

ADAC XML DATA CAPTURE GUIDELINES

**ADAC XML Files to be included as an accompaniment to
the “Work-as-Executed” bundle submitted to Council**

Final Version 4.2 (13 November 2023)

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1. PURPOSE

The purpose of this document is to provide practical guidelines and general assistance with respect to the survey capture, creation and provision of compliant ADAC XML files for Water & Sewerage, Transport, Stormwater and Open Space/ Parks assets. ADAC XML files are required to accompany the usual bundle of “Work-as-Executed” (WAX) plans, drawings, schedules and associated information reflecting all details of new civil infrastructure and associated assets.

On completion of physical works and prior to asset handover, “Work-as-Executed” (also known “As-Constructed” or “As-Built”) information is prepared. “Work-as-Executed” information clearly indicates relevant details, locations, levels and alignments (survey) and other approved variations in assets or construction methods that may have been carried out during the operational works as compared to the original approved design.

While the Summary “Work-as-Executed” Plans accurately reflect all details including material types, specifications and other asset-specific information, the accompanying ADAC xml digital file compiles this “Work-as-Executed” information in a standardised (XML) format.

2. INTRODUCTION TO ADAC XML

ADAC XML files are a compulsory accompaniment to the “Work-as-Executed” bundle of information required by council as a part of the handover of nominated works and associated civil assets and infrastructure.

The ADAC XML format (schema) is a non-propriety data specification and file transfer tool written in XML language. The schema is managed by the ADAC Consortium of subscribers principally made up of local authorities and water utilities from across Australia. The schema and associated xml files are used to facilitate the collection and translation of data related to both new and existing infrastructure.

Compliant ADAC XML files contain a structured and precise digital record of the assets described in the Summary WAX (clean as-constructed) Plans and other associated engineering documentation. Details include survey-accurate cadastral and boundary references, geometries and relative levels as well as detailed asset records and accompanying attributes including material types and approved pavement specifications.

More specifically, the XML files are used to check the completeness of the “Work-as-Executed” information provided. The files afford further confirmation of compliance with approval conditions as well as helping to verify specifications and other design-related requirements.

Depending on the tools¹ (ADAC XML generator) being used to produce the ADAC XML output, compliant files may initially be created during survey capture and then finalised in conjunction with the creation of the “Work-as-Executed” drawings.

Alternatively the XML files may be generated after the “Work-as-Executed” CAD drawings have been finalised. It is however essential that the “Work-as-Executed” drawings and ADAC XML files are created using complete and survey-accurate information to identify both the assets and the precise locations being represented and that the details in the XML file and drawings match exactly.

Please also note that when preparing the ADAC XML file, some assets are common to multiple asset classes e.g. “Lighting” assets may be related to either transport or open space. In those cases recording assets under a different asset class (when preparing the ADAC XML file) to the actual area of use is valid and appropriate. On receiving the “Work-as-Executed” bundle, council will undertake a data format and conformance check on both the WAX drawings and ADAC XML file to confirm the completeness and validity of the details. **Please note that if significant anomalies, errors or missing information are identified during these comparison checks, the WAX Plans and/or the ADAC XML file may be returned**

¹ Various software tools (purpose-built ADAC XML generators) are available to capture necessary details and asset attributes required to produce a compliant ADAC XML file. Advice can be sort from providers of most civil engineering design suites (CAD) and survey tools.

to the provider for correction and resubmission which can potentially delay the progress of asset handover and other related approvals.

Once the ADAC XML data file(s) are accepted by council they are uploaded to various internal systems and used to assist in the maintenance planning and long-term management of the new infrastructure and other related assets.

3. GENERAL REQUIREMENTS

The ADAC XML file is to be produced using the specified ADAC XML schema release (e.g. ADAC XML Ver 5.x) and should be checked for compliance before being submitted to council. Details on the preparation of Work-as-Executed plans and the ADAC capture process can be found at www.tweed.nsw.gov.au/SubdivisionCertificates

The ADAC XML files are to be provided via either (1) the Tweed Shire Council online portal, (2) by email to the nominated council mailbox or (3) USB storage device.

4. DATUM INFORMATION

Data contained in the ADAC XML file(s) must reflect the survey details exactly and all asset details are to be as shown on the Summary “Work-as-Executed” Plan(s). The following shall also apply:

- survey details must be derived from at least two (2) relatively well spaced permanent survey marks (PMs);

Survey details to be derived from “SCIMs” marks and/or newly placed permanent survey marks (PMs) with Map Grid of Australia (MGA) GDA2020 - UTM Zone 56 coordinates for the survey area. All AHD levels to be to fourth (4th) order standard or better as defined by the current ICSM² Standard.

Further information can be obtained from the online service located at: www.spatial.nsw.gov.au/surveying/scims_online

² Intergovernmental Committee on Surveying & Mapping – <http://www.icsm.gov.au>

5. CREATION OF ADAC XML FILE(S)

In producing compliant ADAC XML files, information on the following asset classes will need to be captured according to the approved ADAC data schema. Vendors of ADAC XML generators are provided with any updates to the ADAC schema free of charge and routinely have these updates incorporated into their various products for release to customers in a timely manner.

Further information on the ADAC process, data schema, available tools and supporting agencies can be found on the ADAC website at: www.ipweaq.com/adac

While the ADAC XML files are created from the survey-accurate “Work-as-Executed” information, particular attention must be given to how council wishes to have particular details captured and recorded for each particular asset class.

The following sections are provided to assist with the capture of ADAC data when using proprietary ADAC XML generators either during the “As-Con” survey pickup or when capturing the ADAC asset information as a part of the creation of the “As-Con” plans and associated drawings in civil design (software) suites.

Note: It is not within the scope of this document to provide detailed advice on how to operate the various specialist products and tools (ADAC XML generators) used in the creation and provision of the compliant ADAC XML files. Assistance and advice on the use of any particular tool should be sourced from the provider of the product who would necessarily be familiar with general ADAC requirements, processes and the current data model (ADAC XML schema).

Asset Capture Guidelines

In order to capture and record all necessary asset information the following details are intended to provide guidance in the creation of a compliant ADAC xml file.

Broadly, the physical nature of the individual assets will determine where/if assets are captured separately within the digital ADAC xml. For example, a footpath or pathway would be captured as individual and separate features to reflect any changes in properties such as widths or material type. Likewise for road pavement and seals where there is physical change in the dimensions and/or materials.

Please refer to the various photos, diagrams and images that are presented under the different sections that are intended to illustrate and guide on the appropriate capture requirements. Details on attribution (mandatory and non-mandatory) are presented in the relevant tables included with each of the asset classes. Guidance on ‘project’ and “global” attribution is included below.

Digital Images (Pictures) of Assets

In some cases, Tweed Shire Council may require photographs to be supplied for certain assets as part of the Work as-Executed package of information. These

photographs may be used for subsequent identification of the asset and other practical purposes.

For additional information on whether a digital photograph is required please see table located at “Appendix A - Photo Requirements” located at the back of this document.

General Guidelines for Photographs

- Where the Work-as-Executed data contains a number of different assets of the same type (ie multiple shelters were constructed within a park), each photograph should be identified to the corresponding asset ID using the file name and description;
- Photographs must be date-stamped (the date that the photo was captured);
- Photos should be captured in Jpeg format no larger than 1mb;
- Photographs of entire assets are to be taken, where practical, to indicate shape, material and other relevant attributes;
- Where assets are too large to clearly indicate shape, material and other relevant attributes in one photograph, a photograph of a representative portion is required;
- A photo of a long asset (such as barrier continuous - fences) should clearly illustrate material and style, and not necessarily the entire object;
- Where assets consist of multiple components, a photograph of each component may be required if all components cannot be clearly illustrated in a single photo.

Project Attribution

The following attribution is included within the header-level information and is to be completed in all ADAC xml files submitted:

ATTRIBUTE	ADAC Mandatory (Y/N)	NOTES
ExportDateTime	Y	Should be auto-populated from the xml generating software
Name	Y	Should be populated with a description of the project (and stage number for subdivisions)
Owner	Y	To be recorded as one of the following, as applicable: <ul style="list-style-type: none"> o Council o Roads & Maritime o State o Caravan Parks o Others
Receiver	Y	To be noted as: Tweed Shire Council
WorksApprovalID	N	<ul style="list-style-type: none"> o Applicable <i>Subdivision Certificate Number</i> (e.g. SC180003); or o Approved <i>s68 Application Number</i>; or o <i>Internal Work Brief Number</i>.
DrawingNumber	Y	None
DrawingRevision	N	None
ConstructionDate	Y	At <i>Project Level</i> , "Construction Date" must be populated with Surveyor's Summary Work as Executed (WAX) date
HorizontalCoordinateSystem	Y	At <i>Project Level</i> , "Horizontal Coordinate System" field must be populated with " MGA56 "
HorizontalDatum	Y	At <i>Project Level</i> , "Horizontal Datum" field must be populated with " GDA2020 "
VerticalDatum	Y	At <i>Project Level</i> , "Vertical Datum" field must be populated with " AHD "
IsApproximate	Y	Must be required as "False"
OriginMark	N	Will be "Nil"
Notes	N	None
DrawingExtents-SouthWest	Y	Should never extend beyond: X: 506,000m Y: 6,840,000m
DrawingExtents-NorthEast	Y	Should never extend beyond: X: 560,000m Y: 6,890,000m
Description	Y	None
ProjectStatus	Y	None
Software.Product	Y	Auto-populated from the xml generating software
Software.Version	Y	Auto-populated from the xml generating software
Surveyor.Name	Y	None
Surveyor.DateFinalSurvey	Y	None
Surveyor.DateApproved	Y	None

ATTRIBUTE	ADAC Mandatory (Y/N)	NOTES
Engineer.Name	Y	None
Engineer.DateApproved	Y	None

Global Attribution

Global Asset Attribution relates to attributes that are common on all feature types in the ADAC schema.

Mandatory Attribution: The following attributes related to Global Types are to be considered mandatory for all asset types:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
ADACId	Y	
Infrastructure Code	N	
Owner ⁺	N	Y
DrawingNumber	N	
DrawingRevision	N	
ConstructionDate	N	Y
Department	N	
Surveyor	N	
Engineer	N	
Status [*]	Y	
DataQuality	N	
Notes ^x	N	
SupportingFiles	N	

* At the individual *Asset Level*, the “Status” field is both critical and mandatory with the following applicable values only to be used. Please note the description for each of the permissible “Status” types:

Asset Level Status	Description
Newly Constructed	Newly constructed asset passed to Council
Existing	Existing asset that is recorded as it is current situated
Designed	Future asset that is recorded as it “designed” for the future
Planned	Future asset that is known but prior is to design
Removed	Previously existing asset - described as it was prior to removal
Retired	Pre-existing asset no longer in operation, but left in-situ. Enumeration also means “Abandoned”.
Rehabilitated	Existing asset that has been refurbished for ongoing use

+ At the individual *Asset Level*, the “Owner” field is both critical and mandatory with the following applicable values only to be used. Please note the difference between the allowable values of Owner at the Asset Level versus the Owner at the Project Level:

Asset Level Owner
Council
Private
Roads & Maritime
State
Caravan Parks
Others

x At the individual *Asset Level*, the “Notes” field should be used to record any additional information regarding the asset, or to record attribute information which isn’t available within defined values/enumerations in the ADAC xml schema. See individual Asset Types below for details where applicable.

The ADACId is also considered mandatory by TSC as it is used to identify assets/features that are considered non-compliant when the xml file is processed. There is no defined naming convention required in creating the ADAC xml other than all features within the file should be uniquely identified by the naming convention chosen.

DataQuality is utilising the AS 5488-2013 “Classification of Subsurface Utility Information” standard. The following table defines the acceptable values based on the Project Status/Stage of the ADAC submission.

Project Status (Submission)	Existing Buried Infrastructure	Existing Surface Features	Buried Infrastructure
Preliminary	D	C	NA
For or As Approved including any Amendments	C	B	NA (Use actual design values)
Works As Executed	C	A	A

The DataQuality Rating is as follows:

AS5488 Standard Ratings	Tolerance Details
APlus	XY +/-50mm & Z +/-10mm
A	XYZ +/-50mm
B	XY +/-300mm & Z +/-500mm
C	XY +/-300mm & Z N/A
D	XYZ tolerance N/A

Cadastral Information

Cadastral Connection

- Asset Capture: Simple linear feature capturing the cadastral connections as determined by survey methods to a permanent survey mark.
- Spatial Relationship: Must be coincident to the vertices that define the Cadastre Lot Boundary features and relevant permanent survey mark.
- Mandatory Attribution: The following attribution is mandatory for *Cadastral Connections*:

Element Name	ADAC Mandatory (Y/N)
Bearing	Y
Distance_m	Y

Chainage Line

Not required to be captured in ADAC format.

Lot Parcel

- Asset Capture: Area feature (can be multi-part) representing the boundary of a titled or proposed Cadastral Lot.
- Spatial Relationship: May share boundaries with RoadReserves or WaterCourses. Vertices must be coincident with any shared boundaries.
- Mandatory Attribution: The following attribution is mandatory for *Lot Parcels*.

Element Name	ADAC Mandatory (Y/N)
LotNo	Y
PlanNo	Y
CancelledLotPlan	N
TitledArea_sqm	Y

Road Reserve

- Asset Capture: Area feature (can be multi-part) representing a road reserve boundary.
- Spatial Relationship: May share boundaries with WaterCourseReserve, LotParcels, or other RoadReserve areas. Vertices must be coincident with any shared boundaries.
- Mandatory Attribution: The following attribution is mandatory for *Road Reserves*:

Element Name	ADAC Mandatory (Y/N)
Name	Y

Survey Mark

- Asset Capture: Simple point feature representing a Permanent Survey Mark.
- Spatial Relationship: May be used in a Cadastral Connection (to lot parcels)
- Mandatory Attribution: The following attribution is mandatory for *Survey Marks*.

Element Name	ADAC Mandatory (Y/N)
MarkName	Y

Water Course Reserve

- Asset Capture: Area feature representing a boundary of a Water Course reserve.
- Spatial Relationship: May share boundaries with RoadReserves and LotParcels. Vertices must be coincident with any shared boundaries.
- Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Name	Y

Open Space Assets

Open Space Functional Area

- General Information: Examples include public parks, recreational and environmental reserves.
- Asset Capture: Area feature (can be multi-part) representing the complete “footprint” of the Open Space area which may enclose other associated Open Space Assets. Refer to the Red dashed polyline in Figure 1.
- Spatial Relationship: Not Applicable
- Mandatory Attribution: The following attribution is mandatory for Open Space Areas:

Element Name	ADAC Mandatory (Y/N)
Name	Y
Type	Y

Activity Area

- General Information: This would include defined playgrounds, courts, sports fields or animal agility enclosures.
- Asset Capture: Area feature (can be multi-part) area representing differing activities. Playgrounds will often align with soft-fall boundaries. Other courts or fields are donated by the practical extents of the playing or dedicated spectator area. Represented by the dashed yellow line in **Figure 1 below**.
- Spatial Relationship: Feature is to be totally within the parent Open Space area.
- Mandatory Attribution: The following attribution is required for Activity Areas:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Type	Y
Material	Y
Thickness_mm	Y

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metres

Activity Point

- General Information: Includes individual pieces of playground or fitness equipment.
- Asset Capture: Simple point feature identifying the individual asset such as an item of playground equipment. Objects may be located within defined activity areas such as a playground. Asset is located by its approximate centre point.

Spatial Relationship: Point will be shown within the Open Space polygon or a defined Activity Area.

Mandatory Attribution: The following attribution is required for Activity Points:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Type	Y
Material	Y
Theme	N
Units	N
Manufacturer	Y
ModelNumber	Y

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Artwork

General Information: Includes Entry Statements, Memorials, Plaques and Sculptures.

Asset Capture: Simple Point Feature representing the centre of the asset.

Mandatory Attribution: The following attribution is mandatory for Artwork.

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y

Positional Accuracy: Horizontal Accuracy of +/- 2 metres

Barbeque

General Information: Public Barbeque which may be a single or multi-plate unit.

Asset Capture: Simple Point Feature representing the centre of the asset.

Mandatory Attribution: The following attribution is mandatory for Barbeques.

Element Name	ADAC Mandatory (Y/N)
EnergySource	Y
Plates	Y
SurroundingMaterial	Y
TopMaterial	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Barrier Continuous

General Information: Includes fences, bollard runs, gates and handrails on the roadside or in road reserve areas.

Asset Capture: Complex linear feature of polylines with straight line segments (read: No curves) representing a barrier type asset. Refer dashed Yellow line in Figure 2 below.
If capturing gates please note the configuration/type in the notes field, either:

- Single
- Double
- Boom
- Sliding / Roller

Mandatory Attribution: The following attribution is mandatory for Barrier Continuous

Element Name	ADAC Mandatory (Y/N)
Type	Y
UprightMaterial	Y
LinkMaterial	Y
TopMaterial	Y
Length_m	Y
Height_m	Y
UprightNumber	Y

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metre

Barrier Point

General Information: Includes bollards and locking posts (but not guide posts).

Asset Capture: Single Point Feature representing the centre of the asset.

Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Type	Y
UprightMaterial	Y

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metres

Bicycle Fitting

Asset Capture: Simple Point Feature representing the centre of the fitting.

Mandatory Attribution: The following attribution is mandatory for Bicycle Fittings

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y

Element Name	ADAC Mandatory (Y/N)
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Boating & Waterside Facility

General Information: Refers to assets that have an association with boating such as pontoons, ramps and jetties.

Asset Capture: All Waterside and Boating Assets to be captured as a single

Mandatory Attribution: The following attribution is mandatory for Boating and Waterside Facilities:

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Building

General Information: Any built structure used for occupation or storage.

Asset Capture: Area feature to recorded (closed polygon) representing the vertical building footprint for a structure other than a shelter. Refer orange polygon as an example in **Figure 1**.

Mandatory Attribution: The following attribution is mandatory for Buildings:

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y

Positional Accuracy: Horizontal Accuracy of +/- 2 metres

Edging

General Information: Landscape or Activity Area edging.

Asset Capture: Complex linear feature of polylines with straight line segments (read: No curves) representing the edging material.

Spatial Relationship: Edging to be shown as a polyline encompassing an Activity or Landscaping Area feature.

Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Material	Y
Length_m	Y
Width_mm	Y

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metres

Electrical Conduit

General Information: Electrical and Communication Services
Asset Capture: Complex linear feature of polylines with straight line segments (read: No curves) representing a conduit run.
Spatial Relationship: Conduit to be shown as a polyline starting and finishing at coincident points with terminating fittings.
Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y
Diameter_mm	Y
Length_m	Y
Protection	N

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metres

Electrical Fitting

General Information: Includes Lights, Pits, Poles, Power Outlets and Switchboards.
Asset Capture: Simple point feature representing the centre of each asset. Light(s) mounted on a pole are to be recorded in the “Notes” field of the Pole record.
Spatial Relationship: Shown coincident to supply conduit runs where applicable.
Mandatory Attribution: The following attribution is mandatory for Electrical Fittings:

Element Name	ADAC Mandatory (Y/N)
Type	Y
Base	Y
Material	Y
Energy	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Fixtures and Fitting

General Information: Includes Dog Bag Dispensers and Drinking Bowls, Fish Cleaning fixtures, Flag Poles, Goal Posts and other specialised and fittings.
Asset Capture: Simple point feature representing the centre of the asset.

Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metres

Landscape Area

General Information: Gardens and Grassed areas (included Synthetic Grass) are to be included in the As-Constructed ADAC data.

Asset Capture: Area feature (can be multi-part) representing the “footprint” of a landscaped area. Changes between landscaping (grassed area to garden bed) are to be shown as separate polygon.

Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Type	Y
RootBarrier	Y
Irrigated	Y

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metres

Retaining Wall

General Information: Walls used to retain or stabilise earth or other material or act as a barrier. Retaining walls on the roadside or in road reserve areas are to be captured within the Open Space – Retaining wall.

Asset Capture: Complex linear feature of polylines with straight line segments (read: No curves) is used to represent a retaining wall. While it is accepted to be a three dimensional object, the wall is to be captured as a linear course at the point where it intersects the ground. If the wall is of varying height over its length the height is to be recorded as the highest point.

Mandatory Attribution: The following attribution is mandatory for

Element Name	ADAC Mandatory (Y/N)
Use	Y
Material	Y
Construction	Y
Length_m	Y
Height_m	Y

Width_m	N
---------	---

Positional Accuracy: Horizontal Accuracy of +/- 0.5 metre

Seat and Bench

General Information: Seats and Benches located within Open Space areas but not including seating comprising part of a Table feature.

Asset Capture: Simple point feature representing the centre of the seat or park bench configuration.

Mandatory Attribution: The following attribution is mandatory for Seats and Benches.

Element Name	ADAC Mandatory (Y/N)
Seating.SeatType	Y
Seating.Places	Y
Material	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Shelter

General Information: Open space park shelter structure.

Asset Capture: Complex polygon feature representing the footprint of a shelter structure. Significant assets within the Shelter such as lighting, barbeques or park furniture are to be captured as separate objects. Shade sails with multiple shade panels may be captured as asset where the panels share a common mounting point e.g. Centre Pole.

NOTE: The ADAC Schema allows for an identical Point feature capture for Shelters however that is not accepted by TSC.

Mandatory Attribution: The following attribution is mandatory for Shelter structures.

Element Name	ADAC Mandatory (Y/N)
Type	Y
ConstructionType	Y
FloorMaterial	Y
WallMaterial	Y
RoofMaterial	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 2 metres

Sign

General Information: Signs of various types found within Open Space and Parks.

Asset Capture: Simple point feature representing the approximate centre of the sign. Poles need not to be captured/recorded separately.

Mandatory Attribution: The following attribution is mandatory for General Signs

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	N
ModelNumber	N
Structure	Y
SignText	N
Rotation	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Table

General Information: Tables located within Open Space areas

Asset Capture: Simple point feature representing the approximate centre of the table.

Mandatory Attribution: The following attribution is mandatory for Table.

Element Name	ADAC Mandatory (Y/N)
Type	Y
SeatType	Y
Places	Y
Material	Y
Manufacturer	N
ModelNumber	N

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Tree

General Information: Standalone trees and shrubs located in parks and open space, gardens, landscaped areas and streetscapes.

Asset Capture: Simple point feature approximating the centre of the tree.

Mandatory Attribution: The following attribution is mandatory for Trees

Element Name	ADAC Mandatory (Y/N)
Species	Y
Genus	Y
RootBarrier	Y
Grate	Y

Positional Accuracy: Horizontal Accuracy of +/- 1 metre

Waste Collection Point (Rubbish Bin)

General Information: Includes rubbish and recycling bins.
Asset Capture: Simple point features representing the centre of asset.
Mandatory Attribution: The following attribution is mandatory for waste collection points.

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y
Manufacturer	N
ModelNumber	N



Figure 1 - Typical example of Open Space ADAC data capture.

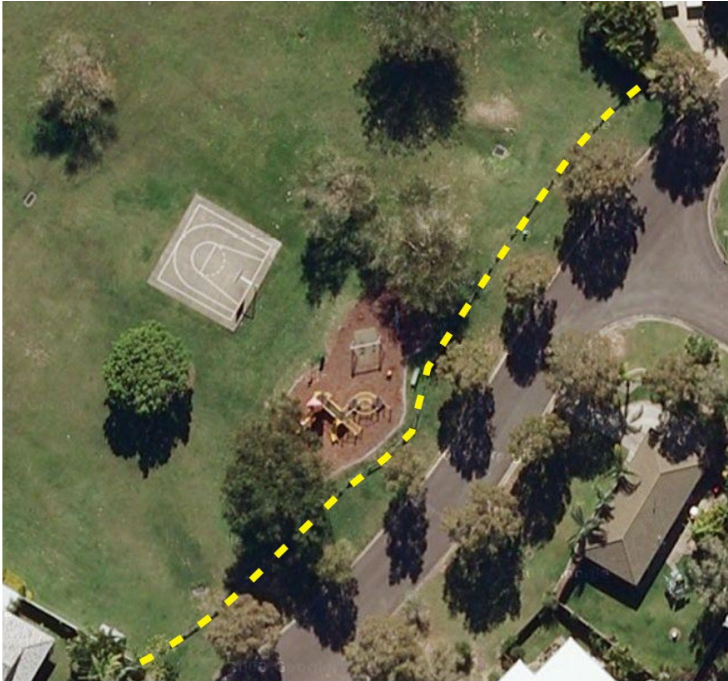


Figure 2 – Typical example of BarrierContinuous ADAC data capture.

Sewerage Assets

Connection

Asset Capture:

Complex linear feature (Polyline not including Curves read: Straight line segments) representing the invert of the pipe asset. Enforced line direction from Inspection Opening to the Non Pressure Pipe/Maintenance Hole due to gravitational flow. Please refer to **Figure 3 below** for examples of a “Jump Up”, “Sloped Branch” and “Stub” Connection.

Spatial Relationship:

Gravity downstream end point of the linear feature must be coincident to anywhere on a Non Pressure pipe linear feature or the point feature of a Maintenance Hole if the asset is a “Stub” connection.

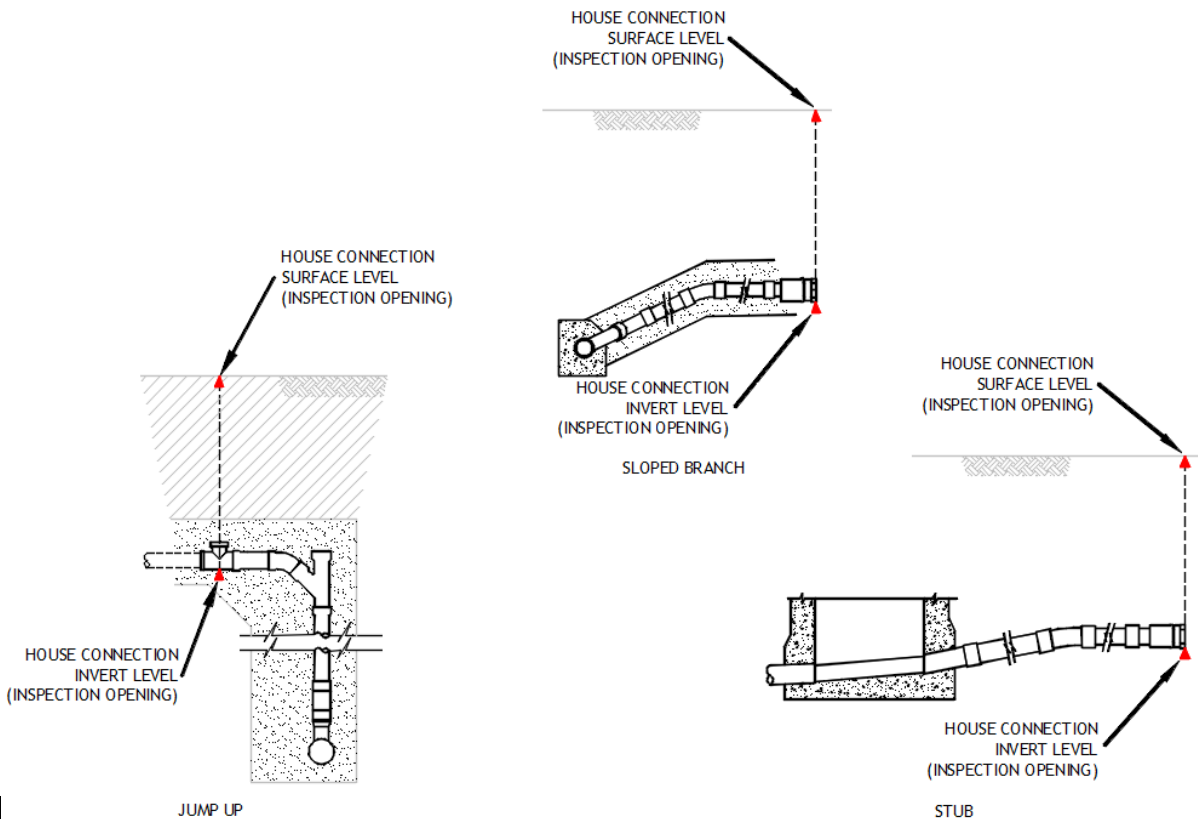


Figure 3

Mandatory Attribution:

The following attribution is applicable to house connections.

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
SurfaceLevel_m	Y	
InvertLevel_m	Y	
Use	Y	

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Diameter_mm	Y	
Material *	Y	
Class *	Y	
Length_m	Y	
Type	Y	
Chainage_m	Y	
Offset_m	Y	
LineNumber	N	
DSMHID	N	
IO_Distance_m	Y	
SO_Nearest_m	Y	
SO_Other_m	Y	
Sediment_Trap	Y	

* Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

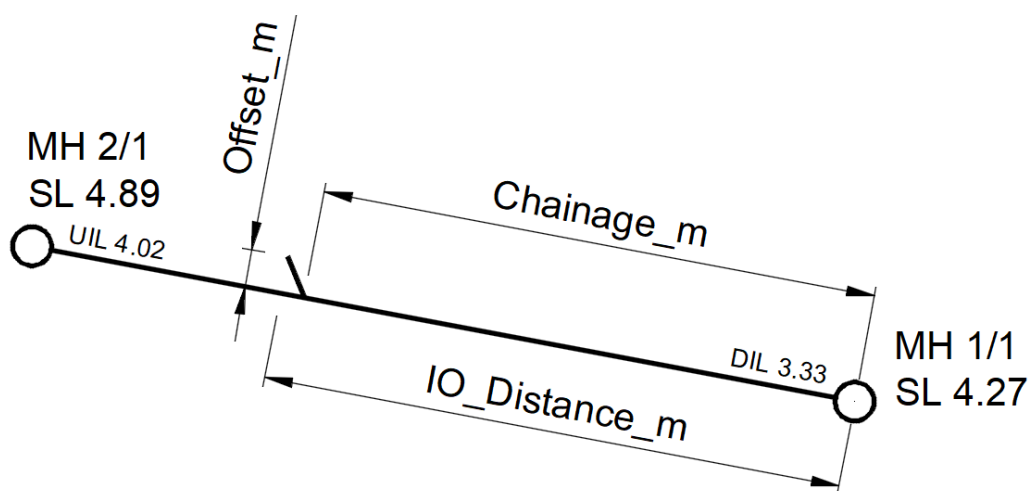


Figure 4 – Highlights dimensional attribution details for House Connections.

Fitting

Asset Capture: Single point feature representing the centre point of the fitting.

Spatial Relationship: Must be coincident to the end of pipe assets or a pipe asset anywhere along its length.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Type	Y	
Material *	Y	
Lining *	N	
Protection *	N	
BodySize_mm	Y	
BranchSize_mm	N	
Rotation	N	

* Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

Maintenance Hole (Including Inspection Openings at End-of-Line)

Asset Capture: Single point feature located at the centre of chamber on the top/lid surface. Note: Capturing centre of lid is appropriate only when the lid is centred over the chamber.

Please Note: Manufacturer and Model Number are to be included in the Notes element WHEN the lid of the maintenance hole is "hinged".

Spatial Relationship: Must be coincident to the end of pipe assets.

Mandatory Attribution: The following attribution is mandatory for Maintenance Holes:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Use	Y	
ChamberSize.Rectangular.Length_mm	Y (if rectangular)	
ChamberSize.Rectangular.Width_mm	Y (if rectangular)	
ChamberSize.Circular.Diameter_mm	Y (if circular)	
ChamberSize.Custom.Area_sqm	Y (if custom)	
SurfaceLevel_m	Y	
InvertLevel_m	Y	
FloorConstruction	Y	

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
FloorMaterial *	Y	
WallConstruction	Y	
WallMaterial *	Y	
RoofMaterial *	Y	
Lining *	N	Y
LidMaterial *	Y	
DropType	Y	
CatchmentPS	N	
LineNumber	N	
MH_Number	Y	
Chainage_m	N	
TieDistance_m	N	
OffsetDistance_m	N	
Rotation	Y	

* Generic Enumerations e.g. “M_1”, “M_2” etc and “Unknown” are not acceptable. “Other” is only acceptable if the enumeration isn’t available in the allowable values with the actual enumeration populated in the Notes element.

Non Pressure Pipe

Asset Capture:

Complex linear feature (read: polylines with no curves only straight line segments) representing the invert of the pipe asset. Enforced line direction from Gravity Upstream (read: higher AHD level) to Gravity Downstream (read: lower AHD level) due to gravitation flow in each individual pipe.

The gravity upstream and downstream ends of an individual pipe are captured at the intersection between the pipe material and the wall of the chamber. Please refer to **Figure 5 below** for a detailed diagram. Points 2 and 3 represent the intersection of pipe material and chamber wall whereas points 1 and 4 represent the Maintenance Holes capture. Pipes to be captured based on their physical and spatial properties and attributes. For example, if a pipe changes size, material or class. Sewer pipes are NOT to be broken at connections.

Spatial Relationship:

Must be coincident to Non Pressure pipe point features in the gravity sewerage network.

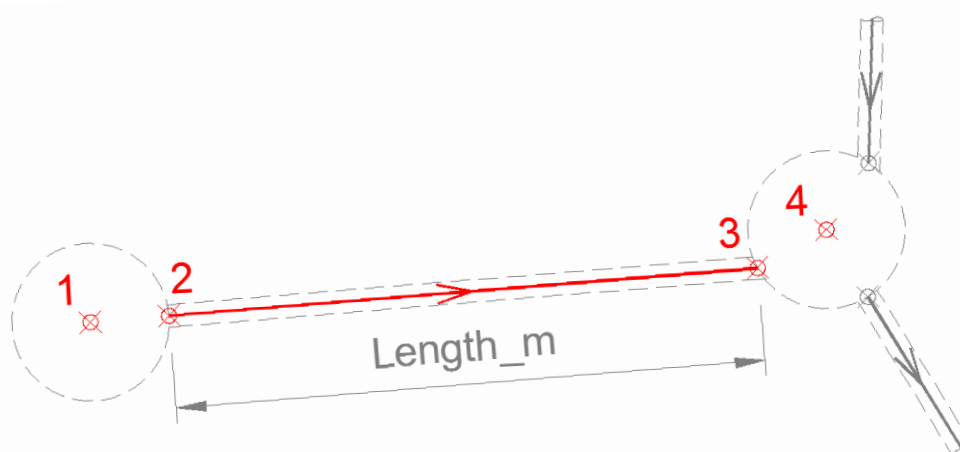
Mandatory Attribution:

The following attribution is mandatory for Non-Pressure Pipes:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
LineNumber	N	
Use	Y	
Diameter_mm	Y	
Material *	Y	
Class *	Y	
Lining *	N	Y
Protection *	Y	
JointType *	Y	
US_InvertLevel_m	Y	
DS_InvertLevel_m	Y	
US_SurfaceLevel_m	Y	
DS_SurfaceLevel_m	Y	
Alignment_m	N	
Depth_m	Y	
Embedment *	Y	
RockExcavated	N	Y
PipeGrade	N	
Length_m	N	Y

*Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

Figure 1



Pressure Pipe

Asset Capture: Complex linear feature (read: polylines with no curves only straight line segments) representing the invert of the pipe asset. Enforced line direction from Pump active asset to Discharge Maintenance Hole due to pumped flow. Pipes to be captured based on their physical and spatial properties and attributes. For example, if a pipe changes size, material or class then it must be broken and captured separately.

Spatial Relationship: Must be coincident to Pressure pipe point features in the pumped sewerage network.

Mandatory Attribution: The following attribution is mandatory for Pressure Pipes:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Use	Y	
Diameter_mm	Y	
Material *	Y	
Class *	Y	
Lining *	N	Y
Protection *	N	Y
JointType *	Y	
Alignment_m	N	
Depth_m	N	Y
Embedment *	N	Y
RockExcavated	N	Y
Length_m	N	Y

* Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

Valve

Asset Capture: Single point feature representing the centre of a valve body, typically the spindle.

Asset Capture: The relationship between Use and Type is as per the below table.

ADAC.Use	ADAC.Type
Non-Return	Generic Rubber Gate Swing Check
Service Stop Scour * Diversion Zone Boundary Flow Control	Gate Butterfly Knife Gate Eccentric Plug Globe Ball Generic Penstock
Pressure Control	Overflow Pressure Release Vacuum Release *
Gas Release *	Air Valve
Other	Special

* Scour, Vacuum Release and Gas Release valves require Surface Level (in metres) and Invert Level (in metres) to be recorded in the Notes element.

Spatial Relationship: Must be coincident anywhere along its length or at the end of Pressure Pipe assets.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Use	Y	
Type	Y	
Diameter_mm	Y	
Lining *	N	
Protection *	N	
Manufacturer	N	
ModelNumber	N	
Rotation	N	

* Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

Break Points for Linear Sewerage Assets - Sewerage Pipes

The following details identify where “breaks” are to be made and pipe lengths to be recorded as individual records during ADAC XML file creation.

Sewer Pipe lengths are to be broken or terminated under the following circumstances:

- Changes in Pipe Size;
- Changes in Pipe Material;
- Changes in Pipe Class;

And at the following fittings, devices and structures:

- Sewer Maintenance Holes (all features)
- Fittings (all features except Bends on Pressure Pipes)
- Valves (all features)

Stormwater/Drainage

Pit (Field Inlets and Gully Pits and Maintenance Holes)

Asset Capture:

To be captured and represented as a “point” located at the centre of chamber (see Figure 10 noted in Transport section below with point location in centre of chamber).
Note: Double-Grated pits to be captured as two separate pits with “Double Pit” populating the Notes element. Half Length of the common Lintel recorded against each of the two pits.

Refer to the below matrix for common pit types & the attribution required.

Buried Junction/Pit with no access	Use	Pit
	Lid Type?	No
	Inlet?	No
	Lintel?	No
Maintenance Hole	Use	Maintenance Hole Roofwater Inspection Chamber Roofwater Outlet
	Lid Type?	Yes
	Inlet?	No
	Lintel?	No
Gully Pits	Use	Kerb Inlet
	Lid Type?	No
	Inlet?	Yes
	Lintel?	Yes
Field Inlets	Use	Field Inlet
	Lid Type?	No
	Inlet?	Yes
	Lintel?	No

Please note: the Dimensions of Rectangular, Circular or Extended relate to the Chamber size with the Inlet.InletSize populated with the size of the grate when applicable. Also Lid Type relates to Maintenance Hole features only.

Maintenance Hole lid size in millimetres is to be populated in the Notes element.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
PitNumber	Y	
Use	Y	
ChamberConstruction	Y	
ChamberSize.Rectangular.Length_mm	Y (if rectangular)	
ChamberSize.Rectangular.Width_mm	Y (if rectangular)	
ChamberSize.Circular.Diameter_mm	Y (if circular)	
ChamberSize.Extended.Radius_mm	Y (if extended)	
ChamberSize.Extended.Extension_mm	Y (if extended)	
LidType	N	Y*
SurfaceLevel_m	Y	
InvertLevel_m	Y	
Depth_m	Y	
Inlet.InletConfig	Y (if Use = Pit)	
Inlet.InletType	Y (if Use = Pit)	
Inlet.InletSize	Y (if Use = Pit)	
Lintel.LintelConstruction	Y (if Use = Pit and InletType = Gully type)	
Lintel.LintelLength_m	Y (if Use = Pit and InletType = Gully type)	
OutletType	Y	
FireRetardant	Y	
Rotation	N	

* Lid Type is only applicable to Maintenance Holes.

End structure (headwalls and end-walls)

Asset Capture:

To be represented as a “point feature” at the outlet of the pipe/culvert as per the example shown by the green cross in **Figure 6 below**. Point to be located at top of the structure above the invert of the associated pipe/s and midway on the headwall.

NOTE: The ADAC Schema allows for an identical Polyline feature capture for End Structures however that is not accepted by TSC.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
StructureID	Y	
StructureLevel_m	Y	
EndWall.Type	Y	
EndWall.Size	Y (if Endwall exists)	
EndWall.Length_m	Y (if Endwall exists)	
EndWall.Thickness_m	Y (if Endwall exists)	
EndWall.Material	Y (if Endwall exists)	
EndWall.Construction	Y (if Endwall exists)	
WingWall.LWW_Length_m	N	
WingWall.LWW_Height_m	N	
WingWall.LWW_Thickness_m	N	
WingWall.LWW_Material	N	
WingWall.LWW_Construction	N	
WingWall.RWW_Length_m	N	
WingWall.RWW_Height_m	N	
WingWall.RWW_Thickness_m	N	
WingWall.RWW_Material	N	
WingWall.RWW_Construction	N	
Apron.Apron_Width_m	N	
Apron.Apron_Thickness_m	N	
Apron.Apron_Area_m2	N	
Apron.Apron_Material	N	
Apron.Apron_Construction	N	
GrateType	N	
TideGate	N	Y



Figure 6

Flow Management Device (WSUD Polyline)

Not required to be captured in ADAC format.

Pipe

Asset Capture: To be represented as a single line feature. The Network is to be represented as a Disconnected Network from Chamber wall to Chamber wall with a Length value of Pipe Material Length as per **Figure 7 below** and as per the red solid lines in **Figure 6 above**. Line direction should be enforced from gravity flow/direction.

Please Note: Multi-cell culverts/pipes captured via individual ADAC survey and object records for individual pipes or culverts as per the red solid lines in Figure 6 above.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
US_InvertLevel_m	Y	
DS_InvertLevel_m	Y	
US_SurfaceLevel_m	Y	
DS_SurfaceLevel_m	Y	
PipeStructure.CircPipe.Diameter_mm	Y (if circular)	
PipeStructure.CircPipe.Material	Y (if circular)	
PipeStructure.CircPipe.Class	Y (if circular)	
PipeStructure.CircPipe.JointType	Y (if circular)	
PipeStructure.BoxPipe.Height_mm	Y (if box)	
PipeStructure.BoxPipe.Width_mm	Y (if box)	
PipeStructure.BoxPipe.Material	Y (if box)	
PipeStructure.BoxPipe.Class	Y (if box)	
Cells	Y	
ConcreteCoverType	Y	
Grade	N	
Length_m	N	Y

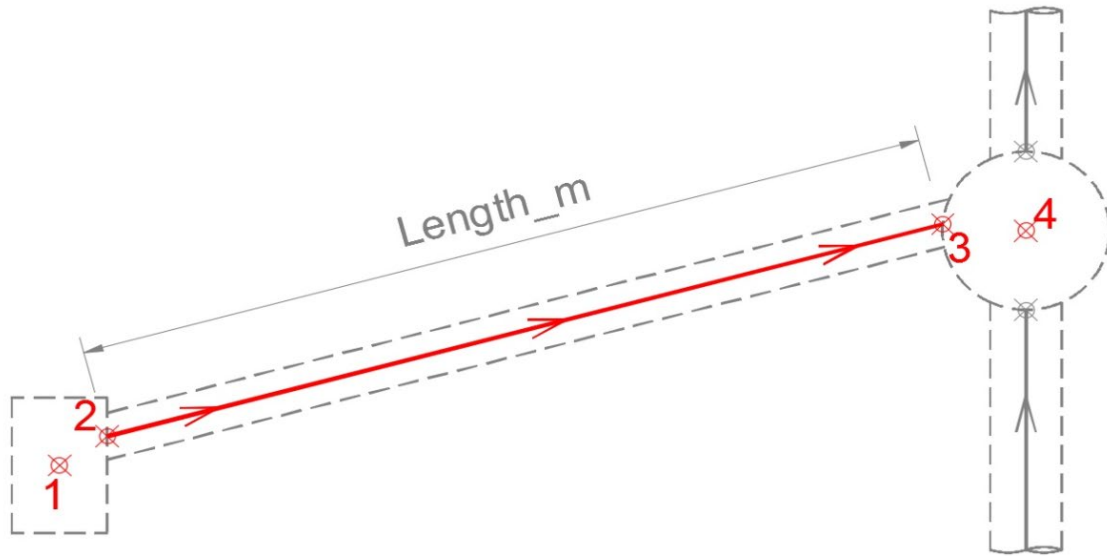


Figure 7

Surface Drain

Asset Capture:

To be captured as a Simple linear feature (read: polylines with no curves) representing the midpoint between batters and in direction of water flow. If the surface changes size, material or shape then it needs to be broken and captured separately.

Mandatory Attribution:

Where LiningMaterial = "Earth" or "Natural Channel" then LinedWidth_m must represent the width of the bottom of channel. Upstream and Downstream Depths in metres to be recorded in the Notes element.

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Type	Y	
DrainShape	Y	
LiningMaterial	Y	
LinedWidth_m	Y	
BatterMaterial	N	
BatterWidth_m	N	Y
US_InvertLevel_m	Y	
DS_InvertLevel_m	Y	
AverageGrade	N	
Length_m	N	

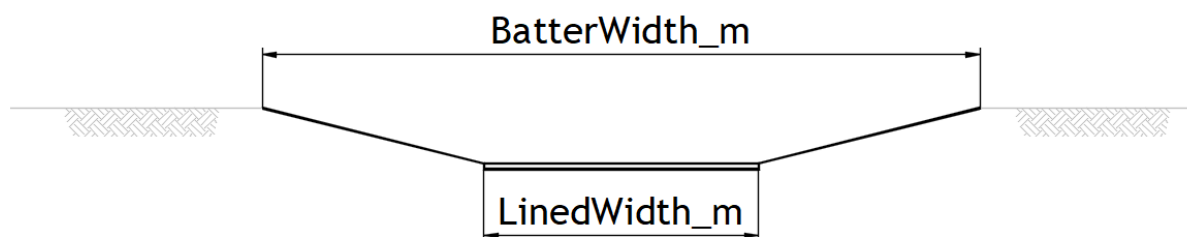


Figure 8

Stormwater Quality Improvement Device (SQID)

General Information: Assets such as Gross Pollutant Traps (GPTs) fall into and are captured in three primary categories:

- GPT Complex such as Commercial or Custom built device (e.g. Humes Interceptor)
- GPT Simple such as an “in pit” basket or “end of line” device and must align with a Stormwater Pit feature
- GPT Non-Simple which represent basic and minor sand filtration storage

Note: All GPT devices are recognised as a point features and described accordingly within ADAC data capture fields.

Asset Capture: Point feature is to represent the centre of chamber. Point features must be coincident to pipe features as per Pits/Maintenance Holes.

Mandatory Attribution:

GPTComplex

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Sqid_Id	N	Y
Construction.Commerical.Manufacturer	N	Y
Construction.Commerical.ModelNumber	N	Y
Construction.Commerical.Size.Rectangular.Length_m	Y (if commercial and rectangular)	
Construction.Commerical.Size.Rectangular.Width_mm	Y (if commercial)	

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
	<i>and rectangular</i>	
Construction.Commerical.Size.Circular.Diameter_mm	Y (if commercial and circular)	
Construction.Custom.Size.Rectangular.Length_mm	Y (if custom and rectangular)	
Construction.Custom.Size.Rectangular.Width_mm	Y (if custom and rectangular)	
Construction.Custom.Size.Circular.Diameter_mm	Y (if custom and circular)	
Function1	Y	
Function2	N	
Function3	N	
US_PipeDiameter_mm	N	
DS_PipeDiameter_mm	N	
SurfaceLevel_m	Y	
US_InvertLevel_m	Y	
DS_InvertLevel_m	Y	
CleanoutLevel_m	Y	
Depth_m	N	Y
SumpDepth_m	N	
HasFilterMedia	N	
HasBasket	N	Y
HasBoards	N	
DesignFlow_m3s	Y	
MaxContaminantVolume_m3	N	Y
MaxInternalVolume_m3	N	
MaintenanceCycle_mnths	N	
Rotation	N	

GPTSimple

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Sqid_Id	N	Y
Construction	Y	
Manufacturer	N	
ModelNumber	N	
TreatmentMeasure	Y	
Function1	Y	
Length_mm	Y	
Width_mm	N	Y
Material	N	
MaintenanceCycle_mnths	N	
Rotation	N	

NonGPTSimple

Not required to be captured in ADAC format.

Water Sensitive Urban Design (WSUD Areas)

General Information: Typically assets such as kerbside bio-filtration beds or purpose built drainage swales should be captured individually as a closed polyline representing the ponding area of the asset. Individual areas are to be recorded within the ADAC data capture fields defining Treatment Measure within the ADAC data capture fields (e.g swale, buffer strip, bio-retention basin).

Asset Capture: Polygon feature is to represent the outline of the permanent pond level.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Sqid_Id	N	Y
TreatmentMeasure	Y	
Function1	Y	
Function2	N	
Function3	N	
PondingArea_m2	N	Y
PondingDepth_m	N	Y
FilterArea_m2	N	Y

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
FilterDepth_m	N	Y
TransitionDepth_m	N	
DrainageDepth_m	N	
MacrophyteZoneArea_m2	N	Y
MacrophyteZoneDepth_m	N	
CoarseSedimentArea_m2	N	Y
SedimentVolume_m3	N	
MinSurfaceLevel_m	N	
PermanentPondLevel_m	N	Y
OutletLevel_m	N	Y
DesignFlow_m3s	N	Y
HasSpillway	Y	
MaintenanceCycle_mnth	N	

Break Points for Linear Stormwater Assets - Stormwater Pipes

The following details identify where “breaks” are to be made and pipe lengths to be recorded as individual records during ADAC XML file creation.

Stormwater Pipe lengths are to be broken or terminated under the following circumstances:

- Changes in Pipe Size;
- Changes in Pipe Material;
- Changes in Pipe Class;

And at the following fittings, devices and structures:

- Stormwater Maintenance Holes (all features)
- Pits (all features)
- Fittings (all features)
- End Structures (all features)

Supplementary

PointFeature / PolylineFeature / PolygonFeature

Asset Capture: Simple Point, Complex Polyline or Multi-patch Area feature (depending on the feature type) representing objects or assets that add clarity or context to the strict ADAC features.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Class	Y
Note	N
Attribute()TextValue	N
Attribute()IntegerValue	N
Attribute()DecimalValue	N
Attribute()DateValue	N
Attribute()TimeValue	N
Attribute()DateTimeValue	N

Surface

Breakline

Not required to be captured in ADAC format.

Contour

Not required to be captured in ADAC format.

Spot Height

Not required to be captured in ADAC format.

Profile Line

Not required to be captured in ADAC format.

Transport Assets

Bridge

Asset Capture: Not required to be captured in ADAC format.

Bridge Abutment

Asset Capture: Not required to be captured in ADAC format.

(Bridge) Containment Class

Asset Capture: Not required to be captured in ADAC format.

Bridge Deck

Asset Capture: Not required to be captured in ADAC format.

Bridge Extent

Asset Capture: Not required to be captured in ADAC format.

Bridge Pier

Asset Capture: Not required to be captured in ADAC format.

Bridge Superstructure

Asset Capture: Not required to be captured in ADAC format.

Bus Shelter

Asset Capture: Polygon feature captured in the Supplementary Asset Class noted above. Features are to represent the footprint of an individual Bus Shelter. **The Class attribute must be populated with "Bus Shelter".**

Spatial Relationship: Not Applicable

Flush Point

Asset Capture:

Note: This asset is not required to be captured in ADAC format.

Parking

Asset Capture:

Polygon capturing the area of a parking pavement.

Spatial Relationship:

May adjoin/share road pavement boundary

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Name	Y	
NoOfCarparks	N	Y
OnOffStreet	Y	
Surface.SurfaceType	Y (if surface exists)	
Surface.SurfaceThickness	Y (if surface exists)	
Surface.SurfaceArea_sqm	N	Y
PavementStructure.PavementType	Y	
PavementStructure.BaseLayer.LayerType	Y (if Base exists)	
PavementStructure.BaseLayer.LayerDepth_mm	Y (if Base exists)	
PavementStructure.BaseLayer.Stabilisation	Y (if Base exists)	
PavementStructure.SubBaseLayer.LayerType	Y (if SubBase exists)	
PavementStructure.SubBaseLayer.LayerDepth_mm	Y (if SubBase exists)	
PavementStructure.SubBaseLayer.Stabilisation	Y (if SubBase exists)	
PavementStructure.LowerSubBaseLayer.LayerType	Y (if LowerSubBase exists)	
PavementStructure.LowerSubBaseLayer.LayerDepth_mm	Y (if LowerSubBase exists)	
PavementStructure.LowerSubBaseLayer.Stabilisation	Y (if LowerSubBase exists)	
PavementGeoTextile	N	
SubGrade.CBR	Y	
SubGrade.Stabilisation *	N	

* Sub Grade Stabilisation is to be populated if it exists.

Pathway

General Information: Pathways fall into and are captured in three primary categories:

- Pathway – Represents an on-ground footpath or cycleway feature;
- RoadPathway – Represents a linear section of on-road cycleway; or
- PathStructure – Represents a structure functioning as a linear section of footpath or cycleway.

Asset Capture: To be captured as a Complex linear feature representing the centre longitudinal axis of a pathway. Any “curves” in paths to be captured as multiple straight line segments. Please refer to the solid red and yellow lines in **Figure 9 below**. The solid yellow line represents an existing pathway asset whereas the solid red denotes a newly constructed section of Pathway. Routinely a portion of the old/existing asset(s) is captured to provide continuity and context when merging with current Council data.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y
Width_m	Y
Depth_mm	Y

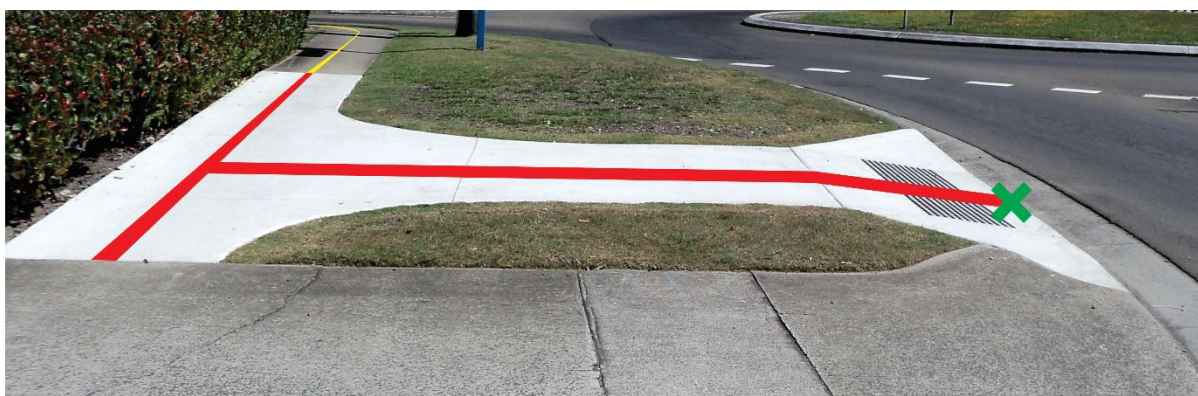


Figure 9

Path Structure

Asset Capture: Complex Polyline feature comprising of straight line segments (read: no curves) representing the centreline of a footpath or off-road cycleway.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y
SubStructureMaterial	Y
Width_m	Y

Road Pathway (On Road Cycleway)

Asset Capture: Complex Polyline feature comprising of straight line segments (read: no curves) representing the centreline of an on-road cycleway.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Structure	Y
SurfaceMaterial	Y
Width_m	Y

Pavement

Asset Capture: To be captured from “Nominal kerb lip to Nominal kerb lip” as a closed polyline. Note: Separate polygons will be required at changes in pavement and/or surfacing.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Name	Y	
Surface.SurfaceType	Y (if surface exists)	
Surface.SurfaceThickness_mm	N	Y
Surface.SurfaceNomWidth_m	Y (if surface exists)	
PavementStructure.PavementType	Y	
PavementStructure.BaseLayer.LayerType	Y (if Base exists)	
PavementStructure.BaseLayer.LayerDepth_mm	Y (if Base exists)	
PavementStructure.BaseLayer.Stabilisation	Y (if Base exists)	

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
PavementStructure.SubBaseLayer.LayerType	Y (if SubBase exists)	
PavementStructure.SubBaseLayer.LayerDepth_mm	Y (if SubBase exists)	
PavementStructure.SubBaseLayer.Stabilisation	Y (if SubBase exists)	
PavementStructure.LowerSubBaseLayer.LayerType	Y (if LowerSubBase exists)	
PavementStructure.LowerSubBaseLayer.LayerDepth_mm	Y (if LowerSubBase exists)	
PavementStructure.LowerSubBaseLayer.Stabilisation	Y (if LowerSubBase exists)	
PavementGeoTextile	N	
SubGrade.CBR	Y	
SubGrade.Stabilisation *	N	

* Sub Grade Stabilisation is to be populated if it exists.

Pram Ramp

Asset Capture: To be captured as a point feature as per the green cross in **Figure 9** above.

NOTE: The ADAC Schema allows for an identical Polygon feature capture for Pram Ramps however that is not accepted by TSC.

Spatial Relationship: Must be coincident with Pathway features.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Rotation	N

Road Edge

Asset Capture: To be captured using the **Nominal Kerb Lip** (where kerb lip line meets road surface) for Kerb and Channel finished roads as shown below in **Figure 10**. Alternatively, to be capture as **Face of Kerb** where no Channel is present as shown in **Figure 11** below.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Type	Y
Material	Y
Width_mm	Y
Length_m	N
PavementExtension_mm	Y



Figure 10

Road Island

Asset Capture:

To be captured as closed polyline (read: polygon) from lip/face of kerb. Individual sub-sections of traffic islands to be identified by different material types (i.e. paving, concrete, landscaped) as per the intersecting line between concrete and landscaped island subsections shown in **Figure 11 below**.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Y?)
Type	Y	
Area_sqm	N	Y
InfillType	Y	



Figure 11

Road Safety Barrier

Asset Capture:

Complex Polyline feature comprising of straight line segments (read: no curves) representing a guard rail or transport safety barrier as per the red solid line in **Figure 12** below.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Type	Y	
LeadingEndTreatment	Y	
TrailingEndTreatment	Y	
StandardHeight	N	
Height_m	N	Y
Length_m	Y	
MotorcyclistProtectionType	Y	
PedestrianProtectionSheeting	Y	
BridgeTransition	Y	
StandardPostSpacing	N	
PostSpacing_m	N	
PostType	N	
RailType	Y	

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
HorizontalAlignment	N	
NumberOfBollards	N	Y

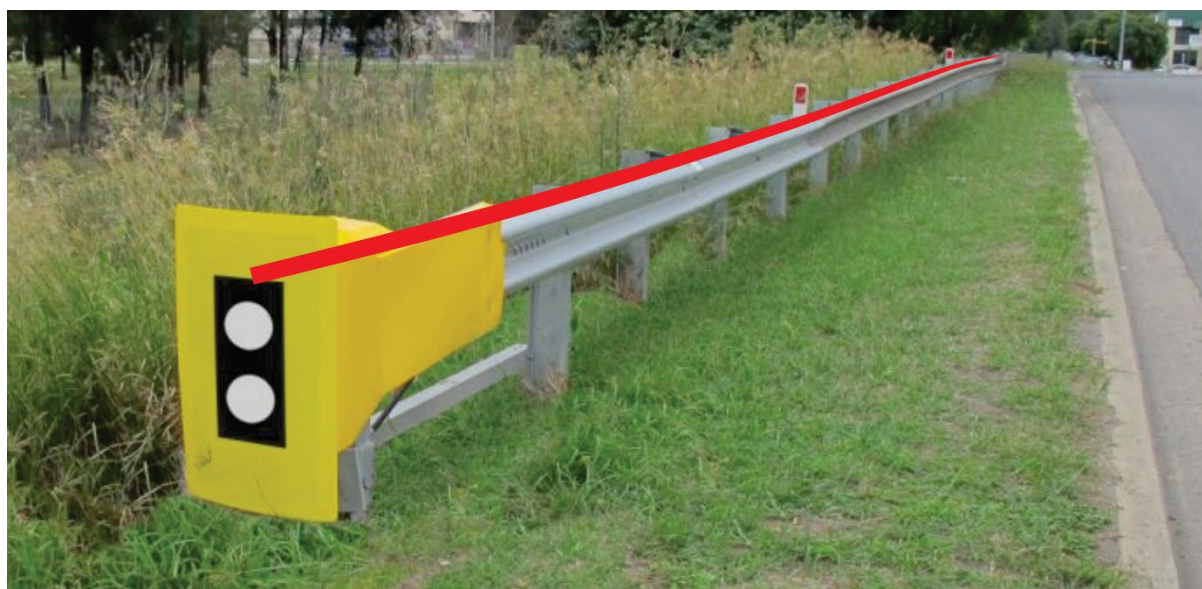


Figure 12

Sign – Traffic & Street

General Information: Signs of various types found within Road Reserves. Street and Traffic Signs are required to be captured. Simple point feature representing the approximate centre of the sign. Poles need not to be captured/recorded separately.

Asset Capture:

Mandatory Attribution: The following attribution is mandatory for road signs

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Type	Y	
Material	Y	
Manufacturer	N	
ModelNumber	N	
Structure	Y	
SignText	N	Y
Rotation	N	

Subsoil Drain

Not required to be captured in ADAC format.

Water Supply Assets

Fitting

Asset Capture: Single point feature representing the centre point of the fitting. Please refer to the yellow circles in **Figure 13 (below)** for representations of a “Tee” and “Tapping Band”.

Spatial Relationship: Must be coincident to a pipe asset in the water reticulation network.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Type	Y	
Material *	Y	
Lining *	N	Y
Protection *	N	Y
BodySize_mm	Y	
BranchSize_mm	N	
Rotation	N	
WaterQuality	Y	

* Generic Enumerations e.g. “M_1”, “M_2” etc and “Unknown” are not acceptable. “Other” is only acceptable if the enumeration isn’t available in the allowable values with the actual enumeration populated in the Notes element.

Hydrant

Asset Capture: Single point feature representing the centre of the vertical hydrant branch. Note: Hydrant Diameter refers to the riser pipe diameter in millimetres not the connecting reticulation pipe size.

Spatial Relationship: Must be coincident to a pipe asset.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Diameter_mm	Y
Rotation	N
WaterQuality	Y

Maintenance Hole

Asset Capture: Single point feature located on the centre of the chamber.

Spatial Relationship: No connectivity is enforced due to the size and shape of the object.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
ChamberSize.Rectangular.Length_mm	Y (if rectangular)
ChamberSize.Rectangular.Width_mm	Y (if rectangular)
ChamberSize.Circular.Diameter_mm	Y (if circular)
SurfaceLevel_m	Y
InvertLevel_m	Y
FloorConstruction	Y
FloorMaterial *	Y
WallConstruction	Y
WallMaterial *	Y
RoofMaterial *	Y
LidMaterial *	Y
Rotation	N

* Generic Enumerations e.g. “M_1”, “M_2” etc and “Unknown” are not acceptable. “Other” is only acceptable if the enumeration isn’t available in the allowable values with the actual enumeration populated in the Notes element.

Meter

Asset Capture:

Single point feature located at the centre point of the domestic meter itself.
 Please note: The definition for the OffsetSide element is “the offset from the left or the right side boundary when looking from the road.”
 Note: In-line Flow Meters are also to be captured in the schema here. The survey point capture for Flow Meters is to be “3D” with the “Z” geometry being the pipe invert level. Surface Level above the flow meter is recorded in the notes element.

Spatial Relationship:

Must be coincident to a water service pipe or water pipe with a Use of “Fire Service”, “Service” or “Fire Service Thru Meter”.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
SerialNumber	Y
Type	Y
Diameter_mm	Y
Dials	N
Manufacturer	N

Element Name	ADAC Mandatory (Y/N)
ModelNumber	N
InitialReading	N
PrivateBooster	Y
OffsetSide	Y
Offset_m	Y
InstallationDate	Y
LotNo	Y
PlanNo	Y
Rotation	N
WaterQuality	Y

Pipe

Asset Capture:

Simple Linear feature (i.e. straight lines) representing the Invert of a circular pipe asset. Pipe segments are to be captured based on the pipe attributes. If any physical element of a pipe changes (e.g. size, material, class etc.) then the pipe asset must be broken and captured separately. Please refer to the red and green polylines in **Figure 13 below**. The red lines represent reticulation pipes whereas the green line represents a service pipe. Pipes are not to be broken at WaterServices.

Note: Service pipes less than and equal to 63mm in diameter are to be captured as WaterService, not Pipe.

Spatial Relationship:

Pipes must be coincident to water valves and fittings that participate in a flow network.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Use	Y	
WaterQuality	Y	
Alignment_m	N	
Diameter_mm	Y	
Material *	Y	
Class *	N	Y
Lining *	N	Y
Protection *	N	Y
JointType *	N	Y
Depth_m	N	Y
Embedment *	N	Y
Length_m	N	Y

* Generic Enumerations e.g. "M_1", "M_2" etc and "Unknown" are not acceptable. "Other" is only acceptable if the enumeration isn't available in the allowable values with the actual enumeration populated in the Notes element.

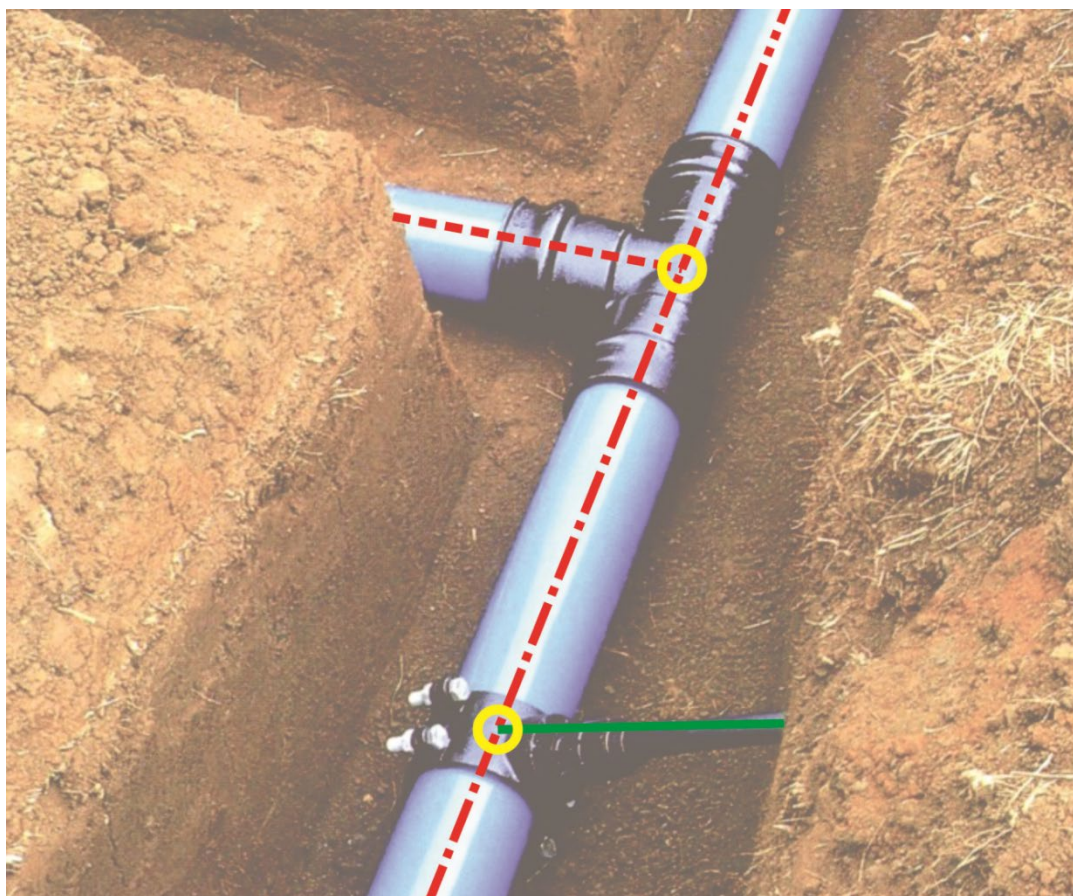


Figure 13

Service Fitting

Not required to be captured in ADAC format.

Storage Tank

Not required to be captured in ADAC format.

Valve

Asset Capture:

Single point feature representing the centre of a valve body, typically the spindle.

NOTE: All Valves denoted in the table below are to be captured as "3D" points with the "Z" geometry being the pipe invert level.

NOTE: Pressure Relief and Pressure Sustaining Valves are to have the “up” and “downstream” pipe invert levels [i.e pipes entering and exiting the associated pit housing the valve(s)] recorded in the notes element.

Data Capture:

The relationship between Use and Type is as per the following table.

ADAC.Use	ADAC.Type
Non-Return	Generic NR Rubber Gate Swing Check Wafer RPZ
Service Stop Scour Diversion Zone Boundary Flow Control	Gate Butterfly Knife Gate Eccentric Plug Globe Ball Valve Vee Ported Ball Control
Pressure Control	Overflow Pressure Relief Pressure Sustaining Altitude Valve Vacuum Release
Gas Release	Air Valve
Other	Special

Spatial Relationship: Must be coincident to a Water Pipe asset.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)
Use	Y
Type	Y
Diameter_mm	Y
Manufacturer	N
ModelNumber	N
Rotation	N
WaterQuality	Y

Water Service

Asset Capture:

Simple Linear feature (i.e. straight lines) representing the invert of a circular pipe asset as per the solid green line in **Figure 13 above**. Only Service pipes less than and equal to 63mm are to be captured here. Larger sized Service

pipes are to be captured in Water pipe with a Use of “Service”.

Spatial Relationship: Water Services must be coincident to a water pipe, valve or fitting that participate in a flow network.

Mandatory Attribution:

Element Name	ADAC Mandatory (Y/N)	TSC Mandatory (Yes?)
Diameter_mm	Y	
Material	Y	
Class	N	Y
Protection	N	Y
Termination	N	Y
WaterQuality	Y	
Length_m	N	Y

Break Points for Linear Water Assets - Water Pipes

Water Pipe lengths are to be broken or terminated where there are:

- Changes in Pipe Size;
- Changes in Pipe Material;
- Changes in Pipe Class;
- At all Valves and Hydrants;
- At the following fittings:
 - Dead Plates, Dead Ends (all Types);
 - Connectors, Cross Connections, Connector Thrusts;
 - Dismantling Joints, Gibaults, Tapers;
 - Wyes, Tees; and
 - Booster Pumps

Appendix A - PHOTO REQUIREMENTS

Definitions:

Mandatory: A photograph of the asset must be supplied as part of asset handover.

Desirable: If a photograph was taken of the asset during construction, then it should be included as part of asset handover, however there is no requirement to take a photo specifically for the purposes of asset handover.

Not Required: There is no requirement to take photographs of assets as part of asset handover.

Requirements Matrix

Element	Feature	Photo Requirement
Cadastral	Cadastral Connection	Not Required
	Chainage Line	Not Required
	Lot Parcel	Not Required
	Road Reserve	Not Required
	Survey Mark	Not Required
	Water Course Reserve	Not Required
Open Space Assets	Open Space Functional Area	Not Required
	Activity Area	Not Required
	Activity Point	Not Required
	Artwork	Mandatory
	Barbeque	Not Required
	Barrier Continuous	Mandatory
	Barrier Point	Not Required
	Bicycle Fitting	Not Required
	Boating & Waterside Facility	Not Required
	Building	Not Required
	Edging	Not Required
	Electrical Conduit	Not Required
	Electrical Fitting	Not Required
	Fixtures and Fittings	Not Required
	Landscape Area	Not Required
	Open Space Area	Not Required
	Retaining Wall	Mandatory
	Seat & Bench	Mandatory
	Shelter	Mandatory
	Sign	Mandatory
Table	Not Required	
Tree	Not Required	

	Waste Collection Point	Not Required
Sewerage Assets	Connection	Not Required
	Fitting	Not Required
	Maintenance Hole	Not Required
	Non-Pressure Pipe	Not Required
	Pressure Pipe	Not Required
	Valve	Not Required
	Break Points for Linear Assets	Not Required
Stormwater/Drainage	Pit	Mandatory
	End Structure	Mandatory
	Flow Management Device	Not Required
	Pipe	Not Required
	Surface Drain	Desirable
	Stormwater Quality Improvement Device SQID	Mandatory
	Water Sensitive Urban Design SQID	Desirable
Transport	Bus Shelter	Mandatory
	Parking	Mandatory
	Pathway	Desirable
	Pavement	Not Required
	Pram Ramp	Desirable
	Road Edge	Not Required
	Road Island	Not Required
	Road Safety Barrier	Desirable
	Sub Soil Drain	Not Required
	Sign	Mandatory
Water Supply	Fitting	Not Required
	Hydrant	Not Required
	Maintenance Hole	Mandatory
	Meter	Not Required
	Pipe	Not Required
	Service Fitting	Not Required
	Storage Tank	Not Required
	Valve	Not Required
	Water Service	Not Required



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