

*Alberta Research Council
Open File Report 1957-1*

GROUNDWATER CONDITIONS, HINES CREEK, ALBERTA

John F. Jones

1957

Alberta
RESEARCH COUNCIL



GROUNDWATER CONDITIONS, HINES CREEK, ALBERTA

During the summer of 1957, preliminary investigation of the groundwater conditions of the Peace River district were commenced. Particular emphasis was placed on helping communities who were having trouble locating an immediate groundwater supply.

For this reason, a detailed groundwater study was made in the immediate vicinity of Hines Creek, Alberta, which is located in Township 84, R.4, Sec.5 and 6 and Township 83, R.4, Sec.31 and 32, West of the sixth Meridian. A groundwater supply would reduce considerably the expenditure in putting up a surface reservoir and a water treatment plant which would be necessary for a corresponding surface supply. The survey was undertaken using air photograph analysis, electrical resistivity, seismic surveys, and water well survey of the area. A test drilling program was carried out in the fall of 1957 to verify the results of the above-mentioned investigations.

The source of groundwater in the Peace River district can be divided into two main types:

- 1). that derived from sands and gravels of Pleistocene and Recent deposits, and
- 2). that derived from bedrock aquifers of Cretaceous age.

Preliminary Results and Recommendations:

The resistivity and seismic surveys in the Hines Creek area did not reveal any potential groundwater supplies in the Pleistocene and Recent deposits in the immediate vicinity of the town of Hines Creek. On the other hand, the bedrock aquifer, the Dunvegan Sandstone, contains water unsuitable for human consumption. The water is very high in sulphates and iron and total yield of water is low.

However, if in the future the need for water in the town of Hines Creek becomes greater than it is at the present time, the following areas are suggested for a water well drilling program:

- 1). Sections 32 and 33, Twp.83, R.3, West of the 6th Meridian. This is a Pleistocene sand and gravel terrace. A high capacity producing water well might be drilled here. This location is approximately 7 miles east of the town. Quality of water expected would be medium hard.

2). Sections 7,8,16,17 and 18, Twp.83,R.4, West of the 6th Meridian; Sections 13,14 and 15, Twp.83, R.3, West of the 6th Meridian. This area includes what is known locally as "Little Prairie". This is a glacial outwash plain composed of sand and gravel varying in thickness on the average between 20 and 50 feet. This outwash plain is crossed by the Hines Creek. The area to the south of the Hines Creek has a greated water supply potential. This location is approximately three and one half miles south of the town of Hines Creek. Quality of water expected would be medium hard to hard.

At the present time, these locations are not situated within an economical distance of the town. The cost of a drilling program and especially that of laying a pipeline would be prohibitive.

The town of Hines Creek at the present time is planning to satisfy its water supply problem by utilizing surface water from Jack Creek north of town. This seems to be the best economical solution to the problem.

Additional help and information will be willingly supplied by the Alberta Research Council.

December/57

Prepared by J.F. Jones

OT

Report of interview with Mr. A. O. Jones
Well driller, Clyde, Alberta, residing
about $\frac{1}{2}$ mile south east of Clyde.

Interview and Transcription August 9, 1955

35-59-25-4

Mr. Jones reports a very low yield from wells in the Clyde region. One of the better wells in the immediate vicinity of Clyde is owned by the village and located in the Town of Clyde. This well is about 180 feet deep and has a probable yield of less than 5 gallons per minute. Shallow glacial sand and gravel is very scarce in the Clyde area. Virtually all domestic and farm water wells are completed in sandstone at depths of 100 - 200 feet. Mr. Jones drilled one deep well at Clyde penetrating to a total depth of 450 feet, finding salt water and gas. The soil was plugged back to a thin water-yielding zone at 180 feet.

In Mr. Jones' opinion the black water sands which are tapped by wells in the Clyde area occur as stringers and are otherwise not wide spread. There are apparently very few large diameter dug wells in the area. Mr. Jones drills only small two inch wells which he cases to a depth of 100 feet or so, leaving as much open hole as possible. His ancient drilling rig is not equipped with a standard bailing tool. He uses a mud pump to recover samples, of drill cuttings, the pump working from the action of the walking beam.

Mr. Jones reports that most water wells in the area are equipped with deep well cylinder pumps, with water level generally 30 to 100 feet.

Although water bearing sand and gravel above the solid bedrock is apparently scarce in the area there are reports of shallow commercial sand and gravel in the upland area about 6 miles east of Clyde. A pile of this commercial sand and gravel in Mr. Jones' farm yard proved to be of glacial origin and is clean enough to be used for concrete without washing.

GENERAL REMARKS

Between Clyde and Athabasca in the Tawatinaw valley there is abundant sand and gravel in the form of terraces, both high and low in the valley. These sands are most commonly seen in the vicinity of Perryvale, where exposures of sand and gravel in commercial pits indicate the cross bedding which dips southerly. The Tawatinaw river which flows north in the valley is undersized for the valley in which it flows. Tributary streams into the Tawatinaw river are very scarce indicating that much of the surface flow of water becomes ground water in this particular vicinity in this particular area. Water levels are probably very shallow in the valley. Silt and till were observed at the north end of Tawatinaw valley immediately south of Athabasca and there is very little evidence of surficial sand and gravel in the immediate vicinity of Athabasca.

John W. Foster
Groundwater Geologist

WP 83 R4
Sec 31 W6

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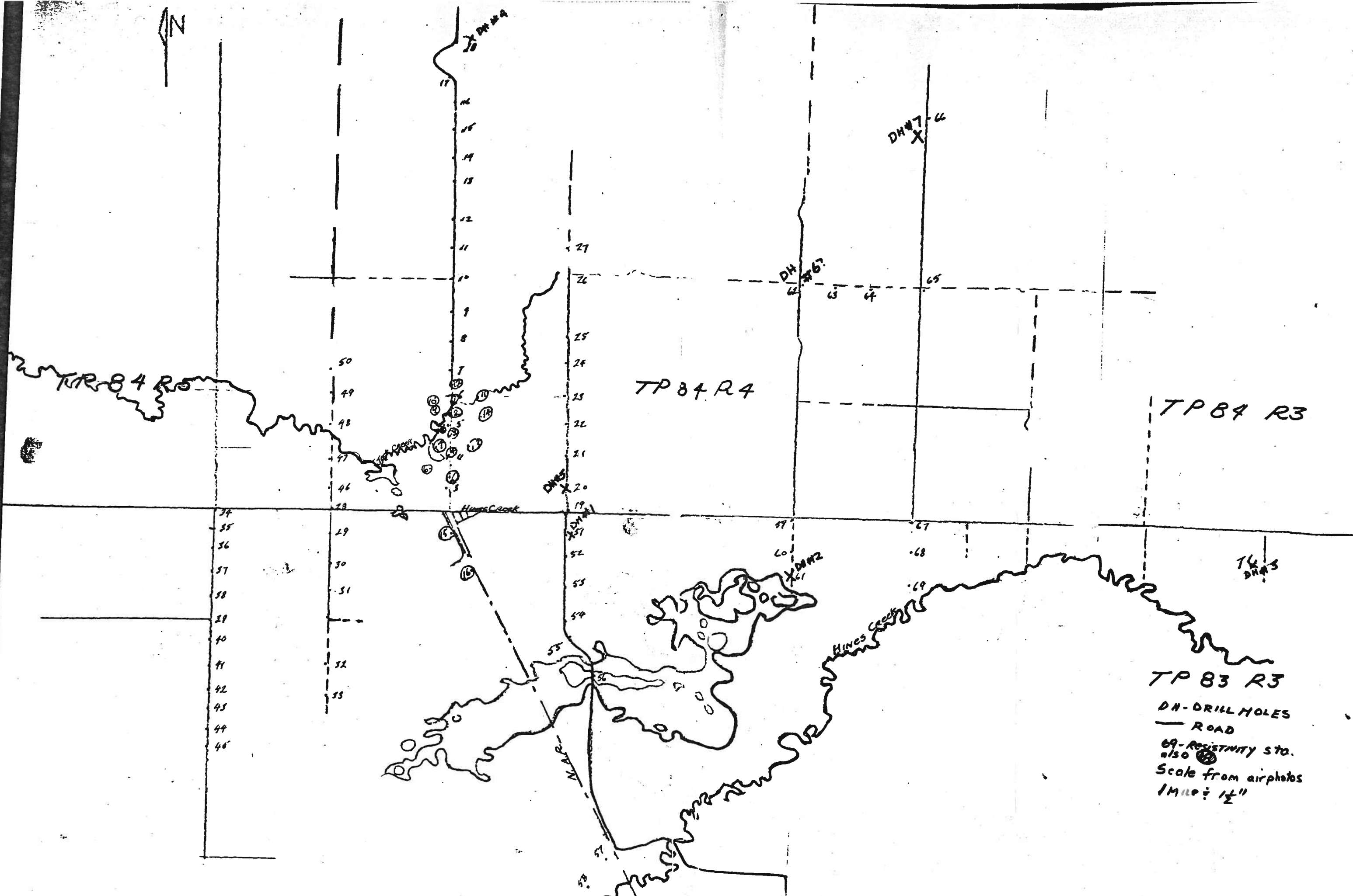
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- 2) Sections 7, 8, 16, 17 and 18, Twp. 83, Range 4, West of the 6th Meridian; Sections 13, 14 and 15, Twp. 83, R. 3, West of the 6th Meridian. This area includes what is known locally as "Little Prairie". This is a glacial outwash plain composed of sand and gravel varying in thickness on the average between 20 and 50 feet. This outwash plain is crossed by the Hines Creek. The area to the south of the Hines Creek has a greater water supply potential. This location is approximately three and one-half miles south of the town of Hines Creek. Quality of water expected would be medium hard to hard.

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TP 84 R 4

TP 84 R 3

TP 83 R 3

DH - DRILL HOLES
— ROAD
69 - RESISTIVITY STA.
also (69)
Scale from airphotos
1 Mile = 1 1/2"

DH #4

DH #7

DH #5

DH #5

DH #1

DH #2

DH #3

N.A.P.

Hines Creek

Hines Creek

TR 84 R 5

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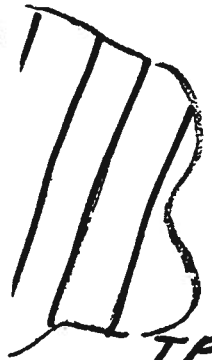
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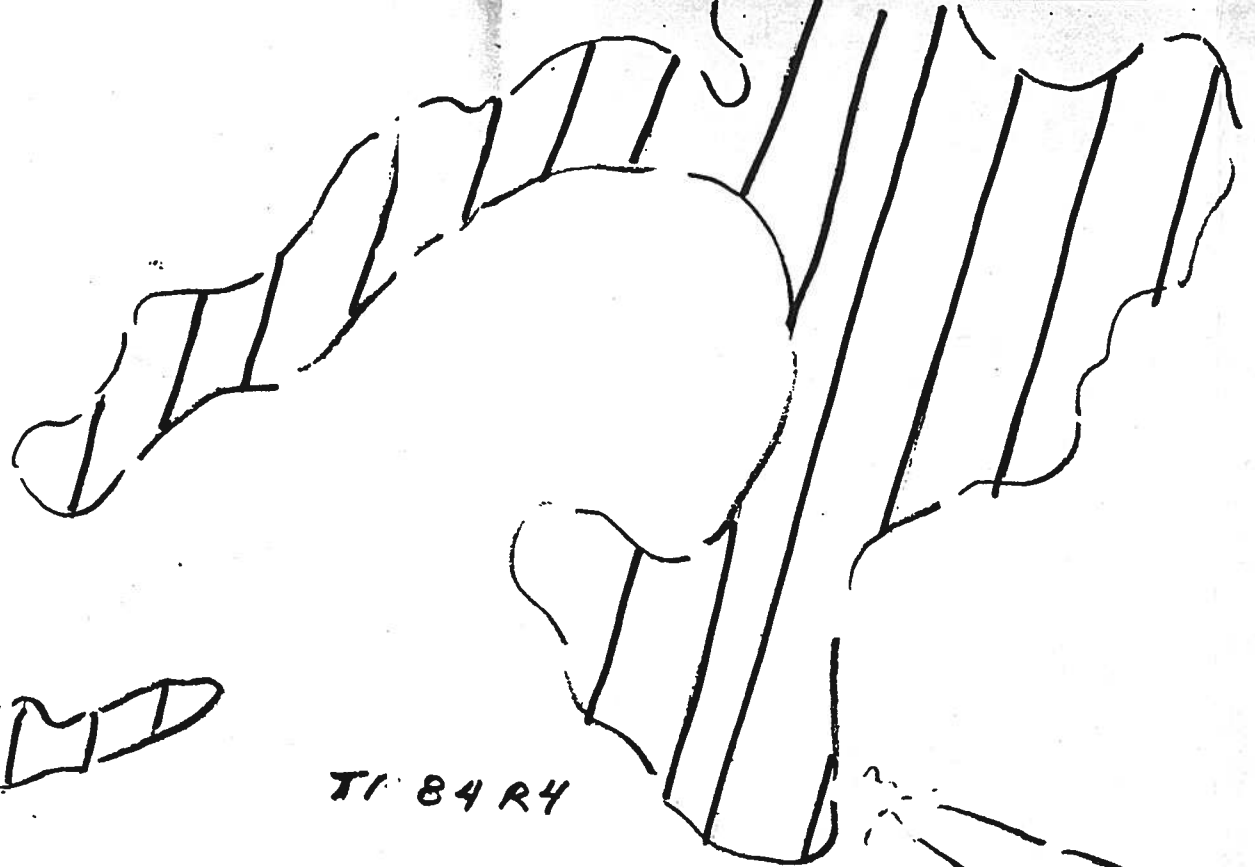
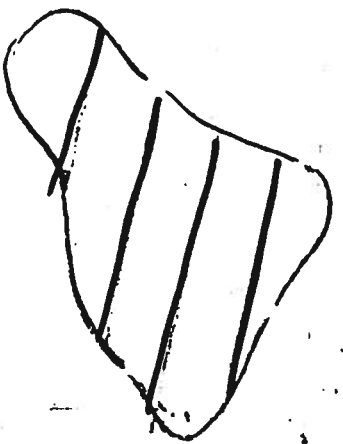
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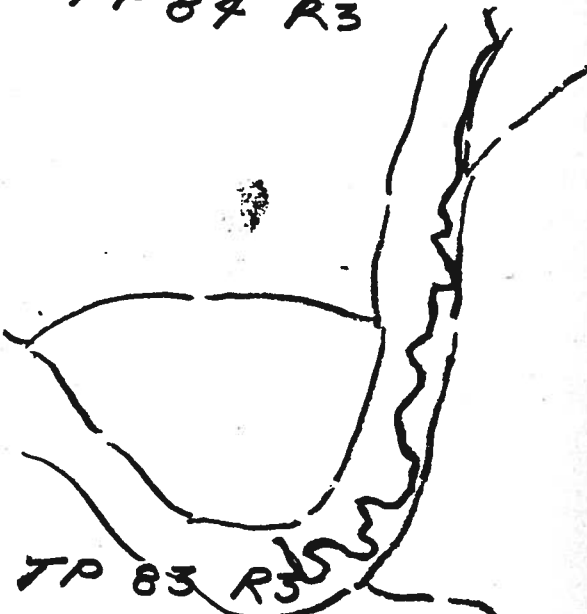
TP 84 R5



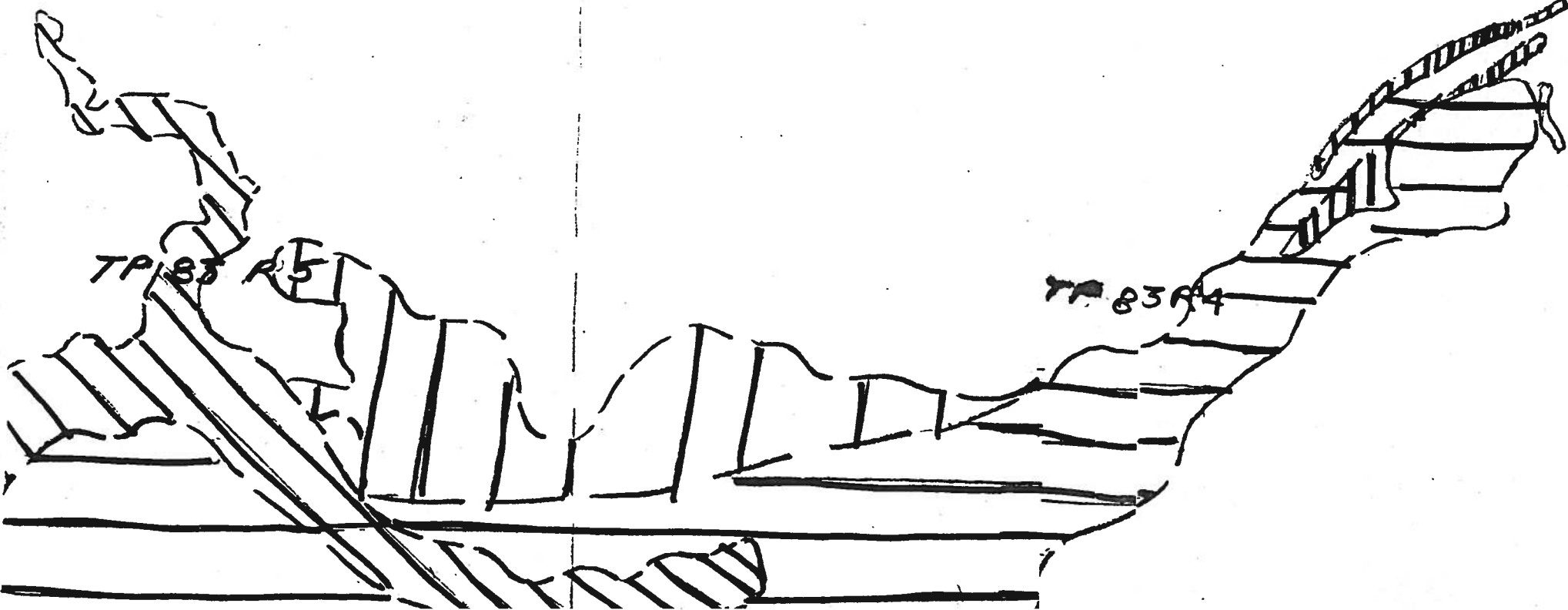
TP 84 R4



TP 84 R3



TP 83 R3



TP 83 R5

TP 83 R4

