



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

Version 3.0.5 Final - Summary
31st May 2019



This document is protected by Copyright© and Registered Trademarks™

A-SPEC Members

| Victoria | WA | NSW |
|----------|----|-----|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Table of Contents

| | |
|---|------------------------------|
| A-SPEC MEMBERS | 2 |
| TABLE OF CONTENTS | 3 |
| INDEX OF DATA ATTRIBUTE TABLES | ERROR! BOOKMARK NOT DEFINED. |
| INDEX OF FIGURES | ERROR! BOOKMARK NOT DEFINED. |
| EXECUTIVE SUMMARY | 5 |
| INTRODUCTION..... | 5 |
| A-SPEC PROGRAM | 5 |
| O-SPEC STANDARD SPECIFICATION | 6 |
| USE OF THE SPECIFICATION | 6 |
| THE A-SPEC ACCOMPANYING DOCUMENT | 7 |
| IN SUMMARY | 8 |
| EMERGENCY MARKERS | 9 |
| GLOSSARY OF TERMS AND DEFINITIONS | 10 |
| SUBMISSION OF “AS CONSTRUCTED INFORMATION” AS GIS READY DATA..... | 11 |
| CONSULTANT REGISTER | 11 |
| A-SPEC MEMBER CONTACT..... | 11 |
| INTELLECTUAL PROPERTY | 11 |
| DISCLAIMER..... | 11 |
| DELIVERABLES | 11 |
| CERTIFICATION FORM - README / METADATA FILE | 12 |
| 1.3 THEME/LAYER STRUCTURE..... | 13 |
| 1.4 GRAPHICAL DATA CONSTRUCTION PRINCIPLES | 15 |
| 1.5 GRAPHICAL REPRESENTATION PRINCIPLES | 15 |
| 1.6 ACCEPTANCE TESTING..... | 15 |
| 2 ATTRIBUTE & VALIDATION FILE SPECIFICATIONS | 16 |
| 3 O-SPEC CODELISTS | 18 |
| AMENITY MATERIAL | 18 |
| AMENITY TYPE | 19 |
| ASSET STATUS..... | 19 |
| BASE MATERIAL..... | 19 |
| BIN MATERIAL | 19 |
| BIN TYPE | 20 |
| BIN USE..... | 20 |
| BOARDWALK MATERIAL..... | 20 |
| BOAT SIZE | 20 |
| BORE COVER MATERIAL | 21 |
| BORE TYPE | 21 |
| BREAKWATER MATERIAL..... | 21 |
| BREAKWATER PURPOSE | 21 |
| DECK MATERIAL | 21 |
| DRAINAGE MECHANISM | 22 |
| FACE MATERIAL..... | 22 |
| FENCE/WALL PURPOSE | 22 |
| FENCE/WALL/GATE MATERIAL | 22 |
| FENCE/WALL TYPE..... | 23 |
| GATE TYPES..... | 23 |
| HEALTH AND SAFETY ISSUES..... | 23 |
| IRRIGATION LINE MATERIAL..... | 24 |
| IRRIGATION POINT TYPE..... | 24 |
| JPM FEATURE TYPE..... | 24 |
| LANDSCAPING MATERIAL | 25 |
| LANDSCAPING TYPE | 25 |

| | |
|--|-----------|
| MINOR STRUCTURE MATERIAL | 26 |
| MINOR STRUCTURE TYPE | 26 |
| OPEN SPACE TYPE | 26 |
| PILE MATERIAL | 27 |
| PILE TYPE | 27 |
| PLAYGROUND AND EXERCISE EQUIPMENT | 27 |
| PLAYGROUND AND EXERCISE EQUIPMENT MATERIAL | 28 |
| PLAYING FIELD TYPE | 28 |
| PLAY SURFACE MATERIAL | 29 |
| POSITION | 29 |
| POST MATERIAL | 29 |
| PUBLIC ART/MEMORIAL MATERIAL | 30 |
| PUBLIC ART / MEMORIAL TYPE | 30 |
| RAIL MATERIAL | 30 |
| RAIL TYPE | 31 |
| RETAINING WALL (ABOVE/BELOW) TYPE | 31 |
| RETAINING WALL FOUNDATION TYPE | 31 |
| RETAINING WALL RESTRAINT TYPE | 32 |
| RETAINING WALL STRUCTURE TYPE | 32 |
| RETAINING WALL TIE SYSTEM TYPE | 33 |
| ROOF MATERIAL | 33 |
| SEAL MATERIAL | 34 |
| SERVICES (LINEAR) TYPE | 34 |
| SERVICES (POINT) TYPE | 34 |
| SOURCE | 34 |
| SURFACE MATERIAL | 35 |
| UNIT OF MEASURE REFERENCE | 35 |
| VALVE CONTROL TYPE | 35 |
| VALVE POWER TYPE | 35 |
| VALVE PURPOSE TYPE | 36 |
| 4 O-SPEC DOCUMENT CONTROL | 37 |
| 5 DOCUMENT REVISION HISTORY | 37 |
| 6 SUMMARY OF SPECIFICATION CHANGES..... | 37 |

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 Government, Utilities and Water Authorities around the world.

The **A-SPEC** management model enables Local Governments, Utilities and Water Authorities around 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 governments/utilities/water authorities) processes for receiving, handling and storing of 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 Open Space information held in council systems for audit and financial requirements, as well as operational and business requirements;
- **Provide a structure** for the consistent recording of all council 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 boarder (across State or National/International boundaries) applications.

O-Spec Standard Specification

The **O-Spec** standard specification (Open Space) was created to enable Local Government, Utilities and Water Authorities around 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 developments and capital works programs within their local jurisdiction.

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

A common specification for the supply of digital open space 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 numerous Councils, Utilities and Water Authorities.

The **O-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 **O-Spec**.

The framework will consist of specifications for data content enabling data exchange. **O-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. It is the responsibility of the consultants to understand the specific requirements of their local government, utility and 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 **O-Spec** that also appear in **D-Spec**, **R-Spec**, **W-Spec**, **B-Spec** and **S-Spec**, then the standard specification for those asset classes are to be used to prepare the **As-Constructed/ As Built information** digital data to be delivered along with the open space 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 open space or recreation 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.

O-Spec will lay the foundation for open space and recreation reserve 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.

The A-SPEC Accompanying Document

A document has been created called the **A-SPEC DDS – Introduction and Overview** ("A-SPEC DDS"). Where applicable please refer to the section of the document that stipulates the specific requirements of the relevant region where you are conducting your business.

It should also be noted that the **A-SPEC DDS** document contains a list of all asset types covered by the various specifications to enable easier identification for the detailed information.

It is the responsibility of the data providers to understand the specific requirements of their local government, utility or water authority clients. Assistance will be provided wherever possible by GISSA to clarify any issues or concerns.

To log a request for further information, the Data Provider may contact GISSA through the website www.a-specstandards.com.au.

The **A-SPEC DDS** document along with this document, provides the necessary information relating to common features (asset classes, feature types, attribute types and attribute value domains) that are required.

Including

1. generalisation rules for the graphical representation of each feature,
2. geodetic reference systems and
3. rules for validating the data supplied to ensure adherence and compliance.

The Already Constructed data 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.

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 works as GIS Ready digital data of newly constructed Open space assets as defined by the **A-SPEC** Consortium members in Australia.

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.

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 **O-Spec** standard specification was developed and is being managed by GISSA International Pty Ltd.

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

All material is subject to copyright.

Emergency Markers

The Emergency Marker Program commenced prior to the 2006 Commonwealth Games with four targeted environments identified – Lysterfield, Albert Park Lake, Alexandra Gardens and Birrarung Marr within the City of Melbourne.

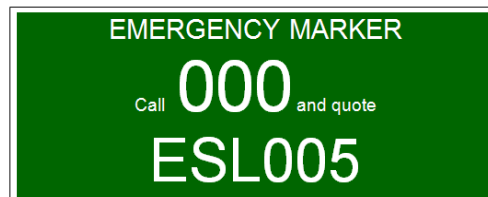
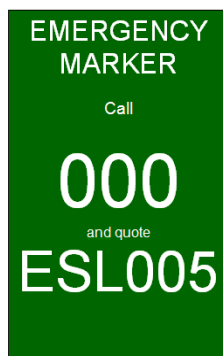
Emergency markers are used to clearly identify the location of the emergency when a caller calls Triple Zero. The alphanumeric identifier is linked to ESTA's Computer Aided Dispatch system (CAD) and specifies relevant location, GPS coordinates, road access route or navigational data for the expedient dispatch of emergency services

The two most important pieces of information required when calling Triple Zero are the location of the emergency (where is it?) and the nature of the emergency (what is it?).

When an emergency marker is quoted, ESTA's Triple Zero Dispatcher can then provide specific directional information to the responding emergency services, saving time and potentially saving lives.

Emergency Markers are uniquely identifiable signs strategically placed in open space locations such as National, State and Regional Parks, linear trails, rail trails and other public open space locations.

Emergency Markers look similar to a street sign, have three letters and three numbers and have a green background and white text. They are unique alphanumeric signs which are easy to identify



Markers are more than just signs. They are supported by GPS co-ordinates and directional instructions enabling ESTA operators to provide directional information to police, fire, ambulance and VICSES advising of obstructions such as locked gates, road closures and quickest access points

ESTA's ability to direct an emergency response team to precise emergency caller locations is a critical and core component of the Call and Dispatch management process for all 000 emergency calls. It is an essential element to ESTAs ability to delivering services to the Victorian Community

The introduction of Emergency Markers as part of **O-Spec** has been identified as a fundamental requirement to engage with Local Governments and the industry at large.

It is therefore mandatory that when a land owner is dealing with Emergency Markers that the recording requirements outlined in this document are read in conjunction with ESTA's **Emergency Marker Signage guidelines**. Please refer to ESTA's website.

The purpose of the **Emergency Marker Signage guidelines** document is

- To establish design guidelines that will enable the responsible land owners and land managers to implement Emergency Markers in a consistent manner.
- To assist land owners and managers in identifying suitable locations for the installation of Emergency Markers

Glossary of Terms and Definitions

With the introduction of additional jurisdictions there will be instances where different terms or words are used to describe identical features.

We have included this glossary to define terms; all defined words are in an alphabetical order. They are not used in this specification with any other meaning. As other terms are identified they will be added and therefore this section will be updated from time to time and provided on the relevant specification page on www.a-specstandards.com.au.

Please note that it is not the intention to detail every term in this glossary as many terms have already been pre-defined in many existing codes of practice, Land development manuals and organisations such as Standards organisations, State, Regional and central agencies who develop the policies and practice notes for areas that cover planning, design and construction.

AS CONSTRUCTED INFORMATION

– may also be referred to as “**As Builts**” or “**Work as Executed**” or “**Work as Constructed**” or “**As Cons**” or “**As Laid**”

ASSET MANAGEMENT SYSTEM (AMS)

– may also be referred to as “**Asset management Information System (AMIS)**”

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 an Open Space or Recreation Reserve in a GIS ready format to the Consortium of members using the **O-Spec** standard specification.

This document outlines the specifications for the delivery of digital data containing: information of assets within open spaces or recreation reserves as well as 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 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 (other than a new participating **A-SPEC** Consortium member) without the prior written approval of the **A-SPEC** Consortium and **GISSA International**.

The **O-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
- USB memory device, portable hard drive
- Cloud Mediums (FTP, Dropbox, Google Drive etc.)

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 | <i>GISSA International</i> |
| CONTACT | Contact name for this project | <i>George Havakis</i> |
| TELEPHONE | Telephone number | <i>(03) 9877 6972</i> |
| FACSIMILE | Facsimile number | <i>NA</i> |
| EMAIL | Email address (as applicable) | george@gissa.com.au |
| MAILING ADDRESS | Mailing address | <i>Suite 10, 476 Canterbury Rd, Forest Hill VIC 3131</i> |
| PHYSICAL ADDRESS | Physical business address | <i>'As Above'</i> |
| A-SPEC MEMBER | Participating Authority | <i>City of Gosnells Wyndham City Council</i> |
| DATE SUBMITTED | Date the digital data submitted to A-SPEC member | <i>31/1/2014</i> |
| DOCUMENT VERSION | Version of the document used | <i>O-Spec Digital Data Specifications – V3.0.5</i> |
| SOFTWARE FORMAT & VERSION | The software used to create the digital data | <i>QGIS</i> |
| PROJECT or SUBDIVISION | Project or Subdivision name | <i>Rockbank Rise</i> |
| STAGE | Subdivision Stage Name | <i>Stage 3B</i> |
| DESIGN COMPANY | Design Company Name | <i>Fred Charles & Associates</i> |
| PLAN NUMBER | As Constructed Plan Number | <i>6080R212</i> |
| CONSTRUCTION COMPANY | Construction Company Name | <i>Jamieson Construction</i> |
| CONSTRUCTION DATE | Date the asset was constructed/ built/ installed | <i>12/03/2017</i> |
| COORDINATES/DATUM | The coordinate system the data is in | <i>GDA94 Zone 50</i> |
| DATUM | Vertical Height Datum | <i>AHD71</i> |
| TRANSFORMATION | The coordinate system the data was transformed from | <i>Perth Coastal Grid to GDA94 Zone 50</i> |
| TRANSFORMATION BY | Who carried out the transformation from the original coordinate system to the relevant system | <i>City of Gosnells – Jack Dowling</i> |
| SOURCE OF DATA | The type of capture used | <i>Surveyed</i> |
| NOTES/COMMENTS | Important notes or information to be included here. | <i>Any other relevant information that the data custodian needs to be aware of. Information provided in this submission is a combination of data picked up in the field along with confirmation by the contractor responsible ICANDOIT Pty Ltd</i> |

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 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 | Area_Extent | Polygon | Perimeter of extents of subdivision development or capital works | Yes |
| Open Spaces | Space | Polygon | Perimeter of Open Space. EG: Park | Yes |
| Playing Fields | Fields | Polygon | Perimeter of Playing Field. EG: Football, Tennis | Yes |
| Playgrounds | Playground | Polygon | Perimeter of Playground. EG: Skate Park | Yes |
| Minor Structures | Structures | Polygon | Perimeter of Structure. EG: Pergola, Toilets | Yes |
| Fences/Walls | Fences | Line / Polyline | Line indicating the position of fence and walls | Yes |
| Amenities | Amenities | Point | Central location of Amenity. EG: BBQ | Yes |
| Gates | Gates | Point | Central location of Gate | Yes |
| Bins | Bins | Point | Central location of Bin. EG: Wheelie | Yes |
| Services (Point) | Service_Pt | Point | Supply of Power, Water and Gas – Meter and/or outlet Location | Yes |
| Services (Linear) | Service_Ln | Line / Polyline | Power, Water and Gas “lines” | Yes |
| Public Art/Memorial | Art | Point | Centre of Artwork. EG: Statue | Yes |
| Landscaping | Lscape | Polygon | Landscaping Areas. EG: Garden Beds, lawns | Yes |
| Bore/Ground Water | Bores | Point | Ground Water Bores | Yes |
| Irrigation (Point) | Irrig_Pt | Point | Location of feature. EG: Solenoid | Yes |
| Irrigation (Linear) | Irrig_Ln | Line / Polyline | Irrigation line location | Yes |
| Emergency Markers (Point) | Marker_Pt | Point | Central location of the marker | Yes |
| Emergency Markers (Linear) | Marker_Ln | Line / Polyline | Linear representation of the pathway leading to the marker | Yes |
| Boardwalks | Boardwalk | Polygon | Perimeter of the Boardwalk | Yes |
| Playground and Exercise Equipment | PlayEquip | Point | Central location of Playground Equipment. | Yes |
| Breakwater | Breakwater | Polygon | Perimeter of the Breakwater | Yes |
| Jetties, Piers and Marinas | J_P_M | Polygon | Perimeter of the jetty, pier or marina | Yes |
| Piles | Piles | Point | Central location of the step | Yes |

| Asset Type | Universal File Name | Data Type | Description | Attribute Table |
|-------------------------------------|---------------------|-----------------|--|-----------------|
| Boat Ramps | BRamps | Polygon | Perimeter of the boat ramp | Yes |
| Retaining Walls | Ret_Wall | Line / Polyline | Linear representation of Retaining Walls | Yes |
| Matching to Existing Infrastructure | Problems | Polygon | 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 an Open Space or a Recreation Reserve

The following assets may also be found in an “Open Space” precinct 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” Information. The table below lists the relevant standard specification to refer to.

| | |
|--|--|
| Stormwater Pipes and Pits and other infrastructure | Please refer to D-Spec for requirements |
| Car Parking | Please refer to R-Spec for requirements |
| Pathways (including steps/stairways) | Please refer to R-Spec for requirements |
| Signs, Trees, Lighting | Please refer to R-Spec for requirements |
| Sewer Pipes and Pits and other infrastructure | Please refer to S-Spec for requirements |
| Water Pipes and Pits 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 details the graphical data construction principles that must be followed for all linework, polygons and points provided. Where practicable, the alignment of all data, whether “As Constructed” or “As Built” measurements, must be related to the title/property boundaries abutting the road reserve.

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

1.6 Acceptance Testing

All graphical information will be checked against the Attribute file/table. Please refer to **Sections 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

This section provides details of the attribute fields and their respective validation requirements for each asset table and includes the following information.

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.

For further detail and definitions of the Attribute Data Types and Column name explanations, please refer to the document **A-SPEC DDS – Introduction & Overview V2.1.0 Final**.

Attribute Data Field Requirements

This section details the attribute field data entry requirements that data providers are to adhere to for all data submissions of asset types listed in [Section 1.3 – Theme/Layer Structure](#).

Please note that the Project related data needs to be provided only once.

The following are the key requirements for the structure of the data to be provided in each submission.

- Maximum field widths are specified for Alpha/Numeric and Alpha data.
 - These are to be adhered to.
- For 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 CODELISTS are provided to standardise the capture of information in the Attribute files. They can be found in [Section 3 – O-Spec CODELISTS](#). The **A-SPEC** website will also contain the most current CODELISTS.
- If a Code does not exist the new asset feature is to be recorded in the “**Comments**” field and a note sent via the A-SPEC website **ContactUs** form so a new code can be created.
- Fields that are highlighted in grey are common to all tables.
- All fields that are common to all tables are captured in the Area of Work Extent table
- 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.

Coordinate fields¹

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 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 Vicmap property and the coordinates of the cadastral development as a result of the unavailability of the connection to the MGA grid 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.

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 O-Spec CODELISTS

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 ASCII file require the input of a CODELIST entry number.

Consultants please note that should an entry not exist within a CODELIST please Use the '**SeeComment**' value.

CODELIST entries will be constantly reviewed by the Consortium and additions and amendments made as the need arises.

Amenity Material

| Code | Description | Code | Description |
|---------------|----------------------------|-------------------|--|
| AL | Aluminium | RC | Reinforced Concrete – No Class |
| BRASS | Brass | RC1 | Reinforced Concrete – Class 1 |
| CCONC | Coloured Concrete | RC2 | Reinforced Concrete – Class 2 |
| CU | Copper | RC3 | Reinforced Concrete – Class 3 |
| CONC | Concrete | RC4 | Reinforced Concrete – Class 4 |
| CORR | Corrugated Steel/Aluminium | RUB | Rubber |
| CSTEEL | Colour Steel | SeeComment | To be used when an Amenity Material is not listed. The new Amenity Material is to be listed in the 'Comments' field. |
| DI | Ductile Iron | SHADE_CLTH | Shade Cloth |
| EAG | Exposed Aggregate | SPIR | Spiral Wound Steel/Aluminium |
| EARTH | Earth | SSTEEL | Stainless Steel |
| FBPE | Fusion Bonded PE | SSTEEL316 | Stainless Steel (grade 316) |
| FIBRE | Fibreglass | STEEL | Steel |
| FRP | Fibre Reinforced Plastic | STNE | Stone |
| GW | Galvanised Wrought Iron | TMBR | Timber |
| HA | Helicore Aluminium | WOOD | Wood |
| IRON | Iron | | |

Amenity Type

| Code | Description | Code | Description |
|----------|---------------------|------------|--|
| ANCRNG | Anchoring | GRL | Grab Rail |
| BARTBLA | Bar Table and Seats | HRL | Hoop Rail |
| BIKER | Bike Rack | LAD | Ladder |
| BNS | Bin Stand | LRNG | Life Ring |
| CLK | Clock | PMT | Parking Meter – Ticket |
| DF | Drinking Fountain | PMTL | Parking Meter – Ticketless |
| EBBQ | Electric Barbecue | PRKS | Park Seat |
| FBLD | Feature Boulder | PT | Park Table |
| FISH_ST | Fish Station | SeeComment | To be used when a Amenity Type is not listed. The new Amenity Type is to be listed in the ' Comments ' field. |
| FISH_TBL | Fish Table | SEPB | Street Event Power Box |
| FLGP | Flag Pole | WBBQ | Wood Fired Barbecue |
| GBBQ | Gas Barbecue | WTK | Water Tank |

Asset Status

| Code | Description |
|-------|----------------------|
| ABN | Abandoned or Disused |
| INUSE | In-Use |
| OTHER | Other Use |
| REM | Removed |

Base Material

| Code | Description |
|------------|--|
| CONC | Concrete |
| EARTH | Earth |
| SeeComment | To be used when a Base Material is not listed. The new Base Material is to be listed in the ' Comments ' field. |

Bin Material

| Code | Description |
|------------|--|
| FIBRE | Fibreglass |
| PLASTIC | Plastic |
| SeeComment | To be used when a Bin Material is not listed. The new Bin Material is to be listed in the ' Comments ' field. |
| SSTEEL | Stainless Steel |
| STEEL | Steel |

Bin Type

| Code | Description | Code | Description |
|-------------------|--|------------|--------------------|
| BB | Butt Bin | SR | Steel Recreational |
| DB | Decorative Bin | TB | Tilt Bin |
| DPB | Dog Poo Bag Station | WOS | Wheelie on Stand |
| SeeComment | To be used when a Bin Type is not listed. The new Bin Type is to be listed in the ' Comments ' field. | WCG | Wheelie in a cage |

Bin Use

| Code | Description |
|-------------------|--|
| GCLIP | Green Clippings |
| GLASSO | Glass Only |
| RECYCLE | Recycle |
| SeeComment | To be used when a Bin Use is not listed. The new Bin Use is to be listed in the ' Comments ' field. |
| WASTE | Waste |

Boardwalk Material

| Code | Description |
|-------------------|--|
| CMPST | Composite |
| PCONC | Precast Concrete |
| PLASTIC | Plastic |
| RC | Reinforced Concrete – No Class/Unknown |
| SeeComment | To be used when a Boardwalk Material is not listed. The new Boardwalk Material is to be listed in the ' Comments ' field. |
| TMBR | Timber |
| WOOD | Wood |

Boat Size

| Code | Description |
|-------------------|--|
| SMALL | Small |
| MEDIUM | Medium |
| LARGE | Large |
| SeeComment | To be used when a Boat Size Type is not listed. The new Boat Size Type is to be listed in the ' Comments ' field. |

Bore Cover Material

| Code | Description |
|------------|--|
| CA | Cast Iron |
| CONC | Concrete |
| METAL | Metal |
| PVC | Polyvinylchloride |
| SeeComment | To be used when a Bore Cover Material is not listed. The new Bore Cover Material is to be listed in the ' Comments ' field. |
| TMBR | Timber |

Bore Type

| Code | Description |
|------------|--|
| IRRIG | Irrigation |
| SeeComment | To be used when a Bore Type is not listed. The new Bore Type is to be listed in the ' Comments ' field. |
| MNT | Monitoring |

Breakwater Material

| Code | Description |
|------------|--|
| CONC | Concrete |
| GRVL | Gravel |
| RCK | Rock |
| SAND | Sand |
| SeeComment | To be used when a Breakwater Material is not listed. The Breakwater Material is to be listed in the ' Comments ' field. |

Breakwater Purpose

| Code | Description |
|------------|--|
| CSTMNG | Coastal Management |
| SEC | Security |
| SeeComment | To be used when a Breakwater Purpose is not listed. The Breakwater Purpose is to be listed in the ' Comments ' field. |
| WINRED | Wave Intensity Reduction |

Deck Material

| Code | Description |
|------------|--|
| CONC | Concrete |
| IRON | Iron |
| RC | Reinforced Concrete – No Class/Unknown |
| SeeComment | To be used when a Deck Material is not listed. The new Deck Material is to be listed in the ' Comments ' field. |
| TMBR | Timber |

Drainage Mechanism

| Code | Description |
|------------|--|
| NA | Not Applicable |
| POROUS | Porous |
| SeeComment | To be used when a Fence/Wall Function is not listed. The new Fence/Wall Function is to be listed in the ' Comments ' field. |
| SUBSOIL | Subsoil |
| WEEP | Weephole |

Face Material

| Code | Description |
|------------|--|
| BRK | Brick |
| CONCM | Concrete Masonry |
| FCEM | Fibre Cement Sheets |
| ICONC | In-situ concrete |
| PCONC | Precast concrete |
| PSTYB | Polystyrene blocks |
| SeeComment | To be used when a Face Material is not listed. The new Face Material is to be listed in the ' Comments ' field. |
| STEEL | Steel |
| TMBR | Timber |

Fence/Wall Purpose

| Code | Description |
|------------|--|
| AGRI | Agriculture |
| PERIM | Perimeter |
| PRIV | Privacy |
| RETN | Retaining |
| SEC | Security |
| SeeComment | To be used when a Fence/Wall Purpose is not listed. The new Fence/Wall Purpose is to be listed in the ' Comments ' field. |

Fence/Wall/Gate Material

| Code | Description |
|---------|---------------------|
| BRK | Brick |
| CONCM | Concrete Masonry |
| FCEM | Fibre Cement Sheets |
| ICONC | In-situ concrete |
| LSBLOCK | Limestone Block |
| LSROCK | Limestone Rock |
| NA | Not Applicable |
| PCONC | Precast concrete |
| PSTYB | Polystyrene blocks |

| Code | Description |
|------------|---|
| SeeComment | To be used when a Fence/Wall/Gate Material is not listed. The new Fence/Wall/Gate Material is to be listed in the 'Comments' field. |
| STEEL | Steel |
| TMBR | Timber |
| WI | Wrought Iron |
| WOOD | Wood |

Fence/Wall Type

| Code | Description |
|------------|---|
| RAIL | Rail |
| ELEC | Electric |
| PCKT | Picket |
| LTTT | Lattice |
| BLDLS | Bollards |
| SeeComment | To be used when a Fence/Wall Type is not listed. The new Fence/Wall Type is to be listed in the 'Comments' field. |

Gate Types

| Code | Description | Code | Description |
|------|-------------|------------|---|
| AUTO | Automated | KISS | Kissing |
| BOOM | Boom | SeeComment | To be used when a Gate Type is not listed. The new Gate Type is to be listed in the 'Comments' field. |
| BUMP | Bump | SNG | Single |
| CAV | Cavaletti | SLID | Sliding |
| DOB | Double | SLPRL | Slip Rail |
| | | TURN | Turnstile |

Health and Safety Issues

| Code | Description |
|------------|---|
| CONFINED | Confined / Restricted Spaces |
| ENERG_SRC | Energy Source |
| EXCAVATION | Excavation and Trenching |
| HAZ_SUB | Hazardous Substances |
| HEIGHT | Working At Height |
| HIGH_VOLT | High Voltage |
| NIL | No Requirement |
| POWER_EQ | Power Plant and Equipment |
| SeeComment | To be used when a Health & Safety Issue Type is not listed. The new Health & Safety Issue Type is to be listed in the 'Comments' field. |

Irrigation Line Material

| Code | Description | Code | Description |
|--------|----------------------------|------------|--|
| AG | AG Drains | mPVC | Modified Polyvinyl Chloride |
| BKBRTE | Black Brute | NA | Not Applicable |
| CI | Grey Cast Iron | NYL | Nylon |
| CICL | Cast Iron Cement Lined | oPVC | Oriented PVC (EG: Blue Brute) |
| CLIS | Cement Lined In-Situ | PE | Polyethylene |
| CLS | Concrete Lined Steel | PVC | Polyvinylchloride |
| CLSC | Cement Lined Steel Coat | RCO | Reinforced Concrete – No Class/Unknown |
| CU | Copper | RCPL | Reinforced Concrete Plastic Lined |
| CORR | Corrugated Steel/Aluminium | SeeComment | To be used when a Irrigation Line Material is not listed. The new Irrigation Line Material is to be listed in the ' Comments ' field. |
| DI | Ductile Iron | SSTEEL | Stainless Steel |
| FIBRE | Fibreglass | SSTEEL316 | Stainless Steel (grade 316) |
| FRC | Fibre Reinforced Cement | STEEL | Steel |
| FRP | Fibre Reinforced Plastic | uPVC | Un-plasticised PVC |
| FSP | Fibre Reinforced Pipe | | |
| HDPE | High Density PE (PE100) | | |

Irrigation Point Type

| Code | Description |
|------------|--|
| CONT | Controller |
| METER | Meter |
| SATCONT | Satellite Controller |
| SeeComment | To be used when a Irrigation Point Type is not listed. The new Irrigation Point Type is to be listed in the ' Comments ' field. |
| SOLENOID | Solenoid Valve |
| VALVE | Valve |
| WEATHERS | Weather Station |

JPM Feature Type

| Code | Description |
|------------|--|
| JETTY | Jetty |
| MARINA | Marina |
| PIER | Pier |
| SeeComment | To be used when a JPM Feature Type is not listed. The new JPM Feature Type is to be listed in the ' Comments ' field. |

Landscaping Material

| Code | Description | Code | Description |
|---------|--------------------|------------|--|
| ASP | Asphalt | LS | Limestone |
| BITUMEN | Bitumen | METAL | Metal |
| BOULDER | Boulders | ORGN | Organic |
| BRK | Brick | PAV | Pavers |
| CCONC | Coloured Concrete | PER | Perspex |
| CLAY | Clay | RCK | Rock |
| CLOTH | Cloth | ROKP | Rock Paver |
| COBS | Cobblestone | RUB | Rubber |
| CONC | Concrete | SAND | Sand |
| EARTH | Earth | SeeComment | To be used when a Landscaping Material is not listed. The new Landscaping Material is to be listed in the ' Comments ' field. |
| GEW | Glazed Earthenware | SILT | Silt |
| GGT | Grass Grow Through | SYNT | Synthetic Turf |
| GLASS | Glass | STNE | Stone |
| GOBI | Gobi Block | TILES | Tiles |
| GR | Grass | TMBR | Timber |
| GRVL | Gravel | WC | Wood Chip |
| GSW | Glazed Stoneware | | |

Landscaping Type

| Code | Description | Code | Description |
|------|-----------------------------|------------|--|
| BC | Botanical Collection | LA | Lawn Area |
| BL | Bushlands | LSROCK | Limestone Rock |
| CFB | Commercial Forest Block | ML | Man Made Lake |
| GB | Garden Bed | MOS | Mosaics |
| GE | Garden Edge | RNGRD | Rain Garden |
| HG | Hedge | SeeComment | To be used when a Landscaping Type is not listed. The new Landscaping Type is to be listed in the ' Comments ' field. |
| HGP | High Profile | SFTL | Softfall |
| HL | Hard Landscaping | SHRB | Shrubs |
| HR | Habitat Rehabilitation Area | WF | Water Feature |

Minor Structure Material

| Code | Description |
|------------|---|
| AL | Aluminium |
| BRK | Brick |
| CONC | Concrete |
| GLASS | Glass |
| IRON | Iron |
| SSTEEL | Stainless Steel |
| STEEL | Steel |
| STNE | Stone |
| WOOD | Wood |
| SeeComment | To be used when a Irrigation Point Type is not listed. The new Irrigation Point Type is to be listed in the 'Comments' field. |

Minor Structure Type

| Code | Description | Code | Description |
|------|----------------|------------|---|
| BNSD | Bandstand | RT | Rotunda |
| DO | Dugout | SCBD | Scoreboard |
| GH | Gate House | SeeComment | To be used when a Minor Structure Type is not listed. The new Minor Structure Type is to be listed in the 'Comments' field. |
| GZ | Gazebo | SHED | Shed |
| PG | Pergola | SHADE | Shade Sail |
| PCST | Picnic Shelter | US | Umpires Shed |
| CLT | Clock Tower | VPF | Viewing Platform |
| | | WTHS | Weather Shelter |

Open Space Type

| Code | Description | Code | Description |
|------|---|------------|---|
| AI | Active/Irrigated Park, Natural Area or region | PD | Passive/Dry Park, Natural Area or Region |
| BSH | Bushland | PK | Neighbourhood Park or Reserve |
| CF | Community Facility | RP | Regional Park or Reserve |
| DP | District Park or Reserve | SeeComment | To be used when a Open Space Type is not listed. The new Open Space Type is to be listed in the 'Comments' field. |
| DR | Drainage Reserve | STSCP | Streetscape |
| FG | Feature Garden | VB | Vacant Block |
| FR | Foreshore Reserve | | |
| LP | Local Park or Reserve | | |

Pile Material

| Code | Description |
|------------|--|
| CONC | Concrete |
| METAL | Metal |
| SeeComment | To be used when a Pile Material is not listed. The new Pile Material is to be listed in the ' Comments ' field. |
| TMBR | Timber |
| WOOD | Wood |

Pile Type

| Code | Description |
|------------|--|
| FPL | Finger Pile |
| JPL | Jetty Pile |
| NPL | Navigational Pile |
| OPL | Outer Pile |
| PPL | Pier Pile |
| RPL | Retaining Pile |
| SeeComment | To be used when a Pile Type is not listed. The new Pile Type is to be listed in the ' Comments ' field. |
| WPL | Walkway Pile |
| WHPL | Wharf Pile |

Playground and Exercise Equipment

| Code | Description | Code | Description |
|-------|------------------------------|------------|--|
| 1R | Single Rocker | PLC | Play Car |
| 2R | Double Rocker | PCX | Play Complex |
| 4R | Four Way Rocker | PRLB | Parallel Bars |
| AP | Activity Panel | PLYH | Playhouse |
| AW | Archway | PLSC | Play Sculpture |
| BNCA | Bounce-about | PUB | Push Up Bar |
| BLB | Balance Beam | PY | Pyramid |
| BH | Basketball Hoop | RNS | Rock-n-slide |
| BSK | Bike Skills Equipment | RTB | Return Board |
| CUB | Chin Up Bar | SPBNCA | Spring Bounce-about |
| CLPU | Large Combination Play Unit | SBX | Sand Box |
| CLB | Clatter Bridge | SCPT | Soccer Post |
| CLF | Climbing Frame | SCSJ | Swing Combination: senior & junior |
| CMPU | Medium Combination Play Unit | SD | Slide |
| CN | Climbing Net | SE | Steam Engine |
| CRSL | Carousel | SeeComment | To be used when a Playground or Exercise Equipment Type is not listed. The new Playground or Exercise Equipment Type is to be listed in the ' Comments ' field. |
| CSPU | Small Combination Play Unit | SKS | Skate Swing |
| CT | Cross Trainer | SKR | Skateboard Ramp |
| ES | Exercise Station | SKRL | Skateboard Rail |
| EXCAV | Excavator | SN | Supernova |
| FE | Other Fitness Equipment | SPRD | Spring Rider |

| Code | Description | Code | Description |
|-------|---------------------------------------|------|--------------------|
| FF | Flying Fox | SPSW | Spring Seesaw |
| FIM | Fitness Interval Marker/Totem Circuit | ST | Speaking Tube |
| GLPT | Goal Post | SSW | Seesaw |
| HMK | Hammock | SWJ | Swing Set Junior |
| LAD | Ladder | SWS | Swing Set Senior |
| LR | Log Roll | TAS | Toss and Score |
| MB | Monkey Bars | TO | Turn Over |
| MGR | Merry-go-round | TS | Track Side |
| NH | Netball Hoop | TT | Table Tennis table |
| OL | Overhead Ladder | WS | Wave Slide |
| OTHER | Other Equipment | WW | Whirling Wheel |
| PB | Play Bridge | | |

Playground and Exercise Equipment Material

| Code | Description |
|------------|---|
| AL | Aluminium |
| FRP | Fibre Reinforced Plastic |
| GWI | Galvanised Wrought Iron |
| PLASTIC | Plastic |
| RUB | Rubber |
| SeeComment | To be used when a Playground or Exercise Equipment Material is not listed. The new Playground or Exercise Equipment Material is to be listed in the 'Comments' field. |
| SSTEEL | Stainless Steel |
| STEEL | Steel |
| SWOOD | Synthetic Wood |
| WOOD | Wood |

Playing Field Type

| Code | Description | Code | Description |
|--------|-------------------------|------------|---|
| TRACK | Athletics Track | MP | Multi-Purpose Field |
| BBALL | Basketball Court | MOTOR | Motor Sports Track |
| BD | Baseball Diamond | NBALL | Netball |
| BMX | BMX Track | RUGBY | Rugby |
| BR | Bocce Rink | SFTB | Softball |
| CQL | Croquet Lawn | SOCCER | Soccer |
| CW | Cricket Wicket | SeeComment | To be used when a Playing Field Type is not listed. The new Playing Field Type is to be listed in the 'Comments' field. |
| CYC | Cycling | | |
| EQU | Horse Riding/Equestrian | SKT | Skateboarding Facility |
| FTB | Football | TC | Tennis Court |
| GOLFC | Golf Course | VOLLEY | Volley Ball Court |
| HOCKEY | Hockey | VD | Velodrome |
| LBGRN | Lawn Bowls Green | | |

Play Surface Material

| Code | Description |
|------------|--|
| ABL | Asphalt – Black |
| ARD | Asphalt – Red |
| CLAY | Clay |
| CONC | Concrete |
| EARTH | Earth |
| GR | Grass |
| ICE | Ice |
| SAND | Sand |
| SeeComment | To be used when a Play Surface Material is not listed. The new Play Surface Material is to be listed in the ' Comments ' field. |
| SFTLM | Softfall Mulch |
| SYNT | Synthetic Turf |

Position

| Code | Description |
|--------------|------------------|
| OVRHD | Overhead |
| ABOVE ABG | Above Ground |
| PRTBRD | Partially Buried |
| UNDGRD | Underground |

Post Material

| Code | Description |
|------------|--|
| AL | Aluminium |
| CI | Grey Cast Iron |
| CONC | Concrete |
| GWI | Galvanised Wrought Iron (Also known as Galvanised Mild Steel) |
| IRON | Iron |
| MI | Malleable Iron |
| MSW | Mild Steel Welded |
| NA | Not Applicable |
| RCO | Reinforced Concrete – No Class/Unknown |
| SeeComment | To be used when a Post Material is not listed. The new Post Material is to be listed in the ' Comments ' field. |
| SSTEEL | Stainless Steel |
| STEEL | Steel |
| TMBR | Timber |
| WI | Wrought Iron |

Public Art/Memorial Material

| Code | Description | Code | Description |
|---------|----------------------------|------------|--|
| AL | Aluminium | PE | Polyethylene |
| BEDR | Bedrock | PER | Perspex |
| BSTN | Bluestone | PP | Polypropylene |
| BOULDER | Boulders | PU | Polyurethane |
| BRASS | Brass | PUA | Polyurea |
| BRK | Brick | PVC | Polyvinylchloride |
| CANV | Canvas | RC | Reinforced Concrete – No Class |
| CEM | Cement | ROKP | Rock paver |
| CU | Copper | SeeComment | To be used when a Material Type is not listed. The new Material Type is to be listed in the ' Comments ' field. |
| CONC | Concrete | SHADE_CLTH | Shade Cloth |
| CCONC | Coloured Concrete | STEEL | Steel |
| CORR | Corrugated Steel/Aluminium | STNE | Stone |
| CSTEEL | Colour Steel | TIC | Tiles – Ceramic |
| F | Fibrous | TMBR | Timber |
| FIBRE | Fibreglass | WI | Wrought Iron |
| GR | Grass | WOOD | Wood |
| IRON | Iron | | |
| PAV | Pavers | | |

Public Art / Memorial Type

| Code | Description |
|------------|--|
| MEM | Memorial Seat |
| MM | Monument |
| MRL | Mural |
| PLQ | Plaque |
| SeeComment | To be used when a Public Art/Memorial Type is not listed. The new Public Art/Memorial Type is to be listed in the ' Comments ' field. |
| SCT | Sculpture |
| ST | Statue |

Rail Material

| Code | Description |
|------------|--|
| AL | Aluminium |
| BRASS | Brass |
| NA | Not Applicable |
| SeeComment | To be used when a Rail Material is not listed. The new Rail Material is to be listed in the ' Comments ' field. |
| SSTEEL | Stainless Steel |
| STEEL | Steel |
| WI | Wrought Iron |
| WOOD | Wood |

Rail Type

| Code | Description |
|-------------------|--|
| BLSTR | Baluster |
| CONTHR | Continuous Rail |
| DBLR | Double Rail |
| NA | Not Applicable |
| SeeComment | To be used when a Rail Type is not listed. The new Rail Type is to be listed in the ' Comments ' field. |

Retaining Wall (Above/Below) Type

| Code | Description |
|-------------------|--|
| BANK | Bank |
| C-PROP | Council property |
| DWY | Driveway |
| OPEN | Open Space |
| PATH | Path |
| PRIVP | Private Property |
| ROADW | Roadway |
| SeeComment | To be used when a Retaining Wall (Above/Below) Type is not listed. The new Retaining Wall (Above/Below) Type is to be listed in the ' Comments ' field. |
| SEA | Sea |
| STRU | Structure |
| WCOURSE | Waterway |

Retaining Wall Foundation Type

| Code | Description |
|-------------------|--|
| EBPILE | End bearing piles |
| FRPILE | Friction piles |
| INDF | Individual footing |
| MFOUND | Mat foundation |
| PILE | Piling |
| STRF | Strip footing |
| SeeComment | To be used when a Retaining Wall Foundation Type is not listed. The new Retaining Wall Foundation Type is to be listed in the ' Comments ' field. |

Retaining Wall Restraint Type

| Code | Description | Diagram |
|------------|---|---------|
| CANT | Cantilever | |
| CSTEM | Cantilever Stem / Counterfort | |
| FACE | Facing | |
| GRAVITY | Gravity | |
| PILE | Piling | |
| SeeComment | To be used when a Retaining Wall Restraint Type is not listed. The new Retaining Wall Restraint Type is to be listed in the 'Comments' field. | |

Retaining Wall Structure Type

| Code | Description |
|------------|---|
| DWAL | Debris Wall |
| GABION | Gabion Basket |
| NA | Not Applicable |
| SEAW | Seawall |
| SeeComment | To be used when a Retaining Wall Structure Type is not listed. The new Retaining Wall Structure Type is to be listed in the 'Comments' field. |

Retaining Wall Tie System Type

| Code | Description | Diagram |
|------------|---|---------|
| ANCH | Anchored or Tied back | |
| DEAD | Deadman | |
| NA | Not Applicable | |
| PIN | Pins and nails | |
| SeeComment | To be used when a Retaining Wall Tie System Type is not listed. The new Retaining Wall Tie System Type is to be listed in the 'Comments' field. | |

Roof Material

| Code | Description |
|------------|---|
| BRK | Brick |
| CANV | Canvas |
| CONC | Concrete |
| CORR | Corrugated Steel/Aluminium |
| NA | Not Applicable |
| SeeComment | To be used when a Roof Material is not listed. The new Roof Material is to be listed in the 'Comments' field. |
| STEEL | Steel |
| STNE | Stone |
| TILES | Tiles |
| WOOD | Wood |

Seal Material

| Code | Description |
|------------|--|
| CONC | Concrete |
| METAL | Metal |
| PU | Polyurethane |
| RUB | Rubber |
| SeeComment | To be used when a Seal Material is not listed. The new Service Material is to be listed in the 'Comments' field. |

Services (Linear) Type

| Code | Description |
|------------|---|
| ECABLE | Electrical Cable |
| GPIPE | Gas Pipe |
| SeeComment | To be used when a Service Type is not listed. The new Service Type is to be listed in the 'Comments' field. |
| WPIPE | Water Pipe |

Services (Point) Type

| Code | Description | Code | Description |
|------|-------------------|------------|---|
| ELEC | Power Outlet | SHOW | Outdoor Shower |
| ELEM | Electricity Meter | WTAP | Water Tap / Fountain |
| GAS | Gas Meter | SeeComment | To be used when a Service (Point) Type is not listed. The new Service (Point) Type is to be listed in the 'Comments' field. |
| PUMP | Pump | WAT | Water Meter |

Source

| Code | Description |
|------------|--|
| AS5488 | Using the Sub Surface Utility Australian Standard AS5488-2013 |
| ASCON | As Constructed Drawing |
| CHNOFF | Chainage and Offset |
| COMB_1 | Combination Engineers, Contractors and Field Survey Work |
| COMB_2 | Combination Engineers and Field Survey Work |
| COMB_3 | Combination Contractors and Field Survey Work |
| COMB_4 | Combination Landscape Company and Field Survey Work |
| CONTRACTOR | Contractor who built the asset |
| DESPLAN | Design Plan. DESPLAN is only to be used if the asset has not been constructed at time of Practical Completion |
| DESPLANC | Design Plans issued for Construction. DESPLANC is only to be used if the asset has not been constructed at time of Practical Completion |
| ENGINEER | Consulting Engineer who designed the asset and or supervised the construction work |
| FIELD | Field Survey |
| NA | Not Applicable |
| REFER | Refer to the individual tables |
| SeeComment | To be used when a Source is not listed. The new Source is to be listed in the 'Comments' field. |

Surface Material

| Code | Description |
|------------|--|
| ASC | Asphaltic concrete |
| CONC | Concrete |
| EARTH | Earth |
| METAL | Metal |
| SAND | Sand |
| TMBR | Timber |
| SeeComment | To be used when a JPM Surface Material is not listed. The new JPM Surface Material is to be listed in the ' Comments ' field. |

Unit of Measure Reference

| Code | Description |
|------------|---|
| AREA | Area |
| CM | Cubic metre |
| HA | Hectare |
| KILO | Kilogram |
| LM | Linear metre |
| SCHEDULE | To be used when a schedule of rates is provided |
| SeeComment | To be used when a Unit of Measure is not listed. The new Unit of Measure is to be listed in the ' Comments ' field. |
| SQM | Square Metre |

Valve Control Type

| Code | Description |
|------------|--|
| AUTO | Automatic |
| MAN | Manual |
| NA | Not Applicable |
| REMOTE | Remote |
| SeeComment | To be used when a Valve Control Type is not listed. The new Valve Control Type is to be listed in the ' Comments ' field. |

Valve Power Type

| Code | Description |
|------------|--|
| BATTERY | Battery |
| HYDRAULIC | Hydraulic |
| MAINS | Mains Electricity |
| MAN | Manual |
| NA | Not Applicable |
| PNEUMATIC | Pneumatic |
| SPRING | Spring |
| SeeComment | To be used when a Valve Power Type is not listed. The new Valve Power Type is to be listed in the ' Comments ' field. |

Valve Purpose Type

| Code | Description | Code | Description |
|------------------|----------------------|-------------------|--|
| AIRIN | Air In | NA | Not Applicable |
| AIROUT | Air Out | NONE | No Special Function |
| AIRINOUT | Air In & Out | NRV | Non-return/Backflow |
| PRESBDY | Boundary Press Zone | PRESRG | Pressure Regulation |
| BURSTC | Burst Control | PRLF | Pressure Relief |
| BYP | Bypass | PRM | Pressure Maintaining |
| CTRLFLOW | Control - Flow | PRV | Pressure Reducing |
| CTRLPRESS | Control - Pressure | PTR | Transducer |
| CTRLFLPR | Control Flow & Press | SeeComment | To be used when a Valve Purpose Type is not listed. The new Valve Purpose Type is to be listed in the 'Comments' field. |
| FLPT | Flushing Point | SHUT | Shut Off |
| ISO | Isolation | | |

4 O-Spec Document Control

| | |
|------------------------|---|
| Project Name | Open Space Module |
| Document Type | Specification |
| Document Number | OS-2019-0005 |
| File Name | O-Spec DDS - Version 3.0.5 Final - Summary.docx |
| Version Date | 31 st May 2019 |
| Written by | Michael Wood and G. Havakis & O-Spec Technical Working Groups |
| Reviewed by | George Havakis & Duncan Brooks |
| Authorised by | O-Spec Technical Working Group |

5 Document Revision History

| Revision Number | Date | Comments |
|-------------------|-------------------|---|
| 1 | 23 March 2010 | Issue of initial version to members |
| 2 | 31 March 2011 | Re-Issue with Emergency Markers included |
| 2.1 | 1 August 2011 | Issue of Final Version for general consumption in Victoria |
| 2.18 | 29 February 2012 | Addition of WA requirements & Review by others |
| 2.19 | 14 March 2012 | Minor adjustment to Emergency Marker information |
| 2.2 | 31 January 2013 | Addition of new council members |
| 2.5 | 1 November 2014 | Modifications and amendments |
| 2.6.0 | 11 November 2016 | Reformatted to group graphical and attribute capture requirements per asset type |
| 2.6.0 | 4 January 2017 | Reviewed for typographical errors and correct structure |
| 2.6.0 | 1 March 2017 | Document date changed to coincide with release date NZVD2016 now height datum for NZ |
| 2.6.0 | 11 April 2017 | Updated Bass Coast logo |
| 2.6.1 FINAL DRAFT | 1 February 2018 | Stairs removed and included in R-Spec, alignment with other specs. Irrigation lines connecting solenoid to sprinklers and such removed. Landscape areas, only area to be provided not length and width. |
| 2.6.1 Draft v4 | 5 February 2018 | Modification to format of all tables. |
| 2.7.0 FINAL DRAFT | 23 August 2018 | Finalisation of modifications and inputs from users |
| 3.0.0 | 10 September 2018 | Changes adopted and finalised |
| 3.0.1 | 15 November 2018 | Incorporate feedback from members |
| 3.0.5 | 31 May 2019 | Incorporating Addendums and other feedback from members |

6 Summary of Specification Changes