



mainroads
WESTERN AUSTRALIA

Environmental and Heritage Data Standards

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Western Australia.*

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Amendments

Revision Number	Revision Date	Description of Key Changes	Section / Page No.
8	06/09/2023	Revised to: <ul style="list-style-type: none"> Remove references to GDA94 Datum Remove reference to WGS84 Change ESRI ArcMap to ArcGIS Pro Update metadata template Minor changes to Attribute Definitions and Schema 	All
7	08/11/2021	Revised to include fauna installation layer. Changes to Digital Photography requirements (Section 3.4). Minor changes to Attribute Definitions and Schema (Appendix 2) <ul style="list-style-type: none"> Addition of Survey Details Feature Class Addition of Fauna Installation Feature Class Changes to field length and domain (various) 	All
6	02/06/2020	Revised to: <ul style="list-style-type: none"> Align with updated naming conventions (Section 8). Align with updated IBSA Standards (Appendix 2). Use Main Roads new corporate template. 	All

Revision Number	Revision Date	Description of Key Changes	Section / Page No.
5	01/08/2019	<p>Minor changes to Attribute Definitions and Schema:</p> <ul style="list-style-type: none"> • Vegetation Condition, Vegetation Association and Fauna Habitat Feature Classes updated to state hectares for area; • Vegetation Condition and Dieback Feature Classes updated to replace Highly Disturbed with Cleared; • 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; • Survey Archaeological and Ethnographic Feature Classes updated to include the full citation of the survey report; • 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
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 and installation of artificial fauna habitat.

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. Data collected during the installation of the artificial habitat will also be provided in accordance with the standards.

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 Pro version 2.9.4 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	<p>File Format (Compatible with ArcGIS Pro 2.9.4 or lower version):</p> <ul style="list-style-type: none"> ESRI Shapefile (must include *.SHP, *.SHX, *.DBF and *.PRJ files as a minimum). <p>Datum, Projection and Coordinates:</p> <ul style="list-style-type: none"> Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7). <p>Attributes (as detailed in Appendix 2):</p> <ul style="list-style-type: none"> Attribute fields must be clearly and logically named. Attribute fields must be properly formatted for correct data type. i.e., Date or Text or Number/ Integer. <p>File Name:</p> <ul style="list-style-type: none"> Alphanumeric characters, spaces, hyphens and underscores only. Feature class names must begin with a letter- they cannot begin with a numeral or special character. Refer to Section 8 for details.
Layer File <i>(ArcGIS users only)</i>	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
<p>Raster Dataset</p>	<p>File Format:</p> <ul style="list-style-type: none"> • Preferably JPEG2000 (.JP2); OR • Enhanced Compression Wavelet (.ECW); OR • GeoTIFF (.TIF, .TIFF); OR • ERDAS Imagine (.IMG); OR • ESRI GRID (ASCII or Binary) <p>Compression: <i>(if supported by selected raster file format)</i></p> <ul style="list-style-type: none"> • Lossless compression (or no compression) should be used for most raster datasets. • 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. <p>Datum, Projection and Coordinates:</p> <ul style="list-style-type: none"> • Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7). <p>File Name:</p> <ul style="list-style-type: none"> • Alphanumeric characters and underscores only. • Capture date and datum/projection must be provided in image name. Refer Section 8 for details.
<p>Metadata File</p>	<p>A metadata form (see Appendix 1) must be completed for each raster dataset being submitted. Refer to Section 9 for details.</p>

3.3 ArcGIS Pro Project (APRX) Files

Main Roads has transitioned from ArcMap to ArcGIS Pro as the primary ESRI ArcGIS mapping application.

Where contractors use ArcGIS to prepare maps for reports, Main Roads will provide 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.

ArcGIS Pro project (.aprx) files will be created using the datum and projections as described in Section 7.

A copy of the APRX files prepared for each figure produced by the contractor should be submitted to Main Roads along with the spatial data (where available).

The APRX 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 are to be provided to Main Roads at the completion of the project with all other survey data. Photo locations are to be provided in a "Photo Location" Feature Class 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:

- Photo ID, Photo Description, Site, Source, Date (YYYYMMDD)'
- All other photos, such as opportunistic observations or non-site-specific generic photos use 'OTHER', Photo Description, Site, Source, Date (YYYYMMDD)' (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 Pro 2.9.4 or lower version, 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	<p>File Format:</p> <ul style="list-style-type: none"> • AutoCAD DWG or DXF (file formats up to version 2018); OR • MicroStation DGN (file formats up to version 8). <p>Datum, Projection and Coordinates:</p> <ul style="list-style-type: none"> • Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7). <p>Layer/Levels:</p> <ul style="list-style-type: none"> • Must be properly separated. • Must be clearly and logically named. <p>Attributes:</p> <ul style="list-style-type: none"> • 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. • 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. <p>File Name:</p> <ul style="list-style-type: none"> • Alphanumeric characters, spaces, hyphens and underscores only.
Metadata File	<p>This data may be either:</p> <p>A metadata form (see Appendix 1) and must be completed for each CAD file being submitted. Refer to Section 9 for details.</p> <p>OR</p> <p>Metadata may be included within the Title Block of a typical CAD file, such as:</p> <ul style="list-style-type: none"> • A descriptive title; • Date of data acquisition; • Drawing date; • Author or company logo; • 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	<p>File Format:</p> <ul style="list-style-type: none"> • AutoCAD DWG or DXF (up to version 2018; OR • MicroStation DGN (up to V8 format) <p>Datum, Projection and Coordinates:</p> <ul style="list-style-type: none"> • Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7). • Data must use Real World Coordinates – local Main Roads WA project zone or MGA <p>Layer/Levels:</p> <ul style="list-style-type: none"> • Must be properly separated. • Must be clearly and logically named. <p>File Name:</p> <ul style="list-style-type: none"> • Alphanumeric characters, spaces, hyphens and underscores only.
Metadata File	<p>This data may be either:</p> <p>A metadata form (see Appendix 1) and must be completed for each CAD file being submitted. Refer to Section 9 for details.</p> <p>OR</p> <p>Metadata may be included within the Title Block of a typical CAD file, such as:</p> <ul style="list-style-type: none"> • A descriptive title; • Date of data acquisition; • Drawing date; • Author or company logo; • 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)	<p>File Format:</p> <ul style="list-style-type: none"> • Microsoft Excel spreadsheets (.XLS, .XLSX); OR • Text files (.TXT, .CSV) • Other file formats may also be appropriate; however please contact Main Roads Asset & Geospatial Information Branch to discuss. <p>Datum, Projection and Coordinates: <i>(if data includes spatial coordinates)</i></p> <ul style="list-style-type: none"> • Correct datum and projections must be used and duly noted for all datasets submitted (see Section 7). <p>Columns:</p> <ul style="list-style-type: none"> • Columns in tables must be clearly and logically named with the attribute field appearing in Row 1 of the table. • Columns must be properly formatted for the correct data type. i.e., Date or Text or Number/ Integer. <p>File Name:</p> <ul style="list-style-type: none"> • 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 2020 (GDA2020) (EPSG: 7844) as the Horizontal Datum in Decimal Degrees (Longitude, Latitude) with values rounded to six decimal places, unless otherwise specified.

Data must be projected to GDA2020 if it was created in local Main Roads WA project zone.

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

Vertical Datum, where applicable, will be the Australian Height Datum (AHD 71).

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

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 GDA2020 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:

- I1_SurveyDetails
- I2A_SampleSites
- I2B_Flora
- I2C_Vegetation
- I2D_VegetationCondition
- I2E_Fauna
- I2F_FaunaHabitat
- I2F_FaunaHabitatTrees
- QuadratPhysical
- QuadratFloristics
- SurveyArchaeological
- SurveyEthnographic
- AboriginalHeritageSites
- NoiseSampling
- NoiseModelling
- Dieback
- FaunaInstallation

Note: Capital i for IBSA prefix is used for the first seven layers and include _polygon, _point or _polyline as a suffix for any layers where there is different geometry but same title.

For example, I2B_Flora_M043_54_55_point

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

APRX 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.

All raster imagery capture must also include capture date and projection zone/coordinate system (must reference datum – GDA94 or GDA2020).

- XXXXX_RoadNumber_SLK range_YYYYMMDD_Projection

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)

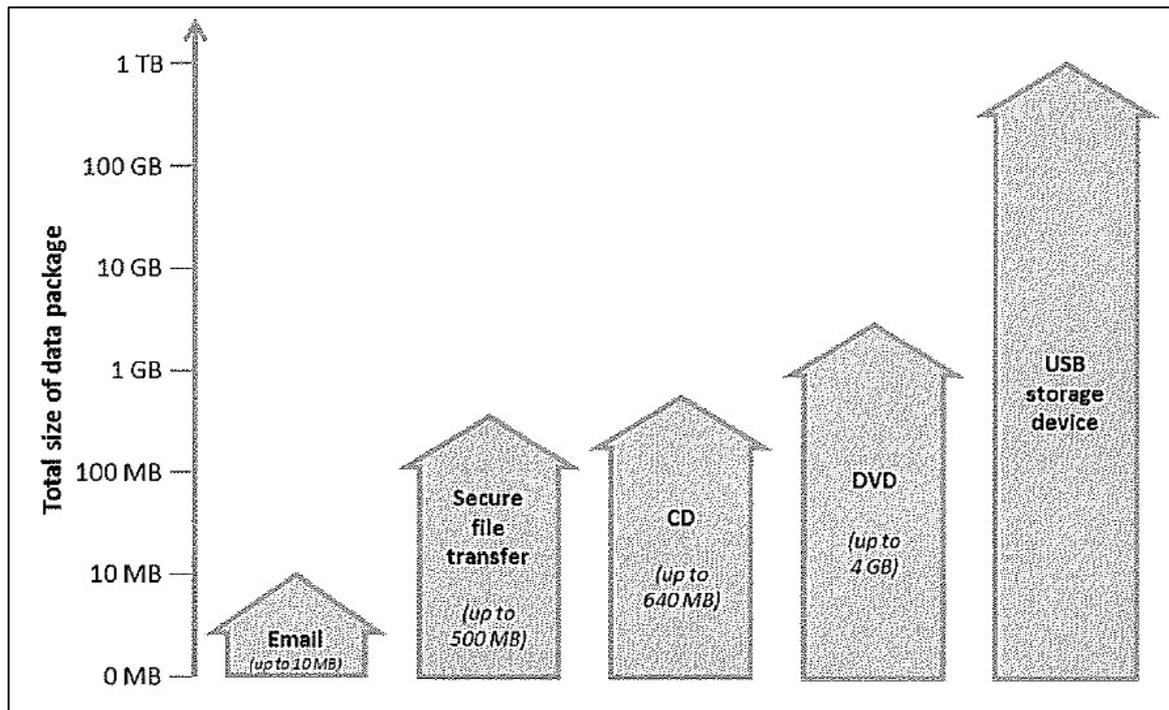


Figure 1. Key Deliverables for Approved Methods of Data Delivery

11 ABBREVIATIONS AND DEFINITIONS

Term	Definition
AHD 71	Australian Height Datum 1971
ArcGIS	ArcGIS is the standard Geographic Information Systems software platform used by Main Roads.
ArcGIS Pro	ArcGIS Pro is a desktop GIS application and a component of ESRI suite of ArcGIS projects. ArcGIS Pro supports data visualisation and analysis of spatial data.
ArcMap	ArcMap is a former component of the ArcGIS software platform. ArcMap is being phased out by ESRI.
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.
GDA2020	Geocentric Datum of Australia 2020 (GDA2020) is the official geodetic datum for Australia. GDA2020 coordinates include both latitude and longitude, which are measured in decimal degrees or degrees, minutes and seconds. The relative difference in position between GDA2020 and GDA94 is approximately 1.8 metres.
GDA94	Geocentric Datum of Australia 1994 (GDA94) was the official geodetic datum before GDA2020.
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.
Local Project zone	A local transverse Mercator projected coordinate system created by Main Roads to meet tolerances for building roads and bridges on the earths curved surface.
Main Roads	Main Roads Western Australia.
Metadata	Information about the data, the history, accuracy, currency, origin, etc.
MGA2020	Map Grid of Australia 2020. MGA2020 is a projected coordinate system based on the datum GDA2020. MGA2020 coordinates include three components: an Easting (units in metres), a Northing (units in metres), and an MGA Zone number.
SLK	Straight Line Kilometres. A linear location system defined by Main Roads to define features along a road.

Term	Definition
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.
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 MGA2020 or GDA2020 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.

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



Metadata Statement - Digital Rectified Imagery

Asset and Geospatial Information Branch

KEY DETAILS

Survey Title

Panel Contract Job # Consultants Ref #

CONSULTANT DETAILS

Organisation Contact Name

Position E-mail

Telephone Mobile

CUSTODIAN CONTACT DETAILS

Organisation Contact Name

Position E-mail

Telephone Mobile

GEOGRAPHIC DETAILS

Projection Road

Vertical Datum SLK Start SLK End

Bounding Box *(Project Zone Coordinates)*

NW Corner (E,N) NE Corner (E,N)

SW Corner (E,N) SE Corner (E,N)

STANDARDS USED

(Check all that apply)

Survey has been performed in accordance with the below standards:

- | | | |
|--|---|--|
| <input type="checkbox"/> Digital Ground Survey | <input type="checkbox"/> Standard Survey Mark Control | <input type="checkbox"/> Mapping |
| <input type="checkbox"/> Underground Utilities Survey | <input type="checkbox"/> Road Reference Marks | <input type="checkbox"/> Digital Rectified Images |
| <input type="checkbox"/> Earthwork Volume Calculations | <input type="checkbox"/> Minor Control Points | <input type="checkbox"/> Aerial Lidar Delivery Standard |
| | <input type="checkbox"/> Differential Levelling | <input type="checkbox"/> Mobile Laser Scanning Delivery Standard |
| | <input type="checkbox"/> Settlement Monitoring | |



Metadata Statement - Digital Rectified Imagery
 Asset and Geospatial Information Branch

DATA COLLECTION METHODS

(check all that apply)

- Self Captured Landgate Aerial Photography

IMAGE DETAILS

Image Type	<input type="text"/>	Image Width (px)	<input type="text"/>	Image Width (mm)	<input type="text"/>
Image Scale	<input type="text"/>	Image Length (px)	<input type="text"/>	Image Length (mm)	<input type="text"/>
Accuracy Class	<input type="text"/>	Image Resolution (dpi)	<input type="text"/>	Image Flown Date	<input type="text"/>

OVERLAY DETAILS

Data <input type="text"/>	Data <input type="text"/>	Data <input type="text"/>
Scale <input type="text"/>	Scale <input type="text"/>	Scale <input type="text"/>
Date of Acquisition <input type="text"/>	Date of Acquisition <input type="text"/>	Date of Acquisition <input type="text"/>
Format <input type="text"/>	Format <input type="text"/>	Format <input type="text"/>
Data <input type="text"/>	Data <input type="text"/>	Data <input type="text"/>
Scale <input type="text"/>	Scale <input type="text"/>	Scale <input type="text"/>
Date of Acquisition <input type="text"/>	Date of Acquisition <input type="text"/>	Date of Acquisition <input type="text"/>
Format <input type="text"/>	Format <input type="text"/>	Format <input type="text"/>

OTHER NOTES / COMMENTS

LIST OF CONTROL USED *(names only)*

APPENDIX 2: Attribute Definitions and Schema**Table One: I1_SurveyDetails Attribute Definitions and Schema – Polygon**

FIELD	ALIAS NAME	DESCRIPTION	DATA TYPE	MANDATORY	SIZE	DOMAIN
SurveyName	Survey Name	The name of the survey and include phase information if necessary	Text	Yes	150	To be consistent with the survey i.e. Flora and Vegetation Survey of Lot 123 Outback Rd
SurveyType	Survey Type	A description of the type of survey	Text	Yes	150	To be consistent with the survey i.e. Detailed Flora and Vegetation Survey
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 on which the survey commenced	Date	Yes	N/A	dd/mm/yyyy
EndDate	End Date	The date on which the survey concluded	Date	Yes	N/A	dd/mm/yyyy
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.
FinalTRIM	Final TRIM Reference	TRIM reference to the final version of the report	Text	NO	30	<i>Main Roads Western Australia Internal Use Only</i>

I2A_SampleSites Feature Class-Point or Polyline¹ 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 Polygon² 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	
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 Biodiversity, Conservation and Attractions (DBCA). Leave blank if the species has no conservation status. ⁴	Text	No	5	P1, P2, P3, P4, T, RE, WoNS, DP,*
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

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).

⁴ This data includes weeds not just native species.

FIELD NAME	ALIAS NAME	DESCRIPTION	DATA TYPE	MANDATORY	SIZE	DOMAIN
						(2018). Detailed Flora and Vegetation Survey of Lot 123 Outback Rd. Unpublished report prepared for XYZ Developments.
Datum	Datum	Datum of the geocode.	Text	Yes	10	GDA2020
Precision_	Precision	Precision of the geocode.	Integer	No	2	Radius in metres, may be a grid block. i.e. standard GPS=15 DGPS=1
Latitude	Latitude	Geographic co-ordinate location.	Double	Yes	15	-XX.XXXXXX
Longitude	Longitude	Geographic co-ordinate location.	Double	Yes	15	XXX.XXXXXX

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	20	Pristine, Excellent, Very Good, Good, Poor, Degraded, Completely Degraded and Cleared. Areas devoid of vegetation to be mapped as Cleared. ⁷ Condition range to be abbreviated eg. D to DG for Degraded to Completely Degraded
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_Vegetation 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
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.
Datum	Datum	Datum of the geocode.	Text	Yes	10	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
Latitude	Latitude	Geographic co-ordinate location.	Double	Yes	15	-XX.XXXXXX
Longitude	Longitude	Geographic co-ordinate location.	Double	Yes	15	XXX.XXXXXX

¹⁰ Mandatory field for Commonwealth species.

I2F_FaunaHabitat Feature Class-Point or Polygon¹¹ 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_FaunaHabitatTrees Feature 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	254	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	Eg. Hollow suitability, evidence of use, presence of fauna

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.

QuadratPhysical 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	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.

QuadratFloristics 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.

SurveyArchaeological 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

SurveyEthnographic 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

AboriginalHeritageSites 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

NoiseSampling 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.

NoiseModelling 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.

FaunaInstallation Feature Class-Point Data

FIELD NAME	ALIAS NAME	DESCRIPTION	DATA TYPE	MANDATORY	SIZE	DOMAIN
TypeInstal	Type of Installation	Type of structure installed	Text	Yes	150	i.e. Nest box, Rope Bridge, Drey
ID	Identification Number	Unique identifier of structure	Text	No	20	Unique identifier given by company
FaunaSp	Fauna Species	Fauna species installation is targeted at	Text	No	254	i.e. Possum, Black Cockatoo, Red-tailed Phascogale
Status	Status	Current status of installation	Short Integer	Yes	1	1 (Current) 2 (Historical) 3 (Expired)
YearInstal	Year Installed	Provide the year the structure was installed	Long Integer	Yes	5	YYYY
MonitorDur	Monitoring Duration	Provide the amount of years monitoring is required	Long Integer	No	10	20
Reason	Reason	Reason the structure was installed	Text	Yes	150	i.e. Approval condition, Stakeholder commitment, Regional initiative
FixPoint	Fixing Point	Description of what the structure is adhered to	Text	No	254	i.e. Pole, Wandoo
Height	Nominal Height	Provide the nominal height of structure above ground in meters	Double	No	3	XX.XXm
Latitude	Latitude	Geographic co-ordinate location	Double	Yes	15	-XX.XXXXXX
Longitude	Longitude	Geographic co-ordinate location	Double	Yes	15	XXX.XXXXXX
Company	Company	The name of the person or group who installed the structure.	Text	Yes	100	i.e. ABC Consulting
RoadRes	Road reserve	Statement as to whether the installation is in or out of the road reserve	Text	No	5	Yes or No
TRIMFolder	TRIM Folder	TRIM folder reference that contains surveys, monitoring data etc	Text	No	30	<i>Main Roads Western Australia Internal Use Only</i>

Comments	Comments	Additional information about the structure, if any.	Text	No	254	
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APPENDIX 3: Shapefile Template

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

<https://www.mainroads.wa.gov.au/technical-commercial/contracting-to-main-roads/>

(Main Roads > Community & Environment > Environment > Consultant & Contractor Info> Environmental & Heritage Management > Environmental and Heritage Consultants>