

C1 26375

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

FILL IN THIS FORM COMPLETELY PLEASE TYPE

COUNTY NUMBER

ST/CO USE ONLY DATE RECEIVED MM DD 11 17

DATE WELL COMPLETED MM DD YY 10-10-15

Depth of Well 400

PERMIT NO. FROM "PERMIT TO DRILL WELL" 10-15-0137

OWNER Leah Timothy Susan WELL SITE ADDRESS 3117 Story Book Ct TOWN Elliott City MD SUBDIVISION SECTION LOT 61

WELL LOG

Not required for driven wells

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

Table with columns: DESCRIPTION (Use additional sheets if needed), FEET (FROM, TO), check if water bearing. Includes entries for Top soil, Brown soil, Soft brown soil, Tan soil, Med Hard Gray Rock, Hard Gray Rock, Med Hard Gray Rock.

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

TYPE OF GROUTING MATERIAL (Circle one) CEMENT CM BENTONITE CLAY BC NO. OF BAGS 24 NO. OF POUNDS 7200 GALLONS OF WATER 600 DEPTH OF GROUT SEAL (to nearest foot) from 0 ft. to 400 ft.

CASING RECORD casing types insert appropriate code below MAIN CASING TYPE Nominal diameter top (main) casing (nearest inch)! Total depth of main casing (nearest foot)

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 PL PLASTIC HO OPEN HOLE OT OTHER

DEPTH (nearest ft.)

Table with columns: E A C H S C 3 R E E N, 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

SLOT SIZE 1 2 3 DIAMETER OF SCREEN (NEAREST INCH) 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

C3

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 - below LAND SURFACE (nearest foot) 49 50 51

LATITUDE 39.28286 LONGITUDE 76.85432 (DEFAULT COORD. WGS 84) NOTES: Front

NUMBER OF UNSUCCESSFUL WELLS:

WELL HYDROFRACTURED YES Y NO 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. M WD 553

DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)

LIC. NO. W 20 497

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

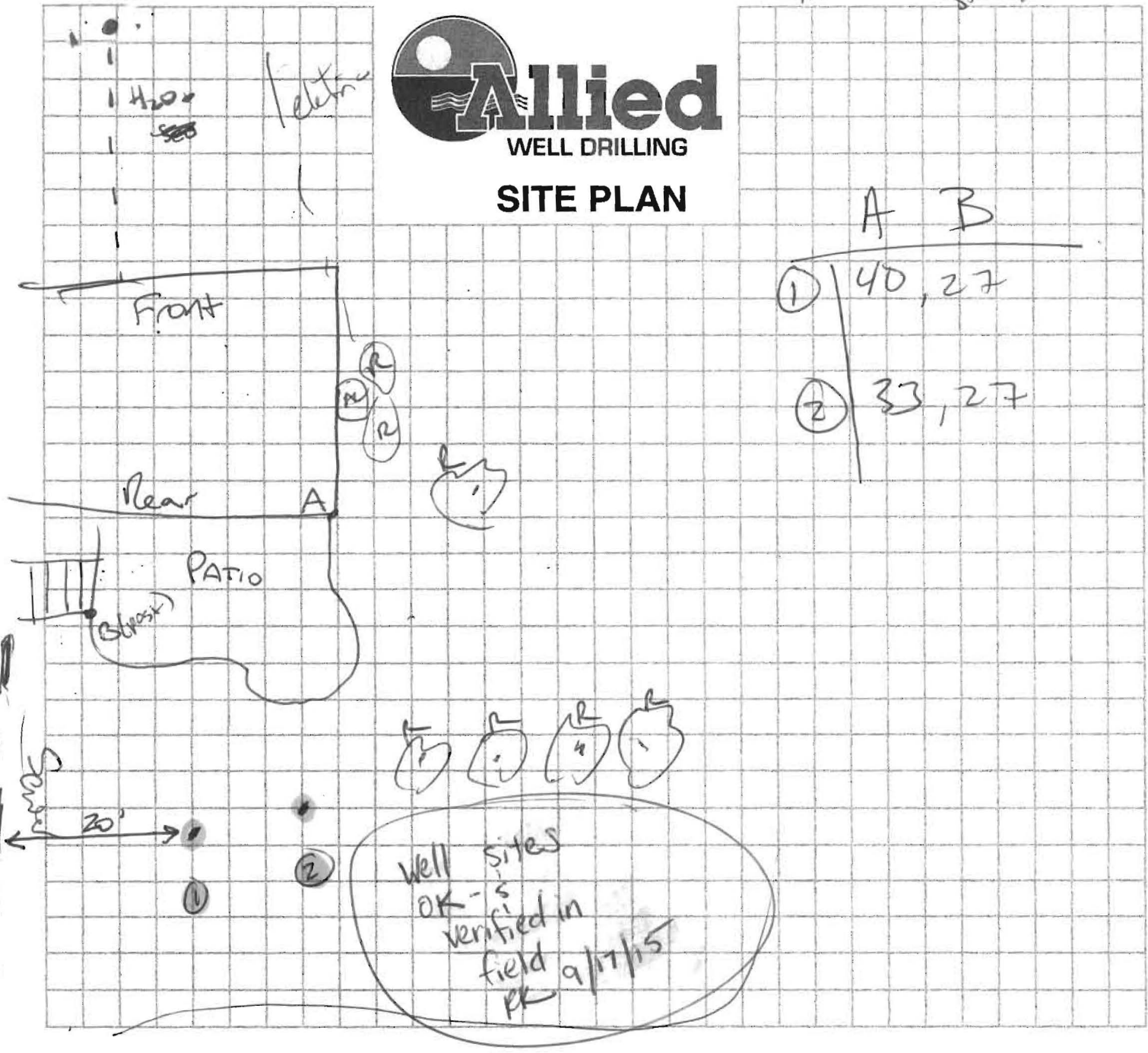
B 1	SEQUENCE NO. (MDE USE ONLY) 45144	STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL 557365 please type	STATE PERMIT NUMBER HO - 15 - 0137 fill in this form completely
Date Received (APA) 09/10/15 8 MM DD YY 13		B 3 LOCATION OF WELL Howard 8 COUNTY 21 Enchanted forest Est 23 SUBDIVISION 42 SECTION 44 46 LOT 48 50 Ellicott City 52 NEAREST TOWN 71	
OWNER INFORMATION 8 MM DD YY 13 15 Last Name Owner First Name 34 Keay Timothy + Susan 36 Street or RFD 55 Ellicott City MD 21042 57 Town 70 State 72 Zip 76		B 4 SOURCES OF DRILLING WATER 1. Public 2. 3. 3117 Story Book Ct 11 STREET ADDRESS 30 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) 34 150 37 DISTANCE FROM ROAD ENTER FT OR MI 38 39 TAX MAP 0024 BLK: 0002 PARCEL 0026	
DRILLER INFORMATION Driller's Name License No. 81 John Hess MWD 553 Firm Name Allied Environmental Services Address P.O. Box 129 Annapolis Junction MD 20701 Signature Date 09/04/15		WELL INFORMATION 1 2 APPROX. PUMPING RATE (GAL. PER MIN.) 8 12 AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY) 14 20	
USE FOR WATER (CIRCLE APPROPRIATE BOX) 22 <input type="checkbox"/> DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION <input type="checkbox"/> FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION) <input type="checkbox"/> INDUSTRIAL, COMMERCIAL, DEWATERING <input type="checkbox"/> PUBLIC WATER SUPPLY WELL <input type="checkbox"/> TEST, OBSERVATION, MONITORING <input type="checkbox"/> OPEN LOOP GEOTHERMAL <input checked="" type="checkbox"/> CLOSED LOOP GEOTHERMAL 2 loops		NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL Howard COUNTY NAME COUNTY NO. 13 STATE SIGNATURE INSERT S → 41 DATE ISSUED 09/17/2015 43 MM DD YY 48 CO SIGNATURE RRT EXP. DATE 9/17/16	
APPROXIMATE DEPTH OF WELL 400 FEET 24 28		PROPOSED LOCATION OF WELL ON LOT SHOW PERMANENT STRUCTURES SUCH AS BUILDINGS, SEPTIC SYSTEM, ROADS AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCE MEASUREMENTS TO WELL Sewer A B 1 40, 55 2 33, 27 Photo (Rear) House A Front or HSE	
APPROXIMATE DIAMETER OF WELL 6 INCH 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) 39 <input checked="" type="checkbox"/> THIS WELL WILL NOT REPLACE AN EXISTING WELL <input type="checkbox"/> THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED <input type="checkbox"/> THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS <input type="checkbox"/> THIS WELL WILL DEEPEM AN EXISTING WELL PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 - - - - - 52		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.	
Not to be filled in by driller (MDE OR COUNTY USE ONLY) APPROP. PERMIT NUMBER - - - - - G - - - - - PERMIT No. HO - 15 - 0137 70 71 72 73 74 75 76 77 78 79		SPECIAL CONDITIONS NOTE APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED - wells must be grouted from bottom to top.	

Groundwater

GROUND LOOP
SPRING BOOK



SITE PLAN



Sediment Control Protocol: _____

Distance From House: _____

From Septic: _____

From Sewer: _____

From Property Line: _____

From Street: _____

Trees Nearby: yes - removed

Utility Issues: _____

Mats Needed: yes

Access For H/U: N/A

Neighboring Tags: _____

Comments: Neighbor Access letter & See pics

Person Completing Form: _____

GRADE

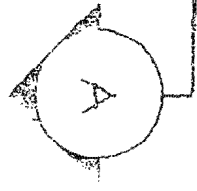
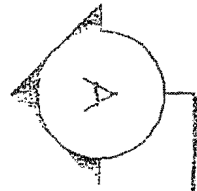
EACH BORE HOLE (TYP)

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

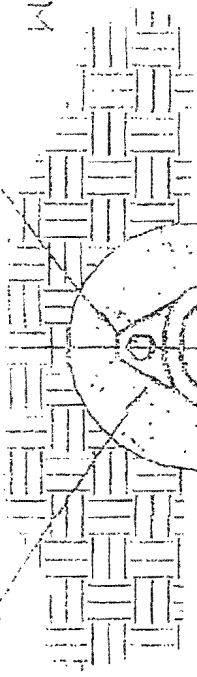
TYPICAL VERTICAL U-TUBE
1 1/2 INCHES

TYPICAL BORE DIAMETER
6.0 INCHES

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

ANCHOR FITTING TO
PREVENT U-TUBE FROM
SURFACING AFTER
INSTALLATION

TYPICAL SOCKETS U-TUBES



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.