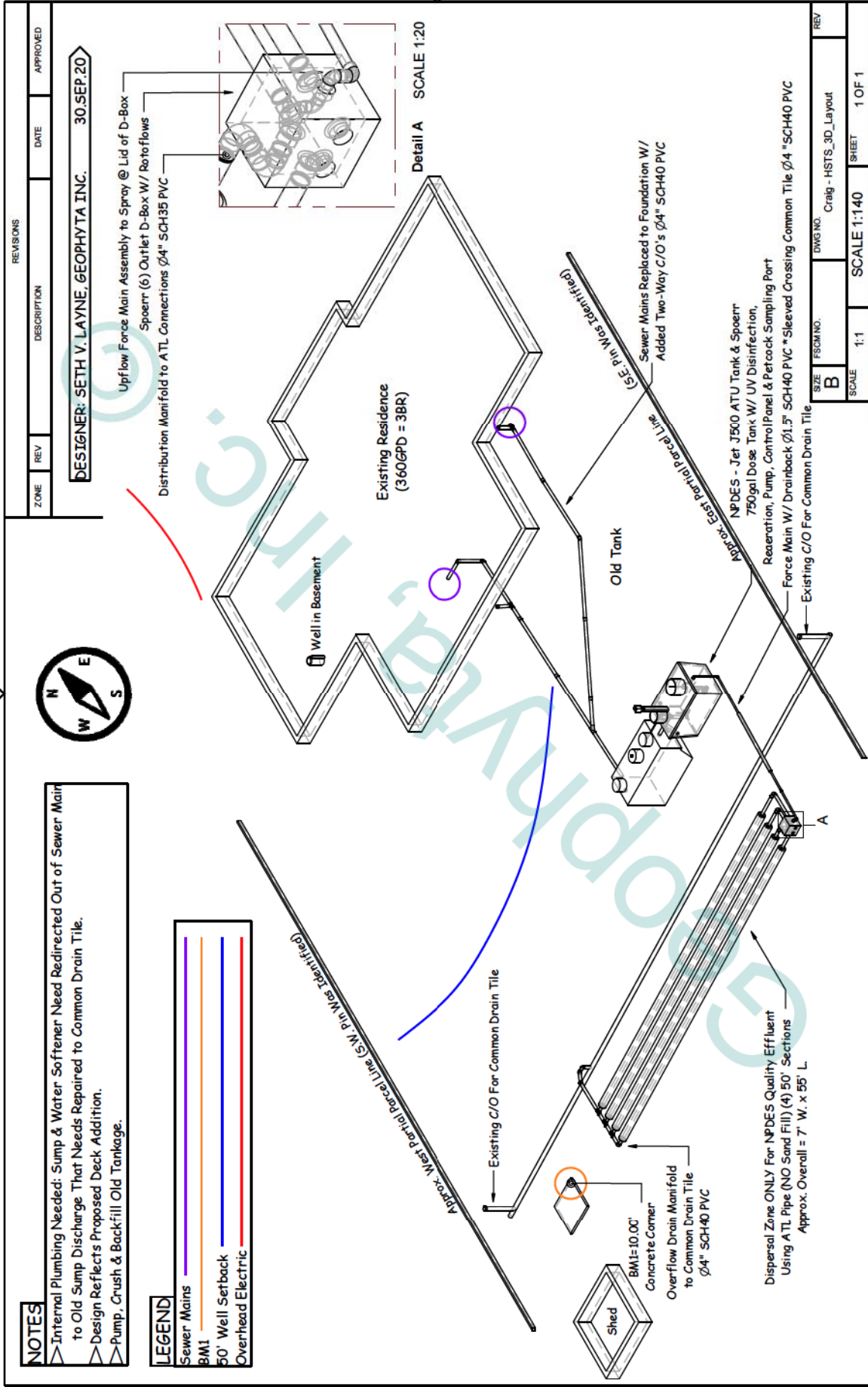
Moist Consistence	
Loose	l
Very Friable	vfr
Friable	fr
Firm	fi
Very Firm	vfi
Extremely Firm	efi

For a more detailed explanation on describing and sampling soils, please refer to the "Field Book for Describing and Sampling Soils" Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors) 2002. Field book for describing and sampling soils, version 2.0. Natural Resources Conservation Service, USDA, National Soil Survey Center, Lincoln, NE.

HSTS Layout - 3638 E. C.R. 50

Internal Plumbing Needed: Sump & Water Softener Need Redirected Out of Sewer Main to Old Sump Discharge That Needs Repaired to Common Drain Tile.
 Design Reflects Proposed Deck Addition.
 Pump, Crush & Backfill Old Tankage.





NOTES

- > Internal Plumbing Needed: Sump & Water Softener Need Redirected Out of Sewer Main to Old Sump Discharge That Needs Repaired to Common Drain Tile.
- > Design Reflects Proposed Deck Addition.
- > Pump, Crush & Backfill Old Tankage.

LEGEND

- Sewer Mains
- BM1
- 50' Well Setback
- Overhead Electric

REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	

DESIGNER: SETH V. LAYNE, GEOPHYTA INC.

30.SEP.20

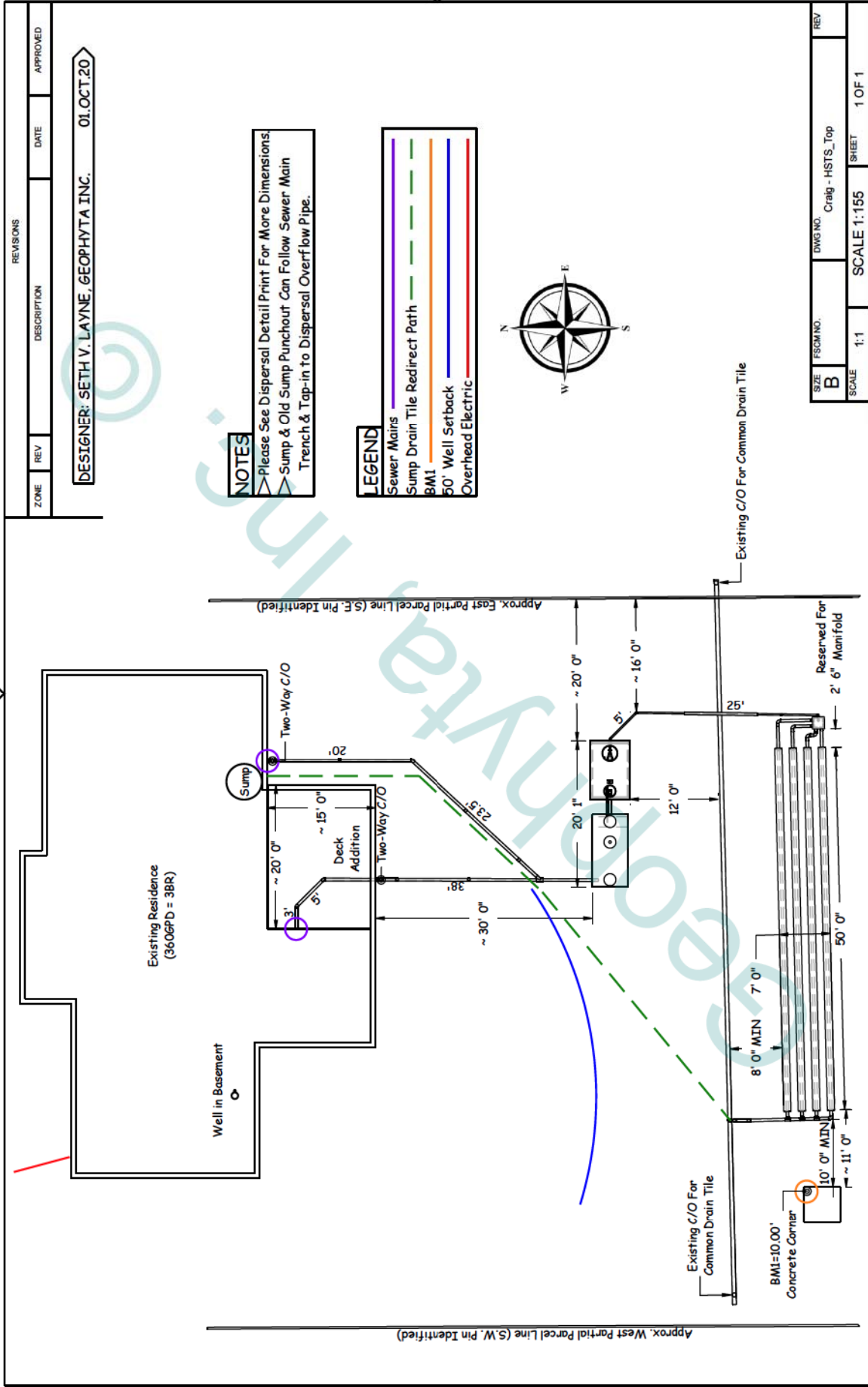
Upflow Force Main Assembly to Spray @ Lid of D-Box
 Spoerr (6) Outlet D-Box W/ Rotoflows
 Distribution Manifold to ATL Connections Ø4" SCH35 PVC

Detail A SCALE 1:20

SIZE	ESCOM NO.	DWG NO.	SCALE	SHEET
B		Craig - HSTS_3D_Layout	1:1	1 OF 1

NPDES - Jet J500 ATU Tank & Spoerr
 750gal Dose Tank W/ UV Disinfection,
 Regenation, Pump, Control Panel & Petcock Sampling Port
 Force Main W/ Drainback Ø1.5" SCH40 PVC *sleeved Crossing Common Tile Ø4" SCH40 PVC
 Existing C/O For Common Drain Tile

Dispersal Zone ONLY For NPDES Quality Effluent
 Using ATL Pipe (NO Sand Fill) (4) 50' Sections
 Approx. Overall = 7' W. x 95' L.



REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	

DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 01.OCT.20

NOTES

- △ Please See Dispersal Detail Print For More Dimensions.
- △ Sump & Old Sump Punchout Can Follow Sewer Main Trench & Tap-in to Dispersal Overflow Pipe.

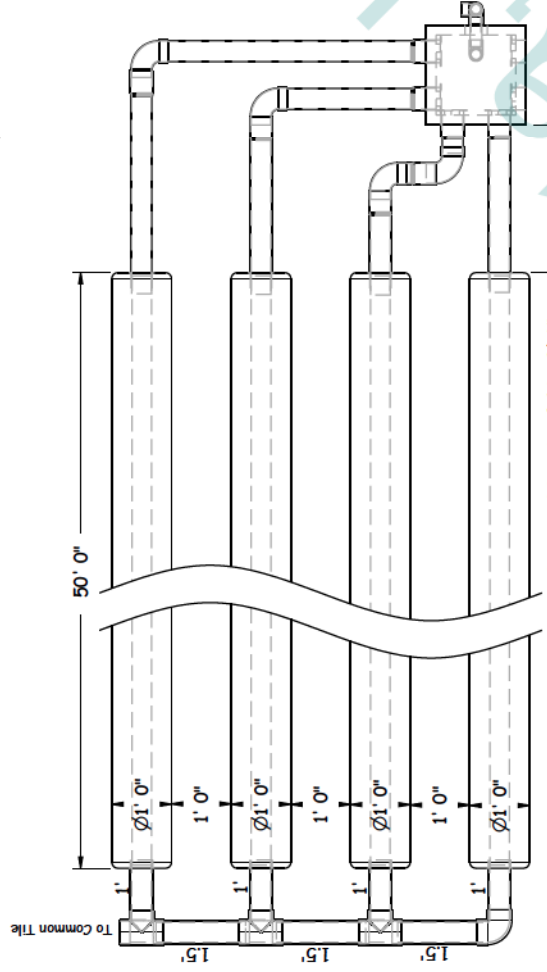
LEGEND

- Sewer Mains
- Sump Drain Tile Redirect Path
- BM1
- 50' Well Setback
- Overhead Electric

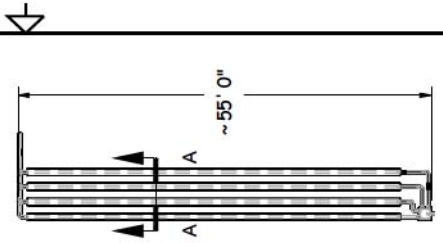
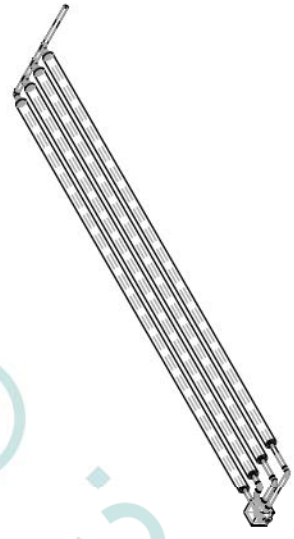


SIZE	ESCOM NO.	DWG NO.	Craig - HSTS_Top	REV
B				
SCALE	1:1	SCALE	1:155	SHEET
				1 OF 1

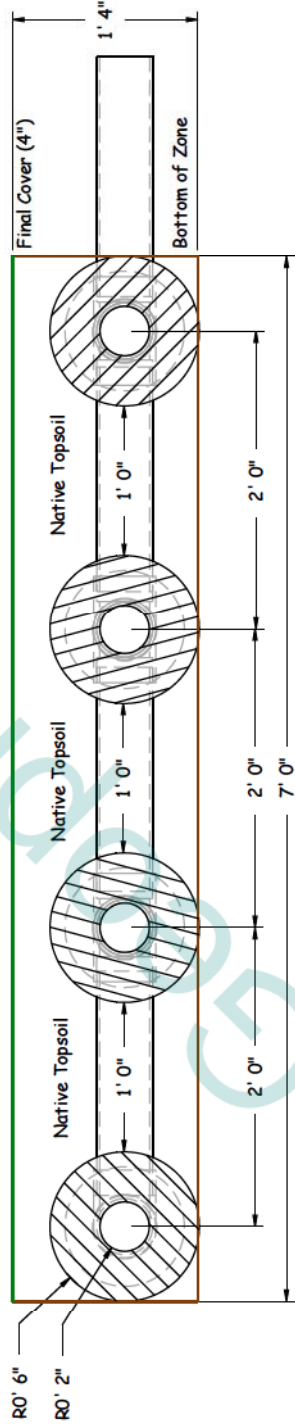
REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	
DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 01.OCT.20			



SCALE 1:136



SCALE 1:200



Section A-A
SCALE 1:10

SIZE	ESCOM NO.	DWG NO.	REV
B		HSTS_Dispersal_Zone_Detail	
SCALE	1:1	SHEET	1 OF 1

NOTES

▷ Sewer Main to Have Suggested Fall or Min. .125"/1'

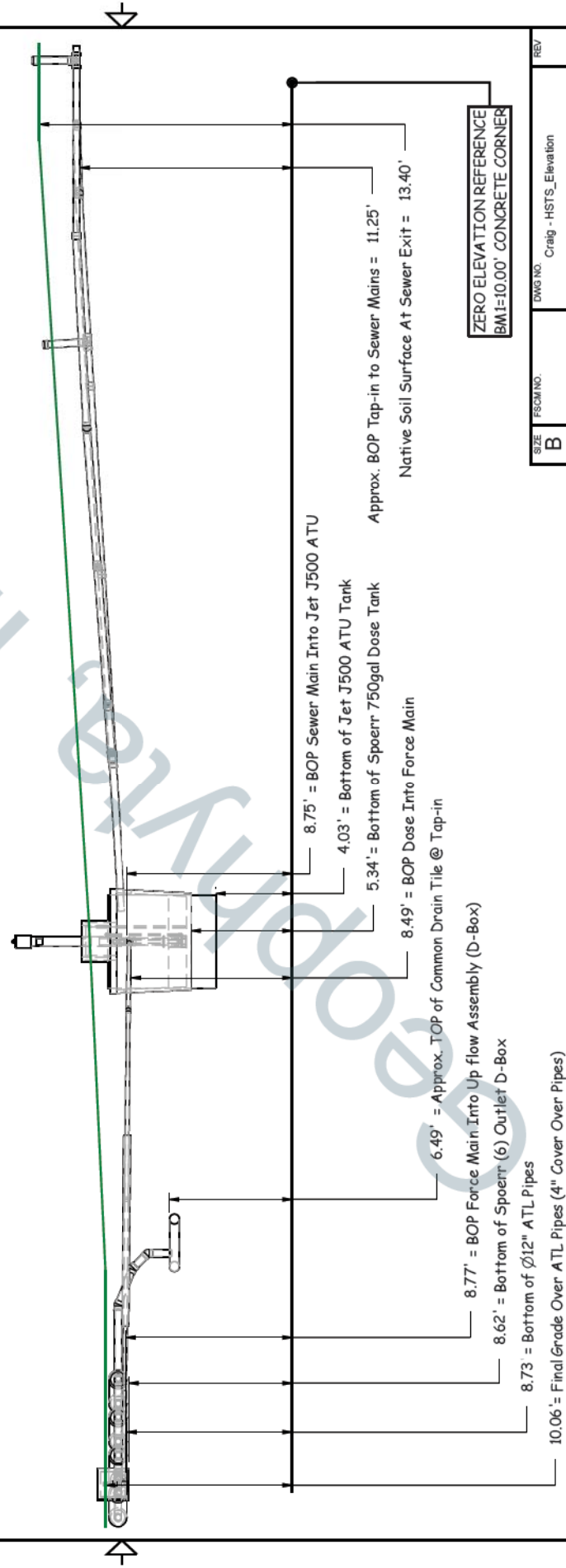
LEGEND

Native Soil Surface ———
 Zero Elevation Reference ———

VIEW POINT

ELEVATION VIEW - EAST TO WEST

REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	
DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 01.OCT.20			

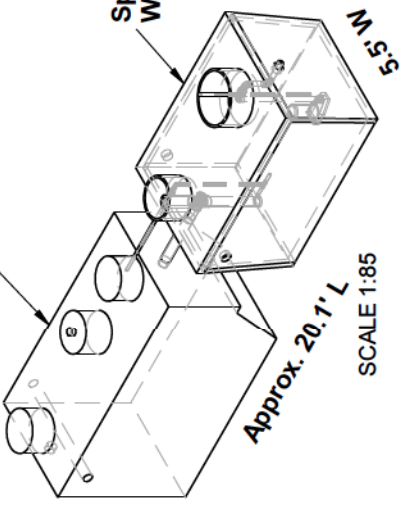


ZERO ELEVATION REFERENCE
 BM1=10.00' CONCRETE CORNER

SIZE	FSCM NO.	DWG NO.	REV
B		Craig - HSTS_Elevation	
SCALE	1:1	SCALE 1:65	SHEET 1 OF 1

REVISIONS		
ZONE	REV	DESCRIPTION
		Drawn By Nathan Wright, Geophyta Inc.
		DATE 26-Jun-17
		APPROVED

Jet J500 ATU tank



Spoerr 750 gal Pump Tank
W/UV Disinfection & Re-Aeration

Tank Interior Petcock
Sampling Port.
(See Detail Photo)

Risers As Grade Requires;
6, 12, 18, or 24"

1/2" Dia. Sch40
Air Delivery Tube

Risers As Grade Requires;
6, 12, 18, or 24"

4" Dia. Sch40 PVC

Effluent Pump,
X" Discharge

Union Quick Disconnect.
No Backflow Preventer.

1/4" Drainback
Hole Required
For Anti-Siphoning

Float Tree Rail

Pump Off Effluent Level
(High Level Alarm Varies By Design)

Minimum Bubbler Ht.

Jet M952 UV Disinfection Device

Fine Bubble
Diffusers

0' 7"

0' 10"

0' 3"

2' 0"

4' 6"

4' 9"

Jet J500 Aeration Treatment Unit
(See Jet Manufacturer Print For Detail)

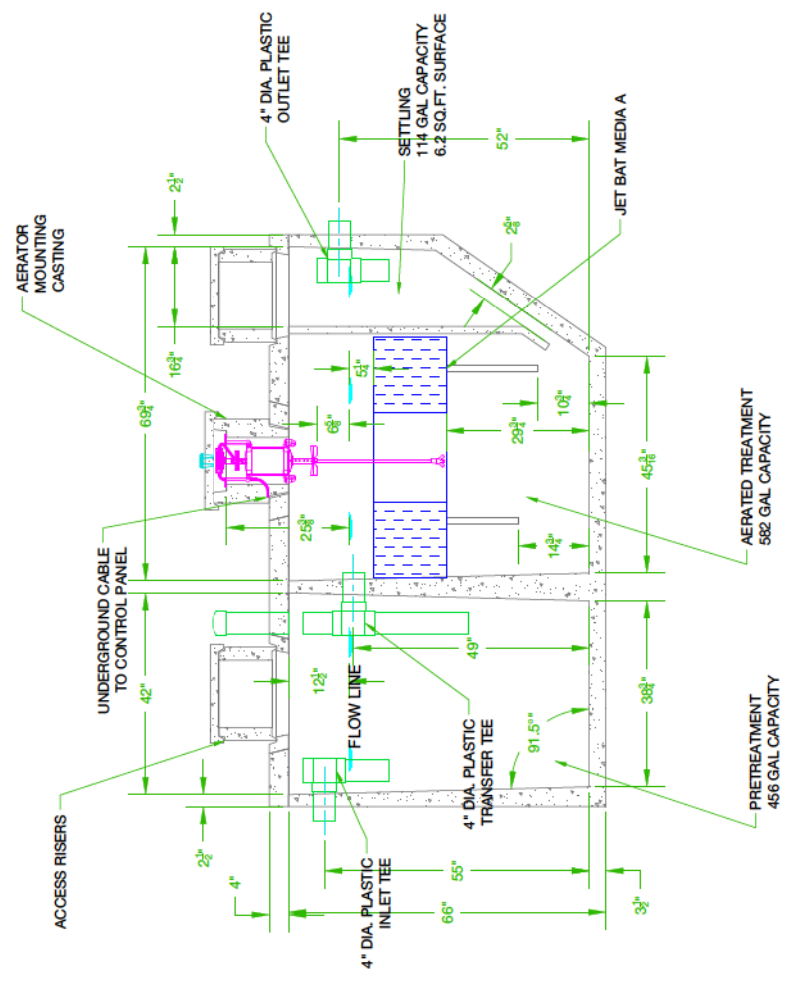
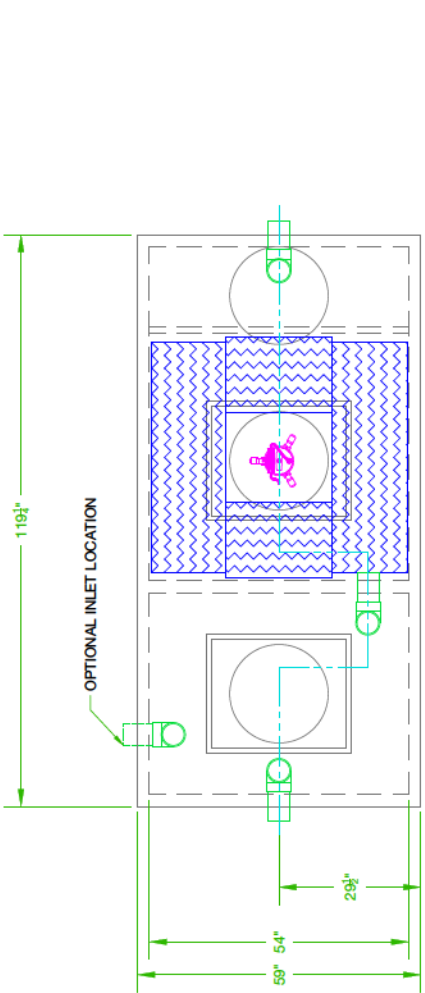
Actual Distance & Individual
Connectors May Vary
Depending On Site Needs -
Site Drawings Take Precedence.

SCALE 1:30

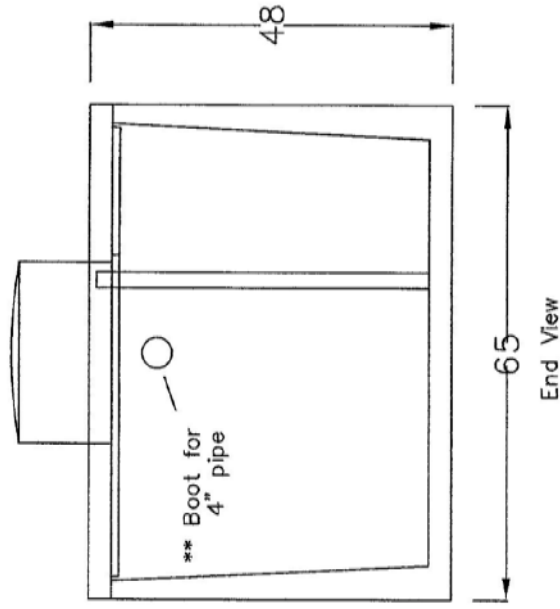
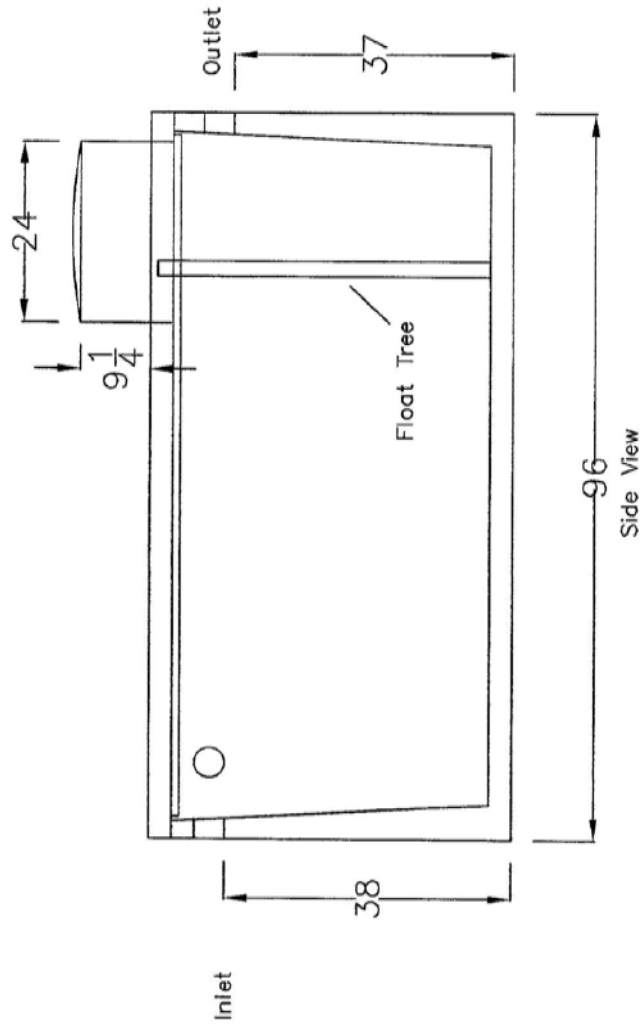
See Bill Of Materials For All Component Details

SIZE A	FSCM NO.	DWG NO.	REV
SCALE 1:1		Jet J500-P750-RAD W/750 gal Pump Tank W/Sample Petcock	
		SHEET	1 OF 1

- NOTES:
1. AERATOR MODEL 700LL MUST BE USED IN CONTINUOUS OPERATION
 2. DEVELOP RISERS TO GRADE OR WITHIN 12" BELOW GRADE
 3. PLASTIC RISERS CAST INTO THE TANK LID MAY BE USED IN PLACE OF CONCRETE RISERS



REV/ECD/DATE	1407/08/14/14	REDRAWN	N J K
DESCRIPTION	Jet® Wastewater Treatment Solutions <i>Founded on Innovation. Anchored by Service.™</i>		
DRAWN BY:	N J K	DATE	08/14/14
APPROVED BY:		DATE:	
MATERIAL:			
SCALE:	1 : 20		
SIZE:	G		
TITLE:	J-500 RESIDENTIAL WWTP ONE PIECE TANK CASTING		
USED ON:			
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES			
DECIMAL:	± .005		
FRACTIONAL:	± 1/64		
DEGREE:	± 1°		
DRAWING NUMBER:	J-500		
PROPERTY OF JET INC. AND MAY NOT BE REPRODUCED, COPIED OR USED WITHOUT WRITTEN PERMISSION.			
REV.:	-		



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Spoerr Precast Concrete Inc.
 2020 Caldwell St
 Sandusky, OH 44870
 800-252-5205

Concrete 4500 PSI @ 28 Days
 Max cover on top of tank 48"
 Inlet/Outlet boots for 4" pipe
 Boots meet ASTM C923
 Sealant: Meets ASTM C990
 **Optional 4x2 slip reducer available
 22.3 gallon/inch

750 Gallon Pump Tank
 Excavation 6' 6" x 9'

		09/22/09	

UV Disinfection Lamp

Item	Part Number
UV Disinfection Lamp Assembly	9520034
Replacement UV lamp	9990115
UV Control Panel Assembly	9520038

Specifically designed to disinfect the effluent from small aerobic treatment plants, the Ultraviolet Disinfection Unit can reduce fecal coliform bacteria levels to well below the most stringent U.S. treatment standards, even when the upstream treatment plant is operating in a mild upset condition. Designed to disinfect residential wastewater, UV disinfection units are safe and harmless. There are no adverse effects from overexposing the effluent to germicidal ultraviolet light because UV disinfection does not form by-products.

The disinfection chamber couples directly to the aerobic plant 4" discharge pipe and is permanently installed below grade. When fully inserted, the sub-assembly is properly positioned by pins mounted near the top of the disinfection chamber. This well-defined flow path gives the proper fluid exposure time.

The light source is mounted in the center of an anodized aluminum frame that divides the disinfection chamber in half. The frame seals against the inner surface of the disinfection chamber and prevents flow by-pass. To control the lamp's surface temperature, the ultraviolet light is surrounded by a clear fused quartz tube. When the disinfection chamber is filled with water, the ultraviolet light can operate continuously, whether or not water is flowing. Continuous operation within a lamp surface temperature range of 105-120° F provides optimum ultraviolet light output and long lamp life.

The disinfection sub-assembly, which extends approximately one foot above grade, is watertight. This protects the electrical connections against a fluid backup that could cause the wastewater effluent level to rise to the maximum height of the upstream treatment plant.

The UV system operates on 120vAC and consumes less than 25 Watts. A green LED indicator on the junction box confirms the operating status of the UV system.

Maximum flow through the unit is rated at 3 gallons per minute (gpm), or 4,320 gallons per day (gpd), with the following effluent conditions:

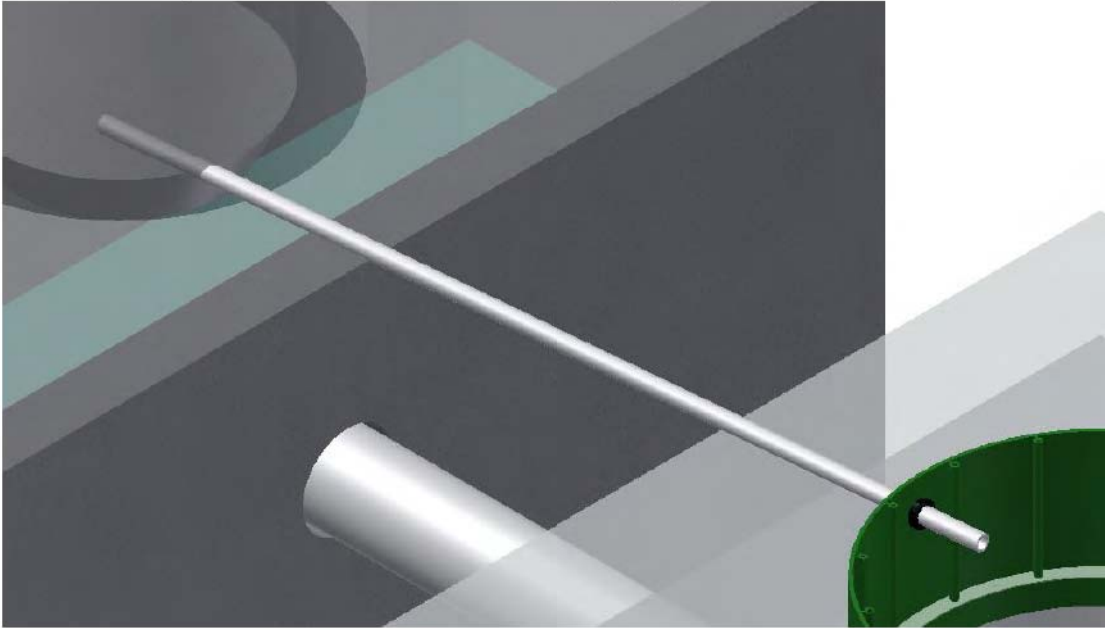
Suspended Solids < 30 mg/liter - 5-day BOD < 30 mg/liter

Under the above conditions, fecal coliform reduction exceeds 3-logs, or 99.9%, at the end of the UV lamp life (one year of continuous operation).

Fecal coliform counts in the home aerobic treatment effluent typically range from 800 - 20,000 colony-forming units (CFU) per 100ml. CFUs measure viable fungal and bacterial cells.



1. Install the treatment system and pump tank to be aerated.
2. Install the compressor in a dry, vented enclosure. The clarifier access riser may be used as the enclosure if a removable baseplate and vents are placed in the riser.
3. Use the provided ½" pipe to run between the compressor enclosure and the access riser for the pump tank. If necessary, use the black grommets to seal around the pipe where it leaves the compressor enclosure or enters the pump tank.



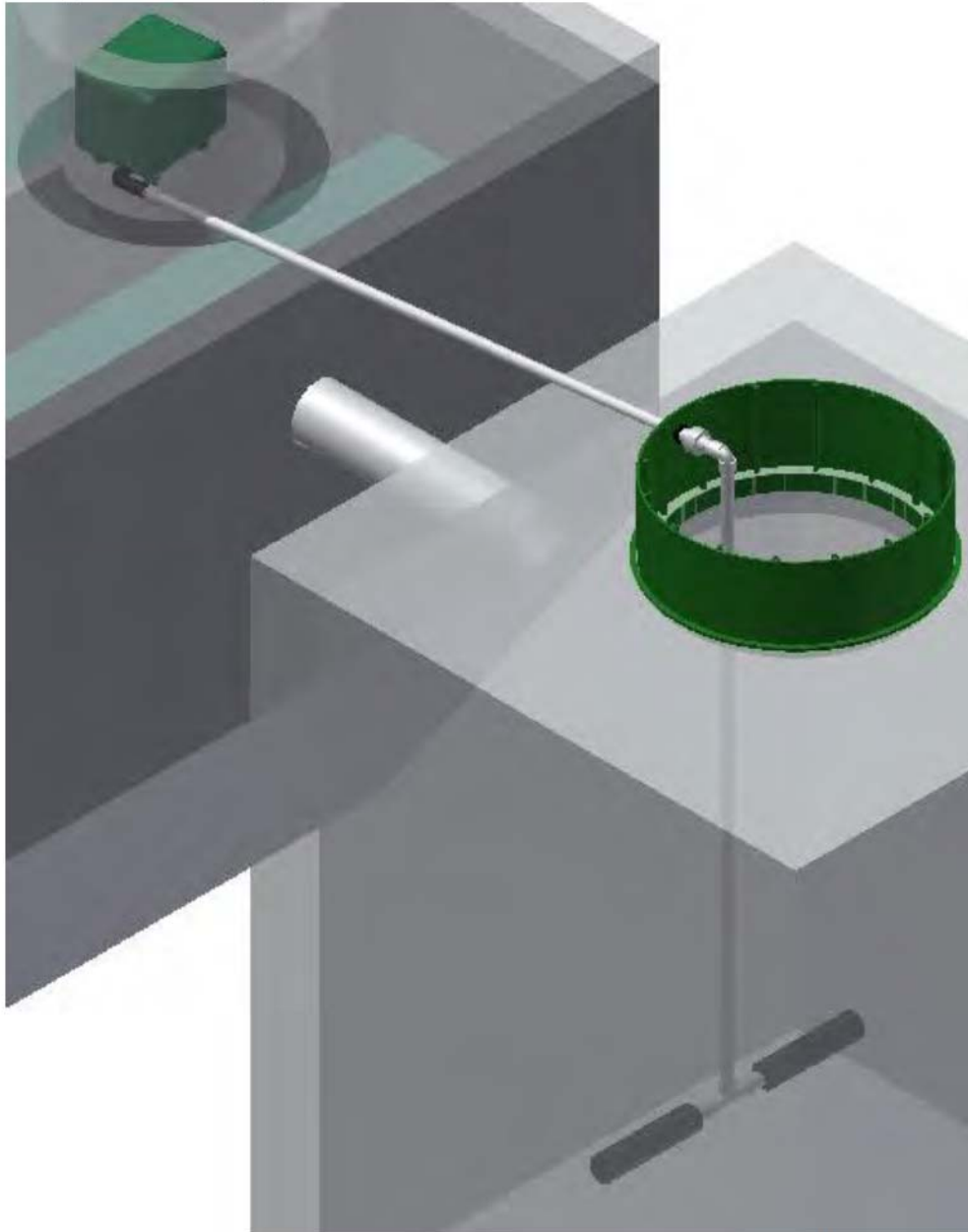
4. Glue the threaded adapter to the end of the ½" pipe in the enclosure. Connect one end of the black hose provided with the compressor to the compressor and the other end to the threaded adapter. Secure both ends with the spring clips provided with the compressor.



5. Glue the union to the compressor pipe in the pump tank.
6. Using a short piece of ½" pipe connect the ½" elbow to the union on the compressor pipe.
7. Using thread seal tape, thread the diffusers to each end of the tee assembly.



8. Glue one of the two long pipes to the sidearm of the tee.
9. Place the diffuser assembly in the pump tank and glue the top of the long pipe to the elbow on the air supply line. The diffusers should be about 3" off the bottom of the tank, cut drop pipe to length if necessary.



10. Run power conduit to the compressor enclosure. The compressor will require a single phase 120 volt power source. The provided cord grip may be used to run the compressor power cord into a watertight junction box to make connections.

Jet Inc. Model 197 Control Panel Installation and Users Manual

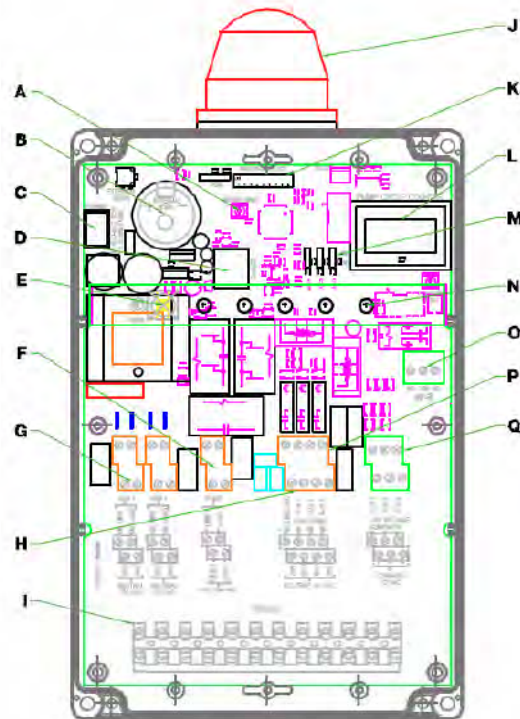
The Jet Incorporated Aerator control panel monitors and controls the operation of Jet system aerators and additional components. The panel can be configured to control single or dual aeration systems. A single aerator system controls the operation of one aerator. A dual aerator system can control two aerators, or one aerator and one re-aeration compressor.

In addition to the aerator control circuits, the control panel also contains the following circuits or features:

- Two aerator/compressor control circuits
- Two auxiliary available output circuits
- Three auxiliary input circuits with normally open or normally closed selection
- One power indicator LED, and four additional error indicator LED's
- An alarm buzzer with circuit board provision for an alternate or externally mounted buzzer
- A 9-position DIP switch for selection of configuration options
- User accessible reset switch and circuit board master reset switch
- Alarm mode Auto-Dialer power and control interface
- Circuit board mounted power switch and fuse
- Dry contact for Jet Wi-Fi messenger or cellular.

Control Panel Features

- A. Master Reset Button
- B. Internal Horn
- C. On/Off Switch
- D. Optional Dialer Interface
- E. External Reset Button
- F. Pump Power Supply Contacts
- G. Aerator Power Supply Contacts
- H. Alarm Power Supply Contacts
- I. Ground Buss
- J. Central Alarm Beacon
- K. DIP Switch Array
- L. Event Counter (Optional)
- M. Auxiliary Alarm Settings (NC/NO)
- N. Indicator Light Array
- O. Optional Wi-Fi Alarm Contacts
- P. Auxiliary Output Contacts
- Q. Auxiliary Input Contacts



Demand Dosing Calculations to D-Box			
Owner: Craig	Design		
	Target	Comment	
Main Design:			
Flow Rate Total (gpm)	38.0		
Diameter (in)	1.50	SCH40 PVC	
Length (ft)	31.25	Includes All Drainback Piping	
Gal. per Foot of Pipe (Clemons, 1991)	0.106		
Total Main Volume (gal)	3.31		
# Std 90deg Elbows	5		
Std 90deg Elbow Pipe Length Equivalent (ft)	8.0		
# Std 45deg Elbows	2		
Std 45deg Elbow Pipe Length Equivalent (ft)	3.0		
# Std Tees	0		
Std Tee Pipe Length Equivalent (ft)	9.0		
# Quick Disconnects	1		
Quick Disconnect Pipe Length Equivalent (ft)	1.0		
# Full Flow Ball Valves	0		
Ball Valves Pipe Length Equivalent (ft)	0.9		
Total Length Equivalent (pipe&fittings) (ft)	78.3		
Head Loss per 100 ft.(ft.)(Otis et al, 1978)(Zoeller)	8.90		
Total Main Head Loss (ft)	6.96		
Dose Volume:			
Drainback Volume: Main (gal)	3.3		
Dose Volume (gal)	60.0		
TOTAL dose (gal)	63.3		
Daily Design Flow (DFR)(120gal/day/bedroom)	360.0		
Is Dose <=1/4 of Daily Design Flow?	yes		
Is Dose <1/8 of Daily Design Flow?	no		
Total Dynamic Head:			
Static Lift - Main Ht. Above Surface (ft)	0.00	-	
Static Lift - Depth to Pump Off Below Surface (ft)	4.36	5.19 - .83	
Static Lift - Topo Difference (ft.)	-0.6	-	
Total Pipe & Fittings Headloss (ft)	7.0	-	
Network Loss (5ft head x 1.3) (ft)(includes laterals)	0.0	-	
Total Head Loss (ft)	10.7		
Dose Tank Parameters			
Volume (gal)	750	34.0	inches effluent
Gallons Per Inch in Tank	22.30		
Demand Dose Settings:			
Total Gallons Per Pump Cycle	63.3	2.84	inches
Avg. Pump Cycles Per 24 Hrs.	6.0		
Avg. Pump On Time - seconds	100		
Avg. Pump Off Time - hours	4.0		
Pump Off Effluent Ht. from bottom (in)	10.0	(to prevent tank flotation)	
Pump On Effluent Ht. from Bottom (in)	12.8		
High Level Alarm Ht. from bottom (in.)	17.8	1.0	= days reserve after alarm

Every pump tested in water to ensure pump meets performance curve.



FEATURES/BENEFITS

PERFORMANCE

- Heads up to 20' TDH
- Flows up to 42 GPM

MOTOR

- High efficient, 115v, oil filled, permanent split capacitor motor with upper and lower ball bearings and thermal overload protection
- Constant bearing lubrication
- Maximum motor cooling
- Runs cooler and lasts longer
- Internal overload protection
- Quiet operation
- Fasteners and shaft made from rugged, corrosion resistant stainless steel

SEAL DESIGN

- Mechanical with secondary dynamic lip seal
- Provides added leakage protection

IMPELLER DESIGN

- Non-clog style vortex impeller
- Designed to help reduce clogging by foreign material

POWER CORD

- Sealed entry quick disconnect power cords
- Prevents water from entering the motor housing through a cut cord
- Available in lengths up to 100'

SWITCH

- Piggy-back switch design
- Defective switches can be diagnosed over the phone
- Pump can be operated manually or supplied with other piggy-back switches
- Switch can be replaced without having to replace the pump

APPLICATIONS

Basements, dewatering, and septic systems



Wide-Angle Float

Vertical Float

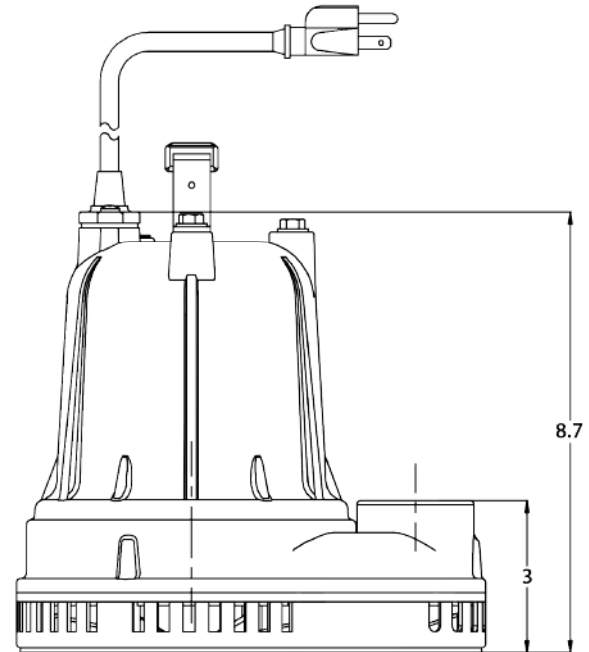
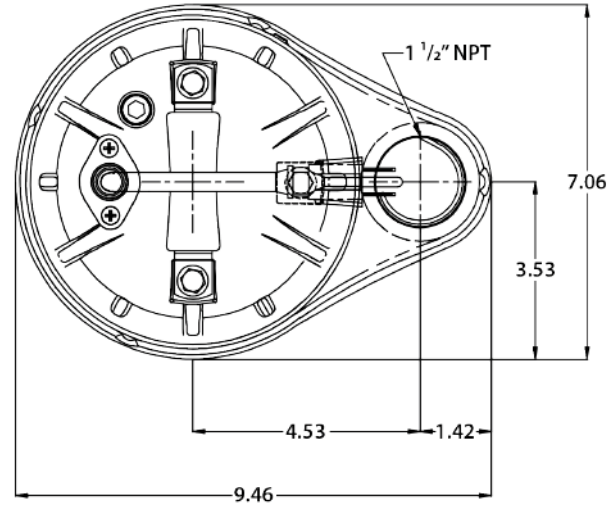
1/3 HP submersible pumps, built for reliability, handle up to 1/4" solids with 1 1/2" discharge

PERFORMANCE CURVE



TECHNICAL DATA

DISCHARGE	1-1/2" NPT. vertical standard
SOLIDS HANDLING	1/4"
LIQUID TEMPERATURE	140 Degrees F. (Intermittent)
MOTOR HOUSING	Cast Iron
VOLUTE	Cast Iron
SEAL PLATE	Cast Iron
IMPELLER	Engineered glass filled thermoplastic/ Vortex
SHAFT	Nickel plated steel
SHAFT SEAL (SINGLE SEAL)	Mechanical with secondary dynamic lip seal, carbon rotating face, ceramic stationary face, Buna-N elastomer, 300 series stainless steel hardware
BEARINGS (UPPER & LOWER)	Single row, ball, oil lubricated
HARDWARE	300 Series stainless steel
O-RINGS	Buna-N
CORD	10' Length standard. Up to 100' available. (UL/CUL) Listed 16 AWG, Type SJTW
MOTOR (SINGLE PHASE)	1/3 HP 1750 RPM, 60 Hz, NEMA L Includes overload protection in the motor, oil filled, class B permanent split capacitor
WEIGHT	25 lbs. (Manual)



MODEL(S) INFORMATION

MODEL	HP	VOLTS	PHASE	AMPS	CORD LENGTH	SWITCH
CPS3-11	1/3	115	1	4	10'	Manual
CPS3-12	1/3	115	1	4	20'	Manual
CPS3-13	1/3	115	1	4	30'	Manual
CPS3-15	1/3	115	1	4	50'	Manual
CPS3A-11	1/3	115	1	4	10'	Wide-Angle Float
CPS3A-12	1/3	115	1	4	20'	Wide-Angle Float
CPS3A-13	1/3	115	1	4	30'	Wide-Angle Float
CPS3V-11	1/3	115	1	4	10'	Vertical Float
CPS3V-12	1/3	115	1	4	20'	Vertical Float
CPS3V-13	1/3	115	1	4	30'	Vertical Float

Re-Aeration Tank Interior Sampling Petcock for NPDES Systems



This photo is of a sampling petcock located inside the re-aeration tank riser. For convenience, it is mounted on the “gooseneck” pipe riser, just before the union quick disconnect.

This unit is an approved substitute for a free falling sample port where effluent discharge cannot be accomplished with a gravity discharge line.

Strict adherence to sampling techniques and protocols are required.

Install, operate, maintain, and sample in accordance with applicable statutes, regulations, practices, requirements, restrictions, and prohibitions.

Quantity	Part Name	Section	Comment	
Bill of Materials - 3638 E. C.R. 50, HSTS Replacement- NPDES Jet-J500 ATU & Spoerr 750gal Dose Tank W/ UV Disinfection & Reaeration to ATL Dispersal				
2	SCH40PVC4inchTwo-Way Cleanout Tee SxSxS	Sewer Mains Replaced to Foundation	Two-Way Cleanout (Tee)	
2	SCH40PVC4inchpipe4ft.		Two-Way Cleanout (Tee to Cap)	
2	SCH40PVC4inchCap		Two-Way Cleanout (Cap)	
5	SCH40PVC4inchCoupler		See Design	
3	SCH40PVC4inch45DegreeEll			
1	SCH40PVC4inchWyeSxSxS			
2	SCH40PVC4inchpipe3ft.			
1	SCH40PVC4inchpipe5ft.			
1	SCH40PVC4inchpipe8ft.			
7	SCH40PVC4inchpipe10ft.			
1	ATU Tank	ATU Tank	Jet J500 ATU Tank or Equiv. W/ 12" Risers	
1	SCH40PVC4inchpipe3ft.	ATU to Dose		
1	Dose Tank	Dose Tank	Spoerr 750gal Dose Tank or Equiv. W/ 18" Risers	
1	UV Disinfection Lamp	UV Disinfection Lamp	Jet Model No. 9520034 UV Lamp	
1	SCH40PVC1inchUnionSxS	Reaeration Assembly	Quick Disconnect	
1	SCH40PVC1inchTeeSxSxS			
1	SCH40PVC1inch90DegreeEll			
1	SCH40PVC1inchpipe4inch			
1	SCH40PVC1inchpipe4. Off.			
1	SCH40PVC1inchpipe2.25inch			
2	SCH40PVC1inchpipe5.8inch			
1	Jet Model 197 Panel (Pump Lockout, Visual/Audible Alarm)		ATU, Reaeration & Pump Controller	Jet Model No. 197 Control Panel W/ Event Counter
~55 ft.	2 conductor w/ground, 14 gauge UG wire			Pump Circuit; Standalone Breaker
~55 ft.	2 conductor w/ground, 14 gauge UG wire			Alarm Circuit, Added To House Lighting Breaker
~55 ft.	Plastic conduit, to contain 6-14ga		Pump & Alarm Circuit	
1	SCH40PVC1.5inchQuick Disconnect		(Allow Pump Removal/Replacement)	
1	SCH40PVC1.5inchCheck Valve		Air-Lock Hole Between Check Valve & Pump	
1	Sampling Port		Petcock Sampling Port in Gooseneck	
1	SCH40PVC1inchpipe5ft. L. Float Tree		Float Tree	
1	Effluent Pump1.5inchNPT 0.3HP	Dose Pump Assembly	Champion CPS3-11 Effluent Pump or Equiv.	
1	SCH40PVC1.5inchAdapter MNPT to Soc		Pipe Adapter to Pump	
1	SCH40PVC1.5inchpipe12inch W/ 0.25" Weephole		1/4" Weep Hole	
2	SCH40PVC1.5inch90DegreeEll			
2	SCH40PVC1.5inchpipe3inch			
1	SCH40PVC1.5inchpipe6.5inch			
1	SCH40PVC1.5inchpipe40inch			
2	SCH40PVC1.5inchCoupler			
2	SCH40PVC1.5inch45DegreeEll			
2	SCH40PVC1.5inchpipe5ft.	Force Main to D-Box	See Design	

2	SCH40PVC1.5inchpipe10ft.				
1	SCH40PVC4inchpipe10ft.		Force Main Sleeve Crossing Tile		
1	6 Outlet D-Box W/ Rotoflows		(6) Outlet D-Box W/ Rotoflows & Upflow Force Main Assembly	Spoerr (6) Outlet D-Box or Equiv.	
4	Rotoflows			See Detail Print	
3	SCH40PVC1.5inch90DegreeEll				
1	SCH40PVC1.5inchpipe3inch				
2	SCH40PVC1.5inchpipe6inch				
4	SDsolid4inch90DegreeStreetEll		Distribution Manifold		
1	SDsolid4inchpipe6.00inchW/bell				
1	SDsolid4inchpipe8.00inchW/bell				
2	SDsolid4inchpipe1.75ft. W/bell				
1	SDsolid4inchpipe2.5ft. W/bell				
2	SDsolid4inchpipe3ft. W/bell				
1	SDsolid4inchpipe3.75ft. W/bell				
1	SDsolid4inchpipe4.5ft. W/bell				
20	ATL Pipe 10' Sections to Make (4) 50' Rows				
16	Connections For ATL			Dispersal Zone	Infiltrator ATL Pipe Infiltrator ATL Couplers
~	Misc. Fittings to Adapt to PVC Piping For Manifolds				
3	SCH40PVC4inchTeeSxSxS		Dispersal Zone Overflow Manifold		
1	SCH40PVC4inch90DegreeEll				See Design
4	SCH40PVC4inchpipe1ft.				
3	SCH40PVC4inchpipe1.5ft.				
2	SCH40PVC4inch22.5DegreeEll		Overflow to Common Drain Tile		
1	SCH40PVC4inch45DegreeEll				
2	SCH40PVC4inchpipe1ft.				
1	SCH40PVC4inchpipe2ft.				
1	SCH40PVC4inchpipe5ft.				
1	Sealant/Grommet to Tile				Installer Preference
~	SCH40 PVC 1.5inch Pipe		New Sump Discharge		
~	SCH40 PVC 1.5inch Pipe Fittings				
Additional Notes					
Internal Plumbing Needed: Sump & Water Softener Need Redirected Out of Sewer Main to Old Sump Discharge That Needs Repaired to Common Drain.					
Pump, Crush & Backfill Old Tankage.					
-	Grass Seed		2 lbs./1000 ft. ² K. Bluegrass	~500 ft. ² @ 1.0 lbs.	
-	Straw Mulch For Grass Establishment		Homeowner's Choice	~500 ft. ²	
-	Grass Establishment Fertilizer		10 lbs. 20-10-10/1000 ft. ²	~500 ft. ² @ 5.0 lbs.	
Call OUPS before you dig.					
Installer substitution of materials not specified in this Bill Of Materials may void Health Dept. approval of this design and will result in a re-design fee and is the sole responsibility of the installer.					
Design Prints Take Precedence Over This Bill of Materials. This is a best estimate of materials required and is provided as a convenience to installers. This BOM is not required for design approval.					

Operation and Maintenance Procedures

Home Septic Treatment Systems With Processing Through An Aeration Treatment Unit, Disinfection, And Effluent Discharge

Home septic treatment systems are biologically based systems. They rely on both anaerobic and aerobic microorganisms to process human waste. These systems may utilize processing, storage, and pumping tanks. Also, the processed effluent may be disinfected before discharge to a storm drain, ditch, or stream. In some cases, a soil absorption component, the leachfield, also processes, treats, and disperses septic effluent. Any abuse of this biological treatment system will result in less efficient sewage treatment and early failure of your new system.

Improper operation and/or maintenance of your home septic treatment system will result in its failure.

Geophyta, Inc. strongly recommends that a homeowner hire a professional service provider to inspect and maintain your system. Your county health department has a list of registered service providers. Make sure that your service provider has septic tank and leachfield maintenance experience.

1) Homeowner Responsibility:

- a) The system owner is responsible for the continuous operation and maintenance of this home septic treatment system
- b) Your county health department may require third-party inspection and maintenance of your home septic treatment system.
- c) Home Interior Design & Appliance Selection:
 - i) Install water conserving fixtures such as low flow shower heads, low flow toilets, and front loading washers.
 - ii) Space out water use throughout the day and week. Avoid doing all laundry in one day.
 - iii) Repair all water leaking fixtures.
 - iv) Eliminate garbage disposals, or limit their use. Collect food scraps with sink strainers for disposal as trash or for composting; this includes coffee grounds.
 - v) DO NOT pipe sump pump output into your sewer line.
- d) Home Landscaping Limitations:
 - i) Do not pipe roof downspouts or any other rainwater drainage into the septic or dose tanks.
 - ii) Divert all downspouts or other rainwater drainage away from your entire septic system.
 - iii) Divert all downspouts or other rainwater drainage away from the leachfield area.

- iv) Do not drive or park cars, boats, heavy equipment, or other vehicles on or near septic system tanks and leachfield areas.
- v) Do not add additional soil fill on or near the leachfield. This will limit air movement into the soil needed for effluent treatment and may cause system failure.
- vi) Limit lawnmower traffic on the leachfield when soil is excessively wet.
- vii) Do not plant any deep rooted plants on top of or near your leachfield soil absorption area.
- e) Home Resident Responsibilities:
 - i) Only flush or drain bio-degradable human waste, toilet paper, laundry and dish and personal care soaps, and water into your home septic treatment system.
 - ii) Severely limit disposal of food fats, oils, and greases. These will clog your system.
 - iii) Do not flush or drain undiluted bleach, cleansers, or drain cleaners.
 - iv) Do not flush any non-biodegradable items. For example, plastic items.
 - v) Do not flush or drain motor oils, greases, anti-freezes, cleaners, etc.
 - vi) Do not flush cat litter.
 - vii) Do not flush paper towels, facial tissue, cigarette butts, disposable diapers, sanitary napkins, tampons, or condoms.
 - viii) Do not flush prescription or over-the-counter drugs. Antibiotics and cancer treatment drugs are very harmful to your home septic treatment system.
 - ix) Do not dump solvents like dry cleaning fluid, pesticides, photographic chemicals, paint thinner down the drain.
 - x) Don't use septic tank additives, unless health department approved.
 - xi) Don't drain a hot tub or large amounts of water into your septic system.
- f) Home Improvement/Expansion:
 - i) Contact your county sanitarian before adding new driveways, decks, patios, pools, and outbuildings not identified on your original layout plan to make sure all setback distances from your septic system tanks and mound are met.
 - ii) Contact your county sanitarian before adding bedrooms and/or increasing your home occupancy. This may overload your septic system. Septic system expansion may be required to prevent failure.
- g) Homeowner Cautions:
 - i) **DO NOT ENTER TANKS WITHOUT PROPER SAFETY EQUIPMENT.** Septic and dose tanks contain noxious and deadly gases.
 - ii) Pump or dose tanks and control boxes contain electrical components. **ELECTRICAL SHOCK HAZARD CAN EXIST WITH IMPROPERLY WIRED OR FAILING COMPONENTS.**
 - iii) Always keep tank fall guards in place, except for the time needed to replace components when safety equipment is present.
 - iv) Always replace and secure septic and dose tank lids after completing any inspection.
 - v) Any disconnection or removal of filters, screens, floats, alarms, and/or control panels will result in system failure.
 - vi) Contact your county sanitarian for allowed homeowner maintenance and repair of your septic system.

2) Inspection & Maintenance Requirements:

- a) Perform inspection & maintenance **every six months**.
- b) Review Baseline Operation and Maintenance Data:
 - i) The installer of your system set and recorded all float/liquid level heights, pump down times, cycles per day, and distal head pressures required in the design specifications.
 - ii) Review all previous six month inspection data.
- c) Identify any house additions, patios, pools, ponds, driveways, outbuildings, etc. added since the last inspection that may impact the home septic treatment system. Draw a sketch of these differences.
- d) Inspect the house sewer main two-way cleanout tee bottom:
 - i) Check for clogging.
 - ii) Check for continuous clear water flows from the home.
- e) Evaluate Aeration Treatment Tank & Pump Tank:
 - i) Measure sludge and scum depths; pump tank when cumulative thickness is 1/3 of the tank depth.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Clean & inspect any tank outlet filter.
 - v) Make sure lids are securely attached to risers.
- f) Evaluate Pump/Dose Tank & Pumping Equipment:
 - i) Measure sludge and scum depths; pump tank when septic tank is pumped.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Inspect and assure proper functioning of floats or other liquid level controls.
 - v) Clean and inspect dose pump outlet filter. May not be present in some designs.
 - vi) Inspect and assure proper condition and functioning of the effluent pump.
 - vii) Make sure lids are securely attached to risers.
- g) Evaluate Drain Fields:
 - i) Inspect all leachfield soil inspection tubes for surface condition, surface color, and depth of ponded effluent, if present.
 - ii) Look for surfacing effluent.
 - iii) Look for excessively moist soil around leachfield area.
 - iv) Identify appropriate vegetative cover.
 - v) Look for surface disturbances, compaction, abnormal settling, and erosion.
 - vi) Identify any deep rooted vegetation recently planted near the leachfield area.
- h) Switch leachfield resting trench in D-box:
 - i) Determine a rotation sequence for closing off flow to the resting trench/trenches.
 - ii) Open the previously rested leach trench.
 - iii) Close the next trench in sequence for resting.
- i) Measure Pump Run Time and/or Drawdown:
 - i) For demand dosed systems, verify original design effluent drawdown depth.

- ii) For time dosed systems, verify original design pump run time.
- iii) For systems with a cycle counter or run time meter, record the current values.
- j) Test Alarms:
 - i) Evaluate proper function of low liquid level alarm.
 - ii) Evaluate proper function of high liquid level alarm and warning light.

3) Findings & Repairs:

- a) All findings during inspection and maintenance must be recorded.
- b) Any system adjustments must be recorded.
- c) Any system deficiencies, worn out components, and/or damage must be repaired to return your septic system to a properly functioning state.
- d) All repairs must be recorded.

GEOPHYTA

Home Septic System Site Evaluation And Replacement System Design

For:

Seneca County WPCLF (Sharon Todd)

9515 E. T.R. 58
Bloomville, OH 44818

Property Location:

9515 E. T.R. 58
Bloomville, OH 44818

Bloom Township, Seneca County

**NPDES - Jet J500 ATU Tank & Spoerr 750gal Dose Tank W/ UV Disinfection
& Reaeration**

By:

**Nathan Wright (Soil Scientist)
Seth V. Layne (Designer)**

*Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464*

419-547-8538

September 23, 2020

To The Homeowner:

A septic system is designed based on all the information you provide and Geophyta Inc collects at the site. It must be accurate. This information includes local soil limits and topography, plus existing and future locations of your home, number of bedrooms, out buildings, driveways, drinking water wells, ponds, septic systems, and property lines. Geophyta Inc. relies on this information to construct detailed design drawings that must meet local health department regulations before installation.

Any design changes required by the local health department to meet existing regulations are the responsibility of Geophyta Inc.

Any information changes made by you after the initial site inspection are your responsibility and will result in additional charges to you above the original quote for services. These charges may include additional site inspection work, system redesign, and resubmitted drawings.

To The Installer:

The registered installer of this septic system design is responsible for preparing an “as-built” record, as stated in the Ohio Administrative Code Chapter 3701-29-09, Par. F (p.32) of the “Sewage Treatment System Rules,” Ohio Department of Health, January 1, 2015. Additionally, the installer is responsible for measuring and recording distal pressure head and float switch settings as baseline measures for future operation and maintenance of any pressure distribution system (3701-29-15, Appendix B, Par. VI(p.93) of above referenced rules.

If the installer requests “as-built” record creation from Geophyta Inc., additional charges will be billed to the installer by Geophyta Inc. and must be arranged prior to installation.

Geophyta Inc. must assume that any registered installer has the knowledge, equipment, ability, and experience to properly layout, install, and create as-built drawings for any septic system design approved by a local board of health. This includes the ability to read detailed design prints with an associated bill of materials. For this reason, any Geophyta Inc project supervision prior to or during installation will be billed to the installer.

Any product substitution made by the installer that is not specifically permitted in the design prints may result in Health Dept. disapproval and will result in additional re-design costs billed to the installer.

HSTS Site/Soil Evaluation Information Sheet, Geophyta, Inc.

Customer:

Name:	Joe & Sharon Todd
Address:	7515 E. TR. 58
City, State:	Bloomville, Oh. 44818
Home Phone:	419-618-0574
Cell Phone:	same
Email:	none

Property:

Parcel #:	
Current Owner:	
Address:	
City, State, Zip:	
Lot Size:	
Right of Ways?	
Easements?	

Existing or Proposed or Lot Split: (circle one)

House Size: Rooms	4 bedrooms		electric:	overhead or <u>buried</u>
House Dim.w/Garage:	<u>none</u> ft.xft.		phone: ^{cell} / _{only}	overhead; buried; <u>n/a</u>
<u>none</u> Garage Size:	cars, ft.xft.		gas :	natural <u>propane</u> n/a
Water Source:	<u>well</u> ; public; cistern		garden/hot tub:	yes <u>no</u>
Water Softener:	no <u>yes</u>			
Outbuildings:	<u>no</u> yes, size:		geothermal heat/cooling system	<u>no</u> ; yes: (horizontal or vertical)
Pond:	<u>no</u> yes, size:			
System Type:	new or replacement		Sump pump:	no <u>yes</u>
Replacement Reason:	<u>failed</u> ; addition; n/a		Discharge where?	

Comments:

I agree that the above information is accurate and can be used by Geophyta, Inc. to prepare a site/soil evaluation for septic system suitability. The site/soils report is for information purposes to be used by a designer and your local health department. This report does not guarantee build ability of a lot or approval of any septic system design. This is not a property boundary survey.

Joe M. Todd,

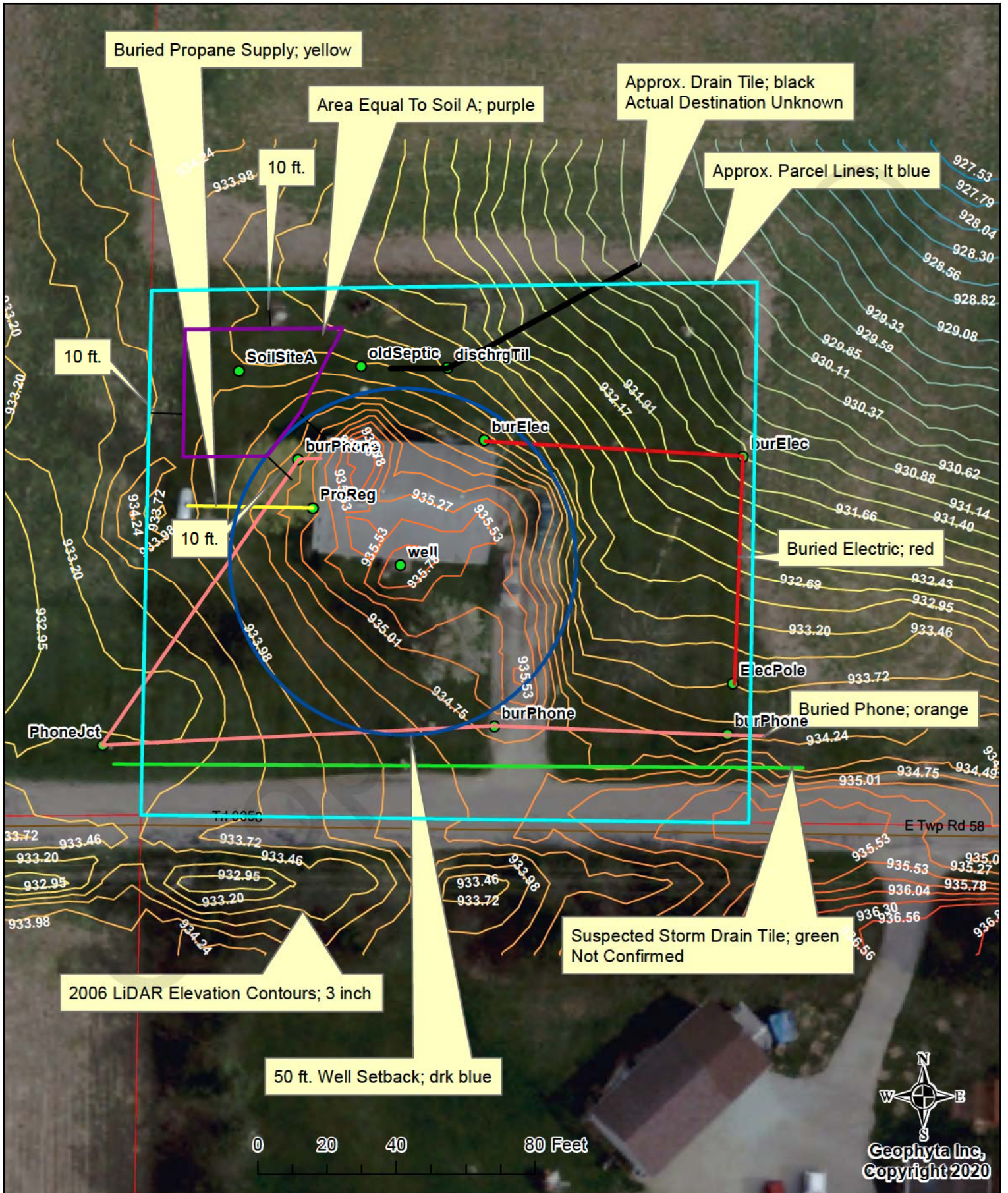
Customer Signature

9-3-2020

Date

Copyright, 2020
Geophyta, Inc.

HSTS Site/Soil Evaluation - 7515 E. T.R. 58



Site and Soil Evaluation for Sewage Treatment and Dispersal

County: Seneca
 Township / Sec.: Bloom
 Property Address: 7515 E. T.R. 58
 OR Location: Bloomville
 Applicant Name: Sharon Todd
 Address: 7515 E. T.R. 58
Bloomville OH 44818
 Phone #: 419-618-0574
 Lot #: _____
 Test Hole #: A
 Latitude/Longitude: 83°1'30.186"W 41°2'16.812"N
 Method: _____ Pit _____ Auger Probe; 1 1/4" dia.

Land Use / Vegetation: Residential Turf
 Landform: Glacial Till Plain
 Position on Landform: Hillslope
 Percent Slope: 2 - 3
 Shape of Slope: Convex - Convex
 Approximate Soil Type: Fill / Tiro SiL

Control #: 20- SEN - 30A - 260



Certification #: 19395

Date: 3-Sep-20

Evaluator: Nathan Wright
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464
 Phone#: 419-547-8538

Signature:

Soil Profile		Estimating Soil Saturation				Estimating Soil Permeability					
		Munsell Color (hue, value, chroma)		Redoximorphic Features		Texture		Structure			Other Soil Features
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Grade	Size	Type (shape)	
Fill 1	0.0 - 5.0	10YR 4/3	none	none	SiL	15	0	2 - mod	fine	gr	friable
Fill 2	5.0 - 7.5	10YR 4/4	none	5% 10YR 5/2	SiL	20	0	2 - mod	fine	sbk	firm
Ab	7.5 - 15.0	10YR 4/3	none	none	SiL	15	0	2 - mod	medium	gr	friable
Bt	15.0 - 25.0	10YR 5/3	15% 10YR 5/6	20% 10YR 5/2	SiCL	30	0	2 - mod	fine	sbk	friable
C	25.0 - 48.0	10YR 4/6	none	10% 10YR 5/2	SiCL	35	10	1 - weak	medium	sbk	firm
Limiting Conditions		Depth to (in.)	Descriptive Notes								
Perched Seasonal Water Table		5.0	Best Estimate in Fill								
Apparent Water Table		>48	ILR(>30mg/L) = 0.6 gal/day/ft ² , ILR(<30mg/L) = 0.8 gal/day/ft ²								
Highly Permeable Material		>48	HLLR = 2.7 gal/day/ft								
Bedrock		>60	4 bedroom min. required absorption area = 800 sq.ft.								
Other Restrictive Layer		>48	5xW Soil Absorption Box: 23"W x 178"L								

Remarks / Risk Factors: Values for Sand Mound
 Tyler Table: Fill 1 horizon (0.0 - 5.0) ILR: SiL , HLLR: SiL
 ILR(>30mg/L) = 0.6 gal/day/ft², ILR(<30mg/L) = 0.8 gal/day/ft²
 HLLR = 2.7 gal/day/ft
 4 bedroom min. required absorption area = 800 sq.ft.
 5xW Soil Absorption Box: 23"W x 178"L

Note : The evaluation shall include a complete site plan or site drawing including all requirements in paragraphs (B)(1) through (B)(4) of OAC 3701-29-08.

Landforms
Upland*
Terrace
Flood Plain
Lake Plain
Beach Ridge
*Includes glacial till plain and end moraine

Position on Landform
Depression
Flat
Knoll
Crest
Hillslope
Footslope

Shape of Slope
Convex
Concave
Linear
Complex

Horizon Nomenclature		
Master Horizons	Horizon Suffixes	Horizon Modifiers
O Predominantly organic matter (litter & humus)	a Highly decomposed organic matter	Numerical Prefixes: Used to denote lithologic discontinuities.
A Mineral, organic matter (humus) accumulation, loss of Fe, Al, clay	b Buried genetic horizon	
E Mineral, loss of Si, Fe, Al, clay, organic matter	d Densic layer (physically root restrictive)	Numerical Suffixes: Used to denote subdivisions within a master horizon.
B Subsurface accumulation of clay, Fe, Al, Si, humus; sesquioxides; loss of CaCO ₃ ; subsurface soil structure	e Moderately decomposed organic matter	
C Little or no pedogenic alteration, unconsolidated earthy material, soft bedrock	g Strong gley	
R Hard bedrock	i Slightly decomposed organic matter	
	p Plow layer or artificial disturbance	
	r Weathered or soft bedrock	
	t Illuvial accumulation of silicate clay	
	w Weak color or structure within B	
	x Fragipan characteristics	

Soil Texture	
Texture Class Abbreviations	Textural Class Modifiers
Course Sand cos	Gravelly GR
Sand s	Fine Gravelly FGR
Fine Sand fs	Medium Gravelly MGR
Very Fine Sand vfs	Coarse Gravelly CGR
Loamy Coarse Sand lcos	Very Gravelly VGR
Loamy Sand ls	Extremely Gravelly XGR
Loamy Fine Sand lfs	Cobbly CB
Loamy Very Fine Sand lvfs	Very Cobbly VCB
Coarse Sandy Loam cosl	Extremely Cobbly XCB
Sandy Loam sl	Stony ST
Fine Sandy Loam fsl	Very Stony VST
Very Fine Sandy Loam vfsl	Extremely Stony XST
Loam l	Bouldery BY
Silt Loam sil	Very Bouldery VBY
Silt si	Extremely Bouldery XBY
Sandy Clay Loam scl	Channery CN
Clay Loam cl	Very Channery VCN
Silty Clay Loam sicl	Extremely Channery XCN
Sandy Clay sc	Flaggy FL
Silty Clay sic	Very Flaggy VFL
Clay c	Extremely Flaggy XFL

*Estimate approximate clay percentage within 5 percent

Soil Structure					
Grade	Size	Type (Shape)			
Structureless 0	Very Fine vf	Granular	gr		
Weak 1	Fine f	Angular Blocky	abk		
Moderate 2	Medium m	Subangular Blocky	sbk		
Strong 3	Coarse co	Platy	pl		
	Very Coarse vc	Prismatic	pr		
	Extr. Coarse ec	Columnar	cpr		
	Very Thin* vn	Single Grain	sg		
	Thin* tn	Massive	m		
	Thick* tk	Cloddy	CDY		
	Very Thick* vk				

* The sizes Very Thin, Thin, Thick, and Very Thick, are used when describing platy structure only. Substitute thin for fine, and thick for coarse when describing platy structure.

Moist Consistence	
Loose	l
Very Friable	vfr
Friable	fr
Firm	fi
Very Firm	vfi
Extremely Firm	efi

For a more detailed explanation on describing and sampling soils, please refer to the "Field Book for Describing and Sampling Soils" Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors) 2002. Field book for describing and sampling soils, version 2.0. Natural Resources Conservation Service, USDA, National Soil Survey Center, Lincoln, NE.

GEOPHYTA

7-Sep-20

Sharon Todd
7515 E.T.R. 58
Bloomville, OH 43818

RE: Replacement HSTS Site/Soil Evaluation for 7515 E.T.R. 58, Bloomville, OH, Bloom Twp., Seneca County

Sharon,

This is a follow-up letter to an HSTS Site/Soil Evaluation performed on 3-Sep-20 at the above property.

This soil evaluation revealed the presence of 38.0 ft. of available soil along slope for a replacement septic absorption area, after all county setbacks are honored. This site represents a very high failure risk for on-site treatment and absorption of septic effluent. There was not enough undisturbed soil area to support on-site septic effluent treatment and absorption. For this reason, any on-site septic absorption system will fail.

The only option that remains is an NPDES treatment system as permitted by the Ohio EPA.

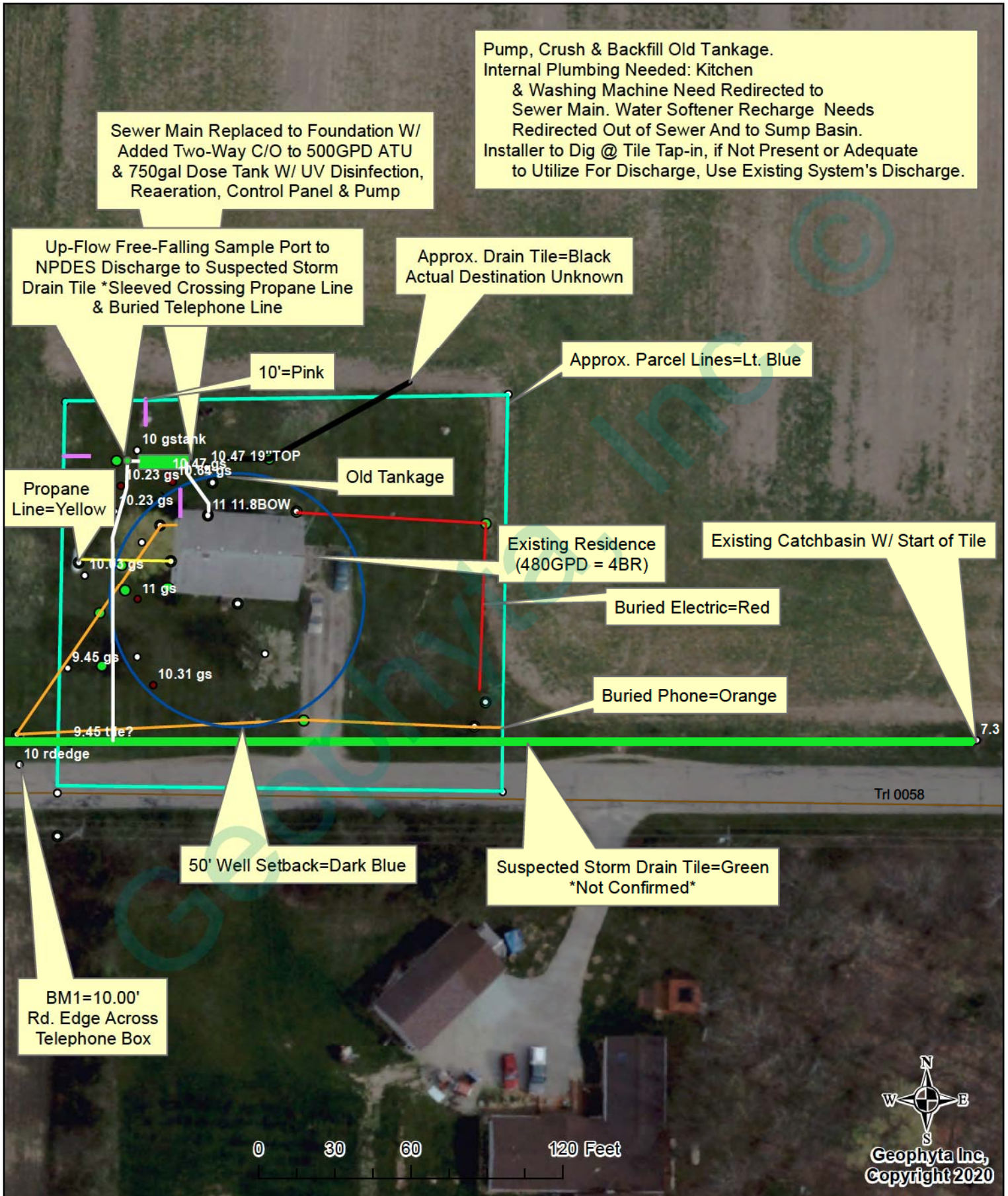
Sincerely,

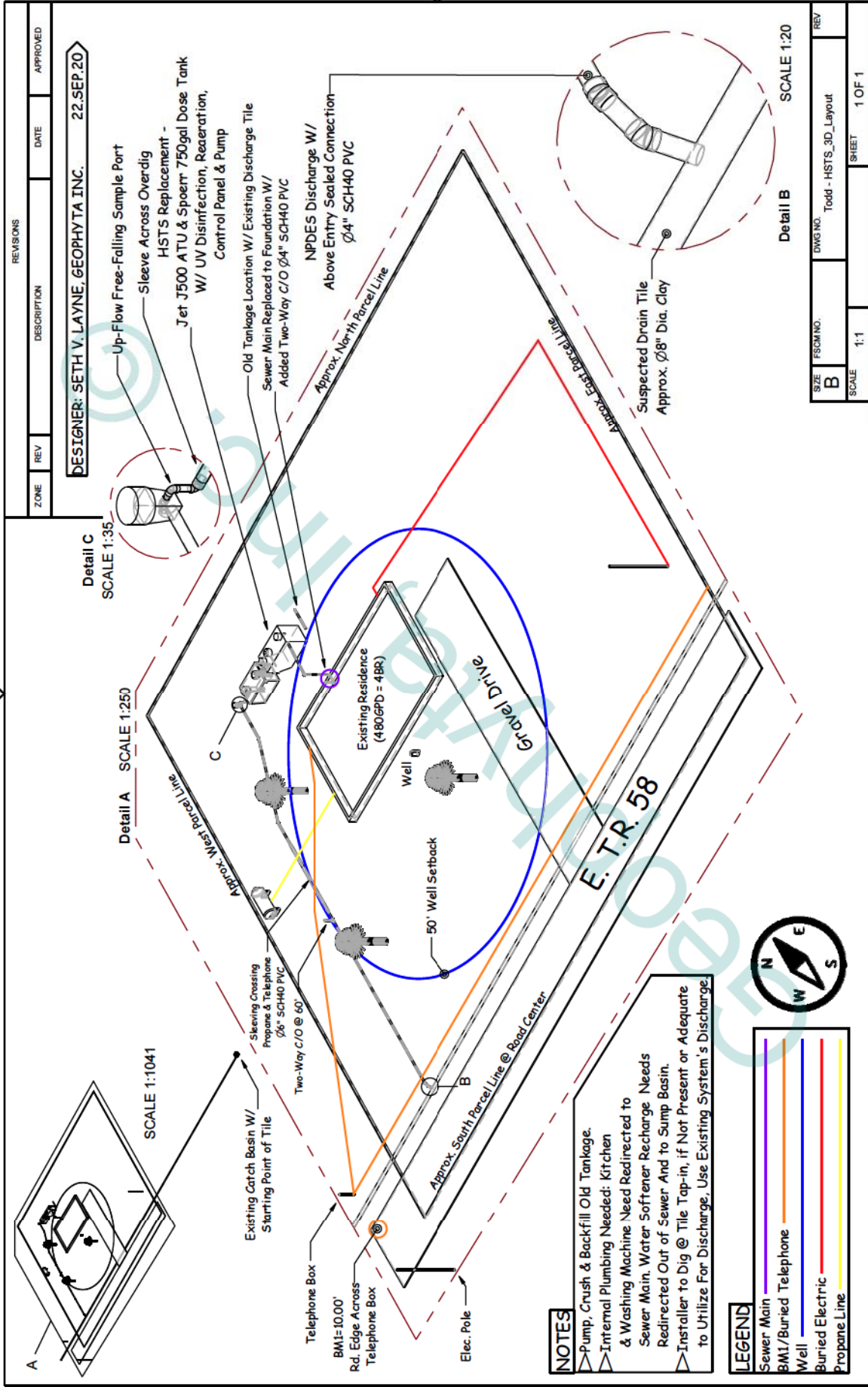


Nathan Wright

Certified Soil Scientist, CPSS-19395

HSTS Replacement Layout - 7515 E. T.R. 58





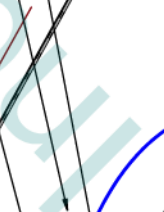
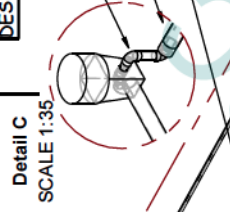
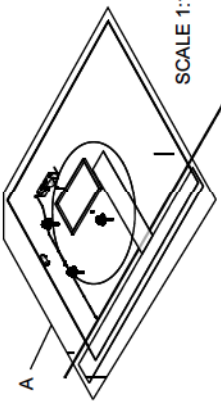
REVISIONS		
ZONE	REV	DESCRIPTION
		DESIGNER: SETH V. LAYNE, GEOPHYTA INC.
		DATE: 22.SEP.20
		APPROVED

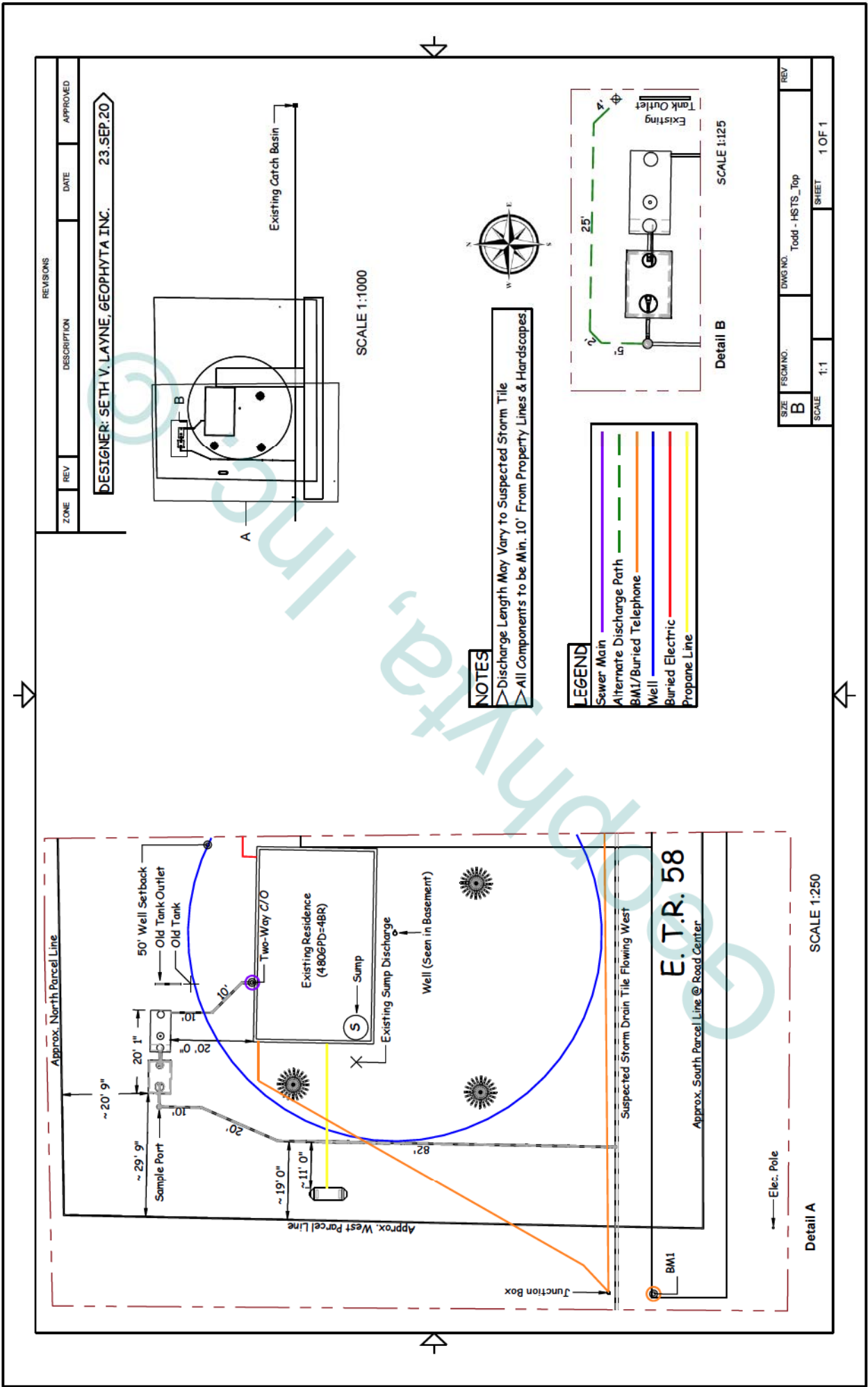
SIZE	FSCM NO.	DWG NO.	REV
B		Todd - HSTS_3D_Layout	
SCALE	1:1	SHEET	1 OF 1

- NOTES**
- ▶ Pump, Crush & Backfill Old Tankage.
 - ▶ Internal Plumbing Needed: Kitchen & Washing Machine Need Redirected to Sewer Main. Water Softener Recharge Needs Redirected Out of Sewer And to Sump Basin.
 - ▶ Installer to Dig @ Tile Tap-in, if Not Present or Adequate to Utilize For Discharge, Use Existing System's Discharge.

LEGEND

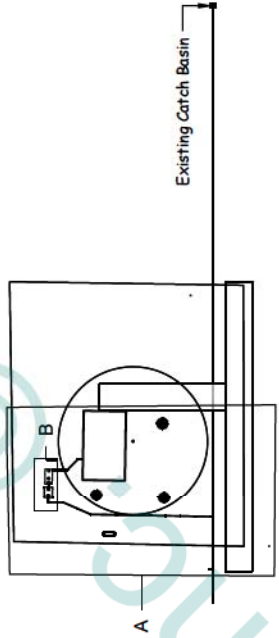
	Sewer Main
	BM1/Buried Telephone
	Well
	Buried Electric
	Propane Line





REVISIONS			
ZONE	REV	DESCRIPTION	DATE

DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 23.SEP.20



SCALE 1:1000

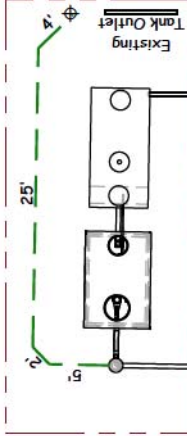


NOTES

- Discharge Length May Vary to Suspected Storm Tile
- All Components to be Min. 10' From Property Lines & Handscapes

LEGEND

—	Sewer Main
-	Alternate Discharge Path
-	BM1/Buried Telephone
-	Well
-	Buried Electric
-	Propane Line



SCALE 1:125

Detail B

SIZE	ESCM NO.	DWG NO.	Todd - HSTS_Top	REV
B				

SCALE 1:250

Detail A

SHEET 1 OF 1

REVISIONS		
ZONE	REV	DATE
		23.SEP.20

DESIGNER: SETH V. LAVNE, GEOPHYTA INC.

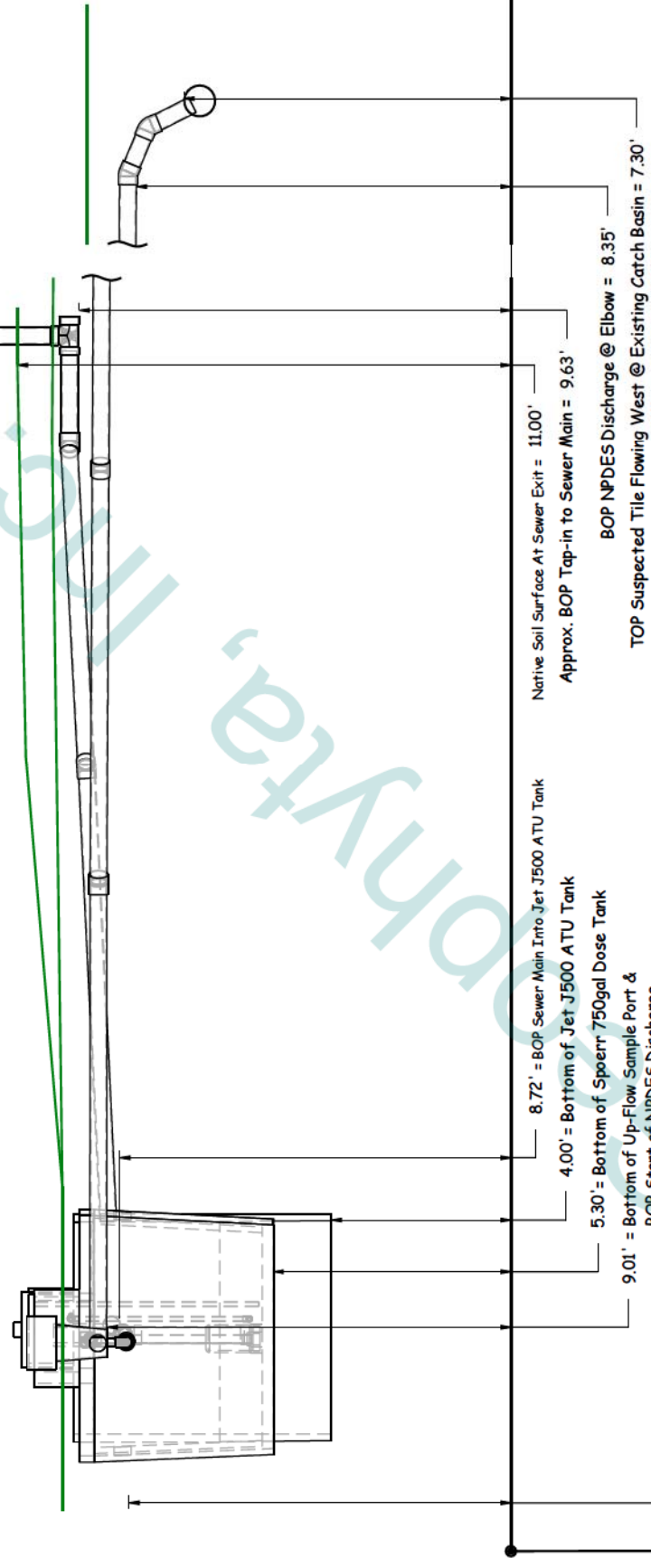
VIEW POINT
ELEVATION VIEW - WEST TO EAST
SOUTH →

- NOTES**
- △ Sewer Main to Have Suggested Fall or Min. .125"/1'
 - △ NPDES Discharge to Have Suggested Fall or 1"/100'

LEGEND

- Native Soil Surface
- Zero Elevation Reference

* ALL RISERS TO BE ABOVE GRADE*

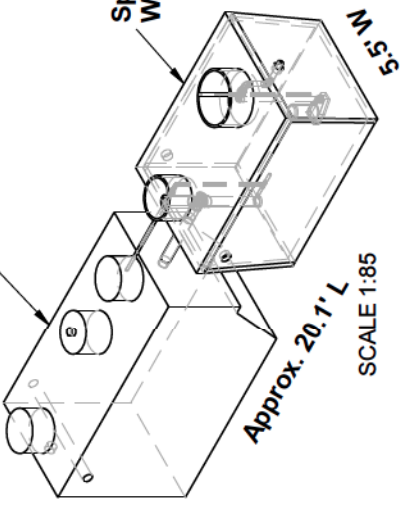


SIZE	FSCM NO.	DWG NO.	REV
B		Todd - HSTS_Elevation	
SCALE	1:1	SCALE 1:30	SHEET 1 OF 1

ZERO ELEVATION REFERENCE
BM.1=10.00' RD EDGE ACROSS TELEPHONE JUNCTION BOX

REVISIONS		
ZONE	REV	DESCRIPTION
		Drawn By Nathan Wright, Geophyta Inc.
		DATE 26-Jun-17
		APPROVED

Jet J500 ATU tank



Spoerr 750 gal Pump Tank
W/UV Disinfection & Re-Aeration

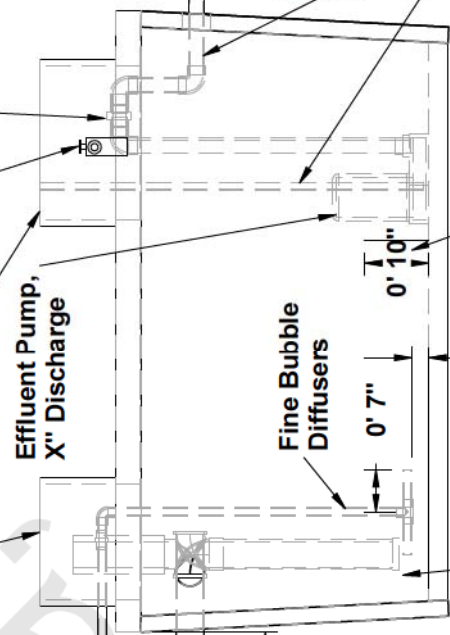
Tank Interior Petcock
Sampling Port.
(See Detail Photo)

Risers As Grade Requires;
6, 12, 18, or 24"

1/2" Dia. Sch40
Air Delivery Tube

Risers As Grade Requires;
6, 12, 18, or 24"

4" Dia. Sch40 PVC



Jet J500 Aeration Treatment Unit
(See Jet Manufacturer Print For Detail)

4' 9"

2' 0"

4' 6"

Actual Distance & Individual
Connectors May Vary
Depending On Site Needs -
Site Drawings Take Precedence.

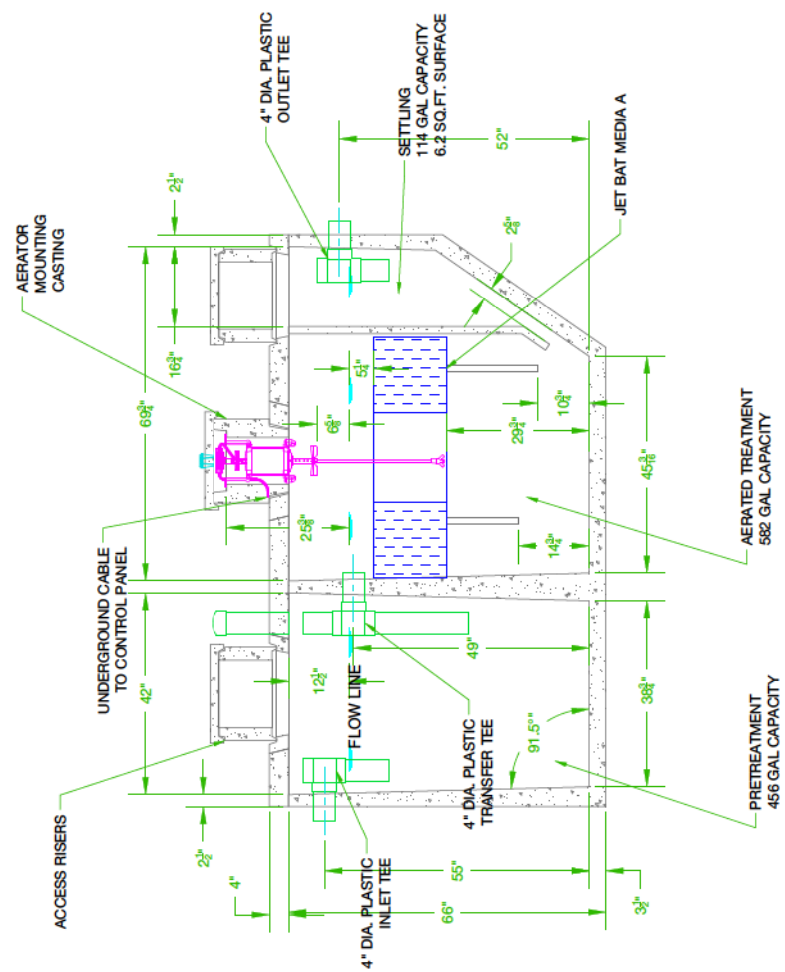
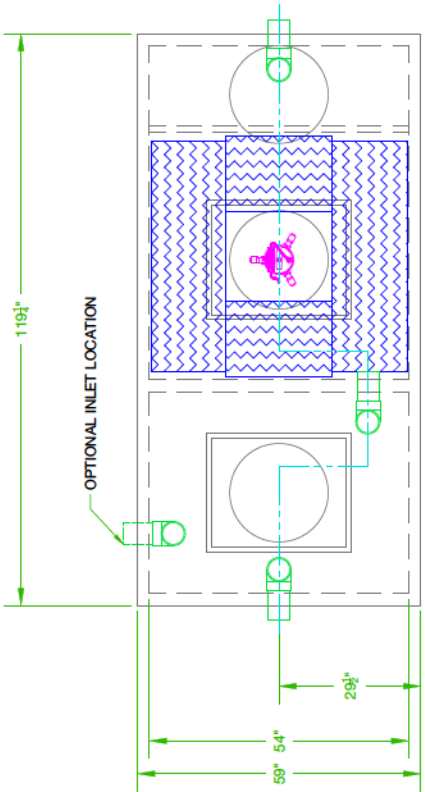
Jet M952 UV Disinfection Device

SCALE 1:30

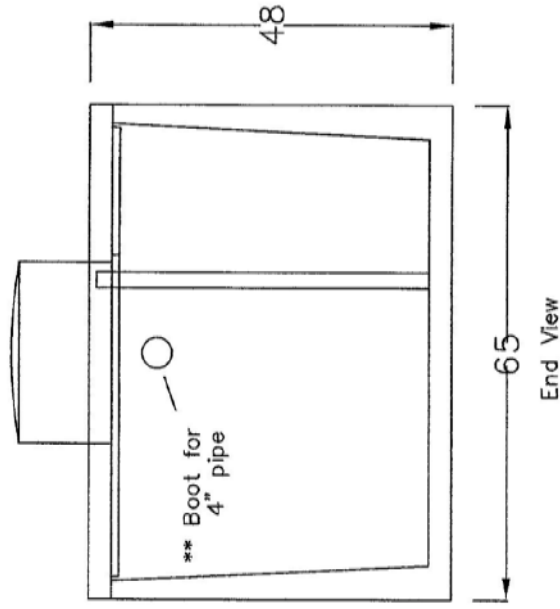
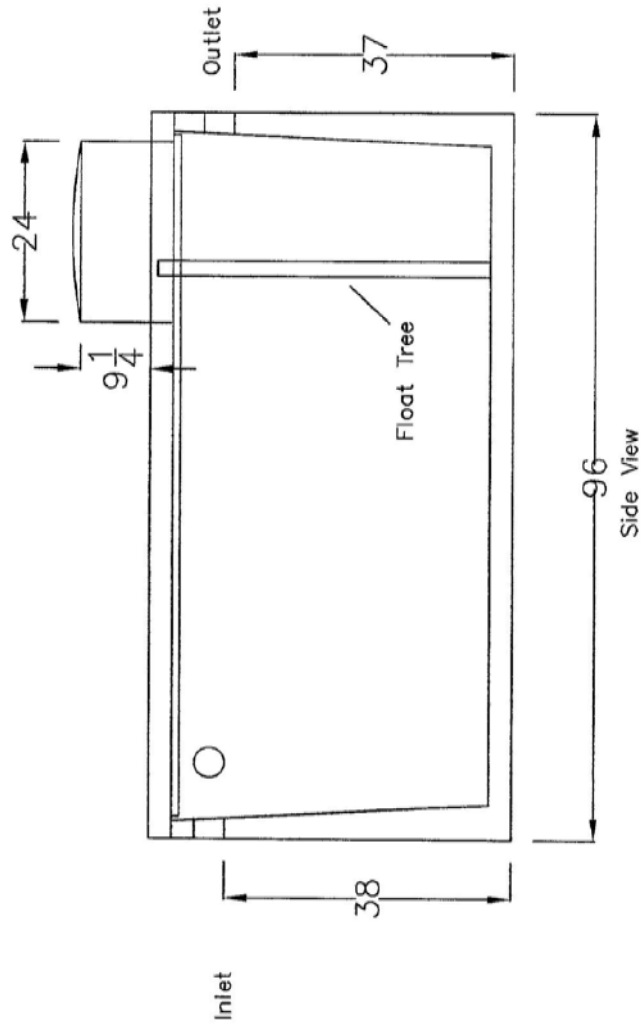
See Bill Of Materials For All Component Details

SIZE	FSCM NO.	DWG NO.	REV
A		Jet J500-P750-RAD W/750 gal Pump Tank W/Sample Petcock	
SCALE	1:1	SHEET	1 OF 1

- NOTES:
1. AERATOR MODEL 700LL MUST BE USED IN CONTINUOUS OPERATION
 2. DEVELOP RISERS TO GRADE OR WITHIN 12" BELOW GRADE
 3. PLASTIC RISERS CAST INTO THE TANK LID MAY BE USED IN PLACE OF CONCRETE RISERS



REV/EON/DATE	1407/08/14/14	REDRAWN	N J K
DESCRIPTION	Jet® Wastewater Treatment Solutions <i>Founded on Innovation. Anchored by Service.™</i>		
DRAWN BY:	N J K	DATE	08/14/14
APPROVED BY:		DATE:	
MATERIAL:			
SCALE:	1 : 20		
SIZE:	G		
UNLESS OTHERWISE SPECIFIED:	ALL DIMENSIONS ARE IN INCHES		
DECIMAL:	± .005		
FRACTIONAL:	± 1/64		
DEGREE:	± 1°		
USED ON:	J-500 RESIDENTIAL WWTP ONE PIECE TANK CASTING		
DRAWING NUMBER:	J-500		
PROPERTY OF JET INC. AND MAY NOT BE REPRODUCED, COPIED OR USED WITHOUT WRITTEN PERMISSION.	REV: -		



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Spoerr Precast Concrete Inc.
 2020 Caldwell St
 Sandusky, OH 44870
 800-252-5205

Concrete 4500 PSI @ 28 Days
 Max cover on top of tank 48"
 Inlet/Outlet boots for 4" pipe
 Boots meet ASTM C923
 Sealant: Meets ASTM C990
 **Optional 4x2 slip reducer available
 22.3 gallon/inch

750 Gallon Pump Tank
 Excavation 6' 6" x 9'

	09/22/09		

UV Disinfection Lamp

Item	Part Number
UV Disinfection Lamp Assembly	9520034
Replacement UV lamp	9990115
UV Control Panel Assembly	9520038

Specifically designed to disinfect the effluent from small aerobic treatment plants, the Ultraviolet Disinfection Unit can reduce fecal coliform bacteria levels to well below the most stringent U.S. treatment standards, even when the upstream treatment plant is operating in a mild upset condition. Designed to disinfect residential wastewater, UV disinfection units are safe and harmless. There are no adverse effects from overexposing the effluent to germicidal ultraviolet light because UV disinfection does not form by-products.

The disinfection chamber couples directly to the aerobic plant 4" discharge pipe and is permanently installed below grade. When fully inserted, the sub-assembly is properly positioned by pins mounted near the top of the disinfection chamber. This well-defined flow path gives the proper fluid exposure time.

The light source is mounted in the center of an anodized aluminum frame that divides the disinfection chamber in half. The frame seals against the inner surface of the disinfection chamber and prevents flow by-pass. To control the lamp's surface temperature, the ultraviolet light is surrounded by a clear fused quartz tube. When the disinfection chamber is filled with water, the ultraviolet light can operate continuously, whether or not water is flowing. Continuous operation within a lamp surface temperature range of 105-120° F provides optimum ultraviolet light output and long lamp life.

The disinfection sub-assembly, which extends approximately one foot above grade, is watertight. This protects the electrical connections against a fluid backup that could cause the wastewater effluent level to rise to the maximum height of the upstream treatment plant.

The UV system operates on 120vAC and consumes less than 25 Watts. A green LED indicator on the junction box confirms the operating status of the UV system.

Maximum flow through the unit is rated at 3 gallons per minute (gpm), or 4,320 gallons per day (gpd), with the following effluent conditions:

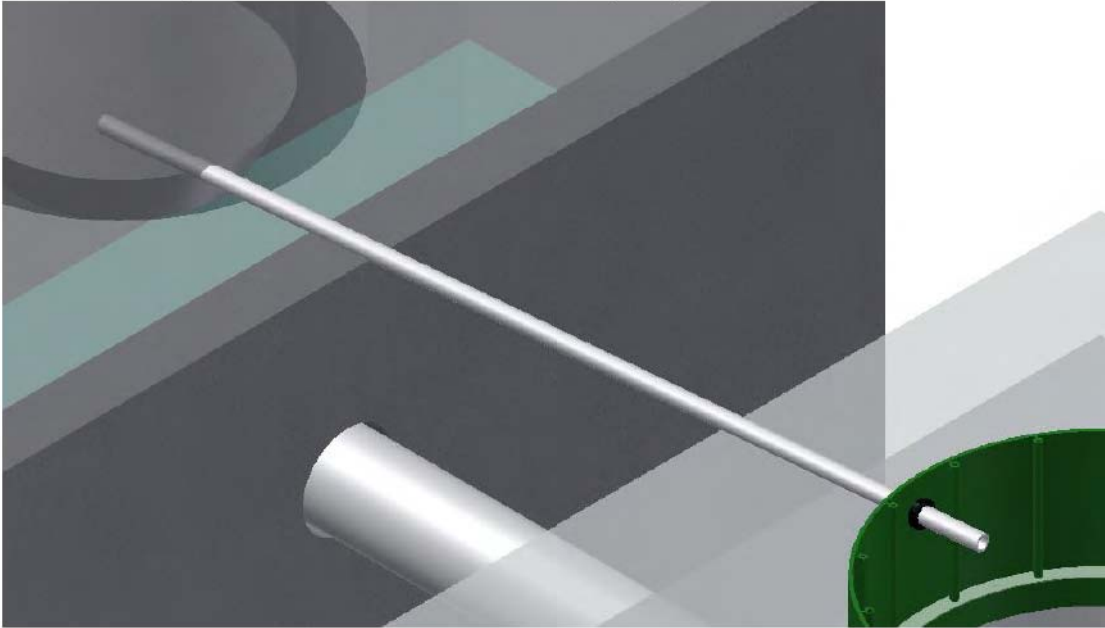
Suspended Solids < 30 mg/liter - 5-day BOD < 30 mg/liter

Under the above conditions, fecal coliform reduction exceeds 3-logs, or 99.9%, at the end of the UV lamp life (one year of continuous operation).

Fecal coliform counts in the home aerobic treatment effluent typically range from 800 - 20,000 colony-forming units (CFU) per 100ml. CFUs measure viable fungal and bacterial cells.



1. Install the treatment system and pump tank to be aerated.
2. Install the compressor in a dry, vented enclosure. The clarifier access riser may be used as the enclosure if a removable baseplate and vents are placed in the riser.
3. Use the provided ½" pipe to run between the compressor enclosure and the access riser for the pump tank. If necessary, use the black grommets to seal around the pipe where it leaves the compressor enclosure or enters the pump tank.



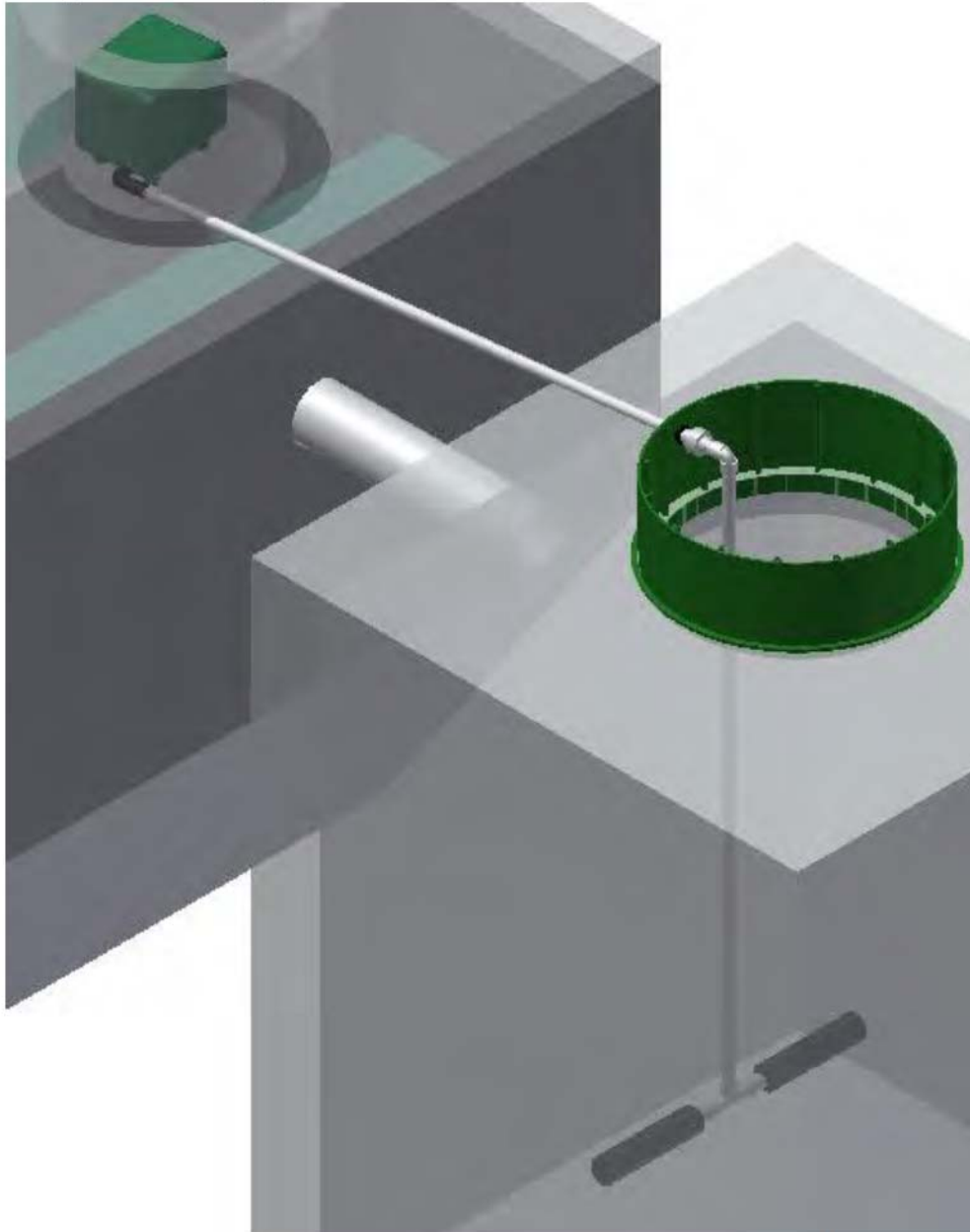
4. Glue the threaded adapter to the end of the ½" pipe in the enclosure. Connect one end of the black hose provided with the compressor to the compressor and the other end to the threaded adapter. Secure both ends with the spring clips provided with the compressor.



5. Glue the union to the compressor pipe in the pump tank.
6. Using a short piece of ½" pipe connect the ½" elbow to the union on the compressor pipe.
7. Using thread seal tape, thread the diffusers to each end of the tee assembly.



8. Glue one of the two long pipes to the sidearm of the tee.
9. Place the diffuser assembly in the pump tank and glue the top of the long pipe to the elbow on the air supply line. The diffusers should be about 3" off the bottom of the tank, cut drop pipe to length if necessary.



10. Run power conduit to the compressor enclosure. The compressor will require a single phase 120 volt power source. The provided cord grip may be used to run the compressor power cord into a watertight junction box to make connections.

Jet Inc. Model 197 Control Panel Installation and Users Manual

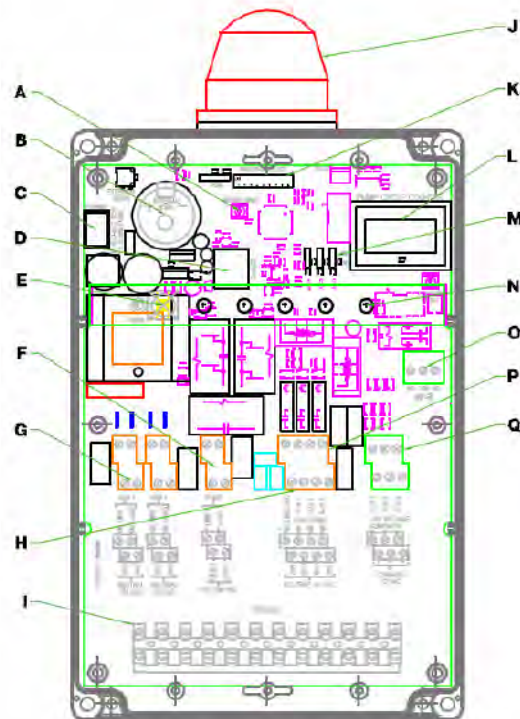
The Jet Incorporated Aerator control panel monitors and controls the operation of Jet system aerators and additional components. The panel can be configured to control single or dual aeration systems. A single aerator system controls the operation of one aerator. A dual aerator system can control two aerators, or one aerator and one re-aeration compressor.

In addition to the aerator control circuits, the control panel also contains the following circuits or features:

- Two aerator/compressor control circuits
- Two auxiliary available output circuits
- Three auxiliary input circuits with normally open or normally closed selection
- One power indicator LED, and four additional error indicator LED's
- An alarm buzzer with circuit board provision for an alternate or externally mounted buzzer
- A 9-position DIP switch for selection of configuration options
- User accessible reset switch and circuit board master reset switch
- Alarm mode Auto-Dialer power and control interface
- Circuit board mounted power switch and fuse
- Dry contact for Jet Wi-Fi messenger or cellular.

Control Panel Features

- A. Master Reset Button
- B. Internal Horn
- C. On/Off Switch
- D. Optional Dialer Interface
- E. External Reset Button
- F. Pump Power Supply Contacts
- G. Aerator Power Supply Contacts
- H. Alarm Power Supply Contacts
- I. Ground Buss
- J. Central Alarm Beacon
- K. DIP Switch Array
- L. Event Counter (Optional)
- M. Auxiliary Alarm Settings (NC/NO)
- N. Indicator Light Array
- O. Optional Wi-Fi Alarm Contacts
- P. Auxiliary Output Contacts
- Q. Auxiliary Input Contacts



Demand Dosing Calculations to Up-Flow Sample Port			
Owner: Todd	Design		
	Target	Comment	
Main Design:			
Flow Rate Total (gpm)	42.0	Approx. Value	
Diameter (in)	1.50	SCH40 PVC	
Length (ft)	4.1667	Includes All Drainback Piping	
Gal. per Foot of Pipe (Clemons, 1991)	0.106		
Total Main Volume (gal)	0.44		
# Std 90deg Elbows	5		
Std 90deg Elbow Pipe Length Equivalent (ft)	8.0		
# Std 45deg Elbows	0		
Std 45deg Elbow Pipe Length Equivalent (ft)	3.0		
# Std Tees	0		
Std Tee Pipe Length Equivalent (ft)	9.0		
# Quick Disconnects	1		
Quick Disconnect Pipe Length Equivalent (ft)	1.0		
# Full Flow Ball Valves	0		
Ball Valves Pipe Length Equivalent (ft)	0.9		
Total Length Equivalent (pipe&fittings) (ft)	45.2		
Head Loss per 100 ft.(ft.)(Otis et al, 1978)(Zoeller)	8.90		
Total Main Head Loss (ft)	4.02		
Dose Volume:			
Drainback Volume: Main (gal)	0.4		
Dose Volume (gal)	60.0		
TOTAL dose (gal)	60.4		
Daily Design Flow (DFR)(120gal/day/bedroom)	480.0		
Is Dose <=1/4 of Daily Design Flow?	yes		
Is Dose <1/8 of Daily Design Flow?	no		
Total Dynamic Head:			
Static Lift - Main Ht. Above Surface (ft)	0.00	-	
Static Lift - Depth to Pump Off Below Surface (ft)	3.61	4.44 - .83	
Static Lift - Topo Difference (ft.)	-0.5	-	
Total Pipe & Fittings Headloss (ft)	4.0	-	
Network Loss (5ft head x 1.3) (ft)(includes laterals)	0.0	-	
Total Head Loss (ft)	7.1		
Dose Tank Parameters			
Volume (gal)	750	34.0	inches effluent
Gallons Per Inch in Tank	22.30		
Demand Dose Settings:			
Total Gallons Per Pump Cycle	60.4	2.71	inches
Avg. Pump Cycles Per 24 Hrs.	8.0		
Avg. Pump On Time - seconds	86		
Avg. Pump Off Time - hours	3.0		
Pump Off Effluent Ht. from bottom (in)	10.0	(to prevent tank flotation)	
Pump On Effluent Ht. from Bottom (in)	12.7		
High Level Alarm Ht. from bottom (in.)	16.7	0.8	= days reserve after alarm

Every pump tested in water to ensure pump meets performance curve.



FEATURES/BENEFITS

PERFORMANCE

- Heads up to 20' TDH
- Flows up to 42 GPM

MOTOR

- High efficient, 115v, oil filled, permanent split capacitor motor with upper and lower ball bearings and thermal overload protection
- Constant bearing lubrication
- Maximum motor cooling
- Runs cooler and lasts longer
- Internal overload protection
- Quiet operation
- Fasteners and shaft made from rugged, corrosion resistant stainless steel

SEAL DESIGN

- Mechanical with secondary dynamic lip seal
- Provides added leakage protection

IMPELLER DESIGN

- Non-clog style vortex impeller
- Designed to help reduce clogging by foreign material

POWER CORD

- Sealed entry quick disconnect power cords
- Prevents water from entering the motor housing through a cut cord
- Available in lengths up to 100'

SWITCH

- Piggy-back switch design
- Defective switches can be diagnosed over the phone
- Pump can be operated manually or supplied with other piggy-back switches
- Switch can be replaced without having to replace the pump

APPLICATIONS

Basements, dewatering, and septic systems



Wide-Angle Float

Vertical Float

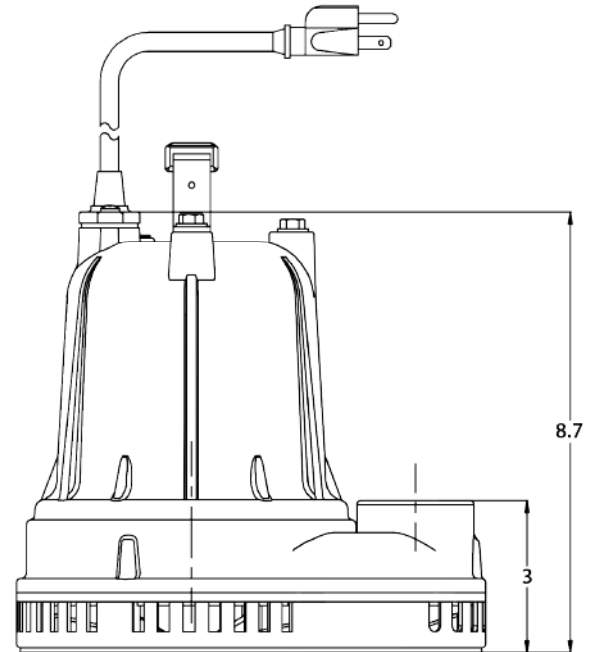
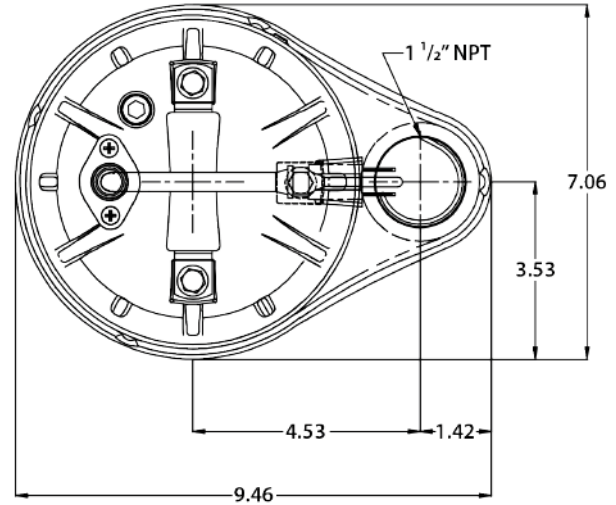
1/3 HP submersible pumps, built for reliability, handle up to 1/4" solids with 1 1/2" discharge

PERFORMANCE CURVE



TECHNICAL DATA

DISCHARGE	1-1/2" NPT. vertical standard
SOLIDS HANDLING	1/4"
LIQUID TEMPERATURE	140 Degrees F. (Intermittent)
MOTOR HOUSING	Cast Iron
VOLUTE	Cast Iron
SEAL PLATE	Cast Iron
IMPELLER	Engineered glass filled thermoplastic/ Vortex
SHAFT	Nickel plated steel
SHAFT SEAL (SINGLE SEAL)	Mechanical with secondary dynamic lip seal, carbon rotating face, ceramic stationary face, Buna-N elastomer, 300 series stainless steel hardware
BEARINGS (UPPER & LOWER)	Single row, ball, oil lubricated
HARDWARE	300 Series stainless steel
O-RINGS	Buna-N
CORD	10' Length standard. Up to 100' available. (UL/CUL) Listed 16 AWG, Type SJTW
MOTOR (SINGLE PHASE)	1/3 HP 1750 RPM, 60 Hz, NEMA L Includes overload protection in the motor, oil filled, class B permanent split capacitor
WEIGHT	25 lbs. (Manual)



MODEL(S) INFORMATION

MODEL	HP	VOLTS	PHASE	AMPS	CORD LENGTH	SWITCH
CPS3-11	1/3	115	1	4	10'	Manual
CPS3-12	1/3	115	1	4	20'	Manual
CPS3-13	1/3	115	1	4	30'	Manual
CPS3-15	1/3	115	1	4	50'	Manual
CPS3A-11	1/3	115	1	4	10'	Wide-Angle Float
CPS3A-12	1/3	115	1	4	20'	Wide-Angle Float
CPS3A-13	1/3	115	1	4	30'	Wide-Angle Float
CPS3V-11	1/3	115	1	4	10'	Vertical Float
CPS3V-12	1/3	115	1	4	20'	Vertical Float
CPS3V-13	1/3	115	1	4	30'	Vertical Float

Re-Aeration Tank Interior Sampling Petcock for NPDES Systems



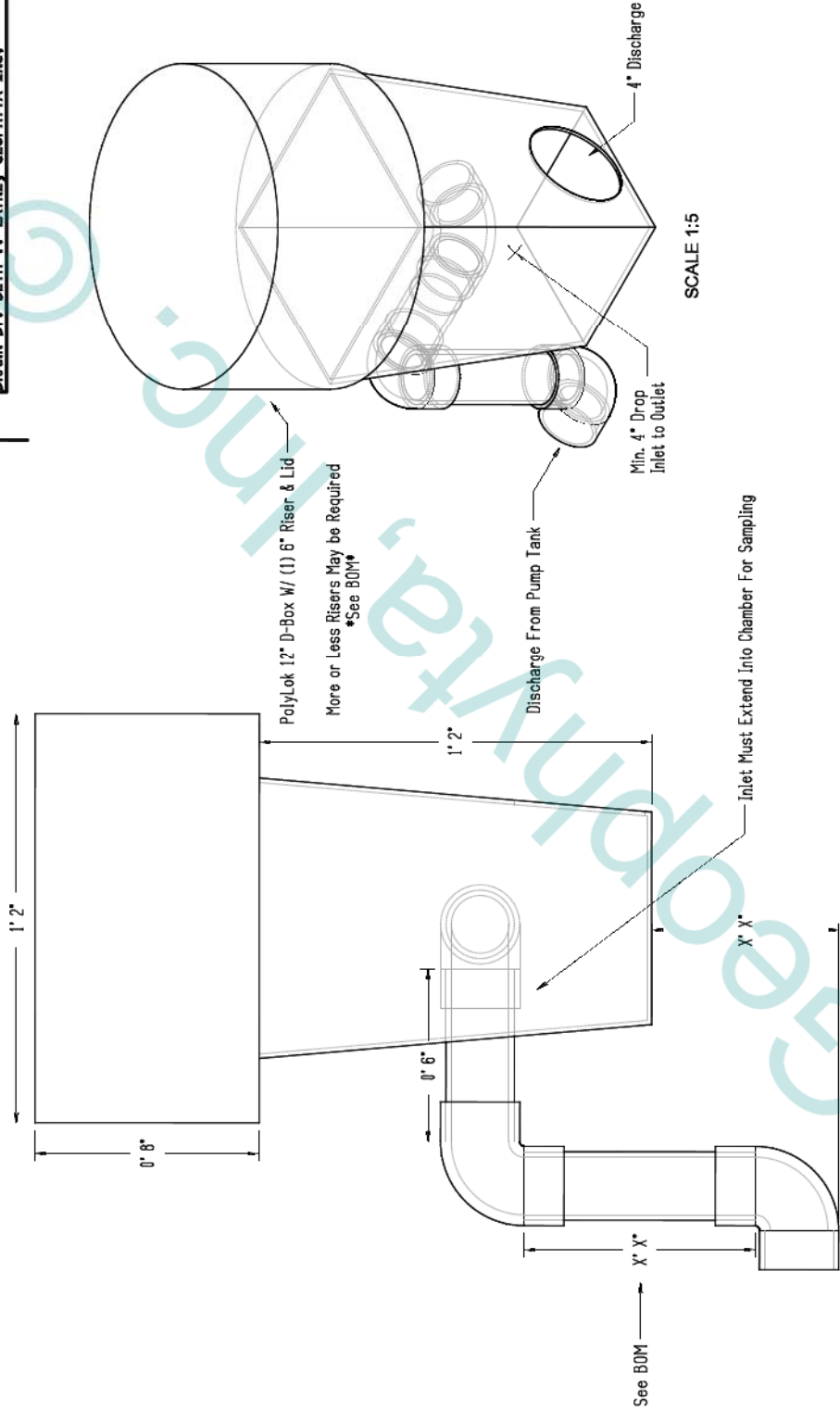
This photo is of a sampling petcock located inside the re-aeration tank riser. For convenience, it is mounted on the “gooseneck” pipe riser, just before the union quick disconnect.

This unit is an approved substitute for a free falling sample port where effluent discharge cannot be accomplished with a gravity discharge line.

Strict adherence to sampling techniques and protocols are required.

Install, operate, maintain, and sample in accordance with applicable statutes, regulations, practices, requirements, restrictions, and prohibitions.

REVISIONS		
ZONE	REV	DATE
DRAWN BY: SETH V. LAYNE, GEOPHYTA INC. 29.AUG.19		



SIZE	FSCM NO.	DWG NO.	REV
B			
Upflow Force Main to Free-Falling Sample Port			
SCALE	1:1	SHEET	1 OF 1

Bill of Materials - 7515 E. T.R. 58, HSTS Replacement - NPDES Jet-J500 ATU & Spoerr 750gal Dose Tank W/ UV Disinfection & Reaeration				
Quantity	Part Name	Section	Comment	
1	SCH40PVC1.5inchTwo-Way Cleanout Tee 5x5xS	Sewer Main Replaced to Foundation	Two-Way Cleanout (Tee)	
1	SCH40PVC4inchpipe2ft.		Two-Way Cleanout (Tee to Cap)	
1	SCH40PVC4inchCap		Two-Way Cleanout (Cap)	
2	SCH40PVC4inch45DegreeEl		See Design	
1	SCH40PVC4inchpipe5ft.			
2	SCH40PVC4inchpipe10ft.			
1	Pretreatment Tank	Jet J500 ATU Tank or Equiv. W/ 12" Risers		
1	SCH40PVC4inchpipe3ft.	ATU to Dose		
1	Dose Tank	Dose Tank	Spoerr 750gal Dose Tank or Equiv. W/ 12" Risers	
1	UV Disinfection Lamp	UV Disinfection Lamp	Jet Model No. 9520034 UV Lamp	
1	SCH40PVC1.5inchUnionSxS	Reaeration Assembly	Quick Disconnect	
1	SCH40PVC1.5inchTeeSxSxS			
1	SCH40PVC1.5inch90DegreeEl			
1	SCH40PVC1.5inchpipe4.6inch			
1	SCH40PVC1.5inchpipe4.0ft.			
1	SCH40PVC1.5inchpipe2.25inch			
2	SCH40PVC1.5inchpipe5.8inch			
1	Jet Model 197 Panel (Pump Lockout, Visual/Audible Alarm)		ATU, Reaeration & Pump Controller	Jet Model No. 197 Control Panel W/ Event Counter
~30 ft.	2 conductor w/ground, 14 gauge UG wire		Pump Circuit; Standalone Breaker	
~30 ft.	2 conductor w/ground, 14 gauge UG wire			Alarm Circuit, Added To House Lighting Breaker
~30 ft.	Plastic conduit, to contain 6-14ga	Pump & Alarm Circuit		
1	SCH40PVC1.5inchQuick Disconnect	Dose Pump Assembly	(Allow Pump Removal/Replacement)	
1	SCH40PVC1.5inchCheck Valve		Air-Lock Hole Between Check Valve & Pump	
1	Petcock Sampling Port For 1.5inch Discharge		Before Quick Disconnect	
1	SCH40PVC1.5inchpipe5ft. L. Float Tree		Float Tree	
1	Effluent Pump1.5inchNPT 0.3HP	Champion CPS3-11 Effluent Pump or Equiv.		
1	SCH40PVC1.5inchAdapter MNPT to Soc		Pipe Adapter to Pump	
1	SCH40PVC1.5inchpipe12inch W/ 0.25" Weephole		1/4" Weep Hole	
2	SCH40PVC1.5inch90DegreeEl		See Detail Print	
2	SCH40PVC1.5inchpipe3inch	Upflow Force Main to Sample Port		
1	SCH40PVC1.5inchpipe6.5inch			
1	SCH40PVC1.5inchpipe40inch			
1	SCH40PVC1.5inchCoupler			
3	SCH40PVC1.5inch90DegreeEl			
1	SCH40PVC1.5inchpipe6inch	See Detail Print		

1	SCH40PVC1.5inchpipe8inch			
1	SCH40PVC1.5inchpipe2ft.			
1	SCH40PVC4inchpipe2ft.		Force Main to Sample Port Sleeve	Sleeve Across Tank Overdig if Necessary
1	PolyLok 12" D-Box W/ (1) 6" Riser W/ Insulated Lid		Free-Falling Sample Port	
1	SCH40PVC4inchTwo-Way Cleanout Tee 5x5x5			Two-Way Cleanout (Tee)
1	SCH40PVC4inchpipe2ft.			Two-Way Cleanout (Tee to Cap)
1	SCH40PVC4inchCap			Two-Way Cleanout (Cap)
6	SCH40PVC4inchCoupler			
3	SCH40PVC4inch22.5DegreeEl			
1	SCH40PVC4inch45DegreeEl			
2	SCH40PVC4inchpipe1ft.L			
11	SCH40PVC4inchpipe10ft.L			
1	SCH40PVC6inchCoupler			
2	SCH40PVC6inchpipe10ft.L		Discharge Sleeve Crossing Propane & Buried Telephone Line	See Design
2	SCH40PVC4inchCoupler			
3	SCH40PVC4inch45DegreeEl			
1	SCH40PVC4inchWye Fitting or Similar to Attach			
1	SCH40PVC4inchpipe2ft.L		Alternate Path to Existing Tanks Outlet if Suspected Tile is Not Present or Adequate to Utilize	Length May Vary
1	SCH40PVC4inchpipe4ft.L			
2	SCH40PVC4inchpipe5ft.L			
2	SCH40PVC4inchpipe10ft.L			
Additional Notes				
Internal Plumbing Needed: Kitchen & Washing Machine Need Redirected to Sewer Main. Water Softener Recharge Needs Redirected Out of Sewer And to Sump Basin.				
Installer to Dig @ Tile Tap-in, if Not Present or Adequate to Utilize For Discharge, Use Existing System's Discharge.				
Pump, Crush & Backfill Old Tankage				
-	Grass Seed		2 lbs./1000 ft.^2 K. Bluegrass	
-	Straw Mulch For Grass Establishment		Homeowner's Choice	Tankage & Piping
-	Grass Establishment Fertilizer		10 lbs. 20-10-10/1000 ft.^2	
****Call OUPS before you dig.***				
Installer substitution of materials not specified in this Bill Of Materials may void Health Dept. approval of this design and will result in a re-design fee and is the sole responsibility of the installer.				
Design Prints Take Precedence Over This Bill of Materials. This is a best estimate of materials required and is provided as a convenience to installers. This BOM is not required for design.				

Operation and Maintenance Procedures

Home Septic Treatment Systems With Processing Through An Aeration Treatment Unit, Disinfection, And Effluent Discharge

Home septic treatment systems are biologically based systems. They rely on both anaerobic and aerobic microorganisms to process human waste. These systems may utilize processing, storage, and pumping tanks. Also, the processed effluent may be disinfected before discharge to a storm drain, ditch, or stream. In some cases, a soil absorption component, the leachfield, also processes, treats, and disperses septic effluent. Any abuse of this biological treatment system will result in less efficient sewage treatment and early failure of your new system.

Improper operation and/or maintenance of your home septic treatment system will result in its failure.

Geophyta, Inc. strongly recommends that a homeowner hire a professional service provider to inspect and maintain your system. Your county health department has a list of registered service providers. Make sure that your service provider has septic tank and leachfield maintenance experience.

1) Homeowner Responsibility:

- a) The system owner is responsible for the continuous operation and maintenance of this home septic treatment system
- b) Your county health department may require third-party inspection and maintenance of your home septic treatment system.
- c) Home Interior Design & Appliance Selection:
 - i) Install water conserving fixtures such as low flow shower heads, low flow toilets, and front loading washers.
 - ii) Space out water use throughout the day and week. Avoid doing all laundry in one day.
 - iii) Repair all water leaking fixtures.
 - iv) Eliminate garbage disposals, or limit their use. Collect food scraps with sink strainers for disposal as trash or for composting; this includes coffee grounds.
 - v) DO NOT pipe sump pump output into your sewer line.
- d) Home Landscaping Limitations:
 - i) Do not pipe roof downspouts or any other rainwater drainage into the septic or dose tanks.
 - ii) Divert all downspouts or other rainwater drainage away from your entire septic system.
 - iii) Divert all downspouts or other rainwater drainage away from the leachfield area.

- iv) Do not drive or park cars, boats, heavy equipment, or other vehicles on or near septic system tanks and leachfield areas.
- v) Do not add additional soil fill on or near the leachfield. This will limit air movement into the soil needed for effluent treatment and may cause system failure.
- vi) Limit lawnmower traffic on the leachfield when soil is excessively wet.
- vii) Do not plant any deep rooted plants on top of or near your leachfield soil absorption area.
- e) Home Resident Responsibilities:
 - i) Only flush or drain bio-degradable human waste, toilet paper, laundry and dish and personal care soaps, and water into your home septic treatment system.
 - ii) Severely limit disposal of food fats, oils, and greases. These will clog your system.
 - iii) Do not flush or drain undiluted bleach, cleansers, or drain cleaners.
 - iv) Do not flush any non-biodegradable items. For example, plastic items.
 - v) Do not flush or drain motor oils, greases, anti-freezes, cleaners, etc.
 - vi) Do not flush cat litter.
 - vii) Do not flush paper towels, facial tissue, cigarette butts, disposable diapers, sanitary napkins, tampons, or condoms.
 - viii) Do not flush prescription or over-the-counter drugs. Antibiotics and cancer treatment drugs are very harmful to your home septic treatment system.
 - ix) Do not dump solvents like dry cleaning fluid, pesticides, photographic chemicals, paint thinner down the drain.
 - x) Don't use septic tank additives, unless health department approved.
 - xi) Don't drain a hot tub or large amounts of water into your septic system.
- f) Home Improvement/Expansion:
 - i) Contact your county sanitarian before adding new driveways, decks, patios, pools, and outbuildings not identified on your original layout plan to make sure all setback distances from your septic system tanks and mound are met.
 - ii) Contact your county sanitarian before adding bedrooms and/or increasing your home occupancy. This may overload your septic system. Septic system expansion may be required to prevent failure.
- g) Homeowner Cautions:
 - i) **DO NOT ENTER TANKS WITHOUT PROPER SAFETY EQUIPMENT.** Septic and dose tanks contain noxious and deadly gases.
 - ii) Pump or dose tanks and control boxes contain electrical components. **ELECTRICAL SHOCK HAZARD CAN EXIST WITH IMPROPERLY WIRED OR FAILING COMPONENTS.**
 - iii) Always keep tank fall guards in place, except for the time needed to replace components when safety equipment is present.
 - iv) Always replace and secure septic and dose tank lids after completing any inspection.
 - v) Any disconnection or removal of filters, screens, floats, alarms, and/or control panels will result in system failure.
 - vi) Contact your county sanitarian for allowed homeowner maintenance and repair of your septic system.

2) Inspection & Maintenance Requirements:

- a) Perform inspection & maintenance **every six months**.
- b) Review Baseline Operation and Maintenance Data:
 - i) The installer of your system set and recorded all float/liquid level heights, pump down times, cycles per day, and distal head pressures required in the design specifications.
 - ii) Review all previous six month inspection data.
- c) Identify any house additions, patios, pools, ponds, driveways, outbuildings, etc. added since the last inspection that may impact the home septic treatment system. Draw a sketch of these differences.
- d) Inspect the house sewer main two-way cleanout tee bottom:
 - i) Check for clogging.
 - ii) Check for continuous clear water flows from the home.
- e) Evaluate Aeration Treatment Tank & Pump Tank:
 - i) Measure sludge and scum depths; pump tank when cumulative thickness is 1/3 of the tank depth.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Clean & inspect any tank outlet filter.
 - v) Make sure lids are securely attached to risers.
- f) Evaluate Pump/Dose Tank & Pumping Equipment:
 - i) Measure sludge and scum depths; pump tank when septic tank is pumped.
 - ii) Look for signs of clogging and tank damage.
 - iii) Look for signs of tank and riser leakage.
 - iv) Inspect and assure proper functioning of floats or other liquid level controls.
 - v) Clean and inspect dose pump outlet filter. May not be present in some designs.
 - vi) Inspect and assure proper condition and functioning of the effluent pump.
 - vii) Make sure lids are securely attached to risers.
- g) Evaluate Drain Fields:
 - i) Inspect all leachfield soil inspection tubes for surface condition, surface color, and depth of ponded effluent, if present.
 - ii) Look for surfacing effluent.
 - iii) Look for excessively moist soil around leachfield area.
 - iv) Identify appropriate vegetative cover.
 - v) Look for surface disturbances, compaction, abnormal settling, and erosion.
 - vi) Identify any deep rooted vegetation recently planted near the leachfield area.
- h) Switch leachfield resting trench in D-box:
 - i) Determine a rotation sequence for closing off flow to the resting trench/trenches.
 - ii) Open the previously rested leach trench.
 - iii) Close the next trench in sequence for resting.
- i) Measure Pump Run Time and/or Drawdown:
 - i) For demand dosed systems, verify original design effluent drawdown depth.

- ii) For time dosed systems, verify original design pump run time.
- iii) For systems with a cycle counter or run time meter, record the current values.
- j) Test Alarms:
 - i) Evaluate proper function of low liquid level alarm.
 - ii) Evaluate proper function of high liquid level alarm and warning light.

3) Findings & Repairs:

- a) All findings during inspection and maintenance must be recorded.
- b) Any system adjustments must be recorded.
- c) Any system deficiencies, worn out components, and/or damage must be repaired to return your septic system to a properly functioning state.
- d) All repairs must be recorded.