REHAB2006_07

REHABILITATION OF ABANDONED MINING LANDS TRUST FUND

PROPOSED SHAFT SAFETY PROJECT 2006/2007

LEFROY GOLDFIELD

North East Tasmania

PROJECT OUTLINE AND COST ESTIMATE

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Cover Page photograph: Windermere shaft covered with 2 x 3000 mm x 1500 mm concrete panels.

Background/Summary

The Rehabilitation of Abandoned Mining Lands Trust Fund commenced a remediation program in the 2005/2006 budget period to address public safety risks posed by abandoned mine workings on Crown Land at Lefroy, northeast Tasmania (Map 1). Fifty-three open shafts and two adits were either capped or fenced during this time for an approximate cost of $140,000.

Further work proposed for the 2006/2007 period (Map 2) should complete the remediation of known open shafts (open depth $\geq$ 3 m) on Crown Land in the immediate surrounds of Lefroy. Allowance should be given for additional shafts that may become apparent as hazards in the future.

An estimated budget of $65,000 is required to carry out proposed works. Individual sites shown on Map 1 are detailed below.

Procedures

Shafts have been selected based on public safety criteria set out in *Tasmanian Geological Survey Record 2001/04: Strategy – The rehabilitation of abandoned mining lands (Revision 1)*, specifically the **risk** (depth of shaft; extent of excavation) and **exposure** (ease of access; proximity to population).

It is proposed that shafts will either be capped with pre-cast concrete panels or enclosed with galvanised steel pipe fencing (Fig. 8) and appropriate signage.

General on-ground procedures for site works should comply with environmental guidelines described in the *Mineral Exploration Code of Practice 1999.* Procedures specific to shaft capping include:

- Create minimal disturbance to surrounds while carrying out work.
- Where a track is created to access a shaft, then rip the track and cover with slash from immediate area upon completion of safety works.
- Where continued vehicular access to covered shafts is reasonably possible, create a barrier with fallen timber, earth bund or similar.
- Divert surface run-off from covered shafts where it is likely to cause undermining of concrete panels or subsidence of shaft opening.

Hazard signage should be consistent with the relevant Australian Standard and comply with requirements of the *Civil Liabilities Act 1992.*

Aims

- Improve public safety on Crown Land at the Lefroy Goldfield.

In undertaking safety works, the works program will also aim to:

- Preserve heritage values.
- Preserve or improve natural values.

Pinafore Main Shaft

The Pinafore Main Shaft is approximately 12 metres off the western edge of Beechford Road (Fig. 1-3). It is recorded as being a 2400 mm x 1800 mm shaft, sunk to a depth in excess of 360 metres (Montgomery, 1897). Ground surrounding the shaft opening has collapsed forming a depression approximately six metres deep and roughly 10 m diameter, meaning that the edge of the depression comes within 6 to 8 metres of the edge of Beechford Road.

A low barrier fence could be installed; however, fencing this shaft is problematic because of ground surface features. The openly visible location may also attract members of the public to this potentially dangerous shaft. It is proposed to seek engineering advice on how to best seal this shaft.

An additional option is to install 'Armco' style guardrail along roadside beside shaft. A quote of $6,900 (inc GST) has been given for 20 metres of guardrail at this site.

Figure 1. Proximity of shaft to Beechford Road.

Figure 2 & 3. Northern (left) and southern (right) approaches to Pinafore site – shaft location indicated by arrows.

Morning Star and Golden Era Workings

These workings are close to houses in Lefroy (Map 2) and anecdotal evidence suggests that the area is used as a pedestrian thoroughfare. The Morning Star Main Shaft was fenced in 2006 but a number of open, deep shafts on these workings were not identified when planning the 2005/06 works program. Access for earthmoving equipment is complicated by regrowth over tracks and the arrangement of historic features.

For these reasons it is proposed that the workings are surveyed to both identify heritage issues and inform practical considerations for safety work, such as machinery and equipment access. This will also assist in targeting all relevant hazards so that safety work may be carried out in an effective manner.

Figure 4. Shaft on Golden Era line, 2500 mm x 2000 mm and open to 8 metres.

Excelsior Line

Two large collapsed shafts were fenced late in the 2005/06 program but an additional open shaft has been located (after capping work had been concluded). Because of their proximity to the Lefroy township, these shafts should be capped in the next budget period.

Native Youth and Nugget

These lines of reef run through the township of Lefroy and shafts have mostly been backfilled in an ad hoc manner by unknown methods over the time since they were abandoned.

The Native Youth Main Shaft became apparent following the creation of a vehicle track by Lefroy Resources for exploration work. This shaft is open and should be capped. Other open shafts on these workings are not known, though many shallow workings, subsidence and pits do present a real risk of injury, particularly in the area opposite the Lefroy cemetery (Map 1). It is proposed that a thorough survey be undertaken to account for any major hazards. Signage alerting to unstable ground and pits could be erected on the entry road to the cemetery (Fig.5).

Figure 5. Approach to Lefroy Cemetery. Extensive shallow workings are on the left hand side of the road, the cemetery is on the right. Suggested location of signage indicated by arrow.

Land O'Cakes

Four open shafts have been identified on the Land O'Cakes workings, all of which could be readily capped with pre-cast concrete panels. The workings in this area have only had a cursory investigation and a more thorough survey should be undertaken.

Brisbane, Reward and Volunteer shafts

Five major shafts (3 on the Volunteer Line and the Brisbane and Reward Main Shafts) are collapsed, leaving openings of approximately ten metres diameter and depressions of between six and twelve metres deep. One Volunteer shaft and the Reward shaft are choked with refuse (Fig. 6 & 7). An agreement has been reached with the George Town Council to waive tip fees for 50 m^3 of refuse if MRT collect and transport the rubbish.

Three possible alternatives for these shafts are:

- Fence with a low steel pipe barrier similar to that used on the Volunteer Main Shaft (Fig.8) (estimated total cost for five of $10,000).
- Steel dropper and wire fence (estimated total cost $2,500)
- Seek engineering advice to explore the option of capping.

Figure 6. Volunteer shaft. The collapse is approximately 10 metres diameter. Anecdotal evidence is that rubbish is supported by two car bodies wedged into the shaft.

Figure 7. Reward Main Shaft. The collapse is approximately 10 metres diameter and 8 metres depth to rubbish.

Figure 8. Partly completed fencing around the Volunteer Main Shaft

Location	Action	Cost Estimate ($)
Pinafore Main Shaft	• Excavate debris with extended arm excavator. ($125 p/hour) • Assess degree of hazard. • Either install low level fence, Armco guardrail on roadside or seek engineering advice on sealing shaft.	• 1,000 • Unknown
Morning Star / Golden Era	• Heritage survey. • Capping and fencing.	• 4,000 • 12,000 (+/-)
New Native Youth / Nugget	• Heritage survey. • Capping, fencing and signage.	• 4,000 • 10,000 (+/-)
Land O'Cakes	• Heritage survey. • Capping, fencing and signage.	• 4,000 • 10,000 (+/-)
Brisbane Main Shaft	• Low fence.	• 2,000
Reward Main Shaft	• Remove rubbish and install low fence	• 2,500
Volunteer 3 x production shafts	• Remove rubbish and install low steel pipe fences.	• 6,500
	Total	**$56,000**
	Proposed budget	**$65,000**

Table 1. Recommended works — cost schedule.

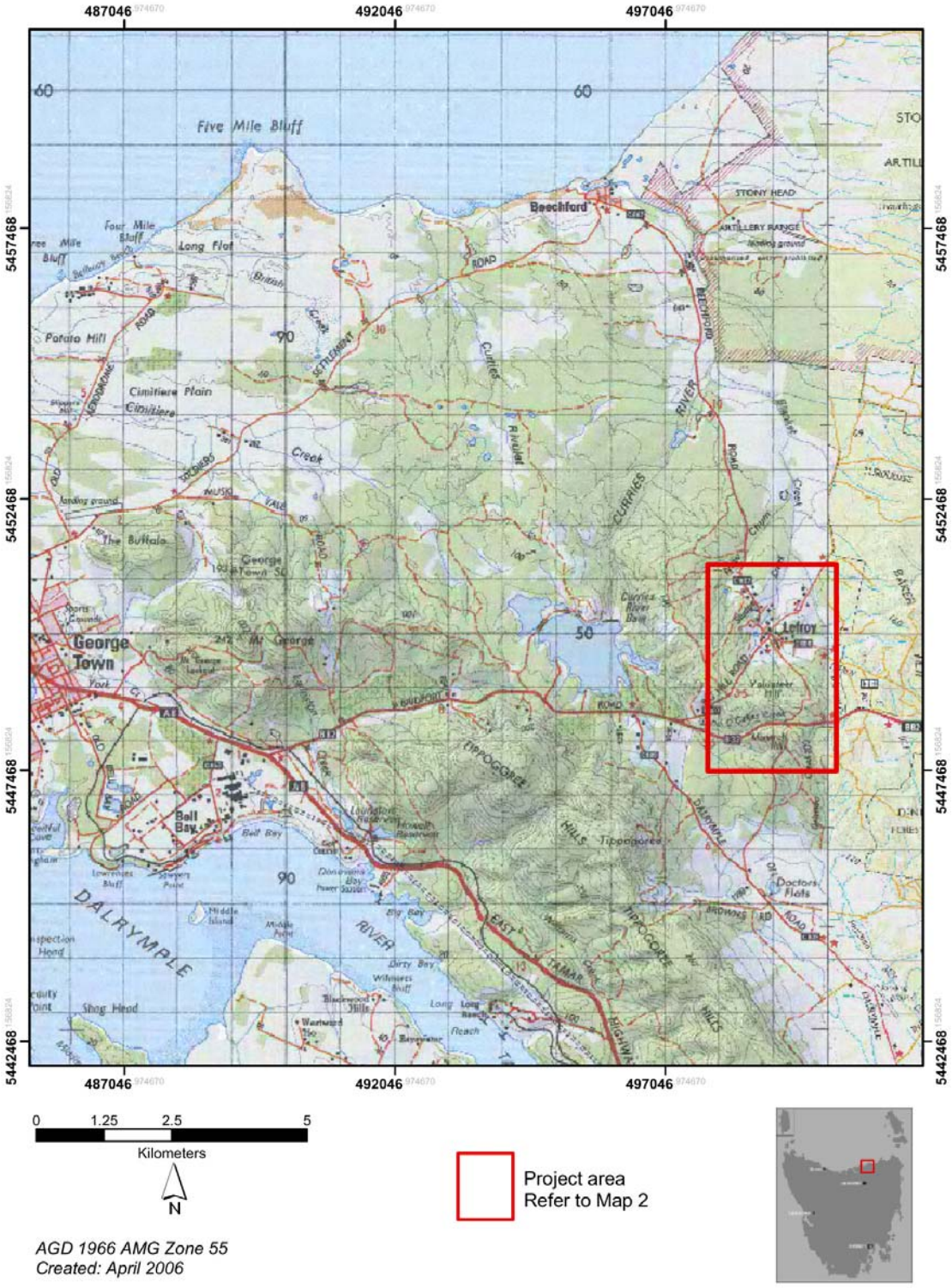
Reference Documents

BROADHURST, E. 1935. Lefroy and Back Creek Gold Fields. *Bulletin Geological Survey Tasmania* 42.

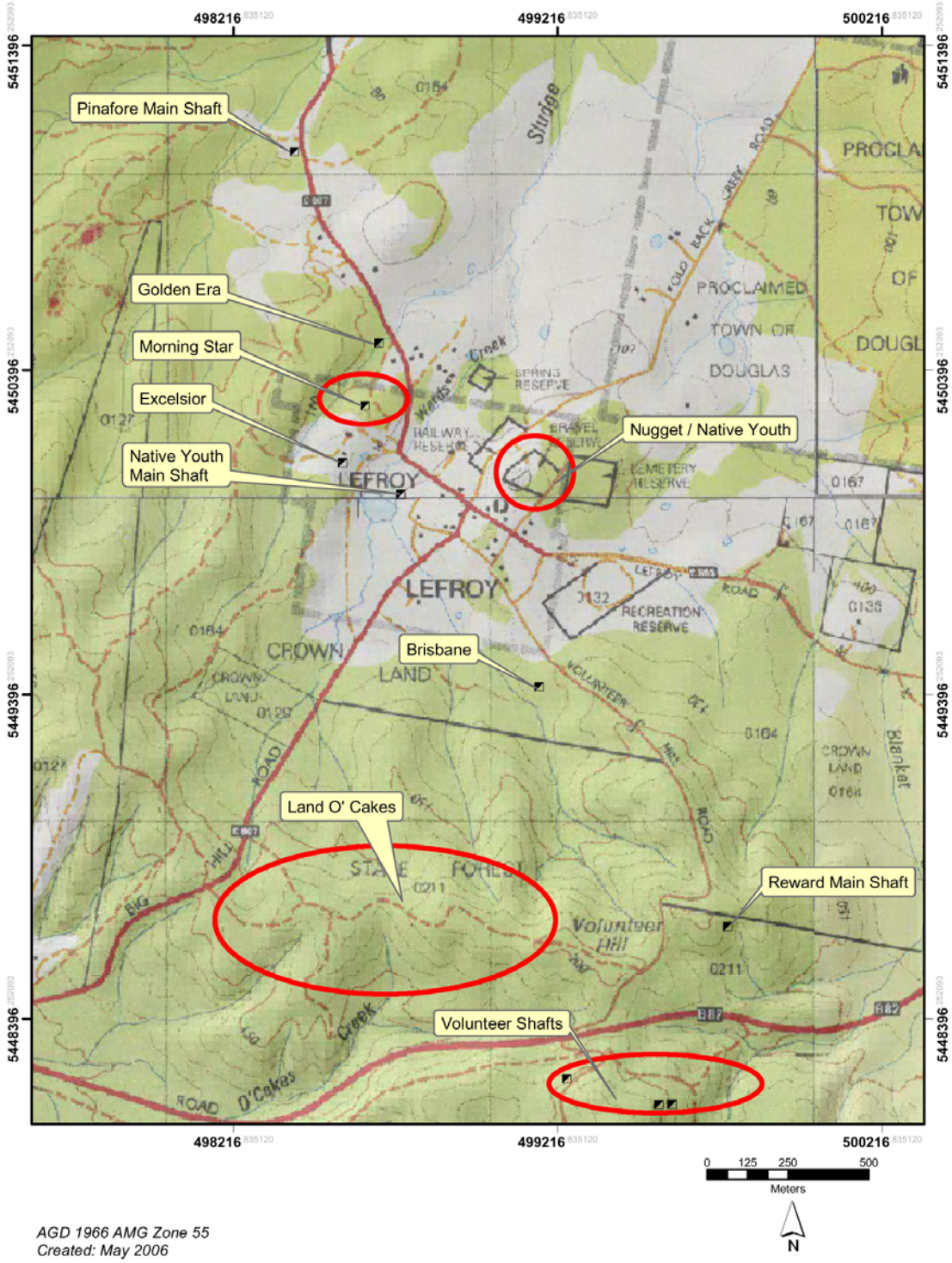
MONTGOMERY, A. 1897. Lefroy Gold Field, Tasmania: Report on the geological structure and mining development. *Report Secretary for Mines Tasmania* 1896-1897.

WEBSTER, A.E. 1998. *A preliminary cultural heritage assessment of the historic gold mines of North-eastern Tasmania: Part 10 — Lefroy Goldfields (Nine Mile Springs).* Unpublished report for Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources, Tasmania.

Map 1. Lefroy Shaft Safety Program 2006/2007: Project Location



Map 2. Shaft Safety Program 2006/2007
Proposed target sites - Lefroy, North East Tasmania.



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