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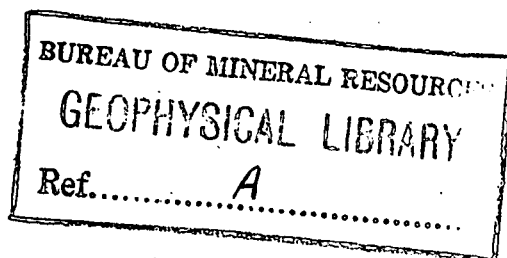
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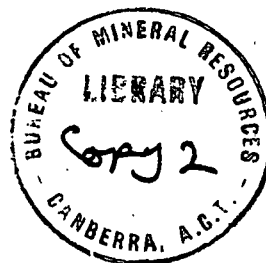


PROPOSED DIAMOND DRILLING AT DAM SITE "A"

UPPER COTTOR RIVER. A.C.T.

by

L.C. Noakes.



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PROPOSED DIAMOND DRILLING AT DAM SITE "A",
UPPER COTTER RIVER, A.C.T.

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General

The Commonwealth Parliamentary Works Committee have recommended that the dam required to increase Canberra's Water Supply should be built at Site "A" on the Upper Cotter River in the A.C.T.

The regional geology of this area was mapped and a number of dam sites investigated in reconnaissance some years ago by L.C. Noakes, and some detailed geological mapping at Dam Site "A" was carried out by W.J. Perry and J.M. Dickins of the Bureau of Mineral Resources in May, 1953. Their plane-table survey of the site was extended and some detail added by the writer and W.E. McQueen in June, 1955, to obtain sufficient information to lay out a programme of investigation by diamond drill holes and additional costeans.

This programme is designed to explore the foundations, indicate the attitude of geological contact and check on the depth of weathering, particularly of the granodiorite porphyry. Information on the relative tightness of the foundations should be obtained by the water pressure testing of most of these diamond drill holes and the qualitative results applied to the problem of possible leakage.

The drilling and costeaning programme proposed at this stage is not final and some alteration or additions should be expected consequent on the result of exploration. Additional geological detail has yet to be mapped on the southern abutment between D.D.1 and D.D.9 and one or two short holes may be required in that area. On the other hand, it may not be necessary to drill all four holes on the spill-way saddle to obtain the information required.

Considerable structural and lithological detail has yet to be mapped at the site but it is intended that this should be completed by the geologists supervising the drilling programme and mapping on the final topographic base map of the site to be provided by the survey section.

The final plan and sections together with the results of drilling and pressure testing should then present adequate information for companies tendering for construction.

Diamond Drilling

Drill holes have been laid out on the present assumption that the dam will consist of a symmetrical arch from the north abutment, approximately over the centre of the 'island' to a gravity section in the southern abutment, with a spill-way either over the gravity section or over the spill-way saddle. The proposed diamond drill holes, with azimuth, inclination and approximate footage, are listed in table 1 and shown in plan and section on Plate 1. The approximate total footage of the programme is 14-1500 ft and should cost between £5-6000. The additional costeans (Nos 8-13 on Plate 1), to precisely locate geological contacts, should cost little more than £100.

Outcrops of quartzite on the northern abutment are continuous and bold and should need little exploration except for D.D. Holes 4 and 6 which explore the foundations and check whether the abutment includes granodiorite porphyry. D.D. 3 and 5 explore foundations under the river and, in particular, probe for any structure which the river may have followed in its abrupt swing to the east. D.D.1 and 4 explore foundations and are located to be of use as grouting holes if the dam is designed as expected.

D.D.1 and 7 should provide information on the fault and

the extent and character of the fault zone. Diamond Drill Holes (8-12) on the southern abutment check the character and depth of weathering of the granodiorite porphyry, the tightness of the foundations and the extent of porphyry within the abutment.

Diamond drilling seems the most efficient way of testing the character and depth of weathering in the granodiorite porphyry on the spill-way saddle and, providing satisfactory core recovery can be obtained, D.Ds 13-16 should provide adequate information on the strength of the saddle.

Core boxes, similar to those used by the Snowy Mountain Hydro-Electric Authority will be supplied by the Department of Works, who have in hand also the procurement of equipment for water pressure testing of drill holes.

Costeans.

The approximate positions of six additional costeans are shown on Plate 1. These are designed to precisely locate geological boundaries and should be done when diamond drilling is in progress. The geologist can then indicate the exact sites and ensure that no unnecessary work is done.

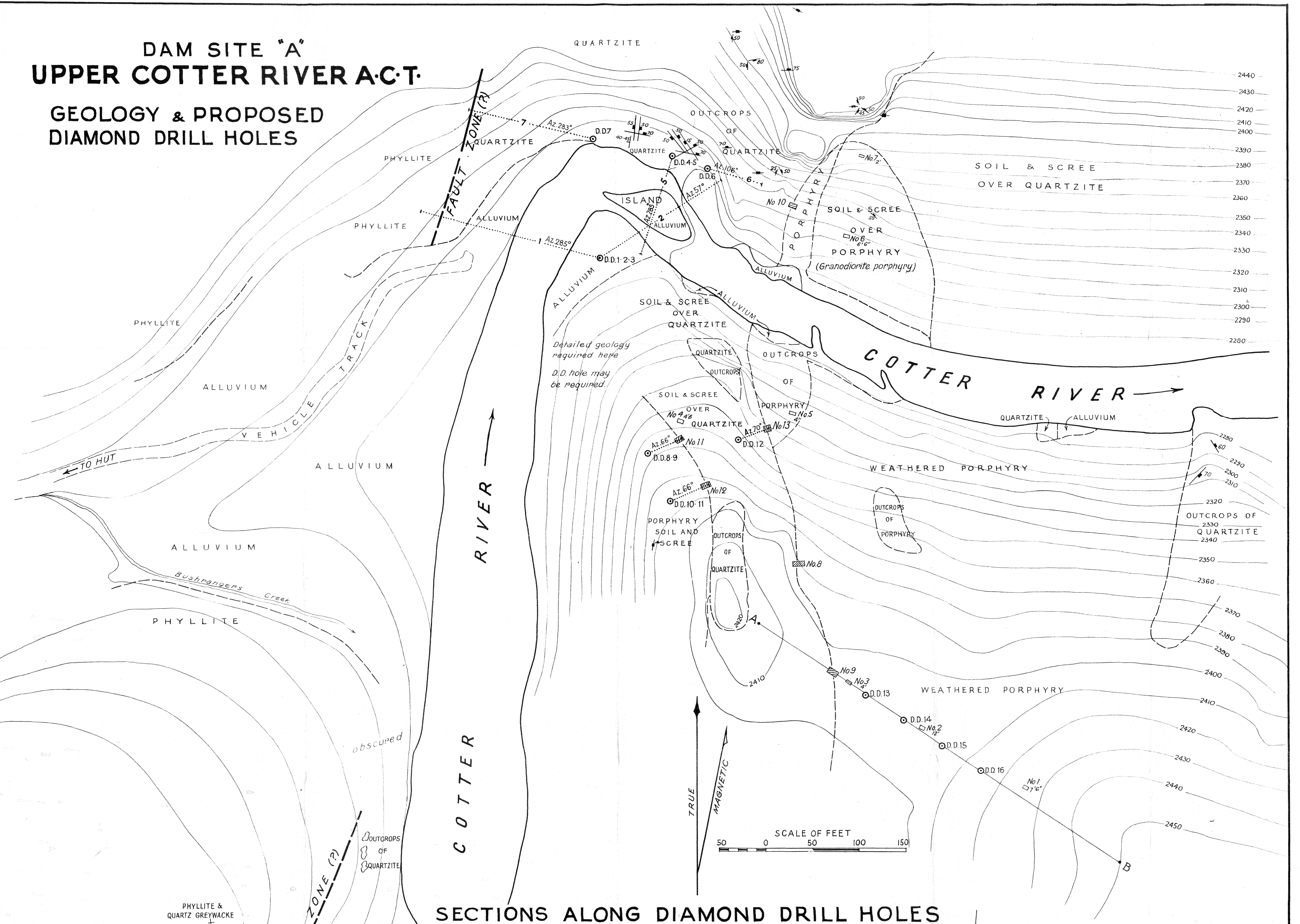
8th July, 1955.

(L. C. Noakes)
Acting Assistant Chief Geologist.

TABLE 1
PROPOSED DIAMOND DRILL HOLE

D.D.	Azimuth	Inclination from Horizontal.	Approx. Length feet.	Main Purpose
.1	285°	30°	225	Locate fault and fault zone
.2	57°	30°	175	Probe foundations under river and northern abutment
3	vertical		40	Probe foundations
4	vertical		40	Probe foundations
5	198°	40°	140	Probe foundations under river
6	106°	45°	80	Probe northern abutment, locate porphyry contact
7	283°	40°	175	Explore fault and fault zone
8	vertical		50	Probe foundation south abutment and depth of weathered zone in porphyry.
9	66°	45°	50	South abutments - attitude of porphyry contact
10	vertical		50	as for D.D. 8.
11	66°	45°	50	as for D.D. 9.
12	70°	65°	80	Investigate attitude of porphyry contact and weathering.
13	vertical		40	Investigate depth of weathering of porphyry on Spillway saddle.
14	vertical		40	
15	vertical		40	
16	vertical		40	

DAM SITE "A"
UPPER COTTER RIVER A.C.T.
GEOLOGY & PROPOSED
DIAMOND DRILL HOLES



SECTIONS ALONG DIAMOND DRILL HOLES

