Appendix E

Burra Charter

The Burra Charter

(The Australia ICOMOS Charter for Places of Cultural Significance)

Preamble

Considering the International Charter for the Conservation and Restoration of Monuments and Sites (Venice 1964), and the Resolutions of the 5th General Assembly of the International Council on Monuments and Sites (ICOMOS) (Moscow 1978), the Burra Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS) on 19 August 1979 at Burra, South Australia. Revisions were adopted on 23 February 1981, 23 April 1988 and 26 November 1999.

The Burra Charter provides guidance for the conservation and management of places of cultural significance (cultural heritage places), and is based on the knowledge and experience of Australia ICOMOS members.

Conservation is an integral part of the management of places of cultural significance and is an ongoing responsibility.

Who is the Charter for?

The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

Using the Charter

The Charter should be read as a whole. Many articles are interdependent. Articles in the Conservation Principles section are often further developed in the Conservation Processes and Conservation Practice sections. Headings have been included for ease of reading but do not form part of the Charter.

The Charter is self-contained, but aspects of its use and application are further explained in the following Australia ICOMOS documents:

- Guidelines to the Burra Charter: Cultural Significance;
- Guidelines to the Burra Charter: Conservation Policy;
- Guidelines to the Burra Charter: Procedures for Undertaking Studies and Reports;
- Code on the Ethics of Coexistence in Conserving Significant Places.

What places does the Charter apply to?

The Charter can be applied to all types of places of cultural significance including natural, indigenous and historic places with cultural values.

The standards of other organisations may also be relevant. These include the Australian Natural Heritage Charter and the Draft Guidelines for the Protection, Management and Use of Aboriginal and Torres Strait Islander Cultural Heritage Places.

Why conserve?

Places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. They are historical records, that are important as tangible expressions of Australian identity and experience. Places of cultural significance reflect the diversity of our communities, telling us about who we are and the past that has formed us and the Australian landscape. They are irreplaceable and precious.

These places of cultural significance must be conserved for present and future generations.

The Burra Charter advocates a cautious approach to change: do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.

Articles

Article 1. Definitions

For the purposes of this Charter:

1.1 *Place* means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Explanatory Notes

The concept of place should be broadly interpreted. The elements described in Article 1.1 may include memorials, trees, gardens, parks, places of historical events, urban areas, towns, industrial places, archaeological sites and spiritual and religious places.

1.2 *Cultural significance* means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

The term cultural significance is synonymous with heritage significance and cultural heritage value.

Cultural significance is embodied in the *place* itself, its *fabric*, *setting*, *use*, *associations*, *meanings*, records, *related places* and *related objects*.

Cultural significance may change as a result of the continuing history of the place.

Places may have a range of values for different individuals or groups.

Understanding of cultural significance may change as a result of new information.

1.3 *Fabric* means all the physical material of the *place* including components, fixtures, contents, and objects.

Fabric includes building interiors and sub-surface remains, as well as excavated material.

Fabric may define spaces and these may be important elements of the significance of the place.

1.4 *Conservation* means all the processes of looking after a *place* so as to retain its *cultural significance*.

1.5 *Maintenance* means the continuous protective care of the *fabric* and *setting* of a *place*, and is to be distinguished from repair. Repair involves *restoration* or *reconstruction*.

The distinctions referred to, for example in relation to roof gutters, are:

- maintenance — regular inspection and cleaning of gutters;
- repair involving restoration — returning of dislodged gutters;
- repair involving reconstruction — replacing decayed gutters.

1.6 *Preservation* means maintaining the *fabric* of a *place* in its existing state and retarding deterioration.

It is recognised that all places and their components change over time at varying rates.

1.7 *Restoration* means returning the existing *fabric* of a *place* to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material.

1.8 *Reconstruction* means returning a *place* to a known earlier state and is distinguished from *restoration* by the introduction of new material into the *fabric*.

New material may include recycled material salvaged from other places. This should not be to the detriment of any place of cultural significance.

1.9 *Adaptation* means modifying a *place* to suit the existing *use* or a proposed use.

1.10 *Use* means the functions of a place, as well as the activities and practices that may occur at the place.

1.11 *Compatible use* means a *use* which respects the *cultural significance* of a *place*. Such a use involves no, or minimal, impact on cultural significance.

1.12 *Setting* means the area around a *place*, which may include the visual catchment.

1.13 *Related place* means a *place* that contributes to the *cultural significance* of another place.

1.14 *Related object* means an object that contributes to the *cultural significance* of a *place* but is not at the place.

1.15 *Associations* mean the special connections that exist between people and a *place*.

Associations may include social or spiritual values and cultural responsibilities for a place.

1.16 *Meanings* denote what a *place* signifies, indicates, evokes or expresses.

Meanings generally relate to intangible aspects such as symbolic qualities and memories.

1.17 *Interpretation* means all the ways of presenting the *cultural significance* of a *place*.

Interpretation may be a combination of the treatment of the fabric (e.g. maintenance, restoration, reconstruction); the use of and activities at the place; and the use of introduced explanatory material.

Conservation Principles

Article 2. Conservation and management

2.1 *Places* of *cultural significance* should be conserved.

2.2 The aim of *conservation* is to retain the *cultural significance* of a *place*.

2.3 *Conservation* is an integral part of good management of *places* of *cultural significance*.

2.4 *Places* of *cultural significance* should be safeguarded and not put at risk or left in a vulnerable state.

Article 3. Cautious approach

3.1 *Conservation* is based on a respect for the existing *fabric*, *use*, *associations* and *meanings*. It requires a cautious approach of changing as much as necessary but as little as possible.

The traces of additions, alterations and earlier treatments to the fabric of a place are evidence of its history and uses which may be part of its significance. Conservation action should assist and not impede their understanding.

3.2 Changes to a *place* should not distort the physical or other evidence it provides, nor be based on conjecture.

Article 4. Knowledge, skills and techniques

4.1 *Conservation* should make use of all the knowledge, skills and disciplines which can contribute to the study and care of the *place*.

4.2 Traditional techniques and materials are preferred for the *conservation* of significant *fabric*. In some circumstances modern techniques and materials which offer substantial conservation benefits may be appropriate.

The use of modern materials and techniques must be supported by firm scientific evidence or by a body of experience.

Article 5. Values

5.1 *Conservation* of a *place* should identify and take into consideration all aspects of cultural and natural significance without unwarranted emphasis on any one value at the expense of others.

Conservation of places with natural significance is explained in the Australian Natural Heritage Charter. This Charter defines natural significance to mean the importance of ecosystems, biological diversity and geodiversity for their existence value, or for present or future generations in terms of their scientific, social, aesthetic and life-support value.

5.2 Relative degrees of *cultural significance* may lead to different *conservation* actions at a place.

A cautious approach is needed, as understanding of cultural significance may change. This article should not be used to justify actions which do not retain cultural significance.

Article 6. Burra Charter Process

6.1 The *cultural significance* of a *place* and other issues affecting its future are best understood by a sequence of collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy.

The Burra Charter process, or sequence of investigations, decisions and actions, is illustrated in the accompanying flowchart.

6.2 The policy for managing a *place* must be based on an understanding of its *cultural significance*.

6.3 Policy development should also include consideration of other factors affecting the future of a *place* such as the owner's needs, resources, external constraints and its physical condition.

Article 7. Use

7.1 Where the *use* of a *place* is of *cultural significance* it should be retained.

7.2 A *place* should have a *compatible use*.

The policy should identify a use or combination of uses or constraints on uses that retain the cultural significance of the place. New use of a place should involve minimal change, to significant fabric and use; should respect associations and meanings; and where appropriate should provide for continuation of practices which contribute to the cultural significance of the place.

Article 8. Setting

Conservation requires the retention of an appropriate visual *setting* and other relationships that contribute to the *cultural significance* of the *place*.

Aspects of the visual setting may include use, siting, bulk, form, scale, character, colour, texture and materials.

New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.

Other relationships, such as historical connections, may contribute to interpretation, appreciation, enjoyment or experience of the place.

Article 9. Location

9.1 The physical location of a *place* is part of its *cultural significance.* A building, work or other component of a place should remain in its historical location. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.

9.2 Some buildings, works or other components of *places* were designed to be readily removable or already have a history of relocation. Provided such buildings, works or other components do not have significant links with their present location, removal may be appropriate.

9.3 If any building, work or other component is moved, it should be moved to an appropriate location and given an appropriate *use*. Such action should not be to the detriment of any *place* of *cultural significance*.

Article 10. Contents

Contents, fixtures and objects which contribute to the *cultural significance* of a *place* should be retained at that place. Their removal is unacceptable unless it is: the sole means of ensuring their security and *preservation*; on a temporary basis for treatment or exhibition; for cultural reasons; for health and safety; or to protect the place. Such contents, fixtures and objects should be returned where circumstances permit and it is culturally appropriate.

Article 11. Related places and objects

The contribution which *related places* and *related objects* make to the *cultural significance* of the *place* should be retained.

Article 12. Participation

Conservation, interpretation and management of a *place* should provide for the participation of people for whom the place has special *associations* and *meanings*, or who have social, spiritual or other cultural responsibilities for the place.

Article 13. Co-existence of cultural values

Co-existence of cultural values should be recognised, respected and encouraged, especially in cases where they conflict.

For some places, conflicting cultural values may affect policy development and management decisions. In this article, the term cultural values refers to those beliefs which are important to a cultural group, including but not limited to political, religious, spiritual and moral beliefs. This is broader than values associated with cultural significance.

Conservation Processes

Article 14. Conservation processes

Conservation may, according to circumstance, include the processes of: retention or reintroduction of a *use*; retention of *associations* and *meanings*; *maintenance, preservation*, *restoration*, *reconstruction, adaptation* and *interpretation*; and will commonly include a combination of more than one of these.

There may be circumstances where no action is required to achieve conservation.

Article 15. Change

15.1 Change may be necessary to retain *cultural significance*, but is undesirable where it reduces cultural significance. The amount of change to a *place* should be guided by the *cultural significance* of the place and its appropriate *interpretation*.

When change is being considered, a range of options should be explored to seek the option which minimises the reduction of cultural significance.

15.2 Changes which reduce *cultural significance* should be reversible, and be reversed when circumstances permit.

Reversible changes should be considered temporary. Non-reversible change should only be used as a last resort and should not prevent future conservation action.

15.3 Demolition of significant *fabric* of a *place* is generally not acceptable. However, in some cases minor demolition may be appropriate as part of *conservation*. Removed significant fabric should be reinstated when circumstances permit.

15.4 The contributions of all aspects of *cultural significance* of a *place* should be respected. If a place includes *fabric*, *uses*, *associations* or *meanings* of different periods, or different aspects of cultural significance, emphasising or interpreting one period or aspect at the expense of another can only be justified when what is left out, removed or diminished is of slight cultural significance and that which is emphasised or interpreted is of much greater cultural significance.

Article 16. Maintenance

Maintenance is fundamental to *conservation* and should be undertaken where *fabric* is of *cultural significance* and its *maintenance* is necessary to retain that *cultural significance*.

Article 17. Preservation

Preservation is appropriate where the existing *fabric* or its condition constitutes evidence of *cultural significance,* or where insufficient evidence is available to allow other *conservation* processes to be carried out.

Preservation protects fabric without obscuring the evidence of its construction and use. The process should always be applied:

- where the evidence of the fabric is of such significance that it should not be altered;
- where insufficient investigation has been carried out to permit policy decisions to be taken in accord with Articles 26 to 28.

New work (e.g. stabilisation) may be carried out in association with preservation when its purpose is the physical protection of the fabric and when it is consistent with Article 22.

Article 18. Restoration and reconstruction

Restoration and *reconstruction* should reveal culturally significant aspects of the *place*.

Article 19. Restoration

Restoration is appropriate only if there is sufficient evidence of an earlier state of the *fabric*.

Article 20. Reconstruction

20.1 *Reconstruction* is appropriate only where a *place* is incomplete through damage or alteration, and only where there is sufficient evidence to reproduce an earlier state of the *fabric*. In rare cases, reconstruction may also be appropriate as part of a *use* or practice that retains the *cultural significance* of the place.

20.2 *Reconstruction* should be identifiable on close inspection or through additional *interpretation*.

Article 21. Adaptation

21.1 *Adaptation* is acceptable only where the adaptation has minimal impact on the *cultural significance* of the *place*.

Adaptation may involve the introduction of new services, or a new use, or changes to safeguard the place.

21.2 *Adaptation* should involve minimal change to significant fabric, achieved only after considering alternatives.

Article 22. New work

22.1 New work such as additions to the *place* may be acceptable where it does not distort or obscure the *cultural significance* of the place, or detract from its *interpretation* and appreciation.

New work may be sympathetic if its siting, bulk, form, scale, character, colour, texture and material are similar to the existing fabric, but imitation should be avoided.

22.2 New work should be readily identifiable as such.

Article 23. Conserving use

Continuing, modifying or reinstating a significant *use* may be appropriate and preferred forms of *conservation*.

These may require changes to significant *fabric* but they should be minimised. In some cases, continuing a significant use or practice may involve substantial new work.

Article 24. Retaining associations and meanings

24.1 Significant *associations* between people and a *place* should be respected, retained and not obscured. Opportunities for the *interpretation*, commemoration and celebration of these associations should be investigated and implemented.

For many places associations will be linked to use.

24.2 Significant *meanings*, including spiritual values, of a *place* should be respected. Opportunities for the continuation or revival of these meanings should be investigated and implemented.

Article 25. Interpretation

The *cultural significance* of many *places* is not readily apparent, and should be explained by *interpretation*. Interpretation should enhance understanding and enjoyment, and be culturally appropriate.

Conservation Practice

Article 26. Applying the Burra Charter process

26.1 Work on a *place* should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines.

The results of studies should be up to date, regularly reviewed and revised as necessary.

26.2 Written statements of *cultural significance* and policy for the *place* should be prepared, justified and accompanied by supporting evidence. The statements of significance and policy should be incorporated into a management plan for the place.

Statements of significance and policy should be kept up to date by regular review and revision as necessary. The management plan may deal with other matters related to the management of the place.

26.3 Groups and individuals with *associations* with a *place* as well as those involved in its management should be provided with opportunities to contribute to and participate in understanding the *cultural significance* of the place. Where appropriate they should also have opportunities to participate in its *conservation* and management.

Article 27. Managing change

27.1 The impact of proposed changes on the *cultural significance* of a *place* should be analysed with reference to the statement of significance and the policy for managing the place. It may be necessary to modify proposed changes following analysis to better retain cultural significance.

27.2 Existing *fabric, use, associations* and *meanings* should be adequately recorded before any changes are made to the *place*.

Article 28. Disturbance of fabric

28.1 Disturbance of significant *fabric* for study, or to obtain evidence, should be minimised. Study of a *place* by any disturbance of the fabric, including archaeological excavation, should only be undertaken to provide data essential for decisions on the *conservation* of the place, or to obtain important evidence about to be lost or made inaccessible.

28.2 Investigation of a *place* which requires disturbance of the *fabric*, apart from that necessary to make decisions, may be appropriate provided that it is consistent with the policy for the place. Such investigation should be based on important research questions which have potential to substantially add to knowledge, which cannot be answered in other ways and which minimises disturbance of significant fabric.

Article 29. Responsibility for decisions

The organisations and individuals responsible for management decisions should be named and specific responsibility taken for each such decision.

Article 30. Direction, supervision and implementation

Competent direction and supervision should be maintained at all stages, and any changes should be implemented by people with appropriate knowledge and skills.

Article 31. Documenting evidence and decisions

A log of new evidence and additional decisions should be kept.

Article 32. Records

32.1 The records associated with the *conservation* of a *place* should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

32.2 Records about the history of a *place* should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate.

Article 33. Removed fabric

Significant *fabric* which has been removed from a *place* including contents, fixtures and objects, should be catalogued, and protected in accordance with its *cultural significance*.

Where possible and culturally appropriate, removed significant fabric including contents, fixtures and objects, should be kept at the place.

Article 34. Resources

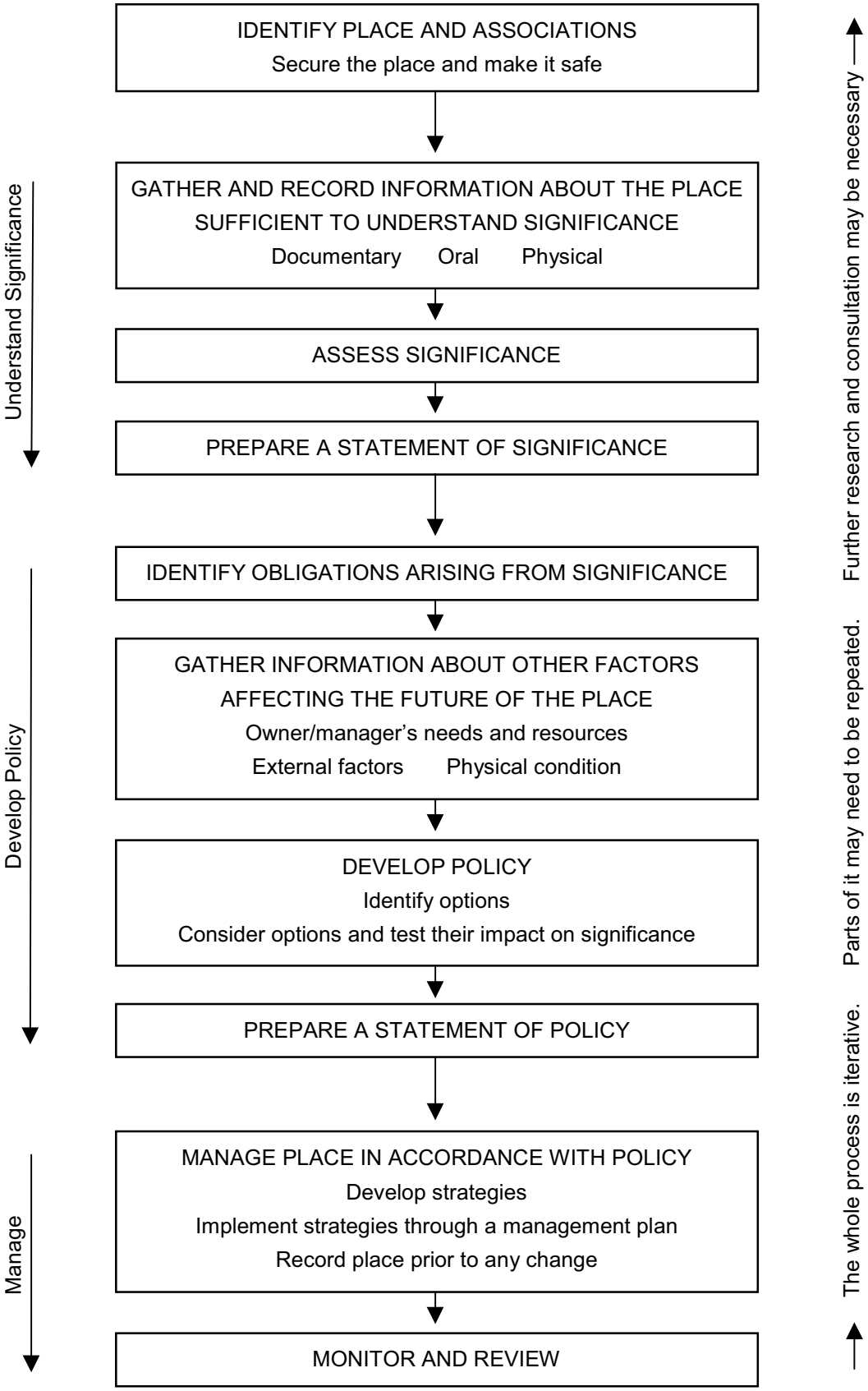
Adequate resources should be provided for *conservation*.

The best conservation often involves the least work and can be inexpensive.

Words in italics are defined in Article 1.

The Burra Charter Process

Sequence of investigations, decisions and actions



Appendix F

Existing Bellman Hangar Report

Richmond Valley Council

Evans Head Memorial Aerodrome

Existing Bellman Hangar

Report

March 2005

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Appendices

1. Introduction

1.1 Brief History of Bellman Hangar

It is understood that up to 17 Bellman hangars, other accommodation huts, mess halls and operational buildings were built in the early 1940's when the Evans Head Aerodrome was established as a RAAF training facility during World War 2.

1.2 Scope of Investigation

GHD Pty Ltd was commissioned to carry out an inspection of the existing Bellman hangar building at the Evan Head Memorial Aerodrome by Richmond Valley Council with a view to identifying possible options for the restoration of the existing structure, given the heritage nature of the building.

The options nominated in this report are based on a preliminary analysis of the existing structure only and will require further detailed investigations and design work to develop a more comprehensive scope of work and final costing.

2. Observations

2.1 General Building Description

The hangar is a metal clad structure with an eaves height of approximately 6m and a ridge height of approximately 7.7m. The overall plan dimensions are approximately 29m width by 34.5m length and the internal floor surface is asphalt.

The structural framing system consists of parallel steel trussed portal frames at approximately 3.8m spacing that support steel angle roof purlins and wall girts.

The end walls of the hangar originally consisted of a series of sliding doors that provided a maximum clear opening of approximately 19m width by 5.2m height.

2.2 Corrosion of Structural Steel Frames

The existing steel frames have varying degrees of corrosion at certain locations throughout the building, refer to the illustrations in Appendix A. The most affected areas typically correspond to zones that are more exposed to wind-borne coast salts, or are in contact with the ground or where dirt and moisture collects at connections with back-to-back steel sections.

The following general observations were made in relation to the steelwork corrosion at the time of our inspection:

- Several web and chord members in the end wall frames have lost greater than 50% of their original cross-sectional area due to corrosion.
- All of the columns have significant corrosion at the base with some completely corroded through and the majority having lost greater than 50% of their original cross-sectional area.
- Most of the columns on the Eastern side wall have a zone of significant corrosion at the bolted connection approximately 2m above the column base.
- Some roof bracing connection plates have completely corroded through.
- The sliding door frames and support members have corroded through in numerous locations, particularly along the Northern end wall.
- All rafters and columns have areas of well-developed surface corrosion and it is difficult to assess the extent of section loss without closer examination and abrasive blasting the surface of the steelwork.

2.3 Additions & Alterations

There is evidence that the original structure has had numerous alterations and additions areas over the years. Some of these alterations include:

- A lower skillion roof addition has been added to the Eastern side of the main hangar.

- New timber end wall columns, together with new timber wall girts and wall sheeting, have been added to replace some of the original sliding doors.
- Some fly bracing has been removed from the portal columns, particularly on the Eastern side of the hangar where an internal block wall has been constructed.
- Some of the angle wall bracing has been removed, particularly on the Eastern side of the hangar.

2.4 Roof and Wall Cladding

The original roof and wall cladding consisted of standard length galvanised iron sheets fixed to the roof purlins and wall girts with hook bolts. The following observations were made in relation to the condition of the cladding at the time of our inspection:

- The roof cladding has noticeable zones of surface corrosion throughout, with more extensive corrosion at sheeting laps and purlin bolt penetrations.
- All of the original cladding on the Northern end wall has extensive corrosion throughout.
- All of the original cladding on the Southern end wall has been replaced with full height zincalume sheeting.
- Most of the original cladding on the Eastern wall has been removed to accommodate the eastern skillion roof addition.
- The Northern wall cladding has extensive corrosion along the bottom of the wall and at some sheeting laps

2.5 Current Structural Condition

The extent of the steelwork corrosion observed in key elements and connections throughout the hangar has seriously affected the structural integrity of the building. Although a detailed analysis of the structure has not been undertaken, there is sufficient observable evidence to conclude that the hangar is presently unsafe for any use or activity due to the high risk of structural failure.

3. Discussion

3.1 Corrosion Protection

In accordance with AS/NZS 2312:2002 *Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings,* the atmospheric environment classification for the structural steelwork is likely to be Category D – High. To achieve a corrosion protection system for the steelwork that achieves a durability corresponding to 15 to 25 years to first maintenance, the following coating systems are listed as possible options:

- **Hot-Dip Galvanized** metallic coating. This would require dismantling of the structural elements, abrasive blasting, shop fabrication to replace corroded elements and then hot dip galvanizing.
- **Inorganic Zinc Silicate (water-borne)** paint coating. This system would require dismantling of the structural elements, abrasive blasting shop fabrication to replace corroded elements and then painting. However, there are surfaces that are inaccessible for painting (eg. small gap between back to back angles), which will present ongoing corrosion maintenance issues for any painting systems. For this reason, paint systems have not been considered in the options outlined below.

3.2 Preliminary Design

Our preliminary design checks revealed that the following items had some structural deficiencies and were likely to need replacement irrespective of the status of the steelwork corrosion.

- Roof and wall girts
- End bay roof bracing

A full detailed analysis is required to confidently assess the structural integrity of the remaining members and connections, however the preliminary analysis suggests that the general member sizes are sufficient.

3.3 Restoration Options

The following options have been considered to restore the existing Bellman Hangar:

- **Option 1** – Rectify the whole of the existing structure and maintain the same overall dimensions.
- **Option 2** – Rectify part of the existing structure and reduce the overall dimensions.
- **Option 3** – Rectify the whole of the existing structure, maintaining the same overall dimensions and salvaging components from the nearby Council Works Depot building.
- **Option 4** – Install new steel portal frames adjacent to the existing frames and connect the separate framing systems together.

A brief scope of work for the above options is outlined below:

3.3.1 Option 1 & 2

- Remove the roof and wall cladding and the individual trussed frames.
- Abrasive blast the steelwork and replace individual elements as necessary.
- Fabricate the following replacement components:
  - Complete end wall frames for **Option 1**; End wall columns, door head, sliding doors, droppers and struts for **Option 2**.
  - End bay roof bracing
  - Individual portal columns where necessary
- Hot Dip Galvanize the steelwork.
- Replace all purlins and girts with new timber members.
- Construct new concrete pedestals for all portal columns.
- Re-install portal frames and fix new roof and wall cladding.

3.3.2 Option 3

- Remove the roof and wall cladding and the individual trussed frames for both hangar structures.
- Abrasive blast a proportion of the steelwork (best frames only) and replace individual elements as necessary.
- Salvage the following components from the Council Works Depot:
  - End wall frames including wall bracing
  - Individual portal columns where necessary
- Fabricate the following replacement components:
  - End bay roof bracing
  - End wall sliding doors
- Hot Dip Galvanize the steelwork.
- Replace all purlins and girts with new timber members.
- Construct new concrete pedestals for all portal columns.
- Re-install portal frames, and fix new roof and wall sheeting.

3.3.3 Option 4

- Remove the roof and wall cladding.
- Install temporary bracing to the existing steelwork.
- Construct new concrete pedestals for all portal columns.
- Erect new hot dipped galvanised steelwork frames, purlins and girts.
- Connect new and existing steelwork and remove temporary bracing.

- Fix new roof and wall sheeting.

3.4 Preliminary Cost Estimates

The following general assumptions have been made in developing the preliminary cost estimates for each option:

- The existing addition on the eastern side of the hangar will be removed as part of the restoration work.
- All existing roof and wall cladding will be replaced due to the extent of corrosion and the probability of further damage during removal.
- All of the columns on the eastern side of the existing hangar will need replacement as well as the north and south end wall frames.
- The Council Works depot building matches the dimensions of the existing hangar.
- The remaining original trussed frame members will require only isolated member replacement and strengthening.
- All existing angle roof and wall girts will be replaced with timber members.
- The existing asphalt floor surface inside the hangar will remain in its present condition.

A preliminary budget estimate for each of the options has been prepared and is listed in Appendix B. Table 1 below summarises the overall cost estimates for each option.

Table 1 Preliminary Cost Summary

Option	Subtotal	Contingency	GST	Total	Cost/m^2
1	$327,500	$98,250	$42,575	**$468,325**	**$468**
2	$279,800	$83,940	$36,374	**$400,114**	**$513**
3	$345,400	$103,620	$44,902	**$493,922**	**$494**
4	$382,900	$114,870	$49,777	**$547,547**	**$547**

4. Recommendation

Considering the options previously outlined and their associated preliminary cost, Option 1 is considered to be the most appropriate for the following reasons:

- It has the lowest cost per square metre.
- It retains the same overall dimensions as the original heritage structure.
- It maintains the Council Works Depot hangar for possible relocation and reuse.

Appendix A

Illustrations

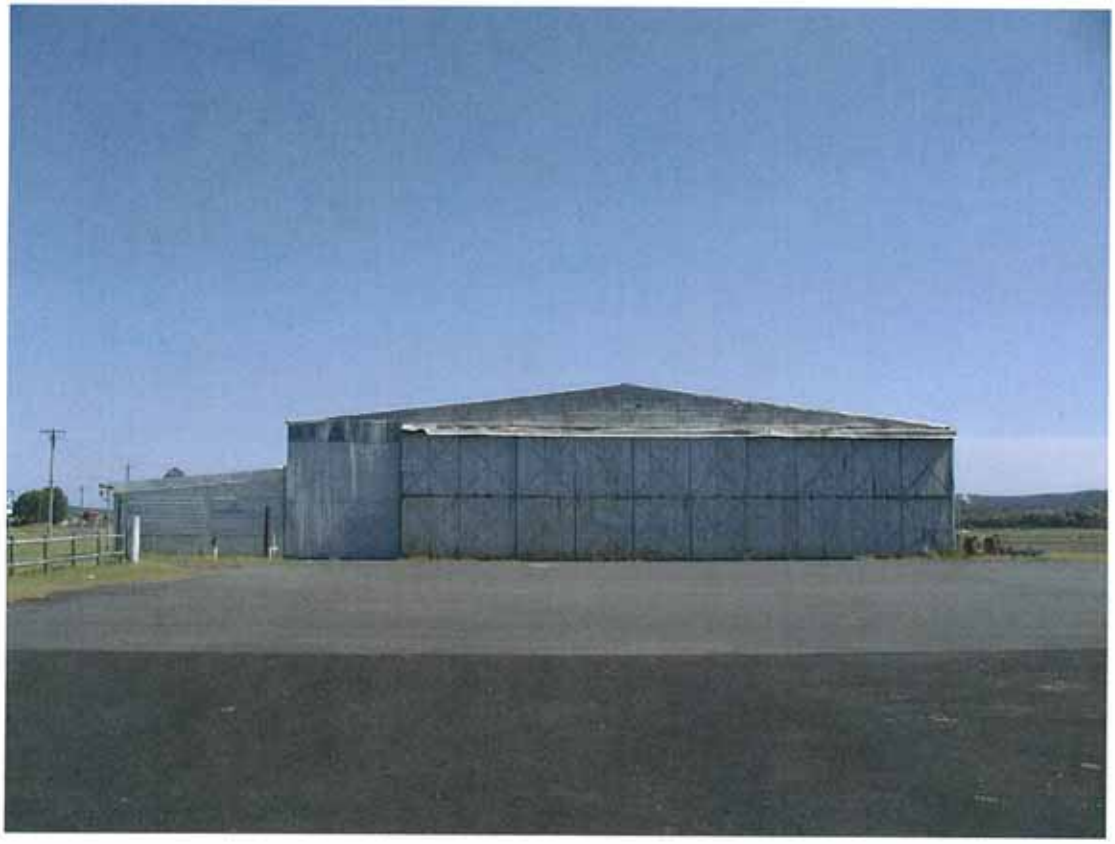

Illustration No. 1

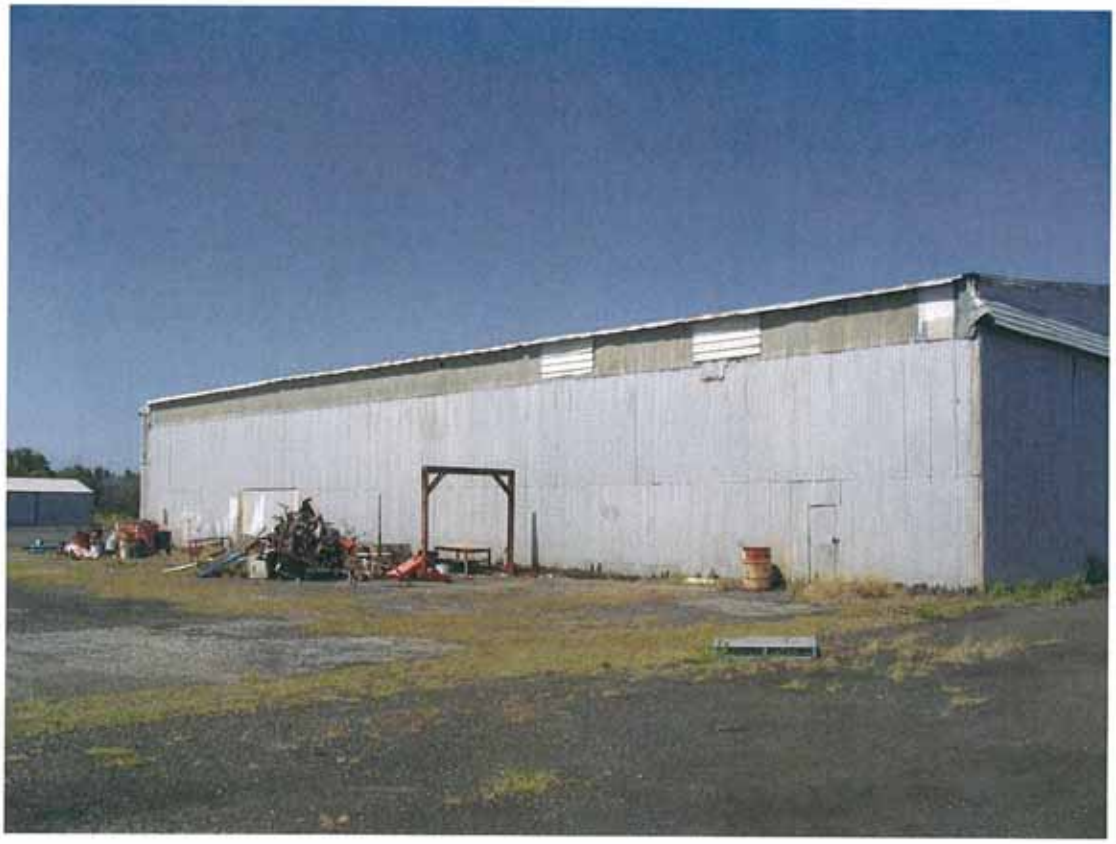

Illustration No. 2

Illustration No. 3

Illustration No. 4

Illustration No. 5

Illustration No. 6

Illustration No. 7

Illustration No. 8

Illustration No. 9

Illustration No. 10

Appendix B

Budget Estimates for Options 1 to 4

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Client: Richmond Valley Council
Job No. 2211877

Preliminary Budget Estimate Option 1 - Evans Head Airport Bellman Hanger

Item	Description	Unit	Quantity	Rate	Amount	Item Cost
Preliminaries	Insurances	item	1	$3,000.00	$3,000.00	$3,000.00
Site establishment & disestablishment		item	1	$6,000.00	$6,000.00	$6,000.00
Professional Services	Project Management / Engineering design	item	1	$30,000.00	$30,000.00	$30,000.00
Demolition	Remove roof & wall sheeting	m^2	2000	$12.00	$24,000.00	
	Remove attached skillion roof extension	m^2	200	$35.00	$7,000.00	
	Remove portal frames, purlins & girts	each	10	$1,500.00	$15,000.00	$46,000.00
Rectification Work	Fabricate new end wall frames & hot dip galvanise	each	2	$25,000.00	$50,000.00	
	Replace/modify individual truss elements as required	each	8	$1,500.00	$12,000.00	
	Sandblast internal steelwork frames & hot dip galvanise	each	8	$2,500.00	$20,000.00	
	Fabricate new portal columns & hot dip galvanise	each	8	$2,200.00	$17,600.00	
	Fabricate new end bay bracing & hot dip galvanise	each	2	$4,000.00	$8,000.00	
	Construct new concrete footing / pedestals	each	28	$800.00	$22,400.00	
	Erect portal frames	each	10	$1,500.00	$15,000.00	
	Replace roof purlins & wall girts with timber members	m	1500	$25.00	$37,500.00	
	Replace roof & wall sheeting	m^2	2000	$30.00	$60,000.00	$242,500.00
Subtotal					$327,500.00	$327,500.00
Contingency	30%				$98,250.00	
GST	10%				$42,575.00	
	TOTAL				$468,325.00	

NOTE:
1.The cost estimates presented above have been developed based on a preliminary design & inspection only, using a combination of similar recent project pricing, budget quotes, industry unit rates and GHD experience.
The accuracy of these estimates is not expected to be better than about +/- 30% for the scope of works described above.
A more accurate cost estimate would be achieved following a detailed inspection and design.
2. Steel fabrication work has been based on the following rates:
i) Steel supply & fabrication - $4800/tonne
ii) Abrasive blasting - $500/tonne
iii) Hot dip galvanising - $1000/tonne

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Client: Richmond Valley Council
Job No. 2211877

Preliminary Budget Estimate Option 2 - Evans Head Airport Bellman Hanger

Item	Description	Unit	Quantity	Rate	Amount	Item Cost
Preliminaries	Insurances	item	1	$3,000.00	$3,000.00	$3,000.00
Site establishment & disestablishment		item	1	$6,000.00	$6,000.00	$6,000.00
Professional Services	Project Management / Engineering design	item	1	$30,000.00	$30,000.00	$30,000.00
Demolition	Remove roof & wall sheeting	m^2	2000	$12.00	$24,000.00	
	Remove attached skillion roof extension	m^2	200	$35.00	$7,000.00	
	Remove portal frames, purlins & girts	each	10	$1,500.00	$15,000.00	$46,000.00
Rectification Work	Fabricate new members for end walls at first internal frames & hot dip galvanise	each	2	$12,500.00	$25,000.00	
	Replace/modify individual truss elements as required	each	8	$1,500.00	$12,000.00	
	Sandblast internal steelwork frames & hot dip galvanise	each	8	$2,500.00	$20,000.00	
	Fabricate new portal columns & hot dip galvanise	each	8	$2,200.00	$17,600.00	
	Fabricate new end bay bracing & hot dip galvanise	each	2	$4,000.00	$8,000.00	
	Construct new concrete footing / pedestals	each	24	$800.00	$19,200.00	
	Erect portal frames	each	8	$1,500.00	$12,000.00	
	Replace roof purlins & wall girts with timber members	m	1200	$25.00	$30,000.00	
	Replace roof & wall sheeting	m^2	1700	$30.00	$51,000.00	$194,800.00
Subtotal					$279,800.00	$279,800.00
Contingency	30%				$83,940.00	
GST	10%				$36,374.00	
	TOTAL				$400,114.00	

NOTE:
1.The cost estimates presented above have been developed based on a preliminary design & inspection only, using a combination of similar recent project pricing, budget quotes, industry unit rates and GHD experience.
The accuracy of these estimates is not expected to be better than about +/- 30% for the scope of works described above.
A more accurate cost estimate would be achieved following a detailed inspection and design.
2. Steel fabrication work has been based on the following rates:
i) Steel supply & fabrication - $4800/tonne
ii) Abrasive blasting - $500/tonne
iii) Hot dip galvanising - $1000/tonne

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Preliminary Budget Estimate Option 3 - Evans Head Airport Bellman Hanger

Item	Description	Unit	Quantity	Rate	Amount	Item Cost
Preliminaries	Insurances	item	1	$3,000.00	$3,000.00	$3,000.00
Site establishment & disestablishment		item	1	$7,500.00	$7,500.00	$7,500.00
Professional Services	Structural Engineering design & documentation	item	1	$30,000.00	$30,000.00	$30,000.00
Demolition	Remove roof & wall sheeting on both structures	m^2	4000	$12.00	$48,000.00	
	Remove attached skillion roof extensions	m^2	400	$35.00	$14,000.00	
	Remove portal frames, purlins & girts	each	20	$1,500.00	$30,000.00	$92,000.00
Rectification Work	Fabricate new members for each end wall frame to accommodate new doors & hot dip galvanise	each	2	$12,500.00	$25,000.00	
	Replace/modify individual truss elements as required	each	10	$1,500.00	$15,000.00	
	Sandblast all steelwork frames & hot dip galvanise	each	10	$3,000.00	$30,000.00	
	Fabricate new end bay bracing & hot dip galvanise	each	2	$4,000.00	$8,000.00	
	Construct new concrete footing / pedestals	each	28	$800.00	$22,400.00	
	Erect portal frames	each	10	$1,500.00	$15,000.00	
	Replace roof purlins & wall girts with timber members	m	1500	$25.00	$37,500.00	
	Replace roof & wall sheeting	m^2	2000	$30.00	$60,000.00	$212,900.00
Subtotal					$345,400.00	$345,400.00
Contingency	30%				$103,620.00	
GST	10%				$44,902.00	
	TOTAL				$493,922.00	

NOTE:
1.The cost estimates presented above have been developed based on a preliminary design & inspection only, using a combination of similar recent project pricing, budget quotes, industry unit rates and GHD experience.
The accuracy of these estimates is not expected to be better than about +/- 30% for the scope of works described above.
A more accurate cost estimate would be achieved following a detailed inspection and design.
2. Steel fabrication work has been based on the following rates:
i) Steel supply & fabrication - $4800/tonne
ii) Abrasive blasting - $500/tonne
iii) Hot dip galvanising - $1000/tonne

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Preliminary Budget Estimate Option 4 - Evans Head Airport Bellman Hanger

Item	Description	Unit	Quantity	Rate	Amount	Item Cost
Preliminaries	Insurances	item	1	$3,000.00	$3,000.00	$3,000.00
Site establishment & disestablishment		item	1	$6,000.00	$6,000.00	$6,000.00
Professional Services	Structural Engineering design & documentation	item	1	$30,000.00	$30,000.00	$30,000.00
Demolition	Remove roof & wall sheeting	m^2	2000	$12.00	$24,000.00	
	Remove attached skillion roof extension	m^2	200	$35.00	$7,000.00	
	Install temporary bracing to stabilise frames	each	10	$1,000.00	$10,000.00	$41,000.00
Rectification Work	Fabricate new end wall portal frames & hot dip galvanise	each	2	$25,000.00	$50,000.00	
	Fabricate new internal portal frames & hot dip galvanise	each	8	$12,500.00	$100,000.00	
	Fabricate new end bay bracing & hot dip galvanise	each	2	$4,000.00	$8,000.00	
	Provide connections between new & existing frames	each	10	$1,500.00	$15,000.00	
	Construct new concrete footing / pedestals	each	28	$800.00	$22,400.00	
	Erect portal frames	each	10	$1,000.00	$10,000.00	
	Replace roof purlins and wall girts with timber	m	1500	$25.00	$37,500.00	
	Replace roof & wall sheeting	m^2	2000	$30.00	$60,000.00	$302,900.00
Subtotal					$382,900.00	$382,900.00
Contingency	30%				$114,870.00	
GST	10%				$49,777.00	
	TOTAL				$547,547.00	

NOTE:
1.The cost estimates presented above have been developed based on a preliminary design & inspection only, using a combination of similar recent project pricing, budget quotes, industry unit rates and GHD experience.
The accuracy of these estimates is not expected to be better than about +/- 30% for the scope of works described above.
A more accurate cost estimate would be achieved following a detailed inspection and design.
2. Steel fabrication work has been based on the following rates:
i) Steel supply & fabrication - $4800/tonne
ii) Abrasive blasting - $500/tonne
iii) Hot dip galvanising - $1000/tonne

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