PROCEDURES FOR PERCOLATION TESTS, SOIL EXPLORATION, AND PLOT PLAN APPROVAL

General Information

A percolation test and/or soil exploration and plot plan approval are required prior to Health Dept. approval of the city or county building permit when a septic tank and drain system are to be installed. Compliance with the Utah Dept. of Environmental Quality Code for Individual Wastewater disposal systems is mandatory for percolation tests, soil exploration, plot plans, system installation, etc. In some cases, a letter of agreement for septic tank use must be obtained from the city, before conducting these tests.

For conventional systems, a percolation test is performed on the lot in the area where the drain field is to be installed. Basically, this involves digging a hole to the proper depth, saturating it with water, then determining how rapidly water is absorbed from the hole into the soil. An exploration pit is dug near the percolation test hole so that the structure of the soil may be observed, along with possible ground water, bedrock, etc. The exploration pit must be evaluated to a level 4 feet deeper than the proposed trench bottom elevation, or 10 feet, whichever is deeper. Soil samples may be collected for analysis also.

It is the responsibility of the owner or contractor to prepare the hole or holes to perform these tests. An environmental Health Scientist from the Health Department must be present during the test. The details for digging the holes, performing the test, etc. are explained below.

Percolation Test and Soil Exploration

The depth of the proposed drain system must be determined prior to digging the test hole of holes. Tile drain field or deep trench depth will be determined by the depth of the lowest plumbing in the building. This may be fairly deep, in the case of a home with *a* deep basement, for example.

The percolation test is performed at the proposed depth of the drain field lines. First, soil is removed to this depth, generally with a backhoe. **Slope the sidewall gradually so a person can easily walk into the excavation.** This will put you at the proper level to dig the percolation test hole itself. The percolation test hole must be about 12"' deep, at the level of the proposed drain field and 4" to '18" in diameter (but preferably not larger than 12" in diameter), and should be dug with a hand tool such as a shovel, auger or post hole digger. The sidewalls should be scraped if they become compacted during digging.

The percolation test hole (small hole only) must be saturated by keeping water in it for at least 4 hours before the test. Soils that contain large amounts of gravel or sand may require saturation periods of at least 24 hours in order to stabilize the soil. If

the perc rate does not stabilize during the test, further saturation and a retest will be necessary. An extra fee may be assessed for the extra perc test. (A cylinder of screen wire may be used to hold up the walls of the test hole in gravelly or sandy soils.)

The Health Dept. must be notified and an appointment made at least by 9:00 a.m. of the day of the test. The test will be supervised by an Environmental health Scientist from the Health Dept. Make sure you have sufficient water on hand to refill the hole as needed during the testing. A shovel or stake will also be needed to stand up in the small hole to use as a measuring reference.

Percolation tests cannot be performed in frozen ground or in groundwater, nor when the temperature in the area is below 40° F., nor when it is raining or the ground is saturated. Percolation and soil tests are valid for 5 years.

Deep Trench Systems

The Deep Trench system is an alternative to the conventional drain field that can have advantages where space is limited, because it makes use of a greater depth of gravel, while the conventional drain field is relatively long and shallow. In some areas, high ground water may preclude the use of deep trench systems.

When a Deep Trench system is to be installed, the percolation test is not normally required; the soil exploration must be to a depth at least 4' deeper than the bottom of the proposed trench. In most cases, this pit is dug as deep as the available back hoe or track hoe is capable of digging, usually about 20 feet. Entering this deep excavation is not necessary and would be extremely dangerous.

High Ground Water Table

In areas of high ground water, monitoring may be required over a period of approximately one year before a building permit can be obtained. Fill dirt may also be required, and in some cases, may need to stabilize after being placed, for a period of one year.

Plot Plan Details and Approval

Before the percolation test and/or soil exploration are scheduled, the appropriate fee must be paid and a preliminary plot plan must be drawn up and submitted to the Health Department. The fee covers the percolation test and/or deep soil exploration test, the plot plan approval, and one final inspection. Extra inspections currently cost $70 for each extra trip required. This fee will be charged for incomplete systems including those not connected to the home foundation. The plot plan must be drawn and labeled neatly and legibly. It must contain all of the following information that is applicable:

A. Complete address of the building to be served by the septic system, or an approximate address if the final address has not yet been assigned, and the subdivision name, plat and lot number.

B. Name, address and telephone number of the person who will own the system, and the installer's name and telephone number.

C. Direction of North.

D. Lot dimensions.

E. Direction and approximate degree of slope of property.

F. Location and dimensions of paved areas, buildings, etc.

G. Location and dimensions of building to be served.

H. If a residence, the number of bedrooms, and whether a finished or unfinished basement will be provided. If other than a residence, the expected maximum occupancy and the type of plumbed fixtures to be installed.

I. Location dimensions or capacities of system components (septic tank, drain lines, solid pipe, etc.)

J. Location of soil exploration and perc test holes

K. Location of non-public water supply sources (wells, springs, etc.) within 200 feet of system, and of public sources within 1500 feet of the system.

M. Location of all streams, ditches, watercourses, ponds, subsurface drains, etc. (year-round or intermittent) within 100 feet of the system.

The plot plan con be finalized with the location of the septic tank and drain field at the Health Department Office after the perc test and/or soil exploration have been conducted. The Health Department may then approve the building permit application. The installer must not deviate from the approved design without prior approval of the Health Department.

Final On-Site Inspection

After a system is installed, but before it is backfilled, the entire system must be inspected by an Environmental Health Scientist from the Health Dept.

When more than one inspection is required for any reason, an extra fee will be assessed for each extra inspection required. Any deficiencies must be corrected, and the system approved, before backfilling.

Some Required Dimensions, Separations, Etc.

(Note: This list is not complete. See R-317-4 for other requirements.)

A. Foundation to septic tank or drain field, 5 feet minimum. (20 feet minimum for deep trenches.)

B. Septic tank to drain field or distribution box, 5 feet minimum.

C. Property line to septic tank or drain field, 5 feet minimum.

D. Center-to-center spacing of drain lines, 10 feet minimum (3 times the depth of the gravel for deep trenches)

E. Minimum number of drain field laterals is 2. Systems larger than 200 feet required more.

F. Maximum length of individual laterals is 100 feet, measured around 90° bends, etc.

G. Well of spring (private) to drain field, 50 feet minimum.

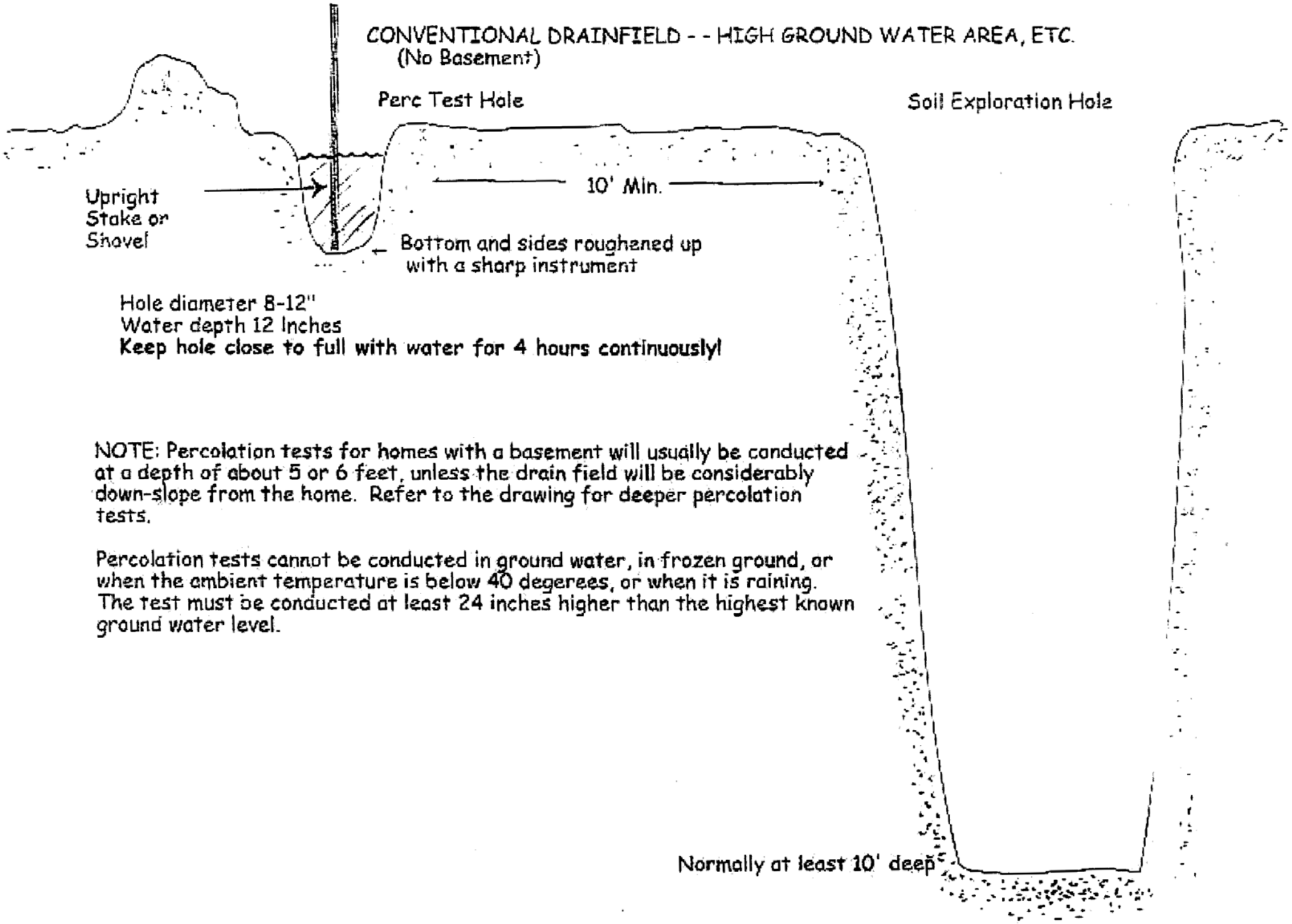
H. Deep well (private) to drain field, 100 feet minimum.

I. Ditch, pond, etc. to septic tank, 25 feet minimum.

J. Ditch, pond, etc. to drain field, 100 feet minimum.

K. Culinary water line to septic tank or drain field, 10 feet minimum.

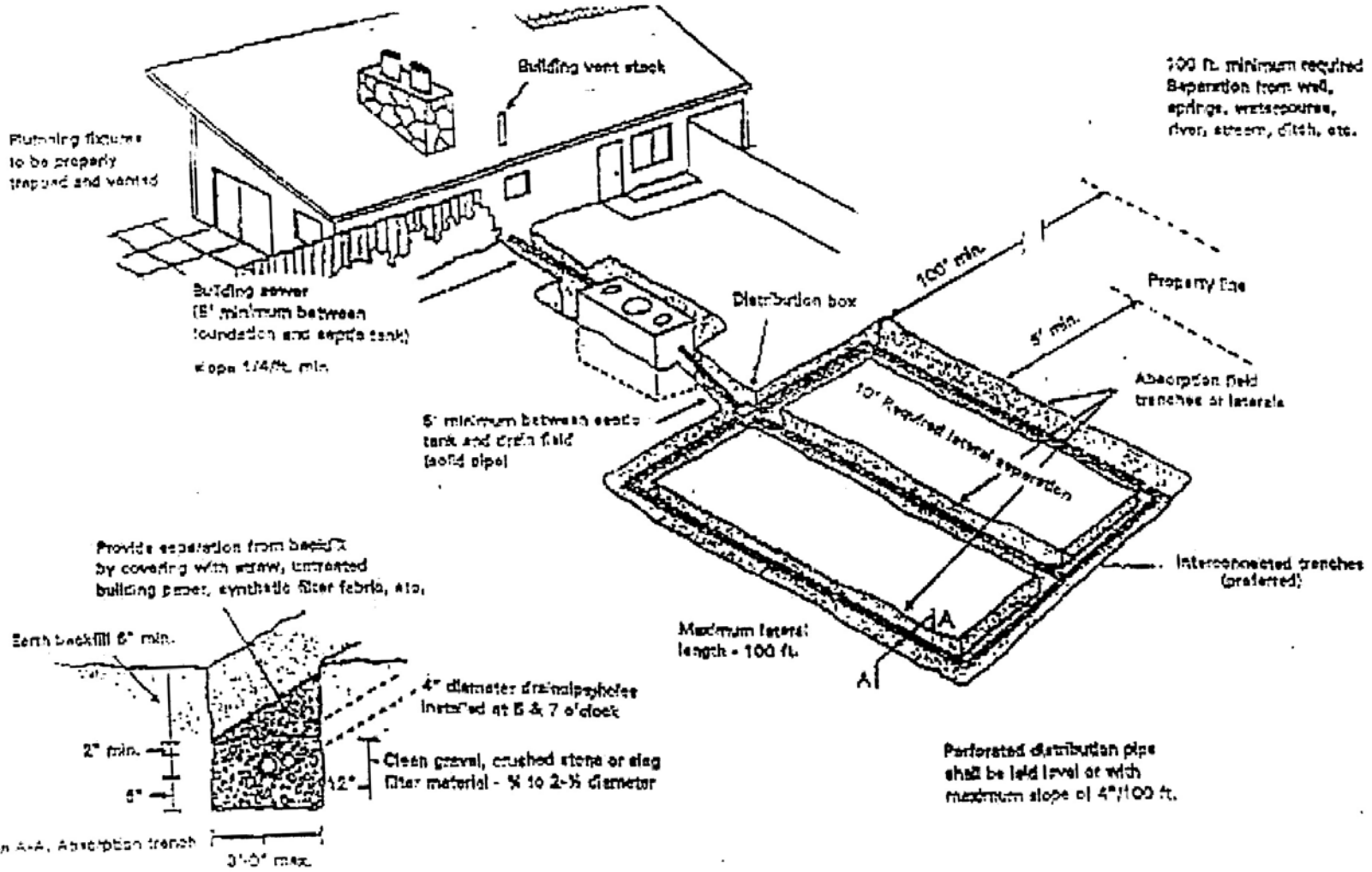
CONVENTIONAL DRAINFIELD - - HIGH GROUND WATER AREA, ETC.
(No Basement)



Hole diameter 8-12"
Water depth 12 inches
Keep hole close to full with water for 4 hours continuously!

NOTE: Percolation tests for homes with a basement will usually be conducted at a depth of about 5 or 6 feet, unless the drain field will be considerably down-slope from the home. Refer to the drawing for deeper percolation tests.

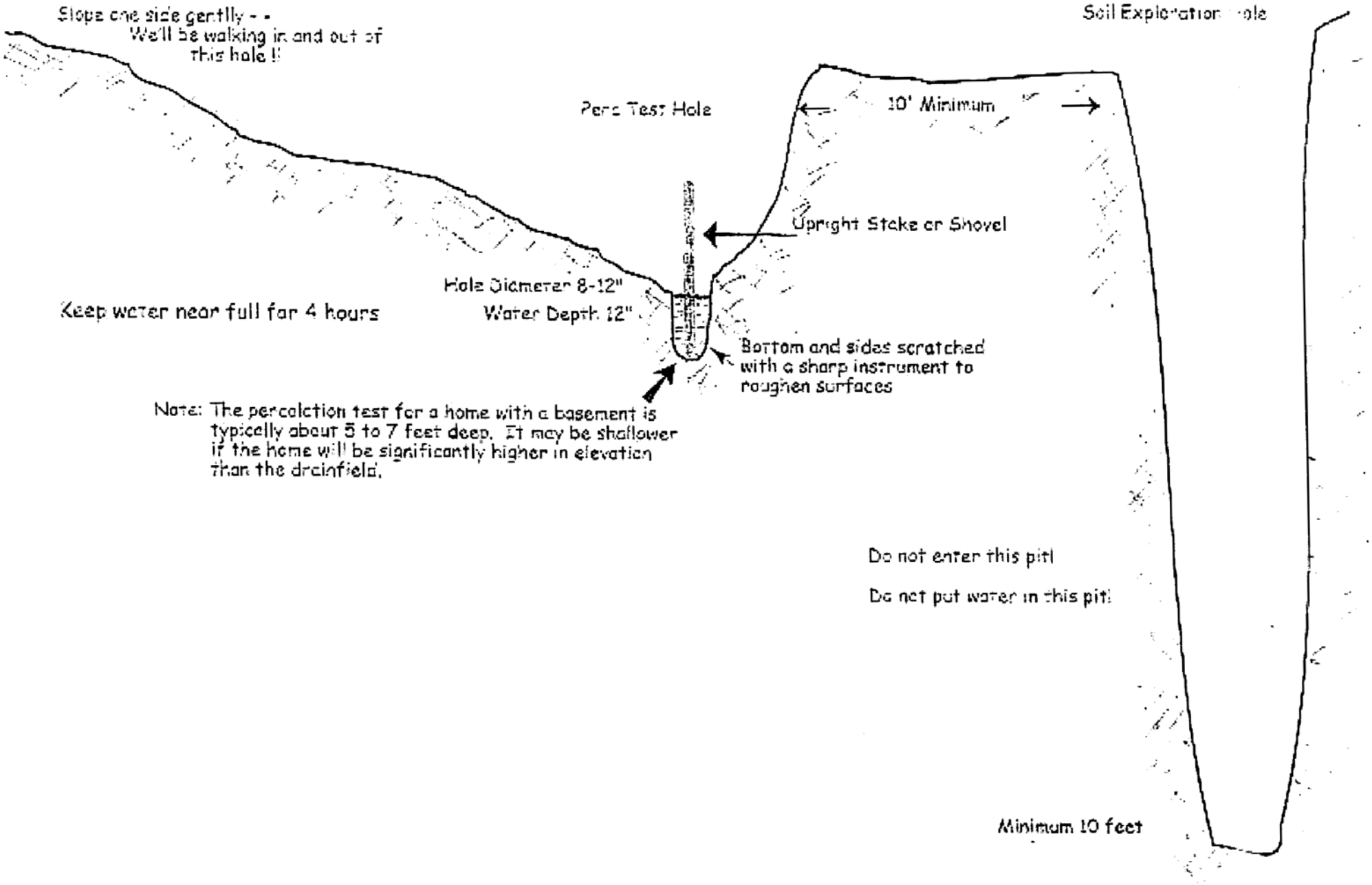
Percolation tests cannot be conducted in ground water, in frozen ground, or when the ambient temperature is below 40 degerees, or when it is raining. The test must be conducted at least 24 inches higher than the highest known ground water level.

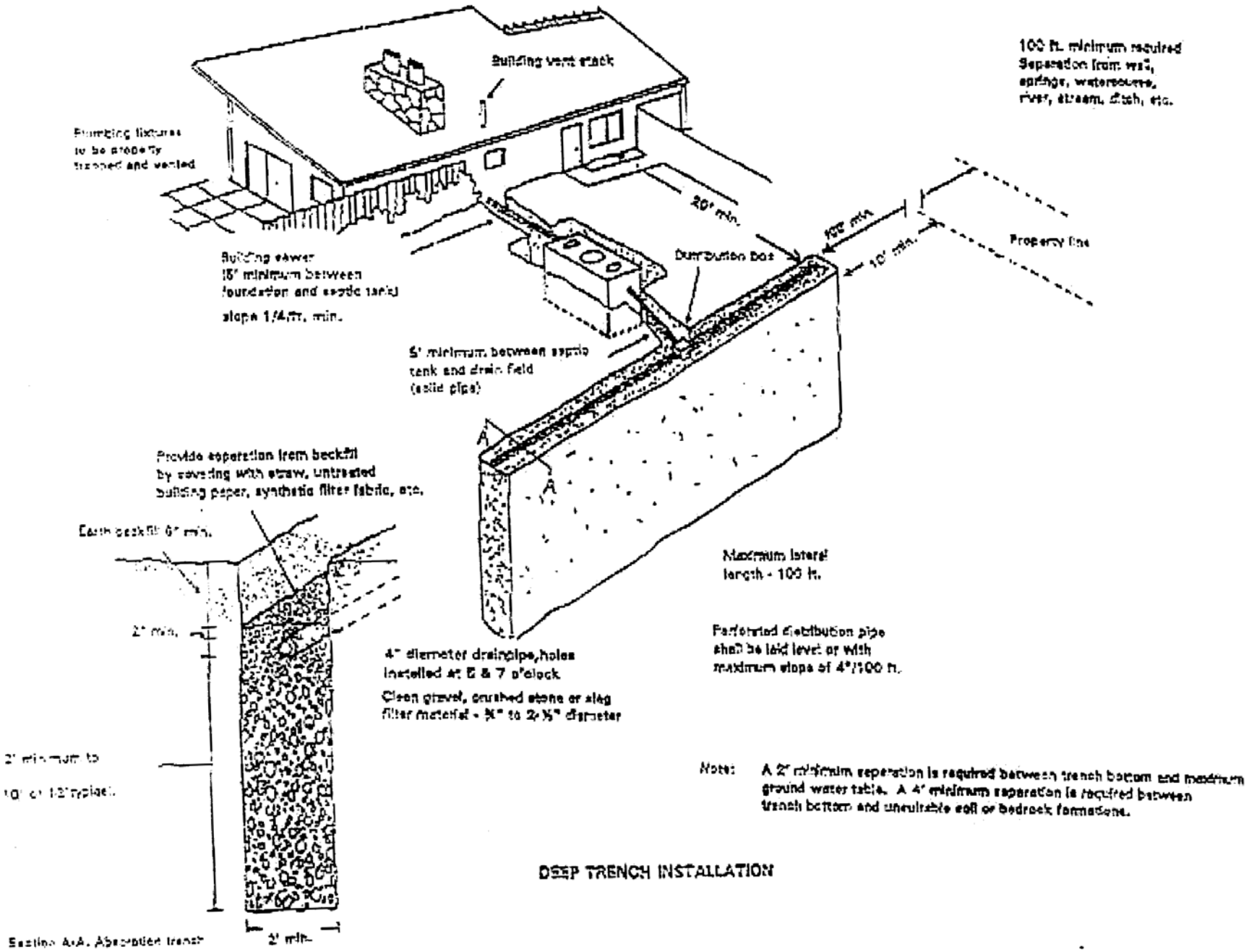


Note: A 2' minimum separation is required between trench bottom and maximum ground water table. A 4' minimum separation is required between trench bottom and unsuitable soil or bedrock formations.

ABSORPTION FIELD INSTALLATION-LEVEL OR NEARLY LEVEL TOPOGRAPHY

Percolation Test for Conventional Drainfield





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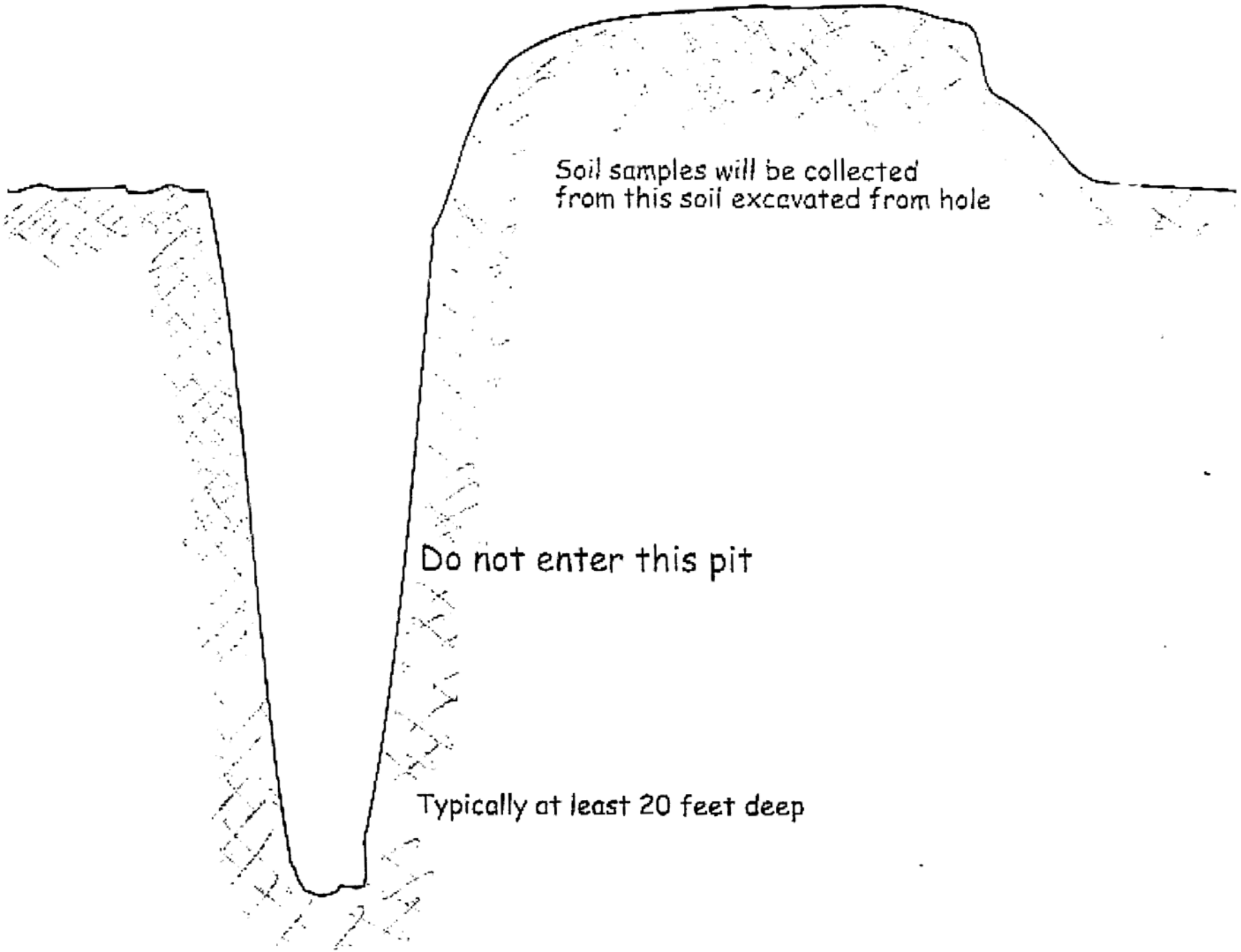
DEEP TRENCH INSTALLATION

Soil Exploration For Deep Trench System



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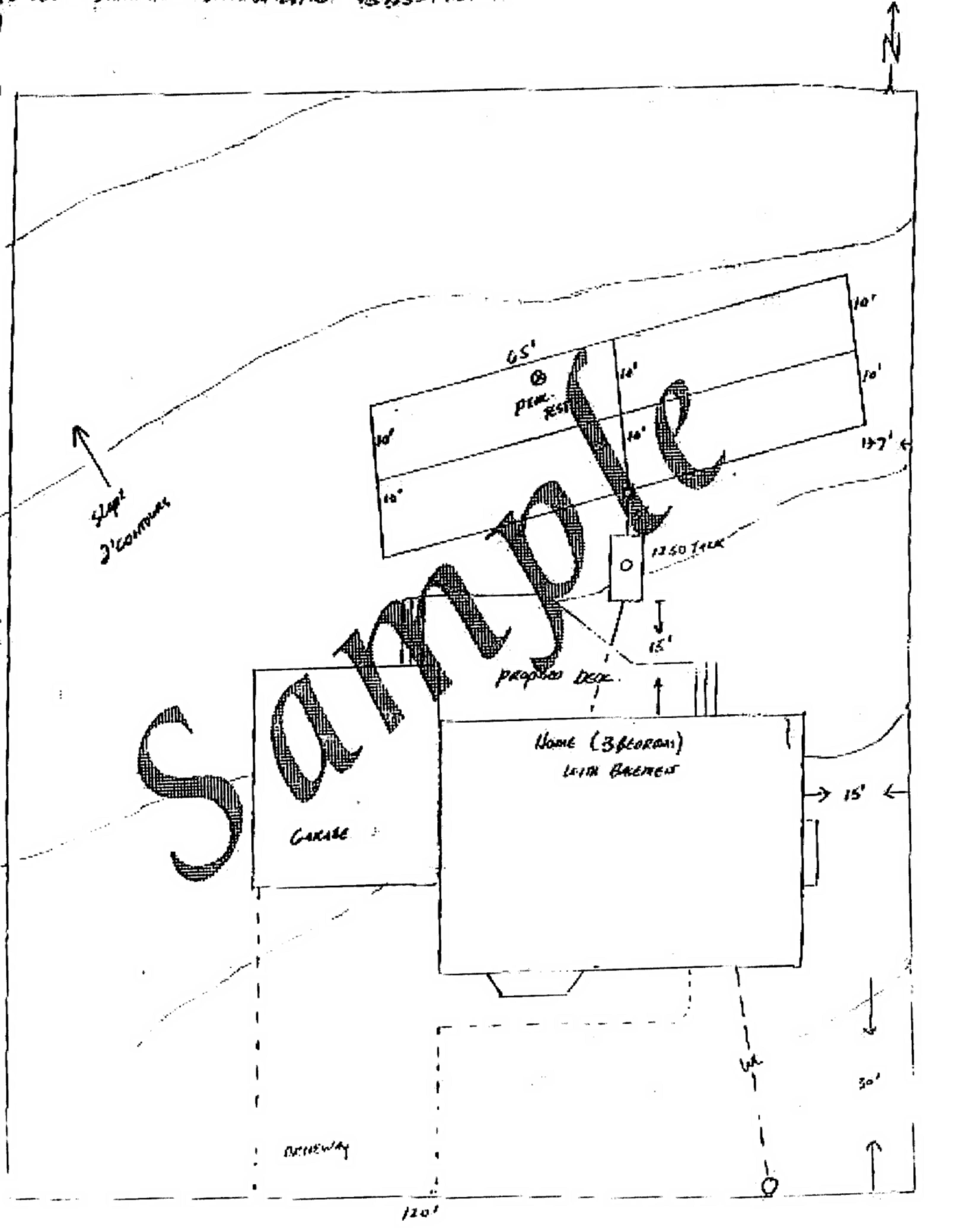
N
65'
10'
10'
10'
10'
10'
10'
1250 TANK
15'
PROPOSED DECK
Home (3 Bedroom)
With Basement
15'
GARAGE
DRIVEWAY
30'
120'
Slope
2' Contours
Sample