

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS) FILL IN THIS FORM COMPLETELY PLEASE TYPE COUNTY NUMBER

DATE RECEIVED 10-20-15 DATE WELL COMPLETED 9-25-15 DEPTH OF WELL 375 PERMIT NO. HO-15-0139

OWNER Schum, Krats + Lisa WELL SITE ADDRESS 6820 Davis Ln TOWN Elkridge MD SUBDIVISION SECTION LOT 2

**WELL LOG**  
Not required for driven wells

STATE THE KIND OF FORMATIONS PENETRATED, THEIR COLOR, DEPTH, THICKNESS AND IF WATER BEARING

DESCRIPTION (Use additional sheets if needed)	FEET		check if water bearing
	FROM	TO	
Topsoil	0	1	
Brn Soil	1	20	
Red Brn Clay	20	40	
weathered Rock	40	50	
Gray Rock	50	120	
limestone	120	160	
Gray Rock	160	300	
Heavy Gray Rock	300	375	

**GROUTING RECORD**  
WELL HAS BEEN GROUTED (Circle Appropriate Box)  YES  NO

TYPE OF GROUTING MATERIAL (Circle one)  
CEMENT  BENTONITE CLAY

NO. OF BAGS 24 NO. OF POUNDS 600  
GALLONS OF WATER 600  
DEPTH OF GROUT SEAL (to nearest foot)  
from 0 ft. to 375 ft.

**CASING RECORD**  
casing types insert appropriate code below

ST STEEL CO CONCRETE  
PL PLASTIC OT OTHER

MAIN CASING TYPE Nominal diameter top (main) casing (nearest inch)! Total depth of main casing (nearest foot)

60 61 63 64 66 70

**OTHER CASING (if used)**  
diameter inch depth (feet) from to

**SCREEN RECORD**  
screen type or open hole insert appropriate code below

ST STEEL BR BRASS HO OPEN HOLE  
PL PLASTIC OT OTHER

**C 2** DEPTH (nearest ft.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
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**C 3** **PUMPING TEST**

HOURS PUMPED (nearest hour) 8 9

PUMPING RATE (gal. per min.) 11 15

METHOD USED TO MEASURE PUMPING RATE

WATER LEVEL (distance from land surface)

BEFORE PUMPING 17 20 ft.

WHEN PUMPING 22 25 ft.

TYPE OF PUMP USED (for test)

A air P piston T turbine  
C centrifugal R rotary O other (describe below)  
J jet S submersible

**PUMP INSTALLED**

DRILLER INSTALLED PUMP (CIRCLE) (YES or NO) YES NO

IF DRILLER INSTALLS PUMP, THIS SECTION MUST BE COMPLETED FOR ALL WELLS.

TYPE OF PUMP INSTALLED PLACE (A,C,J,P,R,S,T,O) IN BOX 29

CAPACITY: GALLONS PER MINUTE (to nearest gallon) 31 35

PUMP HORSE POWER 37 41

PUMP COLUMN LENGTH (nearest ft.) 43 47

CASING HEIGHT (circle appropriate box and enter casing height)

+ above LAND SURFACE (nearest foot)  
- below

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED  YES  NO

CIRCLE APPROPRIATE LETTER

A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED

E ELECTRIC LOG OBTAINED

P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT, AND THAT THE INFORMATION PRESENTED HEREIN IS ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE.

DRILLER'S LIC. NO. 1 M D 553

DRILLER'S SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. 1 M D 603

SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER)

T (E.R.O.S.) W Q

70 72 74 75 76

TELESCOPE CASING LOG INDICATOR OTHER DATA

LATITUDE 39.23834  
LONGITUDE 76.75060  
(DEFAULT COORD. WGS 84)

Pursuant to §10-624 of the State Govt. Article of the Maryland Code personal info. requested on this form is used in processing this form pursuant to COMAR 26.04.04. Failure to provide the info. may result in this form not being processed. You have the right to inspect, amend, or correct this form. The Maryland Department of the Environment is subject to the Maryland Public Information Act. This form may be made available on the Internet via MDE's website and is subject to inspection or copying, in whole or in part, by the public and other governmental agencies, if not protected by federal or state law.

B 1 SEQUENCE NO. (MDE USE ONLY) 45152

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please type

STATE PERMIT NUMBER H0-15-0139 fill in this form completely

OWNER INFORMATION Schum Kratz Lisa 6820 Norris Lane Elkridge MD 21075

LOCATION OF WELL Howard Schum Property Elkridge

DRILLER INFORMATION John Hess MWD 553 Allied Environmental Services

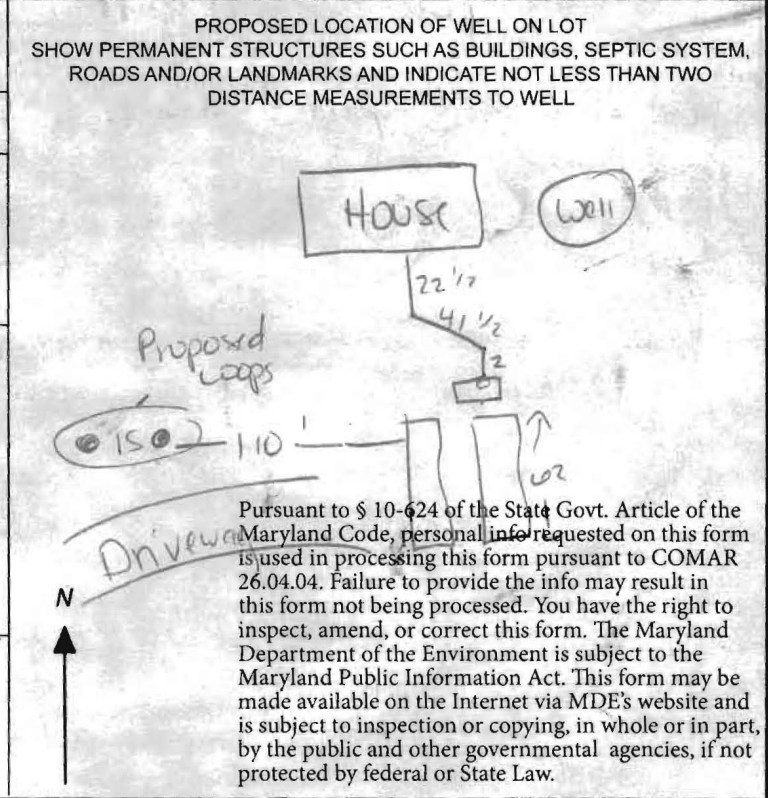
SOURCES OF DRILLING WATER Public 6820 Norris Lane ON WHICH SIDE OF ROAD 600 FT TAX MAP: 0031 BLK: 0012 PARCEL 0139

WELL INFORMATION APPROX. PUMPING RATE 8 12 AVERAGE DAILY QUANTITY NEEDED 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX) [C] CLOSED LOOP GEOTHERMAL 2 loops

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL Howard 13 A39484

APPROXIMATE DEPTH OF WELL 375 FEET APPROXIMATE DIAMETER OF WELL 6 INCH



METHOD OF DRILLING (circle one) BORED (or Augered) JETTED Jetted & DRIVEN

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX) [N] THIS WELL WILL NOT REPLACE AN EXISTING WELL

PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 52

Not to be filled in by driller (MDE OR COUNTY USE ONLY) APPROP. PERMIT NUMBER G PERMIT No. H0-15-0139

SPECIAL CONDITIONS NOTE APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

## HOWARD COUNTY GROUTING PROCEDURE

Boreholes will be grouted from the bottom to the top via a tremie pipe and positive displacement pump. Bentonite grout, known as Quik-Grout will be used according to the manufacturer's specifications to achieve a consistency of at least 20% solids (24 gallons potable water/50 lb. sack of grout) and a permeability no more than  $2.5 \text{ E}(-08) \text{ cm/sec}$ . Grouting will be completed immediately after installing the geothermal loop and no later than twenty-four (24) hours after installing the geothermal loop. Open boreholes/annular space will be protected as necessary to prevent the entry of surface water or pollutants.

GRADE

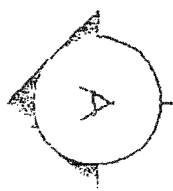
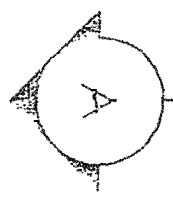
EACH BORE HOLE (TYP.)

HORIZONTAL BURY  
DEPTH 4 FT

FOR CONT.  
SEE PLANS

Horizontal  
Piping

BORE DEPTH



GROUT ENTIRE ANNULAR  
SPACE AND VERTICAL  
U-TUBE WITH (BENTONITE)  
GROUT.

DEPTH MARKINGS IN FEET TO  
INDICATE DEPTH OF INSERTION

TYPICAL VERTICAL U-TUBE  
1 1/2 INCHES

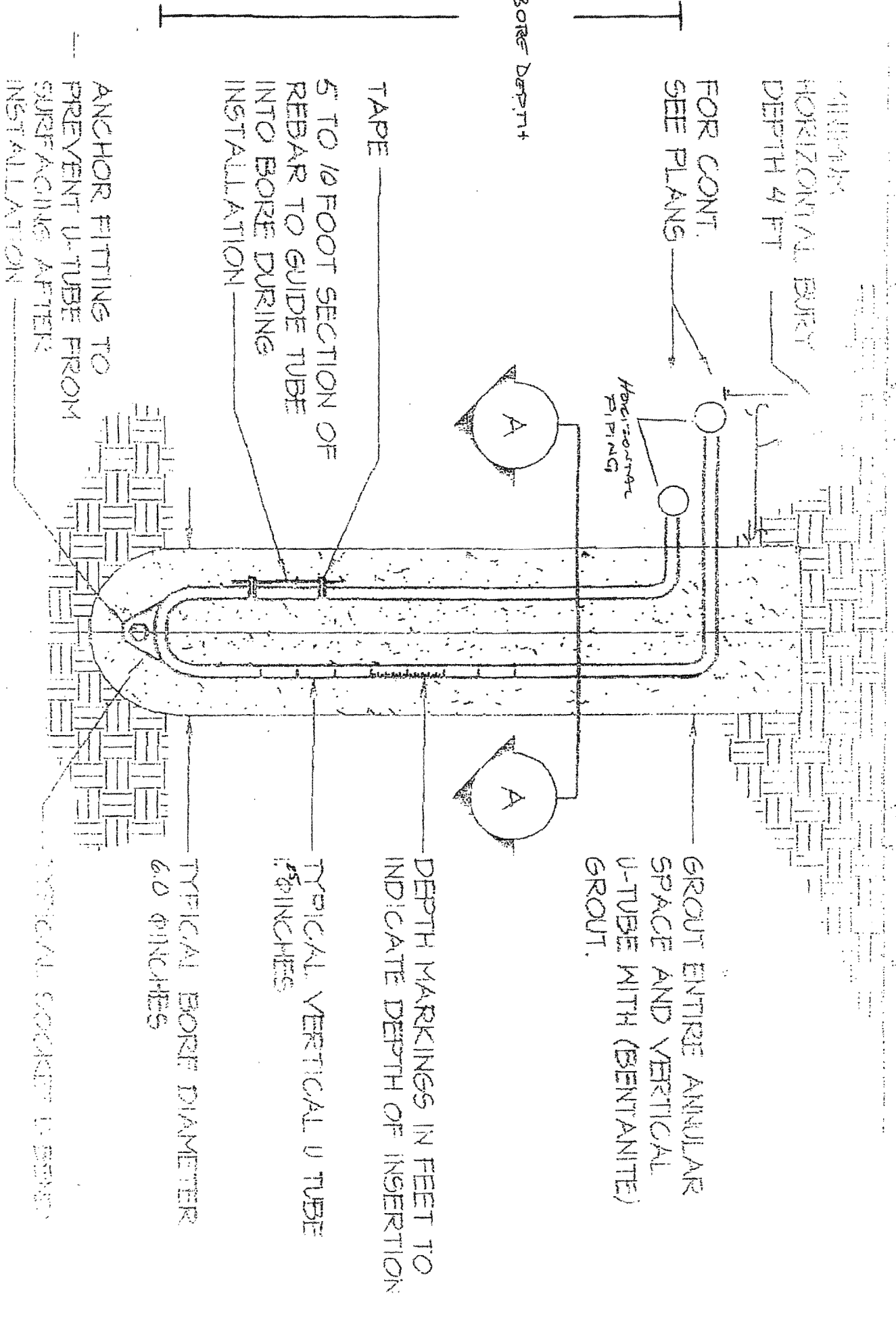
TYPICAL BORE DIAMETER  
6.0 INCHES

TYPICAL SOCKET U-TUBE

5 TO 10 FOOT SECTION OF  
REBAR TO GUIDE TUBE  
INTO BORE DURING  
INSTALLATION

TAPE

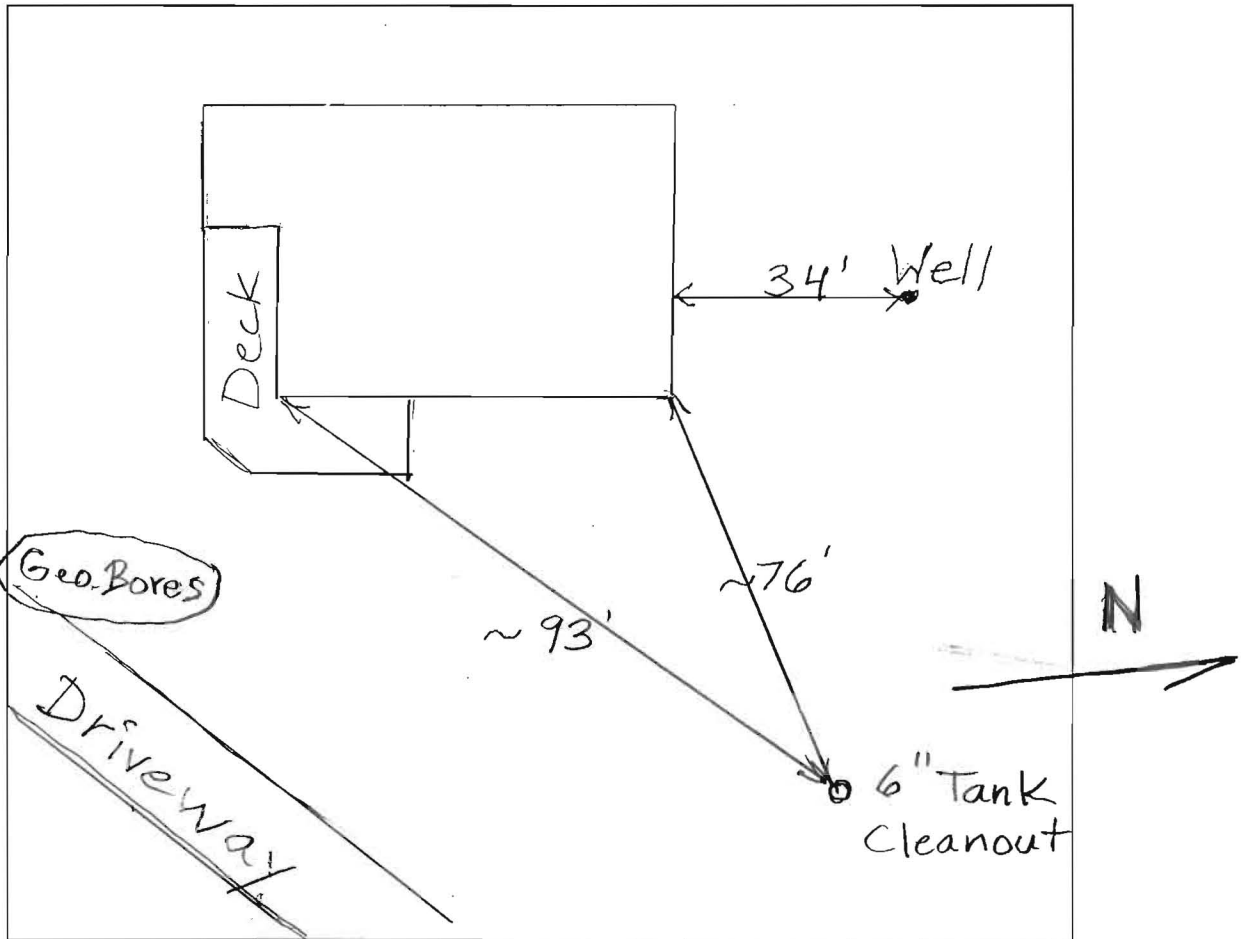
ANCHOR FITTING TO  
PREVENT U-TUBE FROM  
SURFACING AFTER  
INSTALLATION



SITE INSPECTION SHEET

OWNER: Lisa Kratz PHONE #: \_\_\_\_\_  
ADDRESS: 6820 Norris Lane CONTRACTOR: Allied Env.  
WELL TAG #: H0-15-0139  
SUBDIVISION: Schum Prop. LOT: 2 COUNTY #: A39484  
PROPOSAL: Geothermal Boreholes (2)

LOCATION DIAGRAM



COMMENTS: Install Septic System Repair  
Downhill of Existing System (to the North).  
Existing System not Installed in Septic  
Easement.  
Need to Stay Away from Geothermal Boreholes.  
DATE: 9/23/2015 INSPECTOR: B. Baker  
Septic Easement Covered With Driveway  
and Buildings.