



Howard County
Health Department

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: 9-25-15 **ONSITE SEWAGE DISPOSAL SYSTEM**

P 551388

APPROVAL DATE: 11/20/2015 **PERMIT: CONSTRUCTION**

A

PROPERTY ADDRESS: 18348 Chelsea Knolls Drive

SUBDIVISION: Chelsea Knolls

LOT: 12

TAX ID: _____

CONTRACTOR: Hatfield's Equipment

EMAIL: ken@hatfieldsequipment.com

CONTRACTOR ADDRESS: P.O. Box 519 Annapolis Junction, MD 20701

PHONE: 301-490-4289

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: ☒ MDE ☒ MANUFACTURER:

PROPERTY OWNER: Ryan Homes

EMAIL: dsnyder@nvrinc.com

OWNER ADDRESS: 9720 Patuxent Woods Drive

PHONE: 410-796-0980

BAT UNIT MODEL: Norweco 500 PUMP SIZE: 1/3hpME PUMP TANK CAPACITY: 1500 GAL

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: 5/1/14 DATE RECORDED: 5/1/14

DISTRIBUTION SYSTEM: ☒ GRAVITY ☐ PRESSURE DOSED BEDROOMS: 4 APPLICATION RATE: 1.2

TRENCHES:	LINEAR FEET REQUIRED: <u>93</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>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:	LPD design per approved BAT plan.	

ISSUED BY: Jeff Williams

ISSUE DATE: 10/2/15

EXPIRATION DATE: 10/2/16

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.

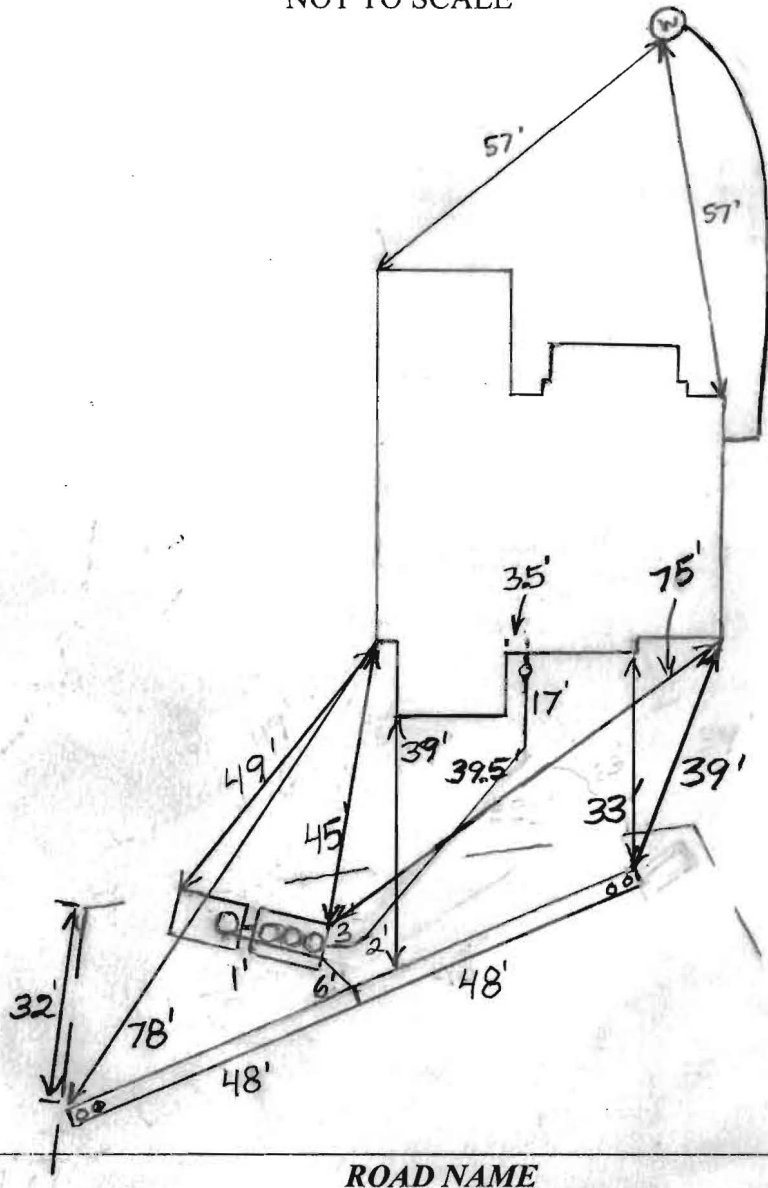
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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.

NOT TO SCALE



TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	3'	6'

NUMBER OF TRENCHES 2
 TOTAL LENGTH 96'
 ABSORPTION AREA 288+Sidewall
 DISTRIBUTION BOX LEVEL N/A
 DISTRIBUTION BOX BAFFLE N/A
 DISTRIBUTION BOX PORT N/A

SEPTIC TANK DATA

SEPTIC TANK I LEVEL Yes
 MANUFACTURER Norweco/Babylon
 CAPACITY 1300 GAL
 SEAM LOC Top
 TANK LID DEPTH 2'-3'
 BAFFLES No
 BAFFLE FILTER No
 MANHOLE LOC Front/Middle+Rear
 6" PORT LOC None
 WATERTIGHT TEST No
 SLOTTED N/A
 DATE ON LID Dry

PUMP/SEPTIC TANK LEVEL

Yes
 MANUFACTURER Babylon
 CAPACITY 1500 GAL
 SEAM LOC Top
 TANK LID DEPTH 2.5'-3.5'
 BAFFLES No
 BAFFLE FILTER No
 MANHOLE LOC Front
 6" PORT LOC None
 WATERTIGHT TEST No
 SLOTTED No
 DATE ON LID 8/28/2015

PRE-CONSTRUCTION:

11/2/15 BAT + pump tank, SDA, and laterals all dated. Sewer line comes out in the middle of back of house - switch location of BAT + pump tank in order to maximize fall from house. Ends of trenches 1A1 + 1A2 are 9" different elevation - move end of 1A1 uphill so that trench ends are within 5" of each other. Minimal fill over area where 1A2 is staked. (SC)

INSTALLATION:

11/5/2015 Tanks set, House connection made. (BB)
 11/6/2015 System installed, Need pump and alarm test and BAT certification. (BB)
 11/12/15 BAT startup certification received. (SC) 11/20/2015 Pump and alarm working. (BB)

FINAL INSPECTOR

B. Baker

DATE OF APPROVAL

11/20/2015

Back River Pre-Cast, LLC

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

Letter of Certification

This is to certify that the Norweco Singlair TNT 600 GPD Septic Tank installed at 18348 Chelsea Knolls Dr., MT. Airy, MD 21771 November 05, 2015 was installed according to the manufacture's specifications.

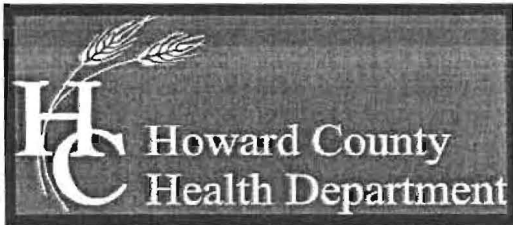
Installer: Jeff Reiter

Property Owner: NVR, Inc.

Permit #



MATTHEW GECKLE
Vice-President



Bureau of Environmental Health

7178 Columbia Gateway Drive, Columbia, MD 21046-2147

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Twitter: HowardCoHealthDep

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

Lot 12

**OPERATION AND MAINTENANCE AGREEMENT
FOR AN ON-SITE SEWAGE DISPOSAL SYSTEM
HAVING AN ADVANCED PRE-TREATMENT SYSTEM**

THIS AGREEMENT is made this 15 day of May 2014, among
Chelsea Knolls, LC, hereinafter collectively referred to as
"Owner", and the Howard County Health Department hereinafter referred to as the
"County".

WHEREAS, Owner is the owner or contract owner of a parcel of land located at
18348 Chelsea Knolls Drive, Mt Airy, Maryland 21771, in the 4th Election District of Howard
County, Maryland, and the deed to same is recorded or shall be recorded among the Land
Records of Howard County, Maryland in Liber 8717 Folio 579.

WHEREAS, The Lot is suitable for the installation of a conventional on-site sewage
disposal system with an advanced pre-treatment system, utilizing best available
technology to perform nitrogen reduction, in accordance with the Code of Maryland
Regulations 26.04.02.07, effective January 1, 2013.

NOW, THEREFORE, the parties hereto agree as follows:

- A. Owner hereby grants to the County the right to enter upon the Lot at any reasonable time for access to the system to make periodic inspections and the Owner agrees to provide any information and data in Owner's possession reasonably requested and needed by the County to develop accurate and thorough test results.
- B. Owner acknowledges and agrees that neither the County nor any of its agents or employees, either officially or individually, underwrites the operation of any system approved by them.
- C. The Owner will devote reasonable care and effort to the operation and maintenance of the system in perpetuity or until a public sewer connection is made so that a system malfunction is not the result of poor maintenance, faulty operation, or neglect.
- D. The Owner agrees to enter into a contract reasonably acceptable to the Owner and the County with a private entity to operate and maintain on a regularly scheduled basis an approved advanced pre-treatment system. The owner shall supply a copy of the contract to the County when it is renewed or altered.
- E. This agreement shall run with the land and upon Owner's taking title to the Lot shall bind the Owner, their heirs, successors, and assigns to the provisions of the agreement as

long as the property is in existence and after installation of the system. Owner further agrees that they shall inform in writing any subsequent purchaser or lessee of the Lot that the system shall require 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.

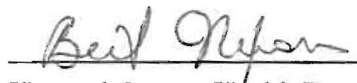
J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

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

 4/25/14.

Owner Date
Chelsea Knolls, L.C., Russell Dickens, Manager

Owner Date

 5/1/2014

Howard County Health Department

13038-3001

Clerk of the Circuit Court for
Howard County
Land Records/Licensing
14 EAST AGREEMENTS
The Thomas Dorsey Building
9250 Bendix Road
Columbia, MD 21045
410-313-5850

~~FINANCIAL~~
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 82

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 83

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 84

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 85

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 86

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 87

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 88

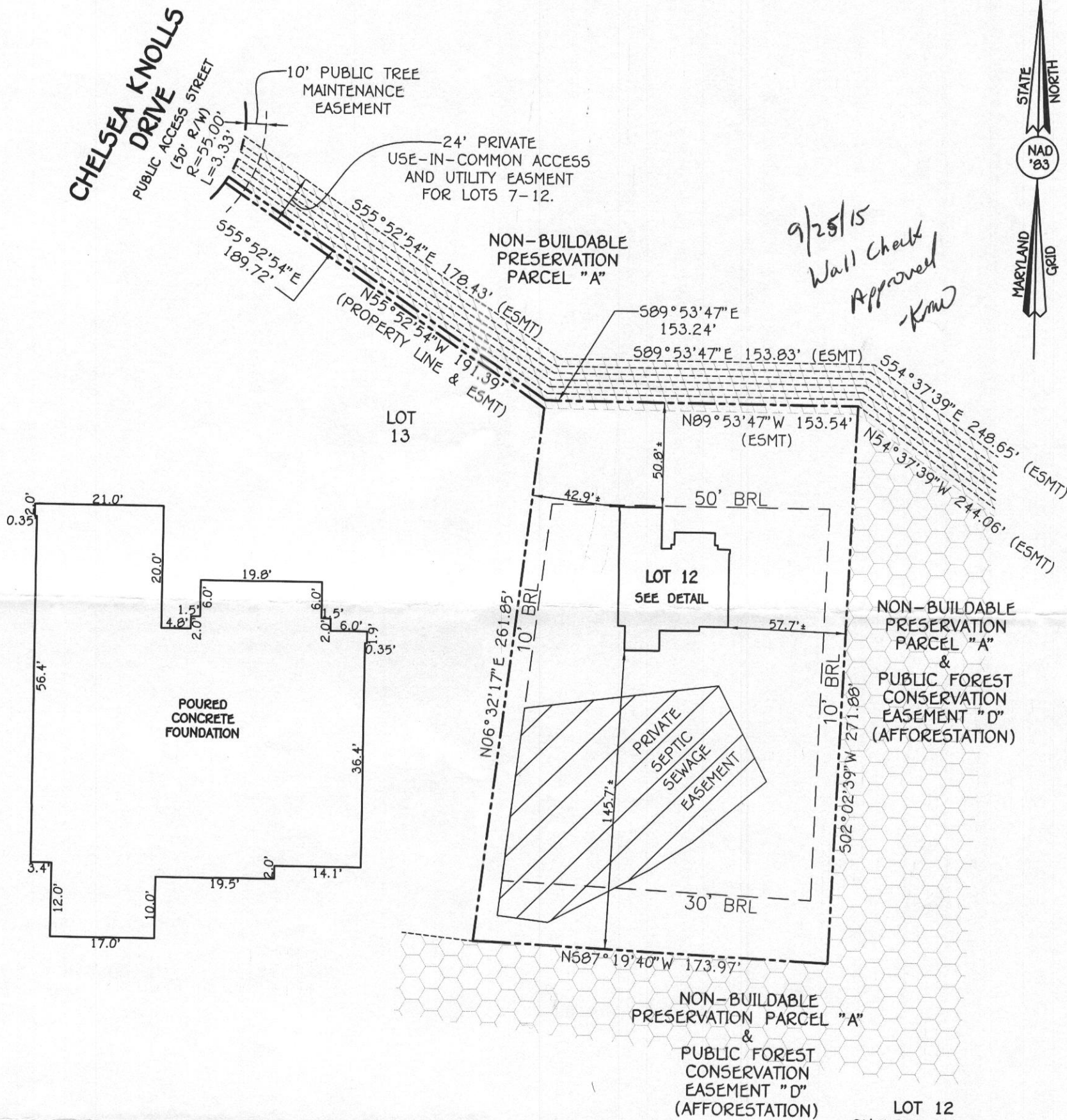
LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 89

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 90

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC

GENERAL NOTES:

- 1) THIS LOCATION DRAWING IS PREPARED FOR THE BENEFIT OF THE CLIENT SIGNING THE HOUSE LOCATION SURVEY APPROVAL FORM INSOFAR AS IT IS REQUIRED BY A LENDER OR TITLE INSURANCE COMPANY OR ITS AGENTS IN CONNECTION WITH THE CONTEMPLATED TRANSFER, FINANCING OR REFINANCING OF THE PROPERTY SHOWN HEREON. UNLESS INDICATED AS BEING A BOUNDARY SURVEY, THIS LOCATION DRAWING IS NOT INTENDED FOR USE IN THE ESTABLISHMENT OF PROPERTY LINES AND IS NOT TO BE RELIED UPON FOR THE ESTABLISHMENT OR LOCATIONS OF FENCES, GARAGES, BUILDINGS OR OTHER EXISTING OR FUTURE IMPROVEMENTS. AS A RESULT, THIS LOCATION DRAWING DOES NOT PROVIDE FOR ACCURATE IDENTIFICATION OF PROPERTY LINES, BUT SUCH IDENTIFICATION MAY NOT BE REQUIRED FOR THE TRANSFER OF TITLE OR SECURING FINANCING FOR RE-FINANCING.
- 2) SUBJECT PROPERTY IS SHOWN IN ZONE X ON THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP OF HOWARD COUNTY, MARYLAND, COMMUNITY PANEL No. 24027C0010D EFFECTIVE 11/06/2013
- 3) THE OFFSETS FROM BUILDING LINE TO PROPERTY LINE AS SHOWN ON THE PLAT HEREON ARE TO AN ACCURACY OF PLUS OR MINUS 1.0.'
- 4) NO TITLE REPORT FURNISHED. SUBJECT TO ALL EASEMENTS, RIGHTS OF WAY AND CONDITIONS OF RECORD.
- 5) THE EXISTING WELL(S) SHOWN ON THIS PLAN (IDENTIFIED WITH THE ATTACHED WELL TAG NUMBER HO-95-2108 HAS BEEN FIELD LOCATED BY FISHER, COLLINS AND CARTER, INC. PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.
- 6) PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND THAT I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 339, EXPIRATION DATE 10/04/2016.
- 7) BUILDING PERMIT #B-15002689



#18348 CHELSEA KNOLLS DRIVE
B.R.L. = BUILDING RESTRICTION LINE
TOP OF FOUNDATION ELEVATION = 779.9'±

LOT 12
CHELSEA KNOLLS
LOTS 1 THRU 14,
NON-BUILDABLE PRESERVATION
PARCELS 'A' & 'B' AND
NON-BUILDABLE BULK PARCEL 'C'
PLAT NOS. 22016 THRU 22019
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 461 - 2855

Drawing Name:



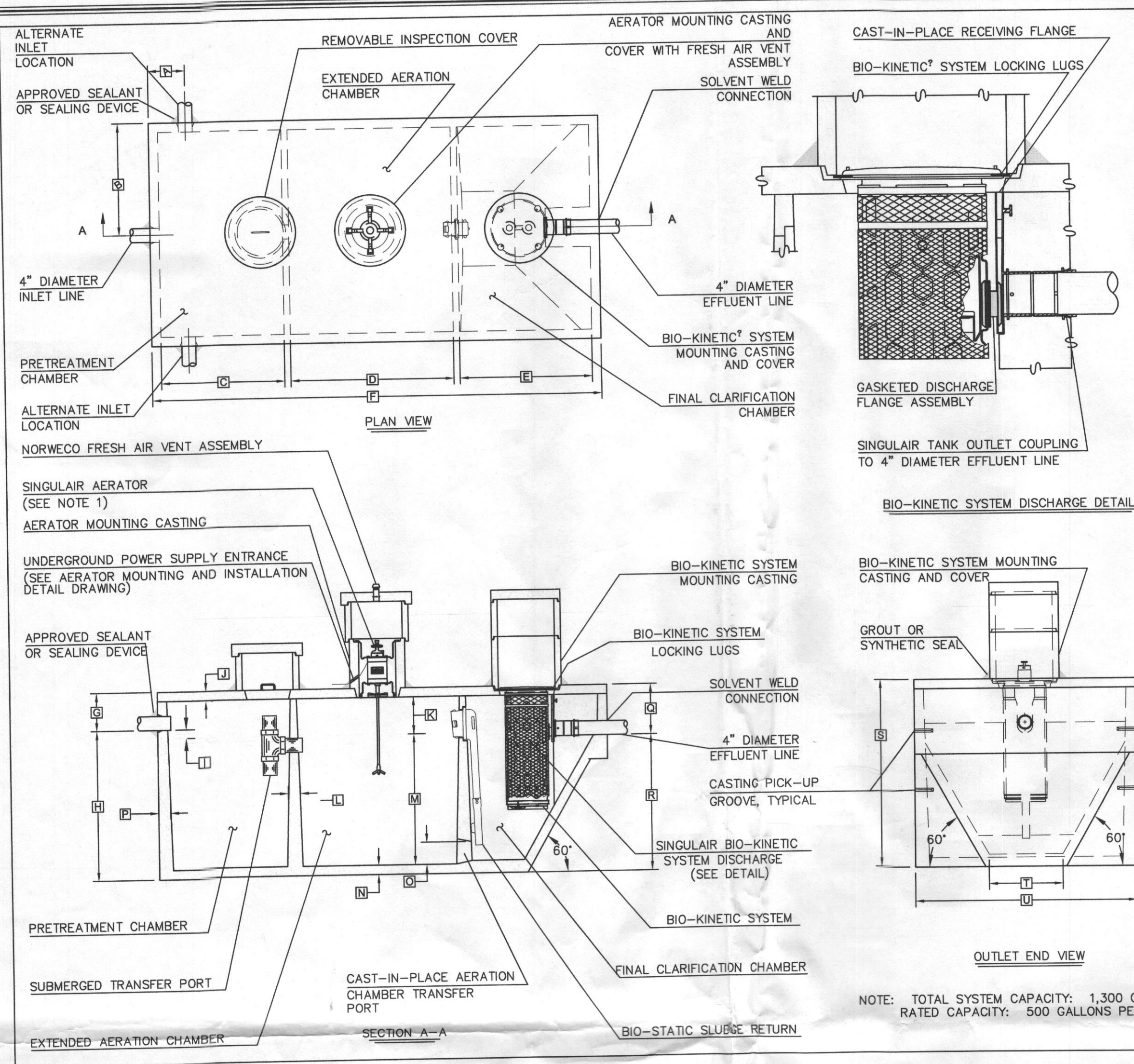
Mark L. Robel
PROPERTY LINE SURVEYOR
REG. #339

8/28/15
DATE

HOUSE LOCATION DRAWING

FOUNDATION LOCATION: 8/28/15
FINAL LOCATION:
BOUNDARY SURVEY:

SCALE: 1"=60'
DATE: 8/6/15
DRAWN BY: GAD
CHECKED BY: MLR
PROJECT No.: 13038-3001



- GENERAL NOTES:**
- SINGULAR AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
 - 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.
 - TANK REINFORCED PER ACI STD. 318-05.
 - 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 4'-0"	U 6'-0"
I 0'-3"	V
J 0'-3"	W
K 1'-0"	X
L 0'-2"	Y
M 3'-6"	Z

U.S. AND FOREIGN PATENTS PENDING

norweco 3-28-07 B

LOW-PROFILE SINGULAR[®] BIO-KINETIC WASTEWATER TREATMENT SYSTEM
MODEL T1NLP-600 GPD

10-16-08
NTS
PG-5-7091

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

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, LIBER 15565, FOLIO 071.
- 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.

SEPTIC SYSTEM ELEVATIONS

FFE = 780.84
BSE = 771.00
INV. OUT OF HOUSE = 768.33
PROP. GROUND AT C/O = 773.6
INV. INTO C/O = 767.84
EX. GROUND AT C/O = 771.9
INVERT INTO C/O = 767.46
EX. GROUND AT BAT TANK = 771.3
TOP OF BAT TANK = 768.30
COVER OVER BAT TANK = 3 FT
INVERT INTO BAT TANK = 770.65
EX. GROUND AT PUMP TANK = 766.97
TOP OF PUMP TANK = 767.64
COVER OVER PUMP TANK = 3 FT
INVERT INTO PUMP TANK = 766.89
INVERT OUT OF PUMP TANK = 767.81

SEPTIC SYSTEM DESIGN

4 BEDROOM HOUSE
LOADING RATE = 600 GPD
APPLICATION RATE = 1.2
EFFECTIVE SIDEWALL BEGINS AT 3.5 FEET
TRENCH DEPTH = 6 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 2.5 FEET
SF OF DRAINFIELD = 600 GPD / 1.2 = 500 SF
COEFFICIENT OF REDUCTION OF TRENCH LENGTH =
(W+2)/(W+1+2D) = (3+2)/(3+1+(2x2.5)) = 0.556
TRENCH LENGTH = 500 SF x 0.556 / 3 = 92.7 FEET (USE 93 FEET)
TRENCH SPACING = 2D+W = ((2x2.5) + 3) = 8' USE 10'

FRICTION LOSS IN 2" PIPE FITTINGS:

2 1/8 HB x 3 FEET PER FITTING = 6 EQUIVALENT FEET OF PIPE
1 TEL/CROSS x 9 FEET PER FITTING = 9 EQUIVALENT FEET OF PIPE
1 UNION x 1 FEET PER FITTING = 1 EQUIVALENT FEET OF PIPE
2 ELBOWS x 8 FEET PER FITTING = 16 EQUIVALENT FEET OF PIPE
TOTAL EQUIVALENT FEET OF PIPE = 32 FT

TOTAL LINEAR FEET OF 1.5" SCH. 40 PVC = 14 LF + 32 LF = 46 LF

DYNAMIC HEAD
46 LF x 5.04 FT PER 100 LF OF PIPE = 2.32 FT OF FRICTION HEAD
DISTAL HEAD = 2.00 FT
VERTICAL FROM PUMP OFF TO DISCHARGE = 3.66 FT OF FRICTION HEAD
TOTAL DYNAMIC HEAD = 7.98 FT (USE 8 FT)

PIPE VOLUMES
14 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 1.5 GALLONS
87.83 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 9.3 GALLONS

MINIMUM DOSE
MINIMUM DOSE = (5 x LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
= (5 x 9.3) + (1.5)
= 48.0 GALLONS

48.0 GALLONS IS LESS THAN 1/6 DESIGN FLOW (600/6=100)
USE 117.4 GALLON DOSE (100 GALLON MINIMUM)
(RUN TIME = 4 MIN (29.34 GPM x 4 = 117.4 GALLON DOSE))

PUMP NEEDS TO HANDLE 29.34 GPM AT 8 FT OF HEAD
USE 0.3 HP (M23H PUMP)

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	769.4	765.9	46.5	43.92	5/16	2	1.63	5.17	9	14.67
1A2	769.4	765.9	46.5	43.92	5/16	2	1.63	5.17	9	14.67
TOTAL TRENCH FLOW RATE										43.06

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 AT	EFFECTIVE DEPTH (D) (TRENCHES (W))	WIDTH OF TRENCH SPACING
1A1	769.4	766.4	765.9	3.0'	2.5'	763.4	3.5'	2.5'	3.0'
1A2	769.4	766.4	765.9	3.0'	3.0'	763.4	3.5'	2.5'	3.0'

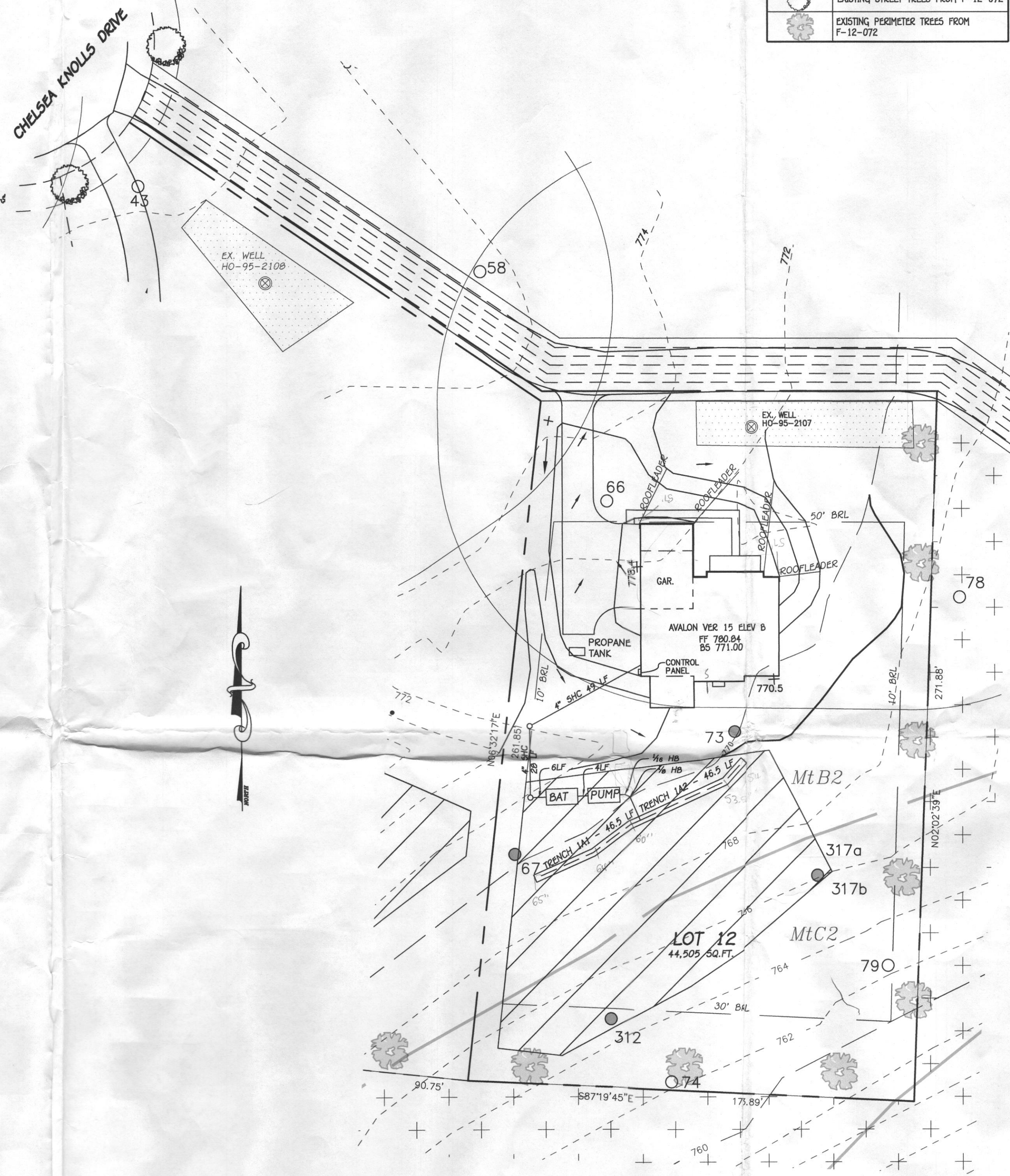
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461-2895

0' 30' 60' 120'
SCALE: 1" = 30'

PROFESSIONAL CERTIFICATION

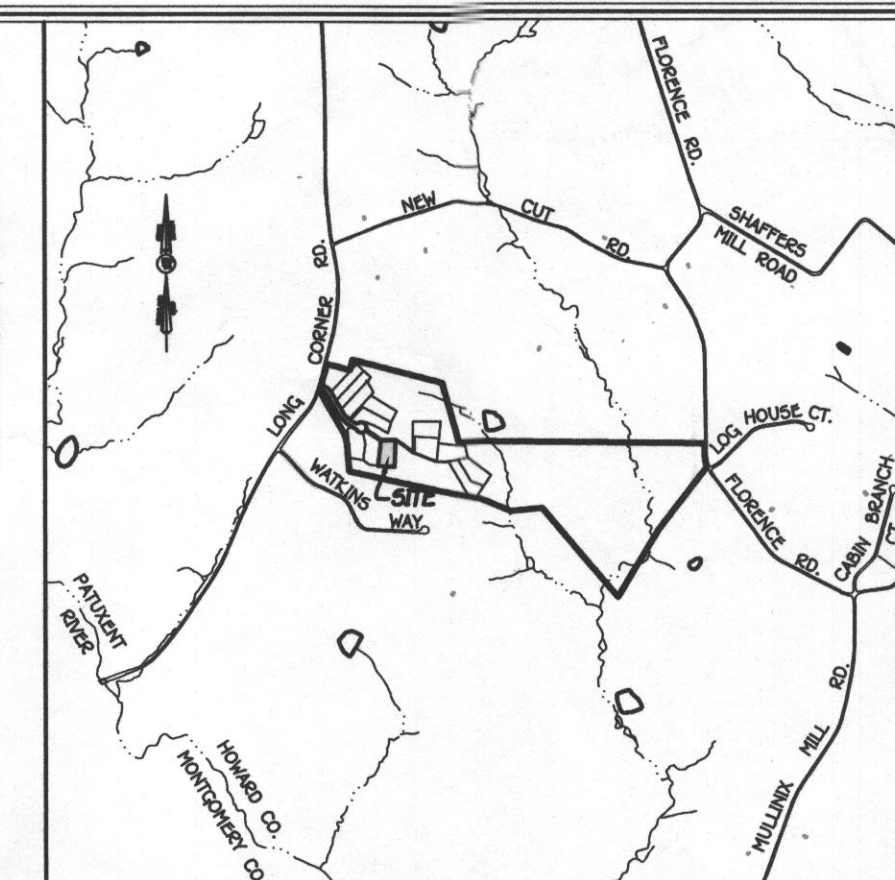
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2016.

Signature of Professional Engineer: *Stephanie J. Fisher* 7/7/15
DATE



PLAN VIEW
SCALE: 1"=30'

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
○	EXISTING WELL
○	EXISTING STREET TREES FROM F-12-072
○	EXISTING PERIMETER TREES FROM F-12-072



VICINITY MAP

SCALE: 1" = 2000'
HO. CO. MD. ADC MAP 7, GRID D8

BENCH MARKS

STA 061A ELEV 786.421
N. 603.004.896
E. 1.333.285.9
STA 061A ELEV 714.263
N. 602.649.523
E. 1.271.163.330

GENERAL NOTES

- SUBJECT PROPERTY ZONED: RC-DEO
- TOTAL AREA OF PROPERTY: 44,505 SQ. FT. OR 1.02 AC.
- SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
- LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
- CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
- BOUNDARY OF LOT BASED ON PLAT #22017.
- TOPOGRAPHY SHOWN HEREON TAKEN FROM F-07-072 WHICH IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY MILDENBERG, BOENDER & ASSOCIATES, INC. IN SEPTEMBER, 2001. TOPOGRAPHY IN NON-DEVELOPED AREAS IS BASED ON HOWARD COUNTY 200 SCALE TOPOGRAPHY.
- NO WETLANDS EXIST ON THIS LOT.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.
- AT HIGH WATER ALARM PROBE, PUMP WILL HAVE CONTINUOUS OPERATION UNTIL LEVEL GOES BENEATH PROBE.
- IF WATER LEVEL RISES ABOVE THE ALARM PROBE, AN AUDIBLE AND VISUAL ALARM WILL SOUND. SEE MANUFACTURER SPECS FOR ADDITIONAL INFORMATION.
- ALARM TO BE WIRED TO A CIRCUIT SEPARATE FROM THE PUMP CIRCUIT.

NOTE

THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #95-2107 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

SOILS LEGEND

SOIL	NAME	CLASS
MBE	HE. Any channel loam, 3 to 8 percent slopes, moderately eroded	A
MC2	HE. Any channel loam, 8 to 15 percent slopes, moderately eroded	A

BAT SITE PLAN

LOT 12
CHELSEA KNOLLS
18348 CHELSEA KNOLLS DRIVE

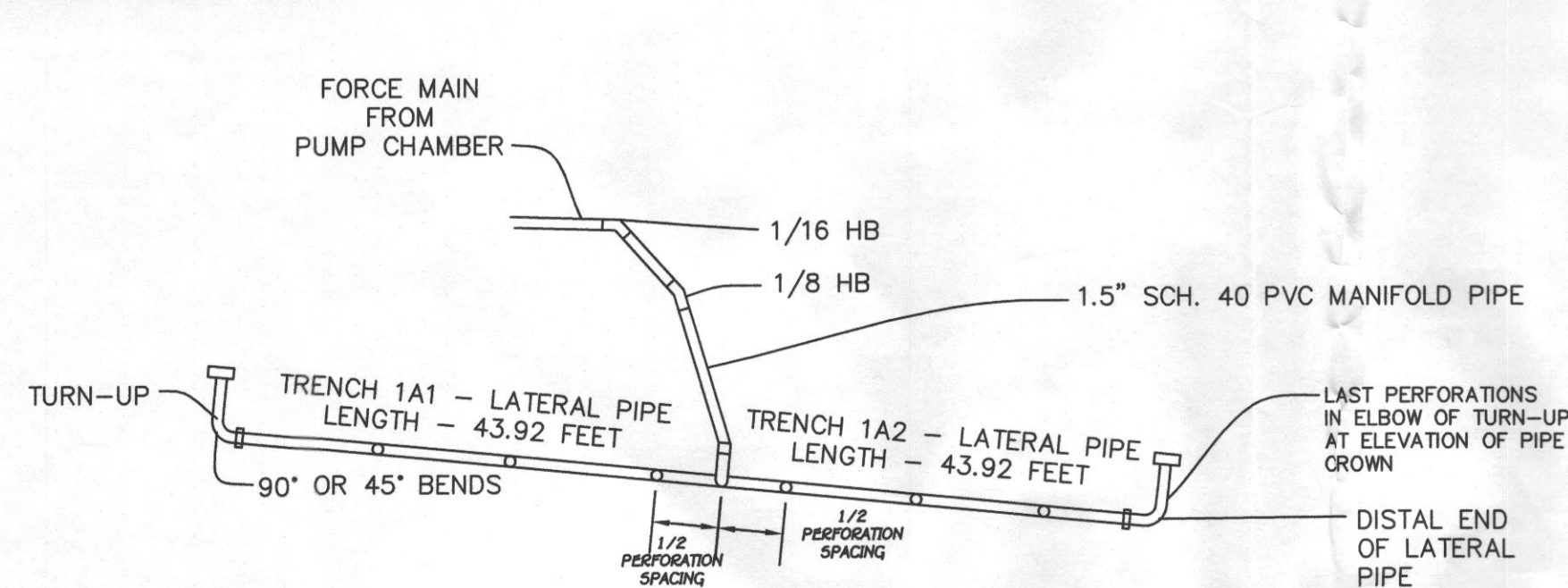
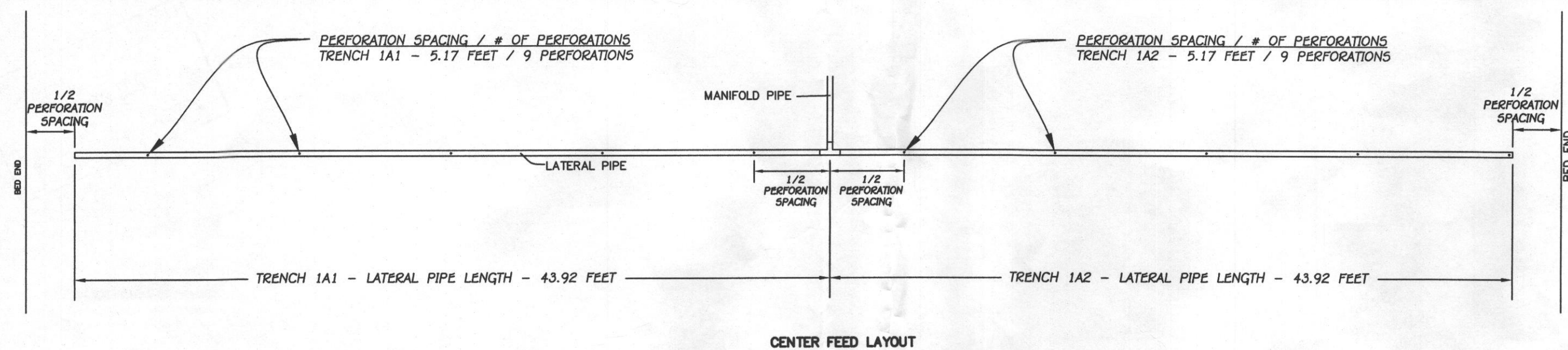
ZONING: RC-DEO
TAX MAP No. 12 GRID No. 5 PARCEL No. 78
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: JULY, 2015
SHEET 1 OF 2

OWNER

CHELSEA KNOLLS, LC
1355 BEVERLY RD. SUITE 240
MCLEAN, VIRGINIA 22101
(703) 734-9730
(301) 720-3021

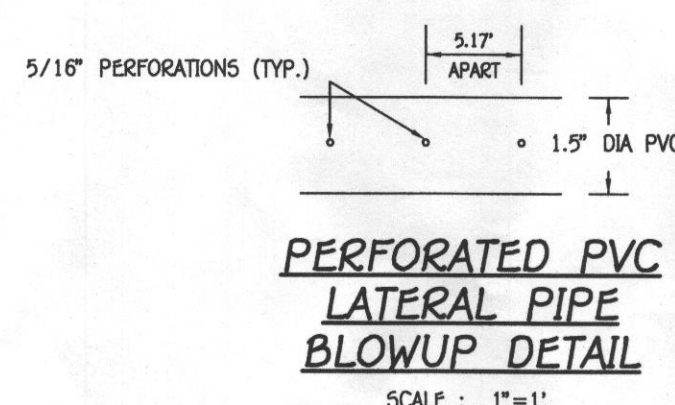
DEVELOPER

RYAN HOMES, INC.
ATTN: KEVIN BOWSER
9720 PATUXENT WOODS DRIVE
COLUMBIA, MARYLAND 21046
410-796-0980

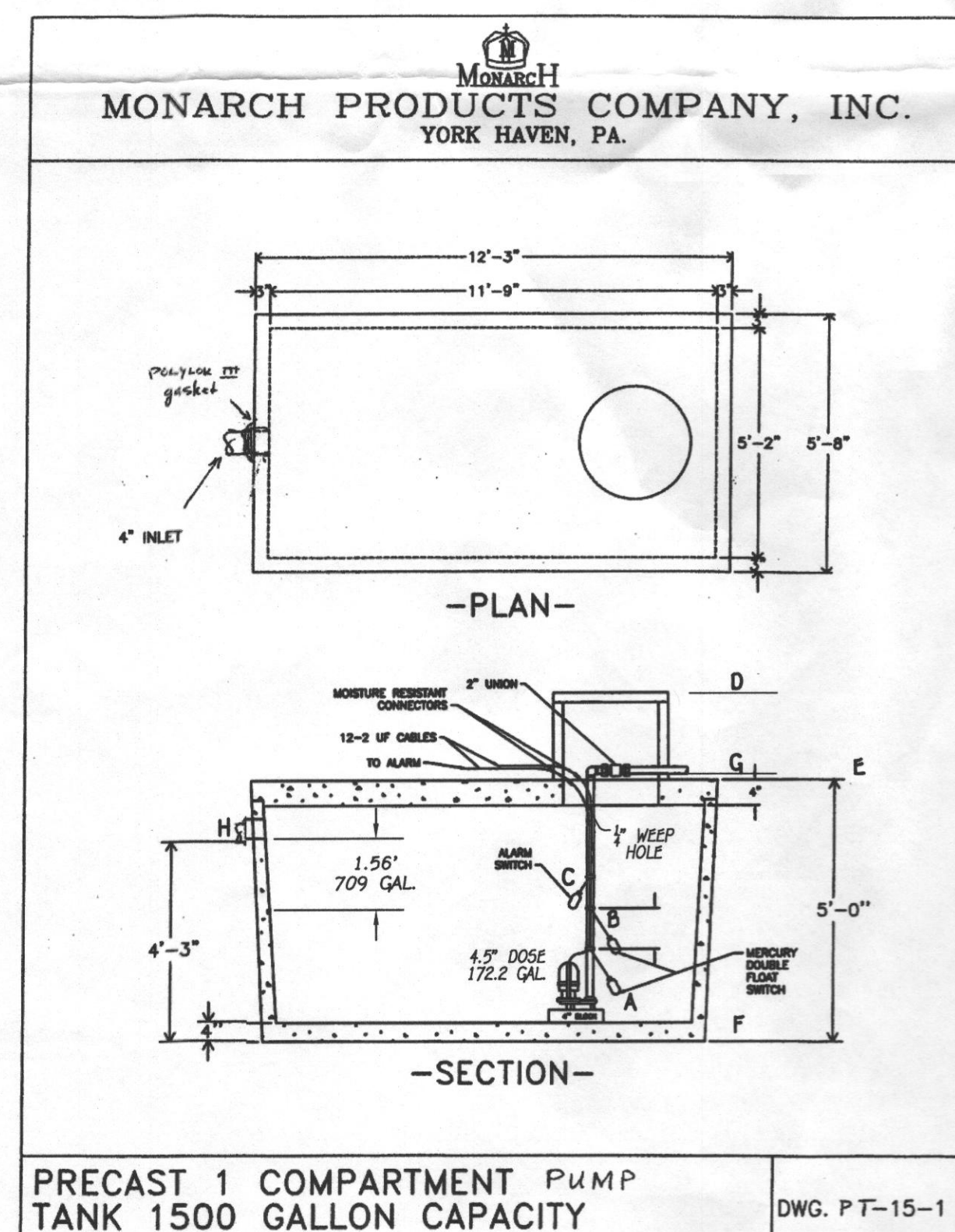


NOTE: SEE PLAN VIEW FOR LATERAL PIPE CONFIGURATION / HORIZONTAL BENDS. DETAIL TO SHOW SPACING AND TURN UPS ONLY.

FIGURE 4.1 MANIFOLD DISTRIBUTION NETWORK



NOTE: PLACE AN OBSERVATION PIPE IN THE GRAVEL BED AT THE DISTAL END OF EACH TRENCH SEGMENT.



PUMP ALARMS / INFORMATION
 A PUMP OFF : 764.22
 B PUMP ON : 764.60
 C HIGH WATER ALARM : 765.33
 D TOP OF ACCESS COVER : 770.65
 E TOP OF TANK : 767.64
 F BOTTOM OF TANK : 762.64
 G DISCHARGE OUT OF TANK : 767.81
 H INVERT INTO TANK : 766.89

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

Signature of Professional Engineer DATE: 7/2/15

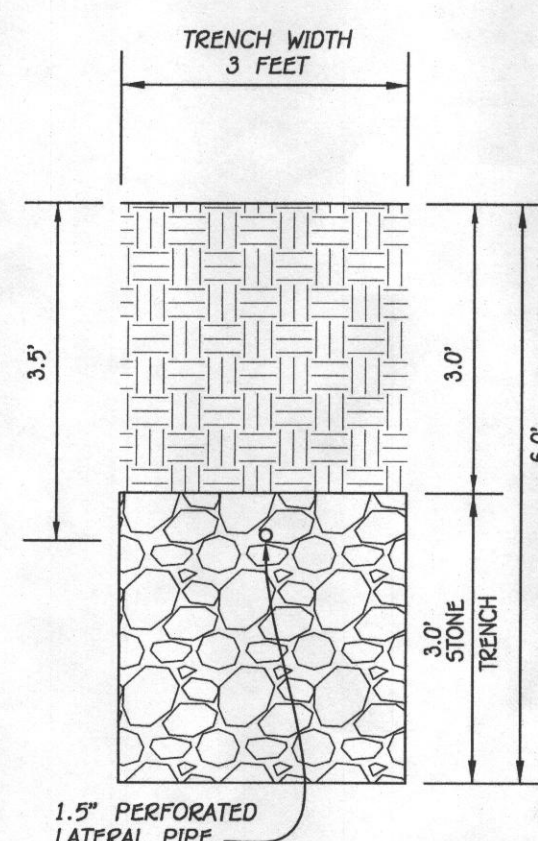


OWNER

CHELSEA KNOLLS, LC
 1355 BEVERLY RD. SUITE 240
 MCLEAN, VIRGINIA 22101
 (703) 734-9730
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DEVELOPER

RYAN HOMES, INC.
 ATTN: KEVIN BOWSER
 9720 PATUXENT WOODS DRIVE
 COLUMBIA, MARYLAND 21046
 410-796-0980



TRENCH DETAIL
 SCALE: 1"=2'

ME SERIES EFFLUENT PUMPS

Trust The Pump Experts.

Myers has a market leading portfolio of horsepower and pump curve combinations, delivered with distinctive service.

Features

RELIABLE AND TOUGH

- Rugged, oil-cooled motor provides continuous bearing lubrication and maximizes heat dissipation

EXTENDED SERVICE

- Lubricated ball bearings and shaft seal for longer service life

MOTOR PROTECTION

- Long-life carbon/ceramic seal protects motor against water leakage

THERMAL OVERLOAD

- Heat sensor overload protection with automatic reset when motor cools to safe operating temperature

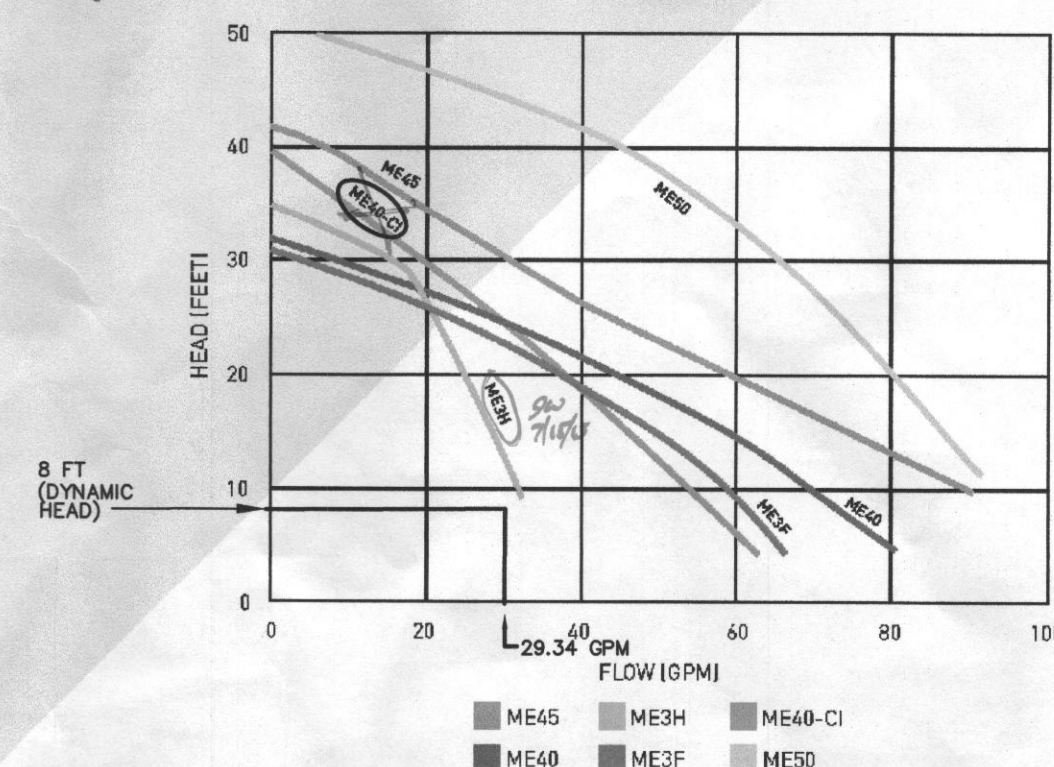
NO DRILLING REQUIRED

- Anti-airlock hole in base reduces added labor

EASY SERVICEABILITY

- Pump, intake screen volute base, switch and power cord are serviceable

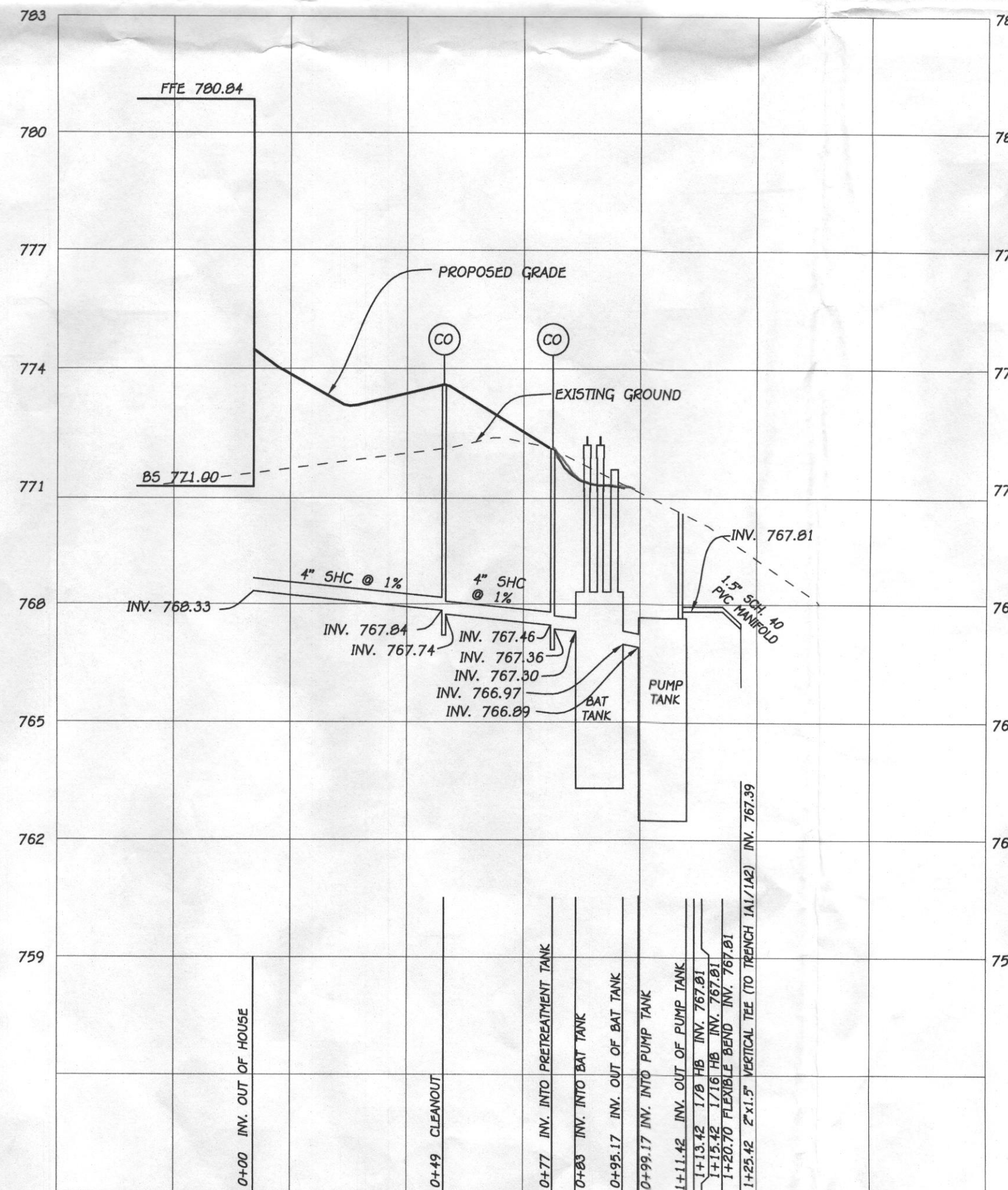
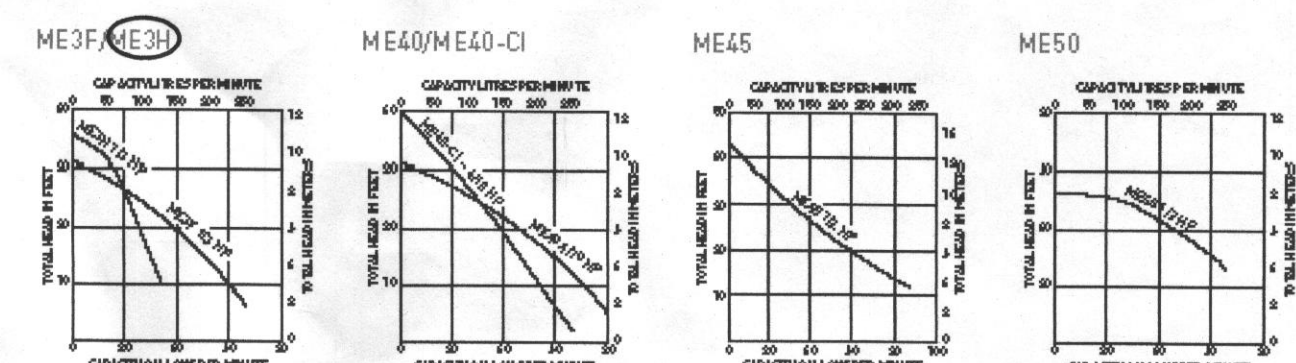
Family Curve



NOTE: USE A ME3H PUMP

Specifications

	ME3H (ME3H)	ME40	ME40-CI	ME45	ME50
Capacities	ME3H: 36 GPM (13.6 LPM) ME3F: 66 GPM (25.1 LPM)	80 GPM (30.3 LPM)	60 GPM (22.7 LPM)	97 GPM (36.9 LPM)	120 GPM (45.4 LPM)
Shut-off Head	ME3H: 36' (10.7 m) ME3F: 31' (9.5 m)	32' (9.75 m)	40' (12.2 m)	44' (13.41 m)	55' (16.8 m)
Operation	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual
Solids Handling	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)
Liquids Handling	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water
Liquid Temp.	Intermittent up to 140°F (60°C)	Intermittent up to 140°F (60°C)	Continuous 130°F (55°C)	Intermittent up to 140°F (60°C)	Intermittent up to 140°F (60°C)
Motor Electrical Data	1/2 HP, 1850 RPM, shaded pole, oil-filled, 115V, 12A, 1ø, 60Hz, 230V, 6A, 1ø, 60Hz	1/2 HP, 1850 RPM, PSC with thermal overload, oil-filled, 115V, 12A, 1ø, 60Hz, 230V, 6A, 1ø, 60Hz	1/2 HP, 1850 RPM, PSC with thermal overload, oil-filled, 115V, 12A, 1ø, 60Hz, 230V, 6A, 1ø, 60Hz	1/2 HP, 1850 RPM, PSC with thermal overload, oil-filled, 115V, 12A, 1ø, 60Hz, 230V, 6A, 1ø, 60Hz	1/2 HP, 115V, 1ø, 1/2 to 1-1/2 HP, 230V, 1ø, 08/220/460/575V, 3ø, PSC with thermal overload, oil-filled, perma-seal split capacitor motor, 18, 3450 RPM, 60Hz
Acceptable pH Range	6-9	6-9	6-9	6-9	6-9
Shaft Seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal
Housing/Material	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
Volute Base	Cast iron	Fiberglass reinforced polypropylene	Cast iron	Cast iron	Cast iron
Impeller	Fiberglass-reinforced Noryl®	Cast iron	Thermoplastic, non-clog, vortex type	Cast iron	Cast iron
Exterior Hardware	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Power Cord	20', 16/2, SJTW	20', 16/2, SJTW	20', 16/2, 10/2, SJTW	20', 16/2, SJTW	10'
Discharge, NPT	1-1/2" (38.1 mm)	1-1/2" (38.1 mm)	2" (50.8 mm)	2" (50.8 mm)	2" (50.8 mm)



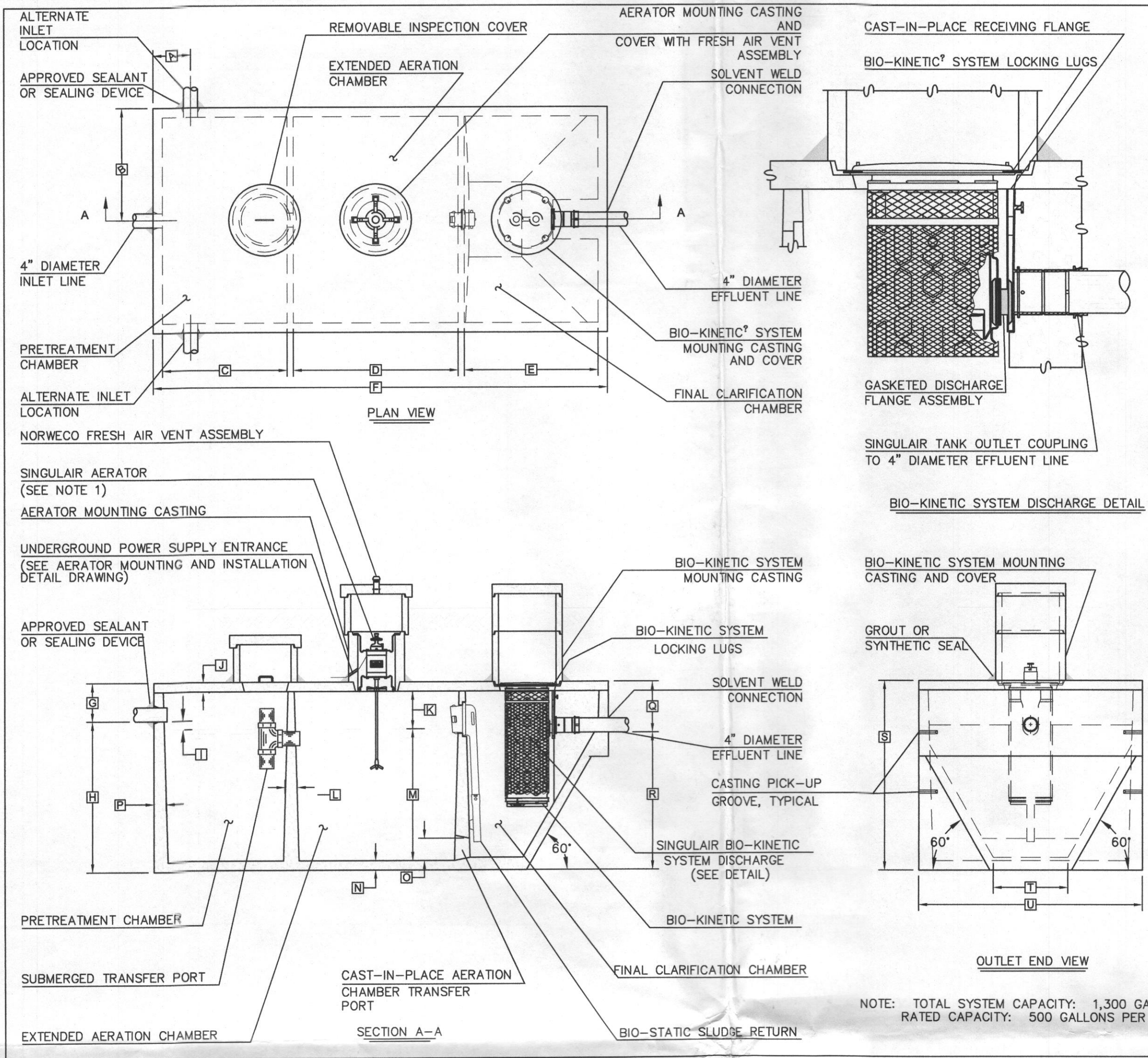
SEPTIC PROFILE

HORIZONTAL SCALE: 1"=30'
 VERTICAL SCALE: 1"=3'

BAT SITE PLAN

LOT 12
CHELSEA KNOLLS
 18348 CHELSEA KNOLLS DRIVE

ZONING: RC-DEO
 TAX MAP No. 12 GRID No. 5 PARCEL No. 78
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: JULY, 2015
 SHEET 2 OF 2



- GENERAL NOTES:**
- SINGULAR AIRATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
 - 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.
 - TANK REINFORCED PER ACI STD. 318-05.
 - 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"	R) 0'-3"
B) 3'-0"	Q) 0'-6"
C) 3'-4"	P) 0'-3"
D) 4'-5"	O) 1'-4"
E) 3'-7"	R) 3'-8"
F) 12'-2"	S) 5'-0"
G) 1'-0"	T) 2'-0"
H) 4'-0"	U) 6'-0"
I) 0'-3"	V) _____
J) 0'-3"	W) _____
K) 1'-0"	X) _____
L) 0'-2"	Y) _____
M) 3'-6"	Z) _____

U.S. AND FOREIGN PATENTS PENDING

norweco 3-28-07 J.B.

LOW-PROFILE SINGULAR[®] BIO-KINETIC WASTEWATER TREATMENT SYSTEM MODEL T11LP-500 GPD

© MARV 10-16-06 NTS PC-S-7091

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, LIBER 15565, FOLIO 071.
- 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.

SEPTIC SYSTEM ELEVATIONS

FPE = 780.84
BSE = 771.00
INV. OUT OF HOUSE = 788.33
PROP. GROUND AT C/O = 773.6
INV. INTO C/O = 767.84
INV. OUT OF C/O = 767.74
EX. GROUND AT C/O = 771.9
INVERT INTO C/O = 767.46
INVERT OUT OF C/O = 767.36
EX. GROUND AT BAT TANK = 771.3
TOP OF BAT TANK = 768.30
COVER OVER BAT TANK = 3 FT
INVERT INTO BAT TANK = 767.30
INVERT OUT OF BAT TANK = 766.97
EX. GROUND AT PUMP TANK = 770.65
TOP OF PUMP TANK = 767.64
COVER OVER PUMP TANK = 3 FT
INVERT INTO PUMP TANK = 766.89
INVERT OUT OF PUMP TANK = 767.81

SEPTIC SYSTEM DESIGN

4 BEDROOM HOUSE
LOADING RATE = 600 GPD
APPLICATION RATE = 1.2
EFFECTIVE SIDEWALL BEGINS AT 3.5 FEET
TRENCH DEPTH = 6 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 2.5 FEET
SF OF DRAINFIELD = 600 GPD / 1.2 = 500 SF
COEFFICIENT OF REDUCTION OF TRENCH LENGTH =
 $(W+2)/(W+1+2D) = (3+2)/(3+1+(2 \times 2.5)) = 0.556$
TRENCH LENGTH = 500 SF x 0.556 / 3 = 92.7 FEET (USE 93 FEET)
TRENCH SPACING = $2D+W = ((2 \times 2.5) + 3) = 8 \text{ USE } 8 \text{ FT}$

FRICTION LOSS IN 2" PIPE FITTINGS:

2 1/8 HB x 3 FEET PER FITTING = 6 EQUIVALENT FEET OF PIPE
1 TEE/CROSS x 9 FEET PER FITTING = 9 EQUIVALENT FEET OF PIPE
1 UNION x 1 FEET PER FITTING = 1 EQUIVALENT FEET OF PIPE
2 ELBOWS x 8 FEET PER FITTING = 16 EQUIVALENT FEET OF PIPE
TOTAL EQUIVALENT FEET OF PIPE = 32 FT

TOTAL LINEAR FEET OF 1.5" SCH. 40 PVC = 14 LF + 32 LF = 46 LF

DYNAMIC HEAD

46 LF x 5.04 FT PER 100 LF OF PIPE = 2.32 FT OF FRICTION HEAD
DISTAL HEAD = 2.00 FT
VERTICAL FROM PUMP OFF TO DISCHARGE = 3.66 FT OF FRICTION HEAD
TOTAL DYNAMIC HEAD = 7.98 FT (USE 8 FT)

PIPE VOLUMES

14 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 1.5 GALLONS
87.83 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 9.3 GALLONS

MINIMUM DOSE

MINIMUM DOSE = (5 x LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
= (5 x 9.3) + (1.5)
= 48.0 GALLONS

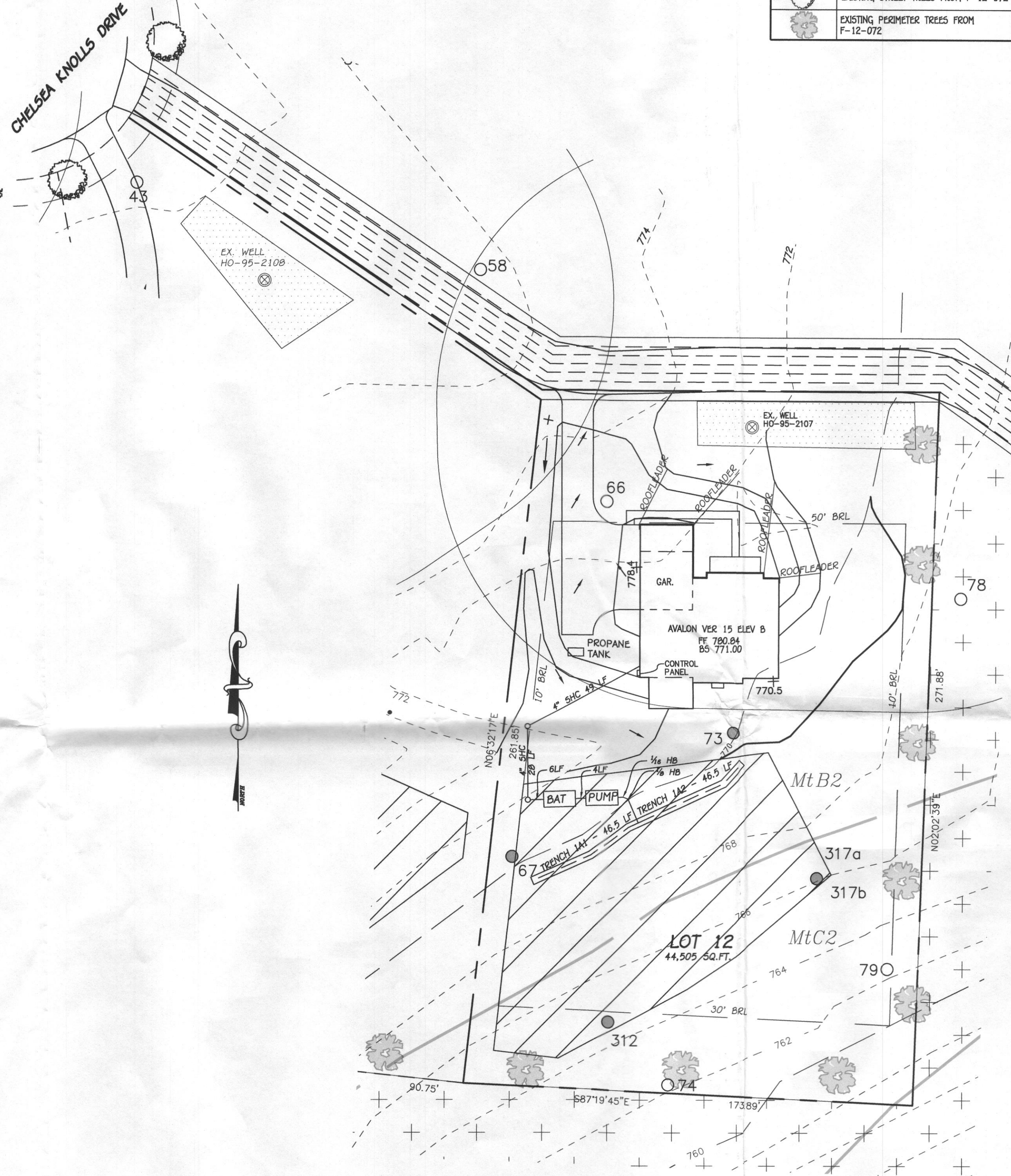
48.0 GALLONS IS LESS THAN 1/6 DESIGN FLOW (600/6=100)
USE 117.4 GALLON DOSE (100 GALLON MINIMUM)
(RUN TIME = 4 MIN (29.34 GPM x 4 = 117.4 GALLON DOSE))

PUMP NEEDS TO HANDLE 29.34 GPM AT 8 FT OF HEAD
USE 0.3 HP (ME3H PUMP)

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: *Stephanie L. Judd* 7/7/15
DATE



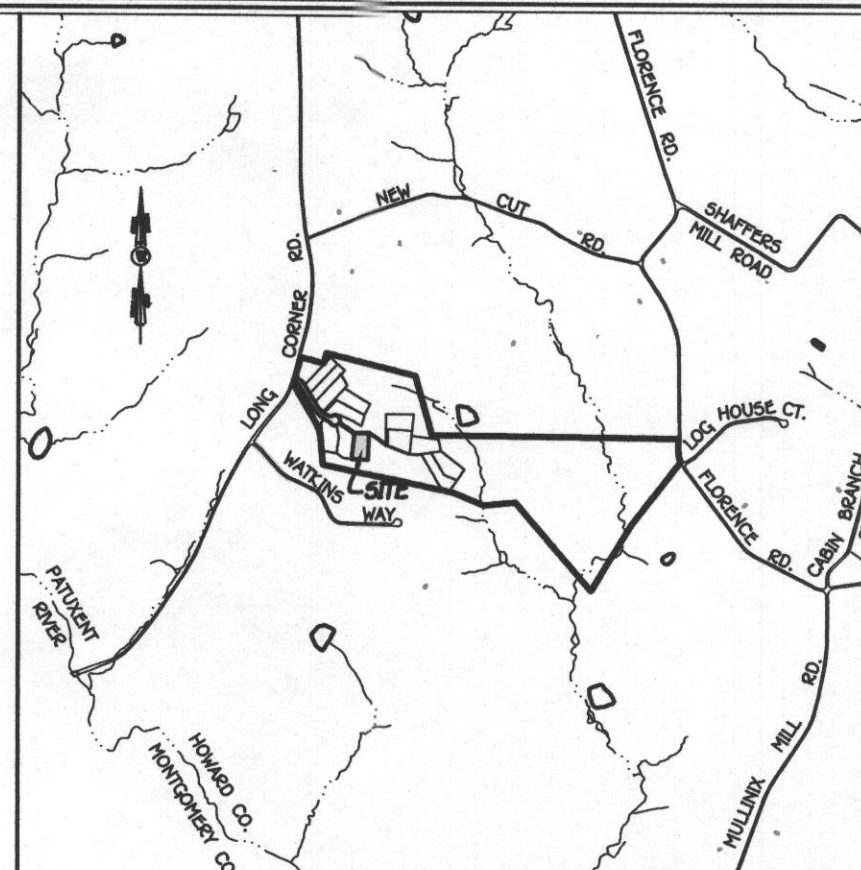
PLAN VIEW

SCALE: 1"=30'

Approved Septic System Plan
Howard County Health Department
Signature: *[Signature]* Date: 7/5/15

LEGEND

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2" INTERVAL
---	PROPOSED CONTOUR 2" INTERVAL
•	SPOT ELEVATION
○	EXISTING WELL
○	EXISTING STREET TREES FROM F-12-072
○	EXISTING PERIMETER TREES FROM F-12-072



VICINITY MAP

SCALE: 1" = 2000'
HO. CO. MD. ADC MAP 7, GRID D8

BENCH MARKS

STA 06A ELEV 786.421
N. 623.004-896
E. 1,333.263-9
STA 06A ELEV. 714.263
N. 602.649-523
E. 1,271,163.330

GENERAL NOTES

- SUBJECT PROPERTY ZONED: RC-DEO
- TOTAL AREA OF PROPERTY: 44,505 SQ. FT. OR 1.02 AC.
- SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
- LENGTH OF TRENCH TO BE DETERMINED AT TIME OF SEPTIC PERMIT ISSUANCE.
- CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
- BOUNDARY OF LOT BASED ON PLAT #22017.
- TOPOGRAPHY SHOWN HEREON TAKEN FROM F-07-072 WHICH IS BASED ON FIELD RUN TOPOGRAPHIC SURVEY CONDUCTED BY MILDENBERG, BOENDER & ASSOCIATES, INC. IN SEPTEMBER, 2001. TOPOGRAPHY IN NON-DEVELOPED AREAS IS BASED ON HOWARD COUNTY 200 SCALE TOPOGRAPHY.
- NO WETLANDS EXIST ON THIS LOT.
- SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.
- AT HIGH WATER ALARM PROBE, PUMP WILL HAVE CONTINUOUS OPERATION UNTIL LEVEL GOES BENEATH PROBE.
- IF WATER LEVEL RISES ABOVE THE ALARM PROBE, AN AUDIBLE AND VISUAL ALARM WILL SOUND. SEE MANUFACTURER SPECS FOR ADDITIONAL INFORMATION.
- ALARM TO BE WIRED TO A CIRCUIT SEPARATE FROM THE PUMP CIRCUIT.

NOTE

THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #95-2107 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

SOILS LEGEND

SOIL	NAME	CLASS
H8B2	Hy. clay channel loam, 3 to 8 percent slopes, moderately eroded	A
H8C2	Hy. clay channel loam, 8 to 15 percent slopes, moderately eroded	A

BAT SITE PLAN

LOT 12
CHELSEA KNOLLS
18348 CHELSEA KNOLLS DRIVE

ZONING: RC-DEO
TAX MAP No. 12 GRID No. 5 PARCEL No. 78
FOURTH ELECTION DISTRICT - HOWARD COUNTY, MARYLAND
DATE: JULY, 2015
SHEET 1 OF 2

FISHER, COLLINS & CARTER, INC.
CIVIL, ENGINEERING, CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
CLUETT CITY, MARYLAND 21042
(410) 461-2895

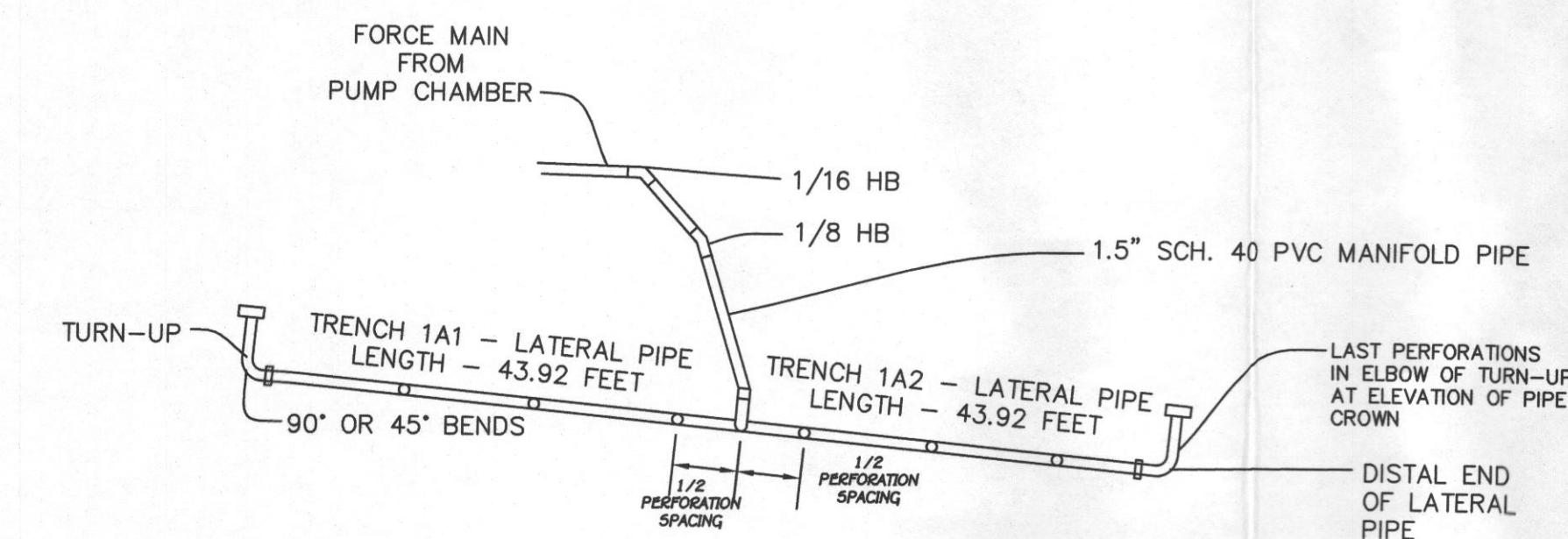
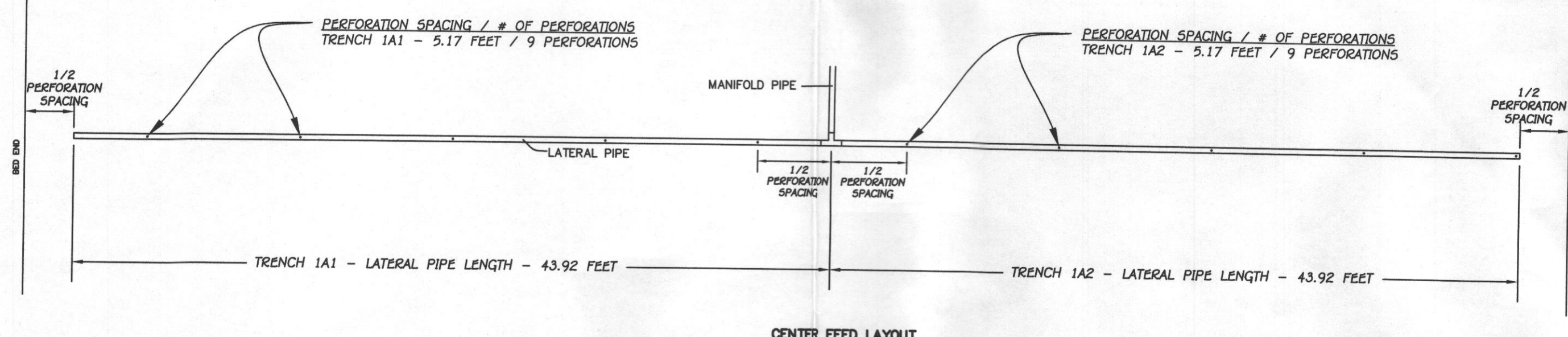
0' 30' 60' 120'
SCALE: 1" = 30'

OWNER

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MCLEAN, VIRGINIA 22101
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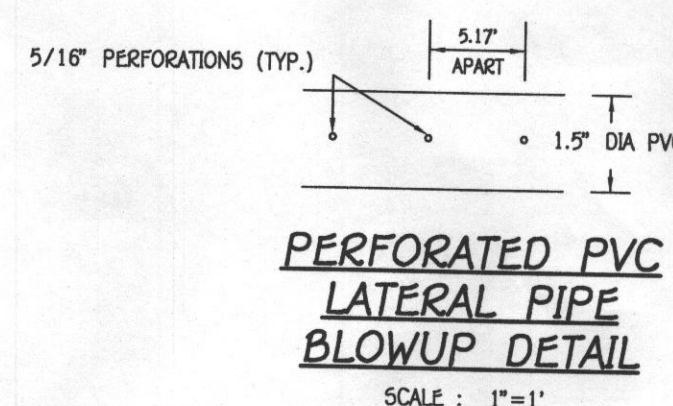
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NOTE: SEE PLAN VIEW FOR LATERAL PIPE CONFIGURATION / HORIZONTAL BENDS, DETAIL TO SHOW SPACING AND TURN UPS ONLY.

FIGURE 4.1 MANIFOLD DISTRIBUTION NETWORK



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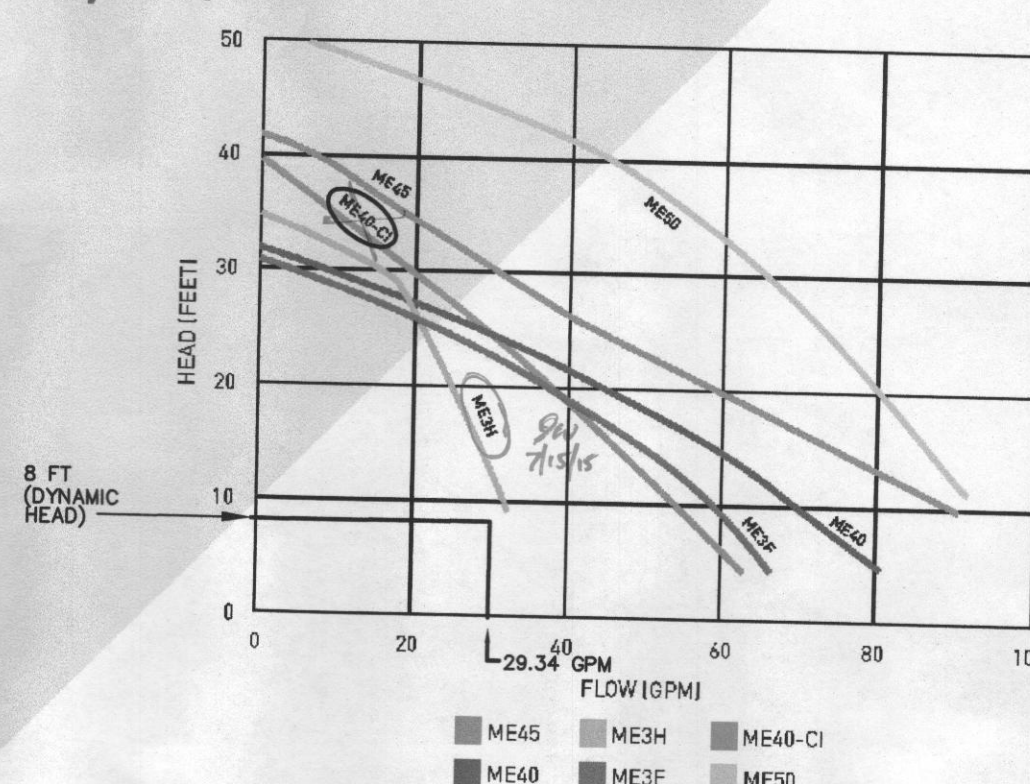
NO DRILLING REQUIRED

- Anti-airlock hole in base reduces added labor

EASY SERVICEABILITY

- Pump, intake screen volute base, switch and power cord are serviceable

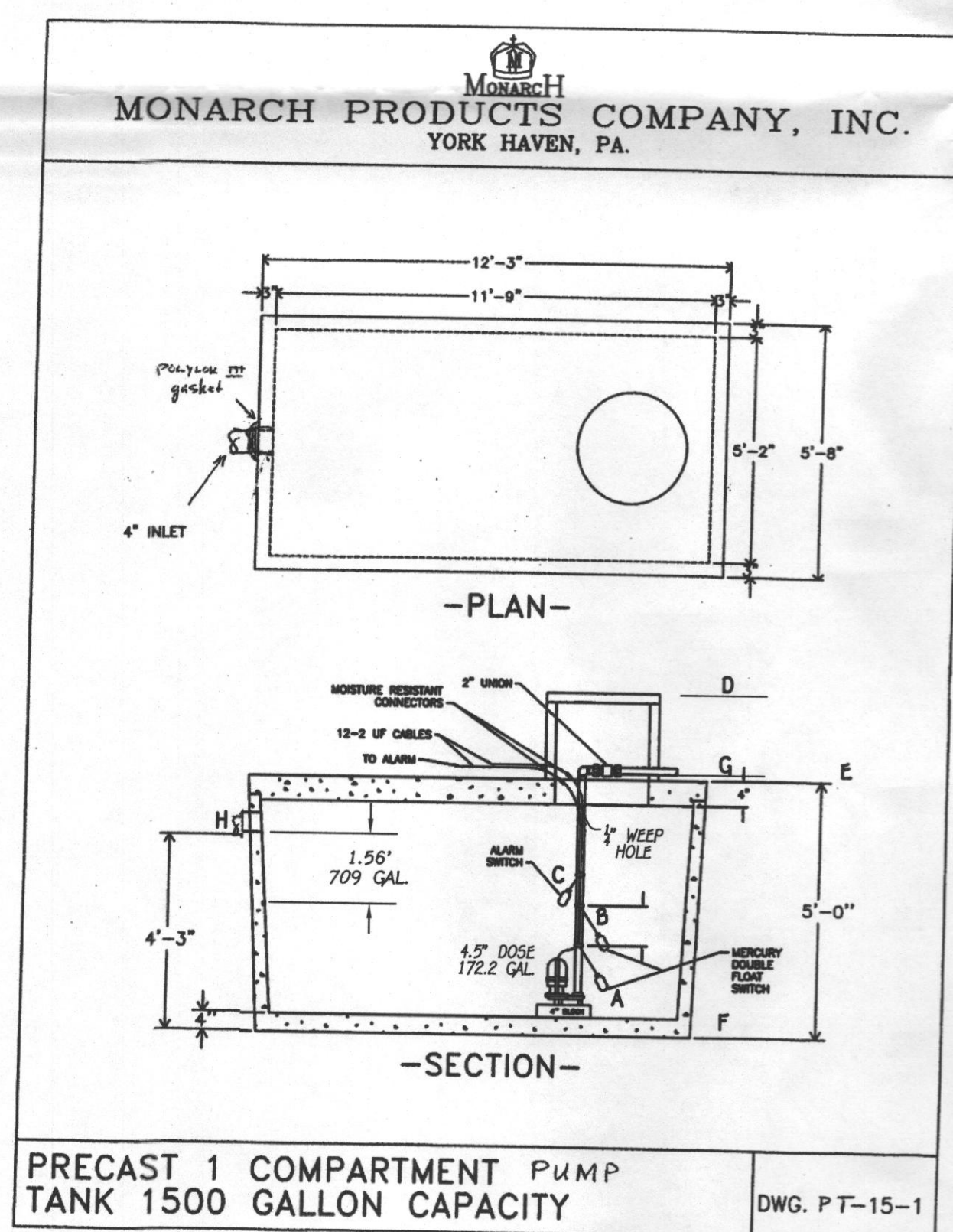
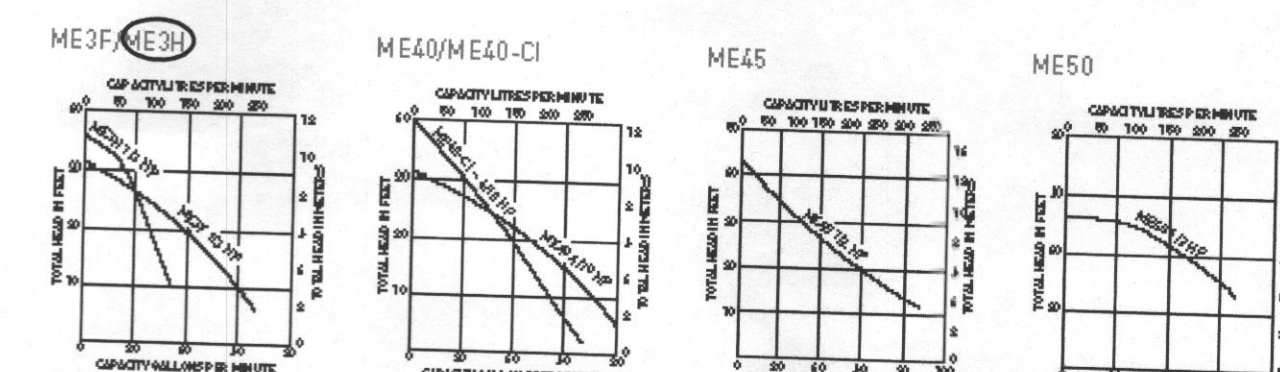
Family Curve



NOTE: USE A ME3H PUMP

Specifications

	ME3F/ME3H	ME40	ME40-CI	ME45	ME50
Capacities	ME3H: 36 GPM (136 LPM) ME3F: 60 GPM (227 LPM)	90 GPM (340 LPM)	60 GPM (227 LPM)	97 GPM (369 LPM)	120 GPM (454 LPM)
Shut-off Head	ME3H: 35' (10.7 m) ME3F: 21' (6.4 m)	32' (9.75 m)	40' (12 m)	44' (13.41 m)	55' (16.8 m)
Operation	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual	Automatic or manual
Solids Handling	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)
Liquids Handling	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water	Domestic effluent and drain water
Liquid Temp	Intermittent up to 140°F (60°C)	Intermittent up to 140°F (60°C)	Continuous 130°F (50°C)	Intermittent up to 140°F (60°C)	Intermittent up to 140°F (60°C)
Motor Electrical Data	1/2 HP, 1950 RPM, shaded pole, oil-filled, 115V, 12A, 18, 60Hz, 220V, 6A, 18, 60Hz	4/10 HP, 1650 RPM, PSC with thermal overload, oil-filled, 115V, 12A, 18, 60Hz, 220V, 6A, 18, 60Hz	4/10 HP, 3450 RPM, PSC with thermal overload, 115V, 10FLA, 18, 60Hz	1/2 HP, 3450 RPM, PSC with thermal overload, oil-filled, 115V, 8.6A, 18, 60Hz, 220V, 4.3A, 18, 60Hz	1/2 HP, 115V, 18, 12 to 1-1/2 HP, 220V, 36, 0/220/240/277V, 36, PSC with thermal overload, oil-filled, permanent split capacitor type, 18, 3450 RPM, 60Hz
Acceptable pH Range	6-9	5-9	5-9	5-9	6-9
Shaft Seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal	Carbon and ceramic mechanical seal
Housing/No. Vanes	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
Volute Base	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
Impeller	Fiberglass-reinforced Noryl®	Cast iron	Thermoplastic, non-clog, vortex type	Cast iron	Cast iron
Exterior/Hardwired	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Power Cord	20' 16/3, 5/17W	20' 16/3, 5/17W	20' 16/3, 5/17W	20' 16/3, 5/17W	10'
Discharge, NPT	1-1/2" (38.1 mm)	1-1/2" (38.1 mm)	2" (50.8 mm)	2" (50.8 mm)	2" (50.8 mm)



PRECAST 1 COMPARTMENT PUMP TANK 1500 GALLON CAPACITY

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Stephanie L. Smith 7/7/15
 Signature of Professional Engineer DATE

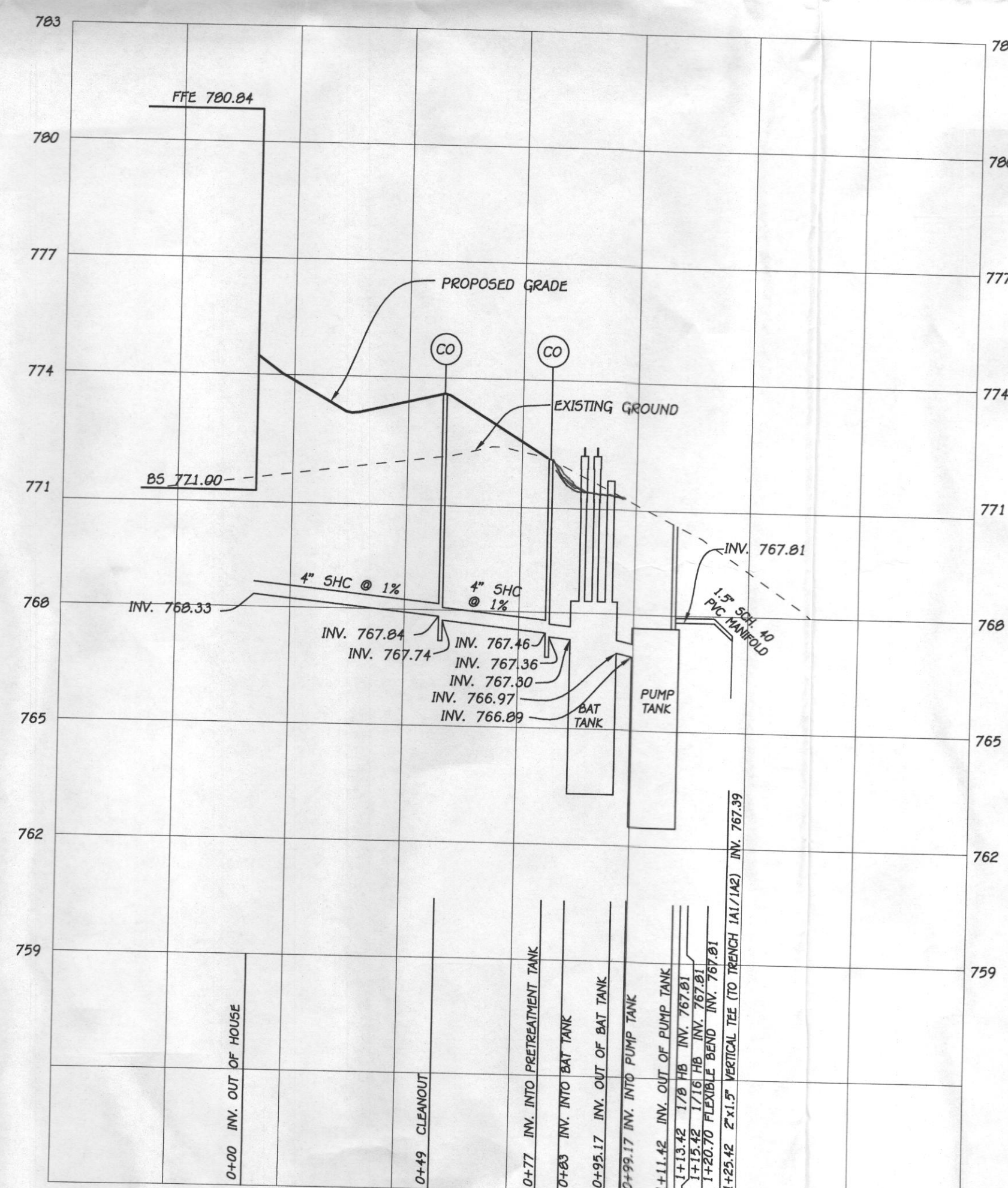
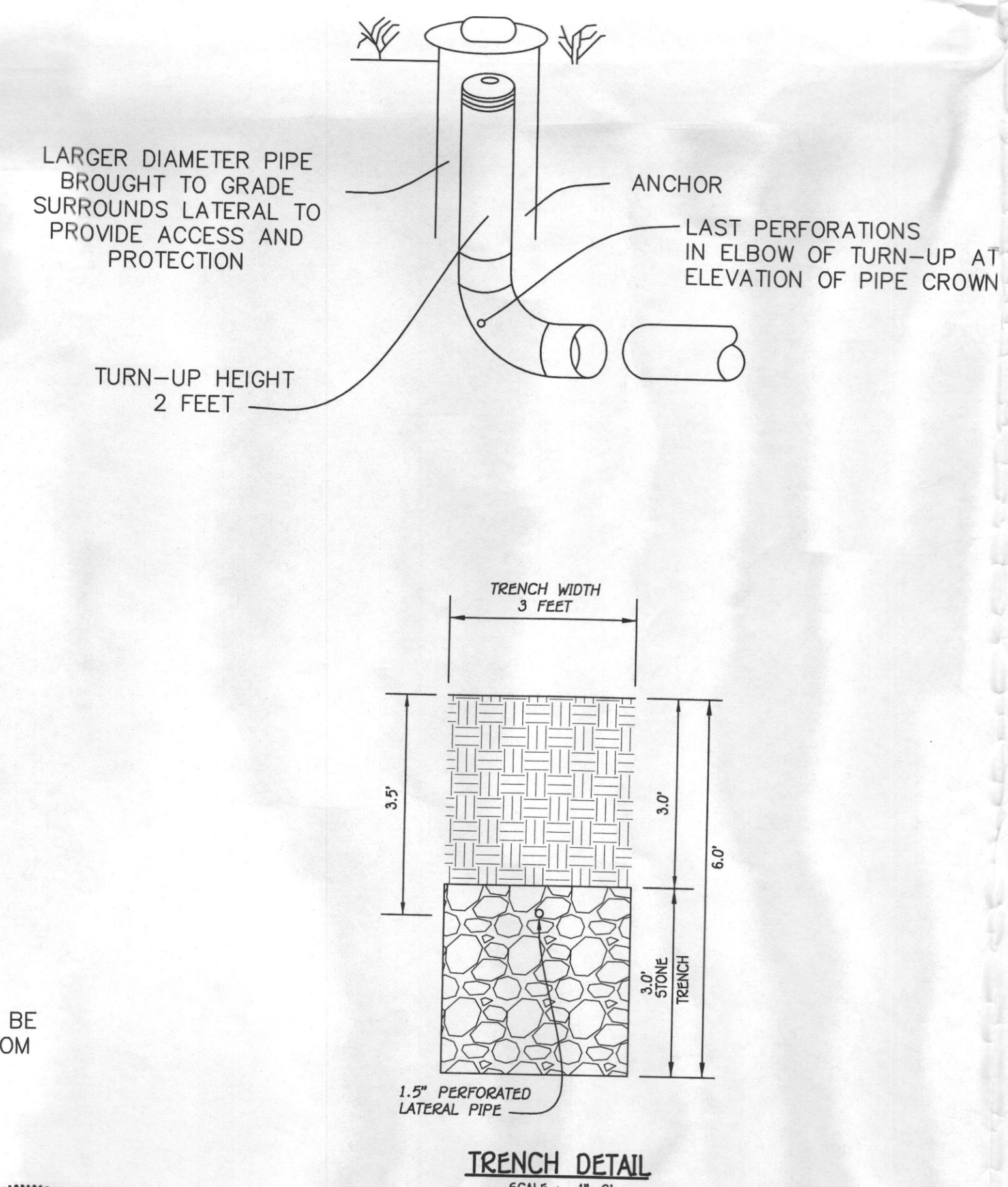


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RYAN HOMES, INC.
 ATTN: KEVIN BOWSER
 9720 PATUXENT WOODS DRIVE
 COLUMBIA, MARYLAND 21046
 410-796-0980



SEPTIC PROFILE
 HORIZONTAL SCALE: 1"=30'
 VERTICAL SCALE: 1"=3'

BAT SITE PLAN
LOT 12
CHELSEA KNOLLS
18348 CHELSEA KNOLLS DRIVE

ZONING: RC-DEO
 TAX MAP No. 12 GRID No. 5 PARCEL No. 79
 FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: JULY, 2015
 SHEET 2 OF 2