Sample Extract of Consultant/Developer Specifications for the Delivery of Digital Data to Local Government and Authorities

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15th November 2018

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A-SPEC Members

Victoria	WA	NSW
City of Ballarat	City of Armadale	The City of Newcastle
State Government Victoria Department of Environment and Primary Industries	City of Mandurah	Orange
RMIT University	Shire of Augusta Margaret River	Penrith City Council
Bass Coast	City of Melville	Singleton Council
ESTA 000	Shire of Broome	Wentworth Shire Council
Greater Shepparton	Shire of Murray	
Baw Baw Shire Council	City of Busselton	
Frankston City	City of Perth	
South Gippsland Shire Council	City of Canning	
Benalla Rural City	Town of Port Hedland	
Hume City Council	Shire of Capel	
Southern Grampians Shire Council	City of Rockingham	
City of Greater Bendigo	City of Cockburn	
LatrobeCity	Serpentine Jarrahdale Shire	
Shire of Strathbogie	City of Greater Geraldton	
Shire of Campaspe	City of Swan	
Melbourne Water	City of Gosnells	
Surf Coast Shire	City of Wanneroo	
Cardinia	Shire of Kalamunda	
City of Melton	Main Roads Western Australia	
Rural City of Wangaratta	City of Kwinana	
City of Casey		
Mitchell Shire Council		
Wannon Water		
Colac Otway Shire		
Moira Shire		
Warrnambool City Council		
Coliban Water		
Moorabool Shire Council		
City of Whittlesea		
Greater Dandenong		
Mornington Peninsula Shire		
Wyndham City		
IDM infrastructure d		
VPA Victorian Planning Authority		

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EXECUTIVE SUMMARY

Introduction

A-SPEC Program

A-SPEC is the acronym for the program involved in developing specifications for the delivery of newly constructed assets as Digital Data in a GIS ready format to Asset Owners and Managers in Local Governments, Utilities and Water Authorities around the world.

The **A-SPEC** management model enables Local Governments, Utilities and Water Authorities around ~~Australia and New Zealand~~ the world to participate in the development and use of the standard specifications developed under this program.

The key objectives of the **A-SPEC** initiative is to streamline stake holders' (local government/utilities/water authorities) processes for receiving, handling and storing of ~~underground infrastructure~~ data related to newly constructed infrastructure assets either from subdivision developments or internal programs (e.g. capital works) in their GIS and AMIS.

This process will increase the efficiency of information access and result in greater customer satisfaction when dealing with inquiries from engineering consultants, surveyors, developers and prospective residents.

- **Eliminate duplication of effort.** Significant duplication of effort exists in the digitising of as constructed information. This duplication exists between the private sector (who capture as constructed information), and council, utility and water authority staff (who may digitise that information from paper plans);

- **Improve process efficiency**, in the process of accepting and processing lodgements, and in checking existing data against design criteria and/or design plans;

- **Improve customer service** to both internal and external customers of asset information;

- **Improve the quality** of drainage information held in council, utility and water authority systems for audit and financial requirements, as well as operational and business requirements;

- **Provide a structure** for the consistent recording of all council, utility and water authority owned assets, including those created through internal programs such as; capital works and renewals.

- And ultimately **manage assets better** to reduce the need for capital works and/or to reduce ongoing maintenance costs.

A-SPEC data is characterised by having an infrastructure role by:

- functioning as reference data - which means that other kinds of information can and will be linked to the core data.
- being of interest for many different kinds of applications (and being a common denominator and integrator between different data suppliers and product and service providers).
- containing information of specific interest for the public sector in its role to support asset management, efficient transportation, traffic safety, to handle environmental and social planning, etc
- having a structure that is stable over time (even if parts of the data content changes due to user input).
- having specific interest for cross border (across State or national/International boundaries) applications.

R-Spec Standard Specification

The **R-Spec** standard specification (roads) was created to enable Local Governments, Utilities and Water Authorities around ~~Australia and New Zealand~~ the world to participate in the use of a single specification when dealing with the creation of new Councils, Utilities and Water Authorities' assets. This enables Councils, Utilities and Water Authorities to deal more efficiently with the Land Development and Industry Consultants in relation to subdivision development and capital works programs within their local jurisdiction.

The **R-Spec** standard specification was developed to streamline the processes undertaken to display all new road assets within a road reserve in each **A-SPEC** member's geographic information systems (GIS) and asset management information systems (AMIS).

A common specification for the supply of digital road asset data was identified as a major opportunity for the members to achieve efficiency and cost savings in the process of maintaining their corporate GIS and AMIS. Moreover, a common specification shared between Councils, Utilities and Water Authorities would also provide efficiencies to the Land Development Industry by removing the need to maintain separate processes, standards and software tools for Councils, Utilities and Water Authorities.

The **R-Spec** standard specification will enable consultants to provide **"As–Constructed/As Built"** data with the specific characteristics required as GIS ready data to comply with **R-Spec**.

The framework will consist of specifications for data content enabling data exchange. **R-Spec** will enable data to be collected and available in a harmonised, interoperable and quality assured way.

Use of the Specification

This standard specification is for use by Private Developers, the representatives of Private Developers, engineering consultants and surveyors (hereafter referred to as "Consultants") who undertake Land Development or Capital Works activities for one or more members of the **A-SPEC** Consortium.

This specification is not to be used for any other purpose.

Where applicable please refer to the section of the document that stipulates the specific requirements of the relevant region that you are conducting your business in within Australia ~~or New Zealand~~. It is the responsibility of the consultants to understand the specific requirements of their local government, utility or water authority clients. Assistance will be provided wherever possible to clarify any issues or concerns.

It should also be noted that if there are similar elements in **R-Spec** that also appear in **S-Spec**, **D-Spec, B-Spec, W-Spec** and **O-Spec**, then the standard specification for those ~~asset types~~ asset classes are to be used to prepare the **"As-Constructed/As Built"** digital data to be delivered along with the road reserve digital data requested.

This document, along with the accompanying A-SPEC document, includes a specification of common features (feature types, attribute types and attribute value domain). It also contains generalisation rules for the graphical representation of the features i.e. assets within road reserves, geodetic reference system and rules for validating the data supplied to ensure compliance.

The **"As Constructed/As Built information"** is to be supplied as features and attributes. Storing the information as attributes means attaching the information directly to the features. This document is a guide on what features to supply and which attributes to attach to the various features.

R-Spec will lay the foundation for road asset data infrastructure built on identified user requirements through a specification framework.

Please note the changes in this specification are indicated as follows:

~~1234~~	Blue highlighted text and text struck out	Text to be deleted
5678	Green Highlighted text	Existing attribute moved to another table
9101	Yellow highlighted text	New or modified text

An attribute which is specified as "Conditional" means, it is to be populated if certain conditions are met.

Example: The attribute 'Source' is to be populated in the Area of Work Extent table only if the 'Source' of the information is the same for the whole project. If the asset doesn't meet this condition, then the Code 'REFER', is to be used and each table is to be populated accordingly.

Read attribute descriptions carefully to ensure the conditions are met before populating.

In Summary

The key objective of this standard specification is to provide information to the Consultants that will be dealing with A-SPEC Consortium members. This document outlines the specific requirements for the submission of "As-Constructed/As Built Information" of the works, as GIS Ready digital data of newly constructed road assets as defined by the A-SPEC Consortium members in Australia ~~and New Zealand~~.

Whilst all care has been taken with the preparation of this document it is the responsibility of the consultants to confirm that all details are current and relevant. For example there are specific references in this document that **only** relate to particular jurisdictions.

~~**E.g**. WAPC refers to a requirement for Western Australia only. Therefore does not need to be an included field for other jurisdictions.~~

Note the requirement for Western Australian A-SPEC users to record the WAPC reference number "WAPC_No" , is now accommodated within the "Permit_No" attribute field as the "WAPC_No" attribute field was renamed to "Permit_No".

The project to determine the suitability of the **R-Spec** standard specification was developed and is being managed by GISSA International Pty Ltd.

The Atrium Suite 10, 476 Canterbury Road, Forest Hill Victoria, AUSTRALIA, 3131.

All material is subject to Copyright.

Submission of "As Constructed Information" as GIS Ready Data

The key objective of the specification is to provide "As Constructed Information" as digital data of assets within the Road Reserve in a GIS ready format to the Consortium of members using the **R-Spec** standard specification.

This document outlines the specifications for the delivery of digital data containing: - information of assets within the Road Reserve and the boundary showing the extent of the works. This data is to be provided to the **A-SPEC** Consortium members as outlined in the Asset Table in *Section 1.3 Theme/Layer Structure*.

Consultant Register

The **A-SPEC** Consortium will list Consultants who have registered through the **A-SPEC** website and will provide updates or revisions as necessary. You are advised to read this specification carefully and any comments or suggestions you have regarding this specification are welcomed.

- Consultants who have registered will be shown on the **A-SPEC** website; www.a-specstandards.com.au (formerly www.dspec.com.au)

A-SPEC Member Contact

All inquiries relating to the delivery of the digital information should be directed to the **A-SPEC** representative of the relevant organization:

- Please either contact GISSA International on +613 9877 6972 or your local point of contact with the organisation you are dealing with.

Intellectual Property

The **A-SPEC** Consortium members own the intellectual property of the developed specifications in conjunction with GISSA International and Intellectual Property rights are not to be sold, transferred or assigned to any party without the prior written approval of the **A-SPEC** Consortium and **GISSA International**.

The **R-Spec Standard** Specifications will be available free of charge to the consulting & development industry. **A-SPEC** data structures are only to be used for the delivery of As Constructed data to **A-SPEC Consortium members only.**

All material is copyrighted and under a trademark.

Disclaimer

On occasion **A-SPEC** Consortium members may supply consultants with digital data to assist them with their planning and design phases. The **A-SPEC** Consortium accepts no liability for the accuracy or completeness of the information and it is the responsibility of the consultants to ensure that the data supplied is appropriate and applicable to the end use intended.

Deliverables

The following are acceptable media for providing the digital data files.

- Email files to A-SPEC member representative. ~~(File size limitation is 5 megabytes)~~
- ~~CD-ROM / DVD~~
- USB memory device, portable hard drive
- Cloud Mediums (FTP, Dropbox, Google Drive etc.)

~~The CD or DVD is to be labeled in the following way.~~

~~***Estate Name and Stage or Project Name:***~~ _____

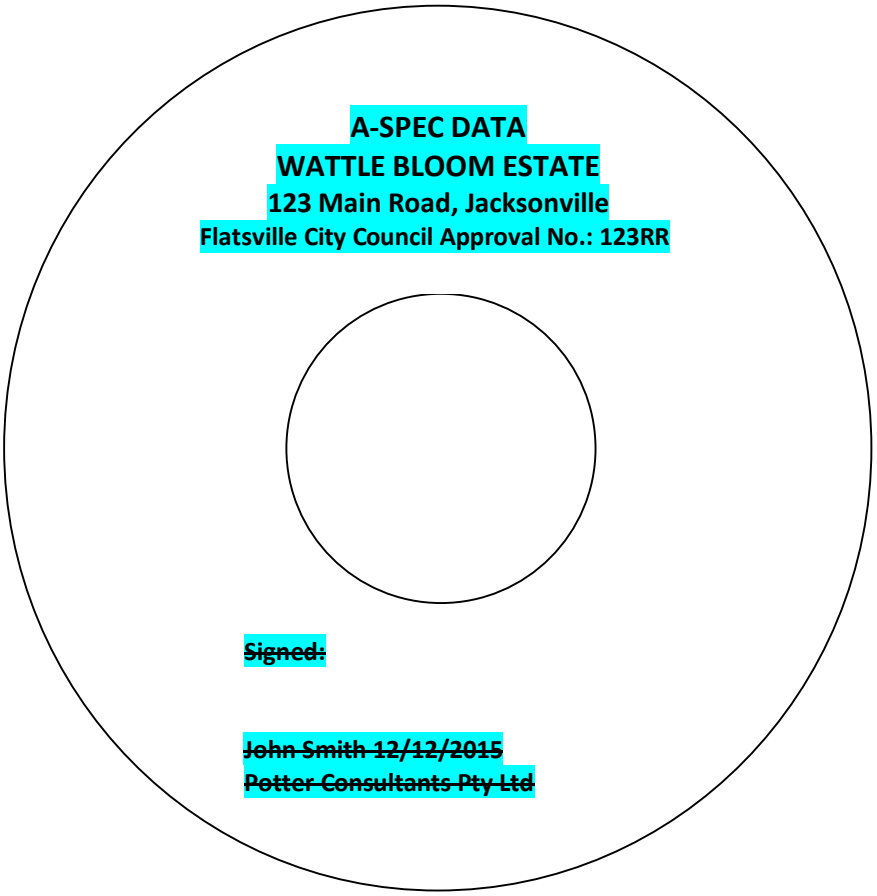
~~***Property Description (prior to subdivision):***~~ _____

~~***Individual Council, Utility and Water Authority Approval Number:***~~ _____

~~***Signed by:***~~ _____ ~~***Date:***~~ _____

~~***Name:***~~ _____

~~***Consultant Company Name:***~~ _____



~~**Figure 1** – Sample CD Label~~ – **DIAGRAM TO BE DELETED**

Certification Form - Readme / Metadata File

The readme.txt is a simple text file that contains information about the project the digital data is being provided for and MUST accompany **EVERY** digital data submission.

It is an expectation of the **A-SPEC** Consortium that all data be verified by the developer or their representatives (consultants) with relation to its completeness and graphical accuracy prior to submission.

Errors and omissions will result in the data being returned to the consultant for correction and may result in a non-conformance being placed on the data submission.

The following information may also be used as part of validating the data submission.

Label	*Description*	*Example*
COMPANY	Company name taking responsibility for the data	*GISSA International*
CONTACT	Contact name for this project	*George Havakis*
TELEPHONE	Telephone number	*(03) 9877 6972*
FACSIMILE	Facsimile number	*~~N/A~~ NA*
EMAIL	Email address (as applicable)	*george@gissa.com.au*
MAILING ADDRESS	Mailing address	*Suite 10, 476 Canterbury Rd, Forest Hill VIC 3131*
PHYSICAL ADDRESS	Physical business address	*'As Above'*
A-SPEC MEMBER	Participating Authority	*Wyndham City Council*
DATE SUBMITTED	Date the digital data submitted to A-SPEC member	*31/1/2014*
DOCUMENT VERSION	Version of the document used	*R-Spec Digital Data Specifications – V2.6.1 ~~V1~~*
SOFTWARE FORMAT & VERSION	The software used to create the digital data	*~~MapInfo v7.5 / AutoCAD Map 2008~~ QGIS*
PROJECT or SUBDIVISION	Project or Subdivision name	*Wyndham Estate*
STAGE	Subdivision Stage Name	*Stage 3B*
DESIGN COMPANY	Design Company Name	*Fred Charles & Associates*
PLAN NUMBER	As Constructed Plan Number	*6080R212*
CONSTRUCTION COMPANY	Construction Company Name	*Jamieson Construction*
CONSTRUCTION DATE	Date the asset was constructed/ built/ installed	*12/03/2017~~00~~*
COORDINATES/DATUM	The coordinate system the data is in	*GDA94 Zone 49*
DATUM	Vertical Height Datum	*AHD71*
TRANSFORMATION	The coordinate system the data was transformed from	*Perth Coastal Grid to GDA94 Zone49*
TRANSFORMATION BY	Who carried out the transformation from the original coordinate system to the relevant system	*City of Gosnells – Jack Dowling*
SOURCE OF DATA	The type of capture used	*Field Asset Capture*
NOTES/COMMENTS	Important notes or information to be included here.	*Any other relevant information that the data custodian needs to be aware of.*

1.3 Theme/Layer Structure

The following level/layer structure is intended as a guide to assist Consultants when arranging their graphical information for members of the **A-SPEC** Consortium. The key principal is that each ~~asset type~~ asset class must be delivered on a separate level/layer and the files must be clearly labelled in accordance with the **"Universal File Name"** indicated below.

Depending on the asset to be captured, not all the levels/layers indicated here may appear in the submitted data.

It is important to note that each level/layer should only contain the listed features; any other features present will impede the acceptance testing and may result in non-conformance with the requirements.

Asset Type	Universal File Name	Data Type	Description	Attribute Table
Area of Work Extent	~~Graphics~~ Area_Extent	Polygon~~/Region/ Shape~~	Polygon representing the extents of the subdivision development or capital works	**Yes**
Road Reserve	Road	Polygon~~/Region /Shape~~	Property Boundary to Property Boundary	**No. Graphics Only.**
~~Pavement / Seal Width~~ Surface (Seal)	Surface	Polygon	The seal / surface above the pavement	**Yes**
Pavement	Pavement	Polygon/	Lip of Kerb to Lip of Kerb	**Yes**
~~Pavement / Seal~~ Surface (Seal) Centreline	S_CLine	Line/Polyline~~/ Line String~~	Centreline of Road, from intersection to intersection or to the end of current works	**Yes**
Pathways	Pathways	Polygon~~/Region /Shape~~	Perimeter of Pathway	~~**No. Graphics Only.**~~ **Yes**
Pathway Centreline ~~(Line/Polyline)~~	P_CLine	Line/Polyline~~/ Line String~~	Centreline of Pathway, from intersection to intersection or to the end of current works	**Yes**
Tactile Ground Surface Indicators	Tactile	Polygon	Extent of tactile paving	**Yes**
Parking	Parking	Polygon~~/Region /Shape~~	Perimeter of Parking Area	**Yes**
Kerb, Kerb & Channel and Shoulder	Kerbs	Line/Polyline~~/ Line String~~	Back of the Kerb. If NO Kerb & Channel, edge of the shoulder must be provided.	**Yes**
Table Drain	T_Drain	Polygon~~/Region /Shape~~	Perimeter of the table drain	**Yes**
Traffic Management Devices	Dev_Perim	Polygon~~/Region /Shape~~	Perimeter of Device	**Yes**
Traffic Management Device	Tr_Lines	Line/Polyline~~/ Line String~~	Line Markings, Pedestrian crossings/ medians/ chevrons	**No. Graphics Only.**
Traffic Management Device	Dev_Loc	Point	Location of Device	**Yes**

Asset Type	Universal File Name	Data Type	Description	Attribute Table
~~Bus~~ Shelters	~~Bus_Shelt~~ Shelter	Polygon~~/Region /Shape~~	Perimeter of the bus shelter	**Yes**
Abutments	Abutment	Polygon	Perimeter of Abutments	**No. Graphics Only.**
Bridge/Major Culvert ~~and Abutment~~	Br_Cul	Polygon~~/Region /Shape~~	Perimeter of Bridge / Major Culvert	**Yes**
Bridge/Major Culvert Components Attribute & Validation File Format Instructions	~~n/a~~ Bridge Components catalogue	~~n/a~~ Spreadsheet	Individual components of a bridge or a major culvert **WITHOUT GRAPHICS**	**Yes**
Signs ~~(Point)~~	Signs	Point	Centre of Sign	**Yes**
Trees ~~(Point)~~	Trees	Point	Centre of Tree	**Yes**
Lighting ~~(Point)~~	Lighting	Point	Non-standard Public Lighting	**Yes**
Vehicle Crossing ~~(Polygon/Shape/Region)~~	Vhcl_Cross	Line/Polyline~~/ Line String~~	Driveway access	**No. Graphics Only.**
Road Safety Barriers ~~(Line/Polyline)~~	Barriers	Line/Polyline~~/ Line String~~	Centreline depicting extents of barrier	**Yes**
Traffic Signals- Point	Traffic_Signals	Point	Location of Traffic Signals	**Yes**
Intelligent Transport Systems (ITS) Features – Points	ITS_Point	Point	Location of ITS components	**Yes**
Intelligent Transport Systems (ITS) Features – Lines	ITS_Line	Line/Polyline	Line indication position of ITS cables	**Yes**
Intelligent Transport Systems (ITS) Features – Polygons	ITS_Poly	Polygon	Perimeter of ITS areas	**Yes**
Matching to Existing Infrastructure	Problems	Polygon~~/Region /Shape~~	Circle of radius 10m and associated comments listing all problems with a unique number (i.e. 1,2,3 etc.)	**Yes**

1.3.1 Other Asset Types that may be found in a Road Reserve

The following asset may also be found in a road reserve and are covered in other specifications developed by the A-SPEC Consortium.

Where this occurs please refer to the relevant **A-SPEC** standard specifications to ensure compliance with the delivery of **"As Constructed"** data. The table above lists some of the specifications available.

Amenities	Please refer to **O-Spec** for requirements
Bins	Please refer to **O-Spec** for requirements
Drainage Pits and Pipes and other infrastructure	Please refer to **D-Spec** for requirements
Fences	Please refer to **O-Spec** for requirements
Landscaping	Please refer to **O-Spec** for requirements
Minor Structures	Please refer to **O-Spec** for requirements
Nature Strips	Please refer to **O-Spec** for requirements
Public Art and Memorial	Please refer to **O-Spec** for requirements
Sewerage Pits and Pipes and other infrastructure	Please refer to **S-Spec** for requirements
Water Pits and Pipes and other infrastructure	Please refer to **W-Spec** for requirements

This will be updated from time to time so please do not hesitate to contact GISSA International on +61 3 9877 6972 or refer to the website on www.a-specstandards.com.au.

1.4 Graphical Data Construction Principles

Each of the following sections detail the graphical data construction principles that consultants must adhere to for all linework, polygons and points provided. Where practicable, the alignment of all data; whether "As Constructed Measurements" ~~in Victoria~~ or Survey Enhanced "As Constructed Measurements" data ~~in Western Australia~~, must be related to the title/property boundaries abutting the road reserve.

~~• Please use sound CAD practices when recording data, such as snapping to lines and closing polygons.~~
It is requested to use sound computer-assisted design (CAD) practices when recording data, such as snapping to lines and closing polygons.

1.5 Graphical Representation Principles

Each of the following sections details the requirements for how the graphics for each asset is to be provided. As mentioned in the previous section all data that is provided is to be a:

- Point
- Line (Polyline where multiple vertices are required) or a
- Polygon

The following standard drawing format has been created to depict how each asset element may appear in the context of other road assets and wherever practicable photographs have been included for visual illustration of the asset in real life.

This format will be used in each section as appropriate.

Figure 2 below is an example of the typical assets that may be found in a Road Reserve.

Figure 2 - Typical Assets within a Road Reserve

The figures that follow show a centreline in relation to typical road assets (Figure 3 and Figure 4) and as a polyline (Figure 5).

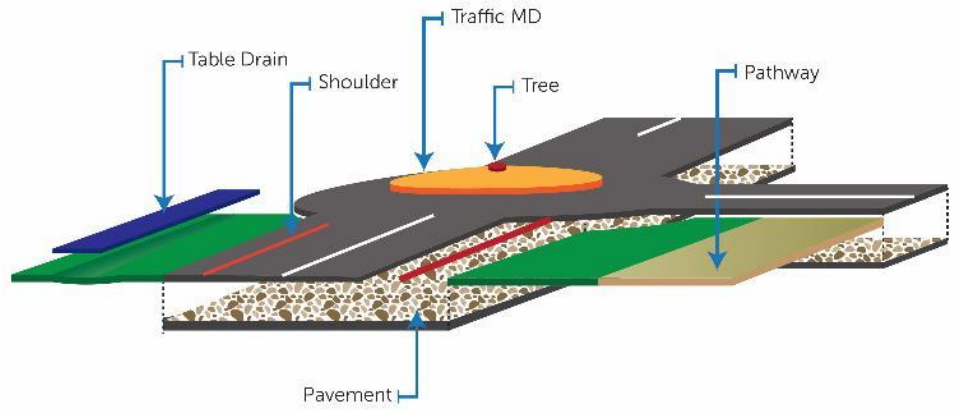


Figure 3 - 3D view of typical road assets **NEW**

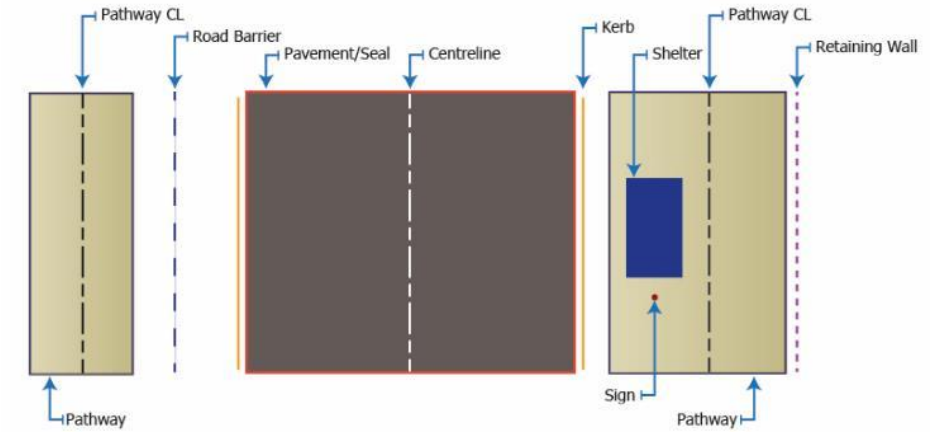


Figure 4 - A plan view of Typical Road Components **NEW**

Note: CL = centreline

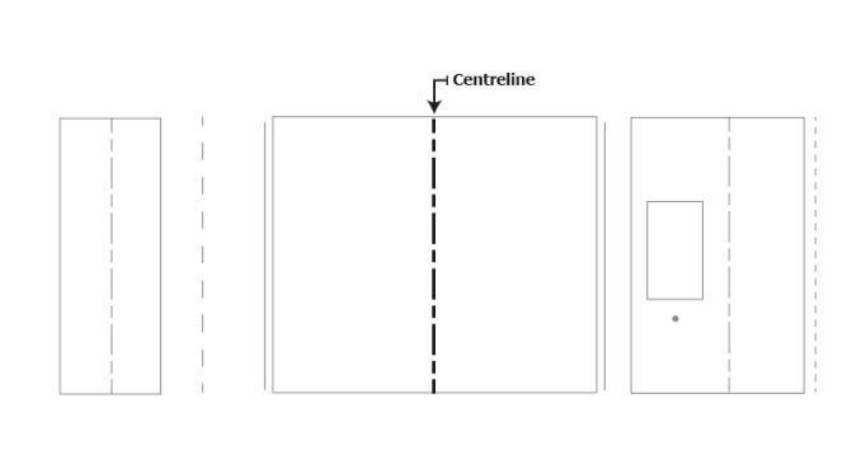


Figure 5 - Centreline Represented as a Polyline **NEW**

1.6 Acceptance Testing

All graphical information will be checked against the Attribute file/table. Please refer to Section 2 for guidelines designed to assist Consultants when putting together attribute information.

It is mandatory that each Consultant implement checks to ensure that their plans and data conform to the specification and that they run these checks prior to the submission of data to an **A-SPEC** Consortium member. Members will undertake random in-house testing to ensure compliance.

Following the acceptance of the digital data, the relevant Certificates will be issued and the ownership of the digital data reverts to the **A-SPEC** Consortium member.

2 Attribute & Validation File Specifications

All coordinates will be provided in the preferred datum of each individual **A-SPEC** Consortium member as specified on the **A-SPEC** website www.a-specstandards.com.au or as otherwise agreed to with the respective Consortium member.

Coordinate fields[1]

The key objective of storing this information is to ensure that the practice of collecting the "As Constructed Information" meets the accuracy requirements of the **A-SPEC** Consortium. The accuracy of the information must be relative to the property boundary.

As all new cadastral information in Australia is placed on the MGA (Map Grid of Australia) grid it is an expectation that all data provided by consultants will be representative of this level of accuracy.

Where significant discrepancy occurs between the property map base and the coordinates of the cadastral development as a result of the unavailability of the connection to the MGA grid or other instance, then the consultant will notify the consortium member so that steps can be taken to record the adjusted coordinates.

The key objective of having this notification in place is to take into consideration occurrences where the cadastral mapbase exceeds a particular accuracy. This is to ensure that if required the assets can be located via means of a GPS or other distance measurement equipment.

In Australia – All Z coordinates (levels) will be provided in AHD metres in accordance with the jurisdictional requirements.

~~In New Zealand – All Z coordinates are to be provided in NZTM projection (NZVD2016 datum)~~

Attribute fields

Maximum field widths are specified for Alpha/Numeric and Alpha data.

For ~~floating point~~ decimal data the number of characters after the decimal point are specified

Dates are to be provided as dd/mm/yyyy, EG: 07/06/2001

All fields are to be populated in accordance with the notes supplied for each field

All Attribute fields are to use the Column Names and structures set out in *Section 2 – Attribute & Validation File Format Instructions*.

Validation checks for each data field have also been provided in *Section 2 – Attribute & Validation File Format Instructions*.

A set of ~~code lists~~CODELISTS are provided to standardise the capture of information in the Attribute files. They can be found in *Section 3 – **R-Spec** CODELISTS*. The **A-SPEC** website will also contain the most current code list CODELIST

Fields that are highlighted in grey are common to all tables.

Please take note of default values for specific fields. These have been provided for the relevant fields.

Please note that every attribute name is case sensitive. Use the given name format when creating your fields to supply the data.

Attribute Data Validation Requirements

Please note the column **QA Validation** stipulating the Validation Check to be carried out is provided as a guide to assist Developer/Consultants when putting together information for submission.

[1] Discussions held with Land Victoria (Victoria) and Landgate (Western Australia) have confirmed that the coordinated cadastral information provided by surveyors is generally adopted and data of lesser accuracy is "massaged / modified" to suit. i.e. where the surrounding data, for example is based on 1:10,000 accuracy, then that data will be manipulated to "fit" with the survey accurate data.

3 R-Spec CODELISTS ~~Code Lists~~

~~Code lists~~CODELISTS are used to standardise terminology by providing a range of item descriptions relating to a particular attribute. A number of attributes specified in the attribute fields may require the input of a ~~code list~~CODELIST entry number.

Consultants please note that should an entry not exist within ~~the~~ a CODELIST~~code list~~ please ~~contact you're A SPEC Consortium contact to make arrangements for its inclusion.~~ Use the '**SeeComment**' value.

~~Code list~~ CODELIST entries will be constantly reviewed by the consortium and additions and amendments made as the need arise.

Aggregate Size or Nominal Stone – NEW

Asset Status

Base and Sub-base Material – NEW

Bridge/Major Culvert Purpose – NEW

Bridge/Major Culvert Type

Call Box Type –NEW

Cell Material – NEW

Cell Type – NEW

Communication Method – NEW

Component Type – NEW

Control System Type – NEW

Earthing Type – NEW

Finishing Material – NEW

Foundation Material – NEW

Foundation Type – NEW

Health & Safety Issues – NEW

Housing Type – NEW

ITS Area Type – NEW

ITS Component Type – NEW

ITS Material – NEW

Kerb Material – NEW

Kerb Type

Lighting Type

Luminaire Type – NEW

~~Material~~

Mounting Type – NEW

Parking Purpose – NEW

Pathway Type

Pole/Post Material – NEW

Pole/Post Type – NEW

Position – NEW

Power Source – NEW

Rail Material – NEW

Rail Type – NEW

~~Replacement Cost Type~~

Road Barrier Material – NEW

Road Barrier Restraint Type – NEW

Road Barrier Tie System Type – NEW

Road Barrier Type – NEW

Rooting Environment – NEW

Signal Type – NEW

Shelter Type – NEW

Sign Material – NEW

Source – NEW

Structure Material – NEW

Support Structure Material – NEW

Support Type – NEW

Surface (Seal) Aggregate Type – NEW

Surface (Seal) Binder Modifier/Additive Type – NEW

Surface (Seal) Binder Type – NEW

Surface (Seal) Function Type – NEW

Surface (Seal) Reason – NEW

Surface (Seal) Top Layer Colour – NEW

Surface (Seal) Treatment Type – NEW

Surface (Seal) Material Type – NEW

Table Drain Material – NEW

Table Drain Shape – NEW

Tactile Ground Surface Indicator Type – NEW

Target Board Material – NEW

Traffic Management Device Material – NEW

Traffic Management Type – Area

Traffic Management Type – Point

Tree Age

Tree Height

Tree Significance

Tree Plant Method

Unit of Measure Reference – NEW

Visor Type – NEW