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September 30

76

Groundwater Investigation - Malaspina Peninsula

0340508

Further to the August 20, 1976 request of the Land Management Branch, a review has been conducted of available groundwater data and field investigation completed to up-date well data and check local geologic conditions in a specific area on the Malaspina Peninsula. The review and field check was conducted by E. Tradewell under my supervision and a copy of his report is attached. In addition, air photographs of the region were examined. This memorandum summarizes the groundwater potential for the areas of concern and gives recommendations for groundwater development.

Apart from local areas, the region is primarily mantled by a thin drift cover varying in composition from glacial till to clay and gravel colluvium and alluvium overlying Mesozoic granitic, volcanic and/or sedimentary bedrock. Bedrock is exposed locally in topographic highs as northwest - southeast trending ridges and isolated mounds. A structural lineament (fault or fracture) corresponding with a topographic low trending northeast - southwest occurs in the region (Figure 1). This feature is bounded on the northeast and southwest by bedrock highs.

The topographic low areas between the bedrock highs offer the most promising prospects for developing wells. Although the maximum thickness of drift within these areas is not known, indications are that permeable deposits of sand and/or gravel may be encountered with the possibility of fractured bedrock at depth. The main areas that warrant further investigation where wells capable of supplying several gallons per minute (5-25 gpm), are shown in Figure 1. Supplies should be obtainable from shallow drilled or dug wells in these areas.

Throughout the remaining area, except for local topographic highs wells completed either into the drift or the bedrock should be capable of meeting individual domestic requirements based on lot sizes of 5 to 10 acres. Water quality at this time has not been documented but is not anticipated to be a major problem. Since there is a paucity of drilled wells in the region test drilling of one deep well and two shallow wells should be considered in the region to test groundwater conditions in the bedrock and perhaps in one or more of the promising low areas where a thick section of surficial deposits may occur. Anticipated total drilling would be 400 feet utilizing an air

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rotary drilling rig with casing hammer. Drilling and aquifer testing costs would be approximately \$8,000 to \$12,000 for the complete program not including supervisory expenses.

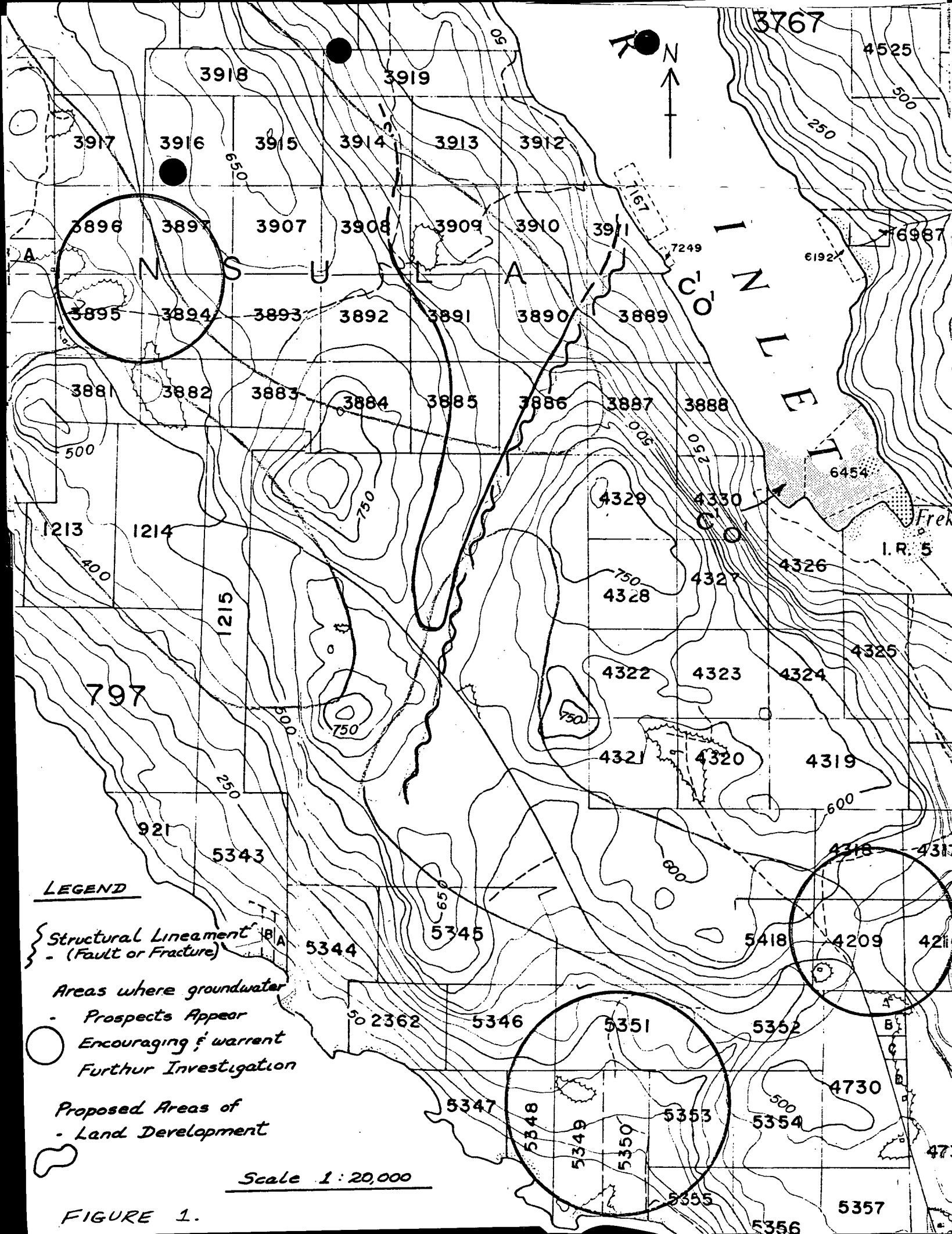
Apart from the concept of individual wells on each lot, consideration should also be given to locating wells in the most promising areas to service groups of lots for example under a Water Utility. Smaller lot sizes might be accommodated in this manner. Test drilling and aquifer testing, however, would be required before development proceeds based on proven supplies. Where the bedrock is shallow, care should be taken in locating wells relative to septic fields. In areas where groundwater is being considered or is developed as the major source of water supply, a program of groundwater monitoring should be included in planning programs. This might include establishing observation wells equipped with water level recorders to document long-term water level fluctuations in an area and/or monitoring consumption of producing wells.







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Attach.



LEGEND

-  Structural Lineament
- (Fault or Fracture)
-  Areas where groundwater
- Prospects Appear
-  Encouraging & warrant
- Further Investigation
-  Proposed Areas of
- Land Development

Scale 1:20,000

FIGURE 1.