NOOSA Council

GUIDELINES FOR CREATION AND SUBMISSION OF ADAC XML FILES

ADAC XML Files to be included as an accompaniment to the "As-Constructed" bundle submitted to Council

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Version 2.1 (20th March 2024)

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VERSION NO	DISTRIBUTION	DATE	COMMENTS
1.0	INTERNAL NOOSA COUNCIL STAKEHOLDERS	17/05/2017	DRAFT FOR REVIEW
1.1	EXTERNAL USE	08/06/2017	FINAL
2.0	INTERNAL NOOSA COUNCIL STAKEHOLDERS	08/06/2023	DRAFT FOR REVIEW

1 GLOSSARY

The following terms are used within this document.

Term/Acronym	Definition
ADAC	"Asset Design As Constructed" - The ADAC product is developed and maintained by a consortium of Local Councils and Water Utilities across Australia in conjunction with Institute of Public Works Engineering Australia - Queensland Branch (IPWEAQ). ADAC is used to facilitate the collection and lodgement of detailed information on civil infrastructure and associated assets that are either provided by the private development sector created in conjunction with other major project or upgrade works.
AHD	The Australian Height Datum (1971) is the NGRS normal–orthometric height datum for mainland Australia. The datum sets mean sea level as "zero" elevation. Mean sea level was determined from observations recorded by 30 tide gauges around the coast of the Australian continent for the period 1966 - 1968. Refer to Geoscience Australia website for more information.
As-Constructed	Compiled information clearly indicating 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.
GDA2020	Geocentric Datum of Australia 2020. Realised by the derived coordinates of the Australian Fiducial Network (AFN) geodetic stations, referenced to the GRS80 ellipsoid and determined with respect to ITRF2014 at epoch 2020.0.
GDA94	Geocentric Datum of Australia 1994. Realised by the derived coordinates of the Australian Fiducial Network (AFN) geodetic stations, referenced to the GRS80 ellipsoid and determined with respect to ITRF92 at epoch 1994.0.
MGA2020	Map Grid of Australia 2020. Universal Transverse Mercator projection of the Geocentric Datum of Australia 2020.

MGA94	Map Grid of Australia 1994. Universal Transverse Mercator projection of the Geocentric Datum of Australia 1994.
NSC	Acronym for the *Noosa Shire Council*

2 PURPOSE

The purpose of this document is to provide guidelines and general assistance with creation and provision of compliant ADAC XML files for Transport, Stormwater and Open Space/ Parks assets. ADAC XML files are required to accompany the usual bundle of "As-Constructed" plans, drawings, schedules and associated information reflecting new civil infrastructure and associated assets.

On completion of physical works and prior to asset handover, "As-Constructed" (also known as "As-Built") information is used to indicate any variations in locations and/or alignments (survey) and other approved changes in assets or construction methods that may have been carried out during operational works as compared to the original approved design. "As-Constructed" drawings are created that accurately reflect these changes, including material types, specifications and other asset-specific information. The digital ADAC XML file is created from this updated "As-Constructed" Plan information.

Please Note: Advice on the overall preparation and presentation of "As-Constructed" drawings and plans, including drawing file formats, styles and necessary content can be found at:

- Noosa Council website page titled "As Constructed Guidelines"; and
- Noosa Council Planning Scheme - Policy 5 (PSP05 Section 6).

3 INTRODUCTION TO ADAC XML

ADAC XML files are a compulsory accompaniment to the "As-Constructed" bundle of information required by council as a part of the handover of Contract Works or donated civil assets and infrastructure.

Compliant ADAC XML files contain a structured and precise digital record of the assets described in the "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.

More specifically, the XML files are used to check the completeness of the "As-Constructed" information provided. The files afford further confirmation of compliance with development approval conditions as well as helping to verify engineering specifications and other design-related requirements.

Depending on the tools[1] (ADAC XML generator) being used to generate the ADAC XML, compliant files are initially created during survey capture and then finalised in conjunction with the creation of the "As-Constructed" drawings (e.g. DWGs). Alternatively the XML files may be generated after the electronic "As-Constructed" drawings have been finalised. It is however essential that the "As-Constructed" drawings and ADAC XML digital files are

[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 software (CAD) design suites and survey tools.

created using complete and survey-accurate information to identify the assets and the precise locations being represented.

Please also note that some assets are common to multiple asset classes (e.g. Lighting assets may be related to either Transport or Open Space). In those cases capturing assets under a different asset class to the actual area of use when preparing the ADAC XML file is valid and appropriate.

On receiving the "As-Constructed" bundle, council will undertake a data format and conformance check on the 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 checks, the ADAC XML file(s) may be returned to the provider for correction and resubmission which can potentially delay the progress of asset handover and "On Maintenance" approvals.

Once the ADAC XML data file(s) are accepted by the receiving entity they are uploaded to various internal systems and used to assist in the long-term management of the new contributed or capital infrastructure. The detailed asset and location data is also available to external agencies in the future via various digital formats.

4 GENERAL REQUIREMENTS

The ADAC XML file is to be produced using the most recent ADAC XML schema release (e.g. Ver 5.0.1) and should be "validated" for compliance before being submitted to council.

The ADAC XML files are to be provided via electronic transmission.

5 DATUM INFORMATION

Data contained in the ADAC XML file(s) must reflect the survey details EXACTLY AS SHOWN on the accompanying "As-Constructed" drawings which:

- for developments with a total lot number of 30 or less must be derived from at least one (1) permanent survey marks (PSM); and
- for lot numbers greater than 30 in number must be derived from at least two (2) relatively well spaced permanent survey marks (PSMs);

Survey data to be aligned with Map Grid of Australia (MGA) GDA94 or GDA2020 – UTM Zone 56 co-ordinates and AHD levels to fourth (4^{th}) order standard or better as defined by the Queensland Department of Natural Resources & Mines.

6 CREATION OF ADAC XML FILE(S)

In producing compliant ADAC XML files, information on applicable asset classes (see below) 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 should have these updates incorporated into their 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: https://www.ipwea-qnt.com/adac

While the ADAC XML files are created from the survey-accurate "As-Constructed" information, particular attention must be given to how council wishes to have particular aspects captured and recorded for each particular asset class.

The following sections within this document 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.

The physical nature of assets will determine where/if assets are captured separately within the ADAC XML file. For example, footpath or a pathway would be captured as individual and separate sections (segments) to reflect any changes such as width or material type.

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).

7 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 completing the "project" and "global" attribution details is included below.

7.1 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)	NSC Mandatory (Yes?)	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: ○ Council ○ State ○ Private
Receiver	Y		To be noted as: **Noosa Shire Council**
WorksApprovalID	N	Y	For developer contributed projects, this will be the Operational Works Number of DA Approval Number.
DrawingNumber	Y		None
DrawingRevision	N		None
ConstructionDate	Y		At *Project Level,* "Construction Date" **must be populated** with Surveyor's Summary Asconstructed date
HorizontalCoordinateSystem	Y		At *Project Level,* "Horizontal Coordinate System" field must be populated with "**MGA56**"
HorizontalDatum	Y		At *Project Level,* "Horizontal Datum" field must be populated with "**GDA94**" or **"GDA2020"**
VerticalDatum	Y		At *Project Level,* "Vertical Datum" field must be populated with "**AHD**"
IsApproximate	Y		Must be required as "false"
OriginMark	N		Will be "Nil" as IsApproximate must be false
Notes	N		None
DrawingExtents-SouthWest	Y		Should never extend beyond: X: 476,350m Y: 7,068,900m
DrawingExtents-NorthEast	Y		Should never extend beyond: X: 511,970m Y: 7,109,130m
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

ATTRIBUTE	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)	NOTES
Surveyor.Name	Y		None
Surveyor.DateFinalSurvey	Y		None
Surveyor.DateApproved	Y		None
Engineer.Name	Y		None
Engineer.DateApproved	Y		None

7.2 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)	NSC Mandatory (Yes?)
ADACId	Y	
Infrastructure Code	N	
Owner[+]	N	Y
DrawingNumber	N	
DrawingRevision	N	
ConstructionDate	N	
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 is prior 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.

Asset Level Owner
Council
Private
State

[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 NSC as it is used to identify assets/features that are considered non-compliant when the XML file is processed.

NSC requires the ADACId naming convention to match the As-Constructed plans.

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)
As-Constructed	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

7.3 Cadastral Information

7.3.1 Cadastral Connection

Not required to be captured in ADAC format. This represents an observed and reduced cadastral connection feature. This feature does not relate to lot boundaries, water boundaries or easements which are detailed below.

7.3.2 Chainage Line

Not required to be captured in ADAC format.

7.3.3 Easement

Asset Capture: Area feature representing the boundary of an easement.

Spatial Relationship: Not Applicable

Mandatory Attribution: The following attribution is mandatory for Easements:

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

7.3.4 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

7.3.5 Road Reserve

Asset Capture: Multi-patched 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

7.3.6 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

7.3.7 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: The following attribution is mandatory for Water Course Reserves:

Element Name	ADAC Mandatory (Y/N)
Name	Y

7.4 Open Space Assets

7.4.1 Activity Area

General Information: This would include defined playgrounds, courts, sports fields or animal agility enclosures.

Asset Capture: To be captured as an area feature within the "Open Space Activity Area" as represented by the dashed yellow outline in Figure 1 (e.g. playground soft fall, recreational space, hardstand play area, landscaped areas).

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. Refer examples in **Figure 1 - Page 26**.

Any Slabs under the following Asset Types are to be recorded as an Activity Area feature with the following Attribution:

Use = General

Type = Slab

Material = Concrete (in most cases)

Associated Asset Types:

- Barbeque – 7.4.4
- Bicycle Fitting – 7.4.7
- Seat – 7.4.17
- Shelter – 7.4.18
- Table – 7.4.21
- Waste Collection Point – 7.4.23
- Bus Shelter – 7.9.2

Spatial Relationship: Feature is to be totally within the parent Open Space Functional 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

7.4.2 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. Refer to the red dot's in **Figure 1 - Page 26.**

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)	NSC Mandatory (Y)
Use	Y	
Type	Y	
Material	Y	
Theme	N	
Units	N	
Manufacturer	N	Y
ModelNumber	N	Y

7.4.3 Artwork

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

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

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Artwork:

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

7.4.4 Barbeque

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

Asset Capture: Simple point feature representing the centre of the barbeque. Any hot water units, taps, lighting or shelters associated with the barbeque should be captured as separate features.

The slab the barbeque is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Barbeques:

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

7.4.5 Barrier Continuous

General Information: Includes fences, bollard runs, pedestrian fall protection gates and handrails within the Functional Area as well as 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 to the Red dash-dotted line in **Figure 1 - Page 26** and the dashed Yellow line in **Figure 2 – Page 27**. Each vertex in a polyline should represent an upright feature of the barrier whether that's a post or bollard in a run.

If capturing gates please note the configuration/type in the notes field, either:

- Single
- Double
- Boom
- Sliding / Roller

Spatial Relationship: Not applicable.

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

7.4.6 Barrier Point

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

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

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Barrier Point:

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

7.4.7 Bicycle Fitting

General Information: None.

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

The slab the bicycle fitting is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Bicycle Fittings:

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

7.4.8 Boating Facility

General Information: Representing an individual boating facility such as a Pier, Jetty, Ramp or Slipway.

Asset Capture: Polygon Feature representing the extend of asset.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Boating Facility:

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

7.4.9 Building

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

Asset Capture: Area feature to recorded representing the vertical building footprint for a structure other than a shelter. Refer to the red solid outline as an example of a toilet block and Bandstand in **Figure 1 - Page 26**.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Buildings:

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

7.4.10 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 Edging:

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

7.4.11 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.

Council requires all council owned lighting conduits (Rating 3) installed to be included in the XML submission.

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 Electrical Conduit:

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

7.4.12 Electrical Fittings

General Information: Includes Lights, Pits, Poles, Power Outlets and Switchboards.

Asset Capture: Simple point feature representing the centre of each asset. Light(s) are to be captured separately to the pole they are mounted on. Refer to the yellow circles in **Figure 1 - Page 26**.

Council requires all council owned lighting (Rating 3) installed to be included in the XML submission.

Spatial Relationship: Shown coincident to supply conduit runs where applicable. Lights and Poles will have coincident geometries.

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

7.4.13 Fixture

General Information: Includes Dog Bag Dispensers and Drinking Bowls, Fish Cleaning Stations, Flag Poles, Goal Posts, Scoreboards and other specialised fixtures and fittings.

Asset Capture: Simple point feature representing the centre of the asset. Dog bag dispensers including a pole do not require the pole to be separately captured.

Following assets are to be captured:

- Dog Bag Dispenser
- Dog Drinking Bowl
- Fish Cleaning Station
- Flagpole
- Scoreboard

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for General Fixtures:

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

7.4.14 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.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Landscape Areas:

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

7.4.15 Open Space 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 - Page 26**.

Spatial Relationship: To be coincident with the Lot Parcel, except where there is a clearly defined change to the intended usage.

Mandatory Attribution: The following attribution is mandatory for Open Space Areas:

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

7.4.16 Retaining Wall

General Information: None.

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. Refer to the red and blue lines in **Figure 3 – Page 27.**

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Retaining Walls:

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

7.4.17 Seat

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/street bench configuration. Refer to the purple dot's in **Figure 1 - Page 26.**

The slab the seat is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

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

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

7.4.18 Shelter

General Information: None

Asset Capture: Simple point feature representing the centre of a shelter structure. Significant assets within the Shelter such as lighting, barbeques, park furniture or slabs are to captured as separate objects. Shade sails with multiple shade panels may be captured as a single asset where the panels share a common mounting point e.g. Centre Pole. Refer to the orange polygon's in. Refer to the orange circles in **Figure 1 - Page 26**.

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

The slab the barbeque is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

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

7.4.19 Shelter Polygon

Not required to be captured in ADAC format. Please refer to Shelter above in section 7.4.18.

7.4.20 Sign

General Information: Signs of various types found within Open Space and Parks. For all Traffic Control signage please refer to section 7.8.13 below in Transport.

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

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Signs:

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

7.4.21 Table

General Information: Tables located within Open Space areas

Asset Capture: Simple point feature representing the approximate centre of the table. Refer to the cyan dot's in **Figure 1 - Page 26**.

The slab the Table is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Tables:

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

7.4.22 Tree

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

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

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Trees:

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

7.4.23 Waste Collection Point

General Information: Includes any poles, stands or enclosures associated with a bin.

Asset Capture: Simple point features representing the centre of asset. Refer to the green "dot's" in **Figure 1 - Page 26**.

The slab the bin is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Waste Collection Points:

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

Figure 1 – Typical example of Open Space ADAC data capture

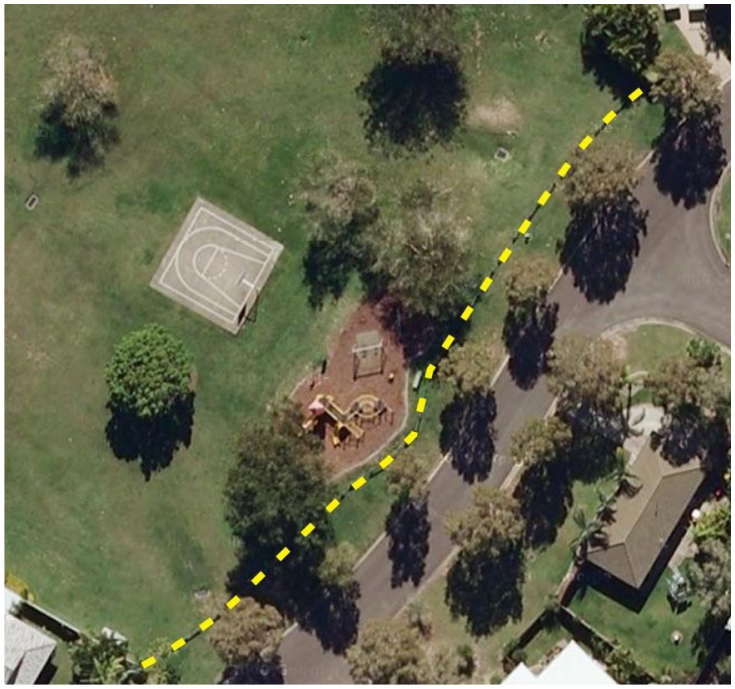

Figure 2 – Typical example of BarrierContinuous ADAC data capture.

Figure 3 – Typical example of Retaining Wall ADAC data capture.

7.5 Stormwater/Drainage Assets

7.5.1 End Structure

General Information: Represents a stormwater headwall / end wall.

Asset Capture: To be represented as a "point feature" at the outlet of the pipe/culvert as per the example shown by the location of the "*green cross*" in **Figure 4– Page 29.** Point to be located at top of the structure above the invert of the associated pipe/s and midway on the headwall. Fences surrounding the end structure should be captured separately as *Open Space Barrier Continuous*.

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

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for End Structures:

Element Name	ADAC Mandatory (Y/N)	NSC 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	Y *(if WingWall exists)*	
WingWall.LWW_Height_m	Y *(if WingWall exists)*	
WingWall.LWW_Thickness_m	Y *(if WingWall exists)*	
WingWall.LWW_Material	Y *(if WingWall exists)*	
WingWall.LWW_Construction	Y *(if WingWall exists)*	
WingWall.RWW_Length_m	Y *(if WingWall exists)*	
WingWall.RWW_Height_m	Y *(if WingWall exists)*	
WingWall.RWW_Thickness_m	Y *(if WingWall exists)*	
WingWall.RWW_Material	Y *(if WingWall exists)*	
WingWall.RWW_Construction	Y *(if WingWall exists)*	
Apron.Apron_Width_m	Y *(if Apron exists)*	
Apron.Apron_Thickness_m	Y *(if Apron exists)*	
Apron.Apron_Area_m2	Y *(if Apron exists)*	

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Apron.Apron_Material	Y *(if Apron exists)*	
Apron.Apron_Construction	Y *(if Apron exists)*	
GrateType	N	Y
TideGate	N	Y

Figure 4

7.5.2 End Structure Polyline

Not required to be captured in ADAC format. Please refer to End Structure above in section 7.5.1.

7.5.3 Fitting

General Information: Represents an End Cap, Tide Gate, Frog Flap or Duckbill Valve.

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

Spatial Relationship: Must be coincident to the end of a Stormwater pipe asset.

Mandatory Attribution: The following attribution is mandatory for Fittings:

Element Name	ADAC Mandatory (Y/N)
FittingType	Y
Rotation	N

7.5.4 Flow Management Device

General Information: Represents Levees, weirs and spillways.

Asset Capture: To be represented as a single line feature representing the direction of flow.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Flow Management Devices:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Sqid_Id	N	Y
Type	Y	
Material	Y	
Length_m	N	
CrestElevation_m	N	Y

7.5.5 Pipe

General Information: None.

Asset Capture: A simple linear feature representing the invert of the pipe or midpoint of a box asset. Multiple-celled culverts & pipes should always be represented individually; therefore, the number of cells attribute should always be "1". Line direction should be enforced from gravity flow or gravity direction. Pipe features are captured from the intersection of pipe material and chamber wall. Refer to **Figure 5– Page 31** and **Figure 6– Page 32**.

Error! Reference source not found. represents a single-celled pipe asset where vertices one and four represent the maintenance hole capture and vertices two and three are the intersection of the Pipe material and the chamber wall.

Error! Reference source not found. represents an irregular shaped pit with multiple multi-celled pipes entering the pit asset and a large single-celled asset exiting the pit with an outlet through an End Structure.

Pipes are to be captured based on their physical and spatial properties and attributes. For example, if a pipe changes size, material, class, embedment or direction etc. then it must be broken and captured separately.

Spatial Relationship: May be coincident to a component of the End Structure, Pit or WSUD Point features whether that be a chamber wall, end wall outside face or edge of apron.

Mandatory Attribution: The following attribution is mandatory for Pipes:

Element Name	ADAC Mandatory (Y/N)
US_InvertLevel_m	Y
DS_InvertLevel_m	Y
US_SurfaceLevel_m	Y
DS_SurfaceLevel_m	Y
Diameter_mm	Y *(if circular)*
JointType	Y *(if circular)*
Height_mm	Y *(if box)*
Width_mm	Y *(if box)*
Material	Y
Class	Y
Cells	Y
ConcreteCoverType	Y
Grade	N
Length_m	N

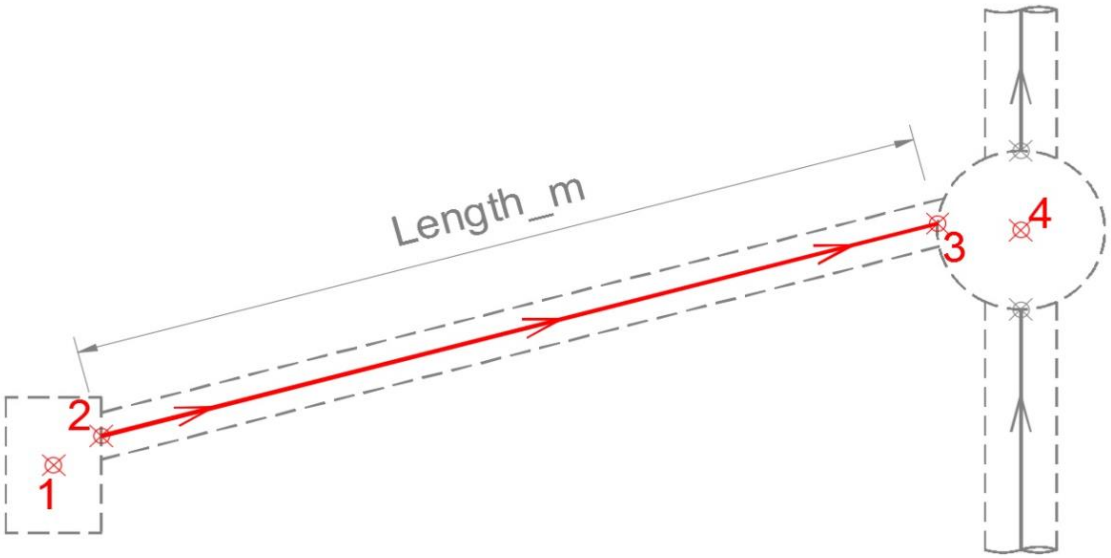

Figure 5

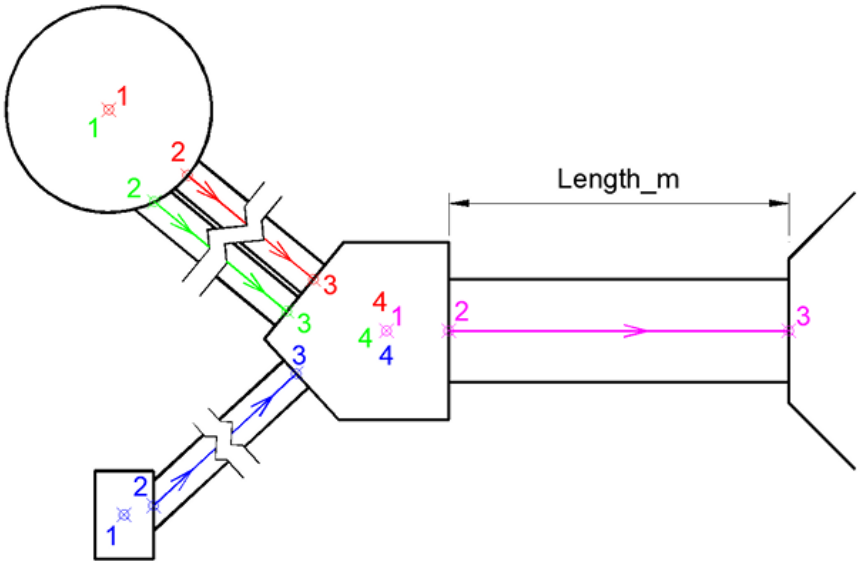

Figure 6

7.5.6 Pit

General Information: Relates to in-accessible pits, field inlets, gully pits, manholes and roofwater inspection chambers.

Asset Capture: To be captured and represented as a “point” located at the centre of chamber for manholes and centre of grate where coincident with centre of chamber for field inlets and kerb inlets.

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

Maintenance Hole	**Use**	Maintenance Hole Roofwater Inspection Chamber
	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

Junctions (no access)	**Use**	Pit
	Lid Type?	No
	Inlet?	No
	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.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Pits:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
PitNumber	Y	
Use	Y	
ChamberConstruction	Y	
Length_mm	Y *(if rectangular)*	
Width_mm	Y *(if rectangular)*	
Diameter_mm	Y *(if circular)*	
Radius_mm	Y *(if extended)*	
Extension_mm	Y *(if extended)*	
LidType	N	Y *(if Use = Maintenance Hole or Roofwater Inspection Chamber)*
SurfaceLevel_m	Y	
InvertLevel_m	Y	
Depth_m	Y	
InletConfig	Y *(if Use = Kerb Inlet or Field Inlet)*	
InletType	Y *(if Use = Kerb Inlet or Field Inlet)*	
InletSize	Y *(if Use = Kerb Inlet or Field Inlet)*	
LintelConstruction	Y *(if Use = Kerb Inlet)*	
LintelLength_m	Y *(if Use = Kerb Inlet)*	
OutletType	Y	
FireRetardant	Y	
Rotation	N	

7.5.7 Stormwater Quality Improvement Device

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 Intercepter)
- 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 center of chamber. Point features must be coincident to pipe features as per Pits/Maintenance Holes.

Spatial Relationship: For GPTComplex and NonGPTSimple assets please refer to Pit spatial Relationship details. A GPTSimple asset’s spatial location must correlate with a Pit/Maintenance Hole or End Structure asset as they are housed within those structures and can be removed for maintenance or relocation.

Mandatory Attribution: The following attribution is mandatory for SQIDs:

7.5.7.1 GPTComplex

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Sqid_Id	N	Y
Manufacturer	N	Y (if Commercial)
ModelNumber	N	Y (if Commercial)
Length_mm	Y *(if rectangular)*	
Width_mm	Y *(if rectangular)*	
Diameter_mm	Y *(if 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	
SumpDepth_m	N	

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
HasFilterMedia	N	
HasBasket	N	
HasBoards	N	
DesignFlow_m3s	Y	
MaxContaminantVolume_m3	N	
MaxInternalVolume_m3	N	
MaintenanceCycle_mnths	N	
Rotation	N	

7.5.7.2 GPTSimple

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

7.5.7.3 NonGPTSimple

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Sqid_Id	N	Y
Construction	Y	
Manufacturer	N	
ModelNumber	N	
TreatmentMeasure	Y	
Function1	Y	
Function2	N	
Function3	N	
Length_mm	Y	
Width_mm	N	Y *(if rectangular)*
MaintenanceCycle_mnths	N	
Rotation	N	

7.5.8 Surface Drain

General Information: None.

Asset Capture: Simple linear feature representing the invert of the channel. Surface Drains are to be captured based on their physical and spatial properties and attributes. For example, if a surface changes size, material, shape etc. then it must be broken and captured separately. Error! Reference source not found. **– Page 36** indicates the capture of a major surface drain as well as a smaller surface drain feeding into it. The main surface drain has been broken into separate features where the main changes of width occur. The smaller surface drain ends at the intersection of the main surface drain's outer edge.

Spatial Relationship: May be coincident to End Structures and WSUD regions/polygons.

Mandatory Attribution: The following attribution is mandatory for Surface Drains:

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

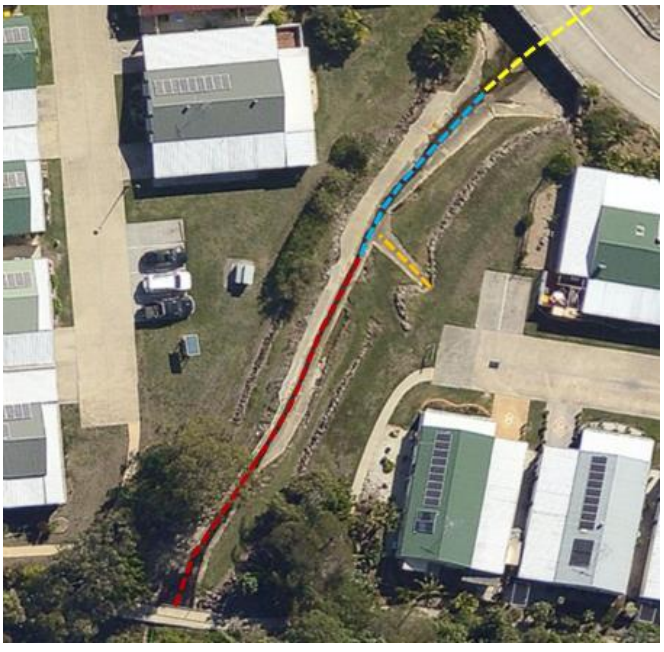

Figure 7

7.5.9 WSUD (Water Sensitive Urban Design) Area

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 class type within the ADAC data capture fields (e.g swale, buffer strip, bio-retention basin). Any associated infrastructure with the WSUD (e.g. vehicle accesses, fences, gates, etc.) should be captured separately. Error! Reference source not found. **– Page 38** demonstrates the capture of a WSUD and associated infrastructure, including a Vehicle Access (red polygon) and a gate (blue hatched line).

Note: Detention Basins are to be captured as a WSUD area feature with "Detention Basin" recorded in the Notes field.

Asset Capture: Polygon feature is to represent the outline of the permanent pond level. Any curves are to be captured as multiple straight line segments.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for WSUD Areas:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Sqid_Id	N	Y
TreatmentMeasure	Y	
Function1	Y	
Function2	N	
Function3	N	
PondingArea_m2	N	
PondingDepth_m	N	
FilterArea_m2	N	
FilterDepth_m	N	
TransitionDepth_m	N	
DrainageDepth_m	N	
MacrophyteZoneArea_m2	N	
MacrophyteZoneDepth_m	N	
CoarseSedimentArea_m2	N	
SedimentVolume_m3	N	
MinSurfaceLevel_m	N	
PermanentPondLevel_m	N	
OutletLevel_m	N	
DesignFlow_m3s	N	
HasSpillway	Y	
MaintenanceCycle_mnths	N	

Figure 8

7.6 Sewerage

Any Council owned sewerage assets are to be captured as per the standards required for Unitywater.

7.7 Supplementary

Supplementary features are used to record additional asset types or points of reference which isn't otherwise covered under the ADAC schema. Wollondilly Shire Council has specified additional asset types required to be supplied in the XML under its *As-Constructed Data Standard.* The details for these asset types have been supplied below:

1.1.1 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: The following attribution is mandatory for Supplementary features:

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

Note: Field order of custom attribution must be as detailed below.

7.8 Surface

7.8.1 Breakline

Not required to be captured in ADAC format.

7.8.2 Contour

Asset Capture: Simple linear feature representing a single contour elevation.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Contours:

Element Name	ADAC Mandatory (Y/N)
Status	Y
Elevation_m	Y

7.8.3 Spot Height

Asset Capture: Point feature representing a single elevation point. Spot heights must represent all surface features and lot boundary's.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Spot Heights:

Element Name	ADAC Mandatory (Y/N)
Status	Y
Elevation_m	Y

7.8.4 Profile Line

Not required to be captured in ADAC format.

7.9 Transport Assets

7.9.1 Bridge

General Information: Bridges can be represented using multiple feature types comprising the single Bridge extent encompassing the Deck, Superstructure, Abutments and Piers. A common identifier links all spatial and non-spatial features.

Pavement, Pathway and Guardrail features are to be captured using the usual Transport features.

7.9.1.1 Bridge Abutment

Asset Capture: Polygon feature representing a single Abutment located at each end of the bridge structure as per **Figure 9 – Page 42**.

Spatial Relationship: Must be located within a Bridge Extent polygon.

Mandatory Attribution: The following attribution is mandatory for Bridge Abutments:

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

Figure 9

7.9.1.2 Containment Class

Asset Capture: Non spatial table.

Mandatory Attribution: The following attribution is mandatory for Containment Class:

Element Name	ADAC Mandatory (Y/N)
BridgeID	Y
ContainmentClass	Y

7.9.1.3 Bridge Deck

Asset Capture: Polygon feature representing each individual Deck feature located between abutments or supports.

Spatial Relationship: Must be located within a Bridge Extent polygon and spatial related to Pavement and Pathway features.

Mandatory Attribution: The following attribution is mandatory for Bridge Decks:

Element Name	ADAC Mandatory (Y/N)
BridgeID	Y
Material	Y
NomWidth_m	Y
DeckLength_m	Y

7.9.1.4 Bridge Extent

Asset Capture: Polygon feature describing the footprint for the whole structure and all its parts including approach and departure assets.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Bridge Extents:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
BridgeID	Y	
Name	N	Y
Use	Y	
Type	Y	
CrossingType	Y	
Spans	Y	
MinimumClearance_m	N	Y
PredominantMaterial	Y	
DesignLoad	N	

7.9.1.5 Bridge Pier

Asset Capture: Polygon feature representing a single supporting structure.

Spatial Relationship: Must be located within a Bridge Extent polygon located under deck spans.

Mandatory Attribution: The following attribution is mandatory for Bridge Piers:

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

7.9.1.6 Bridge Superstructure

Asset Capture: Polygon feature representing a single Superstructure.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Bridge Superstructures:

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

7.9.2 Bus Shelter

Asset Capture: Supplementary Point feature representing the centre of a single Bus Shelter. Bins, slabs, signs and bicycle racks are to be captured separately.

The slab the bus shelter is installed on is not considered part of the asset and does need to be separately captured, please refer to Activity Area 7.4.7 above for further details.

Spatial Relationship: Not applicable.

Mandatory Attribution: Class must be populated with “Bus Shelter” however no custom supplementary attribution is required.

7.9.3 Flush Point

Not required to be captured in ADAC format.

7.9.4 Parking

Asset Capture: Polygon capturing the area of a parking pavement only, as represented by the solid red line in **Figures 10 and 11 - Page 46**. Any curves are to be captured as multiple straight line segments.

Spatial Relationship: May adjoin/share road pavement boundary

Mandatory Attribution: The following attribution is mandatory for Parking:

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

Figure 10 (On Street Parking)

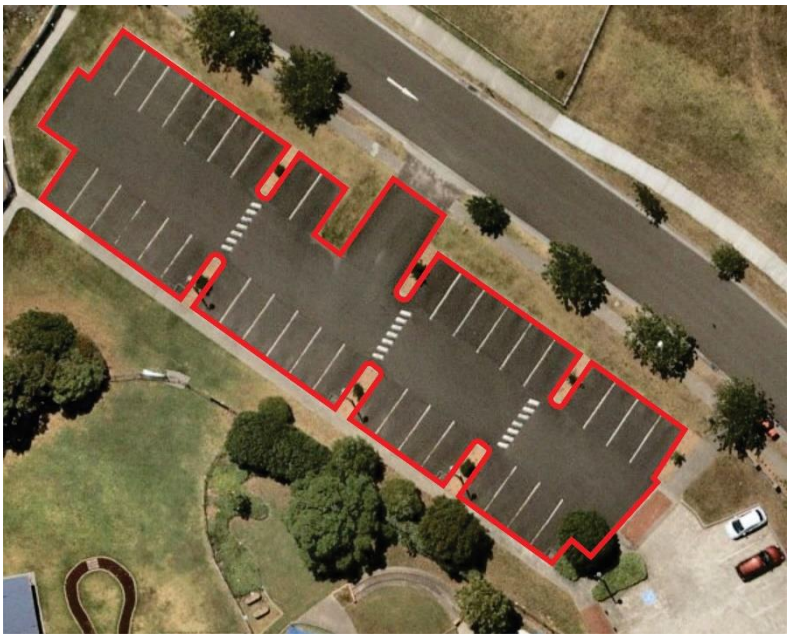

Figure 11 (Off Street Parking)

7.9.5 Path Structure

Asset Capture: Complex Polyline feature comprising of straight line segments (read: no curves) representing the edge of the asset material with the start and end points being coincident. Path Structures include boardwalks, footbridges, stairs, ramps & underpasses.

Spatial Relationship: May be coincident with Pathway features.

Mandatory Attribution: The following attribution is mandatory for Path Structures:

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

7.9.6 Pathway

Asset Capture: To be captured as a Complex linear feature representing the centre longitudinal axis of a pathway. Please refer to the solid red lines in **Figure 12 - Page 47**.

Please ensure polyline vertices are present at all intersections of pathway centrelines to maintain a connected network. Failure to do so may result in a rejected ADAC submission.

Spatial Relationship: May be coincident with Pram Ramp or Path Structure features.

Mandatory Attribution: The following attribution is mandatory for Pathways:

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

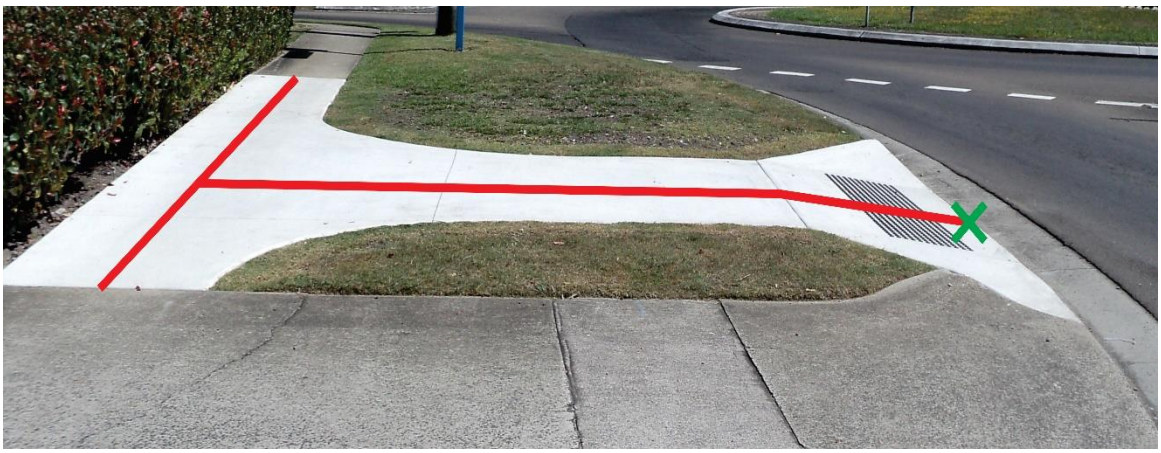

Figure 12

7.9.7 Pavement

Asset Capture: To be captured as an area/polygon feature from “lip of kerb to lip of kerb” where kerb exists and edge of material where no kerb is present. Note: Separate polygons will be required at changes in

pavement and/or surfacing and change of Road name. Refer to **Figures 13 & 14 – Page 49**.

Spatial Relationship: Must be coincident to other regions representing pavement / parking where there is a common boundary- no slivers/overlaps.

Mandatory Attribution: The following attribution is mandatory for Pavements:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Name	Y	
SurfaceType	Y *(if surface exists)*	
SurfaceThickness_mm	N	Y
SurfaceNomWidth_m	Y *(if surface exists)*	
PavementType	Y	
BaseLayer.LayerType	Y *(if Base exists)*	
BaseLayer.LayerDepth_mm	Y *(if Base exists)*	
BaseLayer.Stabilisation	Y *(if Base Stabilised)*	
SubBaseLayer.LayerType	Y *(if SubBase exists)*	
SubBaseLayer.LayerDepth_mm	Y *(if SubBase exists)*	
SubBaseLayer.Stabilisation	Y *(if SubBase stabilised)*	
LowerSubBaseLayer.LayerType	Y *(if LowerSubBase exists)*	
LowerSubBaseLayer.LayerDepth_mm	Y *(if LowerSubBase exists)*	
LowerSubBaseLayer.Stabilisation	Y *(if LowerSubBase stabilised)*	
PavementGeoTextile	N	Y *(if exists)*
SubGrade.CBR	Y	
SubGrade.Stabilisation	N	Y *(if exists)*

7.9.8 Pram Ramp

Asset Capture: Simple point representing the centroid of a Pram Ramp. Refer to the green cross in **Figure 12 - Page 47**.

Spatial Relationship: Must be coincident with Pathway features.

Mandatory Attribution: The following attribution is mandatory for Pram Ramps:

Element Name	ADAC Mandatory (Y/N)
Rotation	N

7.9.9 Pram Ramp Polygon

Not required to be captured in ADAC format. Please refer to section 7.8.7 for Pram Ramp details as points.

7.9.10 Road Edge

Asset Capture: Complex linear features representing the invert of kerb and channel or face of kerb where no channel is present. Refer to the solid red lines in **Figures 13 & 14 – Page 49**. Kerb features are to be segmented in alignment with corresponding Pavement features especially where a Name change occurs.

Note: Pavement Extension refers to the distance the pavement extends behind the back of kerb.

Spatial Relationship: Must be coincident to other polylines representing road edge where there is a common boundary between kerb types / material change i.e. no slivers and/or overlaps.

Mandatory Attribution: The following attribution is mandatory for Road Edges:

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

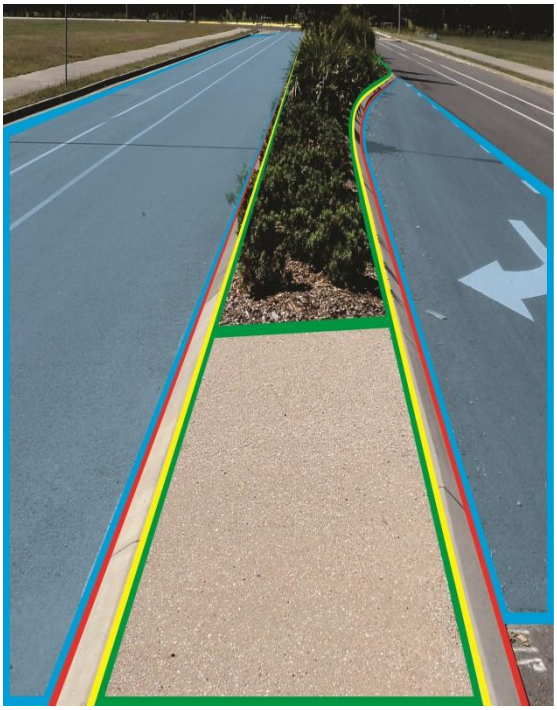

Figure 13

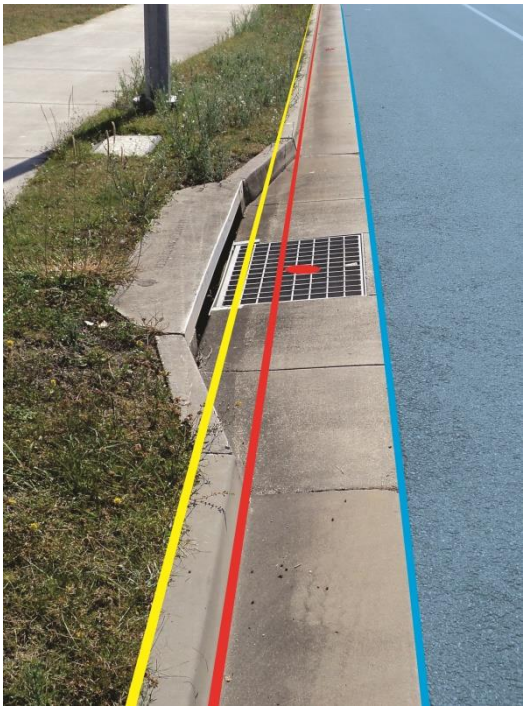

Figure 14

7.9.11 Road Island

Asset Capture: Multi-patch region/polygon feature representing the area of Island/LATM bounded by the back of Kerb features. Asset capture is

based on physicality therefore separate regions/polygons are required if the Type of Island or Infill changes. Refer to solid green line in Error! Reference source not found.**3 – Page 49** for an example of asset capture.

Spatial Relationship: Must be coincident to other regions representing road islands where there is a common boundary i.e. no slivers and/or overlaps. Also must be coincident with surrounding Road Edge asset capture where applicable.

Mandatory Attribution: The following attribution is mandatory for Road Islands:

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

7.9.12 Road Pathway

Asset Capture: Complex Polyline feature comprising of straight line segments (read: no curves) representing the centre longitudinal axis of a road pathway (on-road cycleway).

Spatial Relationship: Within a road pavement boundary

Mandatory Attribution: The following attribution is mandatory for Road Pathways:

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

7.9.13 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 15 – Page 51**.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Road Safety Barriers:

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Type	Y	
LeadingEndTreatment	Y	
TrailingEndTreatment	Y	
StandardHeight	N	
Height_m	N	

Element Name	ADAC Mandatory (Y/N)	NSC Mandatory (Yes?)
Length_m	Y	
MotorcyclistProtectionType	Y	
PedestrianProtectionSheeting	Y	
BridgeTransition	Y	
StandardPostSpacing	N	
PostSpacing_m	N	
PostType	N	Y
RailType	Y	
HorizontalAlignment	N	
NumberOfBollards	N	

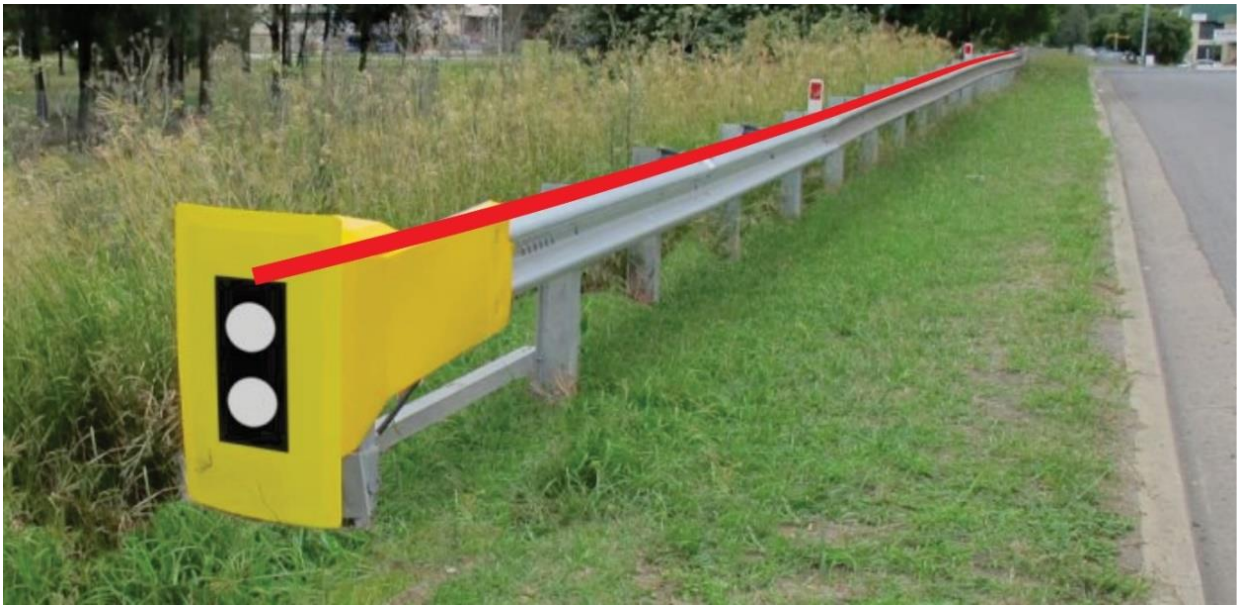

Figure 15

7.9.14 Sign – Traffic and Street

Asset Capture: 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..

To be captured using Openspace.Sign with the Type = Traffic Control. MUTCD sign code is to be recorded in the ModelNumber field.

Spatial Relationship: Not Applicable.

Mandatory Attribution: The following attribution is mandatory for Road Signs:

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

MUTCD Code is to be recorded in the ModelNumber field.

7.9.15 Subsoil Drain

Asset Capture: Simple linear feature representing a sub-soil drain with any curves are to be captured as multiple straight line segments. Refer to the solid yellow line in **Figure 14 – Page 47**. Subsoil Drains are to be segmented in alignment with corresponding Pavement features especially where a Name change occurs.

Spatial Relationship: Not applicable.

Mandatory Attribution: The following attribution is mandatory for Subsoil Drains:

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

7.10 Water Supply

Any Council owned water supply assets are to be captured as per the standards required for Unitywater.