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: 3/1/17 **ONSITE SEWAGE DISPOSAL SYSTEM** P 560563-D

APPROVAL DATE: 10/16/17 (SEC) **PERMIT: CONSTRUCTION** A

PROPERTY ADDRESS: 17044 Hardy Road

SUBDIVISION: Shears Property LOT: 1 TAX ID: 04-598968

CONTRACTOR: South Carroll Backhoe EMAIL: scbackhoe@comcast.net

CONTRACTOR ADDRESS: 4410 Salem Bottom Road, Westminster, MD 21157 PHONE: 410-596-3618

CONTRACTOR CERTIFIED FOR BAT INSTALLATION: ☒ MDE ☒ MANUFACTURER:

PROPERTY OWNER: M &O Properties LLC EMAIL: badavidson@uavsolutions.com

OWNER ADDRESS: 13805 Forsythe Road, PHONE: 410-259-9303

BAT UNIT MODEL: Hoot 600 BNR PUMP SIZE: 0.5 PUMP TANK CAPACITY: 1500

OPERATION & MAINTENANCE AGREEMENT DATE SIGNED: DATE RECORDED:

DISTRIBUTION SYSTEM: ☐ GRAVITY ☒ PRESSURE DOSED BEDROOMS: 5 APPLICATION RATE: 0.8

TRENCHES:	LINEAR FEET REQUIRED: 224	INLET DEPTH: 2.5
	TRENCH WIDTH: 3	MAXIMUM BOTTOM DEPTH: 4 to 5
	MINIMUM SPACE BETWEEN TRENCHES: 10	EFFECTIVE AREA BEGINNING DEPTH: 2.5
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: Robert Bricker ISSUE DATE: 3-1-17 EXPIRATION DATE: 3-1-18

NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION

NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING

NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.

NOTE: WATERTIGHT 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 17000534

NOTE: AN INDIVIDUAL CERTIFIED BY MDE AND THE MANUFACTURER FOR BAT INSTALLATION MUST BE PRESENT AT ALL TIMES DURING BAT INSTALLATION.

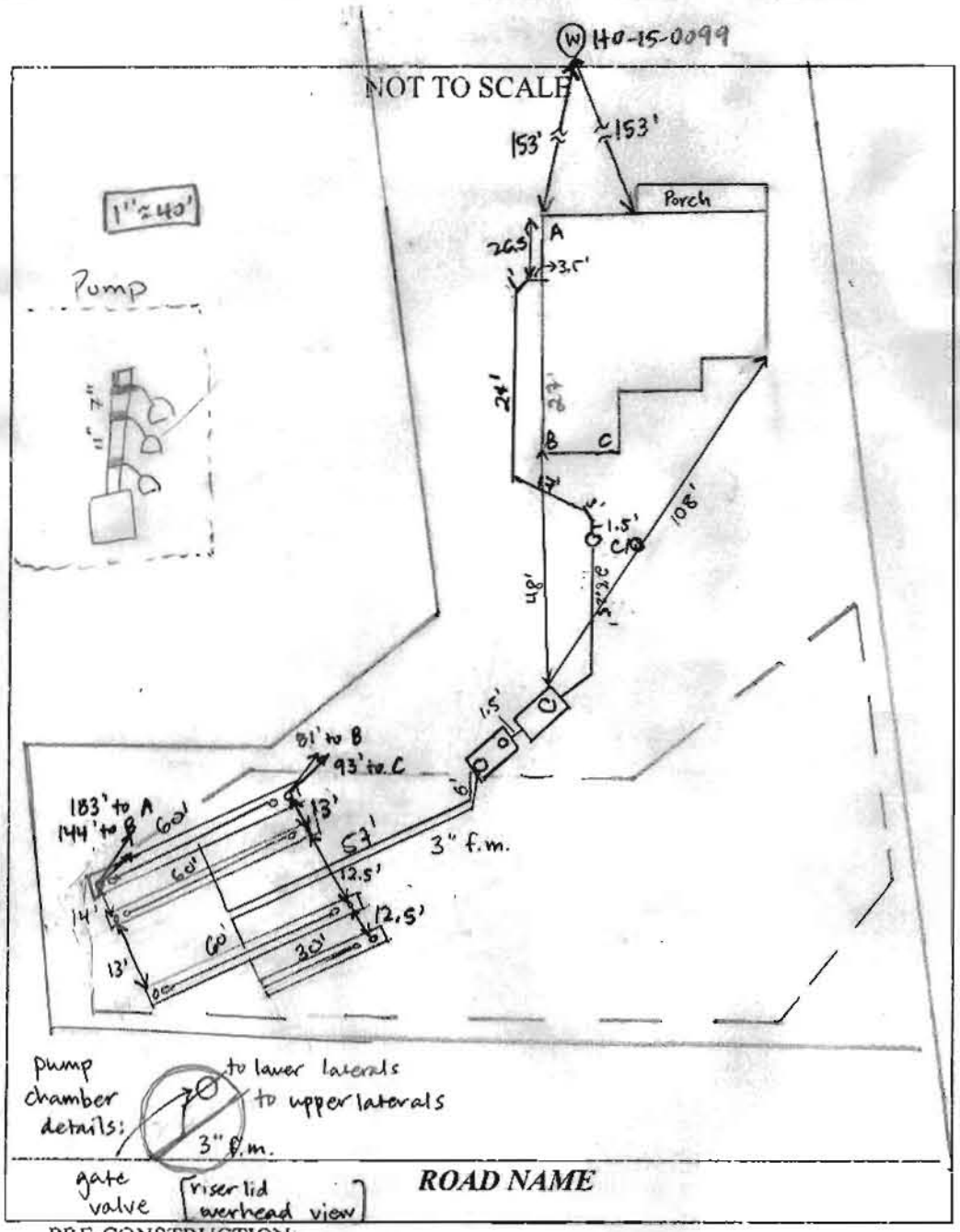
NOTE: MDE RECOMMENDS SEPTIC TANKS, BAT, AND OTHER PRETREATMENT UNITS BE PUMPED AT A FREQUENCY ADEQUATE TO ENSURE THAT SOLIDS ARE NOT DISCHARGED TO THE DISPOSAL AREA

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.

(W) HO-15-0099



TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	2.5'	4'

NUMBER OF TRENCHES 7
TOTAL LENGTH 210'
ABSORPTION AREA 630' + SIDEWALL
DISTRIBUTION BOX LEVEL —
DISTRIBUTION BOX BAFFLE —
DISTRIBUTION BOX PORT —

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL YES
MANUFACTURER Meyer Bro / HOOT
CAPACITY 1000 GAL
SEAM LOC Top
TANK LID DEPTH 2'
BAFFLES Yes
BAFFLE FILTER NO
MANHOLE LOC Front
6" PORT LOC NONE
WATERTIGHT TEST —
SLOTTED NO
DATE ON LID —

PUMP/SEPTIC TANK LEVEL —
MANUFACTURER Meyer Bro
CAPACITY 1500 GAL
SEAM LOC Top
TANK LID DEPTH 2'
BAFFLES YES
BAFFLE FILTER —
MANHOLE LOC Front/Back
6" PORT LOC NONE
WATERTIGHT TEST NO
SLOTTED No
DATE ON LID —

PRE-CONSTRUCTION:
5/10/17 Met with S. Carroll on site for layout. Tank stakes and SDA corner stakes present Some trench stakes missing. Okay to set tanks - need trenches staked prior to layout of trenches. (SC) 5/12/17 Lay out trenches from Manifold of first 6 trenches (K)

INSTALLATION: 5/12/17 Connection under footer (JL) shot elevations on laterals. Top 3 1A, 5, 6 all w/ in 3" to grade. Need to check area below trench C and re-shoot D. (JL) 5/15/2017 On Site to see setting of Second tank. Marked T.D. Gould WE05T1H pump ½ HP. (K) 5/18/2017 Onsite for the installation of trench pipes at manifold (K) 5/19/2017 Continuing installation of LPD pipes. (K) 5/19/17 Contractors to cover trenches for weekend (K) 5/22/17 Trenches + laterals complete. Got measurements of obs. pipes to house. Need BAT startup + pump and alarm test. (K) 8/18/17 On site for Hoot startup + pump and alarm test. Hoot alarm + (see pg. 2)

FINAL INSPECTOR Sarah Collins DATE OF APPROVAL 10/16/17
8/25/17

Septic Installation Notes Cont'd
17044 Hardy Rd.

FILE INQUIRY NOTES

DATE	RESULTS OF REVIEW FOR FILE
8/10/17 cont'd	recirculation good. Measured head heights @ lateral turn-ups:
	1A1 = 12", 1A2 = 12", 1B1 = 31", 1B2 = 30", 1C1 = 36", 1C2 = 36"+, 1D1 = 36"+.
	Called Kenny @ S. Carroll to verify model of pump installed;
	1A1 and 1A2 spec'd to be 2' lateral head. Pump alarm sounds. (SC)
9/5/17	S. Carroll switched pumps to ½ hp high head. Only 10" distal
	head at upper two lateral turnups.
10/2/17	After discussion w/ Engineer, solution was to select
	different pump make all together. I expressed
	"valving" the system to break the multiple segments
	into 2 zones. Informed contractor that
	½ HP pump to be used, OK to "valve" system in
	manifold or inside tank. (KWH)
10/11/17	South Carroll uncovered T at manifold and found it was cracked.
	Replaced T and started up with original ½ hp pump - 18-20"
	lateral head at T1A1 + T1A2 lateral turnups. S. Carroll will
	split laterals into zones + install a gate valve at lower zone. (SC)
10/11/17	S. Carroll installed a Y in the tank and a gate valve at lower
	zone. 3" PVC run parallel to original fm. to lower zone.
	Gate valve turns 7.5 turns to close; set at 5.75 turns closed.
	T1A1 + T1A2 lateral heights = 24-26"; 1B1 + 1B2 = 3'+; 1C1 + 1C2
	= 34"; 1D1 = 3'+. Need BAT startup certification. (SC) 10/16/17 BAT startup
	certification received. (SG)

MAYER BROS., INC.
Precast Concrete Products
6264 Race Rd. Elkridge, MD 21075

Letter of Satisfaction
Hoot System Installation

Address of Property: 17044 Hardy Rd.
Mt. Airy, MD. 21771

Date of Final Inspection: 10/13/17

Installer: South Carroll Backhoe Service

Hoot Technician/Inspector: Mike Sample

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

Sincerely,

R. Michael Dayne
Name of Inspector
Mayer Bros. ,Inc.

PH: 410-796-1434
FX: 410-796-1438

WBE

www.mayerbrosprecast.com

Wolf, Kevin

From: Wolf, Kevin
Sent: Monday, August 28, 2017 10:36 AM
To: 'Stephanie Tuite'
Subject: RE: 17044 Hardy Road

Hey Stephanie,
Sorry to hear about all that.
No nothing was resolved. I have had communication with the septic contractor only. I think before we start selecting different pumps, we wanted something from you on the design calcs first.

From: Stephanie Tuite [mailto:Stephanie@fcc-eng.com]
Sent: Monday, August 28, 2017 9:55 AM
To: Wolf, Kevin
Subject: RE: 17044 Hardy Road

Sorry, I was out Friday with issues with both kids, one getting a cast off and the other being tested for concussion after staples in her head. Crazy.

Did this get resolved Friday?

Steph

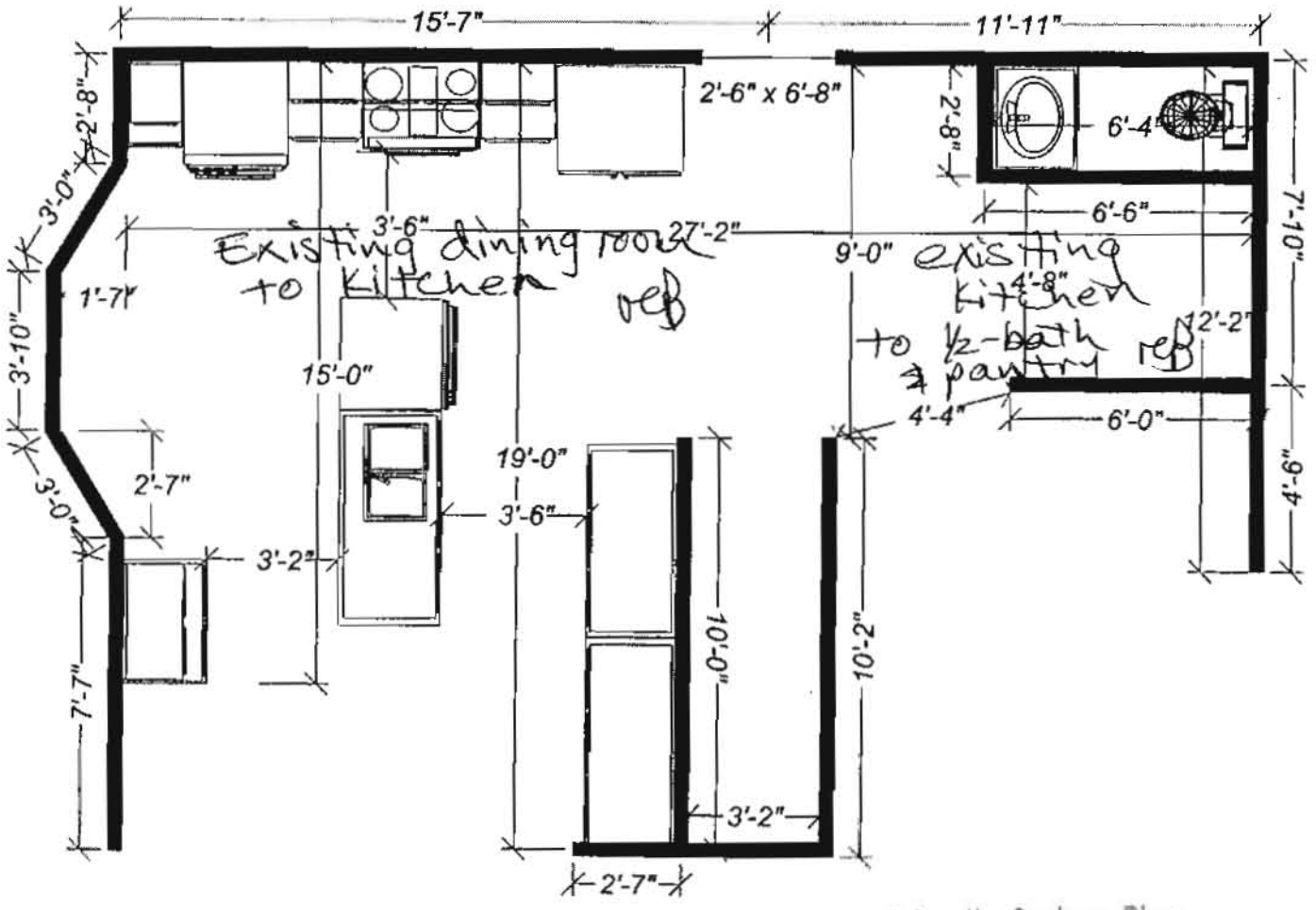
Stephanie Tuite, RLA, PE, LEED AP BD&C
FISHER, COLLINS & CARTER, INC.

From: Wolf, Kevin [mailto:KWolf@howardcountymd.gov]
Sent: Friday, August 25, 2017 11:40 AM
To: Stephanie Tuite <Stephanie@fcc-eng.com>
Subject: 17044 Hardy Road

Stephanie,
We have an issue at the above referenced property. The septic system was installed per design specifications but the pressure test revealed only 12" distal head on trenches 1A1, 1A2. Trenches 1B1, 1B2 only got 30" distal head which the plan calls for 33" which is close but I am fine with this. The other trenches got 36"+. The pump that is installed is the one selected on the plan, Goulds WE051H. ½ hp. They recommended going to the ¾ hp pump but I thought that would be too much head. At nearly 70 gpm @ 11'TDH the ¾ hp pump is rated to 40' of head. The builder and septic contractor are both aware.

Thanks,

Kevin M. Wolf, LEHS, REHS/RS
Groundwater Mgmt. Sec. Supervisor
Well & Septic Program
Bureau of Environmental Health
8930 Stanford Blvd.
Columbia, MD 21045
(o) 410-313-2645
(f) 410-313-2648



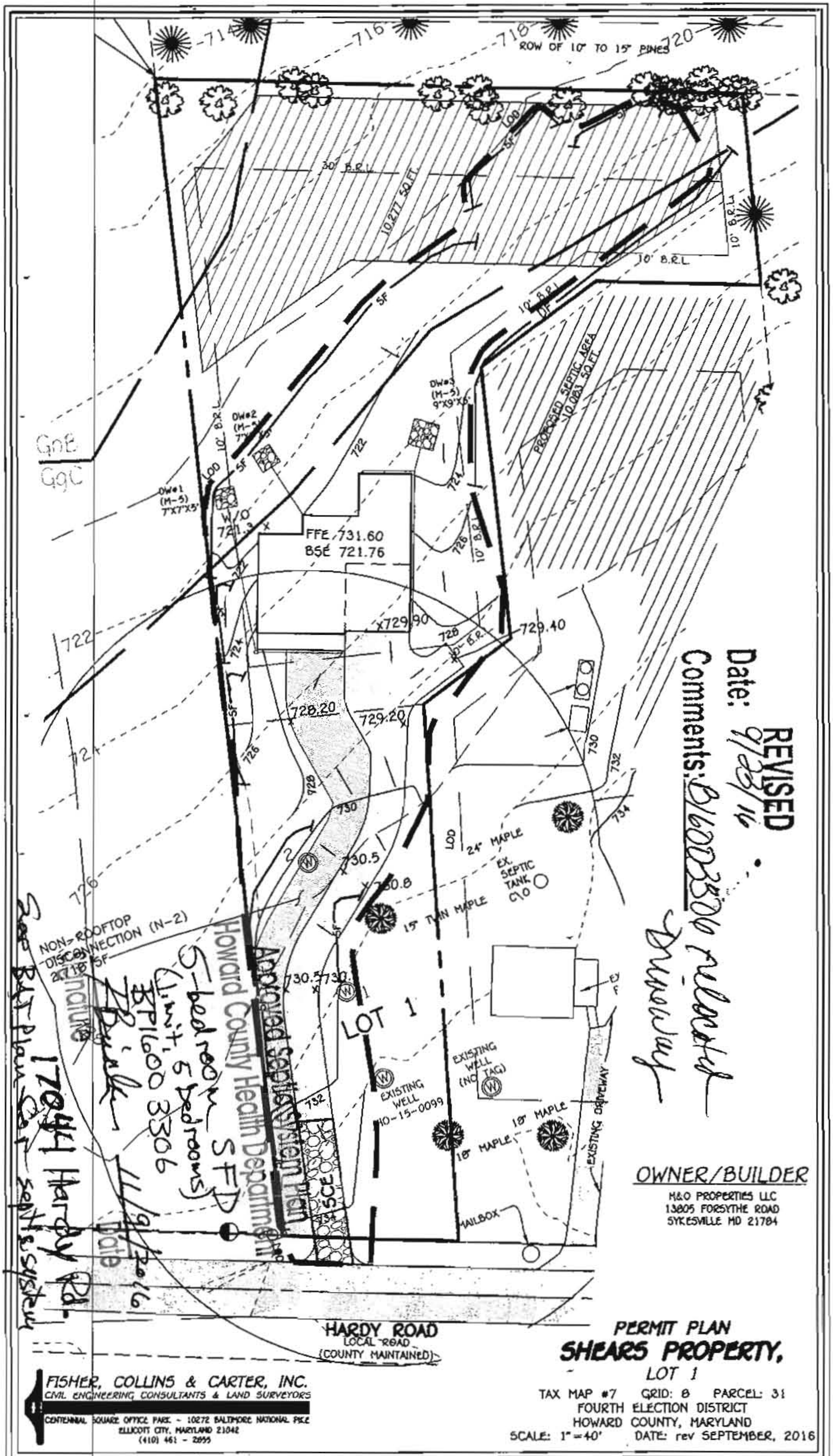
Existing dining room to kitchen

Approved Septic System Plan
Howard County Health Department

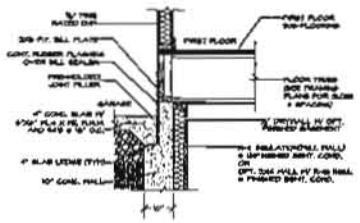
Convert kitchen & dining rm. to kitchen, ½-bath & pantry
300 sf modified

R Bricker 11/10/2016
Signature Date

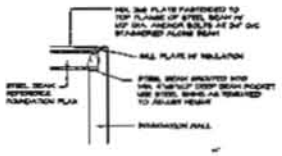
800 River Road
B16004208
(online permit)



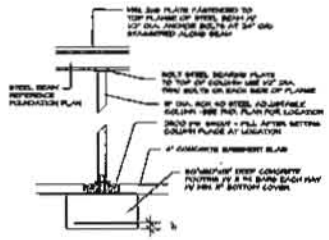
ROW OF 10" TO 15" PINES
714
716
718
720
30' B.R.L.
10,277 SQ.FT.
10' B.R.L.
PROPOSED SEPTIC AREA
10,083 SQ.FT.
GnB
GgC
DW#1 (M-5) 7'X7'X5'
DW#2 (M-5)
DW#3 (M-5) 9'X9'X5'
LOD
SF
W/O 721.3
FFE 731.60
BSE 721.76
x729.90
729.40
728.20
729.20
730.5
730.8
722
724
726
728
730
732
734
NON-ROOFTOP DISCONNECTION (N-2) 2,718 SF
24" MAPLE
EX. SEPTIC TANK C/O
15" TWIN MAPLE
LOT 1
EXISTING WELL HO-15-0099
EXISTING WELL (NO TAG)
18" MAPLE
EXISTING DRIVEWAY
MAILBOX
SCE
REVISED
Date: 9/23/16
Comments: B1600 3306 relocated Driveway
Howard County Health Department
Approved Septic System Plan
5-bedroom SFD
(Limit 5 bedrooms)
BP1600 3306
Signature
Date 11/9/2016
17044 Hardy Rd.
HARDY ROAD
LOCAL ROAD
(COUNTY MAINTAINED)
OWNER/BUILDER
H&O PROPERTIES LLC
13805 FORSYTHE ROAD
SYKESVILLE MD 21784
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855
PERMIT PLAN
SHEARS PROPERTY,
LOT 1
TAX MAP #7 GRID: 8 PARCEL: 31
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE: 1"=40' DATE: rev SEPTEMBER, 2016



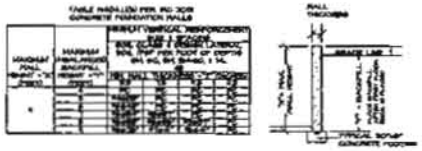
INT. WALL @ GARAGE



BEAM POCKET DETAIL

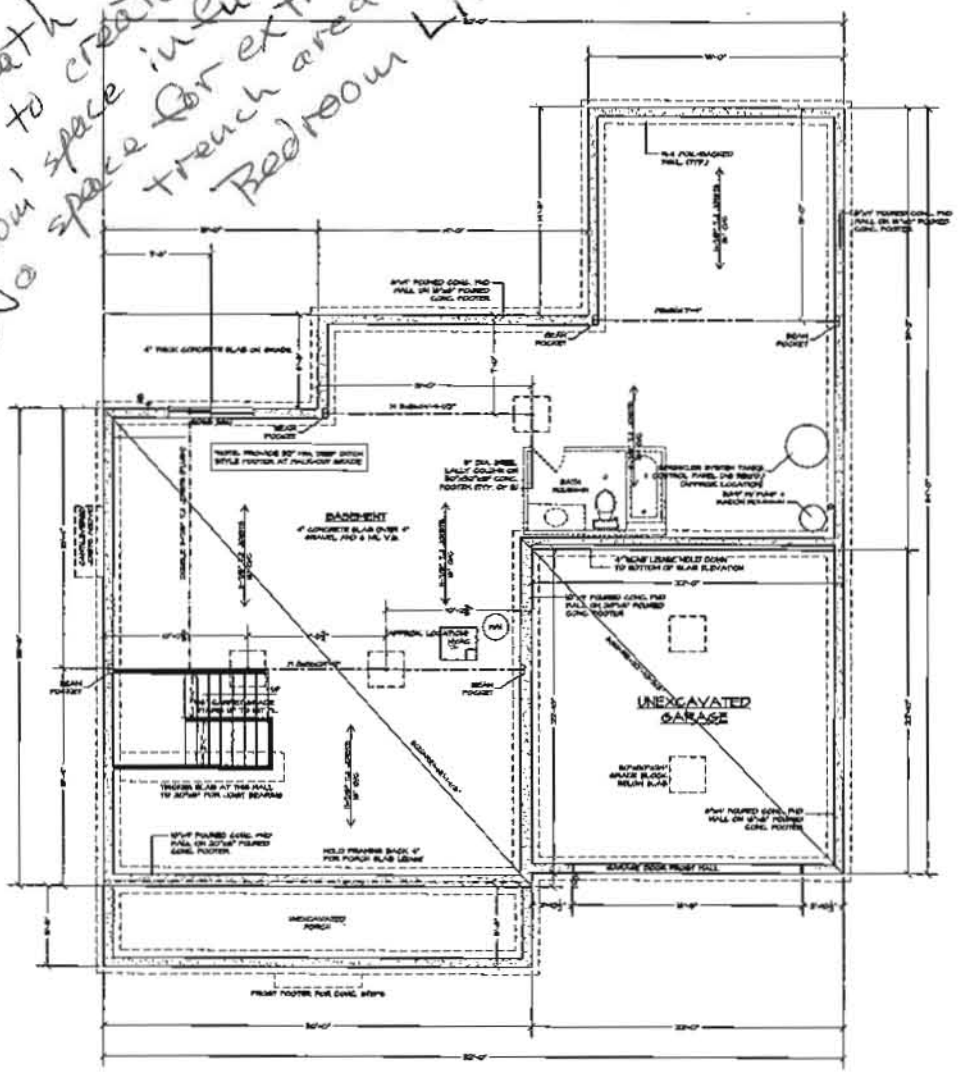


LALLY COLUMN DETAIL



FOUNDATION WALL DESIGN DATA

rough-in bath
Potential to create
a 'bedroom' space in future
* No space for extra
trench area at this time
Bedroom Limit is 5
RB



FOUNDATION PLAN

NOTE: LOCATIONS OF ALL UTILITIES SHOWN ARE APPROXIMATE - FIELD VERIFY.

THIS HOME TO BE FULLY SPRINKLED.

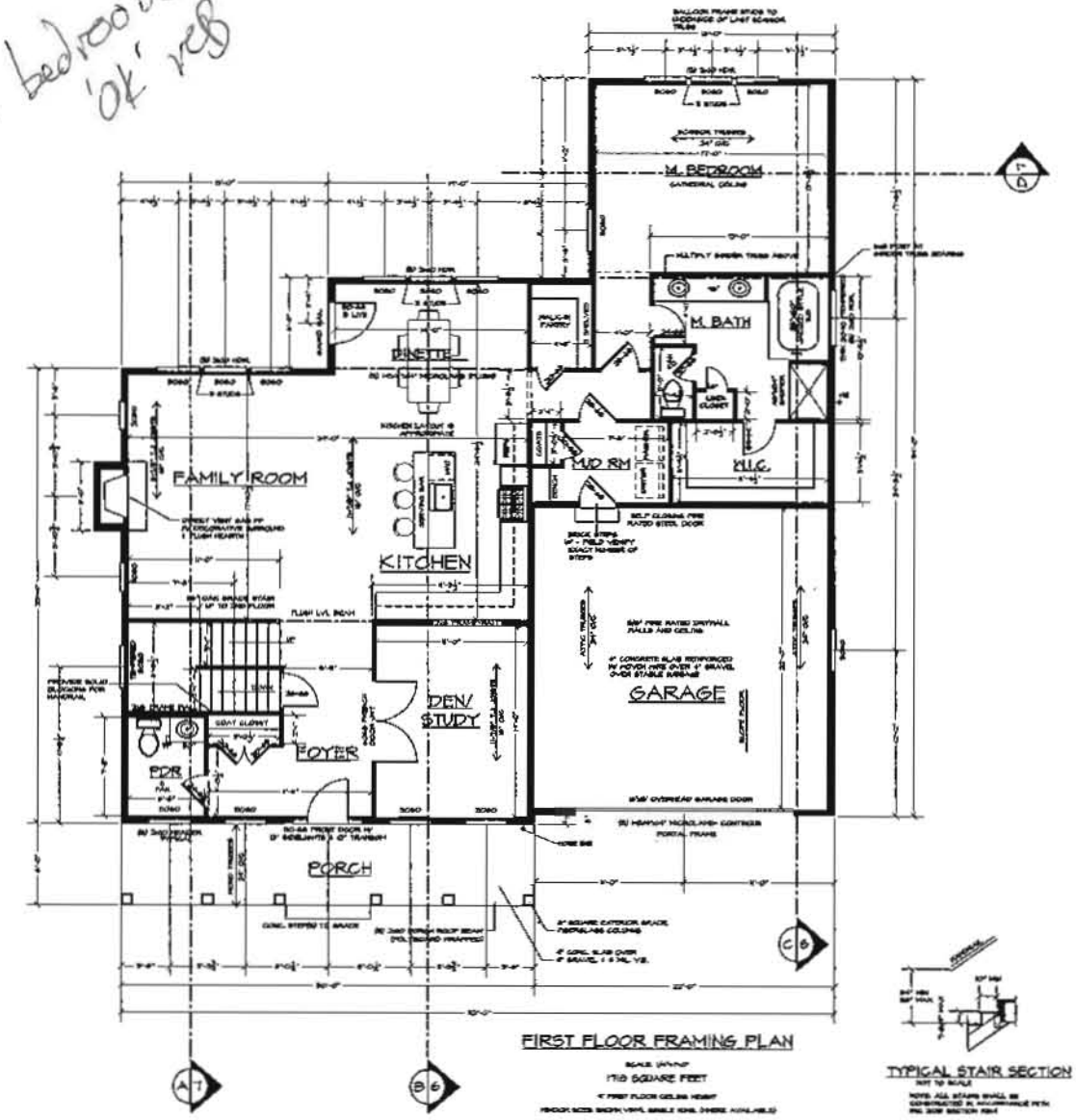
17040 Hardy Rd.
B1600 3306

SHEARS PROPERTY
DAVIDSON SPEC HOME
ALDER CREEK CONSTRUCTION

SCALE: 1/4" = 1'-0"
DATE: 2/2016
SHEET NO.: 1 OF 1

GBL CUSTOM HOME DESIGN INC.
PO BOX 237 FAIRFIELD, MD 21534
PHONE 443-653-8330

1 bedroom
'ok' rcb



FIRST FLOOR FRAMING PLAN

1710 SQUARE FEET

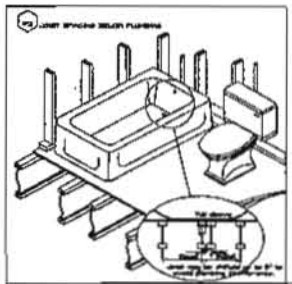
THIS HOME TO BE FULLY SPRINKLED.

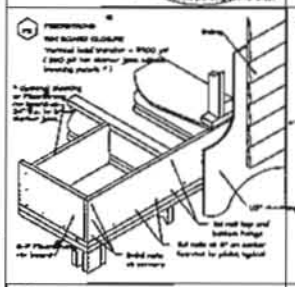
TYPICAL STAIR SECTION

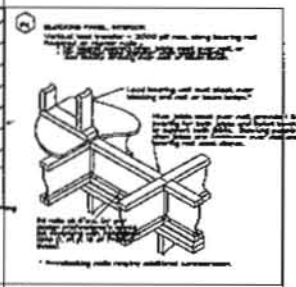
SHEARS PROPERTY
DAVIDSON SPEC HOME
ALDER CREEK CONSTRUCTION

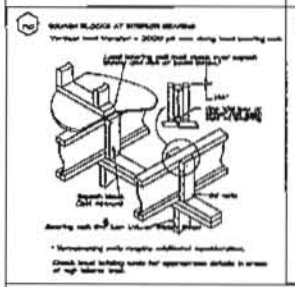
GBL CUSTOM HOME DESIGN INC.

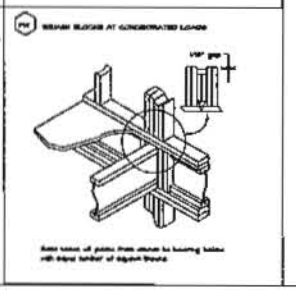
17040 Hardy Rd.
B16003306

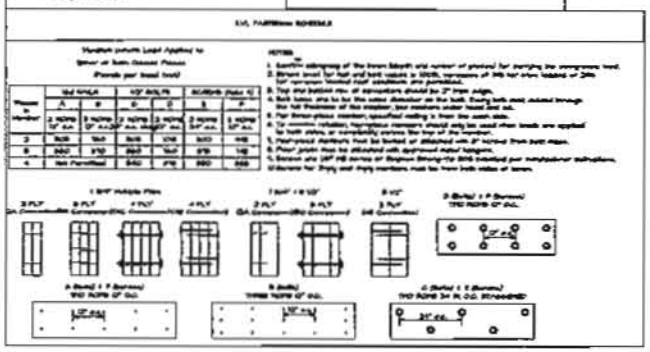




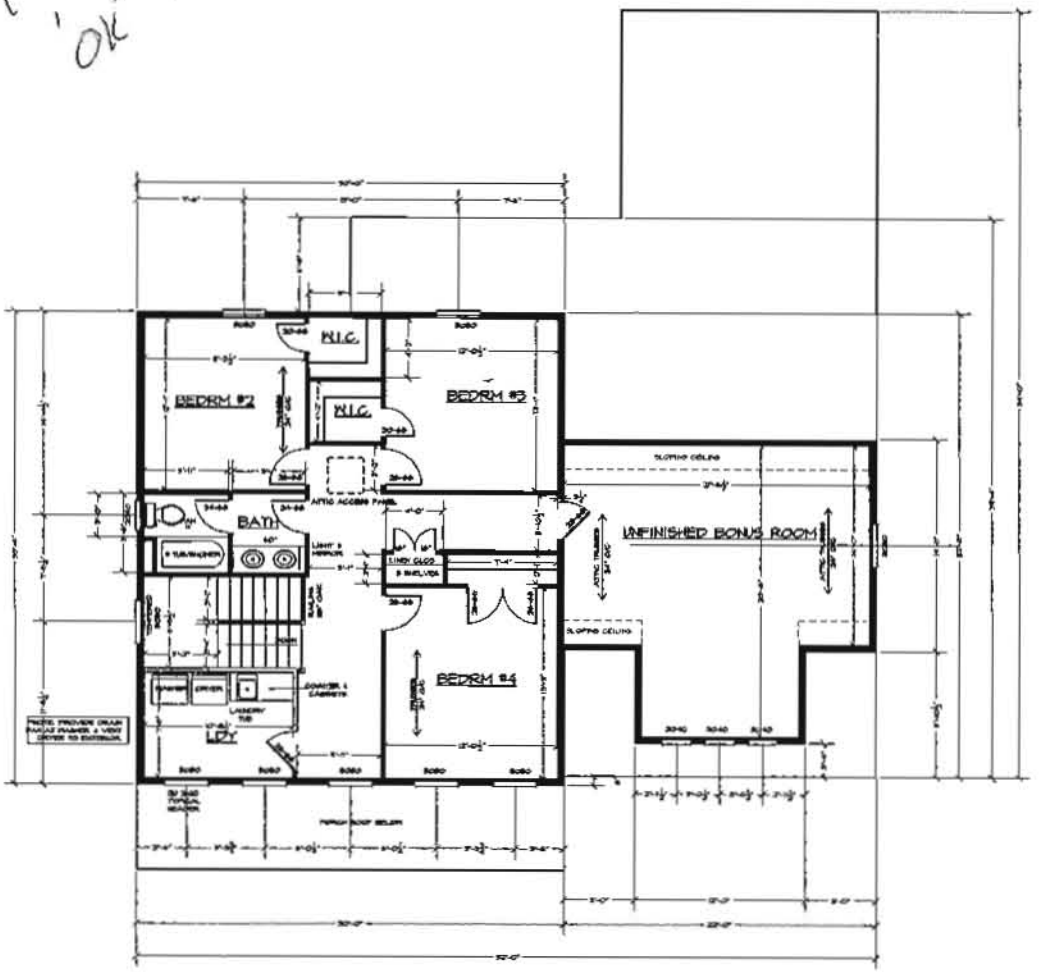








4 bedrooms
ok yes



SECOND FLOOR FRAMING PLAN

1000 SQUARE FEET

17040 Hardy Rd.

B16003306

SHEARS PROPERTY
DAVIDSON SPEC HOME
ALDER CREEK CONSTRUCTION

GBL CUSTOM HOME DESIGN INC.

Howard County Health Department

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Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

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

MEMORANDUM

TO: *Charles Alder, Alder Creek, LLC*

FROM: *Robert Bricker, REHS/RS, L.E.H.S.*
Well & Septic Program

RE: (17040) *17044 Hardy Road,* Potential Basement Bedroom

DATE: August 23, 2016

I have reviewed the floor plans in support of Building Permit ***B16003306*** for a new home at 17044 Hardy Road and noted that there is a rough-in for a full bathroom in the unfinished basement. Please note that this makes it very likely for one or more rooms to be considered bedrooms upon conversion of the basement to finished living space.

For reference, the following is the bedroom definition in Howard County Code Section 3.801(b):

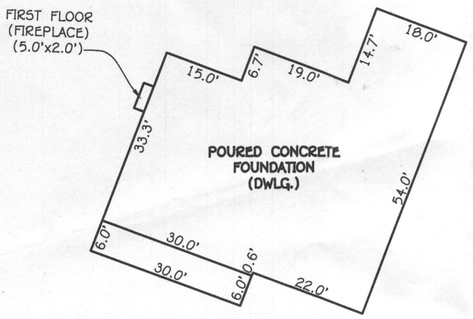
(1) Except as provided in paragraph (2) of this subsection, a bedroom is any space in the conditioned area of a dwelling unit or accessory structure that:
- (i) Is 90 square feet or greater in size;
- (ii) May be used as a private sleeping area; and
- (iii) Has at least one window and one interior door.

(2) If a home office, library, or similar room is proposed, it may not be a bedroom if there is no closet; and
- (i) The room contains permanently built-in bookcases around the perimeter of the room, desks, and other features that encumber the room;
- (ii) A minimum 4 foot-wide opening, without doors, into another room;
- (iii) A half wall (4 foot maximum height) between the room and another room; or
- (iv) The room is a first floor room or basement area that does not have direct access to full bathrooms or "roughed in" plumbing that would provide direct access to future full bathroom facilities.

The Health Department strongly recommends sizing the onsite sewage disposal system at least one bedroom larger than the existing ***five (5)***- bedroom design to accommodate a future finished basement. If you choose to only size for the existing design, any future building permit for a finished basement may be placed on hold until the system is upgraded to accommodate the proposed number of bedrooms. This memo will be retained in the Health Department file for future reference.

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. 24027C0030D EFFECTIVE NOV. 6, 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' (±)
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-15-0099 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 10/04/2018.
7) BUILDING PERMIT #B-16003306



DETAIL:
1"=20'

3/1/17
Wall check
okay - H.O.

STATE OF MARYLAND
MARK L. ROBEL
No. 339
PROPERTY LINE SURVEYOR

Mark L. Robel — 2/06/17
PROPERTY LINE SURVEYOR REG. #339 — DATE

#17044 HARDY ROAD
B.R.L. = BUILDING RESTRICTION LINE
TOP OF FOUNDATION ELEVATION = 731.1'±

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

#17044 HARDY ROAD
(DEED REFERENCE: LIBER 16709, FOLIO 034)
FOURTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HOUSE LOCATION DRAWING

FOUNDATION LOCATION: 1/31/17
FINAL LOCATION: _____
BOUNDARY SURVEY: _____
SCALE: 1"=50'
DATE: 2/6/17
DRAWN BY: JMP
CHECKED BY: MLR
PROJECT No.: 05075-6005

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	723.0	720.5	32	29.34	5/16	2	1.63	5.33	6	9.78
1A2	723.0	720.5	32	29.34	5/16	2	1.63	5.33	6	9.78
1B1	722.2	719.7	32	28.80	5/16	2.8	1.92	6.40	5	9.60
1B2	722.2	719.7	32	28.80	5/16	2.8	1.92	6.40	5	9.60
1C1	721.3	718.8	32	29.72	1/4	3.7	1.42	4.57	7	9.94
1C2	721.3	718.8	32	29.72	1/4	3.7	1.42	4.57	7	9.94
1D1	720.3	717.8	32	29.34	1/4	4.7	1.60	5.33	6	9.60
								TOTAL TRENCH FLOW RATE		68.20

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)	WIDTH O TRENCHES W)	TRENCH SPACING
1A1	723.0	721.0	720.5	2.0'	2.0'	719.0	2.5'	1.5'	3.0'	10'
1A2	723.0	721.0	720.5	2.0'	2.0'	719.0	2.5'	1.5'	3.0'	10'
1B1	722.2	720.2	719.7	2.0'	2.0'	718.2	2.5'	1.5'	3.0'	10'
1B2	722.2	720.2	719.7	2.0'	2.0'	718.2	2.5'	1.5'	3.0'	10'
1C1	721.3	719.3	718.8	2.0'	3.0'	716.3	2.5'*	1.5'*	3.0'	10'
1C2	721.3	719.3	718.8	2.0'	3.0'	716.3	2.5'*	1.5'*	3.0'	10'
1D1	720.3	718.3	717.8	2.0'	3.0'	715.3	2.5'*	1.5'*	3.0'	10'

* THE RANGE OF EFFECTIVE DEPTH IS ANTICIPATED TO BE 1 FT TO 2 FT, OR GREATER.

SEWAGE DISPOSAL SYSTEM DATA
5 BEDROOMS
LOADING RATE = 5 BEDROOMS X 150 GPD/BEDROOM = 750 GPD
APPLICATION RATE = 0.8
EFFECTIVE SIDEWALL BEGINS AT 2.5 FEET
TRENCH DEPTH = 4 FEET
TRENCH WIDTH (W) = 3 FEET
EFFECTIVE DEPTH (D) = 1.5 FEET
SF OF DRAINFIELD = 750 GPD / 0.8 = 937.5 SF
COEFFICIENT OF REDUCTION OF TRENCH LENGTH =
(W+2)/(W+1+2D)=(3+2)/(3+1+(2x1.5))=0.714
TRENCH LENGTH = 937.5 SF x 0.714 / 3 = 223.1 FEET (USE 224 FEET)
TRENCH SPACING = 2D+W = ((2*1.5) + 3) = 6 USE 10'

SEPTIC SYSTEM ELEVATIONS
FFE = 731.60
BSE = 721.76
INV. OUT OF HOUSE = 718.91
PROP. GROUND AT CO = 723.00
INV. INTO CO = 718.88
INV. OUT OF CO = 718.78
EX. GROUND AT BAT = 721.6
TOP OF BAT = 719.22
COVER OVER BAT = 2.05
INV. INTO BAT = 718.28
INV. OUT OF BAT = 717.78
EX. GROUND AT PUMP TANK = 721.6
TOP OF PUMP TANK = 718.61
COVER OVER PUMP TANK = 3 FT
INV. INTO PUMP TANK = 717.78

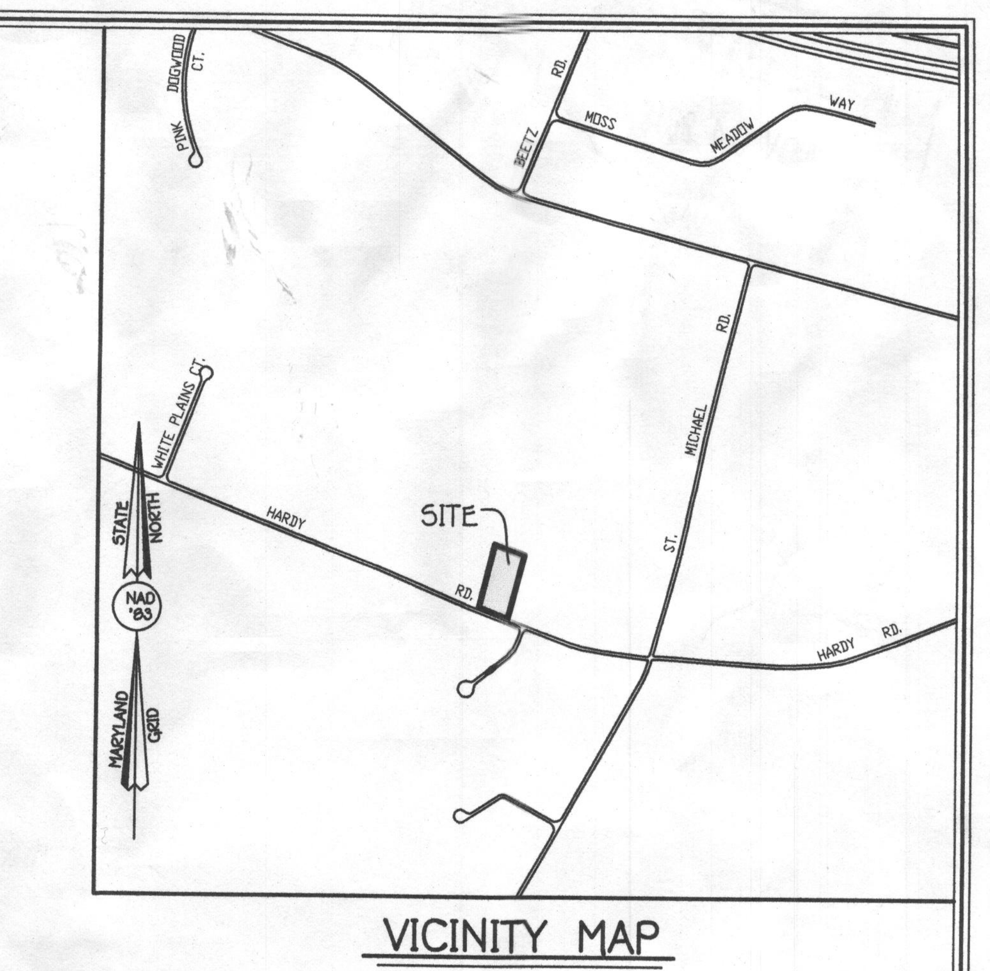
BAT NOTES

1. 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.
2. THE MAXIMUM COVER OVER THE BAT SHALL BE 3 FEET.
3. THE BAT SYSTEM SHALL BE MAINTAINED AND OPERATED FOR THE LIFE OF THE SYSTEM.
4. THE BAT SHALL BE OPERATED BY AND MAINTAINED BY A CERTIFIED SERVICE PROVIDER.
5. 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.
6. ANY ELECTRICAL WORK FOR THE BAT INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.
7. AN AGREEMENT AND EASEMENT HAS BEEN COMPLETED AND SIGNED BY ALL APPLICABLE PARTIES, AND RECORDED IN THE LAND RECORDS OF HOWARD COUNTY.
8. THE HEALTH DEPARTMENT REQUIRES DOCUMENTATION FOR THE START-UP CERTIFICATION FROM THE MANUFACTURER PRIOR TO FINAL APPROVAL OF THE INSTALLATION.
9. SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.

LEGEND

EXISTING 2' CONTOURS
EXISTING 10' CONTOURS
EXISTING TREE LINE
SOIL LINES AND TYPES
DENOTES PROPOSED WELL
DENOTES 1500 Sq.Ft. ALTERNATE WELL SITE
DENOTES FAILED PERC
DENOTES PASSED PERC

0' 30' 60' 90'
Scale: 1" = 30'



VICINITY MAP

SCALE : 1" = 1200'
MAP PAGE 4691 GRID B6

GENERAL NOTES

1. SUBJECT PROPERTY ZONED: RC-DEO
2. TOTAL AREA OF PROPERTY: 40,000 SQ.FT. OR 0.92 AC.
3. SEPTIC EASEMENT SUBJECT TO HOWARD COUNTY HEALTH DEPARTMENT REVIEW.
4. CONTRACTOR/BUILDER TO VERIFY ELEVATION IN THE FIELD BEFORE BEGINNING ANY CONSTRUCTION.
5. BOUNDARY IS BASED ON A FIELD RUN BOUNDARY CONDUCTED BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2010.
6. TOPOGRAPHY SHOWN HEREON BASED ON FIELD RUN SURVEY CONDUCTED BY FISHER, COLLINS & CARTER, INC. DATED APRIL, 2010. TOPOGRAPHY IN NON-DEVELOPED AREAS IS BASED ON HOWARD COUNTY 200 SCALE TOPOGRAPHY.
7. NO WETLANDS EXIST ON THIS LOT.
8. SURFACE RUNOFF SHALL BE DIRECTED AROUND THE BAT TANK.
9. AT HIGH WATER ALARM PROBE, PUMP WILL HAVE CONTINUOUS OPERATION UNTIL LEVEL GOES BENEATH PROBE.
10. IF WATER LEVEL RISES ABOVE THE ALARM PROBE, AN AUDIBLE AND VISUAL ALARM WILL SOUND. SEE MANUFACTURER SPECS FOR ADDITIONAL INFORMATION.
11. ALARM TO BE WIRED TO A CIRCUIT SEPARATE FROM THE PUMP CIRCUIT.

NOTE

1. THE EXISTING WELLS SHOWN ON THIS PLAN, HO-15-0099 AND WELL WITH NO TAG NUMBER, HAVE BEEN FIELD LOCATED BY FISHER, COLLINS & CARTER, INC., PROFESSIONAL LAND SURVEYORS AND IS ACCURATELY SHOWN.
2. THE MANUFACTURER HAS CERTIFIED THE PROPOSED BAT UNIT, THE HOOT BNR WITH 1500 GALLON PUMP CHAMBER, TO BE APPROPRIATE FOR THIS 6-BEDROOM HOMES AS LONG AS THERE ARE NO MORE THAN 7 FULL TIME OCCUPANTS IN THE HOME.

FRICTION LOSS IN 3" PIPE FITTINGS:

1	UNION	x 4 FEET PER FITTING =	4 EQUIVALENT FEET OF 3" PIPE
1	1/32 HB	x 6 FEET PER FITTING =	6 EQUIVALENT FEET OF 3" PIPE
5	ELBOWS	x 12 FEET PER FITTING =	60 EQUIVALENT FEET OF 3" PIPE
2	TEE/CROSS	x 17 FEET PER FITTING =	34 EQUIVALENT FEET OF 3" PIPE

TOTAL LINEAR FEET OF 3" SCH. 40 PVC = 104 LF (EQUIVALENT FEET)
3" PIPE TOTAL = 104 LF + 73.2 LF = 177.2 LF

DYNAMIC HEAD
177.2 LF X 0.73 FT PER 100 LF OF 3" PIPE = 1.3 FT OF FRICTION HEAD
DISTAL HEAD = 2.0 FT
VERTICAL FROM PUMP OFF TO HIGH POINT IN PUMP CHAMBER = 5.9 FT OF FRICTION HEAD
HIGH POINT IN PUMP CHAMBER TO HIGHEST ELEV OF SYSTEM = 0.5 FT
SAFETY FACTOR FOR FRICTION IN LATERALS NOT CALCULATED = 1.5 FT
TOTAL DYNAMIC HEAD = 11.2 FT

PIPE VOLUMES
91 LF (3" SCH. 40 PIPE) X 38.4 GALLONS PER 100 LF = 34.9 GALLONS
200.3 LF (1.5" SCH. 40 PIPE) X 10.6 GALLONS PER 100 LF = 21.2 GALLONS

MINIMUM DOSE
MINIMUM DOSE = (5 X LATERAL PIPE VOLUME) + (FORCE MAIN & MANIFOLD)
= (5 X 21.2) + (34.9)
= 140.5 GALLONS

140.5 GALLONS IS MORE THAN 1/6 DESIGN FLOW (750/6=125)
USE 272.8 GALLON DOSE (140.5 GALLON MINIMUM)
(RUN TIME = 4 MIN (68.2 GPM X 4 = 272.8 GALLON DOSE)

PUMP NEEDS TO HANDLE 68.2 GPM AT 11.2 FT OF HEAD
USE 0.3 HP (WE05H PUMP)

Approved Septic System Plan
Howard County Health Department
HOOT 600 BNR w/1500-gal Pump Chamber
& 0.5 hp Pump or equiv. to LPD
RBieler 11/9/2016
Signature Date
12040 Hardy Rd
B16003306

SOILS LEGEND

SOIL	NAME	CLASS
GgA	Glenelg loam, 0 to 3 percent slopes	B
GgB	Glenelg loam, 3 to 8 percent slopes	B
GgC	Glenelg loam, 8 to 15 percent slopes	B
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	C

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

OWNER AND DEVELOPER
M&O PROPERTIES, LLC
13805 FORSYTHE ROAD
SYKESVILLE, MARYLAND 21784

PROFESSIONAL CERTIFICATION

I HEREBY CEIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE O MARYLAND, LICENSE NO. 38386, EXPIRATION DATE: 01/12/2018.

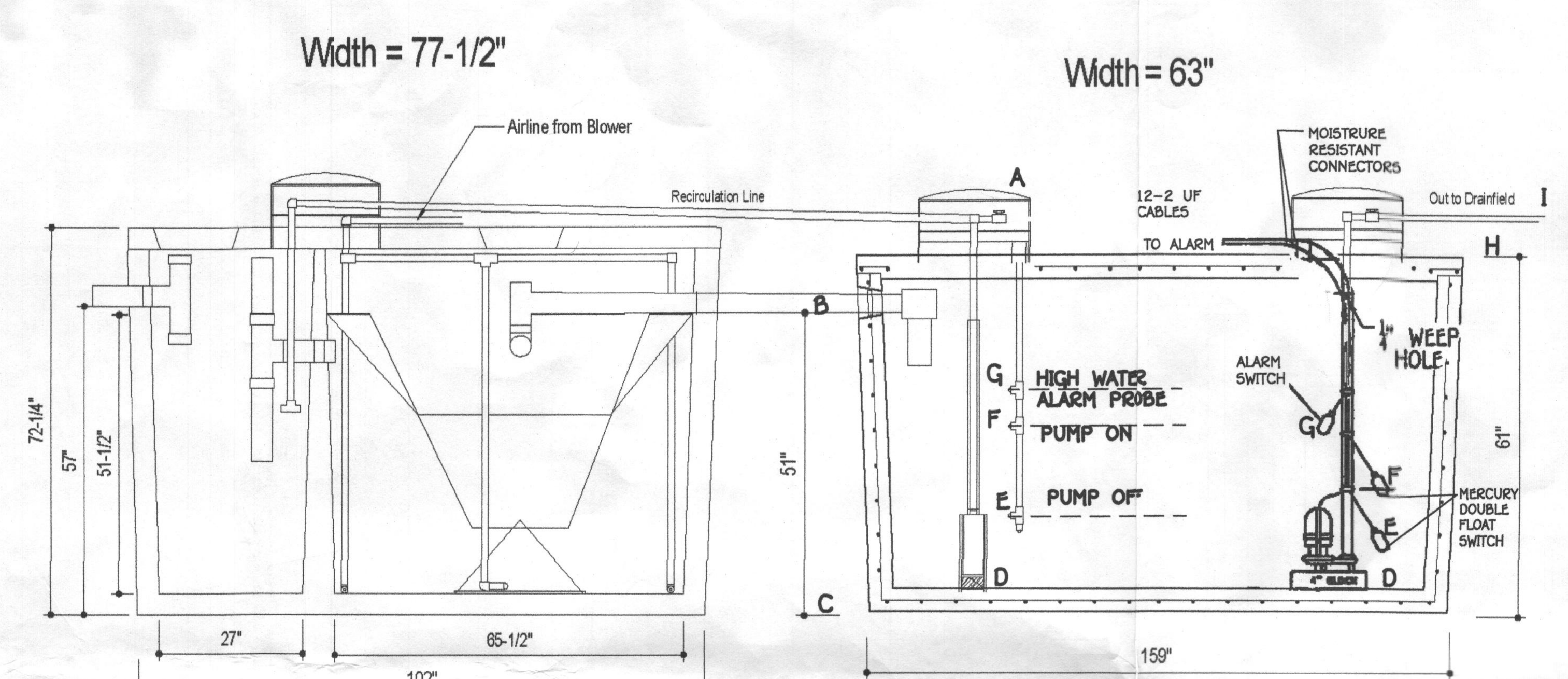
STATE OF MARYLAND · STEPHANIE J. TUITE · No. 38386 · PROFESSIONAL ENGINEER

Signure Of Professional Engineer DATE

BAT PLAN
SHEARS PROPERTY
LOT 1

A RESUBDIVISION OF POPLAR HEIGHTS SUBDIVISION
LOT 41-44 AS RECORDED IN THE LAND RECORDS AS
PLAT No. 3, FOLIO 26

TAX MAP #7 GRID: 8 PARCEL: 31
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1"=30' DATE: NOVEMBER, 2016
SHEET 1 OF 2



CHAMBER ONE: EMERGENCY STORAGE OF 124 GALLONS EXISTS BETWEEN INVERT IN OF FIRST CHAMBER AND TOP OF INSIDE OF TANK

CHAMBER TWO: EMERGENCY STORAGE OF 300 GALLONS EXISTS BETWEEN INVERT IN OF FIRST CHAMBER AND TOP OF INSIDE OF TANK

EMERGENCY STORAGE OF 612 GALLONS EXISTS BETWEEN HIGH WATER ALARM AND TOP OF INSIDE OF TANK

TOTAL EMERGENCY STORAGE = 124 GAL + 300 GAL + 612 GAL = 1,306 GALLONS

DESIGN DATA & GENERAL NOTES

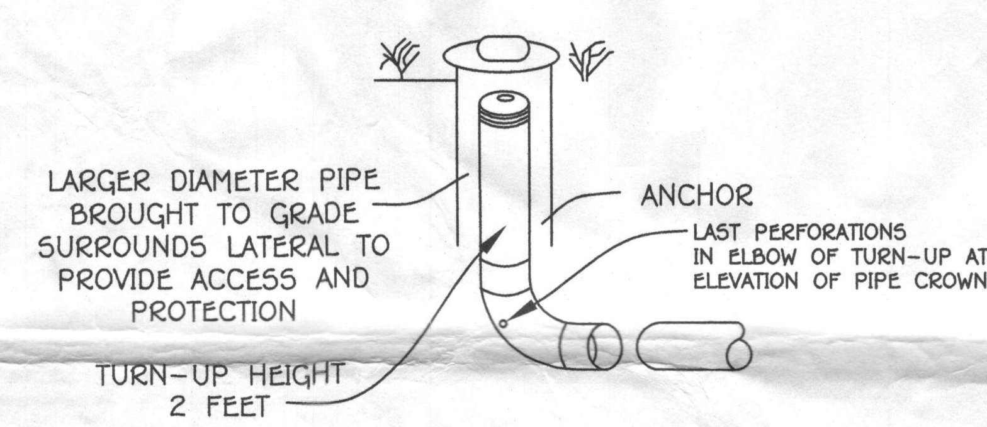
[1] Concrete strength f'c=4,000 p.s.i. @ 28 days. Density = 150 pcf.
[2] Cement - Portland Type I/II per ASTM C 150-92.
[3] Admixtures & plasticizers per ASTM C 260-86 & C 494-92.
[4] Reinforcing per ASTM A185. Min. 1-1/2" cover.

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

Hoot 600 BNR
with 1500 GALLON PUMP CHAMBER
DUAL PUMP SETUP

Dwg. No. BNR 1500 pump	No Scale	July 8, 2015

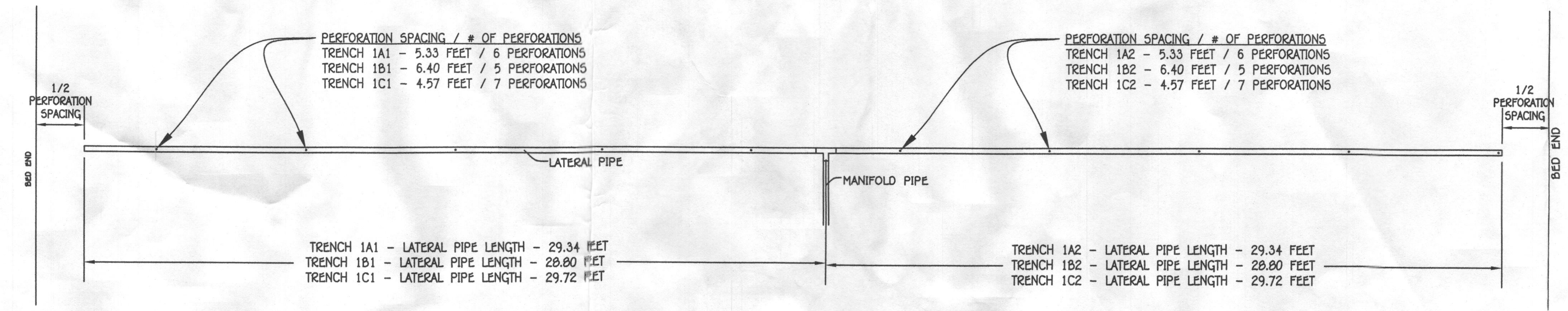
NOTE: ALARM PROBE SHOWN IS BASED ON A STANDARD SEPARATION BETWEEN PUMP ON, PUMP OFF, AND THE HIGH WATER ALARM. THESE ARE PRESET AT TIME OF MANUFACTURING. BOTH RECIRCULATING PUMP AND DISCHARGE PUMP TO BE LINKED TO THE SAME ALARM. FLOATS TO BE PROVIDED FOR DISCHARGE PUMP.



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

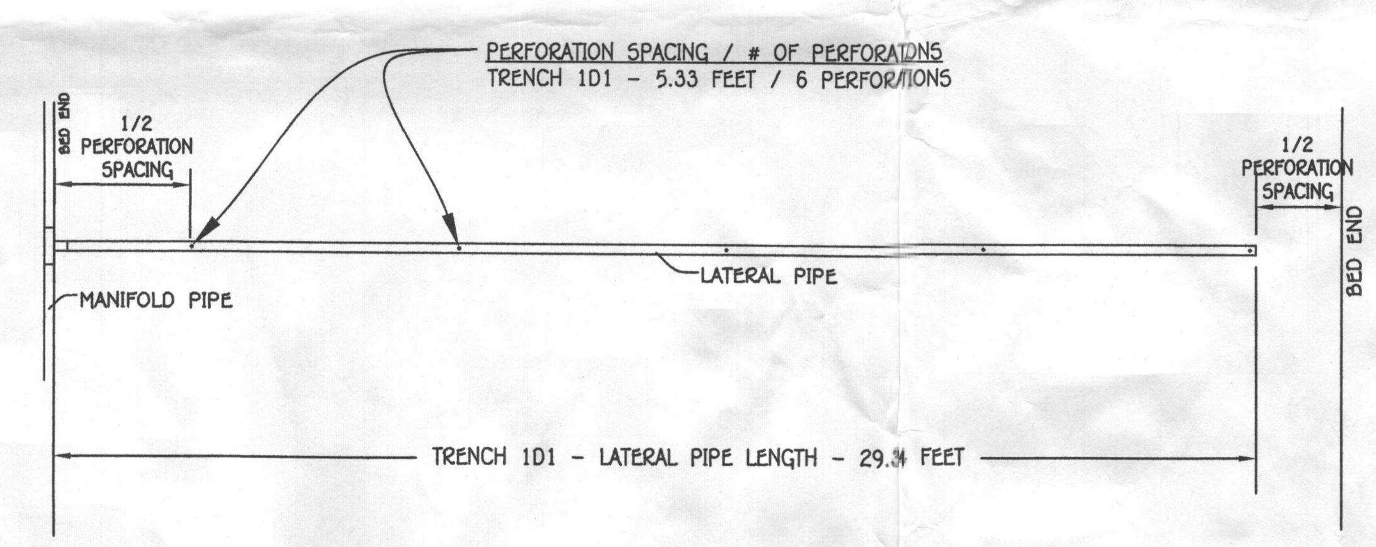
PUMP TANK ELEVATIONS
A= 721.8
B= 717.78 (INV. INTO TANK)
C= 713.53
D= 713.86
E= 715.11
F= 716.36
G= 716.86
H= 718.61
I= 719.6 (INV. OUT OF TANK)
J= 720.8 (HIGHEST POINT IN PUMP CHAMBER)
COVER OVER PUMP TANK = 3 FT

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

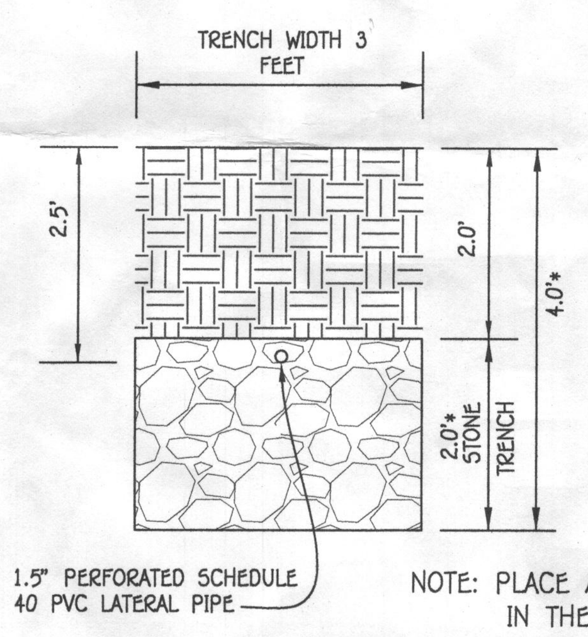


CENTER FEED LAYOUT

NOTE: FLOAT CONFIGURATION SHOWN FOR ILLUSTRATIVE PURPOSES. FLOATS TO BE SET TO SAME ELEVATIONS OF ALARM PROBE.



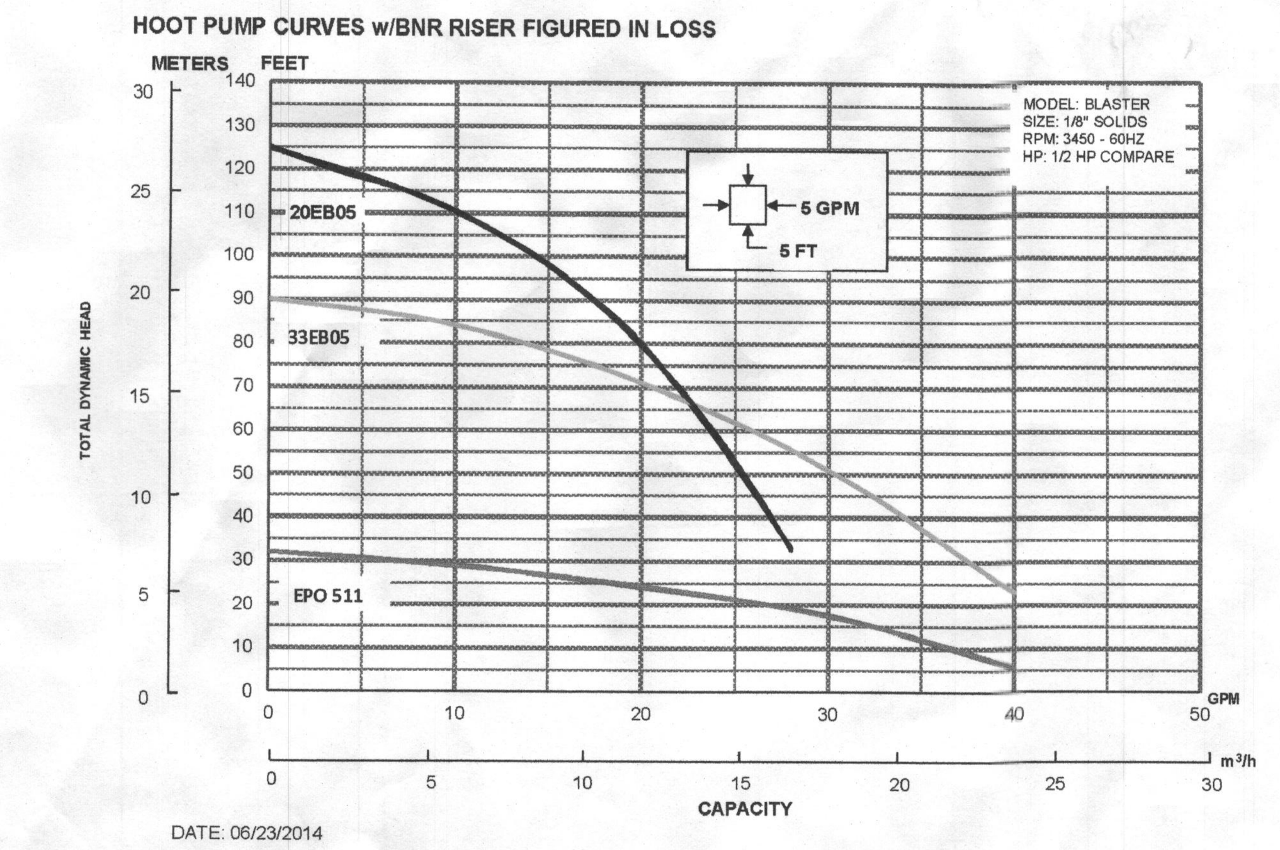
END FEED LAYOUT



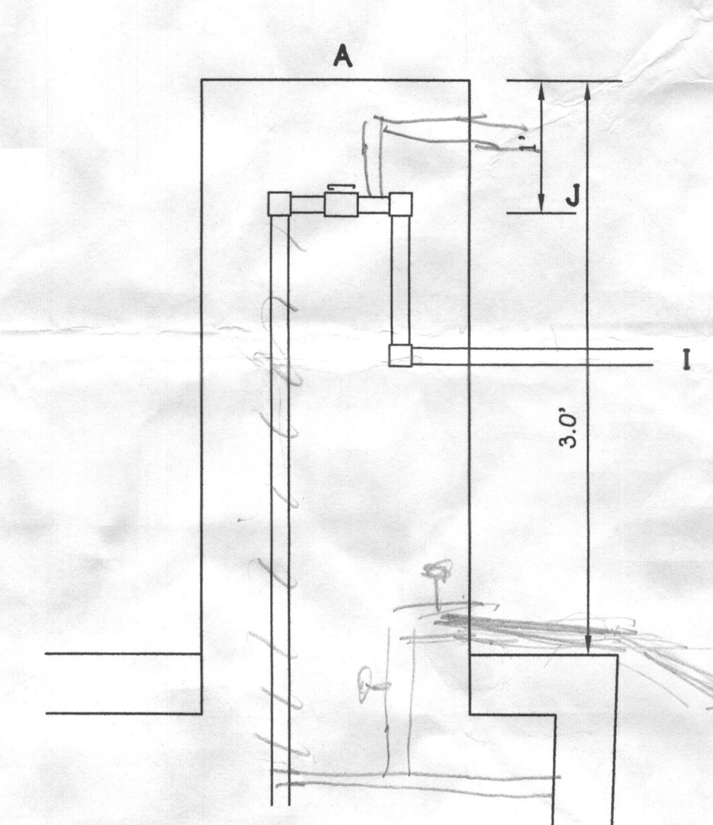
NOTE: PLACE AN OBSERVATION PIPE IN THE GRAVEL BED AT THE DISTAL END OF EACH TRENCH SEGMENT.

TRENCH DETAIL
SCALE : 1"=2'

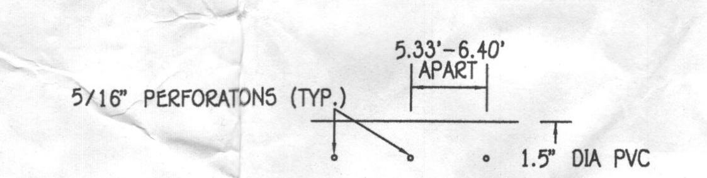
* THE RANGE OF EFFECTIVE DEPTH IS ANTICIPATED TO BE 1 FT TO 2 FT, OR GREATER FOR TRENCHES 1C1, 1C2, AND 1D1.



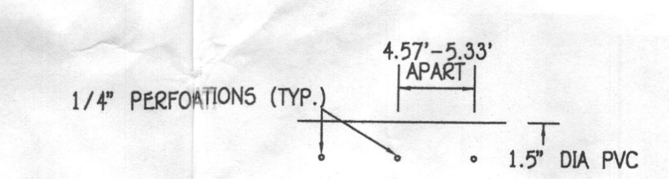
NOTE: USE BLASTER PUMP (EPO 511) FOR RECIRCULATION TO BAT TANK



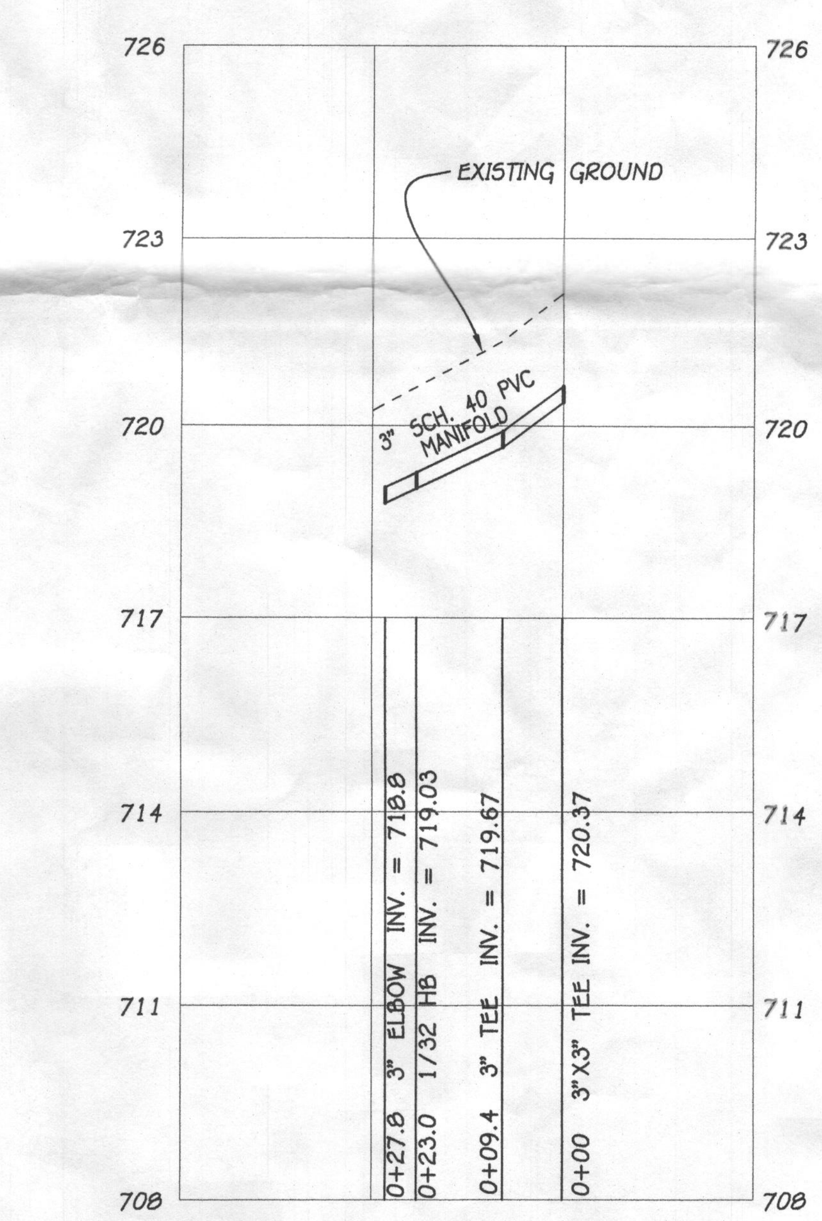
PUMP DISCHARGE DETAIL
NOT TO SCALE



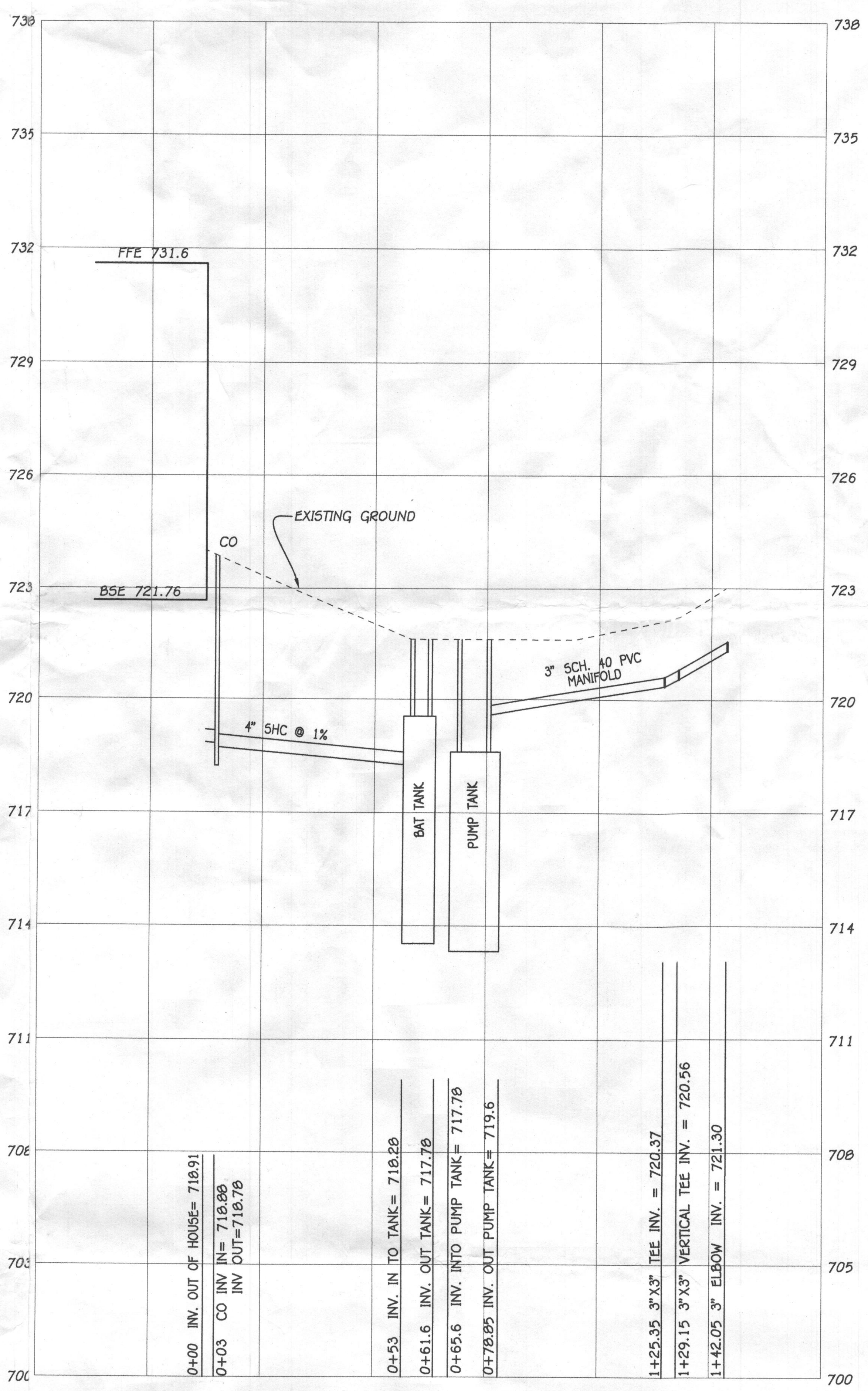
PERFORATED SCH. 40 PVC LATERAL PIPE BLOWUP DETAIL (TRENCHES 1A & 1B)
SCALE : 1"=1'



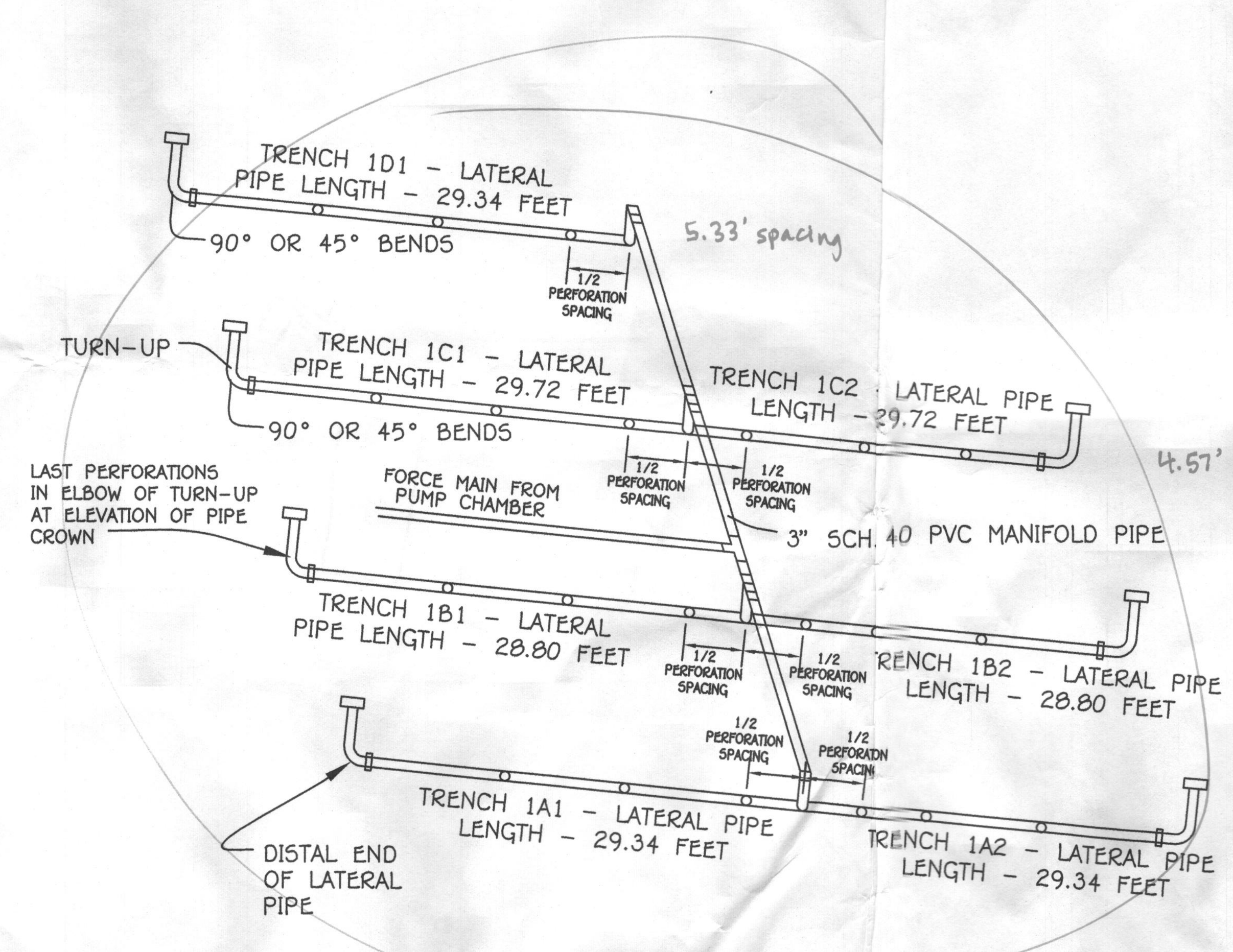
PERFORATED SCH. 40 PVC LATERAL PIPE BLOWUP DETAIL (TRENCHES 1C & 1D)
SCALE: 1"=1'



SEPTIC SYSTEM PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1"= 3'



SEPTIC SYSTEM PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1"= 3'



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

FIGURE 4.1 MANIFOLD DISTRIBUTION NETWORK

Manifold

ITT

GOULDS PUMPS
Wastewater

APPLICATIONS

Specifically designed for the following uses:

- Homes, Farms, Trailer Courts, Motels, Schools, Hospitals, Industry, Effluent Systems

SPECIFICATIONS

Pump

- Solids handling capabilities: ¾" 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 (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

MOTORS

- Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.
- Class B insulation on ⅓ – 1½ HP models.
- Class F insulation on 2 HP models.

Single phase (60 Hz):

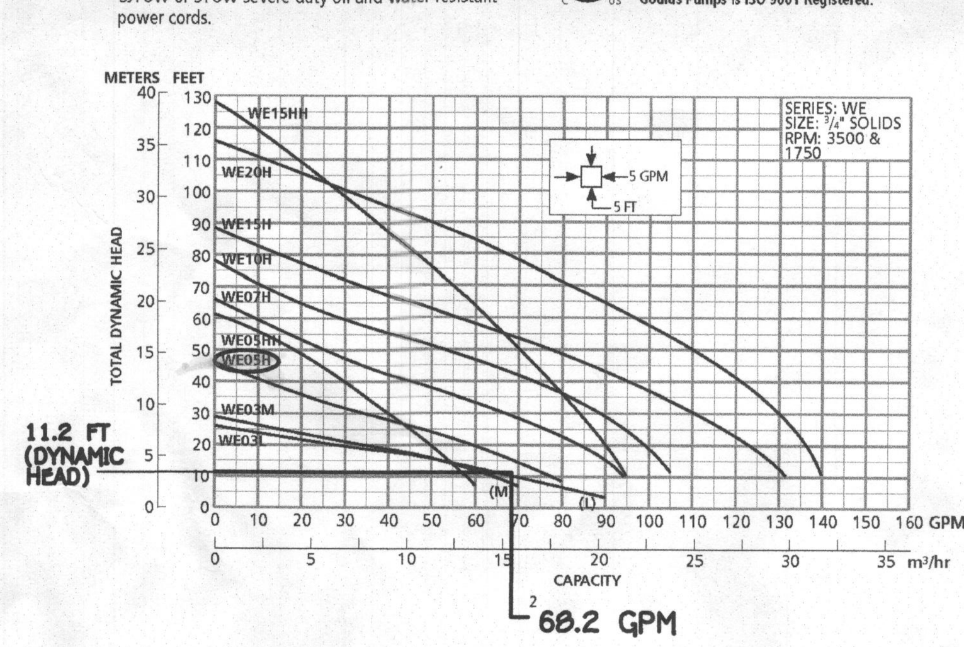
- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.
- ⅓ – 1 HP models have NEMA three prong grounding plugs.
- 1½ HP and larger units have bare lead cord ends.

Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.
- **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- **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. Standard cord is 20'. Optional lengths are available.
- **O-ring:** Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards By Canadian Standards Association File #LR38549
Goulds Pumps is ISO 9001 Registered.



NOTE: USE A WE05H PUMP IN PUMP TANK

LPD Pump

ITT

Wastewater

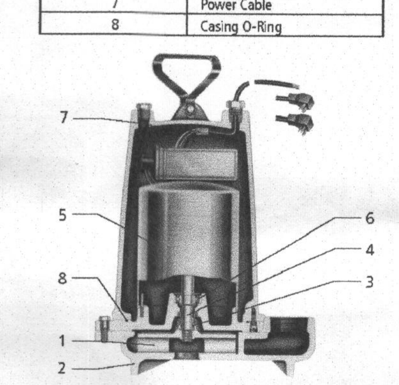
PERFORMANCE RATINGS (gallons per minute)

11.2 FT (DYNAMIC HEAD)

Order No.	WE03L	WE03M	WE05H	WE07H	WE10H	WE1H	WE05HH	WE15HH	WE20H
HP	⅓	⅓	½	¾	1	1½	½	1½	2
RPM	1750	1750	3500	3500	3500	350[illegible]	3500	3500	3500
Total Head Feet of Water 5	86	–	–	–	–	–	–	–	–
10	70	63	78	94	–	–	58	95	–
15	52	52	70	90	103	12[illegible]	53	93	138
20	27	35	60	83	98	12[illegible]	49	90	136
25	5	15	48	76	94	11[illegible]	45	87	133
30	–	–	35	67	88	11[illegible]	40	83	130
35	–	–	22	57	82	10[illegible]	35	80	126
40	–	–	–	45	74	9[illegible]	30	77	121
45	–	–	–	35	64	8[illegible]	25	74	116
50	–	–	–	25	53	7[illegible]	–	70	110
55	–	–	–	–	40	6[illegible]	–	66	103
60	–	–	–	–	30	5[illegible]	–	63	96
65	–	–	–	–	20	4[illegible]	–	58	89
70	–	–	–	–	–	3[illegible]	–	55	81
75	–	–	–	–	–	2[illegible]	–	51	74
80	–	–	–	–	–	–	–	47	66
90	–	–	–	–	–	–	–	37	49
100	–	–	–	–	–	–	–	28	30

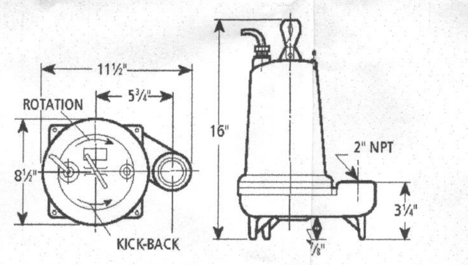
COMPONENTS

Item No.	Description
1	Impeller
2	Casing
3	Mechanical Seal
4	Motor Shaft
5	Motor
6	Ball Bearings
7	Power Cable
8	Casing O-Ring



DIMENSIONS

(All dimensions are in inches. Do not use for construction purposes.)



GOULDS PUMPS

Goulds Pumps and the ITT Engineered Blocks Symbol are registered trademarks and tradenames of ITT Corporation.

SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

B3885 June, 2009

Engineered for life

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

OWNER AND DEVELOPER
M&O PROPERTIES, LLC
13805 FORSYTHE ROAD
SYKESVILLE, MARYLAND 21784

Approved Septic System Plan
Howard County Health Department
HOOT 600 BNR w/1500-gal Pump Chamber
& 0.5 hp Pump or equivalent to LPD
R Bricker 11/9/2016
Signature Date
17040 Hardy Rd.
B16003304

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] 11/4/16
Signature Of Professional Engineer DATE

STATE OF MARYLAND
STEPHANIE J. TUITE
No. 38386
PROFESSIONAL ENGINEER

BAT PLAN
SHEARS PROPERTY
LOT 1

A RESUBDIVISION OF POPLAR HEIGHTS SUBDIVISION LOT 41-44 AS RECORDED IN THE LAND RECORDS AS PLAT No. 3, FOLIO 26

TAX MAP #7 GRID: 8 PARCEL: 31
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1"=30' DATE: NOVEMBER, 2016
SHEET 2 OF 2