

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: 6/9/17 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 561412

APPROVAL DATE: 10/13/17 (SEC) **PERMIT: CONSTRUCTION**

A _____

PROPERTY ADDRESS: 12252 Pleasant Springs Court

SUBDIVISION: Regan Property

LOT: 23 TAX ID: _____

CONTRACTOR: Hatfield's Equipment

EMAIL: _____

CONTRACTOR ADDRESS: P.O. Box 519 Annapolis Junction, MD 20701 PHONE: 301-490-4289

PROPERTY OWNER: MB Highland Reserve LLC

EMAIL: _____

OWNER ADDRESS: 1686 E Gude Drive, Rockville, MD 20850

PHONE: 301-762-8523

SEPTIC TANK SIZE (GALLONS): 2000 TANK MANUFACTURER: Mayer Bros.

PUMP MODEL: Zoeller Mod. 151 PUMP SIZE _____ PUMP TANK CAPACITY: 2000 gal

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 6 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>98 / 24 3 42'</u>	INLET DEPTH: <u>3</u>
	TRENCH WIDTH: <u>2</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 TANK LOCATIONS MUST BE STAKED BY LICENSED SURVEYOR PRIOR TO PRE-CONSTRUCTION INSPECTION.	
NOTES:		

ISSUED BY: Dana Bernard ISSUE DATE: 6/9/17 EXPIRATION DATE: 6/9/18

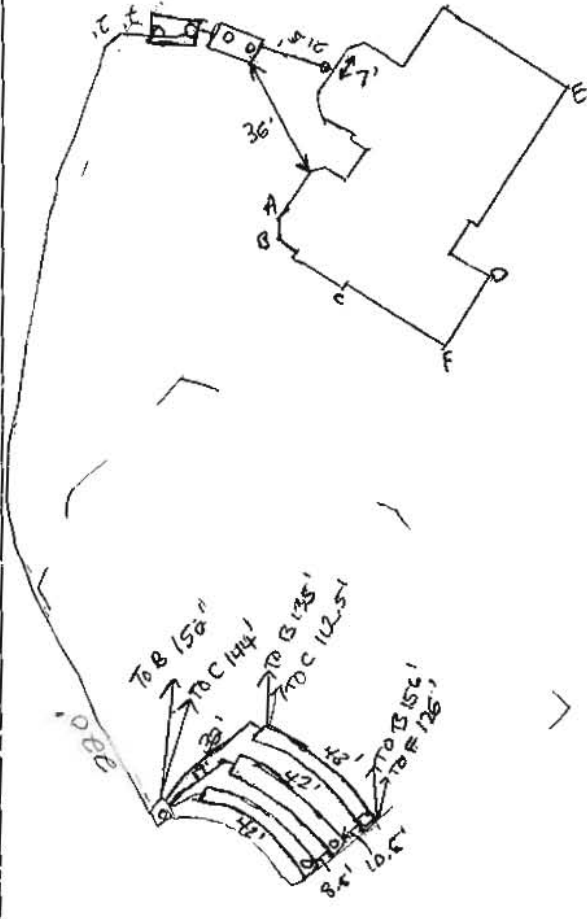
- NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION
- NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING
- NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.
- NOTE: WATERTIGHT TANKS REQUIRED
- NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRAIDENT 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: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.

PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.

CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE



TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	3'	8'
NUMBER OF TRENCHES		3
TOTAL LENGTH		127'
ABSORPTION AREA		381 sq ft + 5 sq ft
DISTRIBUTION BOX LEVEL		YES
DISTRIBUTION BOX BAFFLE		YES
DISTRIBUTION BOX PORT		YES

SEPTIC TANK DATA

SEPTIC TANK I LEVEL	DNI
MANUFACTURER	Mayer Bros
CAPACITY	2000 GAL
SEAM LOC	TOP
TANK LID DEPTH	18"-24"
BAFFLES	YES
BAFFLE FILTER	NO
MANHOLE LOC	Front/Back
6" PORT LOC	Front
WATERTIGHT TEST	-
SLOTTED	YES
DATE ON LID	6/7/17

PUMP/SEPTIC TANK LEVEL DNI

MANUFACTURER	Mayer Bros
CAPACITY	2000 GAL
SEAM LOC	TOP
TANK LID DEPTH	12"-24"
BAFFLES	NO
BAFFLE FILTER	NO
MANHOLE LOC	FR
6" PORT LOC	-
WATERTIGHT TEST	-
SLOTTED	-
DATE ON LID	-

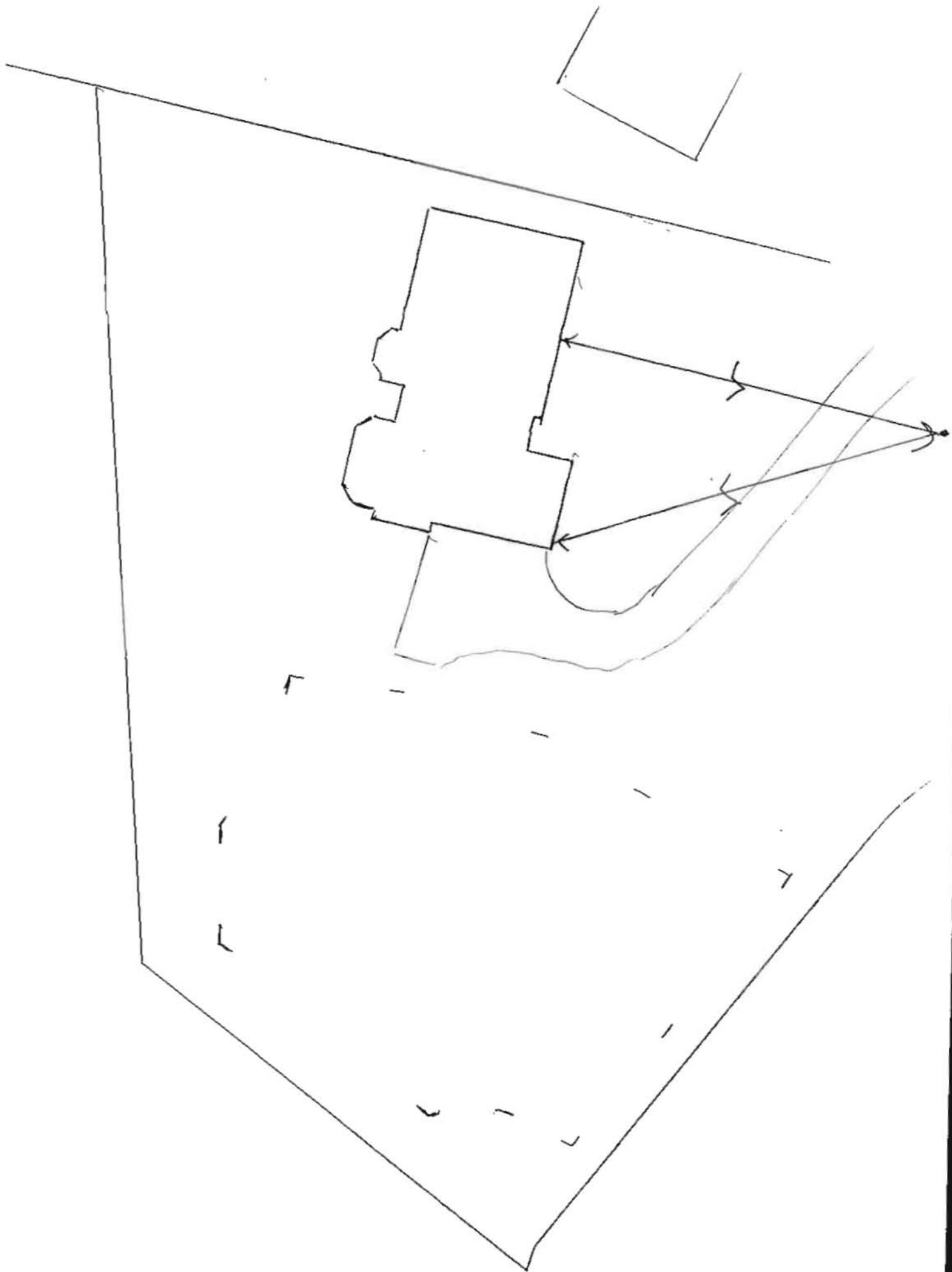
PRE-CONSTRUCTION:

7/24/17 Met w/ contractor. SDA Staked. Measured tank placement from scale. Possible pump tank realignment shifted down grade towards SW. Force main to hug silt fence up to D Box. Trench ends flush w/ distal perimeter of SDA. Slight fanning towards D Box. (S)

INSTALLATION: 07/26/2017 On site for approval to backfill on S.T & pump tank. Force main installed up to D Box by SDA. OK to backfill force main + tanks. (S)

7/28/17 Installed 3 trenches. Checked spread level of D Box. Approved to backfill. Need pump and alarm. Well line not installed (S) 10/13/17 on site for pump + alarm. Alarm sounds, pump pumps effluent to D-box. (S)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 10/13/17



Oswald, Hank

From: Oswald, Hank
Sent: Friday, January 13, 2017 11:44 AM
To: John Carney (jcarney@bei-civilengineering.com)
Subject: Septic Specs_Lot 19 & 23
Attachments: Regan Property_Lot 19.pdf; Regan Property_Lot 23.pdf

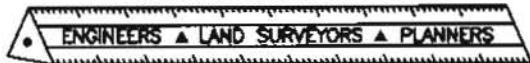
Hi John:

Attached, please find a copy of the septic specs for Regan Property Lots 19 and 23.

Hank

Hank Oswald, L.E.H.S.
Howard County Health Department
Bureau of Environmental Health
Well & Septic Program
8930 Stanford Boulevard
Columbia, MD 21045
410.313.1786 (Office)
410.313.2648 (Fax)

BENCHMARK



ENGINEERING, INC.

8480 Baltimore National Pike • Suite 315 • Ellicott City, Maryland 21043
 410-465-6105 410-465-6644 (Fax)

LETTER OF TRANSMITTAL

TO: Health

DATE	<u>1/24/17</u>	PROJECT No.	<u>2171</u>
ATTENTION	<u>SELF</u>		
RE:	<u>Rogan Property</u>		
	<u>Lot 23</u>		
	<u>12252 Pleasant Springs</u>		

WE ARE SENDING YOU Attached Under separate cover via _____ the following items

Photocopies Prints Originals Samples
 Specifications Invoices Change Order Other _____

COPIES of	No. of SHEETS	DESCRIPTION
<u>3</u>	<u>4</u>	<u>Septic Design</u>
<u>1</u>	<u>-</u>	<u>Architectural Plans</u>
		<u>Sheets 1, 3, 5, 6, 8, 9, 10, & 23</u>

THESE ARE TRANSMITTED as checked below

- For Comment For your use For Approval
 For Review As requested Other _____

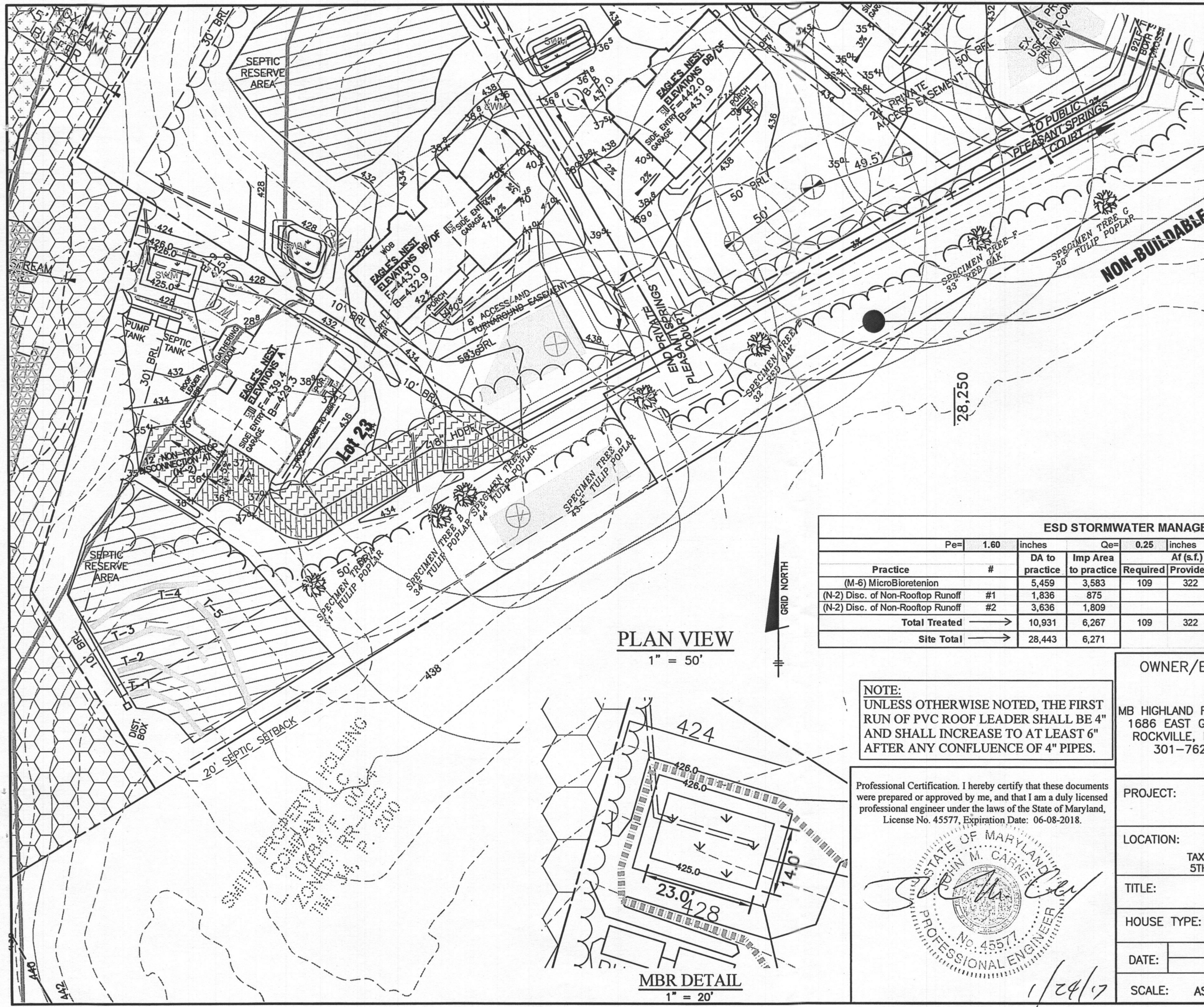
REMARKS: Bedroom

COPY TO: _____
 RECEIVED BY: [Signature]
If enclosures are not as noted, kindly notify us at once.

SIGNED: [Signature]

BUILDING PERMIT PLAN NOTES:

1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR REGAN PROPERTY, PLAT Nos. 23063-23074. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JANUARY, 2012.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO-14-0015, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE EASEMENT OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO-BIORETENTION FACILITY (MDE M-6) AND ONE NON-ROOFTOP DISCONNECTION (MDE N-2).
10. MICRO-BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF-TOP AREA.

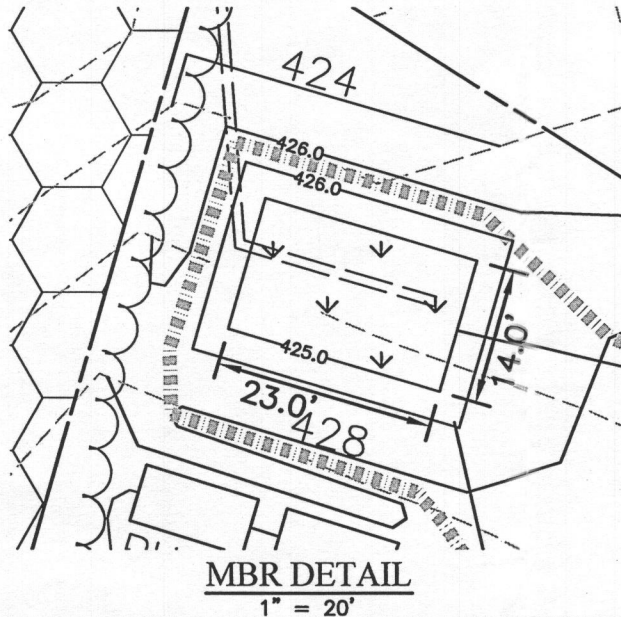


ESD STORMWATER MANAGEMENT SUMMARY TABLE

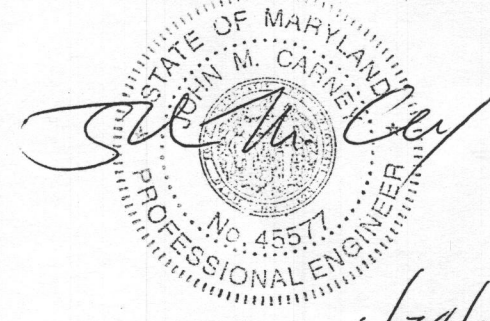
Practice	#	DA to practice	Imp Area to practice	Pe= 1.60 inches			Qe= 0.25 inches			ESDv= 589 cf			Rv= 0.25		Ownership
				Required	Provided	2% DA?	Required	Provided	Pe Provided	Required	Provided				
(M-6) MicroBioretention		5,459	3,583	109	322	PASS	466	451	1.6					Private	
(N-2) Disc. of Non-Rooftop Runoff	#1	1,836	875					66	1.0					Private	
(N-2) Disc. of Non-Rooftop Runoff	#2	3,636	1,809					136	1.0					Private	
Total Treated		10,931	6,267	109	322		589	652	1.1	153	153				
Site Total		28,443	6,271												

PLAN VIEW
1" = 50'

NOTE:
UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.



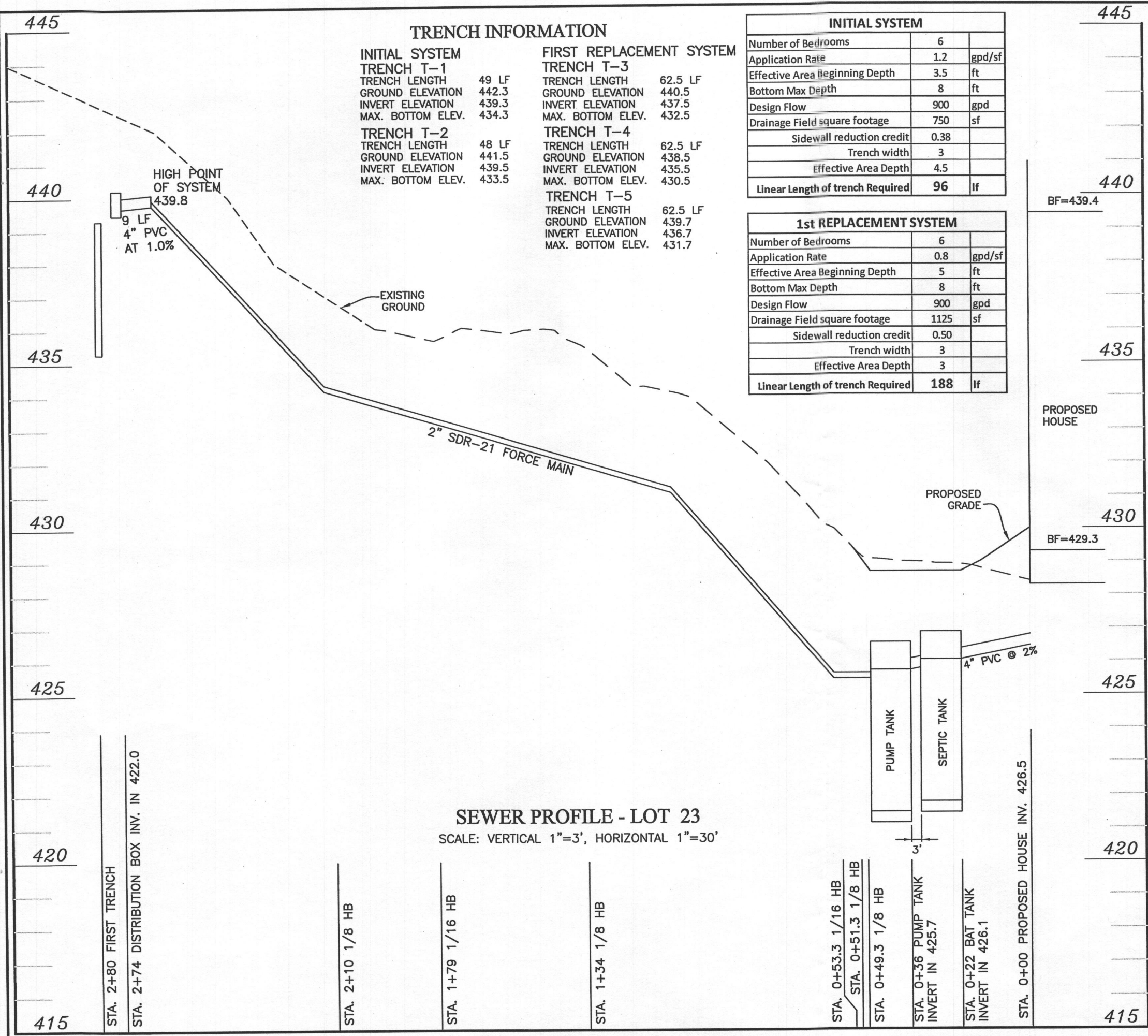
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 06-08-2018.



OWNER/BUILDER:	BENCHMARK ENGINEERS AND SURVEYORS PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CMLENGINEERING.COM
PROJECT:	REGAN PROPERTY LOT 23
LOCATION:	12252 PLEASANT SPRINGS COURT HIGHLAND, MD 20777 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456
TITLE:	SEPTIC PERMIT PLAN
HOUSE TYPE:	EAGLES NEST - ELEVATION 'AS'
DATE:	JANUARY, 2017
SCALE:	AS SHOWN
PROJECT NO.	2171
DRAWING	1 OF 4

SWITH PROPERTY HOLDING
L. LOZANOFF, LLC
ZONED: RR-DEO-4
TM. J. P. 200

1/24/17

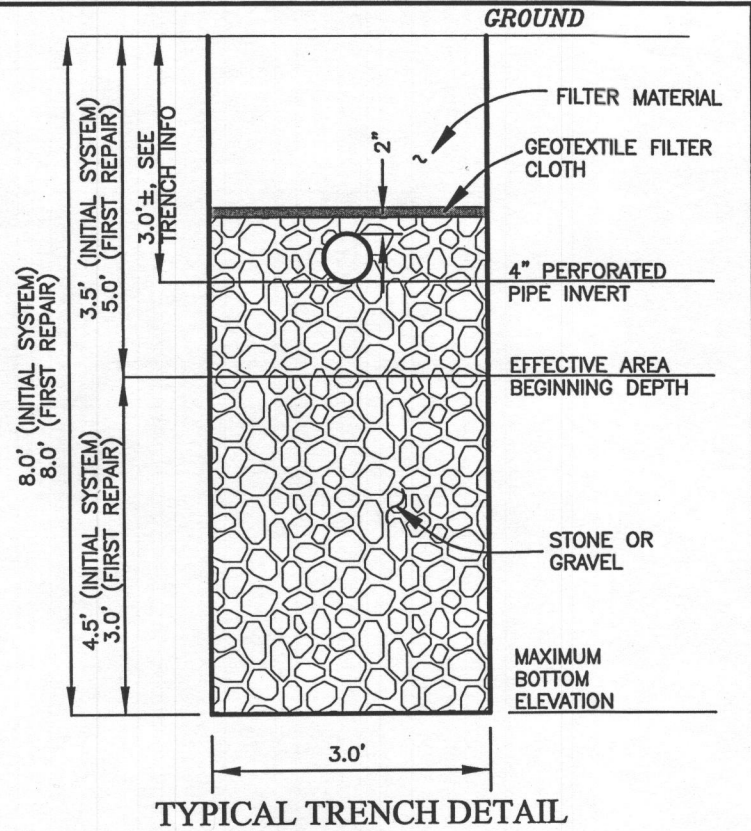


TRENCH INFORMATION

INITIAL SYSTEM		FIRST REPLACEMENT SYSTEM	
TRENCH T-1		TRENCH T-3	
TRENCH LENGTH	49 LF	TRENCH LENGTH	62.5 LF
GROUND ELEVATION	442.3	GROUND ELEVATION	440.5
INVERT ELEVATION	439.3	INVERT ELEVATION	437.5
MAX. BOTTOM ELEV.	434.3	MAX. BOTTOM ELEV.	432.5
TRENCH T-2		TRENCH T-4	
TRENCH LENGTH	48 LF	TRENCH LENGTH	62.5 LF
GROUND ELEVATION	441.5	GROUND ELEVATION	438.5
INVERT ELEVATION	439.5	INVERT ELEVATION	435.5
MAX. BOTTOM ELEV.	433.5	MAX. BOTTOM ELEV.	430.5
		TRENCH T-5	
		TRENCH LENGTH	62.5 LF
		GROUND ELEVATION	439.7
		INVERT ELEVATION	436.7
		MAX. BOTTOM ELEV.	431.7

INITIAL SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	3.5	ft
Bottom Max Depth	8	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.38	
Trench width	3	
Effective Area Depth	4.5	
Linear Length of trench Required	96	lf

1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	0.8	gpd/sf
Effective Area Beginning Depth	5	ft
Bottom Max Depth	8	ft
Design Flow	900	gpd
Drainage Field square footage	1125	sf
Sidewall reduction credit	0.50	
Trench width	3	
Effective Area Depth	3	
Linear Length of trench Required	188	lf



TYPICAL TRENCH DETAIL

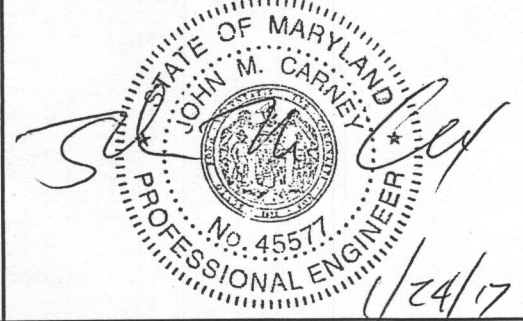
NOT TO SCALE

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURERS SPECIFICATIONS FOR DETAILS. WWW.MAYERPRECAST.COM EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.



OWNER/BUILDER:
MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301-762-9511

BENCHMARK
ENGINEERS AND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315
ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

PROJECT:	REGAN PROPERTY LOT 23	
LOCATION:	12252 PLEASANT SPRINGS COURT HIGHLAND, MD 20777 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456	
TITLE:	SEPTIC PERMIT PLAN	
HOUSE TYPE:	EAGLES NEST - ELEVATION 'AS'	
DATE:	JANUARY, 2017	PROJECT NO. 2171
SCALE:	AS SHOWN	DRAWING 2 OF 4

Pumping Station

Diameter of Force Main and Manifold = 2 of SDR 21 pipe
 Length of Force Main = 265 feet SDR 21 gallons/100 feet = 18.8 Table 4.2

Volume of Main = 49.3 gallons ID = 2.135
 length = 100 gallon/sq ft 7.480519
 Total Volume = 49.3 gallons volume = 18.59751 gal/100 lf

Minimum Dose must be greater than 1/6 of the design flow 150 gallons

Minimum Dose must be greater than the volume of the main 49 gallons

Use minimum dose of 160 gallons okay Doses per Day = 5.625

Size Pump Chamber

Pump chamber must be able to hold one dose and one days design flow

One day Capacity = 900 gallons
 Dose = 160 gallons
 Totals = 1060 gallons

Use 2,000 gallon pump tank

Tank Dimensions:

Exterior Length:	13.75 feet	Interior Length:	13.08 feet	Walls:	0.33 feet
Width:	6.25 feet	Width:	5.58 feet	Bottom:	0.33 feet
Height:	5.42 feet	Height:	4.67 feet	Top:	0.42 feet
		Area:	73.05 sf	Bottom to Inlet:	4.58 feet
		Volume:	341.14 cf		

Sizing the Pump

Flow: runtime = 7 minutes
 rate = 22.86 gallons/minute

Design Head:

Design Head = Static Head + Friction Head

Static Head = highest elevation of main - pump off elevation

Highest component of system = 439.8 Main HP
 Pump off elevation = 423.17
 Static Head = 16.63 feet

Friction Head = Head loss due to pipe friction

2.0" pipe =	265 feet		
45° bends	4 loss for bend	16 feet	per table 4.3
90° Tee	0 loss for tee	0 feet	per table 4.3

Friction loss per table 4.4 = 0.95 (ft/100 ft)

Equivalent Length = 281 Friction loss 2.67 feet

Total Friction Head = 2.67

Design Head = 19.30 feet

Pump Requirements:

Performance = 22.86 gpm
 Head of Water = 19.30 feet of head

Pump Selection: Zoeller Pump Company Effluent Series, Model 151
 1/3 horse power

Pump Flow Rate = 29.00 gallons/minute per rating curve 5.52 Minutes
 TDH analysis 20.71 ft
 Between design and curve? Yes

Design Pump Chamber

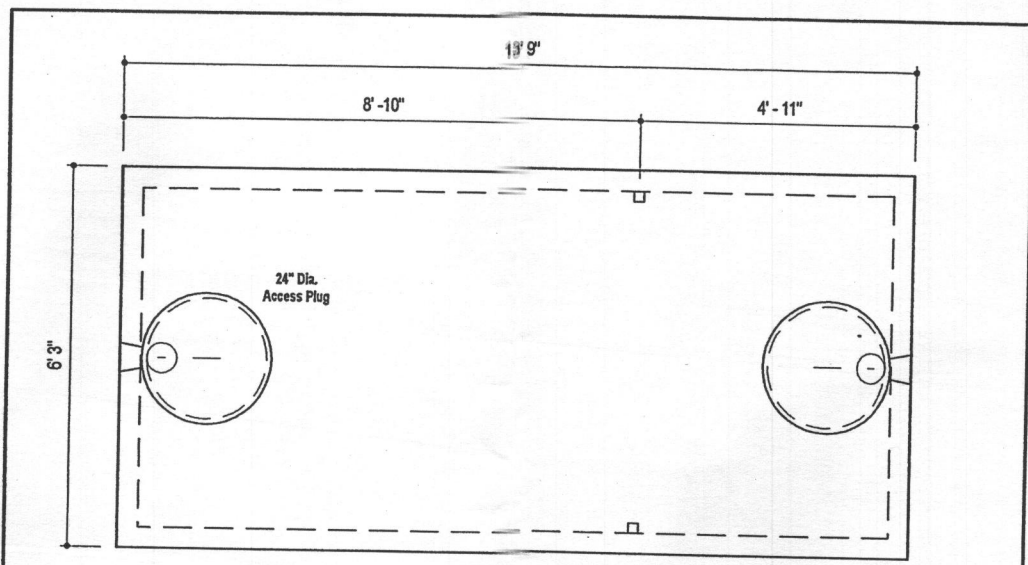
Ground over Tank =	428.69	Cover	2.1 ft
Top of Tank =	426.59		
Invert of Tank =	421.50		
6" Riser =	0.50 feet		
Pump Height =	1.10 feet		
Min. Pump off =	423.10		
Selected Pump off =	423.17		

Dose = 21.4 cf
 Area of Pit = 73.05 sf

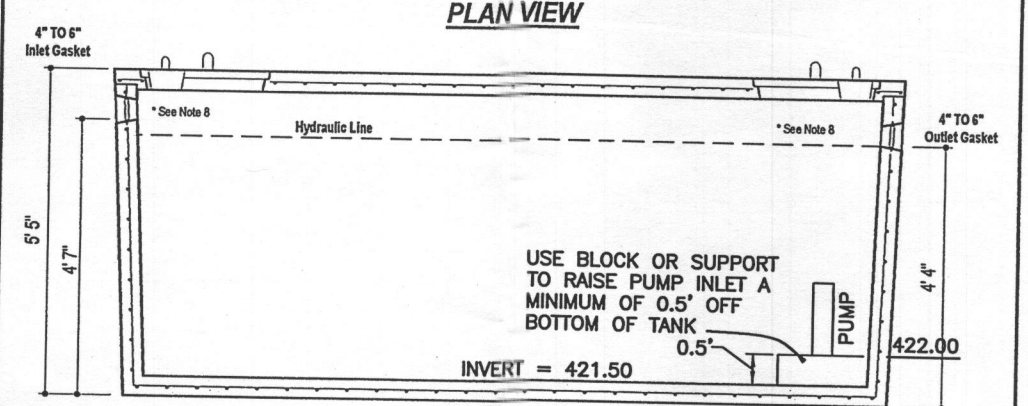
Pump on dist. = 0.29
 Pump on Elev. = 423.46

Distance between Pump on and Highwater Alarm = 0.5 feet
 Highwater Alarm Elevation = 423.96

Dist. for a dose above alarm = 1.65
 Minimum Inlet Elev. = 425.61
 Tank Inlet = 425.75 Okay
 Dist. Alarm to Inlet = 1.79 Okay



PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength $f_c=4,000$ p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
- [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, 4" base, & 6" top thickness.
- [7] Max 3" of cover
- [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

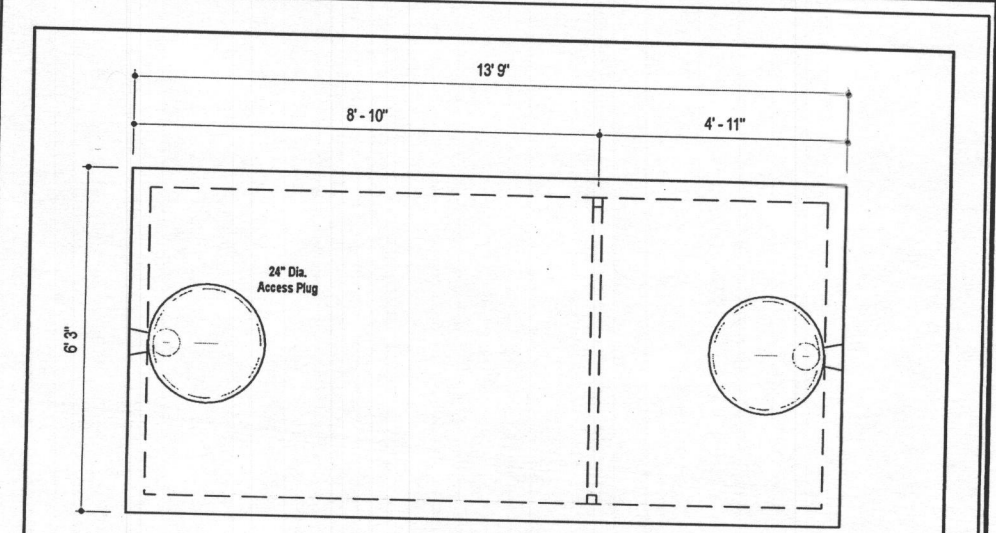
FLOAT TREE:	ELEV.	RELATIVE TO BOTTOM
BOTTOM OF TANK	421.50	
TOP OF PUMP	423.10	1'-7 1/4"
PUMP OFF	423.17	1'-8"
PUMP ON	423.64	2'-1 11/16"
HIGH ALARM	423.96	2'-5 1/2"

INV. IN PUMP TANK 398.26
 INV. OUT PUMP TANK 398.01
 TOP OF PUMP TANK 399.10
 GR. OVER PUMP TANK 401.30

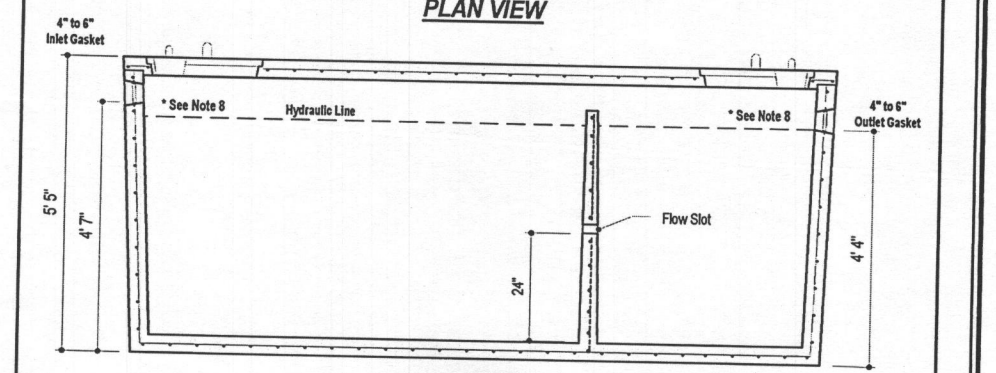
WEIGHT = 19,000 lbs.

MBI
 Mayer Bros., Inc.
 6264 Race Road
 Elkridge, Maryland 21075
 Tel. 410.796.1434
 Fax. 410.796.1438
 www.mayerbrosprecast.com

2,000 GALLON SEPTIC TANK
1-Compartment **LOT 23**
 Stock Item [Approx. 19,000 lbs]
 Dwg. No. 2000-1C No Scale Aug. 11, 2008



PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength $f_c=4,000$ p.s.i. @ 28 days. Density = 150 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
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 Fax. 410.796.1438
 www.mayerbrosprecast.com

2,000 GALLON SEPTIC TANK
2-Compartment **LOT 23**
 Stock Item [Approx. 19,000 lbs]
 Dwg. No. 2000-2C No Scale Aug 11, 2008

THIS PLAN IS FOR SEPTIC DESIGN ONLY

SEE MANUFACTURES SPECIFICATIONS FOR DETAILS.
 WWW.MAYERPRECAST.COM
 EQUIVALENT FROM OTHER MANUFACTURERS CAN BE SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC PROFILE AND CALCULATIONS ONLY, TANK AND DETAILS WERE NOT DESIGNED OR REVIEWED BY THE ENGINEER:

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.

[Signature]
 1/24/17

STATE OF MARYLAND
 JOHN M. CARNEY
 PROFESSIONAL ENGINEER
 No. 45577

OWNER/BUILDER:
 MB HIGHLAND RESERVE, LLC
 1686 EAST GUDE DRIVE
 ROCKVILLE, MD 20850
 301-762-9511

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 8480 BALTIMORE NATIONAL PIKE SUITE 315
 ELICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

PROJECT: REGAN PROPERTY
 LOT 23

LOCATION: 12252 PLEASANT SPRINGS COURT
 HIGHLAND, MD 20777
 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456

TITLE: SEPTIC PERMIT PLAN

HOUSE TYPE: EAGLES NEST - ELEVATION 'AS'

DATE: JANUARY, 2017
 PROJECT NO. 2171

SCALE: AS SHOWN
 DRAWING 3 OF 4

Your Peace of Mind is Our Top Priority



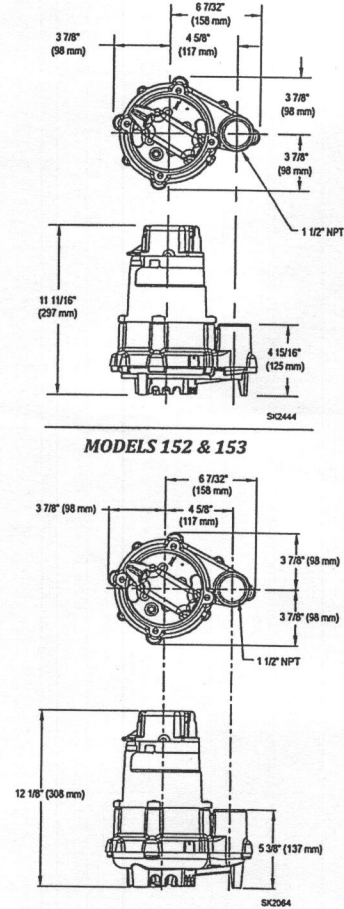
SECTION: 2.15.080
FM2784
0315
Supersedes
0114

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps

PRODUCT SPECIFICATIONS

MOTOR	MODEL 151
Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
Voltage	115 or 230
Phase	1 Ph
Hertz	60 Hz
RPM	3450
Type	Permanent split capacitor
Insulation	Class B
Amps	3.2 - 10.5
Operation	Automatic or nonautomatic
Discharge Size	1-1/2" NPT
Solids Handling	1/2" (13 mm), 3/4" (19 mm) spherical solids
Cord Length	20' (6 m)
Cord Type	UL listed power cord
Max. Head	44' (13.4 m)
Max. Flow Rate	77 GPM (291 LPM)
Max. Operating Temp.	130° F (54° C)
Cooling	Oil filled
Motor Protection	Auto reset thermal overload
MATERIALS	
Cap	Cast iron
Motor Housing	Cast iron
Pump Housing	Cast iron
Base	Plastic or cast iron
Upper Bearing	Sleeve bearing
Lower Bearing	Ball bearing
Mechanical Seals	Carbon and ceramic
Impeller Type	Non-clogging vortex
Impeller	Engineered thermoplastic
Hardware	Stainless steel
Motor Shaft	AISI 1215 steel
Gasket	Neoprene



NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

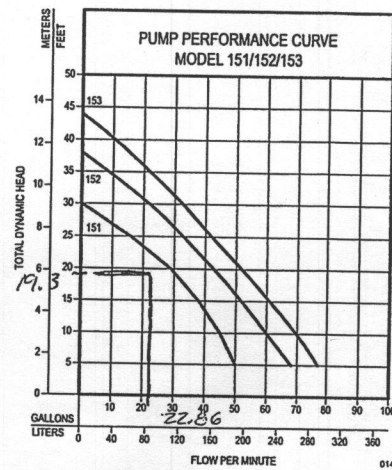


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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | www.zoeller.com

TOTAL DYNAMIC HEAD
FLOW PER MINUTE

MODEL	151		152		153		
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.5	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	61	34	129	42	159
30	9.1	-	-	23	87	33	125
35	10.7	-	-	-	-	22	85
40	12.2	-	-	-	-	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	

USE MODEL 151



Model	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs.	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.2	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.2	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Auto	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17		
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m), 50' (15 m) cords are available for 230V units only.

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

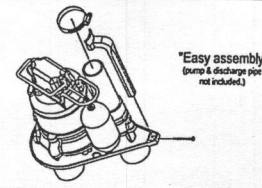
SELECTION GUIDE

- For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM1228 for correct model of simplex control panel.
- See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1 1/2" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.



CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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Professional Certification. 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. 45577, Expiration Date: 06-08-2018.



OWNER/BUILDER: MB HIGHLAND RESERVE, LLC
1686 EAST GUDE DRIVE
ROCKVILLE, MD 20850
301-762-9511

BENCHMARK
ENGINEERS LAND SURVEYORS PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE SUITE 315
ELLCOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

PROJECT: **REGAN PROPERTY**
LOT 23

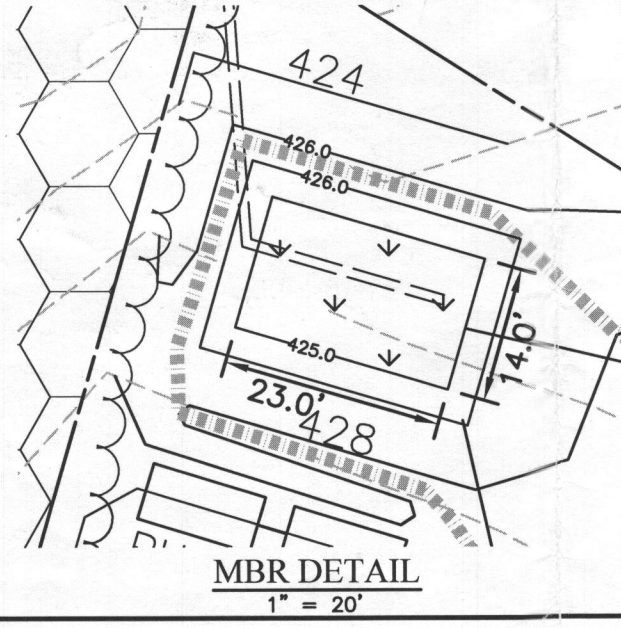
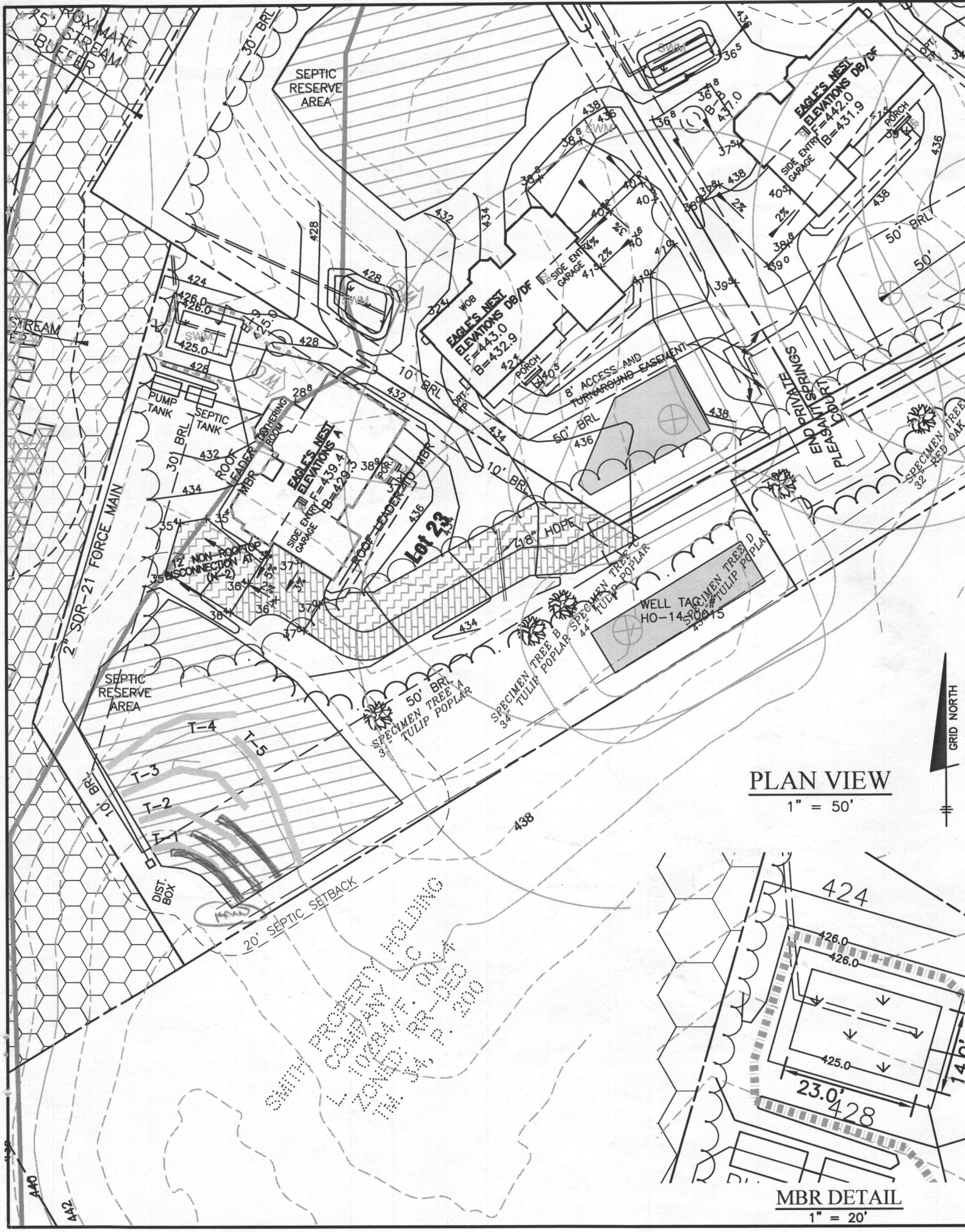
LOCATION: 12252 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456

TITLE: **SEPTIC PERMIT PLAN**

HOUSE TYPE: **EAGLES NEST - ELEVATION 'AS'**

DATE: JANUARY, 2017
PROJECT NO. 2171

SCALE: AS SHOWN
DRAWING 4 OF 4



BUILDING PERMIT PLAN NOTES:

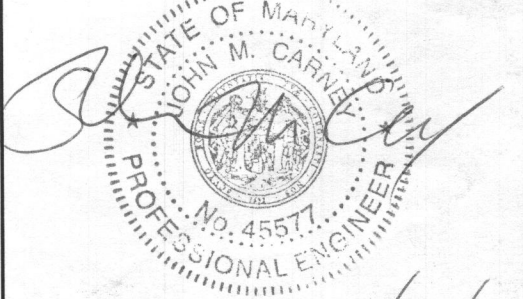
1. THE LOT SHOWN HEREON WAS RECORDED ON THE PLAT FOR REGAN PROPERTY, PLAT Nos. 23063-23074. REFER TO THE PLATS FOR LOT DIMENSIONS, LOT AREAS, ALL EASEMENTS AND CONDITIONS.
2. SEDIMENT AND EROSION CONTROLS WERE APPROVED BY HOWARD SOIL CONSERVATION DISTRICT UNDER A GRADING PLAN AND MODIFIED FOR THIS SPECIFIC HOUSE.
3. TOPOGRAPHY SHOWN HEREON IS TAKEN FROM THE APPROVED ROAD CONSTRUCTION PLANS AND TOPOGRAPHIC INFORMATION PROVIDED BY BENCHMARK ENGINEERING, INC., ON OR ABOUT JANUARY, 2012.
4. ALL SEDIMENT AND EROSION CONTROL FEATURES USED ON THIS SITE SHALL COMPLY WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
5. ALL DRAINAGE AND STORMWATER MANAGEMENT FEATURES USED ON THIS SITE MUST COMPLY WITH THE APPROVED ROAD CONSTRUCTION PLANS EXCEPT AS WAIVED.
6. THE EXISTING WELL SHOWN ON THIS PLAN, HO-14-0015, HAS BEEN FIELD LOCATED BY BENCHMARK ENGINEERING, INC., AND IS ACCURATELY SHOWN.
7. THERE ARE NO EXISTING WELLS OR SEPTIC SYSTEMS WITHIN 100' OF THIS PROJECT'S BOUNDARY EXCEPT AS NOTED.
8. ANY CHANGES TO A PRIVATE SEWAGE EASEMENT OR WELL BOX SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
9. STORMWATER MANAGEMENT FOR THIS LOT WAS DESIGNED AND PROVIDED BY ONE MICRO-BIORETENTION FACILITY (MDE M-6) AND ONE NON-ROOFTOP DISCONNECTION (MDE N-2).
10. MICRO-BIORETENTION SHALL HAVE EITHER A 4" OR 6" ROOF LEADER DEPENDING ON ROOF-TOP AREA.

Approved Septic System Plan
 Howard County Health Department
Dora Benard 3-7-17
 Signature Date

Practice	#	DA to practice	Imp Area to practice	Af (s.f.)			ESDv			REV		Ownership
				Required	Provided	2% DA?	Required	Provided	Pe Provided	Required	Provided	
(M-6) MicroBioretention		5,459	3,583	109	322	PASS	466	451	1.6			Private
(N-2) Disc. of Non-Rooftop Runoff	#1	1,836	875					66	1.0			Private
(N-2) Disc. of Non-Rooftop Runoff	#2	3,636	1,809					136	1.0			Private
Total Treated		10,931	6,267	109	322		589	652	1.1	153	153	
Site Total		28,443	6,271									

NOTE:
 UNLESS OTHERWISE NOTED, THE FIRST RUN OF PVC ROOF LEADER SHALL BE 4" AND SHALL INCREASE TO AT LEAST 6" AFTER ANY CONFLUENCE OF 4" PIPES.

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.



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 8480 BALTIMORE NATIONAL PIKE SUITE 315
 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CMLENGINEERING.COM

PROJECT: REGAN PROPERTY
 LOT 23

LOCATION: 12252 PLEASANT SPRINGS COURT
 HIGHLAND, MD 20777
 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456

TITLE: SEPTIC PERMIT PLAN

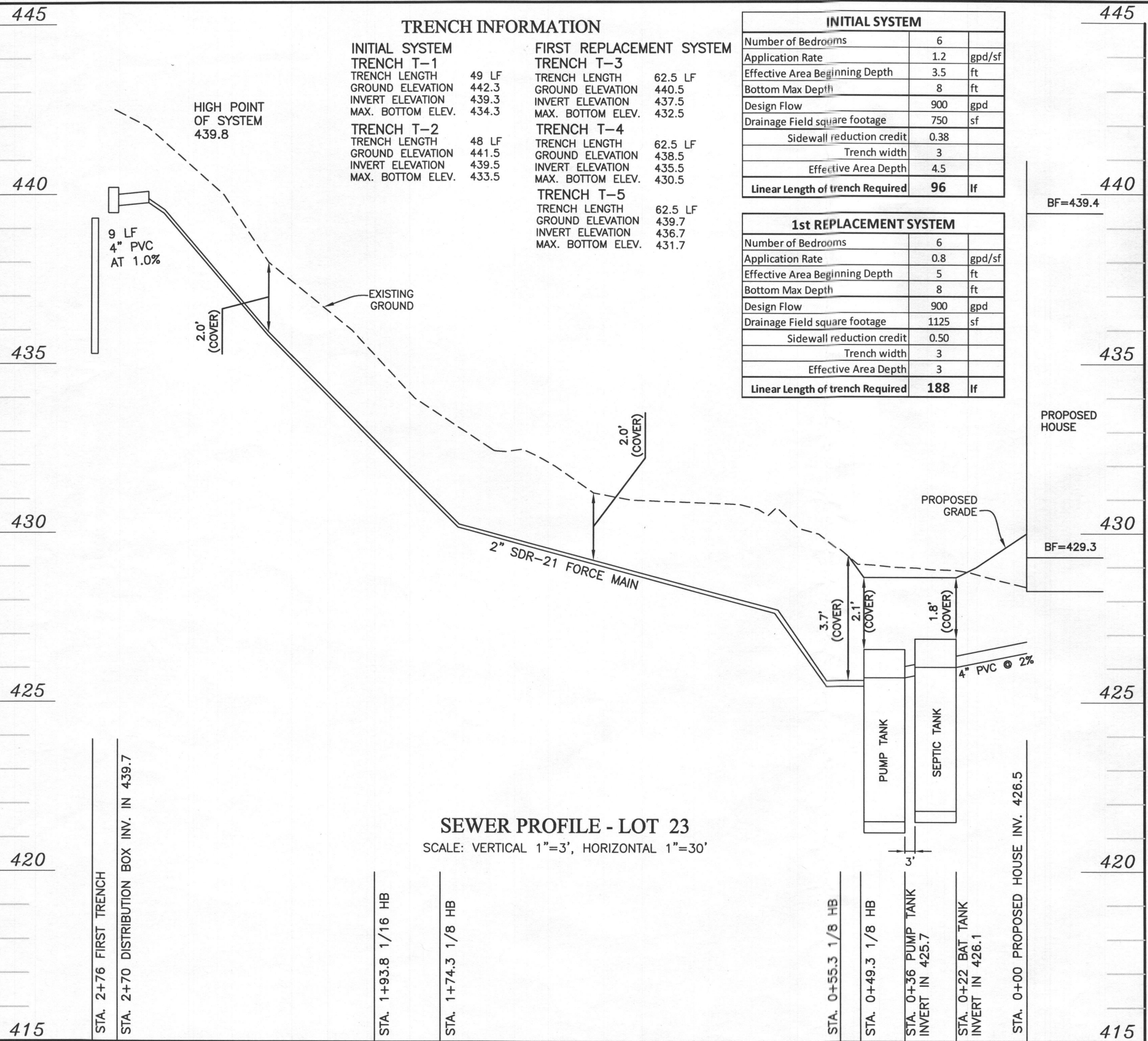
HOUSE TYPE: EAGLES NEST - ELEVATION 'AS'

DATE: JANUARY, 2017
 FEBRUARY, 2017

PROJECT NO.: 2171

SCALE: AS SHOWN

DRAWING: 1 OF 2

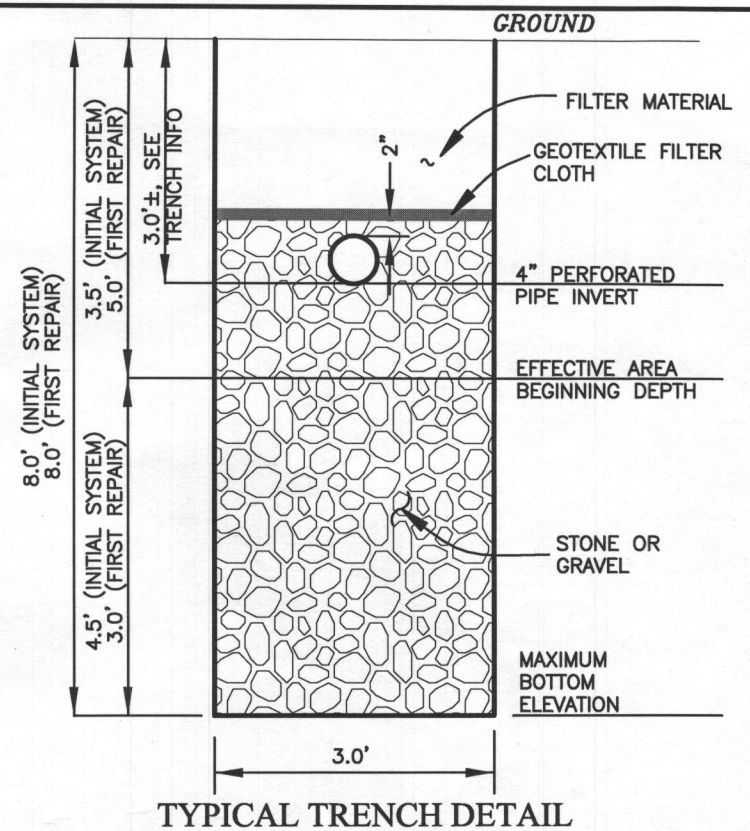


TRENCH INFORMATION

INITIAL SYSTEM		FIRST REPLACEMENT SYSTEM	
TRENCH T-1	TRENCH LENGTH 49 LF	TRENCH T-3	TRENCH LENGTH 62.5 LF
GROUND ELEVATION 442.3		GROUND ELEVATION 440.5	
INVERT ELEVATION 439.3		INVERT ELEVATION 437.5	
MAX. BOTTOM ELEV. 434.3		MAX. BOTTOM ELEV. 432.5	
TRENCH T-2	TRENCH LENGTH 48 LF	TRENCH T-4	TRENCH LENGTH 62.5 LF
GROUND ELEVATION 441.5		GROUND ELEVATION 438.5	
INVERT ELEVATION 439.5		INVERT ELEVATION 435.5	
MAX. BOTTOM ELEV. 433.5		MAX. BOTTOM ELEV. 430.5	
		TRENCH T-5	TRENCH LENGTH 62.5 LF
		GROUND ELEVATION 439.7	
		INVERT ELEVATION 436.7	
		MAX. BOTTOM ELEV. 431.7	

INITIAL SYSTEM		
Number of Bedrooms	6	
Application Rate	1.2	gpd/sf
Effective Area Beginning Depth	3.5	ft
Bottom Max Depth	8	ft
Design Flow	900	gpd
Drainage Field square footage	750	sf
Sidewall reduction credit	0.38	
Trench width	3	
Effective Area Depth	4.5	
Linear Length of trench Required	96	lf

1st REPLACEMENT SYSTEM		
Number of Bedrooms	6	
Application Rate	0.8	gpd/sf
Effective Area Beginning Depth	5	ft
Bottom Max Depth	8	ft
Design Flow	900	gpd
Drainage Field square footage	1125	sf
Sidewall reduction credit	0.50	
Trench width	3	
Effective Area Depth	3	
Linear Length of trench Required	188	lf



TYPICAL TRENCH DETAIL

NOT TO SCALE

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PROJECT: **REGAN PROPERTY LOT 23**

LOCATION: 12252 PLEASANT SPRINGS COURT
HIGHLAND, MD 20777
TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456

TITLE: **SEPTIC PERMIT PLAN**

HOUSE TYPE: **EAGLES NEST - ELEVATION 'AS'**

DATE: JANUARY, 2017
FEBRUARY, 2017
PROJECT NO. 2171

SCALE: AS SHOWN
DRAWING 2 OF 4

Pumping Station

Diameter of Force Main and Manifold = 2.0 of SDR 21 pipe
 Length of Force Main = 222 feet SDR 21 gallons/100 feet = 18.8 Table 4.2

Volume of Main = 41.8 gallons ID = 2.149
 length = 100 gallon/sq ft 7.480519
 Total Volume = 41.8 gallons volume = 18.84222 gal/100 lf

Minimum Dose must be greater than 1/6 of the design flow 150 gallons
 Minimum Dose must be greater than the volume of the main 42 gallons

Use minimum dose of 160 gallons okay Doses per Day = 5.625

Size Pump Chamber

Pump chamber must be able to hold one dose and one days design flow

One day Capacity = 900 gallons
 Dose = 160 gallons
 Totals = 1060 gallons

Use 2,000 gallon pump tank

Tank Dimensions:	Exterior	Interior			
Length:	13.75 feet	Length:	13.08 feet	Walls:	0.33 feet
Width:	6.25 feet	Width:	5.58 feet	Bottom:	0.33 feet
Height:	5.42 feet	Height:	4.67 feet	Top:	0.42 feet
		Area:	73.05 sf	Bottom to Inlet:	4.58 feet
		Volume:	341.14 cf		

Sizing the Pump

Flow: runtime = 7 minutes
 rate = 22.86 gallons/minute

Design Head:

Design Head = Static Head + Friction Head
 Static Head = highest elevation of main - pump off elevation
 Highest component of system = 439.8 Main HP
 Pump off elevation = 423.17
 Static Head = 16.63 feet

Friction Head = Head loss due to pipe friction
 2.0" pipe = 222 feet
 45° bends 4 loss for bend 16 feet per table 4.3
 Gate Valve 1 loss for tee 1.3 feet per table 4.3

Friction loss per table 4.4 = 0.95 (ft/100 ft)

Equivalent Length = 239.3 Friction loss 2.27 feet

Total Friction Head = 2.27

Design Head = 18.90 feet

Pump Requirements:

Performance = 22.86 gpm
 Head of Water = 18.90 feet of head

Pump Selection: Zoeller Pump Company Effluent Series, Model 151
 1/3 horse power

Pump Flow Rate = 30.00 gallons/minute per rating curve 5.33 Minutes
 TDH analysis 20.32 ft
 Between design and curve? Yes

Design Pump Chamber

Ground over Tank = 428.69 Cover 2.1 ft
 Top of Tank = 426.59
 Invert of Tank = 421.50
 6" Riser = 0.50 feet
 Pump Height = 1.10 feet

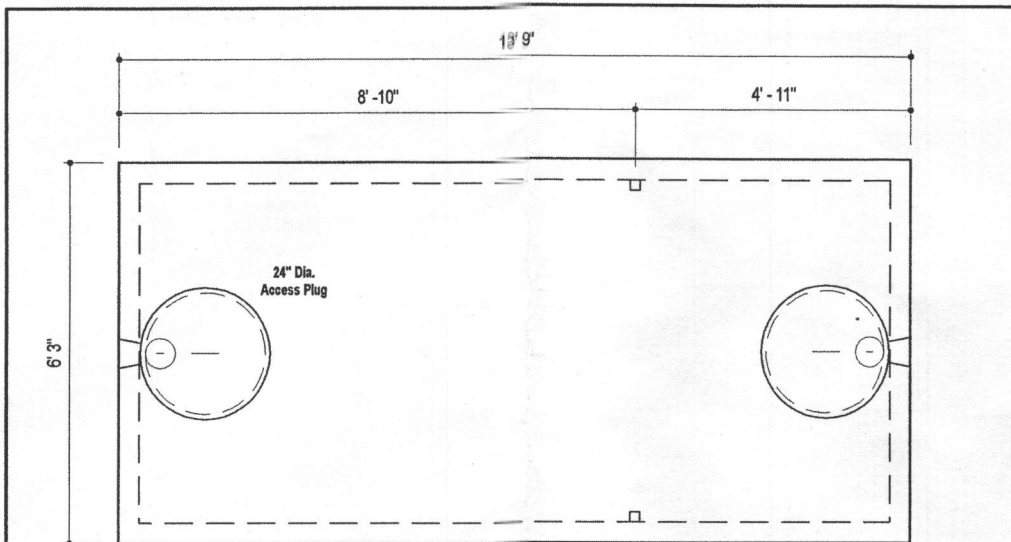
Min. Pump off = 423.10
 Selected Pump off = 423.17

Dose = 21.4 cf
 Area of Pit = 73.05 sf

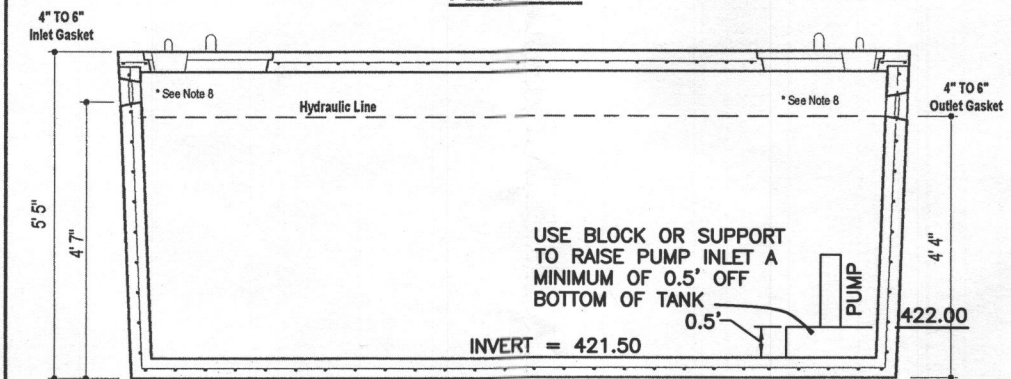
Pump on dist. = 0.29
 Pump on Elev. = 423.46

Distance between Pump on and Highwater Alarm = 0.5 feet
 Highwater Alarm Elevation = 423.96

Dist. for a dose above alarm = 1.65
 Minimum Inlet Elev. = 425.61
 Tank Inlet = 425.75 Okay
 Dist. Alarm to Inlet = 1.79 Okay



PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 160 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
- [3] Admixtures & plasticizers per ASTM C 260-96 & C 494-92.
- [4] Reinforcing per ASTM A185. Min. 1-1/2" cover.
- [5] Top slab sealed with butyl rope mastic.
- [6] 4" wall, 4" base, & 6" top thickness.
- [7] Max 3" of cover
- [8] Depending on use of tank, Inlet & Outlet baffle may be required by code.

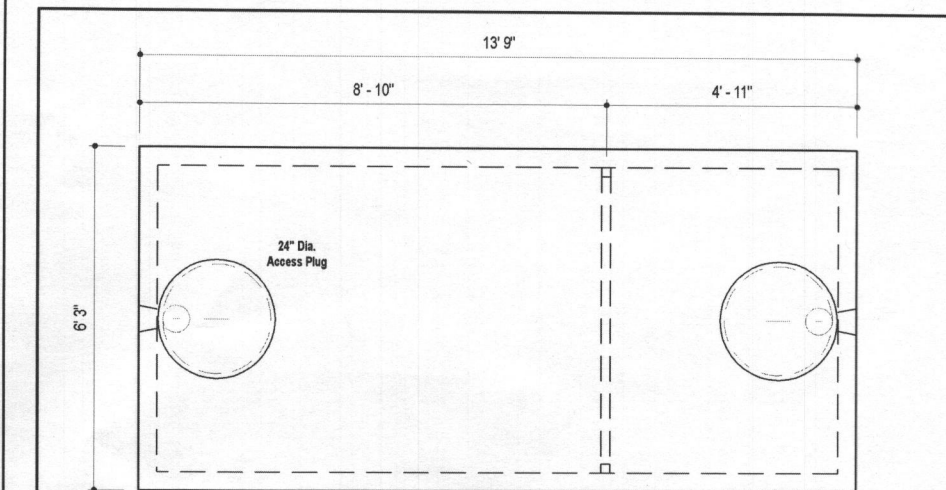
ITEM	ELEV.	RELATIVE TO BOTTOM
BOTTOM OF TANK	421.50	
TOP OF PUMP	423.10	1'-7 1/4"
PUMP OFF	423.17	1'-8"
PUMP ON	423.46	1'-11 1/2"
HIGH ALARM	423.96	2'-5 1/2"

INV. IN PUMP TANK 398.26
 INV. OUT PUMP TANK 398.01
 TOP OF PUMP TANK 399.10
 GR. OVER PUMP TANK 401.30

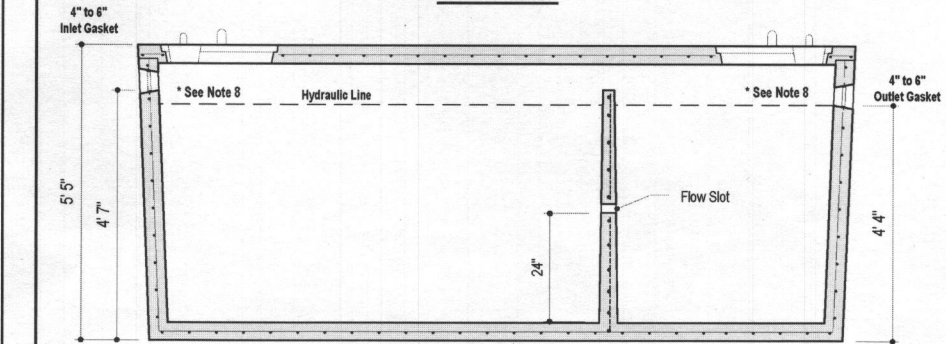
WEIGHT = 19,000 lbs.

MBI
 Mayer Bros., Inc. www.mayerbrosprecast.com
 6264 Race Road
 Elkridge, Maryland 21075
 Tel. 410.796.1434
 Fax. 410.796.1438

2,000 GALLON SEPTIC TANK
1-Compartment **LOT 23**
 Stock Item [Approx. 19,000 lbs]
 Dwg. No. 2000-1C No Scale Aug. 11, 2008



PLAN VIEW



SECTION A-A

DESIGN DATA & GENERAL NOTES

- [1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 160 pcf.
- [2] Cement - Portland Type III per ASTM C 150-92.
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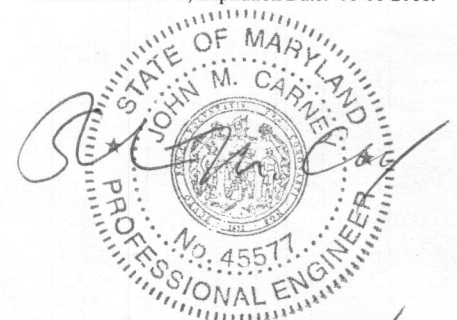
2,000 GALLON SEPTIC TANK
2-Compartment
 Stock Item [Approx. 19,900 lbs]
 Dwg. No. 2000-2C No Scale Aug. 11, 2008

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PROJECT: REGAN PROPERTY
 LOT 23

LOCATION: 12252 PLEASANT SPRINGS COURT
 HIGHLAND, MD 20777
 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200
 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456

TITLE: SEPTIC PERMIT PLAN

HOUSE TYPE: EAGLES NEST - ELEVATION 'AS'

DATE: JANUARY, 2017
 FEBRUARY, 2017

SCALE: AS SHOWN

PROJECT NO. 2171
DRAWING 3 OF 4

Your Peace of Mind is Our Top Priority



PUMP COMPANY

Zoeller Family of Water Solutions

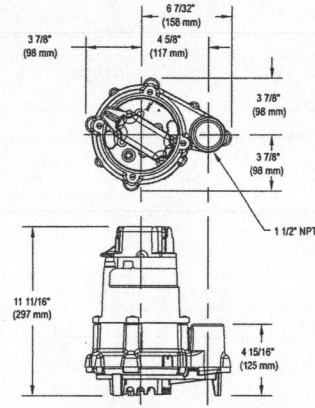
SECTION: 2.15.080
FM2784
0315
Supersedes
0114

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

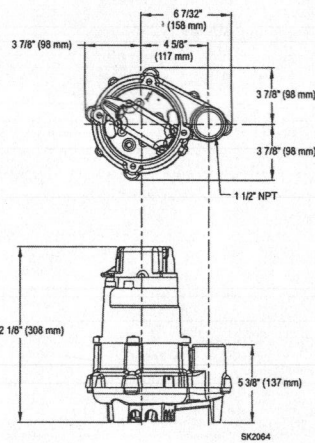
**TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps**

PRODUCT SPECIFICATIONS

MOTOR	1/3 (151), 4/10 (152), 1/2 (153)
Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
Voltage	115 or 230
Phase	1 Ph
Hertz	60 Hz
RPM	3450
Type	Permanent split capacitor
Insulation	Class B
Amps	3.2 - 10.5
PUMP	Automatic or nonautomatic
Discharge Size	1-1/2" NPT
Solids Handling	1/2" (13 mm), 3/4" (19 mm) spherical solids
Cord Length	20' (6 m)
Cord Type	UL listed power cord
Max. Head	44' (13.4 m)
Max. Flow Rate	77 GPM (291 LPM)
Max. Operating Temp.	130° F (54° C)
Cooling	Oil filled
MATERIALS	Auto reset thermal overload
Motor Protection	Auto reset thermal overload
Cap	Cast iron
Motor Housing	Cast iron
Pump Housing	Cast iron
Base	Plastic or cast iron
Upper Bearing	Sleeve bearing
Lower Bearing	Ball bearing
Mechanical Seals	Carbon and ceramic
Impeller Type	Non-clogging vortex
Impeller	Engineered thermoplastic
Hardware	Stainless steel
Motor Shaft	AISI 1215 steel
Gasket	Neoprene



MODELS 152 & 153



NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

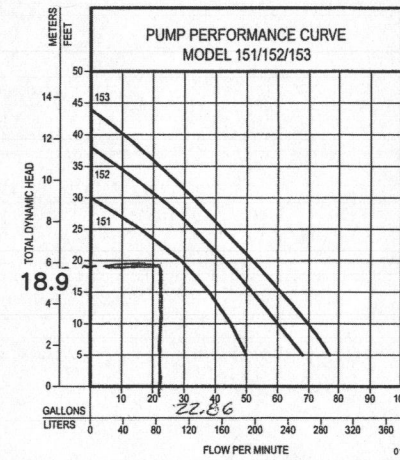


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**TOTAL DYNAMIC HEAD
FLOW PER MINUTE**

MODEL	151		152		153		
	Feet	Meters	Gal.	Liters	Gal.	Liters	
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35	10.7	-	-	-	-	22	85
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Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	

USE MODEL 151



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
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BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m). 50' (15 m) cords are available for 230V units only.

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

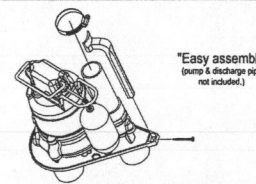
SELECTION GUIDE

- For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
- See FM1228 for correct model of simplex control panel.
- See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1/2" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.



CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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**THIS PLAN IS FOR
SEPTIC DESIGN ONLY**

SEE MANUFACTURERS
SPECIFICATIONS FOR
DETAILS.
WWW.MAYERPRECAST.COM
EQUIVALENT FROM OTHER
MANUFACTURERS CAN BE
SUBSTITUTED.

SIGNATURE AND SEAL ARE FOR SEPTIC
PROFILE AND CALCULATIONS ONLY, TANK
AND DETAILS WERE NOT DESIGNED OR
REVIEWED BY THE ENGINEER:

Professional Certification. 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. 45577, Expiration Date: 06-08-2018.



OWNER/BUILDER:	BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC. 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ELLCOTT CITY, MARYLAND 21043 (P) 410-465-6105 ▲ (F) 410-465-6644 WWW.BEI-CMLEENGINEERING.COM	
PROJECT:	REGAN PROPERTY LOT 23	
LOCATION:	12252 PLEASANT SPRINGS COURT HIGHLAND, MD 20777 TAX MAP No. 34 - BLOCK No. 24 - PARCEL No. 200 5TH ELECTION DISTRICT, TAX ID NUMBER: 05 597456	
TITLE:	SEPTIC PERMIT PLAN	
HOUSE TYPE:	EAGLES NEST - ELEVATION 'AS'	
DATE:	JANUARY, 2017 FEBRUARY, 2017	PROJECT NO. 2171
SCALE:	AS SHOWN	DRAWING 4 OF 4

Bernard, Dana

From: Bernard, Dana
Sent: Tuesday, February 07, 2017 2:54 PM
To: 'John Carney'
Subject: RE: 12232 Pleasant Spring Court Lot 23

From: Bernard, Dana
Sent: Tuesday, February 07, 2017 2:53 PM
To: Bernard, Dana
Subject: RE: 12232 Pleasant Spring Court Lot 23

John,

The OSDS plan for 12252 Pleasant Springs Court has 7 bedrooms and you only calculated for 6 bedrooms please revise and resubmit.

From: Bernard, Dana
Sent: Friday, February 03, 2017 1:48 PM
To: 'John Carney'
Subject: 12232 Pleasant Spring Court

Good Afternoon John,

I have reviewed your OSDS proposal for Pleasant Court and the numbers for the calculations are correct, however your final answer is off by 1. I figured it was just a glitch in your system. So I changed the numbers if that's ok with you. I don't see a building permit to accompany your plans. Is there one floating around?

Thank you & Have a*")
,,,'*") ,,*")
(,,' (,,' * Wonderful Day !

Dana Bernard, R.E.H.S./L.E.H.S.
Environmental Specialist II
Bureau of Environmental Health
Well and Septic Program
Phone (410) 313-2775
E-mail: DBernard@howardcountymd.gov