

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

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

RECEIPT DATE: 7/1/15 **ONSITE SEWAGE DISPOSAL SYSTEM** P 556508
 APPROVAL DATE: 9/2/15 SEC **PERMIT: CONSTRUCTION** A _____

PROPERTY ADDRESS: 13112 Greenberry Lane
 SUBDIVISION: Greenberry LOT: 2 TAX ID: _____
 CONTRACTOR: South Carroll Backhoe EMAIL: scbackhoe@comcast.net
 CONTRACTOR ADDRESS: 4410 Salem Bottom Road, Westminster, MD 21157 PHONE: 410-596-3618

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: Robert Williams EMAIL: _____
 OWNER ADDRESS: 13110 Greenberry Lane, Clarksville, MD 21029 PHONE: 410-531-1994

BAT UNIT MODEL: HOOT 1000 A PUMP SIZE: 4292 PUMP TANK CAPACITY: 1500GAL
 Model # _____

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: _____ DATE RECORDED: _____

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 7 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>130 83 160</u>	INLET DEPTH: <u>35 3</u>
	TRENCH WIDTH: <u>3 2</u>	MAXIMUM BOTTOM DEPTH: <u>8</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>35 4'</u>

LOCATION: **PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.**

NOTES: Use 2 (4) 30' long trenches.

$$7BR = \frac{1050}{1.2} = 875 \div 2 = 437.5 (6.30) = 158$$

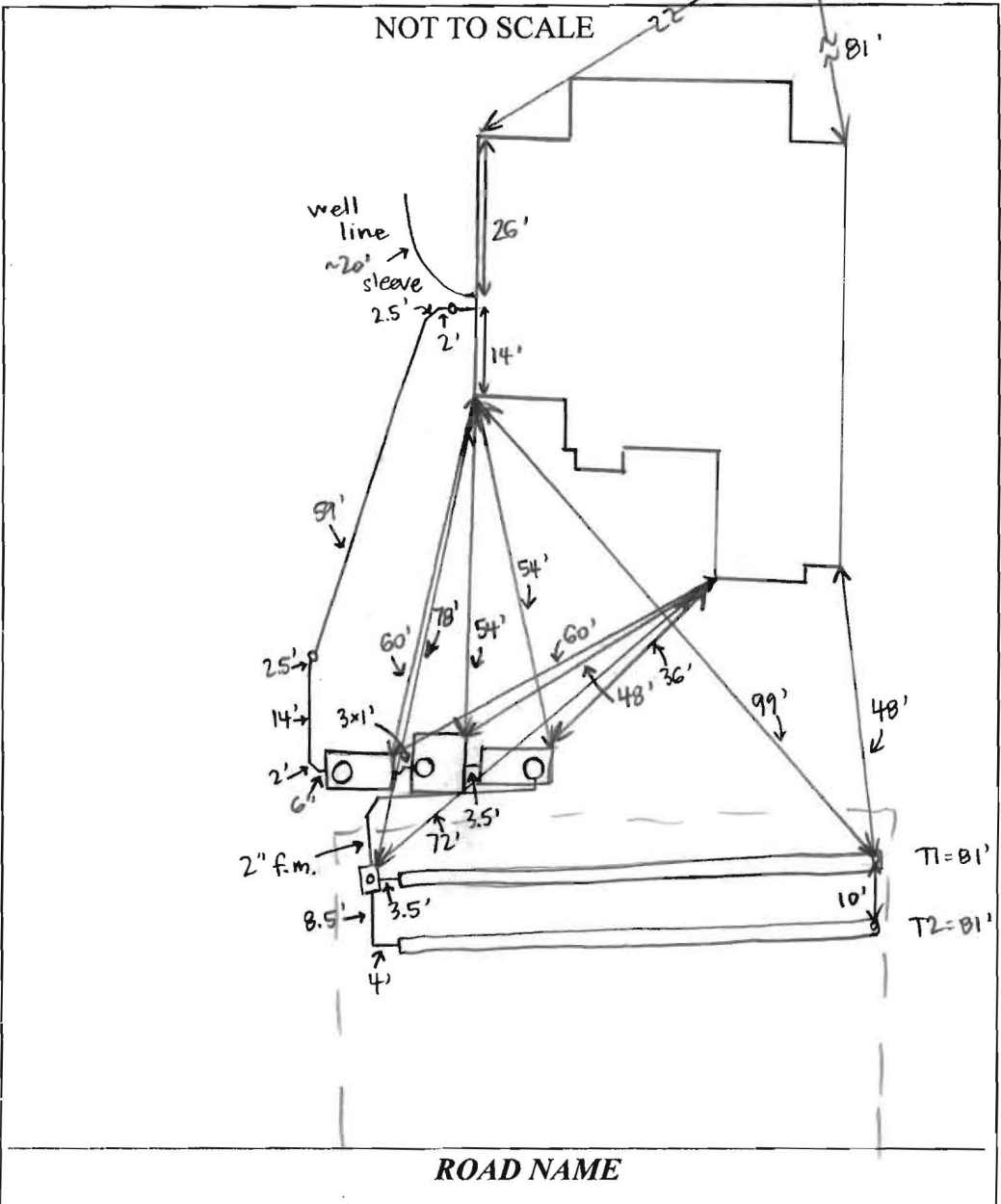
(2 x 80')

ISSUED BY: Hank Oswald (KAW) ISSUE DATE: 7/1/15 EXPIRATION DATE: 7/1/16

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT SEPTIC TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL
- NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS
- NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM
 ELECTRICAL PERMIT ISSUED E _____
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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

HO-14-014B



TRENCH/DRAINFIELD DATA		
WIDTH	INLET	BOTTOM
2'	3'	8'
NUMBER OF TRENCHES		2
TOTAL LENGTH		162'
ABSORPTION AREA		324' + SIDEWALL
DISTRIBUTION BOX LEVEL		YES
DISTRIBUTION BOX BAFFLE		NO
DISTRIBUTION BOX PORT		YES

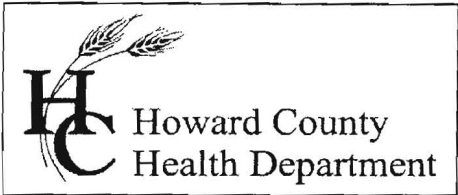
① SEPTIC TANK DATA	
SEPTIC TANK I LEVEL	YES
MANUFACTURER	MAYER BROS.
CAPACITY	1000 GAL
SEAM LOC	TOP
TANK LID DEPTH	1.5'
BAFFLES	FRONT/REAR
BAFFLE FILTER	NO
MANHOLE LOC	FRONT
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	—
③ PUMP/SEPTIC TANK LEVEL	
SEPTIC TANK LEVEL	YES
MANUFACTURER	MAYER BROS.
CAPACITY	1000 ^② / 1500 ^③ GAL
SEAM LOC	TDP
TANK LID DEPTH	1 2' ^③
BAFFLES	REAR ^③ / FRONT ^③
BAFFLE FILTER	NO
MANHOLE LOC	FRONT ^② / REAR ^③
6" PORT LOC	NONE
WATERTIGHT TEST	NO
SLOTTED	NO
DATE ON LID	—

PRE-CONSTRUCTION:

7/20/15 Laid out 2 x 80' trenches on contour. SDA staked, one of the three tanks staked. South Carroll will align one end of trash tank with northeastern edge of SDA and put other two tanks after that one in series. D-box to go on edge near trash tank. (SC)

INSTALLATION: 8/6/15 Tanks set. Trash tank^① is one compartment and has an outlet baffle. Effluent from recirculation goes to first tank. Middle tank^② is the Hoot clarification + aeration chamber. Third tank^③ is the pump tank and has an inlet baffle. Mike Sample from Hoot on site to instruct electricians on connecting tank. (SC) 8/6/15 Pipe laid from house to tanks, tanks connected. Pipe between tanks will be bedded w/ stone. (SC) 8/7/15 T1 finished + left open. 2' wide, 3' to stone. (SC) 8/7/15 T2 finished + left open. D-box installed + connected. 2" force main runs from pump chamber to D-box. Need house connection + BAT startup certification. (SC) 8/14/15 Riser on pump tank is cracked. (SC) 8/17/15 House connection made. (SC) 8/31/15 Riser fixed. Hoot startup w/ Mike Sample. Pump and alarm both good. (SC) 9/2/15 Hoot startup received. (SC)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 9/2/15



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 Facebook: www.facebook.com/hocohealth

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

RECEIPT DATE: _____ **ONSITE SEWAGE DISPOSAL SYSTEM** P _____
 APPROVAL DATE: _____ **PERMIT: CONSTRUCTION** A _____
 PROPERTY ADDRESS: 13112 Greenberry Ln
 SUBDIVISION: Greenberry LOT: 2 TAX ID: _____
 CONTRACTOR: _____ EMAIL: _____
 CONTRACTOR ADDRESS: _____ PHONE: _____

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: Robert Williams EMAIL: _____

OWNER ADDRESS: 13110 Greenberry Ln PHONE: 410.531.1994

BAT UNIT MODEL: Hoot 1000A PUMP SIZE: model # 4242 PUMP TANK CAPACITY: 1500 gallons

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: _____ DATE RECORDED: _____

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 7 APPLICATION RATE: 1.2 GPD

TRENCHES:	LINEAR FEET REQUIRED: <u>110.83 LF</u>	INLET DEPTH: <u>3.5'</u>
	TRENCH WIDTH: <u>3'</u>	MAXIMUM BOTTOM DEPTH: <u>8'</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10'</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>3.5'</u>

LOCATION: PER APPROVED SITE PLAN. SEWAGE DISPOSAL AREA AND BAT UNIT LOCATION MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.

NOTES: Use Two (4) 30' Trenches

ISSUED BY: _____ ISSUE DATE: _____ EXPIRATION DATE: _____

- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
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 PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.
 CALL 410-313-1771 TO SCHEDULE INSPECTIONS.**

MILDENBERG,
BOENDER & ASSOC., INC.

Engineers Planners Surveyors

7350-B Grace Drive, Columbia, Maryland 21044 (410) 997-0296 (410) 997-0298 Fax

July 6, 2015

Mr. Kevin Wolf, Well and Septic Program
Howard County Health Department
Bureau of Environmental Health
8930 Stanford Boulevard
Columbia, Maryland 21045



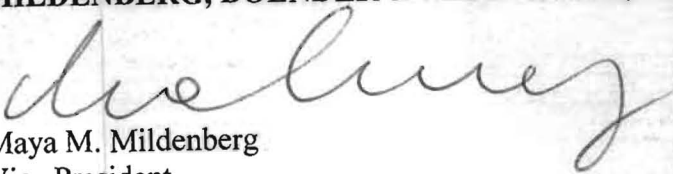
RE: Greenberry Tenant House
13110 Greenberry Lane
Building Permit B14004173

Dear Mr. Wolf:

We are submitting 3 copies of the revised Best Available Technology (BAT) plans for your review and approval. As requested by your e-mail dated July 2, 2015, the pump model has been changed.

Thank you for your consideration of this submittal. If you have any questions or require any additional information, please do not hesitate to contact this office.

Very Truly Yours,
MILDENBERG, BOENDER & ASSOCIATES, INC.


Maya M. Mildenberg
Vice President

Cc: Client
Taylor Faris, NV Homes, Inc.
File 12-022

Oswald, Hank

From: Oswald, Hank
Sent: Tuesday, February 03, 2015 12:08 PM
To: JIM@DECATURBUILDINGSERVICES.COM
Subject: B14004173_13110 Greenberry Lane

Mr. Kerwin:

The floor plan specs submitted for the above referenced project show floor plan partials with different options on each floor of this house. Can you send me a simplified version of the floor plans and only show what's being proposed.

It was mentioned that this was going to be a 7 bedroom house and I need to confirm this to ensure the BAT system is sized properly.

Please submit revised floor plans through D.I.L.P. Should you have any questions, please don't hesitate to ask.

Respectfully,

Hank

Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
410.313.1786

Letter of Satisfaction

Hoot System Installation

Address of Property: 13112 Greenberry Lane
Clarksville, MD, 21029

Date of Final Inspection: 8/31/15

Installer: South Carroll Backhoe Service

Hoot Technician/Inspector: Mike Sample

I hereby certify that the Hoot system installed at the property listed above has been installed according to proper Hoot installation practices. I have also verified the startup of the system and it is in proper working order.

Sincerely,

W. Michel Day

Name of Inspector
Mayer Bros., Inc.

PH: 410-796-1434

FX: 410-796-1438

WBE
NPCA Certified Plant

mayerbro@connext.net
www.mayerbrosprecast.com

Grease Interceptors, Grease Solutions, Aerobic Treatment Units, Septic Tanks, Holding Tanks, Storm Water Structures, Hydroceptors,
Bench Barrier, Water Meter Vaults, Sectional Valve Vaults, Top Slabs, Curb Heads, Curb Bumpers, PermEntry Basement Entries,
Scapewel Window Wells, Custom Precast Products

 **MILDENBERG,**
BOENDER & ASSOC., INC.

Engineers Planners Surveyors

7350-B Grace Drive, Columbia, Maryland 21044 (410) 997-0296 (410) 997-0298 Fax

April 2, 2015

Mr. Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program

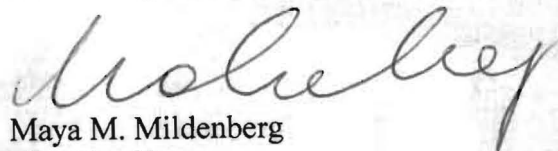
**Re: Greenberry Tenant House
(B14004173)
Revised BAT**

Dear Mr. Oswald

I am hereby forwarding three (3) sets of the revised BAT Site Plan for your review and approval. The reason for this revision is the builder's decision to change the house model to be built on this property. The new house is smaller and it will have 6 bedrooms instead of 7.

Thank you for your consideration of this submission. Should you have any questions, do not hesitate to contact this office.

Very truly yours,
Mildenberg, Boender & Associates, Inc.



Maya M. Mildenberg
Vice President

cc: client

Oswald, Hank

From: Oswald, Hank
Sent: Tuesday, January 27, 2015 3:03 PM
To: maya@mba-eng.com
Cc: Williams, Jeffrey
Subject: B14004173_13110 Greenberry lane

Dear Ms. Mildenberg:

As you requested, I am forwarding a summary of items for your review.

- 1.) **BAT Plan** - The BAT Plan designed for this project entailed a Low-pressure distribution (LPD) system. A LPD system isn't usually required unless the Sewage Disposal Area (SDA) is at least 200 feet distance from wells that are downgrade on neighboring properties or for some other specific reason. In looking at past correspondence, LPDs are only being required on Lots 18, 19, 20 and 21 (SP-13-010). Unless there is a specific reason for this design, it is suggested that a BAT system without LPD is designed for this lot.
- 2.) **Storm Water Management** – Provide details about Storm Water Management for this proposed subdivision.
- 3.) **Wells** – All test wells must be properly abandoned and reports sent the Health Department prior to BP approval. Also, an approved drinking water well must also be established on this lot.
- 4.) **Lot Lines** – Include lot lines in the BAT Plan revision in order to confirm house, well and septic system locations are within the proposed lot lines and to guarantee that all well and septic setbacks are being met.

If you still wish to discuss this project in person, we could set up a meeting for next Tuesday morning with my supervisor Jeff Willaims. Please confirm either way.

Respectfully,

Hank

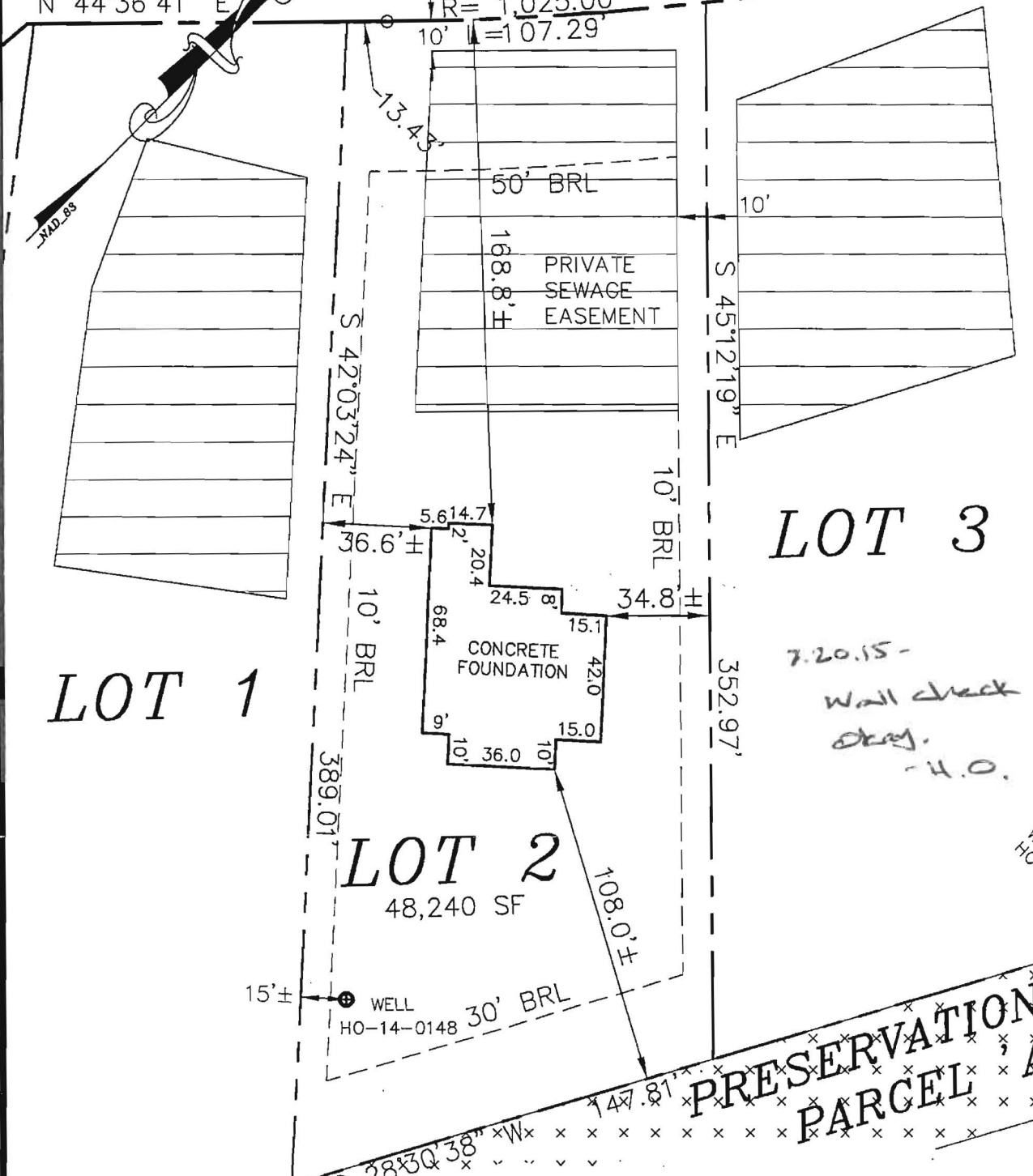
Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
410.313.1786

BEE FRANCES WAY

(PUBLIC - 50' R/W)

N 44°36'41" E

R=1,025.00'
=107.29'



LOT 1

LOT 2
48,240 SF

LOT 3

7.20.15 -
wall check
okay.
- H.O.

LOT 2
48,240 SF

WELL
HO-14-0148

PRESERVATION
PARCEL A

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21351, EXPIRATION DATE: 07/15/17.

ADDRESS: BEE FRANCES WAY
TOP OF WALL ELEV. = 568.6±
FIRST FLOOR ELEV. = 570.1±

THE INFORMATION SHOWN HAS BEEN ESTABLISHED BY CURRENT ACCEPTABLE SURVEY PROCEDURES AND FROM AVAILABLE RECORD INFORMATION. THIS DRAWING IS TO BE USED FOR TITLE TRANSFER FINANCING, OR REFINANCING ONLY AND IS NOT TO BE USED FOR THE ESTABLISHMENT OF PROPERTY LINES, LOCATION OF FENCES, GARAGES, BUILDINGS, OR OTHER EXISTING OR FUTURE IMPROVEMENTS.

LOT 2
GREENBERRY

PLAT TO BE RECORDED
ELECTION DISTRICT No. 5
HOWARD COUNTY, MARYLAND

**MILDENBERG
BOENDER, & ASSOC., INC.**

Engineers Planners Surveyors
7350-B Grace Drive, Columbia, MD 21044
(410) 997-0296 Balt. (410) 997-0298 Fax.



TODD M. HILL
PROF. LAND SURVEYOR
MARYLAND No. 21351

FOUNDATION	DATE: 06/12/15	FINAL LOCATION	DATE: N/A
DRAWN BY: MES	CHECKED BY: TMH	SCALE: 1"=50'	
PROJECT NO.: 12-022	LOCATION DRAWING		

Oswald, Hank

From: Oswald, Hank
Sent: Thursday, February 26, 2015 9:07 AM
To: 'Jacob Hikmat'; Todd Hill
Cc: Maya Mildenberg; Williams, Jeffrey
Subject: RE: Greenberry, Lot 2

Hi Todd:

According to the trench data chart on the plan, the figures show an invert at 3.5 ft. and a bottom maximum depth of 5.5 ft. This is acceptable except you aren't using the maximum side wall credit of 0.38 (with a bottom trench depth of 8 ft.). Therefore, the trench length requirement will be greater than a design with an effective depth of 4.5 ft.

Ex. If the invert is at 3.5 ft. and the bottom of the trench is at 8 ft. then the effective depth is 4.5 ft. Utilizing the formula $W+2/W+1+2(D)$, the side reduction wall credit = $3 + 2 / 3+1+2(4.5) = 5/13 = 0.38$ (not 0.62) reducing the required trench length from 180.84 to 110.83

If you don't wish to change the effective depth/calculations on the plan, then all we need added at this point is a "certification note" stating that the manufacturer certifies this unit is adequate for this particular design at 7 bedrooms. You could be done at our office or you may submit a revised BAT plan with the note on it.

Should you have any questions or concerns, please don't hesitate to ask.

Respectfully,

Hank

Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
410.313.1786

From: Jacob Hikmat [<mailto:jhikmat@hotmail.com>]
Sent: Wednesday, February 25, 2015 1:21 PM
To: Oswald, Hank; Todd Hill
Cc: Maya Mildenberg; Williams, Jeffrey
Subject: RE: Greenberry, Lot 2

Thanks Hank

I really appreciate it.

R. Jacob Hikmat, P.E.
President
Mildenberg, Boender and Associates, Inc.
7350 Grace Drive, Suite B
Columbia, MD 21044
(410) 997-0296
(443) 538-9547 (Cell)

From: hoswald@howardcountymd.gov
To: thill@mba-eng.com
CC: jhikmat@hotmail.com; maya@mba-eng.com; jewilliams@howardcountymd.gov
Subject: RE: Greenberry, Lot 2
Date: Wed, 25 Feb 2015 17:10:06 +0000

Hi Todd:

It's in review. I should have a response for you by this afternoon or tomorrow.

Hank

From: Todd Hill [<mailto:thill@mba-eng.com>]
Sent: Wednesday, February 25, 2015 11:17 AM
To: Oswald, Hank
Cc: 'Jacob Hikmat'; Maya Mildenberg; Williams, Jeffrey
Subject: Greenberry, Lot 2

Good Morning Hank;

The client is asking me daily about the status of this site plan for BAT installation, please let me know if you have any information.

Thanks for all your help.

Todd M. Hill
Prof. Land Surveyor, Project Manager
Mildenberg, Boender & Assoc., Inc.
7350-B Grace Drive, Columbia, MD 21044
(410) 997-0296

SOILS LEGEND (WITHIN LOD)

SYMBOL	NAME / DESCRIPTION	SOIL GROUP	MAP NUMBER	Kw	Kf
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	16	0.20	0.28

LEGEND

- M-5, MODIFIED DRY WELL.
- AREA OF N-2, NON-ROOFTOP DISCONNECTION
- IMPERVIOUS AREA TREATED BY N-2, NON-ROOFTOP DISCONNECTION
- IMPERVIOUS AREA TREATED BY M-5, MODIFY DRY WELLS AND N-1 ROOFTOP DISCONNECTIONS

FLOW DETERMINATION

HOUSE	# BEDROOMS	*FLOW RATE (GPD/BEDROOM)	MAXIMUM DAILY FLOW (GPD)
1	7	150	1,050

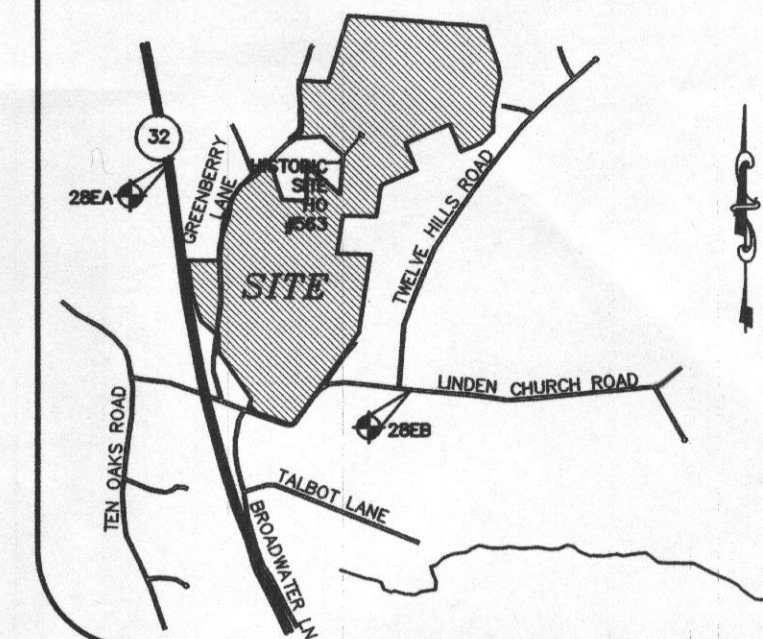
BASED ON HOWARD COUNTY HEALTH DEPARTMENT'S "HOW TO DESIGN A RESIDENTIAL SEPTIC SYSTEM" (2007).

SEPTIC TRENCH SIZING

A	B	C	D = C/B	E	F = D/E	G	H	I = F x H	J = (2xG)+F	K
SYSTEM	APPLICATION RATE (GPD / SF)	MAXIMUM FLOW RATE (GPD)	AREA OF REQUIRED TRENCH (SF)	TRENCH WIDTH (FT)	LENGTH OF REQUIRED TRENCH (LF)	EFFECTIVE DEPTH (FT)	TRENCH REDUCTION FACTOR**	ADJUSTED LENGTH OF REQUIRED TRENCH (LF)	MINIMUM TRENCH SPACING (FT)	PROVIDED TRENCH LENGTH (FT)
PRIMARY	1.2	1,050	875	3	291.67	3.5'	0.38	110.83	10.0'	120
SECONDARY	1.2	1,050	875	3	291.67	4.5'	0.45	131.25	10.0'	140
TERTIARY	0.8	1,050	1,313	3	438	5.0'	0.50	219	10.0'	219

PRIMARY SEPTIC TRENCH DATA

FIELD	TRENCH NUMBER	TRENCH LENGTH (FT)	INVERT ELEVATION	EXISTING GROUND OVER TRENCH	TRENCH BOTTOM EL.
PRIMARY (EFFECTIVE DEPTH BETWEEN 3.5-8.0') BELOW EXISTING GRADE	100	30	559.6	563.1	555.1
	101	30	559.6	563.1	555.1
	102	30	558.8	562.3	554.3
	103	30	558.8	562.3	554.3



VICINITY MAP
SCALE: 1" = 200'
ADC MAP 24 GRID F8

PRIMARY SEWAGE DISPOSAL SYSTEM:

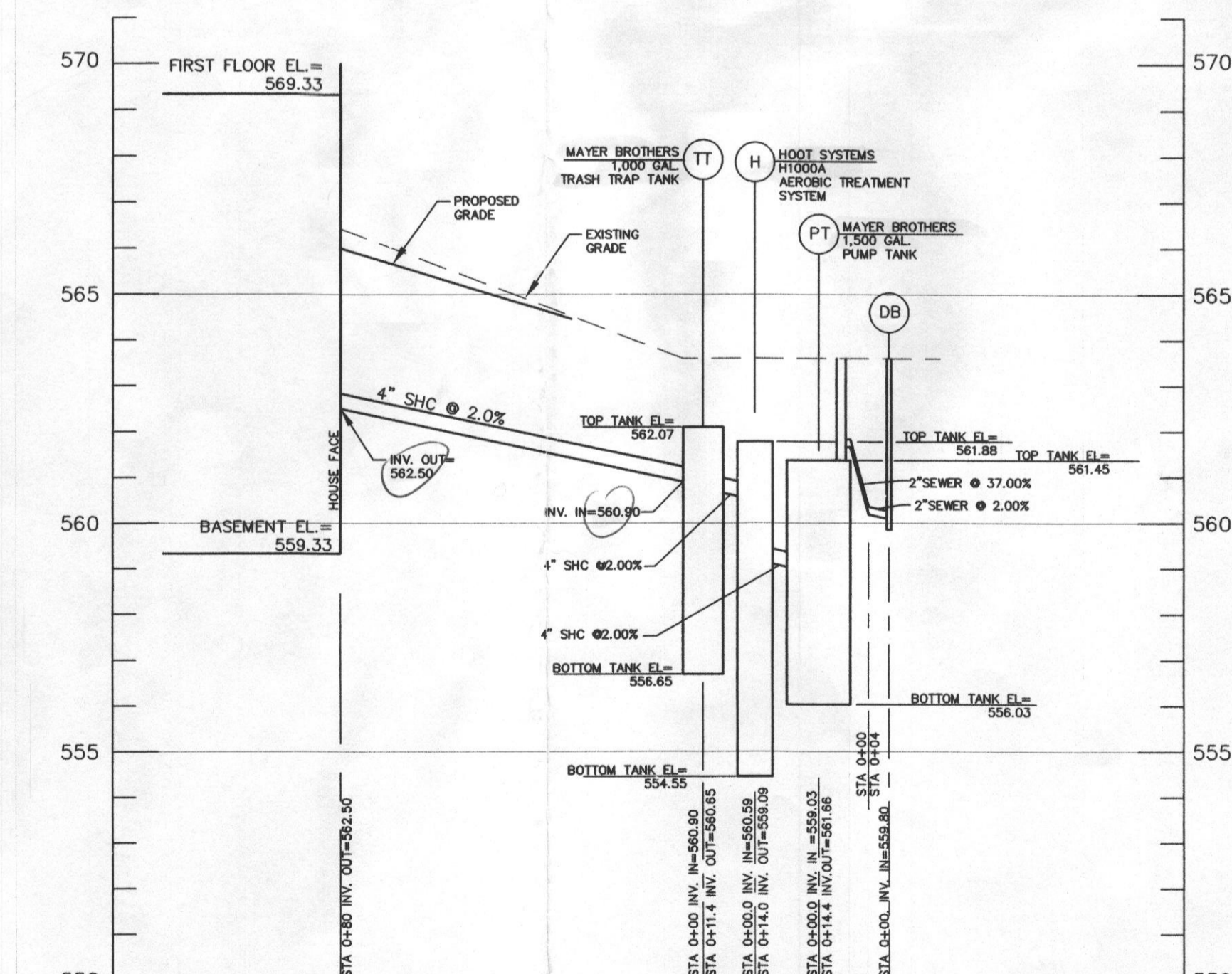
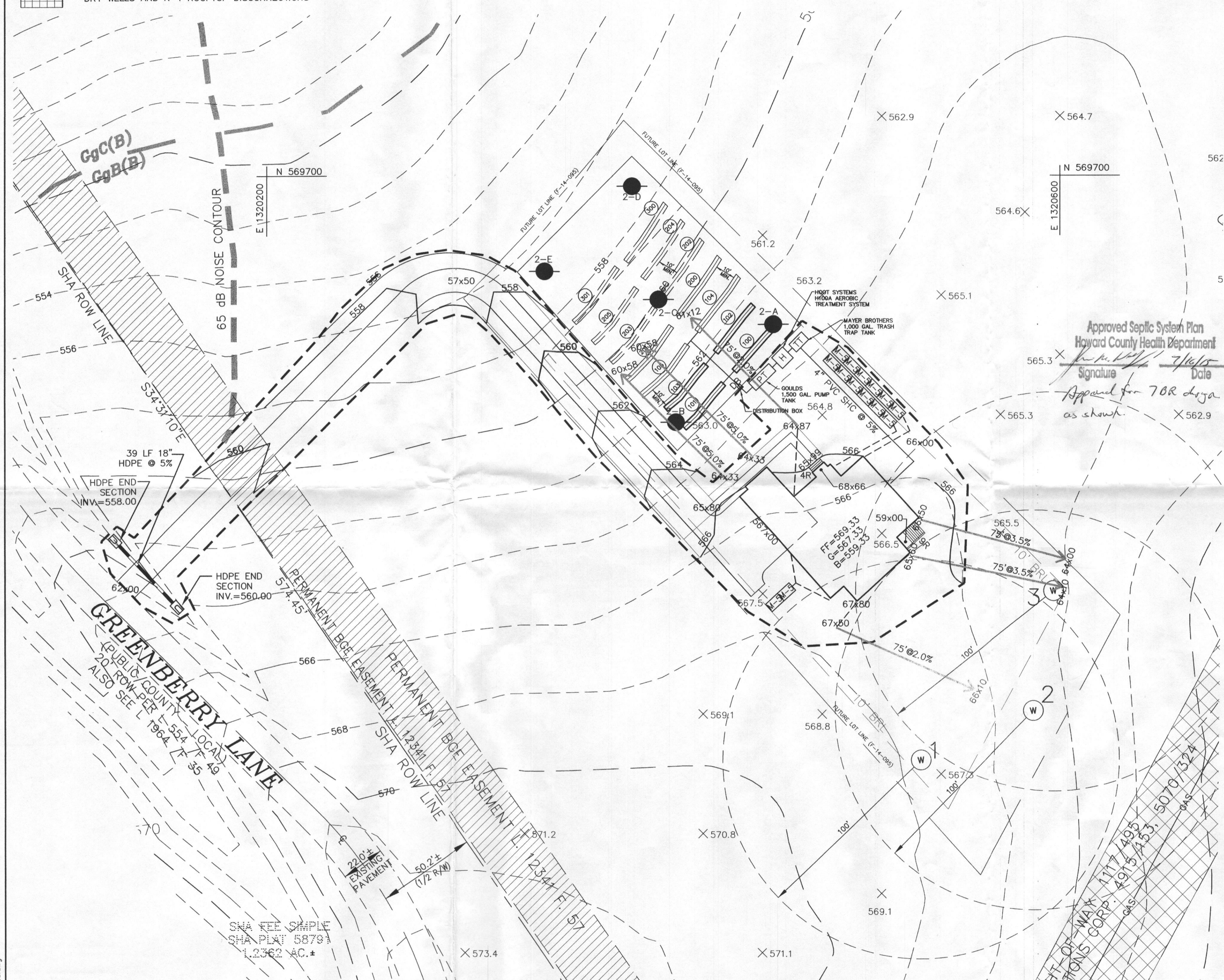
RESIDENTIAL SYSTEM DESIGN: HOOT 1000A
6 BEDROOM HOUSE (USE 7)
LIVING AREA = 2,000 SQ.FT.
150 GALLONS X # OF BEDROOMS = VOLUME OF WASTEWATER / DAY
150 X 7 = 1,050 GPD
PERC RATE = 2-5 MINUTES/INCH
APPLICATION RATE = 1.2 GPD/SQ.FT.
DESIGN FLOW + APPLICATION RATE = SQ.FT. OF TRENCH REQUIRED
1,050 + 1.2 = 875 SQ.FT.
SQ.FT. REQUIRED + WIDTH OF TRENCH = LENGTH OF TRENCH
875 + 3.0' = 291.67 FT
USE 51" OF GRAVEL BELOW DRAIN PIPE
291.67 x 0.38 = 110.83
USE TWO (4) 30' TRENCHES
A MINIMUM OF 10' BETWEEN TRENCHES UTILIZING SIDEWALL REDUCTION CREDIT.
MINIMUM TANK CAPACITY = 1,500 GALLONS

ELEVATIONS CHART

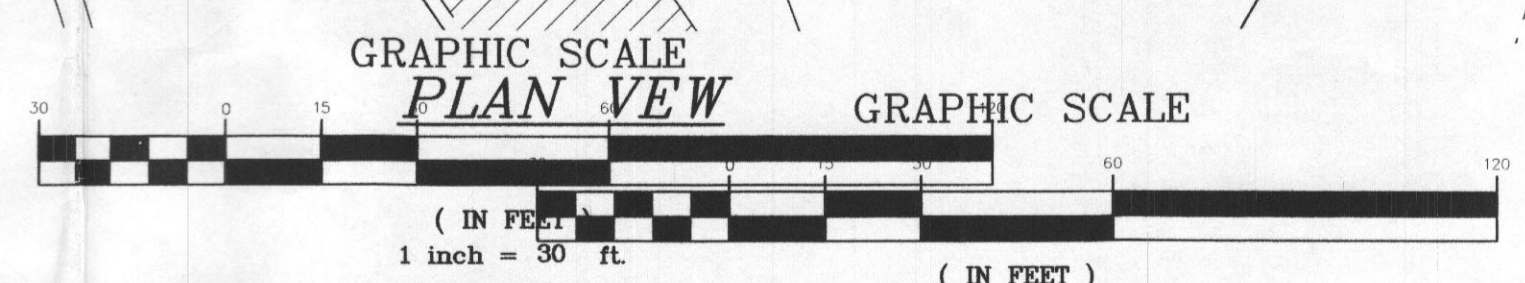
DESCRIPTION	ELEVATION
INVERT OUT OF THE HOUSE	562.50
INVERT INTO TANK	560.90
INVERT OUT OF TANK	560.65
EXISTING GRADE OVER SEPTIC TANK	563.60
INVERT INTO H1000A HOOT SYSTEM	560.59
INVERT OUT OF H1000A HOOT SYSTEM	559.09
EXISTING GRADE OVER H1000A HOOT SYSTEM	563.60
INVERT INTO PUMP TANK	559.03
INVERT OUT OF PUMP TANK	561.66
EXISTING GRADE OVER PUMP TANK	563.60
INVERT INTO DISTRIBUTION BOX	559.80

B.A.T. SITE PLAN NOTES

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATIONS IS 5 FEET FROM THE TOP OF SLAB TO EXISTING GROUND.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 10 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- THE PROPOSED BAT SYSTEM IS BASED ON RECOMMENDATION OF HOOT SYSTEMS, LLC FOR 7 BEDROOM HOUSE.



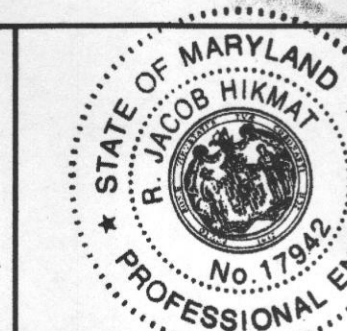
Approved Septic System Plan
Howard County Health Department
Signature: [Signature]
Date: 7/16/15
Approved for 7BR design as shown



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

DATE



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 17942, EXP DATE 09/06/16.

OWNER
ROBERT B. WILLIAMS
13110 GREENBERRY LANE
CLARKSVILLE, MD 21029
(410) 531-1994

R. JACOB HIKMAT, P.E. DATE

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
7850-B Grace Drive, Columbia, Maryland 21044
(410) 997-0286 Cell (410) 997-0288 Fax

GREENBERRY TENANT HOUSE
13112 GREENBERRY LANE, CLARKSVILLE, MD
TAX MAP 28, PARCEL 48
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SITE PLAN FOR BAT INSTALLATION

Project date: APRIL 2015
Illustration: JLS/MMM
Scale: 1" = 30'
Approval: RJH

1 OF 2
B14004173

SOILS LEGEND (WITHIN LOD)

SYMBOL	NAME / DESCRIPTION	SOIL GROUP	MAP NUMBER	Kw	Kf
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	16	0.20	0.28

LEGEND

- M-5, MODIFIED DRY WELL.
- AREA OF N-2, NON-ROOFTOP DISCONNECTION
- IMPERVIOUS AREA TREATED BY N-2, NON-ROOFTOP DISCONNECTION
- IMPERVIOUS AREA TREATED BY M-5, MODIFY DRY WELLS AND N-1 ROOFTOP DISCONNECTIONS

FLOW DETERMINATION

HOUSE	# BEDROOMS	*FLOW RATE (GPD/BEDROOM)	MAXIMUM DAILY FLOW (GPD)
1	7	150	1,050

BASED ON HOWARD COUNTY HEALTH DEPARTMENT'S "HOW TO DESIGN A RESIDENTIAL SEPTIC SYSTEM" (2007).

SEPTIC TRENCH SIZING

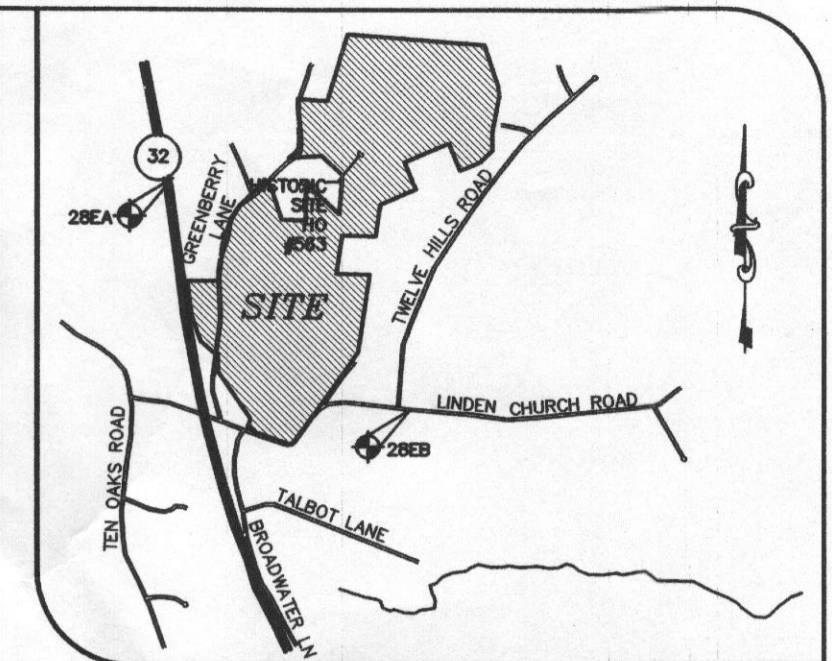
A	B	C	D = C/B	E	F = D/E	G	H	I = F x H	J = (2xG)+F	K
SYSTEM	APPLICATION RATE (GPD / SF)	MAXIMUM FLOW RATE (GPD)	AREA OF REQUIRED TRENCH (SF)	TRENCH WIDTH (FT)	LENGTH OF REQUIRED TRENCH (LF)	EFFECTIVE TRENCH DEPTH (FT)	TRENCH REDUCTION FACTOR**	ADJUSTED LENGTH OF REQUIRED TRENCH (LF)	MINIMUM SPACING (FT)	PROVIDED TRENCH LENGTH (FT)
PRIMARY	1.2	1,050	875	3	291.67	3.5'	0.38	110.83	10.0'	120
SECONDARY	1.2	1,050	875	3	291.67	4.5'	0.45	131.25	10.0'	140
TERTIARY	0.8	1,050	1,313	3	438	5.0'	0.50	219	10.0'	219

Handwritten note: Not including c. 30' 3' wide is depth. Trench

PRIMARY SEPTIC TRENCH DATA

FIELD	TRENCH NUMBER	TRENCH LENGTH (FT)	INVERT ELEVATION	EXISTING GROUND OVER TRENCH	TRENCH BOTTOM EL.
PRIMARY (EFFECTIVE DEPTH BETWEEN 3.5-8.0') BELOW EXISTING GRADE	100	30	559.6	563.1	555.1
	101	30	559.6	563.1	555.1
	102	30	558.8	562.3	554.3
	103	30	558.8	562.3	554.3

Handwritten note: 3.5'-8' 3' wide



VICINITY MAP
SCALE: 1" = 200'
ADC MAP 24 GRID F8

PRIMARY SEWAGE DISPOSAL SYSTEM:

RESIDENTIAL SYSTEM DESIGN: HOOT 1000A
6 BEDROOM HOUSE (USE 7)
LIVING AREA = 2,000 SQ.FT.
150 GALLONS X # OF BEDROOMS = VOLUME OF WASTEWATER /DAY
150 X 7 = 1,050 GPD
PERC RATE = 2-5 MINUTES/INCH
APPLICATION RATE = 1.2 GPD/SQ.FT.
DESIGN FLOW + APPLICATION RATE = SQ.FT. OF TRENCH REQUIRED
1,050 + 1.2 = 875 SQ.FT.
SQ.FT. REQUIRED + WIDTH OF TRENCH = LENGTH OF TRENCH
875 + 3.0' = 291.67 FT
USE 51" OF GRAVEL BELOW DRAIN PIPE
291.67 x 0.38 = 110.83
USE TWO (4) 30' TRENCHES
A MINIMUM OF 10' BETWEEN TRENCHES UTILIZING SIDEWALL REDUCTION CREDIT.
MINIMUM TANK CAPACITY = 1,500 GALLONS

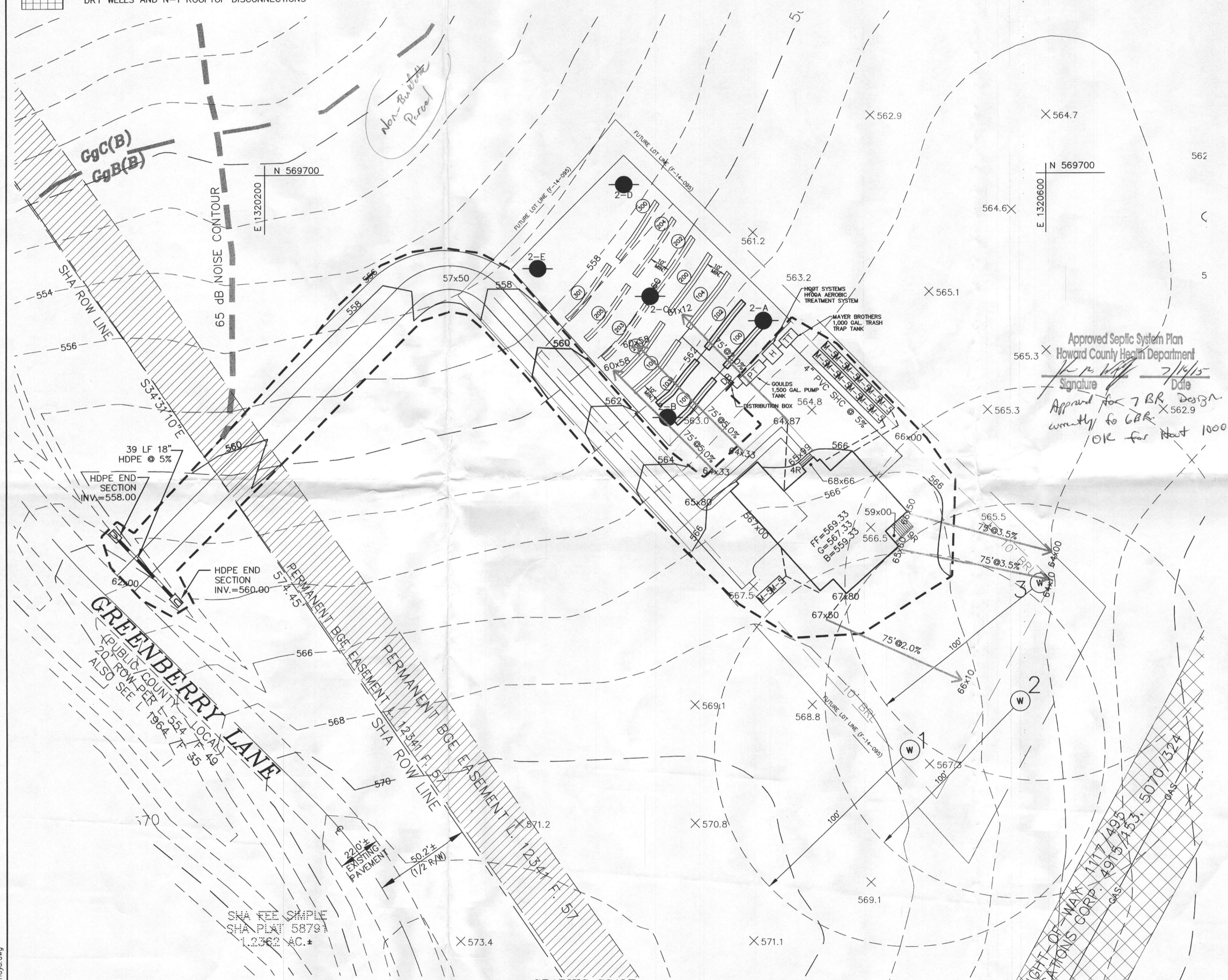
B.A.T. SITE PLAN NOTES

- ANY CHANGE TO THE LOCATIONS OR DEPTHS TO ANY COMPONENTS MUST BE APPROVED BY THE ENGINEER AND THE HOWARD COUNTY HEALTH DEPARTMENT PRIOR TO INSTALLATION. A REVISED SITE PLAN MAY BE REQUIRED.
- THE MAXIMUM DEPTH OF THE BAT PER THE MANUFACTURER'S SPECIFICATIONS IS 5 FEET FROM THE TOP OF SLAB TO EXISTING GROUND.
- THE BLOWER MAY NOT BE LOCATED MORE THAN 10 FEET FROM THE TANK BASED ON THE MANUFACTURER'S SPECIFICATIONS.
- THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
- THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
- WITHIN ONE MONTH OF INSTALLATION, A PERSON INSTALLING THE BAT SYSTEM SHALL REPORT TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) IN A MANNER ACCEPTABLE TO MDE, THE ADDRESS AND DATE OF COMPLETION OF THE BAT INSTALLATION AND THE TYPE OF BAT INSTALLED.
- ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT MUST BE COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
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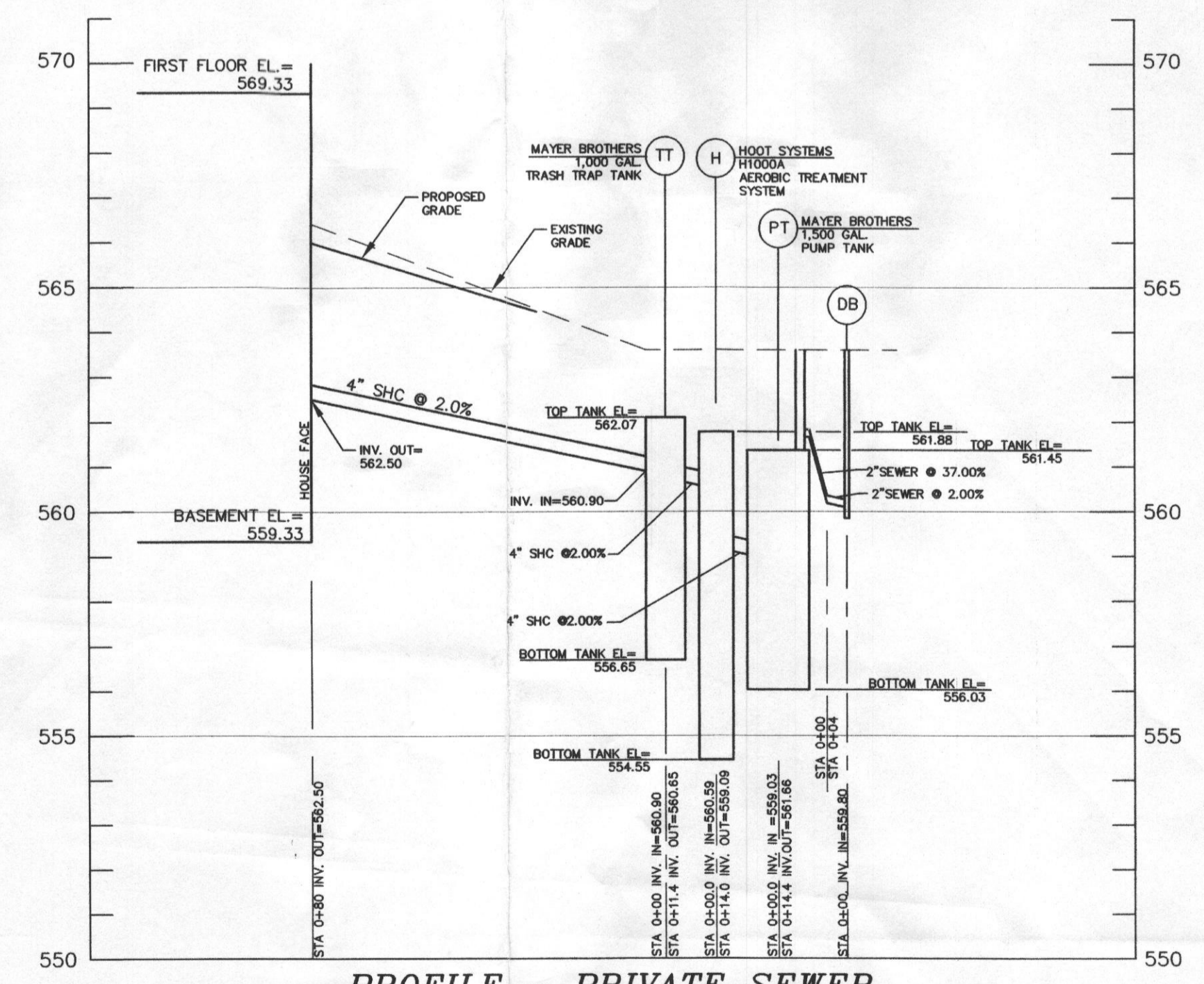
ELEVATIONS CHART

DESCRIPTION	ELEVATION
INVERT OUT OF THE HOUSE	562.50
INVERT INTO TANK	560.90
INVERT OUT OF TANK	560.65
EXISTING GRADE OVER SEPTIK TANK	563.60
INVERT INTO H1000A HOOT SYSTEM	560.59
INVERT OUT OF H1000A HOOT SYSTEM	559.09
EXISTING GRADE OVER H1000A HOOT SYSTEM	563.60
INVERT INTO PUMP TANK	559.03
INVERT OUT OF PUMP TANK	561.66
EXISTING GRADE OVER PUMP TANK	563.60
INVERT INTO DISTRIBUTION BOX	559.80

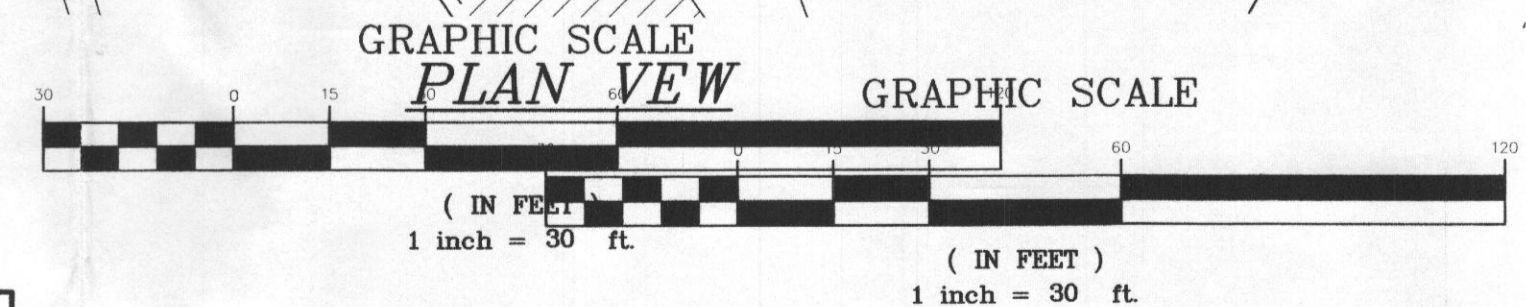
Handwritten calculation: $\frac{1050}{1.2} = 875 \div 2 = 437.5 (3.5) = 149.17$
291



Approved Septic System Plan
Howard County Health Department
Signature: [Signature]
Date: 7/19/15
Approved for 7 BR design
warranty to GBR
OK for Hoot 1000a



PROFILE - PRIVATE SEWER
SCALE: 1" = 30' HOR
1" = 5' VER



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS



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R. JACOB HIKMAT, P.E.

OWNER
ROBERT B. WILLIAMS
13110 GREENBERRY LANE
CLARKSVILLE, MD 21029
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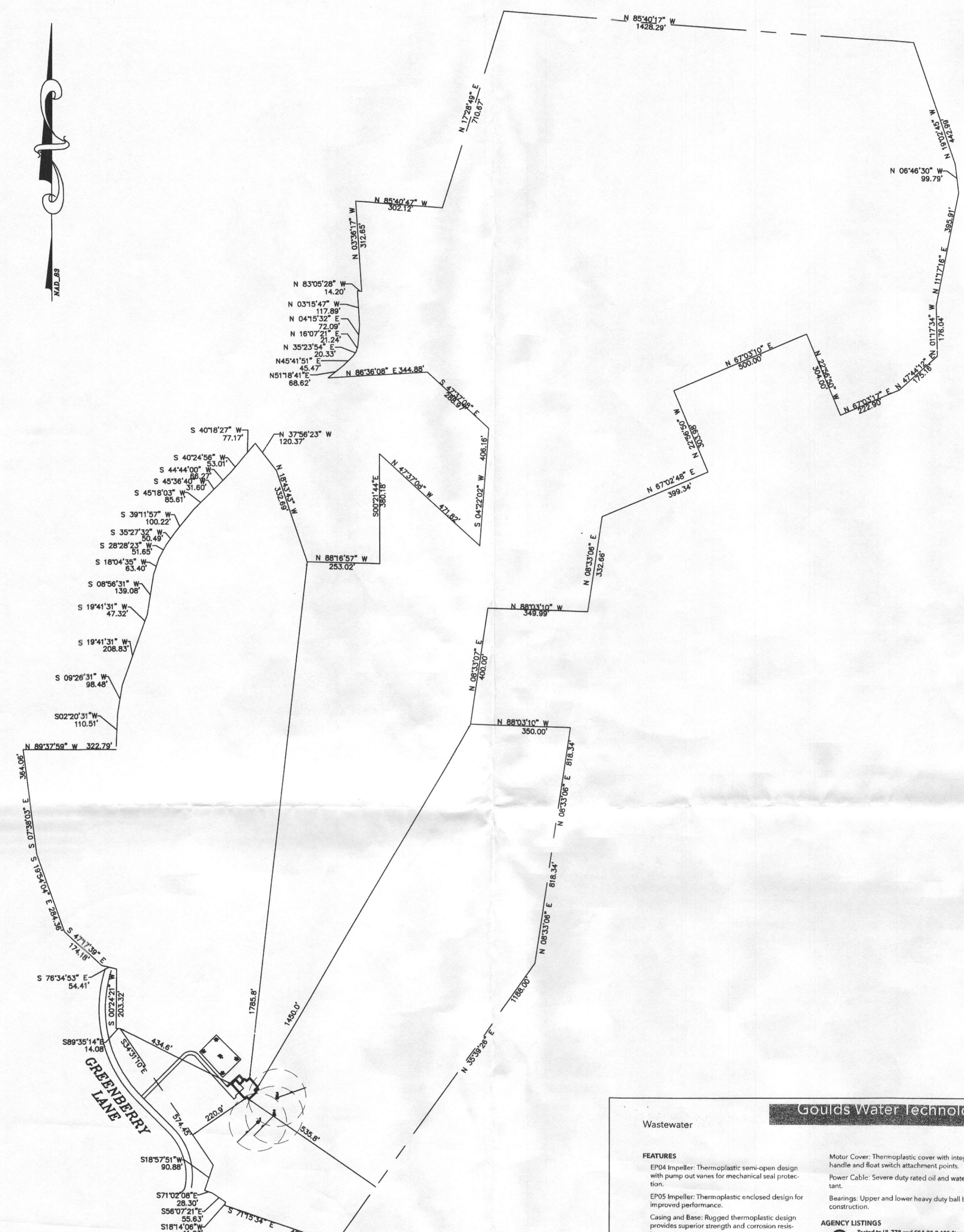
Project	date	12-022	APRIL 2015
Illustration	engineering	JIS/MMM	JIS/MMM
scale	approval	1" = 30'	RJH

no.	description	revisions

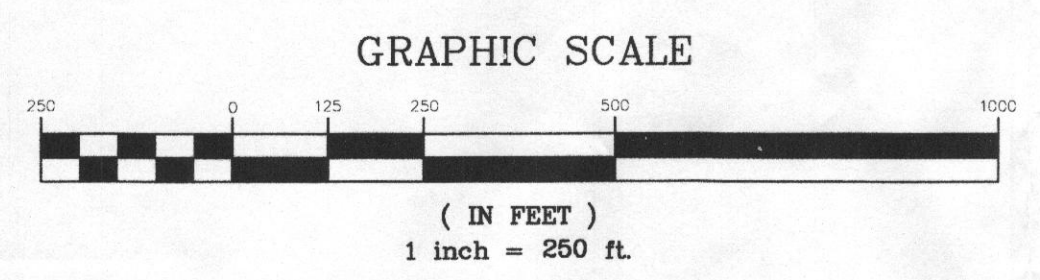
GREENBERRY TENANT HOUSE
13110 GREENBERRY LANE, CLARKSVILLE, MD
TAX MAP 28, PARCEL 48
FIFTH ELECTION DISTRICT
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Engineers Planners Surveyors
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(410) 997-0296 Bail (410) 997-0298 Fax

H:\12-022\DWG\12-022-plot plan.dwg



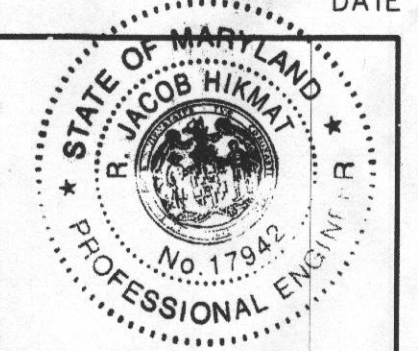
OVERALL PLAN VIEW



OWNER
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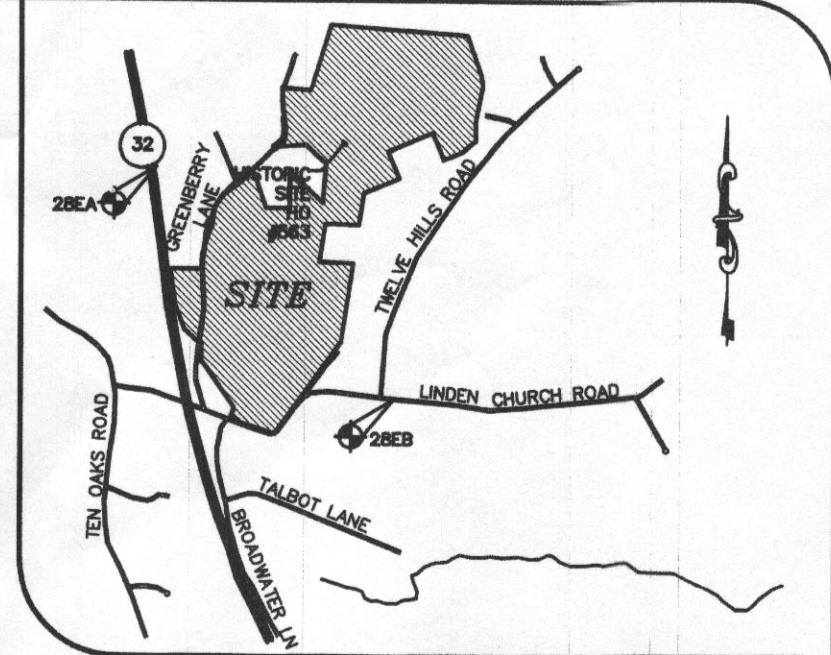
R. JACOB HIKMAT, P.E. DATE



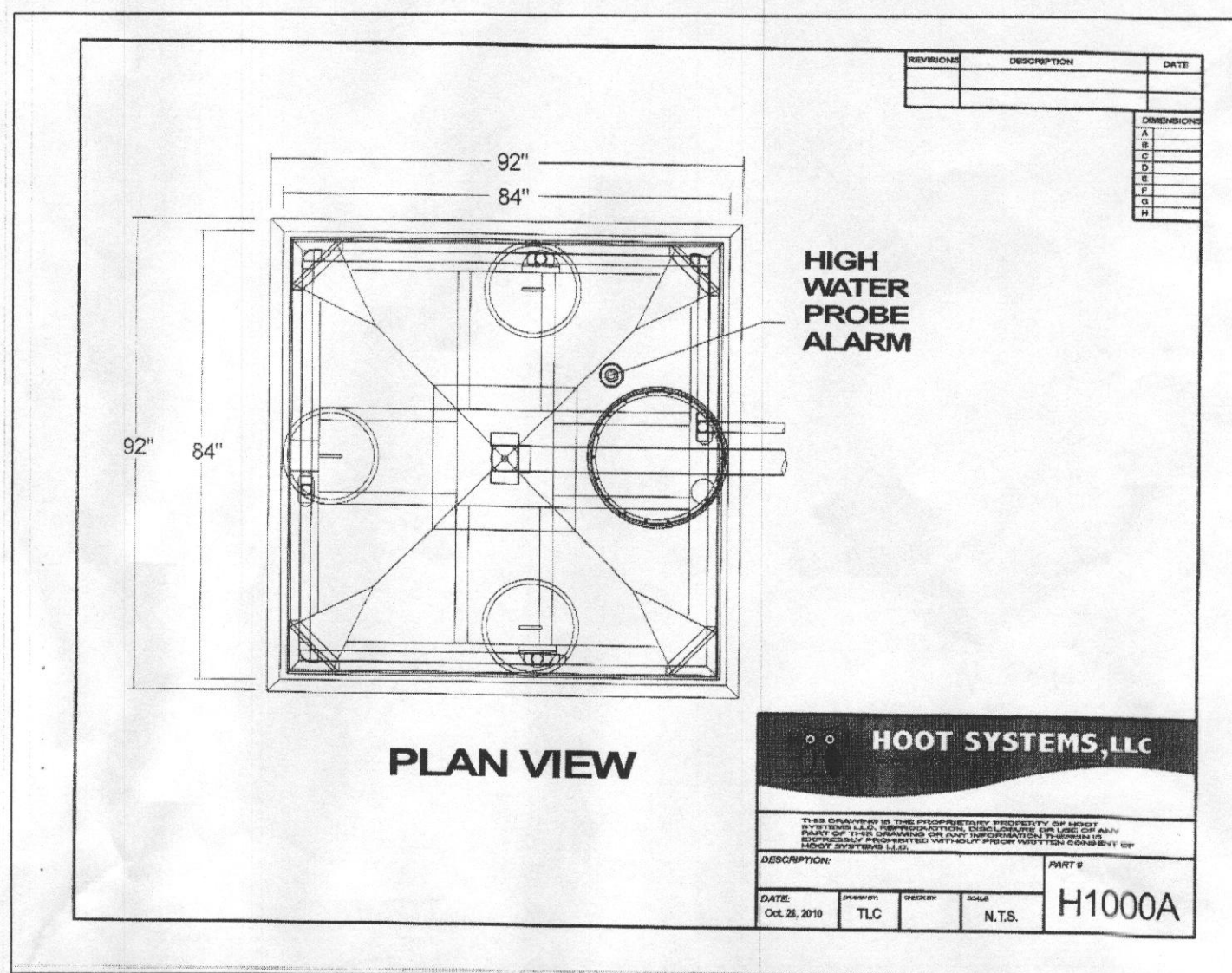
APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

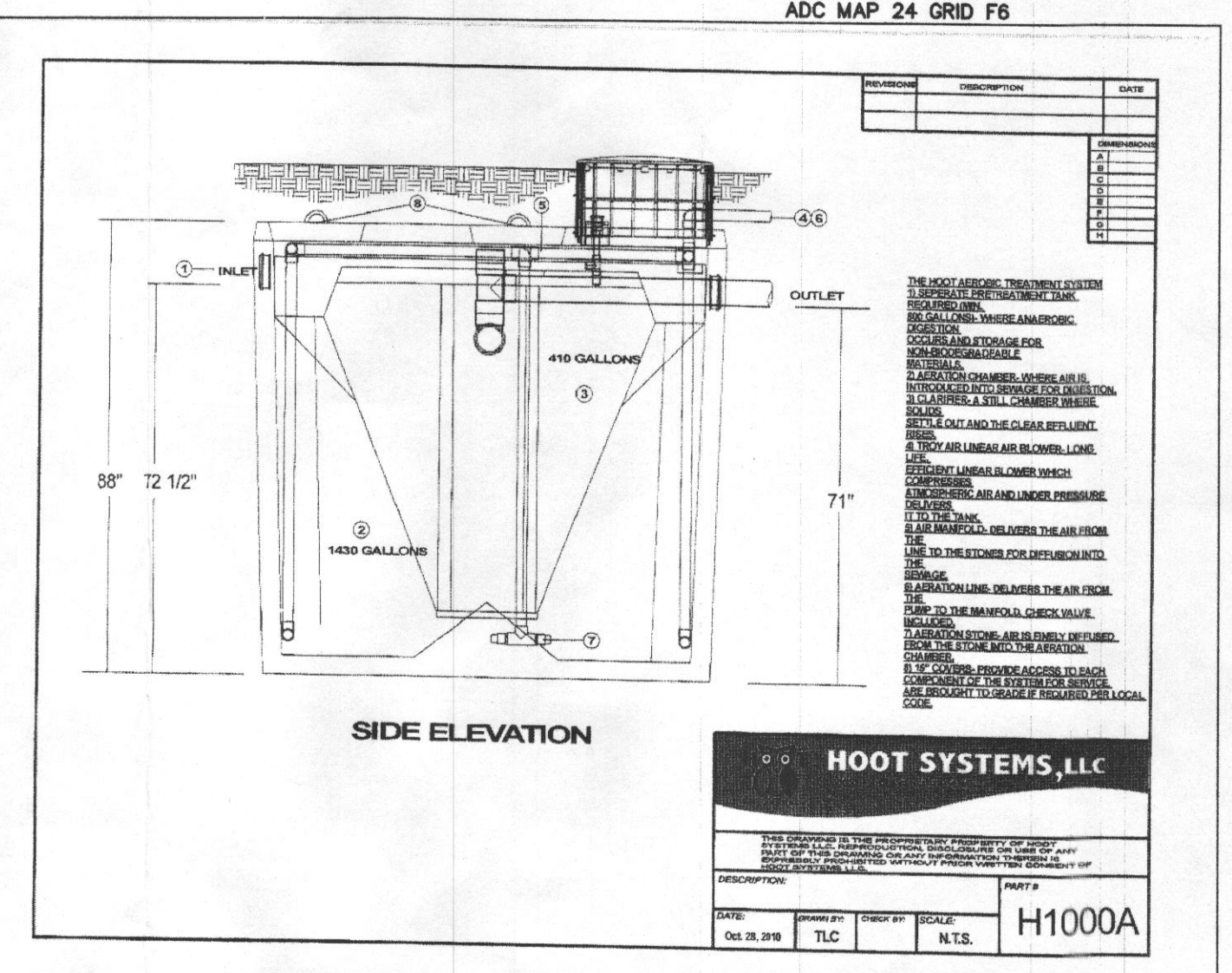
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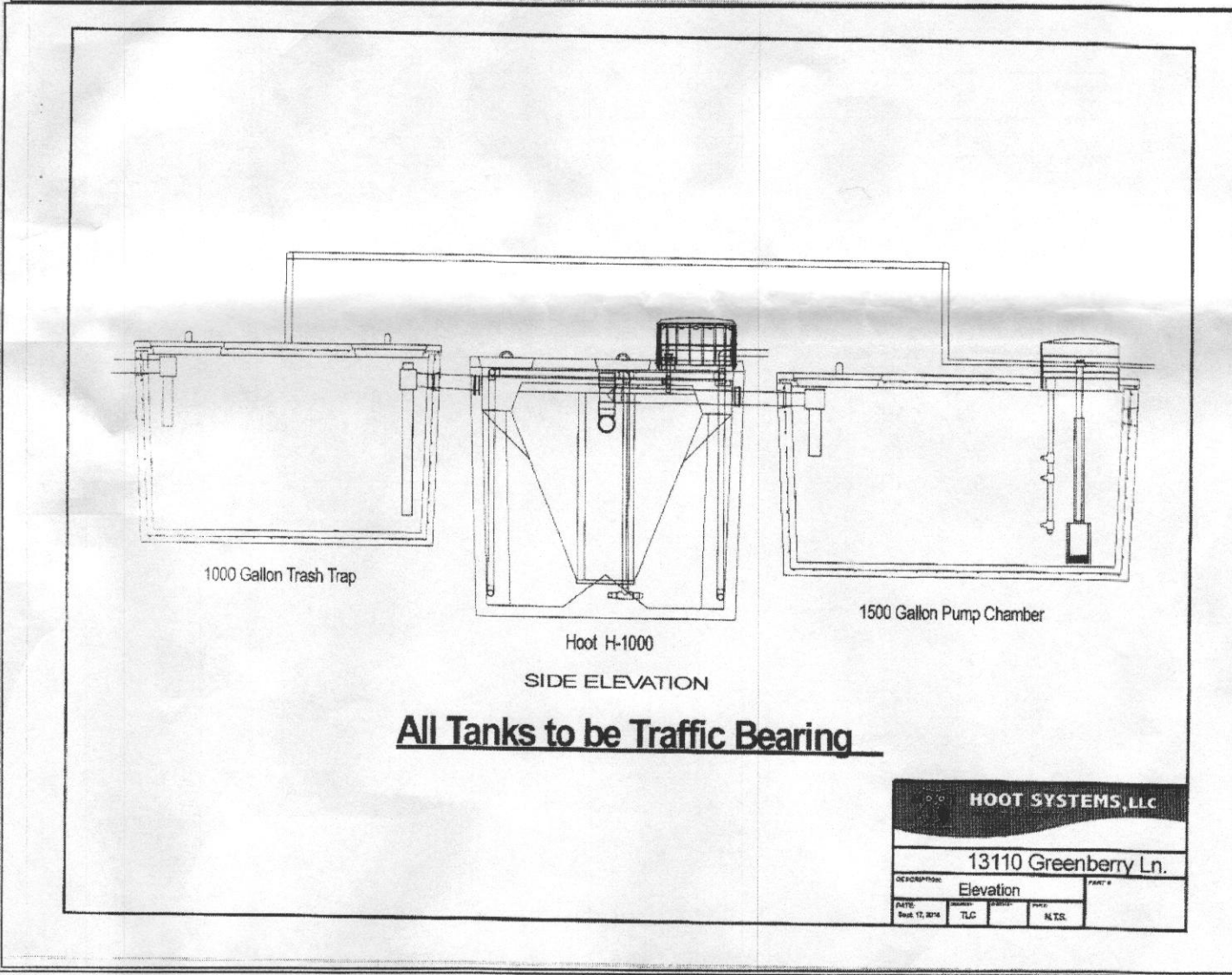
VICINITY MAP
SCALE: 1" = 2000'
ADC MAP 24 GRID F8



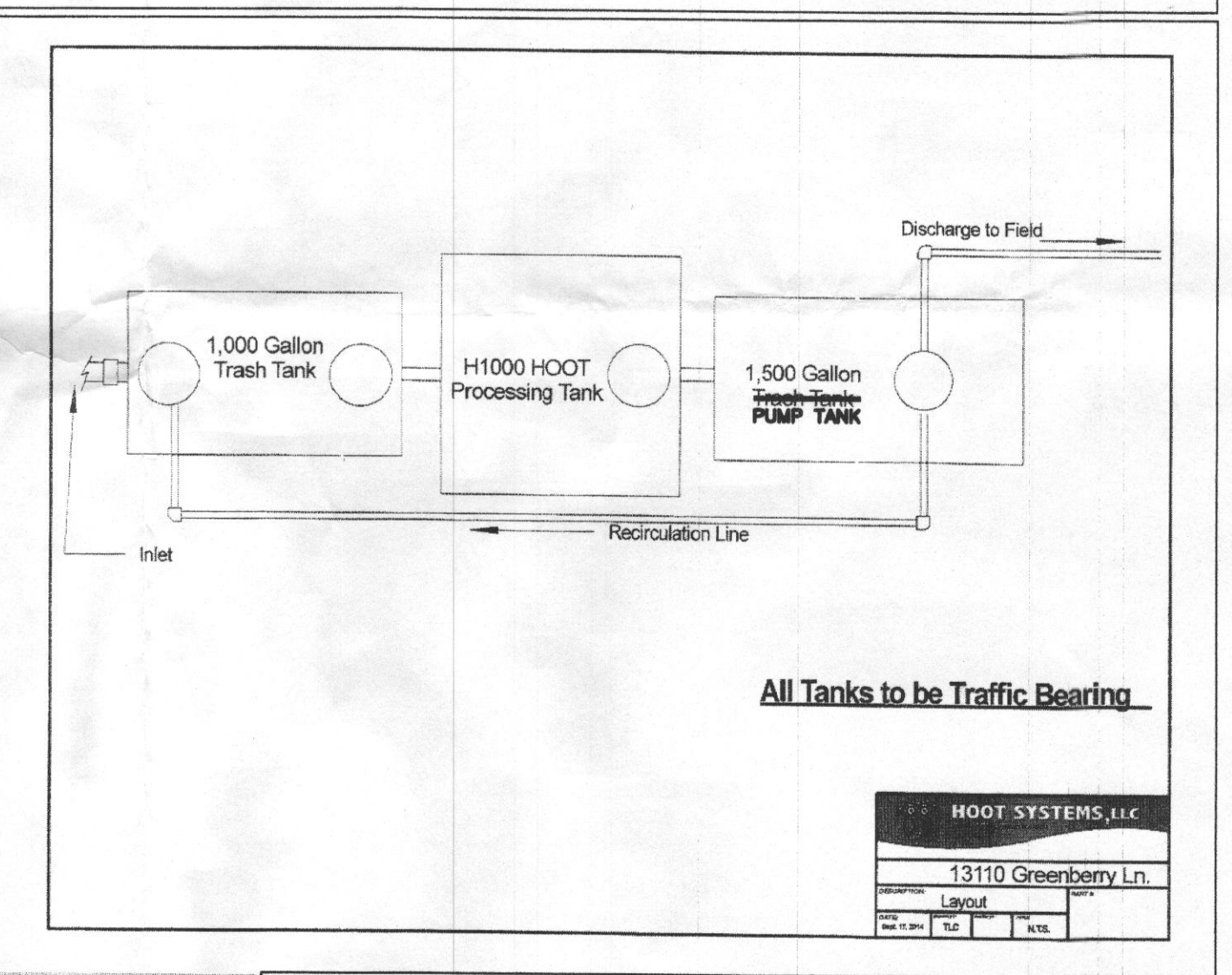
PLAN VIEW



SIDE ELEVATION



All Tanks to be Traffic Bearing



All Tanks to be Traffic Bearing

Goulds Water Technology

Wastewater

FEATURES

- EPD4 Impeller: Thermoplastic semi-rigid design with pump out vanes for mechanical seal protection.
- EPD5 Impeller: Thermoplastic enclosed design provides superior strength and corrosion resistance.
- Casing and Base: Rugged thermoplastic design provides superior strength and corrosion resistance.
- Motor Housing: Cast iron for efficient heat transfer, strength, and durability.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 106 Standards by Canadian Standards Association File #433547

Motor:

- EPD4 Single phase: 0.4 HP, 115 or 230 V, 60 Hz, 1550 RPM built in overload with automatic reset.
- EPD5 Single phase: 0.5 HP, 115 or 230V, 60 Hz, 1550 RPM, built in overload with automatic reset.
- Power cord: 10 foot standard length, 16/3 SJTW with three prong grounding plug. Optional 20 foot length, 16/3 SJTW with three prong grounding plug (standard on EPD5).
- Fully submerged in high grade turbine oil for lubrication and efficient heat transfer.

PERFORMANCE RATINGS

Total Head (ft. of water)	EPD4	EPD5
10	46	62
15	36	55
20	21	44
25	0	33
30		11

APPLICATIONS

Specifically designed for the following uses:

- Effluent systems
- Homes
- Farms
- Heavy duty sump
- Water transfer
- Dewatering

SPECIFICATIONS

- Solids handling capability: 1/2" maximum.
- Capacity: up to 60 GPM.
- Total heads up to 31 feet.
- Discharge size: 1 1/2" NPT.
- Mechanical seal: carbon-rotary/ceramic-stationary, Buna-N elastomers.
- Temperature: 104°F (40°C) continuous, 140°F (60°C) intermittent.
- Class B Insulation
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

Goulds Water Technology

Wastewater

METERS FEET

MODEL INFORMATION

Order No.	HP	Volts	Amperes	Minimum Circuit Breaker	Phase	Heat Switch Style	Coast Length	Discharge Connection	On Label	Off Label	Minimum Basin Diameter	Maximum Suction Size	Shipping Weight (lbs.)
EPD411	1/2	115	12	20	1	Plug/No Switch	10"	1 1/2"	Manual	Manual	15"	1 1/2"	21/19.5
EPD41A	1/2	115	12	20	1	Plug/No Switch	10"	1 1/2"	Manual	Manual	15"	1 1/2"	21/19.5
EPD41A2	1/2	115	12	20	1	Plug/No Switch	20"	1 1/2"	Manual	Manual	15"	1 1/2"	21/19.5
EPD412	1/2	115	12	20	1	Plug/No Switch	10"	1 1/2"	Manual	Manual	15"	1 1/2"	21/19.5
EPD412B	1/2	115	12	20	1	Plug/No Switch	20"	1 1/2"	Manual	Manual	15"	1 1/2"	21/19.5
EPD511F	1/2	115	13	20	3	Plug/No Switch	10"	1 1/2"	Manual	Manual	15"	1 1/2"	22/19
EPD51A2C	1/2	115	13	20	3	Plug/No Switch	20"	1 1/2"	Manual	Manual	15"	1 1/2"	23/19.4
EPD512F	1/2	115	13	20	3	Plug/No Switch	10"	1 1/2"	Manual	Manual	15"	1 1/2"	22/19

1,000 GALLON TANK Heavy-Traffic Rated

Stock Item (Approx. Wt. - 14,000 lbs.)

DESIGN DATA & GENERAL NOTES

- Concrete strength 4000 p.s.i. @ 28 days. Density = 150 p.c.f.
- Concrete - Reinforced Type III per ASTM C 1098.
- Reinforcing steel per ASTM A 618 Grade 60.
- Reinforcing steel per ASTM A 618 Grade 60. Min. 1/2" cover.
- Wall, base, & top slab designed for 100-20 lbs/ft².
- Top slab designed for 100-20 lbs/ft².
- Minimum 1" of earth cover over top slab.
- Depending on use of tank, inlet & outlet tanks may be replaced by curb.

Mayer Bros., Inc. 624 New Road Bridge, Maryland 21075 Tel: 410.764.1624 Fax: 410.764.1629

1,500 GALLON TANK Heavy-Traffic Rated

Stock Item (Approx. Wt. - 16,000 lbs.)

DESIGN DATA & GENERAL NOTES

- Concrete strength 4000 p.s.i. @ 28 days. Density = 150 p.c.f.
- Concrete - Reinforced Type III per ASTM C 1098.
- Reinforcing steel per ASTM A 618 Grade 60.
- Reinforcing steel per ASTM A 618 Grade 60. Min. 1/2" cover.
- Wall, base, & top slab designed for 100-20 lbs/ft².
- Top slab designed for 100-20 lbs/ft².
- Minimum 1" of earth cover over top slab.
- Depending on use of tank, inlet & outlet tanks may be replaced by curb.

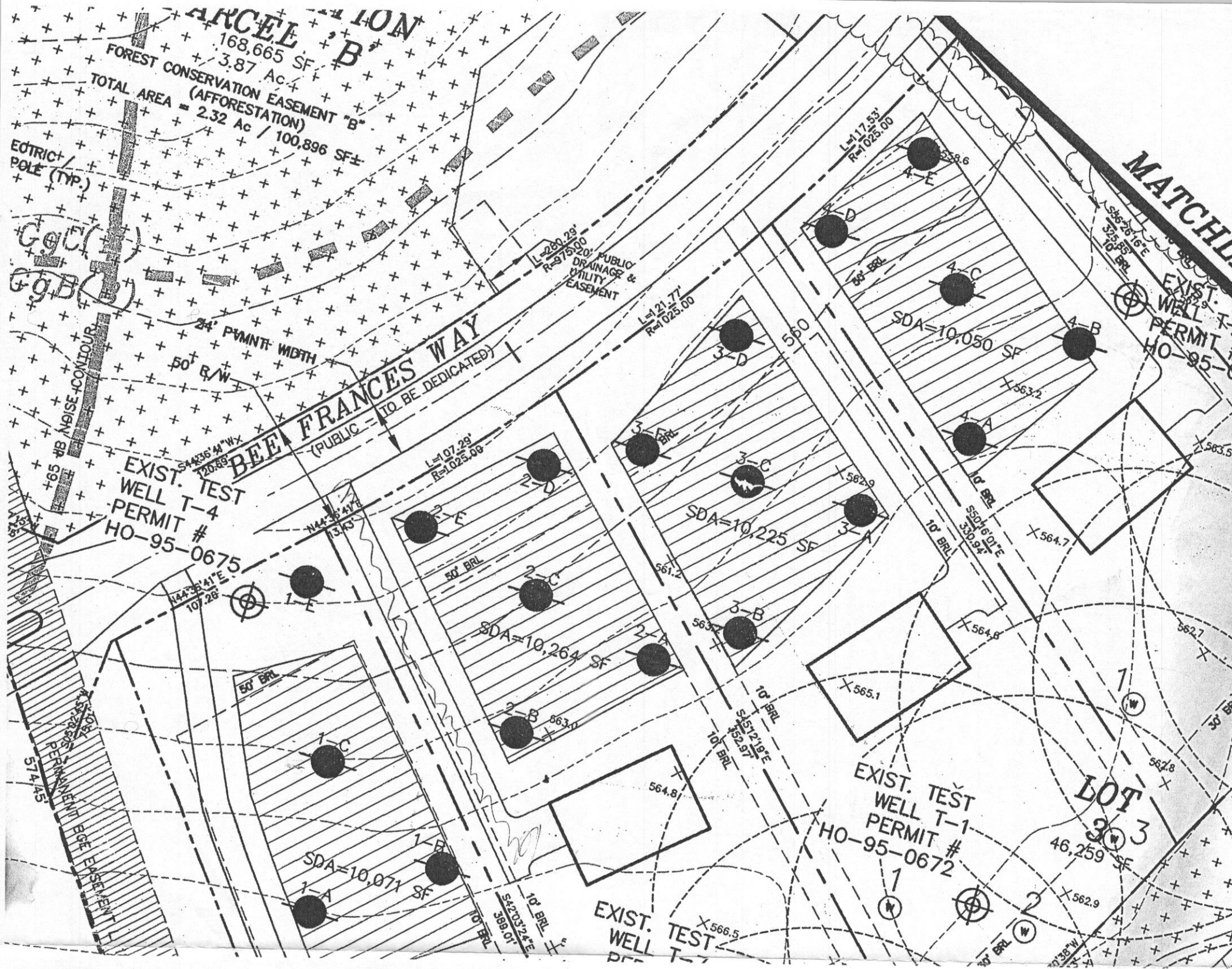
Mayer Bros., Inc. 624 New Road Bridge, Maryland 21075 Tel: 410.764.1624 Fax: 410.764.1629

Project	12-022	Date	APRIL 2015
Illustration	JLS/MM	Engineering	JLS/MM
Scale	JLS/MM	Approval	RBH
Sheet No.	SI010N		

no.	description	revisions

GREENBERRY TENANT HOUSE
13112 GREENBERRY LANE, CLARKSVILLE, MD
TAX MAP 28, PARCEL 48
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
BAT PROFILES AND DETAILS

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Engineers Planners Surveyors
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(410) 997-0286 Bat. (410) 997-0289 Fax.



LPD BAT Plan

Test wells

Stormwater ~~by~~ Plan

maya@mba-eng.com

Maya M. dan