

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: 7/19/16 **ONSITE SEWAGE DISPOSAL SYSTEM** P 558800

APPROVAL DATE: 11/14/16 **PERMIT: CONSTRUCTION** A _____

PROPERTY ADDRESS: 11807 Chapel Estates Drive

SUBDIVISION: Chapel Rise LOT: 1 TAX ID: 05-594202

CONTRACTOR: Farm and Home Excavating EMAIL: _____

CONTRACTOR ADDRESS: 901 Driver Rd, Marriottsville, MD 21104 PHONE: 410-442-2139

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: MDE MANUFACTURER:

PROPERTY OWNER: Kambiz Ghozati EMAIL: _____

OWNER ADDRESS: 8055 High Castle Road, Ellicott City, MD 21043 PHONE: 410279-7484

BAT UNIT MODEL: Norweco TNTLP-1000 PUMP SIZE: ME-75 PUMP TANK CAPACITY: 1250

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 5/6/15 DATE RECORDED: 5/6/15

DISTRIBUTION SYSTEM: GRAVITY PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>184</u>	INLET DEPTH: <u>3</u>
	TRENCH WIDTH: <u>3</u>	MAXIMUM BOTTOM DEPTH: <u>6</u>
	MINIMUM SPACE BETWEEN TRENCHES: <u>10</u>	EFFECTIVE AREA BEGINNING DEPTH: <u>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:		

ISSUED BY: Dana Bernard ISSUE DATE: _____ EXPIRATION DATE: _____

- 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 16001960
- NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.
- NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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

PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.

CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE

See As-Built Drawing
On Separate Sheet

Pump Tank -
1500 Gallon
Front + Rear Risers
Depth TBD
Front Baffle
7/13/2016 Mfg Date

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH 3' INLET see plan for details BOTTOM
NUMBER OF TRENCHES 4
TOTAL LENGTH
ABSORPTION AREA
DISTRIBUTION BOX LEVEL N/A
DISTRIBUTION BOX BAFFLE N/A
DISTRIBUTION BOX PORT N/A

SEPTIC TANK DATA

SEPTIC TANK I LEVEL Yes
MANUFACTURER Babylon
CAPACITY 1000 GAL
SEAM LOC Top
TANK LID DEPTH T.BD
BAFFLES Yes
BAFFLE FILTER No
MANHOLE LOC Front + Rear
6" PORT LOC None
WATERTIGHT TEST No
SLOTTED No
DATE ON LID 6/18/2016

PUMP/SEPTIC TANK LEVEL Yes

MANUFACTURER Back River
CAPACITY 2 GAL
SEAM LOC Top
TANK LID DEPTH
BAFFLES N/A
BAFFLE FILTER No
MANHOLE LOC Front Middle + Rear
6" PORT LOC None
WATERTIGHT TEST No
SLOTTED N/A
DATE ON LID 7/27/2016

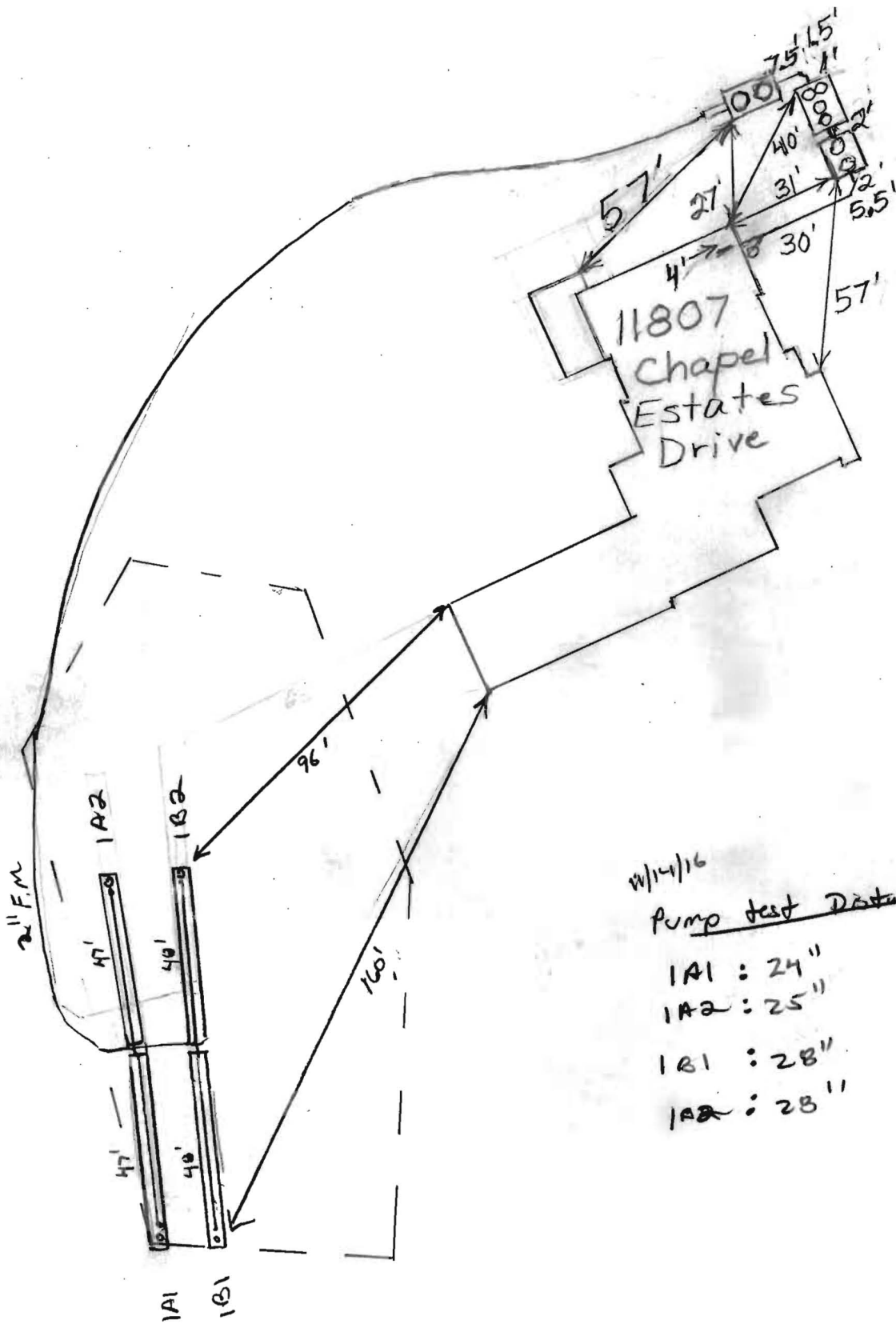
PRE-CONSTRUCTION:

9/8/2016 Tank locations staked. O.K. to move pump chamber location slightly. Trenches staked. Have to make sure trenches are level before installing. Only working on tanks for now. (BB)

INSTALLATION:

9/9/2016 Front 2 tanks set, House connection made. (BB)
9/12/2016 Pump chamber set, (BB) 9/15/2016 Pump line ran across driveway and sleeved. (BB)
11/10/16 F.M. Ran up to tanks. 3 of 4 trenches being installed manifold being set. OK to continue. (KW) 11/14/16 Trenches and laterals complete. OK to cover all work. (PM) Water in p.T. Verification of pump installation test verified.

FINAL INSPECTOR K. Wolf DATE OF APPROVAL 11/14/16



2/14/16

Pump test Distal measurements:

1A1 : 24"

1A2 : 25"

1B1 : 28"

1A2 : 28"

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 1000 GPD Septic Tank installed at 11807 Chapel Estates Dr., Clarksville, MD 21029 on September 09, 2016 was installed according to the manufacture's specifications.

Installer: Bill Ingram

Property Owner: Kambiz Ghozati

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



Howard County
Health Department

Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
Website: www.hchealth.org

Peter Beilenson, M.D., M.P.H., Health Officer

January 24th, 2011

Paul Sill, P.E.
Sill Adcock & Assoc.
3300 North Ridge Rd
Ellicott City, MD 21043

**RE: Variance request
Chapel Rise – Sosinski Property**

Dear Mr. Sill,

The Health Department has received your variance request dated January 12, 2011 for the above referenced property. Maryland Department of the Environment has accepted our recommendation to approve the following variance requests under the *Code of Maryland Regulations 26.04.02.05 (C)* to allow: the sewage disposal systems serving Lots 1, 2, 3, 4, 7 & 8 to be located upgradient from the private water supplies on neighboring parcels 4, 30, 31, 37, 45 & 47. Due to the landscape position of the sewage areas and wells, the request was approved subject to the following conditions:

1. An advanced pre-treatment system, which utilizes best available technology to perform nitrogen reduction, must be installed on the sewage disposal systems on Lots 1, 2, 3, 4, 7 & 8. In addition, ongoing maintenance is required. An agreement acknowledging the need for maintaining a service contract with an authorized service provider must be recorded in the Howard County Land Records for each of these lots within 30 days after plat recordation. Building permit applications for the respective lots will not be approved until such an agreement is recorded. Before a septic system installation permit is released for the advanced pre-treatment system, a site plan must be submitted with all necessary details for installation of the system.
2. The wells on Lot 1, 5 & 8 must be constructed using a steel well casing, which must be installed to a minimum depth of 50' below ground surface or 10' into the competent bedrock, whichever is deeper.
3. A low pressure dosing system will be required for the sewage disposal systems on Lots 1, 2, 3, 4, 7 & 8.

If you have any questions regarding this matter, please contact me at the above address or by calling (410) 313-6287.

Sincerely,

Heidi Scott, R.S.
Well & Septic Program

Maryland Department of the Environment
Steven Krieg, R.S.

Bernard, Dana

From: Bernard, Dana
Sent: Friday, January 22, 2016 11:09 AM
To: 'Stephanie Tuite'
Subject: RE: 11807 Chapel Estates Drive (Chapel Rise, Lot 1)

Stephanie,

As we discussed in the meeting you cannot use monarch tanks and it has to be changed on the most recent plan you sent in. Everything else looks good. Please revise showing the new tank as we discussed.

Thanks Dana

From: Stephanie Tuite [mailto:Stephanie@fcc-eng.com]
Sent: Tuesday, January 19, 2016 2:08 PM
To: Wolf, Kevin; Bernard, Dana
Subject: 11807 Chapel Estates Drive (Chapel Rise, Lot 1)

Kevin / Dana,

Have you guys had a chance to review the submitted revised BAT Site Plan that we discussed in a meeting at your office last week?

Steph



Bernard, Dana

From: Bernard, Dana
Sent: Thursday, November 05, 2015 9:35 AM
To: Stephanie Tuite (Stephanie@fcc-eng.com)
Subject: Chapel Rise Lot #1

Good Morning Stephanie,

After reviewing Chapel Rise Lot #1 a few items must be changed:

1. As stated before all tanks cannot be located in a swale. Including the pump tank which is shown on the plan in a swale.
2. All tanks must be located at least 10 feet from the driveway.

Please revised and resubmit.

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

maintenance or other attention. Upon taking title to the Lot, the Owner agrees to cause this agreement to be recorded in the Land Records of Howard County and assure that it becomes part of the Deed for the subject property in order that prospective buyers may be aware of the special conditions affecting this property.

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

G. This agreement may be voided at any time at the discretion of the County.

H. This agreement contains the entire agreement and understanding between the County and the Owner. 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.

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

J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

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

Bea Nufon 5/6/2016
Howard County Health Department

Kambiz Ghazali 5/6/16
Owner #1 Signature Date

KAMBIZ GHAZALI
Owner #1 Print Name

S. Ghazali 5/6/16
Owner#2 Signature Date

Shadi Ghazali
Owner #2 Print Name

Buyer #1 Signature Date

Buyer #1 Print Name

Buyer #2 Signature Date

Buyer #2 Print Name

Bernard, Dana

From: Stephanie Tuite <Stephanie@fcc-eng.com>
Sent: Wednesday, December 09, 2015 3:33 PM
To: Bernard, Dana
Subject: RE: BAT for Chapel Rise Lot 1

How quickly could this be approved if revised and submitted tomorrow. My concern now is timing. We need approval as soon as possible.

Steph

Stephanie Tuite, RLA, PE, LEED AP BD&C
Fisher, Collins & Carter, Inc.

From: Bernard, Dana [mailto:dbernard@howardcountymd.gov]
Sent: Wednesday, December 09, 2015 3:31 PM
To: Stephanie Tuite <Stephanie@fcc-eng.com>
Subject: RE: BAT for Chapel Rise Lot 1

Stephanie,

The tank is considered part of the septic components as stated in COMAR. If we missed it as part of our review I apologize, however we would like to improve our review process and uphold any regulations in COMAR.

Thanks
Dana

From: Stephanie Tuite [mailto:Stephanie@fcc-eng.com]
Sent: Wednesday, December 09, 2015 12:57 PM
To: Bernard, Dana
Subject: RE: BAT for Chapel Rise Lot 1

This didn't say it was approved, it just referenced that you noted the tanks had been moved. I assumed this meant the locations were good otherwise we could have revised this weeks ago. As I said the 25 foot setback had not in the past had not been required with the tank, it had only been required for the easement, at least up until recently with this and Myers.

Steph

Stephanie Tuite, RLA, PE, LEED AP BD&C
Fisher, Collins & Carter, Inc.

From: Bernard, Dana [mailto:dbernard@howardcountymd.gov]
Sent: Wednesday, November 25, 2015 4:21 PM
To: Stephanie Tuite <Stephanie@fcc-eng.com>
Subject: RE: BAT for Chapel Rise Lot 1

Stephanie, I reviewed the tank placement and the pump placement the pump tank has to be moved. Thanks Dana

From: Stephanie Tuite [mailto:Stephanie@fcc-eng.com]
Sent: Monday, November 23, 2015 3:41 PM
To: Bernard, Dana
Subject: BAT for Chapel Rise Lot 1

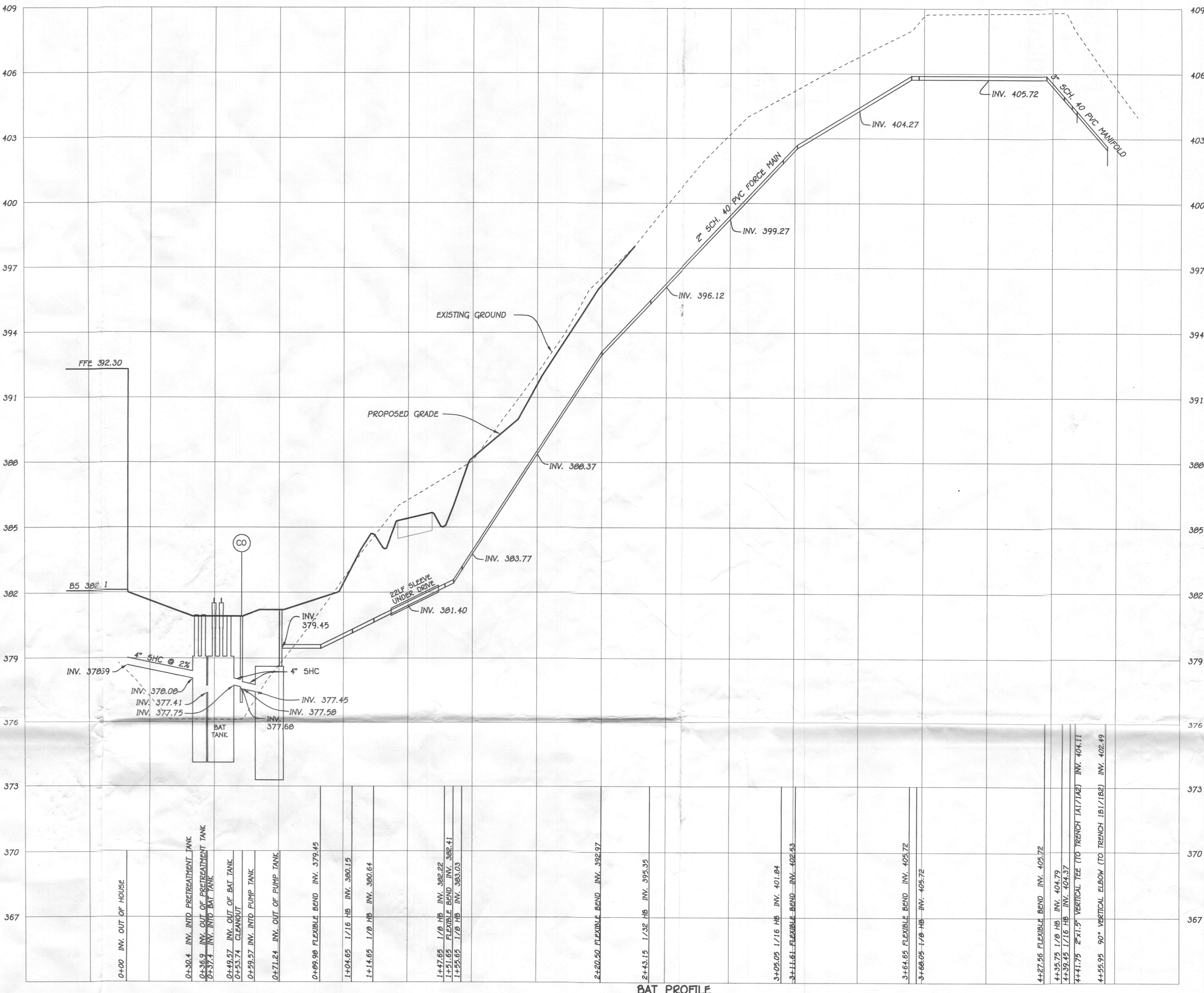
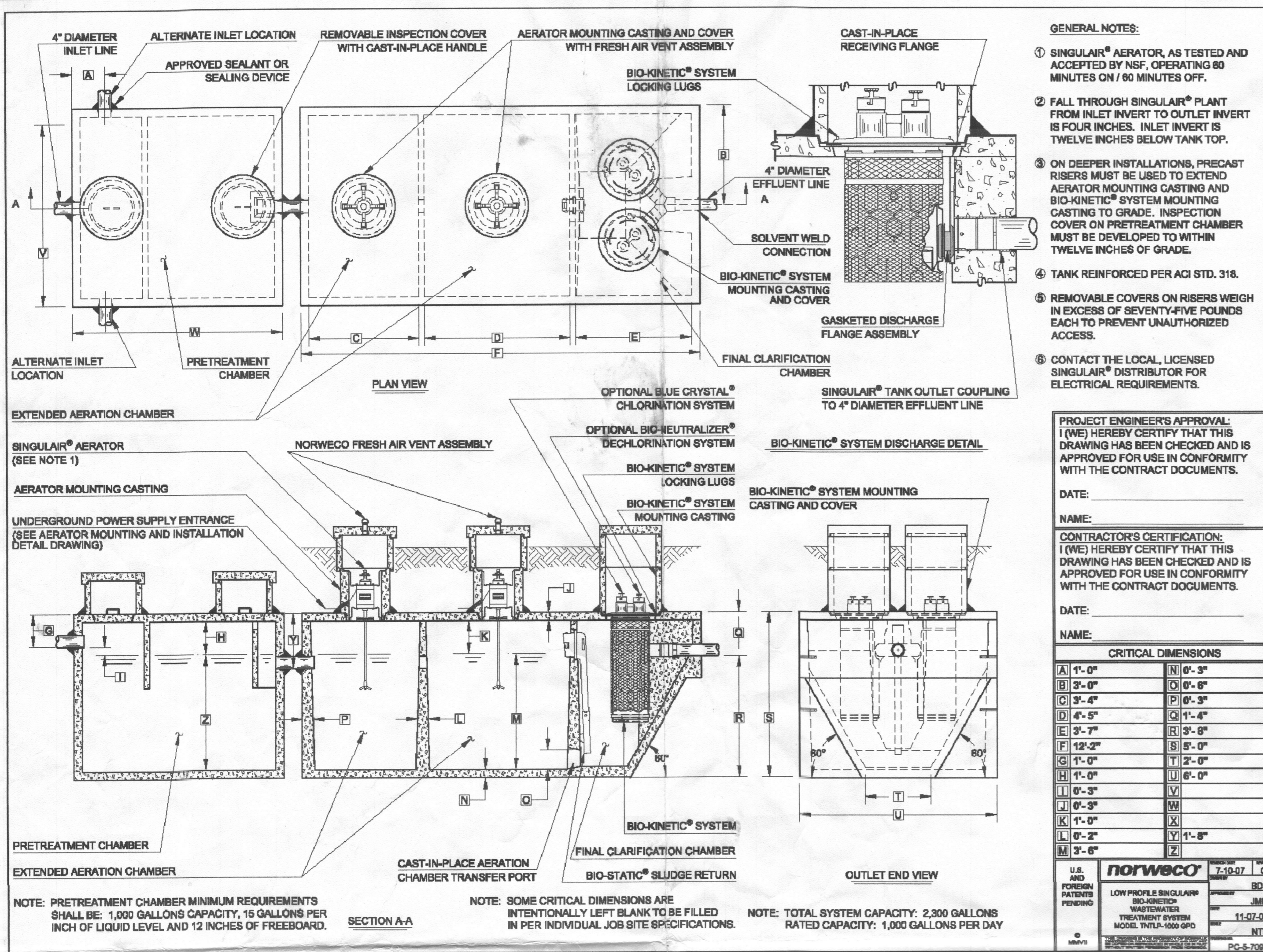
Dana,

I sent a new plan for 11807 Chapel Estates Drive (#B15003963 - house & #B15004982 – ret walls) down to you for review. Please let me know if you need anything. Owner is hoping to get the permit as soon as possible. Thanks.

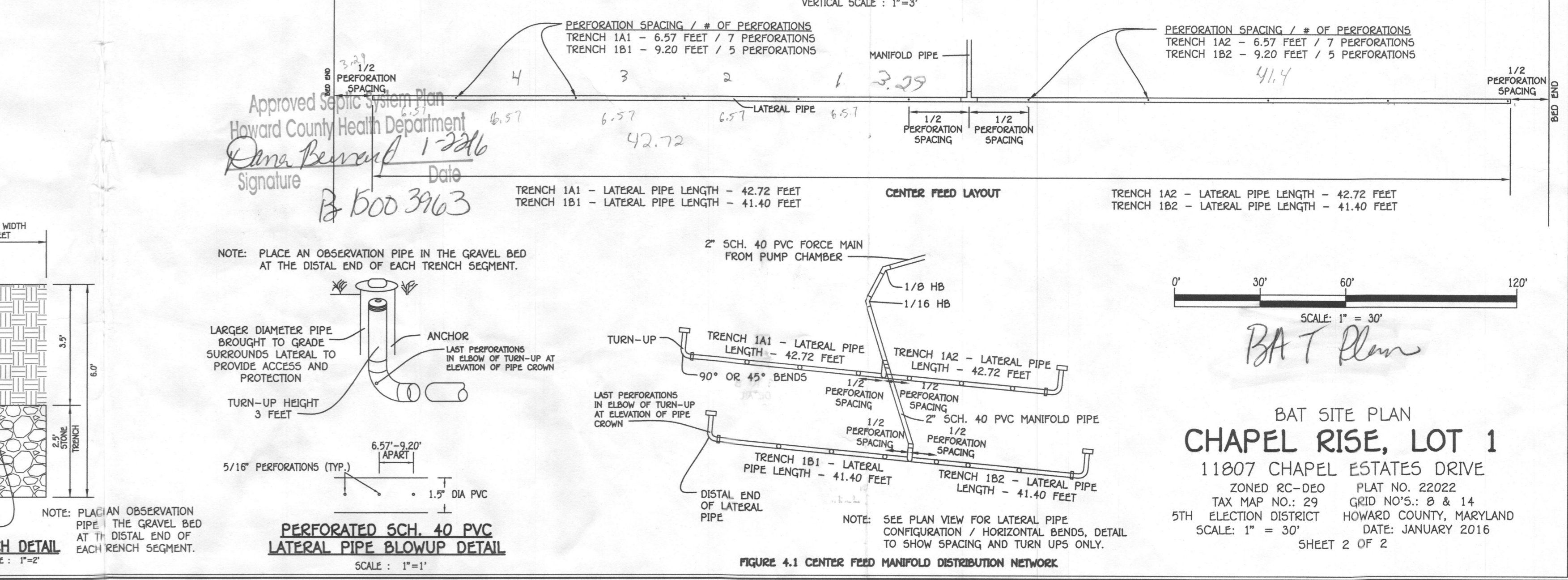
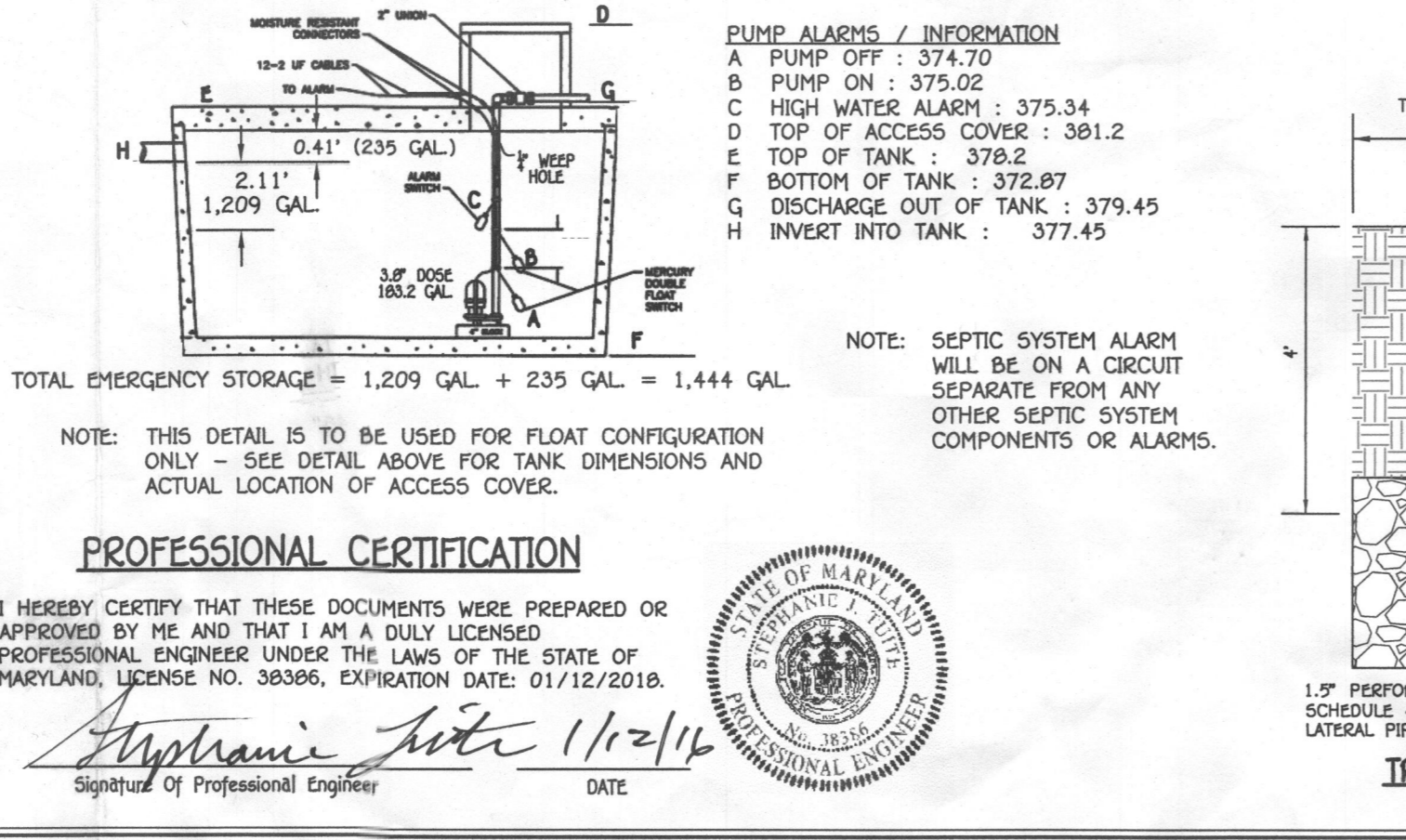
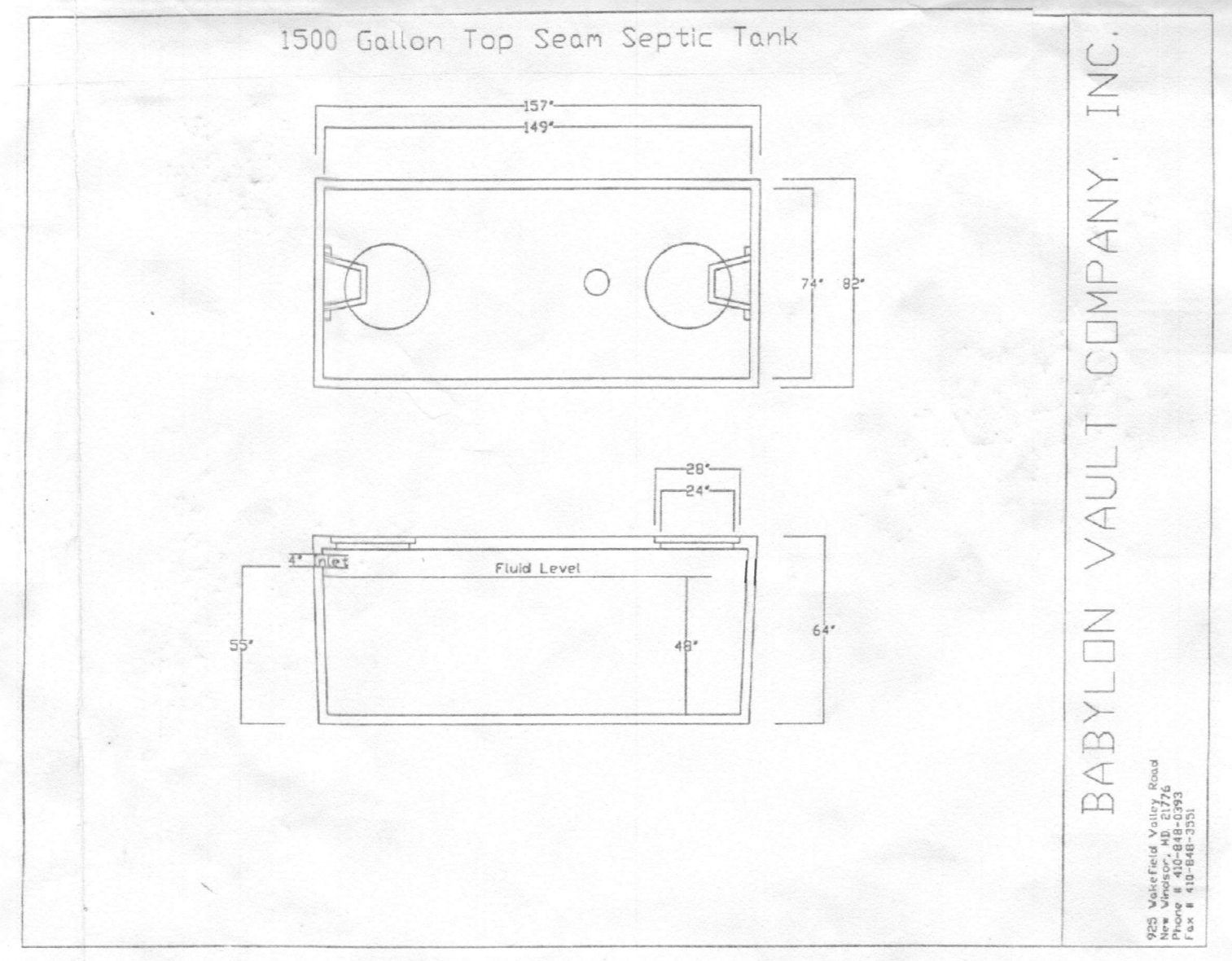
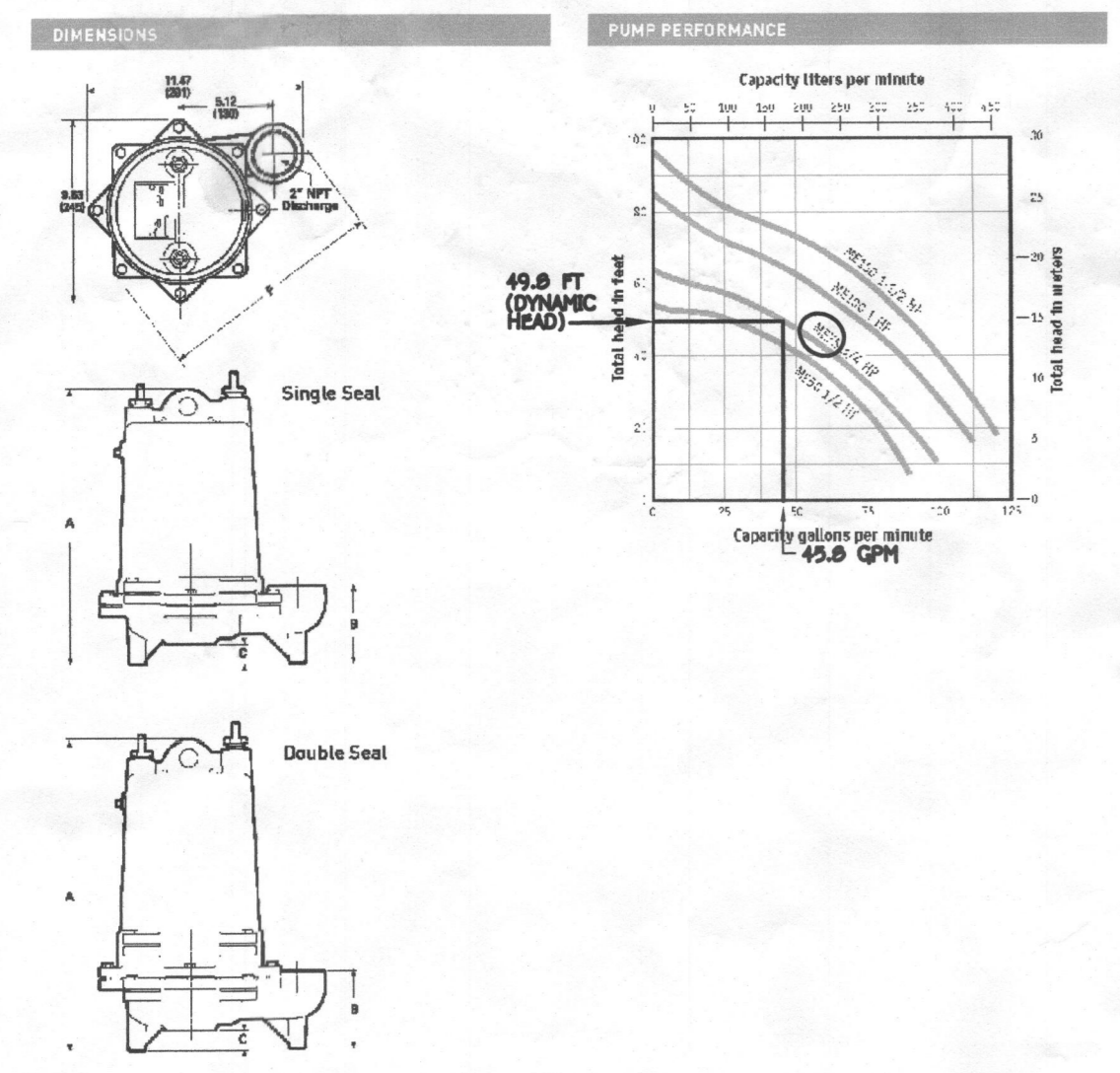
Stephanie



Right click this card to add me to your contacts.



EFFLUENT PUMPS
MYERS® ME SERIES



BAT SITE PLAN
CHAPEL RISE, LOT 1
 1107 CHAPEL ESTATES DRIVE
 ZONED RC-DEO PLAT NO. 22022
 TAX MAP NO.: 29 GRID NO'S: 0 & 14
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 30' DATE: JANUARY 2016
 SHEET 2 OF 2

FRICION LOSS IN 2" PIPE FITTINGS:
 15 1/8 HB x 4 FEET PER FITTING = 60 EQUIVALENT FEET OF PIPE
 3 Tee/CROSS x 11 FEET PER FITTING = 33 EQUIVALENT FEET OF PIPE
 1 UNION x 2 FEET PER FITTING = 2 EQUIVALENT FEET OF PIPE
 2 ELBOWS x 9 FEET PER FITTING = 18 EQUIVALENT FEET OF PIPE
 TOTAL EQUIVALENT FEET OF PIPE = 113 FT

TOTAL LINEAR FEET OF 2" SCH. 40 PVC = 383.3 LF + 113 LF = 496.3 LF

DYNAMIC HEAD
 496.3 LF x 3.38 FT PER 100 LF OF PIPE = 16.77 FT OF FRICTION HEAD
 DISTAL HEAD = 2.00 FT
 VERTICAL FROM PUMP OFF TO DISCHARGE = 4.75 FT OF STATIC HEAD
 VERTICAL FROM DISCHARGE TO HIGHEST ELEV. OF MAIN = 26.27 FT
 TOTAL DYNAMIC HEAD = 49.79 FT

PIPE VOLUMES
 383.3 LF (2" SCH. 40 PIPE) x 17.4 GALLONS PER 100 LF = 66.7 GALLONS
 168.2 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 17.8 GALLONS

MINIMUM DOSE
 MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
 = (5 X 17.8) + (66.7)
 = 155.7 GALLONS

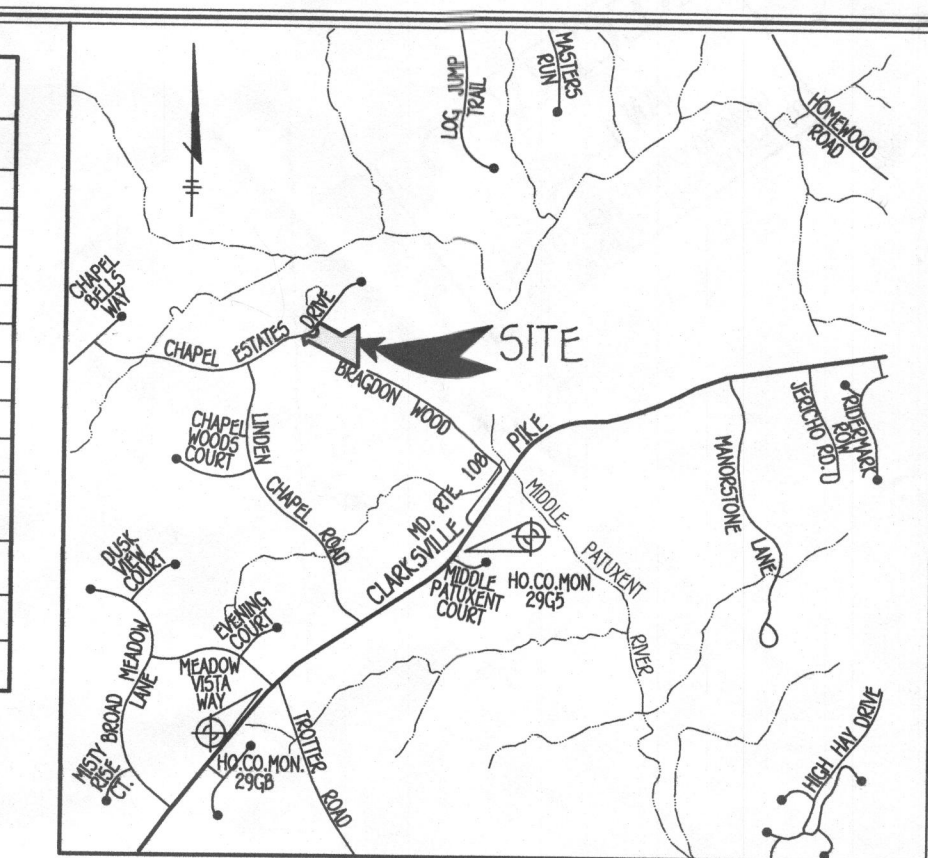
155.7 GALLONS IS LESS THAN 1/6 DESIGN FLOW (1,050/6=175)
 USE 183.2 GALLON DOSE (175 GALLON MINIMUM)
 (RUN TIME = 4 MIN (45.8 GPM X 4 = 183.2 GALLON DOSE))

PUMP NEEDS TO HANDLE 45.8 GPM AT 49.8 FT OF HEAD
 USE 0.75 HP (ME75 PUMP)

TRENCH DESIGN											
TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH TO STONE FROM GROUND	DEPTH OF STONE (FT)	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH STARTS AT	EFFECTIVE DEPTH (D)	TRENCH DEPTH	WIDTH OF TRENCHES (W)	TRENCH SPACING
1A1	407.8	40.3	403.8	3.5'	2.5'	401.8	4'	2'	6'	3.0'	10'
1A2	407.8	40.3	403.8	3.5'	2.5'	401.8	4'	2'	6'	3.0'	10'
1B1	405.8	42.3	401.8	3.5'	2.5'	399.8	4'	2'	6'	3.0'	10'
1B2	405.8	42.3	401.8	3.5'	2.5'	399.8	4'	2'	6'	3.0'	10'

LOW PRESSURE DOSING SYSTEM - INITIAL INSTALLATION										
TRENCH	GROUND ELEV.	PIPE INVERT ELEV.	TRENCH LENGTH (FT)	LATERAL PIPE LENGTH (FT)	PERFORATION DIAMETER (IN)	HEAD (FT)	PERFORATION FLOW RATE (GPM)	PERFORATION SPACING (FT)	NUMBER OF ORIFICES	TRENCH FLOW RATE (GPM)
1A1	407.8	403.8	46	43.45	5/16	2	1.63	6.57	7	11.41
1A2	407.8	403.8	46	43.45	5/16	2	1.63	6.57	7	11.41
1B1	405.8	401.8	46	42.17	5/16	4	2.30	9.20	5	11.50
1B2	405.8	401.8	46	42.17	5/16	4	2.30	9.20	5	11.50
TOTAL TRENCH FLOW RATE										45.82

LEGEND	
SYMBOL	DESCRIPTION
- - - - -	EXISTING CONTOUR 2' INTERVAL
- - - - -	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
-DF -DF-	DIVERSION FENCE
-SSF-SSF-	SUPER SILT FENCE
-SF -SF-	SILT FENCE
- - - - -	EROSION CONTROL MATTING
LOD	LIMITS OF DISTURBANCE
○	SPECIMEN TREE
○	TEMPORARY STONE OUTLET STRUCTURES
○	FAILED PERC HOLE
○	PASSED PERC HOLE



VICINITY MAP
 SCALE: 1" = 2000'
 HO. CO. MD. ADC MAP 4934, GRID C3



SEPTIC SYSTEM ELEVATIONS
 FFE = 392.30
 BSE = 382.11
 INV. OUT OF HOUSE = 378.69
 PROP. GROUND AT PRETREATMENT TANK = 380.9
 TOP OF PRETREATMENT TANK = 379.08
 COVER OVER PRETREATMENT TANK = 1.82 FT
 INVERT INTO PRETREATMENT TANK = 378.08
 INVERT OUT OF PRETREATMENT TANK = 377.41
 PROP. GROUND AT BAT TANK = 380.9
 TOP OF BAT TANK = 379.08
 COVER OVER BAT TANK = 1.82 FT
 INVERT INTO BAT TANK = 377.41
 INVERT OUT OF BAT TANK = 377.75
 PROP. GROUND AT C/O = 380.9
 INTO C/O = 377.68
 INV. OUT OF C/O = 377.68
 PROP. GROUND AT PUMP TANK = 381.2
 TOP OF PUMP TANK = 378.2
 COVER OVER PUMP TANK = 3 FEET
 INVERT INTO PUMP TANK = 377.45
 INVERT OUT OF PUMP TANK = 379.45

SEPTIC SYSTEM DESIGN
 7 BEDROOM HOUSE
 LOADING RATE = 1050 GPD
 APPLICATION RATE = 1.2
 EFFECTIVE SIDEWALL BEGINS AT 4.0 FEET
 TRENCH DEPTH = 2 FEET
 TRENCH WIDTH (W) = 3 FEET
 EFFECTIVE DEPTH (D) = 1.5 FEET
 SF OF DRAINFIELD = 1050 GPD / 1.2 = 875 SF
 COEFFICIENT OF REDUCTION OF TRENCH LENGTH
 (W+2)/(W+1+2D) = (3+2)/(3+1+2(2)) = 0.825
 TRENCH LENGTH = 875 SF x 0.625 / 3 = 184 FEET (USE 184 FEET)
 TRENCH SPACING = 2D+W = ((2*2) + 3) = 7 USE 10'

BAT 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 COVER OVER THE BAT SHALL BE 3 FEET.
- 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.
- ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
- AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.
- THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

PROFESSIONAL CERTIFICATION

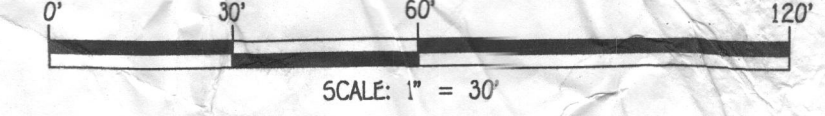
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2018.
 Signature: *Stephen J. Carter* 1/12/18
 Signature Of Professional Engineer DATE



OWNER/DEVELOPER
 KAMBIZ GHOZATI
 8055 HIGH CASTLE ROAD
 ELLICOTT CITY, MARYLAND 21043
 410-279-7484

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-3999

BAT SITE PLAN
CHAPEL RISE, LOT 1
 11807 CHAPEL ESTATES DRIVE
 ZONED RC-DEO PLAT NO. 22022
 TAX MAP NO.: 29 GRID NO.S: 8 & 14
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 30' DATE: JANUARY 2016
 SHEET 1 OF 2



Sp 18

FRICION LOSS IN 3" PIPE FITTINGS:
 11 1/8 HB x 6 FEET PER FITTING = 66 EQUIVALENT FEET OF PIPE
 3 TEE/CROSS x 17 FEET PER FITTING = 51 EQUIVALENT FEET OF PIPE
 1 UNION x 4 FEET PER FITTING = 4 EQUIVALENT FEET OF PIPE
 2 ELBOWS x 12 FEET PER FITTING = 24 EQUIVALENT FEET OF PIPE
 TOTAL EQUIVALENT FEET OF PIPE = 145 FT

TOTAL LINEAR FEET OF 3" SCH. 40 PVC = 327 LF + 145 LF = 472 LF

DYNAMIC HEAD
 472 LF X 0.74 FT PER 100 LF OF PIPE = 3.50 FT OF FRICTION HEAD
 DIGITAL HEAD = 2.00 FT
 VERTICAL FROM PUMP OFF TO DISCHARGE = 3.54 FT OF FRICTION HEAD
 VERTICAL FROM DISCHARGE TO HIGHEST ELEV OF MAIN = 28.18 FT
 TOTAL DYNAMIC HEAD = 37.52 FT

PIPE VOLUMES
 327 LF (3" SCH. 40 PIPE) X 38.4 GALLONS PER 100 LF = 125.6 GALLONS
 173.7 LF (1.5" SCH. 40 PIPE) X 10.6 GALLONS PER 100 LF = 18.4 GALLONS

MINIMUM DOSE
 MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
 = (5 X 18.4) + (125.6)
 = 217.6 GALLONS

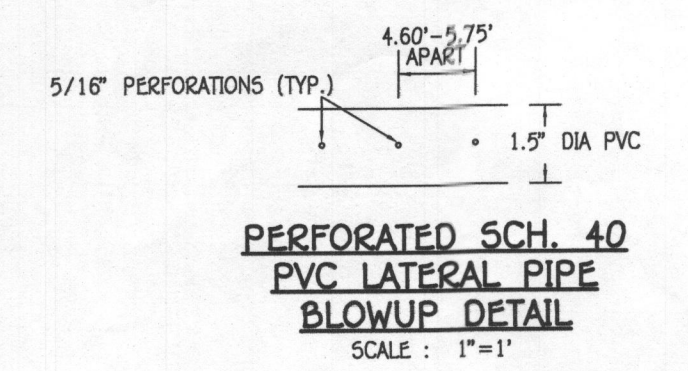
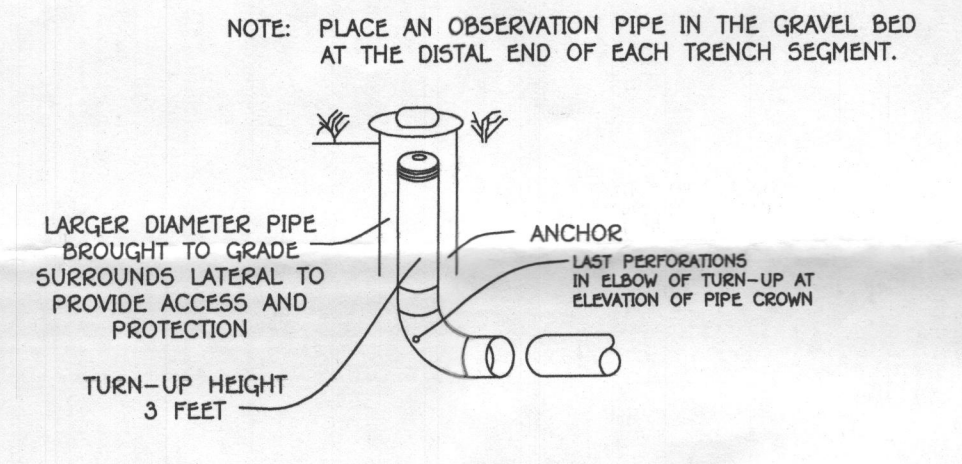
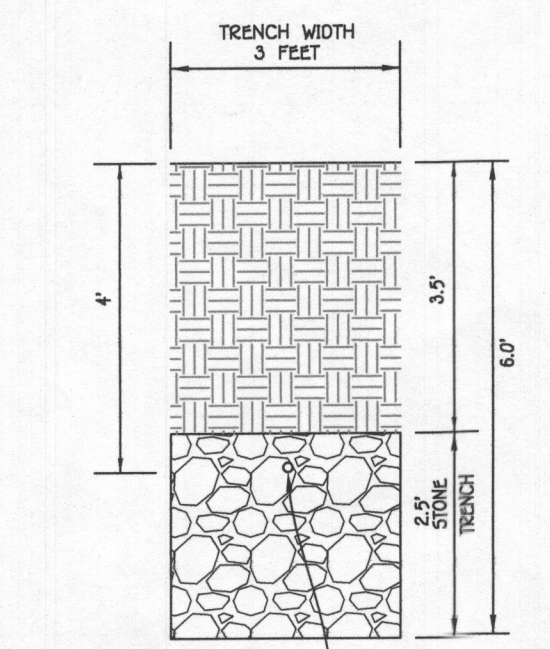
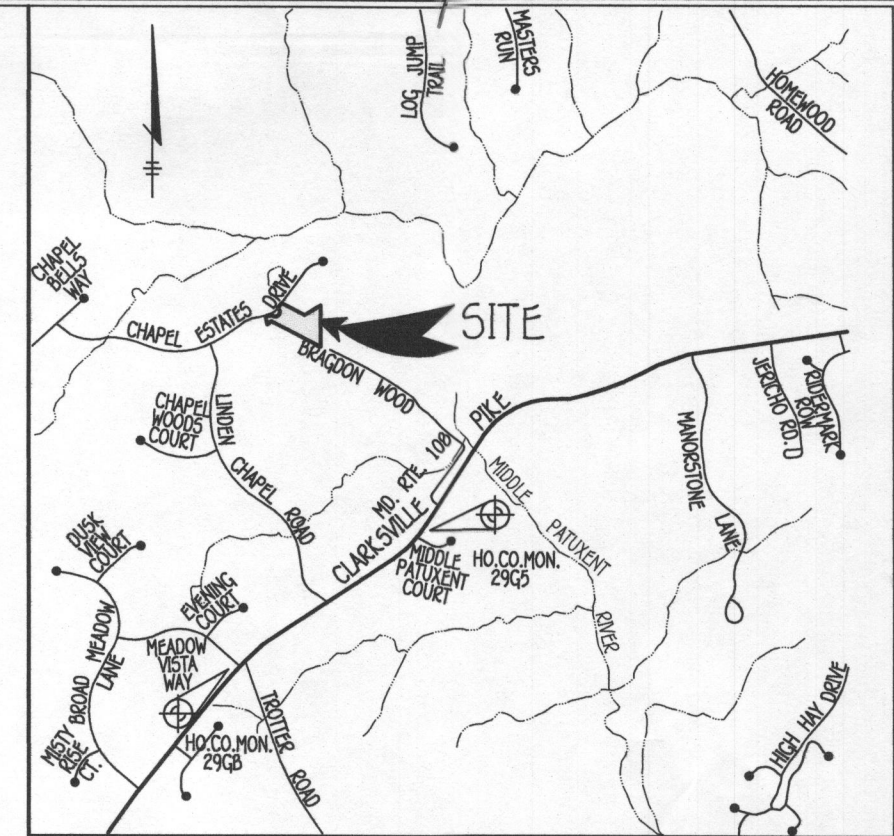
217.6 GALLONS IS MORE THAN 1/6 DESIGN FLOW (1,050/6=175)
 USE 255.0 GALLON DOSE (175 GALLON MINIMUM)
 (RUN TIME = 4 MIN (63.96 GPM X 4 = 255.0 GALLON DOSE)

PUMP NEEDS TO HANDLE 64 GPM AT 38 FT OF HEAD
 USE 0.75 HP (ME75 PUMP)

TRENCH DESIGN											
TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH FROM GROUND	DEPTH TO STONE	DEPTH OF STONE	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH AT	EFFECTIVE DEPTH (D)	WIDTH OF TRENCHES (W)	TRENCH SPACING
1A1	363.0	360.3	359.8	3.5'	2.5'	357.8	4'	2.0'	3.0'	10'	
1A2	363.0	360.3	359.8	3.5'	2.5'	357.8	4'	2.0'	3.0'	10'	
1B1	362.9	359.4	358.9	3.5'	2.5'	356.9	4'	2.0'	3.0'	10'	
1B2	362.9	359.4	358.9	3.5'	2.5'	356.9	4'	2.0'	3.0'	10'	

LOW PRESSURE DOSING SYSTEM - INITIAL INSTALLATION											
TRENCH	GROUND ELEV.	PIPE INVERT ELEV.	TRENCH LENGTH (FT)	LATERAL PIPE LENGTH (FT)	PERFORATION DIAMETER (IN)	HEAD (FT)	PERFORATION FLOW RATE (GPM)	PERFORATION SPACING (FT)	NUMBER OF ORIFICES	TRENCH FLOW RATE (GPM)	
1A1	363.0	359.8	46	43.70	5/16	2	1.63	4.60	10	16.30	
1A2	363.0	359.8	46	43.70	5/16	2	1.63	4.60	10	16.30	
1B1	362.9	358.9	46	43.13	5/16	2.9	1.96	5.75	8	15.68	
1B2	362.9	358.9	46	43.13	5/16	2.9	1.96	5.75	8	15.68	
TOTAL TRENCH FLOW RATE										63.96	

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - - -	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
-DF -DF-	DIVERSION FENCE
-SSF -SSF-	SUPER SILT FENCE
-SF -SF-	SILT FENCE
---	EROSION CONTROL MATTING
LOD	LIMITS OF DISTURBANCE
○	SPECIMEN TREE
○	TEMPORARY STONE OUTLET STRUCTURES
1005 ○	FAILED PERC HOLE
1001 ○	PASSED PERC HOLE



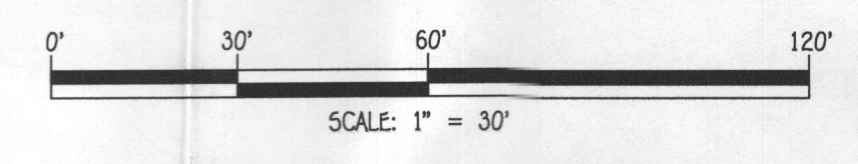
SEPTIC SYSTEM ELEVATIONS
 FFE = 392.30
 BSE = 382.11
 INV. OUT OF HOUSE = 378.48
 PROP GROUND AT PRETREATMENT TANK = 380.80
 TOP OF PRETREATMENT TANK = 378.77
 COVER OVER PRETREATMENT TANK = 2.03 FT
 INVERT INTO PRETREATMENT TANK = 377.77
 INVERT OUT OF PRETREATMENT TANK = 377.10
 PROP GROUND AT BAT TANK = 380.50
 TOP OF BAT TANK = 378.77
 COVER OVER BAT TANK = 1.73 FT
 INVERT INTO BAT TANK = 377.10
 INVERT OUT OF BAT TANK = 377.44
 PROP GROUND AT C/O = 378.80
 INV. INTO C/O = 376.98
 INV. OUT OF C/O = 376.78
 PROP GROUND AT PUMP TANK = 380.4
 INVERT INTO PUMP TANK = 376.68
 INVERT OUT OF PUMP TANK = 377.52

SEPTIC SYSTEM DESIGN
 7 BEDROOM HOUSE
 LOADING RATE = 1050 GPD
 APPLICATION RATE = 1.2
 EFFECTIVE SIDEWALL BEGINS AT 4.0 FEET
 TRENCH DEPTH = 2 FEET
 TRENCH WIDTH (W) = 3 FEET
 EFFECTIVE DEPTH (D) = 1.5 FEET
 SF OF DRAINFIELD = 1050 GPD / 1.2 = 875 SF
 COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2x2)) = 0.625
 TRENCH LENGTH = 875 SF x 0.625 / 3 = 182.3 FEET (USE 184 FEET)
 TRENCH SPACING = 2D+W = ((2x2) + 3) = 7 USE 10'

- BAT 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 COVER OVER THE BAT SHALL BE 3 FEET.
 - 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.
 - ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
 - AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.
 - THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
 - SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10275 BALTIMORE NATIONAL Pk.
 ELICOTT CITY, MARYLAND 21142
 (410) 481-2895

OWNER/DEVELOPER
 KAMBIZ GHOZATI
 8055 HIGH CASTLE ROAD
 ELICOTT CITY, MARYLAND 211043
 410-279-7484



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. 38386, EXPIRATION DATE: 01/12/2016.

Signature of Professional Engineer 9/10/15
 DATE

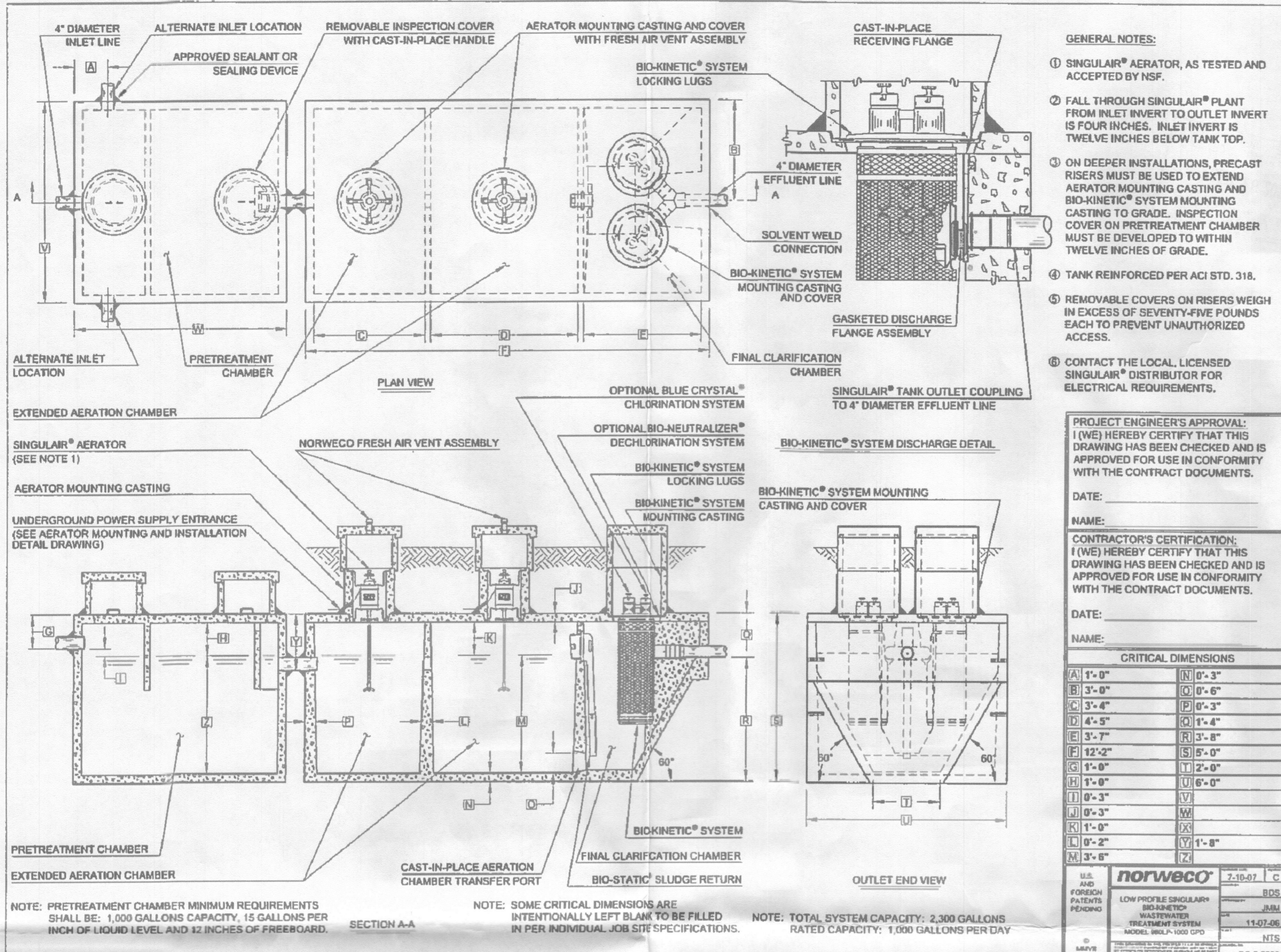


PLAN VIEW
 SCALE: 1"=30'

BAT SITE PLAN
 CHAPEL RISE

LOT 1
 ZONED RC-DEO PLAT NO. 22022
 TAX MAP NO.: 29 GRID NO'S.: 8 & 14
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: 1" = 30' DATE: SEPTEMBER, 2015
 SHEET 1 OF 2

13/01/2016 09:00 AM Bat Plan.dwg, 9/18/2015 12:04:29 PM, 1:1



- GENERAL NOTES:**
- SINGULAR[®] AERATOR, AS TESTED AND ACCEPTED BY NSF.
 - FALL THROUGH SINGULAR[®] PLANT FROM INLET INVERT TO OUTLET INVERT IS FOUR INCHES. INLET INVERT IS TWELVE INCHES BELOW TANK TOP.
 - ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND AERATOR MOUNTING CASTING AND BIO-KINETIC[®] SYSTEM MOUNTING CASTING TO GRADE. INSPECTION COVER ON PRETREATMENT CHAMBER MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE.
 - TANK REINFORCED PER ACI STD. 318.
 - REMOVABLE COVERS ON RISERS WEIGH IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED ACCESS.
 - CONTACT THE LOCAL LICENSED SINGULAR[®] DISTRIBUTOR FOR ELECTRICAL REQUIREMENTS.

PROJECT ENGINEER'S APPROVAL:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: _____
NAME: _____

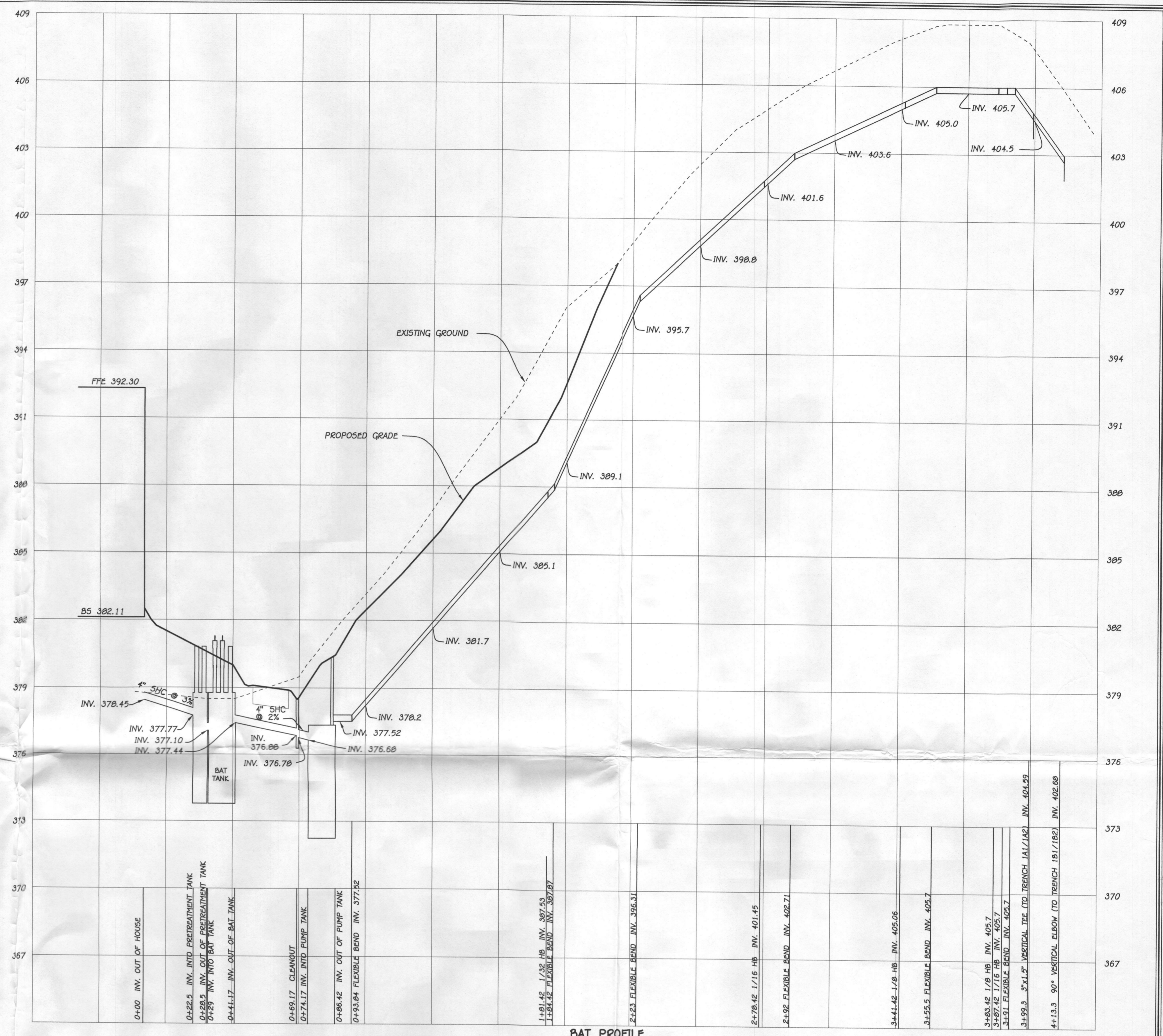
CONTRACTOR'S CERTIFICATION:
I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED FOR USE IN CONFORMITY WITH THE CONTRACT DOCUMENTS.

DATE: _____
NAME: _____

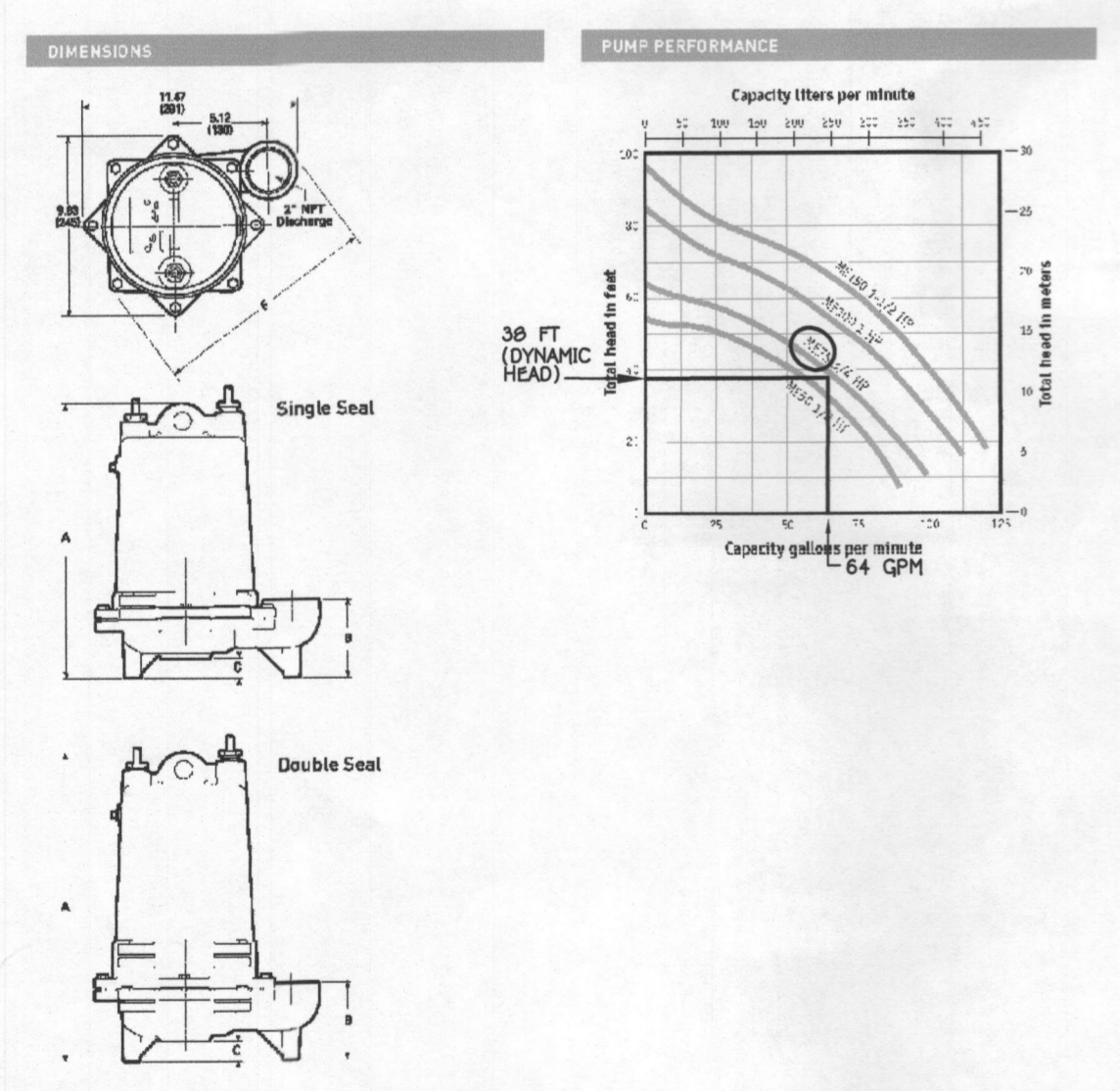
CRITICAL DIMENSIONS

A	1'-0"	N	0'-3"
B	3'-0"	O	0'-6"
C	3'-4"	P	0'-3"
D	4'-5"	Q	1'-4"
E	3'-7"	R	3'-8"
F	12'-2"	S	5'-0"
G	1'-0"	T	2'-0"
H	1'-0"	U	6'-0"
I	0'-3"	V	
J	0'-3"	W	
K	1'-0"	X	
L	0'-2"	Y	1'-8"
M	3'-6"	Z	

norweco 2-10-07 C
S&S AND FOREIGN PATENTS PENDING
LOW PROFILE SINGULAR[®] BIO-KINETIC[®] WASTEWATER TREATMENT SYSTEM
MODEL 860L-1000 CPD
NTS
PCL-37093

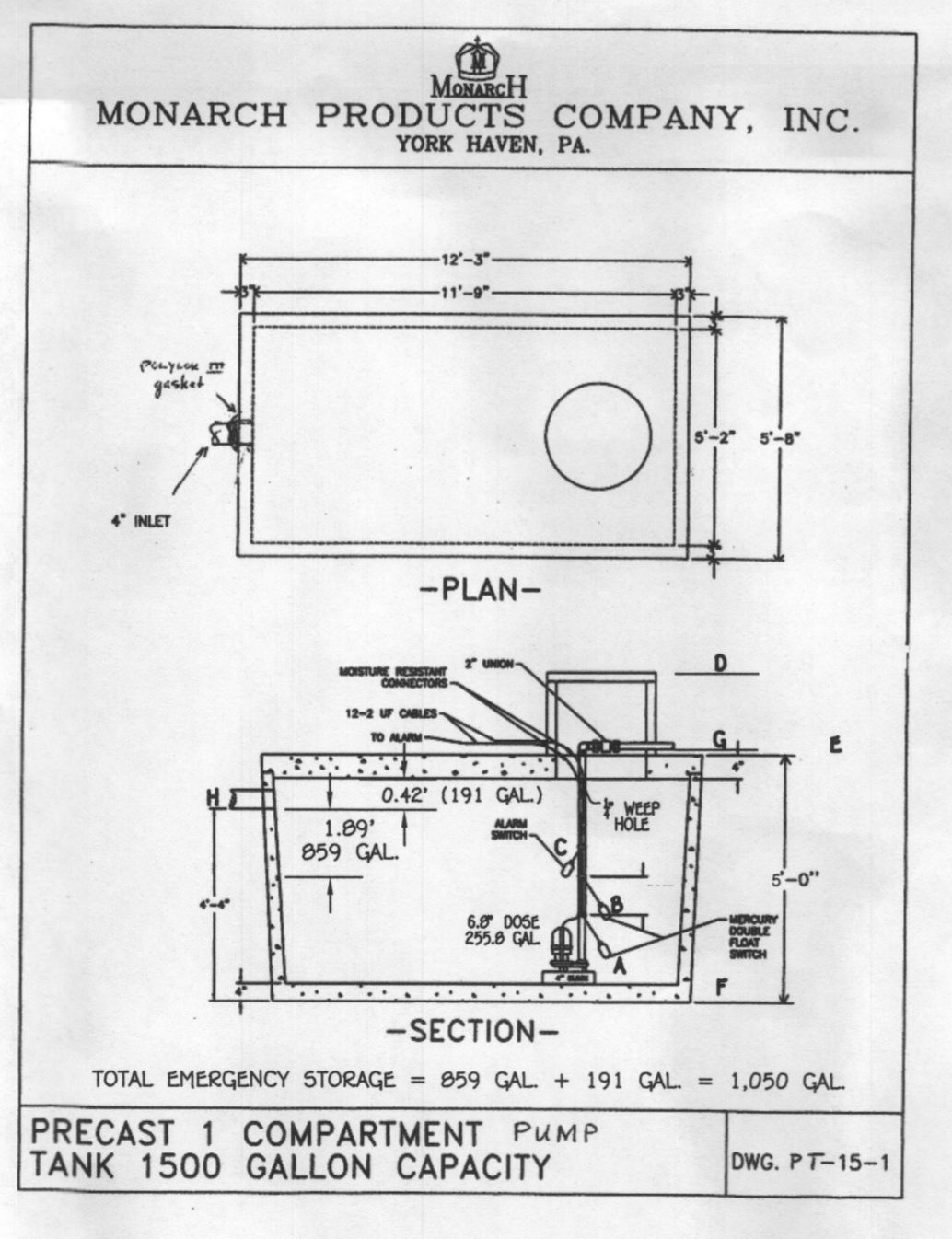


EFFLUENT PUMPS
MYERS[®] ME SERIES



Catalog Number	Inches (millimeters)		
	A	B	F
ME505	16.5 (426)	4.99 (127)	1.93 (49)
ME500	18.5 (469)	4.99 (127)	1.93 (49)
ME795, ME1005, ME1905	18.5 (469)	4.5 (114)	1.96 (49)
ME750, ME1000, ME1500	18.5 (469)	4.5 (114)	1.96 (49)

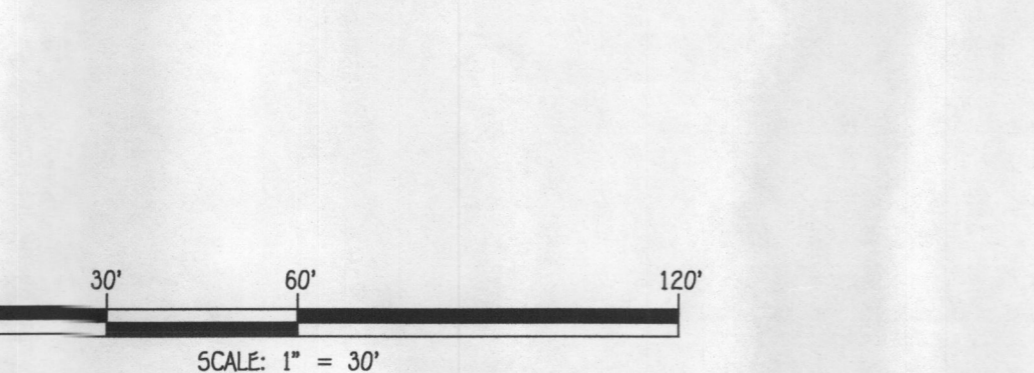
PENTAIR
NOTE: USE A ME75 PUMP



PUMP ALARMS / INFORMATION

A PUMP OFF : 373.60
B PUMP ON : 374.24
C HIGH WATER ALARM : 374.79
D TOP OF ACCESS COVER : 380.40
E TOP OF TANK : 377.43
F DISCHARGE OUT OF TANK : 377.52
H INVERT INTO TANK : 376.60

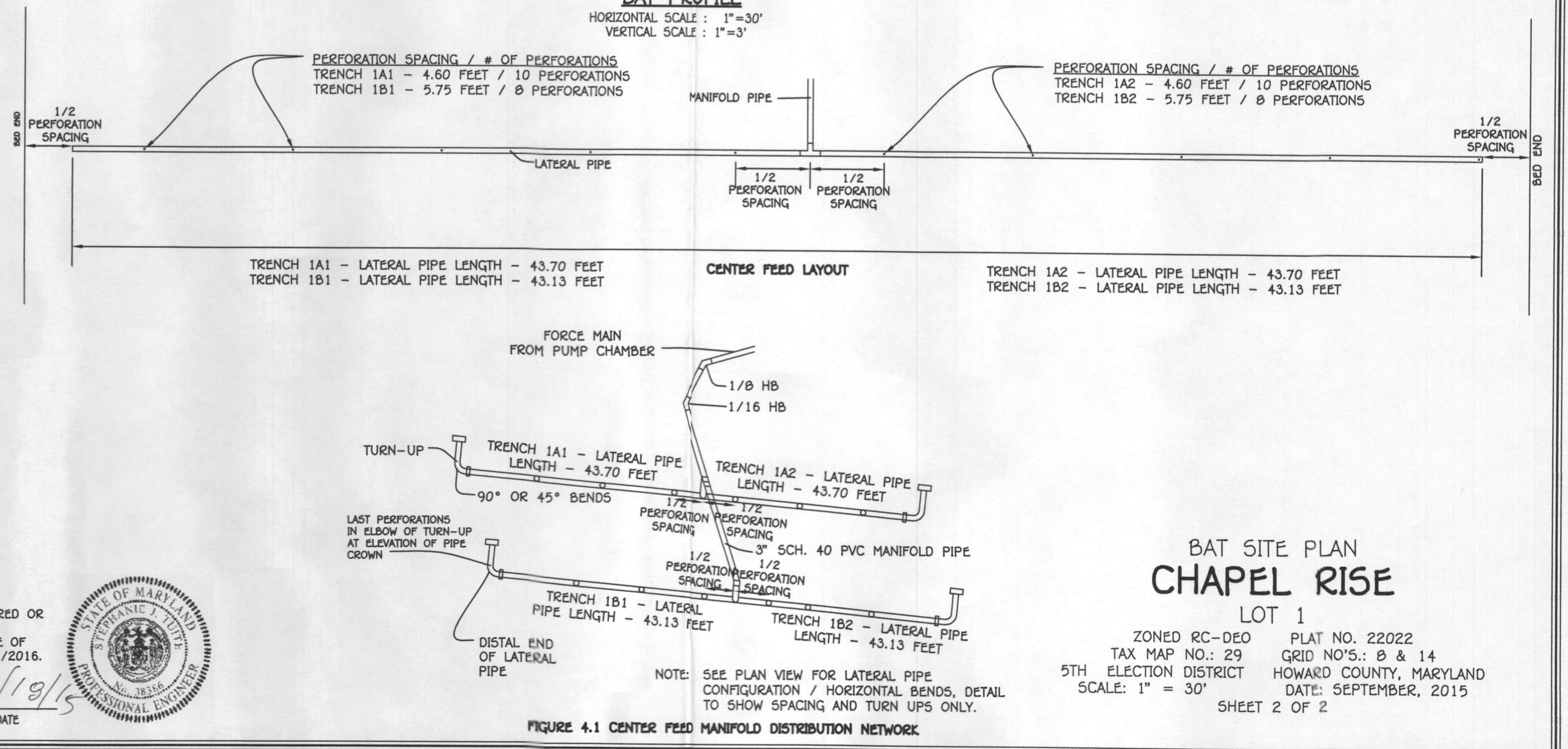
NOTE: SEPTIC SYSTEM ALARM WILL BE ON A CIRCUIT SEPARATE FROM ANY OTHER SEPTIC SYSTEM COMPONENTS OR ALARMS.



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. 38366, EXPIRATION DATE: 01/12/2016.

Stephen Lantz 9/19/15
Signature of Professional Engineer DATE



BAT SITE PLAN CHAPEL RISE LOT 1

ZONED RC-DEO PLAT NO. 22022
TAX MAP NO.: 29 GRID NOS.: B & 14
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
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