

C 1 **04805** SEQUENCE NO. (MDE USE ONLY)  
 1 2 3 6

**STATE OF MARYLAND**  
**WELL COMPLETION REPORT**  
 FILL IN THIS FORM COMPLETELY  
 PLEASE TYPE

THIS REPORT MUST BE SUBMITTED AFTER WELL IS COMPLETED.  
 COUNTY NUMBER

ST/CO USE ONLY DATE Received MM DD YY 10 29 14 DATE WELL COMPLETED MM DD YY 9-25-14 Depth of Well 22 290 26 (TO NEAREST FOOT) PERMIT NO. FROM "PERMIT TO DRILL WELL" HO-14-0076

OWNER Bampton, Howard last name first name  
 STREET OR RFD 7105 Black Rock Ct TOWN Columbia  
 SUBDIVISION Kings Marche SECTION LOT

**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	
Concrete	0	6"	
Hard Brn Rock	6"	3'	
Tan Rock	3	18	
Brn Rock	18	31	
Med Gray Rock	31	290	

**GROUTING RECORD** yes no  
 WELL HAS BEEN GROUTED (Circle Appropriate Box) **Y** **N**  
 TYPE OF GROUTING MATERIAL (Circle one) CEMENT **CM** BENTONITE CLAY **BC**  
 NO. OF BAGS 45 420 NO. OF POUNDS 45 1500  
 GALLONS OF WATER 500  
 DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 290 ft.  
 (enter 0 if from surface)

**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  
 E A C H I N G

**SCREEN RECORD**  
 screen type or open hole insert appropriate code below  
**ST** STEEL **BR** BRASS **HO** OPEN HOLE  
**PL** PLASTIC **OT** OTHER  
 DEPTH (nearest ft.)

**C 2**

E A C H S R E E N	DEPTH (nearest ft.)	
	1	2
1	8	11
2	23	26
3	38	41
4	45	47
5	51	51

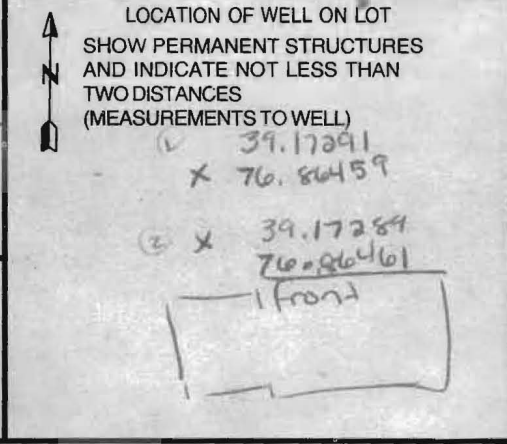
SLOT SIZE 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_  
 DIAMETER OF SCREEN (NEAREST INCH) 56 60  
 from to

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

**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 YES NO  
 (CIRCLE) (YES or 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 **Y** **N**  
 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.  
 DRILLERS LIC. NO. 1 MWD 553  
 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)  
 LIC. NO. 1 IS D 144  
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

B 1 29049 SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please type 554573

STATE PERMIT NUMBER 70 14 0076 79 fill in this form completely

08/07/14 Date Received (APA) OWNER INFORMATION 8 MM DD YY 13 Bampton Howard 15 Last Name Owner First Name 34 7105 Black Rock Ct 36 Street or RFD 55 Columbia MD 21046 57 Town 70 State 72 Zip 76

B 3 LOCATION OF WELL Howard 8 COUNTY 21 Kings Meade Sec 1 23 SUBDIVISION 42 SECTION 44 46 LOT 33 48 50 Columbia 52 NEAREST TOWN 71

DRILLER INFORMATION C John Hess MW D 553 76 Driller's Name License No. 81 Allied Environmental Services 76 Firm Name P.O. Box 129 Annapolis Junction MD 20701 76 Address 08/07/14 08/07/14 Signature Date

B 4 SOURCES OF DRILLING WATER 7105 Black Rock Ct 11 STREET ADDRESS 30 1. Public 2. 3. ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH N WEST W EAST E SOUTH S 34 37 DISTANCE FROM ROAD ENTER FT OR MI 38 39 TAX MAP: 0042 BLK: 0007 PARCEL 0303

B 2 WELL INFORMATION APPROX. PUMPING RATE (GAL. PER MIN.) 8 12 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 14 20

USE FOR WATER (CIRCLE APPROPRIATE BOX) D DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION) 22 I INDUSTRIAL, COMMERCIAL, DEWATERING P PUBLIC WATER SUPPLY WELL T TEST, OBSERVATION, MONITORING O OPEN LOOP GEOTHERMAL C CLOSED LOOP GEOTHERMAL 2 loops

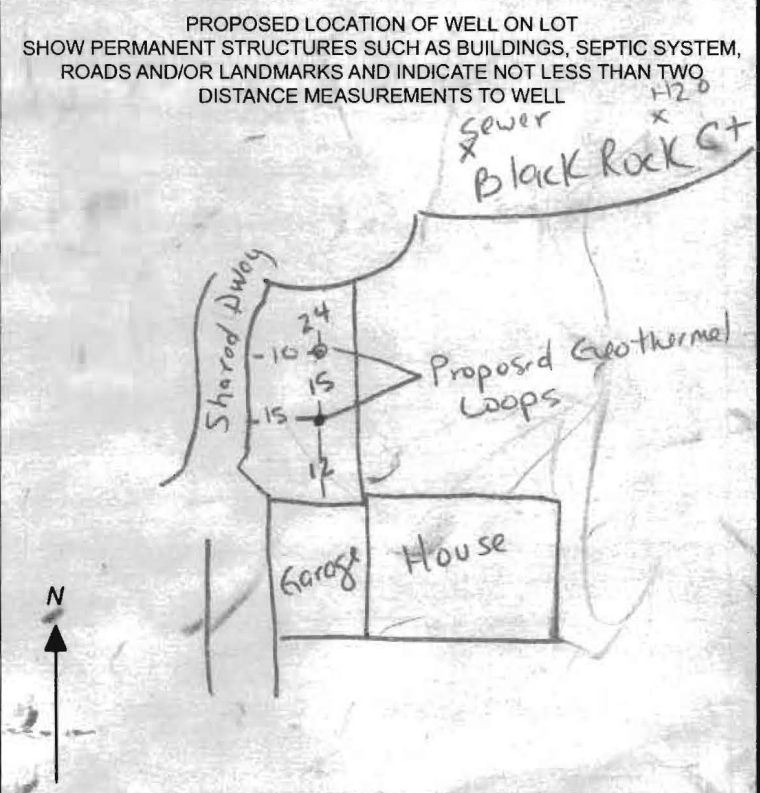
NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL Howard (13) Public 43 COUNTY NAME COUNTY NO. STATE SIGNATURE INSERT S 41 DATE ISSUED 8/26/2014 Brian Baker 8/26/2014 43 MM DD YY 48 CO SIGNATURE EXP. DATE

APPROXIMATE DEPTH OF WELL 290 24 28 FEET APPROXIMATE DIAMETER OF WELL 6 NEAREST INCH

METHOD OF DRILLING (circle one) BORED (or Augered) JETTED Jetted & DRIVEN 30 AIR-ROTary AIR-PERcussion ROTARY (Hydraulic Rotary) 37 CABLE REVerse-ROTary DRive-POINT other

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX) N THIS WELL WILL NOT REPLACE AN EXISTING WELL Y THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED 39 S THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS D THIS WELL WILL DEEPEN 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) APPROX. PERMIT NUMBER G PERMIT No. 70 14 0076 70 71 72 73 74 75 76 77 78 79



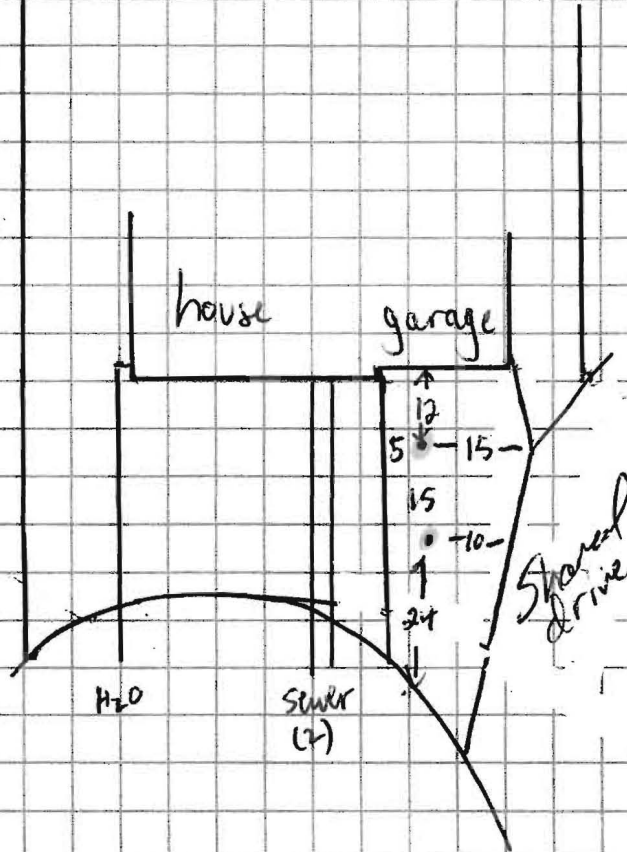
Supreme Act



SPECIAL CONDITIONS NOTE: APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED.



# SITE PLAN



1" = 30'

Sediment Control Protocol: silt bag, plastic, straw bales

Distance From House: 12  
 From Septic: n/a  
 From Sewer: 10+  
 From Property Line: 10+  
 From Street: 24

Trees Nearby: to be trimmed  
 Utility Issues: need marked  
 Mats Needed: no  
 Access For H/U: to be done by others  
 Neighboring Tags: municipal

Comments: \_\_\_\_\_

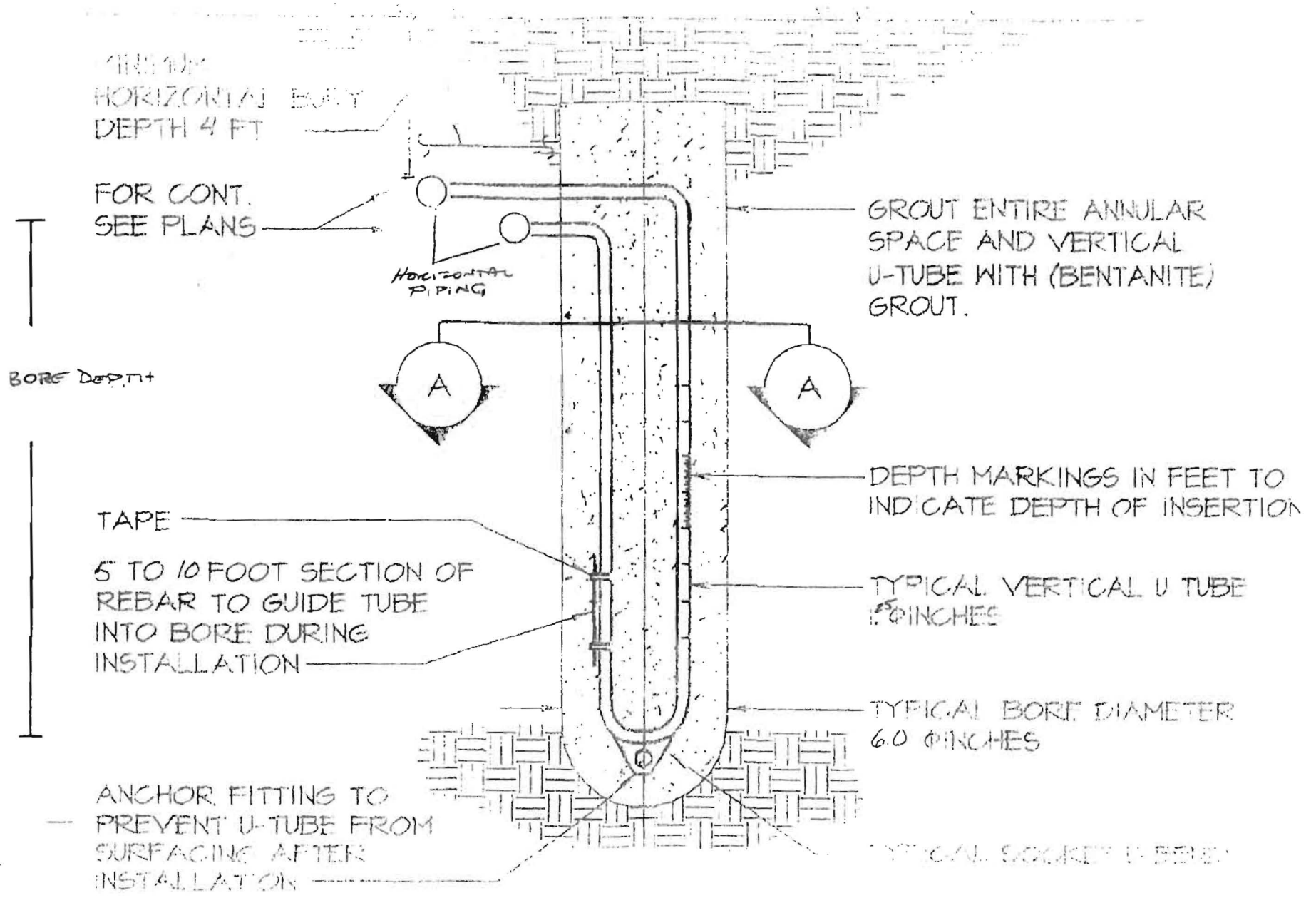
Person Completing Form: \_\_\_\_\_

## **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  $2.5 \times 10^{-8}$  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.)



MINIMUM  
HORIZONTAL BAY  
DEPTH 4 FT

FOR CONT.  
SEE PLANS

HORIZONTAL  
PIPING

BORE DEPTH

TAPE

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

ANCHOR FITTING TO  
PREVENT U-TUBE FROM  
SURFACING AFTER  
INSTALLATION

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

DEPTH MARKINGS IN FEET TO  
INDICATE DEPTH OF INSERTION

TYPICAL VERTICAL U TUBE  
1.5 INCHES

TYPICAL BORE DIAMETER  
6.0 INCHES

TYPICAL SCHEDULE 40 REBAR