



HOWARD COUNTY HEALTH DEPARTMENT

69567

DATE 6/15/21

Received From

Howis East LLC

PHONE #

410 557-2155

For

Septic Tank 11946

CASH

CHECK

NO.

2102

Septic Tank + Alternative Fredonick Road

Septic Tank + Alternative Fredonick Road

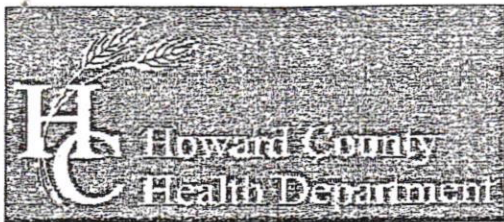
Dollars

\$

2000

Received By

Kenf



Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045
Main: 410-313-2640 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
www.hchealth.org
Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

Dr. Maura J. Rossman, M.D., Health Officer

INFORMATION FORM - SEPTIC SYSTEM REPAIR/UPGRADE

Reason for Request:

- Failing System
System relocation for proposed addition
System upgrade for proposed addition
Inadequate treatment zone
Collapsed septic tank
Collapsed drywell

Has the septic tank been pumped within the last month?

- Yes Date pumped:
No

Was a visual inspection of the septic tank and/or drain fields conducted?

- Yes Explain observations:
No

Was a visual inspection of the sewage line conducted?

- Yes
Blockage leading to the tank
Yes. Explain:
No
Blockage leading to the field
Yes Explain:
No

Existing system design

- Drywell
Trench
Mound
Unknown
Other:

Is discharge surfacing on the ground?

- Yes
No

Additional Comments:

*For REPAIRS, are the owners proposing, or do they plan to add in the future, any additions or modifications to the property, i.e. pools, living space additions, garages, etc? This information must be disclosed at the time of this application. The Health Department will not be able to accommodate requests in the field for property modifications unrelated to the repair request. Such requests may require an additional fee, testing, and submittal of a Percolation Certification Plan, if the property does not meet current Code and Regulation.

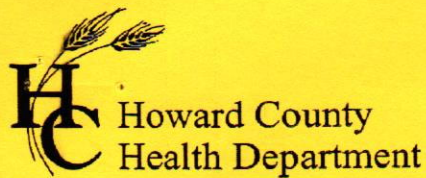
Septic Contractor: Freedom Septic Contractor's Phone: 410-934-1036
Contractor's Address: 2304 Liberty Rd Sykesville, MD 21784
Property Address: 11946 Frederick Rd County file:
Subdivision: Lot: Year Built: 2000
Owner's Name: Shawn Stewart Owner's Phone: 301-225-7953
Name of previous owners: Existing bedrooms:
Proposed bedrooms:
Has this request been previously discussed with a Sanitarian? (Name):
Public Sewer available/nearby:

*A Sanitarian will be in contact within three business days, depending upon the urgency of the situation, to coordinate the scheduling/review of the repair or upgrade.

Prior to scheduling inspections, scaled plans should be submitted to clarify the nature of the addition.

Print out a copy of Real Property Data via Dept. of Taxation website Indexed file found
If public sewer may be nearby, verify whether sewer is technically "available" through the Bureau of Engineering.
If sewer is available and the property is within the Metropolitan District, connection to sewer is required: If the owner believes reason for exemption exists, the owner should justify the request in writing.
If soil/site conditions are limited and sewer and/or Metro District status is not conducive to connection, the Sanitarian may recommend pursuit of Emergency Sewer Extension or Emergency Metro District Inclusion. The Owner should contact the Bureau of Utilities for details.

No permit is to be issued nor inspection to be scheduled without prior fee collection at the office unless an emergency situation exists. The contractor is to notify office of the emergency situation as soon as possible.



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Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 6/15/2021 **ONSITE SEWAGE DISPOSAL SYSTEM** P 569567

APPROVAL DATE: 10/6/21 **PERMIT: BRF REPAIR (Innovative)** A Repair

PROPERTY ADDRESS: 11946 Frederick Road

SUBDIVISION: n/a LOT: _____ TAX ID: 03-281906

CONTRACTOR: Chavis Ent. EMAIL: ryan@chavisenterprisesllc.com

CONTRACTOR ADDRESS: 3811 Federal Hill Rd, Jarrettsville MD 21084 PHONE: 410-838-3007

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER: Norweco

PROPERTY OWNER: Shawn Stewart EMAIL: Shawn.stewart@outlook.com

OWNER ADDRESS: Same as above PHONE: 808.225.7952

Norweco TNTLP
 BAT UNIT MODEL: 500/600 PUMP SIZE: Per plan PUMP TANK CAPACITY: Per plan

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 6/15/2021 DATE RECORDED: 6/15/2021

DISTRIBUTION SYSTEM: GRAVITY DRIP DISPERSAL BED BEDROOMS: 4 APPLICATION RATE: n/a

TRENCHES:	LINEAR FEET REQUIRED: <u>n/a</u>	INLET DEPTH: <u>See plan</u>
	TRENCH WIDTH: <u>[redacted]</u>	MAXIMUM BOTTOM DEPTH: <u>10"-18" aprx.</u>
	MINIMUM SPACE BETWEEN TRENCHES: _____	EFFECTIVE AREA BEGINNING DEPTH: _____

LOCATION: **SYSTEM TO BE STAKED BY DESIGNER AND VERIFIED BY APPROVING AUTHORITY DURING PRE-CONSTRUCTION INSPECTION.**

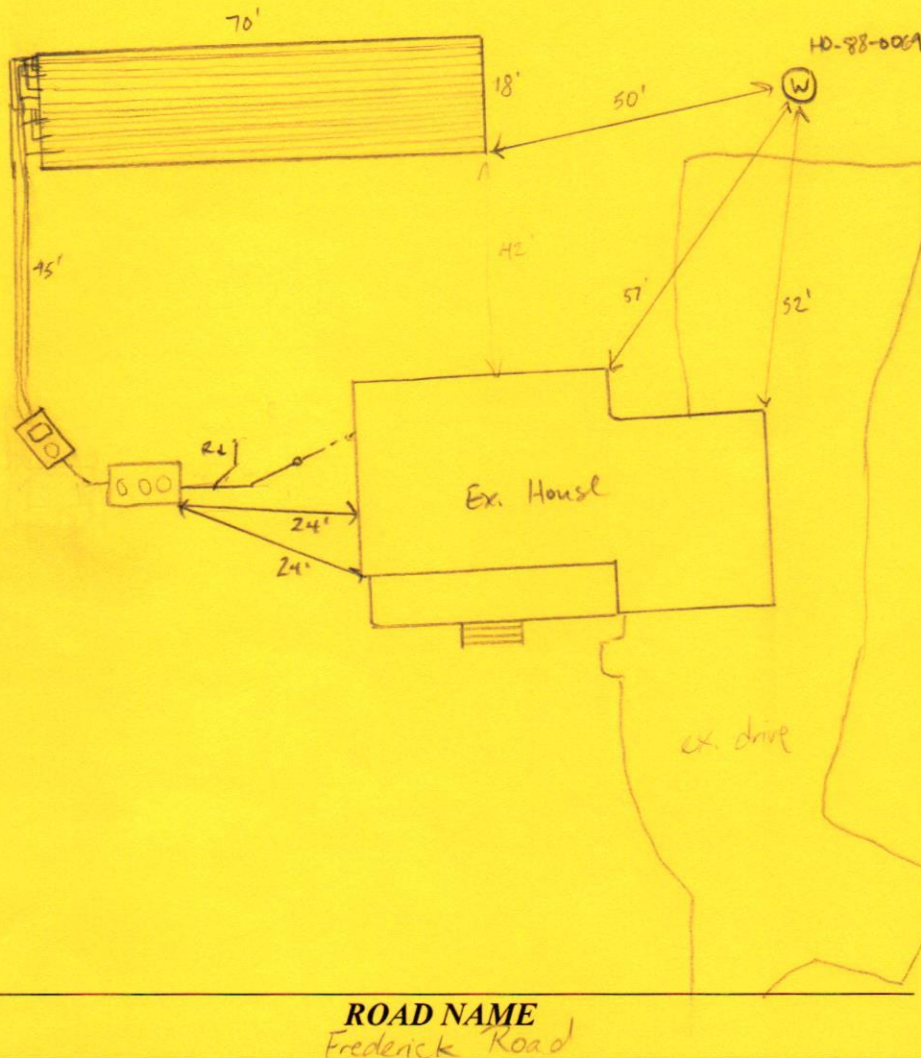
NOTES: Install system per approved design plans by Adam Browning (Penns Trail Environmental). All inspections must be called in by installer.

ISSUED BY: Kevin M. Wolf, L.E.H.S. ISSUE DATE: 6/15/2021 EXPIRATION DATE: 6/15/2022

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM
 ELECTRICAL PERMIT ISSUED E 21002794
- NOTE: THE HCHD DOES NOT WARRANT ANY SYSTEM AND CANNOT GUARANTEE THE PERFORMANCE OF THIS SYSTEM AS DESIGNED. BY ACCEPTING THIS PERMIT, THE OWNER AND/OR APPLICANT ACKNOWLEDGE THAT THE SPECIFICATIONS DETAILED IN THIS DESIGN ARE ONE POSSIBLE OPTION AND THAT THE HCHD WILL REVIEW OTHER PROPOSALS. YOU HAVE THE OPTION TO SEEK THE ADVICE OF A QUALIFIED DESIGN CONSULTANT OR PROFESSIONAL ENGINEER FOR FURTHER GUIDANCE.
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

**NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.
 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

NOT TO SCALE 1" ≈ 30'



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
18'	8"	10"-17"
NUMBER OF TRENCHES 1 bed		
TOTAL LENGTH 70'		
ABSORPTION AREA 1260 sq ft		
DISTRIBUTION BOX LEVEL 70'		
DISTRIBUTION BOX BAFFLE N/A		
DISTRIBUTION BOX PORT		

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	
MANUFACTURER	Monarch
CAPACITY	1500 GAL
SEAM LOC	top
TANK LID DEPTH	2.5'
BAFFLES	-
BAFFLE FILTER	-
MANHOLE LOC	inlet
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	no
DATE ON LID	
PUMP/SEPTIC TANK LEVEL	
MANUFACTURER	Norweco/Backflow
CAPACITY	1500 GAL
SEAM LOC	top
TANK LID DEPTH	2.5'
BAFFLES	-
BAFFLE FILTER	-
MANHOLE LOC	inlet, with outlet
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	-
DATE ON LID	

PRE-CONSTRUCTION:

7/28/21 Onsite w/ contractor, owner and designer. Areas defined for drip zones evaluated, soil tested, etc to start. Will f/u w/ requirements as progress continues. (rem)

INSTALLATION:

8/11/21 Construction begins on end of bed. Bed is 50' from well, as allowed for in variance. Bed is 10" deep on low end and 17" deep on high end, as according to plan. Sand laid over all exposed dirt in bed. Bed (as staked out) is 42' from house, in contradiction to plans which show 35'. (SD) 8/12/21 Bed complete, with 10" of sand. (SD) 8/13/21 Installing 24 rows of tubing in bed, 9" apart. (SD) 8/16/21 Tubes complete, beginning manifold construction. (SD) 8/17/21 Manifold constructed. (SD) 8/31/21 Setting both tanks. (SD) 9/10/21 Control unit installed and connected. (SD) 09/13/21 INSTALLED SFC AND RETURN LINE. (SD) 9/29/21 Steve Krug present for test of pump system. Chavis will install drain to drain control unit of ground water, will daylight toward front spring area. (SD) 10/5/21 Received Norweco certification. (SD)

FINAL INSPECTOR Susan Thomas DATE OF APPROVAL 10/6/21



BACK RIVER PRE-CAST, LLC
 PO BOX 329
 GLYNDON, MD 21071
 PH# 410-833-3394

NORWECO CERTIFICATION

PROPERTY OWNER: STEPHANIE STEWART	INSTALLATION COMPANY: CHAVIS SEPTIC
ADDRESS: 11946 FREDERICK RD	CERTIFIED INSTALLER: RYAN FRICK
CITY, ZIPCODE & COUNTY: ELLICOTT CITY, 21042, HOWARD	PERMIT#
SIZE OF SYSTEM INSTALLED:	DATE INSTALLED: 08-31-21
600 GPD CONCRETE	START-UP DATE: 10-04-21
NUMBER OF BEDROOMS:	DATE OF FINAL INSPECTION:
TYPE OF INSTALLATION: FAILING	DATE OF ELECTRICAL INSPECTION:
ELECTRICAL WIRING PER ELECTRICAL INSTRUCTIONS: YES	TANK LEVEL: YES
HT. OF CONTROL PANEL ABOVE FINAL GRADE: 36"	BURIAL DEPTH OF TANK: 24"
SYSTEM WIRED ON A 15-AMP DEDICATED CIRCUIT WITH STD. BREAKER: YES	RISERS 4" - 6" ABOVE GRADE: YES
LENGTH(S) OF UF WIRE PAST LAST AERATION RISER(S): 30"	VENTED LID(S) ON AERATION CHAMBER(S): YES
FEMALE PLUG(S) WIRED TO UF WIRE: YES	ANY GROUND SETTLING AROUND TANK: NO
CONDUIT(S) ENTERING AERATION RISER MADE WITH A WATERTIGHT CONNECTION: YES	
ISTHE INSIDE OF THE CONDUIT ENTERING THE CONTROL PANEL(S) AND AERATION RISER(S) SEALED WITH DUCT SEAL: YES	

ON 2ND PAGE MAKE A ROUGH SKETCH OF THE HOUSE ,WHERE THE SYSTEM IS LOCATED, WHERE THE CONTROL PANEL IS LOCATED , WHERE THE FRONT OF THE IS AND DIRECTIONS TO THE PROPERTY.

DIRECTIONS CAN START A FEW STREETS AWAY

EXAMPLE: RT. X LEFT ONTO XX STREET RIGHT ONTO PRIVATE DRIVEWAY 5TH HOUSE OF THE LEFT.

I certify that the Norweco Singulair TNT Wastewater Treatment System was installed according to the manufacture's specifications.

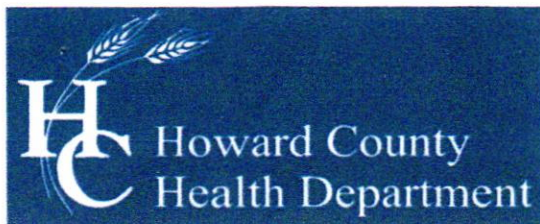
Matthew Geckle

Oct 04, 2021

Signature of BRP Representative

Vice-President

Date



Bureau of Environmental Health

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Maura J. Rossman, M.D., Health Officer

AGREEMENT AND EASEMENT FOR INSTALLATION OF BEST AVAILABLE TECHNOLOGY SYSTEMS WITH BAY RESTORATION FUNDS.

THIS AGREEMENT is made this 4 day of JUNE 2021, among SARAH & STEPHANIE STEWART hereinafter referred to as "Owner," the Howard County Health Department hereinafter collectively referred to as the "County," and the Department of the Environment, hereinafter referred to as the "Department."

WHEREAS, Owner owns a tract of land located on 11946 FREDERICK ROAD, in the Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in Columbia and in Liber 18024 Folio 00423.

WHEREAS, the Bay Restoration Fund (BRF) may provide a grant for the cost attributable to upgrading an onsite sewage disposal system to the Best Available Technology (BAT) for the removal of nitrogen.

WHEREAS, the BRF may also provide a grant for the cost difference between a traditional onsite sewage disposal system and a system that utilizes the BAT for the removal of nitrogen.

WHEREAS, Owner understands that participation in the Bay Restoration Fund is voluntary.

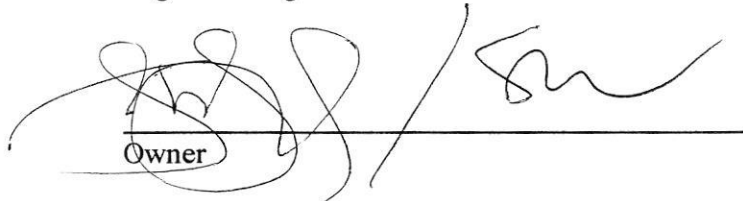
NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the Department and the County the right to enter upon the property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that a MDE certified and manufacturer-approved installer will install the BAT system.
- C. Owner acknowledges and agrees the manufacturer or manufacturer's authorized service provider will provide for Operation and Maintenance of the BAT for a period of 2 years as a condition of sale of the BAT. After the initial 2 year period, the owner will provide for annual maintenance by a certified service provider in perpetuity.
- D. Owner acknowledges and agrees that the manufacturer appointed Operation and Maintenance provider will have access to the BAT system at all times.
- E. Owner acknowledges and agrees that the manufacturer or manufacturer's authorized service provider will have access to sample the effluent of the BAT system. Owner acknowledges and agrees that the proposed installation of a BAT system funded by the BRF is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this BAT system fails, and that the County and the Department do not warrant or guarantee that the BAT system will adequately or properly function.
- F. Owner acknowledges and agrees that neither the County nor the Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system

- approved by them.
- G. The Owner will devote such care and effort to the maintenance of the BAT system so that any malfunction is not the result of poor maintenance, faulty operation, or neglect.
 - H. The Canaan Valley Institute agrees to grant up to \$14,000 toward the cost of installation of the BAT system, and financial responsibility is limited to this amount. Operating costs will be at the Owners expense.
 - I. The Owner acknowledges that the BRF grant can only be used for that portion of the OSDS attributable to (BAT) for the removal of nitrogen.
 - J. Owner acknowledges in the event the total project cost is greater than \$25,000 the proposal will have to be approved by the Maryland State Board of Public Works.
 - K. The Owner agrees to contact both the Water Management Administration, On-Site Systems Division of the Wastewater Permits Program and the County at least forty-eight (48) hours prior to system installation, so that the Department has the opportunity to be present at the time of installation or thereafter for inspection.
 - L. The Owner must install BAT system according to the manufacturer recommended plans and specifications approved by the Department.
 - M. The Owner agrees and acknowledges that if installation deviates substantially from the approved plans or changes such that performance of the system is compromised or reduced, BRF funding will not be provided.
 - N. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns. Owner further agrees that he shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owner agrees to record this agreement in the land records of Howard County.
 - O. This agreement shall not be construed to limit any authority of the Department to protect the public health, safety or comfort or to issue any other orders to take any other action that is now or may hereafter be within its authority.
 - P. This agreement may be voided at the discretion of the Department if the system construction is not completed within six (6) months of the effective date of this agreement.
 - Q. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this agreement. This agreement may not be modified except in writing signed by each of the parties or by their authorized representatives.
 - R. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed this agreement on the date indicated above.

DATE: 4 JUN 21



 Owner

DATE: 6/11/2021



 Howard County Health Department

**AGREEMENT FOR THE
INSTALLATION OF AN INNOVATIVE
ON-SITE SEWAGE DISPOSAL SYSTEM**

THIS AGREEMENT is made this 4 day of JUNE 2021, among SHAWN & STEPHONIE STEWART, hereinafter referred to as "Owner", the Howard County Health Department hereinafter collectively referred to as the "County", and the Department of the Environment, hereinafter referred to as the "Department".

WHEREAS, Owner owns a tract of land located on 11946 Frederick Rd in the 3rd Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in Liber 18024 and Folio 00423.

WHEREAS, Owner's land is unsuitable for the installation of a conventional on-site sewage disposal system and owner has requested the Department's approval to install an innovative system of sewage disposal.

NOW, THEREFORE, the parties hereto agree as follows:

- A. The property is currently improved with a 4 bedroom single family residence served by a private well and an on-site sewage disposal system.
- B. The Owners agree that the County will approve no future additions, expansions of use for, or changes of use for any building on the property that may involve increased flow to the on-site sewage disposal system.
- C. Owner must install and maintain a water meter on the incoming side of the water system or an event counter and an elapsed time meter on the sewage pumping system.
- D. Owner hereby grants to the Department and the County the right to enter upon the property at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.

E. Owner acknowledges and agrees that the proposed innovative system is experimental and that his or her participation is voluntary. Owner agrees that there shall be no liability on the part of the County or Department to Owner if this innovative system fails, and that the County and the Department do not warrant or guarantee that the system will adequately or properly function.

F. Owner acknowledges and agrees that neither the County nor the Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.

G. The Owner will devote such care and effort to the maintenance of the system so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.

H. The Owner agrees, that, should the system be determined by the County or the Department to pose a threat to the public health, safety or comfort, the County or the Department may order any necessary changes or corrections and the Owner agrees to pay for all such changes or corrections. System modifications may include requirements for holding of sewage waste in tanks and regular pumping from the holding tanks. Upon the County or Department's request, the Owner agrees to enter into a contract acceptable to the County or Department to allow a private entity to pump on a regularly scheduled basis an approved holding tank system.

I. The Owner agrees to contact both the Water and Science Administration, On-site systems division of the Wastewater Permits Program and the County at least forty-eight (48) hours prior to system installation, so that the Department may lay out the system in the field with the contractor. The Owner must install this system according to the plans and specifications approved by the County and Department and any changes required by the County and Department as a result of the field layout. If installation deviates substantially from the approved plans or changes such that experimental data will be compromised or reduced, the Owner agrees to pay for all necessary corrections.

J. This agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. Owner further agrees that he shall inform in writing any purchaser or lessee of the property that the

system requires maintenance and other attention. The Owner agrees to record this agreement in the land records of Howard County.

K. This agreement shall not be construed to limit any authority of the County or the Department to protect the public health, safety or comfort or to issue any other orders to take any other action which is now or may hereafter be within its authority.

L. This agreement may be voided at the discretion of the Department if the system construction is not completed within twenty four (24) months of the effective date of this agreement.


M. This agreement contains the entire agreement and understanding between the County and the Owner and the Department. There are no additional terms other than as contained in this agreement. This agreement may not be modified except in writing signed by each of the parties or by their authorized representatives.

N. The laws of the State of Maryland govern the provisions of all transactions pursuant to this agreement.

IN WITNESS WHEREOF, the parties have signed and sealed this agreement on the date indicated


above.

DATE: 4 JUN 21



Owner

DATE: 4 JUN 21



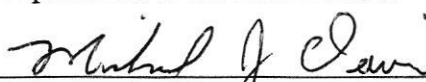
Owner

DATE: 5/30/2021

Naomi Howell

Naomi Howell, Division Chief
On-Site Systems Division
Wastewater Permits Program
Water and Science Administration
Department of the Environment

DATE: 6/15/2021



Mike Davis, Director
Environmental Health
Howard County Health Department

Certificate Of Completion

Envelope Id: 16CFFD0860FD44CEB8D4955529FD0F40
 Subject: Agreement for Innovative Repair HCHD 11946 Frederick Rd.doc
 Source Envelope:
 Document Pages: 3 Signatures: 1
 Certificate Pages: 1 Initials: 0
 AutoNav: Enabled
 EnvelopeId Stamping: Disabled
 Time Zone: (UTC-08:00) Pacific Time (US & Canada)

Status: Completed

Envelope Originator:
 Naomi Howell
 naomi.howell@maryland.gov
 IP Address: 64.207.219.7

Record Tracking

Status: Original Holder: Naomi Howell
 5/30/2021 1:00:53 PM naomi.howell@maryland.gov

Location: DocuSign

Signer Events

Naomi Howell
 naomi.howell@maryland.gov
 Security Level: Email, Account Authentication
 (None)

Signature

Naomi Howell

Signature Adoption: Pre-selected Style
 Using IP Address: 209.203.209.43

Timestamp

Sent: 5/30/2021 1:00:53 PM
 Viewed: 5/30/2021 1:00:58 PM
 Signed: 5/30/2021 1:01:15 PM
Freeform Signing

Electronic Record and Signature Disclosure:
 Not Offered via DocuSign

In Person Signer Events

Signature

Timestamp

Editor Delivery Events

Status

Timestamp

Agent Delivery Events

Status

Timestamp

Intermediary Delivery Events

Status

Timestamp

Certified Delivery Events

Status

Timestamp

Carbon Copy Events

Status

Timestamp

Witness Events

Signature

Timestamp

Notary Events

Signature

Timestamp

Envelope Summary Events

Status

Timestamps

Envelope Sent Hashed/Encrypted
 Certified Delivered Security Checked
 Signing Complete Security Checked
 Completed Security Checked

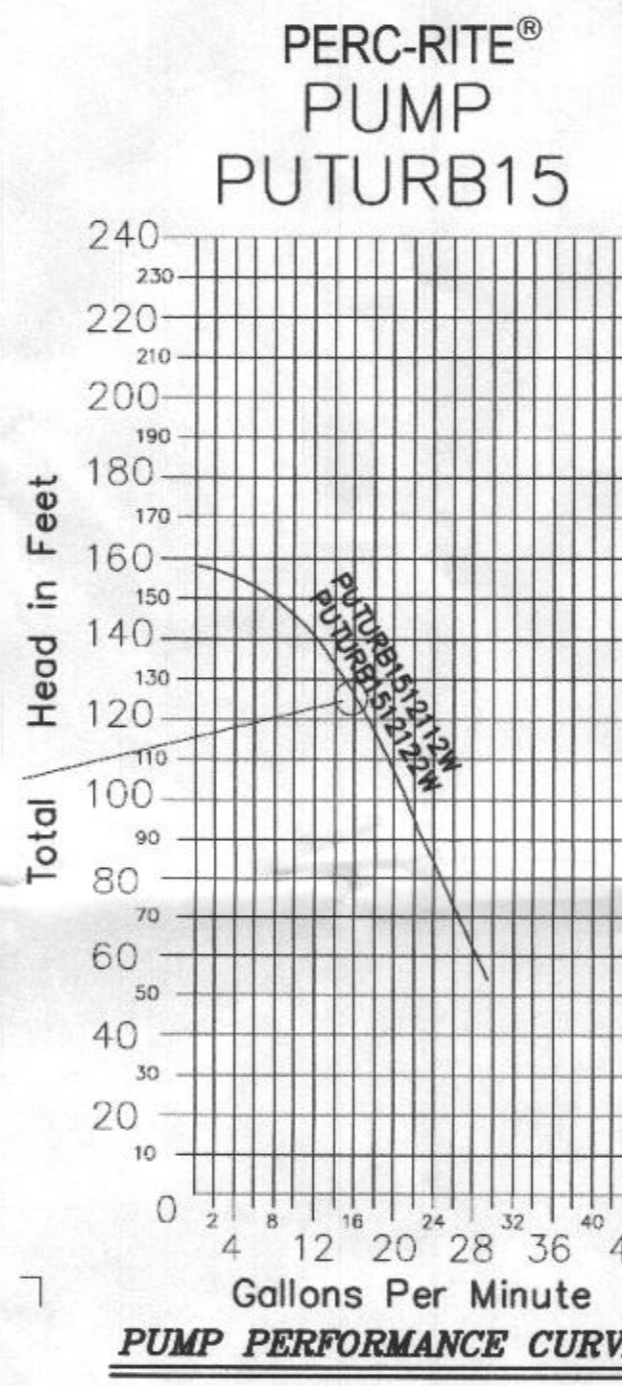
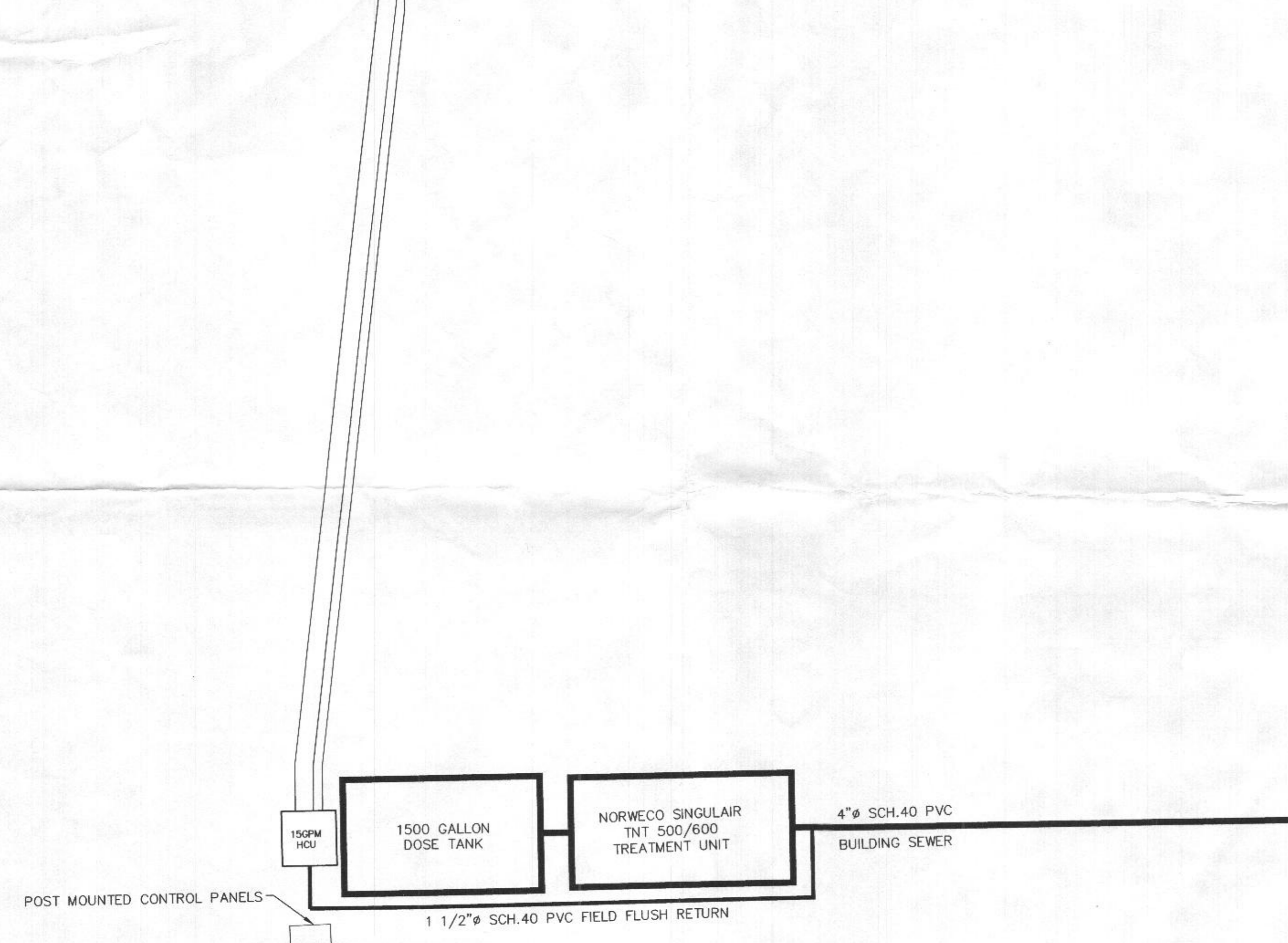
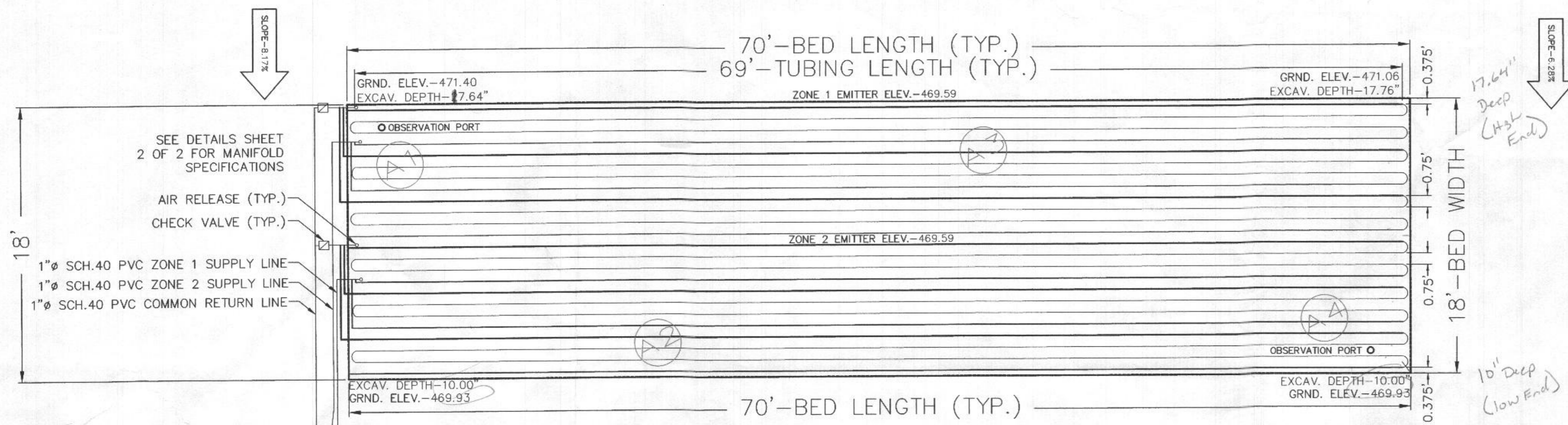
5/30/2021 1:00:53 PM
 5/30/2021 1:00:58 PM
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 5/30/2021 1:01:15 PM

Payment Events

Status

Timestamps

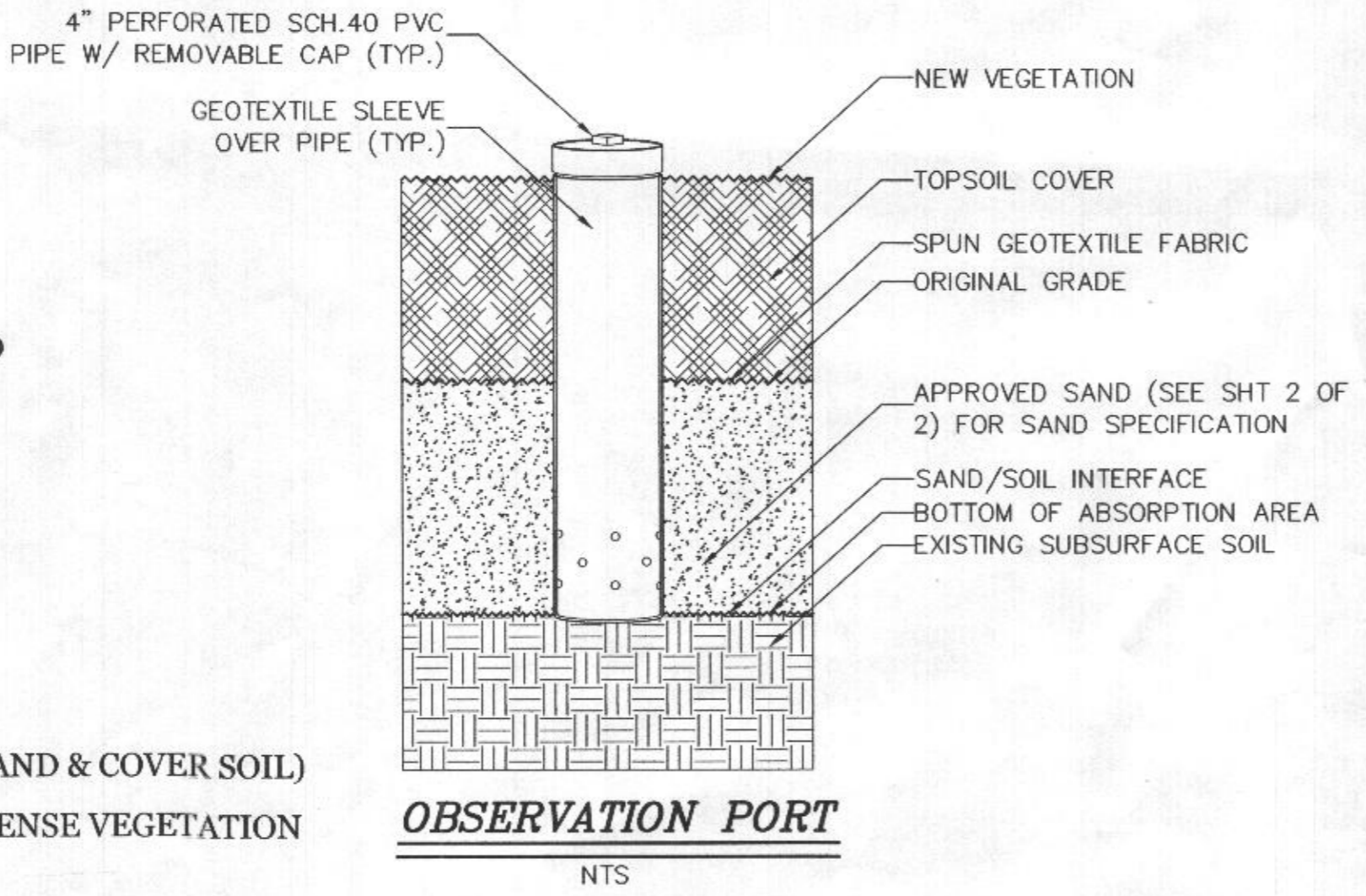
ATTENTION: INSTALLER MUST, AT A MINIMUM, BE A CURRENT MDE CERTIFIED SAND MOUND OR ATGRADE INSTALLER AND BAT INSTALLER.



PLAN VIEW ABSORPTION AREA

SCALE-1"=5'

- MINIMUM DEPTH OF EXCAVATION: 12 INCHES ALONG DOWNSLOPE AXIS OF BED
- SAND SPECIFICATION:**
- SAND FILL MUST MEET COMAR CONVENTIONAL OR ALTERNATIVE SAND SPECIFICATION OR ASTM C33 SAND WITH QUALIFIERS**
- SAND DEPTH UNDER TUBING = 6 INCHES
- SAND DEPTH OVER TUBING = 2 INCHES
- TOTAL SAND DEPTH = 8 INCHES
- SAND TO BE COVERED WITH NON-WOVEN (SPUN) GEOTEXTILE FABRIC (BTWN SAND & COVER SOIL)
- BED TO BE COVERED WITH A MINIMUM OF 12 INCHES OF CLEAN TOPSOIL AND DENSE VEGETATION ESTABLISHED THEREON.
- LAYOUT MAY VARY DURING INSTALLATION PER MANUFACTURERS ON-SITE RECOMMENDATIONS.



PUMP COOLING SPECIFICATIONS:

THE SUBMERSIBLE PUMP SPECIFIED REQUIRES A COOLING FLOW PAST THE MOTOR TO REDUCE PREMATURE FAILURE. THIS IS ACCOMPLISHED BY CREATING A LAMINAR (SMOOTH) FLOW CONDITION BY USE OF AN OUTER PIPE OF MAXIMUM 6 INCH DIAMETER AND A FLOW INDUCER SLEEVE MOUNTED ON THE SUBMERSIBLE PUMP. THE EFFECT IS TO DRAW WATER FIRST DOWNWARD ALONG THE OUTSIDE OF THE LOW INDUCER AND THEN UPWARD ON THE INTERIOR OF THE INDUCER TO THE PUMP INLET.

ALL PUMPS SPECIFIED BY PENN'S TRAIL ENVIRONMENTAL, LLC USE FRANKLIN ELECTRIC MOTORS. FRANKLIN ELECTRIC, GOULDS, & RED JACKET CAN SUPPLY THIS LOW INDUCER DIRECTLY TO THE INSTALLER OR THROUGH COMPETITIVE DISTRIBUTORS.

THE LAMINAR FLOW COLLAR SHALL BE MADE OF SDR 35 PVC AND HAVE SUFFICIENT HOLES (NO LESS THAN 20) OF AT LEAST 1/2" DIAMETER IN THE OUTER GUIDE TUBE TO ASSURE LAMINAR FLOW FOR THE RATED CAPACITY. THE INNER FLOW INDUCER SLEEVE SHALL EXTEND NEAR THE BOTTOM TO PROVIDE SUFFICIENT COOLING FLOW OR THE MOTOR. THE DIMENSION BETWEEN THE INNER COLLAR AND THE PUMP MOTOR SHALL NOT RESTRICT FLOW TO THE PUMP INTAKE, BUT WILL PROVIDE FOR COOLING OF SURFACES.

INSTALLATION INSTRUCTIONS:

- MEASURE THE DISTANCE FROM THE BOTTOM OF THE TANK TO 6" DOWN FROM THE TOP OF THE RISER.
- CUT THE EXTENSION PIPE (6" SDR 35) TO THE LENGTH NECESSARY TO REACH THIS HEIGHT. CUT 1/2 OF THE PIPE DOWN 12" TO 18" AWAY FROM THE TOP OF THE PIPE FOR PUMP DISCHARGE PIPE.
- GLUE THE EXTENSION COUPLING TO THE EXTENSION PIPE AND TO THE PERFORATED SECTION HOUSING THE PUMP AND FLOW INDUCER.
- ANCHOR THE FLAT CAP TO THE BOTTOM OF THE TANK IN THE PROPER LOCATION TO HOLD THE LAMINAR COOLING ASSEMBLY. THE END CAP DOES NOT NEED TO BE GLUED TO THE ASSEMBLY. ATTACH THE EXTENSION TO THE RISER WITH THE ANCHORS AS SHOWN.
- PLACE THE PIPE DOPE ON THE ADAPTER THREADS AND THREAD THEM INTO PUMP DISCHARGE.
- ATTACH COOLING COLLAR TO ADAPTER WITH SET SCREWS.
- GLUE PIPE INTO FLOW COLLAR AND WITH PUMP ATTACHED, LOWER INTO THE GUIDE TUBE.
- ATTACH TO DISCHARGE PIPE, TORQUE ARRESTOR, VALVES, AND CONNECT ELECTRICAL AS SPECIFIED.

PENN'S TRAIL ENVIRONMENTAL, LLC RECOMMENDS USE OF QUALIFIED AND REGISTERED PLUMBERS AND ELECTRICIANS. IN ALL CASES THE LOCAL BUILDING, PLUMBING AND ELECTRICAL CODES SHALL BE FOLLOWED.

SITE TESTING DATA		DESIGN PARAMETERS			
TEST PIT NUMBER	LIMITING ZONE	TYPE	BEDROOMS	4	QUAN.
A	30"	SLEEPS	PEAK GALLONS PER DAY	600	GAL.
B	72"	BOF	AVG. GALLONS PER DAY	360	GAL.
TEST	DEPTH	RATE	PROPOSED ZONES	2	QUAN.
A	18"	72 MPI	PROPOSED DRIPPER LINE	1656.00	L.F.
Ksat AVERAGE	18"	2.34 GPD/SQFT	BED WIDTH	18.00	FT.
SYSTEM SURFACE AREA	1266.00	SQ.FT.	BED LENGTH	70.00	FT.
LARGEST ZONE AREA	630.00	SQ.FT.	MINIMUM EXCAV. DEPTH	18.00	INCHES
GALLONS PER DOSE	45.00	GAL.	SAND UNDER TUBING	6.00	INCHES
PEAK DAILY DESIGN LOAD	0.48	GPD/SQ.FT.	SAND OVER TUBING	2.00	INCHES
AVG. DAILY DESIGN LOAD	0.29	GPD/SQ.FT.	MINIMUM TOPSOIL COVER	10.00	INCHES
INSTANTANEOUS LOAD	0.07	GPD/SQ.FT.	AVG. SLOPE IN DRIP AREA	7.22%	FT.
DOSE LOAD AS INCHES	0.11	IN./DOSE	MIN. TUBING SPACING	N/A	FT.
			PROP. TUBING SPACING	0.75	FT.

PRIMARY SYSTEM COMPONENTS		L.D.	TYPE/MODEL
TREATMENT REQUIRED	600	GPD	BEST AVAILABLE TECHNOLOGY (BAT)
TREATMENT PROPOSED	600	GAL.	BEST AVAILABLE TECHNOLOGY (BAT)
TREATMENT TYPE	AEROBIC		NORWECO SINGULAR TNT 500/600
ABSORP. DOSE TANK	1	GAL.	MONOLITHIC CONCRETE
DRIP AREA DOSE PUMP	1	QUAN.	AMERICAN PERC-RITE PUMP MODEL PUTURB15
HYDRAULIC CONTROL UNIT	1	QUAN.	15 GPM UNIT BY AMERICAN MANUFACTURING CO, INC. (CU
LAMINAR FLOW PUMP JACKET	1	QUAN.	COOL GUIDE™ OR SITE FABRICATED
DRIP TUBING	1	QUAN.	1,000 FOOT ROLLS
	0	QUAN.	500 FOOT ROLLS

ZONE DATA:			
ZONE	1		
STATIC HEAD (PUMP TO CU)	5.25	FT.	
TUBING LENGTH	828.00	FT.	
LONGEST LATERAL	276.00	FT.	
NUMBER OF LATERALS	3	QUAN.	
FORWARD FLUSH RATE	4.80	GPM	(1.6 GPM/LATERAL)
EMITTERS	414	QUAN.	(EVERY 2 FEET)
EMITTER DISCHARGE	4.21	GPM	(0.01016 GPM EACH)
DESIGN FLOW	9.01	GPM	
RETURN CONNECTIONS	3	QUAN.	
SUPPLY LINE LENGTH	56.00	FT.	(FROM CONTROL UNIT)
SUPPLY LINE DIAMETER	1.00	IN.	
FRICTION LOSS SUPPLY LINE	4.52	FT./100 FT.	
FRICTION LOSS RETURN LINE	2.53	FT.	(DESIGN FLOW RATE USED)
RETURN LINE DIAMETER	1.00	IN.	
RETURN LINE LENGTH	66.00	FT.	(TO CONTROL UNIT)
FRICTION LOSS RETURN LINE	1.41	FT./100 FT.	(TO CONTROL UNIT)
FRICTION LOSS RETURN LINE	0.93	FT.	(FORWARD FLUSH FLOW RATE USED)
STATIC HEAD CHANGE	3.43	FT.	(CU TO DRAINFIELD)
HEAD LOSS IN CU	7.00	FT.	(FORWARD & DOSE CYCLE)
FRICTION LOSS IN TUBING	31.00	FT.	
TOTAL HEAD LOSS	50.17	FT.	
TOTAL MAX. SYSTEM FLOW	9.01	GPM	

ZONE	2		
STATIC HEAD (PUMP TO CU)	5.25	FT.	
TUBING LENGTH	828.00	FT.	
LONGEST LATERAL	276.00	FT.	
NUMBER OF LATERALS	3	QUAN.	
FORWARD FLUSH RATE	4.80	GPM	(1.6 GPM/LATERAL)
EMITTERS	414	QUAN.	(EVERY 2 FEET)
EMITTER DISCHARGE	4.21	GPM	(0.01016 GPM EACH)
DESIGN FLOW	9.01	GPM	
RETURN CONNECTIONS	3	QUAN.	
SUPPLY LINE LENGTH	66.00	FT.	(FROM CONTROL UNIT)
SUPPLY LINE DIAMETER	1.00	IN.	
FRICTION LOSS SUPPLY LINE	4.52	FT./100 FT.	
FRICTION LOSS RETURN LINE	2.99	FT.	(DESIGN FLOW RATE USED)
RETURN LINE DIAMETER	1.00	IN.	
RETURN LINE LENGTH	66.00	FT.	(TO CONTROL UNIT)
FRICTION LOSS RETURN LINE	1.41	FT./100 FT.	(TO CONTROL UNIT)
FRICTION LOSS RETURN LINE	0.93	FT.	(FORWARD FLUSH FLOW RATE USED)
STATIC HEAD CHANGE	3.43	FT.	(CU TO DRAINFIELD)
HEAD LOSS IN CU	7.00	FT.	(FORWARD & DOSE CYCLE)
FRICTION LOSS IN TUBING	31.00	FT.	
TOTAL HEAD LOSS	50.62	FT.	
TOTAL FLOW	9.01	GPM	

DOSE PUMP TO CU DATA:			
MAXIMUM HEAD LOSSES IN CU	115.00	FT.	(DURING BACKFLUSH CYCLE)
STATIC HEAD	5.25	FT.	(PUMP TO CU)
MAX. DELIVERY LINE LENGTH	5.00	FT.	(PUMP TO CU)
FRICTION LOSS DELIVERY LINE	0.56	FT./100 FT.	(PUMP TO CU)
DELIVERY LINE FRICTION LOSS	0.03	FT.	(PUMP TO CU)
MAXIMUM DESIGN FLOW	15.00	GPM	(BACKFLUSH FLOW)
TOTAL HEAD	120.27	FT.	@ GPM
MAXIMUM DESIGN FLOW	9.01	GPM	(DOSE PLUS FLUSH CYCLE)
CU CAPABILITY	15	GPM	

PUMP SELECTION ANALYSIS:

UNIT				
ZONE 1	9.01	GPM	@	50.17 FT./HEAD
ZONE 2	9.01	GPM	@	50.62 FT./HEAD
CU	15.00	GPM	@	120.27 FT./HEAD

PUMP SHALL DELIVER THE ABOVE SELECTS THE MOST LIMITING SYSTEM FACTORS OF THE PRIMARY COMPONENTS

DOSE SUMMARY & TIMER RECOMMENDATIONS:

ZONE	1	2	
PERCENT OF TUBING	50.00%	50.00%	
CYCLES PER DAY	4	4	AVERAGE (180 MIN. REST)
GALLONS PER DAY PER ZONE	6.67	6.67	PEAK ENABLED (108 MIN. REST)
GALLONS PER DAY PER ZONE	300.00	300.00	PEAK DAILY FLOW
GALLONS PER DOSE CYCLE	180.00	180.00	AVERAGE DAILY FLOW
ZONE DELIVERY	45.00	45.00	GAL.
PUMP RUN TIME	4.21	4.21	GPM
DRAWDOWN	10.69	10.69	MINUTES
180 MINUTE AVG. CYCLE DOSE	1.27	1.27	INCHES
108 MINUTE PEAK CYCLE DOSE	180.00	180.00	GAL./DAY
	300.00	300.00	GAL./DAY

NO.	DATE	REVISIONS

CALL BEFORE YOU DIG!
1-800-242-1776
PROTECTION LAW THE UNDERGROUND UTILITY LINE
(ACT 887 OF 1974 AS AMENDED BY ACT 183 OF 1983 OF 1983) OF 1983
CONTRACTORS MUST VERIFY LOCATIONS OF UNDERGROUND UTILITIES OR
STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF
UTILITIES HEREON HAVE BEEN DEVELOPED FROM THE UTILITY COMPANY
RECORDS AND 1-800-242-1776. NO LESS THAN 3 WORK MORE THAN 10
SYSTEM, PENNSYLVANIA LEGISLATIVE ACT 287 OF 1974 AS AMENDED BY
ACT 183 OF 1983. PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
ACCURACY ATTENTION TO THE LOCATION OF UTILITIES OR STRUCTURES
UTILITIES SHOWN EXCAVATION OR REMOVAL WORK.

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email: staff@pennstrail.com

DRIP DISPERSAL SYSTEM DESIGN PLAN
PREPARED FOR
11946 FREDERICK ROAD TRACT
3RD ELECTION DISTRICT, HOWARD COUNTY, MD
DATE: AUGUST 15, 2020
SCALE: AS NOTED

ADAM B. BROWNING
OFFICER
P.E.#4385
SHEET 2 OF 3