# Environmental and Heritage Data Standards

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# Contents

# Document Control

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# Amendments

| Revision Number | Revision Date | Description of Key Changes | Section / Page No. |
|---|---|---|---|
| 6 | 02/06/2020 | Revised to:<br>• Align with updated naming conventions (Section 8).<br>• Align with updated IBSA Standards (Appendix 2).<br>• Use Main Roads new corporate template. | All |
| 5 | 01/08/2019 | Minor changes to Attribute Definitions and Schema:<br>• Vegetation Condition, Vegetation Association and Fauna Habitat Feature Classes updated to state hectares for area;<br>• Vegetation Condition and Dieback Feature Classes updated to replace Highly Disturbed with Cleared;<br>• Quadrat Floristics Feature Class updated to include Taxon Name, which replaces genus, species, subspecies, indeterminant species and variety fields, and height of plant changed from centimetres to metres;<br>• Survey Archaeological and Ethnographic Feature Classes updated to include the full citation of the survey report;<br>• Aboriginal Heritage Sites Feature Class updated to include the area of the site in square kilometres and not hectares. | Appendix 2 |
| 4 | 28/09/2018 | Inclusion of an ESRI geodatabase template, data is to be in GDA94 and not MGA94, changes to the naming convention of unrecorded heritage sites and a major revision of Appendix 2. Changes to Appendix 2 to align with IBSA. | Sections 2, 7 and 8, Appendix 2, Appendix 3 |

| Revision Number | Revision Date | Description of Key Changes | Section / Page No. |
|---|---|---|---|
| 3 | 25/01/2018 | Requirement for MXD files to be consistent with project/survey names and document number. A rounded SLK range is to be used in the file name. Revised naming convention for heritage sites. Appendix 2 has been revised to include a new feature class for ecological community, a new feature class for fauna records, an additional field for report details and amendments to the heritage layers. | Section 3.3, Section 8, Appendix 2 |
| 2 | 08/12/2017 | Amendments to Feature Class Schemas and Lossy/Lossless Raster data definitions | Appendix 2, Section 3.2 |
| 1 | 06/07/2017 | Inclusion of Dieback-Polygon Data | Appendix 2 |
| 0 | 12/04/2017 | Document released | - |

# 1 PURPOSE

This document provides guidance to Main Roads Western Australia (Main Roads) contractors and consultants to meet data standards for services supplied for environment and/or heritage survey and assessments.

Please review this document in its entirety before preparing data for submission to Main Roads. Failure to meet the standards, where set, will be treated as a failure to meet contractual obligations.

## 1.1 Policy / Procedure Statement

All data collected from desktop assessment, government database search requests, field collection, purchased, processed, or collated during all environmental and/or heritage surveys, on behalf of Main Roads, is to be provided to Main Roads in the formats adhering to the standards as specified in this document, or its revisions.

In addition, all data and data use licences, which are purchased for work undertaken for or on behalf of Main Roads, is to be purchased and licensed to Main Roads. All data and relevant licence information is to be provided to Main Roads at the conclusion of the project.

All draft GIS data is to be provided with the draft biodiversity and/or heritage survey report for preliminary review. Any comments on the data format and status is to be also included. All draft data will be reviewed by the relevant Main Roads staff. Feedback will be given on the draft data and written report as required.

Final data is to be provided to Main Roads with the final report in digital form. Formats in which all GIS data is to be provided are described in Section 3 of this document.

## 1.2 Raw Data

All survey data is to be provided to Main Roads in ESRI Shapefile format, as per the collection template provided.

For the purpose of this document, 'raw data' means data collected as part of any biodiversity and/or heritage survey work before being entered into GIS. Often this information is collated in spreadsheet format by consultants to manipulate and validate in bulk. Raw data may also include any data that is not presented in the final report. The consultant must provide Main Roads with the raw data in excel.

If the consultant does not have the capability to provide the data in an ESRI Shapefile format, raw data will suffice.

All data is to adhere to the Main Roads Environmental and Heritage Data Standards.

## 1.3 Spatial Data

Main Roads will provide Biodiversity and/or Heritage Survey Data Templates and Standards for the provision of biodiversity and/or heritage survey data. On occasion, surveys for specific outcomes or opportunistic data capture may not fit the provided templates. In such instances, the format is to be discussed with the Main Roads Environment Branch staff prior to commencement of work. In such cases, the GIS standards listed under Section 3 onwards is to be applied.

# 2 PREPARING DATA FOR SUBMISSION

## 2.1 Format Overview

### 2.1.1 Environmental Spatial Data

Main Roads uses ESRI ArcGIS as its standard Geographic Information System (GIS) software platform for the management, analysis and visualisation of spatial data. For this reason, spatial data should be submitted by contractors in one of the formats listed below in order of preference:

- ESRI-compatible GIS data formats (preferred; see Section 3 for specific requirements); OR
- Computer-Aided Design (CAD) data formats (see Section 4 for specific requirements).

An ESRI shapefiles template has been created in accordance with the Main Roads data standards and is available for use on the Main Roads website. Refer to Appendix 3.

### 2.1.2 Raw Data

Raw data tables are commonly used for the delivery of scientific or other monitoring data, and may or may not contain coordinates describing the location of each record in the table. If GIS files cannot be supplied, then raw data tables are acceptable; however, the specific requirements for the preparation and submission of raw data described in Section 6 should be followed.

## 2.2 Quality Assurance/Quality Control (QA/QC)

Contractors are responsible for carrying out basic Quality Assurance/Quality Control (QA/QC) of all data prior to supplying it to Main Roads. Quality Assurance can be described as the process of preventing errors from entering into datasets; while Quality Control can be described as the process of identifying and correcting existing errors in datasets.

All datasets should be checked for:

- Spatial errors (e.g. errors in coordinates entered in raw data tables; errors in the geometry of features in spatial datasets)
- Attribute errors (errors and inconsistencies in the data recorded in raw data table columns or in spatial data attribute fields)
- Completeness (are all the datasets present?)
- Consistency with data shown in any accompanying documents (such as reports or drawings), and
- Compliance with the Data Standards described in this document.

Once submitted, data will be reviewed by Main Roads. Non-compliant datasets or datasets containing errors will be returned to the contractor for modification and resubmission.

# 3 GIS DATA STANDARDS

## 3.1 Vector Data

Vector Data includes points, lines and polygons.

Each GIS vector dataset being submitted to Main Roads must include three key deliverables, prepared according to the specifications outlined in Table 1.

**Table 1: Key Deliverables for GIS Vector Data**

| Key Deliverables | Requirements |
|---|---|
| **Vector Dataset** | **File Format (Compatible with 10.1):**<br>• ESRI Shapefile (must include *.SHP, *.SHX, *.DBF and *.PRJ files as a minimum).<br><br>**Datum, Projection and Coordinates:**<br>• Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7).<br><br>**Attributes (as detailed in Appendix 2):**<br>• Attribute fields must be clearly and logically named.<br>• Attribute fields must be properly formatted for correct data type. i.e., Date or Text or Number/ Integer.<br><br>**File Name:**<br>• Alphanumeric characters, spaces, hyphens and underscores only.<br>• Feature class names must begin with a letter- they cannot begin with a numeral or special character. |
| **Layer File** *(ArcGIS users only)* | If ArcGIS is used to prepare the spatial dataset, and if the data are symbolised in a complex or specific way in figures, an ESRI Layer file that defines the symbology should be submitted along with the vector dataset. |
| **Metadata File** | Please complete one metadata form (see Appendix 1) to accompany each Feature Class or Shapefile being submitted. Refer to Section 9 for details. |

## 3.2 Raster Data

Raster data includes satellite or aerial imagery.

Each GIS raster dataset being submitted to Main Roads must include four key deliverables, prepared according to the specifications outlined in Table 2.

**Table 2: Key Deliverables for GIS Raster Data**

| Key Deliverables | Requirements |
|---|---|
| **Raster Dataset** | **File Format:**<br>• Preferably JPEG2000 (.JP2); OR<br>• Enhanced Compression Wavelet (.ECW); OR<br>• GeoTIFF (.TIF, .TIFF); OR<br>• ERDAS Imagine (.IMG); OR<br>• ESRI GRID (ASCII or Binary)<br><br>**Compression**: *(if supported by selected raster file format)*<br>• Lossless compression (or no compression) should be used for most raster datasets.<br>• Lossy compression methods may be appropriate for some kinds of raster data (primarily data that is used for display purposes rather than for analysis); however use of lossy compression must first be approved by Main Roads Asset & Geospatial Information Branch.<br><br>**Datum, Projection and Coordinates:**<br>• Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7).<br><br>**File Name:**<br>• Alphanumeric characters and underscores only. |
| **Metadata File** | A metadata form (see Appendix 1) must be completed for each raster dataset being submitted. Refer to Section 9 for details. |

## 3.3 ArcMap Document (MXD) Files

Where contractors use ArcGIS to prepare maps for reports, Main Roads will provide ArcMap templates and guidelines to be used by the contractors to maintain a style of cartography that is consistent with the styles used in Main Roads' reports. If templates have not been provided, then use of the template is not required.

ArcMap document (MXD) files will be created using the datum and projections as described in Section 7.

A copy of the MXD files prepared for each figure produced by the contractor should be submitted to Main Roads along with the spatial data.

The MXD file name must be consistent with the project/survey name, document number and year the report was written.

## 3.4 Digital Photography

All photos taken during biodiversity and/or heritage surveys is to be provided to Main Roads at the completion of the project with all other survey data. Photo locations are to be provided as per all other survey data in the template as GDA94 Longitude/Latitude in the "Photo Location" Feature Class template and the photos themselves as .jpg format. Photos will be linked to their respective point location in Main Roads internal GIS via the file name. Therefore, the file name in the .JPG file must match the corresponding attribute in the Photo Location Feature Class. These are to be named as per the following naming convention:

For all survey and sample specific photos:

- Refer to Section 9.2 Study Area and Photo Location Standards. General Note c.
- All other photos, such as opportunistic observations or non-site-specific generic photos use
- 'OTHER', Photo Description, Site, Source, Date (DDMMYYYY)' (e.g. 'OTHER Granite Outcrop Brookton Highway, Consultant X, 02052010)
- Where applicable, please indicate the time of the photo and direction in the file name. (i.e. 'Site Access Track- Brookton 9am South Facing').

# 4 CAD DATA QUALITY STANDARDS: ENVIRONMENTAL DATA

If GIS files cannot be supplied, CAD data will suffice, however this will ultimately be imported by Main Roads into GIS software for cartography and/or spatial analysis. For this reason, CAD data must be provided in a file format that is compatible with versions of ESRI ArcGIS 10.1 to 10.5, and which follows the specifications outlined in this section.

Each CAD dataset submitted to Main Roads must include three key deliverables, prepared according to the specifications outlined in Table 3.

**Table 3: Key Deliverables for Environmental CAD Data**

| Key Deliverables | Requirements |
|---|---|
| **CAD File** | **File Format:**<br>• AutoCAD DWG or DXF (file formats up to version 2016); OR<br>• Microstation DGN (file formats up to version 8).<br><br>**Datum, Projection and Coordinates:**<br>• Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7).<br><br>**Layer/Levels:**<br>• Must be properly separated.<br>• Must be clearly and logically named.<br><br>**Attributes:**<br>• If the features in the CAD data are to be linked to external raw data tables, then the feature labels must appear in the feature attributes (rather than in a separate annotation layer) and be consistent with the labels that are used in the external raw data table.<br>• For example, point features denoting monitoring sites should include an attribute describing the monitoring site names, so that each feature can be linked to its corresponding monitoring data.<br><br>**File Name:**<br>• Alphanumeric characters, spaces, hyphens and underscores only. |
| **Metadata File** | This data may be either:<br>A metadata form (see Appendix 1) and must be completed for each CAD file being submitted. Refer to Section 9 for details.<br>OR<br>Metadata may be included within the Title Block of a typical CAD file, such as:<br>• A descriptive title;<br>• Date of data acquisition;<br>• Drawing date;<br>• Author or company logo;<br>• Datum and Projection. |

# 5 CAD DATA STANDARDS: SURVEY AND ALIGNMENT DATA

This document does not override those specifications in Project documents or drawings but should be used as a guideline for any data that has a geospatial or mapping potential. Examples of such datasets include biological surveys, and data supplied from State and Federal Government agencies.

This document should be used as standards in the absence of any other specific guidance from Main Roads.

Although ArcGIS files would generally be preferable, CAD data is acceptable for these kinds of data.

Each CAD dataset submitted to Main Roads must include the key deliverables, prepared according to the specifications outlined in Table 4.

**Table 4. Key Deliverables for Survey and Alignment CAD data**

| Key Deliverables | Requirements |
|---|---|
| **CAD File** | **File Format:**<br>• AutoCAD DWG or DXF (up to AutoCAD 2016; OR<br>• Microstation DGN (up to v8)<br><br>**Datum, Projection and Coordinates:**<br>• Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7).<br>• Data must use Real World Coordinates.<br><br>**Layer/Levels:**<br>• Must be properly separated.<br>• Must be clearly and logically named.<br><br>**File Name:**<br>• Alphanumeric characters, spaces, hyphens and underscores only. |
| **Metadata File** | This data may be either:<br>A metadata form (see Appendix 1) and must be completed for each CAD file being submitted. Refer to Section 9 for details.<br>OR<br>Metadata may be included within the Title Block of a typical CAD file, such as:<br>• A descriptive title;<br>• Date of data acquisition;<br>• Drawing date;<br>• Author or company logo;<br>• Datum and Projection. |

# 6 RAW DATA STANDARDS

Each raw data set being submitted to Main Roads must include two key deliverables, prepared according to the specifications outlined in Table 5.

Raw data sets must include all columns required to interpret and analyse the data.

**Table 5. Key Deliverables for Raw Data**

| Key Deliverables | Requirements |
|---|---|
| **Data Table(s)** | **File Format:**<br>• Microsoft Excel spreadsheets (.XLS, .XLSX); OR<br>• Text files {.TXT, .CSV)<br>• Other file formats may also be appropriate; however please contact Main Roads Asset & Geospatial Information Branch to discuss.<br><br>**Datum, Projection and Coordinates:** *(if data includes spatial coordinates)*<br>• Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7).<br><br>**Columns:**<br>• Columns in tables must be clearly and logically named with the attribute field appearing in Row 1 of the table.<br>• Columns must be properly formatted for the correct data type. i.e., Date or Text or Number/ Integer.<br><br>**File Name:**<br>• Alphanumeric characters, spaces, hyphens and underscores only. |
| **Metadata File** | A metadata form (see Appendix 1) and must be completed for each raw file being submitted. Refer to Section 9 for details. |

# 7 DATUMS AND PROJECTIONS

Data submitted to Main Roads will use the Geocentric Datum of Australia 1994 (GDA94) or Geocentric Datum of Australia 2020 (GDA2020) as the Horizontal Datum in Decimal Degrees (Longitude, Latitude) with values rounded to six decimal places, unless otherwise specified.

WGS84 coordinates will be acceptable, Please contact the Main Roads Asset & Geospatial Information Branch team for clarification. If WGS84 datum is used, it must be clearly noted.

Data must be in Latitudes and Longitudes (GDA94); units in decimal degrees.

Vertical Datum, where applicable, will be the Australian Height Datum (AHD).

All GIS Vector and Raster Datasets will have the coordinate system information embedded with a projection file.

For CAD Data the coordinate system information will be embedded if possible and noted in the metadata statement or made clearly visible in map production notation within the map.

For Raw Data, the coordinate system information will be noted in the metadata statement and within the column headings in the data table. For example, columns containing GDA94 geographic coordinates could be called "Lat" and "Long". Similarly, columns containing MGA Zone 50 projected coordinates could be called "E_MGA50" and "N_MGA50", or "Easting", "Northing" and a "Zone" column.

# 8 NAMING CONVENTIONS

All GIS datasets submitted is to follow Main Roads' naming conventions.

Lodged survey data files and metadata file names are to be as follows:

- XXXXX_RoadNumber_SLK range (rounded to whole number)

The prefix within the file names (XXXXX) is determined by the data type. Below is the list of prescribed prefixes per data type:I2A_Sample Sites

- I2B_Flora
- I2C_Vegetation
- I2D_Vegetation Condition
- I2E_Fauna
- I2F_Fauna Habitat
- I2F_Fauna Habitat Trees
- Quadrat Physical
- Quadrat Floristics
- Survey Archaeological
- Survey Ethnographic
- Aboriginal Heritage Sites
- Noise Sampling
- Noise Modelling
- Dieback

For example, I2B_Flora_M043_54_55

Where there are multiple or new roads/bridges file names will include project title instead of road number and SLK.

MXD files should be named by appending the figure number and creation date (separated by underscores) to the Main Roads Document Number for the document in which they appear, i.e. Figure2_12_2_2017_ D16#797498.

All new previously unrecorded heritage sites identified during Aboriginal heritage surveys will follow the naming convention of MR, Native Title Group Identifier (first three letters if possible), year, site number (separated by underscores) e.g. MR_THA_18_001.

# 9 METADATA STANDARDS

Main Roads require that a metadata form is completed to accompany each of the individual datasets that is provided. A completed metadata form is known as a metadata record.

The metadata form is explained in Appendix 1, and is provided as a stand-alone Microsoft Word document, which should be filled in to accompany each dataset being submitted.

Where available, copies of any other documentation that is relevant to each dataset being submitted should also be included in the submission. Examples include:

- Licensing information;
- Agreements;
- Copyright information;
- Disclaimers;
- Metadata statements; and,
- Reports or manuals.

# 10 DATA DELIVERY

Depending on the size of the data package being delivered, there are a number of approved methods of data delivery, summarised in Figure 1.

Regardless of the method used, an email must be sent at the time of delivery to the following recipients, to inform them of the data being delivered and the mode of delivery:

- Main Roads Project Manager/Environment Officer (Point of Contact)

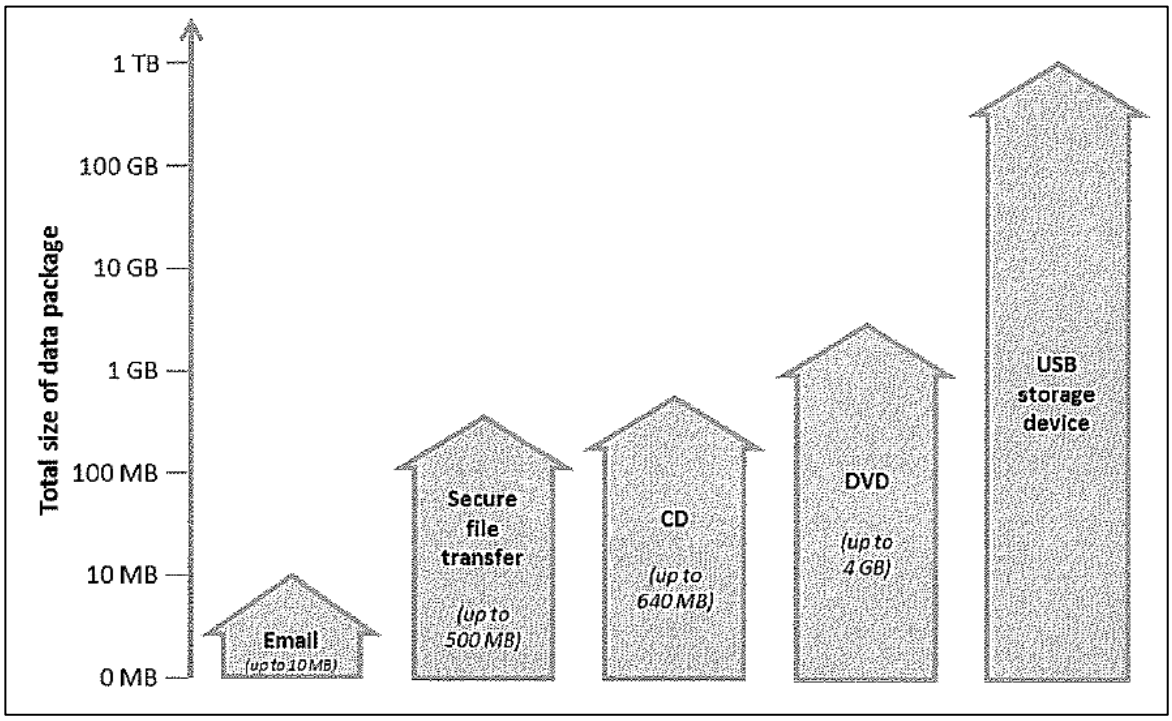


**Figure 1. Key Deliverables for Approved Methods of Data Delivery**

# 11 ABBREVIATIONS AND DEFINITIONS

| Term | Definition |
|---|---|
| **ArcGIS** | ArcGIS is the standard Geographic Information Systems software platform used by Main Roads. |
| **ArcMap** | ArcMap is a component of the ArcGIS software platform, which is used for analysis and visualisation of spatial data. |
| **CAD** | Computer-Aided Design. CAD software is used to create, modify, analyse and optimise designs in two- or three-dimensional space, and is commonly used in surveying, engineering and architectural applications. |
| **Contractor/consultant** | Any non-Main Roads employee undertaking work on behalf of Main Roads according to a specific scope of work and approved proposal. |
| **Dataset** | A collection of data. In the context of this document, a dataset is generally considered a single raw data table, shapefile, feature class or CAD dataset. In some cases, a dataset may include both a spatial dataset (e.g., monitoring site locations) and related raw data tables containing scientific data (e.g., monitoring data collected at those sites). |
| **DBCA** | Department of Biodiversity, Conservation and Attractions |
| **DPLH** | Department of Planning, Lands and Heritage |
| **ESRI** | Environmental Research Systems Institute. ESRI is the vendor of ArcGIS, the standard GIS software platform used by Main Roads. |
| **GDA94** | Geocentric Datum of Australia 1994 (GDA94) is a geographic coordinate system based on the GDA datum. GDA94 coordinates include both latitude and longitude, which are measured in decimal degrees or degrees, minutes and seconds. |
| **GDA2020** | Geocentric Datum of Australia 2020 (GDA2020) is a geographic coordinate system based on the GDA datum. GDA2020 coordinates include both latitude and longitude, which are measured in decimal degrees or degrees, minutes and seconds. |
| **GIS** | Geographic Information Systems. GIS software is used to store, manipulate, analyse and visualise spatial data. |
| **ISO** | International Organisation for Standardisation. The GIS Metadata Standard type required. |
| **Main Roads** | Main Roads Western Australia. |
| **Metadata** | Information about the data, the history, accuracy, currency, origin, etc. |
| **MGA94** | Map Grid of Australia 1994. MGA94 is a projected coordinate system based on the GDA datum. MGA94 coordinates include three components: an Easting (units in metres), a Northing (units in metres), and an MGA Zone number. |
| **MXD** | ArcMap document file format. |
| **QA/QC** | Quality Assurance/Quality Control. Quality Assurance can be described as the process of preventing errors from entering into datasets; while Quality Control can be described as the process of identifying and correcting existing errors in datasets. |

| Term | Definition |
|---|---|
| **Raw Data** | In the context of this document, raw data is considered to be data stored in a table format (such as an excel spreadsheet or text file). In some cases, raw data tables can include columns containing coordinate information (such as MGA94 or GDA94 coordinates) describing the geographic location of observations or measurements. |
| **Spatial Data** | Spatial data is data that represents the geographic location and extent of features or boundaries, as well as attributes that describe the properties of those features. |
| **WGS84** | World Geodetic System 1984. WGS84 is a standard geographic coordinate system for the Earth, and is the reference coordinate system used by the Global Positioning System (GPS). For most practical purposes, WGS84 coordinates can be considered the same as GDA94 coordinates. |

# 12 REFERENCES AND RELATED DOCUMENTS

| Document Number | Title |
|---|---|
| **D16#800711** | Environmental and Heritage Survey Data Management Plan |

# 13 APPENDICES

| Appendix | Title |
|---|---|
| Appendix 1 | Metadata Template |
| Appendix 2 | Attribute Definitions and Schema |
| Appendix 3 | Geodatabase Template |

## APPENDIX 1: Metadata Template

The following form has also been provided as a standalone Microsoft Word document. Please use the information below as guidance to fill in the standalone document as a metadata record.

One metadata record should be provided for each dataset submitted to Main Roads.

| DATASET DESCRIPTION | |
|---|---|
| **Title** | *Title of the dataset* |
| **Data Created** | *Date on which the dataset was created* |
| **Date Last Updated** | *Date on which the dataset was last updated* |
| **Abstract** | *A brief narrative summary about the content of the dataset* |
| **Purpose** | *Description of the specific needs the dataset was designed to meet* |
| **Document Number** | *Document Number(s) for any reports or documents that the dataset is related to or submitted with* |
| **Contact Organisation** | *Name of the organisation responsible for capture and preparation of the dataset* |
| **Contact Name** | *Contact person responsible for preparation of the dataset* |
| **Contact Position** | *Title or position of the contact person responsible for preparation of the dataset* |
| **Contact Phone** | *Phone number of the contact person responsible for preparation of the dataset* |
| **Contact Email** | *Email address of the contact person responsible for preparation of the dataset* |
| **Lineage** | *Describe how the dataset was created and the sources and processes that were used* |
| **Datum/Coordinate System** | *Name of the datum and coordinate system, if the data includes geographic or projected coordinates* |
| **Geographic Description** | *Name of the road (and road number) and SLK range or other location that describes the geographic extent of the dataset* |
| **Restrictions** | *Any restrictions on access to or use of the dataset* |

## APPENDIX 2: Attribute Definitions and Schema

### I2A_SampleSites Feature Class-Point or Polyline[1] Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| SiteName | Site Name | The name of the sampling site, as used in the survey report. | Text | Yes | 50 | Unique identifier given by consultant i.e. Site T-1 |
| SampleType | Sample Type | A description of the type of sampling undertaken, i.e. flora, flora and vegetation, aquatic, terrestrial vertebrate fauna, terrestrial invertebrate fauna or subterranean fauna. | Text | Yes | 50 | i.e. Terrestrial vertebrate fauna, flora, vegetation, flora and vegetation, terrestrial invertebrate fauna, subterranean fauna, aquatic macroinvertebrate, aquatic vertebrate |
| SiteType | Site Type | A description of the site type. | Text | Yes | 50 | i.e. Trapping, Transect, Quadrat, Relevé, Traverse, Camera |
| Effort | Effort | A brief description of effort expended at the site. | Text | Yes | 100 | i.e. 7 nights x 60 traps, nights, minutes, kilometres |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting. |
| StartDate | Start Date | The date the sampling commenced at this site. | Date | Yes | N/A | Dd/mm/yyyy |
| EndDate | End Date | The date the sampling concluded at this site. | Date | Yes | N/A | Dd/mm/yyyy |
| Comments | Comments | Additional information about the sample site, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[1] If a survey has captured sample sites best represented by a combination of points (e.g. quadrats) and lines (e.g. transects), a separate shapefile for each geometry type is required.

## I2B_Flora Feature Class-Point or Polygon[2] Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| TaxonName | Taxon Name | The taxon name of the flora species recorded. | Text | Yes | 254 | Accepted name according to WA census |
| SiteName | Site Name | Name of the site at which the flora observation/collection was made, as per the Sample Sites Survey Data spatial dataset. Use 'no site' if not made at a named site. | Text | Yes | 50 | Unique identifier given by consultant i.e. Site T-1 |
| Abundance | Abundance | Use '0' if the taxon was present but abundance was not recorded, otherwise populate with abundance (the number of individuals of this taxon observed at this location)[3]. | Long Integer | Yes | 5 | Numeric |
| HerbRef | Herbarium Reference | Herbarium reference. Leave blank if the specimen has not been collected. If lodged and accessioned, insert the unique accession number assigned by the herbarium. If the specimen has been lodged but not accessioned, use the collector's name and number (or other lodgement reference). | Text | No | 50 | |
| Latitude | Latitude | Geographic co-ordinate location. | Double | Yes | 15 | -XX.XXXXXX |
| Longitude | Longitude | Geographic co-ordinate location. | Double | Yes | 15 | XXX.XXXXXX |
| Datum | Datum | Datum of the geocode. | Text | Yes | 10 | GDA94 or GDA2020 |
| Precision | Precision | Precision of the geocode. | Integer | No | 2 | Radius in metres, may be a grid block.<br>i.e. standard GPS=15<br>DGPS=1 |
| WAConStat | WA Conservation Status | The code for the conservation status (in WA) of the flora species recorded, as per the Conservation Codes for Western Australian Flora and Fauna published by the Department of | Text | No | 2 | P1, P2, P3, P4, T, RE, WoNS, DP,* |

[2] If a survey has produced flora data best represented by a combination of points, e.g. locations of individuals, and polygons, e.g. distribution of a large population, a separate shapefile for each geometry type is required.

[3] If it is necessary to denote absence, i.e. a situation where the taxon has been specifically surveyed for and definitively found to be absent, use '-9999' (in practice, it is expected that use of this option will be rare).

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| | | Biodiversity, Conservation and Attractions (DBCA). Leave blank if the species has no conservation status.[4] | | | | |
| DateObs | Date Observed | The date this taxon was observed / collected. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Additional information about the flora record, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[4] This data includes weeds not just native species.

### I2C_Vegetation Feature Class-Polygon Layer

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Veg_Ass | Vegetation Association | Vegetation Association Code. | Text | Yes | 20 | Unique identifier given by consultant |
| VegUnit | Vegetation Unit | Description of the discrete vegetation unit. | Text | Yes | 254[5] | i.e. Themeda sp. Hamersley Station, Eriachne benthamii tall closed tussock grassland |
| PECTEC_Sts | TEC PEC Status | PEC/TEC status. At the time of finalisation of the report, is this vegetation unit consistent with or part of a known threatened or priority ecological community and treated as such in the assessment? Yes, no or possible. | Text | Yes | 8 | Yes_No_Possible |
| PECTEC_Det | PEC TEC Details | PEC/TEC details. Leave blank if above field is 'no', otherwise provide the jurisdiction (WA or EPBC), type (TEC or PEC) and name (as per its official documentation) of the PEC/TEC. Include the details for both jurisdictions if relevant. | Text | No | 254 | In accordance with listing name. WA TEC 'Themeda grasslands on cracking clays (Hamersley Station, Pilbara)' |
| Area_ha | Area hectares | Size of unit in hectares. | Double | Yes | N/A | XXX.xxha |
| CreationYr | Creation Year | The year the mapping polygons were created[6]. | Long Integer | Yes | 5 | YYYY |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Additional information about the TEC/PEC, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[5] Field length may be extended beyond this character limit as required.

[6] Vegetation classification and mapping may be based on multiple surveys, over multiple years, by multiple botanists. As such, it is difficult to attach a precise date to a vegetation map based on survey timing. However, including the year of creation of the vegetation mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the mapping, users should refer to the methodology section of the associated flora and vegetation survey report.

## I2D_VegetationCondition Feature Class-Polygon Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| VegCond | Vegetation Condition | Observed condition of the vegetation as per EPA technical guidance, i.e. Pristine, Excellent, Very Good, Good, Poor, Degraded, Completely Degraded. | Text | Yes | 50 | Pristine, Excellent, Very Good, Good, Poor, Degraded, Completely Degraded and Cleared. Areas devoid of vegetation to be mapped as Cleared.[7] |
| CreationYr | Creation Year | The year the mapping polygons were created[8]. | Long Integer | Yes | 5 | YYYY |
| Area_ha | Area hectares | Size in hectares. | Double | Yes | N/A | XXX.xxha |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Additional information about the vegetation condition, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[7] Revegetation should not be included in this layer and should be in I2C_Vegeation instead.

[8] Vegetation condition mapping may be based on multiple surveys, over multiple years, by multiple botanists. As such, it is difficult to attach a precise date to a vegetation condition map based on survey timing. However, including the year of creation of the vegetation condition mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the condition mapping, users should refer to the methodology section of the associated flora and vegetation survey report.

### I2E_Fauna Feature Class–Point Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| TaxonName | Taxon Name | The taxon name of the fauna species observed. | Text | Yes | 254 | Accepted name according to WAM |
| SiteName | Site Name | Name of the site at which the flora observation/collection was made, as per the Sample Sites Survey Data spatial dataset. Use 'no site' if not made at a named site. | Text | Yes | 50 | Unique identifier given by consultant i.e. Site T-1 |
| Abundance | Abundance | Use '0' if the taxon was present but abundance was not recorded, otherwise populate with abundance (the number of individuals of this taxon observed at this location)[9]. | Long Integer | Yes | 5 | Numeric |
| MuseumRef | Museum Reference | Museum reference. Leave blank if the specimen has not been vouchered. If the specimen has been vouchered and catalogued, insert the unique catalogue number assigned by the museum. If the specimen has been vouchered but not catalogued, used the voucher number (or other lodgement reference). | Text | No | 50 | |
| WAConStat | WA Conservation Status | The code for the conservation status (in WA) of the flora species recorded, as per the Conservation Codes for Western Australian Flora and Fauna published by the DBCA. Leave blank if the species has no conservation status. | Text | No | 2 | P1, P2, P3, P4, T |
| SRE_Sts | SRE Status | SRE status. At the time of finalisation of the report, was this taxon considered to be a Short-range Endemic and treated as such in the assessment? Yes, no or possible. | Text | Yes | 8 | Yes_No_Possible |
| ObsMethod | Observation Method | The method by which this taxon was observed. | Text | Yes | 50 | |
| FaunaType | Fauna Type | Type of fauna i.e. terrestrial vertebrate, terrestrial invertebrate, aquatic, subterranean. | Text | Yes | 50 | |
| DateObs | Date Observed | The date this taxon was observed. | Date | Yes | N/A | dd/mm/yyyy |

[9] If it is necessary to denote absence, i.e. a situation where the taxon has been specifically surveyed for and definitively found to be absent, use '-9999' (in practice, it is expected that use of this option will be rare).

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Latitude | Latitude | Geographic co-ordinate location. | Double | Yes | 15 | -XX.XXXXXX |
| Longitude | Longitude | Geographic co-ordinate location. | Double | Yes | 15 | XXX.XXXXXX |
| Datum | Datum | Datum of the geocode. | Text | Yes | 10 | GDA94 or GDA2020 |
| Precision | Precision | Precision of the geocode. | Integer | No[10] | 2 | Radius in metres, may be a grid block. i.e. standard GPS=15 DGPS=1 |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Additional information about the fauna record, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[10] Mandatory field for Commonwealth species.

## I2F_FaunaHabitat Feature Class-Point or Polygon[11] Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Fauna_Cod | Fauna Code | Fauna Habitat Code. | Text | Yes | 20 | Unique identifier given by consultant |
| FaunaHab | Fauna Habitat | Description of fauna habitat. | Text | Yes | 254 | Broad habitat type or corresponding description of vegetation association or type |
| Area_ha | Area hectares | Size of habitat in hectares. | Double | Yes | N/A | XXha |
| CreationYr | Creation Year | The year the habitat mapping polygons were created[12]. | Long Integer | Yes | 5 | YYYY |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Additional information about the fauna habitat, if any. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

[11] If a survey has produced fauna habitat data best represented by a combination of points, e.g. bat caves, and polygons, e.g. spinifex sand plain, a separate shapefile for each geometry type is required.

[12] Fauna habitat mapping may be based on multiple surveys, over multiple years, by multiple zoologists. As such, it is difficult to attach a precise date to a fauna habitat map based on survey timing. However, including the year of creation of the fauna habitat mapping polygons in this field gives an indication of its currency for future reference. For the dates of the surveys that contributed to the fauna habitat mapping, users should refer to the methodology section of the associated fauna survey report.

**I2F_FaunaHabitatTreesFeature Class-Point Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| FaunaHab | Fauna Habitat | Description of fauna habitat. | Text | Yes | 254 | Broad habitat type or corresponding description of vegetation association or type |
| Fauna_Sp | Fauna Species | Habitat for which fauna species. | Text | Yes | 254 | Genus, species, sub-species according to WAM nomenclature |
| Flora_Sp | Flora Species | Identification of the habitat. | Text | Yes | 30 | Genus, species, sub-species according to WA HERB census |
| DBH | Diameter at breast height | Diameter at breast height. | Short Integer | Yes | 4 | XXXXmm |
| Latitude | Latitude | Geographic co-ordinate location. | Double | Yes | 15 | -XX.XXXXXX |
| Longitude | Longitude | Geographic co-ordinate location. | Double | Yes | 15 | XXX.XXXXXX |
| Hollow | Number of hollows | Amount of hollows visible. | Short Integer | Yes | 2 | 0-99 |
| Hollow_Sz | Size of hollows | Hollows of suitable size for use as per DER guidelines for each species of fauna relevant to species of tree. Each hollow to be recorded in mm, separated by a comma. | Text | No | 254 | XXXmm |
| CreationYr | Creation Year | The year the habitat mapping polygons were created. | Long Integer | Yes | 5 | YYYY |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Comments | Comments | Populate with clarifying information if required. | Text | No | 254 | |

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

**Quadrat Physical Feature Class-Point Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Quadrat | Quadrat | Identifier quadrat. | Text | Yes | 10 | XYZ123 |
| Quad_size | Quadrat size | Size of quadrat. | Text | No | 10 | XXm x XXm |
| Date | Date | Date of quadrat data collection. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Soil_Color | Soil Colour | Describe soil colour. | Text | Yes | 30 | References include Maunsell Soil Colour Chart and/or MacDonald Soil handbook |
| Soil_Type | Soil Type | Describe the soil type. | Text | Yes | 30 | Reference MacDonald e.g. Clay/loam/sandy |
| Rock_Type | Rock Type | Describe the type/extent and presence of rock at surface. | Text | Yes | 30 | Reference MacDonald e.g. granite |
| Age_fire | Age since fire | Age since last fire. | Text | Yes | 20 | Years or comment |
| Veg_Type | Vegetation Type | Broad description of vegetation type. | Text | Yes | 254 (1000 for geodatabase) | NVIS |
| Comments | Comments | Further important details. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

**Quadrat Floristics Feature Class- Point Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Quadrat | Quadrat | Identifier quadrat. | Text | Yes | 10 | XYZ123 |
| Date | Date | Date of quadrat data collection. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| TaxonName | Taxon Name | The taxon name of the flora species recorded. | Text | Yes | 254 | Accepted name according to WA census |
| Height | Height | Height of the plant. | Double | No | 3 | XX.XXm |
| Plant_Co | Plant Count | Number of plants. | Short Integer | No | 4 | |
| Cover | Cover | Area of plant cover. | Short Integer | No | 4 | XXXX% |
| Comments | Comments | Further important details. | Text | No | 254 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

**Survey Archaeological Feature Class-Polygon Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Surv_name | Survey name | Title of survey report. | Text | Yes | 254 | RoadName_SLK_Typeofwork |
| NT_Group | Native Title Group | Native Title party(s) consulted. | Text | Yes | 254 | MR_ XXX |
| Type | Type | Type of survey conducted. | Text | Yes | 100 | Archaeological |
| Rec_Level | Recording Level | Level of recording undertaken. | Text | Yes | 40 | Work Area Clearance/Site ID/Site Avoidance |
| Date | Date | Date field survey undertaken. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Archaeological Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |
| Comments | Comments | Further important details. | Text | No | 254 | XXXXX |

**Survey Ethnographic Feature Class-Polygon Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Surv_name | Survey name | Title of survey report. | Text | Yes | 254 | RoadName_SLK_Typeofwork |
| NT_Group | Native Title Group | Native Title party(s) consulted. | Text | Yes | 100 | MR_ XXX |
| Type | Type | Type of survey conducted. | Text | Yes | 100 | Ethnographic |
| Rec_Level | Recording Level | Level of recording undertaken. | Text | Yes | 40 | Work Area Clearance/Site ID/Site Avoidance |
| Date | Date | Date field survey undertaken. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Ethnographic Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |
| Comments | Comments | Further important details. | Text | No | 254 | XXXXX |

## Aboriginal Heritage Sites Feature Class-Polygon Data

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| MR_ID | MRWA Site ID | New unique number for any new sites. | Text | Yes | 15 | MR_XXX_YY_XXX |
| Site_Name | New Site Name | Cultural name given to site by Traditional Owners. | Text | No | 70 | XXXXX |
| DPLH_ID | DPLH Site ID | Existing Department of Planning, Lands and Heritage (DPLH) number for previously recorded sites. | Text | No | 15 | DPLH XXXXX |
| HISF_Num | HISF ID | Heritage Information Submission Form number for sites to be registered with DPLH. | Text | Yes | 25 | HIS-XXXXXXXX-XXXX |
| Site_Type | Site Type | Site features identified. | Text | Yes | 254 | e.g. Artefact Scatter / Mythological / Ceremonial / Burial / Engraving / Historical / Scarred tree / Quarry |
| Site_Class | Site Class | Type of site identified. | Text | Yes | 254 | Archaeological / Ethnographic / Archaeological and Ethnographic |
| Site_Area | Site Area | Area of site in square kilometers . | Double | Yes | N/A | XXX.XXkm$^2$ |
| Date_Rec | Date Recorded | Date of site recording. | Date | Yes | N/A | dd/mm/yyyy |
| Data_Rest | Data Restricted | Site is restricted or unrestricted access. | Text | No | 3 | Yes/No |
| Rec_Level | Record Level | Level of recording undertaken. | Text | Yes | 40 | Work Area Clearance / Site ID / Site Avoidance |
| Citation | Citation | A full citation for the accompanying .survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Archaeological Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |
| Comments | Comments | Further important details. | Text | No | 254 | XXXXX |

**Noise Sampling Feature Class-Point Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Address | Address | Address that noise measurements are taken from. | Text | Yes | 150 | Street Number_Street Name_Cres/Rd/St/etc_Postcode |
| Date | Date | Date measurement recorded. | Date | Yes | N/A | dd/mm/yyyy |
| Start_Time | Start Time | Time of first measurement. | Text | Yes | 5 | 24 hr time hh:mm |
| End_Time | End Time | Time of last measurement. | Text | Yes | 5 | 24 hr time hh:mm |
| L_Aeq_Day | L_Aeq(Day) | A-weighted noise measurement 6am -10pm. | Float | Yes | 10 | XX.XdB(A) |
| L_Aeq_Nigh | L_Aeq (Night) | A-weighted noise measurement 10pm-6am. | Float | Yes | 10 | XX.XdB(A) |
| Latitude | Latitude | Geographic co-ordinate location. | Double | Yes | 15 | -XX.XXXXXX |
| Longitude | Longitude | Geographic co-ordinate location. | Double | Yes | 15 | XXX.XXXXXX |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Noise Assessment of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

**Noise Modelling Feature Class-Polygon Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Year | Year | Year for which noise is modelled. | Text | Yes | 4 | yyyy |
| L_Aeq_Day | L_Aeq(Day) | A-weighted noise measurement 6am - 10pm. | Float | Yes | 10 | XX.XdB(A) |
| L_Aeq_Nigh | L_Aeq (Night) | A-weighted noise measurement 10pm-6am. | Float | Yes | 10 | XX.XdB(A) |
| Treatment | Treatment | Noise mitigation treatment. | Text | Yes | 20 | |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Noise Assessment of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

**Dieback Feature Class-Polygon Data**

| FIELD NAME | ALIAS NAME | DESCRIPTION | DATA TYPE | MANDATORY | SIZE | DOMAIN |
|---|---|---|---|---|---|---|
| Status | Status | Dieback status. | Text | Yes | 30 | Excluded, Infested, Uninfested, Uninterpretable |
| Interpret | Interpreter | Name of Interpreter. | Text | No | 30 | First Name_Last Name |
| Condition | Condition | Condition as per WA flora veg technical guide 2015. | Text | No | 50 | Pristine, Excellent, Very Good, Good, Poor, Degraded, Completely Degraded and Cleared. Areas devoid of vegetation to be mapped as Cleared. |
| Protect | Protectable | Protectability of area. | Text | No | 30 | Protectable, unprotectable |
| Date | Date | Date specimen recorded. | Date | Yes | N/A | dd/mm/yyyy |
| Author | Author | The name of the person or group who authored the survey report and datasets. | Text | Yes | 100 | To be consistent with the survey i.e. ABC Consulting |
| Citation | Citation | A full citation for the accompanying survey report. | Text | Yes | 254 | To be consistent with the survey i.e. ABC Consulting (2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments. |

## APPENDIX 3: Geodatabase Template

The Geodatabase Template and Raw Data Templates are available through the Main Roads website:

https://www.mainroads.wa.gov.au/OurRoads/Environment/Pages/environmentlinks.aspx

*(Main Roads > Our Roads > Environment and Heritage > Useful Links > Contracting at Main Roads)*