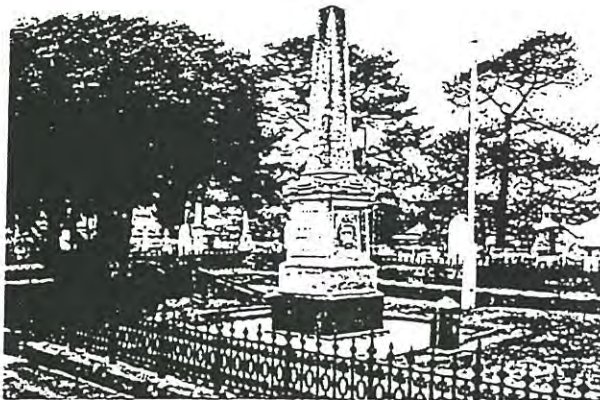
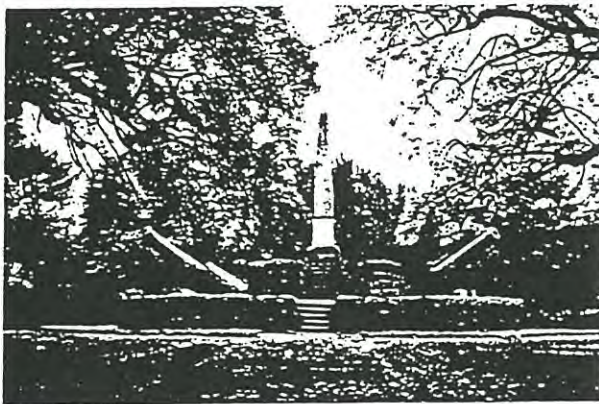


Conservation of Bluestone Wall Soldiers' Monument Old Ballarat Cemetery



Drainage Rectification Works Eureka Stockade Monument Eureka Memorial Park



March 1999

HELEN LARDNER CONSERVATION AND DESIGN PTY LTD

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CONTENTS	PAGE
1.0 Introduction	
About this Report	3
Acknowledgements	3
The Site	4
2.0 Current Heritage Listings	
Eureka Stockade Monument	5
Soldiers Monument	6
3.0 Historical Information	
Eureka Stockade Monument	8
Soldiers Monument	9
4.0 Condition Assessment	
Eureka Stockade Monument	11
Soldiers Monument	12
5.0 Description of Works	
Eureka Stockade Monument	13
Soldiers' Monument	14
6.0 Figures	15
7.0 Drawings	22
8.0 Bibliography	23

1.0

I N T R O D U C T I O N

ABOUT THIS REPORT

The aim of this report is to outline the conservation works for the Soldiers Monument at the Old Ballarat Cemetery and the Eureka Stockade Monument at the Eureka Memorial Park, in order to retain and enhance the significance of these Monuments.

These conservation works form part of the Eureka Stockade Monuments Restoration Project, commissioned by the City of Ballarat. This project aims to restore historically significant monuments which commemorate the Eureka uprising. Funding for this work is jointly provided by the City of Ballarat and the National Estate Grants Program, totalling \$38,000.

The Eureka Stockade Monument identified for restoration and conservation has been identified in the 1994 *Eureka Stockade Monuments Conservation Analysis*, prepared by Allom Lovell and Associates. The Soldiers' Monument identified for restoration and conservation has been identified in the 1981 *Ballarat Conservation Study*, prepared by Jacob, Lewis and Aitken.

ACKNOWLEDGEMENTS

This project has been commissioned and coordinated by Hedley Thomson, Director of Planning and Liz Orlowski, Planning Research Officer, City of Ballarat, in accordance with the conditions and approval of the Executive Director of the Australian Heritage Commission.

The Eureka Stockade Monuments Conservation Project was carried with the assistance of funds made available by the Commonwealth of Australia under the 1996-7 National Estate Grants Program. The views expressed in this report, *Conservation of Bluestone wall, Soldiers' Monument, Old Ballarat Cemetery and Drainage Rectification Works, Eureka Stockade Monument, Eureka Memorial Park*, are those of the author and do not necessarily represent the views or policies of the Australian Heritage Commission.

Copyright is held jointly by the City of Ballarat and the consultant. Either party has perpetual licence to use the material for the purpose for which it has been produced. Use of the material for other purposes requires the consent of both the study team and the City of Ballarat. Enquires about the use of the material should be directed to Helen Lardner Conservation and Design.

THE SITE

The Eureka Stockade Monument is located within the Eureka Memorial Park on the corner of Stawell and Eureka Streets, Ballarat. The Soldiers' Monument is located within the Old Ballarat Cemetery, at the junction of Creswick Road and Macarthur Street, Ballarat. They are marked on the site plan below.



2.0

CURRENT HERITAGE LISTINGS

EUREKA STOCKADE MONUMENT

The Eureka Stockade Monument listings and citations are as follows;

Statement of Significance

The statement of significance relating to the Eureka Stockade Monument as defined in the Jacob, Lewis, Vines and Aitken *Ballarat Conservation Study* is reproduced below.

The Eureka Stockade Monument has great historical significance not only to Ballarat but to the history of Victoria. Leaving aside the historical associations, the structure itself also has significance as a very early commemorative structure. Comparison can be made to the Welcome Stranger Memorial at Moliagul. However, the early 1884 - 86 construction date of the Eureka Stockade Monument ranks it as one of the earliest substantial commemorative structures in Victoria and therefore one of the most important.

AUSTRALIAN HERITAGE COMMISSION

The Eureka Stockade Monument has been included on the Register of the National Estate. The citation for this could not be downloaded from the website and is to be included later. The Database Number is 19129. It is listed under the title, Eureka Rebellion Historic Precinct, Eureka, VIC.

Other

The Eureka Stockade Monument has not been classified by the National Trust.

¹ Jacob, Lewis, Vines and Aitken, *Ballarat Conservation Study*, Melbourne, 1981.

SOLDIERS' MONUMENT

Following are the current heritage listings for the Soldiers' Monument.

AUSTRALIAN HERITAGE COMMISSION

The Soldiers' Monument has been included on the Register of the National Estate. The citation for both this and the associated Diggers' Monument is reproduced below.²

Eureka Memorials

Ballarat General Cemeteries Old Cemetery, corner Creswick Road and Macarthur Streets, Ballarat.

Statement of Significance

The Diggers' and Soldiers' Eureka Memorials are of National Estate significance owing to their direct association with the Eureka Stockade insurrection of 3 December 1854, an event of major importance not just in Victoria's gold mining history but in the wider context of the history of Australia (Criterion A.4).

Description

The site consists of both the Miners' Memorial and the Soldiers' Memorial, together with a small number of marked graves. The memorials commemorate those gold diggers and members of the 40th and 12th Regiments who died as a result of the fighting at the Eureka Stockade on 3 December 1854.

Erected in 1856, the Miners' Memorial is a grey sandstone obelisk surmounted by a draped urn; its base is made of bluestone. The obelisk is 3.3m high. It consists of several inscriptions including the names of many of the miners who died at Eureka. The monument was presented to the people of Ballarat by James Leggatt of Geelong.

Constructed in 1879, the Soldiers' Memorial was erected through the efforts of parliamentarian, William Collard Smith, and journalist/historian, William Bramwell Withers, and consists of a freestone obelisk mounted on a pedestal and with marble slabs inserted on the east and west faces. The structure is about 4.3m in height.

Each of the memorial enclosures is surrounded by a fence made with a bluestone base surmounted by cast iron work.

² Register of the National Estate, Database Number 018190, File Number 2/03/122/0028
HLCD Pty Ltd (ACN 083 840 724) 114 Moor St Fitzroy 3065 ph: 03 9486 9920 fax: 03 9486 9968 hlcd@bigpond.com

Condition and Integrity

The condition of both memorials is good, although the Diggers' Monument does show some signs of deterioration.
(July 1990)

STATEMENT OF SIGNIFICANCE

The statement of significance for the Soldiers' Monument defined in the Allom Lovell and Associates, *Eureka Stockade Monuments Conservation and Analysis* is reproduced below.³

Soldiers' Monument

The Soldiers' Monument is of outstanding historical significance. The significance derives from its association with the Eureka Stockade insurrection of 3 December 1854, an event of major importance in the history of Ballarat, in the history of gold-mining in Victoria, and in the wider context of the history of Australia. The original headstones appear to have been positioned in 1854-60, while the obelisk and the stone dwarf wall and fence were added in 1879. This site demonstrates shifts in the attitude towards the events of Eureka and the respective roles played by soldiers and diggers, the later addition of the obelisk with its inscription by prominent historian/ journalist W. B. Withers making reference to the diggers and taking on something of a conciliatory air.

Its proximity within the Old Ballarat Cemetery to the Diggers' Monument adds significance and assists in the interpretation of the site.

Comment

The significance of the site is essentially as a nineteenth century grave enclosure. The recent addition of the headstone to the memory of John Egan, the Drummer Boy, disturbs the relationships between the nineteenth century gravestones and the central monument, and detracts from the significance of the site.

Other

The structure has not been added to the Register of Historic Buildings, nor classified by the National Trust of Australia (Victoria). Under the provisions of the Ballarat Planning Scheme, the Old Ballarat Cemetery is zoned Public Purposes 7 (Cemetery). It is not within an urban conservation zone and none of the monuments have been individually listed for heritage protection.

³ Allom Lovell and Associates Pty Ltd., *Eureka Stockade Monuments; Diggers' Monument, Soldiers' Monument, Grave of John Basson Humffray Conservation Analysis*, prepared for the City of Ballarat, September 1994, p. 21.

3.0

HISTORICAL INFORMATION

EUREKA STOCKADE MONUMENT

The Eureka Stockade Monument is located in the Eureka Memorial Park in Eureka Street, Ballarat East. It was erected 30 years after the Eureka Stockade, in 1884 - 86, to mark the site of the Eureka Stockade. It was designed by H. A. King.

The monument has an octagonal plan and is constructed from two tiers of ashlar bluestone. The centrepiece is a massive, central ashlar bluestone plinth which supports a twelve foot⁴ bluestone obelisk. This is reached by a centrally located flight of stone steps.

The inscription on the central bluestone plinth reads;

Eureka Stockade, Sunday Morning, December 3rd, 1854.

Located on the first tier, and facing the chamfered corners of the monument are "four 64-pounder guns, contributed by the Victorian Defence Department."⁵

The partially finished memorial was handed over to the Council of East Ballarat by the committee overseeing its construction in 1886.⁶ The Council accepted responsibility for its completion and maintenance, as a mark of respect for the dead.

According to the Ballarat historian William Bramwell Withers, the choice of this location as the site of the Eureka Stockade was complicated by the thirty year time lag between the 1854 Stockade and the construction of the commemorative monument. This site was eventually chosen;

... by the general agreement of many of the diggers and others who were either present at the encounter between the troops and the insurgents, or were at the time familiar with the Stockade and its surroundings ⁷

⁴ William Bramwell Withers, *History of Ballarat*, F.W. Niven, Ballarat, 2nd ed., 1887, pp. 157-58.

⁵ *Ibid.*, pp. 157-58.

⁶ William Bramwell Withers, *History of Ballarat*, F.W. Niven, Ballarat, 2nd ed., 1887, pp. 157-58.

⁷ William Bramwell Withers, *History of Ballarat*, F.W. Niven, Ballarat, 2nd ed., 1887, pp. 157-58.

THE SOLDIERS' MONUMENT

The Soldiers' Monument is located in the Old Ballarat Cemetery, on the corner of Creswick Road and Macarthur Street, Ballarat. It was erected in 1879, to honour soldiers killed in the Eureka Stockade of December 1854.

The Monument is situated alongside some earlier marked graves. Two large headstones are dedicated to the dead soldiers of the 40th and 12th Regiment. The smaller headstones mark the graves of children, including those of John and Ellen Neill, Franny and Agnes Neill who died in 1857 and the later addition of a headstone for the 'little Drummer Boy', John Egan. "It is not known exactly when all the children were buried or why it was thought appropriate to enter them into the soldiers' grave."⁸ The headstone of Houlton Voss Williams, who died in January 1855 is situated just south of the Soldiers' Monument.

In the 1872, money was put forward by the Department of Public Works for fencing the Soldiers' graves. This may not have been the first fence around the enclosure, and there is no surviving documentation relating to it.⁹

In 1879 further work was carried out at the soldiers' graves, including the construction of a dwarf stone wall and iron fence and the erection of the commemorative stone structure.

This centrally located 5.4 metre structure, surrounded by a gravel path and edged with terracotta, comprises a Waurn Ponds limestone obelisk and square pedestal upon a square bevelled bluestone base. Carrara marble plaques, with leaded lettering were inserted on the east and west faces of the square pedestal. The word 'DUTY' encircled by a wreath and crown are displayed on the north and south faces of the base, while a carved scroll inscribed with the name 'VICTORIA' is displayed on each face of the pediment which caps the square pedestal.

The east face also carries the inscription by the local historian W. B. Withers. It reads;

In this place, with other soldiers and civilians of the military camp then in Ballarat, were buried the remains of the British soldiers, Henry Christopher Wise, Captain Michael Roney and Joseph Wall, privates of the 40th Regt., and William Webb, Felix Boyle and John Wall, privates of the 12th Regt., who fell dead or fatally wounded at the Eureka Stockade, in brave devotion to duty, on Sunday, the 3rd day of December

⁸ Allom Lovell and Associates Pty Ltd., *Eureka Stockade Monuments; Diggers' Monument, Soldiers' Monument, Grave of John Basson Humffray Conservation Analysis*, prepared for the City of Ballarat, September 1994, p. 10.

⁹ Allom Lovell and Associates Pty Ltd., *Eureka Stockade Monuments; Diggers' Monument, Soldiers' Monument, Grave of John Basson Humffray Conservation Analysis*, prepared for the City of Ballarat, September 1994, p. 10.

1854, whilst attacking a band of aggrieved diggers in arms against what they regarded as a tyrannous administration. Not far west from this spot lie the remains of some of the diggers who fell in the courageous but misdirected endeavour to secure freedom which soon after came in the form of manhood suffrage and constitutional government.¹⁰

¹⁰ Allom Lovell and Associates Pty Ltd., *Eureka Stockade Monuments; Diggers' Monument, Soldiers' Monument, Grave of John Basson Humffray Conservation Analysis*, prepared for the City of Ballarat, September 1994, p. 10.

4.0

CONDITION ASSESSMENT

EUREKA STOCKADE MONUMENT

Overall, the condition of the Eureka Stockade Monument is reasonable. A full condition assessment report has not been done at this stage because of the limited funds available. A significant problem with the monument is inadequate drainage from the tiered bluestone structure. Rectification of this problem is the focus of these conservation works.

The asphalt surfaces of the tiered monument are uneven and inadequately graded. As a result, water ponds on the surface of each tier. There are currently no drainage provisions to the upper and outer tiers while the three drains to the lower tier are insufficient. The asphalt surface of the lower tier is not sufficiently graded to move water toward the drains, which are also prone to a build up of dirt and other deposits, as shown in figure 1.

Figure 2 shows the metal pipe running through the stone edging to the lower tier. This pipe shifts water from the lower to the outer tier. Again there is no provision to remove water from the surface of the lower tier, leaving the ground soggy and water logged after heavy rain.

These combined problems have a variety of effects.

1. There is a build of moss and other organic matter to much of the horizontal stone surfaces, and to a lesser extent to the protruding surfaces of the tier's stone edging. This can be seen in figure 2.
2. Ponding water on each of the tiers of the monument has caused a loss of mortar from the joints of nearby blockwork. This can be seen in figure 3, where the combination of missing mortar and moist conditions have promoted weed growth. In some areas, the dislodged mortar has left significant gaps between blocks, as seen in figure 4. This entices further water penetration which may lead to further, and more serious deterioration.
3. Partly as a result of the inadequate drainage and loss of mortar, there has been some movement in the overall structure. This can be seen in figures 5 and 6, where pressure outwards has caused cracking along the mortar joints. This has occurred on both upper and lower walls to the north-west, shown in figure 5, and to the lower wall to the west, see figure 6. There has been some mortar patching to these walls in the past, with a mixture which does not match the original formula. This is evident from areas of variously coloured and variously applied mortar, seen in figure 6.

THE SOLDIERS' MONUMENT

The Soldiers' Monument is generally in a reasonable condition. Works have been undertaken to some of the individual monuments previously. The conservation works proposed are to the surrounding bluestone fence.

The dwarf bluestone fence has become distorted over time, putting a buckling stress on the cast iron balustrade, which will eventually break. The concrete paths which surround the fence are partly responsible for this pressure.

Figure 7 shows the monument's western boundary, looking south. The pressure exerted on the stone fence by the surrounding concrete path has caused the cast iron balustrade to move out of alignment. This is particularly evident at the monument's entrance where the balustrade line is no longer aligned.

While the balustrade is relatively intact, the movement of the stone fence has had a number of effects on the integrity of the stone wall. Figure 8 shows a block to the west wall which is broken and requires replacement.

Cracking has also tended to occur to corner blocks and those immediately adjacent around the cast iron elements.

This can be seen in figure 9, showing the fences' north-east corner. This photo shows that the block has cracked in part and can be repaired with an indent repair.

Figure 10, shows a block to the east side of the north-west corner and figure 11 shows the north-west corner block. In both cases, major cracks have split the blocks and require repair to retard moisture penetration.

Less severe cracking has also typically occurred at the connection point of the stone and cast iron balustrade. Figure 12 shows a block to the north west of the western boundary, which has a crack running through part of the stone block and requires repair.

5.0**DESCRIPTION OF WORKS****EUREKA STOCKADE MONUMENT**

Conservation works to the Eureka Stockade Monument are to address ponding problems on the various tiers. Refer to drawing 10-003.

Drainage to each of the tiers must be improved to stop water pooling and further loss of mortar to nearby blockwork.

Asphalt to each tier is to be cut back, and re-instated to match the original mix. New asphalt to match the other tiers is to be introduced to the lowest level.

Asphalt is to be graded to ensure that water is drained to the relevant run off areas. Water is to be directed to the stairs on the upper tier, to the three pits to the lower tier and to the four pits to the outer tier.

New pits are to be introduced to the lower and outer tier. They are to be Polycrte Pointdrain Plastic Sumps (PPS22A) with aluminium grate with dimensions 200 x 200 x 275 mm, installed to manufacturers specifications.

The existing metal pipes through blockwork are to be replaced with colorbond pipes with a down pipe connected to the monument's wall to carry water to outer tier pits. Pipes are to be colorbond slate grey with a diameter to match the existing pipes. This is to ensure that there is no further modification to the blockwork.

Pits and drainage pipes, running under the outer tier are to deposit water four metres from the structure.

The pits to the lower and outer tiers are to be cleaned and maintained as part of a regular maintenance program.

Note:

With the current limited funds available for works to this monument, the re-asphalting of the monument provides a discrete task which is vital in the arrest of deterioration and provision of improved drainage.

For future works to the monument, the preparation of a detailed condition assessment and prioritised list of works should be undertaken, so that as funding becomes available, works may be managed in stages.

SOLDIERS' MONUMENT

Conservation works to the Soldiers' Monument are to address problems to the 1879 cast iron balustrade and bluestone wall which defines the monument's boundary. Refer to 10-001 and 10-002.

The bluestone dwarf wall has become distorted over time, putting a buckling stress on the cast iron balustrade, which will eventually break. The concrete paths surrounding the fence are partially responsible for this pressure. The paths are to be cut back prior to works to the fence and reinstated with an improved alignment and a set back of 100mm, once the conservation works have been completed.

The cast iron balustrade should be carefully removed. It's placement and sequence is to be recorded to ensure that it is replaced in its original sequence. Evidence of this should be submitted to the architect and held on site.

A 600mm concrete footing is to be laid under the bluestone wall, and the stonework repositioned and repointed to ensure adequate weatherproofing.

All stonework is to be repointed with lime mortar to specification.

The cast iron balustrade is then to be re-leaded in its original sequence into the bluestone fence.

Gravel is to be installed in the 100mm space between the concrete path and the monument fence to ensure that the problems outlined in the previous section do not recur.

6.0

F I G U R E S

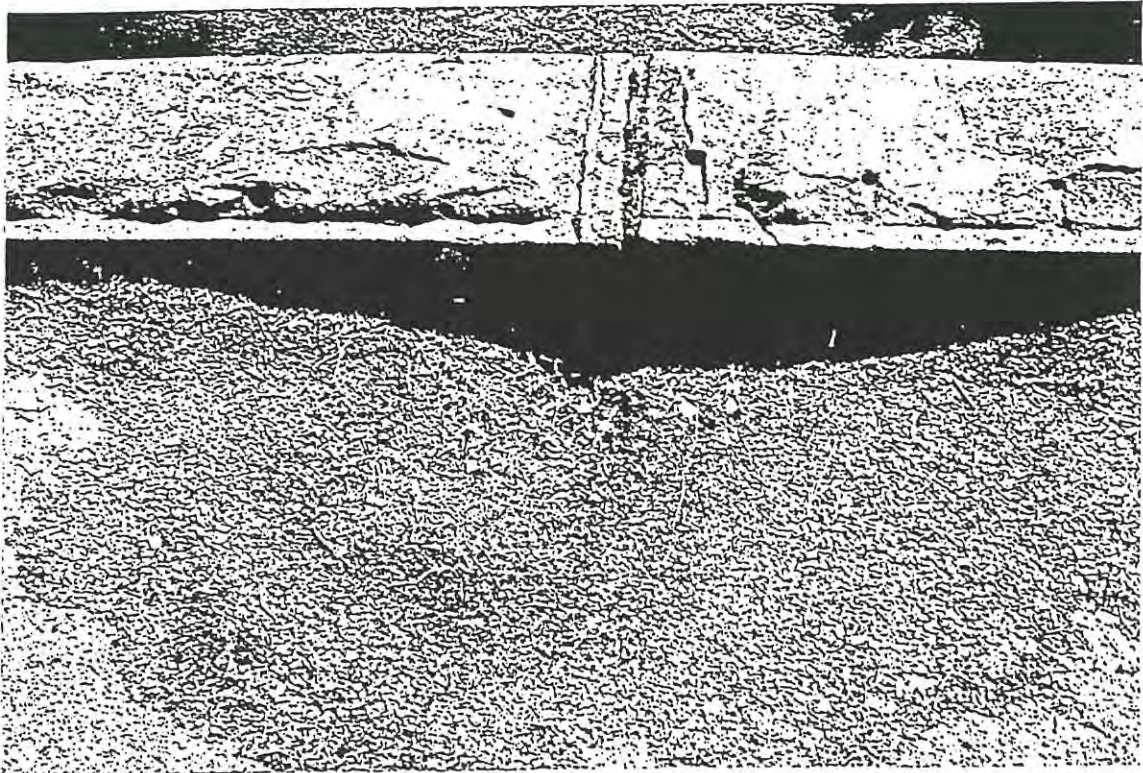


Figure 1. Inadequate existing drainage pit to lower tier, Eureka Monument.

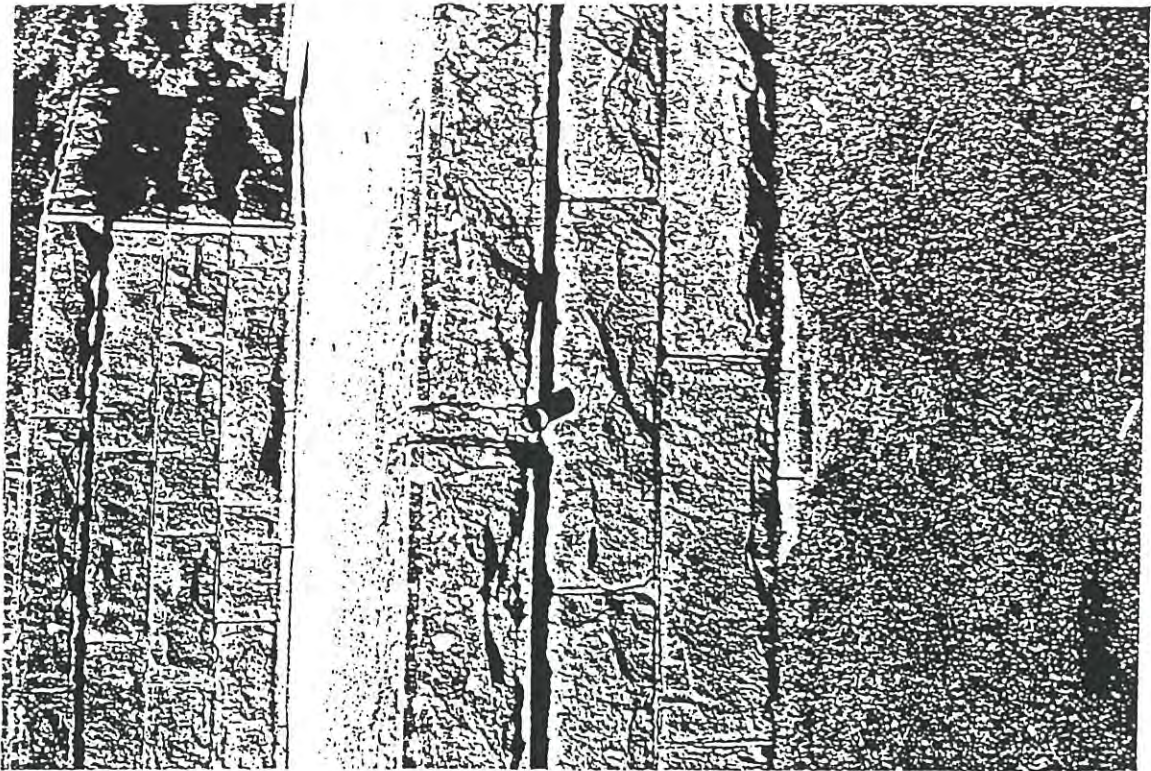


Figure 2. Metal pipe through lower tier blockwork, Eureka Monument.

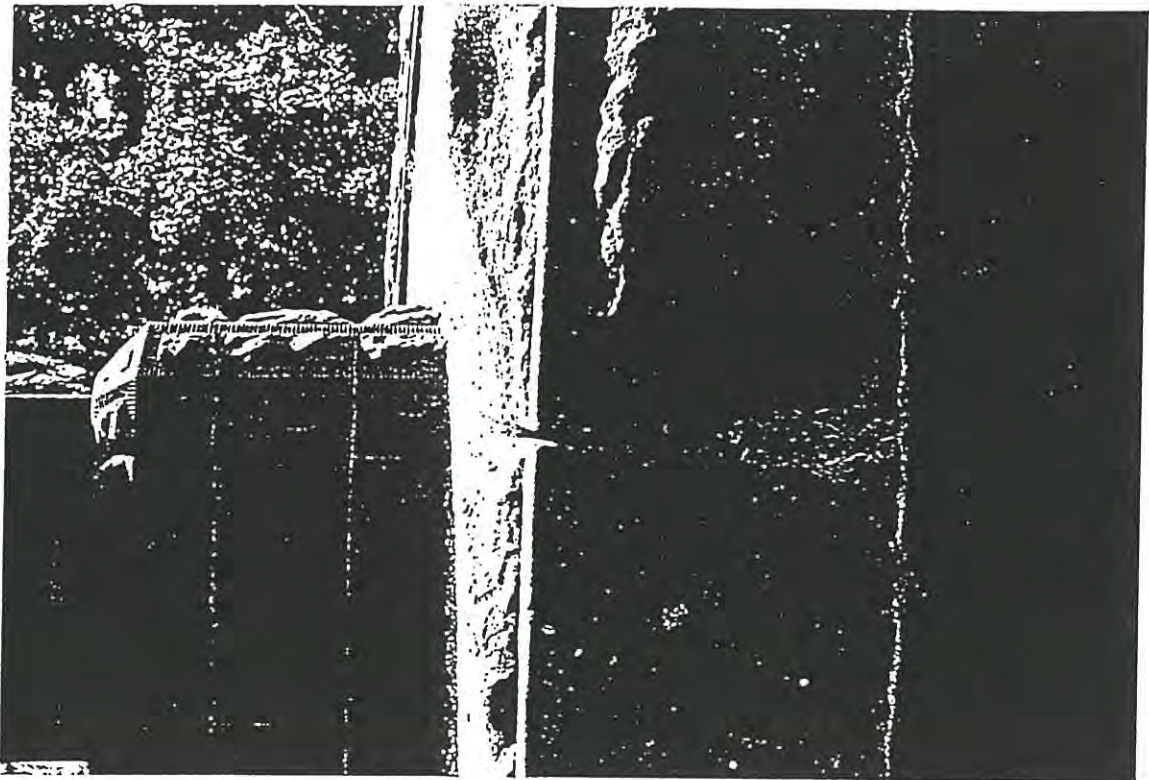


Figure 3. Mortar loss to tier edging stone, Eureka Monument.

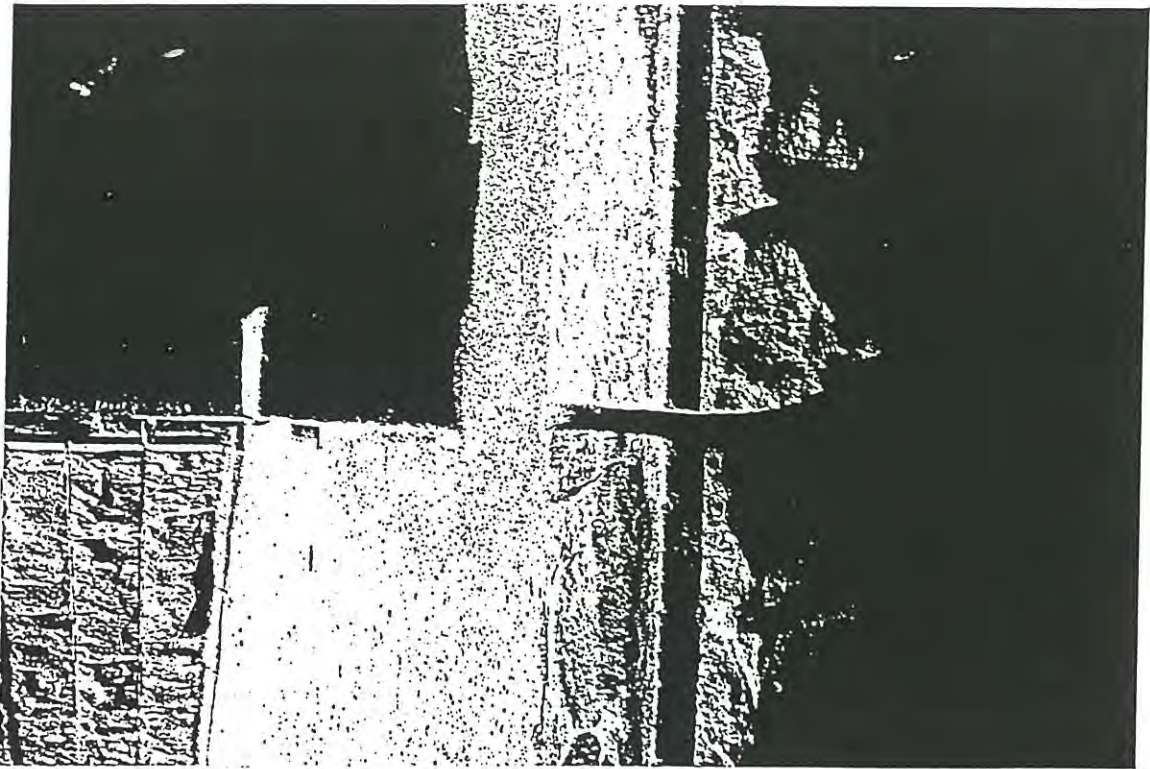


Figure 4. Gaps to lower tier blockwork, Eureka Monument.

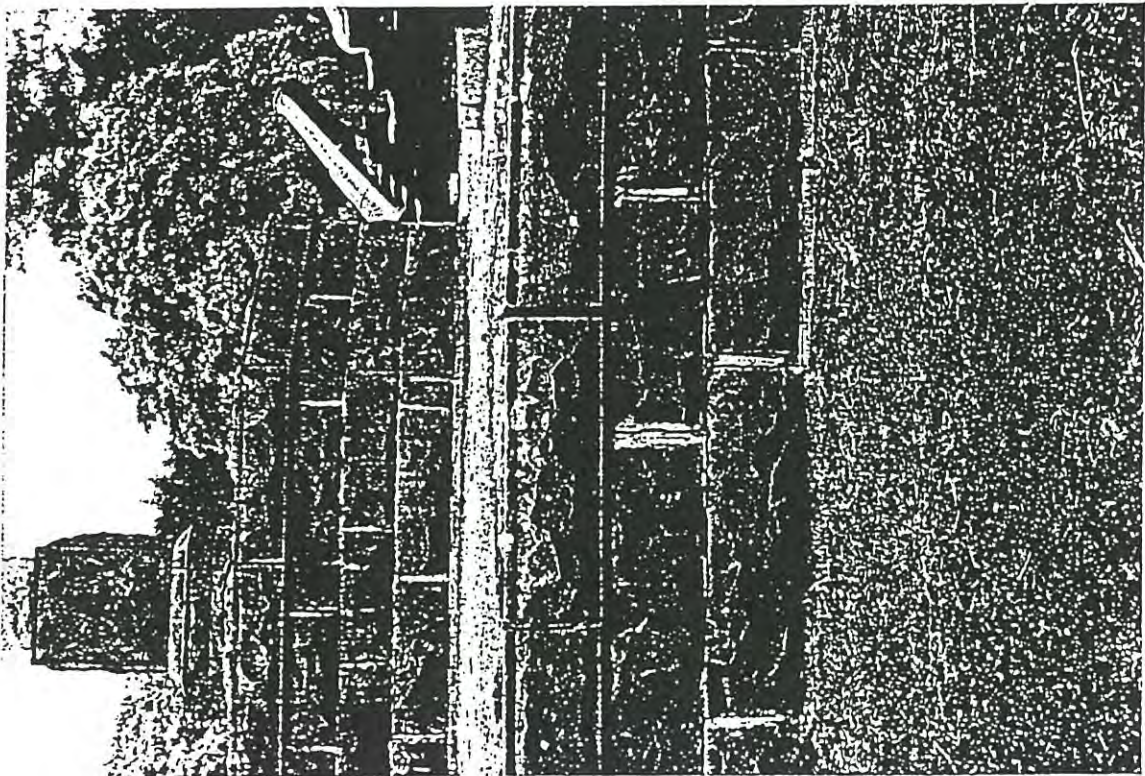


Figure 5. Cracking to north-west walls of upper and lower tiers, Eureka Monument.

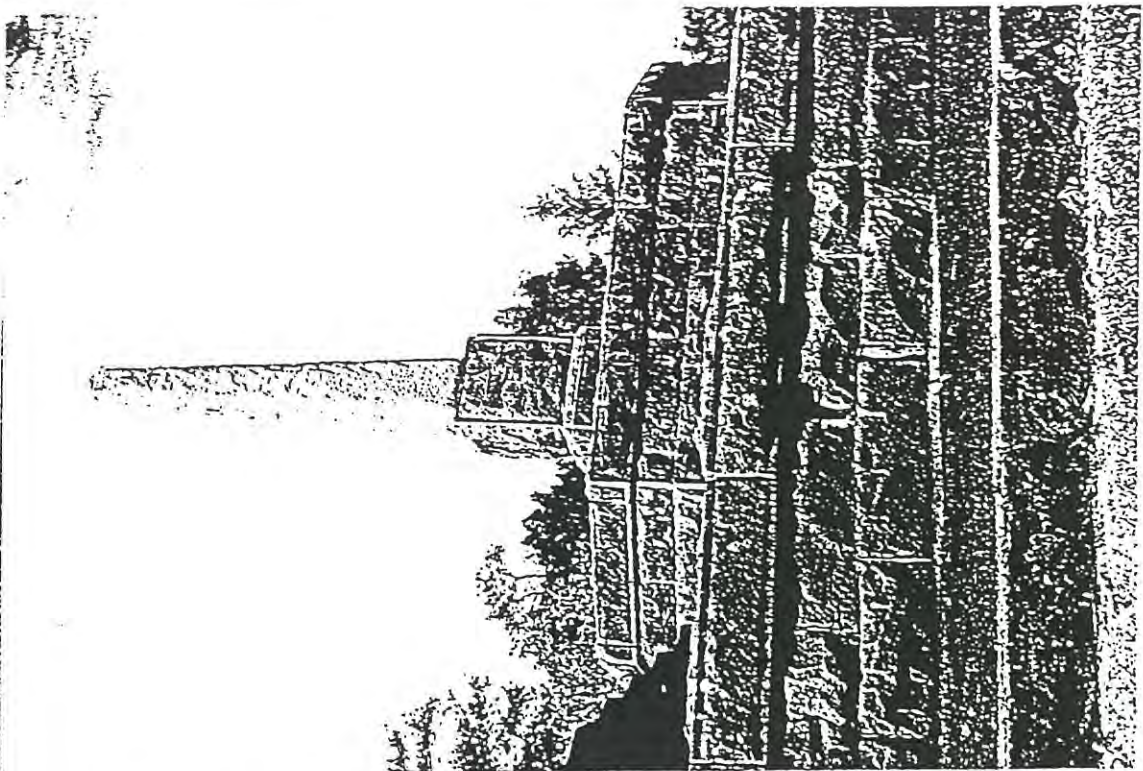


Figure 6. Cracking to western lower tier blockwork, Eureka Monument.

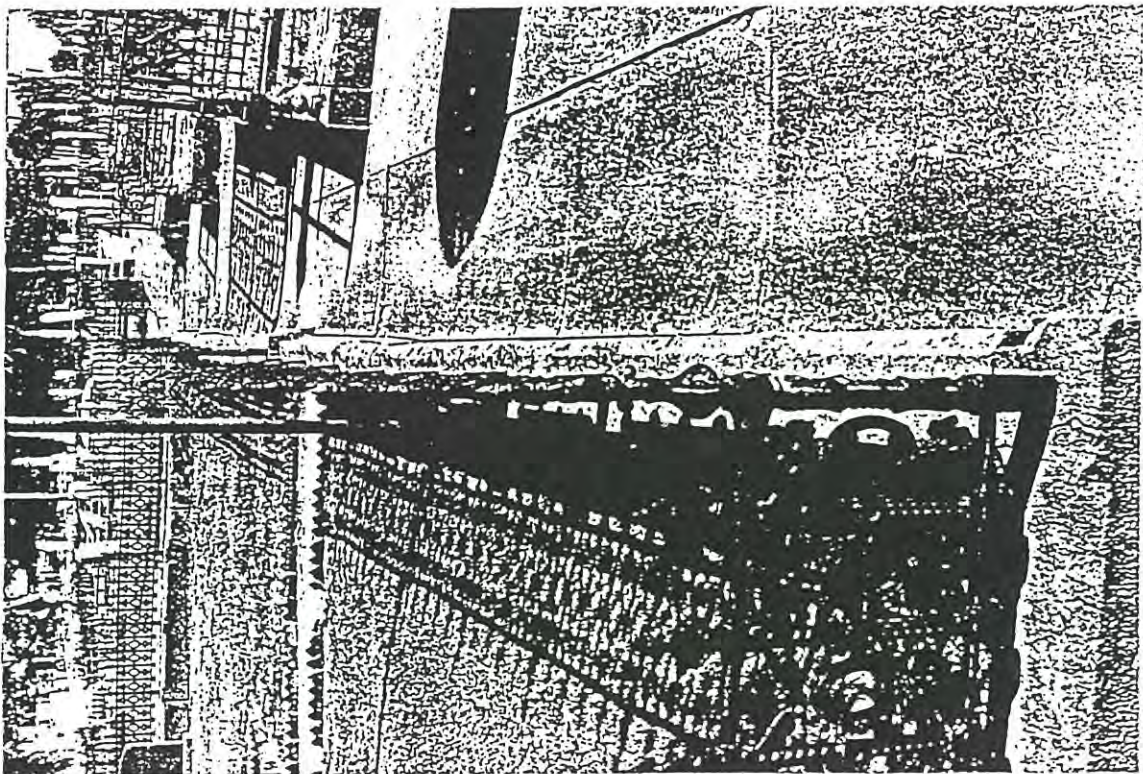


Figure 7. Evidence of movement to western boundary, Soldiers' Monument.

S P E C I F I C A T I O N

F O R M A T E R I A L S A N D W O R K S
TO BE CARRIED OUT IN THE CONSERVATION WORKS TO THE

**Soldiers' Monument - Old Ballarat
Cemetery
&
Eureka Stockade Monument - Eureka
Memorial Park**

February 1999

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9347 5522

CONTENTS

PAGE

A Preliminaries

3

B Demolition

17

C Stonework

20

Drawings

SECTION A PRELIMINARIES

A1 GENERAL

A1.01 SCOPE PRELIMINARIES

OUTLINE DESCRIPTION: The Works include, but are not necessarily limited to, the matters or things referred to in the outline description of the Works given in the *SCHEDULES TO PRELIMINARIES*.

A1.02 DIRECTIONS TO CONTRACTOR

IMPERATIVES: Directions, instructions and the like given in this Specification, whether or not they include the expression 'the Contractor shall' or equivalent, shall be deemed to be given to and accepted by the Contractor, unless otherwise stated in the Contract.

A1.03 INTERPRETATIONS

WORDS AND EXPRESSIONS: In the Contract, except where the context otherwise requires:

'approved', 'directed', 'required', 'rejected', and similar expressions, shall mean approved, directed, required, rejected, and the like, by the Architect.

'give notice', 'submit', 'furnish', and similar expressions, shall mean give notice, submit, furnish, and the like, to the Architect.

'Schedule of Quantities' means a document named therein as a Stonework Schedule issued to Tenderers stating estimated quantities of work to be carried out;

'Priced Schedule of Quantities' means the Schedule of Quantities priced and lodged by the Contractor with the Architect and accepted by the Architect as to rates;

'Constructional Plant' means appliances and things used in the execution of the work under the Contract, but not forming part of the Works or the Temporary Works;

'the Contractor' has the same meaning as 'the Builder';

'Drawings' means the drawings referred to in the Contract and any modification of such drawings notified to the Contractor by the Architect and includes such other

drawings as may from time to time be supplied to the Contractor by the Architect, or the use of which has been permitted by the Architect, for the purposes of the Contract;

'the Principal' has the same meaning as 'the Proprietor';

'Schedule of Rates' means any schedule included in the Contract which, in respect of any section or item of work to be carried out, shows the rate or respective rates of payment for the execution of that work and which may also include lump sums, provisional sums, contingency sums, other sums, quantities and prices;

'the Superintendent' has the same meaning as 'the Architect';

'Temporary Works' means works used for the execution of the work under the Contract but not forming part of the Works;

'work under the Contract' means the work which the Contractor is or may be required to execute under the Contract, and includes variations, remedial works, Constructional Plant and Temporary Works.

A1.04 STATUTORY REQUIREMENT

PRIOR APPLICATIONS: Prior to entering into this agreement the Proprietor has, in respect of the lawful requirements of public and other authorities applicable to the Works, given the notices, paid the fees, and obtained the approvals stated in the *SCHEDULES TO PRELIMINARIES*, evidence of which shall be provided to the Contractor, who shall remain responsible for compliance with all relevant statutory requirements in accordance with the Contract conditions.

A2 DOCUMENTS

A2.01 DRAWINGS AND SPECIFICATION

REPRESENTATION: The Drawings and the Specification represent generally the forms, dimensions and description of the Works.

DIMENSIONS: Where any discrepancy exists between figures and scaled dimensions, the figured dimension shall prevail. Figured dimensions are of a nominal nature only and all dimensions for the repair and replacement to stonework, shall be confirmed on site.

DISCREPANCIES: Where discrepancy exists between works indicated on the Drawings or in the Specification the contractor is to notify the architect at the time of tendering and prior to issuing documentation to subcontractors for pricing. No claim for variations will be accepted if the works are indicated on the drawings only or in the specification only.

A2.02 SCOPE PRELIMINARIES

EXISTING WORK: If the Works include alterations and/or additions to existing work, verify the dimensions of the existing work before proceeding, and notify discrepancies as required by the Contract.

A2.03 MEASUREMENT OF WORK

BUILDING WORK: Unless otherwise specified, measurement of work for the purpose of the Contract shall be in accordance with the principles of the edition last published prior to the closing date of tenders of the Australian Standard Method of Measurement of Building Works, as authorised by agreement between the Master Builder Federation of Australia Inc. and the Australian Institute of Quantity Surveyors, including amendments thereto.

A3 CONTRACTING

A3.01 The Contract between the Builder and the Proprietor for the works shall include the Builder's completed tender form, the drawings, the specification and the Lump Sum Contract for Simple Building Works, SBW Edition 2 Third Print, April 1996 issued by the Royal Australian Institute of Architects and the Master Builders Australia Incorporated.

At or before the time of acceptance of the tender, or as soon as practicable

- the Proprietor shall prepare in duplicate the formal instrument of Agreement;
- each party shall execute both copies;
- the Proprietor shall have both copies duly stamped if required, and shall forward one copy to the Builder.

A3.02 CONTRACTOR TO INFORM HIMSELF

REQUIRED ACTIONS: The Contractor shall be deemed to have:

- examined all the information made available to him by the Proprietor for the purpose of tendering including the Drawings, Specification, schedules, Conditions of Tendering, reports, maps, diagrams, Contract conditions, and the like; and
- examined all information relevant to the risks, contingencies and other circumstances which could affect his tender, and which is obtainable by the making of reasonable inquiries; and
- examined the site and the detailed condition of the stonework and the surroundings
- informed himself as far as practicable of all relevant physical conditions upon and below the surface of the site, and the climatic conditions at or near the site; and

- informed himself as far as practicable of the nature of the work and materials necessary for the execution of the work under the Contract, the means of access to and facilities at the site, and transport facilities for deliveries to the site; and
- informed himself as to the availability of labour and the accommodation required; and
- satisfied himself as to the correctness and sufficiency of his tender for the work under the Contract, and that the rates and prices stated therein cover the cost of performing all his obligations under the Contract.

LIABILITY: Failure by the Contractor to do all or any of the things he is deemed to have done under this clause will not relieve him of his liability to perform all his obligations under the Contract.

A3.03 PERMITS AND FEES

The contractor is responsible for the obtaining of all permits and payment of all fees associated with the works with the exception of the permits listed under clause A11 *SCHEDULE TO PRELIMINARIES*.

A3.04 ROYALTIES, PATENT RIGHTS

INDEMNITY: The Contractor shall indemnify the Proprietor against claims of infringement of patent, design, trademark or other protected rights in respect of Constructional Plant, materials (other than materials provided by the Proprietor) and work used for or in connection with the work under the Contract.

INFRINGEMENT: The indemnity shall not cover any infringement of any patent, design, trademarks or other protected rights resulting from the Contractor's compliance with the Contract unless:

- the Proprietor has clearly indicated that such compliance will result in an infringement if the appropriate permission or licence is not obtained from the person lawfully able to grant the same; or
- the Contractor was aware at any time prior to compliance that such compliance would result in an infringement.

A3.05 INSURANCES

The insurances for the works shall be effected by the Builder and shall be in accordance with the First Alternative of Section 8 of the General Conditions of Contract. The builder is to provide evidence of insurance policies, Public Liability, Contractors All Risk, Work care, and such like before commencing any site works.

A3.06 CONTINGENCY SUM

Include in the Contract the Contingency Sum being 10% of the contract sum as stated in the Abstract of Provisional Sums. This sum shall be expended on the works as the Architects in their absolute discretion may order in writing. Any portion thereof remaining unexpended at the completion of the Contract shall be deducted from the Contract Sum. Under no circumstances will any payment be made to the Contractor for any works not shown on the drawings or in the specification unless approved in writing by the Architect prior to the particular works commencing.

A4 SUB-CONTRACTING

A4.01 APPROVED SUB-CONTRACTORS

APPROVAL: The Contractor shall not without the written approval of the Proprietor, which approval shall not be unreasonably withheld, sub-contract any part of the work under the Contract for which the Contract requires that the sub-contractor be approved.

A5 ADMINISTRATION

A5.01 PROGRAM OF WORK

CONSTRUCTION PROGRAM: The Builder shall supply a preliminary construction program if requested by the Architect during consideration of his tender. The supply of a construction program shall not relieve the Builder from any of his obligations and responsibilities under the Contract.

BUILDER'S PROGRAM: The Builder shall, before the first progress certificate is issued, supply a construction program showing the dates by which or the times within which the various stages or parts of the work under the Contract are to be executed, and shall adhere to that program unless a deviation therefrom is approved or directed.

Deviations: If the Architect approves or directs a deviation from the program the Builder shall within the reasonable time stated in any such direction, supply a further construction program.

Revisions: Each month the Builder shall revise the construction program in the light of the progress of the work under the Contract and shall submit the revision for approval at the time of submitting his monthly progress claim. If approved, the revision shall become a further construction program. Each further construction program shall be the construction program for the time being.

EXTRA COSTS: The Builder shall not be entitled to any extra cost payment resulting from:

- a deviation from a construction program directed by the Architect, or
- a revision of the program required by this clause

unless the need for the deviation or revision was the result of an act, default, or omission of the Architect or the Proprietor.

EXTENSION OF TIME: Delay in activities which are not critical to the construction program shall not justify extension of the time for Practical Completion of the Works.

A5.02 PROGRESS CLAIMS SCHEDULE

REQUIREMENT: At the commencement of the Contract, supply a schedule of the anticipated monthly progress claims which will be made throughout the Contract. Supply a revised schedule with each month's progress claim.

A5.03 SITE MEETINGS

REQUIRED MEETINGS: Throughout the duration of the Contract, arrange meetings (as required by the Architect) with appropriate Sub-Contractors and the Architect and, unless otherwise directed by the Architect, keep minutes of such meetings and have two copies thereof forwarded to the Architect within three working days after each meeting.

CONTACTS: At the first site meeting submit to the Architect the names and telephone number of all responsible persons who may be contacted after hours during the course of the Contract.

A5.04 INSPECTION

COVERING UP If the Specification requires notice of inspection to be given in respect of any part of the work under the Contract, that part of the work shall not have further work placed thereon or be covered up or put out of view without the prior approval of the Architect.

INSUFFICIENT NOTICE: No claim for delay shall arise from the giving of insufficient or unreasonably short notice.

A6 SITE

A6.01 SITE IDENTIFICATION

DEFINITION: The sites are the Eureka Stockade Monument, located in Eureka Memorial Park, cnr of Stawell and Eureka Streets, Ballarat, Victoria and the Soldiers' Memorial, at the Old Ballarat Cemetery, cnr. of Creswick Road and Macarthur Streets, Ballarat, Victoria as shown on the Drawings. Refer to the location plan attached to this specification.

A6.02 BUILDER'S SITE AREAS

RESTRICTIONS: The Builder's access on to and around the site, and use of the site for Temporary Works and Constructional Plant, including working and storage areas, location of offices, workshops, sheds, roads, parking and the like, shall be restricted to the area 5 metres immediately surrounding the Eureka Monument, and within the surrounding concrete path of the Soldiers' Monument where approved by the Architect, and subject to such conditions as are stated in the Contract or may be imposed by the Architect.

A6.03 PROTECTION OF PERSONS AND PROPERTY

TEMPORARY WORKS: The Builder shall provide, erect and maintain all barricades, guards, fencing, temporary roadways, footpaths, signs and lighting and provide and maintain all watching and traffic flagging lawfully required by any public or other authority necessary for the protection of the Works or of other property or for the safety and convenience of the public and others, and shall remove the same when no longer required.

DAMAGE TO SERVICES AND THE LIKE: The Builder shall avoid obstruction or damage to roadways and footpaths, drains and watercourses and public utility and other services on or adjacent to the site which are visible, or the location of which can be ascertained by the Builder from the appropriate authority or from the Contract. The Builder shall remove any obstruction immediately and make good any damage at his own cost, in default of which the Proprietor may employ and pay others to execute the work and recover the cost as a debt due to the Proprietor from the Builder under the Contract.

DAMAGE TO PROPERTY: The Builder shall avoid interference with or damage to property on or adjacent to the site, and shall provide temporary protection and shall repair and reinstate all damage caused thereto by him either directly or indirectly. The existing trees are included in this category.

NUISANCE: Prevent nuisance to the owners, tenants or occupiers of properties adjacent to the site, and to the public generally.

A6.04 CARE OF THE WORKS

LIABILITY: The Builder shall be solely liable for the care of the Works, the Temporary Works, Constructional Plant and all materials and other things brought on to the site for the purpose of the carrying out of the work under the Contract by or on behalf of the Builder or any of his sub-contractors.

MAKING GOOD: The Builder shall at his own cost make good any loss or damage to the Works, the Temporary Works, Constructional Plant and the aforesaid materials and other things resulting from any cause (other than the Excepted Risks defined below) when such making good is necessary for the satisfactory completion of the Works.

EXCEPTED RISKS:

- Any negligent act or omission of the Proprietor, his agents or employees
- War, invasion, hostilities, revolution, insurrection
- Any risk specifically excepted in the Specification

A6.05 EXISTING SERVICES

GENERALLY: Existing services (such as drains, watercourses, public utility and other services) if encountered, obstructed, or damaged in the course of performing the work under the Contract, shall be dealt with as follows:

- *If the service is to be continued:* Repair, divert, relocate as required.

- *If the service is to be abandoned:* Cut and seal or disconnect, and make safe.

In either case to satisfy the authorities concerned.

COST: The cost of dealing as above with 'live' services not visible or the location of which could not be ascertained by the Builder from the appropriate authority or from the Contract will be valued as a variation to the work under the Contract provided that the Builder has taken all reasonable precautions to determine the location of existing services and safeguard them before the trenching, relevelling, roadmaking, demolition, or similar operations are commenced.

NOTIFICATION: Notify the Architect immediately upon the discovery of services or obstructions not shown on the Drawings.

A7 ENVIRONMENTAL PROTECTION

A7.01 ENVIRONMENTAL CONTROL

GENERALLY: Comply, and make sure that sub-contractors comply, with the provisions of this Clause and any other environmental protection provisions in the Contract and with the requirements of any statute, by-law, standard and the like related to environmental protection.

PROPOSALS: Submit proposals for traffic movement, temporary structures, (including lamps), cleaning up (including burning-off), erosion control, demolition and the like. Observe the agreed proposals.

A7.02 STORAGE ON SITE

GENERALLY: Store materials and equipment on site so as to prevent damage to the site and minimise hazards to persons, materials and equipment. Keep storage areas neat and tidy.

STORAGE ON THE WORKS: Do not use roads, driveways, paths, hardstandings and the like forming part of the Works for access or storage unless prior written approval has been given

A7.03 NOISE CONTROL

MINIMISE NOISE: Take all practicable precautions to minimise noise resulting from work under the Contract. Fit all construction equipment with noise suppressors and use so that noise is minimised. Do not use loud hailers.

JACKHAMMER SILENCING: Fit jackhammers and other noisy hand-held tools used in the performance of the work with effective silencers of a type recommended by the jackhammer manufacturer. Keep tools and silencers in first class condition. Supervise the operators of jackhammers to ensure that the silencers are always in place while the tools are being used.

COMPRESSOR SILENCING: Fit compressor sets used in the performance of the work with effective acoustic canopies and special engine exhaust silencers of a type recommended by the compressor manufacturer. Alternatively use compressor sets specially designed for quiet operation. Keep compressor sets and canopies in first class condition. Keep any access panels in acoustic canopies closed while sets are running.

A7.04 DISPOSAL OF CONTAMINANTS

GENERALLY: Properly dispose of solid, liquid and gaseous contaminants in accordance with all statutory and contractual requirements.

A7.05 DISPOSAL OF REFUSE

REQUIREMENT: Remove from the site refuse (including food scraps and the like) resulting from work under the Contract. Handle refuse in a manner so as to confine the material completely and prevent dust emission.

A7.06 DUST CONTROL

REQUIREMENT: Restrict dust caused by the Works to a minimum.

A8 PLANT

A8.01 TEMPORARY WORKS

MAINTENANCE: Alter, adapt and maintain temporary works as necessary, and remove them progressively as the work proceeds, unless otherwise specified or instructed.

INCLUSION IN WORKS: Obtain the written consent of the Architect for the inclusion in the Works of any temporary works which it is proposed to leave in position at the completion of the Contract.

A8.02 SITE SHEDS & OFFICE

GENERAL REQUIREMENTS: The Builder shall provide all necessary site sheds, site office, toilets and the like to comply with the Occupational Health and Safety Authority and council requirements to complete the works.

A8.03 HOARDING

REQUIREMENTS: Construct and maintain hoardings, gantries and the like in accordance with the requirements of the appropriate regulatory authorities.

MODIFICATIONS OR EXTENSIONS: Carry out any modification or extension of the hoardings which may be necessary for the proper performance of the Works. Modifications or extensions shall be subject to the approval of the Architect and shall match existing in form and construction.

MAINTENANCE: Maintain the hoarding in a good state of repair throughout the duration of the Contract, pay all rents, fees, rates, taxes and charges thereon, and insure against fire, loss, damage, and the like, for not less than the replacement value.

A8.04 TEMPORARY SERVICES

EXTENT: Provide and maintain temporary services necessary for the execution of the work under the contract. Install such services in accordance with the requirements of the relevant authorities. Pay charges in connection with the installation and use of such services. Make such services available to sub-contractors. On completion, disconnect temporary services and clear away all traces.

A8.05 TEMPORARY POWER

SUPPLY: The Builder shall have access to the supply of temporary power required for the completion of the works by connecting to the existing switch board and running all necessary cables to the site. The proprietor will pay all charges in this regard, however, the Builder shall be responsible for any extra charges incurred for inspections by the relevant authorities, failure of power due to circuit overload, upgrading the switch board and existing services to comply with the requirements of all relevant authorities.

A8.06 TEMPORARY WATER SUPPLY

REQUIREMENT: The Builder shall have access to the existing supply.

A8.07 SITE AMENITIES

REQUIREMENT: Provide statutory and necessary amenities and sanitary facilities for workers and other persons lawfully on the site.

A9 COMPLETION

A9.01 PRACTICAL COMPLETION

GENERAL REQUIREMENTS: Without prejudice to meanings which may be stated or implied elsewhere in the Contract, 'Practical Completion' shall mean that stage in the execution of the work under the Contract when such documents and other information required under the Contract which, in the opinion of the Architect, are essential for the use, operation and maintenance of the Works have been supplied, and the Works are substantially complete except for minor items.

A9.02 CLEANING UP

PROGRESSIVE CLEANING: Keep the work under the Contract clean and tidy as it proceeds and regularly remove from the site rubbish and surplus material arising from the execution of the work including any work performed during the Defects Liability Period or any operational maintenance period specified. On completion of the Works clean all the external areas of stonework.

REMOVAL OF PLANT: Within fourteen days of the date of Practical Completion, remove Temporary Works, Constructional Plant, buildings, workshops and equipment not forming part of the Works, except such as are required for work during the Defects Liability Period or any operational maintenance period specified and which shall be removed on completion of that work.

FAILURE TO COMPLY: If the Builder fails to comply with any obligation imposed on him by this clause the Proprietor may, after giving notice in writing to the Builder, have the work of cleaning or tidying up carried out by other persons and the cost incurred shall be recovered by the Proprietor as a debt due to the Proprietor by the Builder.

A10 MATERIALS AND WORKMANSHIP

A10.01 MATERIALS, LABOUR AND PLANT

PROVISION OF MATERIALS, LABOUR AND CONSTRUCTIONAL PLANT: The Builder shall, unless the Contract otherwise provides, supply at his own cost and expense everything necessary for the proper completion of the work under the Contract and the proper performance of his obligations under the Contract.

REMOVAL OF MATERIALS OR CONSTRUCTIONAL PLANT: No Constructional Plant that is stipulated in the Contract and no materials shall be removed from the site without the prior written approval of the Architect, which approval shall not be unreasonably withheld.

MANUFACTURE AND SUPPLY OF MATERIALS: The Builder shall give the Architect upon request full particulars of the mode, place and program of manufacture and source of supply and the performance capacities and such other information as the Architect considers necessary of any materials required for use in the work under the Contract. The Builder shall, before he arranges manufacture off site of any works or fabricated item to be used in the work under the Contract, give the Architect reasonable written notice of his intention to do so.

QUALITY OF MATERIALS: Unless otherwise specified, any materials to be incorporated in the Works shall be new.

MATERIALS AND WORKMANSHIP: Any material used in the work under the Contract and any standard of workmanship shall conform to the provisions of the Contract or, in the absence of any such provision, shall be of a kind which is suitable for its purpose and consistent with the nature and character of the Works.

MANUFACTURERS' RECOMMENDATIONS: Unless otherwise specified, use manufactured items in the work under the Contract in accordance with current published recommendations of the manufacturer relevant to such use.

PROTECTION OF MATERIALS: The Builder shall at his own cost provide adequate storage and protection for materials so as to preserve their quality and fitness for the Works.

A10.02 STANDARDS

AUSTRALIAN STANDARDS: Unless otherwise specified in the Contract, and where applicable, materials and workmanship shall be in accordance with the relevant standard of the Standards Association of Australia.

CURRENT EDITION: A standard applicable to the Works shall be the edition last published prior to the closing date for tenders unless otherwise specified.

OTHER STANDARDS: Overseas standards and other standard documents named in the Specification shall be applicable in the same manner as Australian Standards to relevant materials and workmanship.

A10.03 SAMPLES

APPROVED SAMPLES: Items in respect of which samples are specified shall be in accordance with an approved sample, or within a range defined by approved samples, as determined by the Architect, otherwise such items shall be liable to rejection. Keep approved samples in good condition on the site until Practical Completion.

DELAY: Where the Specification requires samples to be submitted by the Builder, the Builder shall be solely responsible for the consequences of delay resulting from failure to allow adequate time for the assessment and approval of samples or from the rejection of samples which do not comply with the Specification, or the like.

A10.04 GUARANTEES

GENERALLY: The Builder shall obtain and shall ensure that the Proprietor will have the benefit of, warranties or guarantees as specified in the Contract, including warranties or guarantees that are obtained by the sub-contractors of the Builder.

NAME THE PROPRIETOR: Unless otherwise specified or agreed, warranties or guarantees specified in the Contract shall name the Proprietor as warrantee and shall be furnished by the warrantor direct to the Proprietor.

A10.05 SEALED CONTAINERS

REQUIREMENT: Materials and products supplied by the manufacturer in closed or sealed containers or packages shall be brought to the point of use in the Works in the original unbroken container or package, otherwise they shall be liable to rejection.

A10.06 JOINING UP

GENERALLY: Carry out the joining of new work to existing work, and any consequent cutting away, in a manner approved by the Architect, and make good to match existing adjacent work in all respects.

A10.07 CHANGES TO EXISTING

NOTICE: Before making any changes to the existing items specified in the *SCHEDULES TO PRELIMINARIES*, give five working days' notice to the Architect and carry out the work only under his supervision.

A10.08 SALVAGED ITEMS'

BUILDER'S PROPERTY: Unless otherwise specified, and subject to the provisions of the General Conditions of Contract, materials, plant, equipment or other things salvaged from the Works shall become the property of the Builder and shall be removed by him from the site.

A11 SCHEDULES TO PRELIMINARIES

A11.01 GENERAL SCHEDULE

OUTLINE DESCRIPTION OF THE WORKS:

Location:	Eureka Memorial Park Cnr. of Stawell and Eureka Streets
District:	Ballarat
State:	Victoria
Function:	Park
Description:	Drainage work

Location:	Old Ballarat Cemetery Cnr. Creswick Road and Macarthur Street
District:	Ballarat
State:	Victoria
Function:	Cemetery
Description:	Stone Restoration

PRIOR APPLICATIONS:

Applications made:	Approvals received:
Planning Permit	Not required
Heritage Victoria Permit	Not required
Building Permit	Not required

A11.02 DOCUMENTS SCHEDULES

DRAWINGS: The following Drawings form part of the Contract:

Drawing dated February 1999 attached to this specification showing Plans & Details of the Eureka Memorials including;

- 10-001 Conservation Works to the Soldiers' Monument, Old Ballarat Cemetery, Plan.
- 10-002 Conservation Works to the Soldiers' Monument, Old Ballarat Cemetery, Sectional Detail A.
- 10-003 Conservation Works to the Eureka Memorial, Eureka Memorial Park, Plan.

GENERAL CONDITIONS OF CONTRACT:

Lump Sum Contract for Simple Building Works, SBW Edition 2 Third Print April 1996, issued by the Royal Australian Institute of Architects and the Master Builders Australia Incorporated.

A11.03 SCHEDULE OF PROVISIONAL SUMS

INCLUDED SUMS: The following provisional sum is deemed to be included in the contract sum for the purposes stated in the relevant Sections of the Specification.

Contingency sum: Any charges made against the Contingency Sum shall be ordered and valued as a variation.

ITEM:	PROVISIONAL SUM	\$
A3.06	Contingency	10% of contract sum

SECTION B DEMOLITION

B1 GENERAL

B1.01 DEMOLITION GENERALLY

STANDARD: Perform the demolitions necessary to carry out the work under the Contract, to AS2601 except for clause 2.3 which is deleted.
The responsibilities of the parties are as defined in this Contract.

NOTIFICATION: If when opening up work, any condition is found contrary to that expected, or for any reasons is found unsafe or unsound the Builder should stop immediately that particular section of work and seek instructions from the Architect.

PROTECTION: Protect property which is to remain on or adjacent to the site from interference or damage. Use appropriate means including shorting, protective screens, sheeting, and the like.

REINSTATEMENT: Make good any such damage or match existing.

EXISTING SERVICES: If included in, or encountered during the course of, the demolition, deal with as specified in *EXISTING SERVICES - PRELIMINARIES*.

DEMOLISHED MATERIALS: Remove from the site unless otherwise specified.

B1.02 STANDARDS

REFERENCED DOCUMENTS: The following standards are referred to in this Section:
AS 2601 SAA Demolition Code

B1.03 REQUIREMENTS OF AUTHORITIES

EVIDENCE OF COMPLIANCE: Before commencing demolition, submit evidence that:

- requirements of authorities relating to the work under the Contract have been ascertained;
- a permit to demolish has been obtained from the appropriate authority if required;
- all precautions necessary for protection of persons and property have been taken and suitable protective devices provided to the

approval of the relevant authority;

- all fees and other costs have been paid.

B2 SITE MANAGEMENT

B2.01 HEALTH PROTECTION

PRECAUTIONS: Take the precautions necessary to protect the health of persons on or within the vicinity of the site from conditions which are or may be dangerous to health, including the noxious effects of dust, fumes, liquids, infection, fire, explosion, radiation, or other hazards.

B2.02 PROTECTION

WATERPROOFING: The Builder must take and allow for, all necessary steps to ensure that the existing structure is maintained in a waterproof condition as required during the carrying out of the works. The methods proposed by the Builder to comply with this requirement shall be approved in principle by the Architect before commencement, and the Builder will accept responsibility for their effectiveness and make good at his own expense any damage resulting from failure.

The Builder must make a complete check of the works before ceasing work for the day to ensure that the building is protected from damage by water penetration as required.

DISPOSAL OF WATER: The Builder shall inform the appropriate Authorities and obtain all the necessary permits before disposing of water from the site and shall assume full responsibility in this connection.

Provide for effective disposal of water from any source during demolition, in such a manner as will not cause interference or injury to the public, or, damage to private property or street surfaces.

B3 MATERIALS AND WORKMANSHIP

B3.01 SCOPE OF WORK

Demolish all materials necessary for the proper execution of the works where indicated on the drawings and schedules and as specified to complete the works.

Demolish and remove all unsound mortar repairs and unsound stone to the Eureka Monument and Soldiers' Monument as indicated in the schedules. Ensure that all surrounding stonework is protected during the course of the demolition work. Depoint all areas of stonework in preparation for repointing works.

B3.02 DEMOLISHED MATERIALS

DISPOSAL: Dispose of demolished materials as specified in *SALVAGED ITEMS - PRELIMINARIES*.

B3.03 REINSTATEMENT

DAMPNESS: Should the inspection on completion reveal dampness to the structure which in the opinion of the Architect is caused by the demolition work, make good to the satisfaction of the Architect.

DAMAGE: Restore and make good to an approved standard, to match existing, damage and defacement caused by the demolition work.

DEFECTIVE MATERIALS: Notify the Architect immediately if existing construction or materials are found to be defective during the course of demolition, and do not proceed with demolition in the affected area until instructed.

DISTURBED WORK: All disturbed work, and all damage that may occur as the result of these works, shall be made good to the entire satisfaction of the Architect.

SECTION C
STONEWORK

C1 GENERAL

C1.01 SCOPE

The Builder shall carry out all stonework conservation necessary to make sound the stonework to the bluestone wall of the Soldiers' Memorial and including the works on drawing numbers:

Drawing No 10-001 Plan & 10-002 Section Detail A of the Soldiers' Memorial.

All as specified hereunder including the following:

Cut back concrete path by 100mm as indicated on the drawings

Remove cast iron balustrade and record original sequence.

The sections of cast iron balustrade should be numbered and their position in the stonework photographically recorded. This should be submitted to the architect for approval prior to removal of cast iron balustrade. All materials must be safely stored for re-use.

Remove all iron cramps to the bluestone wall and install stainless steel cramps set in epoxy resin.

Remove bluestone wall and lay 600mm concrete footing as indicated on the drawings. Replace stones or carry out indent repairs as indicated. The profile is to exactly match the existing profile. Reposition stonework to original layout as indicated on the drawings and install new pointing to all bluestone wall joints.

Re-fix cast iron balustrade in original sequence to bluestone wall using molten lead.

Install gravel in 100mm space between stone wall and existing concrete path

All defective stonework and mortar repair installation has been scheduled on the associated drawings, and the Builder is to perform the works according to these drawings and as specified below.

CONSERVATION: The objective of the work is to conserve in place as much as possible of the original Bluestone. The Builder shall take every care to ensure that all sound stone is protected and retained intact. In general repair of cracked stonework will take precedence over replacement other than where specified.

The Builder shall carry out all works to the Eureka Monument included on drawing numbers:

Drawing No 10-003 of the Eureka Monument.

All as specified hereunder including the following:

Cut back asphalt and re-instate to match original mix.

Grade asphalt as indicated on drawing 10-003.

Remove existing metal pipes through blockwork and replace with the same diameter colorbond pipes

Install downpipes to drain water to pits

Install new pits to lower and outer tier

Install drains under outer tier to deposit water 4 metres from the structure edge

CONSERVATION: The objective of the work is to conserve in place as much as possible of the original structure while providing adequate drainage to the monument. The Builder shall take every care to ensure that all sound stone is protected and retained intact. In general repair of cracked stonework will take precedence over replacement other than where specified.

C1.02 STANDARDS

REFERENCED DOCUMENTS: The following standards are referred to in this Section:

AS 1315 & AS 2350	Portland cement
AS 1449	Wrought alloy steels - Stainless and heat resisting steel plate, sheet and strip
AS 1640	SAA Brickwork Code
AS 1650	Galvanized coatings
AS 1672	Building limes
AS 1804	Soft lead sheet and strip
AS 2699	Wall ties for masonry construction
AS 2738	Copper and copper alloys, compositions and designations
AS A123	Mortar for masonry construction
AS 3700	SAA Masonry Code (1988) Masonry Code of Practice (1984)
AS 1225	Clay Building Bricks
BS 5390	Code of Practice for stone masonry.

C1.03 DEFINITIONS

ASHLAR:

- (a) A square hewn stone;
- (b) Masonry consisting of blocks of stone, finely square dressed to given dimensions and laid in courses with thin joints.

BANKER MASON: A mason skilled in cutting detailed forms of stonework - mouldings, decorations, etc.

BEDDING:

Edge bedded: A stone laid with its natural bed vertical to and at right angles to the face of a wall.

Face bedded: A stone laid with its natural bed vertical to and parallel to the face of a wall.

Natural bed: (quarry bed): The plane of stratification in a sedimentary rock.

BOND:

- (a) An interlocking arrangement of stones to ensure stability;
- (b) Adhesion between mortar and stone components of a wall.

COURSE: A continuous layer of uniform height, of stones, including the mortar, in a wall.

FINISHES TO STONE:

Boasted: A number of parallel chisel marks across the surface of the stone by means of a boasting chisel which has an edge about 60 mm in width.

Drafted margin: A smooth uniform margin 20 to 50 mm wide worked to the perimeter of the stone face.

Honed: Finely ground surface achieved off a fine grit or a synthetic material on a natural stone.

Polished: Smoothed with abrasives and buffed to a glass-like surface.

FIXINGS: A general term for the range of cramps, dowels or metal corbels used to fix stone permanently to a backing material.

POINTING: The finishing of joints in mortar as the work proceeds, or the filling with mortar of the joints in a wall from which the bedding or jointing mortar has been raked out.

SEASONING: The process of storing stone after quarrying to reduce its moisture content and bring it to a fit condition for use.

SWEETENING: The easing of abrupt changes in stone surface profiles, especially in matching new work to existing. Normally restricted to less than 5 mm depth.

THROATINGS: Grooves on the under surface of copings, sills and string courses forming a drip.

WEATHERING:

- (a) Working the top face of a stone to an inclined plane for the purpose of throwing off rainwater.
- (b) The effect of the combined action of time and weather on the masonry surface which may result in a change of appearance.

C1.04 INSPECTION

REQUIREMENT:

Give sufficient notice so that the following may be inspected:

- sample of asphalt
- concrete footing to dwarf wall
- sample of pointing
- joints prepared and ready for repointing
- completed works.

C1.05 SAMPLES

REQUIREMENT: Submit samples of the following:

POINTING: Provide a raked joint for approval prior to proceeding.

ASPHALT: Provide a sample 1m x 1m for approval prior to proceeding

C2 MORTARS

C2.01 MORTAR MATERIAL

WATER: To AS A123 & AS 2701

WHITE CEMENT: To AS 2350 & AS 1315, Type A, with iron salts content not exceeding 1%. Use only ONODA white cement in the works. Cement to be slurried before adding to the wet lime: sand mix.

LIME: To be non-hydraulic white lime with high calcium or dolomitic content containing not more than 10% clay content.

LIME TESTS: Provide a test certificate showing that the lime has passed the relevant tests for physical properties of AS 1672, Table 1.1.

LIME PUTTY: Incorporate lime into the mortar in the form of lime putty prepared to AS A123 clause 1.4.2. Lime putty must be slaked for a minimum of four weeks prior to incorporation into the works.

SAND: Fine aggregate to AS 2758.1, except that the grading, when determined to AS 1141.11, shall be as follows:

Sieve aperture:	Mass of sample passing, per cent:
1.18 mm	100
0.60 mm	80 - 90
0.30 mm	25 - 30

SHARP SAND: To consist of angular, well graded sand ranging evenly from 2mm to 150mm.

SOFT SAND: To consist of rounded aggregate with some silt content but not more than 15% below 150mm.

CHLORIDE CONTENT Sand shall pass the chloride test described in AS A123 Appendix A.

ORGANIC IMPURITIES: Test to AS 1141.34. The colour of the supernatant liquid shall be lighter than the test colour.

SAND COLOUR: To match approved sample. Sand shall be mixed as required to achieve the correct colour match.

SAND STOCKPILE: Before commencing stonework, stockpile sand of the approved type sufficient to supply the whole of the Work.

CRUSHED STONE AGGREGATE: Fine aggregate complying with the specification for sand may consist partly or wholly of crushed stone made from material of the same type as the stone facing.

POZZOLANIC ADDITIVE: To consist of ground brick dust < 150mm.

ADMIXTURES AND COLOURING PIGMENTS: Admixtures and colouring pigments are not to be used unless approval by the architect has been received.

C2.02 MORTAR

STANDARD: To AS A123 & AS 2350.

SITE MIXING: To AS 1640, clause A3.

RETEMPERING: Discard mortar which has become too stiff for use. Do not retemper with water.

PRE-MIXED MORTAR: Do not use unless prior approval has been obtained.

MORTAR MIX:

Pointing mortar: 1 part white cement, 2 parts hydrated lime putty,
9 parts sharp graded sand.

Generally: Use a mix which has a strength less than that of the stone bedded in it, and a porosity equal to or greater than that of the stone.

Replacement work: Use a mix complying with the above, and in addition matching as closely as possible the composition, colour, texture, strength and porosity of the original.

C3 WORKMANSHIP

C3.01 WORKMANSHIP GENERALLY

PROTECTION: Stonework shall be liable to rejection if damaged or disfigured during the course of the work under the Contract.

CUTTING: Perform the necessary cutting and shaping of stone to profiles to match existing. Work the bed, face and back joints of the stone square and true.

CARVING AND MOULDING: Use a fire-sharpened chisel to achieve a clean sharp finish.

TOLERANCES: The stonework shall be cut to match the dimensions of the blocks being replaced.

CLEANLINESS: Keep the Works clean and free of debris. Immediately remove debris and droppings, including pointing material, packaging, etc. from the Works and from pavement areas.

CLEANING: Keep the stone faces clean as the work proceeds. Prevent mortar or jointing material from coming into contact with the external face of the stone. Clean down as necessary, and leave the stonework clean on completion. Perform the cleaning, including the removal of stains, without damage to the work.

C3.02 BANKER MASON

REQUIREMENT: A banker mason shall supervise the works and shall make any necessary site adjustments to stone joints or surfaces.

IDENTIFICATION: Before commencing stonework submit the names and details of the qualifications of the banker masons it is proposed to employ on the works.

C4 STONE CLEANING

C4.01 CLEANING GENERALLY

REQUIREMENT: Clean the existing bluestone to the extent of the Monument wall as indicated on the drawings. Remove harmful deposits of foreign material and salts from the stonework, without damage to the stonework, and leave the stonework surface in a neutral state. The cleaning method shall be by washing down with clean water as set out in this specification.

FINAL APPEARANCE : Provide an even final appearance, without overlaps between bays which may cause streaks of overcleaning. Do not attempt to produce a 'new stone' appearance.

C4.02 PRECAUTIONS DURING CLEANING

GENERALLY: Take the necessary precautions to prevent damage to the Monument and its surroundings, and nuisance to occupants and the public, resulting from cleaning operations. Prevent water and cleaning wastes from spraying over surrounding areas. Suspend work during weather conditions which preclude compliance with the above.

RUNOFF: Prevent runoff from the cleaning operations from marking or tracking across stone facings or glazed areas. Collect residual water and cleaning wastes

and divert them to an approved means of disposal. Prevent water from soaking into the ground adjacent to the Monument.

CAULKING: Provide temporary caulking of an approved type where necessary to prevent the entry of water and cleaning wastes into open or suspect joints, cross-pavement junctions, and the like. Remove all traces on completion of cleaning.

WARNING NOTICES: Provide notices in conspicuous positions where necessary to warn occupants or the public of dangers or risks associated with the work.

C.4.03 CLEANING WATER

WATER SUPPLY: Provide clean, fresh water, non-staining to stonework, for stonework cleaning operations including pre-wetting, soaking, washing down and final washing.

TEMPERATURE: Provide approved safety devices to ensure that the required maximum water temperature at the nozzle is not exceeded.

Maximum water temperature: 55 degrees C.

ADDITIVES: Cleaning water shall contain no solvents, chemicals or other additives.

FILTRATION: If necessary, filter the cleaning water to remove existing minerals or other substances injurious to stonework.

SCRUBBING BRUSHES: Approved nylon or natural fibres brushes. Do not use severely worn brushes.

WASHING DOWN: At the completion of the scrubbing process wash the stonework down with water. Repeat the process until all cleaning wastes have been removed. Allow to dry.

FINAL WASHING: Immediately before completion, wash down again with water to remove any debris or staining arising from the work under the Contract.

NEUTRALITY TESTS: After the final washing and before removing the scaffold, test the surface for acid/alkali neutrality. If the required pH is not achieved, repeat washing or carry out such further procedures as the Superintendent may direct, and re-test.

Required pH: Seven (7)

C5 RESTORATION

C.5.01 RESTORATION WORKMANSHIP

IN SITU WORK: Carry out in situ work to existing stonework by methods which do not disturb the bed of the original stone.

Ashlar face work shall be face dressed and rubbed to match existing.

Beds and joints shall be cut at right angles to the face unless existing detail requires otherwise.

Arrises shall be sharp, cut to match existing and free of any defect, crack or other fault. No angle mitres will be allowed in any part of the work.

CARVING AND MOULDING: Make the new forms and profiles to match those on the existing stone, with clean sharp arrises and internal angles. Take templates from the existing work. Remove flattened planes and machine or other tool marks by wet carborundum rubbing. Make new mouldings to the full original profile.

C.5.02 WORK SEQUENCE

REQUIREMENT: As far as practicable, carry out the stonework restoration in a sequence such that the work on each face of the Cross is completed from the top downward.

At all times until final completion, existing renewed stonework shall be adequately protected from damage by the building operations, by provision of timber coverings, to projecting elements, laid over non-staining felt or building paper.

C.5.03 INDENT REPAIR

Indent repairs to the stonework shall be carried out to detail as indicated on the Drawing and in the Schedules.

Indent based repair

Clean out voids in the stonework joints with a compressed air jet to remove the previous patch repair, any loose stone, dust or particles. Rough dress the uneven surfaces where the previous repair existed to permit minimum 5mm bearing thickness of the new mortar repair, do not leave feathered edges on the substrate of the proposed position of the repair. Pre wet with water the prepared areas prior to application of the repair.

THE MIX SHALL CONSIST OF THE FOLLOWING:

- 0.5 parts low alkali white cement
- 0.5 part lime putty
- 1 part pozzolanic additive
- 3 parts graded sharp sand (colour matched to the cleaned stone surface)

The finished repair should not be discernible from the existing stone in terms of texture and colour from a distance of 5 metres away.

C.5.04 ALTERNATIVE INDENT REPAIR SYSTEM

The contractor may propose an alternative mortar repair system provided that it can be proven that the system is moisture permeable, contains a low salt content cement binder and satisfies the colour and visual characteristics of the existing stone.

C.5.05 ISOLATION BARRIER

LOCATION: All new and indented stonework and the face of cut away stonework shall be isolated on all accessible faces from the new work.

BARRIER: Apply an approved polyvinylidene chloride paint application to the newly excavated surface and the surfaces of the new material. Keep 25mm back from the finished face to allow for bonding the subsequent pointing.

C6 STRUCTURAL ELEMENTS

C.6.01 STRUCTURAL FIXINGS

PROVISION OF FIXINGS: Provide suitable fixings sufficient to restrain each stone or portion of the stone effectively. It shall be the Builder's responsibility to allow for the supply and installation of such fixings.

FIXING TYPES (DEFINITIONS):

Supports: Loadbearing fixings to withstand dead and variable loads. Metal supports shall support each stone separately unless otherwise specified.

RESTRAINTS: Tying back fixings withstanding variable loads only, including wind loading. Restraints include wall ties, cramps, dowels and joggles.

METALS FOR FIXINGS: Metal for fixings shall be Grade 316 Stainless Steel in accordance with AS 1449.

COMPATIBILITY: Use only compatible metals.

ATTACHMENT OF FIXINGS:

To stone: Machine holes or grooves, minimum 50mm deep, and grout in the fixing with an approved mortar grout or an epoxy resin. Form a notch or recessed edge at the back to allow the fixing to lie flush.

C.6.02 EXISTING FIXINGS

FERROUS METALS: Remove ferrous metal fixings where encountered during the stonework repairs, and elsewhere as specified or shown on the Drawings, and replace as specified in *STRUCTURAL FIXINGS - STONEWORK*.

C7 JOINING AND POINTING

C.7.01 REPOINTING GENERALLY

EXTENT: Repoint all areas of bluestone to the dwarf wall of the Soldiers' Monument as shown on the drawings.

C.7.02 PREPARATION FOR REPOINTING

RAKING: Rake out the joint to a minimum of 20mm deep using non-powered hand tools only.

CLEANING: Clean the opposing surfaces of the raked joint with abrasive sheet, metal rasp, or metal comb. Remove residual pointing, foreign material and loose stone. Do not undercut or feather the stone arrises.

OPENING OUT: On no account are joints to be opened out and every precaution is to be taken to prevent any damage to existing arrises.

C.7.03 REPOINTING

MATERIAL: Specified in *MORTARS - STONEWORK*. Mix the mortar to a putty-like consistency.

DAMPENING: Immediately before repointing use a fine water spray to dampen the joint surfaces without over-wetting.

VERTICAL JOINTS: Insert a backing rod in vertical joints only, to give a joint depth of 20mm before pointing.

OPERATIONS: Fill the joint in several operations by inserting the material and compacting it with a jointing key, applying pressure normal to the joint (i.e. not drawn along). Half fill the joint in the first operation, then complete the filling and cut the joint off flush.

JOINT FINISH: The joint surface is to match the existing pointing and be at least equal to the samples provided under Section C1.04 samples.

WORN JOINTS: If the stone arrises have become rounded or otherwise worn away, iron the joint to a slightly concave surface.

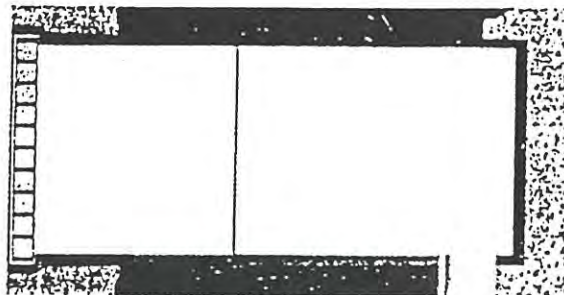
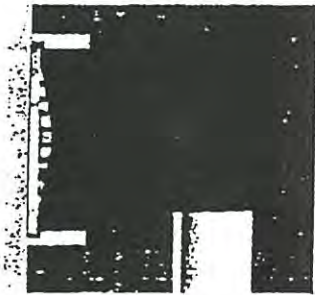


To complement the HOMEDRAIN range, ACO offers a complete system of point sumps with gratings to suit all applications around the home, office and garden.

Bases for the sump units are available in either moulded plastic for light duty use or strong, cast 'Polycrete' polymer concrete for vehicular traffic.

ACO have gratings to suit either pedestrian or vehicular traffic and for the 'Polycrete' sumps ACO manufacture a rising section for ultimate versatility of height.

Installation



Plastic Sumps

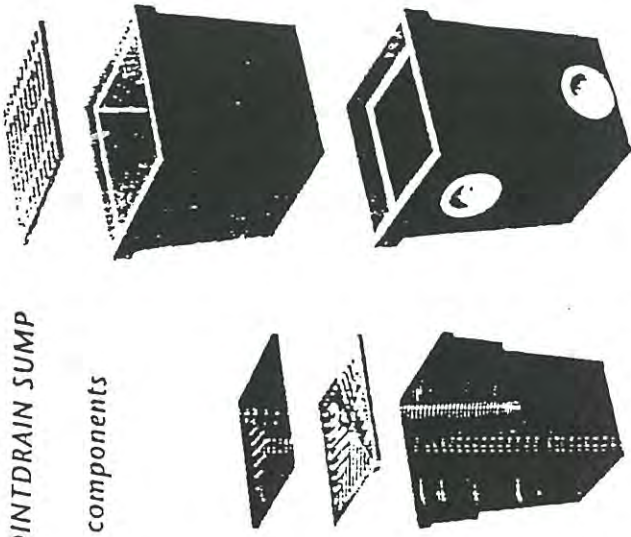
- 1 Excavate a hole to the required depth.
- 2 Cut sump with sharp knife or hacksaw to fit drainage pipe.
- 3 Position sump on sand bed or mortar.
- 4 Connect the drain pipework to sump.
- 5 Backfill and make good surrounding area.

'Polycrete' Sumps

- 1 Excavate a hole to the required depth.
- 2 For pipe entry or exit, cut a hole of the required diameter in the plastic insert.
- 3 Lay the sump on sand bed or concrete if sump will be exposed to vehicular traffic.
- 4 Connect drainage pipework to sump and seal joint.
- 5 Backfill and make good surrounding area.

POINTDRAIN SUMP

components



Plastic sumps for light duty use

Product	Part No.	Width mm	Depth mm	Weight kg
PPS22P sump with plastic grate	70387	200 x 200	275	1.0
PPS22A sump with aluminium grate	70392	200 x 200	275	1.6
PPS33A sump with aluminium grate	70404	300 x 300	300	4.0
PPS45L sump with light duty steel grate	70411	450 x 450	600	17.4
PPS45M sump with medium duty steel grate	70429	450 x 450	600	14.0
PPS66L sump with light duty steel grate	70435	600 x 600	600	35.3

'Polycrete' polymer concrete sumps for all applications

Sump	PS33	300 x 300	450	19.0
Riser	PSR33	300 x 300	300	13.6
Medium duty steel grate	SG33	-	-	3.3

PERMIT

HERITAGE ACT 1995

CITY OF BALLARAT

10 APR 2001

Perm
~~TEMP / PERM~~



Heritage
VICTORIA

PERMIT NO: P5356
OWNER/S: City of Ballarat
ADDRESS: PO Box 655
BALLARAT VIC 3353

HERITAGE REGISTER NO: H1874
REGISTRATION CATEGORY: Heritage Place
NAME OF PLACE / OBJECT (IF ANY): Eureka Stockade Historic Precinct
LOCATION: Corner Stawell and Eureka Streets
Ballarat

FILE NO: 600353

Pursuant to Section 74 of the Heritage Act (1995) and in respect to the above-mentioned place / object, the Executive Director, Heritage Victoria hereby grants a PERMIT, subject to conditions as prescribed hereunder to carry out the following:

Undertake urgent drainage works to the Eureka Memorial to arrest undermining of bluestone tier walls and to provide a drainage system to cope with future rainfall in accordance with the following plans and specifications provided by the City of Ballarat which have been endorsed by the Executive Director and form part of this permit:

- *Specification for materials and works to be carried out in the conservation works to the Soldiers' Monument – Old Ballarat cemetery and Eureka Stockade Monument – Eureka Memorial Park, February 1999 prepared by Helen Lardner Conservation and Design Pty Ltd and including variations to Accompany the Report, February 1999 for the Conservation Works to the Eureka Stockade Monument, Eureka Memorial Park and an A3 Drawing No. 10-003 amended in Feb 2001*

CONDITIONS:

1. This permit shall expire if the permitted works have not commenced within one (1) year of the date of issue of this permit, or are not completed within two (2) years of the date of issue of this permit.
2. Approved works or activities are to be planned and carried out in a manner which prevents damage to the registered place / object. However, if other previously hidden original or inaccessible details of the object or place are uncovered, any works that may affect such items shall immediately cease. The Executive Director shall be notified of the details immediately to enable Heritage Victoria representatives to inspect and record the items, and for discussion to take place on the possible retention of the items, or the issue of a modified approval.
3. The Executive Director is to be informed when the approved works have been completed.

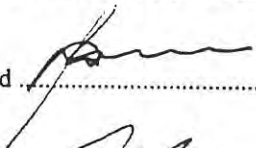
NOTE THAT PERMISSION HAS BEEN GIVEN FOR INSPECTIONS OF THE PLACE OR OBJECT TO BE UNDERTAKEN DURING THE CARRYING OUT OF WORKS, AND WITHIN SIX (6) MONTHS OF NOTIFICATION OF THEIR COMPLETION.

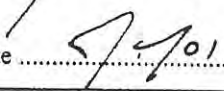
TAKE NOTICE THAT ANY NATURAL PERSON WHO CARRIES OUT WORKS OR ACTIVITIES NOT IN ACCORDANCE WITH THE PERMIT OR CONDITIONS IS GUILTY OF AN OFFENCE AND LIABLE TO A PENALTY OF UP TO 1,500 PENALTY UNITS (\$150,000) OR 5 YEARS IMPRISONMENT OR BOTH, OR IN THE CASE OF A BODY CORPORATE 3,000 PENALTY UNITS (\$300,000).

THE ATTENTION OF THE OWNER AND/OR APPLICANT IS DRAWN TO THE NEED TO OBTAIN ALL OTHER RELEVANT PERMITS PRIOR TO THE COMMENCEMENT OF WORKS.

Copies to: Statutory Planner, City of Ballarat,

HERITAGE VICTORIA
LEVEL 22, 80 COLLINS STREET,
MELBOURNE 3001

Signed  Executive Director

Date  10/4/01

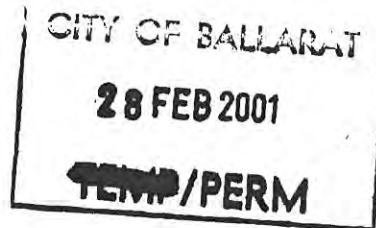


Our Ref: File/s: 600353 : H1874 : JM
Permit Application No: P5356

22 February 2001

The Statutory Planner
Ballarat City Council
PO Box 655
BALLARAT VIC 3353

Dear Sir/Madam,



Nauru House
Level 22
80 Collins Street
Melbourne 3000
Telephone (03) 9655 6519
Facsimile (03) 9655 9720
www.heritage.vic.gov.au
www.doi.vic.gov.au/heritage/

**PERMIT APPLICATION FOR
EUREKA HISTORIC PRECINCT**

Site Bound by Eureka, Belford, Stawell, Charlesworth & George Streets, Ballarat

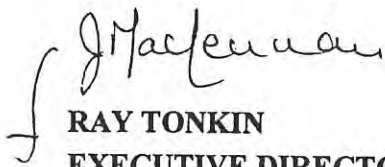
As required under Section 71 of the Heritage Act 1995, I enclose a copy of an application for alteration to the above mentioned registered place.

As part of my consideration of this application, I am also prepared to take into account any local heritage issues which you may identify. Advice should include whether the registered place is within or adjoining a locally significant place which is the subject of a Heritage Overlay control and whether there is any adverse affect. Is there a statement in the Municipal Strategic Statement or a local policy that relates to this area? Should Heritage Victoria be aware of any other heritage issue that affects this place?

If comments are not received at this office within 14 days, I will assume that you have no objection to the application.

If you require additional time to comment, please contact Joyce MacLennan on (03) 9655 8857.

Yours sincerely


RAY TONKIN
EXECUTIVE DIRECTOR

encl.

HR/05117



**CITY OF
BALLARAT**

City of Ballarat

PO Box 655
Ballarat Vic 3353
AUSTRALIA

Telephone: 03 5320 5500
Facsimile: 03 5332 8122

AUSDOC DX 35030
Ballarat Victoria

Date: 19 February, 2001

Our Ref:

Your Ref:

Enquiries: 5320 5665

Writer's
Direct Fax: 5332 9287

Robyn Mullen
Heritage Victoria
Level 22 Nauru House
80 Collins Street
MELBOURNE VIC 3000



Dear Robyn

1884 EUREKA STOCKADE MONUMENT - CONSERVATION WORKS

The City of Ballarat has allocated some funds to carry out some urgent drainage works on the 1884 Eureka Stockade Monument. The specification for works were prepared by Helen Lardner Conservation and Design in February 1999.

The works contract was recently awarded to Greg Owens Period Restoration Services. During our first site meeting we discussed a number of variations to the scope of works that we considered would not only improve the function and durability of the drains, but would also have less visual impact. Variations to the scope of the works has since been discussed and approved by Helen Lardner, Council's Heritage Adviser Lorraine Huddle, and a drainage engineer from Council.

Council has also arranged for a structural assessment report of the obelisk to be undertaken by Macleod Consulting however we do not believe that will impact on the urgent drainage works outlined here.

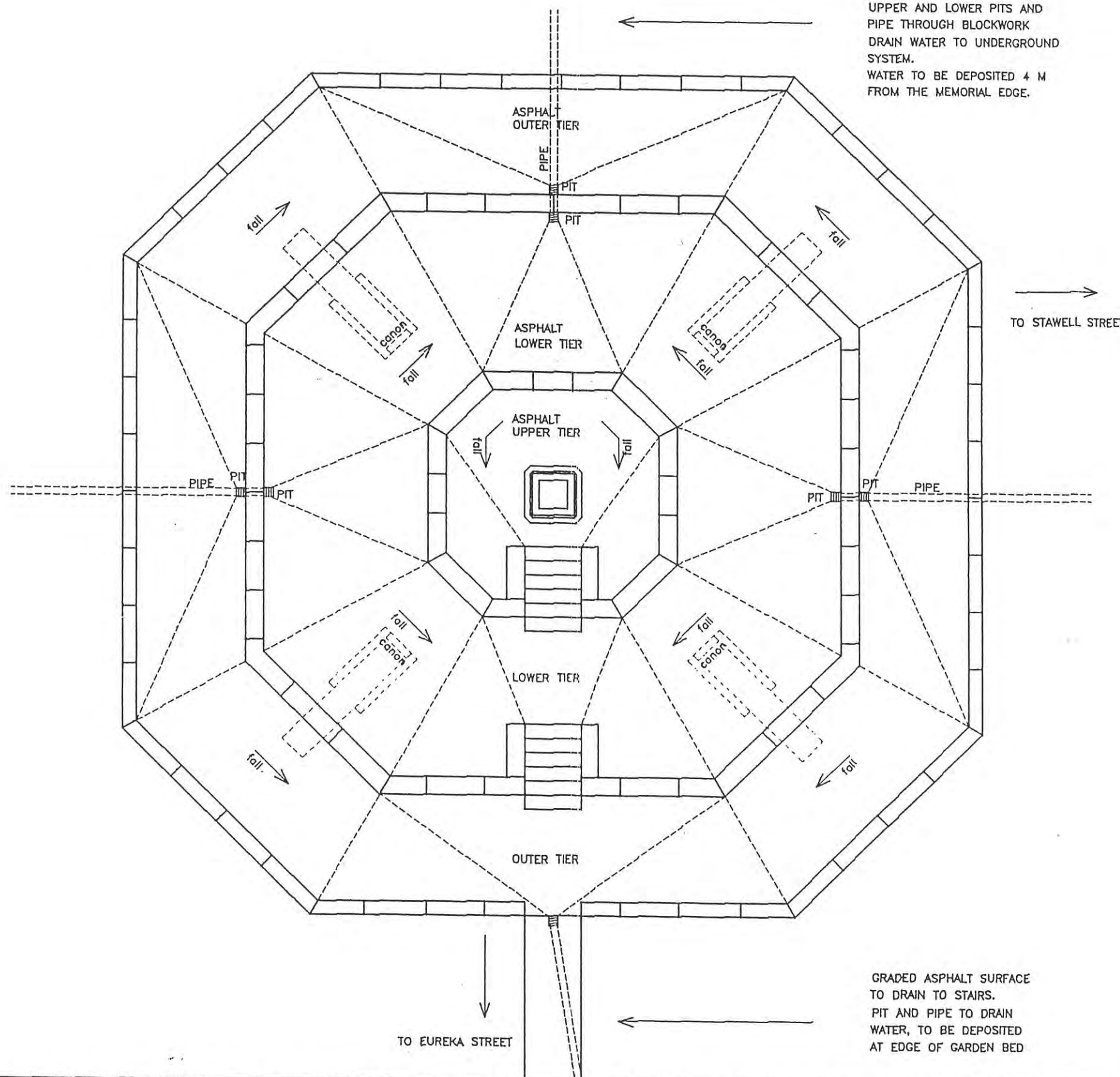
In accordance with the requirements of Victorian Heritage Register Number 1874, the City of Ballarat now seeks approval from Heritage Victoria to undertake the works attached. It should be noted that minimal trenching will be required immediately abutting the monument to provide adequate outfall drainage.

Please call me on 5320 5665 if you require any additional information or documentation in relation to this application.

Yours sincerely

Adam Parrott
Landscape Architect

UPPER AND LOWER PITS AND
PIPE THROUGH BLOCKWORK
DRAIN WATER TO UNDERGROUND
SYSTEM.
WATER TO BE DEPOSITED 4 M
FROM THE MEMORIAL EDGE.



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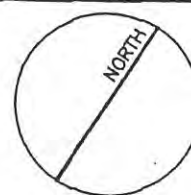
ASPHALT TO BE REMOVED
AND REPLACED TO MATCH
ASPHALT TO BE GRADED TO
DRAIN TO PITS AS SHOWN

NOTES:

NEW PITS TO BE INSTALLED TO LOWER TIER
IN LOCATION OF EXISTING DRAIN.

PITS TO BE 200 x 200 x 275 MM DEPTH
POLYCRETE PITS WITH ALUMINIUM GRATE TO
BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS
REFER TO SUPPLIED DETAILS.

CONSERVATION WORKS TO THE EUREKA MEMORIAL EUREKA MEMORIAL PARK



HELEN LARDNER CONSERVATION AND DESIGN

HLCD (ACN 083 840 724) 114 MOOR STREET FITZROY VIC 3065
Tel: 03 9486 9920 Fax: 03 9486 9968 hlcd@bigpond.com

PROJECT:

DRAWING TITLE:
DRAWN BY:

CONSERVATION WORK TO THE EUREKA STOCKADE MONUMENTS
EUREKA MEMORIAL, EUREKA MEMORIAL PARK

PLAN
SM

FEBRUARY 99

SCALE:
DRAWING NUMBER:

1: 100
10-003

Eureka Stockade Monument Eureka Stockade Reserve – Ballarat

Variations to Accompany Specifications for Materials and Conservation Works (Helen Lardner Conservation and Design Pty Ltd – Feb 1999)

This variation shall be read in conjunction with the amended Drawing No 10-003 and the existing scope of works see Specification section C1.01.

Scope of Works

Upper Tier

- Structural assessment of obelisk to be undertaken by appropriately qualified and experienced structural engineer separate to this contract
- Top two bluestone steps to be reset to fall away from obelisk at min 1:100 crossfall
- Install new pointing to bluestone wall joints to eroding or washed out joints as required to ensure all water falls towards and down the bluestone steps. New pointing to match original or approved finish. Provide a 12" continuous in situ pointing sample for approved prior to carrying out remaining pointing work.
- Asphalt to be graded and reinstated with minimum 1:100 fall using 'Class 170 Type L Size 7 asphalt' to a minimum depth of 25mm over 100mm compacted and stabilised crushed rock subgrade. Provide an insitu sample of asphalt for approval prior to carrying out remaining works.

Middle Tier

- Install 3 x 300x300mm precast concrete drainage pits with cast iron grates with approved fixing mechanism to tops
- Install 90mm sewer class PVC pipes and outlets behind face of bluestone walls
- Asphalt to be graded and reinstated with minimum 1:100 fall using 'Class 170 Type L Size 7 asphalt' to a minimum depth of 25mm over 100mm compacted and stabilised crushed rock subgrade. Provide an insitu sample of asphalt for approval prior to carrying out remaining works.

Lower Tier

- Excavate lower tier path to approx 150mm below existing surface levels to expose original levels and grade to pits with minimum 1:100 fall
- Install 50mm compacted granitic sand with 1% cement additive to outer path area but maintain finished level approx 150 mm below top of lower bluestone edge and graded to pits
- Install bluestone edge across path to finish approx 150mm below top of lower bluestone edge (bluestone to be supplied by City of Ballarat)
- Install 5x 300x300mm precast concrete drainage pits with cast iron grates with approved fixing mechanism to tops
- Install 90mm sewer class PVC pipes and outlets to drainage pits. Connect pipes to middle tier with minimum 1:100 fall away from centre of monument. Extend pipes under and beyond the lower tier bluestone edge for 4 meters. Connect sewer class

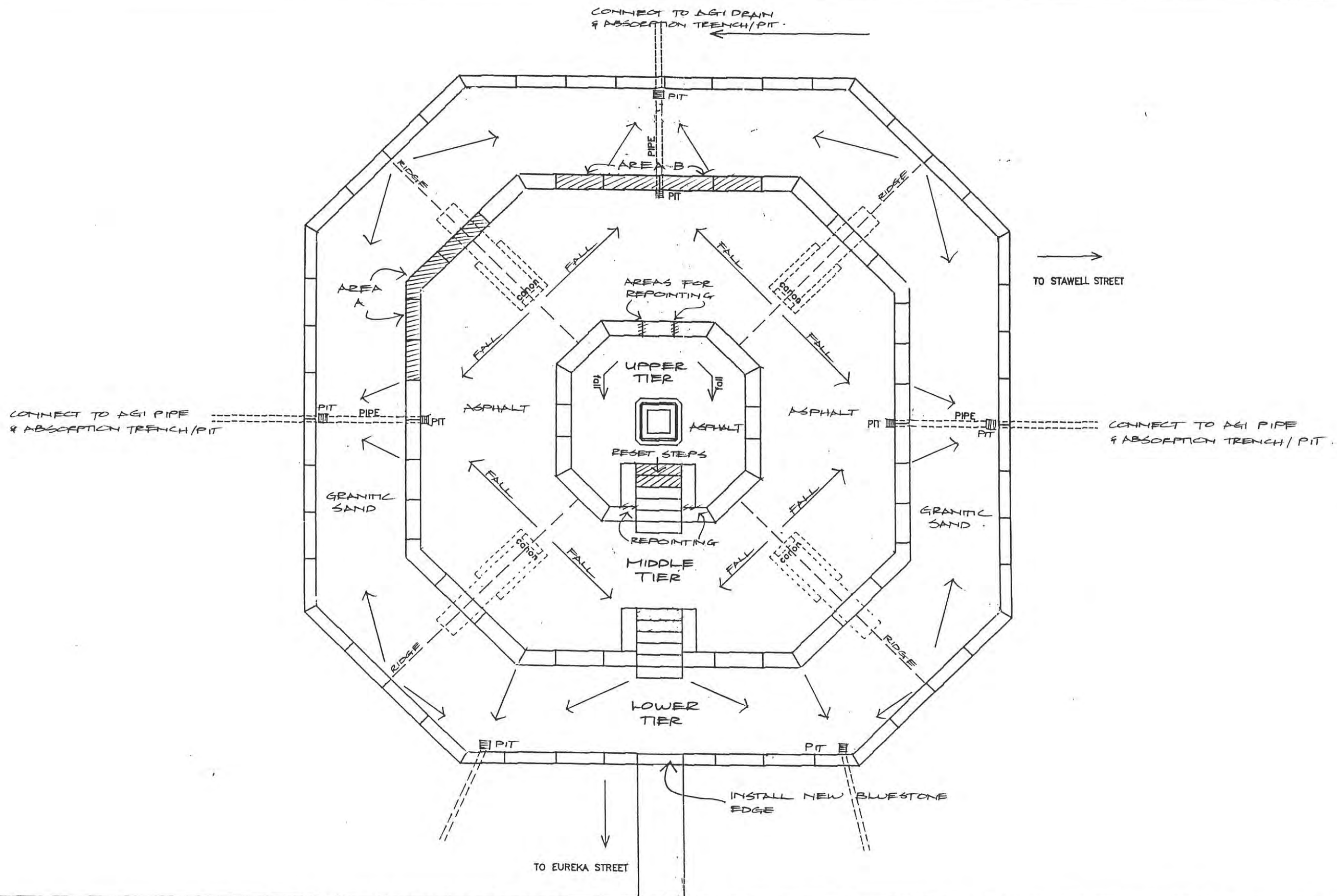
PVC pipe to a 90mm slotted flexi agi pipe encased in a geofabric sleeve and extended into an absorption trench/pit to an agreed detail and volume (eg. trench/ pit must be backfilled with approved aggregate encased by a geofabric, have minimum 150mm cover of topsoil and lawn seed, and have a total volume of approximately .5 m3 per pit/trench).

- Note that during trenching/excavation works Heritage Victoria may require a archaeologist to be present to monitor works. Any costs associated with this shall be met by the City of Ballarat.

Other

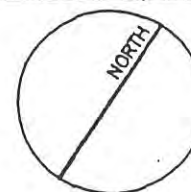
Provide itemised estimate for:

- Area A - Repairs to cracking and sinking of bluestone in north-east corner of lower tier wall
- Area B - Repairs to cracking and lifting bluestone in centre of lower tier wall on the northern side



NOTES:
 NEW PITS TO BE INSTALLED TO LOWER TIER
 IN LOCATION OF EXISTING DRAIN.
 PITS TO BE 200 x 200 x 275 MM DEPTH
 POLYCRETE PITS WITH ALUMINIUM GRATE TO
 BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS
 REFER TO SUPPLIED DETAILS.

CONSERVATION WORKS TO THE EUREKA MEMORIAL EUREKA MEMORIAL PARK



HELEN LARDNER CONSERVATION AND DESIGN
 HLCD (ACN 083 840 724) 114 MOOR STREET FITZROY VIC 3085
 Tel: 03 9486 9920 Fax: 03 9486 9968 hlcd@bigpond.com

PROJECT: CONSERVATION WORK TO THE EUREKA STOCKADE MONUMENTS
 EUREKA MEMORIAL, EUREKA MEMORIAL PARK
 DRAWING TITLE: PLAN
 DRAWN BY: SM
 SCALE: 1: 100
 FEBRUARY 99
 DRAWING NUMBER: 10-003

* AMENDED DWG N° 10-003
 ADAM PARROTT CITY OF BALLARAT
 FEB 2001.