

C 1 1733
 SEQUENCE NO. (MDE USE ONLY)
 1 2 3 4 5 6
 (THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

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

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

ST/CO USE ONLY DATE RECEIVED MM 02 DD 24 YY 14
 DATE WELL COMPLETED MM 11 DD 10 YY 14
 Depth of Well 22 400 26 400
 (TO NEAREST FOOT) O.K. EB
 PERMIT NO. FROM "PERMIT TO DRILL WELL" HO - 95 - 2018
 28 29 30 31 32 33 34 35 36 37

OWNER La Fleur, David
 STREET OR RFD last name 5142 Beaverbrook first name
 TOWN Columbia MD
 SUBDIVISION Beaverbrook 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 | |
| Top Soil | 0 | 1 | |
| Bm Clay | 1 | 60 | |
| Grng Rock | 60 | 300 | |
| Limestone | 300 | 400 | |

2 closed logs

GROUTING RECORD yes no
 WELL HAS BEEN GROUTED Y N
 (Circle Appropriate Box) 44 44
 TYPE OF GROUTING MATERIAL (Circle one)
 CEMENT CM BENTONITE CLAY BC
 NO. OF BAGS 32 NO. OF POUNDS 600
 GALLONS OF WATER 800
 DEPTH OF GROUT SEAL (to nearest foot)
 from 0 ft. to 400 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

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 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

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
 - below } (nearest foot)

LOCATION OF WELL ON LOT
 SHOW PERMANENT STRUCTURE SUCH AS BUILDING, SEPTIC TANKS, AND /OR LANDMARKS AND INDICATE NOT LESS THAN TWO DISTANCES (MEASUREMENTS TO WELL)
 39.22848 / 76.869190
 39.22845 / 76.869150

NUMBER OF UNSUCCESSFUL WELLS: _____
 WELL HYDROFRACTURED 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 M D 553
 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION)
 LIC. NO. 1 WA 097
 SITE SUPERVISOR (sign. of driller or journeyman responsible for sitework if different from permittee)

105-386896

EMERGENCY/TEMP NO. IF ANY

B 1 11280

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND APPLICATION FOR PERMIT TO DRILL WELL please type 545199

STATE PERMIT NUMBER 40-95-2618 fill in this form completely

OWNER INFORMATION Date Received (APA) 11-21-13 8 MM DD YY 13 15 Last Name Owner First Name 34 36 Street or RFD 55 57 Town 70 State 72 Zip 76

LOCATION OF WELL B 3 8 COUNTY Howard 21 23 SUBDIVISION Beaverbrook 42 SECTION 44 46 LOT 48 50 52 NEAREST TOWN Columbia 71

DRILLER INFORMATION Driller's Name C. John Hess MWD 553 76 License No. 81 Firm Name Allied Environmental Services Address P.O. Box 109 Annapolis Junction MD 20701 Signature C. John Hess Date 11-14-13

SOURCES OF DRILLING WATER 1. Public 2. 3.

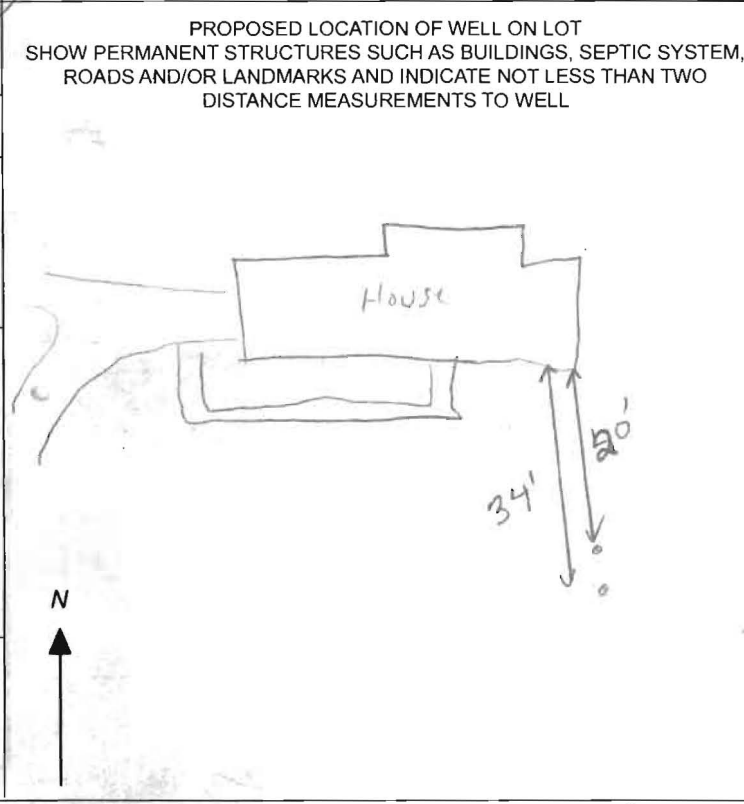
5147 Beaverbrook Rd 11 STREET ADDRESS 30 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX) NORTH N WEST W EAST E SOUTH S DISTANCE FROM ROAD ENTER FT OR MI 38 39 TAX MAP: 0030 BLK: 0013 PARCEL 0366

WELL INFORMATION B 2 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) I INDUSTRIAL, COMMERCIAL, DEWATERING P PUBLIC WATER SUPPLY WELL T TEST, OBSERVATION, MONITORING O OPEN LOOP GEOTHERMAL C CLOSED LOOP GEOTHERMAL 22 2 Loops @ 400'

NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL County Name Howard County No. 13 State Signature INSERT S DATE ISSUED 12/11/13 CO SIGNATURE EXP. DATE 12/11/14

APPROXIMATE DEPTH OF WELL 400 FEET 24 28 APPROXIMATE DIAMETER OF WELL 6 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 DEEPEINED 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 DEEPEIN AN EXISTING WELL PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEINED (IF AVAILABLE) 41 52

Not to be filled in by driller (MDE OR COUNTY USE ONLY) APPROP. PERMIT NUMBER G PERMIT No. 40-95-2618

SPECIAL CONDITIONS NOTE APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

Lot Number: 21
Block/Section: K
Plat Reference: C.M.P. No. 4200
Title of Plat: Beaverbrook, Section 10, Area 4



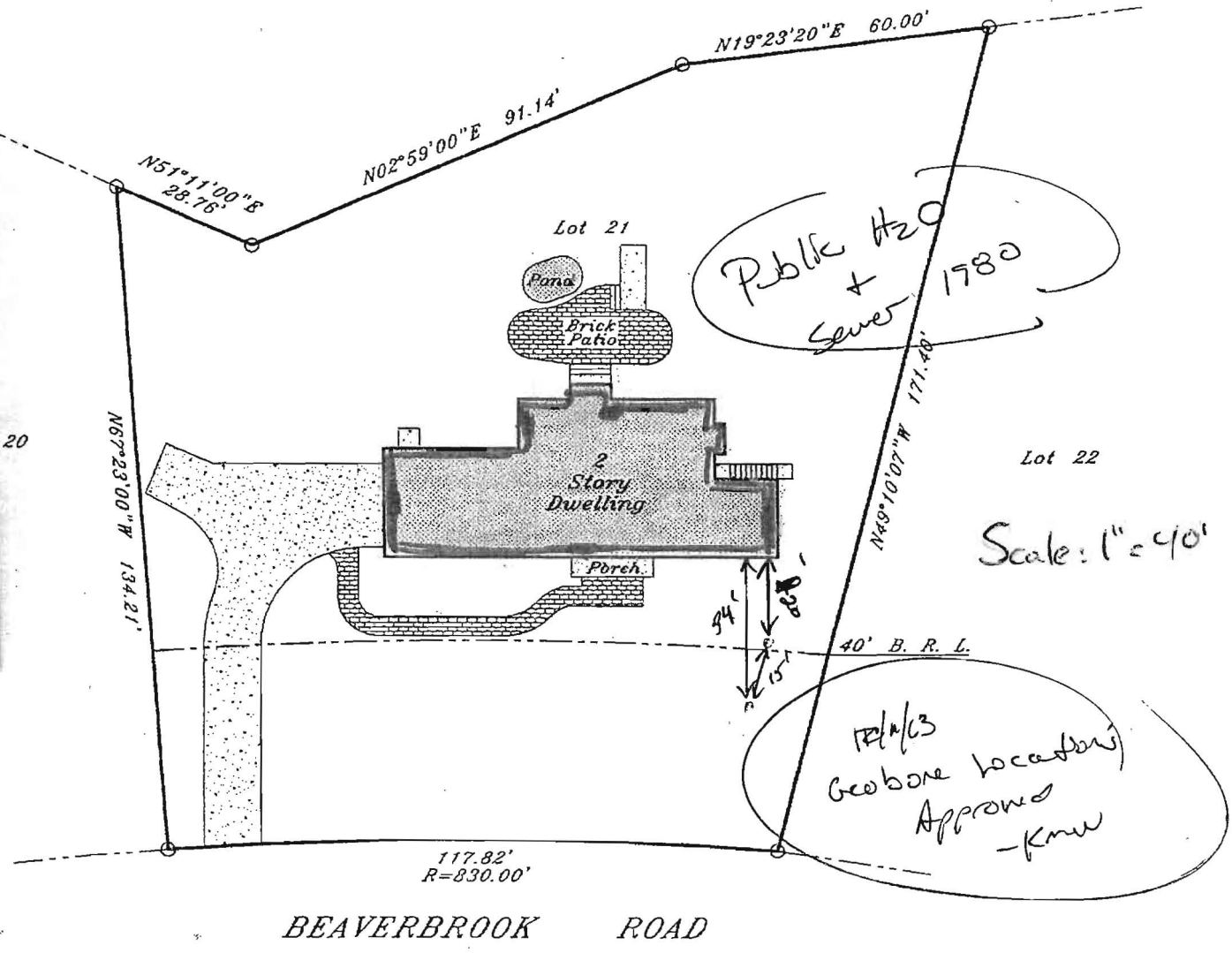
DO NOT REMOVE THIS TAG
DEPARTMENT OF THE ENVIRONMENT
WELL PERMIT NUMBER

H0-95-2618

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

wing

er only insofar
ice company or
financing or n
e establishment
gs or other es
if measured dis
oes not provid
oundary lines,
r the transfer
approximate li
e apparent prop
ge of preparing



Public H₂O
+
Sewer 1780

Scale: 1" = 40'

12/1/13
Geobone location
Approved
-Knu

Road
Maryland

6/21/13

Corporation
Road
d 21093
fax
v.ruxtondesign.com

AT-40139CB

GRADE

EACH BORE HOLE (TYP.)

HORIZONTAL BURY
DEPTH 4 FT

FOR CONT.
SEE PLANS

HORIZONTAL
PIPING

GROUT ENTIRE ANNUJAR
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

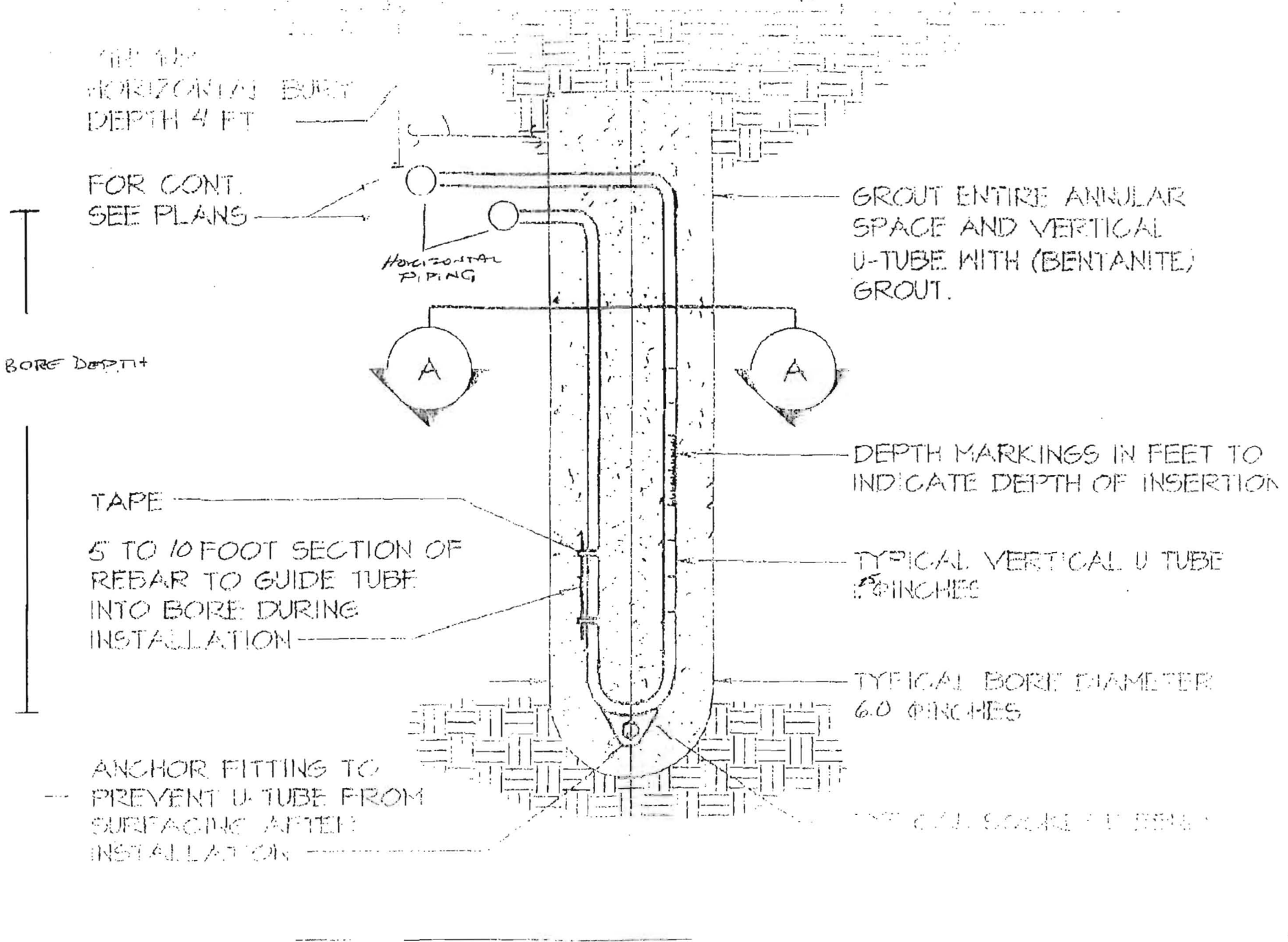
DEPTH MARKINGS IN FEET TO
INDICATE DEPTH OF INSERTION

TYPICAL VERTICAL U TUBE
12 INCHES

TYPICAL BORE DIAMETER
6.0 INCHES

ANCHOR FITTING TO
PREVENT U-TUBE FROM
SURFACING AFTER
INSTALLATION

CONCRETE SURFACE



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.