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

Version 2.0.1 Final
15th November 2018

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	
Southern Grampians Shire Council	Town of Port Hedland	
Benalla Rural City	Shire of Capel	
Hume City Council	City of Rockingham	
City of Greater Bendigo	City of Cockburn	
Latrobe City	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 City of Opportunity		
Mornington Peninsula Shire		
Wyndham City		
IDM infrastructure d		
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 Government, 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 stakeholders' (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 ~~Sewer~~ 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~~, efficient utilisation of social housing or community utilised venues, 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.

B-Spec Standard Specification

The **B-Spec** standard specification (Buildings) was created to enable Local Government, 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 Land Development and Industry Consultants in relation to subdivision developments and capital works programs within their local jurisdiction.

The **B-Spec** standard specification was developed to streamline the processes undertaken to display all ~~new~~ Building assets within each **A-SPEC** member's geographic information systems (GIS), asset management information systems (AMIS) and built information management systems (BIMS).

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

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

The framework will consist of specifications for data content enabling data exchange. **B-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 as there are similar elements in **B-Spec** that also appear in **D-Spec, R-Spec, S-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 information** digital data to be delivered along with the ~~sewerage~~ building 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 generalization rules for the graphical representation of the features i.e. Building assets, 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.

B-Spec will lay the foundation for Building 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 works as GIS Ready digital data of newly constructed ~~Open Space~~ building assets as defined by the **A-SPEC** Consortium members around the world. ~~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 Australian 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 ~~**O-Spec**~~ **B-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.

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)"**

PIPE
– may also be referred to as a **"Main"**

PIT
– may also be referred to as a**" Manhole"** or an **"Access Point"**

ROOF GARDEN
– may also be referred to as **"Green Roof"** or **"Eco Roof"**

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 Building assets in a GIS ready format to the Consortium of members using the **B-Spec** standard specification.

- ~~Please refer to the **A-SPEC** website; www.a-specstandards.com.au for details of **A-SPEC** consortium members preferred formats.[1]~~

This document outlines the specifications for the delivery of digital ~~data~~ files containing building assets 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 +61 3 9877 6972 or your local point of contact with the organization 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 **B-Spec** Standard Specification will be available free of charge to the consulting & development industries. **A-SPEC** data structures are only to be used for the delivery of As Constructed data to **A-SPEC Consortium members only**.

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.

[1] ~~The preferred format relates to the format the data is presented as e.g. MapInfo, MIF/MID, Arc shape files, etc~~

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.

ate Name and Stage or Project Name: _____

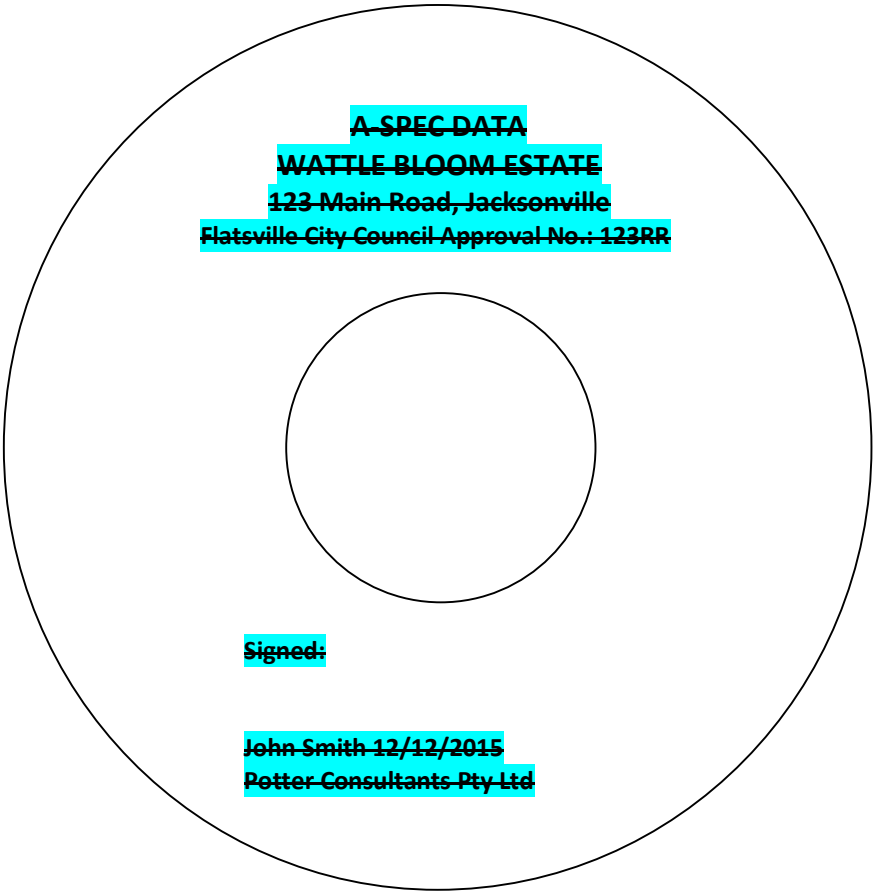
perty Description (prior to subdivision): _____

ividual Council, Utility and Water Authority Approval Number: _____

ned by: _____ *te:* _____

me: _____

nsultant Company Name: _____



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	~~*(03) 9878 2819*~~ ~~*N/A*~~ *NA*
EMAIL	Email address (as applicable)	*george@viccadd.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	*31/1/2008*
DOCUMENT VERSION	Version of the document used	*B-Spec Digital Data Specifications –* ~~*V1*~~ *V1.2.1*
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/*~~*2000*~~ *2017*
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 Class ~~Type~~	Universal File Name	Data Type	Description	IPWEA Importance Rating[2]	Essential Safety Measures	Attribute Table
Area of Work Extent	Area_Extent	Polygon	Polygon representing the extent of the subdivision development or capital works	-	-	Yes
Building Footprint	BFP	Polygon	Base footprint of the building.	1, 2, 3, 4, 5	-	Yes
Building Floor Plan	Floor_Plan	Polygon	Floors contained in a building.	1, 2, 3, 4, 5	-	Yes
Building Space	Build_Space	Polygon	Interior/Exterior spaces such as meeting rooms.	2, 3, 4, 5	Yes	Yes
Communication and Data (Point)	COMD_Equip	Point	Point location of equipment belongs to communication and data system	3, 4, 5	-	Yes
Communication and Data Cabling (Polylines)	COMD_Lines	Line / Polyline	Cables belonging to the communication and data system	3, 4, 5	-	~~No Graphics Only~~ Yes
Conduits	Conduits_B	Line / Polyline	Lines representing conduit centrelines and their alignment	3, 4, 5	-	Yes
Conveyance System ~~Areas~~ (Polygon)	Conv_Syst~~Areas~~	Polygon	~~Area designated for transporting people or goods. EG: Stairwell~~ Polygon representing the extent of a system such as a lift or travelator	3, 4, 5	Yes	Yes
Conveyance Paths (Polylines)	Conv_Paths	Line /Polyline	Direction towards the closest emergency exit	3, 4, 5	-	No Graphics Only
Doors and Windows	Door_Windw	Lines	Doors and Windows	1, 2, 3, 4, 5	Yes	Yes
Electrical Equipment (Point)	Elec_Equip	Point	Point location for electrical fixtures & equipment. **EG:** Power Filter	1, 2, 3, 4, 5	Yes	Yes
Electrical Lines (Polylines)	Elec_Lines	Line / Polyline	Conductor wires through which electricity flows.	1, 2, 3, 4, 5	-	No Graphics Only
Fire Protection Equipment (Point)	Fire_Equip	Point	Point location of equipment used for fire prevention, suppression or emergency safety. **EG:** Fire Hydrant	2, 3, 4, 5	Yes	Yes
Fire Protection Lines (Polylines)	Fire_Lines	Line / Polyline	Pipes through which fire suppression fluid flows. **EG:** sprinkler lines	2, 3, 4, 5	-	No Graphics Only

[2] **IPWEA Importance Rating** – Please refer to IPWEA Building Practice Note 3

Asset Class ~~Type~~	Universal File Name	Data Type	Description	IPWEA Importance Rating[2]	Essential Safety Measures	Attribute Table
Fittings & Fixtures Areas (Polygon)	Fitt_Areas	Polygon	Permanently fixed furniture assets. **EG:** Cabinet	4, 5	-	~~No Graphics Only~~ Yes
Fittings & Fixtures Lines (Polylines)	Fitt_Lines	Line / Polyline	Permanently fixed partitions, shelves etc.	4, 5	-	No Graphics Only
Floor Plan Lines	Floor_Lines	Line / Polyline	Lines that compose a floor plan, such as walls/doors/windows	2, 3, 4, 5	-	No Graphics Only
HVAC Equipment (Point)	HVAC_Equip	Point	Point location of equipment used for internal environmental air control**. EG:** Heater	2, 3, 4, 5	Yes	Yes
HVAC Lines (Polylines)	HVAC_Lines	Line / Polyline	Ducts & pipes serving HVAC equipment. **EG:** Duct Segment	2, 3, 4, 5	-	No Graphics Only
HVAC ~~Mechanical~~ Systems Areas ~~(Polygon)~~(Point)	HVAC_~~Areas~~Syst	(Point) ~~Polygon~~	~~Area~~ Location of large HVAC equipment ~~or a designated HVAC zone~~.	4, 5	-	No Graphics Only
Plumbing Equipment ~~(Point)~~	Plumb_Equip	Point	Point location of equipment for distributing water or collecting waste water. **EG:** Fountain	2, 3, 4, 5	-	Yes
Plumbing Lines (Polylines)	CWP_Lines	Line / Polyline	Pipes for Cold water (potable) plumbing systems	2, 3, 4, 5	-	No. Graphics Only
	CWNP_Lines	Line / Polyline	Pipes for cold, non-potable water plumbing system			
	HW_Lines	Line / Polyline	Pipes for hot water plumbing system			
	WW_Lines	Line / Polyline	Pipes for wastewater plumbing system			
	SW_Lines	Line / Polyline	Pipes for storm water plumbing system			
	GAS_Lines	Line / Polyline	Pipes for gas plumbing system			
Public Toilets	Pub_Toilet	Polygon	Area of public toilets	2, 3, 4, 5	Yes	Yes
Security Equipment ~~(Point)~~	Secu_Equip	Point	Point location of equipment for security.	2, 3, 4, 5	-	Yes
Signs	Signs	Point	Point location of a sign	2, 3, 4, 5	Yes	Yes
Matching to Existing Infrastructure	Problems	Polygon	Circle of radius 10m containing letter "P". Associated table listing all problems with a unique number (i.e. 1,2,3 etc.) with easting & northing coordinates and a description is also to be supplied	-	-	Yes

Please note:

GISSA International is not responsible for the auditing or confirmation of what the requirements are under the various Essential Safety Measure requirements in each jurisdiction.

BUILDING IMPORTANCE RATING

Importance Ratings for buildings has been defined by the IPWEA in their document Building Practice Note 3 *(Refer to Table 3.2 – Importance Rating)*. According to the examples given for each category in the Building Practice Note, the asset types that need to be captured for buildings under each Importance Rating are identified in the column – 'IPWEA Importance Rating' in the table above.

For example, if a building is classified with the Importance Rating of 5, then all the asset types are to be provided for that building. Whereas, if the Importance Rating is 1, then only the Building Footprint, Floor Plan and Electrical Equipment are required.

GISSA International does not suggest how to categorise buildings, we acknowledge that this is the responsibility of each asset owner.

ESSENTIAL SAFETY MEASURES

There are four categories of Essential Safety Measures which require routine inspections.

1. Fire Equipment
2. Electrical Fittings
3. Air Conditioning/Mechanical Ventilation Systems
4. Exit Doors, Paths of Egress and Passive Fire Elements

Essential safety measures include all traditional building fire services such as sprinklers and mechanical services etc., but also include passive fire safety such as fire doors, fire-rated structures and other building infrastructure items such as paths of travel to exits.

The 'Essential Safety Measures' column indicates features that once captured can assist in identifying where the safety feature is or if there is a safety feature component for the purpose of future auditing. Please note further information may be required other than what is shown in this document and it is the responsibility of the asset owner to determine these requirements.

Victoria
Part 12 of the latest Building Regulations 2006 has aligned the Essential Safety Measures maintenance requirements with maintenance provisions outlined in sections I1.1-I1.13 of Building Code of Australia (BCA).
http://www.buildingcommission.com.au/resources/documents/Maintaining_Essential_Safety_Measures_FINAL1.pdf

New South Wales
Environmental Planning and Asset Management Regulations 2000 state the maintenance of Essential Fire Safety Measures.

Queensland
Essential Safety Measures are equivalent to Safety Measures referred to in Building Code of Australia (BCA).

Western Australia
Essential Fire Safety Measures are those outlined in Part I1 of the Building Code of Australia (BCA) for new buildings.

South Australia
Essential Safety Provisions are defined in Schedule 1 of the South Australian Development Regulations and it includes any safety systems, equipment or other provisions defined as such, or required to be installed in a building. Regulation 76 of the Development Regulations prescribes the installation, inspection and maintenance of Essential Safety Measures.

Tasmania
Essential Fire Safety Measures are equivalent to Safety Measures referred in Building Code of Australia (BCA).

Australian Capital Territory
Maintenance of Fire Safety Measures is controlled by the ACT Fire Brigade. Part I1 of the Building Code of Australia (BCA) has specific provisions which deal with various administrative and technical matters. The ACT Fire Brigades Act requires Active Fire Safety Systems to be maintained.

~~**New Zealand**~~
~~Essential Fire Safety Measures are compliant with Fire Service Act 1975 (the Act) and Fire safety and Evacuation of Buildings Regulations 2006 (the Regulations).~~

1.3.1 Other Asset Types that may be found in a Building Precinct

The following assets may also be found in a building 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" data. The table above lists some of the specifications to refer to.

Drainage Pipes and Pits and other infrastructure	Please refer to **D-Spec** for requirements
Ponds	Please refer to **D-Spec** for requirements
External Power, Water, Gas Lines	Please refer to **O-Spec** for requirements
Gates	Please refer to **O-Spec** for requirements
Landscaping	Please refer to **O-Spec** for requirements
Open Spaces and Play Areas	Please refer to **O-Spec** for requirements
Car Parking	Please refer to **R-Spec** for requirements
Fences and Barriers	Please refer to **R-Spec** for requirements
Signs and Lighting – External	Please refer to **R-Spec** for requirements
Trees	Please refer to **R-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

This section details 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

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 and 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[3]

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 digital cadastral mapbase of the affected jurisdiction 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.

Attribute Data 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 files are to use the Column Names 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 – **B-Spec** CODELISTS*. The **A-SPEC** website will also contain the most current ~~code lists~~CODELISTS.

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 as a guide to assist Developer/Consultants when putting together information for submission

[3] 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.

2 B-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 asset class tables require the input of a CODELIST~~code list~~ entry.

Consultants please note that should an entry not exist within the CODELIST~~code list~~ please contact you're **A-SPEC** consortium member of GISSA International to make arrangements for its inclusion.

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

Asset Status – NEW

Building Use – NEW

Ceiling Material – NEW

Communication and Cabling Purpose – NEW

Communication and Data Cabling Type – NEW

Communication and Data Equipment Type

Conduit Material – NEW

Control System – NEW

Conveyance ~~Area~~ System Type

Conveyance ~~Area~~ System Use – NEW

Door Use

Door/Window Cover Type

Door/Window Type

Door/Window Material – NEW

Electrical Equipment Type

Fire Protection Equipment Type

Fixtures & Fittings – NEW

Floor Material – NEW

Foundation Type – NEW

Frame Material – NEW

Gender – NEW

Hardware Type – NEW

Health & Safety Issues – NEW

HVAC Equipment Type

Importance Rating

~~Material~~

Material – Equipment – NEW

Material – Finish – NEW

Pipe Installation Method - NEW

Plumbing Systems

Plumbing Equipment Type

~~Replacement Cost Type~~

Power Source – NEW

Protective Material Type – NEW

Roof Material – NEW

Roof Structure – NEW

Security Equipment Type

Sign Material – NEW

Sign Purpose – NEW

Sign Support Type – NEW

Source – NEW

Space Type – NEW

Support Material – NEW

Unit of Measure Reference – NEW

Wall Material – NEW

Wall Type – NEW