HERITAGE IMPACT MATRIX
METHODOLOGY

CRM UNIT MANAGER: JOHAN NEL

SEPTEMBER 2012

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1   INTRODUCTION

Assessment of heritage resources includes three distinct but complimentary assessment criteria. The first is aimed at determining the value of a resource. The second is an assessment of impacts on the resource, taking into account its value and field rating if relevant. The third, only used in a South African context, is aimed at providing a proposed grading of the resource.

2   VALUE

In order to determine the value or significance of a heritage resource, the importance of that resource in terms of its authenticity and integrity at the time of assessment must be determined. Value is determined using the following formula:

$$\text{Value (0-18)} = \text{Importance (0-12)} + \text{Credibility (0-3)} + \text{Integrity (0-3)}$$

2.1   Importance

Importance is determined on four dimensions – artistic, historic, scientific, and social – each with a subset of attributes that may assist in determining the importance of the resources on each dimension.

The nine attributes are based in part on the UNESCO World Heritage Convention (1972) and the Australian ICOMOS Burra Charter. The attribute descriptions are however taken from the South African National Heritage Resources Act (Act 25 of 1999) (NHRA), which is based extensively on the Burra Charter, but has simplified those criteria sufficiently to be used here. In this manner, the nine attributes are divided into the four dimensions as relevant, summarised in Table 1 below.

Table 1: Summary of dimensions, attributes and references

Artistic, Creative, Technical		Attributes considered	NHRA Ref.	UNESCO Ref.
		Attributes considered	**NHRA Ref.**	**UNESCO Ref.**
	1	Importance in aesthetic characteristics	S.3(3)(e)	
	2	Degree of technical / creative skill at a particular period	S.3(3)(f)	
		Attributes considered	**NHRA Ref.**	**UNESCO Ref.**
Historic Importance & Association	3	Importance to community or pattern in country's history	S.3(3)(a)	
	4	Site of significance relating to history of slavery	S.3(3)(i)	
	5	Association with life or work of a person, group or organisation of importance in the history of the country	S.3(3)(h)	
		Attributes considered	**NHRA Ref.**	**UNESCO Ref.**
Scientific Information Potential, Rarity, Principle Characteristics	6	Possession of uncommon, rare or endangered natural or cultural heritage aspects	S.3(3)(b)	
	7	Information potential	S.3(3)(c)	
	8	Importance in demonstrating principle characteristics	S.3(3)(d)	
		Attributes considered	**NHRA Ref.**	**UNESCO Ref.**
Social	9	Association to community or cultural group for social, cultural or spiritual reasons	S.3(3)(g)	

2.2   Authenticity

The credibility of the information sources are vital in determining the importance and authenticity of heritage resources. The Nara Document on Authenticity forms the basis of determining authenticity. Based on this document, it is accepted that understanding and determining the value attributed to heritage resources rely on certain information sources. These sources need to be assessed as credible or truthful, which requires knowledge and understanding of such information sources in relation to original and

Information sources are defined as all physical, written, oral, and figurative sources, which make it possible to know the nature, specificities, meaning, and history of the cultural heritage. Therefore, determining authenticity of a resource requires a sound knowledge of the type of heritage resource as well as the context within which occurs – the cultural landscape. This knowledge must be gained through a detailed baseline that must aim to contextualise the resource. Information that should be considered are published, peer reviewed literature, archival research, popular publications, and any other information source that may be relevant.

subsequent characteristics of the cultural heritage, and their meaning.

The sum of the attributes, rated out of 3, are averaged per dimension to allow for an equally weighted calculation of each dimension. The sum of the four dimensions (rating out of 12) are added to a credibility rating (out of 3) to provide an authenticity rating, as follows:

$$Authenticity = Importance + Credibility$$

where

$$Importance = artistic + historic + scientific + social$$

The level of authenticity thus depends on credible information sources that determine the importance of a heritage resource. The thresholds for authenticity are provided in Table 2 below.

Table 2: Threshold and description of authenticity ratings

Score	Description	Rating
0	Credibility of information cannot be determined: conjecture, unverified personal opinions; biases evident.	None/negligible
1-5	Secondary and tertiary information sources: popular media, newspapers, magazines; 'information' websites e.g. Wikipedia, etc.; individual opinions.	Low
6-10	Credible secondary sources: factually correct textbooks, popular publications, etc.; official websites; verifiable oral accounts.	Medium
11-15	Highly credible information sources: peer reviewed publications; primary sources; verified oral accounts.	High

	Authenticity				
	Importance				
	0	3	6	9	12
Credibility 0	0	3	6	9	12
1	1	4	7	10	13
2	2	5	8	11	14
3	3	6	9	12	15

2.3   Integrity

The degree of integrity is based on the condition of the resource at the time of assessment, compared to an ideal or other example. Integrity can therefore only be assessed once the resource's authenticity has been determined, as information regarding a heritage resource

should provide comparative examples against which its condition may be measured. The degree of integrity is described Table 3 below.

Table 3: Description of integrity and ratings

Score	Description	Rating
0	Resource degraded to extent where no information potential exists; resource cannot be restored; single, isolated find, without any site context;	No/negligible
1	Poor condition, active decay visible; excessive restoration required; little information potential	Poor
2	Fair to good condition; well preserved; some decay present; can be easily restored/conserved/preserved; good information potential	Fair-good
3	Excellent/pristine; extremely well preserved; little to no decay present; little restoration required/restoration will greatly enhance resource; excellent information potential	Excellent/pristine

3 FIELD RATING

Field ratings, or proposed grading of heritage resources, are required by SAHRA in terms of S. 7(1) of the NHRA. Field ratings prescribe criteria for assessing heritage resources consistent with S. 3(3) of the act. It furthermore outlines a three tier system for heritage resources management of the national estate:

■ National: SAHRA is responsible for identification and managing of Grade I heritage resources;

■ Provincial: Provincial Heritage Resources Authorities (PHRAs) are responsible for identification and managing of Grade II heritage resources; and

■ Local: Local authorities (municipalities, metros, local government) are responsible for identification and managing of Grade III heritage resources.

Identification and management responsibilities

However, few local authorities currently have the capacity to identify and manage Grade III heritage resources. The responsibility in practice thus reverts to the PHRA or SAHRA where a PHRA is absent. The only functioning PHRAs currently (2012) are Amafa-akwaZulu-Natali, Heritage Western Cape, and Eastern Cape Provincial Heritage Resources Authority (EC-PHRA). For courtesy and consistency, reports should still be submitted to absent PHRAs such as LIHRA (Limpopo Heritage Resources Authority) and G-PHRA (Gauteng Heritage Resources Authority).

Field ratings are based on (equal to) the value of a heritage resource. The thresholds for field ratings are present in Table 4 below.

Table 4: Field rating thresholds and descriptions

Score	Grade	Protection	Recommended Heritage Mitigation
16-18	Grade I	National	Heritage resource should be nominated as a National Site/Object, included in National Estate
13-15	Grade II	Provincial	Heritage resource should be nominated as a Provincial Site/Object, included in National Estate
10-12	Grade III A	Local	Heritage resource should be nominated as a Regional Site/Object, included in National Estate
7-9	Grade III B	Local	The heritage resource must be mitigated and partly conserved/preserved
4-6	Grade IV A	General	The heritage resource must be mitigated before destruction
1-3	Grade IV B	General	The heritage resource must me recorded before destruction
0	Grade IV C	General	No mitigation required - application for destruction permit

Value = Field Rating

Authenticity

Integrity		0	3	6	9	12	15
	0	0	3	6	9	12	15
	1	1	4	7	10	13	16
	2	2	5	8	11	14	17
	3	3	6	9	12	15	18

Value = Authenticity + Integrity

4   IMPACT ASSESSMENT

Assessment of impacts on heritage resources rely on two factors that must be considered when rating impacts:

■ The potential physical and/or visual impact on the resource; and

■ The impact on the cultural landscape should any resource change or be destroyed.

The rating takes into account:

- Spatial scale of impact;

- Expected duration of impact; and

- Severity of impact;

- Consequence of impact;

- Probability of impact occurring; and

- Value of heritage resource

Impact significance = value x magnitude

where

Value = importance + credibility + integrity

and

Magnitude = consequence x probability

and

Consequence = spatial scale + duration + severity

The impact rating is applied to pre- and post-mitigation scenarios. The ideal is to remove all impacts to a heritage resource. Where post mitigation significance is not zero, the recommended field rating (heritage) mitigation must be undertaken. The tables below provide the various descriptions and thresholds applicable to the impact assessment ratings.

Table 5: Description of magnitude ratings

Score	Description	Rating
0	No/negligible environmental impacts expected on heritage resource.	None/negligible
1-8	Low magnitude of environmental impacts on heritage resource	Low
9-16	Medium magnitude of environmental impacts on heritage resource	Medium
17-27	High/exceptional magnitude of environmental impacts on heritage resource	High

Magnitude

Consequence

Probability		0	1	2	3	4	5	6	7	8	9
	0	0	0	0	0	0	0	0	0	0	0
	1	0	1	2	3	4	5	6	7	8	9
	2	0	2	4	6	8	10	12	14	16	18
	3	0	3	6	9	12	15	18	21	24	27

Magnitude = Consequence x Probability

where

Consequence = scale + duration + severity

Table 6: Scores, descriptions and ratings determining consequence of impact

Scale		
Score	**Description**	**Rating**
0	No effect on any part/aspect of heritage resource	None
1	Isolated parts/aspects of heritage resource will be affected	Low
2	Large parts/aspects of heritage resource will be affected	Medium
3	Most or entire heritage resource will be affected	High
Duration		
Score	**Description**	**Rating**
0	No impact will occur during life of project	None
1	Impact will be short and reversible	Low
2	Impact will occur throughout life of project, but is reversible	Medium
3	Impact is permanent and irreversible	High
Severity		
Score	**Description**	**Rating**
0	Negligible to no change/alteration/damage/destruction of heritage resource	None
1	Reversible changes/alterations to heritage resource	Low
2	Parts/aspects of heritage resource will be permanently altered/changed/destroyed	Medium
3	Entire heritage resource will be permanently altered/changed/destroyed	High
Probability		
Score	**Description**	**Rating**
0	Impact will not occur	None
1	Impact could occur, but implementation of appropriate project mitigation measures reduce/remove impacts	Unlikely
2	Impact may occur during life of project regardless of implementation of project mitigation measures	Probable
3	Impact will definitely occur, project mitigation measures will not reduce or remove impacts	Certain

Table 7: Significance of impact on categories of heritage resources

		Magnitude of Impact			
		Archaeology, Palaeontology	**Built Environment/Structures**	**Historic Landscape**	**Intangible/Associations**
0	**No change**	No change	No change to fabric or setting	No changes to landscape elements, parcels, or components; no visual or audible changes; no changes in amenity or community factors.	No change
1-122	**Low**	Very minor changes to key archaeological materials, or setting.	Slight changes to historic building elements or setting that hardly affect it.	Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise or sound quality; very slight changes to use or access; resulting in very small change to historic landscape character.	Very minor changes to area that affect the ICH activities or associations or visual links and cultural appreciation
123-243	**Medium**	Changes to key archaeological materials, such that the resource is slightly altered; slight changes to the setting.	Change to key historic building elements, such that the resource is slightly different; change to setting of an historic building, such that it is noticeably changed.	Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of the historic landscape; limited changes in noise or sound quality; slight changes to use or access; resulting in limited changes to historic landscape character.	Changes to area that affect the ICH activities or associations or visual links and cultural appreciation
243-486	**High**	Changes to many key archaeological materials, such that the resource is clearly modified; changes to the setting that affect the character of the asset	Change to many key historic building elements, such that the resource is significantly modified; change to setting of an historic building, such that it is significantly modified.	Change to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to historic landscape character.	Considerable changes to area that affect the ICH activities or associations or visual links and cultural appreciation
		Changes to attributes that convey outstanding national value of national estate; Most or all key archaeological materials, including those that contribute to ONV such that the resource is totally altered; comprehensive changes to setting	Change to key historic building that contribute to outstanding national value of national estate such that the resource is totally altered; Comprehensive changes to setting.	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit and loss on outstanding national value.	Major changes to area that affect the ICH activities or associations or visual links and cultural appreciation

		Significance Magnitude									
		0	3	6	9	12	15	18	21	24	27
Value	0	0	0	0	0	0	0	0	0	0	0
	3	0	9	18	27	36	45	54	63	72	81
	6	0	18	36	54	72	90	108	126	144	162
	9	0	27	54	81	108	135	162	189	216	243
	12	0	36	72	108	144	180	216	252	288	324
	18	0	54	108	162	216	270	324	378	432	486
Significance = Magnitude x Value											