

1979/7. Prospecting for gravel in the Eddystone and Musselroe Roads area

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Abstract

Surfacing gravel for road works is difficult to find in the area but auger holes in the Little Boggy Creek and Musselroe areas indicate possible reserves. Some backhoe prospecting is recommended and a more systematic approach to quarrying for road materials is needed in areas of thin resources to minimise the effect on the environment.

INTRODUCTION

Assistance in locating reserves of surfacing gravel was requested by the Portland Council due to the incorporation of established pits into the Mt William National Park. These pits, McGintys in the north and the Halfway pit in the south supplied material for maintenance of the Musselroe and Eddystone Roads respectively.

GEOLOGY

The bedrock consists of Mathinna slate and sandstone and intrusions of granitic rocks. Outcrops are sparse and of low relief. The area is discontinuously covered by varying thicknesses of sand, clay and gravel mostly of granitic origin and of Tertiary age but with a component derived from the Mathinna Beds and their contained quartz veins.

ROAD-MAKING AGGREGATES

Twelve pits in the area were examined (fig. 1.; table 1). Three pits (E,F,H) were in Mathinna Beds - this material is used mainly for formation work but is too plastic for use as a surfacing material. Two pits (I,J) were in decomposed granite and both are within the National Park. This material is a coarse grit containing clay derived by weathering of feldspar. It is commonly used for road-making in granitic areas but sites where a workable thickness of decomposed granite left *in situ* and where there is also a suitable ratio of quartz to feldspar in the parent rock (necessary to produce a usable aggregate) are difficult to find.

Five pits (A,B,C,D,K) were in the Tertiary beds which cover most of the area. These beds range in thickness from nil to some tens of metres and they are best defined as gritty muddy sand. In most cases the composition is unsuitable for road-making material. A scout boring programme carried out in the area in 1968 showed that, in many cases, the thickness of Tertiary sediments exceeded the capacity of the machine which was 15.2 m (50ft). Table 2 sets out the relevant data and shows that, in most of the holes, the mud content exceeded 35% which was considered to be the maximum allowable.

At surface, the Tertiary sediments appear to be predominantly fine gravel to coarse sand but this is only a weathering effect caused by leaching of silt and clay to deeper levels. This results in a 0.5-1 m of gravel over a clay-enriched layer over normal sediment. The asterisked compositions in Table 2 are those in which the gravel content is at least 20% and the mean grain size is at least 0.5mm. Even some of these may be suspect as composite grains of mudstone may have been present in some holes. Some shallow auger holes drilled in December 1978

(table 3) indicate that the southern portion of the Eddystone Road is a promising prospect for surfacing gravel. The track leading to Little Boggy Creek, where some council prospecting has already been done and where the slope has allowed accumulation of gravel is worthy of further attention.

Table 1. EXISTING AND ABANDONED PITS

	Location	Depth (m)	Material
A	at auger hole No 1	0.5	Tertiary gritty sand clay bottom
B	at auger hole No 6	0.5	Tertiary gritty sand clay bottom
C	at auger hole No 7	0.5	Tertiary gritty sand clay bottom
D	at auger hole No 8	0.5	Tertiary gritty sand clay bottom
E	Musselroe Road EQ985729	3	Mathinna slate
F	Musselroe Road EQ988734	3	Mathinna slate
G	Musselroe Road EQ990738	1	windblown sand
H	In proposed National Park addition EQ993722	2	Mathinna slate
I	In proposed National Park addition EQ601723 (McGintys)	1	decomposed granite
J	Eddystone Road now in- corporated in National Park FQ077594 (Halfway)	1	decomposed granite
K	Musselroe Road EQ990780	2.3	Tertiary gritty sand
L	Musselroe Road EQ991764	1.5	windblown sand

MINING METHODS

In shallow, superficial deposits such as these where the most attractive material occurs in the top metre, there is the temptation to work a large number of areas. The Eddystone Road abounds in abandoned pits, 0.5 to 1 m deep and of about one hectare which now consist of hillocks and water-filled hollows.

Unsystematic mining results in wastefulness of resources and in untidiness which reflects on the mining industry in general and on the Department of Mines.

Any new pit should be fully prospected so that it can be planned from operation to rehabilitation.

CONCLUSIONS AND RECOMMENDATIONS

The most promising areas are at the northern end of Musselroe Road and on the Eddystone Road by Little Boggy Creek. A third possible site is near the junction of these roads.

If the Portland Council could extend this investigation with the use of a back-hoe, the writer would be available to give further advice if required.

A mining lease should be taken out on any future pits to be opened up and advice from mining engineers from the Department should be sought in its planning and operation.

[7 March 1979]

Table 2. SCOUT PROLINE DRILLING PROGRAMME, 1968

B.H. No.	Thick-ness m	Gravel %	Sand %	Mud %	Mean diam. (mm)	B.H. No.	Thick-ness m	Gravel %	Sand %	Mud %	Mean diam. (mm)
190	7.62	14	56	30	0.23	215	15.24	3	51	46	0.10†
191	3.35	23	30	47	0.16†	216	15.24	4	62	34	0.18
192	5.49	2	17	81	0.02†	217	15.24	9	54	37	0.15
193	1.83	2	5	93	0.01†	218	8.53	23	49	28	0.35
194	3.35	9	22	69	0.04†	219	9.14	27	57	16	0.60*
195	15.24	5	57	39	0.13†	220	10.97	15	60	25	0.30
196	15.24	7	57	36	0.14†	221	1.83	7	55	38	0.16†
197	15.24	3	60	37	0.15†	222	15.24	0	43	57	0.03†
198	15.24	2	40	58	0.06†	223	5.18	4	24	72	0.03†
199	15.24	10	61	29	0.34	224	15.24	4	36	60	0.04†
200	15.24	11	51	38	0.16†	225	2.73	41	23	36	0.09†
201	15.24	7	47	46	0.12†	226	3.35	9	45	46	0.08†
202	15.24	8	43	49	0.10†	227	5.18	22	27	51	0.18†
203	8.53	5	60	35	0.16†	228	2.44	40	30	30	2.50*
204	9.45	1	38	61	0.03†	229	3.35	9	27	64	1.80†
205	0.91	7	72	21	0.34	230	0.91	0	5	95	0.05†
206	0.91	10	47	43	0.12†	231	0.91	8	8	84	0.01†
207	2.74	18	54	28	0.37	232	1.83	1	64	35	0.12†
208	4.57	10	60	30	0.25	233	5.18	10	20	70	0.04†
209	2.74	10	50	40	0.50†	234	0.91	30	49	21	0.60*
210	15.24	23	61	16	0.60*	235	4.57	4	83	13	0.40
211	1.83	5	77	18	0.30	236	0.91	10	76	14	0.50
212	15.24	21	62	17	0.60*	237	14.33	10	89	1	0.44
213	9.14	10	52	38	0.16†						
214	8.23	6	65	29	0.25						

* mean grain diameter >0.5mm and gravel content \geq 20%

† mud (i.e. silt and clay) \geq 35%

Table 3. RECORD OF AUGER HOLES DILLED ON EDDYSTONE ROAD AND MUSSELROE ROAD, DECEMBER 1978

No.	Grid Reference	Depth (m)	Material	Gravel	Sand	Clay	Mean diam (mm)
				%	%	%	
1	FQ042570	0-0.4	Mined coarse sand				
		0.4-0.6	Sandy clay	8	25	67	0.12
2	FQ041560	0-0.2	Sandy clay	13	36	51	0.18
3	FQ026578	0-0.9	Black sandy clay	11	66	23	0.37
4	EQ982590	0-0.65	Clayey gravel		No sample		
5	EQ984985	0-2.0	Clayey gravel	13	65	22	0.40
6	EQ985594	0-0.4	Black gritty sand	27	71	2	1.40
		0.4-1.4	Gritty clayey sand	16	55	29	0.43
7	EQ980597	0-1.5	Gritty clayey sand (clay bottom)	9	68	23	0.40
8	EQ973633	0-1.5	Gritty clayey sand (ironstone bottom)	12	68	20	0.40
9	EQ990764	0-0.5	Clayey gravel (granite bottom)	8	69	23	0.35
10	FQ038572	0-0.6	Clayey gravel (granite bottom)		No sample		
11	FQ082595	0-0.6	Pebbly clay (granite bottom)		No sample		
	Sand pit on	0-1.0	Windblown sand	10	88	2	0.46
	Musselroe	1.0-1.8	Pebbly sand	10	88	2	0.94
	Road K	1.8-2.2	Pebbly sand	14	85	1	0.94
	Sand pit on		Windblown sand	0	92	8	0.27
	Musselroe						
	Road L						

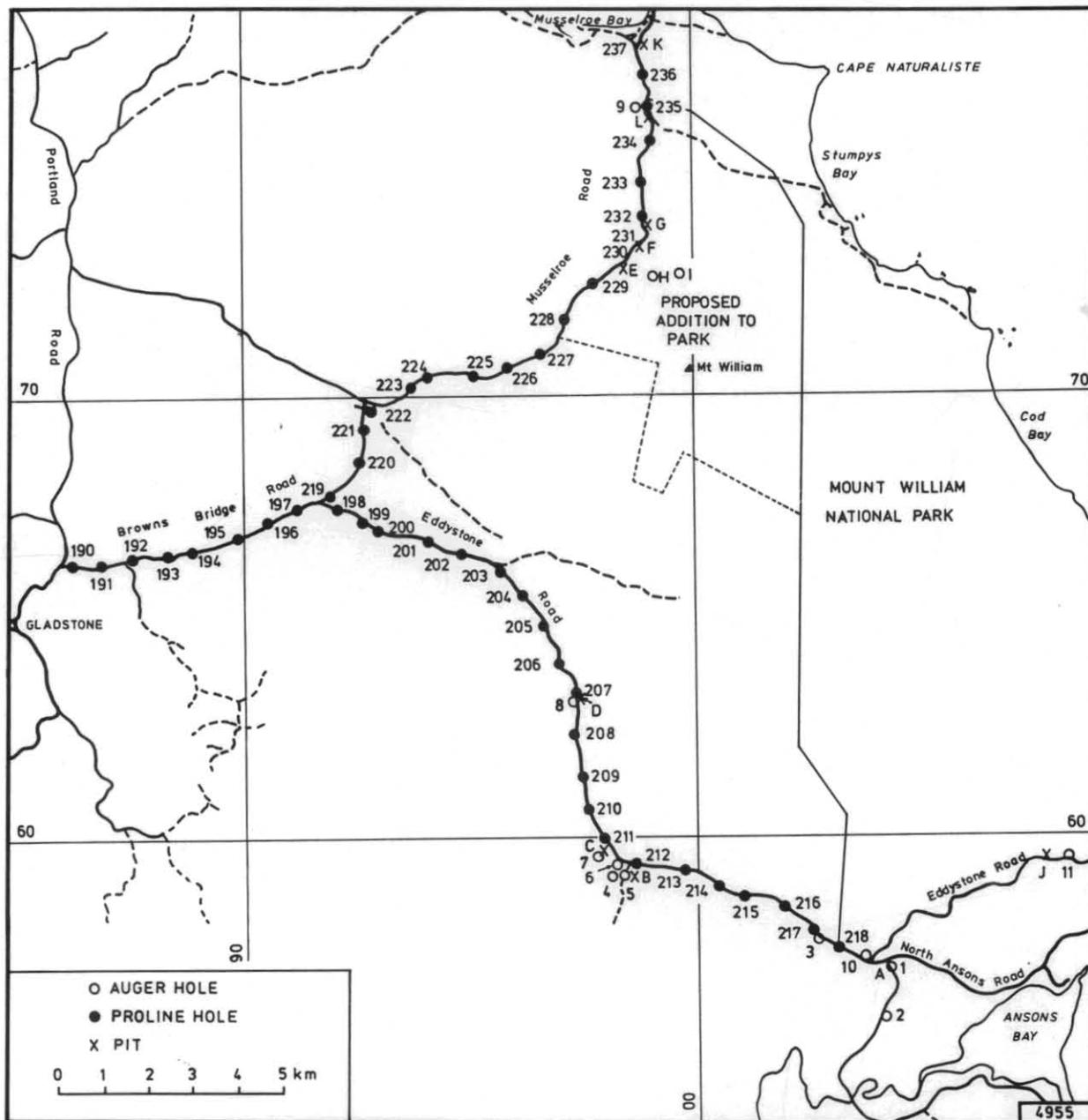


Figure 1. Locality map showing drill holes and pits

5 cm