

C 1 34456 SEQUENCE NO. (MDE USE ONLY) STATE OF MARYLAND WELL COMPLETION REPORT THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED. COUNTY NUMBER DATE RECEIVED 08-09-15 DATE WELL COMPLETED 06-17-15 Depth of Well 370 PERMIT NO. FROM "PERMIT TO DRILL WELL" 15-0076 OK 8/20/15 sc 10-15-0076 OWNER Traber, Thomas & Victoria first name last name TOWN Columbus WELL SITE ADDRESS 9509 Red Apple Ln SUBDIVISION 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 FROM TO check if water bearing Top Soil 0 1 Bin Soil 1 20 Bin Orange Soil 20 40 Small Gravel + Broken Rock 40 60 Large Gravel 60 70 Weathered Rock 70 80 Med Gray Rock 80 260 Broken layers 260 280 Med Gray Rock 280 370 28 bags x 26 gal = 728 gal / 370' = 1.96 gal/ft 2 closed loops = 0.93 gal/ft

GROUTING RECORD YES NO Y N WELL HAS BEEN GROUTED (Circle Appropriate Box) TYPE OF GROUTING MATERIAL (Circle one) CEMENT CM BENTONITE CLAY BC NO. OF BAGS 28 NO. OF POUNDS 1700 GALLONS OF WATER 700 DEPTH OF GROUT SEAL (to nearest foot) from 48 TOP 52 ft. to 54 BOTTOM 58 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 EACH CASING

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

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. MWD 553 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION) LIC. NO. WRD 097 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

C 2 SCREEN RECORD screen type or open hole ST STEEL BR BRASS HO OPEN HOLE PL PLASTIC OT OTHER 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 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 TELESCOPE CASING LOG INDICATOR OTHER DATA

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 39.15488 LONGITUDE 76.84295 (DEFAULT COORD. WGS 84) NOTES: Front

16-158208

B 1 **36710** SEQUENCE NO. (MDE USE ONLY) **STATE OF MARYLAND** STATE PERMIT NUMBER **H0-15-0076**
 1 2 3 6 **APPLICATION FOR PERMIT TO DRILL WELL** **fill in this form completely**
 550460 please type

Date Received (APA) **02/18/15** **OWNER INFORMATION**
 8 MM DD YY 13 **Traber Thomas + Victoria**
 15 Last Name Owner First Name 34
 36 **9509 Red Apple Lane** Street or RFD 55
 57 **Columbia MD 21046** Town 70 State 72 Zip 76

DRILLER INFORMATION
C John Hess MWD **SS3**
 Driller's Name 76 License No. 81
Allied Environmental Services
 Firm Name
PO Box 129 Annapolis Junction MD 20701
 Address
C John Hess **02/14/15**
 Signature Date

B 2 **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)
☐ DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
☐ FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
☐ INDUSTRIAL, COMMERCIAL, DEWATERING
☐ PUBLIC WATER SUPPLY WELL
☐ TEST, OBSERVATION, MONITORING
☒ OPEN LOOP GEOTHERMAL
☐ CLOSED LOOP GEOTHERMAL
2 Loops

APPROXIMATE DEPTH OF WELL **370** FEET
 24 28
 APPROXIMATE DIAMETER OF WELL **6** INCH
 NEAREST INCH

METHOD OF DRILLING (circle one)
 BORED (or Augered) JETTED Jetted & DRIVEN
☒ AIR-ROTARY AIR-PERCussion ROTARY (Hydraulic Rotary)
☒ CABLE REVERSE-ROTARY DRIVE-POINT
 other

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)
☒ THIS WELL WILL NOT REPLACE AN EXISTING WELL
☐ THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
☐ THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
☐ THIS WELL WILL DEEPEMED 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. **H0-15-0076**
 70 71 72 73 74 75 76 77 78 79

LOCATION OF WELL
 B 3 **Howard**
 8 COUNTY 21
Vil Kings Contriv.
 23 SUBDIVISION 42
 SECTION **44** LOT **110**
 44 46 48 50
Columbia
 52 NEAREST TOWN 71

SOURCES OF DRILLING WATER
 B 4
 1. **Public**
 2.
 3.

9509 Red Apple Lane
 11 STREET ADDRESS 30
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)
 NORTH
 WEST EAST
 SOUTH
 34 37
 DISTANCE FROM ROAD
 ENTER FT OR MI 38 39
 TAX MAP: **0042** BLK: **0021** PARCEL: **0442**

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL
Howard (13)
 COUNTY NAME COUNTY NO.
 STATE SIGNATURE INSERT S → 41
 DATE ISSUED **5/21/15** **S. L. G. M.** **5/21/16**
 43 MM DD YY 48 CO SIGNATURE EXP. DATE

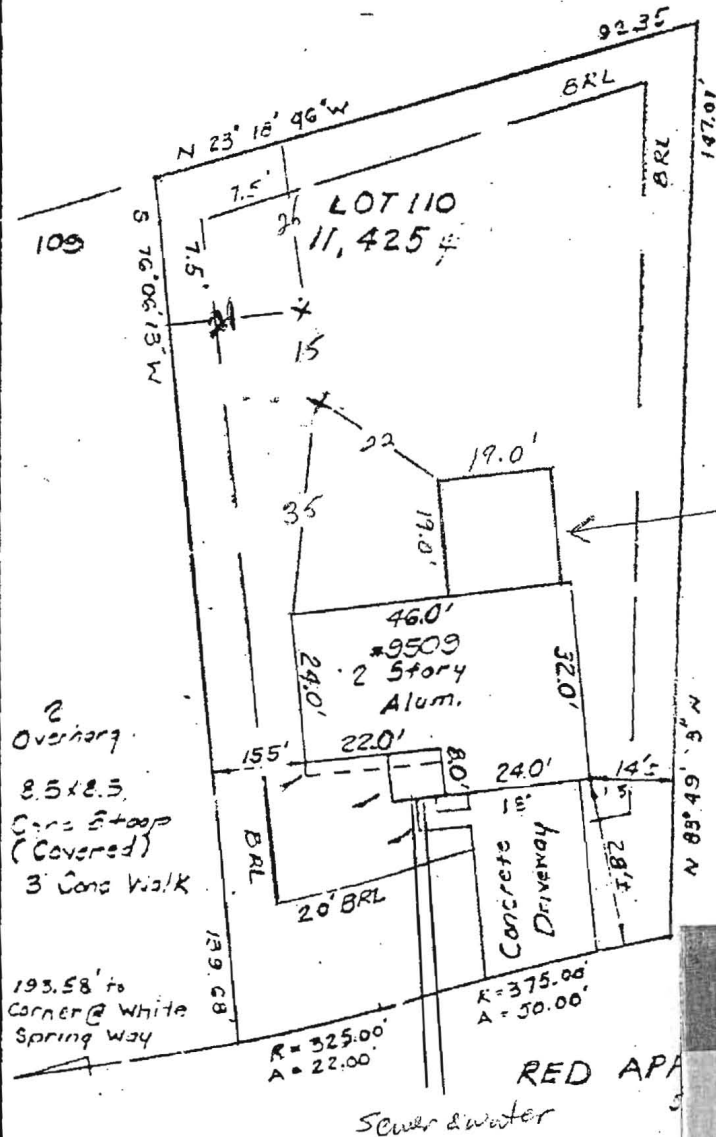
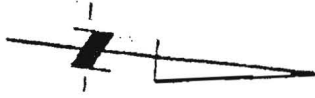
PROPOSED LOCATION OF WELL ON LOT
 SHOW PERMANENT STRUCTURES SUCH AS BUILDINGS, SEPTIC SYSTEM, ROADS AND/OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCE MEASUREMENTS TO WELL

 N
 A B
 1 35, 22
 Red Apple Lane

SPECIAL CONDITIONS
 NOTE APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

LOCATION OF HOUSE
9509 RED APPLE LANE
LOT 110

COLUMBIA
VILLAGE OF KINGS CONTRIVANCE
SECTION 3 AREA 2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND



Wall Check: 8-27-83
Final: 10-24-83

H/c Permit 33457
Enclosed
Porch
!!!

Bore locations
approved
5/21/15 SC

DO NOT REMOVE THIS TAG
DEPARTMENT OF THE ENVIRONMENT
WELL PERMIT NUMBER

HO-15-0076

INFORMATION-GIVE NUMBER AND WRITE
1800 WASHINGTON BLVD
BALTIMORE MARYLAND 21230

TEL. NO 583-3400

SURVEYOR'S CERTIFICATE

I hereby certify that the position of all existing improvements on the above described property have been carefully established by a transit-tape survey and that unless otherwise shown, there are no encroachments.

Ronald B. Kahill *6059

REFERENCE	DRAWN BY DVB	CHECKED BY KWC
Plat 4812	DATE 10-24-83	FILE NO.
	SCALE 1" = 30'	10449-H

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 2.5×10^{-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 BURY
DEPTH 4 FT

FOR CONT.
SEE PLANS

HORIZONTAL
PIPING

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

BORE DEPTH

TAPE

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

DEPTH MARKINGS IN FEET TO
INDICATE DEPTH OF INSERTION

TYPICAL VERTICAL U TUBE
1.5" INCHES

TYPICAL BORE DIAMETER
6.0 INCHES

ANCHOR FITTING TO
PREVENT U-TUBE FROM
SURFACING AFTER
INSTALLATION

TYPICAL SOCKET U-BEND

