

B 1 1595 SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL 533288 please type

STATE PERMIT NUMBER HO-95-1935 fill in this form completely

OWNER INFORMATION Date Received (APA) 6/9/2010 DOUGHNEY MIKE 6325 ISLE OF SKYE DRIVE Highland MD 20777

LOCATION OF WELL B 3 HOWARD COUNTY Highland LAKE SECTION 44 46 LOT 48 50 Highland NEAREST TOWN 1 MILE MILES FROM TOWN

DRILLER INFORMATION JACK MILLER MS D 206 Northern Virginia Drilling 11356 INDUSTRIAL RD MANASSAS VA

DIRECTION OF WELL FROM TOWN (CIRCLE BOX) NEAR WHAT ROAD ISLE OF SKYE DR. ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) DISTANCE FROM ROAD 800 FT TAX MAP 34 BLK: 22 PARCEL 384

WELL INFORMATION APPROX. PUMPING RATE (GAL. PER MIN.) AVERAGE DAILY QUANTITY NEEDED (GAL. PER DAY)

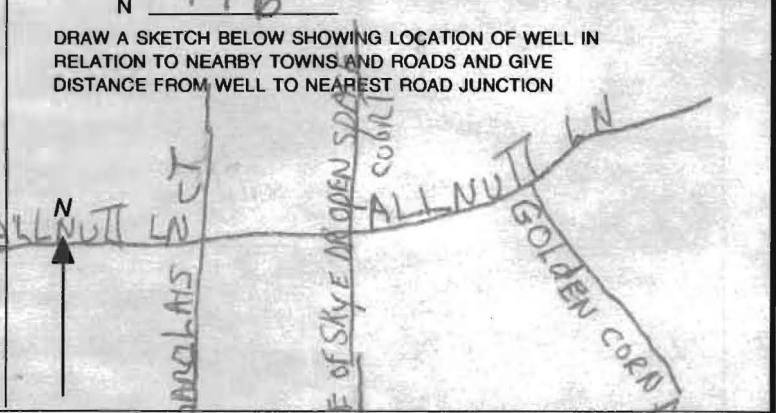
NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL HOWARD COUNTY (13) A24065 STATE SIGNATURE DATE ISSUED 6/30/2010 Brian Baker 6/30/2011 CO SIGNATURE EXP. DATE NORTH GRID 496 EAST GRID 809

USE FOR WATER (CIRCLE APPROPRIATE BOX) D DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION F FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION) I INDUSTRIAL, COMMERCIAL, DEWATERING P PUBLIC WATER SUPPLY WELL T TEST, OBSERVATION, MONITORING G GEO-THERMAL

APPROXIMATE DEPTH OF WELL 3x500 FEET APPROXIMATE DIAMETER OF WELL 6 INCH NEAREST TOWN SOURCE OF DRILLING WATER 1. Public WATER WRITE THE BOX NUMBER FROM THE MAP HERE E 809 N 496

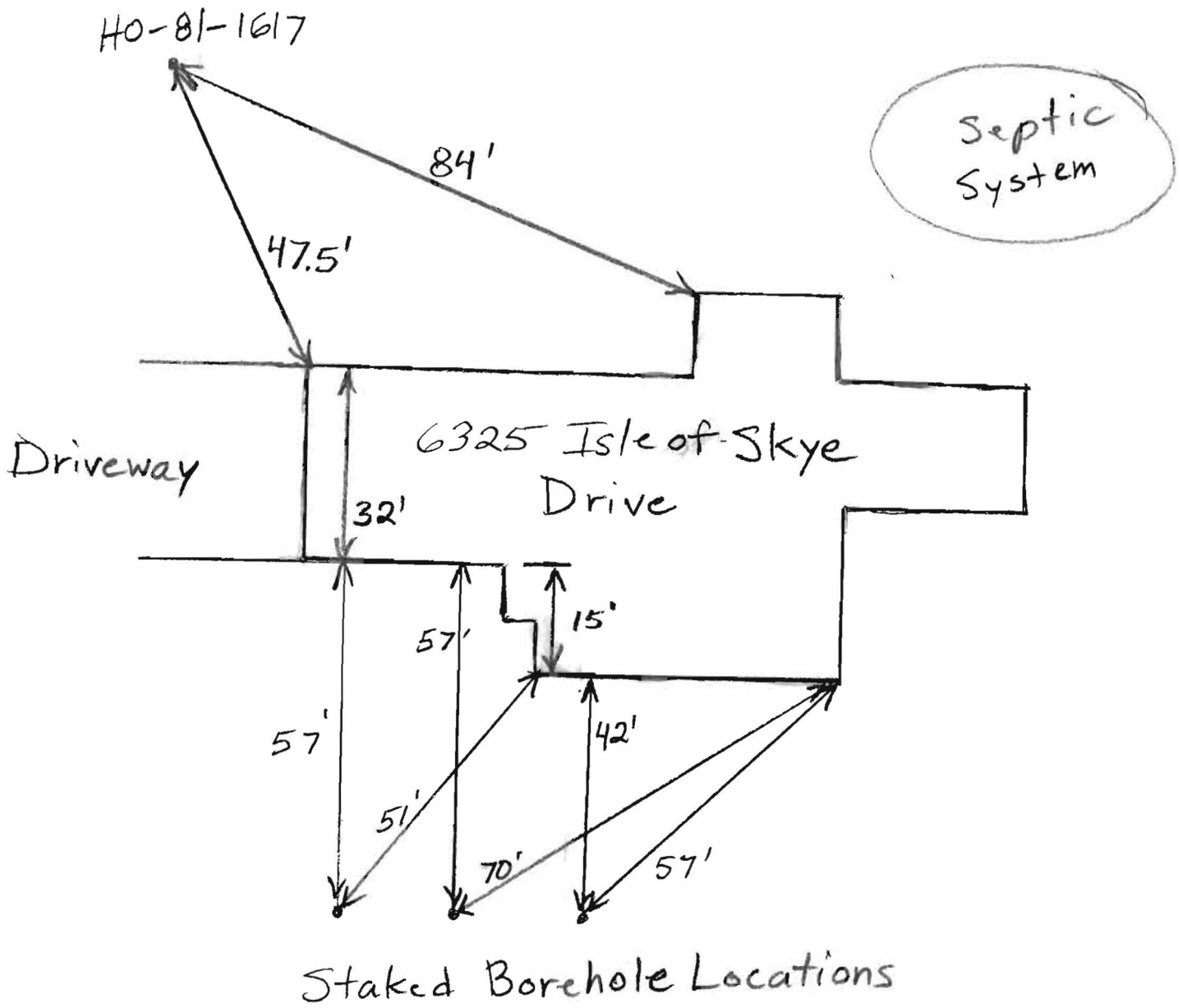
METHOD OF DRILLING (circle one) BORED (or Augered) AIR-ROTARY JETTED AIR-PERCussion ROTARY (Hydraulic Rotary) CABLE REVERSE-ROTARY DRIVE-POINT other

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 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 DEEPEM AN EXISTING WELL PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41



Not to be filled in by driller (MDE OR COUNTY USE ONLY) APPROP. PERMIT NUMBER G PERMIT No. HO-95-1935

SPECIAL CONDITIONS NOTE - APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED Grant Borehole from Bottom Upwards with Tremie Pipe



6/30/10

Borehole Locations O.K.

BB





# HOWARD COUNTY HEALTH DEPARTMENT

33288

DATE  
6/9/10

1115

Received From

Northern Virginia Drilling Inc. PHONE # 703-361-6859

CASH

CHECK

NO.

101081

For

Geo-thermal well

Highland Lake Lot 3

Alburt # 10

one hundred sixty

Dollars

\$

160.00

Received By

L. Shmida

# FAX

**NORTHERN VIRGINIA DRILLING  
11356 INDUSTRIAL ROAD  
MANASSAS, VIRGINIA 20109  
(703) 361-6859 Fax # (703) 361-4513**

To Brain Baker	From: Neil Self
Phone #410-313-2643	Phone #: 703-361-6859 Cell# 703-203-4607
Fax #: 410-313-2648	Fax #: 703-361-4513
Pages (including cover Page)	Date: June 28, 2010

## COMMENTS:

**If you have any questions please give me a call.**

**Thanks**

**Neil Self**

**Sales Representative**

**Work Plan for 6325 Isle of Sky Highland Maryland**  
**Doughney Residence**

Northern Virginia Drilling, Inc. proposes the following:

- Drill 3 geothermal wells located in the yard of address above.
- The wells will be 20 ft. apart from each other.
- The wells will be 6" in diameter drilled to a depth of 500 ft each.
- Closed loops HDPE 1 1/4 will be installed in each borehole
- Each borehole will be grouted from the bottom up with either of the following:

?  
~~Cement – Only cement grout will be used in consolidated formations. The annular space will be filled with neat Portland or quick setting (hi-early) cement in a ration of not over six (6) gallons of water per Ninety-four (94) pound sack of cement. Sodium-based bentonite clay will be added to the cement grout in an amount not to exceed five (5) pounds per ninety-four (94) pound sack of cement. When adding bentonite clay to Portland cement grout, additional water will be allowed at a rate of one (1) to two (2) gallons of water to one (1) pound of bentonite; or~~

O.K.  
Bentonite clay – A sodium based bentonite clay will be used to fill the annular space in both the confined and unconfined unconsolidated sand and gravel aquifers in a ratio of not less than one and one-half (1.5) pounds of bentonite clay per gallon of water, or according to the manufacturer's specifications. A ratio of at least two (2) pounds of bentonite per gallon of water will be used. Bentonite clay shall not be used where it comes in contact with groundwater with a pH below five (5.0) or having a total dissolved solids content greater than one thousand (1,000) milligrams per liter (mg/L), or according to the manufacturer's specifications.

- These cuttings will be placed on plastic tarp and covered to keep them from being blown into the drains or on other areas.
- Silt fence will be in install a long with straw and filler bags. We will control run off.

Neil Self

Diagram of closed loop geothermal well

