

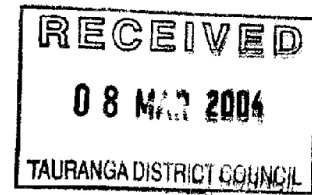
MAUAO CONSERVATION RESERVE

PROPOSED FIRE FIGHTING MAIN

1.0 INTRODUCTION

Iwi representatives and Council staff requested an inspection of the proposed 1090m long fire main route from the connection point near Pilot Bay to the proposed helipad and the northern slopes of Mauao. This inspection occurred on 2 March 2004 with the following representatives in attendance:

- [Redacted]
- [Redacted]
- s 7(2)(a) - Privacy
- [Redacted]
- [Redacted]
- s 7(2)(f)(ii) - Protection of public officials
- [Redacted]
- [Redacted]
- s 7(2)(a) - Privacy
- [Redacted]



s 7(2)(a) - Privacy [Redacted] requested that an alternative route be assessed and reported to the Mauao Advisory Group's meeting of 8 March 2004. This report covers the costs and assesses the benefits/effects of this alternative route compared to the route presented in the Resource Consent application.

2.0 ROUTE PROPOSED IN THE RESOURCE CONSENT APPLICATION

The current recommended 1090m route starts with a connection to Council's existing 250 dia supply main on the southern side of Mauao and it follows an existing disturbed vehicular/tractor track 600m to the helipad fire hydrant on the lower northern terrace of Mauao. From there it extends another 200m along the same disturbed vehicle track to fire hydrant FH No1 and then another 290m along the disturbed construction track of the existing fence line to FH No2.

During the onsite meeting on 2 March 2004 it was agreed that the extension from helipad fire hydrant be taken from a Tee connection 30m back from the helipad to keep the pipeline in the existing vehicle track. This avoids going 60m through undisturbed ground and it has been amended on the design drawings.

3.0 PIPELINE CONSTRUCTION AND IN SERVICE OPERATION

As described in the consent application and during the site visit, this pipeline will be a 200mm dia steel main laid approximately 600mm below ground. There will be several valves and 3 fire hydrants that will be contained in chambers below ground away from vandals. The

pipeline trench will be excavated 600mm wide x 900mm deep using a conventional excavator. Some surface rock will be encountered and it will be excavated using hydraulic hammers attached to the excavator instead of using blasting. Sand will be imported to bed and surround the steel pipe but the majority of the trench will be backfilled using the excavated material from the tractor track.

The last 290m section between fire hydrant FH No1 and FH No 2 will be laid in a similar trench along the old 3m wide construction track that was used to construct the existing stock fence. This will involve the removal and replacement of the fence and some minor removal of vegetation that has grown across the track over the years ; re-seeding and planting will take place as necessary.

4.0 PROPOSED WATER BOOSTER PUMP STATION

The precise design plans of the booster pump station will not be completed until Consent has been obtained. Consent is sought to have it located adjacent to the existing sheep yards on the lower eastern terrace of Mauao. The structure will be built using natural timber materials to match the existing sheep sheds and it will have an approximate size of 4m x 3m and 3m high to accommodate the booster pump and electrical controls.

5.0 ALTERNATIVE ROUTE IDENTIFIED BY IWI REPRESENTATIVES

Instead of extending the fire main 290m from fire hydrant FH No 1 west to FH No 2 Iwi representatives asked that an alternative route around the base of the northern sheep-grazing terrace be investigated. Their reason for considering this route was that it is cleared for sheep grazing, and maybe easier to construct because of its more gentle side slope, and it could be used to provide drinking water facilities to the base walking track. The ground under the track has not been disturbed by past earthworks.

This alternative route is some 530 m long and it terminates at the same fire hydrant FH No2 location where immediate fire fighting access is available to the lower edge of the vegetated northern slope. Refer to the route sketch attached to this report.

6.0 COMPARISON BETWEEN THE ALTERNATIVES

As a point of clarification all parties appear to be happy with the proposed route to the booster pump station, the helipad and to fire hydrant FH No 1. This will cost an estimated \$110,000 as detailed in the table at the end of this report.

The 290m extension from fire hydrant No 1 to FH No2 will cost another estimated \$41,760. The alternative 530m extension from the helipad around the more gentle sheep/tractor track route will be more expensive at an estimated cost of \$63,600 even though it's per metre construction cost will be approximately 20% cheaper (due to easier topography for construction).

Identifying the advantages and disadvantages of each alternative is very subjective depending upon the intended purpose of the fire main. If its sole purpose is to fight fires then the shorter and cheaper route as described in the resource consent application would seem to be justified at a total cost of \$151,760. However, if the purpose is to provide a dual purpose fire fighting/drinking water function then the more expensive longer route near the Base Walking Track could be considered at a cost of \$173,600.

A cheaper drinking water option would be to extend a 40mm dia 100m off the end of fire hydrant FH No 2 and retain the shorter fire main

7.0 CONCLUSION AND RECOMMENDATION

Unless the purpose of the main has altered from the original fire fighting concept, the recommendation should be to adopt the cheaper and more direct route to fire hydrant No 2 as nominated in the Resource Consent application. If access to drinking water is required to serve the popular Base Walking Track now or in the future, then it would be quite simple and cheap to extend a domestic 40mm dia pipe 100m off the end of fire hydrant FH No 2.

It should also be noted that provision of the main for drinking water purposes may be contrary to the Reserve Management Plan for Mauao. Also the suggested alternative route through the sheep grazing area is through undisturbed ground and it is therefore more likely to disturb unknown archaeological sites. On the other hand, the route presented in the resource consent application is along a 3 m wide disturbed construction track that was excavated to build the existing fence line. Any sites may have been damaged already.

Yours faithfully
Harrison Grierson Consultants Limited

s 7(2)(a) - Privacy

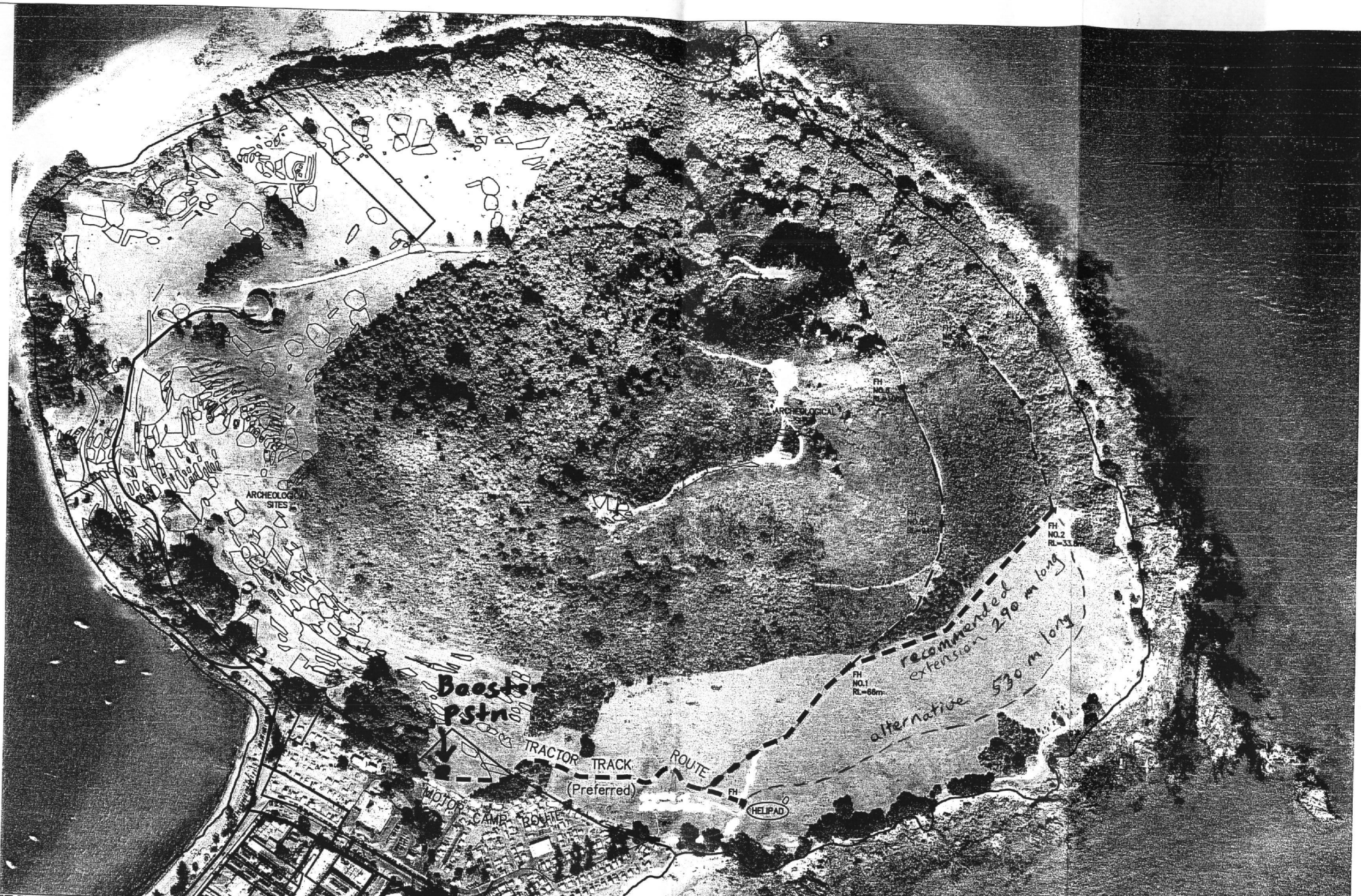
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Chartered Professional Engineer
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MAUAO

PREDESIGN CONSTRUCTION ESTIMATES : FIRE MAIN TO HELIPAD AND FIRE HYDRANTS

Item No	Description	Unit	Qty	Rate	Amount
	Construct fire main to helipad.				
1	Establishment.				
2	Locate existing services	Item	1	2000	\$2,000
3	Supply and lay 200mm dia steel water pipe.	Item	1	1000	\$1,000
5	Supply and install bands, fittings and 1 hydrant.	m	600	100	\$60,000
		Item	1	5000	\$5,000
	Construct Booster Pump Station				
6	Upgrade power to site.				
7	Supply and install booster pumps	Item	1	5000	\$5,000
8	Construct 4 x 3m timber booster pump building.	Item	1	5000	\$5,000
		Item	1	8000	\$8,000
	Construct fire main extension from helipad to FH No 1.				
9	Supply and lay 200mm dia steel water pipe.	m	200	120	\$24,000
10	Sub Total Estimate Fire Main to helipad & FH No 1.				\$110,000
	Alternative Extension FH No 1 to FH No 2				
	Construction of fire main extension from FH No 1 to FH No 2.				
	Supply and lay 200mm dia steel water pipe.	m	290	144	\$41,760
	Alternative Extension Helipad to FH No 2				
	Construction of fire main extension from helipad to FH No 2.				
	Supply and lay 200mm dia steel water pipe.	m	530	120	\$63,600
	Total Construction Estimate with Alternative Extension FH No 1 to FH No 2				\$151,760
	Total Construction Estimate with Alternative Extension Helipad to FH No 2				\$173,600



SURVEYED BY: _____
 DATE SURVEYED: _____
 SD/MLAP REF: _____
 DESIGNED: BF
 CHECKED: _____
 DRAWN BY: _____
 DATE PLOTTED: 16/1/2004
 CAD REFERENCE: 10920-FM02
 CAD USER'S: _____
 APPROVED: _____
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 CONSULTING ENGINEERS SURVEYORS PLANNERS

PROJECT: MAUAO
 TITLE: ALTERNATIVE FIREMAINS TO NORTHERN FACE

PROJECT No:	10920-FM02	REV
DRAWING No:		
ORIGINAL SCALE:	1:4000	
REDUCED SCALE:		A3
REF. AMENDMENTS	BY DATE	