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12. GEOLOGICAL REPORT ON A PROPOSED WESTERN REALIGNMENT ROUTE – MIDLAND HIGHWAY, CONSTITUTION HILL, DYSART

by W. R. Moore

The Mines Department has been asked to investigate an alternative to the earlier proposed E realignment of the Midland Highway. N of Bagdad, two tributaries of Bagdad Rivulet coalesce and the two proposed routes occupy the valleys of the eastern and western tributaries respectively. This report concerns the proposed realignment along the western tributary of Bagdad Rivulet. The old railway line leading to Apsley also occupies the valley of the western tributary (fig. 14).

From Bagdad, the proposed western realignment route would climb by means of a long embankment and then a deep curved cutting to the crest of Constitution Hill. This route is the shorter and straighter of the two proposals. To obtain a satisfactory grade the cutting would have to be 100 feet deep.

GEOLOGY

Geological mapping along this route and in nearby areas has revealed that the rocks present are Triassic sediments which outcrop in the N and SE, and Jurassic dolerite.

Triassic Sediments

The Triassic rocks consist of both massive and thinly bedded sandstone and mudstone. They outcrop where the proposed realignment deflects from the existing highway and are similar to the beds on the northern slopes of Constitution Hill. Sandy soil along northern sections of the route indicates that Triassic rocks are also present in that area. They also outcrop at an altitude of 810 feet on the E side of the valley. The contact of the Triassic rocks with the dolerite is not exposed but the dolerite is not seen anywhere below an elevation of 810 feet.

Jurassic Dolerite

Extensive dolerite outcrops up to 6 feet square occur along the crest of Constitution Hill. The proposed route follows a spur to the S of Constitution Hill and smaller outcrops have been observed along the ridge of this spur. A deep cut is planned around the head of a small stream to the E of the route. Con-

tinuous outcrops of dolerite occur from the valley floor at an elevation of 810 feet to the headwaters of the stream at 1,050 feet. These outcrops form a series of small cliffs and benches 15 to 30 feet high. Smaller dolerite outcrops are present in adjacent small streams. In the exposures noted the dolerite is columnar jointed and the vertical joints are tight and unweathered. Generally the rock is unweathered or weathering is limited to a depth of a few inches.

Outcrops of dolerite are present in all the cuttings and embankments along the old Apsley railway line. Apparently dolerite outcrops in the W tributary of Bagdad Rivulet as far as the junction of this stream with the tributary that flows to the E of the proposed route.

To the N, near where the proposed route reaches the top of Constitution Hill and where the long cutting will end, there is a large dolerite quarry. The walls of this quarry show a narrow, irregular surface layer of weathered dolerite averaging 2 feet in depth, but reaching a maximum depth of 5 feet, and then 20 feet of unweathered dolerite.

CONCLUSIONS

From the above rock distribution, which has been established from good exposures, it appears that the entire S portion of the proposed route would be through dolerite. The planned cutting would have to be excavated in unweathered dolerite for its total length and maximum depth. This would require the continual use of explosives. Throughout the area mapped, the depth of weathered dolerite is consistently small. The high cost of construction in unweathered dolerite makes this route less attractive geologically than the eastern proposed realignment.