

For now and forever: **An analysis of current and emerging needs for Aboriginal cultural stores and repositories in Western Australia**

Greg Wallace and Kim Akerman

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Western Australian Museum

The Western Australian Museum is the State's pre-eminent cultural and scientific institution. The Museum has an international reputation in its fields of research and holds the State's largest collection of natural science and cultural heritage treasures. The Western Australian Museum is committed to supporting endeavours that assist communities to retain their heritage within its cultural context:

- The Museum Assistance Program (MAP) extends the Western Australian Museum's expertise through information, advisory and training services available across the State as well as to the Indian Ocean Territories.
- The Western Australian Museum's Anthropology Department is the key co-ordinator of the Return of Indigenous Cultural Property Program, which has entailed return of both secret/sacred material and ancestral remains.

The Western Australian Museum commends the project partners for their commitment to this significant project which has identified important benchmarks that have the potential to strengthen endeavours to preserve Aboriginal heritage.

BHP Billiton Iron Ore

BHP Billiton is a leading global resources company with iron ore operations in the Pilbara, Western Australia. The BHP Billiton approach is to:

"Understand, promote and uphold fundamental human rights within our sphere of influence, respecting the traditional rights of Indigenous peoples and valuing cultural heritage."

BHP Billiton Iron Ore intends to assist with the development of safe keeping places for cultural heritage items collected as a result of mitigative salvage under Section 18 of the Act, from BHP Billiton leases, and to work with Native Title Claimant groups, Heritage Custodians and other relevant spokespeople regarding the heritage significance contained in material culture, places and people on BHP Billiton Leases.

BHP Billiton supports this project which provides important guidelines that will enable the company to work with stakeholders to achieve sustainable outcomes.

Rio Tinto Iron Ore

Rio Tinto Iron Ore (RTIO) has extensive mining and resource evaluation interests across the Pilbara. RTIO's Heritage Team facilitates cultural heritage management across all Rio Tinto leases within the Pilbara region, in partnership with Indigenous communities and representative bodies, heritage professionals and other external organisations.

Rio Tinto's policy of adopting higher standards wherever possible above the statutory requirements means that the Heritage Team is focused on, and recognised for, developing and implementing best practice approaches. It is Rio Tinto's policy to avoid all Heritage places wherever possible and where this is not possible, provide a high standard of mitigative salvage in partnership with Traditional Owners, of which a fundamental part is the development of cultural material storage places.

RTIO is pleased to have supported this project which has provided important pointers for stakeholders with a shared commitment to preservation of significant heritage.

Wangka Maya Pilbara Aboriginal Language Centre

Wangka Maya is the leading language, cultural and history centre in Australia. For twenty years Wangka Maya has worked to maintain and promote the language, culture and history of the Pilbara region.

Wangka Maya was the key organisation in the return to the Pilbara communities of the skeletal remains and secret and sacred items. Wangka Maya led the community consultations over a six year period and provided liaison between community and institutions such as WA Museum to ensure a fluid process.

Wangka Maya supports the findings of this project and is committed to working with other stakeholders to achieve recommendations identified in this report.

Department of Indigenous Affairs Pilbara Region

The objective of the Indigenous Affairs portfolio is 'closing the gap' between the social and economic well being of Indigenous and non-Indigenous people. One of the Department's responsibilities is to administer the Aboriginal Heritage Act 1972 (the Act) by maintaining the Register and Aboriginal Sites, assess section 18 Notices under the Heritage Act, provide support to the Aboriginal Cultural Material Committee (ACMC), provide advice on heritage matters, and the protection and management of Aboriginal sites. The Department supports the directions recommended by this project which can make a key contribution to strengthening cultural maintenance and furthering appreciation of significant elements of Aboriginal cultural heritage.

Indigenous Coordination Centre (South Hedland)

Indigenous Coordination Centres or ICCs operate in 30 locations around Australia. They look after most of the Australian Government's Indigenous programs and negotiate Shared Responsibility Agreements with local Indigenous people and communities. ICCs are managed by the Department of Families, Community Services and Indigenous Affairs.

Pilbara ICC has watched with interest the findings of this project and has identified scope for potential involvement at an implementation phase. There is clearly a need for further consultation with relevant Traditional owners in the Pilbara about a proposed keeping place and building of the keeping places. There may be scope for funding to be available from the Dept Environment and Water Resources that is relevant to future phases of this project.



**RIO
TINTO**

IRON ORE



Australian Government

**Indigenous Coordination Centre
South Hedland**

CONTENTS

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY 1

Key Principles 1

Key Findings 2

Strategic Recommendations 2

Liaison Processes and Cultural Protocols 2

Archaeological Repositories 2

Sustainable Building Design 3

INTRODUCTION 4

Project Objectives 4

Methodology 4

KEY FINDINGS 4

Cultural Stores 5

Archaeological Repositories 5

Cultural Centres and Other Multi Function Organisations 7

Identifying Purposes and Expectations 8

Importance of Functional Planning Processes 8

REVIEW OF PREVIOUS CULTURAL STORE PROJECTS 10

Traditional approaches 10

Projects from the 1960s to the 1980s 10

Needs Identified and Expressed 10

Items Currently Held in Communities 10

Key Principle 11

Return of Indigenous Cultural Property Program (RICP) 11

COMMUNICATION, PROCESSES AND PROTOCOLS 12

STORAGE PURPOSES, PRINCIPLES AND CHALLENGES 13

Purposes and Scenarios 13

Scenario A 13

Scenario B 13

Key Principle 14

Different Needs Require Different Approaches 14

Traditional Approaches Meet Traditional Needs 15

Key Principle 15

Museum Approaches Meet Preservation Needs	16
Climate and Security Challenges and Adaptations	17
Climate Extremes	17
Catastrophic Events	18
Security	18
Adaptations	18
The Airconditioning Trap	18
CULTURAL STORE NEEDS AND OPTIONS	20
Robust Weatherproof Portable Containers	20
Types.....	20
Location issues.....	20
Erected Sheds and Sea Containers – Issues in Common.....	21
Local Government Regulations	21
Site Selection	21
Site Preparation.....	22
Erected Sheds – Specific Considerations	23
Special Issues with Using Sheds for Storing Collections.....	23
Types.....	23
Fit-out	23
Sea Container Adaptations.....	24
Types.....	25
Orientation and Shade	25
Special Issues with Using Sea Containers for Storing Collections	25
KALACC Cultural Store - a Case Study in Progress.....	26
Purpose Built Structures	27
Pilbara Pirmal - a Case Study of a Regional Cultural Store.....	27
How it Came to Be	28
The Building Structure and its Functionality	29
The Outcomes	30
Potential For Use Elsewhere	31
A Building Design Challenge in Northern Australia	32
The Need.....	32
The Stakeholders	32
Client Groups	32
Architects and Building Industry	33
Funding and Development Bodies.....	33
The Consequences	33
Opportunities and Outcomes	33
APPENDIX I.....	37
Cultural Object Stores Project – Preliminary Investigations at Warburton Ranges and The Kimberley	37
Preamble.....	37
History	38
Observations On The Perceived Need For Cultural Storage Facilities In Remote Areas of Western Australia.	39
Conclusions and Recommendations.....	41
References	42

APPENDIX II	43
Storehouses For The Protection Of Significant Cultural Materials Provided To Aboriginal Communities By The Western Australian Government 1964 -1983	43
APPENDIX III	45
Archaeology Collections Management Guidelines.....	45
Principles.....	45
Documentation	45
Procedures for Deposition of Archaeological Materials	46
Records form developed by Australian Museum	47
APPENDIX IV.....	51
Preventive Conservation	51
Introduction.....	51
Light.....	52
Relative Humidity and Temperature	55
Biological Pests	59
Pollutants.....	60
Dust.....	61
Storage and Display	62
Handling	63
Packing.....	63
Bibliography.....	64
APPENDIX V.....	65
Environmental Control & Standards	65
Temperature.....	65
Relative Humidity	65
Light.....	65
Measuring Exposure levels.....	65
Light standards:	65
Ultraviolet films.....	66
Environmental Control – Appropriate Design And Alternative Technologies	67
Conventional Approach	67
Disadvantages of air-conditioning:.....	67
Historic structures	67
Developing Countries	67
Advantages of passive climate control	67
Problems associated with research directions	67
Buildings for Conservation.....	67
Climate and Buildings – for people and objects.....	68
People:.....	68
Objects:	68
A Review of Some Basic Concepts	68
Maintaining Acceptable Ranges	68
Humidity Control	69
Humidity and the moisture content of organic materials.....	69
Humidity and fungal growth	69
APPENDIX VI.....	71
Local Government Regulations – Shire of Roebourne.....	71
Shire of Roebourne Garden Sheds Information Sheet	72

Shire of Roebourne Sheds and Garages Info Sheet	75
Shire of Roebourne Sea Containers Info Sheet.....	78
Shire of Roebourne Standard Sea Container Tie Down Specifications – Sept 05	81
APPENDIX VII	83
National Archives of Australia Report on Using Sea Containers For Records Storage	83
APPENDIX VIII	103
BHP Billiton Health, Safety, Environment and Community Awards 2004 – The Pirmal Project....	103
APPENDIX IX	115
A Cultural Stores Kit.....	115
What is the Purposes of this kit?	115
What is cultural material and why is it stored?	115
How Do Aboriginal Cultural Groups Store Cultural Material?	116
Three Streams of Cultural Storage	117
Cultural Stores.....	117
Archaeological Repositories.....	117
Cultural Centres and Other Multi Function Organisations	117
Matters To Consider In Cultural Storage Projects	118
Cultural Protocols and Planning Processes	119
The Starting Point	121
Receiving Requests	121
Identifying Needs and Streams.....	121
Archaeological Repositories	121
Cultural Centres and other Multi Function Organisations.....	121
Cultural Stores	121
APPENDIX X	123
Draft Checklists for Cultural Stores Projects:-	123
TABLE 1 Draft Checklist for Strategic Preparation and Liaison.....	124
TABLE 2 Checklist for Identifying Purpose and Determining Streams for Cultural Storage Projects	125
TABLE 3 Checklist for Cultural Store Planning	126
TABLE 4 Site Issues Checklist.....	128
TABLE 5 Weatherproof Portable Containers Issues Checklist.....	129
TABLE 6 - Site Considerations Erected Sheds and Sea Containers Checklist	131
TABLE 7 - Erected Sheds Checklist	132
TABLE 8 – Sea Container Adaptations Checklist	135
APPENDIX XI	139
Draft Outline for a Basic Information Package on Cultural Stores	139
Working Title: - Cultural Materials and Their Storage	140
Organisation policy	140
What is cultural Material?.....	140
Aboriginal Heritage Act	140
Cultural protocols with different sorts of cultural material	140
Secret and Sacred	140
Archaeological material	140
Everyday material culture objects.....	140
Brief explanation of the three different streams of cultural storage:	140
Cultural stores.....	140

Archaeological repositories	140
Cultural centres	140
Outline of the sorts of issues considered when planning and establishing structures to meet needs of each of the streams.	140
Approaches to Protecting Cultural Material	140
Traditional Approaches.....	140
Museum Approaches.....	140
Planning Processes	140
The Starting Point.....	140
Identifying needs	140
Streams.....	140
Archaeological Repositories	140
Cultural Centres and other Multi Function Organisations	140
Cultural Stores.....	140
Links to further advice and information.....	140

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Damien McClean, Messrs Livingstone West, Alwyn Bates, Robin Smythe, Ian Ward, Fred Ward and Neville McArthur kindly provided information on the existing repositories at Warburton Ranges and neighbouring communities. In the Kimberley the assistance of Wesley Morris, the staff, executive and members of the committee of the Kimberley Aboriginal Law and Culture Centre was generously given. This facilitated a wider range of consultation than would have been otherwise possible within the time frame available for the initial discussions prior to compiling this report

Peter Randolph of the Department of Indigenous Affairs Heritage and Culture Division kindly assisted with locating and making available archival records. John Nichols of Woodhead International contributed ideas and observations on architectural issues and challenges in northern Australia. Gabrielle Sullivan located information on adaptations to sea containers. David Gilroy of the Western Australian Museum Collections Support and Management division located information on shade issues.

We are particularly grateful to Wangka Maya Pilbara Aboriginal Language Centre for making available the expertise of talented artist Jilalga Murray-Ranui who developed the illustrations used in this report.

EXECUTIVE SUMMARY

The Cultural Objects Stores Project was carried out as a partnership on behalf of a group of key stakeholders with a mutual interest in having to hand a set of sustainable options for storage of various types of Aboriginal cultural material.

Key stakeholders included: the Western Australian Museum, BHP Billiton Iron Ore, Pilbara Iron, Wangka Maya Pilbara Aboriginal Language Centre, Department of Indigenous Affairs Pilbara Region, and Pilbara Indigenous Coordination Centre.

This report identifies the scope of current and emerging needs for cultural material holdings and preservation, identifies key principles required to address these needs and makes strategic recommendations. The report also provides operational recommendations and guidelines to assist stakeholders and custodians to meet different sorts of needs.

The executive summary brings together up-front the key principles, key findings and strategic recommendations to assist decision makers.

The body of the report provides the substance behind the key principles, key findings and strategic recommendations and provides operational recommendations to assist decision implementers.

The report's appendices provide further in-depth information as well as resources to assist parties involved in considering various types of projects aiming to protect Aboriginal movable cultural material.

Key Principles

Aboriginal cultural values have traditional roots and are central to ongoing cultural identity and development.

Any collaborative work with a community on cultural matters requires special skills to be brought to the process by the different partners. Each community's needs for holding places can be expected to differ.

From this emerge three key principles which over ride all matters covered in this report:-

KEY PRINCIPLE 1: Provision of any storage facilities for significant cultural objects needs to be considered on a case-by-case basis. Key stakeholders need to be prepared to employ skilled negotiators – either male or female when appropriate – to engage in discussions with indigenous client groups.

KEY PRINCIPLE 2: Key stakeholders approached for assistance will need to consult fully with relevant indigenous bodies in order to determine the specific goals for storage for contemporary cultural material or other requirements for heritage material.

KEY PRINCIPLE 3: Key stakeholders involved in discussions with community groups regarding cultural stores need to ensure that there is a very clear and agreed understanding of whether the items to be held there will be secret/sacred or secular items.

Key Findings

The project team identified and defined three streams of cultural storage facilities (Archaeological Repositories, Cultural Stores, and Cultural Centres) and developed recommendations on processes relevant to each.

The project team identified a pressing need with archaeological collections and developed strategic recommendations on processes to broaden understanding of their significance and to assess feasible options for their sustained management in the region.

The team also identified a major challenge for designing buildings that meet the needs of cultural organisations in northern and inland Australia and developed a strategic recommendation which addresses the challenge.

Strategic Recommendations

The following issues need to be addressed to provide a framework for decision making from which appropriate actions can follow.

Liaison Processes and Cultural Protocols

There is no common solution available to meet every cultural storage need, each must be considered on a case-by-case basis. It is essential to define the purpose of a cultural storage project before exploring different ways material might be housed.

The project team identified the importance of cross-cultural skills, cultural protocols and processes in liaison to ensure clear understanding by all parties of the roles and needs of various streams of cultural storage.

STRATEGIC RECOMMENDATION: Key stakeholders commission a body such as the Wangka Maya Pilbara Aboriginal Language Centre to develop ways by which liaison with traditional custodians over cultural stores can be advanced by furthering development of training and processes that can better meet cultural protocols.

Archaeological Repositories

The project team identified a pressing need to develop repositories for increasing numbers of archaeological collections that have been made in the course of survey and salvage work in the Pilbara. These collections and associated data have important cultural, scientific and legal value.

Arising from this there is a need for a broader understanding of both the cultural and archaeological significance of this material and an assessment of sustainable options for its ongoing preservation and management in the region.

While various stakeholders are involved in development of archaeological collections, a case can be made for establishment of one or more common regional repositories.

STRATEGIC RECOMMENDATION: Key stakeholders commission a body such as the Wangka Maya Pilbara Aboriginal Language Centre to develop ways by which negotiations with traditional owners over the long term storage and maintenance of archaeological collections can be advanced.

STRATEGIC RECOMMENDATION: Key stakeholders enter into negotiations with indigenous bodies to ensure that salvaged archaeological material can be kept in

a manner that preserves the scientific integrity of the collections and upholds the cultural responsibilities held by those indigenous custodians.

STRATEGIC RECOMMENDATION: Key stakeholders, including those whose activities lead to the collection of archaeological material and those with legislative responsibilities, consider commissioning a planning study to examine feasibility of establishing one or more regional repositories dedicated to appropriate storage of archaeological materials and associated records.

Sustainable Building Design

There are very challenging environmental issues in northern and inland Australia which call for innovative approaches to building design.

Dedicated collection holding spaces with controlled environments are needed for various bodies in addition to those seeking to preserve Aboriginal cultural material. Organisations such as small museums, cultural centres and archives face the same sorts of challenges.

The relatively small scale of such projects, coupled with the heavy competing demands of major projects during economic booms, are a barrier to solutions being developed. The challenges to developing solutions for organisations in remote and regional locations, particularly those in northern and inland areas, will not be overcome unless a concerted effort is made to bring together the expertise to address the issue.

The project team identified a strategic and pressing need to develop guidelines to assist client groups, architects, the building industry and funding and development bodies.

STRATEGIC RECOMMENDATION: Key stakeholders advocate establishment of a taskforce to develop guidelines and a resource kit to promote more effective engagement in planning processes for buildings that meet the needs of cultural organisations in northern and inland Australia.

INTRODUCTION

Project Objectives

The project was carried out as a partnership on behalf of the group of key stakeholders which have a mutual interest in having to hand a set of sustainable options for storage of various types of Aboriginal cultural material.

Key stakeholders included:

- Western Australian Museum
- BHP Billiton Iron Ore
- Pilbara Iron (RTIO)
- Department of Indigenous Affairs Pilbara Region
- Wangka Maya Pilbara Aboriginal Language Centre
- Pilbara Indigenous Coordination Centre

The project had three objectives:

- To identify the scope of current and emerging needs for cultural stores that might be located in regional, rural and remote places
- To identify a set of practical options capable of meeting the needs for small to medium sized cultural stores
- To develop a package of information that can be used as a tool in discussions between stakeholders and custodians so as to identify which is the most appropriate and sustainable option to meet their particular needs

Methodology

The Cultural Objects Stores project entailed the following elements:-

- A review of objectives of previous cultural store projects drawing on Department of Indigenous Affairs files and on the ground assessment of outcomes to identify key strengths and weaknesses and pointers for future projects
- Field visits to select examples of collection stores and discussions with traditional custodians to scope present and emerging needs for cultural stores
- Development of small to medium scale options for providing sustainable storage utilising readily adaptable existing components easily assembled for use in remote locations
- Preparation of a report making recommendations and providing practical options to meet present needs including material in a format that stakeholders can utilise in discussions with Aboriginal communities.

KEY FINDINGS

The project team identified three streams of responsibility in relation to the provision of cultural storage facilities relating to Aboriginal ethnographic and archaeological material:-

- Cultural Stores
- Archaeological Repositories
- Cultural Centres or similar multi function organisations which may cater for wider sections of the community

The project team also noted a major challenge for designing buildings that meet the needs of cultural organisations in northern and inland Australia.

Cultural Stores

The first stream, and that which has been initially addressed by Kim Akerman in fieldwork undertaken in May 2006 (see Appendix 1), relates to secret-sacred material of contemporary religious importance to some Aboriginal groups. Some such material is already held by communities, other material will potentially be repatriated from elsewhere in Australia through the Return of Indigenous Cultural Property Program and from overseas through other programs.

All management or other controls relating to the storage facilities and their contents is the responsibility of the relevant Aboriginal body or community, the only likely input by stakeholders being through assistance with the initial provision of those facilities.

The majority of this report relates to cultural stores which will be examined in greater detail after a brief consideration of each of the other two streams.

Archaeological Repositories

The second stream is in many ways far more complex. The focus here is on the increasing numbers of archaeological collections that have been made in the course of survey and salvage work etc linked to the relevant heritage legislation.

With increasing archaeological survey and salvage projects associated with development, the increasing volume of materials collected will require both appropriate storage and ongoing active management of both objects and associated records and data.

Some traditional owners have requested archaeological material be retained in country. This has important cultural, scientific and legal implications requiring appropriate housing and ongoing management of collections including provision for collection growth.

A central regional facility may provide the best way to hold and manage archaeological collections from various sites around that region. It needs to be understood that planning for such regional facilities will need to take into account both growth and fluctuations in holdings over time and the need for access controls. At a later date elements of the collections held could be expected to be repatriated and newly salvaged material added.

There is also likely to be a need for project stakeholders to be actively involved in development of new regional facilities such as cultural centres. Archaeological material

may be located in new repositories that could be either stand alone facilities or adjacent to an existing cultural centre.

The requirements for the appropriate storage and management of such collections and the associated records etc, are more complex and of a different magnitude to the requirements of cultural stores. Just as diamond drill cores and associated records are invaluable to the mining industry for present and future use, so are salvaged archaeological materials including both objects and associated records invaluable to a number of groups.

Archaeological collections and associated records and data are important not only to the associated Native Title Claimant Group, custodians and other relevant indigenous bodies, but also to the scientific and broader communities. A number of stakeholders are directly concerned with the collection and housing of archaeological salvaged materials as part of heritage diligence and compliance responsibilities.

It will not be just a matter of simply housing existing collections and ensuring that the associated records etc are maintained in the most appropriate and sustainable manner. It is also important to appreciate that such collections will continue to be made and require ongoing management.

Both indigenous and non-indigenous stakeholders can be expected to require access to these collections from time to time for cultural, legal or scientific reasons. Consequently suitable examination areas or research spaces must be incorporated into any projected archaeological repositories.

In the future there may be requirements for much larger facilities that fall into the realms of museums or cultural centres.

Currently, heritage custodians participate in all mitigation projects in which Pilbara Iron and BHP Billiton Iron Ore are involved. The heritage custodians are actively involved in excavation, recording and analysis projects and the curatorial role could be seen as extension of this work. In addition to the support given by the heritage custodians for research and recording projects of this nature, their participation ensures an understanding of the provenance, importance and nature of the collections. A necessary adjunct to this would be training for key individuals in museum practices.

A number of cultural centres are currently either being built or under consideration in the Pilbara and the Kimberley, some of which may entail housing and managing collections. Stakeholders may wish to explore working in tandem with some of these projects or to pursue similar concepts in the future.

It is important that planning processes for the more complex centres ensure sustainability. The scale and scope of planning for archaeological repositories and cultural centres are an order of magnitude greater than for the basic cultural stores that this report addresses.

Archaeological repositories are beyond the scope of the present project to consider further other than to emphasise their complexity, the need for appropriate planning processes and to flag:-

- strategic needs
- a need to broaden the understanding of archaeological collections and their special needs

- a need for management structures for archaeological repositories to include representation from various stakeholders
- emerging training needs
- a need for procedural guidelines for managing material to be developed and implemented.

STRATEGIC RECOMMENDATION: Key stakeholders commission a body such as the Wangka Maya Pilbara Aboriginal Language Centre to develop ways by which negotiations with traditional owners over the long term storage and maintenance of archaeological collections can be advanced.

STRATEGIC RECOMMENDATION: Key stakeholders enter into negotiations with indigenous bodies to ensure that salvaged archaeological material can be kept in a manner that preserves the scientific integrity of the collections and upholds the cultural responsibilities held by those indigenous custodians.

STRATEGIC RECOMMENDATION: Key stakeholders, including those whose activities lead to the collection of archaeological material and those with legislative responsibilities, consider commissioning a planning study to examine the feasibility of establishing one or more regional repositories dedicated to appropriate storage of archaeological materials and associated records.

RECOMMENDATION: Key stakeholders advocate establishment of boards of management for regional repositories with membership including:

- representatives from the appropriate indigenous bodies in that region
- one or more members with archaeological expertise

RECOMMENDATION: Resource companies with mitigative salvage programs and hence collection storage requirements support the training of key heritage custodians, as nominated by the local groups, to participate in museum practise courses if this is considered appropriate by the relevant groups.

RECOMMENDATION: Resource companies with mitigative salvage programs and hence collection storage requirements commission, or provide in kind, qualified archaeological services to ensure that collections submitted to repositories are catalogued and bagged according to agreed standards, and that the relevant heritage custodians participate in this process

Cultural Centres and Other Multi Function Organisations

The third stream is more complex still. During the past decade a number of new types of Aboriginal and Torres Strait Islander organisations have emerged with a range of functions. In various places they have different names: they may be called cultural centres, keeping places, interpretation centres or museums or may have a local Aboriginal name.

Some, but not all, have roles in managing permanent collections. Some just have interpretive displays aimed primarily at tourist visitors, while others focus more on delivering services that meet their own community's needs. Some have places for artists and craftspeople to work to produce items for exhibitions, for sale to visitors or to be marketed elsewhere. Some carry out functions in their own buildings or grounds as well as at other places e.g. in schools or in country.

Identifying Purposes and Expectations

There is no single model for a cultural centre or keeping place, each has been developed to meet needs identified by specific communities. When most successful, their establishment has been based on strong community involvement during planning with a clear focus and expected outcomes having been defined before any step is taken to start designing a building.

The Australian Museum's Aboriginal Heritage Unit has developed an excellent interactive CD¹ which shares the experiences of four communities in the development of the cultural centres/keeping places in Maitland (Mindaribba), Tweed Heads (Minjungbal), Lightning Ridge (Goondie) and Glen Innes (Cooramah). In each case community members directly involved in their project introduce their centre, explain the purposes they expected it to have, explain how they went about setting it up, talk about the funding involved, speak about their achievements and pass on some tips and advice based on their own experiences.

All management or other controls relating to such centres, their contents and operations is the responsibility of the relevant Aboriginal body, the likely input by the stakeholders being to assist in identifying planning processes needed, facilitating the initial planning steps, supporting provision of buildings or perhaps sponsoring particular programs, staff development, exhibitions etc.

Importance of Functional Planning Processes

Disappointing results have occurred when an architect has been set to work on designing a building without there having first been community consultation, functional planning and a feasibility study. It is essential to scope and scale the form a sustainable organisation will take before the step is taken to design the building it will operate from.

While buildings are tangible and can be important and iconic symbols, by initially focusing on a building a community can be distracted from achieving its goals. There needs to be a very clear understanding from the start that functional planning for the new (or re-born) organisation must be the initial step.

This needs to commence with identification of community expectations in establishing the new entity. The functions it will be expected to undertake, both within the building(s) it will be based in and out from that base in the community it serves, need to be identified.

Fundamental matters need to be resolved such as whether or not it is appropriate or feasible to combine diverse functions in one organisation or in close proximity. A community may wish to display and explain elements of material culture from heritage or archaeological collections as well as visual or performing arts to a wide visitor

¹ The package *Keeping Culture – achieving self-determination through the development of Aboriginal Cultural Centres and Keeping Places* is available through the Aboriginal Heritage Unit, Australian Museum, 6 College St Sydney NSW 2010.

audience. It may not be considered appropriate to have other restricted material even in the same building and other ceremonies might never take place anywhere in the vicinity.

Planning for such operations can achieve the best results when those with cultural expertise work closely with functional planners with other expertise. All parties must work closely together and have a shared commitment to protocols and practices that ensure cultural integrity to develop shared visions.

Functional planning needs to scope and scale not just the building but an organisation that it is feasible to establish and to also ensure that whatever is established will be sustainable to operate well beyond the opening day. Until the nature of the organisation and its scope and scale are defined the architectural brief for the design of a building to house it cannot be shaped.

Every encouragement should be given to any community considering going down this path to draw upon the expertise and experience that is freely available to ensure culturally appropriate and effective planning processes are in place from the start. In this way key stakeholders can have a greater impact than dollars alone can produce. By empowering a community to achieve outcomes they own, the pride and cultural development that results can generate waves through a community that roll on as positive outcomes for future generations.

The Museum Assistance Program is able to provide basic information on planning processes. Assistance is available with establishing planning processes, developing sound briefs for planning studies and with development of appropriate selection criteria to ensure an effective consultant team with the requisite experience and expertise is engaged. There are experienced consultant teams with expertise and experience who can provide planning services.

Cultural centres are beyond the scope of the present project to consider further other than to emphasise their complexity and to encourage use of specialist expertise.

RECOMMENDATION: If approached for assistance by organisations considering establishing a cultural centre, key stakeholders encourage groups to draw upon specialist planning expertise available in this area before engaging in discussions with architects regarding building design.

REVIEW OF PREVIOUS CULTURAL STORE PROJECTS

Traditional approaches

Traditionally objects were kept in a number of ways in different places with culturally imposed access restrictions. Both corporate and personal sacred material was kept at the discretion of their owners according to various customs. More recently, this included using cases, trunks etc often cached in areas with restricted access in trees, under bushes or ledges, in rock shelters or even abandoned car bodies. With changes in access to previously isolated and even remote areas from the mid 20th century onwards, communities started exploring other options.

Projects from the 1960s to the 1980s

From the mid sixties onwards, over a 20 year time span, at least 30 store projects with government funding and other support were initiated at the request of communities in the Kimberley, Pilbara and Western Desert (for details see [APPENDIX II](#), page 43).

In most cases these entailed provision of small, prefabricated, garden shed structures fitted with basic shelving. A number were also provided with shade awnings and water tanks.

These sheds were primarily used as stores for ritual objects in the periods between ceremonies and ritual exchanges. The shelters were located in areas of ritual significance, access to which was restricted to senior male custodians.

In most cases a single facility did not allow for different classes of objects to be segregated. As a consequence, in some cases, only a portion of the total range of objects belonging to a group received adequate protection from the elements.

Of the 30 plus stores, a number are still in use while some others have been damaged and replaced. However, the majority have succumbed to the ravages of time. In many cases the materials that were adequate for domestic garden sheds in a metropolitan setting proved too flimsy for the harsh environments in which they were located.

RECOMMENDATION: Key stakeholders involved with the provision of cultural storage facilities ensure that they are robust enough to withstand the extremes of local conditions – particularly storm or cyclone damage.

Needs Identified and Expressed

In broad terms the scope of needs falls into the following three areas²:

- Items currently held in communities
- Return of Indigenous Cultural Property Program
- Salvage projects

Items Currently Held in Communities

Discussions with selected communities in the Western Desert and Kimberley carried out for this project and other work carried out in the course of the Return of Indigenous Cultural Property Program identified the following key points:

² See APPENDIX I

- While some existing facilities in communities need repair or replacement in other cases a centralised regional facility may be considered the best way to ensure the safety of sacred objects from around a broader area.
- Production of sacred objects probably occurs in far fewer places than it did in the past.
- While there has been a decline in the cult activity for which particular objects were created, nonetheless the objects concerned are still considered to be imbued with power and require care and protection and should not be seen by those not inducted into higher mysteries of any particular cult.
- Large concentrations of sacred objects may now only occur at a limited number of locations.
- Fewer storage facilities may need to be constructed in areas where the need is apparently not as great as in the past.
- In some areas there may be a need to consider storage facilities for objects controlled by senior female custodians as well as those controlled by men.

Key Principle

KEY PRINCIPLE: 1: Provision of any storage facilities for significant cultural objects needs to be considered on a case-by-case basis. Key stakeholders need to be prepared to employ skilled negotiators – either male or female when appropriate – to engage in discussions with indigenous client groups.

Return of Indigenous Cultural Property Program (RICP)

- Forthcoming repatriation projects will see the return of some 300 secret/sacred objects to the Kimberley. Fieldwork has tentatively identified that at least 8 centres will require appropriate store facilities to cope with this influx of material as well as to cater for material currently held but inadequately housed.
- While the repatriation of secret/sacred objects to the Pilbara has already occurred, the bulk of these objects are currently housed at an established regional store. Individual communities are currently examining their options in terms of location and type of facility they may require, before retrieving their own objects from the regional store.
- RICP program funding is yet to be provided for other regions of the state including the Murchison, Western Desert and South West, each of which will have their own needs.
- In some cases communities may not be willing to accept repatriated material until suitable storage is available.
- Repatriation of Ancestral Remains has been completed to the Pilbara and is ongoing in the Kimberley with temporary regional holding facilities having been negotiated. Other regions will be engaged as funding permits. In all likelihood, there will be a need for permanent repositories to cater for remains that cannot be provenanced to a specific area or community.

RECOMMENDATION: Key stakeholders negotiate with relevant indigenous bodies in order to determine the specific needs in relation to assisting in the provision of storage facilities for repatriated cultural material or ancestral remains.

COMMUNICATION, PROCESSES AND PROTOCOLS

The person with whom an Aboriginal affairs unit may liaise on issues relating to e.g. Native Title matters may well not be the spokesperson on certain cultural matters.

Conversely, it may well be that the staff member in an organisation who is approached by a traditional custodian is not in a section of that organisation that is normally responsible for liaison on Aboriginal heritage and cultural issues.

Representatives of Aboriginal cultural groups will generally contact a person in an organisation who they trust and who they believe it is appropriate to involve in what may well be culturally sensitive matters. This person will not necessarily work in an area of that organisation that has specialist expertise – but they will need access to it.

The organisation's specialist unit may have e.g. archaeological, ethnographic or cultural heritage expertise. However specialist staff may not have been considered appropriate to involve in discussions due to various cultural reasons. This could relate to their gender or to not having been inducted into an area of cultural knowledge.

Although trusted by traditional custodians, the staff member who is approached may not be aware of complexities relating to either cultural material or heritage matters and will need to be able to draw on others with expertise in those areas.

There is quite clearly a need to strengthen the capacity of all parties to such discussions to enable them to work together effectively. No individual can develop complex skills or specialist knowledge overnight, however organisations can strengthen their capacity to effectively work cross-culturally by working in partnership with Aboriginal cultural organisations with skills in these areas.

STRATEGIC RECOMMENDATION 3:- Key stakeholders commission a body such as the Wangka Maya Pilbara Aboriginal Language Centre to develop ways by which liaison with traditional custodians over cultural stores can be advanced by furthering development of training and processes that can better meet cultural protocols.

STORAGE PURPOSES, PRINCIPLES AND CHALLENGES

Purposes and Scenarios

The purposes for cultural stores are likely to differ between communities. It is essential that there be clear understanding between the organisation that has been approached for assistance and the traditional custodian of just what the purpose or purposes are. Some hypothetical examples illustrate this.

Scenario A

An agency has been approached by a group of Aboriginal custodians responsible for a specific set of cultural items who want advice and perhaps some further assistance to create a store. The items have previously been kept at a place in the bush outside of their settlement and not far from a special place used for various ceremonies. Due to increased movement of people with 4WDs in that area the group are concerned that their objects might be seen or touched by the wrong people or even be damaged or pilfered.

The group want a store to serve as a holding place for these items which continue to be in use on a regular or semi-regular basis. They might only access items from time-to-time perhaps at intervals of some weeks, months or even several years. Nonetheless, the items are considered to be in ongoing use and need to be kept somewhere safe.

While the items are very significant for the custodians they are perhaps expected to “wear out” and be disposed of one day rather than necessarily needing to be preserved forever. The group are quite confident about caring for items in the ways that they have always done and just want somewhere reasonably secure with some protection from the elements. They are interested in ideas such as sheds.

The sort of structure such a group may require for a storage place is probably going to have to meet very specific cultural protocols particularly with respect to location and access but may require far less stringent specifications for environment control – a reasonably robust shed may well end up meeting such a group’s needs.

Scenario B

A community group are concerned about a variety of objects which are no longer in use and which are held in various people’s dwellings and in the bush. There has been discussion in the community about the need for these items to be preserved and protected so that they can be available for their children and grandchildren to understand. Group members are concerned that the conditions they are held in are not the best and that items are deteriorating. The group are not sure how many items are held and by whom. They think that there might be some photos, information and objects held by government and private organisations that they could access. Some people think they should have a museum just like another mob that they have heard about.

The group want to be able to preserve at least some of this material for future generations. They would like some of it to be used in teaching the younger generations and perhaps showing visitors to the community. Other items though need to have restricted access.

They want to know the best ways to protect items and want some advice and assistance in setting up a place which can hold them safely and in ways to arrange for their care and custody.

There are quite a number of issues to be further explored. It seems likely that this group will need a place to keep items that provides far better environmental conditions than a dwelling can provide and that the building may have to accommodate a number of other activities as well.

Key Principle

In each of these hypothetical scenarios the needs as presented appear to be quite different. There is no single solution that will meet every cultural group's needs and close consultation needs to take place in all cases to determine the purposes of a "store" or "museum".

In every case cross-cultural skills are called for and key stakeholders need to be prepared to employ skilled negotiators – either male or female when appropriate – to engage in discussions.

In the second scenario specialist advice and complex planning is likely to also be needed to scope and scale the roles and assess feasibility and sustainability of various options. Functional planning and business planning are likely to be required before a design brief can be considered.

KEY PRINCIPLE 2: Key stakeholders approached for assistance will need to consult fully with relevant indigenous bodies in order to determine the specific goals for storage for contemporary cultural material or other requirements for heritage material.

Different Needs Require Different Approaches

Any sustainable approach to storage of cultural material must address the following areas to ensure ongoing basic protection:

- A group of people with responsibility for care of material being held
- A suitable place to protect items from damage or loss due to the elements or human interference

The exact way in which protection is provided will vary considerably between organisations with different purposes and operating in different circumstances.

At one extreme, in a museum context where collections are intended to be preserved in perpetuity, this might be expected to include:-

- Comprehensive sets of policies, closely defined procedures and a highly qualified staff team with a wide range of technical skills
- Very tight controls on temperature, humidity and light levels and preventive pest management programs
- A dedicated collection storage complex with a high level of security

Comprehensive guidelines for museums are available on all of these areas in the form of various publications. Many of these are freely available in an electronic format downloadable from the Collections Australia Network website³.

Traditional Approaches Meet Traditional Needs

The organisation arrangements, storage environment and access controls for a basic cultural store holding items which are not intended to last forever, and which is set for example in an isolated bush location with restricted access could be very different from those for a museum.

- Traditional custodians are generally well versed in their own cultural protocols and have their own sets of traditional skills relevant to caring for items they use.
- The environment of a store often just needs to provide a basic level of shelter from the worst of the elements that could be expected in its climate zone and location.
- Security needs to be in the form of a sufficiently robust structure to afford a reasonable level of protection based on local knowledge of the likely threats in the location concerned.

Between a conventional museum and a basic bush store there is a spectrum of organisation types and locations, each of which will have different needs.

Unlike the situation in museums where the aim is to preserve items in perpetuity and an “ideal” environment is strived for, in the case of some cultural stores, requirements will be very different. In such cases the custodians’ own cultural protocols and procedures are paramount.

In some instances custodians may prefer that objects be destroyed by natural degeneration rather than be preserved when their ceremonial function is no longer relevant.

In other instances custodians may wish that such objects be kept in secure circumstances or even desire that they be considered deconsecrated and be allowed to be viewed by a wider audience than would normally access them.

Stakeholders also need to be aware that what may be considered sacred to one group of people may not necessarily have the same significance to other groups.

Key Principle

KEY PRINCIPLE 3: Key stakeholders involved in discussions with community groups regarding cultural stores ensure that there is a very clear and agreed understanding of whether the items to be held there will be secret/sacred or secular items.

³ Collections Australia Network can be found under the heading “Sector Information” on their website: <http://www.collectionsaustralia.net/>

RECOMMENDATION: Key stakeholders be aware that in the case of storehouses required for ceremonial objects:

- the items that will be housed there are required for the maintenance of traditional ceremonial practices
- the items are not museum specimens where storage needs to focus on the minimisation of exposure to agents of decay

Museum Approaches Meet Preservation Needs

In the case of items which are no longer maintained the way they once were and when community groups want to preserve items for the future they may wish to consider procedures used by museums.

Many museum procedures focus on ways of protecting items from agents of decay. The agents of decay which museum conservators and curators focus on keeping under control fall into the following categories:-

- Light – exposure to high light levels or prolonged exposure to even moderate light levels can accelerate decay processes in susceptible materials
- Temperature – exposure to temperature extremes and large fluctuations in temperature can cause structural damage in many materials
- Relative humidity – high levels can favour fungal growth, low levels can cause items to dry out and be damaged, fluctuations in relative humidity can cause structural damage
- Pollutants – emanating from storage materials used, the objects themselves or others nearby or just the local surrounds can result in deterioration
- Dust – can cause damage by physical abrasion, attracting moisture and attracting biological pests
- Biological pests – insects, rodents and other mammals, birds and assorted other animals as well as plants, fungi and microbes can all cause damage if they get into places where they shouldn't be but can thrive

The preventive conservation approaches conservators and curators take are based on:

- Consideration of particular materials that objects are composed of and identifying the agents of decay that are potential threats
- Identifying the ways in which objects can best be stored so as to protect them from exposure to agents of decay
- Using storage spaces which provide a monitored stable environment in light, temperature and humidity levels within an acceptable range with minimal fluctuations
- Managing storage spaces so as to exclude biological agents

A comprehensive introduction to agents of decay and preventive conservation is appended (see APPENDIX IV page 51).

Further information and advice can be obtained in a number of ways.

Basic advice on preventive conservation and collection storage can have major outcomes for long-term preservation of collections. The Museum Assistance Program

and the Department of Materials Conservation operated by the Western Australian Museum are good starting points for such advice.

Publications are freely available on line from the Collections Australia Network website⁴.

One example is a compact book produced by the Australian Museum in Sydney. As this book's introduction says:-

*The intention of this publication is to introduce preservation ideas, suggestions and options to people who are working to create or maintain cultural collections in Aboriginal and Torres Strait Islander Keeping Places and Cultural Centres. Much of this book describes attempts to reach the ideal. At the same time, it tries to give people as many options as possible to solve particular problems*⁵.

Sound words which could serve as a fine introduction at the start of the report you are now reading.

The Heritage Collections Council boxed set *reCollections* includes a number of volumes that provide a comprehensive set of conservation guidelines for those involved with a broad range of heritage collections.

An equally pivotal paragraph is to be found on its inside cover:-

Before relying on any of the material in this guide, users should check its accuracy, currency, completeness and relevance for their purposes and should obtain appropriate professional advice

If in doubt, consult a conservator⁶.

Further information and links to organisations can also be found on the Collections Australia website.

RECOMMENDATION: Key stakeholders be aware that, in the case of communities with requirements to preserve items for future generations, advice is available on procedures used by museums which can be adapted for particular storage uses.

Climate and Security Challenges and Adaptations

Determining the appropriate storage option to use depends not only on the particular purposes for which it is required but also on the local conditions that prevail.

Climate Extremes

Much of the inland and north of Australia is in climatic zones which regularly experience extreme conditions and wide variations in temperature and humidity. Diurnal ranges in winter in inland areas may be from less than 0°C to more than 30°C. In summer the temperatures can soar to in excess of 50°C. Coastal areas can experience major fluctuations in relative humidity and/or sustained periods of high humidity. Throughout this area dust is an annual problem which is exacerbated during extended droughts.

⁴The two publications referred to in this section of the report can be found under the heading "Sector Information" on the Collections Australia Network website: <http://www.collectionsaustralia.net/>

⁵ Coote, K (1998). *Care of Collections – Conservation for Aboriginal and Torres Strait Islander Keeping Places and Cultural Centres*. Australian Museum, Sydney.

⁶ Heritage Collections Council (1998). *reCollections – Caring for Collections Across Australia*. Commonwealth Department of Communications, Information Technology and the Arts, Canberra.

Catastrophic Events

Seasonal cyclonic conditions with destructive winds can be relied on to develop several times each wet season and severe cyclonic conditions with very destructive winds are an eventuality in much of the coastal area. Some places also face episodic flood and/or fire threats. Fire is a traditional land management tool in continuing and seasonal use in many areas of the north and inland. In the absence of regular seasonal burning procedures, catastrophic fire outbreaks can occur, necessitating site preparation and fire prevention management strategies to reduce risks. More insidiously, infestations from termites and certain other insect pests can be severely destructive if not detected early and responded to swiftly.

Security

Particular places and communities have their own security issues. Community, government and industry approaches depend on the recognition of the nature of threat that is likely to be encountered in the specific location.

Adaptations

In these zones communities and industries have adapted and operate under various compliance regimes entailing robust structural requirements and emergency planning, preparation and response procedures.

Controlled indoor environments provide welcome retreats from climate extremes and air conditioning is the norm in public areas, workplaces, vehicles and many residences.

Responses to security issues range from community initiatives (that raise awareness) and basic housekeeping type steps to restrict access and prevent casual pilfering) through to major structural arrangements and multi-agency counter terrorism initiatives.

Some of these local adaptations and procedures that enable communities to thrive in extreme climates, to reduce threats and survive catastrophic events can and should be appropriately applied to meet the needs of various sorts of collection stores - others should not. Expecting to rely on airconditioning alone for a storage place can be a **BIG** mistake.

The Airconditioning Trap

Airconditioning generally aims to provide working, public or residential environments comfortable for people during the times that people are in them. Unlike people, collections often remain in storage places for 24 hours a day. Relying on use of a typical airconditioning regime to provide a suitable environment to preserve objects can increase rates of deterioration!

Often airconditioning is switched off when people are not in these spaces and the environments then change - sometimes rapidly. When objects are exposed to temperature and humidity levels that fluctuate widely, regardless of whether this is indoors or outdoors, damage can result.

Airconditioning can also be a profligate consumer of energy. If the true costs were not heavily subsidised, staff of companies and agencies employed in these areas could not afford their domestic power bills. Museums, cultural centres and keeping places which strive to maintain collections in perpetuity have higher requirements for their spaces which also have to be sustained for 24 hours a day. Even the average annual domestic power bill in these areas would break many such organisations' budgets.

Constructing a building that relies on airconditioning alone can be more of an economic trap than an environmental shelter for a cultural or heritage body. Notwithstanding the importance of cultural engagement in planning that has already been emphasised, there are very real environmental issues and a need for innovative design solutions central to achieving sustainability in the climate zones of the north and inland.

CULTURAL STORE NEEDS AND OPTIONS

Generally the needs for stores to hold cultural items will fall into several scales:-

- Small numbers of items such as a kit or a set of items that are owned by an individual and held by them or stored in a location of their choice
- Collections of various sizes and numbers of items held by custodians on behalf of a community or a community group
- Larger sets of different collections that may be held on behalf of several different groups

Options to meet these different scales of needs include:-

- Adapting one of a range of small robust weatherproof portable containers
- Erecting a new shed or adapting a pre-existing one
- Adapting a sea container
- Commissioning a purpose built structure

Robust Weatherproof Portable Containers

The most basic need is for small easily portable containers that provide basic protection without any infrastructure and that could be used to house items which might otherwise be kept outdoors.

Types

A wide range of robust, reasonably weatherproof containers are available suitable for storing smaller objects that would otherwise be exposed to the weather. These range from high-tech, purpose-built containers that are manufactured on order for particular industry purposes through to mass-produced, inexpensive, military surplus metal ammunition boxes that can be fitted with a padlock.

Ammunition boxes are generally robust, most provide basic protection from the elements and some are air tight with rubber seals. They come in a range of sizes adequate to hold various sized cultural objects.

Many disposal and camping stores stock a range of metal boxes in various sizes that were originally designed to hold ammunition ranging from small bore and machine gun through to cannon and mortar shells.

Alternatively a local industry may have a supply of suitable robust containers and might be approached with a request for any which are surplus to requirement.

Location issues

Such containers may be used to secrete smaller objects in out of the way places in much the same way as has been done traditionally. Traditional owners and custodians can be expected to be familiar with location issues that will be much the same with metal boxes as with traditional methods.

However, a container may be more conspicuous so a bit more care may be required in secreting it and it may be considered appropriate to use a padlock in some circumstances. Some attention may also be needed to ensure that a container is not placed so as to be exposed to extended hours of direct sunlight. A container might also

be painted with heat reflective paint. However, the benefit of doing this would have to be weighed up against the coating also making the box more conspicuous and more difficult to secrete.

RECOMMENDATION: For cultural store projects requiring small portable containers, those involved assess suitability of robust ready made options such as ammunition boxes.

Erected Sheds and Sea Containers – Issues in Common

Due to the size or number of items to be held or other factors it may be necessary to consider either erecting a new structure of some form or adapting a pre-existing one. Regardless of the type of structure there are some issues in common that need to be considered as well as others specific to the particular type and scale of the structure.

Local Government Regulations

Local Government regulations cover various sorts of outbuildings including sheds and sea containers. These vary between local government areas and are based on safety matters and local conditions as well as other concerns.

The requirements set by local government authorities can also provide useful guidelines when considering how to proceed with a project. Guidelines for garden sheds, garages and larger sheds are usually available from council offices. In some cases they may also be downloaded from a council's website.

Examples of information sheets from the Shire of Roebourne website are appended (see APPENDIX VI Local Government Regulations page 71 onwards). As the coastal areas for this Local Government Authority are in Australia's highest wind area rating zone, their guidelines are a good place to start. Current regulations for the area the proposed project would be located in should always be checked.

RECOMMENDATION: Key stakeholders involved in cultural store projects requiring erection of structures such as sheds, sea containers or other structures check relevant local government compliance requirements early in project planning.

Site Selection

Cultural protocols must always be a key factor in determining a suitable site. In many cases the location will be linked with a nearby place that is used for specific ceremonial purposes.

The items to be held in cultural stores are usually intended to be seen only by a very small group of people who have in some way been inducted. Some groups may not wish even the store building which is used to hold these items to be visible.

In order to comply with these protocols various adaptations may need to be met with respect to both the siting and orientation of the structure as well as screening it from view.

⁷ For Shire of Roebourne information see <http://www.roebourne.wa.gov.au/services.htm>)

Site Preparation

A National Archives of Australia paper (Ling, 2002)⁸ describes the processes for preparing a shipping container for use as a low cost alternative to permanent buildings. A copy of this paper is appended (see APPENDIX VII National Archives of Australia Report on Using Sea Containers For Records Storage page 83 onwards) and will be discussed more fully in the section below on sea containers.

The purposes of an archive for documents are very different from those for a cultural store. However, regardless of the sort of structure some similar site issues need to be considered. A section in the Ling report covering site preparation is well worth reviewing.

The points below are drawn from the Ling (2002) report and should be considered as being for discussion rather than as a prescriptive list:

The site chosen:-

- should be level with good drainage so that water flows away from it quickly
- should not be located next to creeks or rivers that are likely to flood, nor should it be near exposed stormwater drains
- if located on or near the coast, should be sited well clear of the storm surge zone. This will ensure protection against a king tide or a storm surge in the aftermath of a cyclone.
- should be thoroughly inspected for any evidence of pests – particularly termites - and may need to be treated and regularly monitored
- vegetation, including tree stumps, should be removed and the site kept free of vegetation at all times. Ideally, the surrounding area should be paved or concreted.

Consideration will be required as to whether a site will need to be secured to control access. Options include:-

- placing locks on gates that provide the only vehicular access to a remote place
- construction of a high fence with a locked gate to form a compound around a structure – in some cases strong bollards may even be considered necessary.
- fitting a secure door and lock to a structure

Using locks as part of an access control strategy can cause its own problems. A list of keyholders will need to be established and kept up to date. Loss of keys and unavailability of keyholders can be real issues. Previous stores projects have faced added expenses for repairs to damaged gates, fences or doors when access has been forced because a key has been lost and an alternative keyholder can't be found.

RECOMMENDATION: Key stakeholders involved in cultural store projects requiring erection of sheds, sea containers or other structures give careful consideration to site selection, site preparation and access requirements early in project planning.

⁸ Ling, T (2002). *Using Shipping Containers for Record Storage – Specification and Description*. National Archives of Australia, Canberra.

Erected Sheds – Specific Considerations

Special Issues with Using Sheds for Storing Collections

With a shed what you see is what you get – a basic shelter from the weather which needs to be sufficiently robust to withstand local conditions. An ideal environment for preservation of a museum collection is not achievable, however a satisfactory optimum for storing other items is possible. Key factors to consider include location and orientation as well as the structure itself.

Every effort should be made to position the structure to enable air movement. It may not be considered necessary to have a solid door – a grid door may provide security and a brush panel may be sufficient visual barrier.

Paving around or even inside a shed may not be necessary. Vegetation may be retained to provide shade, shelter from prevailing strong winds and visual screening.

In some cases provision also needs to be made for people spending some time in or immediately outside the structure so consideration may need to be given to providing a shaded area on one side or e.g. provision for water storage.

Types

While many of the domestic lightweight garden sheds erected as stores from the 1960s to the 1980s proved too fragile, in more recent years a range of more robust sheds have become available.

Local government authorities such as the Shire of Roebourne define a garden shed as a freestanding outbuilding less than 10m² in area and 2.7 metres in height, placed on a residential property. Similarly a shed is defined as a freestanding non-habitable outbuilding placed on a residential property and a garage is a freestanding non-habitable outbuilding, designed to accommodate one or more motor vehicles, placed on a residential property.

In each case construction standards are set which might require that the design of any shed or garage be checked and certified by a professional structural engineer. In some northern areas the engineer needs to state on the drawings that the building has been designed to withstand region D, terrain category 2 cyclonic wind conditions.

In response to various local government controls, manufacturers generally produce a range of standard structures that comply with local regulations. In situations where a shed design is required to meet specific non-standard dimensions, the cost of having it custom made attracts a premium charge. In some cases there can also be the added expense of having to pay for a structural engineer's report to confirm compliance.

In some cases local government authorities provide free designs for sheds that comply with local regulations. A copy of a Shire of Roebourne information sheet with an approved design for a garden shed is appended (see Shire of Roebourne Garden Sheds Information Sheet page 72). Larger regional centres will have companies capable of supplying and erecting sheds. There are also likely to be local agents through whom kits can be ordered for erection by the client.

Fit-out

While a concrete pad may help reduce insect pests and reduce dust, the added cost may not be justifiable in all cases. A simple metal shelving system based on

commercially available products and using grid metal shelves (similar to weld mesh) can be as effective as a concrete pad in putting items out of reach of insects and can be a more practical approach.

Elevating susceptible objects manufactured from wood or other organic materials can make them less accessible to threats such as termites. Use of shelving materials other than metal is undesirable. Wooden shelves will be more attractive to pests and also provide additional surfaces for dust to accumulate on. Be aware that in some areas a number of insect species have also developed an appetite for certain plastics.

Depending on cultural protocols it may (or may not) be useful to place inside containers certain items to be kept in a shed. If storage containers are used, they should also be placed on shelves if possible. If not placed on shelves, the storage containers will need to be insect proof.

RECOMMENDATION: Key stakeholders involved in cultural store projects requiring erection of sheds aim to ensure the shed selected is:

- sufficiently robust for local conditions
- sited so as to comply with cultural protocols
- fitted with basic metal shelving as necessary for its purpose
- fitted so as to meet other requirements if people are to spend extended periods at the site

Sea Container Adaptations

There is a wealth of information available on the internet on a wide range of adaptations made to shipping containers to enable them to be used for various purposes.

In remote areas sea containers have been adapted for use as office spaces, modular units for residences and other purposes. One example is a now disused structure which was formerly utilised as a clinic at Patjarr community in the Gibson Desert.



The former clinic at Patjarr community was located in an adapted thermal shipping container. A roof on a steel shed frame was erected to both shade the container roof

and sides from exposure to direct sunlight and provide a shaded waiting area. The distance between the roof and the container enable free airflow.

The combination of a container of the appropriate size and the use of a roof with an overhang sufficient to provide shade for its walls was a key factor. In this case an area adjacent to the container was also required where people could shelter from direct sunlight.

Types

Containers come in various types⁹ which are specified in Australian standards. Thermal containers (used to carry refrigerated and frozen loads) have far thicker insulation in the walls. While units with refrigeration are available, the running cost and maintenance issues mean that in most cases it would not be practical to run such a unit on a 24 hours a day, 7 days a week basis. Every attempt should therefore be made to minimise exposure to direct sunlight by use of orientation and shade.

Orientation and Shade

Ideally, a container would be oriented with its long axis east - west to minimise exposure of walls to the morning and afternoon sun. Overhead shade in the form of a "tropical roof" well above the level of the container top will be essential.

A steel roof structure – a shed without walls - is the most commonly used format. Screening in the form of a wall, panel or even a brush screen from floor to roof at both the east and west ends can serve to further block low angle early morning and late afternoon sun.

The precise overhang required for the roof will depend on latitude and advice should either be sought from an architect or reference made to the relevant publications¹⁰. If a shaded area is required for people to gather out of doors the overhang will need to allow for this as well.

Use of one of the range of heat reflective paints now available can be beneficial in reducing the temperature inside the container.

Special Issues with Using Sea Containers for Storing Collections

The National Archives of Australia study (Ling, 2002) focused on the suitability of containers for storage of material such as paper based records. Paper is one of the materials most vulnerable to agents of decay and is especially prone to fungal attack in humid conditions.

In tropical areas one of the conventional ways of preventing mildew attack on shoes and clothing in wardrobes is to encourage airflow using louvered cupboard doors. An additional method of discouraging fungal growth is to fit light globes in closets and similar storage areas which are then left switched on in humid seasons.

In isolated areas without electrical power the second approach is not possible in most cases. However, encouraging air circulation using passive systems such as vents is practical and can be effective.

⁹ For further information on container types see National Archives project report APPENDIX VII page 7.

¹⁰ The standard reference work in Australia is Phillips, R (1999). *Sunshine and Shade in Australia*. CSIRO Publishing, Canberra. ISBN: 0643065695

Issues with air movement can be complex due to different surface area/volume ratios of various sized containers used for different purposes and located in various climatic zones. The frequency of people coming and going and resultant closing and opening of doors can be an issue. All vent grills will require vermin proofing which can significantly reduce airflow. Further restrictions may apply due to security issues.

Advice from a mechanical engineer may be required to determine the size and placement of vent grills for most effective air circulation in a container of a specific size in a particular location.

Minimal maintenance, solar powered, ventilation controls are available that shut down at certain temperatures and open at other temperatures. Regular maintenance may or may not be practical in isolated locations. In areas where wind blown dust and sand cause problems with even door locks and cause sliding doors or windows to jam, such systems may be more trouble than they are worth.

In some cases the nature of the materials being kept in a store may be such that an inner door or a double set of doors might be fitted rather than using the standard large doors most shipping containers come fitted with.

Where seasonal fluctuations in relative humidity occur the internal and external conditions will need to be measured. It will be essential to monitor the environment over a 12 month cycle using sets of data loggers set for both short-term and longer term sampling of temperature and relative humidity levels. The costing for establishment of an adapted sea container will need to include provision for an initial monitoring program and technical advice for the following 12 months.

KALACC Cultural Store - a Case Study in Progress

In late 2005 Kimberley Aboriginal Law and Culture Centre (KALACC) approached the Western Australian Museum's Anthropology Department and Museum Assistance Program for advice on options for a collection store that could be used to house items being held on behalf of communities as part of the Return of Indigenous Cultural Properties Program.

After discussing the requirements and the likelihood that the store might need to be relocated from the initial proposed site it was agreed that the most practical option was to adapt two sea containers.

This project still underway has to date entailed purchasing two thermal sea containers and assessing how best to adapt them to achieve an optimal environment for KALACC's particular cultural store needs.

Data loggers have been set up in each container to monitor and record internal and ambient temperature and relative humidity levels as the project has proceeded. After applying a special purpose heat reflective paint to one of the two containers, comparative readings showed a substantial reduction in temperature maxima and fluctuations. Not surprisingly the second container is to also be painted.

The next steps were for the sea containers to be relocated onto bases to elevate them and to erect a roof to provide shade over one of the containers and again compare the internal environments to gauge the effectiveness of these measures. Vents and other air circulation options will also be evaluated.

The Western Australian Museum is working with KALACC and this project will provide a useful model for other organisations to consider that have similar needs¹¹.

RECOMMENDATION: Key stakeholders involved in cultural store projects requiring erection of sea containers ensure:

- location selected complies with cultural protocols
- sea container footings and tie down specifications are sufficiently robust for local conditions and comply with any Local Government requirements
- an orientation is selected that minimises exposure to direct sunlight
- consideration is given to shade needs for both the cultural store and for adjacent outside spaces to be used for associated activities
- roof size and any screens to be used are calculated with reference to the location's latitude
- advice is obtained from a mechanical engineer on options for air vents to meet ventilation requirements
- a basic environmental monitoring program is established during set up and following 12 months

Purpose Built Structures

In some cases the scale and scope of requirements may be such that a purpose-built structure more substantial than a simple shed or an adapted sea container may be required to provide an environment to enable objects to be preserved in perpetuity.

The structure may be required to accommodate other functions and the need for functional planning in these situations has already been highlighted (see Importance of Functional Planning Processes page 8).

The difficulties in developing suitable designs are discussed further in the next section (see A Building Design Challenge in Northern Australia page 32).

Pilbara Pirmal - a Case Study of a Regional Cultural Store

An outstanding example of how a partnership between Aboriginal community members and mining company staff led to construction of an effective building in an isolated location is provided by the Pilbara Pirmal project.

The project to develop this cultural store involved a close partnership between a group of Elders and the then BHP Manager of Aboriginal Affairs, Louis Warren. These case study notes draw extensively on a paper presented to the National conference of Museums Australia in May 2003 by Pilbara Elder Teddy Allen and Louis Warren¹². Due to cultural and security reasons the location of the store is confidential.

It is a story that owes everything first and foremost to a small group of elderly Aboriginal men who continue to strive for the protection and management of their community's cultural heritage, in particular a collection of significant cultural objects. This material is the physical manifestation of what they see as one of the most defining aspects of their personal and cultural identity.

¹¹ The Western Australian Museum's Anthropology Department is a first point of contact for this information and can be reached toll free on 1800 023 333.

¹² *A cultural storehouse in the middle of nowhere: BHPBilliton Iron Ore and sustainability*. Louis Warren, Manager Aboriginal Affairs BHPBilliton Iron Ore and Teddy Allen, Punju Ngarugudi Njamal Aboriginal Corporation. Paper presented to Museums Australia National Conference Perth, May 2003.

How it Came to Be

This cultural store is sometimes referred to by Aboriginal people as a repository, keeping place or museum. The building is a modern equivalent of what Nyamal and many other East Pilbara language groups refer to as a *Pirmal*. The Nyamal word *Pirmal* is used throughout this section.

Not so long ago, greater numbers of Pirmals and law grounds were in use across the Pilbara. Over the post contact period and in the face of massive challenges to the Aboriginal community and their culture, the number of Pirmals and law grounds in use has declined and their locations have shifted.

The Pilbara regional Pirmal functions primarily to better protect and manage a range of material culture items that have long been cared for by Aboriginal people. It is a place for the storage and management of male ceremonial and ritual material and the implements associated with their manufacture and maintenance. It has restricted access with entry only being allowed to appropriately initiated and (more recently) to approved males.

This Pirmal is associated with a nearby law ground. For many generations of Aboriginal people from a number of Pilbara socio-linguistic groups this particular law ground was the place used for a ceremony that marked the transition through to one of the highest levels of secret and sacred cultural knowledge and understanding.

The building was constructed by BHP Billiton Iron Ore at the request of and in close consultation with Pilbara Elders.

It is important to realize that some nameless and faceless group A didn't approach some nameless and faceless Company B. We are talking about members of the same community, people who know each other and in many ways share common concerns.

A group of elderly Aboriginal men, on behalf of their wider community, approached the company through people they knew personally. They saw and still see the company in terms of people and their relationship with them. All the policy and guidelines etc isn't going to change that.¹³

On behalf of the company Louis Warren responded positively to this approach. However, understandably, the response was tempered by the fact that this sort of matter, cultural heritage management/protection, was not really core business. The company suggested they could play a strong advocacy role in the matter, supporting the group by bringing their concern to the attention of appropriate government departments, agencies, organisations and bodies who arguably have a strong role and responsibility in service provision in this area.

The response back from the men was yes, well we know that you could probably get someone else to help us and they might be more appropriate however we know you and vice versa. We don't know those other people as well as we know you. We have a relationship you say, if you have a problem you sometimes come to us and if we have a problem we sometimes come to you. We know of some of those other people but we also know you. We didn't ask those other people, we asked you.

¹³ Warren and Allen (2003).

*The next point they made is important. They informed us that there is a heck of a lot of paper work needed if going through the others, a lot of waiting and waiting and we still might not get everything we want. One mob might give us this bit and other that, or one might not. We might get part of the money in a year or two but not enough to either start or finish.*¹⁴

Some of the other comments made by these men were:

We don't want to have to worry about that because the matter is urgent, we are getting old and we don't want to die waiting.

We see how you mining companies work, you do things very quickly when you want to and have to.

*Apart from that you have got plenty of money and we haven't.*¹⁵

BHP Billiton's support of the community need for a cultural storehouse didn't happen in a vacuum. It and the company's other community based activities and initiatives are the result of strong long term corporate policy and commitments, actioned through a range of programs and dedicated resources at the community level.

The Building Structure and its Functionality

The Pirmal comprises a purpose-built rammed earth building situated in an isolated location in the West Pilbara.

The design and selection of building materials was primarily influenced by the building's intended function and the result of consultation between the Aboriginal community representatives, architects, builders and BHPBilliton staff.

*First and foremost in everyone's mind was the provision of improved storage and protection to the mainly wooden cultural items. Protection from exposure to the elements: direct sunlight, rain and wind as well as from fire, insect and animal activity.*¹⁶

The building was engineered and built to withstand a Category 2 Cyclone. Locations for the application of chemical termite treatments were also incorporated into the design.

This approach has produced a secure building with a footprint of c.8m x 12m including a verandah on a concrete pad elevated c.0.5m above the surrounding site. It provides an enclosed and well-ventilated space, with thick walls, a high ceiling and concrete floor is what resulted. The materials and design also aimed to reduce both the temperature and humidity within the building as well as fluctuations in both.

The building incorporates a number of features that provide very effective passive environmental controls drawing on a careful orientation, thick walls, an insulated roof (using freezer room panels as a ceiling) and a series of vents at two levels in each of the four walls.

The building's design and materials result in a stable internal environment. This can be maintained in even the hottest weather without the use of any electric power. For example, on the occasion of a visit in October 2004 by a Museum Assistance Program staff member, the external temperature at noon was above 45C and maxima in the

¹⁴ Ibid

¹⁵ Ibid

¹⁶ Ibid

previous 10 days had all been in the high 30's and above. In contrast, the internal temperature was in the range of 20-25C.

The effectiveness of the Pirmal is in stark contrast to a visitor centre elsewhere in the Pilbara that relies on a system of multiple split-unit airconditioners that result in an annual energy bill well in excess of \$20,000.

The Pirmal also has a number of structural features that, together with its isolation, provide robust security.

The Outcomes

At the heart of any discussion of the current role of the Pirmal and its contents is the value placed by the Aboriginal community on their cultural heritage, in this case particularly that surrounding initiation practices and the extent to which it influences the way people live and conduct their lives.

The whole process of consultation and negotiation, design and construction, through to the actual commissioning and transfer of items became a vehicle for re energizing the community and raising awareness not just about the importance of the cultural objects but also to the cultural context/fabric within which they operate. The revitalisation has seen the Pirmal functioning effectively not just as a repository for the objects but also as a learning place for participants in the *mirtayi iti* ceremony. Through these dual roles the Pirmal has been a catalyst in cultural revitalisation and re-building.

Also of importance to the current and future role of the Pirmal is the process of repatriation of cultural and biological material to Aboriginal & Torres Strait Islander communities from public and private collections, particularly the repatriation of secret/sacred material.

Both Aboriginal female and male secret and sacred ceremonial life is highly complex and embodies core cultural values. At many levels it involved the manufacture, use and maintenance of a range of items from the very sacred to the utilitarian. Items that were regularly in the public domain to items that were rarely or never displayed publicly and which had a strictly limited audience. The items housed at the Pirmal reflect this diversity.

The vast majority of the material is associated with just one ceremonial/ritual expression of this diversity - the *mirtayi iti*. The ceremony, in past times, included the initiates producing one or a number of wooden objects. Up until very recently the ceremony had not been performed for 15 – 20 years. The associated wooden items have not been made now for many years.

The Pilbara Regional Pirmal is strictly a men's business place controlled by Elders. In the last 20 or so years, but particularly in the last 10, there appears to be a real phenomenon of cultural resurgence, at least in the Pilbara. The reasons for this are many and complex, not least of all being the heightened profile and recognition of the rights and needs of Indigenous people. The working of Aboriginal heritage and native title legislation in such resource rich areas as the Pilbara has been particularly important.

In 2001, and for the first time in years, aspects of the *mirtayi iti* initiation ceremony were reactivated at the law ground associated with the Pirmal. However, the physical act of making the associated wooden objects has not been part of the ceremonial activities to date.

The push to reactivate the *mirtayi iti* came from the remaining men who originally approached the company to build the new Pirmal. There is little doubt that the construction of the new Pirmal assisted in the reactivation.

The consultative planning approach taken in developing the Pirmal recognized and supported traditional notions/models of power and leadership. Its success empowered or further empowered, in the eyes of the community, those elderly leaders who made the cultural storehouse a reality.

At the time of the initial approach, the primary objective was for ensuring the ongoing protection of the physical objects. The Elders all held fears that when they passed on there would be no one in the community who would understand and care for the objects.

They clearly hoped that the community (in the widest possible sense) would take to the *mirtayi iti* ceremony again and thereby engender the necessary level of appreciation and significance needed to ensure not only ongoing community management of the Pirmal and its objects, but for the items to be seen as part of the associated ceremonial context.

The vast majority of the material held at the Pirmal comprises wooden objects associated with the *mirtayi iti* ceremony. However, more recently other Pilbara material has been returned from the Western Australian Museum and other state museums to the Pirmal as part of the *Return of Indigenous Cultural Property* project funded through the Department of Communications Information Technology and the Arts. A number of items have been relocated to custodians in communities in other parts of the Pilbara.

Potential For Use Elsewhere

In most cases custodians hold secret/sacred items used by a specific group in a particular area. The Pilbara Pirmal is very unusual in that it houses objects from across a large region and has been developed to provide solutions to a unique and very specific regional need.

While the scale of this particular cultural store is far larger than is likely to be required for most Aboriginal communities' collections of cultural material, there are some useful principles emerging from this project which may be applied elsewhere: -

- The design of the facility was shaped by careful discussion with the custodians to identify the functions of the building and the special cultural needs.
- The choice of location was strongly shaped by cultural protocols. Proximity to a traditional law ground was a key element in the success of the ongoing operation of the Pirmal.
- The process ensured the building, its contents, the location and their use were integrated into part of a living culture.
- The role of a western museum in providing a repository for no longer used "dead objects" was seen as a bare minimum only. If worst came to worst, objects would be protected in the right way – but much more was hoped for.
- Close attention was paid to the need to provide environmentally stable conditions in a location without electric power.

- Close attention was given to the security issues related to the collection and the location.

Further information on the project is found in the BHP Billiton Health Safety Environment and Community Awards nomination for the project (see APPENDIX VIII).

The processes involved in the Pilbara Pirmal are a good example of those recommended in this report. The success of the building is due to more than just the architectural and building solutions that were achieved.

A Building Design Challenge in Northern Australia

When designing cultural storage in northern and inland Australia, there are very real environmental issues to be addressed and a need for innovative design solutions in order to achieve a sustainable building.

The Pilbara Pirmal project is a rare example of a good building outcome for a relatively small project in the north of the Western Australia where design expertise was able to be focused on meeting a special need.

Many of other projects are still out there waiting to happen. Some are far larger than the Pilbara Pirmal but few at present will be able to benefit from such design expertise.

The Need

Dedicated collection holding spaces with controlled environments are needed for various bodies in addition to those seeking to preserve Aboriginal cultural material. These include archival facilities for historically important records, reports, documents and photos held by organisations as diverse as libraries, lands councils, language centres and art centres. Some require closed places others need display spaces to be open to the public. Unfortunately there is only limited appreciation of these and other heritage collection groups special needs.

In northern and inland areas architects and the building industry have developed design and building solutions to meet the needs of major client groups such as mining companies or government agencies such as Education, Health or Defence. Generally however these have been heavily reliant on use of air conditioning which is considered the norm in many locations.

The Stakeholders

The parties which share the challenge are:-

- Client groups
- Architects and building industry
- Funding and development bodies

Client Groups

Even in major metropolitan institutions, during their whole career few museum professionals confront the challenge of developing a new museum or museum wing. Consider the added challenge for a group in a regional, rural or remote area who have never been involved with operating a cultural organisation that are setting out to establish a museum, cultural centre or keeping place. Working out where to start, how to plan and what are the important factors to be included in an architectural brief are a real challenge.

Architects and Building Industry

Cultural bodies require structures that can be very specialised and quite different from those of other clients. There are also very real economic restrictions that prevent the architectural and construction industries from exploring and developing solutions to meet the needs of small scale “boutique” projects.

During their whole careers few architects are involved in museum projects and fewer still gain experience with projects in regional, rural or remote areas. For an architect the lack of a financial return on the heavy investment in time required to research and develop solutions for a small relatively low budget project is a significant disincentive.

Coupled with this, the heavy demands placed on architectural practices and the building industry during an economic boom period in a mining region gives them precious little time to do other than meet the most pressing, larger scale projects.

Funding and Development Bodies

Similarly, funding bodies based in the south or on the coast have a very limited understanding of the climatic demands and other local conditions which pose major challenges for the design and construction of museums, cultural centres, keeping places and similar facilities. As demanding as it is for an organisation to raise the capital to plan, design, construct and commission a new facility - such funds can be far easier to find than those required to operate it! Few funding bodies are aware of the added challenges in the north and inland.

The Consequences

In many cases there is an incomplete understanding of the parameters required to design and construct low energy/passive environmental controls which may cost as little as an extra 10-20%. A building may be proudly opened that is doomed to closure because of crippling energy costs imposed on the group that is struggling to operate from it.

Passive and low energy solutions need to be considered which are more suitable for the not-for-profit environment that most cultural organisations operate within.

Clearly processes need to be encouraged to empower architects, the building industry and cultural organisations to better engage to find effective solutions to the need for environmentally stable spaces that are inexpensive to operate.

The challenges to developing solutions for organisations in remote and regional locations, particularly those in northern and inland areas, will not be overcome unless a concerted effort is made to bring together the expertise to address the issue.

Opportunities and Outcomes

A combination of approaches could bring together some cross-disciplinary solutions to these challenges. Scattered across the country are a number of professionals in different disciplines who are aware of various facets of this issue.

The Museum Assistance Program and similar units of professionals in the Northern Territory and Queensland may see more of it, others in New South Wales and South Australia are familiar with these issues.

Architectural practices such as Glenn Murcutt in association with Troppo Architects and Woodhead International, have developed award winning approaches to local conditions in the north, resulting in buildings such as such as interpretation centres at Kakadu and

Karijini national parks. Similarly they and others such as Iredale Pedersen and Hook have developed designs for buildings that meet the needs of isolated area housing and health centres.

In recent times there has been an emerging trend for innovative developments such as the one at Halls Creek in the Kimberley. Under a co-location agreement, the local shire and several Western Australian agencies developed a shared facility including an exhibition venue space. This innovative model may not have happened without brokering by the Kimberley Development Commission.

Careful planning is the essential precursor to achieving appropriate scale and scope of operations to meet community and tourism market needs. Buildings which are then designed to be both cost-effective to construct and operate will offer far better scope for museums, cultural centres, keeping places and archives to operate from and remain viable.

A multi-disciplinary taskforce could develop a solution which may take the form of guidelines and a resource kit - something analogous to a pilot's "prayer wheel" used to calculate complexities of a flight plan. It is not so much that answers are needed as sets of questions and parameters so that clients, architects, community development officers and funding bodies can engage in dialogues that produce effective solutions to the needs for buildings to house cultural facilities in northern and inland Australia.

STRATEGIC RECOMMENDATION: Key stakeholders advocate establishment of a taskforce to develop guidelines and a resource kit to promote more effective engagement in planning processes for buildings that meet the needs of cultural organisations in northern and inland Australia.

APPENDICES

APPENDIX I

Cultural Object Stores Project – Preliminary Investigations at Warburton Ranges and The Kimberley	37
---	----

APPENDIX II

Storehouses For The Protection Of Significant Cultural Materials Provided To Aboriginal Communities By The Western Australian Government 1964 -1983	43
---	----

APPENDIX III

Archaeology Collections Management	45
------------------------------------	----

APPENDIX IV

Preventive Conservation	51
-------------------------	----

APPENDIX V

Environmental Control & Standards	65
-----------------------------------	----

APPENDIX VI

Local Government Regulations	71
------------------------------	----

APPENDIX VII

National Archives of Australia Report on Using Sea Containers For Records Storage	83
---	----

APPENDIX VIII

BHP Billiton Health, Safety, Environment and Community Awards 2004 – The Pirmal Project	103
---	-----

APPENDIX IX

A Cultural Stores Kit	115
-----------------------	-----

APPENDIX X

Draft Checklists for Cultural Stores Projects:-	123
---	-----

APPENDIX XI

Draft Outline for a Basic Information Package on Cultural Stores	139
--	-----

APPENDIX I

Cultural Object Stores Project – Preliminary Investigations at Warburton Ranges and The Kimberley

Kim Akerman
May 7-25 2006

Preamble.

On behalf of the key stakeholders in this partnership project, I undertook preliminary investigations into the situation relating to storehouses and other facilities used in remote Aboriginal communities to house objects of cultural significance.

The following report attempts to provide an overview of the broad scope of current and emerging needs for cultural stores that may be located in regional, rural and remote places.

It is based on a select sample of communities and cannot be considered a definitive statement on the situation in all parts of Western Australia. To obtain that level of detail the logical next step would be to initiate a series of regional surveys to assess the specific needs in each region of Western Australia.

In the past the term 'objects of cultural significance' has been understood to refer to artefacts generally regarded as 'secret-sacred', which should only be accessed by appropriately initiated males. It should be noted that at contact, not all Aboriginal groups possessed these types of boards and stones (often termed *churinga* or *jurunga*). However it is likely that most groups possessed other forms of objects that were considered secret-sacred – such as the sculpted and painted objects of wood, fibre or stone known as *rangga* in Arnhem Land for example.

Today it is known that in some areas Aboriginal women also hold objects that can only be accessed by appropriately informed females and which are held for safe-keeping in areas designated as off-limits to the general population.

The term 'Significant Cultural Objects' may also embrace a much wider group of artefacts – those that are either historically important, or which represent classes of artefacts rarely or no longer made by contemporary society. For example, a boomerang, known to have been made by an ancestor of the current owner, links the past with the present at an intensely personal level. On the other hand an artefact known to have been associated with some notable person in the past is of much wider but possibly less intense significance to a region. For example, if the spearthrower belonging to 19th Century Police Tracker Jandamarra (Pigeon) survived in the Kimberley it may hold the same wider significance as a pistol or vest that belonged to the outlaw Ned Kelly or the explorer-politician John Forrest. Such 'public' artefacts, along with examples of the material culture of any region or specific group of people, are now regarded as treasures rarely seen in their original environment and usually only found in State or Federal institutions - museums and art galleries.

With the development of many remote areas (remote that is from capital cities) there has been a perceptible growth in the desire to create museums, and other cultural type centres. Cultural centres or museums have been built at Wirrimarnu (Balgo Hills) and

are currently being constructed at Mowanjum and planned for both east and west Kimberley.

I do not include Art Galleries within the broader 'Cultural Centre' concept, as these facilities appear to have developed both regionally and in remote centres, to cater for the phenomenal interest in indigenous art across the Continent. The Art industry can be seen as one of the more viable economic activities in which a wide group of indigenous Australians participate. However it needs to be understood that Cultural Centres usually include a gallery component.

The issue of cultural centres will be referred to later in this report, which will primarily focus on the need to house and protect objects of contemporary religious significance – i.e. secret-sacred material.

History

In Western Australia, *churinga*-type sacred objects were found only in the south-west Kimberley (the 80-Mile Beach area), the Western Desert, the Pilbara, the Murchison and the Eastern Goldfields areas. Bull-roarers, usually considered secret-sacred wherever they occurred, enjoyed a wider distribution, but according to some sources were considered playthings in the southwest.

Subsequent to European settlement in Australia, and perhaps as a consequence of settlement it is known that the use of *churinga*-type sacred objects appears to have spread and across the landscape and their rate of manufacture increased markedly (see Akerman 1976: 43-50).

Traditionally most secret-sacred objects were kept hidden away, in caves, under overhangs, secreted in crevices in boulders and rocky outcrops or, placed on platforms of wood and leaves built in the branches of trees. Small objects, usually less than 200mm long, were often kept by an individual close to their person. In this case a wrapping of bark or feathers tied with cord concealed the contents from general view. In precontact times there appeared to be fewer such artefacts and these were distributed widely across the landscape.

After contact and with the introduction of metal tools substantial platforms were also built in some areas of WA, particularly the Pilbara, on which sacred boards were kept when not required for use. Defunct boards, those belonging specifically to deceased individuals rather than part of the corpus of material associated with a specific religious cult, were also kept on these platforms or in the more traditional shelters. Lack of maintenance (anointing with oils and ochre for example) and the ravages of time usually saw these artefacts disintegrate and decay.

Since the 1960's some centres of religious activity have been supplied with storehouses, usually of the metal garden shed variety by the Western Australian Museum or the now defunct Aboriginal Sites department.

A search of files held by the Department of Indigenous Affairs (WA) revealed that at least 32 storehouses had been erected between 1964 and 1983 in the Kimberley, Pilbara and Western Desert Regions by the WAM or other State Government agency (Appendix 1). Notes on files show that some of these facilities were insured by the responsible agency for between \$1,800 and \$4,446 at the time of construction. There is no record of any claims made when a store was damaged or destroyed.

Subsequent to this period of supply and construction of storehouses, a number of communities had erected their own shed-type facility – usually when construction was occurring at the community or outstation. There are no figures available as to how many communities have found their own funding or constructed their own facility.

More recently of course there has been the construction of the massive storehouse in the West Pilbara by BHP Billiton Iron Ore (BHPBIO) in liaison with the senior law custodians of the Pilbara region (see BHPBIO The Pirmal Project. A submission to the BHP Billiton Health, Safety, Environment and Community Awards 2004 (Community Category). A pirmal is term used in the northern Pilbara and 80-Mile Beach area, for the platform or other storage facility used to keep secret-sacred objects.

Observations On The Perceived Need For Cultural Storage Facilities In Remote Areas of Western Australia.

Since 2001 I have undertaken consultations in both the Pilbara and the Kimberley Regions relating to the repatriation of secret-sacred material from Australian museums. One consequence of these consultations was that I was able to gauge to a degree the potential range of need for adequate storage facilities across a wide range of communities. In a number of instances senior lawmen did not wish to accept repatriated objects until there was suitable storage – this was tempered however in the Pilbara, with the understanding that most material would be held at the Pilbara Pirmal referred to earlier.

It should also be noted that it is my opinion that today large concentrations of sacred objects only occur at a limited number of centres. Caches of sacra that were once widely spread across the landscape became centralised during the 1950s and 1960s at missions, pastoral stations and reserves. Since the 1980s with the growth of outstations, and the consequent dispersal of sacra to these new localities, coupled with the natural decay and destruction or removal by non-indigenous collectors there are probably a lot fewer sacred objects in any region compared with the numbers sighted several decades ago. Another factor that must be considered is that the once almost continuous production of such objects in some areas – notably the Pilbara and south Kimberley, observable thirty years ago no longer occurs.

Consequently there may be a need for fewer storage facilities capable of holding a diminishing number of sacred objects rather the construction of many in areas where the need is patently not that great. It may be that some centres (such as La Grange) will require new facilities to replace older damaged or destroyed ones, while lawmen at Halls Creek may see it more appropriate to place their objects at Billiluna or Ringer Soak. In 2002 it was clear that the store shed at Ringer Soak needed re-location. For some communities a centralised regional facility – such as the Pilbara Pirmal may be considered the best way to ensure the safety of their sacred objects.

A reality that must be faced is that there is in many areas a decline in the cult activity for which these objects were created. Countering that point however, is the indisputable fact that they are still considered in these areas as objects imbued with power that require care and protection, and which should not be seen or handled by the uninitiated. A point of clarification - uninitiated in this instance refers to someone not inducted into the higher cult mysteries with which these objects are associated regardless of whether they have passed through the basic ceremonies of circumcision etc. It could possibly be stated that many communities outside the Western Desert sphere of influence have not held these higher ceremonies at least for a decade or so – even though the ordinary

rites of passage to adulthood are maintained. Cult ceremonies – particularly those associated with these sacra require time – both for the performance of the rituals and the manufacture of the sacra. More time is required to teach novices the songs, rituals and crafts required to fully participate in these ceremonies – time that is no longer available in the workplace of the 21st century.

It is in the locus of the peoples of the Western Desert that such religious cult activity is strongest and here we see communities ensuring the safety of their particular suites of sacred objects.

During the trip to Warburton Ranges it was noted that at least 7 satellite communities – Patjarr, Tjurkala, Warakurna, Wannan, Wingellina (Irunytju), Blackstone (Papulankutja) and Jameison (Mantamaru) were said to have created their own substantial facilities.

The storehouses however vary considerably in the manner in which they are constructed. Tjurkala is said to have a shed that may be about 15-20metres x 5metres x 6-7 metres high (a garage at Warburton was pointed out to me approximating the Tjurkala facility). On the other hand Patjarr had a roofed shade area fitted with shelves but with no sides. Warakurna has a shed without any floor. Wingellina is said to have stored material in a pipe or tank that is buried beneath sand to avoid accidental damage from bushfires.

At Warburton Ranges itself the shed, fitted with shelves is located in an area of ground that is gradually being encroached upon as the community develops. There was a perceived need for a new facility to be constructed further east and situated within the ranges. It was suggested that the current shed could remain and be used as a shelter when circumcision candidates were removed from the general community and held in seclusion.

At Warburton I also was re-informed about the multiple responsibilities and rights to sacred objects. Such objects may be divided into various categories according to their ritual function. I was taken to see a group of objects belonging to a single individual. Rather than keeping these objects in the general sacred storehouse this person chose to keep them within a stretch of country recognised as belonging to him. They were located in a cleft between two boulders protected from the elements by plastic bags.

Initiated males of each patri-clan group controls its own body of sacra, as well as potentially participating in the management of sacra that are considered to belong to the religious corporation.

There are many religious ceremonial cycles, including highly mobile ceremonies that are transmitted serially between communities. It is normal that sacra belonging to one set of ceremonies be isolated from that belonging to others. In many instances such disparate sets of material cannot be kept together and require separate storage facilities to protect them.

The cultural influence of the Western Desert impacts on many Kimberley communities – particularly in the south-east, along the Fitzroy River Valley and across to the 80-Mile Beach. Through the traditional exchange systems (known as wunan or winan in the north and centre or yiji in the south Kimberley), sacred objects from the desert move through much of the region. Other objects enter the region from the Victoria River region and associated communities to the east of the Kimberley.

Only at the communities at the northern tip of the Dampierland Peninsula are ceremonies maintained uninfluenced by the desert cultures. In this area it is the norm

that sacred objects are made for a specific set of ceremonies and then abandoned on the ritual ground at the conclusion of the ceremonies. There appears to have been a brief period in between the World Wars when Desert-based cults and associated objects did move into the Peninsula area, but these never achieved a lasting foothold in the religious life of the area.

During the week of 16/5-22/5 I took advantage of a meeting with the Executive Council of the Kimberley Aboriginal Law and Culture Committee (KALACC), which was meeting at Kununurra, and also visited the Mowanjum Aboriginal Community at Derby. The matter of the need for Cultural Storehouses and an idea of the current situation at a number of Kimberley communities were discussed both formally and informally, with the Lawmen present at the KALACC meeting. Similar discussions were also held with senior lawmen present at Mowanjum.

While new facilities were said to be required at Mowanjum, Bidyadanga, Kununurra and Jarlmadangga for example, spokesmen representing other centres suggested that their own facilities could be extended to cope with amalgamation of two or more sets of sacra that have been transferred to them as neighbouring communities ebbed and flowed. Krungal, for example, holds the sacred objects that were in the 80s and 90s housed elsewhere in the Fitzroy Basin.

In all instances the representatives of communities canvassed, felt that shipping containers, ventilated and fitted with shelving and locking devices made appropriate storage facilities. While larger structures, more in line with the Pilbara Pirmal, may be appropriate at centres such as Christmas Creek and Bidyadanga, I avoided discussing the topic with representatives from these centres at such a cursory level.

Some communities saw the need for structures in which initiates and other participants in ceremonial life could shelter. I noted several years ago, that at Jigalong there has been extensive development of facilities at the main ceremonial area, in order to cope with the large influxes of visitors during the 'ceremonial season'. These facilities included toilets and ablutions, shelter and lighting etc. While it may not be in the scope of the current project to be involved to a similar extent, there may be ways in which the stakeholders can assist in developing similar concepts at other larger centres.

Conclusions and Recommendations

It is apparent even at this early stage of inquiry that there is a need for basic, secure facilities dedicated to the storage of important secret-sacred artefacts in many Aboriginal communities where traditional religion is still adhered to.

In the Warburton Ranges area, smaller communities appear to have been able to erect their own safe places – often erected while other building works were occurring in the area. However there was a perceived need for a new structure at Warburton itself.

In the Kimberley it is apparent that the need of suitable storage may be in a continual state of flux at smaller centres that may wax and wane depending on a number of factors including economics, general demographics etc. Such fluctuations in population have already led to the amalgamation of caches of sacra at some centres of religious activity. Consequently major centres require either new storage facilities or extensions to already existing ones.

Where smaller communities currently possess only limited numbers of sacred objects, that is ten or less, under the control of only one or two elderly people, a large investment in time or money may not be warranted in providing more secure circumstances. It is felt

that the final or even interim disposition of such artefacts must be determined by their caretakers or owners – no doubt in consultation with their affiliated peers.

The next logical stage following on from the present project would be a series of regional surveys of needs that covers all relevant communities throughout Western Australia. An estimate of numbers of objects at each centre may possibly be made at that stage if agreeable to custodians etc. This is with the understanding that such figures may vary across time for each centre. Similarly it must be recognised that in some communities, certain types of sacred objects do not necessarily possess the same functions as they do elsewhere.

References

- Akerman, K. 1976 Tradition and change in aspects of contemporary Australian Aboriginal religious objects. In *Politics of the Sacred*. C. Anderson (ed). *Oceania Monographs*. **45**: 43-50.
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APPENDIX II

Storehouses For The Protection Of Significant Cultural Materials Provided To Aboriginal Communities By The Western Australian Government 1964 -1983

No.	YEAR	LOCATION
1.	1964	Twelve-Mile, Port Hedland. (destroyed by storm).
2.	1967	Warburton (destroyed by wind 1976).
3.	1968	Cundeelee. (destroyed prior to 1972)
4.	1969	Broome 1. (ransacked 1970s).
5.	1969	Laverton.
6.	1969	Leonora.
7.	1970	Mowanjum. (abandoned with move to new site).
8.	1972	Wiluna.
9.	1972	Mount Margaret. (purchased by mission)
10.	1973	La Grange 1. (destroyed by cyclone).
11.	1973	La Grange 2. (destroyed by cyclone).
12.	1973	Looma-Liveringa.
13.	1973	Balgo 1. (vandalised in 1980s)
14.	1974	Giles.
15.	1974	Nanyutarra (Peedamulla) – (relocated to Cane River 1983).
16.	1974	Fitzroy Crossing.
17.	1975	One Arm Point. (abandoned in 1970s current status unknown)
18.	1975	Anna Plains (La Grange)
19.	1975	Christmas Creek.
20.	1975	Mount Margaret (2 or possibly a move)
21.	1975	Kununurra. (ransacked)
22.	1976	Yandeyarra.
23.	1977	Warburton 2 and 3 . (one shed destroyed in storm)
24.	1980-81	GoGo (Bayulu).
25.	1980-81.	Billiluna.
26.	1981	Balgo 2.

- | | | |
|-----|------|--|
| 27. | 1981 | Jigalong. |
| 28. | 1982 | Ngumban (Pinnacles Camp). (abandoned – objects at Christmas Creek) |
| 29. | 1982 | Mulatja (Fitzroy Crossing). |
| 30. | 1982 | Mowanjum 2. (believed destroyed) |
| 31. | 1983 | Junjuwa (Millajidee). |
| 32. | 1983 | Kangan |

Other facilities possibly erected by the WAM but no details located.

- | | | |
|-----|--|---|
| 33. | | Ringer Soak. (in state of disrepair in 2003). |
| 34. | | Red Hill (Halls Creek). (abandoned). |

APPENDIX III

Archaeology Collections Management Guidelines

Principles

- Archaeological material will be collected from surface collections or from an excavation.
- Surface material, generally collected from open sites, should be grouped & labelled with site information (usually a location name, date of collection and collector). Further details such as grid square, or other information recorded by the collector should also be documented and included with bagged or boxed material, and in a register or database
- Excavated material will normally be removed in spits (usually layers of sediment ranging from 5cm to 10cm). These spits are labelled and any artefacts, bone, plant, shell or soil samples will be recorded against this spit number – the spits form the basis for understanding the stratigraphy for the deposit and it is crucial that this sequence is maintained.
- MIXING OF MATERIAL BETWEEN DIFFERENT SPITS WILL DESTROY THE INTEGRITY OF THE MATERIAL AND RENDER IT USELESS FOR FURTHER RESEARCH.
- All artefacts should be recorded in a collection register and the register maintained in a safe place. A permanent ink pen should be used to write in the register. A photocopy of written registers, stored separately to the main register, is recommended.
- In the case of electronic registers it is recommended that a print out or a CD copy be made and stored in a separate, secure location.

Documentation

- All artefacts should ideally be marked with a catalogue number that refers to an entry in a collection register.
- Numbers are applied with **permanent** ink. Standard museum practice dictates that the number is “sandwiched” between two layers of paraloid or clear nail varnish.
- For bulk surface collections a single number can be applied to the artefacts collected. Alternatively each object can be registered with the main number and a subset, e.g. B4080 or B4080–001, .. –002 etc.
- Remember that numbers are “cheap”. It can be easier to give different numbers to different trenches than to write long numbers on small artefacts.
- For excavated material the number should indicate the registration or catalogue number, and ideally also each trench and spit.
- Though archaeological material is generally robust and capable of surviving extreme conditions **it is important that labels and storage containers are also robust**, e.g. aluminium tags, or plastic tags marked with permanent ink.

NB In the case of samples taken for radio carbon and other dating methods specifications will differ with both sampling and storage methodology to avoid contamination.

Not all plastics have a long life span. Thought needs to be given to putting assemblages in stable materials. Procedures for Deposition of Archaeological Materials

(Adapted from a procedures paper produced by the Australian Museum Division of Anthropology)

All archaeological materials should be stored in boxes of standard size and quality, with consistent labelling and full documentation.

Some of the costs associated with management of these materials should be borne by depositors.

Costs to be borne by depositors are: a deposition fee and acquisition of the standard boxes.

The deposition of archaeological materials collected/excavated under WA Heritage permits and consents should be undertaken in the following manner:

1. Materials are to be packed in standard boxes with lids, with information about the contents of each box clearly provided.
2. The materials are to be appropriately packaged within each box.
3. Details about the materials being deposited are to be provided on a 'Deposition Form'. A separate form is required for each site.
4. Copies of all documentation relevant to the excavation and/or collection of the materials are to be submitted at the time of deposition.
5. A deposition fee is to be paid.

1. STANDARD BOXES AND LABELS

Boxes

All materials are to be deposited in boxes of a standard size and quality. Boxes will be purchased from the Repository Management.

Large	1700um Fibreboard 300 x 200 x 150 + 50mm lid
Medium	1700um Fibreboard 250 x 150 x 150 + 50mm lid
Small	1350um Fibreboard 170 x 120 x 55 + 50mm lid

Labels for Boxes

The contents of each box are to be clearly noted.

Repository staff will complete the label that will be placed on the outside of each box, but the depositor should include full details of the contents of each box on Form B, which should be placed within the appropriate box.

2. PACKAGING OF ARCHAEOLOGICAL MATERIALS WITHIN BOXES

Where assemblages have been categorised into different types, classes, taxa, etc, during analyses, the materials should remain bagged according to such criteria. Plastic bags (>40 um gauge) should be used; paper bags are not acceptable. Each bag should be clearly labelled with its contents as well as the provenance, that is, site name, site code, square/trench number, spit/excavation unit etc. It is also useful to include the name of the excavator/project director, as well as the date of the excavation. Any other information that will ensure that a bag and its contents can be returned to its correct storage location, if it is left outside the storage box for any reason, should also be

included. The plastic bags should be securely sealed. If self-sealing bags are not used, bags should be stapled or secured tightly with ties, so that the contents will not fall out.

Labels with details about provenance, contents, etc, are to be firmly attached to, or included inside, the plastic bag. Such information should not be written on the plastic bag. If the label is to be included inside the bag, it should be of such a material or packed in such a way (e.g. double-bagged) that it does not (a) contaminate artefacts which may have residues adhering, (b) damage artefacts with use-wear, or (c) damage or contribute to further fragmentation of faunal remains or other fragile remains. As a minimum labels should be cardboard (e.g. Unitag). Paper labels are not acceptable.

3. DEPOSITION FORM

The Deposition Form (Form A, attached) is to be completed and submitted at the time of deposition. **A separate form is to be used for each different site.** The information on the form is needed so that materials are registered in a manner that will enable ready access for management purposes, and for future researchers who may wish to study the collection.

Completion of the form by the researcher avoids the chance of errors being made if there is any ambiguity in the documentation.

4. ASSOCIATED DOCUMENTATION

Depositors should submit copies of relevant documentation associated with the retrieval of the materials being deposited. This should include:-

- excavation fieldnotes, including section drawings
- site plans (showing area/s excavated)
- photographs of sections, features, etc
- lists of cultural materials retrieved
- lists of materials being deposited
- published and unpublished reports

Records form developed by Australian Museum

NB in NSW that state's parks and wildlife service is responsible for their Aboriginal Heritage Act. In Western Australia the legislation is carried by the Department of Indigenous Affairs which also maintains a register of sites with site numbers etc.

FORM A 1/97

**THE AUSTRALIAN MUSEUM
DIVISION OF ANTHROPOLOGY
DEPOSITION OF ARCHAEOLOGICAL MATERIALS**

DEPOSITOR

Name: _____

Institution/organisation: _____

NPWS Permit No/date : _____

Date of fieldwork: _____ Date of deposition: _____

Name of project: _____

LOCAL ABORIGINAL LAND COUNCIL

Name: _____

Address and phone: _____

SITE DETAILS

Site Name : _____

NPWS Site No : _____

Site type: _____

Geographic locality: _____

Topographic map name and grid reference: _____

Site status (extant/destroyed): _____

DOCUMENTATION SUBMITTED

State yes/no and any other relevant comments

Field notes: _____

Site plans: _____

Section drawings: _____

Photographs:

Name of accompanying report/s:

Details of published documents:

**If documentation not submitted at time of deposition please provide reasons.
(attach extra sheets if necessary)**

Nature of materials deposited: (circle relevant category)

Inorganic: Stone Ochreous matter Sediment Other

Organic: Faunal remains: Bone Shell Other

Plant materials

Charcoal

Other: specify:

Total number of boxes deposited:

Other comments:

Amount payable: _____

Signature of depositor: _____

Received by: Name: _____

Signature: _____

Date: _____ INFORMATION ON CONTENTS OF BOX FORM B 1/97

Registration No*	Box No	Museum location*
------------------	--------	------------------

Site name and locality:

Project

name: _____

Code name/no for site:

Excavation/collection unit(s):

Name of principal investigator:

Material within box:

e.g. artefact type(s), material type, number of items within box (if appropriate)

Date of fieldwork:

leave blank; to be completed by Museum staff.

.....
.....

APPENDIX IV

Preventive Conservation

Dr Ian Godfrey, Department of Materials Conservation, Western Australian Museum

Introduction

The simplest and most inexpensive way to look after an object or collection is to prevent it suffering deterioration in the first place. Whether an object is in a home or in a museum, the same causes of deterioration apply. A metal artefact in a garden shed will suffer more damage than it would if stored in a box inside a house. Similarly a painting on display in a home or gallery may deteriorate more if placed into a less favourable museum storage environment. There is no point in spending time and materials to treat an object if it is returned to the same storage conditions which led to the original deterioration.

Information presented in this section concentrates on the environmental factors which cause deterioration in materials. Other obvious dangers to collections include fire, flooding and theft. Although these factors also must be considered by those in charge of a collection they are not covered in detail in this book.

It is important to know from what materials an object is made and their susceptibility to the various causes of decay. This information is useful in determining where and how it should be stored or displayed.

Different climatic zones have their own distinct problems. High humidity in the tropics or salt-laden air in coastal regions are typical examples which should be given extra consideration.

Thorough preventive practices should be established and regular inspections are

essential if the best conditions for a collection are to be maintained. It is important, for example, not to take food or drink into display or storage areas. Spillages have the potential to not only damage objects but also to attract potentially damaging pests. Smoking also is not recommended in these areas because of fire and smoke damage risks.

Another important issue is the level of access to artefacts. Materials used daily for educational purposes should be copies or non-essential artefacts because constant handling will cause deterioration through either breakage or general wear and tear.

To reduce the risk of cross contamination in storage and/or display areas, any new material coming into a collection should be isolated initially, inspected and if necessary, cleaned. Treatment of pests also should be arranged if infestations are found.

The most significant environmental factors which contribute to the degradation of objects are listed below:

- light;
- temperature;
- relative humidity (RH);
- air contamination;
- biological pests; and
- dust.

Many of these factors are interrelated and cannot be considered separately. Bright sunlight, for example, will cause photochemical damage to light-sensitive

material, increased temperature and decreased relative humidity.

Each of these agents of deterioration will be discussed in turn in the following sections. Guidelines are given regarding the types of conditions that will enhance the longevity of materials. As most collections are made up of an assortment of objects and material types no one set of conditions will be suitable for all objects. Where a choice has to be made, conditions should be tailored to minimise damage to the most sensitive of the objects.

Light

Principles

Light is an energy form capable of damaging organic materials such as textiles, watercolour paintings, dyed materials, coloured leather, botanical specimens and colour photographs.

The human eye can detect only those wavelengths of light that make up the visible spectrum (rainbow colours). Unseen components of light, such as ultraviolet (UV) and infra-red (IR) light, also can affect particular material types severely (see Figure 1).

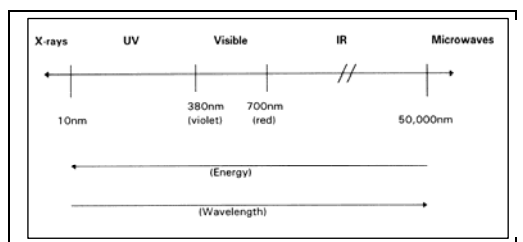


Figure 1

Ultraviolet (UV) radiation (10-380 nanometres)

As wavelengths below 300 nanometres (nm) do not penetrate the earth's atmosphere and glass cuts out UV light

with wavelengths of less than 320nm, the UV band of concern is 320-380nm. This shortwave, invisible UV radiation is highly energetic and is most likely to cause photochemical deterioration.

There is a high proportion of UV radiation in daylight and a significant amount also is emitted by fluorescent tubes.

Visible light (380-760nm)

Visible light affects an object in two important ways - it can lead to its deterioration and it can affect the way an observer perceives it.

Deterioration is caused not only by high energy light at the blue end of the spectrum but also by heat produced by the lower energy red light. The brighter the light the greater the rate at which damage will occur.

If colour-corrected light is not used for viewing, a colour shift human eyes cannot perceive may occur. Examples of this include the apparent change in colour when red meat is removed from the specially lit butcher's display (metamerism) into the ordinary light of the store and the yellow tinge imparted to objects by a dimmed incandescent globe.

Fluorescent tubes, on the other hand, are an excellent source of accurate colour-rendering light. Unfortunately this same light is capable of causing significant damage to objects.

Infra-red (IR) radiation (760nm upwards)

IR radiation can cause objects to heat up and accelerate chemical deterioration processes. It also is capable of producing changes in relative humidity. Under reduced relative humidity objects

can become brittle, while under increased relative humidity metals will corrode. Such changes in relative humidity would correspond to the IR source being turned on and off respectively.

Light measurement

The human eye responds well to green-yellow light but less so to the blue and red ends of the spectrum. Both UV and IR radiation are invisible to the human eye.

Light meters, cameras and lux meters have been designed to measure visible light in the same way that the eye perceives it.

The brightness, or intensity of light, is measured in units called lumens. One lumen every square metre is equivalent to one lux. When measuring light intensity the meter must face the direction of the light source.

UV radiation, measured as a proportion of visible light, has units of microwatts per lumen ($\mu\text{W}/\text{lumen}$).

Usually IR radiation is not measured, with its effect most easily detected by monitoring associated temperature changes.

The brightness of visible light can be measured easily using a camera or light meter, but measuring UV light requires a special - and expensive - monitor. To avoid this expenditure, it is best to be aware of the approximate levels of UV radiation generated by various sources.

Examples of illumination (visible light) levels:

	Lux
Daylight, fluorescent lights in an office or laboratory	600-1500
Daylight coming in	

through a window	35,000
Direct sunlight	up to 136,000

Examples of UV from various sources:

	$\mu\text{W}/\text{lumen}$
Fluorescent (low UV)	33
Fluorescent lights (general)	80-250
Tungsten globe	60-80
Direct sun	400
Light overcast sky	800
Blue sky	1600

Measuring light levels with a camera

A 35 millimetre camera with a built-in meter can be used to obtain approximate light levels. This method is described in Appendix 1.

Light-induced deterioration

Light has many effects, the most noticeable of which are colour changes induced in objects. For instance the bleaching of ivory, the fading of pigments, dyes and inks and the discolouration of wood, varnishes and lacquers are all due to exposure to light.

Different materials react to light in different ways; some materials fade while others darken. For instance some types of wood yellow, others bleach and some turn grey when exposed to light. A more subtle effect can be observed in colour photographs where there may be a colour shift when one of the more light-sensitive dyes is affected by light.

In addition to inducing colour changes in objects, exposure to light is also responsible for weakening fibres in textiles and paper.

Light has the potential to damage organic materials whether they are in pure form or make up part of a composite object. Natural organic materials such as wood, fibres and biological specimens are all vulnerable, as are modern polymeric materials (plastics) and even metal objects which contain an organic component (paint, lacquer or inlay). The inlaid ivory handle of a hand gun, for instance, would be susceptible to light damage.

For composite objects the most sensitive component must be considered when planning for display and/or storage. The relative sensitivities of different materials may be gauged by comparing the recommended maximum lighting levels for these materials (see below). The most sensitive objects should be exposed to lower light levels to minimise photochemical damage.

Reciprocity rule

The same amount of damage will be produced by strong light in a short time as will be done by a weaker light in a long time. For example, 500 lux exposure for 10 hours will cause an equivalent amount of deterioration to 50 lux exposure for 100 hours.

Recommended maximum light levels

These values are set so the item can be viewed with a minimum of damage.

50 lux

Textiles, costumes, watercolours, tapestries, prints and drawings, manuscripts, miniatures, distemper in frescoes, wallpapers, gouache, dyed leather, most natural exhibits, botanical specimens, fur and feathers.

200 lux

Oil and tempera paintings, undyed leather, horn, bone, ivory and oriental lacquer.

300 lux

Stone, metal, glass, ceramic, jewellery, enamel and wood.

75 μ W/lumen

This is the maximum UV level recommended for all material types.

Controlling light levels

Light levels may be controlled by using some or all of the following strategies:

- exclude all daylight;
- place the most light-sensitive objects furthest from light sources;
- use low UV light sources;
- use UV filters over light sources or in display cabinets;
- alternate sensitive materials between display and low-light storage;
- use copies for display; and
- use automatic light switching.

Ideally, all daylight should be excluded from storage and display areas. This would have two beneficial effects. Firstly, it would reduce light levels significantly and secondly, it would allow the intensity of interior light and the amount of UV exposure to be controlled. This control may be achieved by using appropriate artificial lighting sources such as low UV fluorescent lights and arrangements such as reflected rather than direct lighting. Whatever the light sources and arrangements, the end result must be conditions that meet the required specifications for the illuminated objects. Options to eliminate daylight include the use of blinds, shutters, curtains and even paint. If external light

cannot be eliminated completely then windows should be treated with UV-absorbing films and tints.

As the intensity of light is reduced with distance from the light source the most light sensitive objects always should be placed furthest from them. The same result may be achieved by bouncing light off a reflecting surface to create a diffuse effect. The intensity of the light is reduced as the path length of the light from the source to the object is increased, some of the incident light is absorbed and some is scattered by the reflecting surface. This is an excellent way of not only reducing light intensity but also of creating interesting lighting effects.

Options to reduce the impact of UV radiation on objects include the use of low UV fluorescent tubes, installation of UV-absorbing perspex covers over light sources and/or the use of UV-absorbing perspex in display case construction.

Light exposure also can be reduced by adopting appropriate management strategies. Material that is particularly light sensitive may be alternated between display and storage. To cut light exposure by half in an historic house, for example, only open half of the rooms for six months of the year and the other half for the following six months. Similarly, if a diary or register is displayed open then the pages exposed should be rotated.

Another alternative is to use lights that are activated when someone enters the collection area room and which remain on for a limited period (automatic light switching).

Note that the importance of an object as well as its sensitivity to light damage must be considered carefully before remedial measures are taken.

Occasionally, maximum light levels do not show artefact details adequately. This problem may arise when general light levels are too high, making the artefact, at 50 or 200 lux, relatively dark. This situation may be overcome by decreasing general light levels in the vicinity of the artefact.

If the light on an artefact must be increased above recommended levels then display time should be reduced proportionately. For example, if the recommended light level is 50 lux and the actual level is 150 lux then the object should be on display for only three months per year and kept in dark storage for the other nine months.

If appropriate environmental conditions cannot be established then particularly sensitive or significant photographs, prints and similar objects should be copied. The copy may then be put on display and original safely stored.

In balancing light for a display it is necessary to consider the colour temperature of the light source so that good colour rendering is obtained. As there are a wide variety of light sources available consultation with manufacturers and suppliers is recommended.

Relative Humidity and Temperature

Principles

The relative humidity (RH) of the air is an indication of how much water vapour is in the air at a particular temperature compared with how much water vapour the air could hold at that temperature. It is expressed as a percentage and can be defined as follows:

$$\text{RH} = \frac{\text{amount of water in a given amount of air}}{\text{max. amount of water the air can hold at that temperature}} \times \frac{100}{1}$$

Air at 100% relative humidity is holding the maximum amount of water possible at that particular temperature and is said to be saturated. Saturated air at 10 degrees Celsius holds about 10 grams per cubic metre of moisture; at 20°C about 17g/m³ and at 30°C more than 30g/m³. The relative humidity is a measure of the percentage saturation of the air. Therefore, air at 50% relative humidity, regardless of temperature, is holding half of its total water capacity.

In essence, cold air cannot hold as much water vapour as warm air. In a closed environment, such as a display case, there will be a fixed amount of water vapour, referred to as the absolute humidity. If the temperature inside the case falls then the relative humidity will rise; if the temperature rises the relative humidity will fall. Such changes in relative humidity could be caused by direct sunlight or by spotlights.

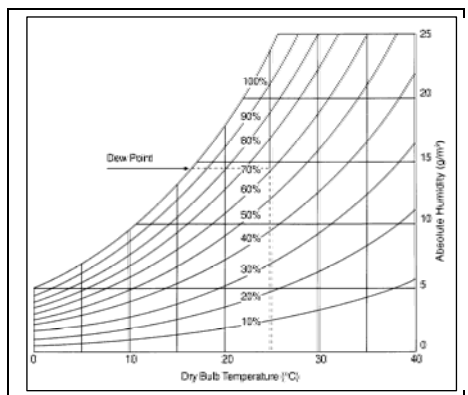


Figure 2

The hygrometric chart above (see Figure 2) illustrates that a relative humidity of 60% in a display case kept at 25°C will rise to about 80% relative humidity if the temperature falls to 20°C. Dew point will be reached if the temperature falls to about 16°C. Condensation will then occur.

For many years the recommended ideal temperature and relative humidity conditions for museum collections were given as 20°C and 55% respectively.

These conditions are difficult to maintain unless expensive air conditioning systems are used and may not be possible or even desirable in certain areas. For instance, in the tropics where the average yearly relative humidity is about 65%, it is better to have this as the optimum level whereas in an arid region it may be better to aim for a relative humidity range of 45-50%. This not only saves on energy costs but also means that material which is conditioned to the ambient relative humidity will not be damaged by change.

Two recent studies have re-examined the conditions considered suitable for storage and display of objects (Michalski 1993, Erhardt and Mecklenburg 1994). Findings from these studies suggest that although certain material types benefit from storage in strictly controlled conditions, most mixed materials in sound order only need be maintained in an environment with a relative humidity range of 40-70%. A relative humidity range of $\pm 5\%$ is suggested for sensitive objects (Michalski 1993).

The humidity tolerances of some commonly encountered materials, their dimensional responses and susceptibilities to mould are provided in Appendix 2. We have opted for a slightly more conservative approach to relative humidity levels, recommending a range of 45-65% for most materials. For objects containing more than one material type, the relative humidity level of the storage environment should reflect the recommended conditions for the most sensitive component.

Measurement

Relative humidity may be measured by using any of the following devices:

- sling psychrometer;
- thermohygrograph;

- hair hygrometers;
- calibrated electronic devices which provide a digital readout of temperature and RH; and
- data loggers linked to relative humidity sensors

The simplest and most inexpensive instrument for measuring relative humidity is the **sling psychrometer**. This device also is known simply as the 'sling' or as a whirling hygrometer. It consists of two matched thermometers mounted side-by-side, one of which has a fabric sleeve covering it. The end of this sleeve is inserted into a reservoir which is filled with distilled water. When the thermometers are swung around the water in the sleeve of the wet bulb evaporates, making it cooler than the dry bulb. The amount of evaporation, and therefore cooling, depends on the amount of moisture present in the air - the drier the air the greater the level of cooling and vice versa. The difference in the temperatures of the thermometers indicates how dry or humid the air is; the greater the difference the lower the ambient relative humidity, the smaller the difference the higher the relative humidity. A standard hygrometric chart, which displays a series of wet and dry bulb temperature differences and corresponding dry bulb temperatures, is then used to give an accurate measure of the relative humidity.

The sling is used to calibrate almost all other types of hygrometers. Coupled with a **thermohygrograph** (seven-day or one-month), an accurate day-to-day or hour-to-hour record of temperature and humidity can be obtained all year round.

Electronic instruments are also available which record changes in temperature and relative humidity. While these devices are expensive they do have certain advantages. For example, they

may be placed relatively unobtrusively in display cases or in small storage areas in which a thermohygrograph either would not be appropriate or would not fit.

Other relative humidity sensors, linked to data loggers, can be programmed to record temperature and relative humidity conditions at regular intervals over periods of many months. These sensors are very small and by operating continuously over the different seasons, allow useful profiles of storage and display conditions to be established.

This information may be used to see how well the building buffers the external ambient conditions and also to see how well a display case further buffers the gallery environment. If the temperature is steady then the relative humidity within a display case will remain constant.

Relative humidity and temperature effects

The main impacts of temperature (unless it is so extreme as to freeze or melt objects) within the museum environment are on relative humidity and the rate of chemical deterioration of objects. A 10°C rise in temperature approximately doubles the rate at which chemical reactions proceed.

After light, relative humidity is the most significant factor to be considered in climate control. Constant relative humidity above 65% can cause mould growth and increase corrosion whereas a relative humidity below 45% can cause sensitive materials such as paper and textiles to become brittle.

It is important not only to control absolute relative humidity but also to minimise fluctuations. Large and rapid changes in relative humidity, caused by sudden temperature variations, can have significant effects on materials. A

sudden drop in temperature in a display case for example, may result in the dew point being reached. The subsequent condensation will accelerate metal corrosion and encourage biological attack on organic materials.

Materials such as paper, wood, textiles, bone and ivory expand and contract as they absorb and release water in response to changes in relative humidity. Rapid fluctuations can lead to cracking and warping of these materials and also cause bonded materials to separate. Paint, for instance, may craze or peel from wooden surfaces and paper glued to a backing board may buckle.

Controlling relative humidity and temperature

Relative humidity and temperature control strategies include the use of:

- the buffering effects of buildings and storage media;
- moisture-absorbing desiccants (silica gel and zeolites);
- natural moisture-absorbing materials such as wood, paper and textiles;
- refrigerant dehumidifiers; and
- thorough and well-planned building maintenance.

Fluctuations in temperature and humidity are caused by daily and seasonal fluctuations in the local weather. Even without air conditioning, the insulating effect of a building ensures temperature and relative humidity variations inside a building are generally smaller than those outside.

Cupboards, boxes and display cases are secondary insulating barriers, which provide an additional buffer, helping to stabilise conditions even more.

The climate within a showcase or cabinet can be controlled if material

particularly sensitive to humidity is to be stored or displayed. If the relative humidity is too high (above 65%) then it may be necessary to use some form of desiccant within the display case to absorb excess water vapour. Self-indicating silica gel can be used for this purpose. It is important that any silica gel used in display cases is conditioned to the desired relative humidity. This process is best left in the hands of conservators as there is a risk of too much moisture being absorbed, resulting in desiccation of vulnerable objects.

Zeolite pellets may be of use in climatic areas in which the endemic relative humidity is naturally high (Australian Library and Information Association 1989). A Japanese researcher has developed a treated natural zeolite pellet capable of absorbing and releasing large amounts of water vapour. The pellets have been combined with Japanese paper with the resultant material being produced as a sheet or a paper-covered honeycomb board filled with pellets. Incorporating these materials in storage and display cabinets should allow relative humidity conditions to be controlled.

An alternative way of controlling relative humidity is to use other materials that absorb moisture, such as treated wood, paper and textiles, in the cabinet or display case with the moisture-sensitive artefacts. These materials will reduce relative humidity fluctuations by taking up or releasing moisture as conditions change. In this way the artefact is subjected to smaller relative humidity variations. Materials used must be compatible with the moisture-sensitive object. It would not be appropriate, for instance, to store a lead object in an oak box or to use buffered acid-free tissue paper with leather objects.

The Japanese traditionally have used this type of approach to deal with the naturally humid climatic conditions which exist in their country. Objects are stored in wooden chests in wooden buildings to take advantage of the natural moisture-absorbing and -releasing properties of wood. In this way the box contents are buffered against both the naturally high relative humidity and against any changes in external conditions. This approach would not be suitable for all material types, especially those sensitive to the acidic vapours given off by wood. With the right choice of wood (for example, hoop pine) and wrapping of artefacts in acid-free tissue, this approach may allow some of the problems associated with endemically high relative humidity conditions to be overcome.

Alternatively, if passive methods such as those outlined above are not sufficient, this problem may be tackled by lowering the relative humidity of the storage or display area itself. This can be achieved by employing a refrigerant dehumidifier to remove excess moisture. As mould formation is encouraged by conditions of high relative humidity, warm temperatures and stagnant air, it may be necessary to employ a combination of dehumidification, air circulation and temperature control.

Refrigerated air coolers can remove moisture from a building or room by condensing it outside. Water collected by this process is acceptable for use in the sling psychrometer.

It is important to prevent extreme conditions of temperature and relative humidity developing. Usually such extremes are very localised and often only affect a few objects. For example, localised heating and consequent low relative humidity may be caused by direct sunlight falling on an object, by

having spotlights positioned too close or by having radiators or heaters adjacent to an object.

A common cause of high humidity is leakage of rainwater through the roof or walls. It is wise not to store objects against external walls as damp and localised extremes of both temperature and relative humidity are likely. Common sense and adequate building maintenance should minimise such problems.

Biological Pests

Although a chapter in this book is devoted entirely to biological pests a few of the major points are discussed briefly in this section.

Biological pests include moulds, bacteria, insects and other small animals such as mice, rats and birds. All of these organisms are capable of causing severe damage to objects in a collection.

Problems can be minimised by adopting appropriate housekeeping practices and ensuring that the building in which objects are housed is well maintained. Some of the practical ways in which this can be achieved include:

- blocking ceiling space access to nesting birds, possums and other animals;
- controlling populations of mice, rats and insects;
- keeping food sources away from objects; and
- controlling the environmental conditions so that mould growth is not encouraged (keep relative humidity below 65%).

Note that trapping rodents is preferable to poisoning them. Trapping allows the rodent's body to be disposed of

appropriately, while poisoning means the body usually ends up as a source of food for some other pest.

Pollutants

Pollutants may emanate from:

- the materials associated with a collection;
- the objects in the collection themselves; and
- the surrounding air.

Storage and display materials

The most common sources of pollutants in storage areas are the materials used to store and/or display objects. Materials which are known to release harmful vapours at room temperature (Padfield et al 1982) include:

- wood (particularly hardwood);
- protein-based glues (except photographic gelatin);
- cellulose nitrate and cellulose diacetate;
- polyvinyl chloride and polyvinyl alcohol;
- polyurethane; and
- some dyes which contain labile sulphur.

Materials which are considered to be 'safe'

(Padfield et al 1982) include:

- metals;
- ceramics;
- inorganic pigments;
- polyethylene;
- acrylic polymers (solutions rather than emulsions);
- glass;
- polycarbonates;
- polystyrene;
- polyester fibres; and
- cotton and linen.

Materials such as chipboard, wood, certain polymers and paints all can contribute to the deterioration of objects in a collection. Chipboard and wood products can give off formaldehyde and organic acids respectively, promoting corrosion of nearby metal objects.

Objects in contact with certain polymer storage files may become contaminated as plasticisers migrate from these polymers. Artefacts stored in polyvinyl chloride are particularly at risk owing to the release of corrosive hydrogen chloride from this polymer.

The placement of objects in freshly painted cupboards also is not recommended as the solvent fumes from the drying paint may affect the organic components (glues, resins, plastics, lacquers, and the like) of some objects. It is recommended that a newly painted surface be allowed to cure for three months before use.

Artefacts

Alternatively, the objects themselves may prove to be the source of contamination as they degrade. Cellulose nitrate movie films, for example, not only release acidic, oxidising gases but also pose a fire risk as they deteriorate. These materials must be stored in their own well-ventilated and preferably fire-proof area.

Air pollutants

Air pollutants may arise from vehicle emissions, industrial activity or decaying organic matter. These pollutants, which include dust, oxides of nitrogen and sulphur, hydrogen sulphide and airborne salt, are likely to lead to increased corrosion of metals and degradation of organic materials.

Preventive measures

The significance of any air pollution problem will be determined largely by the particular collection environment and its location, be it in an industrial, tropical, coastal or desert site. Each particular environment will have its own set of problems.

Preventive measures include the use of:

- archival quality storage and display materials; and
- filtered air conditioning.

Use enamelled metal cabinets or shelves in preference to wood or chipboard for storage and display.

If wood or chipboard are used then they should be sealed with an epoxy or water-based polyurethane varnish and left to cure for about three months before use. This will allow volatile additives to vent before objects are exposed to these materials.

Alternatively, chipboard which is to be used in a display case or similar, may be given a coating of urea (400g in one litre of water). This will help to prevent any excess formaldehyde from being released from the wood. Then coat the wood with a water-based polyurethane or paint it with an oil-based primer and top-coat. Leave the chipboard for about 3 months to allow the volatile materials to vent.

Boxes should be constructed from acid-free materials and objects wrapped in acid-free tissue (where appropriate).

Activated charcoal cloth can be incorporated as a liner in storage and display areas. This cloth absorbs harmful vapours thereby protecting the artefacts. Although expensive, charcoal

cloth can last up to ten years, depending on the level of pollution.

Larger institutions should have filtered air conditioning (as per museum specifications) while smaller collections and the private collector can alleviate some of these problems by using archival storage and display materials which act as buffers against these agents of decay.

Note that if air conditioning is used to maintain objects in the best possible conditions, then it should be run for 24 hours a day. If the air conditioning is turned off overnight the environment inside the building will tend towards external values. In winter, a lowering of temperature will result in an increase in relative humidity. When the air conditioning plant is turned on in the morning there will be a rapid increase in temperature accompanied by a rapid decrease in relative humidity. These rapid changes in relative humidity should be avoided. It is obviously better to use passive controls to minimise fluctuations in environmental conditions.

Dust

Dust causes damage to objects by:

- physical abrasion;
- attracting moisture; and
- attracting biological pests such as insects, mould and bacteria.

Dust promotes both chemical and biological attack on objects.

Regular cleaning and building maintenance should minimise this problem.

Storage and Display

The aim of storage, whether in a large museum or in a private home, is to ensure that objects are protected against the agents of decay - dust, pests, pollutants, changes in temperature and relative humidity, and exposure to light.

Poorly designed, built or maintained **buildings** will produce environmental problems. The most common problem is the entry of water into the building with resultant high humidity levels. Typical causes of water entry are:

- leaking roofs, walls or windows, permitting entry of water;
- porous walls and/or ineffective damp courses which allow entry of ground water. This problem is most pronounced in basements, cellars, and buildings affected by rising damp;
- poor positioning of gardens and garden watering systems causing sections of the building to be frequently wet. This problem is aggravated if the building is constructed from porous materials such as sandstone or limestone; and
- poor ventilation of kitchen and bathroom areas, allowing water vapour to enter storage or display areas.

Extremely low humidity generally is associated with heating, caused either by sunlight entering through windows or poor placement of radiators and heaters. These factors have been discussed previously.

While private collectors probably will not have the luxury of having access to a **holding area**, it is strongly recommended that collecting institutions such as museums and historical societies set aside such an area. This area is used for temporary storage, while

objects slowly acclimatise to their new surroundings or await inspection.

Acclimatisation is particularly important for objects that have been moved from one climatic zone to another. For instance, wooden artefacts that were stable in the higher relative humidity surroundings of the tropics will lose moisture if moved to the drier southern regions. Slow acclimatisation is necessary to minimise drying stresses. This may be achieved by sealing the artefact in clear plastic. Over time the bag should be perforated to allow for slow exchange of moisture with the surroundings. The number and size of the perforations can be increased slowly as the object progressively loses moisture.

Similarly, artefacts from a dry climate also have to be buffered if transferred to a wetter zone. Great care must be taken when acclimatising objects as no hard-and-fast rules apply. The length of time before an object can be exposed safely to a new environment will depend on a number of factors, including the difference in the climatic conditions of the areas involved, the condition, material type (for example, wood, leather, textile) and the size of the object. Periods of acclimatisation of up to one year are not unusual.

While artefacts are acclimatising to a new environment, take advantage of the time to check for the presence of insects and other pests. If biological pests are detected then action can be taken to eradicate them before they have the opportunity to contaminate other objects in a collection.

The overall condition of the artefacts and the presence of dust and grime also should be noted. If this dirt is not an essential part of an object's history then it should be removed before the object

comes into contact with other parts of the collection.

Objects can be thought to be in a state of storage whatever their location. While on display, artefacts are in a visually accessible form of storage and objects grouped together in a time capsule are simply in another more specialised form of storage. In the latter case great care must be taken with packing and control of the climate if deterioration processes are to be minimised (see the chapter, Case Studies: Time Capsules).

Different material and artefact types have specific requirements for safe storage. These requirements are described in later chapters.

Handling

Specific guidelines are given in later chapters for handling particular materials, but the importance of care and common sense cannot be overemphasised. A few general principles relating to handling and moving artefacts are described below.

- Cleanliness is very important. Wash hands thoroughly and wear disposable, well-fitting gloves (white cotton or vinyl).
- Avoid unnecessary handling.
- Assess the weight and condition of the object to be handled.
- Handle only one object at a time.
- Remove all loose parts (for example, lids and drawers) to reduce the chance of breakages.
- Do not assume that handles are strong enough to support the weight of an object. Pick up all objects by their strongest points.
- Use flat supports to carry objects that are fragile or unable to support their own weight.

- Use a trolley or similar device to move heavy objects. Do not drag or push them across a surface.
- Provide protection against temperature and relative humidity changes for objects being transported to an area in which different environmental conditions may be encountered (see Packing below).

Packing

Factors to be considered before packing and moving an object include:

- fragility and condition - is the object strong enough to withstand transportation stresses;
- size, weight and value of the object;
- mode of transportation;
- type and material of the container to be used; and
- type of packing materials.

Assume the degree of care during transportation may not be ideal and pack accordingly.

Containers may be made of either cardboard or wood, depending on the nature of the object to be transported. These materials provide some degree of protection against both shock and environmental changes.

The size of the container should be such that the object and its packing fit not too tightly, inside the container. In this way internal movement is restricted and the risk of damage is reduced.

Materials used in packing should:

- be resistant to shock;
- provide a buffer against changes in environmental conditions (temperature and relative humidity);

- not settle to the bottom of the container following packing;
- be chemically inert; and
- be easily distinguishable from the packed object.

Suitable packing materials include bubble wrap, foam core and ethafoam. Do not use polystyrene beads or other loose packing materials prone to settling.

Depending on the nature of the object it should be wrapped in materials such as acid-free tissue or unbleached lined, followed by two layers of bubble wrap. Line the walls of the container with polyethylene or mylar sheeting to provide both water resistance and protection from any harmful vapours that may emanate from the container itself.

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APPENDIX V

Environmental Control & Standards

Dr Ian Godfrey, Department of Materials Conservation, Western Australian Museum

Temperature

All too often comfort level for people rather than the objects has determined temperatures in museums.

Relative Humidity

$50 \pm 5\%$ is an "experience standard" and is not based on hard data.

On an annual basis:

- 5% - safest for hygroscopic collections
- 10% - the risk is very small for most collections
- 20% - risk is small to significant
- 40% - risk is high

Seasonal fluctuations should be kept to about 5% per month.

Therefore can have different set points for temperature and RH for different seasons.

For most materials extreme short-term fluctuations may not be a problem as there is not time for an object to respond (as long as the conditions return to a value close to the original).

The choice of a particular environmental guideline should be based on the following:

- Kinds of material in the collection
- Building
- External climate
- Use to which the collection will be put
-

Light

Use of a diffuser over a fluoro tube will usually reduce the UV levels to acceptable values (have UV-absorbing chemicals in them)

Colour rendering index – recommended to be > 85 for display lighting

Tungsten globes have high CRI values. Variable for fluoros.

Measuring Exposure levels

It is essential to determine the total UV exposure (by multiplying the illumination level by the UV content of the incident light).

Light standards:

1. Major cultural institutions:

	<i>Lux</i>	<i>UV ($\mu W/lumen$) ($\mu W/m^2$)</i>	
Very sensitive	<50	<30	<1500

Sensitive	<200	<75	<1500
Insensitive	<300	<200	<60000

The aim is to cut out as much UV light as possible.

2. Smaller Institutions:

Should aim to keep illumination levels below 200 lux for objects with high and medium sensitivity, with UV levels below 75 $\mu\text{W}/\text{lumen}$. Levels should definitely be kept below 1000 lux. Light levels for artefacts of low sensitivity are considered to be unlimited (but subject to display requirements), with UV levels not specified but to be kept as low as possible.

LUX HOURS: Lux hours = illumination x time (over 1 year)

Material	Level	Lux hours/year*
Very sensitive	50	120,000
Sensitive	200	480,000
Insensitive	300	720,000

*(level x 8 hours per day x 300 days per year)

Note that Thomson recommends that the exposure for very sensitive objects be <200,000 lux hours and < 650,000 for sensitive objects. These higher values take into account security lighting etc.

Dataloggers should be used to record lux hours. Note that CCI are moving away from sophisticated systems and back to incandescent lights.

Ultraviolet films

Must be monitored as the life spans will vary – dependent on exposure patterns. Normally changes can be detected by observation.

Sandwiched UV film is considered to have the longest life.

Most changes observed in materials are photo-oxidative rather than photolytic. Thus if inert gases are used in display cases (nitrogen, argon) then slightly higher light levels can be tolerated.

Should examine the collections with a view to housing more sensitive materials in microenvironments that are either passively (preferred) or actively controlled. These may be either display cases or galleries. Note that there are problems with active control of small spaces – these respond very quickly if there are problems with the plant. There is generally strong opposition to the use of active controls in small spaces such as display cases (temperature control is usually easy to achieve in these cases but this is a minor factor in deterioration).

It is very difficult to maintain conditions of $50\% \pm 3\%$ even when 'Rolls Royce' air conditioning units are installed.

Japan has a high RH environment. There should be no attempt to impose European standards on collections where artefacts were made/used etc under the prevailing RH conditions. Rather, all that needs to be done is to ensure that no biological attack occurs.

Environmental Control – Appropriate Design And Alternative Technologies

Conventional Approach

- Define optimal environments by specifying the narrow range of conditions to be maintained.
- Assumed that cultural institutions are best served by the installation of air-conditioning.

Disadvantages of air-conditioning:

- Expensive to install, run and maintain
- Unless high quality systems are used, often cause more damage than no air-conditioning

It is more important to have a stable environment than specific levels of temperature and RH. This can be achieved by careful building design and is especially true of small museums, historic houses and other heritage buildings.

Historic structures

Installation of air-conditioning in previously unconditioned buildings has produced disastrous results. Where humidity has not been controlled, there has been severe condensation on internal walls.

Developing Countries

Lack of familiarity with advanced building techniques and with the installation, operation and maintenance of high tech mechanical services

Energy is either at a premium or unreliable

Buildings designed to be air-conditioned often provide little in the form of environmental control when the mechanical plant is not operating. In contrast objects have been safeguarded in good condition over long periods, even in adverse climates, where they have been stored in buildings which naturally maintain stable environments.

Advantages of passive climate control

- enhanced longevity of collections in third world countries and remote regions
- significant energy savings in museums and cultural centres

Problems associated with research directions

- direction of research founded on considerations of human comfort versus those of the preservation of objects
- need for a shift in perspective from the scale of the object and its immediate, contained microclimate to the scale of buildings

Buildings for Conservation

- often major civic monuments
- needs of preventive conservation are far too often compromised by competing architectural considerations

- there are no practical guidelines that can assist conservators in their interactions with building owners and their design professionals
- air-conditioning will rarely compensate for inadequate planning or building design
- the worst compromise from a conservation point of view is intermittent air-conditioning

Asia and Pacific regional study (30 museums) – Bangkok National Museum – intermittently air-conditioned rooms were subject to greater and more rapid diurnal variation of both temperature and humidity than rooms with no conditioning!!

Climate and Buildings – for people and objects

Over millennia, simple rules of thumb have been codified for the layout of cities, orientation, sun control and wind protection of houses and for the use of materials. Buildings have taken on refined and characteristic forms to modify the extremes of heat and dryness of the desert, to maximise the use of cooling breezes on tropical islands and to take advantage of the sun in cool temperate zones.

People:

- perception of thermal comfort is both physiological and psychological
- are adaptable within broad zones of comfort in which one variable may exceed 'normal' bounds, while another compensates for the discomfort that would result
- are mobile and can move to a more comfortable setting

Objects:

- substantially static
- no sensory compensation! The lowering of RH as temperature rises favours people comfort but it hastens desiccation of wood.

Because there is an overriding requirement to minimise the rate of change in the environment of objects, the potential for exploitation of environmental extremes is limited.

A Review of Some Basic Concepts

Maintaining Acceptable Ranges

The maintenance of light, temperature and RH within certain ranges is clearly important, as is the need to limit atmospheric pollutants and the exclusion of insects and rodents. It is interesting to note that:

- Remarkably similar standards are recommended in most studies
- There has been little discussion of their scientific basis or of the technical and economic difficulties associated with them
- Usually can only be attained by high quality air-conditioning
- Underlying difficulty is that of applying experimental findings carried out at the scale of objects and showcases to the behaviour of rooms and whole buildings

Humidity Control

Control is important because RH

- Accelerates chemical reactions
- Affects moisture content of hygroscopic and porous materials (dimensional changes)
- Influences sporulation and propagation of fungi

Humidity and the moisture content of organic materials

The moisture content of the materials of objects is conventionally considered to be determined by an equilibrium condition, dependent on the RH of the surrounding air at a constant temperature.

There are problems with a simplistic approach because most building materials are porous and/or hygroscopic and store large amounts of water – the quantities of water stored by building materials are 100s of times greater than the quantities of water vapour contained in the air which the materials surround. A medium sized house may contain 5 kg of water in the enclosed air and 2000 kg of water in the building materials.

Implications – at the scale of buildings, the RH of the air is dependent on the moisture content of the materials of the building fabric rather than the other way around. The same will be true of store rooms that house a considerable amount of organic material of large surface area. Furthermore, if such spaces have limited opportunity for exchange of air with the ambient environment, the RH will be buffered by the objects contained, because the materials will desorb water with rising temperature.

There is an optimum quantity of buffering material, for which the change in RH is near 0 with changes in temperature – the buffering of libraries by the books in their stacks!

A simple psychometric relationship between moisture content and air temperature, even by air-conditioning, can only be achieved in an impervious and airtight building fabric – in practice buildings are neither of these and significant moisture migration takes place through the envelope.

Humidity and fungal growth

Most conservation literature asserts that when RH exceeds 65-70%, fungal growth is a problem and that such growth may be controlled by air movement. The support for these assertions is empirical but largely anecdotal.

One study found the following:

- RH had no effect on fungal growth
- Sporulation increased with rising RH at the optimum growth temperature and diminished at other incubation temperatures
- When water is present in the medium, fungal germination occurs even when the atmospheric RH is low
- An increase in RH decreases spore release and spore count
- Fungal growth is possible on cold and moist surfaces regardless of the air humidity

Even the empirical evidence is diverging!

APPENDIX VI

Local Government Regulations – Shire of Roebourne

In Western Australia various sizes of sheds as well as sea containers are covered by Local Government regulations. For information on local requirements with any structure being erected the relevant Local Government Council should be contacted.

The following information on structural requirements garden sheds, sheds and garages and sea containers is provided courtesy of the Shire of Roebourne and is freely available from their website.

Being located within one of Australia's highest wind zone areas, the recommendations they provide are among the most robust and are a good starting point when considering what sort of option may be best for the area in which you may be considering erecting a shed or container.

Shire of Roebourne Garden Sheds Information Sheet



GARDEN SHEDS

Building Service Information Sheet

Document No: BS-0017

Introduction

Garden Sheds are small freestanding outbuildings used for the storage of garden utensils, lawnmowers etc and are generally constructed with a steel or timber frame.

This information sheet explains the requirements for the approval and general requirements relating to garden sheds.

Definitions

A **garden shed** is a freestanding outbuilding less than 10m² in area and 2.7 metres in height, placed on a residential property.

Information and Advice

The Local Government (Miscellaneous Provisions) Act 1960 and the Building Regulations 1989 require that a Building Licence be taken out for a building, prior to commencing any work on site. The Building Code of Australia, the Residential Design Codes and the Town Planning Scheme set out the minimum requirements applicable to the location and construction of garden sheds.

Is a Building Licence required for a garden shed?

Yes. A Building Licence approval is required for all garden sheds.

Who submits the application?

Either the property owner or the party contracted to construct the garden shed must submit the application.

What plans and specifications do I need to submit with my application for a Building Licence?

Two copies of the following plans and details are required:

- Floor plans and elevations of the garden shed are to be submitted, to a scale of not less than 1:100;
- A full site plan is to be submitted, showing the location of the garden shed, in relation to the property boundaries and existing buildings on the property. This plan is to be drawn to a minimum scale of 1:200;
- Structural details of all materials and fixings of the building are to be shown on the plans.

What materials must be used to construct a garden shed?

A garden shed is to be constructed to withstand region D, terrain category 2 cyclonic conditions and, as such, a durable material must be used. Generally, for garden sheds to comply with the structural requirements for cyclonic conditions, the frame is normally made from steel or timber construction.

Do I need a Structural Engineers design for the garden shed?

Yes. The Shire has engaged the services of a Structural Engineer to design a standard

garden shed (details attached). You can use these details if the garden shed is to be constructed identical to those drawings. If you choose to construct the garden shed in accordance with these details, you may use them free of charge. If you would like to construct the garden shed using a different method or specification, you will need to engage your own Structural Engineer to design the structure.

How far from the boundary of a property can I locate a garden shed?

- The garden shed must be located no closer to the boundary facing the street than the house itself;
- If you have a corner property, the garden shed must be located a minimum of 1.5 metres from the secondary street;
- The garden shed is to be located 1 metre from the side boundary;

Note – side setbacks may be reduced in certain circumstances. Please contact Council's Building Service for more information, if you choose to reduce the above side boundary setbacks

Fees

The fees for obtaining a Licence to build a garden shed are as follows:

- *Building Fee* - The estimated value of the construction x 10/11 x 0.35% (Minimum fee \$40); and
- *Builders Registration Board Levy* - \$35; and
- *Building Construction Industry Training Fund Levy* - The estimated value of the construction x 0.182% (Only applies to garden sheds valued in excess of \$20,000);

Fines and Penalties

Failure to obtain a Building Licence for a garden shed is an offence under the Local Government (Miscellaneous Provisions) Act 1960. The Shire may choose to prosecute for failure to obtain a Building Licence. The maximum penalty for this offence is \$5000. The Shire may also serve a Notice on the owner or builder to remove the structure. If you object to the local government's order you may have a right of review to the State Administrative Tribunal.

Additional Information

For detailed advice about garden sheds, please call the Shire of Roebourne Building Services on 9186 8555.

Requirement Checklist

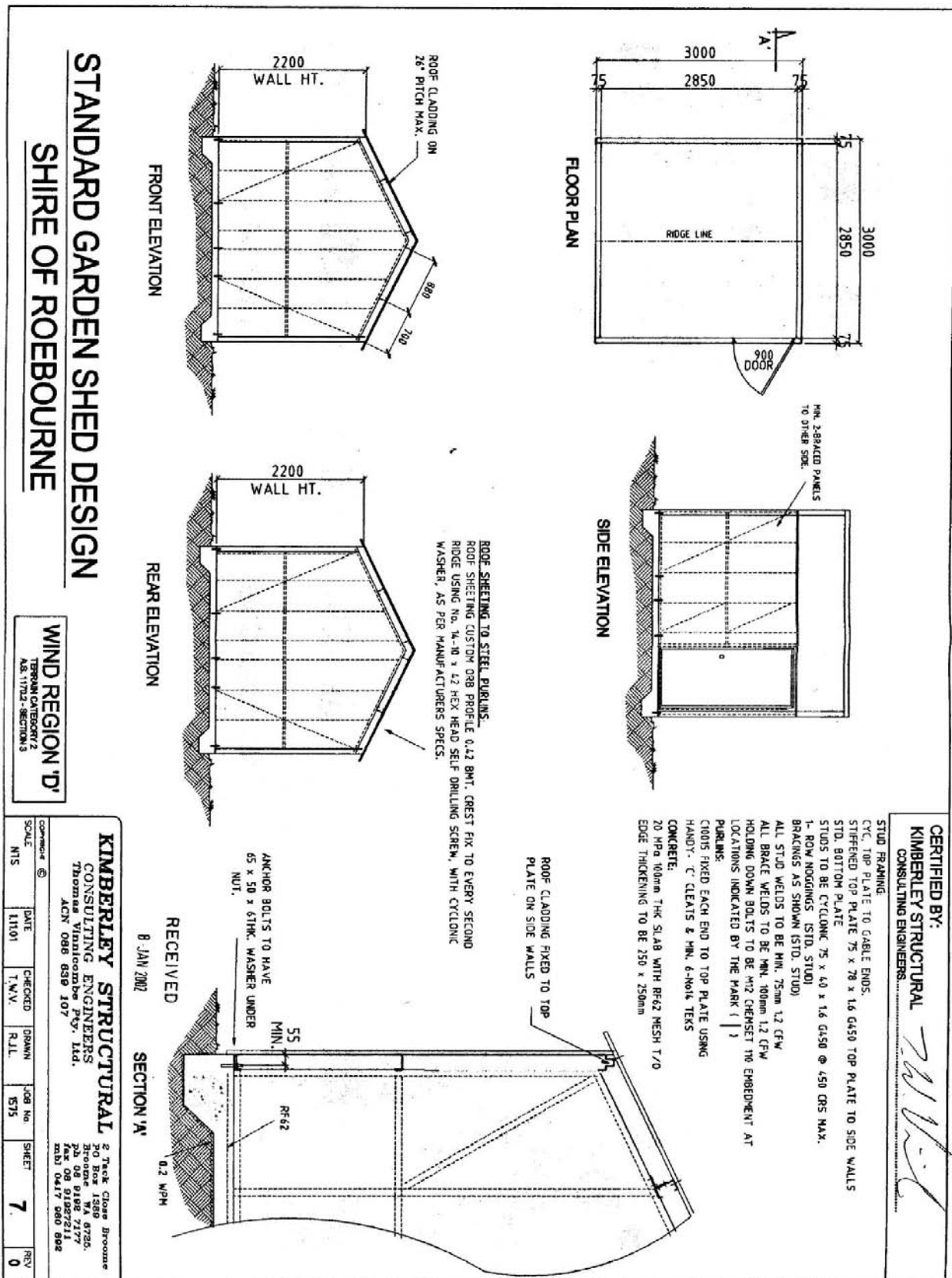
Notes

- A Building Licence is required before commencing any work;
- A Building Licence is required for all garden sheds;
- A Practising Structural Engineer's certified detail is required for a garden shed (the Shires standard details can be used);
- A full site plan, drawn to a scale of 1:200 minimum, is to be submitted with the Building Licence Application, showing heights and setbacks of the proposed garden shed.

Disclaimer

This information sheet is provided as generalised information. While we aim to keep the content of this document current and accurate, we accept no responsibility or warranties for actions based on the information provided. The Shire of Roebourne encourages you to seek professional advice before acting on any information contained within this document. Please contact the Shire of Roebourne if you wish to comment on the forms provided and information contained within. Any reported errors will be amended. Shire of Roebourne Standard Garden Shed Design – Oct 05

Shire of Roebourne Standard Garden Shed Design – Oct 05



Shire of Roebourne Sheds and Garages Info Sheet



SHEDS AND GARAGES

Building Service Information Sheet

Document No: BS-0026

Introduction

Sheds and garages are freestanding outbuildings used for the storage of vehicles or equipment on residential properties.

This information sheet explains the requirements for the approval and general requirements relating to sheds and garages. For garden sheds, less than 10m² in area, please refer to the brochure entitled "Garden Sheds".

Definitions

A **Shed** is a freestanding non-habitable outbuilding placed on a residential property;

A **Garage** is a freestanding non-habitable outbuilding, designed to accommodate one or more motor vehicles, placed on a residential property.

Information and Advice

The Local Government (Miscellaneous Provisions) Act 1960 and the Building Regulations 1989 require that a Building Licence be taken out for a building, prior to commencing any work on site. The Building Code of Australia, the Residential Design Codes and the Town Planning Scheme set out the minimum requirements applicable to the location and construction of sheds and garages.

Is a Building Licence required for a shed or a garage?

Yes. A Building Licence approval is required for all sheds and garages.

Who submits the application?

Either the property owner or the party contracted to construct the shed or garage must submit the application.

What plans and specifications do I need to submit with my application for a Building Licence?

Two copies of the following plans and details are required:

- Floor plans and elevations of the shed or garage are to be submitted, to a scale of not less than 1:100;
- A full site plan is to be submitted, showing the location of the shed or garage, in relation to the property boundaries and existing buildings on the property. This plan is to be drawn to a minimum scale of 1:200;
- Structural details of all materials and fixings of the building are to be shown on the plans.

What materials must be used to construct a shed or garage?

A shed or garage is to be constructed to withstand region D, terrain category 2 cyclonic conditions and, as such, a durable material must be used. Generally, for a shed or garage to comply with the structural requirements for cyclonic conditions, the walls are normally brick, steel or timber framed construction and the roof is generally timber or steel frame with a steel sheet roof.

Do I need a Structural Engineers design for the shed or garage?

Yes. You will need to have the design of the shed or garage checked and certified by a professional Structural Engineer. The engineer needs to state on the drawings that the building has been designed to withstand region D, terrain category 2 cyclonic wind conditions.

What is the maximum size shed or garage that I can locate on my property?

The maximum sizes are as follows:

- The maximum area of a shed or garage permitted on a residential property is 10% of the area of the property, up to a maximum of 120m². This area is an aggregate of all outbuildings on the property;
- The maximum wall height, without special permission, is 2.7 metres;
- The maximum ridge height, without special permission, is 4.5 metres.

Note – the height and area of sheds and garages may be increased in certain circumstances. Please contact Council's Building Service for more information, if you choose to increase the above sizes.

How far from the boundary of a property can I build a shed or garage?**Sheds**

- The shed must be located no closer to the boundary facing the primary street than the house itself;
- If you have a corner property, the shed must be located a minimum of 1.5 metres from the secondary street boundary;
- The shed is to be located 1 metre from the side or rear boundary, if the length of the wall is 9m or less;
- The shed is to be located 1.5 metres from the side or rear boundary, if the length of the wall is more than 9m.

Note – side setbacks may be reduced in certain circumstances. Please contact Council's Building Service for more information, if you choose to reduce the above side boundary setbacks.

Garages

- The garage must be located no closer to the boundary facing the primary street than 4.5 metres. This can be reduced to 3 metres if the vehicles will be parked parallel to the street;
- If you have a corner property, the shed must be located a minimum of 1.5 metres from the secondary street boundary. (Note – this setback can be reduced to nil if a visual truncation can be maintained);
- The garage is to be located 1 metre from the side or rear boundary, if the length of the wall is 9m or less;
- The garage is to be located 1.5 metres from the side or rear boundary, if the length of the wall is more than 9m.

Note – side setbacks may be reduced in certain circumstances. Please contact Council's Building Service for more information, if you choose to reduce the above side boundary setbacks.

Can I build the shed or garage as an owner builder?

Yes, but you can only construct a building of this nature as an owner builder if the value of construction is \$12,000 or less. If the value exceeds this amount, a registered builder will need to be engaged to obtain the Building Licence and carry out the work.

Fees

The fees for obtaining a Licence to build a shed or garage are as follows:

- 1 • *Building Fee* - The estimated value of the construction x 10/11 x 0.35% (Minimum fee \$40); and
- 2 • *Builders Registration Board Levy* - \$35; and
- 3 • *Building Construction Industry Training Fund Levy* - The estimated value of the construction x 0.182% (Only applies to sheds or garages valued in excess of \$20,000);

Fines and Penalties

Failure to obtain a Building Licence for a shed or a garage is an offence under the Local Government (Miscellaneous Provisions) Act 1960. The Shire may choose to prosecute for failure to obtain a Building Licence. The maximum penalty for this offence is \$5000. The Shire may also serve a Notice on the owner or builder to remove the structure. If you object to the local government's order you may have a right of review to the State Administrative Tribunal.

Additional Information

For detailed advice about sheds or garages, please call the Shire of Roebourne Building Services on 9186 8555.

Requirement Checklist

Notes

- A Building Licence is required before commencing any work;
- A Building Licence is required for all sheds and garages;
- A Practising Structural Engineer's certified details are required for a sheds and garages, relative to region D, category 2 cyclonic wind conditions;
- A full site plan, drawn to a scale of 1:200 minimum, is to be submitted with the Building Licence Application, showing heights and setbacks of the proposed building;
- Floor plans and elevations of the building, drawn to a scale of 1:100 minimum, are to be submitted with the Building Licence Application.

Disclaimer

This information sheet is provided as generalised information. While we aim to keep the content of this document current and accurate, we accept no responsibility or warranties for actions based on the information provided. The Shire of Roebourne encourages you to seek professional advice before acting on any information contained within this document. Please contact the Shire of Roebourne if you wish to comment on the forms provided and information contained within. Any reported errors will be amended.

Shire of Roebourne Sea Containers Info Sheet



SEA CONTAINERS

Building Service Information Sheet

Document No: BS-0024

Introduction

Sea containers are redundant steel shipping containers which have and can be used as storage buildings on residential and commercial / industrial properties.

This information sheet explains the requirements for the approval and general requirements relating to sea containers.

Definitions

A **sea container** is a redundant shipping container.

Information and Advice

The Local Government (Miscellaneous Provisions) Act 1960 and the Building Regulations 1989 require that a Building Licence be taken out for a building or structure, prior to commencing any work on site. The Building Code of Australia, the Residential Design Codes and the Town Planning Scheme set out the minimum requirements applicable to the location and tie down of sea-containers.

Is a Building Licence required for a sea container?

Yes. A Building Licence approval is required for all sea containers.

Who submits the application?

Either the property owner or the party contracted to install the sea container must submit the application.

What plans and specifications do I need to submit with my application for a Building Licence?

Two copies of the following plans and details are required:

- A full site plan is to be submitted, showing the size and location of the sea container, in relation to the property boundaries and existing buildings on the property. This plan is to be drawn to a minimum scale of 1:200;
- Details of the method of tie down are to be submitted.

Do I need a Structural Engineers design for the sea container?

No. The design of sea containers are sufficient structurally, subject to them being adequately tied down.

Do I need a Structural Engineers design for the tie down of the sea container?

Yes. The Shire has engaged the services of a Structural Engineer to design a standard tie down system (copy attached). You can use these details free of charge if you intend to use one of the options on those drawings. If you choose to tie down the sea container using an alternative method, you will need to engage your own Structural Engineer to design and certify the method of tie down.

Where can I locate a sea container on my property?

In Residential areas:

- The sea container must be located no closer to the boundary facing the street than the house itself;
- If you have a corner property, the sea container must be located a minimum of 1.5 metres from the secondary street;
- The sea container is to be located 1 metre from the side boundary, if the container is 9m long or less;
- The sea container is to be located 1.5 metres from the side boundary, if the container is more than 9m long.

Note – side setbacks may be reduced in certain circumstances. Please contact Council's Building Service for more information, if you choose to reduce the above side boundary setbacks

In Commercial / Industrial areas

- The sea container must be located no closer to the boundary facing any street than the existing buildings. If there are no existing buildings, a minimum setback of 5 metres applies;
- The sea container may be placed up to the other boundaries of the property;
- The sea container must not be placed over any existing required parking bays.

What is the maximum size sea container that can be approved?

30m² is the maximum floor area that can be approved. 2.4 metres is the maximum height that can be approved, without special consideration.

Can I use the sea container for habitation?

No. A sea container can only be approved for storage purposes.

Can I place a sea container on a vacant property?

No. A sea container will not be approved on vacant land, unless it is approved as part of the dwelling approval or a bond of \$5000 is paid. (This bond is released upon completion of the dwelling.)

Fees

The fees for obtaining a Licence to build a sea container are as follows:

- *Building Fee* - The estimated value of the construction x 10/11 x 0.35% (Minimum fee \$40); and
- *Builders Registration Board Levy* - \$35; and
- *Building Construction Industry Training Fund Levy* - The estimated value of the construction x 0.182% (Only applies to sea containers valued in excess of \$20,000);

Fines and Penalties

Failure to obtain a Building Licence for a sea container is an offence under the Local Government (Miscellaneous Provisions) Act 1960. The Shire may choose to prosecute for failure to obtain a Building Licence. The maximum penalty for this offence is \$5000. The Shire may also serve a Notice on the owner or builder to remove the structure. If you object to the local government's order you may have a right of review to the State Administrative Tribunal.

Additional Information

For detailed advice about sea containers, please call the Shire of Roebourne Building Services on 9186 8555.

Requirement Checklist

Notes

- A Building Licence is required before commencing any work;
- A Building Licence is required for all sea containers;
- A Practising Structural Engineer's certified detail is required for the tie down of the sea container (the Shires standard details can be used);
- A full site plan, drawn to a scale of 1:200 minimum, is to be submitted with the Building Licence Application, showing heights and setbacks of the proposed sea container.

Disclaimer

This information sheet is provided as generalised information. While we aim to keep the content of this document current and accurate, we accept no responsibility or warranties for actions based on the information provided. The Shire of Roebourne encourages you to seek professional advice before acting on any information contained within this document. Please contact the Shire of Roebourne if you wish to comment on the forms provided and information contained within. Any reported errors will be amended.

TYPICAL PAD FOOTING DETAIL

M16 EYE BOLT & SHACKLE

CONTAINER

10mm Ø CHAIN CAST INTO FOOTING Y12 x 200 LONG BAR THRU.

75 x 75 x 6 EA OVER TOP OF CONTAINER

MIN. 100mm x 6mm CONTINUOUS FILLET WELD

50 x 150 x 10 THK PLATE WITH 2-Y16 LEGS.

CAST IN PLATE OPTION

TYPICAL STRIP FOOTING DETAIL

M16 EYE BOLT & SHACKLE

CONTAINER

10mm Ø CHAIN CAST INTO FOOTING Y12 x 200 LONG BAR THRU.

75 x 75 x 6 EA OVER TOP OF CONTAINER

MIN. 100mm x 6mm CONTINUOUS FILLET WELD

50 x 150 x 10 THK PLATE WITH 2-Y16 LEGS.

CAST IN PLATE OPTION

TYPICAL TEMPORARY FOOTING DETAIL

M16 EYE BOLT & SHACKLE

CONTAINER

10mm Ø CHAIN CAST INTO CONCRETE Y12 x 200 LONG BAR THRU.

75 x 75 x 6 EA OVER TOP OF CONTAINER

MIN. 100mm x 6mm CONTINUOUS FILLET WELD

50 x 150 x 10 THK PLATE WITH 2-Y16 LEGS.

CAST IN PLATE OPTION

WIND REGION 'D'

AS PER AS/NZS 4200:2004

RECEIVED

8 JAN 2002

Shire of Roebourne Standard Sea Container Tie Down Specifications – Sept 05

STRIP FOOTING METHOD		PAD FOOTING METHOD	
CONTAINER PLAN VIEWS END VIEW	CONTAINER PLAN VIEWS END VIEW		
STANDARD SHIPPING CONTAINER TIE DOWN SHIRE OF ROEOUBOURNE		TEMPORARY FOOTING METHOD	
RECEIVED 8 JAN 2002		CONTAINER PLAN VIEWS END VIEW	
REFER TO SHEET 6, FOR FOOTING DETAILS WIND REGION 'D' AS 1170.2 - SECTION 3		CERTIFIED BY: KIMBERLEY STRUCTURAL CONSULTING ENGINEERS <i>[Signature]</i>	
KIMBERLEY STRUCTURAL CONSULTING ENGINEERS Thomas Vanloombae Pty. Ltd. ACN 086 690 107		2 Teak Grove Broomie Broomie WA 6720. Ph 08 9182 7177 Fax 08 9182 7211 Mob 0417 060 082	
COMPANY ③ SCALE NTS DATE 11/01 CHECKED T.W.V. DRAWN R.L.L. JOB No. 1575 SHEET 5 REV 0		200 LT CONCRETE FILLED DRUMS	

APPENDIX VII***National Archives of Australia Report on Using Sea Containers For Records Storage***

Using Shipping Containers for Record Storage Specification and Description

Ted Ling, National Archives of Australia

November 2002



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CONTENTS

1. Introduction 4
2. Shipping Containers 5
3. Acquiring the Container 6
4. Preparing the Site 7
5. Storage Capacity of Shipping Containers 9
6. Controlling Pests 10
7. Controlling Environmental Conditions 11
8. Monitoring Environmental Conditions 11
9. Preventing Fires 12
10. Steps in Setting up a Shipping Container for Records Storage 13
11. Attachments 14

1. INTRODUCTION

- 1.1 Building and maintaining a repository with environmental conditions appropriate for long-term record retention can be an expensive process, particularly in countries with tropical climates. Indeed, it can be a process that is beyond the financial means of some countries. This paper describes the process of using shipping containers as low-cost alternatives to more expensive permanent buildings. Shipping containers are readily available in most countries, and can be acquired, established and maintained relatively cheaply.
- 1.2 Regardless of the type of facility used, it must protect the records stored within it from dust and other contaminants. In addition, repositories in tropical environments must also protect the records from the effects of:
 - high temperature and relative humidity levels;
 - salty sea air;
 - high levels of rainfall;
 - cyclones (hurricanes or typhoons), storms and lightning strikes; and
 - pest infestations.
- 1.3 If properly treated and maintained, a shipping container can go some way towards protecting the records stored within it.
- 1.4 While this paper proposes the use of shipping containers as alternatives to purpose-built repositories, such containers should not be regarded as lesser facilities. When a shipping container is used to house records of archival value, it should be treated accordingly. If it looks the part – for example, is kept clear of vegetation or rubbish, and is fenced and signposted – it is likely that it will be respected as a bona fide repository by both staff and visitors. To illustrate this point, the photographs in Attachment 1 show a shipping container in Kiribati that has not been well protected and subsequently been subject to vandalism.

2. SHIPPING CONTAINERS

General description

- 2.1 Precise details concerning container dimensions and types can be found in the Australian and New Zealand Standard AS/ NZS 3711.1–9 *Freight containers*.

Dimensions - External

- 2.2 Containers are generally made from mild steel. They are commonly identified by their length, which is usually given in feet rather than metres. Usually they are 8 ft (2.40 m) wide and the same height, although some containers are 8 ft 6 in (2.55 m) high. Container lengths vary – they can be 9 ft (2.7 m), 20 ft (6 m), 30 ft (9 m) or 40 ft (12 m) long. However, the most common length is 20 ft (6 m).

Dimensions - Internal

- 2.3 A standard 20-ft container has the following internal dimensions:

- Height 2,159 mm (if 8 ft high, or 2,309 mm if 8ft 6 in high)
- Width 2,330 mm
- Length 5,867 mm

Container types

- 2.4 There are different types of shipping containers. The major ones, identified by their Australian Standard code number, are as follows:
- **General purpose container** (code 00) – totally enclosed and weather-proof, having a rigid roof, side walls, end walls and a floor, with doors at one end.
 - **Closed ventilated container** – similar to a general purpose container, but specifically designed for transporting cargo where ventilation, either natural or forced is necessary. There are two types – containers with natural ventilation (code 9) and containers with mechanical ventilation (code 15).
 - **Thermal containers** – built with insulating walls, doors, floor and roof. There are different types:

- insulated containers that rely on built-in insulation and do not use mechanical devices for cooling or heating (code 20 or 21);
- refrigerated containers that use an expendable refrigerant such as ice, dry ice or liquefied gas as the coolant rather than any external power source (code 30);
- mechanically refrigerated containers that use a powered refrigeration unit (code 31); and
- refrigerated and heated containers that use a combined refrigeration and heating unit (code 32).

- 2.5 An empty general-purpose container weighs about 2.3 tonnes (5,000 pounds) while an empty mechanically refrigerated container weighs about 2.7 tonnes (6,000 pounds).
- 2.6 A mechanically refrigerated model will, of course, make it easier to maintain desirable environmental conditions. However, these models are more expensive to purchase, operate and maintain, particularly in regions where power supplies are erratic. The buyer must also be sure the container is in good condition. It may be that the refrigeration unit has been poorly maintained in the past and will not last for long. If in doubt about the refrigeration unit, it is better to choose a non-refrigerated one.
- 2.7 This specification assumes that an insulated or a general-purpose container is being used, with some form of additional insulating material then being applied. This is a cheaper alternative than using a mechanically refrigerated model. It also recognises that some countries may not have reliable electricity supplies, and the use of containers to establish and maintain a passive internal environment is essential.
- 2.8 Purchasing a used and insulated, but not airconditioned, container in Australia costs about AUD\$3,800.

3. ACQUIRING THE CONTAINER

- 3.1 When a container is being assessed for purchase, it should be inspected thoroughly to ensure it is in good condition. There should be no rust, gaps or leaks. The doors should be checked to ensure they move freely and form a reasonably tight seal when closed.

The container must sustain a sealed internal environment to ensure stable conditions and to protect against the intrusion of rain, dirt and dust, insects and other pests.

- 3.2 It is easy to tell whether the container has any leaks by the amount of daylight entering the container when its doors are closed. Of course, it is preferable that the inspection be undertaken on a bright, sunny day.
- 3.3 Apart from the purchase cost, there will also be expenses associated with transporting the container to its new location and placing it in position.

4. PREPARING THE SITE

- 4.1 The site chosen for the container should be level with good drainage (e.g., gutters or ditches) so that water flows away from it quickly. The container should not be located next to creeks or rivers that are likely to flood, nor should it be near exposed stormwater drains. If it is located on or near the coast, it should be sited well clear of the shoreline. This will ensure protection against a king tide or a storm surge in the aftermath of a cyclone.
- 4.2 The site should be thoroughly inspected for any evidence of pests (particularly termites) and should be treated before the container is placed in position. Any vegetation, including tree stumps, should be removed and the site kept free of vegetation at all times. Ideally, the surrounding area should be paved or concreted.
- 4.3 The site should be secured. A chainwire fence about 2 m (6 to 7 ft) high is ideal, along with a set of double gates for vehicle access. The container itself should be locked. Remember, the container is housing valuable records and should be secured accordingly.
- 4.4 The container should be located on piers or blocks (bricks or concrete) and not on the ground. Ant cappings should also be used on each pier. Elevating the container will enable greater air circulation underneath and will also reduce the possibility that rodents, snakes or other pests may nest there. The space between the container and the ground should be fenced with chicken wire. It should also be remembered that the total weight of a fully laden container could be in excess of seven or eight tonnes, and this needs to be taken into consideration when designing the piers.
- 4.5 The container's long axis should be oriented east to west to minimise the effects of the western afternoon sun. The entrance should face away from the direction from which wind and storms normally come.

- 4.6 The entrance should be protected from the elements. A reasonably sized bullnose verandah would be very helpful in this respect, as would a decent external floor and a quality mat to help keep dirt and dust from being tracked into the container.
- 4.7 Containers generally do not have internal lighting and several light fittings may have to be installed. It is also possible to use emergency lights with in-built Ni-Cd (nickel-cadmium) batteries that charge when the power is available as normal lights in the building. An alternate solution is simply to use torches.
- 4.8 One problem is that every time a container is opened its environmental conditions are affected. The doors on a typical container are generally heavy and cumbersome, and opening and closing them takes time. Ideally it would be preferable to install an airlock inside the container or have a small sealed facility outside. This facility would need to be sealed or airconditioned and this would add to the installation and running costs. If these options are considered too expensive, at the very least access to the container should be kept to an absolute minimum. If possible, access should be restricted to set times during the day.
- 4.9 The container should be covered by a roof (e.g., a carport-type structure) to protect it from the effects of the sun and the rain. The roof should be tilted (not flat) to ensure rapid rainwater runoff. The roof covering can be made from steel (such as Colorbond.) or plastic. Examples of the latter include Alsynite. (made from polyester) or Laserlite. (made from polycarbonate). The photographs in Attachment 2 illustrate the type of roof structure that could be used.
- 4.10 The roof structure should extend past all sides of the container by at least 900 mm (3 ft) to provide further protection. The roof water and surface run-off should be directed away from the container, either by gutters or ditches.
- 4.11 There should be a gap of about 800 mm (2.5 ft) between the roof structure and the container to allow air to circulate between the two. In addition, 'whirlybird' ventilators can be installed on the top of the container. The Australian company Insulco produces inexpensive ventilators to meet the Australian cyclone code. If ventilators are installed, particular attention should be paid to sealing any gaps to prevent intrusion by water or dust.

- 4.12 A cheaper alternative for a roof structure is a tarpaulin. However, if a tarpaulin is used, it should be stretched above the container, not simply draped over it. It should be noted that a tarpaulin would probably be blown away in a cyclone.
- 4.13 If a general-purpose container is used rather than an insulated one, the exterior walls and roof should be coated with a highly insulating material.
- 4.14 It is, however, preferable to use both a canopy and an insulating coating.
- 4.15 When a mechanically refrigerated unit or powered lighting is to be used, it will be necessary to establish a connection to the local power supply.
- 4.16 Given the weight of a fully laden container, it is unlikely that it will move during a cyclone. It might, however, be pushed off its support blocks. Recently in Western Australia a number of people sheltered safely in an empty container during a category 5 cyclone (the strongest in terms of wind velocity). The container was unaffected by the cyclone.

5. STORAGE CAPACITY OF SHIPPING CONTAINERS

- 5.1 A standard 20-ft container has an internal storage capacity of 29.50 cubic metres. What will be achieved in terms of linear storage is dependent on how efficiently the boxes are arranged. A balance will need to be struck between maximum storage capacity, ease of access and retrieval, and good ventilation.
- 5.2 It is assumed that the boxes used will conform to the dimensions of a National Archives' standard type 1 box (i.e., 390 mm x 260 mm x 180 mm).
- 5.3 Boxes should ideally be placed on shelving or racking and not simply stacked on top of each other. While it is possible to stack them seven or eight high, there is always the risk that the bottom layers will be crushed under the weight. If this method has to be adopted thick layers of cardboard across each level should be used in order to distribute the weight. The benefit from not using racking means that a larger number of boxes can be stored cheaply. The disadvantage is that should access be required to a particular box – for example, the box on the bottom level – the set up will have to be dismantled to gain access to that box.

5.4 Using standard racking, boxes can be stacked in the following manner:

Height (bottom to top)

- Stacking the boxes on individual shelves will give seven layers with a height of 260 mm for each layer. However, if a container 8 ft 6 in high is used, boxes could be stacked eight high. These heights allow sufficient space for the boxes, racking and ventilation.

Length (front to back)

- Stacking the boxes lengthwise from the front to the back of the container will allow the placement of 30 boxes side-by-side, as they are 180 mm wide. Again, this allows sufficient space for shelf supports and ventilation.

Width (left to right)

- If a 770 mm-wide aisle is included down the centre of the container, from the front to the back, there will be sufficient space to provide two rows of shelving – one on the left and one on the right. Given that individual boxes are 390 mm deep, each row would then be two boxes deep (with one being placed behind the other).

5.5 Using an 8 ft-high container, it is possible to achieve a storage capacity of 840 boxes or 151 shelf metres. Using an 8 ft 6 in-high container, it is possible to achieve a storage capacity of 960 boxes or 173 linear metres.

5.6 Once again, regardless of how the boxes are arranged, sufficient clearance between the boxes and the container walls must be provided for ventilation.

6. CONTROLLING PESTS

6.1 As boxes are brought into the container they should be inspected to ensure there is no evidence of damp, mould or pest infestations. Otherwise, a problem could easily be imported.

6.2 Once established, boxes of moisture-absorbing crystals such as *Damp Rid™*, or *Closet Came™*, should be placed inside the container to help keep excess moisture under control. Baits and blunder traps should also be included for insects and other pests.

- 6.3 These items should be checked regularly and replaced when necessary.

7. CONTROLLING ENVIRONMENTAL CONDITIONS

- 7.1 The biggest environmental issue for record storage in the tropics is mould, whose growth is encouraged by the high levels of humidity. Reasonable temperatures can be maintained within a container if it is shielded from direct sunlight and there is good airflow around and through it using ventilators, as suggested in paragraph 4.11.
- 7.2 A mechanically refrigerated (airconditioned) container will keep the temperature lower and reduce humidity levels. Such a unit is, however, more expensive to purchase and operate than nonairconditioned ones. Another negative side effect is that condensation may occur when the warm moist air from outside the container comes into contact with the internal cooled metal surfaces.
- 7.3 Mechanical refrigeration draws significant levels of electricity. This can cause unacceptable voltage drops on electrical supply lines that are not adequately sized for it.
- 7.4 Portable dehumidifiers can help control humidity levels. They require less power to operate than mechanically refrigerated units but it is necessary to empty their condensate containers at regular intervals.

8. MONITORING ENVIRONMENTAL CONDITIONS

- 8.1 Environmental conditions within the container should be monitored regularly. This can be done in a number of ways.
- 8.2 Portable electronic data loggers can be used. Only one or two would be needed. They are powered by a lithium battery and can monitor conditions without interruption for over a year. The results can then be downloaded to a computer system.
- 8.3 Older style thermohygrographs can also be used but they need to be monitored more closely, with readings noted and the graph paper replaced.

9. FIRE PREVENTION

- 9.1 As previously stated, the site should be kept clear of vegetation and leaves (as stated previously), as should the roof structure.
- 9.2 If mains water supply is available, a hose point and a hose might be provided. Hand pressurised water type fire extinguishers should also be provided.

10. STEPS IN SETTING UP A SHIPPING CONTAINER FOR RECORDS STORAGE

- | | |
|--|--|
| 1. Select the site | ensure it is reasonably flat and safe from flooding (paragraph 4.1) |
| 2. Secure the site | install fencing and gates (paragraph 4.3) |
| 3. Prepare the site | clear away all vegetation, including tree stumps (paragraph 4.2); spray the site for pests (paragraph 4.2); install blocks or a concrete base (paragraph 4.4) |
| 4. Select the container | ensure it is in good condition, there are no rust or holes and the doors move freely (paragraphs 3.1–3.2) |
| 5. Have the container delivered and placed in position | paint the container, install ventilators; patch any holes (paragraph 4.11, 4.13) |
| 6. Associated works | install a canopy above the container (paragraph 4.9–4.12); install steps or verandah (paragraph 4.6); install shelving (paragraph 5.3); install lighting (paragraph 4.7) |
| 7. Introduce records | check for evidence of mould or insect pests first (paragraph 6.1) |
| 8. Control pests | provide baits and traps (paragraph 6.2) |
| 9. Monitor environmental conditions | install dataloggers or thermohygrographs, portable dehumidifiers and moisture absorbing crystals (paragraphs 6.2 and 7.4) |

11. ATTACHMENTS

- 11.1 Attachment 1 shows a shipping container damaged by vandals.
- 11.2 Attachment 2 shows a roof structure that could be added when converting a shipping container into a record storage unit.
- 11.3 Attachment 3 is a set of three drawings that illustrate the way in which a shipping container should be established for record storage:
 - Drawing 1 Site Plan
 - Drawing 2 Side Elevation
 - Drawing 3 Front View

USING SHIPPING CONTAINERS FOR ARCHIVES STORAGE**ATTACHMENT 1****KIRIBATI SHIPPING CONTAINER SUBJECTED TO VANDALISM**

USING SHIPPING CONTAINERS FOR ARCHIVES STORAGE

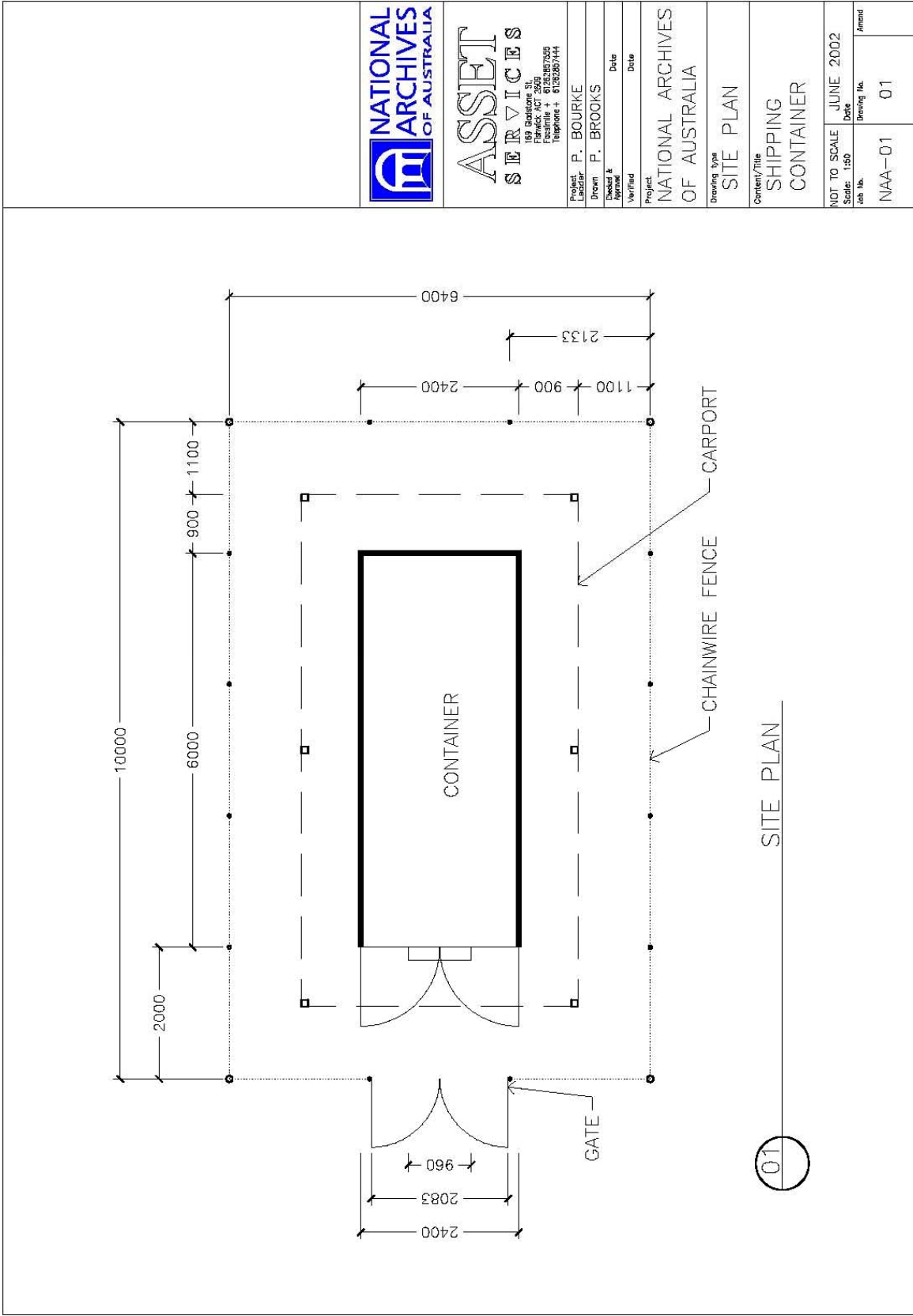
ATTACHMENT 2

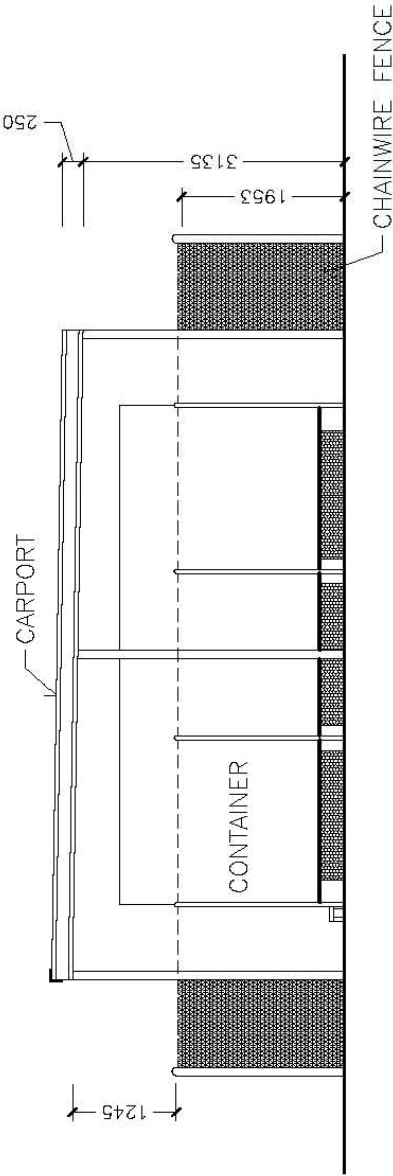
ROOF STRUCTURES FOR SHIPPING CONTAINERS USED TO STORE RECORDS



These photographs illustrate the type of roof structure that could be used in conjunction with a shipping container
(Photographs taken by Earl Carter, on behalf of Sean Godsell; reproduced with permission)







02 ELEVATION



**ASSET
SERVICES**
188 Gladstone St.
Flemington, VIC 3008
Telephone + 612 9857555
Telefax + 612 9857444

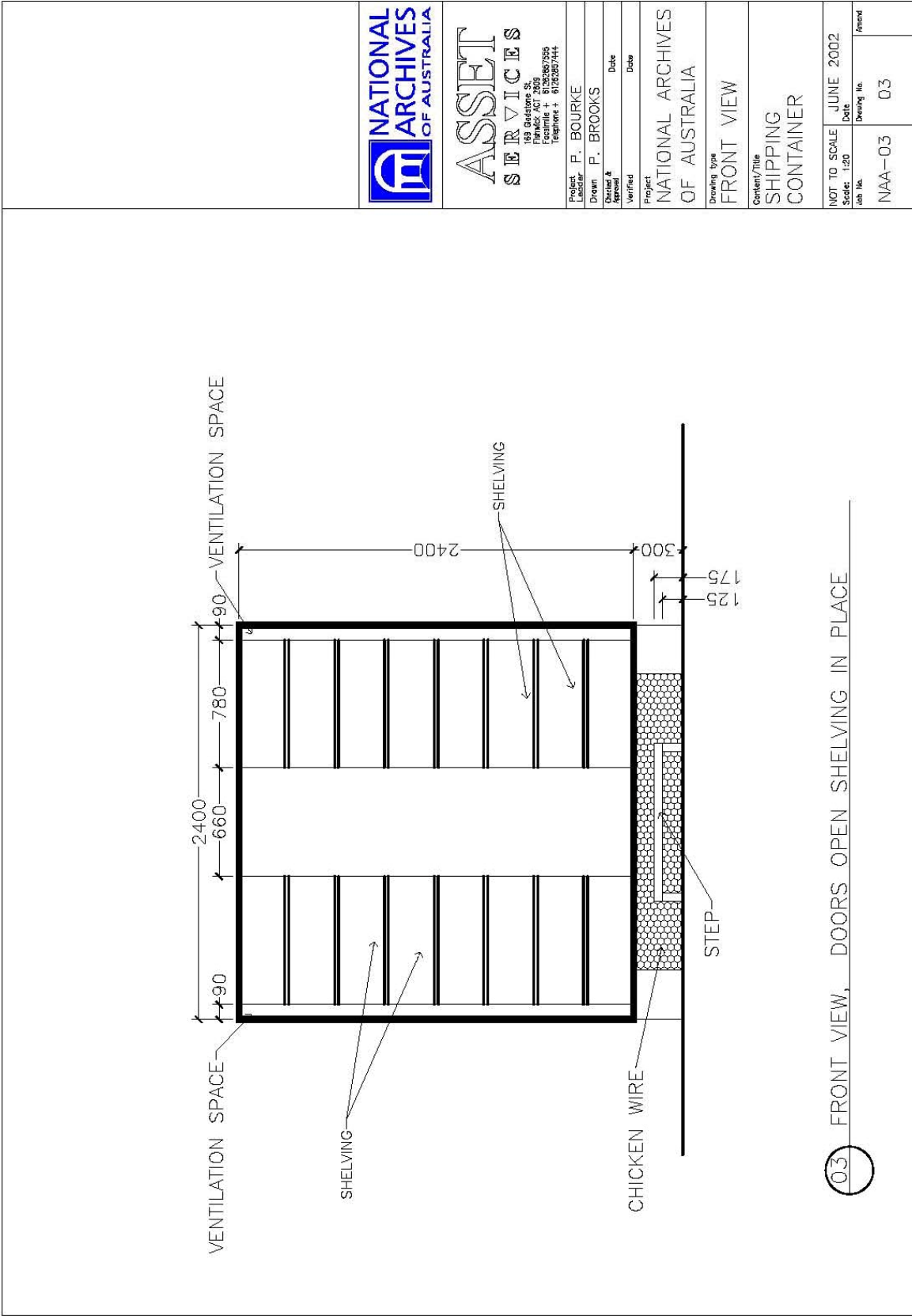
Project Leader	P. BOURKE
Drawn	P. BROOKS
Checked & Approved	
Verified	
Date	

Project
NATIONAL ARCHIVES
OF AUSTRALIA

Drawing type
SIDE ELEVATION

Content/Title
SHIPPING
CONTAINER

NOT TO SCALE	JUNE 2002
Scale: 1:50	Date
Job No.	Drawing No.
NAA-02	02
	Amend



APPENDIX VIII

BHP Billiton Health, Safety, Environment and Community Awards 2004 – The Pirmal Project



*HEALTH, SAFETY, ENVIRONMENT
AND COMMUNITY AWARDS 2004*

CATEGORY: **COMMUNITY**

THE **PIRMAL PROJECT**





HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY AWARDS 2004

CATEGORY:

COMMUNITY

THE PIRMAL PROJECT

1

PROJECT SUMMARY:

On a remote pastoral property in the East Pilbara, a short distance from tribal law grounds that have been used for thousands of years, sits a modern building constructed of rammed earth, concrete and metal that has very special significance for the region's Aboriginal community.

It is a *Pirmal*, or cultural storehouse -a secure, purpose-built place for the storage, management and protection of male ceremonial and ritual material, and the implements associated with their manufacture and maintenance.

The story of how this Pirmal came to be, and the involvement of BHP Billiton Iron Ore (BHPBIO), is a story of a group of elderly Aboriginal men determined to protect their cultural heritage and a mining company recognising the importance of sharing the benefits of its success and being valued by the community in which it operates.

It is about personal relationships, openness, respect and mutual trust and how the new Pirmal is helping to revive interest in a sacred Aboriginal ceremony.

Pirmal: *A cultural storehouse -a secure, purpose-built place for the storage, management and protection of male ceremonial and ritual material, and the implements associated with their manufacture and maintenance.*



HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY AWARDS 2004

CATEGORY:

COMMUNITY

THE PIRMAL PROJECT

2

DESCRIBE HOW LONG YOU HAVE BEEN INVOLVED IN THE PROJECT AND
WHAT ROLE YOU AND YOUR TEAM HAVE PLAYED IN IMPLEMENTING IT:

My involvement in the Pirmal project preceded my employment with BHPBIO and began in 1992 in my capacity then as Aboriginal Sites Officer in the Pilbara for the WA Museum.

With responsibility for the identification and preservation of Aboriginal cultural heritage, I was consulted regularly by BHPBIO staff and offered advice about the progress of this project.

I joined BHPBIO around the time that approval was given for the construction of the Pirmal and, through my work since with the company's Aboriginal Affairs Department, my colleagues and I have been intimately involved with the project.

The Aboriginal Affairs Department has played a key role in supervising the design and construction of the Pirmal in conjunction with Aboriginal representatives.

We have helped facilitate the collection of sacred cultural artefacts throughout the Pilbara and desert regions for storage and ceremonial use and we have helped negotiate the return of important cultural materials repatriated from private and public collections.

I am pleased to say that the Aboriginal Affairs Department is also part of a continuing effort to achieve a permanent record, through confidential audio and visual recordings, of the materials inside the Pirmal, including invaluable information about how these materials are made and used.

JUDGING CRITERIA**1****DESCRIBE THE ACHIEVEMENTS, OUTCOMES AND IMPACT OF THE PROJECT.**

The elderly Aboriginal men who approached BHPBIO about the new Pirmal emphasised its critical importance to the active cultural and ceremonial life of their community.

With their existing Pirmal in a state of disrepair, and its collection of sacred artefacts and ritual materials badly damaged by the elements, there was an urgent need to protect their cultural heritage.

The same Aboriginal men told BHPBIO that the construction of the new Pirmal would help them reactivate interest in the seldom-practised mirtiyirti initiation ceremony.

They also wanted the new Pirmal to serve as a secure storehouse for important cultural and biological material repatriated to Aboriginal communities from public and private collections.

Through careful consultation with representatives of the Aboriginal communities on every aspect of the project, the new Pirmal will allow Aboriginal people in the East Pilbara to meet all of these objectives.

The new building is fortified against theft, vandalism and cyclones, has 123-square metres of dedicated shelving surface, is well ventilated and designed to protect artefacts from the effects of direct sunlight, moisture and insects.

Since the Pirmal's construction, the mirtiyirti ceremony is now being performed, reinforcing the significance of the artefacts to the local community.



2

DESCRIBE THE LEVEL OF RESOURCEFULNESS AND INNOVATION USED IN THE PROJECT:

JUDGING CRITERIA

Given that the primary purpose of the new Pirmal was the protection of precious cultural artefacts, BHPBIO staff worked closely and carefully with Aboriginal representatives, architects and builders to ensure the building more than met the community's expectations.

Measuring 8 metres by 12 metres, the new Pirmal is well ventilated, has 30cm thick rammed earth walls, a high ceiling and concrete floor to minimise the effects of temperature and humidity.

Inside are 123-square metres of shelving surface with a shelving system running the length of the interior walls plus an island shelving unit.

As a further innovation, the building is engineered and built to withstand a Category Two Cyclone and is chemically protected against termites.

Opportunities for theft and vandalism are also reduced by the inclusion of other design attributes such as:

- The only designated entry point is a double door of reinforced plate steel
- The building is ringed by a low post-and-rail fence made of welded heavy gauge rail line to prevent a 'ram raid-style' attack
- The ceiling is made of galvanised steel reinforcing mesh welded to the roof trusses
- The rammed earth walls are reinforced with vertical tie down steel rods





HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY AWARDS 2004

CATEGORY:

COMMUNITY

THE PIRMAL PROJECT

JUDGING CRITERIA

3

DESCRIBE THE DIFFICULTY OF THE CHALLENGES FACED:

The success of the Pirmal project is due, in part, to the commitment of BHPBIO staff and their ability to confront and overcome many difficult challenges. Some of these are summarised below:

Consultation Although the suggestion for the new Pirmal came from two Aboriginal elders, on behalf of their community, BHPBIO believed it was necessary to secure consensus among other language groups in the Pilbara about the merits of the plan, whether they would use the Pirmal, what material it would house, which groups would be involved and how the building would be designed and run. This was an enormous undertaking.

Making a Business Case for the Pirmal Recognising that heritage management and protection are not core business activities for the company, BHPBIO staff needed to make a compelling case about the Pirmal project, its value and relevance to the company's obligations under its Charter. BHPBIO regards the Pirmal as much more than a building, rather a catalyst for reinvigorating interest in the cultural fabric of Aboriginal community life.

Logistics and Ongoing Support BHPBIO staff have facilitated the collection and transportation of sacred cultural artefacts both to and from the Pirmal, often involving great distances and in circumstances requiring sensitivity and total secrecy.



HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY AWARDS 2004

CATEGORY:

COMMUNITY

THE PIRMAL PROJECT

4

JUDGING CRITERIA

DESCRIBE THE RELEVANCE OF THE PROJECT TO THE BHP BILLITON CHARTER AND WORKING RESPONSIBLY: BHP BILLITON'S HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY POLICY:

A key tenet of the BHP Billiton Charter is to respect the traditional rights of indigenous people, care for the environment and value cultural heritage.

It is through the Charter and the achievement of the business standards reflected in company's Health, Safety, Environment and Community Policy that we seek opportunities to share our success by working with communities to contribute to their economic, social and cultural needs.

When communities can share in and benefit from our success, we can realise our commitment to sustainable development.

These principles and objectives are adopted and achieved in BHPBIO's involvement with Aboriginal communities in the construction of the new Pirmal, or cultural storehouse, in the East Pilbara.

The faith shown by the elderly Aboriginal proponents of the Pirmal project in BHPBIO's capacity and willingness to assist them is evidence of the strength of our relationships with local indigenous communities.

Further proof of the value of these relationships was the understanding by BHPBIO staff of the critical importance of the Pirmal, and its storehouse of artefacts, to the active cultural and ceremonial life of the Aboriginal community.



HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY AWARDS 2004

CATEGORY:

COMMUNITY

THE PIRMAL PROJECT

5

JUDGING CRITERIA

DESCRIBE WHETHER THIS PROJECT CAN BE APPLIED TO OTHER LOCATIONS OR SITUATIONS. IS THE PROJECT BEST PRACTICE IN THE FIELD? IS IT SUSTAINABLE?

The approach taken by BHPBIO in our partnership with the Pilbara Aboriginal community to construct a new Pirmal is readily applicable to other situations in remote and isolated regions where indigenous community groups have a need for similarly designed, appropriate level technology.

BHPBIO believes this approach represents best practice in the field because the company sees the protection of culturally important items not just in terms of physical management measures, such as a static or purely archival activity, but, more importantly, as an initiative which recognises and supports the development of the associated cultural and community fabric.

The elderly Aboriginal men who sought BHPBIO's assistance in BHPBIO believes the Pirmal project in the East Pilbara has been very effective because important Aboriginal cultural items are being protected and managed for posterity.

This project, on behalf of the wider community, did so because they have a strong and enduring personal relationship with the company and see the company as a longstanding member of the community with a long future in the region.

The company's ongoing commitment to this project clearly demonstrates sustainability because it recognises the importance of their efforts to keep their culture and community alive and vibrant

6

JUDGING CRITERIA

DESCRIBE THE EFFECTIVENESS OF THE PROJECT.
(COMPARE BENEFITS TO COSTS INVOLVED - THIS SECTION CAN BE
QUALITATIVE FOR COMMUNITY PROJECTS).

The use of an appropriate level of technology in the Pirmal's design and construction (i.e. simple and straightforward) allows for immediate Aboriginal management and control of the building and reduces the community's reliance and need for ongoing external support in the future.

BHPBIO sees the incorporation of visible physical protection measures into the Pirmal building as part of a wider approach to cultural heritage management that will ultimately support Aboriginal elders and leaders in the Pilbara to re-establish the wider community's understanding and ownership of the need to manage the artefacts and the Pirmal into the future.

The realisation of these objectives will hopefully ensure these items retain and regain their value and role in the active cultural life in the community.

The construction of the Pirmal has already proved a successful catalyst for the revitalisation of the important initiation ceremony called mirtiyirti.

The Pirmal is also now used as a repository for Pilbara secret and sacred items repatriated from museums around Australia.

10 The West Australian Friday May 30 2003

Sacred Aboriginal artefacts kept in secret Pilbara safehouse

By Charlie Wilson-Clark

THOUSANDS of sacred cultural items have been safely stored at a secret Pilbara site at the request of a group of Aboriginal elders.

Nyarnmoo elder Teddy Allen spoke publicly about the safehouse, or Pirmal, for the first time at a conference in Perth yesterday when he made a joint presentation with BHP Billiton Aboriginal affairs department manager Louis Warren.

Mr Allen said the construction of the Pirmal on an Aboriginal-run pastoral property had seen the restoration of a sacred man's ceremony, known as the miritiyiri, which was recently performed for the first time in 20 years.

The ceremony was restricted to men who achieved the highest levels of sacred cultural knowledge.

Mr Allen said the artefacts were kept on wire-mesh and covered with tree branches since the 1940s. They were being seen by white-ants.

"It is very important," he said. "We don't want to lose that, it's our man's site, our man law, the last bit we got and we don't want to lose it."

Mr Warren said the elders had approached the mining company for assistance with the Pirmal because they did not want to go through the long process of making submissions through government agencies and funding bodies.

"It was all based on a personal relationship," he said. "They know us and they've seen us do a lot of things for the community."

BHP Billiton spent about \$500,000 on the project and continued to help with the maintenance of the rammed-earth building and the stable ceremonial law ground.

The company also helped maintain a camping ground where women and children stay during law ceremonies.

One of the elders involved in the construction of the Pirmal died last week but Mr Allen said his realisation had helped to ease the old man's concerns.

Mr Warren said elders were now considering whether the Pirmal could be used as a temporary storage house for cultural artefacts being repatriated from museums and institutions in Australia and overseas.



Secret cultural business: Nyarnmoo elder

with BHP Billiton's Louis Warren. PICTURE: KOD TAYLOR

APPENDIX IX

A Cultural Stores Kit

What is the Purposes of this kit?

This kit has been developed to provide some guidelines to organisations that are requested to assist in development of facilities for storing Aboriginal cultural material. The kit is an adjunct to the report *For Now and Forever – an analysis of current and emerging needs for Aboriginal cultural stores and repositories in Western Australia*.¹⁷

If you or your organisation has been invited to assist in an Aboriginal cultural storage project you may find some of the resources in this kit and the report helpful to yourself and your community partners.

The kit includes:-

- An introduction to cultural material and an explanation of the three different streams of cultural storage.
- An outline of broad areas that will need to be considered in shaping a cultural storage project.
- An outline of the sorts of decisionmaking that will need to be made and suggestions on a sequence that might be followed.
- Suggestions on what sorts of matters need to be considered before a decision is reached on a specific option for housing cultural material.
- Tips on issues to consider when planning, preparing and using different sorts of options ranging from small portable solutions such as ammunition boxes and similar containers to erected structures such as sheds and adapted sea containers
- Links to further advice and information
- Images of storage options that might be useful in discussions – NB it is essential to define the purpose of a collection store before looking at the options to house it!

What is cultural material and why is it stored?

Aboriginal cultural values both have traditional roots and are central to ongoing cultural identity and development. Cultural material represents the tangible and intangible elements of individual cultures.

Such material may be, may refer to, may represent or may be a component of specific practices or knowledge systems. Some such material may be sacred and knowledge about it may be restricted to people who have been inducted into these wisdoms others is part of various aspects of day to day life experienced by much of a community.

Aboriginal and Torres Strait Islander cultural material includes artistic works such as visual, performing and literary works, moveable cultural property and ancestral remains. Cultural material also includes film, and sound recordings, documentation of cultural

¹⁷ *For Now and Forever* was prepared as an outcome of a project carried out as a partnership between the Western Australian Museum, BHPBilliton Iron Ore, Pilbara Iron (RTIO), Wangkamaya Language Center, Department of Indigenous Affairs and Pilbara Indigenous Coordination Center.

practices, and all other forms of documentation of Aboriginal and Torres Strait Islander people and any elements of their culture - past, present and future.

Archaeological material and sites are also important elements of material culture. In some cases archaeological material is excavated from sites and increasingly there are requirements for such collections to be retained and managed in country so that their values can be maintained and information related to it accessed for various cultural, scientific and legal purposes.

Various Aboriginal communities can be expected to hold a cross-section of the above and may be working with museums and other organisations to negotiate either the return of material to communities or other means of establishing ongoing access.

The processes governing individual museums' efforts to facilitate the appropriate repatriation of cultural property enabled by these programs have been influenced and supported by policies¹⁸ developed by *Museums Australia* the key professional body for the museum sector.

The efforts of Australian museums to repatriate and/or provide appropriate care for significant cultural material such as Ancestral Remains and secret/sacred items has been substantially assisted through the federal *Return of Indigenous Cultural Property Program* (RICP) as well as through Aboriginal and Torres Strait Islander Services (ATSIS) and more recently through the Office of Indigenous Policy Co-ordination. The funds associated with these programs are supporting museums and communities to work together to resolve the custody and care of these important items to the satisfaction of their traditional custodians. The program also supports the return of material from overseas collections.

In some cases cultural material may be sacred and access to it be closely controlled by traditional custodians. For example access might be restricted to appropriately initiated and (more recently) approved males. Items may be used in cultural practices and may need to be located near specific sites where these take place. As important as these items may be they might not be expected to be preserved for ever rather to have their own life and eventually decay.

Some communities may be seeking to preserve material in perpetuity so that it can be accessed and understood by present and future generations. Holding spaces might be needed for different purposes ranging from spaces to hold ceremonial regalia to archival facilities for historically important records, reports, documents and photos. These might be held by Aboriginal groups as diverse as lands councils and language centres as well as traditional custodians of significant material.

How Do Aboriginal Cultural Groups Store Cultural Material?

In the recent and more distant past various solutions have been developed by different communities to meet their specific needs.

The ways those groups went about their projects have differed:-

- Some projects have been carried out entirely by a community group on their own as has been the traditional way of doing things for generations.

¹⁸ Copies of the most recent policy *Continuous Cultures, Ongoing Responsibilities* are available from Museums Australia.

- Other projects have called for a greater or lesser extent of outside assistance sometimes from Government or Non Government Agencies sometimes from Companies.

Three Streams of Cultural Storage

You can expect most cultural store requirements to fit into one of three streams: - Cultural Stores; Archaeological Repositories; Cultural Centres. There is no simple recipe that can be used to develop a universal solution to meet all the needs of any and every Aboriginal cultural group. Each of these streams has different purposes and so will have different requirements. In some cases projects may entail aspects of more than one of these. There might be cases where two sorts of cultural storage needs can be co-located, in other cases cultural protocols will dictate that they should not.

Cultural Stores

The first stream, relates to secret-sacred material of contemporary religious importance to some Aboriginal groups. Some such material is already held by communities, other material is in the process of being repatriated through the Return of Indigenous Cultural Property Program.

All management or other controls relating to these types of storage facilities and their contents is the responsibility of the relevant Aboriginal body, the only likely input by other organisations is likely to be to assist with the initial provision of those facilities.

Archaeological Repositories

The second stream is in many ways far more complex. The focus here is on the increasing numbers of archaeological collections that have been made in the course of survey and salvage work etc linked to the relevant Heritage legislation.

With increasing archaeological survey and salvage projects associated with development, the increasing volume of materials collected will require both appropriate storage and ongoing active management of both objects and associated records and data.

Some Traditional Owners have requested archaeological material be retained in country. This has important cultural, scientific and legal implications requiring appropriate housing and ongoing management of collections including provision for collection growth.

A central regional facility may provide the best way to hold and manage archaeological collections from various sites around that region. It needs to be understood that planning for such regional facilities will need to take into account both growth and fluctuations in holdings over time and the need for access controls.

Projects of this scale and complexity will require external expertise and consultant teams with specialist expertise in planning and feasibility studies.

Cultural Centres and Other Multi Function Organisations

The third stream is far more complex still. During the past decade a number of new types of Aboriginal and Torres Strait Islander organisations have emerged with a range of functions. In various places they have different names, sometimes they are known as cultural centres, in other cases they might be called keeping places, interpretation centres or are sometimes just known as museums.

Some, but not all, have roles in managing permanent collections. Some just have interpretive displays aimed primarily at tourist visitors, while others focus more on

delivering services that meet their own community's needs. Some have places for artists and craftspeople to work to produce items for exhibitions, sale to visitors or marketed to people elsewhere. Some carry out functions both in their own buildings or grounds as well as at other places e.g. in schools or in country.

When most successful, their establishment has been based on strong community involvement during planning with a clear focus and expected outcomes defined before any step is taken to start designing a building. The Australian Museum's Aboriginal Heritage Unit has developed an excellent interactive CD¹⁹ which shares the experiences of four communities in the development of the cultural centres/keeping places in Maitland (Mindaribba), Tweed Heads (Minjungbal), Lightning Ridge (Goondie) and Glen Innes (Cooramah). In each case community members directly involved in their project introduce their centre, explain the purposes they expected it to have, explain how they went about setting it up, talk about the funding involved, speak about their achievements and pass on some tips and advice based on their own experiences.

All management or other controls relating to such centres, their contents and operations is the responsibility of the relevant Aboriginal body, the likely input by the stakeholders being to assist in identifying planning processes needed, facilitating the initial planning steps, supporting provision of buildings or perhaps sponsoring particular programs, staff development, exhibitions etc.

Projects of this scale and complexity also require external expertise and consultant teams with specialist expertise in planning and feasibility studies.

Matters To Consider In Cultural Storage Projects

There is no single model for a cultural store, an archaeological repository or a cultural centre or keeping place, each has to be developed to meet needs identified by specific communities.

It is important to understand from the start that some cultural needs require closed places while other projects may necessitate display spaces that can be open to the public.

Central to any project will be the establishment of processes to enable the purpose of a project to be considered and agreed on before any step is taken to consider options for housing Aboriginal cultural material.

Any collaborative work with an Aboriginal community on cultural matters requires special skills to be brought to the process by the different partners.

From this emerge three key principles which override all else:-

KEY PRINCIPLE 1: Provision of any storage facilities for significant cultural objects needs to be considered on a case-by-case basis. Key stakeholders need to be prepared to employ skilled negotiators – either male or female when appropriate – to engage in discussions with indigenous client groups.

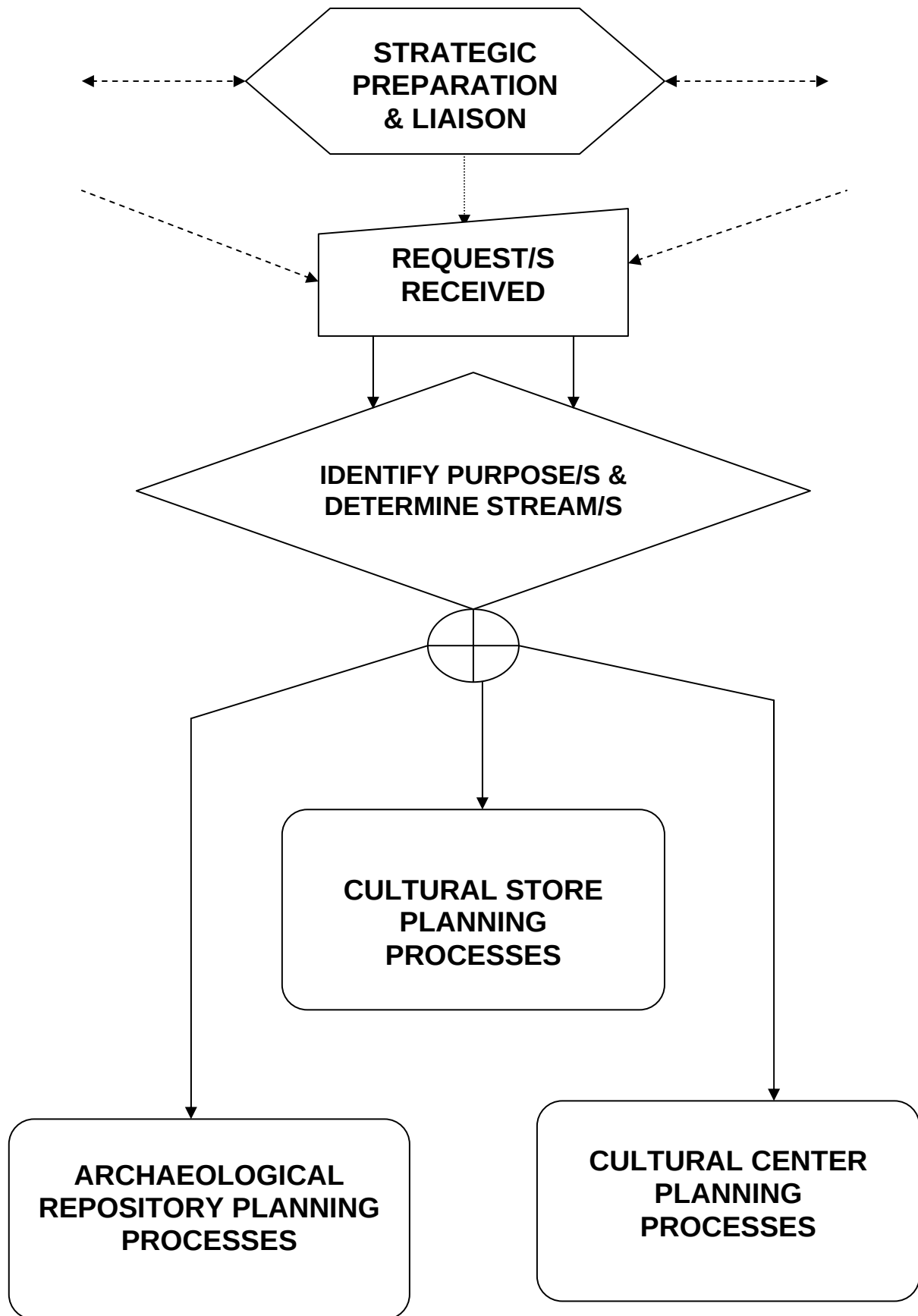
KEY PRINCIPLE 2: Key stakeholders approached for assistance will need to consult fully with relevant indigenous bodies in order to determine the specific goals for storage for contemporary cultural material or other requirements for heritage material.

¹⁹ The package *Keeping Culture – achieving self-determination through the development of Aboriginal Cultural Centres and Keeping Places* is available through the Aboriginal Heritage Unit, Australian Museum, 6 College St Sydney NSW 2010.

KEY PRINCIPLE 3: Key stakeholders involved in discussions with community groups regarding cultural stores ensure that there is a very clear and agreed understanding of whether the items to be held there will be secret/sacred or secular items.

Cultural Protocols and Planning Processes

A clear understanding of cultural protocols and processes required in liaison will be central to ensuring a clear understanding by all parties of the roles and needs of various streams of stores. An outline of steps in a draft planning process follows:

DRAFT CULTURAL STORAGE DECISIONMAKING PATHS

The Starting Point

Any organisation that has taken steps to prepare itself by being aware of likely needs and identifying skills required to address them will be better positioned to respond to requests. An audit of expertise available both internally and externally followed through by implementation of any necessary training and induction programs will strategically position the organisation to effectively participate in cultural storage projects.

Receiving Requests

Representatives of Aboriginal cultural groups will generally contact a staff member in an organisation who they trust and who they believe it is appropriate to involve in what may well be culturally sensitive matters. This person will not necessarily work in area of that organisation that has specialist expertise – but they will need access to it in the processes that follow.

Identifying Needs and Streams

Once the relevant cultural protocols have been considered processes will focus on identifying the need and which one or more of the three streams of cultural storage this falls within.

Archaeological Repositories

Establishment of an archaeological repository calls for complex planning and outside expertise will be essential. For further information refer to For Now and Forever - Archaeological Repositories page 5 onwards. This section also outlines strategic recommendations regarding establishment of regional repositories.

Cultural Centres and other Multi Function Organisations

Establishment of a cultural centre is also very complex and similarly will call for outside expertise. For further information see For Now and Forever - Cultural Centres and Other Multi Function Organisations page 7 onwards. This section recommends that key stakeholders encourage groups to draw upon specialist expertise available before engaging in discussions on building design.

Cultural Stores

You are encouraged to refer to For Now and Forever for a more complete discussion of cultural stores and an assessment of previous projects. Generally the needs for stores to hold religious items will fall into several scales:-

- Small number of items such as a kit or a set of items that are owned by an individual and held by them or stored in a location of their choice
- Collections of various sizes and numbers of items held by custodians on behalf of a community or a community group
- Larger sets of different collections that may be held on behalf of several different groups

Options to meet these different scales of needs include:-

- Adapting any of a range of small robust weatherproof portable containers
- Erecting a new shed or adapting a pre-existing one
- Adapting a sea container
- Commissioning a purpose built structure

The next section includes checklists flagging some issues and suggestions of other matters to consider with planning processes as well as with specific store options.

APPENDIX X

Draft Checklists for Cultural Stores Projects:-

TABLE 1 Draft Checklist for Strategic Preparation and Liaison

TABLE 2 Checklist for Identifying Purpose and Determining Streams for Cultural Storage Projects

TABLE 3 Checklist for Cultural Stores Planning

TABLE 4 Site Issues Checklist

TABLE 5 Weatherproof Portable Containers Issues Checklist

TABLE 6 Site Considerations Erected Sheds and Sea Containers Checklist

TABLE 7 Erected Sheds Checklist

TABLE 8 Sea Container Adaptations Checklist

TABLE 1 Draft Checklist for Strategic Preparation and Liaison

STEP	AUDITS	ACTIONS	OUTCOMES	ADDITIONAL INFORMATION & ADVICE
1. Preparation	Identify: - Processes required - Nature of likely projects - Expertise required - Expertise available in house - Expertise available externally	- Implement Strategic recommendation to commission a body to develop ways by which liaison over cultural storage can be advanced by furthering development of training and processes that can better meet cultural protocols. - Development of policies and procedures - Implementation of training and induction programs	- Agreed processes established - In-house information, induction and training programs implemented - Lists of staff and available external expertise drafted and regular update process established - Review Draft Cultural Storage decision making paths and checklists and update as required	<i>For Now and Forever</i> Aboriginal cultural organisations Western Australian Museum Consultants
2. Establishment of Liaison	Discussion of cultural protocols re any persons who should/should not be involved in furthering project discussions	Bring on board skilled negotiators (either male or female when appropriate) to engage in discussions with indigenous client groups	Establish register of personnel with key expertise both in-house and external Commission a body such as the Wangka Maya Pilbara Aboriginal Language Centre to develop ways by which liaison with traditional custodians over cultural stores can be advanced by furthering development of training and processes that can better meet cultural protocols. In-house information, induction and training programs	Aboriginal cultural organisations Western Australian Museum Consultants

Next Step - Initiate planning discussions for relevant stream/s

TABLE 2 Checklist for Identifying Purpose and Determining Streams for Cultural Storage Projects

STEP	ISSUES	ACTIONS	PREPARATION	ADDITIONAL INFORMATION & ADVICE
1. Exploration of purpose	What is the need that the community group has? Which stream/s does this project fall into (cultural store, archaeological repository, cultural centre)?	Discussions and negotiations entailing appropriate traditional custodians (plus other community representatives if appropriate)	Familiarise key personnel and negotiators with the key streams	<i>For Now and Forever</i> Australian Museum interactive CD – <i>Keeping Culture Achieving self-determination through the development of Aboriginal Cultural Centres and Keeping Places</i>

Next Step - Initiate planning discussions for relevant stream/s

TABLE 3 Checklist for Cultural Store Planning

NB Planning processes are not necessarily linear

STEP	ISSUES	ACTIONS	PREPARATION	ADDITIONAL INFORMATION & ADVICE
Preparation	Different needs require different approaches Traditional approaches meet traditional needs Museum approaches may help meet preservation needs Need for a very clear and agreed understanding of whether the items to be held will be religious or secular items. In the case of storehouses required for religious objects the items that will be housed there are • required for the maintenance of traditional religious practices • the items are not museum specimens where storage needs to focus on the minimisation of exposure to agents of decay	Bring on board skilled negotiators (either male or female when appropriate) to engage in discussions with indigenous client groups	The exact way in which protection is provided will vary considerably between organisations with different purposes and operating in different circumstances It is essential to recognise that • Traditional custodians are generally well versed in their own cultural protocols and have their own sets of traditional skills relevant to caring for items they use. • The environment of a store often just needs to provide a basic level of shelter from the worst of the elements that is appropriate for the climate zone and location. • Security just needs to be in the form of a sufficiently robust structure to afford a reasonable level of protection based on local knowledge of the likely threats in the location concerned Be aware that In the case of items which are no longer maintained the way they once were and when community groups want to preserve items for the future they may wish to consider procedures used by museums. Establish register of personnel with key expertise both in-house and external. In-house information, induction and training programs	Aboriginal cultural organisations Consultants Western Australian Museum
Initiate planning discussions	Discussion of cultural protocols re persons who should/should not be involved in project discussions		Identify any special meeting site access and logistics requirements (Transport, Catering, Access, Other?)	Aboriginal cultural organisations Consultants WA Museum
Determine scope	• How many			Aboriginal cultural

STEP	ISSUES	ACTIONS	PREPARATION	ADDITIONAL INFORMATION & ADVICE
and scale of present and future space needs and any specific location requirements	• How big? • Materials? • Who will/will not have access • Where could & should it be located?²⁰			organisations Consultants WA Museum
Determine which storage option is most appropriate to the needs		Explore options:- • Robust weather proof containers • Erected shed • Adapted sea container • Building		
Initiate broad risk assessment to Identify what risks might need to be considered	Regardless of whether a cultural store is required for now or a cultural centre or repository is being established for a permanent collection ²¹ a basic risk assessment is required.	Assess risks	Review history of disasters and known threats to identify general risks likely to be locally relevant such as:- • Climate extremes • Severe weather • Flood • Bushfire • Earthquake • Termites • Potentially dangerous animals • Access/security • Other?	Local knowledge State Emergency Services (SES) Regional Manager SES Local Emergency Management Advisory Committee (LEMAC) Consultants WA Museum <i>Be Prepared - Guidelines for small museums for writing a disaster preparedness plan</i> (ISBN 0 642 75062 9)

²⁰ In the case of permanent collections and multi function organisations site selection can be complex and may require external expertise – this is detailed elsewhere.

²¹ Permanent collections have other requirements which are detailed elsewhere

TABLE 4 Site Issues Checklist

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
Is the specific site under consideration safe from natural threats	• Is it above flood levels from nearby streams? • Is it subject to run-off from areas upslope? • Is there a fire risk due to location and local vegetation? • Is the site at risk from a rockfall etc?	Local knowledge Local Government Authority &/or SES Regional Manager for advice on 100 year storm surge flood zones
Access - Is the specific site under consideration inaccessible to people who should not have access (either inadvertently or deliberately)?	• Remote/inaccessible location difficult to reach • Will it be necessary to restrict information about the location (e.g. on a need-to-know basis)? • Should security measures be used to restrict access (e.g. signage, fences, gates, padlocks, securing container to make it immovable etc)?	Local knowledge
Is the specific site under consideration visible to people who should not be able to see it?	• Erection of screens, planting of trees etc to shield site from view	Local knowledge
Access – Is the specific site under consideration accessible to those who should have access?	• Are there any special transport considerations? • Will special keyholder arrangements be required (including provision of duplicates)? • Are any special facilities required nearby for associated ceremonial gatherings?(e.g. water, campsites, ablutions)	Local knowledge

TABLE 5 Weatherproof Portable Containers Issues Checklist

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
What sorts of containers are suitable?	• What is locally available? • What is affordable?	Local knowledge of containers used by industry that could potentially be suitable Camping goods and disposal stores regarding ammunition boxes and other containers
Is the container big enough to hold the items and able to protect them from the elements?	• Is it able to fit items in with the lid closed without causing damage to the contents? • When the container is closed, is it sufficiently sealed to give adequate protection from local threats such as insects, rodents, rainwater etc?	Local Government Authority or SES Regional Manager for advice on 100 year storm surge flood zones Local knowledge
Is the container light enough to be carried to the location where it is to be secreted?	• Is the container/s small and light enough to be carried for some distance from a vehicle (by e.g. 1 or 2 people)?	
Will the container need to be located so as to be out of the sun or will it need to be painted with heat reflective paint?	• Will a reflective paint cause other problems such as making the container too conspicuous and difficult to secrete?	For information on heat reflective paint, ceramic paint additives and different colour options see websites such as: http://www.ceramicadditive.com/flarroof2.html http://www.hytechsales.com/questions.html
Will the container be able to be easily hidden from view?	• Will its size or colour make it difficult to secrete from view of casual passers-by? • Will it be able to be readily located again when required by the custodian?	
Will the container lid need to be secured &/or the container installed so as to prevent it being removed from the site?	• If a padlock is to be used, how will the lock mechanism be protected to prevent jamming from dust etc? • Will duplicate sets of keys need to be kept by anyone?	

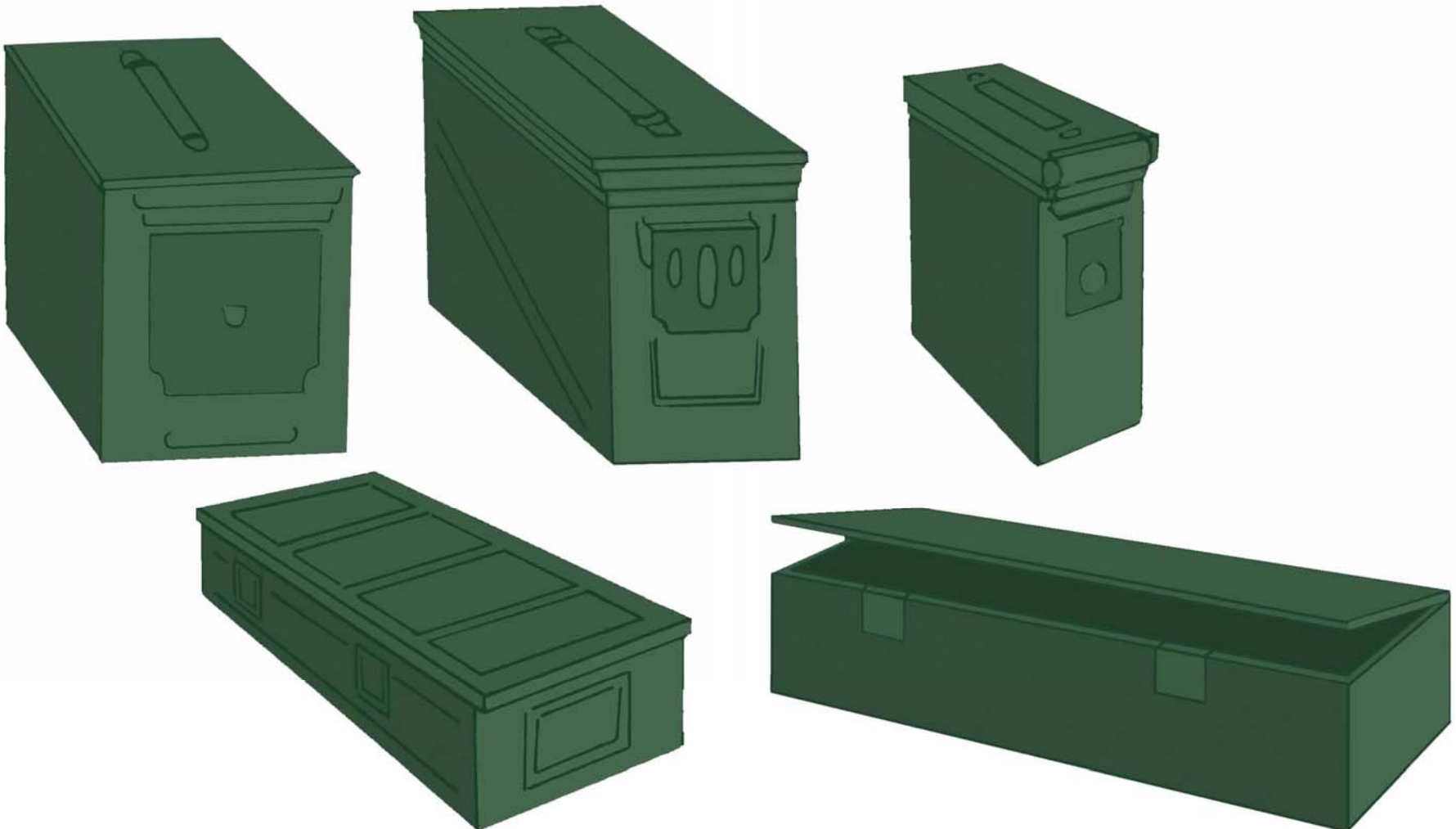


TABLE 6 - Site Considerations Erected Sheds and Sea Containers Checklist

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
Are there specific cultural protocols to be considered as part of the site selection process?	• Cultural protocols must always be a key factor in determining a suitable site. In many cases the location will be linked with a nearby place that is used for specific ceremonial purposes • items held in cultural stores are usually not intended to be seen by other than by people who have in some way been inducted. Some groups may not wish even the store building which is used to hold these items to be visible. • Cultural protocols may necessitate various site adaptations with respect to situation and orientation of a structure as well as screening it from view	
What are the different preparation requirements that might be required for various potential sites?	Site selection needs to consider opportunities and constraints posed by any particular site. The nature and cost of works required to make a site suitable may exclude it from further consideration • Sites should generally be level with good drainage • Locations selected should not be in an area liable to flood from rivers, creeks or drains or heavy run-off from upslope • If located near the coast, sites should be well clear of the storm surge zone – a particularly important factor in cyclone prone areas • Sites should be checked for evidence of pests – particularly termites – and may need treatment and regular monitoring • Vegetation including tree stumps may need to be removed and the site kept clear to reduce fire risk	
What are the different access requirements that might be required for various potential sites?	• In some situations it may be considered necessary for locks²² to be placed on gates across tracks that provide the only vehicular access to a remote place • It may be considered necessary to construct a high fence with a locked gate to form a secure compound around a structure – bollards may be needed	

²² Using locks as part of an access control strategy can cause its own problems. A list of keyholders will need to be established and kept up to date. Loss of keys and unavailability of keyholders can be real issues. Previous stores projects have faced added expenses for repairs to damaged gates, fences or doors when access has been forced because a key has been lost and an alternative keyholder can't be located.

TABLE 7 - Erected Sheds Checklist

With a shed what you see is what you get - a basic shelter from the weather that needs to be sufficiently robust to withstand local conditions.

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
Are there any specific Local Government regulations that need to be considered due to the location &/or structure?	- Local Government compliance requirements should be checked early in project planning. - Local Government regulations apply to outbuildings including sheds and are based amongst other things on safety matters and local conditions. They often differ from location to location within the one Shire as well as between different Councils. Local Government compliance requirements should be checked early in project planning. - In some northern areas construction standards require that sheds have specific block set back alignments and that their design and erection be sufficiently robust to comply with particular region, terrain and cyclone wind category specifications. - Local Government requirements can also provide useful guidelines when considering how to proceed with a project. In some cases the Local Government Authority provides free designs for sheds that comply with regulations - In response to various Local Government controls, various manufacturers produce a range of standard structures that comply with local regulations - Use of a non standard designs may require the added cost of a design being checked and certified by a professional Structural Engineer. - Will any approvals be required? - Is there any way of streamlining the approval process and costs using a standard design?	Local Council staff Local council website Local Council information sheets Shire of Roebourne website provides an excellent example with useful information sheets on sheds and sea containers able to be freely downloaded: http://www.roebourne.wa.gov.au/services2.htm#building_info_sheets

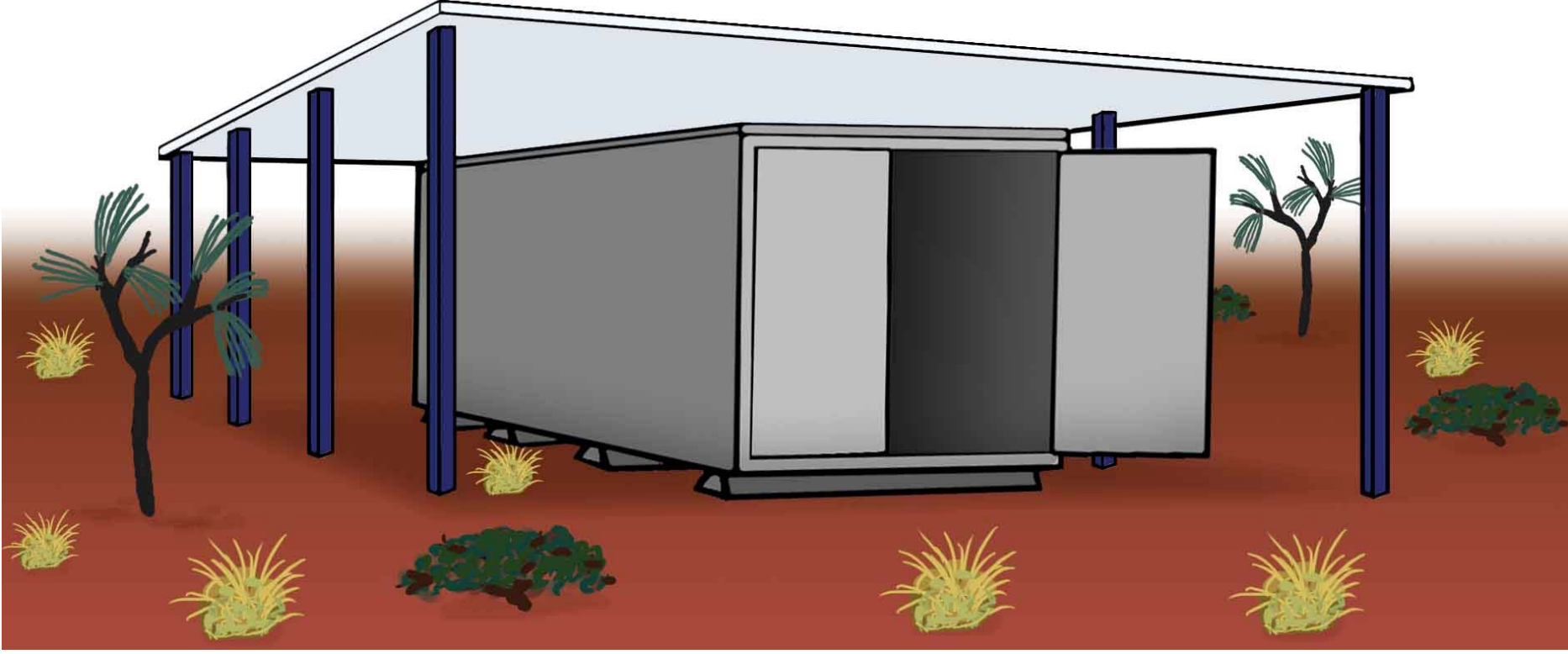
ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
A shed generally cannot provide an ideal environment for preservation of a museum collection, however a satisfactory optimum for storing other items is possible with some basic site preparation and a simple fit-out.	• Ensuring air movement can be an important factor. Location and orientation can be as important as structure • Vegetation may be retained or planted to provide shade, shelter from strong prevailing winds and visual screening • In some cases it may not be considered necessary to have a solid door. A grid gate might provide adequate security and a brush panel might provide a sufficient visual barrier. • Concrete pads can in some situations help reduce insect pests and dust, however the added cost may not be justifiable in all cases. • Elevating susceptible objects manufactured from wood or other organic materials can make them more inaccessible to threats such as termites. • Use of shelving materials other than metal is undesirable. Wooden shelves will be more attractive to pests and just provide additional surfaces for dust to accumulate on. A number of insect species have also developed an appetite for some plastics. • A simple metal shelving system based on commercially available products and using grid metal shelves (similar to weld mesh) can be as effective in putting items out of reach of insects and be a more practical approach. • It may (or may not) be useful for certain items to be kept in a shed inside to be held in robust transportable storage containers. These should be placed on shelves if possible. If not, the storage containers will need to be insect proof. • If people are to spend extended times at the site other requirements may also need to be met (e.g. water storage, shade awnings, ablutions etc)	



TABLE 8 – Sea Container Adaptations Checklist

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
Are there any specific Local Government regulations that need to be considered due to the location &/or structure?	• Local Government compliance requirements should be checked early in project planning. • Local Government regulations apply to outbuildings including sea containers and are based amongst other things on safety matters and local conditions. They often differ from location to location within the one Shire as well as between different Councils. Local Government compliance requirements should be checked early in project planning. • In some northern areas construction standards require sea container have specific block set back alignments and tie down specifications to comply with particular region, terrain and cyclone wind category specifications. • Use of a non standard tie downs may require the added cost of a design being checked and certified by a professional Structural Engineer. • Local Government requirements can also provide useful guidelines when considering how to proceed with a project • Will any approvals be required? • Is there any way of streamlining the approval process and costs using a standard design?	Local Council staff Local Council website Local Council information sheets Shire of Roebourne website provides an excellent example with useful information sheets on sheds and sea containers able to be freely downloaded: http://www.roebourne.wa.gov.au/services2.htm#building_info_sheet_S
Sea Containers are robust and can be readily adapted for a broad range of purposes.	• Containers come in various types specified in Australian standards. Thermal containers have far thicker insulation in the walls. • While units with refrigeration are available, the running cost and maintenance issues mean that in most cases it would not be practical to run such a unit on a 24 hours a day, 7 days a week basis.	Shire of Roebourne website provides an excellent example with useful information sheets on sea containers able to be freely downloaded: http://www.roebourne.wa.gov.au/services2.htm#building_info_sheet_S
Every effort should be made to minimise exposure to direct sunlight by use of orientation and shade.	• A steel roof structure – a shed without walls – will need to be erected over the sea container. • Suitable overhangs are required to the north, a smaller overhang would be required to the south. • The precise overhang required for a roof will depend on latitude and advice should either be sought from an Architect or reference made to the relevant publications	Architects The standard reference work in Australia is Phillips, R (1999). <i>Sunshine and Shade in Australia</i>. CSIRO Publishing, Canberra. ISBN: 0643065695

ISSUES	CONSIDERATIONS	ADDITIONAL INFORMATION & ADVICE
	• To block low angle early morning and late afternoon sun panels or even brush screens from floor to roof may need to be erected at both the east and west ends. • Use of one of the range of heat reflective paints can have a further impact.	For information on heat reflective paint, ceramic paint additives and different colour options see websites such as: http://www.ceramicadditive.com/ http://www.hytechsales.com/
Adequate air circulation is required to prevent high humidity conditions and resultant fungal growth	• Sea containers are usually mounted on blocks to enable air circulation beneath • Encouraging air circulation using passive systems such as vents is practical and can be effective • All vent grills will require vermin proofing which can significantly reduce airflow. Further restrictions may apply due to security issues. • Minimal maintenance, solar powered, ventilation controls are available that shut down at certain temperatures and open at lower temperatures. Regular maintenance may or may not be practical in isolated locations. In areas where wind blown dust and sand cause problems with even door locks and sliding doors or windows jamming, such systems may be more trouble than they are worth. • Issues with air movement can be complex due to different surface area/volume ratios of various sized containers used for different purposes and located in various climatic zones. The frequency of people coming and going and resultant closing and opening of doors can be an issue.	Mechanical Engineering advice to determine the size and placement of vent grills that could be most effective in meeting the air circulation needs for a container of a specific size in a particular location.
Establishment of a cultural store using an adapted sea container will need to include provision for technical advice and environmental monitoring	• The costing for establishment of an adapted sea container will need to include provision for data loggers, an environmental monitoring program and technical advice for establishment and the following 12 months.	WA Museum Consultants



APPENDIX XI

Draft Outline for a Basic Information Package on Cultural Stores

This sort of information is likely to be required for in-house use by a stakeholder organisation.

Something similar may be adapted for use in liaison with organisations that the stakeholder organisation liaises with such as Aboriginal Corporations, Aboriginal Cultural Groups.

This is a preliminary draft only to provide a suggested framework for discussion purposes.

A final booklet or booklets could expect to be developed as part of the process flagged as a strategic recommendation under Liaison Processes and Cultural Protocols page 2.

Working Title: - Cultural Materials and Their Storage

Organisation policy

(To be inserted by organisation concerned)

What is cultural Material?

Aboriginal Heritage Act

Cultural protocols with different sorts of cultural material

Secret and Sacred

Archaeological material

Everyday material culture objects

Brief explanation of the three different streams of cultural storage:

Cultural stores

Archaeological repositories

Cultural centres

Outline of the sorts of issues considered when planning and establishing structures to meet needs of each of the streams.

Approaches to Protecting Cultural Material

Traditional Approaches

Museum Approaches

Planning Processes

The Starting Point

Identifying needs

Streams

Archaeological Repositories

Cultural Centres and other Multi Function Organisations

Cultural Stores

Links to further advice and information

FOR NOW AND FOREVER

Greg Wallace and Kim Akerman

