

(Please file with report on Surrey Well
near Fry's Corner)

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NOTES ON POSSIBILITY OF USING GROUND WATER FOR IRRIGATION IN THE LOWER
FRASER VALLEY

In 1965 and 1966, a number of deep rotary drill holes were drilled in the Lower Fraser Valley area in an effort to locate possible aquifers in this area. Some of the holes in the first program were not completed to proper depth because of severe drilling difficulties so some of our data are not particularly good. However, the most favourable area for ground water seems to be on the upper part of the Serpentine River especially north of Fry's Corner where a poorly-defined aquifer was found between about 300 feet and 500 feet depth.

In general, this area is underlain by estuarine and marine deltaic fill up to about 1100 feet thick, largely silt, sandy silt and silty sand with occasional lenses of coarser material. Much of the fine-grained material especially the upper part, is stony, implying that these sediments are glacio-marine; in other words, they are of glacial origin deposited in a marine estuary. The lower part of the sediments are generally finer and are not usually stony. There is till (or tills) just above the Tertiary bedrock.

Our drilling data indicate that at least some of the upland areas (south of Cloverdale and northeast of Cloverdale) are composed of glacial deposits on top of the lower estuarine fill. In other words, deep drilling in the upland areas is not more likely to locate deep aquifers than drilling in the lowlands.

Flowing artesian conditions with low pressures, are found everywhere in the lowland areas, even at relatively shallow depths, indicating that recharge is taking place from the surrounding uplands. The water quality is generally good.

A test well presently being drilled about a mile north of Fry's Corner, has encountered over 10 feet of fairly clean gravel at about 230 feet somewhat shallower than we had expected from our exploration drilling. Flow from an open 10-inch casing in this is about 15 gallons per minute. Present plans call for drilling to about 400 feet with testing of the best aquifers encountered by pulling back the casing.

It is difficult to estimate capacity and costs from the data on hand at this time. I believe that it should be possible to construct wells with a capacity of two cubic feet per second. If these are about 400 feet deep they would cost about \$8,000 each without pumps. They could be located in the Serpentine Valley from Section 19, Township 8, northward close enough to the river so that cost of ditching or piping to the river bank should not be more than \$1,000 for each well. Due to the nature of the ground in this area, access for equipment might be a problem so \$500 should be allowed for fill, etc. Purchase of well sites and access easements would probably not be more than \$500 per well.

Pumps, controls, shelter and power line costs are estimated at \$10,000 per well. Total installation cost above is \$20,000 per well.

A total of 18 wells would be needed to supply 36 cubic feet per second for a total installation cost of \$360,000. Allowing 10 per cent for engineering, exploration and supervision and 15 per cent for contingencies, the total of \$450,000.

The power costs of pumping water is estimated on the basis of 150 feet pumping level in all wells using a power rate of 0.6¢ per kilowatt hour, and wire to water efficiency of 75 per cent. This cost is about \$4.90 per acre-foot.

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