

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 557387

APPROVAL DATE: 11/5/2015

PERMIT:

CONSTRUCTION

A

PROPERTY ADDRESS: 18376 Chelsea Knolls Drive

SUBDIVISION: Chelsea Knolls

LOT: 11

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: 1/3hpWE
03M

PUMP TANK CAPACITY: 1500 GAL

OPERATION & MAINTENANCE AGREEMENT

DATE SIGNED:

5/1/14

DATE RECORDED:

5/1/14

DISTRIBUTION SYSTEM:



GRAVITY



PRESSURE DOSED

BEDROOMS:

5

APPLICATION RATE:

0.6

TRENCHES:	LINEAR FEET REQUIRED: <u>210</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</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

See As-Built Drawing On
Separate Sheet

ROAD NAME

TRENCH/DRAINFIELD DATA

WIDTH INLET BOTTOM

3' 3' _____

NUMBER OF TRENCHES _____

TOTAL LENGTH _____

ABSORPTION AREA _____

DISTRIBUTION BOX LEVEL _____

DISTRIBUTION BOX BAFFLE _____

DISTRIBUTION BOX PORT _____

SEPTIC TANK DATA

SEPTIC TANK I LEVEL Yes

MANUFACTURER Norwesco

CAPACITY 1300 GAL

SEAM LOC Top

TANK LID DEPTH 1'-2.5'

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 1'-2'

BAFFLES No

BAFFLE FILTER No

MANHOLE LOC Front

6" PORT LOC None

WATERTIGHT TEST No

SLOTTED No

DATE ON LID 9/26/2015

PRE-CONSTRUCTION:

10/15/15 BAT and Pump tank staked. Wall line must be skewed w/in 10' of sewer line. Elevation shot @ trenches/latrines. OFF by 6-8". Not there contour. Told contractor to hold elevation @ far end of trenches thru-out trench bottoms. (Kusa)

INSTALLATION: 10/29/2015 Tanks set. House connection made. (BB)

10/30/2015 Two furthest trenches from house installed.

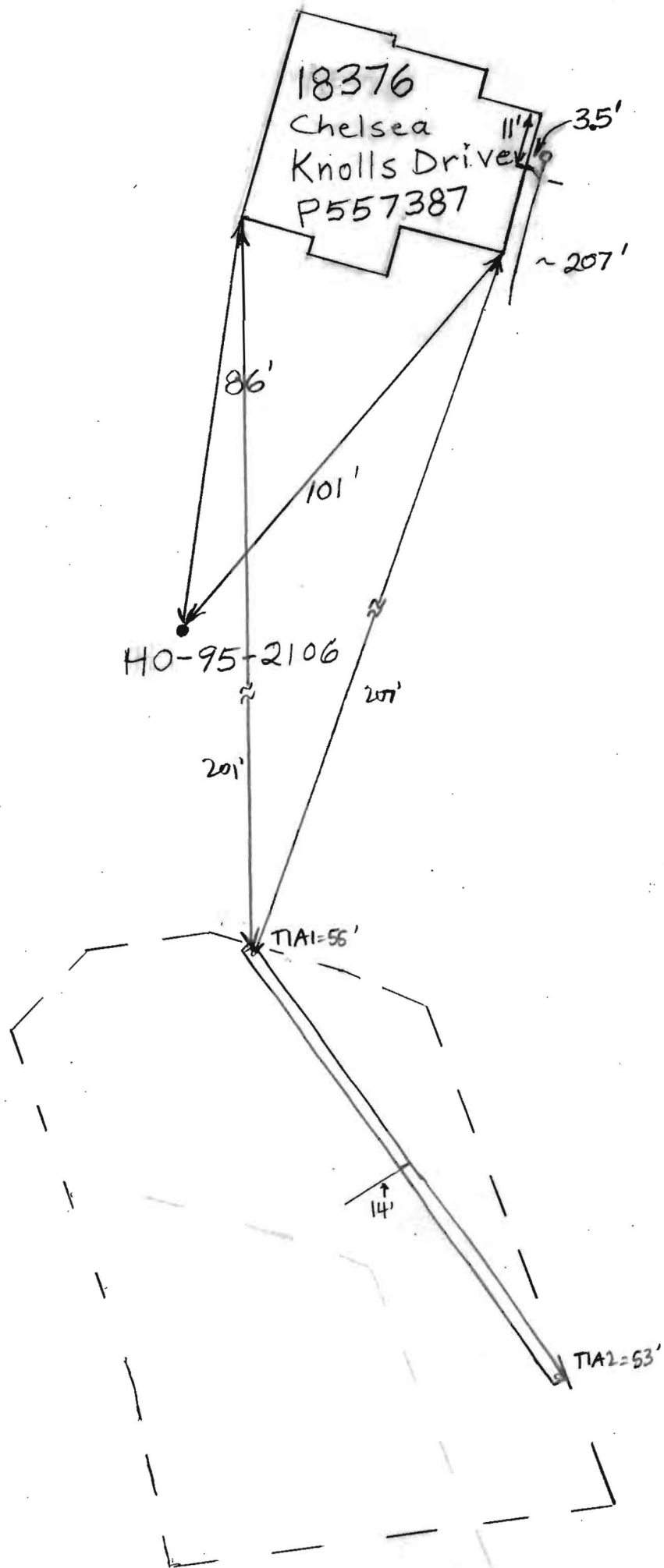
11/2/15 Two upper trenches complete. LA1 left open and LA2 open at ends. 2.5' to stone, 3' wide. Need BAT startup certification and pump + alarm. (SC) 11/3/15 BAT startup certification received. (SC) 11/5/2015 Pump and alarm working. 3.5'-4' of head in turn-ups. (BB)

FINAL INSPECTOR

B. Baker

DATE OF APPROVAL

11/5/2015



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 18376 Chelsea Knolls Dr., Mt. Airy, MD 21771 on October 29, 2015 was installed according to the manufacture's specifications.

Installer: Jeff Reiter

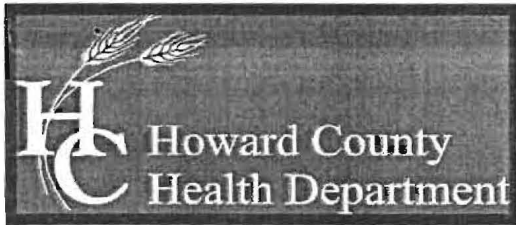
Property Owner: NVR, Inc.

Permit #



MATTHEW GECKLE

Vice-President



Bureau of Environmental Health
7178 Columbia Gateway Drive, Columbia, MD 21046-2147
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Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

Lot 11

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

THIS AGREEMENT is made this 15th 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
18375 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.

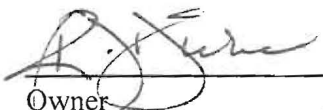
G. This agreement may be voided at any time at the discretion of the County.

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.

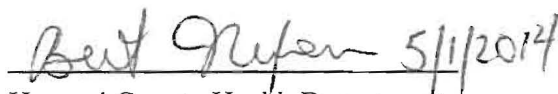
J. Owner acknowledges and agrees that interior renovations to increase the number of bedrooms or an increase in living space shall not be permitted without approval from the County.

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

14 SAT AGREEMENTS

~~FOR CHECK~~
=====

LR - Agreement Recording Fee	1x	20.00	20.00
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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

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
Reference/Control #: 91

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 #: 92

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 #: 93

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 #: 94

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: 95

LR - Agreement Surcharge
1x 40.00 40.00
LR - Agreement Recording Fee
** VOID **
1x -20.00
LR - Agreement Surcharge
** VOID **

1x -40.00
LR - Agreement Recording Fee
1x 20.00 20.00
Grantor/Grantee Name: Chelsea Knolls LC
Reference/Control #: 95

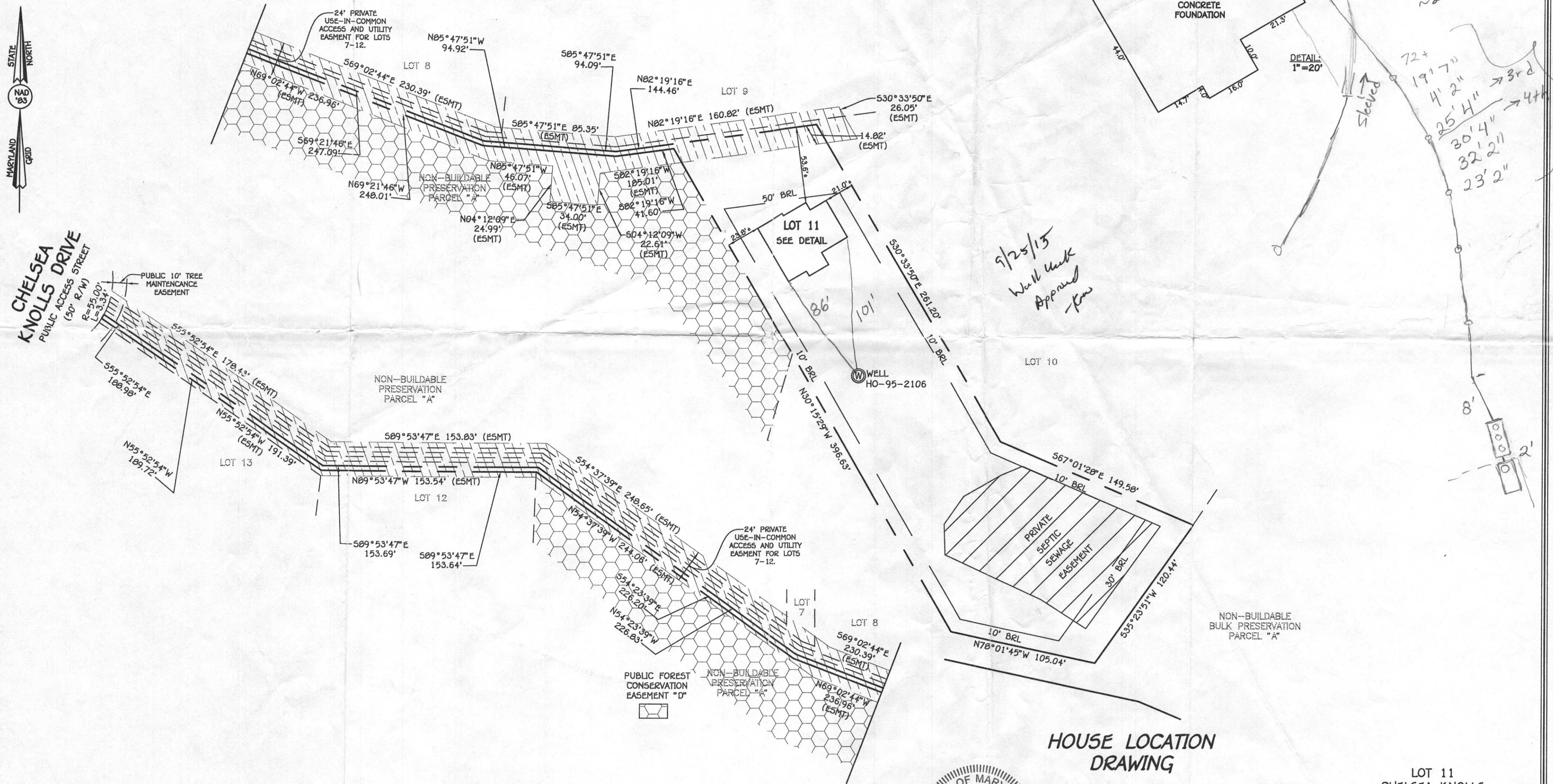
LR - Agreement Surcharge
1x 40.00 40.00

=====
SubTotal: 840.00
Total: 840.00
=====
REV-Check-80A 840.00
Number : 3616

05/01/2014 14:01 CC13-JE
#2738771 /494/109
~ Thank you for visiting us today ~

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. 24027C00100 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-95-2106 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-15002160



HOUSE LOCATION
DRAWING


FOUNDATION LOCATION: 2/20/15
FINAL LOCATION: _____
BOUNDARY SURVEY: _____
SCALE: 1"=50'
DATE: 9/3/15
DRAWN BY: GAD
CHECKED BY: MLR
PROJECT No.: 13030-3001

LOT 11
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

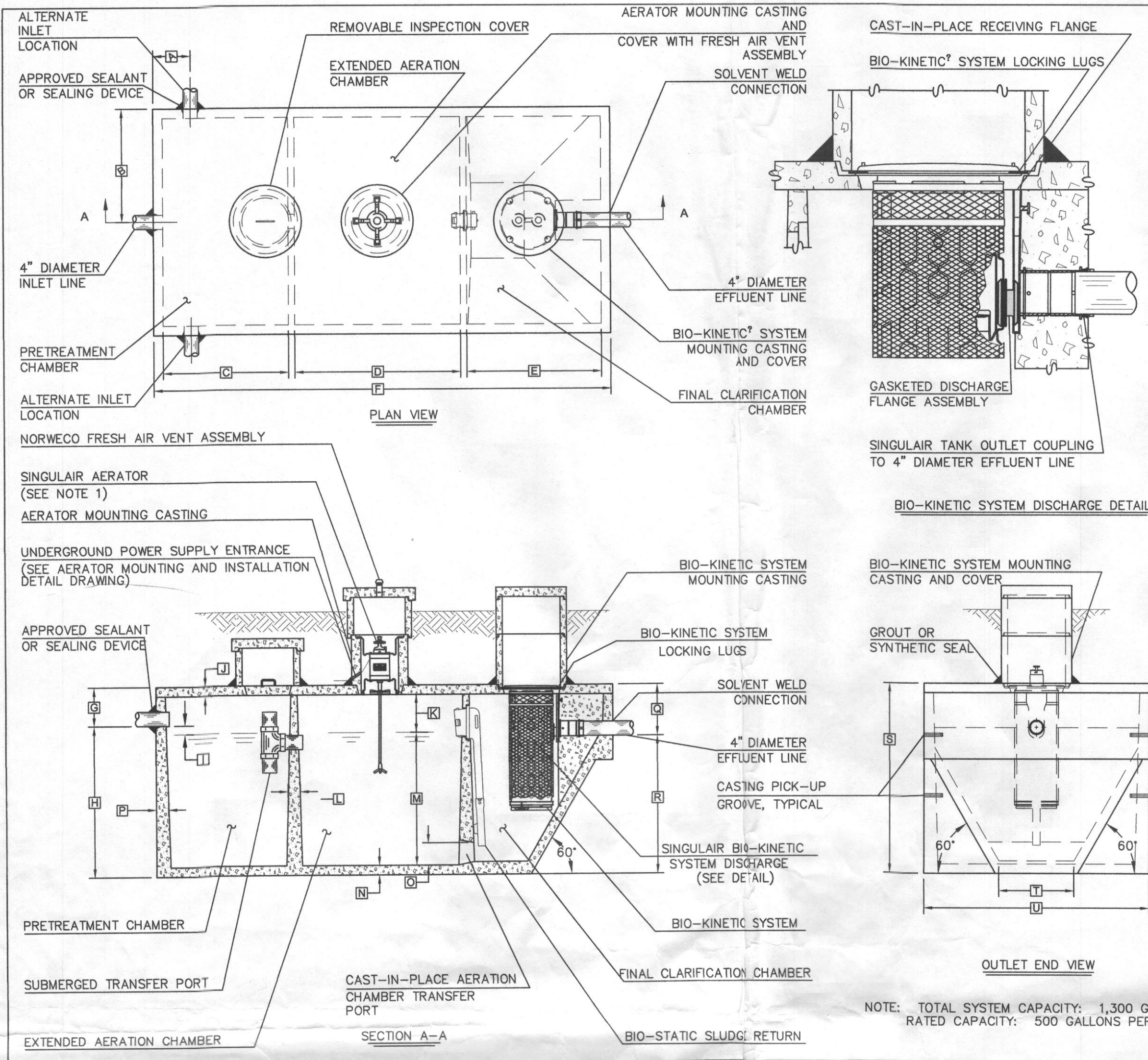
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
(410) 461 - 2855

#10376 CHELSEA KNOLLS DRIVE
B.R.L. = BUILDING RESTRICTION LINE
TOP OF FOUNDATION ELEVATION = 736.5'±


 PROPERTY LINE SURVEYOR
 REG. #339

9/03/15
 DATE





- GENERAL NOTES:**
- SINGULAIR AERATOR, AS TESTED AND ACCEPTED BY NSF, OPERATING 60 MINUTES ON / 60 MINUTES OFF.
 - FALL THROUGH SINGULAIR[®] 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 SINGULAIR 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"	R	1'-4"
E	3'-7"	S	3'-8"
F	12'-2"	T	5'-0"
G	1'-0"	U	2'-0"
H	4'-0"	V	6'-0"
I	0'-3"	W	
J	0'-3"	X	
K	1'-0"	Y	
L	0'-2"	Z	
M	3'-6"		

U.S. AND FOREIGN PATENTS PENDING

norweco

LOW-PROFILE SINGULAIR[®] BIO-KINETIC WASTEWATER TREATMENT SYSTEM MODEL TWT-P-800-GPD

DATE: 3-26-07

BY: BDS

CHECKED: JMM

DATE: 10-16-06

BY: NTS

PC-5-7091

- 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 15665, FOLIO 063.
 - THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.

Trenches - 3' Wide
Inlet 3', Bottom 6'

4x53' 1-5' 3", 2' 7.5"
2-5' 3", 2' 7.5"
Laterals - 3-6' 7", 3' 3"
150' 49' 4-6' 7", 3' 3"

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	695.1	692.1	52.5	49.80	5/16	2	1.63	5.25	10	16.3
1A2	695.1	692.1	52.5	49.80	5/16	2	1.63	5.25	10	16.3
1B1	694.0	691.0	52.5	49.22	5/16	3.1	2.02	6.56	8	16.16
1B2	694.0	691.0	52.5	49.22	5/16	3.1	2.02	6.56	8	16.16
										TOTAL TRENCH FLOW RATE: 64.92

TRENCH DESIGN

TRENCH	GROUND ELEV.	TOP OF STONE ELEV.	PIPE INVERT ELEV.	DEPTH TO STONE FROM GROUND	DEPTH OF TRENCH (FT)	BOTTOM OF TRENCH ELEV.	EFFECTIVE DEPTH STARTS AT	EFFECTIVE DEPTH (D)	WIDTH OF TRENCHES (W)	TRENCH SPACING
1A1	695.1	692.6	692.1	2.5'	3.5'	689.1	3'	3'	3.0'	10'
1A2	695.1	692.6	692.1	2.5'	3.5'	689.1	3'	3'	3.0'	10'
1B1	694.0	691.5	691.0	2.5'	3.5'	689.0	3'	3'	3.0'	10'
1B2	694.0	691.5	691.0	2.5'	3.5'	689.0	3'	3'	3.0'	10'

SEPTIC SYSTEM DESIGN
5 BEDROOM HOUSE
LOADING RATE = 750 GPD
APPLICATION RATE = 0.6
EFFECTIVE SIDEWALL BEGINS AT 3.0 FEET
TRENCH DEPTH = 8 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 3 FEET
5F OF DRAINFIELD = 750 GPD / 0.6 = 1250 5F
COEFFICIENT OF REDUCTION OF TRENCH LENGTH = (W+2)/(W+1+2D) = (3+2)/(3+1+(2x3)) = 0.50
TRENCH LENGTH = 1250 5F x 0.50 / 3 = 208.33 FEET (USE 210 FEET)
TRENCH SPACING = 2D+W = ((2x3) + 3) = 9 USE 10'

FRICITION LOSS IN 3" PIPE FITTINGS:
2 1/8 HB x 6 FEET PER FITTING = 12 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 = 91 FT

TOTAL LINEAR FEET OF 3" SCH. 40 PVC = 91 LF + 40 LF = 131 LF

DYNAMIC HEAD
131 LF x 0.93 FT PER 100 LF OF PIPE = 1.22 FT OF FRICTION HEAD
DISTAL HEAD = 2.00 FT
VERTICAL FROM PUMP OFF TO DISCHARGE = 3.66 FT OF FRICTION HEAD
TOTAL DYNAMIC HEAD = 6.88 FT

PIPE VOLUMES
40 LF (3" SCH. 40 PIPE) x 38.4 GALLONS PER 100 LF = 15.4 GALLONS
157.4 LF (1.5" SCH. 40 PIPE) x 10.6 GALLONS PER 100 LF = 16.7 GALLONS

MINIMUM DOSE
MINIMUM DOSE = (5 x LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
= (5 x 16.7) + (15.4)
= 98.9 GALLONS

98.9 GALLONS IS LESS THAN 1/6 DESIGN FLOW (750/6=125)
USE 129.6 GALLON DOSE (125 GALLON MINIMUM)
(RUN TIME = 2 MIN (64.92 GPM x 2 = 129.84 GALLON DOSE))

PUMP NEEDS TO HANDLE 64.92 GPM AT 7 FT OF HEAD
PUMP HORSEPOWER - USE 0.3 HP (WE03M 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.

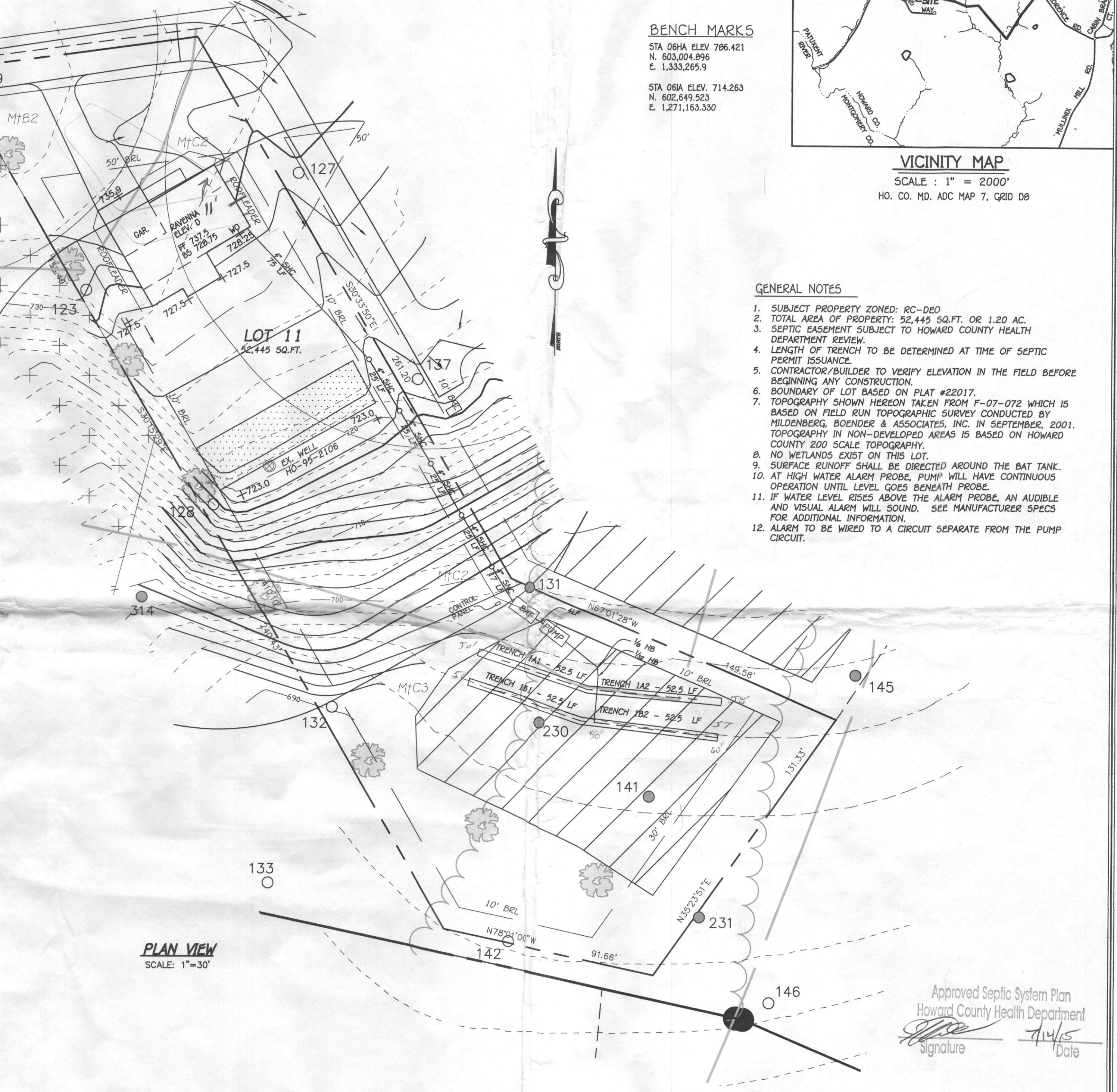
Signature of Professional Engineer: *Stephen J. Lutz* 7/9/15
DATE



NOTE

THE EXISTING WELL SHOWN ON THIS PLAN, TAG NO. HO #95-2106 HAS BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.

to CHELSEA KNOLLS DRIVE



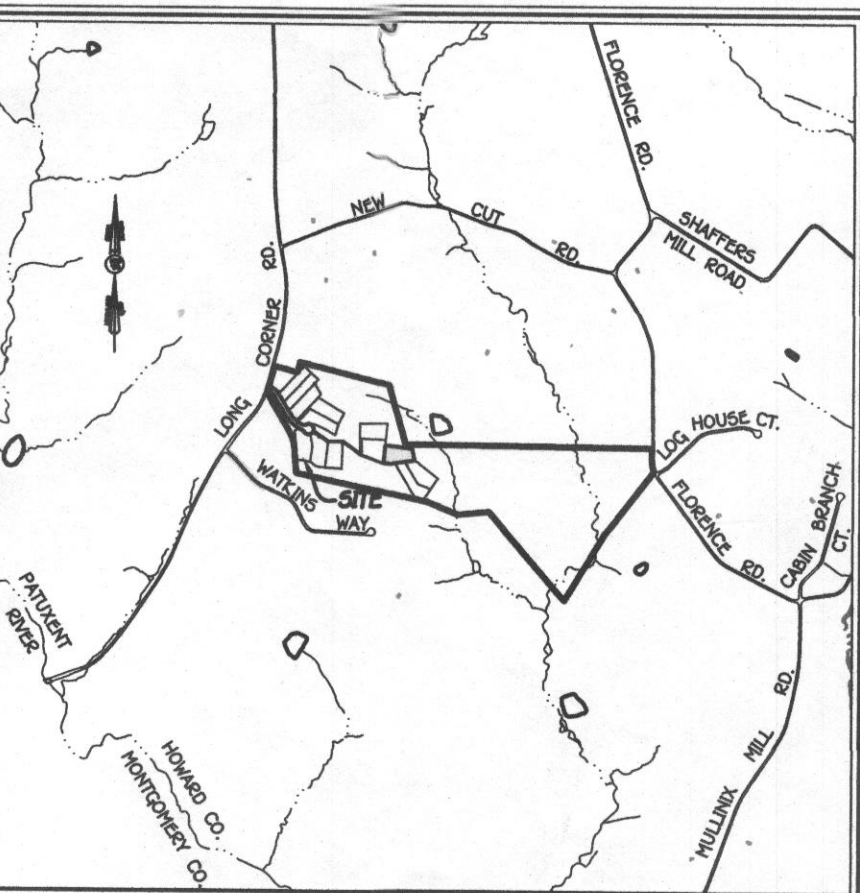
LEGEND

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
- - -	PROPOSED CONTOUR 2' INTERVAL
x362.5	SPOT ELEVATION
○	EXISTING WELL
○	EXISTING STREET TREES FROM F-12-072
○	EXISTING PERIMETER TREES FROM F-12-072

BENCH MARKS

STA 06HA ELEV 706.421
N. 603,004.896
E. 1,333,265.9

STA 06IA ELEV. 714.263
N. 602,649.523
E. 1,271,163.330



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

GENERAL NOTES

- SUBJECT PROPERTY ZONED: RC-DEO
- TOTAL AREA OF PROPERTY: 52,445 SQ.FT. OR 1.20 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.

Approved Septic System Plan
Howard County Health Department
Signature: *[Signature]* 7/14/15
Date

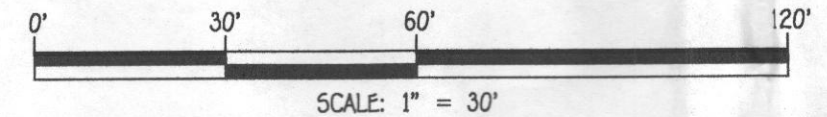
SOILS LEGEND

SOIL	NAME	CLASS
MC1	Mt. Air channely loam, 3 to 8 percent slopes, moderately eroded	A
MC2	Mt. Air channely loam, 8 to 15 percent slopes, moderately eroded	A
MC3	Mt. Air channely loam, 8 to 15 percent slopes, severely eroded	A

BAT SITE PLAN
LOT 11
CHELSEA KNOLLS
18376 CHELSEA KNOLLS DRIVE

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

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461-2995



L:\2013\13038.dwg (G:\BAT Site Plans\13038 Lot 11 BAT.dwg 7/9/2015 11:50:52 AM, 11

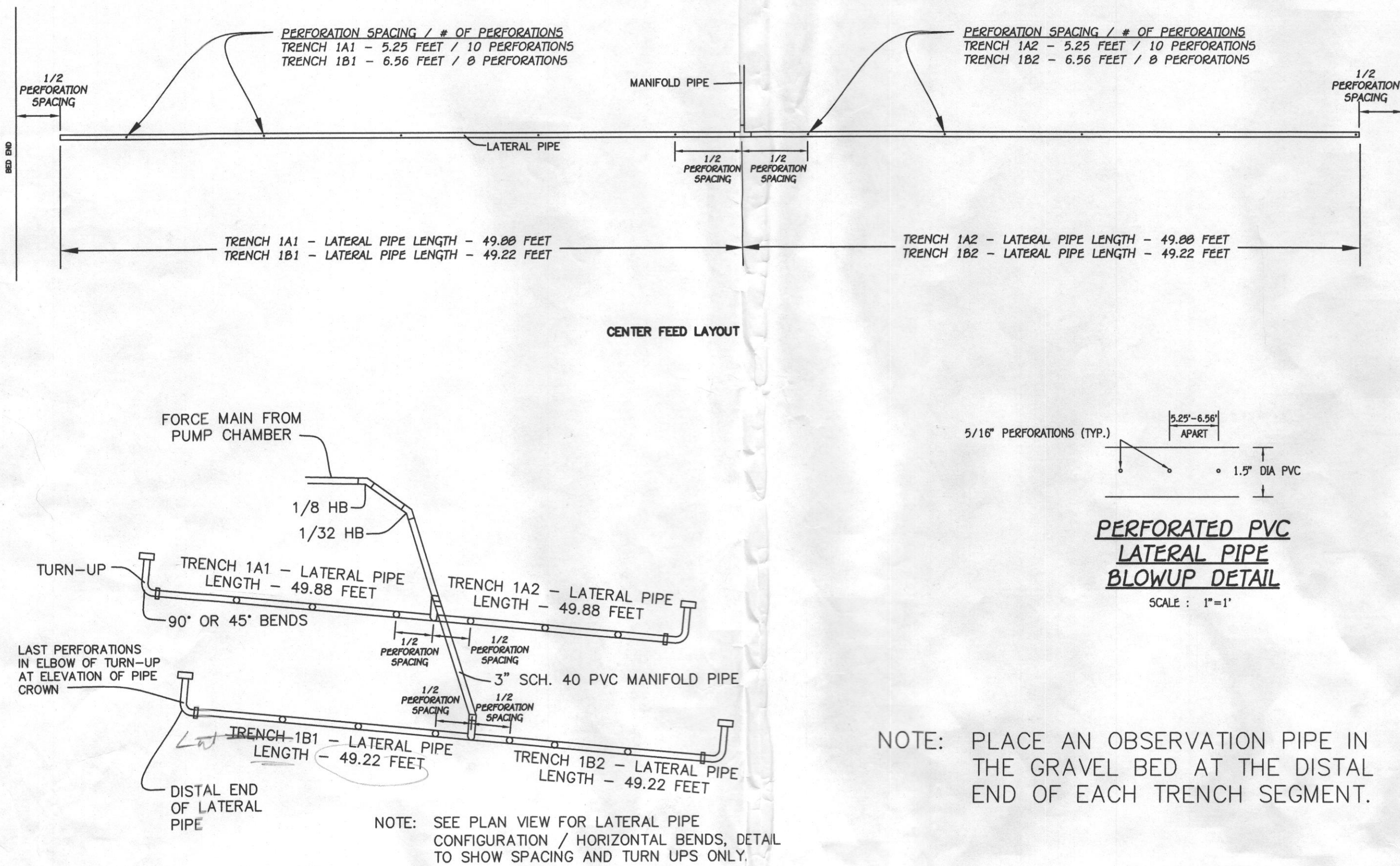
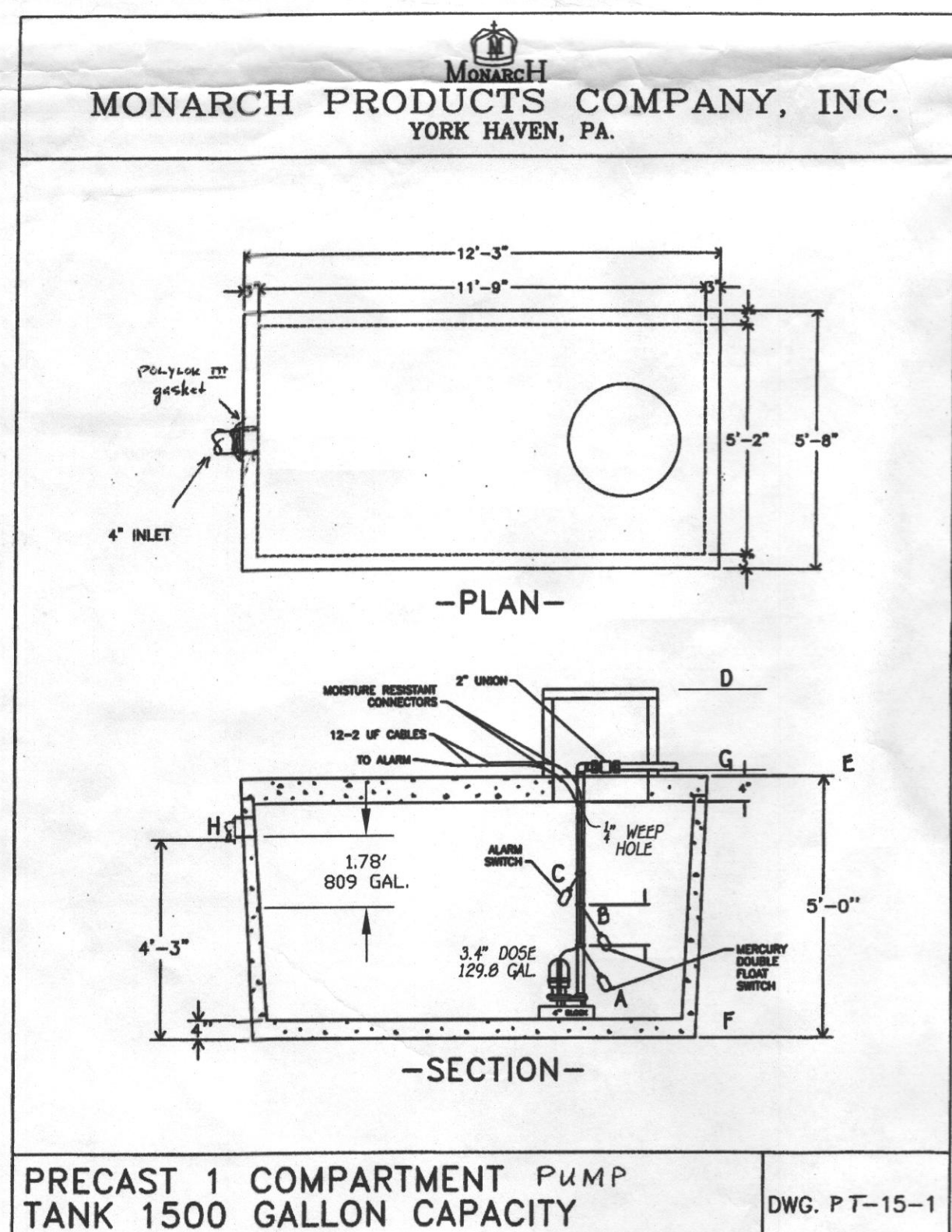


FIGURE 4.1 CENTER FEED MANIFOLD DISTRIBUTION NETWORK



PUMP ALARMS / INFORMATION
 A PUMP OFF : 690.98
 B PUMP ON : 691.27
 C HIGH WATER ALARM : 691.87
 D TOP OF ACCESS COVER : 696.90
 E TOP OF TANK : 694.40
 F BOTTOM OF TANK : 689.40
 G DISCHARGE OUT OF TANK : 694.57
 H INVERT INTO TANK : 693.65

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.

Stephanie L. Lutz 7/9/15
 Signature Of Professional Engineer DATE

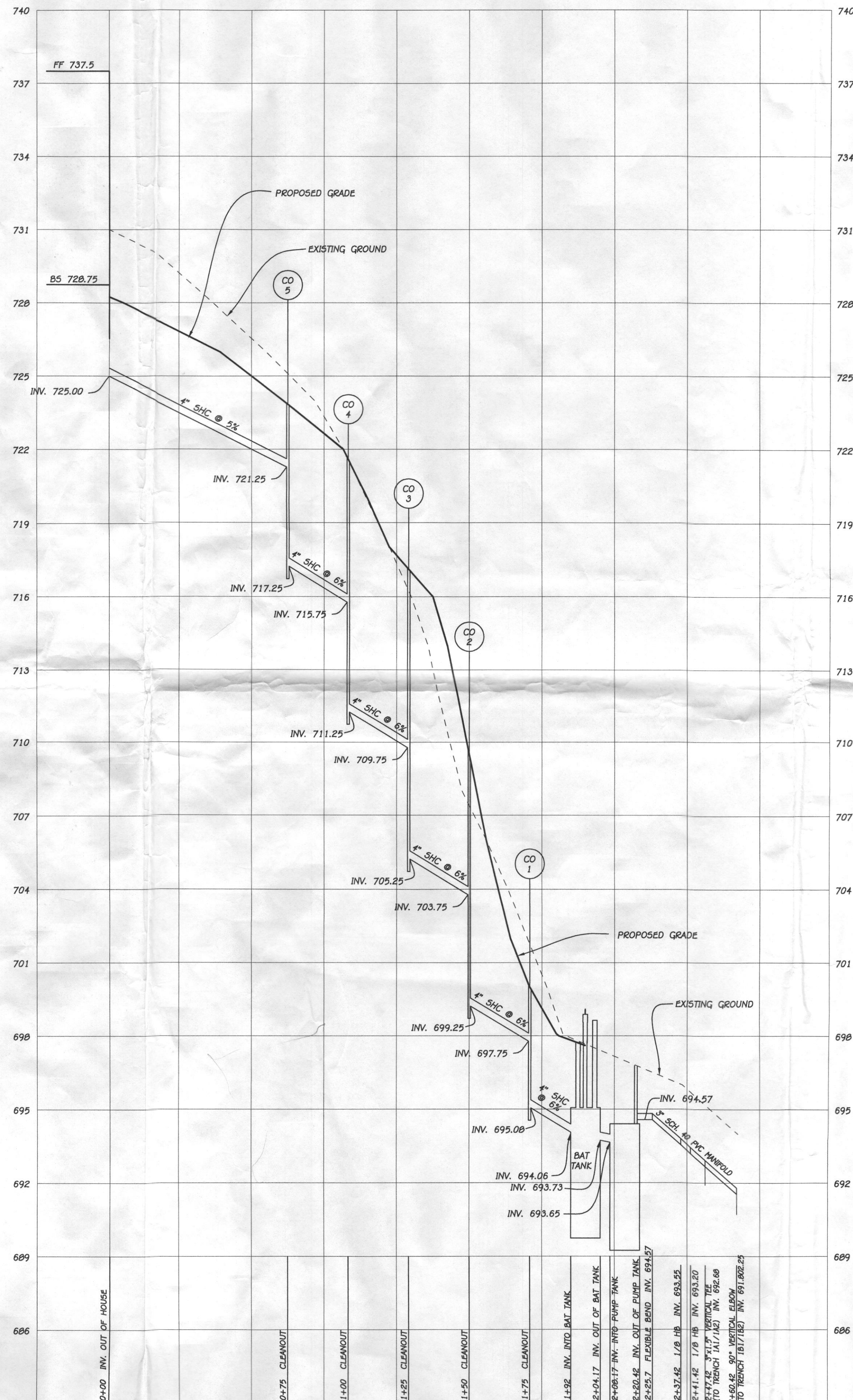


OWNER
 CHELSEA KNOLLS, LC
 1395 BEVERLY RD., SUITE 240
 MCLEAN, VIRGINIA 22101
 (703) 734-9730
 (301) 720-3021

DEVELOPER
 RYAN HOMES, INC.
 9720 PATUXENT WOODS DRIVE
 COLUMBIA, MARYLAND 21046
 410-796-0980

SEPTIC PROFILE

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



GOULDS PUMPS



Submersible Effluent Pump
MODEL 3885

PRESSURE AVAILABLE FOR RESIDENTIAL APPLICATIONS.

APPLICATIONS
 Specifically designed for the following uses:
 • Homes
 • Farms
 • Trailer courts
 • Mobile
 • Schools
 • Hospitals
 • Industry
 • Effluent systems

SPECIFICATIONS
Pump
 • Solids handling capabilities: 1/2" maximum.
 • Discharge size: 2" NPT.
 • Capacities: up to 140 GPM.
 • Total heads: up to 128 feet TDH.
 • Temperature: 104°F (40°C) continuous, 140°F (50°C) intermittent.
 • See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

FEATURES
 • Impeller: Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.
 • Casing: Cast iron volute type for maximum efficiency 7 FT. (DYNAMIC HEAD) 2" NPT discharge.
 • Mechanical Seal: SILICON CARBIDE VS. SILICON CARBIDE sealing faces. Stainless steel metal parts, Buna-N elastomers.

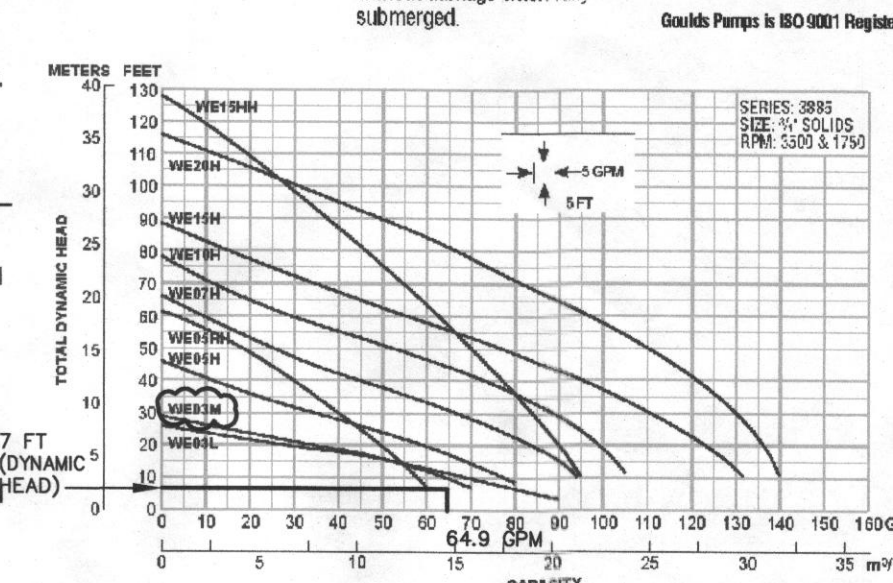
■ Shaft: Corrosion-resistant, stainless steel. Threaded design. Locknut on three phase models to guard against component damage on accidental reverse rotation.
 ■ Fasteners: 300 series stainless steel.
 ■ Capable of running dry without damage to components.
 ■ Designed for continuous operation when fully submerged.

MOTORS
 ■ Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
 ■ Class B insulation.

Single phase:
 • Built-in overload with automatic reset.
 • All single phase models feature capacitor start motors for maximum starting torque.
 • 1/2 and 3/4 HP - 115V SUTOW with 115, 208 and 230 Volt three prong plug.
 • 3/4-2 HP - 145 SUTOW with bare leads.
 • Three phase:
 • Overload protection must be provided in starter unit.
 • 1/2-2 HP - 144 SUTOW with bare leads.

■ Bearings: Upper and lower heavy duty ball bearing construction.
 ■ Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. 20 foot standard with optional lengths available.
 ■ O-ring: Assures positive sealing against contaminants and oil leakage.

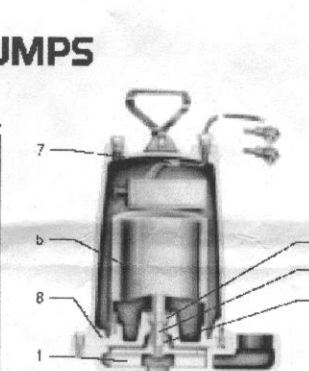
AGENCY LISTINGS
 Goulds Pumps is ISO 9001 Registered.



GOULDS PUMPS

COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Silicon carbide vs. silicon carbide mechanical seal
4	Shaft
5	Motor
6	Ball bearing
7	Power cable
8	O-ring



Submersible Effluent Pump
MODEL 3885

MODELS

Order No.	HP	Volts	Phase	Max. Amp.
WE0311	1/2	115	1	9.1
WE0312	3/4	115	1	13.6
WE0313	1	115	1	18.2
WE0314	1 1/2	115	1	22.7
WE0315	2	115	1	27.3
WE0316	2 1/2	115	1	31.8
WE0317	3	115	1	36.4
WE0318	3 1/2	115	1	40.9
WE0319	4	115	1	45.5
WE0320	4 1/2	115	1	50.0
WE0321	5	115	1	54.5
WE0322	5 1/2	115	1	59.1
WE0323	6	115	1	63.6
WE0324	6 1/2	115	1	68.2
WE0325	7	115	1	72.7
WE0326	7 1/2	115	1	77.3
WE0327	8	115	1	81.8
WE0328	8 1/2	115	1	86.4
WE0329	9	115	1	90.9
WE0330	9 1/2	115	1	95.5
WE0331	10	115	1	100.0
WE0332	10 1/2	115	1	104.5
WE0333	11	115	1	109.1
WE0334	11 1/2	115	1	113.6
WE0335	12	115	1	118.2
WE0336	12 1/2	115	1	122.7
WE0337	13	115	1	127.3
WE0338	13 1/2	115	1	131.8
WE0339	14	115	1	136.4
WE0340	14 1/2	115	1	140.9
WE0341	15	115	1	145.5
WE0342	15 1/2	115	1	150.0
WE0343	16	115	1	154.5
WE0344	16 1/2	115	1	159.1
WE0345	17	115	1	163.6
WE0346	17 1/2	115	1	168.2
WE0347	18	115	1	172.7
WE0348	18 1/2	115	1	177.3
WE0349	19	115	1	181.8
WE0350	19 1/2	115	1	186.4
WE0351	20	115	1	190.9
WE0352	20 1/2	115	1	195.5
WE0353	21	115	1	200.0
WE0354	21 1/2	115	1	204.5
WE0355	22	115	1	209.1
WE0356	22 1/2	115	1	213.6
WE0357	23	115	1	218.2
WE0358	23 1/2	115	1	222.7
WE0359	24	115	1	227.3
WE0360	24 1/2	115	1	231.8
WE0361	25	115	1	236.4
WE0362	25 1/2	115	1	240.9
WE0363	26	115	1	245.5
WE0364	26 1/2	115	1	250.0
WE0365	27	115	1	254.5
WE0366	27 1/2	115	1	259.1
WE0367	28	115	1	263.6
WE0368	28 1/2	115	1	268.2
WE0369	29	115	1	272.7
WE0370	29 1/2	115	1	277.3
WE0371	30	115	1	281.8
WE0372	30 1/2	115	1	286.4
WE0373	31	115	1	290.9
WE0374	31 1/2	115	1	295.5
WE0375	32	115	1	300.0
WE0376	32 1/2	115	1	304.5
WE0377	33	115	1	309.1
WE0378	33 1/2	115	1	313.6
WE0379	34	115	1	318.2
WE0380	34 1/2	115	1	322.7
WE0381	35	115	1	327.3
WE0382	35 1/2	115	1	331.8
WE0383	36	115	1	336.4
WE0384	36 1/2	115	1	340.9
WE0385	37	115	1	345.5
WE0386	37 1/2	115	1	350.0
WE0387	38	115	1	354.5
WE0388	38 1/2	115	1	359.1
WE0389	39	115	1	363.6
WE0390	39 1/2	115	1	368.2
WE0391	40	115	1	372.7
WE0392	40 1/2	115	1	377.3
WE0393	41	115	1	381.8
WE0394	41 1/2	115	1	386.4
WE0395	42	115	1	390.9
WE0396	42 1/2	115	1	395.5
WE0397	43	115	1	400.0
WE0398	43 1/2	115	1	404.5
WE0399	44	115	1	409.1
WE0400	44 1/2	115	1	413.6
WE0401	45	115	1	418.2
WE0402	45 1/2	115	1	422.7
WE0403	46	115	1	427.3
WE0404	46 1/2	115	1	431.8
WE0405	47	115	1	436.4
WE0406	47 1/2	115	1	440.9
WE0407	48	115	1	445.5
WE0408	48 1/2	115	1	450.0
WE0409	49	115	1	454.5
WE0410	49 1/2	115	1	459.1
WE0411	50	115	1	463.6
WE0412	50 1/2	115	1	468.2
WE0413	51	115	1	472.7
WE0414	51 1/2	115	1	477.3
WE0415	52	115	1	481.8
WE0416	52 1/2	115	1	486.4
WE0417	53	115	1	490.9
WE0418	53 1/2	115	1	495.5
WE0419	54	115	1	500.0
WE0420	54 1/2	115	1	504.5
WE0421	55	115	1	509.1
WE0422	55 1/2	115	1	513.6
WE0423	56	115	1	518.2
WE0424	56 1/2	115	1	522.7
WE0425	57	115	1	527.3
WE0426	57 1/2	115	1	531.8
WE0427	58	115	1	536.4
WE0428	58 1/2	115	1	540.9
WE0429	59	115	1	545.5
WE0430	59 1/2	115	1	550.0
WE0431	60	115	1	554.5
WE0432	60 1/2	115	1	559.1
WE0433	61	115	1	563.6
WE0434	61 1/2	115	1	568.2
WE0435	62	115	1	572.7
WE0436	62 1/2	115	1	577.3
WE0437	63	115	1	581.8
WE0438	63 1/2	115	1	586.4
WE0439	64	115	1	590.9
WE0440	64 1/2	115	1	595.5
WE0441	65	115	1	600.0
WE0442	65 1/2	115	1	604.5
WE0443	66	115	1	609.1
WE0444	66 1/2	115	1	613.6
WE0445	67	115	1	618.2
WE0446	67 1/2	115	1	622.7
WE0447	68	115	1	627.3
WE0448	68 1/2	115	1	631.8
WE0449	69	115	1	636.4
WE0450	69 1/2	115	1	640.9
WE0451	70	115	1	645.5
WE0452	70 1/2	115	1	650.0
WE0453	71	115	1	654.5
WE0454	71 1/2	115	1	659.1
WE0455	72	115	1	663.6
WE0456	72 1/2	115	1	668.2
WE0457	73	115	1	672.7
WE0458	73 1/2	115	1	677.3
WE0459	74	115	1	681.8
WE0460	74 1/2	115	1	686.4
WE0461	75	115	1	690.9
WE0462	75 1/2	115	1	695.5
WE0463	76	115	1	700.0
WE0464	76 1/2	115	1	704.5
WE0465	77	115	1	709.1
WE0466	77 1/2	115	1	713.6
WE0467	78	115	1	718.2
WE0468	78 1/2	115	1	722.7
WE0469	79	115	1	727.3
WE0470	79 1/2	115	1	731.8
WE0471	80	115	1	736.4
WE0472	80 1/2	115	1	740.9
WE0473	81	115	1	745.5
WE0474	81 1/2	115	1	750.0
WE0475	82	115	1	754.5
WE0476	82 1/2	115	1	759.1
WE0477	83	115	1	763.6
WE0478	83 1/2	115	1	768.2
WE0479	84	115	1	772.7
WE0480	84 1/2	115	1	777.3
WE0481	85	115	1	781.8
WE0482	85 1/2	115	1	786.4
WE0483	86	115	1	790.9
WE0484	86 1/2	115	1	795.5
WE0485	87	115	1	800.0
WE0486	87 1/2	115	1	804.5
WE0487	88	115	1	809.1
WE0488	88 1/2	115	1	813.6
WE0489	89	115	1	818.2
WE0490	89 1/2	115	1	822.7
WE0491	90	115	1	827.3
WE0492	90 1/2	115	1	831.8
WE0493	91	115	1	836.4
WE0494	91 1/2	115	1	840.9
WE0495	92	115	1	845.5
WE0496	92 1/2	115	1	850.0
WE0497	93	115	1	854.5
WE0498	93 1/2	115	1	859.1
WE0499	94	115	1	863.6
WE0500	94 1/2	115	1	868.2