

**Gympie Regional  
Council**

**Specification For  
As-Constructed  
Drawings**

**Version 1.5**



## AMENDMENT HISTORY

Version 1.0 is the original Issue

Version	Section Amended	Date
1.1	Section 1.4 Section 2 Section 3	5 February 2011
1.2	Section 1.4 Section 2.1 Section 2.2 Section 2.6 Section 3 Appendix B	20 February 2011
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## 1. INTRODUCTION

### 1.1. Purpose of policy

This document sets out a range of information required to create 'As-Constructed' Drawings of infrastructure works for supply to Gympie Regional Council.

### 1.2. Scope

This document applies to all infrastructure works constructed as part of donated, internal, and contracted works.

### 1.3. Interpretation

- (1) Section 1.4 Definitions defines particular words used in this document.
- (2) The reference in this document to other standards is taken to be a reference to the latest revision unless otherwise stated. It is the users responsibility to ensure they are using the latest revision.

### 1.4. Definitions

Term	Meaning	Includes
<i>ADAC</i>	Asset Design & As Constructed	
<i>Applicant</i>	has the same meaning as in the SPA	
<i>Consulting Engineer</i>	the RPEQ responsible for the design and construction of infrastructure works on behalf of the applicant	
<i>Council</i>	Gympie Regional Council	
<i>DCDB</i>	Digital Cadastral Database	
<i>Developer</i>	the applicant	
<i>DERM</i>	Department of Environment and Resource Management (Qld)	Previous or futures departments with the same responsibilities eg. DNR, DNRM, DNRW
<i>Engineer</i>	the Council Engineer responsible for the acceptance of infrastructure works constructed by the applicant or the Council.	
<i>ICSM</i>	Intergovernmental Committee on Surveying and Mapping	
<i>IPA</i>	the <i>Integrated Planning Act 1997</i>	
<i>IPWEAQ</i>	Institute of Public Works Engineering Australia - Queensland Branch	
<i>ITP</i>	Inspection and Testing Plan	
<i>PSM</i>	Permanent Survey Mark	
<i>RPEQ</i>	Registered Professional Engineer of Queensland	
<i>SPA</i>	The <i>Sustainable Planning Act 2009</i>	
<i>Surveyor</i>	A person registered as a Surveyor with the Surveyor's Board of Queensland pursuant to the Surveyor Act 2003.	

## 2. “AS-CONSTRUCTED” DRAWINGS AND DOCUMENTATION

### 2.1. GENERAL

- (1) The “As-constructed” drawings and documentation serves two distinct functions:
  - (a) Review: to provide a means to check the constructed works against the approved design to ensure the design principles and criteria have been achieved; and
  - (b) Recording: to provide an accurate record of the “as-constructed” services and their locations.

The “as-constructed” information must be presented in a form that allows for the ready comparison between the design and “as-constructed” data by experienced staff, allows for an efficient means to include the “as-constructed” information in Council’s mapping and Asset Management systems, and allows for the unambiguous interpretation and understanding by a wide range of users including general public.

- (2) Drawings and documents may be rejected after the infrastructure works have been accepted should the Engineer find that they;
  - (a) are unsuitable in any way with respect to this specification; or
  - (b) contain any errors
- (3) Any drawings or documents rejected by Gympie Regional Council are to be duly revised, re-certified and re-submitted to the Gympie Regional Council within fifteen (15) working days.

The Gympie Regional Council reserves the right to recover any relevant costs from a consulting engineer and/or developer whom, in the opinion of the Chief Executive Officer has not performed satisfactorily in the preparation of “as-constructed” drawings and documentation.

### 2.2. DRAWING STANDARDS

#### 2.2.1. General

- (1) “As-Constructed” drawings are to be submitted in hardcopy and electronic formats. Electronic information to be supplied on CD or DVD.
- (2) The “As Constructed” drawing may be either prepared by the Consulting Engineer or the Surveyor, but must comply with the requirements defined within this document.
- (3) As constructed drawings become public property through their lodgement with Council, copyright on these drawings is to be removed.
- (4) All information is to be retained within the borders of the page.
- (5) North point to be shown on all layout plans.
- (6) All layout plans to be on a background showing: Lot boundaries, lot numbers, easements, kerb lines or edge of road (if no kerb), and other significant features.
- (7) Lot numbers and road names to be in accordance with the survey plan.
- (8) Existing infrastructure to be shown and differentiated from new services.
- (9) The extents of any existing infrastructure that has been removed or abandoned must be clearly shown.
- (10) Any complex arrangements or unusual fittings are to be detailed on the plans.



- (11) The linework representing the constructed works to be predominant and at least one thickness greater than background information (i.e. lot boundaries).
- (12) Property boundary linework shall not be broken when crossed by text. All text is to be located clear of linework, other text and any other drawing elements to ensure readability
- (13) The location of all infrastructure shall be shown with the use of dimensions or tabular description from property boundaries. There should be sufficient information to define the location of the infrastructure without ambiguity. Pipelines must be located sufficiently to show their alignment in relation to property boundaries. Location information to be in metres and shown to at least one decimal place (0.1m).
- (14) Plans are to contain no irrelevant information and be generally in accordance with the format and quality of the sample plans.

### **2.2.2. Topographical Details**

Changes to the surface of the land as a result of the engineering works must be surveyed with sufficient measurements to ensure an accurate representation of the new topography.

Finished surface levels must, as a minimum, be collected at:

- (1) all cadastral corners,
- (2) Invert of kerb or edge of bitumen, and crown of the road,
- (3) Top and bottom banks including along open drains,
- (4) Top and bottom of retaining walls,
- (5) Along overland flow paths in roadways, pathways and parks,
- (6) Detention Basin crest levels, and spillway levels,
- (7) Ground levels,
- (8) Levels must be taken at intervals of not more than 20 metres.
- (9) The information is to be shown using contours with a suitable interval (typically 1 metre) and spot heights at each point collected. Refer to the sample plans for the requirements of each drawing.

On large lot developments some of these requirements may be relaxed over the areas of the development that have not been disturbed by the work.

### **2.2.3. Title Block**

Each sheet of 'As-Constructed' Drawings is to have a Title Block containing the following information:

- (a) Project description.
- (b) Consulting Engineer's name.
- (c) Surveyors name.
- (d) Scales including a scale bar.
- (e) Plan Number and Sheet Number.
- (f) Schedule and Date of Amendments.
- (g) Date.
- (h) Approved by Name, RPEQ Number and Signature

## 2.3. Survey Requirements

- (1) The level and location information required for the as constructed drawings must be collected by a Surveyor or a suitably experienced and qualified person supervised by a Surveyor.
- (2) Coordinate Datum
  - (a) All coordinates should be based on either:
    - (i) The Geocentric Datum of Australia 1994 (GDA 94) and be projected to the Map Grid of Australia 1994 (MGA 94) Zone 56. Or where this is not practical;
    - (ii) An arbitrary plane coordinate grid.
- (3) Meridian Datum
  - (a) It is desirable for the meridian to be on the azimuth of the Map Grid of Australia 1994 Zone 56. Where this is not practical, another meridian may be used, but the origin of the meridian must be noted on the face of the plan.
- (4) Height Datum
  - (a) All level data shall be reduced to the Australian Height Datum (AHD).
- (5) Accuracy

The location and level information shown on the "As-constructed" drawings are to conform to the following accuracy limits.

- (a) Level:  $\pm 0.01$  metre (Earthworks  $\pm 0.10$  metre).
- (b) Horizontal:  $\pm 0.05$  metre.

## 2.4. Operations and Maintenance Manuals:

For each asset or structure (i.e. pump stations, reservoirs, gross pollutant traps) which requires specific maintenance procedures, Operations and Maintenance Manuals are to be provided. The manuals shall include spare parts lists, electrical diagrams, maintenance schedules, and all other relevant information which may assist with the running of the asset over its entire life.

## 2.5. FORMAT

### 2.5.1. Hardcopy

- (1) Three copies of each plan are to be supplied at designated scale (A3 size preferred).
- (2) They are to be black ink drawings, colour is to be avoided.

### 2.5.2. Electronic

- (1) Electronic Drawings
  - (a) Electronic submission is to use the current version of ADAC, including all mandatory information therein required. Council is participating in the Asset Design & As-constructed Data Routines (ADAC) initiative for the standardisation of the submission of as-constructed drawings in digital format. ADAC is Council's preferred electronic submission option.  
  
Drawings prepared using ADAC standard will require additional items to meet all of Council's specific requirements. (Refer to sample drawings in this Specification for As Constructed Drawings)
  - (b) However, if unable to supply an ADAC standard drawing, electronic submission is required to be according to the specifications set out in this document.

No other formats will be accepted.

- (2) A TIFF or PDF copy of the drawings at a resolution suitable to reprint at full size (typically 150dpi). This file will be stored in Council's record management system.

## 2.6. OPERATIONAL WORKS ASSOCIATED WITH A DEVELOPMENT PROJECT

As constructed submissions associated with operational works applications have the following additional requirements.

### 2.6.1. Statement of Compliance and Non-Compliance Report:

It is recognised that in spite of the most diligent efforts some non-conforming works may occur. The Statement of Compliance – As Constructed is intended to expedite the checking and approval process by placing the responsibility of identifying and reporting any non-conforming works with the Consulting Engineer.

Non-conforming works are any works constructed out of tolerance in relation to the relevant standard specified or in any way compromises the design intent.

All non-conforming works are to be listed on the non-compliance report, along with the proposed action and timeframe to rectify (if necessary) the works. Departures from design may be accepted by the Engineer where the Consulting Engineer can demonstrate and certify that the design intent has not been compromised.

### 2.6.2. Inspection and Test Plans

Legible copies of the completed signed and certified (by the Consulting Engineer) Inspection and Test Plans for all work activities are to be submitted as evidence of conformance to construction processes.

### 2.6.3. Drawing Standards

- (1) All drawings are to be signed by the Consulting Engineer with the following certification.

"This drawing is an accurate representation of the works as-constructed. All the locations and levels shown on this plan have been provided by a Surveyor as defined in the Surveyors Act 2003. I hereby accept responsibility for the as-constructed information shown on this drawing.

Certified By: ..... (Name)

..... (Signature)

..... (RPEQ No)

..... (Date)"

- (2) Title Block

Each sheet of 'As-Constructed' Drawings is to have a Title Block containing the following additional information:

- (a) Estate Name (if any).
- (b) Real Property Description.
- (c) Developer's Name.
- (d) All Council's development application numbers (including previous approvals related to the operational works).
- (e) Signed and approved by the Consulting Engineer (including their RPEQ number).

### 2.6.4. Survey Control

As staged subdivisions encroach into areas with limited survey control, there is potential for positional accuracy of the Council's Digital Cadastre Database (DCDB) to be degraded. In order to maintain the accuracy and integrity of the DCDB it is imperative that sufficient survey control is established over new subdivisions as they are developed.

Permanent Survey Marks (PSMs) should be placed within the subdivision as per the 'Cadastral Survey Requirements 2005, Clause 3.26.1 Connection to Permanent Survey Marks'. They must be well spaced and provide a good coverage over the extent of the survey. These marks are to have MGA94 Zone 56 coordinates and AHD levels to at least 4th Order horizontal and vertical standard as defined in ICSM Standards and Practices for Control Surveys (SP1). They are also to have a cadastral connection on the plan of survey. This will enable the survey to be accurately positioned into the spatial representation of the existing cadastre (i.e. DCDB).

The coordinate and level information, where they do not already exist, are to be forwarded to DERM on the appropriate form for inclusion in the Survey Control Database with a copy forwarded to Council with the 'as-constructed' information.

## 3. NON ADAC COMPLIANT AUTOCAD DRAWING SPECIFICATION

NOTE: This section is not relevant if ADAC compliant data is being submitted.

AutoCAD files that contain Council's layers, blocks, and plotting styles that are referred to in this section are available from Council's Design Services Division and can be obtained by emailing [design@gympie.qld.gov.au](mailto:design@gympie.qld.gov.au).

### 3.1. GENERAL

- (1) The general drafting requirements for the preparation of "AutoCAD" drawings shall be as detailed in this section. Any elements encountered in the preparation of these drawings not specifically covered by this manual shall be confirmed with Council's Design Services Division prior to submission of drawing file.
- (2) All colours are to be by layer.
- (3) All linetypes are to be by layer.
- (4) Pen widths and linework should be as defined in Section 3.1.3. All other colours to have a pen width of 0.25. For all other colours, the colour setting is to be as per the object colour.
- (5) AutoCAD layer names shall be in accordance with Table 1.1.
- (6) Drawings are not to be scaled. 1 drawing unit = 1 metre.
- (7) Title blocks and detail insert drawings are to be drawn in "Paperspace".
- (8) The AutoCAD Drawing shall be a single drawing containing five (5) main elements:
  - (a) Cadastral Base – showing property boundaries, easements and Permanent Survey Marks and Survey Control.
  - (b) Water - showing connection points, pipes, valves, and hydrant locations.
  - (c) Sewerage - showing pipe invert levels, pipe diameter, House Connection Branch details and finished surface levels at cadastral corners
  - (d) Stormwater Drainage - showing pipe invert levels, pipe diameter and gradient, pipe material, contours, drainage structure description, catch drains, retaining walls, open drains/swales, top and toe of batters etc.
  - (e) Roads and Topography– showing road centreline, kerbing/edge of seal, and pavement details, contours and finished surface levels.

### 3.1.1. Orientation

- (1) The orientation of the drawing must be set to AutoCAD's default (ie 90 at 12 o'clock, and anticlockwise measured angles).

### 3.1.2. Accuracy requirements

Dimensions shall be used to accurately define the location of the service entities in the as-constructed data (the dimension requirements are described below). However, to ensure the clarity of the utility plans, Council requires that the features are separated to enable them to be easily identifiable at the appropriate scale. Relativity among the entities and in relation to other features must be maintained (eg if an entity is to the east of a boundary it must be shown on the plan to be east of that boundary).

Location:

- Dimensions shall be shown to one decimal place.
- Pipe lengths shall be shown to one decimal place.

Level:

- House Connection Branch Invert Levels shall be shown to two decimal places.
- Pipeline Invert Levels shall be shown to two decimal places.
- Manhole Lid Levels shall be shown to two decimal places.
- All depths shall be shown to two decimal places.
- Finished Surface Levels shall be shown to two decimal places.
- Pipe gradients shall be expressed as a ratio (eg 1:150).

### 3.1.3. Linework

- (1) It should be noted that GRC Pen Size Colours are as follows:

Colour	AutoCAD Colour Number	Width	Plot Colour
Red	1	0.5	Black (7)
Yellow	2	0.35	Black (7)
Green	3	0.5	Black (7)
Cyan	4	0.25	Black (7)
Blue	5	0.5	Black (7)
Magenta	6	0.15	Dk Grey (251)
Black/White	7	0.35	Black (7)
Grey	8	0.25	Black (7)
Light Grey	9	0.25	Grey (252)
Orange	30	0.25	Grey (8)
Dark Orange	34	0.15	Lt Grey (253)
Purple	200	0.35	Grey (252)
Dark Grey	251	0.25	Dk Grey (251)
Grey	252	0.25	Grey (252)
Light Grey	253	0.25	Lt Grey (253)

- (2) Linetype scale shall = 10

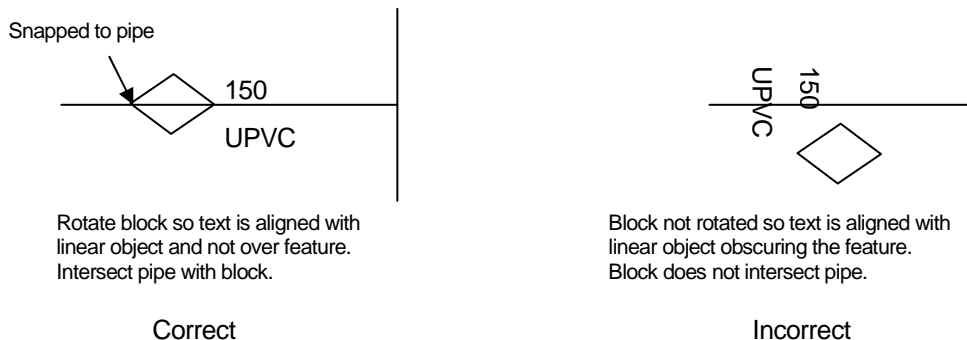
**3.1.4. Text styles**

- (1) Text to be used on all Drawings shall be as specified below:
  - (a) Text is to be either Arial, or ISO fonts from the AutoCAD font's library. No other fonts will be accepted.
  - (b) Font size 2.0mm minimum when printed at scale.
  - (c) Width scale factor to be 1.000.
  - (d) The use of specialised fonts and logos in the electronic format is not acceptable.

Text Style Name	Font Name	Height	Width	Oblique Angle	Backwards	Upside Down	Vertical
IS	ISO	0	1	0d 0'0"	No	No	No
IS_O	ISO	0	1	15d0'0"	No	No	No

**3.1.5. Blocks**

- (1) Information about the constructed features (size, materials) shall be stored in the block attributes. The use of text to describe the features is not acceptable.
- (2) Council supplied blocks shall be used at all times and XREF blocks shall not be used. All blocks have numerous mandatory attributes (refer to appendix A for attribute information). It is the responsibility of the Consulting Engineer or Surveyor preparing the "As-Constructed" Digital Submission to complete all attributes and reference the relevant enumeration list (Appendix B).
- (3) Blocks must be inserted at and must remain at a scale of 1:1.
- (4) Each point object will have a corresponding block which is inserted at the centre of the structure. For example; to draw a stormwater field inlet pit the D\_FIELDPIT\_v2 block would be inserted to the centre point of the structure and attributes populated as prompted.
- (5) Line or polyline objects are to be drawn using the appropriate object type as indicated in the 'Feature Representation' section of each asset type. A block is then inserted and attached to the mid point of the linear object and the attribute information populated as shown in diagram below.



- (6) For automated extraction and to expedite reviewing of submitted electronic drawings, all blocks must be inserted into the correct layer as defined in the 'Block Definitions Table's' shown for each asset type. It is the responsibility of the Consulting Engineer or Surveyor preparing the As Constructed Digital Submission to ensure correct layering. Incorrect layering will result in rejection of submission.

- (7) Some of the visible attributes require a prefix or suffix to improve the readability of the plan (SL, IL, UIL, DIL to indicate which level the value represents, m or mm to indicate the measurement units). Where they are necessary they have been set as the default value for the attribute.
- (8) Blocks are named using the convention  
[Asset Group Code]\_[Asset Type]\_v[Version Number]

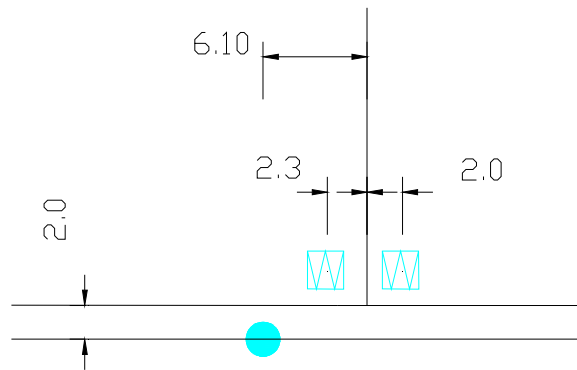
The Asset Group Codes are:

- B – Base
- C - Cadastre
- D – Stormwater Drainage
- O - Other
- R – Roads
- S – Sewer
- W – Water

### 3.1.6. Dimensioning

The dimensioning of “As-Constructed” services is to conform to the following criteria:

- (1) There must be sufficient dimensions to define the location of the infrastructure without ambiguity. Pipelines must be dimensioned sufficiently to show their alignment in relation to the cadastre. Infrastructure entities (valves, hydrants, manholes, HCB's, etc) must be located in relation to the nearest cadastral corner. House Connection Branches (HCB's) must be located in relation to both cadastral boundaries perpendicular to the inspection opening (I.O.) of the lot being serviced (see example plan).
- (2) Dimension text is to be outside of the extension lines and clear of the roadways. See diagram below.



### 3.1.7. Removal or Abandonment of Existing Services

The extents of any existing services that have been removed or abandoned (either wholly or in part) must be detailed in the drawing.

The requirements are as follows:

- (1) Draw the entity as described in the relevant section below into the applicable “Removed” services layer (see section 3.1.8 Layers).
- (2) Populate the block attributes related to the Asset status, size, dimension, length and material of the removed /abandoned section (levels and other detailed information are not required).

### 3.1.8. Layers

AutoCAD layers shall be in accordance with Table 1.1.

**Table 1.1 GRC Standard Layers**

Group	Description of Layer	Layer Name	AutoCAD Linetype	Colour
BASE [B]	Bottom of Bank	AB_BOTBANK	Dashed	Grey (8)
	Major contour interval	AB_CONTOUR_[Level]	Continuous	Orange (30)
	Minor contour interval	AB_CONTOUR_[Level]	Hidden	Dark Orange (34)
	Contour text	AB_CONTOUR_TXT	Continuous	Dark Orange (34)
	Extent of the works	AB_EXTENTS	Divide	Yellow (2)
	Finished surface levels	AB_SURFACE	Continuous	Lt Grey (253)
	Survey control	AB_SURVEY	Continuous	White (7)
	Top of bank	AB_TOPBANK	Dashed2	Grey (8)
CADASTRE [C]	Parcel Boundaries	AC_CADASTRE	Continuous	Dk Grey (251)
	Real property description	AC_CADASTRE_TXT	Continuous	Dk Grey (251)
	Adjoining parcel boundaries and text	AC_CADASTRE_ADJOIN	Continuous	Light Grey (9)
	Easement boundaries	AC_EASEMENT	Dashed	Grey (252)
	Easement property description	AC_EASEMENT_TXT	Continuous	Grey (252)
DRAINAGE [D]	Box culvert (centreline)	AD_BOXCULVERT	Dashed	Green (3)
	Box culvert information	AD_BOXCULVERT_TXT	Continuous	Cyan (4)
	Field Inlet pit structure	AD_FIELDINLET	Continuous	Cyan (4)
	Gross Pollutant trap	AD_GPT	Continuous	Cyan (4)
	Headwall structure	AD_HEADWALL	Continuous	Green (3)
	Headwall structure information	AD_HEADWALL_TXT	Continuous	Cyan (4)
	Kerb inlet pit left/middle/right	AD KERBINLET	Continuous	Cyan (4)
	manhole structure	AD_MANHOLE	Continuous	Cyan (4)
	Open drain structure (centreline)	AD_OPENDRAIN	Centre	Green (3)
	Open drain information	AD_OPENDRAIN_TXT	Continuous	Cyan (4)
	Pipe (centreline)	AD_PIPE	Continuous	Green (3)
	Pipe information	AD_PIPE_TXT	Continuous	Cyan (4)
	Roof water pipe (centreline)	AD_RWPIPE	Dashed2	Cyan (4)
	Roof water pipe information	AD_RWPIPE_TXT	Continuous	Cyan (4)
	Roof water inlet pit	AD_RWPIT	Continuous	Cyan (4)
	Surface levels at change of grade, Kerb inverts, general topography max spacing 25m	AD_SURFACE	Continuous	Lt Grey (253)
	Sensitive urban design structures (retention basins)	AD_WSUD	Continuous	White (7)
	Drainage dimension lines	AD_DIM	Continuous	Magenta (6)
	Road name text	AD_ROAD_TXT	Continuous	Cyan (4)
	Existing stormwater network	AD_EXISTING	Continuous	Light Grey (9)
Existing Drainage Features that have been removed or abandoned	AD_REMOVED	Hidden	Purple (200)	



Table 1.1 GRC Standard Layers Continued

Group	Description of Layer	Layer Name	AutoCAD Linetype	Colour
OTHER [O]	Continuous barrier	AO_BARRIER	Continuous	Yellow (2)
	Continuous barrier information	AO_BARRIER_TXT	Continuous	Cyan (4)
	Point Barrier	AO_BPOINT	Continuous	Yellow (2)
	Retaining wall	AO_RETWALL	Continuous	Yellow (2)
	Retaining wall information	AO_RETWALL_TXT	Continuous	Cyan (4)
	Existing Other Features that has been removed or abandoned	AO_REMOVED	Hidden	Purple (200)
ROADS [R]	Centreline or crown of the road	AR_CENLINE	CentreX2	Magenta (6)
	Road information	AR_CENLINE_TXT	Continuous	Cyan (4)
	Crash Barrier	AR_CRASHBAR	Continuous	White (7)
	Crash Barrier information	AR_CRASHBAR_TXT	Continuous	Cyan (4)
	Invert of the kerb	AR_EDGE	DashDot	Magenta (6)
	Kerb information	AR_EDGE_TXT	Continuous	Cyan (4)
	Back of kerb, infill extents	AR_ISLAND	Continuous	White (7)
	Island information	AR_ISLAND_TXT	Continuous	Cyan (4)
	Edge of car park seal	AR_PARKING	Continuous	Dk Grey (251)
	Parking information	AR_PARKING_TXT	Continuous	Cyan (4)
	Constructed pathway (centreline)	AR_PATH	Continuous	Yellow (2)
	Pathway information	AR_PATH_TXT	Continuous	Cyan (4)
	Edge of the pavement	AR_PAVEMENT	Dashed2	Magenta (6)
	Pram ramp	AR_PRAMRAMP	Continuous	Cyan (4)
	Road Name Text	AR_ROAD_TXT	Continuous	Cyan (4)
	Edge of the road seal	AR_SEAL	Dashed2	White (7)
	Road Signs	AR_SIGN	Continuous	D Grey (251)
	Surface levels along road centreline	AR_SURFACE	Continuous	Lt Grey (253)
	Road dimensions lines	AR_DIM	Continuous	Magenta (6)
	Existing Road network	AR_EXISTING	Continuous	Light Grey (9)
Existing Road Features that have been removed or abandoned	AR_REMOVED	Hidden	Purple (200)	

Table 1.1 GRC Standard Layers Continued

Group	Description of Layer	Layer Name	AutoCAD Linetype	Colour
SEWER [S]	End cap	AS_END	Continuous	Cyan (4)
	House connection branch	AS_HCB	Continuous	Red (1)
	House connection branch information	AS_HCB_TXT	Continuous	Cyan (4)
	Inspection Opening	AS_IO	Continuous	Cyan (4)
	Manhole structure	AS_MANHOLE	Continuous	Cyan (4)
	Gravity pipe (centreline)	AS_PIPE	Continuous	Red (1)
	Pressure main (centreline)	AS_PIPE_PRESSURE	Dashed2	Red (1)
	Pressure main information	AS_PIPE_PRESSURE_TXT	Continuous	Cyan (4)
	Gravity pipe information	AS_PIPE_TXT	Continuous	Cyan (4)
	Pump station	AS_PSTN	Continuous	Cyan (4)
	Storage tank structure	AS_STORAGE	Continuous	Cyan (4)
	Surface level at all corners of properties	AS_SURFACE	Continuous	Lt Grey (253)
	Air/Stop/Scour valve	AS_VALVE	Continuous	Red (1)
	Sewer dimension lines	AS_DIM	Continuous	Magenta (6)
	Road name text	AS_ROAD_TXT	Continuous	Cyan (4)
	Existing sewer network	AS_EXISTING	Continuous	Light Grey (9)
	Existing Sewer Features that have been removed or abandoned	AS_REMOVED	Hidden	Purple (200)
WATER [W]	Booster Pump structure	AW_BOOSTPUMP	Continuous	Blue (5)
	End cap	AW_END	Continuous	Cyan (4)
	Hydrant	AW_HYDRANT	Continuous	Blue (5)
	Meter	AW_METER	Continuous	Cyan (4)
	Pipe (centreline)	AW_PIPE	Continuous	Blue (5)
	Pipe information	AW_PIPE_TXT	Continuous	Cyan (4)
	Reducer	AW_REDUCER	Continuous	Blue (5)
	Reservoir structure	AW_RESERVOIR	Continuous	Blue (5)
	Water service pipe	AW_SERVICE	Continuous	Cyan (4)
	Water service information	AW_SERVICE_TXT	Continuous	Cyan (4)
	Storage tank structure	AW_TANK	Continuous	Blue (5)
	Pressure/Scour/Stop/Reflux/Air valves	AW_VALVE	Continuous	Blue (5)
	Water dimension lines	AW_DIM	Continuous	Magenta (6)
	Road name text	AW_ROAD_TXT	Continuous	Cyan (4)
	Existing water network	AW_EXISTING	Continuous	Light Grey (9)
Existing Water Features that have been removed or abandoned	AW_REMOVED	Hidden	Purple (200)	

The creation of additional layers to cater for other drawing elements (ie titleblocks, viewports, details required to improve plan presentation etc) are acceptable. All drawing elements in these layers will be ignored in the review process.

### 3.2. CADASTRE

The Cadastral entity requirements are as follows:

- (1) Feature Representation
  - (a) Property parcels are drawn as a closed polyline
  - (b) Easement boundaries not coincident with the property boundaries are drawn as a polyline.
  - (c) All adjoining lot information is required and is to be placed in the AC\_CADASTRE\_ADJOIN layer.

Description	Object Type	Layer	Information Block
Parcel Boundaries	Closed Polyline	AC_CADASTRE	C_LOTTXT_v1
Easement Boundaries	Polyline	AC_EASEMENT	C_EASETXT_v1
Existing Boundaries	Closed Polyline	AC_CADASTRE_ADJOIN	-

- (2) Text
  - (a) Property boundary linework shall not be broken when crossed by text. All text is to be located clear of linework whenever possible.
  - (b) Allotment numbers are to be located in the centre of the allotment.
- (3) Blocks
  - (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompts
C_LOTTXT_v1	Lot description	AC_CADASTRE_TXT	Lot Number*
C_EASETXT_v1	Easement Description	AC_EASEMENT_TXT	Easement Letter*

\* indicates that the data is mandatory

### 3.3. BASE

The Base entity requirements are as follows:

- (1) Feature Representation
  - (a) Some topographical details should be shown on the Road, Sewer and Drainage Plans. Refer notes on Sample Plans for full requirements.
  - (b) Contours can be drawn as either 2D or 3D polylines and must be layered according to elevation.
  - (c) Permanent Marks and Survey Control Stations are to be shown on at least one plan, preferably the Road Plan, as per Sample Plans.

Description	Object Type	Layer	Information Block
Extent of the works	Closed Polyline	AB_EXTENTS	-
Finished surface levels	Block	AB_SURFACE	B_FSL_v1
Major contour interval	Polyline	AB_CONTOUR_[Level]	-
Minor contour interval	Polyline	AB_CONTOUR_[Level]	-
Permanent Survey Mark	Block	AB_SURVEY	B_PSM_v1
Survey Control Station	Block	AB_SURVEY	B_SURVSTN_v1

- (2) Text
  - (a) All text is to be located clear of linework whenever possible. Linework shall not be broken when crossed by text.
  - (b) Major Contours must be labelled at least once.

Description	Layer	Text Style	Text Size
Contour Text	AB_CONTOUR_TXT	ISO	1.0

- (3) Blocks
  - (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompts
B_FSL_v1	Finished Surface Level	AB_SURFACE	Surface Level (AHD)*
B_PSM_v1	Permanent Survey Mark	AB_SURVEY	PSM-Stn Number* Reduced Level (AHD)*
B_SURVSTN_v1	Survey Control Station	AB_SURVEY	PSM-Stn Number* Reduced Level (AHD)*

\* indicates that the data is mandatory

### 3.4. ROADS

The Road entity requirements are as follows:

- (1) Feature Representation
  - (a) Road elements are to be drawn using the designated object type and layer with the descriptive information block being attached as described in section 3.1.5.
  - (b) Existing adjoining road features are required and are to be placed in the AR\_EXISTING layer.

Description	Object Type	Layer	Information Block
Crash barrier (centreline)	Polyline	AR_CRASHBARRIER	R_CRASH_BARRIER_v2
Island infill area	Closed Polyline	AR_ISLAND	R_ISLAND_v2
Kerb (invert)	Polyline	AR_EDGE	R_EDGE_v2
Parking Area (edge of seal)	Closed Polyline	AR_PARKING	R_PARKING_v2
Path (centreline)	Polyline	AR_PATH	R_PATH_v2
Pavement edge	Closed Polyline	AR_PAVEMENT	-
Pram Ramp	Block	AR_PRAMRAMP	R_RAMP_v2
Road centreline	Polyline	AR_CENLINE	R_DETAILS_v2
Road centreline surface levels	Block	AR_SURFACE	B_FSL_v2
Road Signs	Block	AR_SIGNS	R_SIGN_v2
Seal Edge	Closed Polyline	AR_SEAL	-
Existing Features	As defined	AR_EXISTING	-
Removed or Abandoned Features	As defined	AR_REMOVED	As defined

- (2) Plan Scale
  - (a) All Road drawings must be at a scale of 1:500 as per the Sample Plans. Reduced drawings will not be accepted.
- (3) Text
  - (a) All text is to be located clear of linework whenever possible. Linework shall not be broken when crossed by text.
  - (b) Road names should be located free of all other text within the road boundaries. Only approved road names should be used.

Description	Layer	Text Style	Text Size
Road Names	AR_ROAD_TXT	ISO	2.0

- (4) Finished Surface
  - (a) Contours and finished surface levels are required to accurately show the topography, refer notes on Sample Plans.
  - (b) The B\_FSL\_v1 block must be used for all finished surface level information.
- (5) Blocks
  - (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompt
R_CRASH_BARRIER_v2	Crash Barrier	AR_CRASHBAR_TXT	@Asset Status* @Crash Barrier Type* Length (m)*
R_DETAILS_v2	Road Details	AR_CENLINE_TXT	@Asset Status* Road Name * Start Chainage (m) End Chainage (m) Length (m)* Pavement Width (m)* @Pavement Type* @Pavement Geotextile Type @Sub-Base Material* Sub-Base Thickness (mm)* @Base Material* Base Thickness (mm)* CBR @Earthworks Type* @Surface Type* Surface Thickness (mm)* Surface Width (m)* @Stabilisation
R_EDGE_v2	Kerb	AR_EDGE_TXT	@Asset Status* @Road Edge Type * Length (m)* Pavement Extension (mm)*
R_ISLAND_v2	Road Island	AR_ISLAND_TXT	@Asset Status* @Island Type * Area (m2)* @Infill Type*
R_PARKING_v2	Off Street Parking Area	AR_PARKING_TXT	@Asset Status* Road Name* Parking Name Number of Car Parks* Length (m)* Pavement Width (m)* @Pavement Type* @Pavement Geotextile Type @Stabilisation @Sub-Base Material* Sub-Base Thickness (mm)* @Base Material* Base Thickness (mm)* CBR @Earthworks Type* @Surface Type* Surface Thickness (mm)* Surface Width (m)* Area (m2)* Road Chn (m) to Entry Road Chn (m) to Start Road Chn (m) to End @On Off Street
R_PATH_v2	Pathway	AR_PATH_TXT	@Asset Status* @Path Structure * @Path Use * @Path Material * Path Width (m)* Path Depth (mm)* Length (m)*
R_RAMP_v2	Pram Ramp	AR_PRAMRAMP	@Asset Status*
R_SIGN_v2	Road signs	AR_SIGN	@Asset Status* @Sign Type* @Sign Material* MUCTD sign code & (size) * Customised Text

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

### 3.5. DRAINAGE

The Stormwater Drainage entity requirements are as follows:

- (1) Feature Representation
  - (a) Drainage features are to be drawn using the designated object type and layer with the descriptive information block being attached as described in section 3.1.5.
  - (b) Existing adjoining stormwater features are required and are to be placed in the AD\_EXISTING layer
  - (c) Each point object such as manholes and pits are to be located using the centre of the structure.
  - (d) Stormwater pipes are to be a continuous line between manholes, pits, headwalls, and changes in pipe material, size, or class. A separate information block is required for each pipe segment.

Description	Object Type	Layer	Information Block
Box Culvert	Line	AD_BOXCULVERT	D_BOX_v2
Field Inlet Pit	Block	AD_FIELDINLET	D_FIELDPIT_v2
Gross Pollutant Trap	Block	AD_GPT	D_GPT_v2
Headwall	Polyline	AD_HEADWALL	D_HWALL_v2
Kerb Inlet – Left side entry	Block	AD_KERBINLET	D_KERB_LEFT_v2
Kerb Inlet – Mid entry	Block	AD_KERBINLET	D_KERB_MID_v2
Kerb Inlet – Right side entry	Block	AD_KERBINLET	D_KERB_RIGHT_v2
Manhole	Block	AD_MANHOLE	D_MH_v2
Open Drain	Polyline	AD_OPENDRAIN	D_OPENDRAIN_v2
Pipe	Line	AD_PIPE	D_PIPE_v2
Roof Water Pipe	Line	AD_RWPIPE	D_ROOFPIPE_v2
Roof Water Pit	Block	AD_RWPIT	D_ROOFPIT_v2
Water Sensitive Urban Design Structure	Closed Polyline	AD_WSUD	-
Existing Features	As defined	AD_EXISTING	-
Removed or Abandoned Features	As defined	AD_REMOVED	As defined

- (1) Plan Scale
  - (a) All Drainage drawings must be at a scale of 1:500 as per the Sample Plans. Reduced drawings will not be accepted.
- (2) Text
  - (a) Drainage linework shall not be broken when crossed by text. All text is to be located clear of linework whenever possible.
  - (b) Road names should be located free of all other text within the road boundaries. If required, add road labels for use with drainage plans in layer AD\_ROAD\_TXT. Only approved road names should be used.

Description	Layer	Text Style	Text Size
Road Names	AD_ROAD_TXT	ISO	2.0

- (3) Dimensioning
  - (a) Text height 2 mm on face of plan.
  - (b) Dimscale = 5
  - (c) Layer AD\_DIM

- (4) Finished Surface
- (a) Contours are required to accurately show the topography, refer notes on Sample Plans.
- (5) Blocks
- (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions

Block Name	Description	Layer	Attribute Prompt
D_BOX_v2	Box Culvert Details	AD_BOXCULVERT_TXT	@Asset Status* @Construct Method* @Pipe Material* Box Culvert Size (WxH) (mm)* Number of Cells* US Chamber ID* US Surface Level* US Invert Level* DS Chamber ID* DS Surface Level* DS Invert Level* Length (m)* Line Number* Skew Angle (deg) Culvert Chainage (m) @Pipe Protection*
D_FIELDPIT_v2	Field Inlet Pit	AD_FIELDPIT	@Asset Status* Chamber No / Line No* @Drain Pit Use* Surface Level* Invert Level* @Construct Method* @Chamber Material* @Chamber Shape* Chamber Diameter or Width (mm)* Chamber Breadth (mm) @Lid Type* @InletType @OutletType
D_GPT_v2	Gross Pollution Trap	AD_GPT	@Asset Status* Chamber No / Line No* Surface Level* @Construct Method* @Chamber Material* @Chamber Shape* Chamber Diameter or Width (mm)* Chamber Breadth (mm) Manufacturer Model Number @GPT Function1* @GPT Function2 @GPT Function3 US Pipe Dia (mm) DS Pipe Dia (mm) US Invert Level DS Invert Level Cleanout Level GPT Depth (m) Sump Depth (m) Has Filter Media Has Basket Has Boards Design Flow (m3s)* Max Volume (m3)

\* indicates that the data is mandatory

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Block Name	Description	Layer	Attribute Prompt
D_HWALL_v2	Headwall	AD_HEADWALL_TXT	@Asset Status* Chamber No / Line No* Surface Level* Invert Level* @HW Material* @Construct Method* @HW Design Type* @HW Grate Type @Tide Gate Type @HW Outlet Protection Type* Has Wingwalls (Y/N)* Has Apron (Y/N)*
D_KERB_LEFT_v2	Kerb inlet left	AD_KERBINLET	@Asset Status* Chamber No / Line No* @Drain Pit Use* @Construct Method* Surface Level* Invert Level* Lintel Length (m)* @Lintel Construction @Chamber Material* Chamber Diameter (mm)* Chamber Breadth (mm) @Chamber Shape* @Lid Type* @Inlet Configuration* @Inlet Type* @Outlet Type*
D_KERB_MID_v2	Kerb Inlet - Centre	AD_KERBINLET	@Asset Status* Chamber No / Line No* @Drain Pit Use* @Construct Method* Surface Level (AHD)* Invert Level* Lintel Length (m)* @Lintel Construction @Chamber Material* Chamber Diameter (mm)* Chamber Breadth (mm) @Chamber Shape* @Lid Type* @Inlet Config* @Inlet Type* @Outlet Type*
D_KERB_RIGHT_v2	Kerb Inlet - Right	AD_KERBINLET	@Asset Status* Chamber No / Line No* @Drain Pit Use* @Construct Method* Surface Level (AHD)* Invert Level* Lintel Length (m)* @Lintel Construction @Chamber Material* Chamber Diameter (mm)* Chamber Breadth (mm) @Chamber Shape* @Lid Type* @Inlet Configuration* @Inlet Type* @Outlet Type*

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries Refer to Appendix B

Block Name	Description	Layer	Attribute Prompt
D_MH_v2	Manhole	AD_MANHOLE	@Asset Status* Chamber No / Line No* @Drain Pit Use* Surface Level* Invert Level* @Construct Method* @Chamber Material* @Chamber Shape* Chamber Diameter (mm)* Chamber Breadth (mm) @Lid Type* @Outlet Type*
D_OPENDRAIN_v2	Open Drain details	AD_OPENDRAIN_TXT	@Asset Status* @Open Drain Type* @Open Drain Shape* Invert Lining Width (m)* @Invert Lining Material* Batter Lining Width (m)* @Batter Lining Material * US Invert Level* DS Invert Level* Length (m)*
D_PIPE_v2	Drainage Pipe Details	AD_PIPE_TXT	@Asset Status* Line Number* Pipe Diameter (mm)* @Pipe Material* @Pipe Class* Number of Cells* US Chamber ID* US Surface Level* US Invert Level* DS Chamber ID* DS Surface Level* DS Invert Level* Length (m)* Skew Angle (deg) Culvert Chainage (m) @Drain Pipe Protection* @DP JointType*
D_ROOFPIPE_v2	Roof Water Pipe details	AD_RWPIPE_TXT	@Asset Status* Pipe Diameter (mm)* @Pipe Material* Length (m)* US Chamber ID* DS Chamber ID*
D_ROOFPIT_v2	Roof water pit - interallotment drainage	AD_RWPIT	@Asset Status* Chamber No / Line No* @Drain Pit Use* Surface Level* Invert Level*

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries Refer to Appendix B

### 3.6. SEWER

The Sewer entity requirements are as follows:

- (1) Feature Representation
  - (a) Sewer features are to be drawn using the designated object type and layer with the descriptive information block being attached as described in section 3.1.5.
  - (b) Existing adjoining sewer features are required and are to be placed in the AS\_EXISTING layer
  - (c) Each point object such as manholes and valves are to be located using the centre of the structure.
  - (d) Sewer pipes are to be a continuous line / polyline between manholes, pump stations, end caps and changes in pipe material, size, or class. A separate information block is required for each pipe segment.
  - (e) All HCB's, which are to service new lots created by the development to which the As-Constructed drawing relates, must be shown regardless of whether or not the HCB's were installed in a previous construction or installed on an existing sewer.

Description	Object Type	Layer	Information Block
Air Valve	Block	AS_VALVE	S_AIR_v2
End Cap	Block	AS_END	S_END_v2
Gravity Pipe	Line	AS_PIPE	S_PIPE_v2
House Connection Branch	Line	AS_HCB	S_HCB_v2
Inspection Opening	Block	AS_IO	S_IO_v2
Lamp Hole	Block	AS_MANHOLE	S_LH_v2
Manhole	Block	AS_MANHOLE	S_MH_v2
Pressure Pipe	Polyline	AS_PIPE_PRESSURE	S_RMAIN_v2
Pump Station	Block	AS_PSTN	S_PSTN_v2
Scour Valve	Block	AS_VALVE	S_SCOUR_v2
Stop Valve	Block	AS_VALVE	S_STOP_v2
Storage Tank	Block	AS_STORAGE	S_STORAGE_v2
Surface Level	Block	AS_FSL	B_FSL_v1
Existing Features	As defined	AS_EXISTING	-
Removed or Abandoned Features	As defined	AS_REMOVED	As defined

- (2) Plan Scale
  - (a) All Sewer drawings must be at a scale of 1:500 as per the Sample Plans. Reduced drawings will not be accepted.
- (3) Text
  - (a) All text is to be located clear of linework whenever possible. Linework shall not be broken when crossed by text.
  - (b) Road names should be located free of all other text within the road boundaries. If required, add road labels for use with drainage plans in layer AS\_ROAD\_TXT. Only approved road names should be used. Only approved road names should be used.

Description	Layer	Text Style	Text Size
Road Names	AS_ROAD_TXT	ISO	2.0

- (4) Dimensioning
- Text height 2 mm on face of plan.
  - Dimscale = 5
  - Layer AS\_DIM
- (5) Finished Surface Levels
- Finished surface levels are required at all cadastral corners. Refer to notes on Sample Plans.
  - The B\_FSL\_v1 block must be used for all finished surface level information and be placed in the layer AS\_SURFACE.
- (6) Blocks
- Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompt
S_AIR_v2	Air Valve	AS_VALVE	@Asset Status* Pipe Diameter (mm)* @Sewer Valve Type* @Sewer Valve Protection
S_END_v2	End Cap	AS_END	@Asset Status* Chamber No / Line No* Surface Level* Invert Level* @Sewer Fitting Type* @Sewer Fitting Material* Body Size (mm)
S_HCB_v2	House Connection Branch	AS_HCB_TXT	@Asset Status* @HCB Use* @HCB Type* Diameter of HCB Pipe (mm)* @Pipe Material* @Pipe Class* Surface Level* Invert Level* HCB Length (m)* Offset (m)* HCB Chainage (m)* IO Chainage (m)* Near Bdy Offset (m)* Other Bdy Offset (m)*
S_IO_v2	Inspection Opening	AS_IO	@Asset Status* Chamber No / Line No* Surface Level* Invert Level* @Sewer Fitting Type* @Sewer Fitting Material* Body size (mm)

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

Block Name	Description	Layer	Attribute Prompt
S_LH_v2	Lamp Hole	AS_MANHOLE	@Asset Status* Chamber No / Line No* @SMH Use* Surface Level* Invert Level* @Construct Method* @SMH Lid Material* @Chamber Material* @Chamber Shape* Chamber Diameter (mm)* @SMH Drop Type* Tie Distance (m) Offset Distance (m)
S_MH_v2	Manhole	AS_MANHOLE	@Asset Status* Chamber No / Line No* @SMH Use* Surface Level* Invert Level* @Construct Method* @SMH Lid Material* @Chamber Material* @Chamber Shape* Chamber Diameter (mm)* Chamber Breadth (mm) @SMH Lining @SMH Drop Type Tie Distance (m) Offset Distance (m)
S_PIPE_v2	Gravity Pipe details	AS_PIPE_TXT	@Asset Status* @Sewer Pipe Use* Pipe Diameter (mm)* @Pipe Material* @Pipe Class* Line Number* US Chamber ID* US Surface Level* US Invert Level* DS Chamber ID* DS Surface Level* DS Invert Level* Length (m)* @Sewer Pipe Protection* @Sewer Pipe Embedment @SP Joint Type* Alignment (m) Rock Excavated (Y/N)
S_PSTN_v2	Pump Station	AS_PSTN	@Asset Status* Chamber No / Line No* @SMH Use* Surface Level* Invert Level* @Construct Method* @Chamber Material* Number of Chambers* Tie Distance (m) Offset Distance (m)

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

Block Name	Description	Layer	Attribute Prompt
S_RMAIN_v2	Pressure Pipe Details	AS_PIPE_PRESSURE_TXT	@Asset Status* @Pressure Main Use* Pipe Diameter (mm)* @Pipe Material* @Pipe Class* US Chamber ID* US Surface Level* US Invert Level* DS Chamber ID* DS Surface Level* DS Invert Level* Length (m)* Average Depth (m) @Sewer Pipe Protection* @Sewer Pipe Embedment* @SP Joint Type* Alignment (m) RockExcavated (Y/N)
S_SCOUR_v2	Scour Valve	AS_VALVE	@Asset Status* Pipe Diameter (mm)* @Sewer Valve Type* @Sewer Valve Protection
S_STOP_v2	Stop Valve	AS_VALVE	@Asset Status* Pipe Diameter (mm)* @Sewer Valve Type* @Sewer Valve Protection
S_STORAGE_v2	Storage Tank	AS_STORAGE	@Asset Status* Chamber No / Line No* Surface Level* Invert Level* @Construct Method* @Chamber Material* @Chamber Shape* Chamber Diameter (mm)* Chamber Breadth (mm) @SMH Lining @SMH Drop Type Tie Distance (m) Offset Distance (m)

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

### 3.7. WATER

The Water entity requirements are as follows:

- (1) Feature Representation
  - (a) Water features are to be drawn using the designated object type and layer with the descriptive information block being attached as described in section 3.1.5.
  - (b) Existing adjoining water features are required and are to be placed in the AW\_EXISTING layer
  - (c) Each point object such as hydrants and valves are to be located using the centre of the structure.
  - (d) Water pipes are to be a continuous polyline between junctions, booster pumps, end caps and changes in pipe material, size, or class. A separate information block is required for each pipe segment.
  - (e) All water connections, which are to service new lots created by the development to which the As-Constructed drawing relates, must be shown regardless of whether or not the water services were installed in a previous construction or installed on an existing water main.

Description	Object Type	Layer	Information Block
Air Valve	Block	AW_VALVE	W_AIR_v2
Booster Pump	Block	AW_BOOSTPUMP	W_BOOST_v2
End Cap	Block	AW_END	W_END_v2
Hydrant	Block	AW_HYDRANT	W_HYD_v2
Pipe	Polyline	AW_PIPE	W_PIPE_v2
Pressure Valve	Block	AW_VALVE	W_PRES_v2
Reducer	Block	AW_MANHOLE	W_RED_v2
Reflux Valve	Block	AW_VALVE	W_REFLUX_v2
Reservoir	Block	AW_RESERVOIR	W_RES_v2
Scour Valve	Block	AW_VALVE	W_SCOUR_v2
Stop Valve	Block	AW_VALVE	W_STOP_v2
Domestic Storage Tank	Block	AW_TANK	W_TANK_v2
Water Meter	Block	AW_METER	W_METER_v2
Water Service pipe	Polyline	AW_SERVICE	W_SERV_v2
Existing Features	As defined	AW_EXISTING	-
Removed or Abandoned Features	As defined	AW_REMOVED	As defined

- (1) Plan Scale
  - (a) All Water drawings must be at a scale of 1:1000 as per the Sample Plans. Reduced drawings will not be accepted.
- (2) Text
  - (a) Water linework shall not be broken when crossed by text. All text is to be located clear of linework whenever possible.
  - (b) Road names should be located free of all other text within the road boundaries in layer AW\_ROAD\_TXT. Only approved road names should be used.

Description	Layer	Text Style	Text Size
Road Names	AW_ROAD_TXT	ISO	3.5

- (3) Dimensioning  
 (a) Text height 2 mm on face of plan.  
 (b) Dimscale = 5  
 (c) Layer AW\_DIM
- (4) Blocks  
 (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompt
W_AIR_v2	Air Valve	AW_VALVE	@Asset Status* Pipe Diameter (mm)* @Water Valve Use* @Water Valve Type*
W_BOOST_v2	Booster Pump	AW_BOOSTPUMP	@Asset Status* @Water Fittings Type* @Water Fitting Material* Body Size (mm) Branch Size (mm)
W_END_v2	End Cap	AW_END	@Asset Status* @Water Fittings Type* @Water Fitting Material* Body Size (mm)
W_HYD_v2	Hydrant	AW_HYDRANT	@Asset Status* Pipe Diameter (mm)* @Hydrant Use*
W_METER_v2	Water meter	AW_METER	@Asset Status* Lot Number* Serial Number* @Meter Type* Pipe Diameter (mm)* Number of Dials* Manufacturer Meter Reading* @Meter Position* Private Booster (Y/N)* Meter Offset (m)*
W_PIPE_v2	Water Pipe Details	AW_PIPE_TXT	@Asset Status* @Water Pipe Use* Pipe Diameter (mm)* @Pipe Material* @Pipe Class* Length (m)* Average Depth (m) Alignment (m) @Water Pipe Protection* @Water Pipe Embedment
W_PRES_v2	Pressure Valve	AW_VALVE	@Asset Status* Pipe Diameter (mm)* @Pressure Valve Type*
W_RED_v2	Reducer	AW_REDUCER	@Asset Status* Pipe Diameter (mm)* @Water Fittings Type* @Water Fitting Material*
W_REFLUX_v2	Reflux Valve	AW_VALVE	@Asset Status* Pipe Diameter (mm)* @Water Valve Use* @Water Valve Type*
W_RES_v2	Bulk Water Storage Tank	AW_RESERVOIR	@Asset Status* Reservoir Material* Volume (m3)*

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B



<b>Block Name</b>	<b>Description</b>	<b>Layer</b>	<b>Attribute Prompt</b>
W_SCOUR_v2	Scour Valve	AW_VALVE	@Asset Status* Pipe Diameter (mm) @Water Valve Use* @Water Valve Type*
W_SERV_v2	Water Service	AW_SERVICE_TXT	@Asset Status* Pipe Diameter (mm)* @Pipe Material* @Pipe Class* @Water Pipe Use* Length (m)* Average Depth (m)
W_STOP_v2	Stop Valve	AW_VALVE	@Asset Status* Pipe Diameter (mm) @Water Valve Use* @Water Valve Type*
W_TANK_v2	Domestic Storage tank	AW_EXISTING	@Asset Status* Reservoir Material* Volume (m3)* @Water Source

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

### 3.8. OTHER FEATURES

The Other entity requirements are as follows:

- (1) Feature Representation
  - (a) Other features are to be drawn using the designated object type and layer with the descriptive information block being attached as described in section 3.1.5.
  - (b) Existing adjoining features are required and are to be placed in the AO\_EXISTING layer
  - (c) Individual barrier posts, not part of a continuous barrier, are to be represented by the block O\_BPOINT, which is located at the centre of the structure.

Description	Object Type	Layer	Information Block
Retaining Wall	Polyline	AO_WALL	AO_RETWALL_v2
Continuous Barrier	Polyline	AO_BARRIER	AO_BARRIER_v2
Barrier Post	Block	AO_BPOINT	AO_BPOINT_v2
Existing Features	As defined	AO_EXISTING	-
Removed or Abandoned Features	As defined	AO_REMOVED	As defined

- (2) Plan Scale
  - (a) Other elements are to be displayed on the Road Plan at a scale of 1:500.
- (3) Text
  - (a) Linework shall not be broken when crossed by text. All text is to be located clear of linework whenever possible.
- (4) Dimensioning
  - (a) Text height 2 mm on face of plan.
  - (b) Dimscale = 5
  - (c) Layer AO\_DIM
- (5) Blocks
  - (a) Refer to 'Glossary of Block Attributes 'Appendix A' for attribute descriptions.

Block Name	Description	Layer	Attribute Prompt
O_BARRIER_v2	Barrier Continuous	AO_BARRIER_TXT	@Asset Status* @Barrier Type* @Barrier Post Material* @Barrier Link Material* @Barrier Top Material* Height (m)* Length (m)* Post number
O_BPOINT_v2	Barrier Point	AO_BPOINT	@Asset Status* @Barrier Point Type* @Barrier Post Material*
O_RETWALL_v2	Retaining Wall	AO_RETWALL_TXT	@Asset Status* @Wall Use* @Wall Material* Height (m)* Length (m)*

\* indicates that the data is mandatory

@ indicates that the data is constrained to a limited list of valid entries. Refer to Appendix B

### **3.9. SAMPLE PLANS**

D-01 – Method of Recording “As Constructed” Stormwater Data

R-21 – Method of Recording “As Constructed” Road Data

S-01 – Method of Recording “As Constructed” Sewerage Data

W-01 – Method of Recording “As Constructed” Water Reticulation Data

D-02 – Method of Recording “As Constructed” Stormwater Data - ADAC

R-22 – Method of Recording “As Constructed” Road Data - ADAC

S-02 – Method of Recording “As Constructed” Sewerage Data - ADAC

W-02 – Method of Recording “As Constructed” Water Reticulation Data - ADAC



## APPENDIX A GLOSSARY OF BLOCK ATTRIBUTES

All attributes preceded by an @, are constrained to a limited list of valid entries. Refer to Appendix B.

All attributes marked with an \* (asterisk) are mandatory.

Attribute Prompt	Description
@Asset Status*	<i>The status of the asset at the time the data was captured.</i>
@Barrier Link Material*	<i>The construction material used to link the continuous barrier</i>
@Barrier Point Type*	<i>The type of point barrier</i>
@Barrier Post Material*	<i>Continuous Barrier Post types</i>
@Barrier Top Material*	<i>The construction material used for the top of the continuous barrier</i>
@Barrier Type*	<i>The type of continuous barrier</i>
@Base Material*	<i>Describes the pavement base layer</i>
@Sewer Fitting Material*	<i>Fitting Material</i>
@Chamber Material*	<i>Material Chamber is constructed from</i>
@Chamber Shape*	<i>Shape of the Chamber</i>
@Construct Method*	<i>Method of construction</i>
@Crash Barrier Type*	<i>The type of Crash Barrier</i>
@DMH Lid Material*	<i>Drain Pit Lid Type</i>
@DP Joint Type*	<i>Pipe to pipe join method</i>
@Drain Pipe Protection*	<i>The protection regime employed for the drainage pipe</i>
@Drain Pit Use*	<i>Purpose of the feature in the network.</i>
@Earthworks Type*	<i>Assessment of the earthworks required</i>
@GPT Function1*	<i>The main function of the WSUD point. (refer enumeration list GPT Function)</i>
@GPT Function2	<i>The second function of the WSUD point. (refer enumeration list GPT Function)</i>
@GPT Function3	<i>The third function of the WSUD point. (refer enumeration list GPT Function)</i>
@HCB Type*	<i>Physical configuration of connection</i>
@HCB Use*	<i>The function of the house connection in the network</i>
@HW Design Type*	<i>The construction design type. Queensland Main Roads Department end structure construction types for endwalls, wings and aprons.</i>
@HW Grate Type	<i>Type of grate used, if applicable.</i>
@HW Material*	<i>The predominant construction material of the end structure</i>
@HW Outlet Protection Type*	<i>Corrosion protection method employed on the outlet.</i>
@Hydrant Use*	<i>The purpose of the hydrant in the network.</i>
@Inlet Configuration	<i>Positioning of the inlet against the pit.</i>
@Infill Type*	<i>Material used for the island infill</i>
@Inlet Type*	<i>The type of Inlet</i>
@Island Type*	<i>Type of island structure</i>
@Lid Type	<i>The type of lid or grate covering the opening.</i>
@Lintel Construction	<i>The method of lintel construction</i>
@Meter Position	<i>Describes the position of the meter in relation to the front of the lot. The perspective is from outside the lot looking toward the lot.</i>
@Meter Type*	<i>Type of Meter</i>
@On Off Street	<i>Value indicating whether the parking is an uninterrupted part of the road pavement, or a separate area with road access.</i>
@Open Drain Bank Material*	<i>The material that the bank of the channel is lined with.</i>
@Open Drain Bed Material*	<i>The material that the bed of the channel is lined with.</i>
@Open Drain Shape*	<i>Cross-sectional shape of the drain.</i>
@Open Drain Type*	<i>The type of drain or channel.</i>
@Outlet Type	<i>The type of outlet.</i>
@Path Material*	<i>Surface material of the structure.</i>
@Path Structure*	<i>The type of pathway</i>
@Path Use*	<i>Intended traffic use of the structure.</i>

<b>Attribute Prompt</b>	<b>Description</b>
@Pavement Geotextile Type	<i>Pavement geotextile type</i>
@Pavement Type*	<i>Pavement construction type</i>
@Pipe Class*	<i>The pipe class as specified by the manufacturer. Pipe class refers to the wall thickness and performance of the material.</i>
@Pipe Material*	<i>Pipe Material</i>
@Pressure Main Use*	<i>The function of the pressure pipe in the network</i>
@Pressure Valve Type*	<i>Pressure Valve Type</i>
@Road Edge Type*	<i>Road edge feature type</i>
@Sewer Fitting Material*	<i>Fitting Material</i>
@Sewer Fitting Type*	<i>The physical configuration of the fitting</i>
@Sewer Pipe Embedment	<i>Embedment type from WSAA Sewerage Codes.</i>
@Sewer Pipe Protection*	<i>The protective material enveloping the pipe</i>
@Sewer Pipe Use*	<i>The function of this pipe in the network.</i>
@Sewer Valve Protection	<i>The protective material enveloping the valve</i>
@Sewer Valve Type*	<i>The physical configuration of the valve</i>
@Sign Code	<i>Refer to the MUTCD for sign</i>
@Sign Material	<i>The material the sign is manufactured from.</i>
@Sign Type	<i>The type of Sign eg: Regulatory, Naming, Information</i>
@SMH Drop Type	<i>Chamber drop type – based on WSAA standard types</i>
@SMH Lid Material*	<i>Sewer Chamber Lid Type</i>
@SMH Lining	<i>Material type for chamber lining</i>
@SMH Use*	<i>Sewer Manhole Use</i>
@SP Joint Type*	<i>Pipe to pipe join method</i>
@Stabilisation	<i>Pavement stabilisation method</i>
@Sub-Base Material*	<i>Describes the pavement sub-base layer</i>
@Surface Type*	<i>Surface type of the road</i>
@Tide Gate Type	<i>Type of tide or flood gate used, if applicable.</i>
@Wall Material*	<i>The predominant construction material of the retaining wall</i>
@Wall Use*	<i>The function of the retaining wall</i>
@Water Fitting Material*	<i>Fitting Material</i>
@Water Fitting Type*	<i>The physical configuration of the fitting</i>
@Water Pipe Embedment	<i>Embedment type from WSAA Sewerage Codes.</i>
@Water Pipe Protection*	<i>The protective material enveloping the pipe</i>
@Water Pipe Use*	<i>The function of this pipe in the network.</i>
@Water Source*	<i>The source of the water in the storage tank</i>
@Water Valve Type*	<i>The mechanical configuration of the valve.</i>
@Water Valve Use*	<i>The purpose of the valve in the network</i>
Alignment (m)	<i>Average offset distance in metres from cadastral boundary to the main</i>
Area (m2)*	<i>Area in square metres</i>
Average Depth (m)	<i>Average depth to the top of the pipe in metres</i>
Base Thickness (mm)*	<i>Base layer depth in millimetres</i>
Batter Lining Width (m)	<i>The width, in metres, of the lined portion of the channel's batter.</i>
Branch Size	<i>The nominal diameter of the minor connecting pipe.</i>
Body Size*	<i>The nominal diameter of the major connecting pipe.</i>
Box Culvert Size (WxH) (mm)*	<i>Size of the Box Culvert Width x Height (mm)</i>
CBR	<i>Pavement CBR</i>
Chamber Breadth (mm)	<i>Breadth of the Chamber in millimetres.(Required for rectangular chambers)</i>
Chamber Diameter (mm)*	<i>Diameter or width of the chamber in millimetres</i>
Chamber No / Line No*	<i>Chamber identification number</i>
Cleanout Level	<i>The level to which the device must be cleaned out to AHD</i>

<b>Attribute Prompt</b>	<b>Description</b>
Culvert Chainage (m)	<i>Chainage to culvert at road centreline from the start of road. (Only applies to Pipes/Culvert that cross a road).</i>
Customised Text	<i>Custom text on the sign</i>
Design Flow (m3s)*	<i>The design flow of the device in cubic meters per second</i>
Drain Pit Use*	<i>The purpose of the drainage pit within the network</i>
DS Chamber ID*	<i>Identification number of the Down-Stream Chamber</i>
DS Invert Level*	<i>Down Stream Invert Level to AHD</i>
DS Pipe Dia (mm)	<i>Down stream pipe diameter in millimetres</i>
DS Surface Level*	<i>Down Stream Surface Level to AHD</i>
Easement Letter*	<i>The easement identifier as described on the originating survey plan</i>
End Chainage (m)*	<i>Chainage to the end of the road section, in metres, measured from the beginning of the road</i>
Feature*	<i>Component feature type</i>
GPT Depth (m)	<i>The depth of the device in metres.</i>
Has Apron (Y/N)*	<i>'Yes' if the headwall has an apron</i>
Has Basket (Y/N)	<i>'Yes' if the device has a litter basket installed</i>
Has Boards (Y/N)	<i>'Yes' if the device has drop-boards or penstock installed</i>
Has Filter Material (Y/N)	<i>'Yes' if the device has filtration media or a filter capsule installed.</i>
Has Wingwalls (Y/N)*	<i>'Yes' if the headwall has wingwalls</i>
HCB Chainage (m)*	<i>The distance in metres from the centre of the downstream manhole to the point of connection of the offshoot branch.</i>
HCB Length (m)*	<i>The material length in metres of the house connection branch conduit.</i>
Height (m)*	<i>Height in Metres</i>
Invert Level*	<i>Invert Level of the chamber / structures outlet to AHD</i>
Invert Lining Width (m)	<i>The width, in metres, of the lined portion of the channel's floor.</i>
IO Chainage (m)*	<i>Distance from a point perpendicular to the inspection opening to the centre of the downstream manhole along the axis of the sewer main.</i>
Length (m)*	<i>Length in metres</i>
Line Number*	<i>Pipe line branch number.</i>
Lining Width (m)*	<i>The width, in metres, of the lined portion of the channel.</i>
Lintel Length (m)*	<i>Length of lintel in metres</i>
Lot Number*	<i>The lot number as described on the originating survey plan</i>
Manufacturer	<i>The company or trading name of the manufacturer.</i>
Max Volume (m3)	<i>Maximum contaminant retention volume in cubic metres</i>
Meter Offset (m)*	<i>The distance in metres to measure along the frontage from the nearest side</i>
Meter Reading*	<i>Reading on the meter at the time of installation</i>
Model Number	<i>Model Number</i>
MUCTD sign code*	<i>MUCTD code including size suffix</i>
Near Bdy Offset (m)*	<i>The distance measured square from the centre of the IO to the parcel boundary aligned to the sewer main.</i>
Number of Cells*	<i>Number of cells</i>
Number of Car Parks*	<i>Number of car parking bays</i>
Number of Chambers*	<i>Number of Chambers or Wells</i>
Number of Dials	<i>Number of Dials on the meter</i>
Offset (m)*	<i>The distance measured square from the centre of the sewer main to the point of connection in metres</i>
Offset Distance (m)	<i>The offset distance in meters from a cadastral boundary</i>
Other Bdy Offset (m)*	<i>The distance measured square from the centre of the IO to the nearest parcel boundary without a main.</i>
Path Depth (mm)*	<i>Nominal depth of the construction material of the pathway in millimetres.</i>
Path Width (m)*	<i>Nominal width of the pathway in metres.</i>
Pavement Extension (mm)*	<i>The pavement extension, in millimetres, behind the back of kerb.</i>

<b>Attribute Prompt</b>	<b>Description</b>
Pavement Width (m)*	<i>Nominal width of the pavement in metres.</i>
Pipe Diameter (mm)*	<i>Nominal Pipe Diameter in millimetres</i>
Post Number*	<i>Total number of uprights in the run. For fencing, this will be the number of posts. For a bollard run, it will be the number of bollards.</i>
Private Booster (Y/N)*	<i>'Yes' if the meter is associated with a private pressure boosting system.</i>
PSM-Stn Number*	<i>PSM or survey Station number</i>
Reduced Level (AHD)*	<i>Reduced level to AHD</i>
Reservoir Material*	<i>Reservoir material</i>
Road Chn (m) to Entry	<i>Distance from the start of the road to the parking area entry (only applies to off road parking areas)</i>
Road Chn (m) to Start	<i>Distance from the start of the road to the start of the parking area (only applies to on road parking areas)</i>
Road Chn (m) to End	<i>Distance from start of the road to the end of the parking area (only applies to on road parking areas)</i>
Road Name	<i>Approved Road name</i>
Rock Excavated (Y/N)	<i>'Yes if rock was excavated from the pipe channel</i>
Seal (Y/N)*	<i>'Yes' if the road surface is sealed</i>
Serial Number*	<i>Serial Number</i>
Skew Angle (deg)	<i>Angle between the centreline of the pipe/culvert and a line perpendicular to the road centreline in degrees. Eg A pipe perpendicular to the road has a skew angle of 0 (Only applies to Pipes/Culvert that cross a road).</i>
Start Chainage (m)*	<i>Chainage to start of the road section, in metres, measured from the beginning of the road</i>
Sub-Base Thickness (mm)*	<i>Sub-base layer depth in millimetres</i>
Sump Depth	<i>The depth, in metres, of the sump, if applicable</i>
Surface Level*	<i>Surface Level to AHD</i>
Surface Thickness (mm)*	<i>Surface thickness in millimetres</i>
Surface Width (m)*	<i>Nominated width of the surface of the road in metres</i>
Tie Distance (m)	<i>The tie distance in meters to a cadastral corner</i>
US Chamber ID*	<i>Identification number of the Up-Stream Chamber</i>
US Invert Level*	<i>Up Stream Invert Level to AHD</i>
US Pipe Dia (mm)	<i>Up Stream Pipe Diameter in millimetres</i>
US Surface Level*	<i>Up Stream Surface Level to AHD</i>
Volume (m3)*	<i>Volume of the storage tank in m3</i>



**APPENDIX B ENUMERATION LISTS****General**

<b>ASSET STATUS</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
As-Constructed	<i>New asset described as constructed (Default Value)</i>
Design	<i>Future asset described as a design</i>
Existing	<i>Existing asset described as encountered</i>
Rehabilitated	<i>Existing asset repaired, refitted or refurbished</i>
Removed	<i>Previously existing asset described as it was prior to removal</i>
Retired	<i>Pre-existing asset no longer in use, but left in-situ.</i>

<b>CONSTRUCTION METHOD</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Prefabricated	<i>Prefabricated (Default Value)</i>
Insitu	<i>Built or poured in-situ</i>

<b>PIPE CLASS</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
SN8 (SEH)	<i>Class Sewer Extra Heavy (Now SN8) (Default - Sewer)</i>
2	<i>Class 2</i>
3	<i>Class 3</i>
4	<i>Class 4</i>
6	<i>Class 6</i>
9	<i>Class 9</i>
12	<i>Class 12</i>
16	<i>Class 16 (Default Water)</i>
18	<i>Class 18</i>
20	<i>Class 20</i>
K9	<i>Class K9</i>
K12	<i>Class K12</i>
PN6.3	<i>PN6.3</i>
PN8	<i>PN8</i>
PN10	<i>PN10</i>
PN12.5	<i>PN12.5</i>
SN4 (SH)	<i>Class Sewer Heavy (Now SN4)</i>
SN5000	<i>SN5000</i>
SN8000	<i>SN8000</i>
SN10000	<i>SN10000</i>
X	<i>Class X</i>
Y	<i>Class Y</i>
Z	<i>Class Z</i>

PIPE MATERIAL	
PICK LIST	DESCRIPTION
ABS	<i>Acrylonitrile Butadiene Styrene</i>
CAP	<i>Helically Corrugated Aluminium Pipe</i>
Cast Iron	<i>Cast Iron</i>
CICL	<i>Cast Iron Concrete Lined</i>
Concrete	<i>Concrete</i>
Copper	<i>Copper</i>
CSP	<i>Helically Corrugated Galv Steel Pipe</i>
DICL	<i>Ductile Iron Concrete Lined</i>
FRC	<i>Fibre Reinforced Concrete</i>
GRP	<i>Glass Reinforced Pipe (includes Hobas)</i>
HDPE	<i>High Density Poly-Ethylene (includes Haries Black Brute)</i>
MDPE	<i>Medium Density Poly-Ethylene</i>
MSCL	<i>Mild Steel Concrete Lined</i>
OPVC	<i>Oriented Poly-Vinyl Chloride</i>
PE	<i>Polyethylene</i>
PP	<i>Polypropylene Pipe</i>
PVC	<i>Poly-Vinyl Chloride</i>
PVC-M	<i>Poly Vinyl Chloride - Modified</i>
RCBC	<i>Reinforced Concrete Box Culvert</i>
RCP	<i>Reinforced Concrete Pipe (Default Stormwater)</i>
RPP	<i>Ribbed Polypropylene Pipe</i>
RUBBLE	<i>Rubble Infiltration Drain</i>
SFRC	<i>Slotted Fibre Reinforced Concrete</i>
SLBC	<i>Slab Linked Box Culvert</i>
SWPP	<i>Structural Wall Polypropylene Pipe</i>
UPVC	<i>Unplasticised Poly-Vinyl Chloride (Default Water, Sewer)</i>
VC	<i>Vitrified Clay</i>
VC-H	<i>VC Hepworth</i>
VC-N	<i>VC Naylor</i>

CHAMBER MATERIAL	
PICK LIST	DESCRIPTION
Concrete	<i>Concrete (Default Value)</i>
PVC	<i>Poly Vinyl Chloride</i>
PE	<i>Polyethylene</i>

CHAMBER SHAPE	
PICK LIST	DESCRIPTION
Circ	<i>Circular</i>
Rect	<i>Rectangular</i>

## Roads

(Note: Some of the attribute enumerations lists, which are common to more than one asset type, are located in the "General" section)

BASE MATERIAL	
PICK LIST	DESCRIPTION
GR21	<i>Gravel 2.1 CBR60-80</i>
GR23	<i>Gravel 2.3 CBR45-60</i>
GR25	<i>Gravel 2.5 CBR15-30</i>
NGRL	<i>Natural Gravel/Conglomerate</i>
ERTH	<i>Earth</i>
AC	<i>Asphalt</i>
Concrete	<i>Concrete</i>

CRASH BARRIER TYPE	
PICK LIST	DESCRIPTION
Armco Rail	<i>Galvanised Pressed Steel - Armco Rail</i>
Steel Wire Rope	<i>Steel Wire Rope</i>

EARTHWORKS TYPE	
PICK LIST	DESCRIPTION
Hilly	<i>Clearing and some earthworks undertaken</i>
Rugged	<i>Clearing and considerable earthworks undertaken</i>
Undulating	<i>Minimal clearing and virtually no earthworks undertaken.</i>
Urban	<i>Earthworks associated with an urban environment</i>

INFILL TYPE	
PICK LIST	DESCRIPTION
Asphalt	<i>Asphalt</i>
Brick Pavers	<i>Brick Pavers</i>
Conc Pavers	<i>Concrete Pavers</i>
Exposed Agg	<i>Exposed Aggregate</i>
Grass	<i>Grass</i>
Landscaped	<i>Landscaped</i>
Plain Coloured Conc	<i>Plain Coloured Concrete</i>
Plain Conc	<i>Plain Concrete (Default Value)</i>
Stamped Conc	<i>Stamped Concrete</i>
Stencilled Conc	<i>Stencilled Concrete</i>
Conc/Grass	<i>Combination of concrete and grassed elements</i>
Conc/Landscaped	<i>Combination of concrete and landscaped elements</i>
Grass/Landscaped	<i>Combination of grass and landscaped elements</i>

ISLAND TYPE	
PICK LIST	DESCRIPTION
LATM_2	<i>Road Hump - - MUTCD Part 13 LATM Type 2</i>
LATM_3	<i>Roundabout on Local Roads used as an LATM device</i>
LATM_4	<i>Single-lane Slow Point - MUTCD Part 13 LATM Type 4</i>
LATM_5	<i>Driveway Link - MUTCD Part 13 LATM Type 5</i>
LATM_6	<i>Single-lane Angled Slow Point - MUTCD Part 13 LATM Type 6</i>
LATM_7	<i>Two-lane Slow Point - MUTCD Part 13 LATM Type 7</i>
LATM_8	<i>Two-lane Angled Slow Point - MUTCD Part 13 LATM Type 8</i>
LATM_9	<i>Mid-block Island - MUTCD Part 13 LATM Type 9</i>
Ped Refuge	<i>Island acting as a Pedestrian Refuge</i>
Roundabout	<i>Roundabout on higher order roads not used as an LATM device.</i>
Splitter	<i>Splitter Island at intersection - MUTCD Part 13 LATM Type 10</i>

ON OFF STREET	
PICK LIST	DESCRIPTION
On Street	<i>The parking area is an uninterrupted part of the road pavement</i>
Off Street	<i>The parking area is a separate area with road access</i>

PATH MATERIAL	
PICK LIST	DESCRIPTION
Bitumen	<i>Bitumen</i>
Concrete	<i>Concrete (Default Value)</i>
Earth	<i>Earth</i>
Gravel	<i>Gravel</i>
Paved	<i>Paved</i>
Sand	<i>Sand</i>
Steel	<i>Steel</i>
Stone	<i>Stone</i>
Timber	<i>Timber</i>

PATH STRUCTURE	
PICK LIST	DESCRIPTION
Boardwalk	<i>Boardwalk</i>
Causeway	<i>Causeway</i>
Foot Bridge	<i>Foot Bridge</i>
On Ground	<i>Constructed pathway on the ground but not on the road. (Default Value)</i>
On Road	<i>Delineated section of road used for pathway</i>
Ramp	<i>Ramp</i>
Stairs	<i>Stairs</i>

PATH USE	
PICK LIST	DESCRIPTION
Shared	<i>Shared Pedestrian and Cycleway. (Default Value)</i>
CycleWay	<i>Bicycles only</i>
Pedestrian	<i>Pedestrians only</i>
Horse Trail	<i>Horse Trail</i>

PAVEMENT GEOTEXTILE TYPE	
PICK LIST	DESCRIPTION
Class A	<i>Class A - As per MRS11-27 Table 3</i>
Class B	<i>Class B - As per MRS11-27 Table 3</i>
Class C	<i>Class C - As per MRS11-27 Table 3</i>
Class D	<i>Class D - As per MRS11-27 Table 3</i>
Class E	<i>Class E - As per MRS11-27 Table 3</i>

PAVEMENT TYPE	
PICK LIST	DESCRIPTION
Flexible	<i>Flexible pavement (Default Value)</i>
Rigid	<i>Rigid pavement</i>
Stabilised	<i>Stabilised Pavement</i>

ROAD EDGE TYPE	
PICK LIST	DESCRIPTION
B1	<i>Barrier Kerb Type B1 refer std drawing R-01</i>
B2	<i>Barrier Kerb Type B2 refer std drawing R-01</i>
B3	<i>Barrier Kerb Type B3 refer std drawing R-01</i>
B4	<i>Barrier Kerb Type B4 refer std drawing R-01</i>
B5	<i>Barrier Kerb Type B5 refer std drawing R-01</i>
B6	<i>Barrier Kerb Type B6 refer std drawing R-01</i>
SM1	<i>Semi-mountable Kerb Type SM1 refer std drawing R-01</i>
SM2	<i>Semi-mountable Kerb Type SM2 refer std drawing R-01</i>
SM3	<i>Semi-mountable Kerb Type SM3 refer std drawing R-01</i>
SM4	<i>Semi-mountable Kerb Type SM4 refer std drawing R-01</i>
SM5	<i>Semi-mountable Kerb Type SM5 refer std drawing R-01</i>
SM6	<i>Semi-mountable Kerb Type SM6 refer std drawing R-01</i>
M1	<i>Mountable Kerb Type M1 refer std drawing R-01</i>
M2	<i>Mountable Kerb Type M2 refer std drawing R-01</i>
M3	<i>Mountable Kerb Type M3 refer std drawing R-01</i>
M4	<i>Mountable Kerb Type M4 refer std drawing R-01</i>
M5	<i>Mountable Kerb Type M5 refer std drawing R-01</i>
M6	<i>Mountable Kerb Type M6 refer std drawing R-01</i>
ER1	<i>Edge Restraint Type ER1 refer std drawing R-01</i>
ER2	<i>Edge Restraint Type ER2 refer std drawing R-01</i>
I1	<i>Invert Type I2 refer std drawing R-01</i>
I2	<i>Invert Type I1 refer std drawing R-02</i>
NONE	<i>No constructed road edge</i>

SIGN CODE	
PICK LIST	DESCRIPTION
MUTCD code	<i>Refer to the MUTCD for Sign and Size codes</i>

SIGN TYPE	
PICK LIST	DESCRIPTION
Regulatory	<i>Regulating matters other than speed or parking</i>
Information	<i>Providing information of a historical, environmental or other topical nature</i>
Direction	<i>Providing directions, distances or maps to places of interest</i>
Warning	<i>Provide warning of hazards</i>
Naming	<i>Feature or Street Name. Identifying a street, locality, park, building or facility</i>

SIGN MATERIAL	
PICK LIST	DESCRIPTION
Stainless Steel	<i>Stainless Steel</i>
Aluminium	<i>Aluminium (Default Value)</i>
Timber	<i>Timber</i>
Masonry	<i>Masonry</i>
Steel Galvanised	<i>Steel Galvanised</i>
Plastic	<i>Plastic</i>
Steel Powder Coated	<i>Steel Powder Coated</i>

STABILISATION	
PICK LIST	DESCRIPTION
Lime	<i>Lime</i>
Foamed Bitumen	<i>Foamed Bitumen</i>
GeoGrid	<i>Earth Reinforced Mat</i>
Cement	<i>Cement</i>

SUB-BASE MATERIAL	
PICK LIST	DESCRIPTION
GR21	<i>Gravel 2.1 CBR60-80</i>
GR23	<i>Gravel 2.3 CBR45-60</i>
GR25	<i>Gravel 2.5 CBR15-30</i>
NGRL	<i>Natural Gravel/Conglomerate</i>
ERTH	<i>Earth</i>

SURFACE TYPE	
PICK LIST	DESCRIPTION
1CBS	<i>1 Coat Prime and Seal</i>
2CBS	<i>2 Coat Prime and Seal</i>
AC	<i>Asphalt</i>
BPAV	<i>Brick Pavers</i>
CONC	<i>Concrete, Stencilled/Aggregate</i>
CPAV	<i>Concrete Pavers</i>
DUST	<i>Dust Seal</i>
FDA	<i>Full Depth Asphalt</i>
GRVL	<i>Gravel / Unsealed Road</i>
PMB	<i>Poly Modified Bitumen</i>
SMA	<i>Stone Mastic Asphalt</i>
SSSL	<i>Slurry Seal</i>

## Drainage

(Note: Some of the attribute enumerations lists, which are common to more than one asset type, are located in the "General" section)

DRAIN PIPE PROTECTION	
PICK LIST	DESCRIPTION
Standard	<i>Standard (Default Value)</i>
Saltwater	<i>Saltwater</i>

DRAIN PIT USE	
PICK LIST	DESCRIPTION
Manhole	<i>Maintenance or access point</i>
Pit	<i>Pit only - no access.</i>
Roofwater Inspection Chamber	<i>Roofwater Inspection Chamber</i>

DP JOINT TYPE	
PICK LIST	DESCRIPTION
FJ	<i>Flush Joint (Default Value)</i>
RRJ	<i>Rubber Ring Joint</i>

GPT FUNCTION	
PICK LIST	DESCRIPTION
Gross Pollutant Capture	<i>Gross Pollutant Capture (Default Value)</i>
Sediment Capture	<i>Sediment Capture</i>
Oil / Grit Separation	<i>Oil / Grit Separation</i>
Filtration	<i>Filtration</i>

HW DESIGN TYPE	
PICK LIST	DESCRIPTION
Type 1	<i>MRD Spec Type 1</i>
Type 2	<i>MRD Spec Type 2</i>
Type 3	<i>MRD Spec Type 3</i>
Non_STD	<i>Non Standard</i>

HW GRATE TYPE	
PICK LIST	DESCRIPTION
Baffled	<i>Baffled</i>
Grated	<i>Grated</i>
Stilling Basin	<i>Silting basin</i>
Other	<i>Other</i>



HW MATERIAL	
PICK LIST	DESCRIPTION
Concrete	<i>Concrete</i>
RC	<i>Reinforced Concrete</i>
Grouted Rock	<i>Grouted Rock</i>
Revetment Mattress	<i>Revetment Mattress</i>

HW OUTLET PROTECT	
PICK LIST	DESCRIPTION
Grassed	<i>Grassed banks</i>
Concrete	<i>Concrete</i>
Stone Pitched	<i>Stone Pitched</i>
Placed Rock	<i>Placed Rock</i>
Geotextile	<i>Geotextile</i>
Grouted Rock	<i>Grouted Rock</i>
Revetment Mattress	<i>Revetment Mattress</i>
Rock Filled Wire Basket	<i>Rock Filled Wire Basket</i>

INLET CONFIGURATION	
PICK LIST	DESCRIPTION
Left	<i>Left hand side</i>
Centre	<i>Centre</i>
Right	<i>Right hand side</i>

INLET TYPE	
PICK LIST	DESCRIPTION
IPWEA - Field Inlet Type 1	<i>IPWEA - Grated Field Inlet Type One</i>
IPWEA - Field Inlet Type 2 (600x600)	<i>IPWEA - Grated Field Inlet Type Two 600mm x 600mm</i>
IPWEA - Field Inlet Type 2 (600x900)	<i>IPWEA - Grated Field Inlet Type Two 600mm x 900mm</i>
IPWEA - KIL Gully	<i>IPWEA - Kerb Inline Gully Pit</i>
IPWEA - LIL Gully	<i>IPWEA - Lip Inline Gully Pit</i>
OTHER - Anti-Ponding Gully	<i>Council Specific Anti-Ponding Gully</i>
OTHER - Bro Pit	<i>Council Specific Bro Pit</i>
OTHER - Drainway	<i>Council Specific Drainway Pit</i>
OTHER - Field Inlet Type 1	<i>Council Specific Field Inlet (900mm x 900mm)</i>
OTHER - Field Inlet Type 2 (600x600)	<i>Council Specific Field Inlet (600mm x 600mm)</i>
OTHER - Field Inlet Type 2 (600x900)	<i>Council Specific Field Inlet (600mm x 900mm)</i>
OTHER - KIL Gully	<i>Council Specific Kerb Inline Gully Pit</i>
OTHER - LIL Gully	<i>Council Specific Lip Inline Gully Pit</i>
OTHER - Side Entry Pit	<i>Council Specific Side Entry Pit</i>
OTHER - Trench Grate	<i>Council Specific Trench Grate</i>

OUTLET TYPE	
PICK LIST	DESCRIPTION
Dry	<i>Dry (Default Value)</i>
Surcharge	<i>Surcharge</i>

LID TYPE	
PICK LIST	DESCRIPTION
Galv Grate	<i>Galvanised Steel Grate</i>
Cast Iron Grate	<i>Cast Iron Grate</i>
Circ Cast Iron	<i>Circular Cast Iron Lid</i>
Circ Conc Infill	<i>Circular Concrete Infill Lid</i>
Sqr Cast Iron	<i>Square Cast Iron Lid</i>
Sqr Conc Infill	<i>Square Concrete Infill Lid</i>
Rect Cast Iron	<i>Rectangular Cast Iron</i>
Rect Conc Infill	<i>Rectangular Concrete Infill Lid</i>
CI Frame Conc Infill	<i>Cast Iron Frame Concrete Infill</i>
Precast Cover Slabs	<i>Long Rectangular Concrete Cover Slabs (2 per pit)</i>
Hydroflow Grate	<i>Hydroflow Grate</i>
Cast Iron Bike/Ped Safe Grate	<i>Cast Iron Bicycle and Pedestrian Safe Grate</i>

LINTEL CONSTRUCTION	
PICK LIST	DESCRIPTION
Prefabricated	<i>Prefabricated (Default Value)</i>
Insitu	<i>Built or poured in-situ</i>

OPEN DRAIN BANK LINING MATERIAL	
PICK LIST	DESCRIPTION
Concrete	<i>Concrete</i>
Earth	<i>Earth</i>
Grassed	<i>Grassed</i>
Grouted Rock	<i>Grouted Rock</i>
Natural Channel	<i>Natural Channel</i>
Placed Rock	<i>Placed Rock</i>
RC	<i>Reinforced Concrete</i>
Revetment Mattress	<i>Revetment Mattress</i>
Rock Filled Wire Basket	<i>Rock Filled Wire Basket</i>
Stone Pitched	<i>Stone Pitched</i>

OPEN DRAIN BED LINING MATERIAL	
PICK LIST	DESCRIPTION
Concrete	<i>Concrete</i>
Earth	<i>Earth</i>
Grassed	<i>Grassed</i>
Grouted Rock	<i>Grouted Rock</i>
Natural Channel	<i>Natural Channel</i>
Placed Rock	<i>Placed Rock</i>
RC	<i>Reinforced Concrete</i>
Revetment Mattress	<i>Revetment Mattress</i>
Rock Filled Wire Basket	<i>Rock Filled Wire Basket</i>
Stone Pitched	<i>Stone Pitched</i>

OPEN DRAIN SHAPE	
PICK LIST	DESCRIPTION
Flat Bottom Drain	<i>Flat Bottom Drain</i>
Vee Drain	<i>Vee Drain</i>
Swale Drain	<i>Swale Drain</i>
Natural Channel	<i>Natural Channel</i>

OPEN DRAIN TYPE	
PICK LIST	DESCRIPTION
Canal	<i>Canal</i>
Open Drain	<i>Open Drain</i>
Overland Flow Path	<i>Overland Flow Path</i>
Flat Open Surface	<i>Flat Open Surface</i>
Natural Waterway	<i>Natural Waterway</i>
Infiltration Trench	<i>Infiltration Trench</i>

TIDE GATE TYPE	
PICK LIST	DESCRIPTION
Fibreglass Proprietary	<i>Fibreglass proprietary</i>
Fabricated	<i>Fabricated</i>
Controlled	<i>Controlled</i>
Rubber	<i>Rubber</i>
Other	<i>Other</i>

## Sewer

(Note: Some of the attribute enumerations lists, which are common to more than one asset type, are located in the "General" section)

HCB TYPE	
PICK LIST	DESCRIPTION
Sloped Branch	<i>WSAA - Sloped Branch connection</i>
Ramp Riser	<i>WSAA - Ramp Riser connection</i>
Jump Up	<i>WSAA - Jump Up connection</i>
Stub	<i>WSAA - Connection straight into Maintenance Hole</i>
Twin Jump Up	<i>WSAA - Twin Jump Up connection</i>
Twin Ramp Riser	<i>WSAA - Twin Ramp Riser connection</i>

HCB USE	
PICK LIST	DESCRIPTION
House	<i>House Drain (Default Value)</i>
Combined	<i>Combined House Drain</i>

PRESSURE MAIN USE	
PICK LIST	DESCRIPTION
Disused	<i>Disused Pressure Pipe</i>
Effluent	<i>Treated Wastewater Pipe</i>
Reuse	<i>Treated Wastewater Reuse Pipe</i>
Rising	<i>Rising or Pressure Main (Default Value)</i>
Scour	<i>Scour Main</i>
Vacuum	<i>Vacuum Main</i>

SEWER PIPE USE	
PICK LIST	DESCRIPTION
Reticulation	<i>Reticulation Sewer (Default Value)</i>
Trunk	<i>Trunk Sewer</i>
Overflow	<i>Directs excessive wastewater to another location</i>
Stub	<i>Stub Pipe</i>

SMH LID MATERIAL	
PICK LIST	DESCRIPTION
Cast Iron	<i>Cast Iron (Default Value)</i>
Aluminium	<i>Aluminium</i>
CI Conc Infill	<i>Cast Iron with Concrete Infill</i>
Concrete	<i>Concrete</i>

<b>SMH DROP TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Straight Through MH	<i>WSAA - Straight through Maintenance Hole</i>
Change In Direction Through MH	<i>WSAA - Change in Direction through Maintenance Hole</i>
External Drop	<i>WSAA - External Drop type Maintenance Hole</i>
Alternative External Drop	<i>WSAA - Alternative External Drop type Maintenance Hole</i>
Internal Drop	<i>WSAA - Internal Drop type Maintenance Hole</i>
Oblique 45deg Backdrop	<i>WSAA - Oblique 45° Backdrop type Maintenance Hole</i>

<b>SMH LINING</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Plastic	<i>Plastic</i>
Epoxy	<i>Epoxy</i>
Polyurea	<i>Polyurea</i>
PE	<i>Polyethylene</i>

<b>SMH USE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Blank End	<i>Blank End</i>
Overflow	<i>Overflow Maintenance Hole</i>
Outlet	<i>Outlet</i>
Rising Main Discharge MH	<i>Rising Main Discharge Maintenance Hole</i>
Maintenance	<i>Maintenance Hole (Default Value)</i>
Grit Collector MH	<i>Grit Collector Maintenance Hole</i>
P.S.	<i>Pit housing a pump station</i>

<b>SP JOINT TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Rubber Ring	<i>Rubber Ring (Default Value)</i>
Solvent Weld	<i>Solvent Weld</i>
Electrofusion Weld	<i>Electrofusion Weld</i>

<b>SEWER PIPE EMBEDMENT</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Type 1	<i>WSAA Sewerage embedment type 1</i>
Type 2	<i>WSAA Sewerage embedment type 2</i>
Type 3	<i>WSAA Sewerage embedment type 3</i>
Type 4	<i>WSAA Sewerage embedment type 4</i>
Type 5	<i>WSAA Sewerage embedment type 5</i>
Type 6	<i>WSAA Sewerage embedment type 6</i>
Type 7	<i>WSAA Sewerage embedment type 7</i>
Type 8	<i>WSAA Sewerage embedment type 8</i>
Type 9	<i>WSAA Sewerage embedment type 9</i>
Type 10	<i>WSAA Sewerage embedment type 10</i>
Type 11	<i>WSAA Sewerage embedment type 11</i>
Type 12	<i>WSAA Sewerage embedment type 12</i>
Type 13	<i>WSAA Sewerage embedment type 13</i>

<b>SEWER PIPE PROTECTION</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
FBE	<i>Fusion Bonded Epoxy</i>
Sintakote	<i>Sintokote Fusion Bonded Medium Density Polyethylene.</i>
Wrapped	<i>Plastic Wrapped</i>
Encased	<i>Encased</i>
Sheathed	<i>Sheathed</i>

<b>SEWER FITTING TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Bend	<i>Bend</i>
Connector	<i>Connector</i>
Connector Thrust	<i>Connector Thrust</i>
Dismantling Joint	<i>Dismantling Joint</i>
Gibault	<i>Gibault</i>
Taper	<i>Taper</i>
Tee	<i>Tee</i>
Wye	<i>Wye</i>
Cathodic Protection Point	<i>Cathodic Protection Point</i>
Dead Plate	<i>Dead Plate</i>
External Dead Plate	<i>External Dead Plate</i>
Tee Branch Dead End	<i>Tee Branch Dead End</i>
Tee Branch Ext Dead End	<i>Tee Branch Ext Dead End</i>
Puddle Flange	<i>Puddle Flange</i>
Sampling Point	<i>Sampling Point</i>
Booster Pump	<i>Booster Pump</i>

<b>SEWER FITTING MATERIAL</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
DICL	<i>Ductile iron cement lined</i>
PVC	<i>Poly Vinyl Chloride</i>

<b>SEWER VALVE TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Gas Release	<i>Gas Release</i>
Pressure Release	<i>Pressure Release</i>
Scour	<i>Scour</i>
Reflux	<i>Reflux</i>
Swing Check	<i>Swing Check</i>
Butterfly	<i>Butterfly</i>
Knife Gate	<i>Knife Gate</i>
Plug Valve	<i>Plug Valve</i>
Vacuum Release	<i>Vacuum Release</i>
Penstock Door	<i>Penstock Door</i>
Stop	<i>Stop</i>

<b>SEWER VALVE PROTECTION</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
FBE	<i>Fusion Bonded Epoxy</i>
Wrapped	<i>Plastic Wrapped</i>

## Water

(Note: Some of the attribute enumerations lists, which are common to more than one asset type, are located in the "General" section)

HYDRANT USE	
PICK LIST	DESCRIPTION
Spring	<i>Spring Hydrant</i>
Pillar	<i>Pillar Hydrant</i>

METER POSITION	
PICK LIST	DESCRIPTION
FL	<i>Front Left</i>
FC	<i>Front Centre</i>
FR	<i>Front Right</i>
RL	<i>Rear Left</i>
RC	<i>Rear Centre</i>
RR	<i>Rear Right</i>
LM	<i>Left Middle</i>
RM	<i>Right Middle</i>

METER TYPE	
PICK LIST	DESCRIPTION
Conventional	<i>Standard volumetric meter</i>
Manifold	<i>Meter with built-in valve</i>
Magflow	<i>Electronic Metering System</i>

PRESSURE VALVE TYPE	
PICK LIST	DESCRIPTION
Pressure Reducing	<i>Pressure Reducing Valve.</i>
Pressure Sustaining	<i>Pressure Sustaining Valve</i>
Pressure Relief	<i>Pressure relief Valve.</i>

WATER FITTING MATERIAL	
PICK LIST	DESCRIPTION
DICL	<i>Ductile iron cement lined</i>
PVC	<i>Poly Vinyl Chloride</i>



WATER FITTING TYPE	
PICK LIST	DESCRIPTION
Bend	<i>Bend</i>
Blank End	<i>Blank End</i>
Connector	<i>Connector</i>
Cross Connector	<i>Cross Connector</i>
Connector Thrust	<i>Connector Thrust</i>
Dismantling Joint	<i>Dismantling Joint</i>
Gibault	<i>Gibault</i>
Taper	<i>Taper</i>
Tee	<i>Tee</i>
Wye	<i>Wye</i>
Cathodic Protection Point	<i>Cathodic Protection Point</i>
Dead Plate	<i>Dead Plate</i>
External Dead Plate	<i>External Dead Plate</i>
Tee Branch Dead End	<i>Tee Branch Dead End</i>
Tee Branch Ext Dead End	<i>Tee Branch Ext Dead End</i>
Puddle Flange	<i>Puddle Flange</i>
Sampling Point	<i>Sampling Point</i>
Booster Pump	<i>Booster Pump</i>

WATER PIPE EMBEDMENT	
PICK LIST	DESCRIPTION
Type A	<i>WSAA Water embedment Type A</i>
Type B	<i>WSAA Water embedment Type B</i>
Type C	<i>WSAA Water embedment Type C</i>
Type D	<i>WSAA Water embedment Type D</i>
Type E	<i>WSAA Water embedment Type E</i>
Type F	<i>WSAA Water embedment Type F</i>
Type G	<i>WSAA Water embedment Type G</i>
Type H	<i>WSAA Water embedment Type H</i>
Type I	<i>WSAA Water embedment Type I</i>
Type J	<i>WSAA Water embedment Type J</i>
Type K	<i>WSAA Water embedment Type K</i>
Type L	<i>WSAA Water embedment Type L</i>
Type M	<i>WSAA Water embedment Type M</i>

WATER PIPE PROTECTION	
PICK LIST	DESCRIPTION
FBE	<i>Fusion Bonded Epoxy</i>
Sintakote	<i>Sintokote Fusion Bonded Medium Density Polyethylene.</i>
Sintakote - Concrete	<i>Sintokote Fusion Bonded Medium Density Polyethylene – concrete encased</i>
Wrapped	<i>Plastic Wrapped</i>
Concrete Encased	<i>Concrete Encased</i>
Sheathed	<i>Sheathed</i>
Denso Taped Wrapped	<i>Wrapped in pipe and flange protection tape (Denso Tape).</i>
Uncoated	<i>Uncoated</i>

WATER PIPE USE	
PICK LIST	DESCRIPTION
Raw Water	<i>Raw Water Pipe</i>
Reticulation	<i>Reticulation Pipe. (Default Value)</i>
Scour	<i>Scour Main</i>
Service	<i>Domestic Service</i>
Trunk	<i>Trunk Water Main</i>
Waste	<i>Waste Pipe</i>
Irrigation	<i>Irrigation Pipe</i>

WATER SOURCE	
PICK LIST	DESCRIPTION
Rain Water	<i>Roof water catchment</i>
Ground Water	<i>Ground water extracted from a bore</i>
Ponded Water	<i>Ponded water pumped from a surface water catchment</i>
Mains Service	<i>Drawn from a mains water supply service</i>

WATER VALVE TYPE	
PICK LIST	DESCRIPTION
Air	<i>Air Valve</i>
Ball	<i>Ball Valve</i>
Scour	<i>Scour Valve</i>
Reflux	<i>Reflux Valve</i>
Swing Check	<i>Swing Check Valve. Used to prevent backflow within a pipeline.</i>
Altitude	<i>Altitude Valve</i>
Gate	<i>Gate Valve. Used for the isolation of sections and branches in pipelines</i>
Control	<i>Control Valve</i>
Butterfly	<i>Butterfly Valve</i>
Stop	<i>Stop Valve</i>
Trunk Reflux	<i>Trunk Reflux Valve</i>

WATER VALVE USE	
PICK LIST	DESCRIPTION
Control	<i>Control Valve (Default Valve)</i>
Zone Boundary	<i>Zone Boundary Valve. Defines the boundary of a pressure zone or distribution maintenance area.</i>
Service	<i>Service Valve</i>

## Other

(Note: Some of the attribute enumerations lists, which are common to more than one asset type, are located in the "General" section)

<b>BARRIER LINK MATERIAL</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
None	<i>None</i>
Aluminium Safety Panel	<i>Aluminium Safety Panel</i>
Chain	<i>Chain</i>
Concrete	<i>Concrete</i>
Safety Glass	<i>Safety Glass</i>
Timber Panel	<i>Timber Panel</i>
Wire Mesh	<i>Wire Mesh</i>
Wire Strand	<i>Wire Strand</i>

<b>BARRIER POINT TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Bollard	<i>Bollard</i>
Removable	<i>Bollard Removable</i>
Locking Post	<i>Locking Post</i>

<b>BARRIER POST MATERIAL</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Aluminium	<i>Aluminium</i>
Concrete	<i>Concrete</i>
Steel	<i>Steel</i>
Stainless Steel	<i>Stainless Steel</i>
Steel Galvanised	<i>Steel Galvanised</i>
Steel Powder Coated	<i>Steel Powder Coated</i>
Stone Boulder	<i>Stone Boulder</i>
Timber	<i>Timber</i>

<b>BARRIER TOP MATERIAL</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
None	<i>None</i>
Aluminium	<i>Aluminium</i>
Chain	<i>Chain</i>
Steel Rail	<i>Steel Rail</i>
Timber Rail	<i>Timber Rail</i>
Wire Barbed	<i>Wire Barbed</i>
Wire Strand	<i>Wire Strand</i>
Armor Rail	<i>Galvanised Pressed Steel – Armor Rail.</i>
Steel Wire Rope	<i>Steel Wire Rope</i>

<b>BARRIER TYPE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Bollard Run	<i>Bollard Run</i>
Dunal Fencing	<i>Dunal Fencing</i>
General Fencing	<i>General Fencing</i>
Handrail	<i>Handrail</i>
Pedestrian Gate	<i>Pedestrian Gate</i>
Safety Fencing	<i>Safety Fencing</i>
Stock Fencing	<i>Stock Fencing</i>
Vehicle Barrier	<i>Vehicle Barrier</i>
Vehicle Gate	<i>Vehicle Gate</i>

<b>WALL MATERIAL</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Boulder	<i>Boulder</i>
Concrete	<i>Concrete</i>
Concrete crib	<i>Concrete crib</i>
Masonry	<i>Masonry</i>
Rock	<i>Rock</i>
Timber Sleeper	<i>Timber Sleeper</i>
Shot Binding	<i>Pneumatically projected binding material, usually concrete or stabilising mortar</i>
Timber Crib	<i>Timber Crib</i>

<b>WALL USE</b>	
<b>PICK LIST</b>	<b>DESCRIPTION</b>
Terrestrial	<i>Terrestrial (land based) revetment wall</i>
Freshwater	<i>Freshwater revetment wall. Designed to cope with freshwater flood levels</i>
Marine	<i>Marine revetment wall</i>