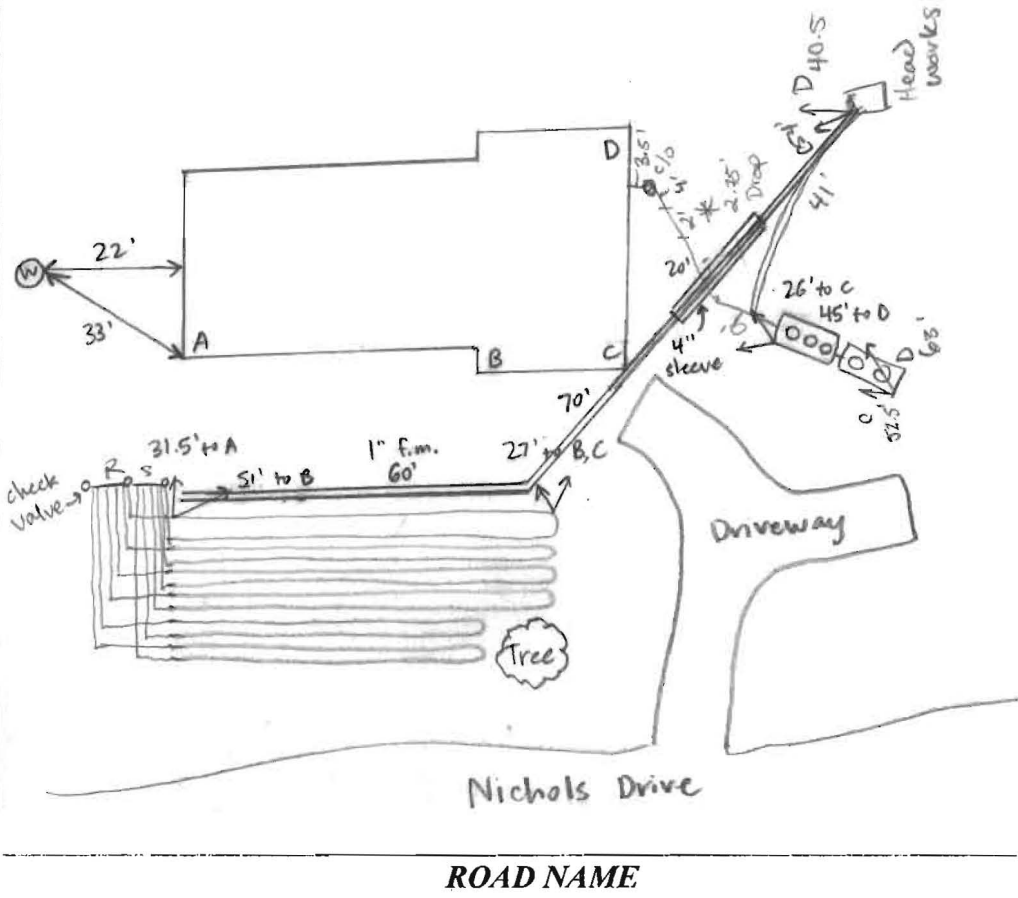


NOT TO SCALE



ROAD NAME

TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
_____	_____	_____
NUMBER OF TRENCHES	_____	
TOTAL LENGTH	_____	
ABSORPTION AREA	_____	
DISTRIBUTION BOX LEVEL	_____	
DISTRIBUTION BOX BAFFLE	_____	
DISTRIBUTION BOX PORT	_____	

SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	BACKRIVER/NORWECO
CAPACITY	1300 GAL
SEAM LOC	TOP
TANK LID DEPTH	2-3'
BAFFLES	NO
BAFFLE FILTER	NO
MANHOLE LOC	FRONT, MID, REAR
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	5-2-17 (STAMP)
PUMP/SEPTIC TANK LEVEL	
MANUFACTURER	Balajon
CAPACITY	1500 GAL
SEAM LOC	TOP
TANK LID DEPTH	1'-1.5'
BAFFLES	=
BAFFLE FILTER	=
MANHOLE LOC	Front/Back
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	_____
Pump: 1/2 hp turbine	

PRE-CONSTRUCTION:

5/7/17 Pre-construction meeting w/ Charis. Also present owner (Travis Veal), Steve King (MOE), Tom Ashton (Resident), Duane Jones (American Rep. Distributor).

Went over all facets of design including H₂O tight testing of tanks and chip Metall. Field placement laid out w/ Tom. Will let contractor know when it is OK to install drip. (K) (K)

INSTALLATION: 6/28/17 Charis installing drip tubing. Runs installed starting at bottom of field, finished all but upper two prior to site visit. Using a Ditch Witch and installing

6-8" deep. Charis shot contour and painted out runs - top loop has wider spacing @ N end of field. Connected loops @ N end while on site, had fall back to drip tubing. (SC/K)

6/29/17 Norweco tank set, pump tank hole dug. Old tank pumped, drywell pumped + collapsed. (SC) 6/30/2017 Installed 4" sewer line, 1.5" pump supply, 1.5" tank return

lines. Set pump tank. Sewer line connected into previous house connection w/ Fernco coupling. (SC) 7/10/17 Charis installing headworks. Lines run to manifold. Sleeve installed where return line crosses sewer line. (SC) 7/11/2017 Backfill manifold connections. Connected return manifold.

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 7/14/17

Call for start up. (SC)

Inspection Date/Inspection Notes/Inspector's Initials & Others Present:

7/12/17 Charis filling pump tank w/ clean water. Dwayne Jones on site for startup. Norweco alarm sounds, aerator runs. Flushed out supply + return lines - water clear. Alarm for pump tank sounds. Measured 3.05 gpm @ head works (target 3.36 gpm) - ^{→ 37.5 gal in dose} could be 2 emitters short, possibly w/c tubing not installed in corner near tree. No ^{standard} clogs in lines most likely. Set dose time to 11 mins 20 secs, rest time set to 4 hrs. Peak rest time set to 2 hrs. Filter backwashed prior to dosing zone. Measured 39.8 gal per dose on dose #1, 38.1 gal on dose #2. (Dose #1 still had ^{some} water in lines from flush) ^{→ extra gal to fill lines} Flush of system set for 1x every 14 days; flush rate measured to be 18.1 gpm. Final meter reading 222.4 gal. Recorded dose as 39.8 gal. Need BAT startup certification + certification from Dwayne Jones. (SC) 7/13/17 Drip startup received from Dwayne Jones. (SC) 7/14/17 BAT startup received. (SC)

DATE SYSTEM

APPROVED 7/14/17

Back River Pre-Cast, LLC

PO BOX 329
Glyndon, MD 21071
Phone # 410-833-3394
Fax # 410-833-4116

Letter of Certification

This is to certify that the Norweco Singlair TNT 600 GPD Septic Tank installed at 13760 Nichols Dr., Clarksville, MD 21029 June 29, 2017 was installed according to the manufacture's specifications.

Installer: Nate Wimer

Property Owner: George Vice

Permit #

THIS CERTIFICATION IS FOR INSTALLATION ONLY. THE 5-YEAR OPERATIONS & MAINTENANCE AGREEMENT FROM DATE OF INSTALLATION WILL ONLY GO INTO EFFECT AFTER BACK RIVER PRE-CAST, LLC RECEIVES FINAL AND FULL PAYMENT FOR THE SYSTEM.



MATTHEW GECKLE
Vice-President

Bay Area Environmental
4213 Madonna Rd
Jarrettsville, MD 20184
410-836-9206

DRIP DISPOSAL CERTIFICATION STATEMENT

To: Howard County Health Dept
Maryland Department of Environment

July 12, 2017

Re: 13760 Nichols Dr

Installer: Chavis Enterprises

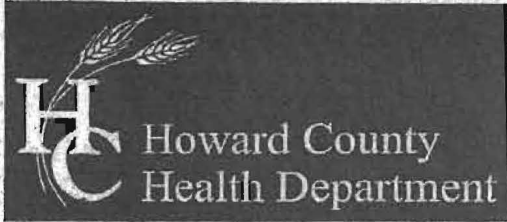
I hereby certify that the onsite sewage disposal system has been installed and completed in accordance with the design. This certification pertains to the following:

1. The proper components were used as specified in the design
2. The components were installed and functioning properly in accordance with the design

The declaration is based on the best information available provided by the contractor affirming that the system has been installed and completed in accordance with the provisions outlined in the permit, design and field observations/inspections made prior to, during and/or after installation of the system. It should be noted that the entire installation of the system was not monitored and therefore, the bulk of the responsibility for the proper installation of the system must fall on the installer.

Startup date 7-12-17
Dose rate = 3.05 gpm
Gallons per dose = 39.8
Dose run time = 11:20
Standard rest time = 4 hrs
Peak rest time = 2 hrs
Flush rate = 16.1gpm
Final meter reading = 222.4 gallons

Dwayne C Jones
Bay Area Environmental



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

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

**APPLICATION FOR VARIANCE
 TO COMAR ONSITE WATER/SEWER FOR MDE APPROVAL**

Date Submitted 1/19/2016

13760 Nichols Drive

Property Address

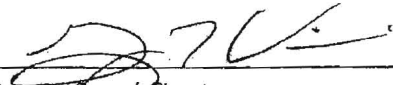
Subdivision	Lot	Tax Map	Grid	Parcel	Tax Account #
		0034	0014	0198	05-373778

Provide a brief site history including previously submitted and active plans with the Health Department or the County (subdivision plans, perc test applications, Building Permit applications):

Property has failing on-site sewage disposal system. Repair area in front of property non-conventional drip dispersal. Design plans approved from Tom Ashton.

In the area below, list the specific section of the Code of Maryland Regulations (COMAR) to which a variance is being requested and provide a brief summary of the regulation and an explanation of why the variance is being requested (Attach a separate sheet if necessary).

Regulation Section	Summary and Explanation
1. <u>26.04.02.04K(10)</u>	Horizontal separation distance of 100ft from proposed sewage disposal area to existing drilled well. WCR on file
2. <u>26.04.02.04J</u>	An on-site disposal system and replacement area may not be located in flood plain soils or on slopes in excess of 25 percent.


 Property Owner's Signature

Health Department Use Only

Reviewed by Kevin M. Wolf 1-19-17
 HCHD Staff Date

Recommendation: Recommended Not Recommended

 HCHD Supervisor 1/25/17
 Date

Comments/Conditions: Design approved with BAT advanced pot treatment and drip dispersal

County O&M Agreement required to be recorded. Owner must maintain a service contract on the treatment system & drip system.

Approved by: Steven R King, LEHS 1/31/2017
 MDE Representative Date

**AGREEMENT AND EASEMENT FOR
INSTALLATION OF AN INNOVATIVE OR ALTERNATIVE
ON-SITE SEWAGE DISPOSAL SYSTEM WITH THE USE OF
BEST AVAILABLE TECHNOLOGY THROUGH
BAY RESTORATION FUNDS**

THIS AGREEMENT is made this 24th day of ~~JANUARY~~ JANUARY 2017, by George and Anna Marie Vice, hereinafter referred to as "Owners", 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, Owners owns a tract of land located on 13760 Nichols Drive, in the 5th Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in Clarksville, and in Liber 16448 Folio 0315.

WHEREAS, Owner's land is improved and the existing means of sewage disposal has been found to be prejudicial to the environment and/or public health.

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

WHEREAS, Owners understand that participation in the Bay Restoration Fund and the innovative and alternative program is voluntary.

NOW, THEREFORE, the parties hereto agree as follows:

A. The property is currently improved with a 3 bedroom single family residence served by 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 involve increased flow to the on-site sewage disposal system.

C. The Owners wish to replace the existing on-site sewage disposal system: and soil evaluation has revealed that a conventional on-site system is not possible. The Owners, through their Agents, Tom Ashton have proposed the use of an innovative or alternative on-site sewage disposal system.

D. Owners 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 must be installed during installation.

E. Owners hereby grant 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 Owners agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.

F. Owners acknowledge and agree that the proposed BAT and innovative/alternative system is experimental and that his or her participation is voluntary. Owners agree that there shall be no liability on the part of the County or Department to the Owners if this BAT or innovative/alternative system fails, and that the County and the Department do not warrant or guarantee that the system will adequately or properly function.

G. Owners acknowledge and agree that an MDE certified and manufacturer-approved installer will install the best available technology (BAT) system.

H. Owners acknowledge and agree that an MDE and manufacturer certified service provider will provide for Operation and Maintenance of the BAT for a period of 5 years as a condition of sale of the BAT. After the initial 5-year period, an Operation and Maintenance service contract with an MDE and manufacturer certified service provider is required to be maintained in perpetuity by the property owners.

I. Owners acknowledge and agrees that the manufacturer appointed Operation and Maintenance provider will have access to the BAT system at all times.

J. Owners acknowledge and agree 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.

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

L. The Canaan Valley Institute agrees to grant 100% toward the cost of installation of the BAT System, and financial responsibility is limited to this amount. Operating costs will be at the Owner's expense.

M. Owners acknowledge in the event the total BRF project cost is greater than \$25,000 the proposal will have to be approved by the Maryland State Board of Public Works.

N. The Owners must install the BAT system according to the manufacturer recommended plans and specifications approved by the County and MDE.

O. The Owners agree and acknowledge 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.

P. The Owners agree, 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 Owners agree 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 and pay a private entity to pump on a regularly scheduled basis an approved holding tank system.

Q. 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 may lay out the system in the field with the contractor. The Owners must install this system according to the plans and specifications approved by the Department and any changes required by the 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 Owners agree to pay for all necessary corrections.

R. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns Owners further agree that he shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owners agree to record this agreement in the land records of Howard County.

S. This agreement shall not be construed to limit any authority of the County or 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.

T. 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.


U. This agreement contains the entire agreement and understanding between the County and the Owners 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.

V. 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.

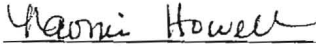
DATE: 1-24-2017


Owner GEORGE TRAVIS VICE


DATE: 1-24-2017


Owner Anna Marie Vice

DATE: 12-6-2016


Naomi Howell, L.E.H.S., Acting Division Chief
Onsite Systems Division, WWPP
Maryland Department of the Environment

DATE: 1/24/2017


Bert Nixon, L.E.H.S., Director
Bureau of Environmental Health
Howard County Health Department

GEORGE VICE
13760 NICHOLS DR
CLARKSVILLE, MD 21029
Clerk of the Circuit Court for
Howard County
Land Records/Licensing

The Thomas Dorsey Building
9250 Bendix Road
Columbia, MD 21045
410-313-5850

=====
LR - Government Instrument - 13
1x 0.00 0.00
Agency Name: Vice
Instrument List: Agreement / Easement
Ref: 14

=====
SubTotal: 0.00
Total: 0.00
=====

01/25/2017 10:49 CC13-DS
#7673289 /1246/109
Thank you for visiting us today~



CANAAN VALLEY INSTITUTE

March 1, 2016

George Travis Vice
13760 Nichols Drive
Clarksville, MD 21029

RE: FY 2016 Howard County Bay Restoration Fund OSDS Upgrade Program

Dear Mr. Vice:

Thank you for your application to participate in the Howard County Bay Restoration Fund OSDS Upgrade Program. The Howard County Health Department has verified that your existing septic system is failing and in need of repair. Based on your 2014 income tax return form, you are eligible to receive funding to cover **100%** of the cost to upgrade your system to one of the MDE approved BAT units listed below. The approved price includes the cost of the unit, installation of the unit, and 5 years of operation and maintenance. The price does not include the cost of permits.

<u>System</u>	<u>Vendor</u>	<u>Contact</u>	<u>Phone</u>
Orenco (Advantex AX20)	Atlantic Solutions	Robert Johnson	877-214-9283
HOOT 600 BNR	Mayer Bros, Inc	Nancy Mayer	410-796-1434
Norweco Singulair TNT	Back River Precast LLC	Matthew Geckle	410-833-3394
SeptiTech	Maryland Concrete, Inc	Rodney Glace	443-491-3598

In order to receive your OSDS upgrade, **you MUST follow these steps:**

1. **Sign this letter** on the bottom of page 2 **and return it** in the envelope provided within **2 weeks of the date of this letter.**
2. File a septic repair permit application with the Howard County Health Department **within 2 weeks of the date of this letter.** The permit application fee is \$396.00 (\$165 for tank approval only).
3. Obtain the Agreement and Easement for Installation of Best Available Technology Systems with Bay Restoration Funds from the Howard County Health Department; have it signed by a Howard County Health Department Bureau Director or Designee. Then take it to the Circuit Court and have it recorded in Land Records **within 2 weeks of the date of this letter.**
4. Prepare your property and schedule installation of the system. The system must be installed **within 6 weeks of the date the Agreement and Easement is recorded.**

494 RiverStone Road | Davis, WV 26260
Phone: (304) 259.4739 or (800) 922.3601 | Fax: (304) 259.4759
www.canaanvi.org

The system vendor may provide a contractor to install your BAT unit. CVI will provide payment directly to the vendor. The vendor may also require proof of insurance from your contractor.

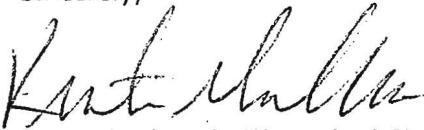
If your system is not installed within the 8 week timeframe listed in the steps on page 1, the funds may be released and used elsewhere. If you cannot complete installation in within this timeframe, please contact me to request an extension. Please note that failure to request an extension may result in termination of your grant and your system must be installed no later than June 27, 2016 in order to retain your funding.

For more information on septic repair permitting, contact:

Jeff Williams
Program Supervisor, Well and Septic
410-313-1771

Please sign and return this original letter and keep a copy for your records. If you have any questions, please contact me at 304-940-3443 or by email at kristin.mielcarek@canaanvi.org.

Sincerely,



Kristin Mielcarek, Watershed Circuit Rider

Accepted by: George Travis Vice, Property Owner

I have read and agree to the conditions of this Agreement Letter.


Signature

3/9/2016
Date

494 RiverStone Road | Davis, WV 26260
Phone: (304) 259.4739 or (800) 922.3601 | Fax: (304) 259.4759
www.canaanvi.org

Co-reviewed by: MDE's ON-SITE SYSTEMS DIVISION & COUNTY Approving Authority
 Project Name/Address: _____

Date Design Plan Approved: _____
 Regional Consultant _____
 Local Approving Authority _____

The On-Site Systems Division must be notified at least 48 hours in advance prior to anticipated system installation so that a pre-installation field layout can be conducted. System installation is not to proceed until a final field layout has been conducted/approved by county and MDE.

Date/s of Pre-installation layout meeting: _____
 Date Pre-installation layout approved: _____
 Approved By: _____

LOCATION MAP



NOTE:
 System design is best attempt to provide a sewage disposal system to an existing house. Evaluator / Designer assume no liability as to the future performance of the system.

NOTES TO CONTRACTOR:

General: This On Site Sewage Treatment and Dispersal system is to be installed according to the following specifications. These plans are to be accompanied by a current valid Health Department permit prior to construction. The exact location of all utilities must be determined prior to construction and any required setbacks adhered. The contractor is responsible to be familiar with the system design and install the system in accordance with Department of Health, local County ordinances, local standard practices, and is to be properly licensed and certified as may be required by the appropriate state and local agencies Contractor to be an experienced MDE Sandmound certified contractor, preferably with drip dispersal installation experience.

Pre construction meeting: REQUIRED Please call with any questions and to request a pre-construction meeting.

The contractor is responsible to perform a pre construction recognition and / or stakeout prior to construction to verify the design and to plan the construction process.

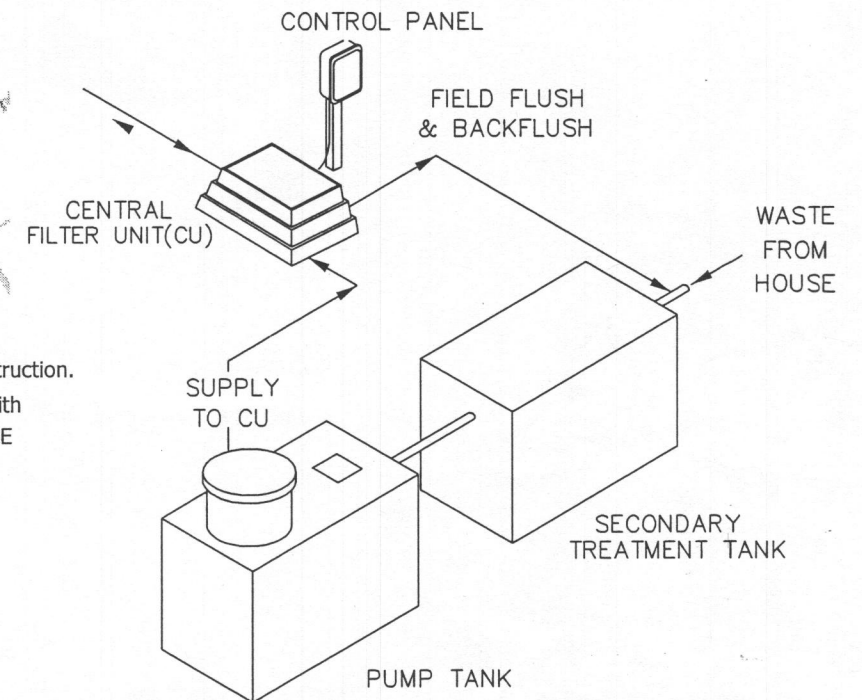
Specification: All manufacturers requirements must be adhered to and materials accompanying specific components to be retained and kept with this package for future owner reference.

NOTE:

System design is best attempt to provide a sewage disposal system to an existing house.

Owner acknowledges and agrees that the proposed innovative/alternative system is experimental and that his or her participation is voluntary. Owner agrees that there shall be no liability assigned to evaluator / designer if this innovative/alternative system fails, and that evaluator / designer do not warrant or guarantee that the system will adequately or properly function. Owner acknowledges and agrees that a MDE certified and manufacturer-approved installer will install the best available technology (BAT) and drip dispersal system.

As a condition of ther permit, owner acknowledges and agrees the manufacturer will provide for Operation and Maintenance of the as a condition of sale of the BAT (5 years) and the Drip Dispersal System (2 years). After the 5-year period the Operation and Maintenance the BAT contract is to be further extended. The property owner is required to to continuously maintain an Operation and Maintenance contract during the lifetime of the system. A MDE approved service provider is required.



SCOPE: Household Sewage will flow by gravity through a pretreatment unit, then to a drip dispersal equalization pump tank. From the drip pump tank the effluent is filtered through 115 micron disc filters and dispersed through a drip dispersal piping network. The network is composed of pressure compensating drip tubing laid on contour and managed by the Perc-Rite® process.

PERC-RITE® SUBSURFACE DISTRIBUTION SYSTEM

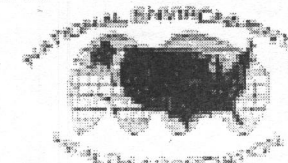
Patent No. 5,200,065
 Patent No. 5,984,574B
 Patent No. 6,262,689

Credential Identification Card for: **REHS/RS**

Credential ID Number: **83255**

Cred. Since: **08/09/1985**

Thomas W. Ashton, CPSS,REHS
 18526 Foggy Bottom Rd
 Bluemont, VA 20135-1838



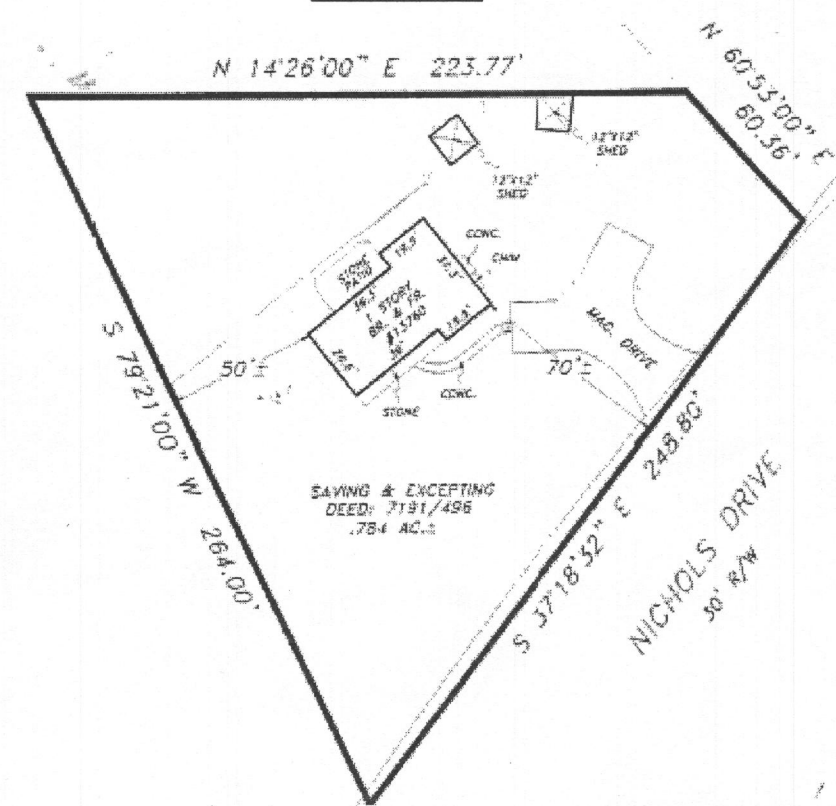
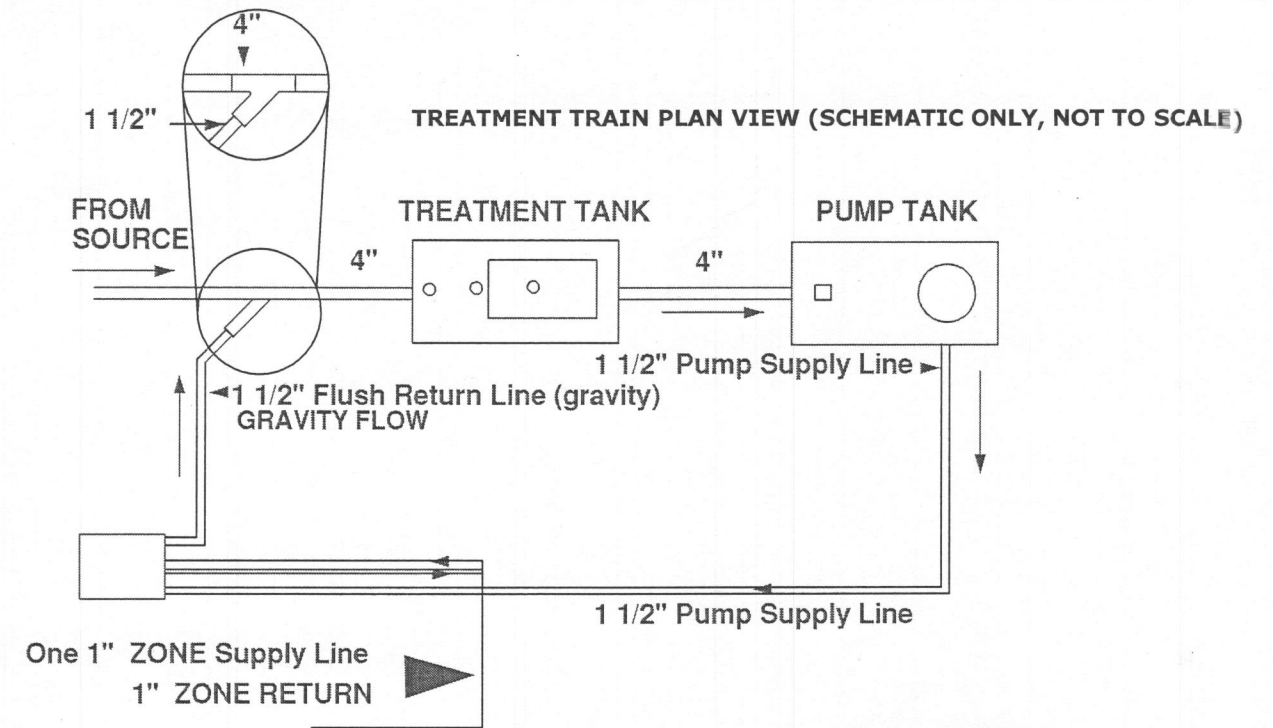
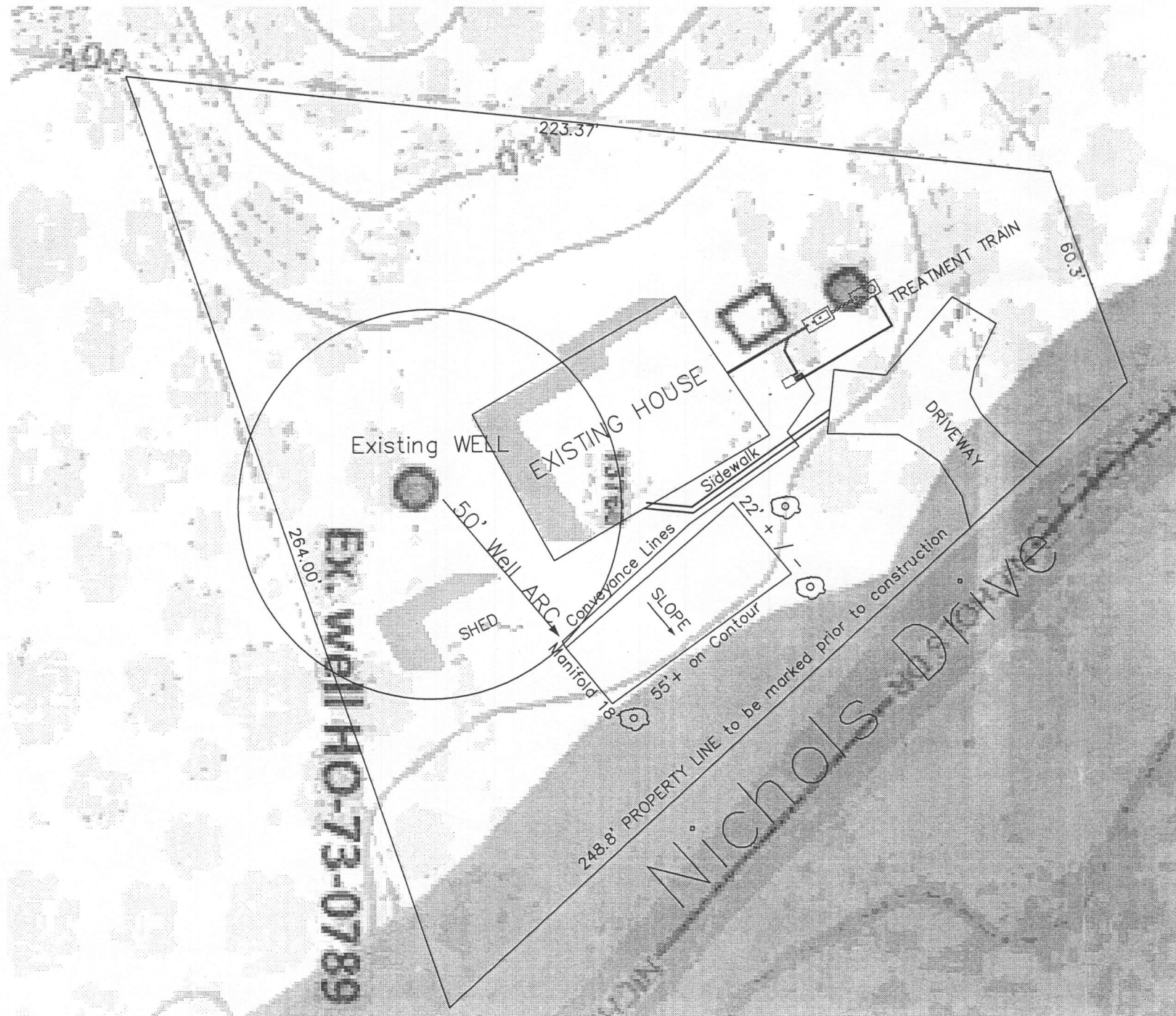
Handwritten signature: Tom Ashton

CONTENTS:

- Page 1 Cover Sheet
- Page 2 Site Layout Plan
- Page 3 Zone Detail
- Page 4 Pump Tank / Hydraulic Profile
- Page 5 Pump / Panel / Hydraulic Unit
- Page 6 NORWECO ATU
- Page 7 Top Feed Details
- Page 8 General Notes
- Page 9 Drip Design
- Page 10. Soil Evaluation
- Page 11 PLAT / COUNTY SOILS

Tom W. Ashton R.E.H.S.	
P.O. Box 220 Bluemont VA 20135	540-454-4672
PROJECT NAME :	2/9/16
13760 Nichols Drive	
Clarksville, MD 21029	
TITLE :	
COVER SHEET PERC-RITE® DRIP DESIGN	
COUNTY : Howard	
DESIGNED BY: Tom W. Ashton R.E.H.S 540-454-4672	NTS SHEET: 1 OF 11

SITE PLAN (SYSTEM LAYOUT SKETCH) NOT TO SCALE



SEE PLAT Pg. 11

Absorption area staked in field. See pg. 3.

See Pg 7 for standard Zone Details

Conveyance lines to pass under sidewalk.

NOTE TO CONTRACTOR:

- ** Treatment Train to be located in area of, to the side of, existing tank / drywell. Existing system to be abandoned in accordance with county requirements.
- ** **IMPORTANT!!** Conveyance lines (Supply / Return piping) to be installed below frost depth. All portions of conveyance lines below frost are to be below the elevation of all tubing manifolds such that the conveyance lines remain full at pump shut off. Deeper installation of conveyance lines maybe necessary or remote zone control valve will be required.
- ** Check existing sewer lines for integrity. Recommend replacement if not schedule 40 PVC.
- ** Recommend addition to treatment train of 1000 gallon trash prior to BAT. Check with vendor.
- ** System Design is based on Howard County Health Department file, county topography, and field stake out. During installation elevations must be checked to verify that system will function as designed.
- ** Site plan is schematic, road front property line to be marked prior to construction.

Tom W. Ashton R.E.H.S.

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME :	13760 Nichols Drive	2/9/16
	Clarksville, MD 13760	
COUNTY :	Howard	TITLE :
		SITE LAYOUT PLAN

ZONE DETAIL (SCHEMATIC ONLY, NOT TO SCALE, Top Feed Manifolds Enlarged)

NOTE: The preservation of the original structure of the soil in the absorption area is essential to maintaining the percolative capacity of the soil. No activity other than the construction of the system is permitted within the absorption area. The absorption system is not to be constructed during periods of wet weather when the soil is sufficiently wet at the depth of installation to exceed its plastic limit. The plastic limit is exceeded when the soil can be rolled between the palms of the hands to produce threads 1/8 inch in diameter without breaking and crumbling.

NOTE TO CONTRACTOR:

Cut grass as short as possible, rake from site.

Top run to be a minimum of 50'+ from well at top of manifold. Extend all runs to 5' off sidewalk, tree trunks, and driveway cut / slope as conditions allow.

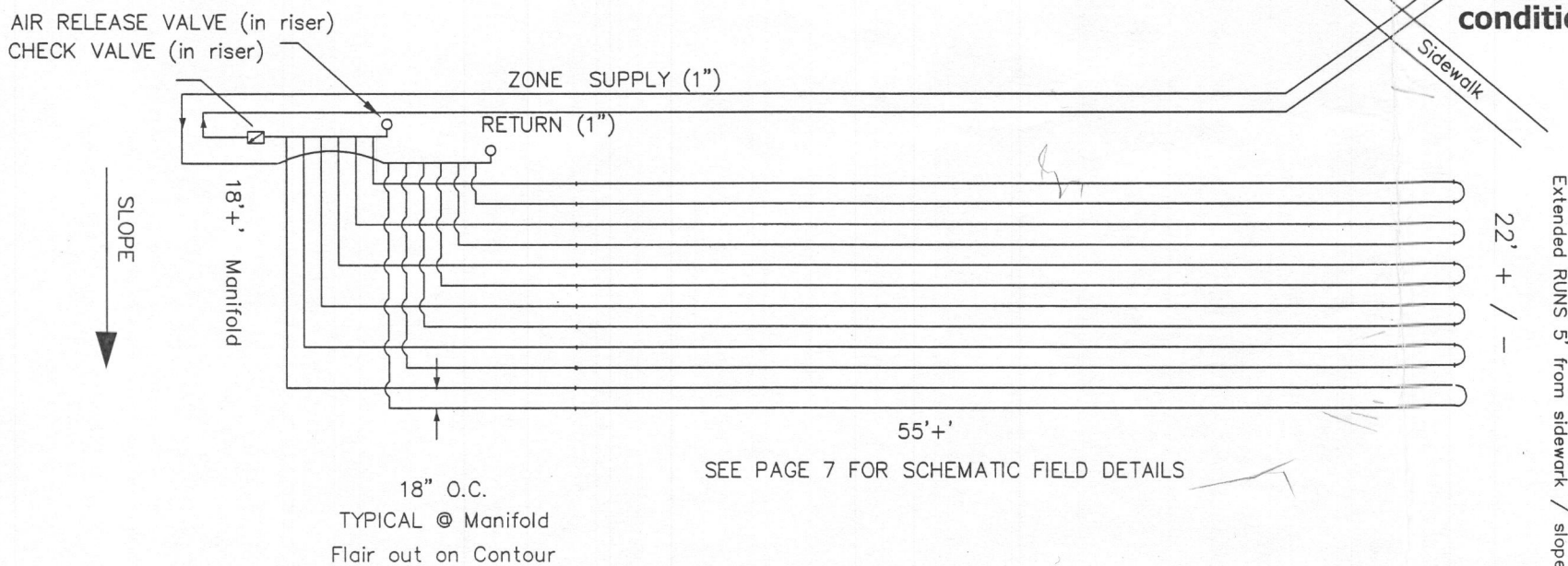
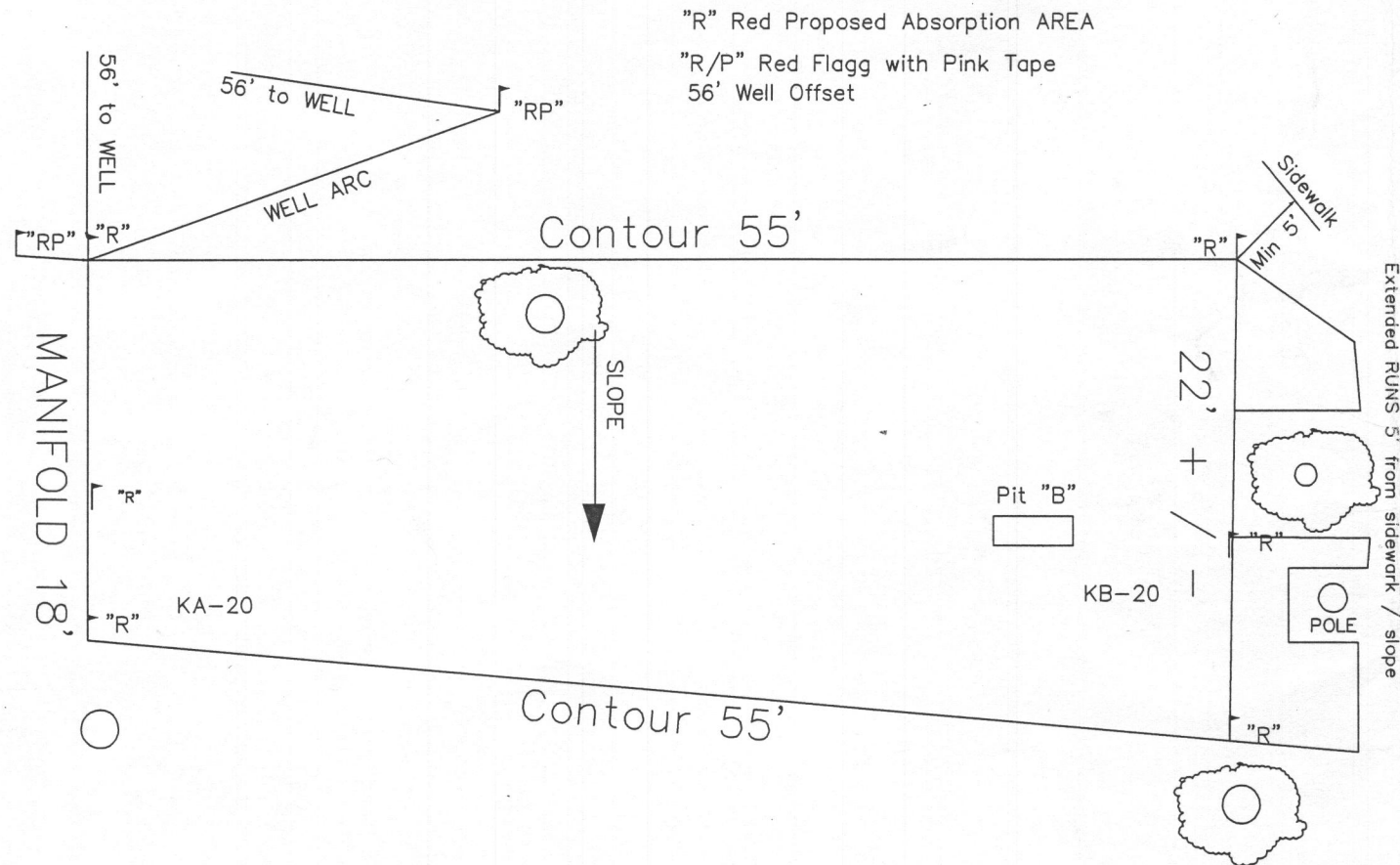
Install tubing on contour with vibratory plow or narrow trencher at 6-8". Tubing to be flat. Separation to be minimum 18" at manifold ditch. Tubing runs will likely flare out on contour as necessary.

Minimize activity on drip field to only that required to install system. There should be no need to drive any machines other than the vibratory plow on the field.

The existing Walnut tree in upper center of the area is proposed to be removed. There are to be no large machines on the area, especially if the soil conditions are even slightly moist.

The stump needs to be ground, not dug, out and it should be no deeper than 12". Grindings and roots need to be removed off site. Leave the hole open, the system installation contractor can then fill up and grade the area with the appropriate, similar soil material on site.

Disturbance of the natural grade, compaction, and rutting maybe grounds for the permit being revoked. At this point in the season, removal of the tree when the ground is frozen solid maybe the best option. Installation of a soil based absorption area and removal of the tree needs to take place under optimum conditions. Installation likely in late spring / early summer.



Tom W. Ashton R.E.H.S.	
P.O. Box 220 Bluemont VA 20135 540-454-4672	
PROJECT NAME :	2/9/16
13760 Nichols Drive Clarksville, MD 13760	
COUNTY : Howard	TITLE : ZONE DETAILS TREATMENT SCHEMATIC



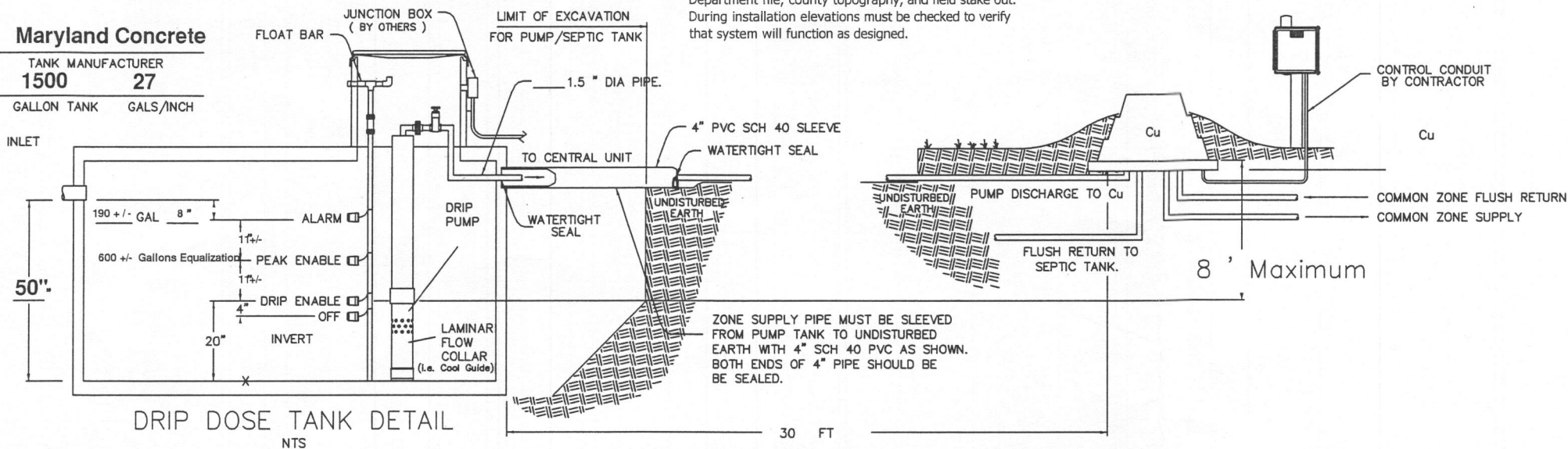
AMERICAN MANUFACTURING - SIDE PROFILE OF DOSE TANK AND HYDRAULIC FILTER UNIT

1-800-345-3132 * www.americanonsite.com

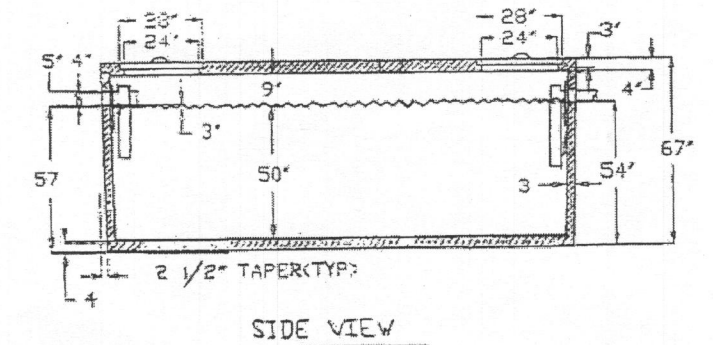
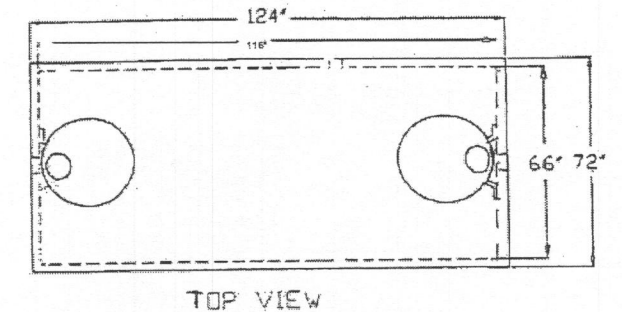
System Design is based on Howard County Health Department file, county topography, and field stake out. During installation elevations must be checked to verify that system will function as designed.

Maryland Concrete

TANK MANUFACTURER
1500 27
GALLON TANK GALS./INCH



DOSE TANK

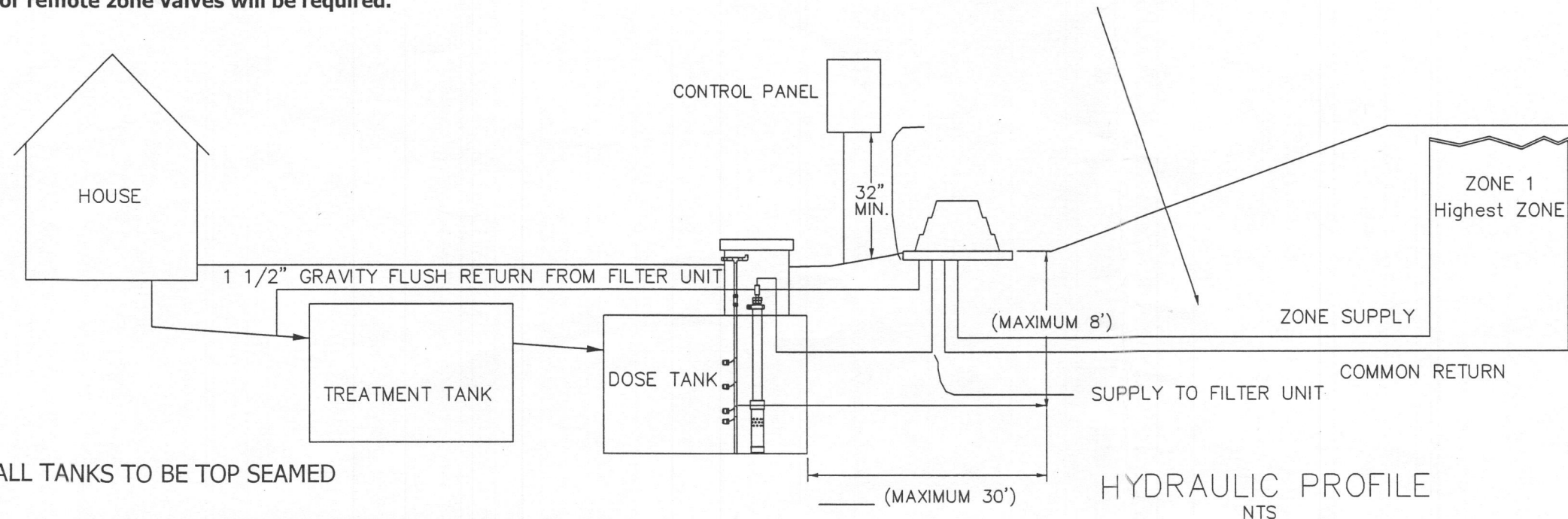


MARYLAND CONCRETE, INC.
P.O. BOX 10 21916 YORK RD.
MARYLAND LINE, MD 21105
PHONE: 410-692-5790
FAX: 410-367-8297

1600 GALLON SINGLE COMPARTMENT
SEPTIC TANK

HYDRAULIC PROFILE

IMPORTANT!! Conveyance lines (Supply / Return piping) to be installed below frost depth. All portions of conveyance lines below frost are to be below the elevation of all tubing manifolds such that the conveyance lines remain full at pump shut off. Deeper installation of conveyance lines maybe necessary or remote zone valves will be required.



ALL TANKS TO BE TOP SEAMED

INSTALL TANKS AS SHALLOW AS POSSIBLE. Max cover 18".

DIVERT ALL HOUSE ROOF, DRIVE, AND SUMP DRAINAGE AWAY FROM ALL SYSTEM COMPONENTS.

A 24 standard watertight inspection to be conducted to evaluate all tanks for water tightness. The test will be in accordance with the National Precast Association's (NPCA) BMP Manual and follow ASTM C1227 testing procedures.

Tanks that are not watertight are subject to rejection.

Tom W. Ashton R.E.H.S.

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME :

2/9/16

13760 Nichols Drive
Clarksville, MD 13760

COUNTY : Howard

TITLE :

PUMP TANK
HYDRAULIC PROFILE

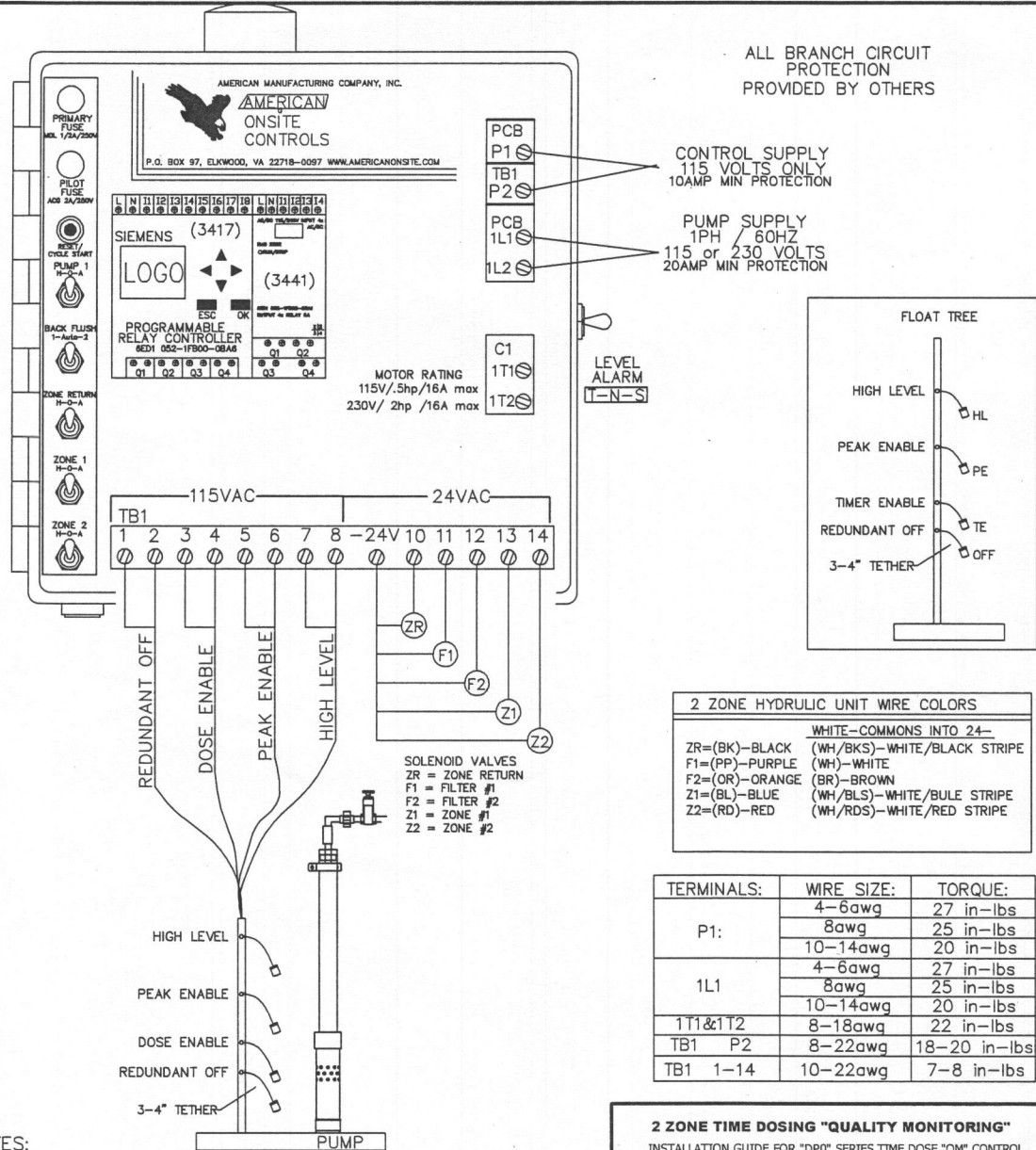
DESIGNED BY: Tom W. Ashton R.E.H.S.

SHEET 4 OF 11



AMERICAN ONSITE CONTROLS

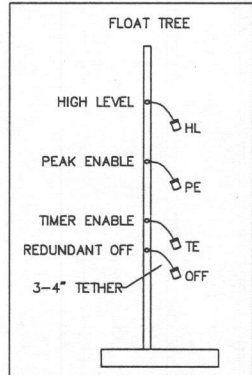
AMERICAN MANUFACTURING COMPANY INC.
P.O. BOX 97 ELKWOOD, VA 22718
(800) 345-3132 www.americanonsite.com



ALL BRANCH CIRCUIT PROTECTION PROVIDED BY OTHERS

CONTROL SUPPLY
115 VOLTS ONLY
10AMP MIN PROTECTION

PUMP SUPPLY
1PH / 60HZ
115 or 230 VOLTS
20AMP MIN PROTECTION



2 ZONE HYDRULIC UNIT WIRE COLORS	
WHITE-COMMONS INTO 24-	
ZR=(BK)-BLACK	(WH/BKS)-WHITE/BLACK STRIPE
F1=(PP)-PURPLE	(WH)-WHITE
F2=(OR)-ORANGE	(BR)-BROWN
Z1=(BL)-BLUE	(WH/BSL)-WHITE/BLUE STRIPE
Z2=(RD)-RED	(WH/RDS)-WHITE/RED STRIPE

TERMINALS:	WIRE SIZE:	TORQUE:
P1:	4-6awg	27 in-lbs
	8awg	25 in-lbs
	10-14awg	20 in-lbs
1L1	4-6awg	27 in-lbs
	8awg	25 in-lbs
	10-14awg	20 in-lbs
1T1&1T2	8-18awg	22 in-lbs
TB1 P2	8-22awg	18-20 in-lbs
TB1 1-14	10-22awg	7-8 in-lbs

2 ZONE TIME DOSING "QUALITY MONITORING"
INSTALLATION GUIDE FOR "DPO" SERIES TIME DOSE "QM" CONTROL
NEMA 4X, 1 PHASE, OPTIONS: A,J,L

MODEL#	DPO22-SAB124-AJL	
DWG#	X9114-2ZN	REVISION
DATE	02/26/10	DRAWN BY: SPC
FILE PATH:	S:/DATA/CONTROLS/AUTOCAD2000LT/A Projects/QM LOGO Drip 2ZN.dwg	
PAGE	1	

- NOTES:
- PLEASE REVIEW ALL PAGES AND INSERTS IN THIS MANUAL BEFORE ATTEMPTING TO INSTALL ANY CONTROL EQUIPMENT.
 - DASHED LINES REPRESENT OPTIONAL EQUIPMENT
 - TIME DOSING IS CONTROLLED BY A SIEMENS LOGO! SEE ADDITIONAL MANUAL FOR PROGRAMMING INSTRUCTIONS.
 - BF=BACKFLUSH, AND ZR=ZONE RETURN



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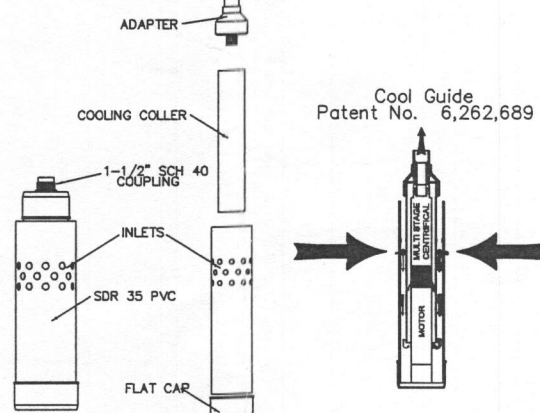
ONE ZONE

FLOW COLLAR (COOL GUIDE) COOL GUIDE SPECIFICATION

The laminar flow collar shall be made of non-corrosive, glueable PVC and have sufficient holes in the outer guide tube to assure laminar flow for the rated capacity. The inner flow collar shall extend near the bottom to provide sufficient cooling flow for the motor. The dimension between the inner collar and the pump motor shall not restrict flow to the pump intake, but will provide for scouring of surfaces. The laminar flow collar shall be a "Cool Guide" as manufactured by American Manufacturing Company, Inc. Patent # 6,262,689.

"COOL GUIDE" INSTALLATION INSTRUCTIONS

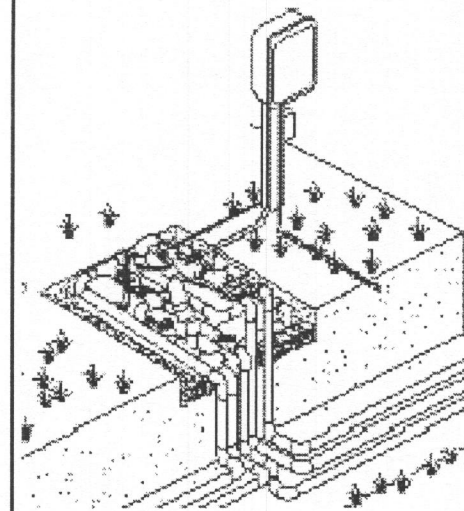
- Measure the distance from the bottom of the tank to the top of the riser. Cut the extension pipe (by others) to the length necessary to reach this height. Cut 1/2 of the pipe down 12" to 18" away from the top of the pipe for pump discharge pipe.
- Glue the extension coupling (by others) to the extension pipe and to the Cool Guide.
- For repairs: glue on the Cool Guide flat cap and place the Cool Guide firmly in the of the tank. Attach the extension to the riser, with the anchors as shown.
- For new construction: Anchor the flat cap to the bottom of the tank in the proper location to hold Cool Guide and extension. The cap may or may not be glued to the device. Attach the extension to the riser with the anchors as shown.
- Place the pipe dope on the Cool Guide adapter threads and thread them into pump discharge.
- Attach cooling collar to adapter with set screw provided.
- Glue pipe into flow collar and with pump attached, lower into the guide tube.
- Attach to discharge pipe, valves, and connect electrical as specified.



- Dig a side trench to set the hydraulic unit. The area must be free from groundwater or rainwater infiltration. If below original grade more than 4" the unit enclosure must have a positive drain. Center the unit on a gravel bed with the pipes slightly over the edge. Connect the supply and return piping. Install the control panel on a 4"x4" (minimum) pressure treated post with at least 3 feet of clearance from the bottom of the control panel to the ground.

- The electrician shall provide three sources of power to the control panel per the schematic enclosed in the control enclosure. The control wire shall be run through conduit to the control with no splices and connected to the terminal strip provided. Connect the heater, floats and pump(s) to the control panel.

- Install the insulated enclosure and backfill the area making sure not to damage any piping or electrical components. Provide positive drainage from around the central unit to insure no excessive rainwater will enter and rainwater which does enter will drain out. Provide a minimum of 4" of backfill above the bottom edge of the enclosure to help enclosure heater maintain temperatures above freezing. Additional mounding is preferred for freeze protection and aesthetics.

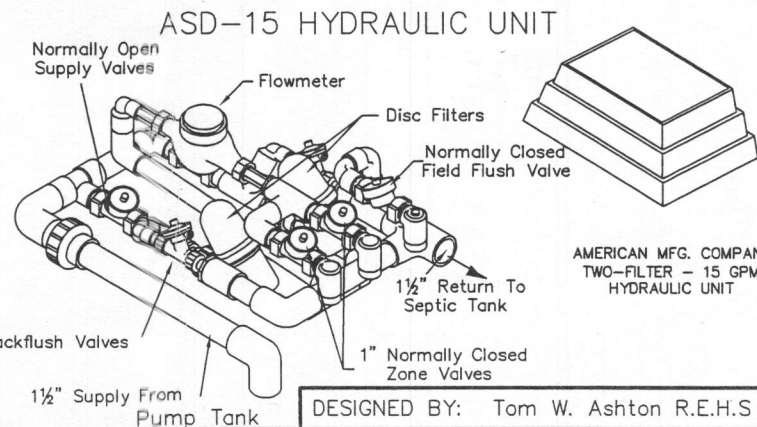
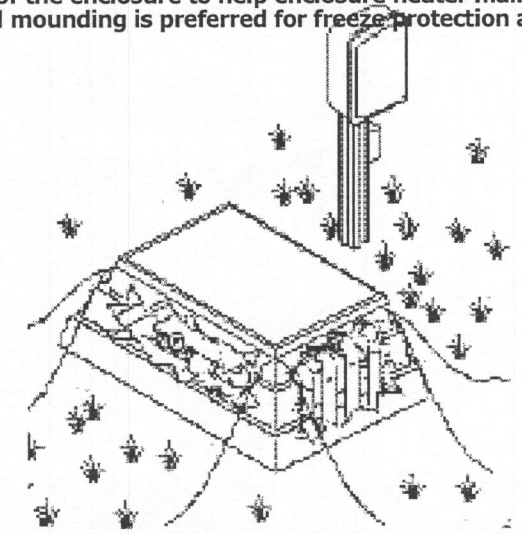


The hydraulic unit (HU) must be close to the pump chamber as shown.

The limiting factor is the backflushing sequence for the disc filters.

The (HU) must be within 30 feet horizontal and 8 feet vertical distance for the pump to have enough TDH to complete backflushing.

IMPORTANT!! Conveyance lines (Supply / Return piping) to be installed below frost depth. All portions of conveyance lines below frost are to be below the elevation of all tubing manifolds such that the conveyance lines remain full at pump shut off. Deeper installation of conveyance lines maybe necessary or remote zone valves will be required.



AMERICAN MFG. COMPANY
TWO-FILTER - 15 GPM
HYDRAULIC UNIT

PROJECT NAME :	2/9/16
13760 Nichols Drive Clarksville, MD 13760	
COUNTY : Howard	TITLE :
	CONTROL, COOL GUIDE & PUMP HYDRAULIC UNIT
DESIGNED BY: Tom W. Ashton R.E.H.S	SCALE : NTS
	SHEET: 5 OF 11

All loose and disturbed soil must be removed from bottom of tank excavation hole.

All tanks must be installed on a minimum of 6" of clean # 57 gravel. (NO CRUSH N RUN GRAVEL PERMITTED)

Void area between tanks and outlet end of treatment units must be backfilled entirely with clean # 57 gravel. (NO SOIL BACKFILL PERMITTED)

All tanks must be installed within 1/4" of level across length and width of each individual unit.

PERC-RITE DRIP SYSTEM PACKAGE

Bay Area Environmental
Dwayne Jones
 manager@jonespumpservice.com

T/A Jones Pump Service
 410-836-9206 office
 410-836-9367 fax

Line #	Component	Description	Quantity
FILENAME: ASD151-S122			
CENTRAL UNIT EQUIPMENT			
1	DP0-B9114-2Z	SIMPLEX 2 ZONE 2 FILTER CONTROL	1
2	DH2-21SKIT	1 ZONE HYD. UNIT, ENCLOSURE, & FLOAT TREE	1
3	PUTURB1512112W	15 GPM TURBINE PUMP 1/2 HP, 1PH, 115V, 2 WIRE	1
4	COOLGUIDE15	LAMINAR FLOW COLLAR, 6", 15 GPM	1
5	PUMPKITDRIP	DRIP PUMP KIT 1-1/2" Sch 80 Ball Vlv & Union	1
FIELD MATERIAL			
6	BIOLINE1000	BIOLINE 1000' .6GPH 24" SPACING	1
7	PVC12FLEX	1/2" FLEX PVC 100'	1
8	BIOLINSERT12X34	BIOLINE INSERT ADAPTER 1/2" x 3/4"	25
9	PVCPFRFIP12X34	FEMALE ADAPTER 1/2" X 3/4" SXT SCH 40	25
10	BIOCOUP	BIOLINE REPAIR COUPLING, 1/2"	3
11	DH-TOPFEEDKIT1	TOP FEED SUPPLY & RETURN MANIFOLD 1"	1
FIELD SERVICES			
12	TRAINING	INSTALLATION TRAINING AND OVERSITE	1
13	STARTUP	SYSTEM STARTUP AND FINAL INSPECTION	1

Tom W. Ashton R.E.H.S.

P.O. Box 220 Bluemont VA 20135 540-454-4672

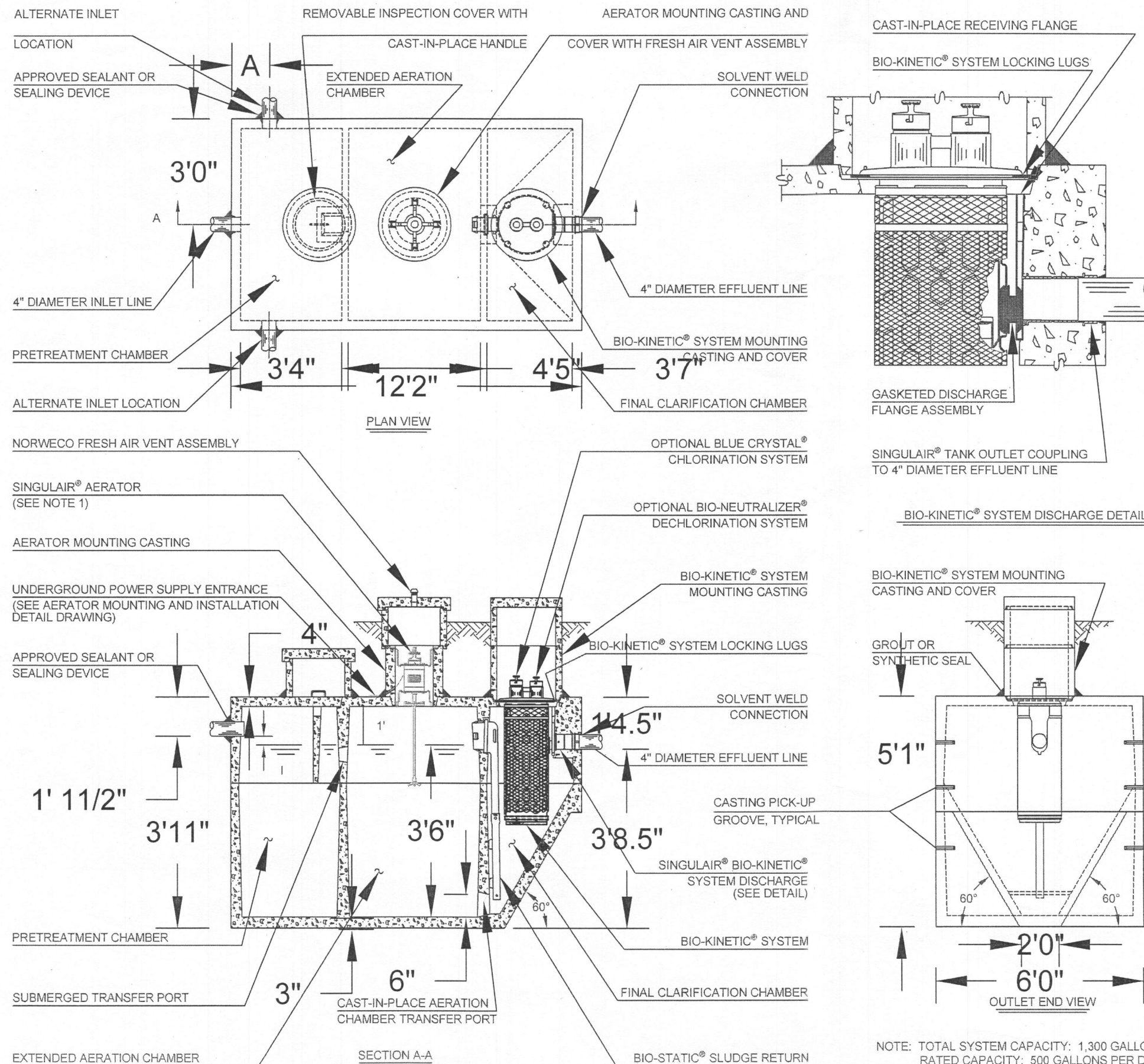
PROJECT NAME :

13760 Nichols Drive
 Clarksville, MD 13760

COUNTY : Howard

2/9/16

TITLE :
 NORWECO Details

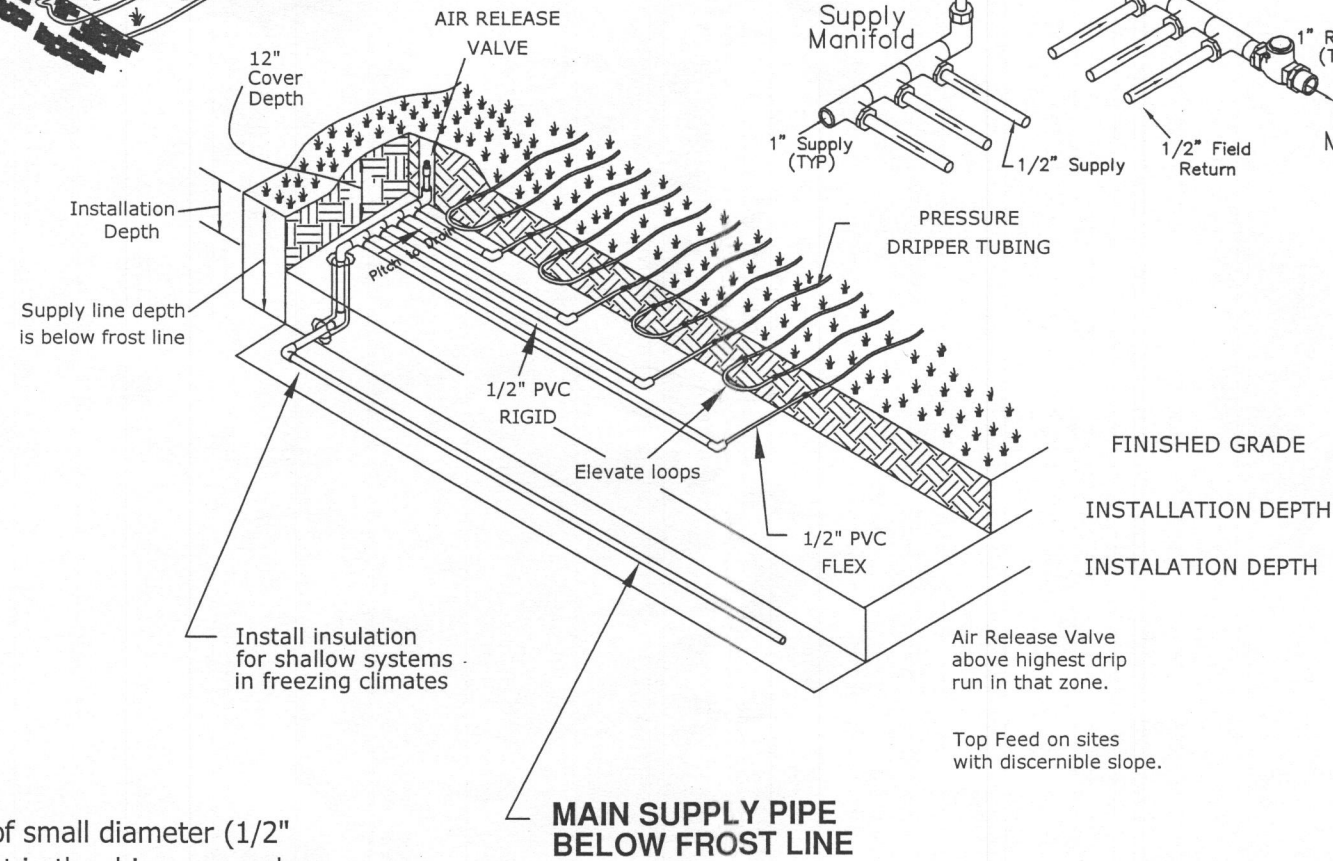
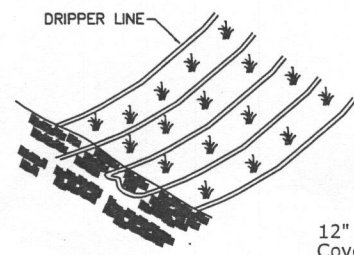


NOTE: TOTAL SYSTEM CAPACITY: 1,300 GALLONS
 RATED CAPACITY: 500 GALLONS PER DAY

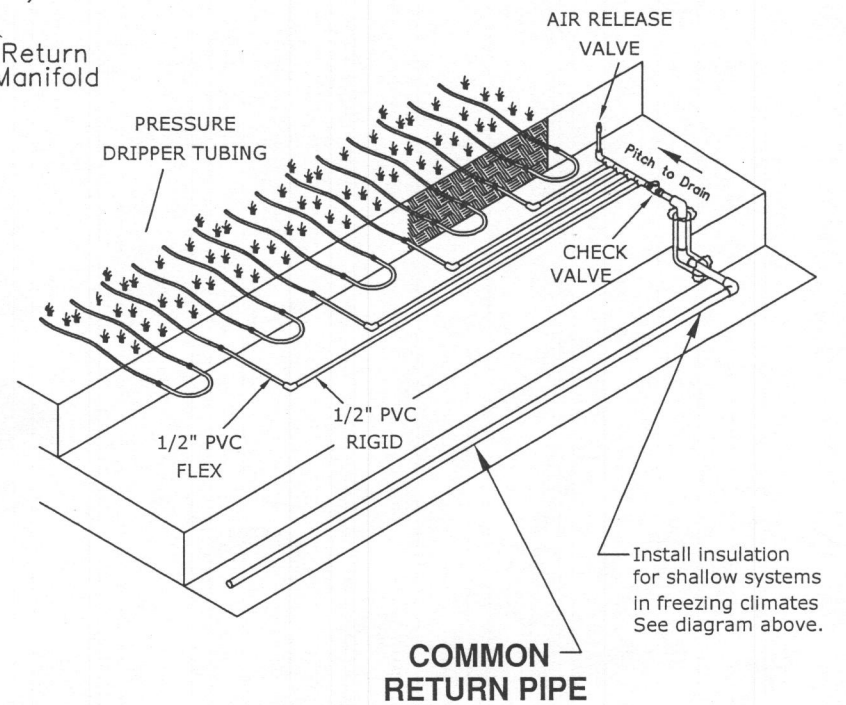
IN GROUND TOP-FEED MANIFOLD SCHEMATICS / DETAILS

TOP FEED MANIFOLD Patent No. 5,984,574B CONSTRUCTION SCHEMATIC

TOP FEED SUPPLY & RETURN MANIFOLDS TO BE PLACED ABOVE DRIP TUBING AND MUST DRAIN INTO THE DRIP TUBING AFTER EACH DOSE.



RETURN DETAIL

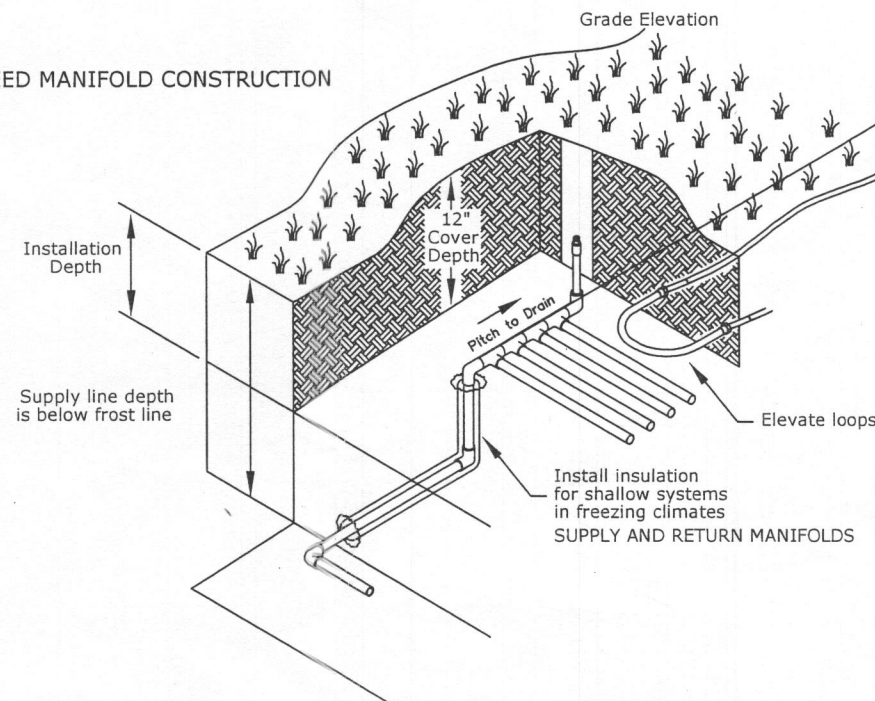


NOTE TO CONTRACTOR:

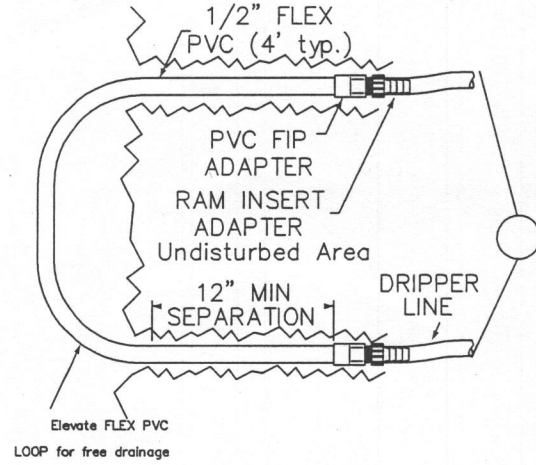
Cut grass as short as possible, rake from site. Install tubing on contour with vibratory plow or narrow trencher at 6-8". Tubing to be flat. Separation to be minimum 18" at manifold ditch. Tubing runs will likely flare out on contour as necessary. Minimize activity on drip field to only that required to install system. There should be no need to drive any machines other than the vibratory plow on the field.

Tom W. Ashton R.E.H.S.	
P.O. Box 220 Bluemont VA 20135	540-454-4672
PROJECT NAME :	2/9/16
13760 Nichols Drive Clarksville, MD 13760	
COUNTY : Howard	TITLE : TOP FEED MANIFOLD CONSTRUCTION SCHEMATIC
DESIGNED BY:	

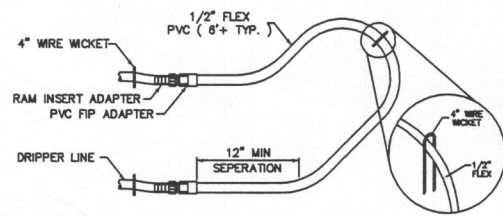
TOP FEED MANIFOLD CONSTRUCTION



BURIED DRIP LOOP CONNECTION

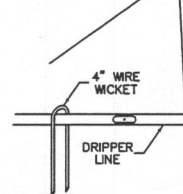


SURFACE / NEAR GRADE



NEAR SURFACE DRIP LOOP CONNECTION ON SLOPING SITES

FOR SURFACE OR NEAR SURFACE INSTALLATIONS USE WIRE WICKETS TO SECURE DRIP TUBING AND FLEX IN INSTALLED POSITION AND LOOP FLEX AS SHOWN



TOP FEED MANIFOLD SYSTEM OPERATION

The Top Feed Manifold (TFM) system is comprised of a set of small diameter (1/2" typical) supply / return manifolds located at the highest point in the drip zone and are provided with air release valves to prevent drain down of upper laterals in the zone to lower laterals in the zone at end dose depressurization, thus preventing saturation of the lower laterals after the pump shuts off.

The system provides for the fastest possible pressurization of the zone and the most efficient method of providing drain down control at end dose depressurization.

Top feed supply manifolds can be used with supply lines fed by zone valves located with the filtration equipment or zone valves located at the same location as the (TFM).

The emitters are normally open and when at low pressure (end dose depressurization) they will drain effluent out of the pipe by gravity. When the lateral is made up of several runs located on contour but each being down slope from the previous run, the effluent may also have the potential to flow downhill within a lateral. Elevated end loops, contour dams, and properly installed air relief valves minimize this draindown.

In the case of the typical side feed supply / return manifolds configuration there is the potential for effluent from upper laterals in a zone to drain to the lower laterals at end dose depressurization as well as the volume of the typically larger diameter end feed manifolds.

File:

SCALE : NTS

SHEET 7 OF 11

COLD WEATHER INSTALLATION NOTES

Minimum construction techniques for all American "Perc-Rite" Drip systems in cold weather climates:

"Top feed" manifolds should be used on all sites with a discernible slope to allow for proper drainage of the manifolds and the 3/4" and 1/2" lateral connectors into the drip tubing.

The main supply and return lines shall be installed below the frost line and shall feed the shallow "top feed" manifolds with a single vertical section of insulated sch 40 PVC pipe. Insulation shall be minimum 1/2" thick foam insulation (or equivalent).

On flat sites where "top feed" manifolds will not drain therefore requiring the use of side feed manifolds, 12" cover is recommended between highest point of 1/2" black flexible PVC pipe (non loop connections) and final grade. On drip tubing installations less than 12" this would require additional cover over the header ditch area to create the 12" separation. Any additional cover is it to be graded and tapered into landscape. Please see note on loop connections below.

Dense vegetation turf cover to be established over supply trench, return trench and tubing prior to 1st exposure to cold weather. If vegetation cannot be established, then trenches and tubing to be covered with a thick layer (minimum 6") of mulch, straw/hay, etc. until such turf cover is established. Cover must be stabilized and maintained until dense vegetative turf is established. Amount of cover may need to be adjusted to account for settling.

All valve boxes that house "remote zone valves" shall be insulated by contractor. Insulation to consist of either blue board, bagged Styrofoam peanuts or equivalent. If fiberglass insulation is used it must be sealed to prevent it from becoming saturated. The "remote valves" shall be placed on a bed of gravel or screenings (4"-6"). Positive grade away from valve boxes is encouraged to reduce the volume of groundwater that may collect in valve box. Certain sites may require positive drains to daylight.

All loops connecting drip runs with 1/2" flexible PVC shall be slightly elevated (minimum 1"-2") so that they drain into the drip tubing after the pump shuts off. It is contractors responsibility to ensure these loops stay elevated during and after the loops are backfilled.

All main supply and return trenches to be installed below the local frost line. If this is not possible due to site restrictions then adequate soil must be added over the top of the trenches so that the effective depth remains below the frost line after settling occurs. The added soils must be prepared for turf cover and stabilized. If vegetation cannot be established then trenches are to be covered with an additional layer (minimum 6") of mulch, straw/hay, etc. until such turf cover is established.

Sufficient ground cover around the hydraulic unit is required to insulate the unit. All pipes entering and leaving the hydraulic unit shall elbow vertically down 90 degrees to a depth below the frost line prior to extending away from the unit horizontally. Additional insulation inside the hydraulic unit is encouraged. Insulation to consist of either blue board, bagged Styrofoam peanuts or equivalent. If fiberglass insulation is used it must be sealed to prevent it from becoming saturated.

All conduit entering into the control panel shall be sealed to prevent condensation inside the panel.

Established vegetation height shall be minimum 4"-6" throughout winter months.

Air release valves shall be placed below the ground surface inside a valve box but at an elevation above the highest drip line in that particular zone.

PRESSURE TESTING

I. System Flushing Air Release Valves Off

a. Be sure pump chamber is full of clean water. Check lights on controller for float activation. The "Off" float and "Standard Enable" float should be in the up position before starting field flush. Continue to fill tank to "alarm" float. It should take one days' flow of clean water to flush tubing.

b. Place all toggle switches, on the inner door, in the "Off" position and place filter backflush switch in the "Auto" position.

c. Remove air release valves, attach piece of 1/2" black flex PVC (5' maximum) to 1/2" white PVC with dry coupling (do not glue) and place end to direct discharge away from excavation.

d. Switch pump to "Hand" position. Pump should dead head with no flow meter movement.

e. Place filter backflush to filter #1 position. Note blue valve opening. Backflush for 15 seconds, Place filter backflush switch to the "Auto" position.

f. Place disc filter backflush to filter #2 position. Note blue valve opening. Backflush for 15 seconds, Place filter backflush switch to the "Auto" position.

g. Turn zone #1 to hand position to allow a manual field flush. After water starts discharging from flex PVC, continue to flush for at least three (3) minutes or until no debris (dirt, PVC shavings, etc.) is noted, whichever is greater.

h. Repeat item "e" & "f".

i. Repeat "g" & "h" for each additional zone.

j. Place all toggle switches, on the inner door, in the "Off" position and place filter backflush switch in the "Auto" position.

k. Remove black PVC hose, dry, and glue coupling with air release valves.

II. Field Flush Flow Test

a. Determine each zone flushing GPM by multiplying the number of lateral connections by 1.6 and adding to the dosing GPM. (see "a" in step III) Resultant should not exceed 15 GPM for the two disc filter rack.

b. Switch pump to "Hand" position. Pump should dead head with no flow meter movement.

c. Place filter backflush switch to filter #1 position. Note blue valve opening. Backflush for 15 seconds. Place filter backflush switch to the "Auto" position.

d. Place filter backflush switch to filter #2 position. Note blue valve opening. Backflush for 15 seconds. Place filter backflush switch to the "Auto" position.

e. Turn switch for "Zone #1" and the "Zone Return Valve" to "Hand" position to allow a manual flush. After water starts flowing through zone return valve, flush for three (3) minutes, check flow rate and compare with design flushing flow rate.

f. Place all toggle switches, on the inner door, in the "Off" position and place filter backflush switch in the "Auto" position.

g. Repeat item "b", "c", "d" & "e" for each additional zone.

h. After flushing the last zone leave the pump and zone valve in the "Hand" position and close the zone return valve "Off". After the flow rate stabilizes and compares to design flow rate, see next section.

III. Field Dose Flow Test

a. Determine each design zone dosing Gallons Per Minute (GPM) by the following formula: (If installed as designed refer to calculation sheet.)

b. Determine dosing flow rate in the last zone flush tested. The rate should be close to value calculated in "a" above. Check for leaks and repair as necessary.

c. With all toggle switches in the "off" position, backflush filters as described above instep II's "b", "c", & "d".

d. Move the next zone switch to the "Hand" position and make sure the Zone Return switch is in the "off" position, watch flow meter slow as system fills. When pressurized, measure flow rate with watch. The rate should be close to value calculated in "a" above. Check for leaks and repair as necessary.

e. Repeat for each additional zone.

f. Place all switches in the "Auto" position.

General Construction Notes

American Manufacturing "Perc-Rite®" Drip

1. All installation and construction techniques shall conform to state and county codes pertaining to on site sewage systems and the permit for this site.

2. The installation of this system shall be in accordance with specifications and procedures as supplied by the Manufacturer of the equipment.

3. The drip tubing shall be installed using a vibratory plow, trencher, or by hand.

4. All tubing to be installed along contour.

5. All PVC pipe and fittings shall be PVC SCH 40 Type 1 rated for pressure applications. All glued joints shall be cleaned and primed with purple (dyed) PVC primer prior to being glued.

6. All cutting of PVC pipe, flexible PVC and dripper tubing of size 1 1/2" or smaller shall be accomplished with pipe cutters approved by American Manufacturing Company, Inc. No sawing of PVC, flexible PVC or dripper tubing of size 1 1/2" or smaller allowed.

7. All PVC pipe, flexible PVC and dripper tubing in the work area shall have the ends covered with duct tape to prevent construction debris from entering the pipe. Prior to gluing, all joints shall be inspected for and cleared of any construction debris.

8. All automatic valves (zone valves & field flush return valves) shall be installed with isolation valves, bypass valves, and disconnects (i.e. unions, flanges) for manual field operation during field maintenance events. All valves must be provided with at-grade access.

9. Drain field supply and return lines and manifolds to be installed at adequate depth to prevent freezing. Horizontal spacing between the dripper lines and the installation depth to be as specified.

10. No activity on drain field area other than minimum required to install system. Do not park equipment, drive large equipment over or store materials on drain field area.

11. No wet weather installation is permitted.

12. The contractor shall be certified by American Manufacturing Company, Inc. to install this type of system and shall hold a pre-construction meeting with the individuals responsible for soil evaluation, permitting and inspections prior to site work beginning to insure protection of the site conditions and to ensure the system is installed according to design.

13. If site conditions are determined to require the installation of the system to deviate from these plans, all work shall stop immediately and the designer shall be notified. Any ongoing work shall be at the sole responsibility of the contractor.

14. All force mains shall be tested for leaks prior to drip tubing installation and prior to system startup. Uncovered force mains shall be visibly inspected for leaks. If a leak is suspected in covered force mains then the force main shall be re-tested at a minimum pressure of at least percent above the design operating pressure, for at least 30 minutes. There shall be no discernible leakage.

15. ASD15 & 25 Hydraulic units to be placed on a bed of gravel for drainage.

16. If standing groundwater is a problem a screened drain to daylight is required.

ALL TANKS TO BE TOP SEAMED AND INSTALLED WATERTIGHT.

INSTALL TANKS AS SHALLOW AS POSSIBLE. PROPERLY SEAL PIPE ENTRY (BOOTS) AND RISER PLACEMENT.

DIVERT ALL HOUSE ROOF, DRIVE, AND SUMP DRAINAGE AWAY FROM ALL SYSTEM COMPONENTS.

Refer to watertight testing standards outlined in the National Precast Association's (NPCA) BMP Manual and ASTM C1227 testing procedures. Tanks that are not watertight are subject to rejection.

NOTE:

System design is best attempt to provide a sewage disposal system to an existing house.. Evaluator / Designer assume no liability as to the future performance of the system.

Tom W. Ashton R.E.H.S.

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME :

2/9/16

13760 Nichols Drive
Clarksville, MD 13760

TITLE : GENERAL
CONSTRUCTION, COLD
WEATHER
INSTALLATION & SITE
CLEARING NOTES

COUNTY : Howard

DESIGNED BY: Tom W. Ashton R.E.H.S

SHEET: 8 OF 11

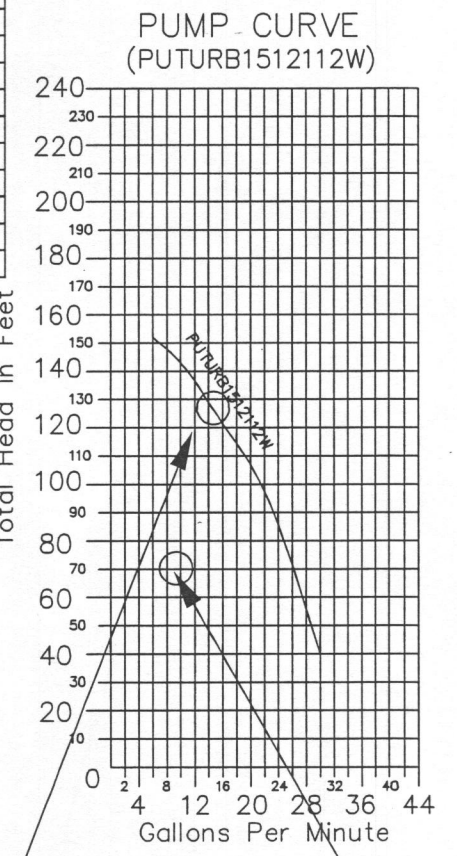
MARYLAND WORKSHEET -Residential Drip Dispersal system design worksheet for > 6"install depth.

line #	INPUTS	Select One	You must be able to answer YES to both questions in order to continue.
		yes	Are supply and return pipes 1"?
		yes	Is the lift to the HU <8' and the run to the HU<30' with 1-1/2" pipe?
1	Aerobic	Select One: Anaerobic or Aerobic?	ASD15 Units are septic or secondary. Washdown units are secondary or better.
2	L (PR/BK/GR) (2,3)		Select Soil Characteristics. Found in column 1 on the Loading Rate Chart. (given by site evaluator)
	12 to 24	Depth to Limitation under tubing	Given by site evaluator. Depth is in inches.
3	450	GPD	Design quantity of wastewater to disperse. GDP field is required; # Bedrooms is optional. (120 gal. per bedroom)
4	55	Contour Run Length	Enter the tubing length along contour. If run length is not on table, use the actual run length. Example: 85 ft.
5	150	Supply LF	Length of supply line between filter unit and farthest zone.
6	12	Lift Ft.	Vertical lift from off level in the pump chamber and highest zone elevation.
7	0.45	Area (gal/ft ² /day) per code	Tab over from Perc Rate Loam: moderate to strong on Loading Rate Chart Area loading rate required to treat and disperse wastewater. This line is to be input from Loading Rate Chart. (See Loading Rate Chart)
8	1000	Area Calculation	Total land area needed to disperse wastewater.
9	500	Total LF Tubing	Required total linear feet of tubing to treat and disperse wastewater.
9	9.09	Calculated Runs	Determines number of runs (Total LF / Contour RL). Rounds up to the next whole number. Reference Zone Detail Table.
	10	Min. # Runs	
10	Z 1 6 2	Zone Detail	On Zone Detail Table, cross the next highest Run Length (ft) from 55 with the row for at least 10 runs Use the ASD 15 Zone Detail Table. Select zone detail from column with next higher Contour Run Length and with equal or greater # Runs. You may input your Zone Detail # in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
11	12	Actual # Runs	Determined from selected Zone Detail.
12	18	Proposed Spacing (Inches)	Based on available area and site condition.
13	18	Down Slop Width (ft)	Calculated from runs and run spacing.
14	990	Area Calculated (ft ²)	Calculated from runs, run spacing, and contour run length.
15	70	Max. Lift Allowed	On Lift & Distance Table, cross the Supply/Return 150 with the column for 6 laterals Use the ASD 15 Lift & Distance Table. You may input your Lift in the indicated cell next to the chart. It will then appear in the second column to the left on this worksheet.
16	660	LF Provided	Total linear feet of tubing Provided to disperse wastewater.
17	660	LF/Zone	Total linear feet per zone.
18	YES	Will zone flush?	Reference Lift & Distance Table for pump capacity determined by the length of run to the farthest field and the number of laterals. For 1" supply and return only.

Soil Textures	Soil Structure	ANAEROBIC		AEROBIC	
		Maximum Monthly Average		Maximum Monthly Average	
		BOD5 > 30mg/L BOD < 220mg/L (gal./ft ² /day)	(gal./LF/day)	BOD5 < 30mg/L (gal./ft ² /day)	(gal./LF/day)
Coarse sand or coarser	N/A	.3 - .4	.6 - .8	.3 - 1.6	.6 - 3.2
Loamy coarse sand	N/A	.25 - .3	.5 - .6	.25 - 1.4	.5 - 2.8
Sand	N/A	.25 - .3	.5 - .6	.25 - 1.2	.5 - 2.4
Loamy sand	Weak to strong	.25 - .3	.5 - .6	.25 - 1.4	.5 - 2.4
Loamy sand	Massive	.15 - .2	.3 - .4	.15 - .7	.3 - 1.4
Fine sand	Moderate to strong	.25 - .3	.5 - .6	.25 - .9	.1 - 1.8
Fine sand	Massive or weak	.15 - .2	.3 - .4	.15 - 0.6	.3 - 1.2
Loamy fine sand	Moderate to strong	.2 - .3	.4 - 0.6	.2 - 0.9	.4 - 1.8
Loamy fine sand	Massive or weak	.15 - .2	.3 - .4	.15 - .6	.3 - 1.2
Very fine sand	N/A	.15 - .2	.3 - .4	.15 - .6	.3 - 1.2
Loamy very fine sand	N/A	.15 - 0.2	.3 - .4	.15 - .6	.3 - 1.2
Sandy loam	Moderate to strong	.15 - 0.2	.3 - .4	.15 - 1	.3 - 2
Sandy loam	Weak, weak platy	.15 - 0.2	.3 - .4	.15 - .6	.3 - 1.2
Sandy loam	Massive	< .1	< .2	.1 - .5	.2 - 1
Loam	Moderate to strong	.15 - .2	.3 - .4	.15 - .9	.3 - 1.8
Loam	Weak, weak platy	.1 - 0.2	.2 - .4	.1 - .6	.2 - 1.2
Loam	Massive	< .1	< .2	.1 - .5	.2 - 1
Silt loam	Moderate to strong	.15 - .2	.3 - .4	.15 - .8	.3 - 1.6
Silt loam	Weak, weak platy	< .1	< .2	.1 - .3	.2 - .6
Silt loam	Massive	0	0	.1 - .2	.2 - .4
Sandy clay loam	Moderate to strong	.15 - .2	.3 - .4	.15 - .6	.3 - 1.2
Clay loam	Weak, weak platy	< .1	< .2	.1 - .3	.2 - .6
Clay loam	Moderate to strong	.1 - .2	.2 - .4	.1 - .6	.2 - 1.2
Silty clay loam	Weak, weak platy	< .1	< .2	.1 - .3	.2 - .6
Silty clay loam	Massive	0	0	0	0
Silty clay loam	Moderate to strong	.1 - .2	.2 - .4	.1 - .6	.2 - 1.2
Sandy clay	Moderate to strong	< .1	< .2	.1 - .3	.2 - .6
Sandy clay	Massive to weak	0	0	0	0
Clay	Moderate to strong	< .1	< .2	.1 - .3	.2 - .6
Clay	Massive to weak	0	0	0	0
Silty clay	Moderate to strong	< .1	< .2	.1 - .3	.2 - .6
Silty clay	Massive to weak	0	0	0	0

ASD15, 15 GPM LIFT & DISTANCE TABLE

Longest supply Manifold Length (feet)	LATERALS						
	2	3	4	5	6	7	
1	300	300	300	240	165	100	
2							
3	100	98	88	75	74	77	
4	150	96	84	69	66	68	
5	200	94	81	63	58	59	



DOSE REGIME

RUN TIME based on dosing one zone at 3.36 GPM
 Average flow = 225 GPD based on 50% of design flow.
 Number of Doses** 6 per day @ 240 min.
 Gallons per Dose= 37.5 Gallons 15 oz. or 0.11 gal. / emitter
 Pump Run time 11.18 min. (one z) 8.58 gal fill 22.9 % or 4.4
 % Pump Run= 4.66 % x Tube Val.
 Each zone dose every 4 hours.
 Peak Flow= 450 GPD
 Number of Doses= 12.00 per day @ 120 min.
 % Pump Run= 9.31 %
 Each zone dose every 2 hours.

15 GPM @ 125 FT BACKWASH TDH
 13 GPM @ 77.00 FT Forward Flush TDH

OPERATING PARAMETERS

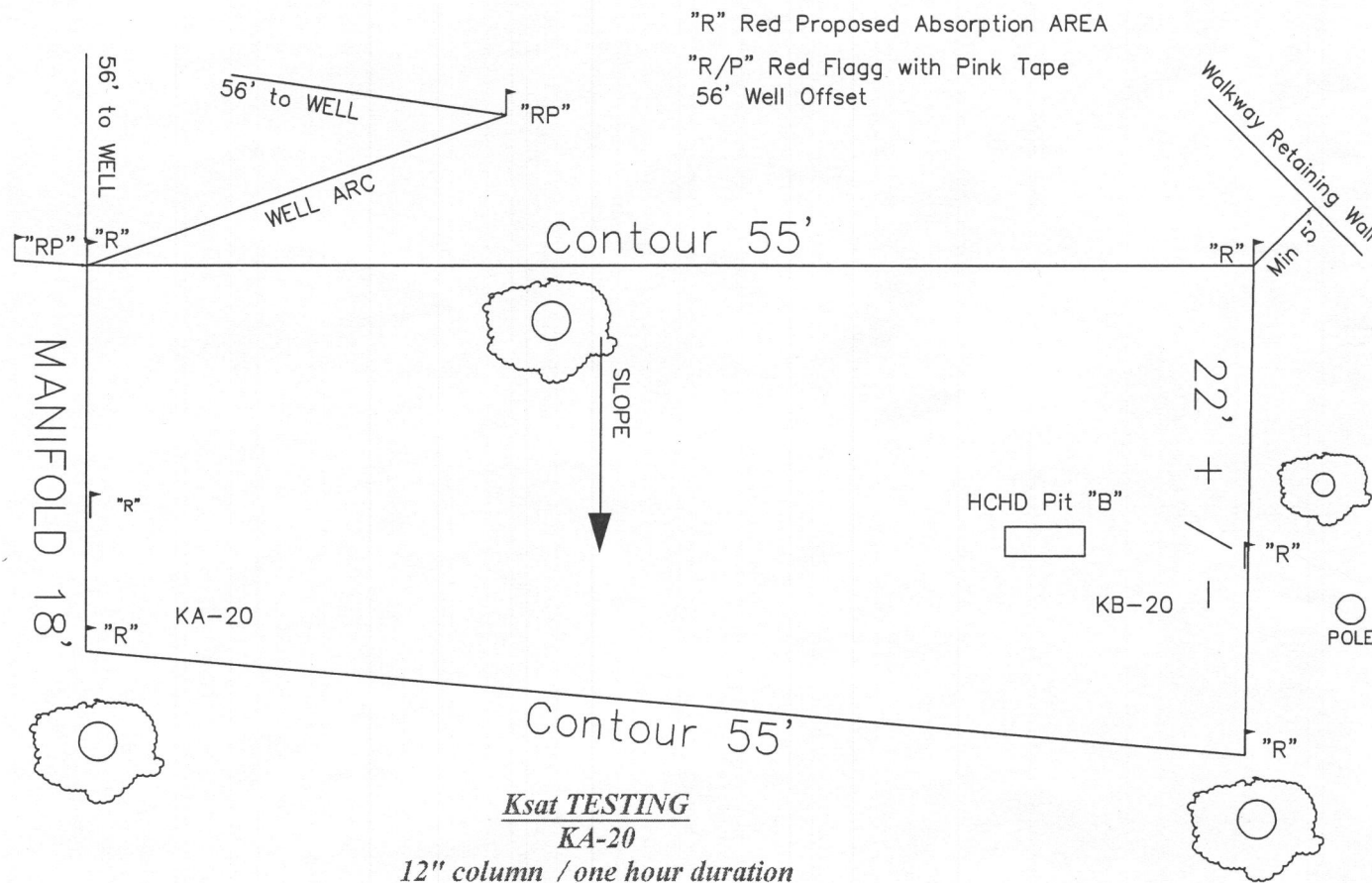
19	450	Peak Gallons per day	Maximum or design gallons per day.
20	270	Average Gallons per day	Average gallons per day. (calculated as 60% of Peak)
21	3.36	Dosing Flow (gpm)	Based on .61 gph per emitter.
22	12.96	Flushing Flow (gpm)	Flow to generate 2 fps at the distal end of each lateral.

13760 Nichols Drive
 Clarksville, MD 13760
 COUNTY : Howard

2/9/16
 TITLE :
CALCULATION SHEET

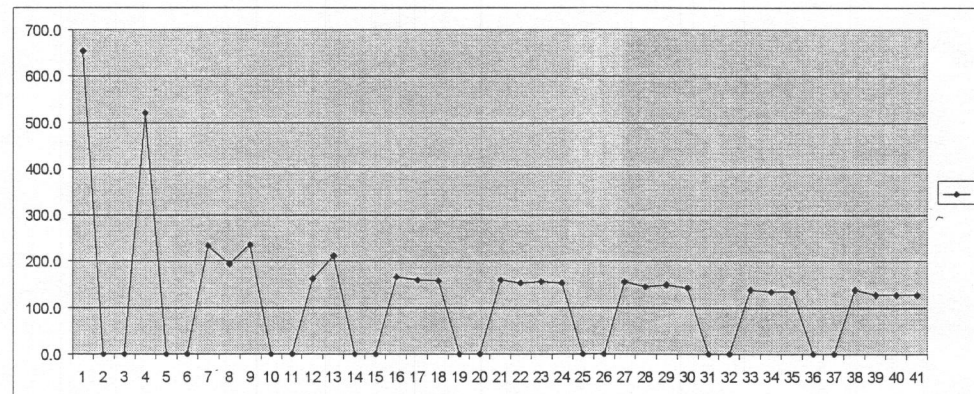
SITE DELINEATION

Observations / Ksat Testing / Stakeout 8/9/15



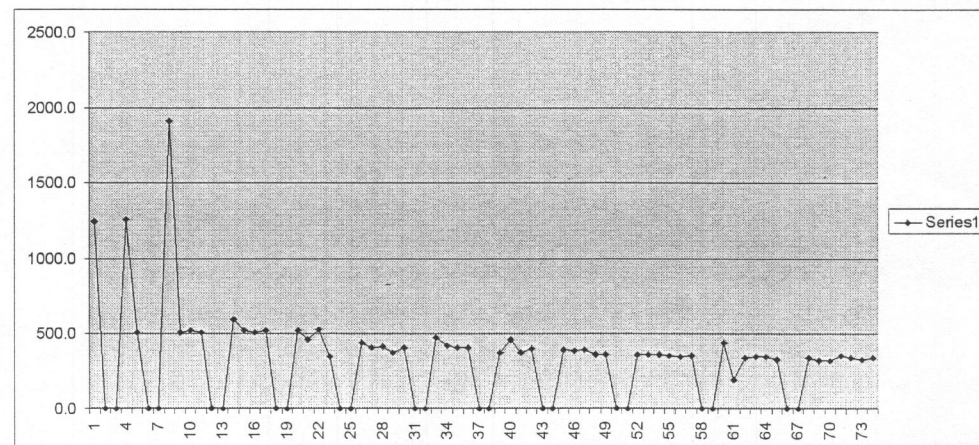
Ksat TESTING
KA-20

12" column / one hour duration



Ksat TESTING
KB-20

8" column / one hour duration



Design footprint / area loading = 0.45 gal./ft2/day

Test Hole ID No.	A	B	C	Loading Rate %
KA - 20	2.100	1.309	31.414	1.43%
KB-20	5.400	3.366	80.780	0.56%

LOADING RATES

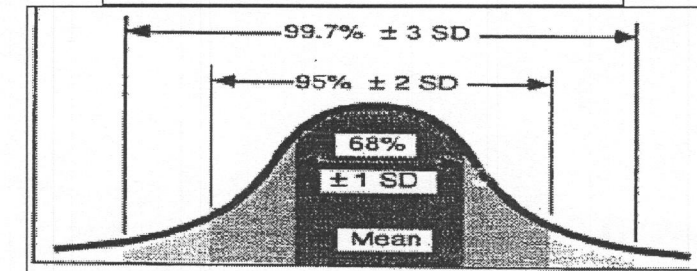
Approximate Footprint 18' x 55' = 990 ft2
Additional area available by extending contour where possible

** PEAK DAILY DESIGN FLOW
450 GPD / 990 ft2 = .45 gal./ft2/day
990 ft2 @ 2 = 495' minimum tubing

** AVERAGE DAILY FLOW
225 GPD / 990 ft2 = .225 gal./ft2/day

Ksat Class	Code 1		Criteria 2	
	PDP	NASIS	cm / hr	in / hr
Very Low	1	#	< 0.0036	< 0.001417
Low	2	#	0.00360 to < 0.0036	0.001417 to < 0.001417
Med. Low	3	#	0.00360 to < 0.00360	0.001417 to < 0.001417
Med. High	4	#	0.00360 to < 0.00360	0.001417 to < 0.001417
High	5	#	0.00360 to < 0.00360	0.001417 to < 0.001417
Very High	6	#	≥ 0.00360	≥ 0.001417

1 There are no 'codes' for Ksat; record the average of measured Ksat values (μ) which can then be assigned to the appropriate class.
2 For alternative units commonly used for these class boundaries (e.g. Standard International Units (Kg s / m³)), see the Soil Survey Manual (Soil Survey Staff, 1993; p 107).



ALL DATA	D	AVG	56.10 gal. / day or	0.80% of design	3.750 in. / hr.
7.500 ft / day	E	Stand. DEV	24.68		
4.200 ft / day	F	Low SD	31.41 gal. / day or	1.43% of design	2.100 in. / hr.
	ALL DATA		0.45 gal./ft2/day =	Design FP / area loading	
6.735 ft / day	G	Geo Mean	50.37 gal. / day or	0.89% of design	3.367 in. / hr.
205.282 cm/day	H	Min. Test	31.41 gal. / day or	1.43% of design	2.100 in. / hr.
	I	VAR	0.11		

- "A" Measured Hydraulic Conductivity in Inches per Hour.
- "B" "A" x .6233 gallons per inch in one cubic foot of water
- "C" "B" x 24 hours
- "D" Average of all data in "C" compared to footprint area loading
- "E" Standard deviation of all data in "C"
- "F" "D" - "E", 88% of all the data is "faster" compared to footprint area loading
- "G" Geometric Mean of all data in "C" compared to footprint area loading
- "H" The lowest individual, (slowest) data compared to footprint area loading
- "I" "D" - "G" / "G"

Tom Ashton

Tom W. Ashton R.E.H.S.

P.O. Box 220 Bluemont VA 20135 540-454-4672

PROJECT NAME :	2/9/16
13760 Nichols Drive Clarksville, MD 13760	TITLE :
COUNTY : Howard	SOIL EVALUATION

13760 Nichols Drive – installation of drip system

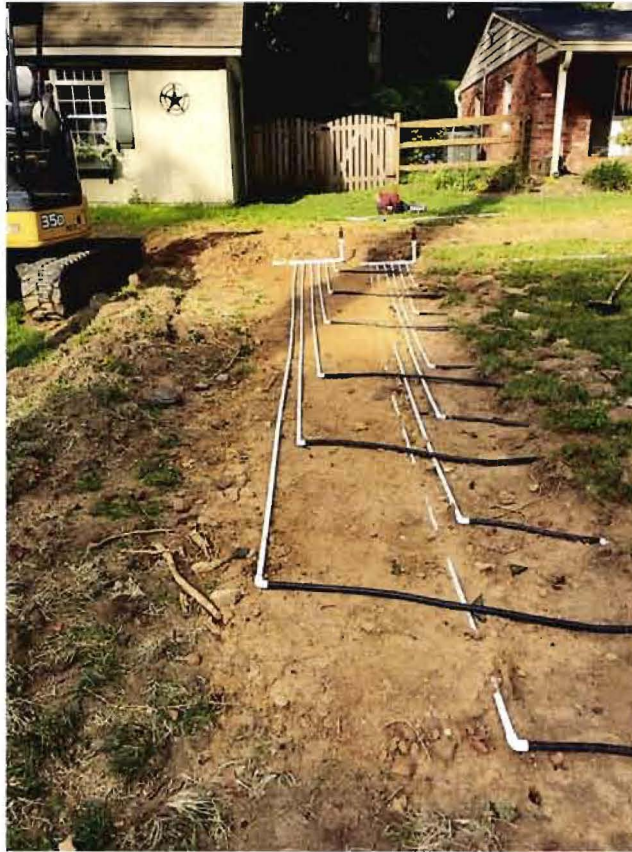


13760 Nichols Drive – installation of drip system



13760 Nichols Drive – installation of drip system

Manifold connections

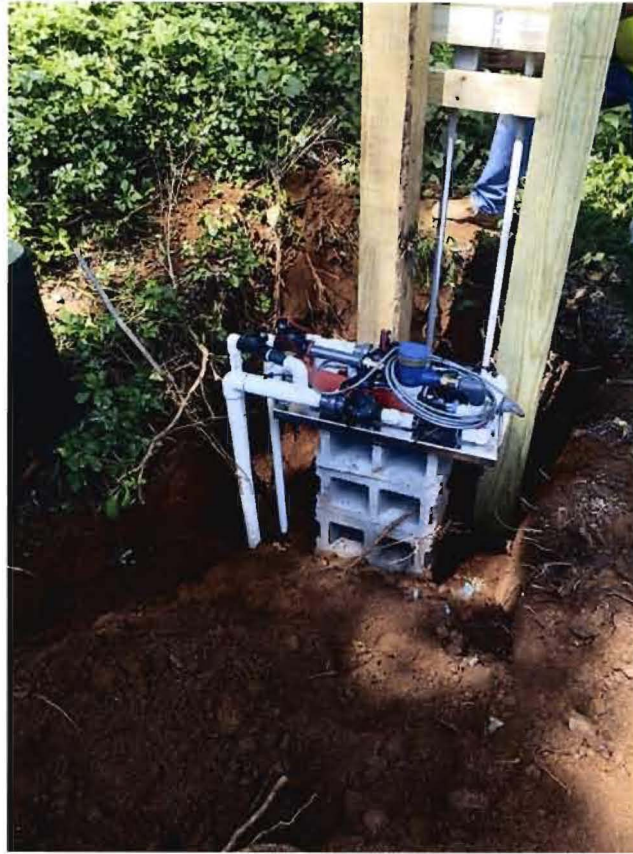


Supply, return, and check valves



13760 Nichols Drive – installation of drip system

Headworks



Electrical conduit



13760 Nichols Drive – installation of drip system

Electrical conduit,
supply, and return
lines

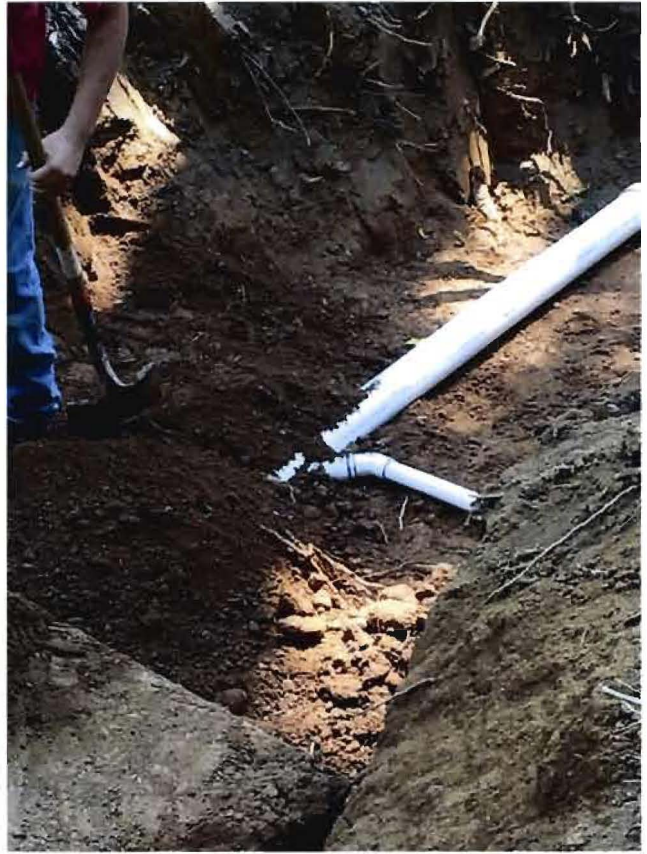


Supply, return, and
check valves
running to
headworks

Lines sleeved
running over
tanks



13760 Nichols Drive – installation of drip system



4" house sewer line
and return line

Wolf, Kevin

From: Wolf, Kevin
Sent: Wednesday, July 22, 2015 10:42 PM
To: Atticus Cosgrove
Cc: Lisa Jean; Melissa Westerlund; Kristi Neidhardt
Subject: RE: Nichols drive septic

Importance: High

Folks:

On 7/17, my site evaluation criteria on the subject property concluded sandy clay loam soil with shallow water table intrusion in the low lying areas of the property. Two of the percolation testing sites had high percentage of consolidated rock. The general topography of the property is conducive to possible subsurface systems but restrictions are high with the current well location setback(100' from septic components), slow soil permeability, suitable soil depths, and existing mixed geology and subsurface drainage conditions. A small area was found between the existing drywell and septic tank (this area is located around the percolation testing site C), which could be a possible design location of a subsurface innovative system but further testing will be needed to confirm this option. I tried to fit a conventional trench design in this area extending about 55' in length but limiting contour/topography and shallow depth to bedrock/water table precluded a system design that met only half the existing design flow need of 450 gallons per day.

In summary, this site evaluation ended in extensive conventional subsurface soil delineation which eluded to the investigation in further research of possible non-conventional site testing and evaluation. Based on this information, this site has been moved into innovative status to this point. Evaluations and recommendations must come in conjunction with the Howard County Health Department and Maryland Department of the Environment's (MDE) Regional Consultant as stated in State Regulation.

I have spoken with our State Regional Consultant (Steve Krieg) with MDE and explained the aforementioned information to him. His decision was not adaptive to any possible conventional systems and informed that the site will require further evaluation to determine possible alternatives. At this time, we have set up a site visit with the Health Department and MDE's Regional Consultant for **August 5th, 2015**. No other alternatives can be given until MDE Regional Consultant has made his site assessment.

Please refer to the section noted above in reference to State Regulations. This can be found at the link listed here. <http://www.dsd.state.md.us/comar/comarhtml/26/26.04.02.06.htm>
A full in-depth look at the regulations mentioned here as well as a greater detail of the septic regulations relating to this matter at hand can be found at the link listed here under Title 26. http://www.dsd.state.md.us/comar/subtitle_chapters/26_Chapters.aspx#Subtitle04

Please do not hesitate to reach me with any questions that you may have.
Thanks,

Kevin M. Wolf, LEHS, Supervisor
Groundwater Management Section
Well & Septic Program
Bureau of Environmental Health
8930 Stanford Blvd.
Columbia, MD 21045
(o) 410-313-2645
(f) 410-313-2648

kwolf@howardcountymd.gov

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From: Wolf, Kevin
Sent: Wednesday, July 22, 2015 8:50 PM
To: Atticus Cosgrove
Cc: Lisa Jean; Melissa Westerlund; Kristi Neidhardt
Subject: RE: Nichols drive septic

From: Atticus Cosgrove [atticuscosgrove@gmail.com]
Sent: Wednesday, July 22, 2015 12:34 PM
To: Wolf, Kevin
Cc: Lisa Jean; Melissa Westerlund; Kristi Neidhardt
Subject: Nichols drive septic

Any word on septic repair for 13760 Nichols Drive? Just waiting to see if your design was approved so Fogels can move forward.

Hope this can be expedited so repairs can be completed and inspected by next week. Closing on the house is set for 7/30 at 9:00 am. Fogels said repairs should take 2-3 days to complete.

Wolf, Kevin

From: Wolf, Kevin
Sent: Tuesday, July 21, 2015 11:33 AM
To: Steven Krieg -MDE-
Subject: 13760 Nichols Drive
Attachments: 13760_nichols_drive_septic_inspection.pdf; 13760_nichols_drive.pdf

Steve,

Here is the scoop on this property: Came in as a repair, failed by property transfer inspection (attached), made several site visits (Robert also looked at the site) one without the contractor and another with the contractor and a mini excavator. See the attached file w/ perc data and field notes...

My question to you is can we get a variance for a reduced buffer? I only ask this because Jeff and I looked at this property closely and came up with a possible trench install in conjunction with keeping the existing drywell. The new trench would go between the ex. S.T. and D.W. This site is very complex. Floodplain/alluvial soil over entire site, very limited area with steep slopes >25% and high groundwater. Perc testing showed highly micaceous soil w/ clayey soil mixed on soil peds which eluded to very slow rates but conventional at best. Only possible area limiting well setback, floodplain, high groundwater, and steep slopes, would be near the existing drywell.

Also, the drywell sit's in a good position on the lot, installed 8' deep (aprx. 10x10') 6" to surface. Let me know what you think about this one. As usual, all respective owners/buyers/agents are very persistent.

Thanks
Kevin

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Wolf, Kevin

From: TWA220@aol.com
Sent: Sunday, August 09, 2015 11:59 AM
To: steven.krieg@maryland.gov
Cc: Wolf, Kevin
Subject: Re: SAT Nichols Drive went well today, better than I expected
Attachments: 13760 Nichols PREL.pdf

See attached. Get in touch if you need anything or want to discuss.

Tom

In a message dated 8/8/2015 7:21:49 P.M. Eastern Daylight Time, steven.krieg@maryland.gov writes:

Thanks Tom.

Send me what you work up and then I'll talk with Kevin Monday.

----- Forwarded message -----

From: <TWA220@aol.com>
Date: Sat, Aug 8, 2015 at 6:03 PM
Subject: SAT Nichols Drive went well today, better than I expected
To: steven.krieg@maryland.gov

As you know the only suitable area is in the front yard.

Set well arc 75', only revealed a 10' x 45' area, 5' from the roadside fence.

Set well arc at 56'. Top of manifold would be at 56', rest of upper contour a greater distance. Delineated an area 18' x 55' flaring to 22'. The walnut tree is in upper 1/3 portion of the area. The rest of the trees are proximate but out of the area.

Delineated area is approximately 1100 ft², or a .41 g/ft²/day for 450 GPD. Can easily get 500' of tubing based on a gross calc utilizing a standard 2' center. The 55' contour can be extended to 5' from power pole, trees, and small retaining wall. With a 1.5' center may get 800' +. Area is definitely well away from the property lines.

There are a couple of approaches to accommodating the walnut tree. I've sketched up a zone detail.

Soils very friable silt loams, definitely Manor which has little if any "B". Given the landscape could be some mixed fill, tough to tell, it *has* been there 50 years. Typical quartz and roots. Couldn't get too deep. I'd defer to Kevin's description.

Two kSats at 20", one with a 12" column and the swale side lower corner, the other just below Kevin's pit with a 8" water column. I chose 20" as at that depth the soil went a little paler. Ran both tests separately for 1 hour. One and two minute readings, lots of refilling. Stabilized, rate *really* fast. Like deep coastal plain sands.

I would install with a trencher at 8". No sand.

The question is the well. The hydrology has got to be going towards the stream. We could place a gravity UV on it. Not much \$, however I don't think it's necessary. I suspect the "C" material to be deep. From the upper property corner there was a very deep burrow pit visible on the adjacent parcel.

Took an hour to come up with the delineation (lock level). Then the ksat testing, on site for 3+ hours. It is a good site, I have no reservations. I'd like to begin the design as soon as possible.

Owners will likely get an escrow estimate from Fogles, which is good as they likely can work one up and it will likely be conservative.

The intent is to have Dwayne support as it is out of Charlies area and franly pretty close to him. We are going to need some contractor recommendations. Dwayne has sponsored extended "lunch and learn" trainings.

New owners a couple with an infant.

I'll get you something more formal tomorrow.

Have a good SAT.

Tom

--
Steven R. Krieg, L.E.H.S.
Regional Consultant for Mid and Western, MD

On-site Systems Division
Wastewater Permits Program
Water Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 455
Baltimore, MD 21230-1708

(410) 537-3680 (Direct)
(410) 537-3163 (FAX)

**AGREEMENT AND EASEMENT FOR
INSTALLATION OF AN INNOVATIVE OR ALTERNATIVE
ON-SITE SEWAGE DISPOSAL SYSTEM WITH THE USE OF
BEST AVAILABLE TECHNOLOGY THROUGH
BAY RESTORATION FUNDS**

THIS AGREEMENT is made this 15th day of March 2015, by George and Anna Marie Vice, hereinafter referred to as "Owners", 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, Owners owns a tract of land located on 13760 Nichols Drive, in the 5th Election District of Howard County, Maryland, and the deed to same is recorded among the Land Records of Howard County, Maryland, in Clarksville, and in Liber 16448 Folio 0315.

WHEREAS, Owner's land is improved and the existing means of sewage disposal has been found to be prejudicial to the environment and/or public health.

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

WHEREAS, Owners understand that participation in the Bay Restoration Fund and the innovative and alternative program is voluntary.

NOW, THEREFORE, the parties hereto agree as follows:

A. The property is currently improved with a 3 bedroom single family residence served by 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 involve increased flow to the on-site sewage disposal system.

C. The Owners wish to replace the existing on-site sewage disposal system: and soil evaluation has revealed that a conventional on-site system is not possible. The Owners, through their Agents, Tom Ashton have proposed the use of an innovative or alternative on-site sewage disposal system.

D. Owners 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 must be installed during installation.

E. Owners hereby grant 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 Owners agrees to provide any information and data requested and needed by the Department to develop accurate and thorough test results.

F. Owners acknowledge and agree that the proposed BAT and innovative/alternative system is experimental and that his or her participation is voluntary. Owners agree that there shall be no liability on the part of the County or Department to the Owners if this BAT or innovative/alternative system fails, and that the County and the Department do not warrant or guarantee that the system will adequately or properly function.

G. Owners acknowledge and agree that an MDE certified and manufacturer-approved installer will install the best available technology (BAT) system.

H. Owners acknowledge and agree that an MDE and manufacturer certified service provider will provide for Operation and Maintenance of the BAT for a period of 5 years as a condition of sale of the BAT. After the initial 5-year period, an Operation and Maintenance service contract with an MDE and manufacturer certified service provider is required to be maintained in perpetuity by the property owners.

I. Owners acknowledge and agrees that the manufacturer appointed Operation and Maintenance provider will have access to the BAT system at all times.

J. Owners acknowledge and agree 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.

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

L. The Canaan Valley Institute agrees to grant 100% toward the cost of installation of the BAT System, and financial responsibility is limited to this amount. Operating costs will be at the Owner's expense.

M. Owners acknowledge in the event the total BRF project cost is greater than \$25,000 the proposal will have to be approved by the Maryland State Board of Public Works.

N. The Owners must install the BAT system according to the manufacturer recommended plans and specifications approved by the County and MDE.

O. The Owners agree and acknowledge 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.

P. The Owners agree, 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 Owners agree 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 and pay a private entity to pump on a regularly scheduled basis an approved holding tank system.

Q. 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 may lay out the system in the field with the contractor. The Owners must install this system according to the plans and specifications approved by the Department and any changes required by the 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 Owners agree to pay for all necessary corrections.

R. This agreement shall run with the land and binds the Owner, his heirs, successors, assigns Owners further agree that he shall inform in writing any purchaser or lessee of the property that the system may require maintenance or other attention. The Owners agree to record this agreement in the land records of Howard County.

S. This agreement shall not be construed to limit any authority of the County or 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.

T. 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.

U. This agreement contains the entire agreement and understanding between the County and the Owners 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.

V. 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: _____

Owner

DATE: _____

Owner

DATE: _____

Naomi Howell, L.E.H.S., Acting Division Chief
Onsite Systems Division, WWPP
Maryland Department of the Environment

DATE: _____

Bert Nixon, L.E.H.S., Director
Bureau of Environmental Health
Howard County Health Department

Wolf, Kevin

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Sent: Sunday, August 09, 2015 11:59 AM
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Cc: Wolf, Kevin
Subject: Re: SAT Nichols Drive went well today, better than I expected
Attachments: 13760 Nichols PREL.pdf

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Tom

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Delineated area is approximately 1100 ft², or a .41 g/ft²/day for 450 GPD. Can easily get 500' of tubing based on a gross calc utilizing a standard 2' center. The 55' contour can be extended to 5' from power pole, trees, and small retaining wall. With a 1.5' center may get 800' +. Area is definitely well away from the property lines.

There are a couple of approaches to accommodating the walnut tree. I've sketched up a zone detail.

Soils very friable silt loams, definitely Manor which has little if any "B". Given the landscape could be some mixed fill, tough to tell, it *has* been there 50 years. Typical quartz and roots. Couldn't get too deep. I'd defer to Kevin's description.

Two kSats at 20", one with a 12" column and the swale side lower corner, the other just below Kevin's pit with a 8" water column. I chose 20" as at that depth the soil went a little paler. Ran both tests separately for 1 hour. One and two minute readings, lots of refilling. Stabilized, rate *really* fast. Like deep coastal plain sands.

I would install with a trencher at 8". No sand.

The question is the well. The hydrology has got to be going towards the stream. We could place a gravity UV on it. Not much \$, however I don't think it's necessary. I suspect the "C" material to be deep. From the upper property corner there was a very deep burrow pit visible on the adjacent parcel.

Took an hour to come up with the delineation (lock level). Then the ksat testing, on site for 3+ hours. It is a good site, I have no reservations. I'd like to begin the design as soon as possible.

Owners will likely get an escrow estimate from Fogles, which is good as they likely can work one up and it will likely be conservative.

The intent is to have Dwayne support as it is out of Charlies area and franly pretty close to him. We are going to need some contractor recommendations. Dwayne has sponsored extended "lunch and learn" trainings.

New owners a couple with an infant.

I'll get you something more formal tomorrow.

Have a good SAT.

Tom

--
Steven R. Krieg, L.E.H.S.
Regional Consultant for Mid and Western, MD

On-site Systems Division
Wastewater Permits Program
Water Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 455
Baltimore, MD 21230-1708

(410) 537-3680 (Direct)

(410) 537-3163 (FAX)

Wolf, Kevin

From: Steven Krieg -MDE- <steven.krieg@maryland.gov>
Sent: Friday, August 07, 2015 8:09 PM
To: Wolf, Kevin
Subject: Re: TOM ASHTON Nichols Drive site visit

I'll go over the plans for Scaggsville and Mink Hollow this weekend. Call me Monday.

On Fri, Aug 7, 2015 at 7:57 PM, Wolf, Kevin <KWolf@howardcountymd.gov> wrote:
Thanks Tom. I know the homeowners are greatfull. They did exercise possible off site testing to the adjacent property above them. I do not know if they got even got permission.

Steve - sorry I missed your calls back and forth today. I'll be in touch I guess Monday. Jeff is out next week on vaca. I have Tuesday and I believe Thursday for repairs. The one Tuesday might be a bad one. I'll call ya Monday.
Kevin

----- Original message -----

From: Steven Krieg -MDE- <steven.krieg@maryland.gov>
Date: 08/07/2015 6:28 PM (GMT-05:00)
To: "Wolf, Kevin" <KWolf@howardcountymd.gov>
Subject: Fwd: TOM ASHTON Nichols Drive site visit

----- Forwarded message -----

From: <TWA220@aol.com>
Date: Fri, Aug 7, 2015 at 6:16 PM
Subject: TOM ASHTON Nichols Drive site visit
To: atticuscosgrove@gmail.com

Atticus,

I will be by the property tomorrow sometime around noon tomorrow.

The county and MDE sent me a bit of information on the property....permits, their soil evaluation etc..If you have a plat or house location survey please make me a clean copy if you can, or scan and send.

Very tight situation, the 100' well setback appears really encumbers the amount useable available area. A variance can be applied for a reduced setback, however it depends upon the age a construction of the well and perhaps other considerations. Once you get less than 75' the issue gets very critical.

I will only have a couple of hours at the most. However, that should be enough time to delineate the available area, advanced some soil borings, and come up with a design approach.

In these cases when there are soil/ site constraints, especially limited area, it is necessary for me to perform a number of infiltration tests. I donot have the equipment with me or frankly not the time this visit. The procedures take several hours.

Typically I perform a soil / site valuation, delineate (stake) the area, perform the infiltration testing, and develop a preliminary design proposal for the county and MDE's approval prior to preparing the design plans.

I'll have a good idea tomorrow on the approach. Hopefully all my field work will be completed by the end of the week and the preliminary design proposal to the county and MDE. Once approved, if routine, it will take me a week or ten days to prepare the design and plans.

Then there the is county / MDE review, and agreements to be signed and recorded for an innovative / alternative system and who know what else.

I know it is all a bit over whelming, especially at the 11th hour. We can discuss tomorrow.

Look forward to meeting you.

Tom W. Ashton
Environmental Health Specialist
Professional Soil Scientist
P.O. Box 220
Bluemont VA 20135
(540) 454 - 4672

"*Stercus Accidit*"

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The 2015 Onsite Wastewater Mega-Conference
Uniting for Progress
One conference, four organizations, lots of solutions
Nov. 3 - 6, 2015 Virginia Beach VA

CHECK THE LINK!!

NOWRA: National Onsite Wastewater Recycling Association

SOIL / SITE EVALUATIONS
PERCOLATION / HYDRAULIC CONDUCTIVITY TESTING
HYDRAULIC ASSESSMENT & LATERAL FLOW ANALYSIS
ALTERNATIVE AND INNOVATIVE SYSTEM DESIGNS
DRIP DISPERSAL / LOW PRESSURE DISTRIBUTION
AT GRADE / MOUND

--

Steven R. Krieg, L.E.H.S.
Regional Consultant for Mid and Western MD

On-site Systems Division
Wastewater Permits Program
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--

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Wolf, Kevin

From: Wolf, Kevin
Sent: Friday, September 02, 2016 12:46 PM
To: 'Travis Vice'
Subject: RE: 13760 Nichols Drive Septic System

Travis,
I did receive the completion report from MDE. We are still in the midst of review but now with the report on the well, this helps. There are still some concerns, however, of location of the drip system in relation to the existing well. We are also looking at possible replacement locations for future if need be. In lieu of this information, I have asked our MDE geologist John Boris, to assist me in siting a new location and to go over your existing well. This will probably occur between 11am -1:30pm Wednesday 9/7. You are not required to be there but if you'd like to be that would be helpful. I will also have some information/paperwork that I will need you to look over and sign. I can email this information following our visit as well if you not able to be there. I will follow-up with you Wednesday morning via email give you a more exact time-frame.

Kevin

From: Travis Vice [<mailto:george.travis.vice@gmail.com>]
Sent: Tuesday, August 30, 2016 5:59 PM
To: Wolf, Kevin
Cc: Steven Krieg -MDE-; John Boris -MDE- (john.boris@maryland.gov); TWA220@aol.com
Subject: RE: 13760 Nichols Drive Septic System

The number on the well is HO-73-0789. Hope that helps.

On Aug 30, 2016 12:47 PM, "Wolf, Kevin" <KWolf@howardcountymd.gov> wrote:

Travis,

To this point, we have a septic system design for a drip system that is proposed to be located in the front part of your yard. There are however, pending issues that could result in further revisions to the design. One of the issues is with the construction of your current well. As stated previously, unfortunately the Howard County Health Department or the MDE do not have any records of your existing well. Due to proximity setbacks with the proposed septic drip field to your well, we will need further evaluation of your ex. well in order to make a definitive determination of the septic system design plan. In lieu of these records, the well will need to be visually inspected by way of a camera that will extend down the entire length of the well. We need to verify and ultimately certify the well as meeting current construction standards. This will include but not limited to, main casing depth, competent bedrock depth, water fracture depths, static levels, and drawn-down depths. This must be performed by a Maryland Licensed Well Driller. We have supplied two drilling companies in the area that are fully capable of performing this task and can certify the current well construction:

L.F. Easterday, Inc

9265 Brown Church Road

Mt. Airy, MD 21771

301-829-1640

Jones Well Drilling, Inc.

3700 Rush Road

Jarrettsville, MD 21084

410-692-6981

Once we have completed this well inspection and depending on the outcome, we will further evaluate the situation and try to come to a resolution with the current septic system design. Let me know if you have any questions to the above info or any other questions or comments.

Kevin

From: Wolf, Kevin
Sent: Wednesday, August 17, 2016 11:50 AM
To: 'Travis Vice'
Subject: RE: 13760 Nichols Drive Septic System

Travis,

Yes, I have to check into it but I think we still have to get the Innovative & Alternative agreement signed and recorded. I have been in touch with MDE and Tom Ashton on the some tweaks to the system design. I have them coming down here Friday. We'll be in touch.

From: Travis Vice [<mailto:george.travis.vice@gmail.com>]
Sent: Tuesday, August 16, 2016 1:14 PM
To: Wolf, Kevin
Subject: 13760 Nichols Drive Septic System

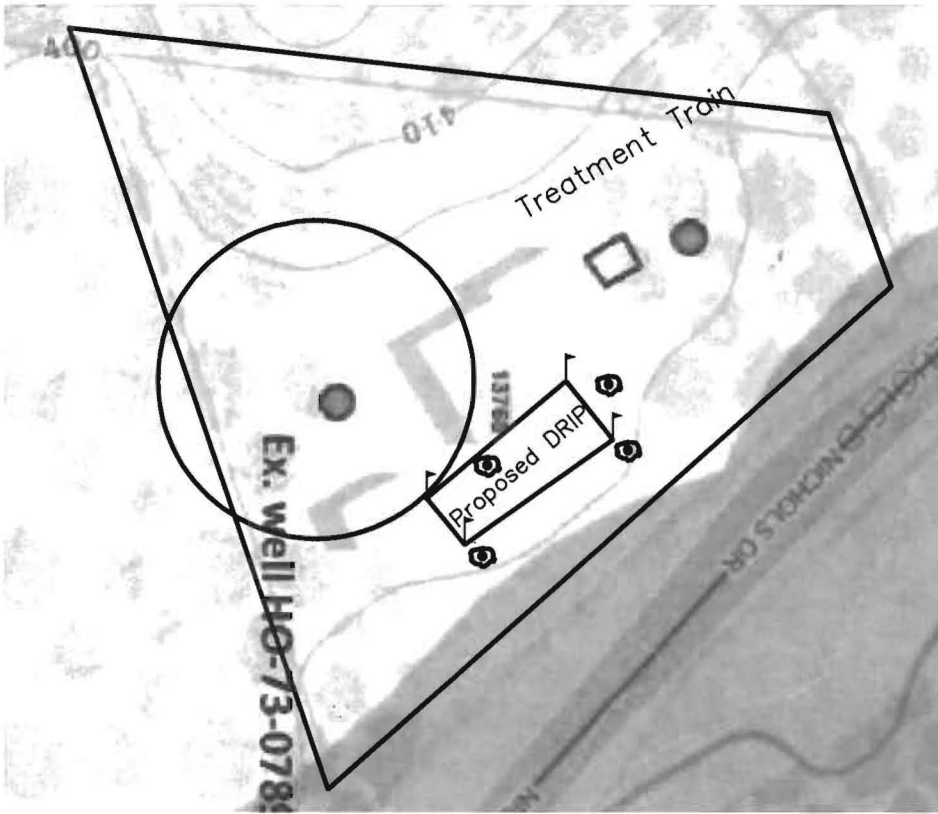
Kevin,

I wanted to check back in with you on the septic system at our property. Last time we talked, you mentioned that you had paperwork for us to sign. When would you like us to come in and sign that paperwork?

Thank you,

Travis Vice

13760 Nichols Dr. PRELIMINARY DESIGN



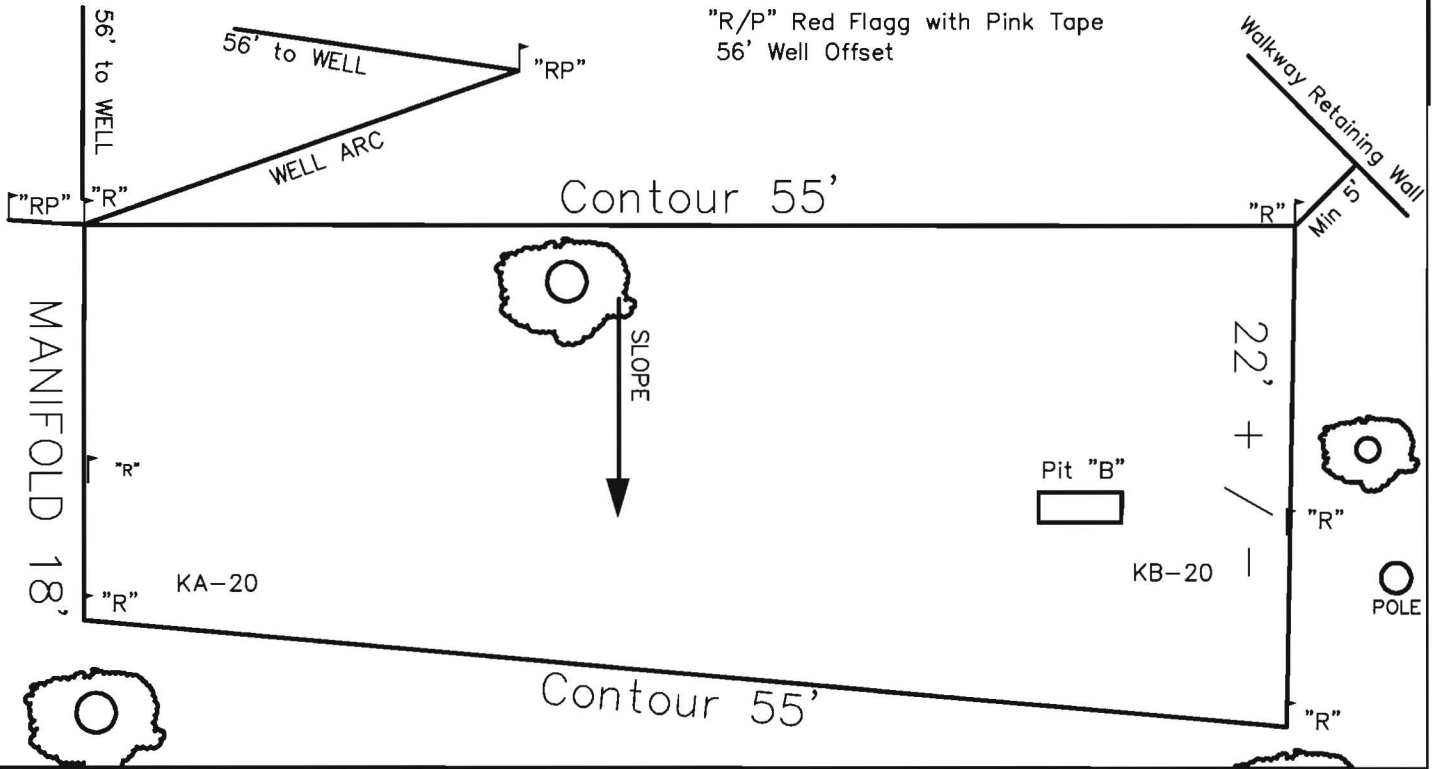
NOTE:
NOT FOR CONSTRUCTION OR PERMIT.

System design **PRELIMINARY**
 based on area as delineated.

Tom W. Ashton

Tom W. Ashton
 Environmental Health
 Specialist
 Professional Soil Scientist
 P.O. Box 220
 Bluemont VA 20135
 (540) 454 - 4672

Pin Flag
 "R" Red Proposed Absorption AREA
 "R/P" Red Flag with Pink Tape
 56' Well Offset



SITE DELINEATION

Observations / Ksat Testing / Stakeout 8/9/15

PAGE 1

SCHMATIC Not To Scale

August 10, 2015



13760 Nichols Dr. PRELIMINARY DESIGN

Ksat TESTING

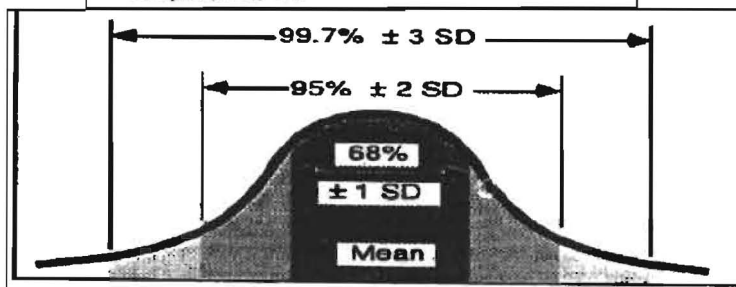
Design footprint / area loading = 0.45 gal./ft²/day

Test Hole ID No.	ALL DATA		PROJECT:	
	A HC in./hr	B gal/hour	C gal. / day	Loading Rate %
KA - 20	2.100	1.309	31.414	1.43%
KB-20	5.400	3.366	80.780	0.56%

K _{sat} Class	Code ¹		Criteria ²	
	POP	NASIS	cm / hr	in. / hr
Very Low	1	#	< 0.0036	< 0.001417
Low	2	#	0.00360 to < 0.036	0.001417 to < 0.01417
Med. Low	3	#	0.0360 to < 0.360	0.01417 to < 0.1417
Med. High	4	#	0.360 to < 3.60	0.1417 to < 1.417
High	5	#	3.60 to < 36.0	1.417 to < 14.17
Very High	6	#	≥ 36.0	≥ 14.17

¹ There are no "codes" for K_{sat}; record the average of measured K_{sat} values (#) which can then be assigned to the appropriate class.

² For alternative units commonly used for these class boundaries (e.g., Standard International Units (Kg s⁻¹ m⁻³), see the Soil Survey Manual (Soil Survey Staff, 1993; p 107).



7.500 ft / day	D	AVG	56.10 gal. / day or	0.80% of design	3.750 in. / h
	E	Stand. DEV	24.68		
4.200 ft / day	F	Low SD	31.41 gal. / day or	1.43% of design	2.100 in. / h
	ALL DATA		0.45 gal./ft ² /day =	Design FP / area loading	
6.735 ft / day	G	Geo Mean	50.37 gal. / day or	0.89% of design	3.367 in. / h
205.282 cm/day	H	Min. Test	31.41 gal. / day or	1.43% of design	2.100 in. / h
	I	VAR	0.11		

- "A" Measured Hydraulic Conductivity in Inches per Hour.
- "B" "A" x .6233 gallons per inch in one cubic foot of water
- "C" "B" x 24 hours
- "D" Average of all data in "C" compared to footprint area loading
- "E" Standard deviation of all data in "C"
- "F" "D" - "E", 88% of all the data is "faster" compared to footprint area loading
- "G" Geometric Mean of all data in "C" compared to footprint area loading
- "H" The lowest individual, (slowest) data compared to footprint area loading
- "I" "D" / "E"



KSAT TESTS ANALYSIS

PAGE 3

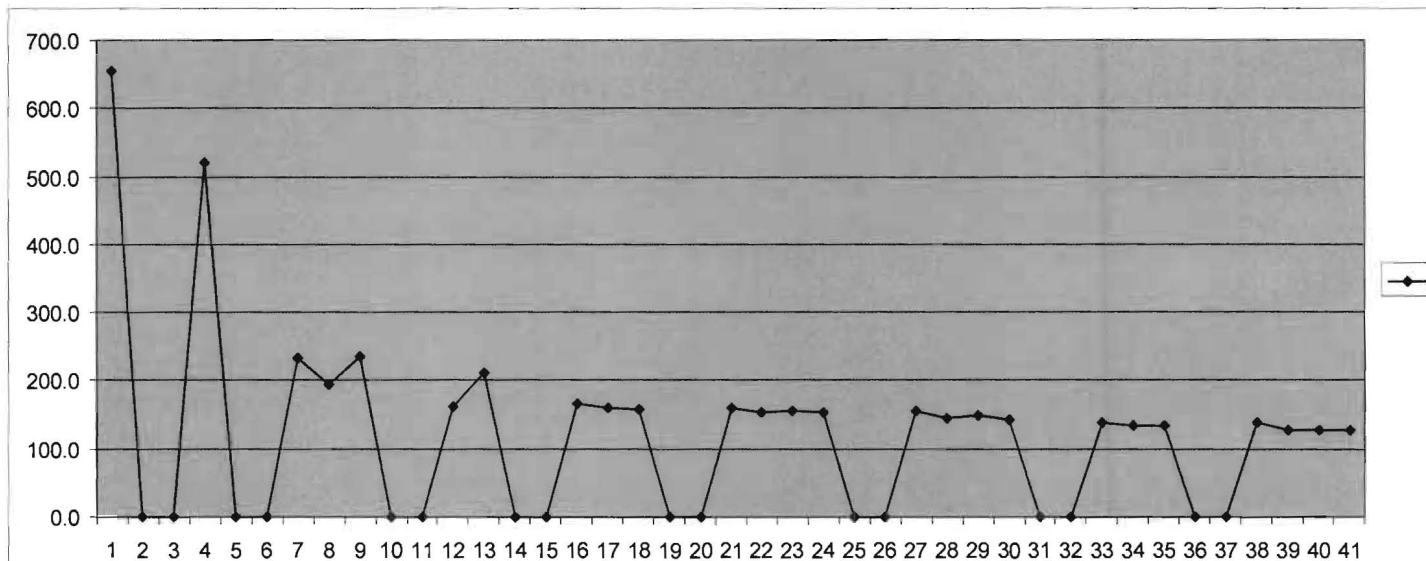
August 10, 2015

13760 Nichols Dr. PRELIMINARY DESIGN

Ksat TESTING

KA-20

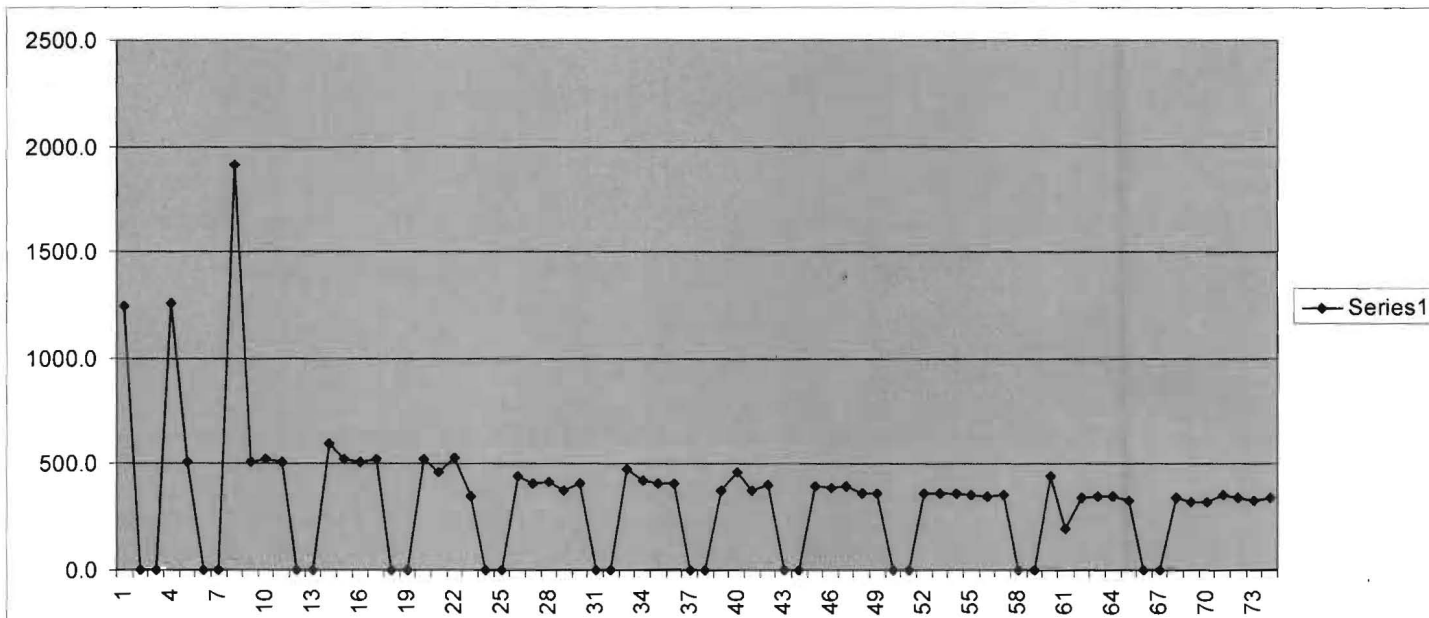
12" column / one hour duration



Ksat TESTING

KB-20

8" column / one hour duration



KSAT TESTS

13760 Nichols Dr. PRELIMINARY DESIGN

Soil Evaluation August 9, 2015

Proposed absorption area in front of property 56+ from existing well. Soils Silt Loam to Loam very loose and friable as described in Kevin Wolf Pit "B" evaluation. Manor series.

LOADING RATES

Approximate Footprint 18' x 55' = 990 ft²

Additional area available by extending contour where possible

**** PEAK DAILY DESIGN FLOW**

450 GPD / 990 ft² = .45 gal/ft²/day

990 ft² x 2 = 495' minimum tubing

**** AVERAGE DAILY FLOW**

225 GPD / 990 ft² = .225 gal/ft²/day

PROPOSED SYSTEM

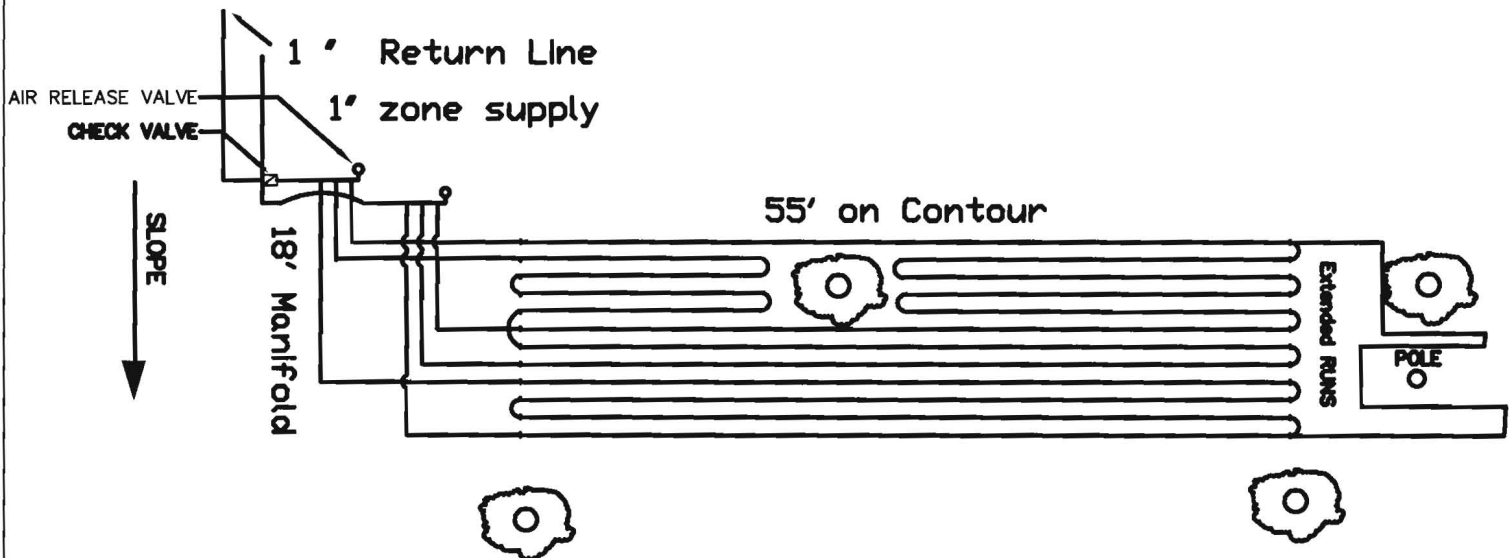
Treatment train to be in area of existing tanks. Drip Dispersal System proposed. Install 1 - 1.5+' centers at 6 - 10" deep. Preliminary design yield approximately 600'+.

NOTE:

NOT FOR CONSTRUCTION OR PERMIT.

System design PRELIMINARY based on area as delineated.

ZONE DETAIL



LOADING RATES / ZONE DETAILS

PAGE 2

SCHEMATIC Not To Scale

August 10, 2015



At grade soil

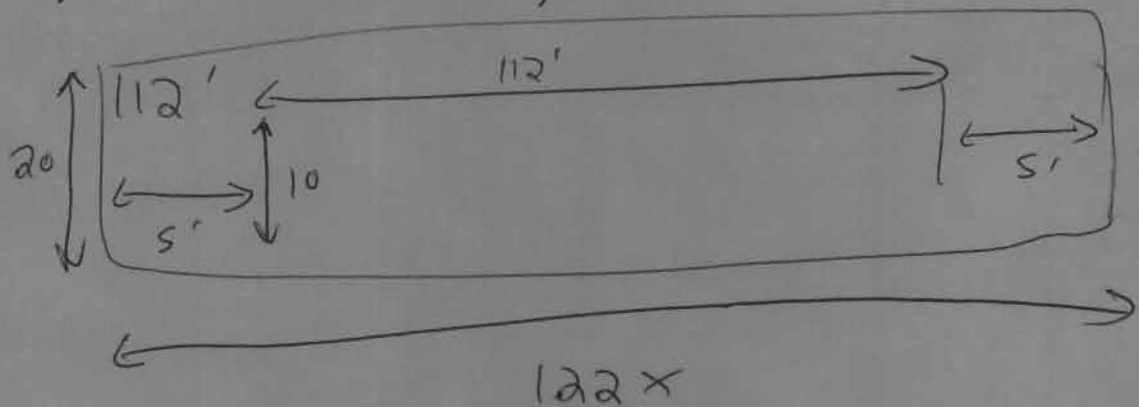
$$1/r < \underline{9}$$

$$2-15 \text{ mpi} = .8$$

$$16-30 \text{ mpi} = .6$$

$$31-60 \text{ mpi} = .4 \text{ gpd}$$

$$450 / .4 = 1125 \text{ ft}^2 / 10' \text{ wide} = 112'$$



$$450 \text{ gpd} / 122 = 3.7 \text{ gplf}$$

$$450 \text{ gpd} / 112 = 4.01 \text{ gplf}$$

Tyler Chart LLR

13760 Nick & DG. 7/17/15



13760 Michael S Dr. 7/7/15





SeptiCheck™
On-Site Waste System Evaluation for:

13760 Nichols Dr
Clarksville, MD 21029
U.S. Inspect Job Number: UR61902Q

Client Information

Name: Travis Vice Phone: (410) 340.9067
Access: Mark Gaetjen Phone: (703) 564.4021

Real Estate Agent Information

Name: Mark Gaetjen Agency: Keller Williams Realty

Supplier Information

Name: Home Land Septic Consulting, LLC Technician: Scott Thompson
Street: 308 Liberty Rd Phone: 443-224-0090
C, S, Z: Baltimore, MD 21221

Inspection Information

Inspection Date: 6/26/2015 Dwelling Status: Occupied
Inspection Time: 08:00 Dwelling Age: 51 Years

On-Site Waste System Profile

System Type: 1250 Gallon Septic tank with a Seepage Pit
System Age: 51 Years
System Location:
Maintenance Notes:

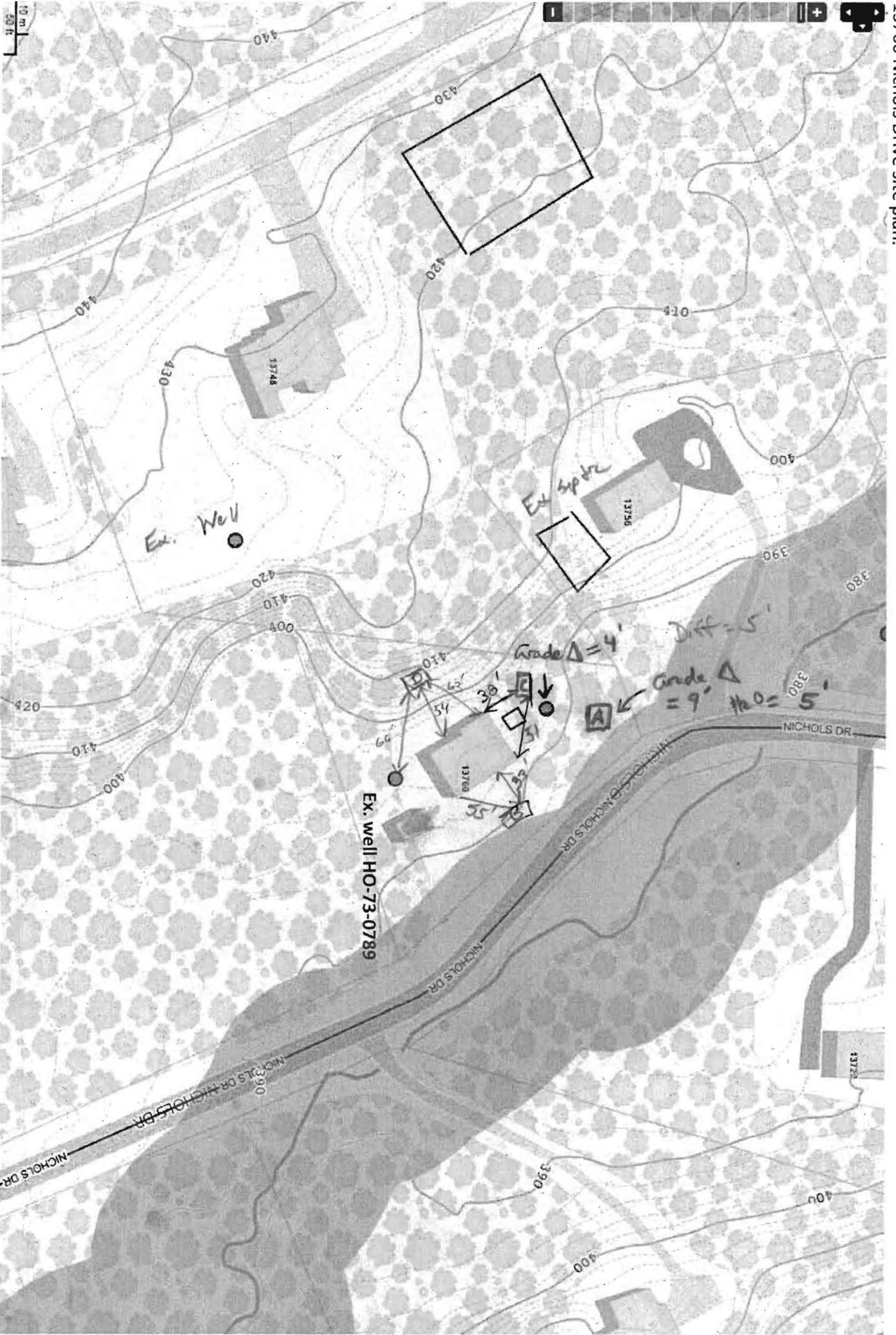
Evaluation Findings

Condition of Tank: Acceptable
Condition of Absorption Area: Unacceptable

Evaluation Recommendation

- The tank was not pumped at the time of the inspection. There are currently 8 inches of solids in the septic tank, indicating it should be cleaned again in 2-3 years.
- The front baffle is missing.

- The drywell is 6 inches below grade with no access. The side of the drywell was probed to a depth of 22 inches and found to be holding moisture with 4 inches of biomat evident. This indicates that the drywell is failing.



3-6.5'