

Maintenance of buildings and structures in Macetown Reserve, Central Otago

John B. Gray

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CONTENTS

Abstract	5
<hr/>	
1. Introduction	6
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1.1 Location, ownership, and status	6
1.2 What remains?	7
2. Development of a conservation policy	9
<hr/>	
2.1 Retention of significant fabric	9
2.2 Conservation methods	9
2.3 Client requirements	10
3. Existing physical condition of the building fabric	10
<hr/>	
3.1 Un-named timber building	10
3.1.1 General	10
3.1.2 Site	11
3.1.3 Exterior	11
3.1.4 Interior	13
3.2 Needham's Cottage	15
3.2.1 General	15
3.2.2 Site	15
3.2.3 Exterior	16
3.2.4 Interior	18
3.3 The Bakehouse	20
3.3.1 General	20
3.3.2 Site	21
3.3.3 Exterior	22
3.3.4 Interior	25
3.4 Anderson's Battery	26
3.4.1 Main battery stand	26
3.5 Other structures	28
3.5.1 General	28
4. Work required	30
<hr/>	
4.1 General repairs, and site restoration	30
4.1.1 Long-term maintenance	30
4.1.2 Maintenance and repair work required	30
4.1.3 Loss of the un-named timber building	31
4.2 Needham's Cottage	31
4.2.1 Exterior	31
4.2.2 Interior	33
4.3 The Bakehouse	34
4.3.1 Exterior	34
4.3.2 Interior	35

4.4	Anderson's Battery	36
4.4.1	Site	36
4.4.2	Stamper battery structure	36
4.4.3	Berdan	37
4.4.4	Pelton wheel structure	37
5.	Maintenance plan	38
5.1	Building maintenance record log	39
6.	Peripheral issues for the reserve	40
7.	Acknowledgements	41
8.	References and sources	42

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ABSTRACT

The four remaining intact historic structures in the Macetown Ruins and Historic Reserve, Central Otago, New Zealand are: an un-named timber building, Needham's Cottage, the Bakehouse, and Anderson's Battery. This survey investigated and reported on the physical condition of these remaining ruins and made recommendations for actions to halt or minimise further deterioration and stabilise them for the longer term. Guidelines and recommendations on work required to repair, conserve, and maintain the fabric of these structures include details of the appropriate methods and materials to use. An ongoing, cyclical, maintenance programme is outlined for work 'as required', annually, bi-annually, and every 6 years. Three peripheral issues affecting the value and integrity of the reserve are: wilding trees, public damage to stone structures, and four-wheel-drive vehicle landscape damage.

Keywords: maintenance, stone buildings, preservation, Needham's Cottage, Bakehouse, Anderson's Battery, Macetown Ruins and Historic Reserve, Central Otago, New Zealand

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1. Introduction

The survey on which this published report is based was commissioned by the Dunedin Area Office, Department of Conservation (DOC), to investigate and assess a range of reparatory/maintenance/building conservation matters at the Macetown Ruins and Historic Reserve in Central Otago, New Zealand. In particular, the author was asked to:

- Survey four of the remaining intact historic structures: an un-named timber building; the Bakehouse; Needham's Cottage; and Anderson's Battery
- Investigate, assess, and report on the present physical condition of the above structures
- Provide guidelines and recommendations on the work required to repair, conserve, and maintain the fabric of these structures
- Provide an ongoing, cyclical, maintenance programme
- Report on the condition of the remaining stone ruins on the reserve and make recommendations for actions required to halt or minimise further deterioration and to stabilise for the longer term

Copies of the initial unpublished report (Gray 2004) are held at Otago Conservancy Office, Dunedin, and Wakatipu Area Office of DOC. Please note: for the purposes of the orientation references in this report, the 'front wall' of each structure is the north elevation.

1.1 LOCATION, OWNERSHIP, AND STATUS

The Macetown Ruins and Historic Reserve (generally referred to as Macetown Reserve in this report) is situated approximately 16 km (11 miles) up the Arrow River from Arrowtown, on a river terrace 25 m above the Arrow River, just below the confluence of Twelve Mile Creek (Richburn). The area is accessed via a four-wheel-drive track from Arrowtown, which includes approximately 18 river crossings. This road is administered and maintained by the Queenstown Lakes District Council (QLDC) with some assistance from DOC.

Foot access is also available via the Big Hill track from Arrowtown. This track is administered by DOC on behalf of the New Zealand Walkways Commission.

The land comprising the Macetown Reserve was surrendered from Coronet Peak Run, gazetted as a reserve and classified historic in 1980. The reserve is in Crown ownership and is administered by DOC. Some water races and unformed legal roadways were added to the reserve in 1984.

The reserve covers 145 hectares, which includes the 1878 surveyed town of Macetown, and a 2.5-km extension up the Richburn to include mining relics, notably Anderson's Battery and the Homeward Bound Battery. Five of the original 110 sections in the township remain freehold.

In 1974 Lake County Council established a 2832-hectare Rural Historic Zone in the Queenstown-Wakatipu Combined District Scheme to protect the landscape

setting of Macetown from development which could detract from the character of the reserve. Today the reserve and surrounding land is designated 'Outstanding Natural Landscape' (see QLDC District Plan, pp. 5-24).

The controls associated with this zone prevent inappropriate development such as forestry, or new buildings or residences which could completely change the setting to the extent that it would be difficult for visitors to envisage Macetown as it once was.

Neither this reserve, nor any of the structures within it have New Zealand Historic Places Trust registration classifications. The reserve has a Category 3 classification from QLDC.

A history of the area was compiled by Paula Smith and can be found in the Otago Goldfields Park Management Strategy (Smith 1990). Petchey (2002) also contains histories of Macetown and the Macetown terraces, plus maps and photographs of the area.

1.2 WHAT REMAINS?

The historic township of Macetown appears today (2004) as a green parkland of developed lawn-like pasture, interspersed amongst stands of mature exotic trees, which contrasts vividly with the brown tussock lands of natural surrounding landscape. These exotic trees, many of which were planted by the original European inhabitants, mostly miners, include spruce, ash, poplars, willow, and sycamore. The latter two species have adapted well and spawned countless self-sown offspring.

Evidence of the inhabitants' gardens associated with the former dwellings can be seen in many places throughout the reserve, indicated by rows of carefully stacked stones marking fences, pathways, and flower beds. Further evidence of ornamental or productive garden plants such as daffodils, lilac, snowberry, blackberry and fruit trees can be seen in or associated with these garden areas. There are also the remains of several hawthorn hedges, now overgrown into densely planted rows of trees. High Street, the original main street, still runs for approximately 1.4 km through the length of Macetown (see Petchey 2002: map 1, and fig. 9).

Of the town itself, only five more-or-less intact buildings or structures remain today. They are listed here in the sequence in which they occur when the reserve is traversed from the south entrance. The four most intact structures are discussed in greater detail in sections 3 and 4.

Adjacent to the southern entrance, an **un-named timber building** on the left-hand side, is of unknown provenance (see photo in Petchey 2002: fig. 7). It appears this building is probably the two ends of what was originally a much longer structure (see section 3.1.1, below). Careful inspection of the building revealed that it has probably been relocated to this site, at a later date than whatever was first built on this site.

Just beyond the weatherboard building, and approximately 5 m above the left-hand side of the road, is a presently **windowless stone ruin** of unknown

ownership or purpose. An inspection indicates that the stonework of much of the front stonewalls and part of the side walls has been rebuilt probably during the late 1970s rebuilding programme. This is evident from the lack of earth mortar between the stones in this area. As a result, it is unclear whether this building originally had windows in the front elevation; however, it is most likely that its roof was of the lean-to type as presently indicated. This, together with the lack of a fireplace, indicates that the building was some sort of storage facility. However, why it was built so far above the roadway is a mystery. (This structure is not considered further in this report.)

About half way through the township on the right-hand side and approximately 6 m below the road on a lower terrace is an intact stone cottage, known as '**Needham's cottage**' (Petchey 2002: fig. 8). This cottage was once lived in by Joseph Needham, a teacher at Macetown School, postmaster, and miner who was believed to have been resident of the town for around 19 years. This building was a semi-intact unroofed ruin, until restored in 1979 by Lands and Survey Department workers (see section 3.2).

Further through the reserve on the left-hand side, near the start of the former main township settlement, is the **Bakehouse** building. This building was also 'restored' and re-roofed during the 1970s rebuilding programme (see Figs 4-9, below) and subsequently had further repair work undertaken to the roof structure following a fire in the late 1980s. Presently, interpretation of how the baking process was achieved is unclear, probably because of the injudicious rebuilding of stonewalls during the 1970s work, which has annihilated any evidence of the baking ovens or their entrances. This has resulted in curious visitors removing stones from the top of the front wall to see into the former bakehouse area.

The last of the structures, **Anderson's Battery**, is located approximately 1.2 km beyond the main settlement of Macetown on the eastern side of the Richburn (Petchey 2002: figs 22-24). This stamping battery is regionally significant as the only known all-metal-framed battery in Otago. Although the majority of the frame and stamping equipment remain at the site, the original timber and corrugated iron shed which enclosed the battery collapsed and was removed in 1971.

Surrounding the reserve and even within the township itself, there is evidence of sustained alluvial mining in the form of disturbed ground, stone tailings, sluiced faces, various revetments and water races across the surrounding hillside faces (Petchey 2002: figs 13 and 14).

2. Development of a conservation policy

This section sets out the parameters for the development of conservation policy for these historic structures in the Macetown Reserve. Those responsible for undertaking work on these structures should make themselves familiar with the content of this section of the report and ensure that the methods used are in cognisance.

2.1 RETENTION OF SIGNIFICANT FABRIC

With any historic building or structure it is important to retain the original fabric to the greatest extent possible, thereby also enhancing the heritage significance of the place.

When carrying out alterations, reparatory work, or investigating to ascertain original fabric beneath later additions, care should be taken to protect items of original historic fabric and every endeavour made to reinstate all original fabric to as close to the original form as possible. Special care and research needs to be undertaken when reconstructing fallen stonework and other fabric, so that the reconstruction accurately represents the original form.

2.2 CONSERVATION METHODS

It is important that the cultural heritage values of the Macetown Reserve structures are preserved over time. To ensure this, nationally and internationally recognised methods and techniques for maintenance and conservation should be adopted and applied. The maintenance and conservation of historic structures and buildings requires a thorough knowledge and understanding of traditional forms of building construction together with the sensitive application of modern technologies.

The application of these methods and techniques, however, requires a higher than usual standard of workmanship, skill, and care, and must only be undertaken following thorough consultation between the tradesmen and conservation professionals involved. The success of the maintenance and conservation work to these structures and buildings will depend on all parties adopting a fundamental respect for the original fabric of the place. To achieve these ends, all work should be carried out in accordance and be consistent with sound conservation practice and the principles of the *ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value* (ICOMOS New Zealand 1996).

2.3 CLIENT REQUIREMENTS

The building administrators (DOC) wished to undertake reparatory, restoration, and maintenance work to the fabric of these buildings and structures. The objectives of the work are to carry out repairs, restoration, and maintenance work (to the extent required to maintain and enhance the significance of the place). Once restored, the intention is to appropriately maintain the original fabric of the buildings for future generations to enjoy as a legacy of the Macetown Goldfields, nineteenth century mining community.

3. Existing physical condition of the building fabric

Site visits to investigate, assess, report, and measure each structure were made between 15 and 17 March 2004. Those present were: Mr Peter Bristow, Technical Support Officer–Historic, Department of Conservation (15 March only); Mr John Gray, Conservation Architect, Oakley Gray Architects Ltd, Dunedin; and Mr Allan McMorran, Senior Technician, Oakley Gray Architects Ltd, Dunedin. The structures inspected were: an un-named timber building; Needham’s Cottage; the Bakehouse; and Anderson’s Battery.

The work involved an inspection of the exterior walls and roof fabric from the ground only and a closer inspection of the interior. Any areas which were not easily visible from the ground cannot be ascertained as being free from defects. Considering the location, age, dereliction, and mixed use of the buildings and structures over the years, they are generally in good condition, although in need of repair and maintenance.

3.1 UN-NAMED TIMBER BUILDING

3.1.1 General

This timber building is of unknown provenance (Fig. 1). The distinct cross-join in the framework and floor to the left of the entrance door, and the presence of another former door which has been converted to a window (see details under section 3.1.4, below), is clear evidence that the building has been relocated to this site from some previous location.

It appears this building is made up of the two ends of what was a much longer building, possibly originally a hotel. The building has a distinctive offset ridge line (see Petchey 2002: fig. 7, which shows the asymmetrical gable end more clearly than Fig. 1, below). A search through photographs of the Macetown Settlement reveals that the only building which had an offset ridge line was Elliot’s Macetown Hotel. However, that hotel appears to have been wider than the un-named timber building. The photographs of Elliot’s Hotel show it to have

had a high, flat parapet at the front—which would have been a façade—with the pitched roof behind. It seems probable that this un-named timber building was relocated here from a remote location, possibly Arrowtown or Queenstown.

While still generally sound, this building requires considerable remedial work to restore it to a condition where it will survive well into the future.¹

3.1.2 Site

The un-named timber building is the first structure to be encountered upon entering the Macetown Reserve. It is located on the left-hand side of High Street, set back on the grass meadow, c. 40 m from the road. The building is surrounded by a wide variety of exotic deciduous trees, including sycamore, poplar, willow, and several varieties of apple and other fruit trees. There is also evidence of stone fences, indicating garden plots, etc. This indicates that the building was probably inhabited for several years. Without knowing something more of the history of the building it is impossible to determine who occupied the building or when.

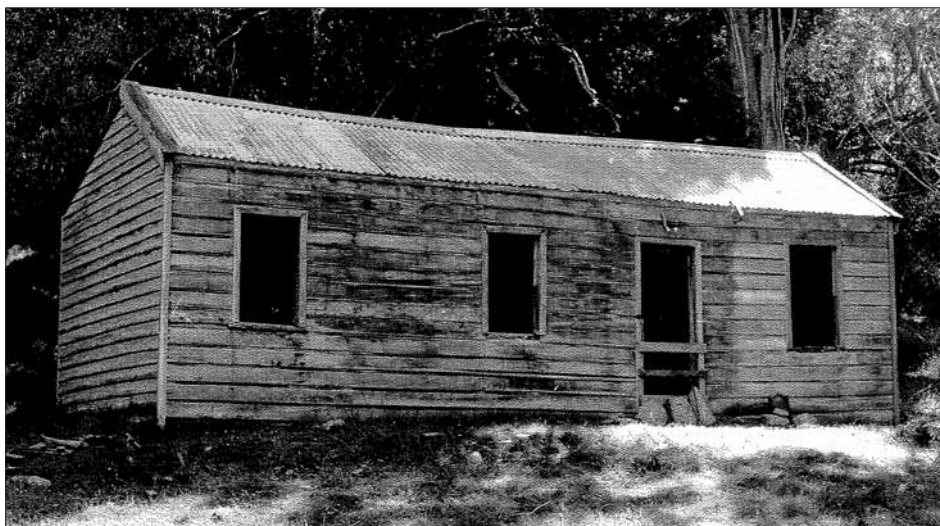
3.1.3 Exterior

Roof

The roof is of gable form, covered with corrugated iron, with the ridge offset towards the front face. At the north side, surface rust in several places was evident and in many places the nails have loosened and the roofing has lifted; however, the roofing is generally in sound condition.

Figure 1. The front (north wall) of the un-named timber building as it was in the late 1970s. The window on the left (east end) replaces a former door.

²*Photo: L&S records from DOC files.*



¹ **Loss of the un-named timber building.** Unfortunately this building was lost to fire in late 2004 when a visitor, who was sheltering in it, accidentally set it on fire. It was burnt to the ground and only the foundations remain.

² **Publisher's Note:** Restoration work was undertaken by the then Lands & Survey Department during the late 1970s. A photographic record of the work was made. Unfortunately the photos have since been mislaid. Low-resolution scans of these photos are presently all that is available. Given the historical nature of the images, and the possibility that the originals may never be found, we have decided it is better to publish these images, rather than to lose the record completely.

A section of the ridge flashing was bent up at the west end. The roofing at the south side is in a much poorer condition, with the iron in two lengths down the roof. The lifting at joints was noted at this face and significant end re-nailing is required along with the patching of small holes. It is further noted that there were no spoutings at either side of the roof.

Walls—North/front elevation

The cladding to this face is timber rusticated weatherboarding, 170 mm deep cover × c. 20 mm thick. The boarding is in reasonably sound condition considering its location and age and the red lead paint finish has weathered off in all but a few small areas. Two boards, either side of the entry door, have been damaged by shot gun blasts. Other areas of minor damage were noted such as splits at ends, etc. Some lichen growth was visible on the boards close to the ground. A vertical corner stop (ex. 75 × 75 mm) finishes the boards at each end.

The building has subsided towards the centre section and this is noticeable at the entry door, as the weatherboards slope down towards the area. The door, which is approximately one third from the west end, is timber framed with vertical ledges and appears to be of an original type, with timber facings of c. 70 × 15 mm, having a small half-round bead machined around the inner edge. The door, which opens inwards, is hung in a timber frame with a timber external reveal. The door timbers all appear to be generally in sound condition. Some decay at the bottom of the facings and reveals was noted; however, this is minor. The hinges to the door are broken at the bottom and middle.

Three window openings are located at this elevation. They consist now of only the timber frame and reveal, which is shaped for a pivot-type sash, with the exterior facings similar to those at the door. The timber window sills at the west end and centre are in fairly good condition; however, the sill at the east end is badly worn and affected by decay. The front section of this sill has been removed or has fallen off due to decay and it no longer terminates under the window facings as do the others. No sashes are in place nor are these to be found within the building. The weatherboards are fixed with old-style hand-forged nails.

Walls—East elevation

Weatherboards are 140 mm cover × 15 mm thick, with non-tapered backs, fixed in a manner similar to bevel-back weatherboarding. Again these are generally in good condition, considering location and age, and lack of maintenance.

Some boards have split at the ends and adjacent to vertical joints. Joints have in places sprung and require to be re-nailed. Two boards approximately in the centre of this wall have also been damaged by a shot gun blast. Boards close to the ground have lichen growth on them and signs of decay. The end corner stop at the south side is broken away at the bottom 500 mm or so. The red lead paint finish, similar to that at the north elevation, has also worn off in most places. The bargeboards, which are of rough-sawn 150 × 25 mm timbers are very weathered, with some splitting at the ends. The one at south side is starting to show signs of decay at the lower end. The roof ridge flashing has been turned down over the apex joint of the bargeboards.

Walls—West elevation

The barge is formed by the roofing iron being rolled down over the top of the weatherboards. The type of weatherboarding is similar to that at the east elevation and in a similar condition. The bottom board at this elevation is missing, exposing the bottom of the wall framing and foundation stones. Despite being exposed to the weather there is no sign of decay in the wall and floor framing timbers, however this situation should be fixed as soon as possible. At the south-wall corner the vertical corner stop is missing, and has been replaced by a sheet of flattened corrugated iron wrapped around the corner.

Walls—South elevation

This elevation is by far in the poorest condition, with a mixture of cladding materials in evidence. The cladding to the west of the old fireplace projection, is of 200 × 15 mm weatherboards. Apart from the one at the top which is split and one at the bottom which is broken away and only about half depth, all other boards are in reasonable condition, similar to the east and west walls. The galvanised iron corner flashing sheet (mentioned for the west elevation), also wraps around onto the south elevation weatherboards.

At approximately the centre of this elevation is a 1200-mm-high corrugated iron fireplace projection with a corrugated iron top and a sheet of corrugated iron bent up the wall where the original flue may have been. This corrugated-iron-clad structure is in poor condition and requires considerable work to repair and make it weatherproof.

At the eastern (right-hand) side of the firebox projection, the weather-boarding is of the 140 × 15 mm cover size and is generally in very poor condition. It appears as though there may have either been some form of door opening near the east end or possibly a lean-to structure on this section of the wall as the weatherboards appear patched and are in poor condition with signs of decay.

Along the bottom of this elevation the weatherboards are covered with sheets of flat iron and corrugated iron. Ground conditions along this wall are very wet and this has affected the condition of the wall, with probable rot of the bottom plate and lower framing timbers.

3.1.4 Interior

The interior is divided into three spaces by two simple 75 × 50 mm framed walls which were probably originally covered by thin lining, sarking, hessian scrim, and wallpaper. Remnants of the hessian scrim, and thin timber linings are evident above the door opening into the east end space.

Ceiling/roof

The hessian scrim is laid on top of the purlins, directly beneath the black building paper. Water staining of the hessian scrim can be seen over several areas. Most of the roof framing timbers appear to have been replaced at an earlier date and are in sound condition. The building paper between the roofing iron and scrim is torn and missing in many places which has contributed towards the staining of the scrim.

Interior walls

The timber wall framing appears generally to be original and is mostly in sound condition. It was noted that most studs have been tenoned into the top and possibly the bottom plates. Apart from some small areas of vertical T&G dado panelling and a couple of boards of horizontal lining at the east end, no other interior linings remain.

The wall framing at the south wall is in very poor condition, especially adjacent to the floor level. The low-lying nature of the building on this side, combined with the ingress of water runoff from the hillside behind, has rotted the bottom plate quite severely in some areas. The ends of the studs are also rotted in several places, and daylight can be seen through sections of the south wall because of the poor state of the weatherboards. The interior face of the weatherboards is weather stained in many places, particularly at the south wall where decay has set in several places. Considerable work is required on this south wall to save the total building from further deterioration in the foreseeable future.

At the south wall of what was the central room space, are the remains of the pot belly enclosure structure. This structure is built out as a projection from the south wall and is clad and lined with corrugated iron as described for the south elevation exterior. This alcove is now boarded over and has a pencil-written sign on the boards, requesting that visitors not light fires in the alcove. There are stones on the floor of the alcove which would have formed the hearth and the remains of the old cast iron pot belly also within, though these are just smashed parts.

In the west end-space, the original c. 1200-mm-high dado panelling of vertical boarding is still in place on the three exterior walls, and a small section on the internal wall adjacent to the door opening.

The vertical dado boards are of 150 mm wide × 10 mm thick T&G with a small round groove moulding machined down one edge. The original red oxide colour finish has been over-coated with a light blue colour lime wash, which has worn off in many places. At the top of the dado panelling, is a small moulded dado bead, with the original timber skirting running around the base of the dado. There are three small sections of the same dado panelling in the centre space, which indicates that it is likely that all three spaces originally had the dado panelling.

The type of original wall linings above the dado level is unclear, except for the small sections of horizontal lining which still exist. These indicate the original lining was probably hessian scrim, which would have been papered over.

There is clear evidence in the north wall framing at the present east end window, that this opening was previously a doorway. The door was removed, probably at the same time this building was relocated to this site, and a window matching the others in the north wall was installed. The rusticated weatherboards below the window are continuous, indicating that the north wall was partially re-clad at the time of relocation. The gaps in the north wall weatherboards are clearly obvious from the interior; however, these gaps were not as obvious from the exterior.

The existing door in the north wall is of the framed and ledged type. The hinges at the bottom and middle are broken and will need replacing.

The two internal wall frames dividing the main space into three are constructed of 75 × 50 mm studs and plates, which appear mostly to be original timbers. At the door openings in these two walls, the original 60 mm wide × c. 10 mm thick architraves remain. They have a moulded edge, similar to the exterior door facings.

The timber door frames have planted stops. None of the original skirtings now remain in the centre and east-end spaces, except for a small section at the west side of the entry door.

Floor

The floorboards themselves are in reasonable condition, considering the subfloor structure is literally sitting on the ground, apart from several sections in the central space, adjacent to the building join where an area of boards are missing, and other areas where there is clear evidence of rot.

This building will have the subfloor framing structure founded on a series of flat stones for piles. Over the years a combination of moisture and the building's weight causes these 'piles' to subside into the ground beneath, resulting in the structure sitting on the bare earth. The contact between the damp earth and subfloor timber has caused rotting of the timbers and the resultant uneven subsidence of the building.

The subfloor structure will require raising, complete re-levelling and replacement of all rotted or decayed subfloor timbers. The floor boards will have to be carefully removed to allow this process to be completed.

3.2 NEEDHAM'S COTTAGE

3.2.1 General

The cottage is in reasonable condition (see Petchey 2002: fig. 8), having been extensively reconstructed from a reasonably intact, but dilapidated and substantially roofless ruin in 1979 (Figs 2 and 3). Unfortunately the reconstruction of the stonework made extensive use of Portland cement in the mortar mix, which detracts from what was otherwise a good piece of workmanship.

The cottage needs general maintenance and some rebuilding work to the south wall. This has suffered from a build up of soil, plant matter, and water run-off from the adjacent bank, resulting in minor collapse of two sections of the wall.

3.2.2 Site

Needham's Cottage is located approximately halfway through the reserve, to the right of, and c. 6 m below High Street. It sits at the top of a lawn-like pasture-covered river terrace, approximately 25 m above the Arrow River and facing north. The cottage has a backdrop of exotic deciduous trees including sycamore, poplars, and various large fruit trees.

Figure 2. Front (north) elevation of Needham's cottage prior to restoration in the late 1970s.
²Photo: L&S records from DOC files.



3.2.3 Exterior

Roof—main building

The corrugated iron is not original, with surface rusting and sprung horizontal joints and nails in several places. The nails are generally springheads and require replacement with lead heads.

There were several holes in the roofing iron which require repair. A poor flashing of flattened corrugated iron running at right angles to the roof, is located at the northern side of the chimney; however, this is not set into the stonework and is of little use. The roof at the south elevation is similar to that at the north elevation and has a very large gap at the chimney with no flashings at all. There are several sprung sections of roofing at the horizontal joints approximately half way down from the ridge, and some roofing is quite badly stained by tree sap and leaves. While this is unsightly, the roofing iron appears to be in sound condition. There are no fascia boards at either the north or south elevations.

Bargeboards

The bargeboards are probably not original. They appear to be recycled timber installed as part of the earlier restoration work. These are very weathered, split, and in places show signs of decay, especially at the western end. The bargeboards at the eastern gable end are in better condition, with decay in the end of the one at the rear. There is no flashing between the top of the roof barge and the chimney at the eastern gable end.

Lean-to roof

The corrugated iron roofing is in small and part sheets, which all require re-fixing. Some areas of surface rust are very obvious. There are no bargeboards or fascia boards at any faces of the lean-to, nor is there any spouting. There is also no flashing between the western gable end and lean-to roof.

² **Publisher's Note:** Restoration work was undertaken by the then Lands & Survey Department during the late 1970s. A photographic record of the work was made. Unfortunately the photos have since been mislaid. Low-resolution scans of these photos are presently all that is available. Given the historical nature of the images, and the possibility that the originals may never be found, we have decided it is better to publish these images, rather than lose the record completely.

Figure 3. Needham's cottage from the west, prior to restoration in the late 1970s.
²Photo: L&S records from DOC files.



This building, which was in a dilapidated condition up until the late 1970s, had major restoration work carried out in 1979, during which much of the original roof framing timbers have been reused. Ends of rafters (c. 75 × 50 mm) are exposed at the lower end and are split and very weathered. Some early signs of decay were noted in a few of the rafters.

Exterior stonework

Considerable repair work was carried out on the stonewalls as part of the 1979 restoration; however, there are several areas where earth mortar pointing is required to be repaired, or re-pointed. An area of stonework at the rear (south) has bulged quite noticeably alongside and below the small window, as well as a small area at the bottom of this wall further towards the east. Repair work to these areas is required. The lean-to area has been built at a later date as an addition to the main building, therefore the stonework of this area is not built into the main building, but butted against it and mortared over.

The east end gable has an inward bulge, which is most noticeable near the apex, and while unsightly, there is no apparent cracking or structural instability. Despite the lack of mortar jointing in many places, the stonework is generally in sound condition.

Much of the earth mortar pointing has been badly repaired and re-pointed with a high content of Portland cement/earth mix. There are also a number of places where no mortar exists at all. Despite this, the stonework remains quite sound; however, early attention to re-pointing in a suitable earth/sand/lime mix is required to ensure that further damage is prevented.

The upper section of the stone chimney also requires re-pointing. The two areas of bulging in the south wall also need to be rebuilt before they cause damage to other surrounding areas.

A small opening in the west side of the lean-to area may have originally had a sash and ventilation grill (no timber sash is presently in place).

Doors

Two timbers doors are located in the north elevation, one leading into the main room and one into the lean-to area. The doors are of vertical boards and unlikely to be original; however, both look the part. Both show signs of old paintwork over what may have been original early exterior stain. Both doors are generally in sound condition. The doors are hung in timber frames built into the stonework.

Timber lintel beams are built into the stone above the door to the lean-to area and a stone lintel is located above the door to the main building. Stone sills are located at both doors with the door at the lean-to also having a timber sill.

Windows

Two small timber multi-paned windows are located on the north elevation of the main building, at either side of the entry door, and a window is also located on the south wall at the western end, also illuminating the main room wall. The windows (which are not the originals) have been installed as part of the 1979 restoration work and consist of timber sashes with astrical bars dividing the sashes into six panes. All glass is intact. Timber boards (c. 190 × 25 mm) form the sills on the exterior and while these are not original, they are probably similar to the original style. These sill boards are weathered, but in sound condition with no obvious signs of decay.

The lintel above the windows is of 150 × 25 mm boards running at right angles to the window sash, supported on a 100 × 50 mm frame. Stonework is laid over the boards. All timbers appear to be in sound condition. No signs of decay were noted. The window sashes are centre pivoted and can be opened, except for that at the south wall. One cracked glass pane in the south-wall window was noted. Windows are c. 900-1000 mm wide by 800 mm high, with the frames built into the stonework in approximately the centre of the 400-mm thick stone walls.

3.2.4 Interior

Ceiling/roof—main building

Although the purlins themselves were not visible because of the hessian linings, from the line of nails on the ceiling, it appears there are four rows of purlins.

Rafters consist of natural beech timber poles, fixed to a ridge board of c. 100 × 30 mm. None of this is original, although it looks authentic. A cross tie of 75 × 50 mm timber is at every second rafter set, with nine rafters along the length of the roof, including one at each gable end. Scrim, which is generally in poor condition with several areas hanging loose and with holes in it, has been laid over the top of the rafters. The south side is the worst area. Black building paper can be seen hanging through the scrim and has been ripped in several places by visitors. Daylight can be seen around the chimney at the east end, which is allowing the entry of rainwater, etc. The rafter poles are built into the outer face of the stone walls.

Walls

These are of exposed stonework, which in general terms are similar to that described for the exterior face of these walls. A chimney/fireplace is located at

the east wall. This has been reasonably well-formed and pointed above the firebox area. The sides of the firebox are not as well-built, and the area below the firebox and hearth is very poor. This area mainly consists of stones loosely stacked on top of each other. There is no actual fire grate. A few stones remain at what may have been a hearth area at the front of the firebox. The lintel of the firebox is formed by an arched iron lintel bar with arched header stone on top.

The east wall, as noted for the exterior, has a distinct inward lean and while it appears to be in sound condition, some work may be required to strengthen this area so no damage or movement is experienced in the future. The stone walls are c. 400–500 mm thick. Stonework at the north wall requires quite a lot of interior re-pointing work, as does both the south and east walls. Pointing of the west wall is generally a lot better, especially in the central area, where considerable thin bagwashed earth plaster remains. There is no timber reveal or sill at the windows or door.

A simple timber stud (75 × 50 mm) frame divides the interior into two spaces. This framework is quite rough and extends up to the roof apex with a 150 × 25 mm vertical board fixed to the ridge board and rafter poles, and the top plate at the framing. This framework is quite old, but probably not original and it is not clear if a wall in this position was part of the original building.

A small opening in the west wall c. 350 × 550 mm high and 1000 mm above the floor provides connection to the lean-to area. A timber frame is fitted into this opening. As the lean-to area was built onto the end of the main building, this opening was probably an original window position.

The floor is predominantly of compacted earth. There are signs of flat flagstones in places, as the original floor would probably have been of large flat stones, laid over the compacted earth and pointed. The western section beyond the timber framed wall has had old carpet (probably brought in by members of the public) laid over the earth and this should be removed, as it is likely to go mouldy from dampness and create other problems.

The interior of the doors, have rails top, middle, and bottom, with a diagonal brace. Rim lock, night latch, and door-knob furniture are not original.

Ceiling/roof—lean-to

This appears to be constructed of much of the original roof framing salvaged during the 1979 restoration work. Hessian lining is laid over 60 × 15 mm purlins spaced at c. 550 mm centres over the 75 × 50 mm rafters at c. 500 mm centres. Many of these timbers are now showing evidence of decay and age. The rafters are fixed to the stonework by means of No. 8 wire ties mortared into the stonework. There appears to be no building paper between the hessian and roofing iron. A large gap is clearly evident between the gable end of the main building and the lean-to area.

The interior of the lean-to area is divided into two basically equal spaces, by a stone wall. The opening in this division wall has two timber lintels, both of which appear to be original. Both are now in poor condition, especially the one nearest the entry door, which has areas of advanced decay.

Lean-to stone walls

The stone walls are generally in the same condition as described for the main area, with most of the stonework mortar in poor condition and requiring re-pointing. There is no flashing between the gable end of the main building and the lean-to, resulting in rainwater easily entering the structure. Surprisingly there has been little damage done because of this.

Like the main room, the floor is of compacted earth; however, there are some flagstones visible, which may have been part of an original stone floor. The exterior door is as described for the main area. A timber lintel spans across the door opening on the inner face of the stone and is built some 350 mm into the stonework. The stone walls are generally in sound condition with no obvious signs of bulging. Walls are c. 400 mm thick, of two layers of stone, with some full width bonding stone layers. The restoration work of the late 1970s appears to have used the original stone which lay in the collapsed ruins.

3.3 THE BAKEHOUSE

3.3.1 General

The Bakehouse seems somewhat of an enigma in its present form. It consists of what appears to be two spaces, the left-hand or main room and the right-hand section of the structure which exists as a near-solid stacked stone cube with a roof.

The large east-side room has a tiny fireplace in the northwest corner with minimal firebox and hearth. To the left of this, below the apex of the west wall is a 300-mm-deep recess into the wall at floor level, c. 600 mm wide by 700 mm high. This recess has no chimney, so could not have been used as an oven, nor is the recess of the fireplace capable of being used as an oven.

The Bakehouse may have had a series of cast iron coal ranges located along the back wall, however, one would have presumed any such ovens would have been built in to retain the heat as was always the practice with coal ranges, and there is certainly no evidence of this.

A more likely scenario was that the west-side stone structure contained the ovens and has been inexplicably walled up—in contravention of its original form and function—during the rebuilding work of the late 1970s (Fig. 4). This west-side structure is c. 500 mm narrower than the main room on both the north and south sides, with the main roof spanning through on the same lines as that over the main room.

The roof structure appears to be built of a mixture of old and new (1979) timbers, but is probably in the original form, judging by its appearance in a photograph of Macetown taken c. 1897 (Petchey 2002: fig. 10).

If the ovens were in the west-side structure they would have to have been connected to the existing chimney, as there is only one shown in the 1897 photograph. Judging by the differing styles of the stone construction and the mortar pointing between what appears to be the original parts of the east-side structure and west-side structures, there appears to be clear evidence that the

Figure 4. The Bakehouse (from the northwest) in the late 1970s, showing the front (north) elevation on the left. The large stone filling a hole at the near end of the front wall may be obscuring an oven entrance. Note the shelf-like stone below the hole.
²Photo: L&S records from DOC files.



west-side structure has been extensively rebuilt. This probably occurred during the 1979 work.

One of the series of photographs (Figs 4-9) taken during the restoration process of 1979 shows the west-side structure already rebuilt but work not yet started on the east-side structure. Figures 5 and 6 indicate that the door may not have been originally located where it presently is (see Fig. 8), which adds further doubt about the authenticity of the rebuild of the probable ovens area.

The question remains whether, during the rebuilding work, the entrances to the original ovens were inadvertently or otherwise walled over with stone.

Inquisitive visitors to the site have removed several stones from the top centre section of the west-side structure so that they might see into this area. The view inside the roof of the west structure indicates the mass of the top of a solid stacked stone structure, the top of which is approximately 600 mm below the level of the outside walls.

There is a suspicious area of smoothed-out rounded-over Portland cement plaster approximately 1 m in diameter near the west-side wall and other evidence of a Portland cement containing mortar mix on the west wall stones.

There is also evidence of a reasonably serious fire in the roof structure of this building some time following the 1979 rebuild. However, there is little evidence of carbon staining on the exterior of the roofing iron as a result. This building has obviously undergone several periods of extensive rebuilding over the years and may not be in its original form.

3.3.2 Site

The Bakehouse is located on the left-hand side of High Street, on the top of a rise in the road, at what was the start of the main residential area of Macetown.

² **Publisher's Note:** Restoration work was undertaken by the then Lands & Survey Department during the late 1970s. A photographic record of the work was made. Unfortunately the photos have since been mislaid. Low-resolution scans of these photos are presently all that is available. Given the historical nature of the images, and the possibility that the originals may never be found, we have decided it is better to publish these images, rather than lose the record completely.