Water Services Reform

Asset Data Standard

**Water Services Reform Programme**

*Version 3.6 / In-Confidence – November 2023*

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# Version History

| **Version** | **Date** | **By** | **Changes Made** |
| --- | --- | --- | --- |
| 3.2 - Draft | 09-Dec-2022 | Sharon Mannion, NTU | * Formatting changes * Inclusion of number of decimals for numeric |
| 3.3 | 23-Feb-2023 | Barry Smith, NTU  Kim Fraser, TCC Sharon Mannion, NTU | * Addition of Table for Asset Financial Attributes * Clarification of ‘Baseline’ attributes definition and inclusion of ‘Recommended’, ‘Optional’ and ‘Future’ attribute notation * Changes to the attribute details:   + Address key -> Address components   + Asset Class context updated   + Asset Unit Type added   + Service Line Key clarification   + Weight: all changed to 2 decimals   + Lid Type changed to Lid Material * Adjustments to new Unit Types to ensure maximum of only 10 chars * Furnishings Unit Types moved from Site Services to Plant & Equipment * Finalisation of Unit Types and attribution for Control Structures, Waterways and Treatment Devices * Storm Treatment asset class renamed to Treatment Devices to cater for non-Storm assets e.g.: WW Treatment Ponds * Attribute Types terminology changed:   + Float8 -> Numeric   + Varchar -> Text |
| 3.4 | 5-Apr-2023 | Barry Smith, NTU  Kim Fraser, TCC  David Pinkney, NTU | * Technical Review, Changelog added as an Appendix |
| 3.5 | 26-Jun-2023 | Barry Smith, NTU  Kim Fraser, TCC  Loisa Reyes, NTU | * Removed all the Classification and Attribute Tables and replaced with links to refer to the Asset Data Standard Attribute spreadsheet found in Appendix 7.1 to maintain a single source of truth * Removed the table reference numbers from 6 to 54 and adjusted tables 55 & 56 to tables 6 & 7 |
| 3.6 | 13-Nov-2023 | Barry Smith, NTU  Kim Fraser, TCC | * Required for systems alignment to resolve bug fixes identified through UAT testing. |

# Glossary of Terms

| **Term** | **Definition** |
| --- | --- |
| **AMOS** | Asset Management Operations & Stormwater. |
| **Asset** | An asset is any piece of equipment, property, or other physical item used in the organisation’s operations or water reticulation networks. |
| **Asset Class** | A grouping of equipment / assets that exhibit similar characteristics or functions. |
| **Asset Classification** | Asset data is captured in a 4-level classification structure, classifying asset details into groupings for retrieving, structuring, and storing data. See Section 4 for further information. |
| **Asset Hierarchy** | A 2 to 5-tier asset data hierarchy that describes the data by functional location and within the location by process asset class, position, and type. See Section 4 for further information. |
| **Consolidated Attributes** | The full set of attributes identified by the Asset Data Standard Working Group that would be valuable for ongoing asset management operations. Attributes that are not part of the Baseline may be implemented by the Water Service Entities post transition. |
| **‘Mandatory’ Attribute** | Required attribute for the target state system identified by the Asset Data Standard Working Group. |
| **‘Baseline’ Attribute** | The subset of attributes required to support asset management operations for go live date. |
| **‘Recommended’ Attribute** | A subset of attributes recommended to be captured to support asset management operations for go live date, but not essential if the information is not available.  Some assets within an Asset Class may not need each of the Attributes, hence the ‘(if applicable)’ in some instances. |
| **‘Optional’ Attribute** | A subset of attributes which can be captured if the information is available. |
| **‘Future’ Attribute** | A subset of attributes which can be captured if the information is available but will not be available in the target system for go live date. |
| **Dropdown** | Predefined list of attribute values to select from. |
| **BIP** | Building Innovation Partnership. |
| **Day 1** | The planned go live date for the four Water Service Entities. |
| **Embedded File** | Files attached in Appendix 7.1 and 7.2 shows a more detailed view of Asset Class attributes, classification and dropdown lists. |
| **NTU** | National Transition Unit. |
| **POC** | Proof of Concept. |
| **SoR** | System of Record. |
| **Transition** | The period to go live date. |

# Purpose

The purpose of this document is to communicate the Water Services Reform Asset Data Standard that has been defined by the Asset Data Standard Working Group.

The Standard is intended to be used by Water Services Reform stakeholders as a delivery enabler during transition.

The Asset Data Standard Working Group has created a Baseline Asset Data Standard that is expected to be stable throughout transition. In exceptional circumstances the standard may be amended, in a controlled way, if there are unavoidable functional or technical requirements for change.

This document also contains spreadsheets of the asset standard. This can be found attached in Appendix 7.1 of the Water Services Reform Asset Standard V3.6 for each asset class.

# Approach Summary

The NTU facilitated the creation of the Water Services Reform Asset Data Standard by a Working Group made up of nominees from Councils.

NTU issued information requests were sent to all councils which included a request for suitably experienced participants for the Asset Data Standard Working Group (hereafter referred to as Working Group). The final Working Group included all 15 (Appendix 7.4) nominees.

Once established, the Working Group discussed and agreed a process to Baseline the Asset Data Standard. The process consisted of eight steps, as follows:

1. The Working Group identified precursor standards to be used as a starting point. These included the Watercare Asset Standard, the Building Innovation Partnership (BIP) Asset Standard, the Wellington Water (WW) Asset Standard, the Healthy Waters Asset Standard and Waka Kotahi’s Asset Management Data Standard (AMDS).
2. To accelerate creation of this Water Services Reform Asset Data Standard, the Working Group decided to take Watercare Asset Standard as a start point.
3. Next, the Working Group completed a gap analysis comparing Watercare’s Asset Standard with the other sets of asset standards, and where gaps were identified, the attribute and classes were revised to accommodate additional requirements. The main attribute additions related largely to storm water and health and safety requirements. The output was a Consolidated Asset Standard.
4. The Working Group conducted several working sessions to review and discuss the Asset Data Standard with the primary objective to validate if the asset attributes were required to maintain and operate assets for Day 1. Each attribute was subject to challenge by the Working Group.
5. Attributes determined by the Working Group as required for Day 1 were tagged as Baseline attributes for the Water Services Reform Asset Data Standard.
6. Attributes that were determined by the Working Group as not required for Day 1 were tagged as ‘Future’.
7. The outcome of the Working Group sessions was documented into the draft Water Services Reform Asset Data Standard and then reviewed by the Working Group for accuracy and completeness.
8. The Working Group Water Services Reform Asset Data Standard was then submitted to the NTU.

For details of the Asset Data Standard Working Group members, refer to Appendix 7.4.

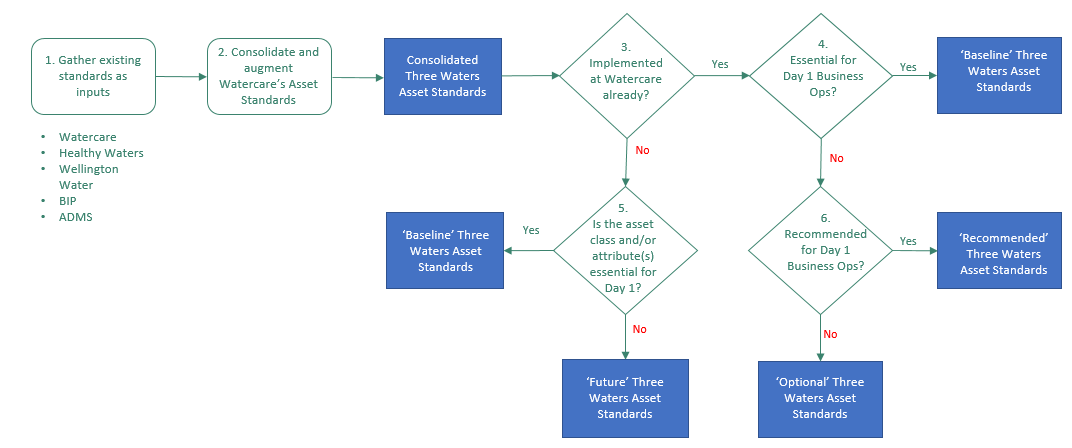
## The Process to Determine the Baseline Asset Data Standard

To accelerate the definition of the Water Services Reform Asset Data Standards, the Working Group agreed to leverage a number of existing data standards including Watercare, Healthy Waters, Wellington Water, BIP, and Waka Kotahi’s ADMS as a starting point.

The Asset Data Standards from Healthy Waters, Wellington Water, BIP, and Waka Kotahi’s ADMS were compared to the existing Watercare Assets Standard to identify areas where the standards needed to be augmented. The outcome of this exercise produced the Consolidated Asset Standard for Water Services Reform. The main additions to the standards were for storm water and health and safety considerations.

The Consolidated Asset Standard was then challenged to determine what subset of the standards would be essential to operate and maintain the assets for Day 1, the outcome of which was the Baseline Asset Standards. For this process, the Working Group agreed all asset classes and attributes that already existed in Watercare’s Assets Standard would be included in the Baseline Asset Standards. The designation of ‘Baseline’ has since been further refined to include ‘Recommended’ and ‘Optional’, as many organisations do not have all the information readily available to complete all the attributes which were originally tagged as ‘Baseline’.

In summary, the process is illustrated below in Figure 1 - Process to determine Baseline Asset Standard below.



***Figure 1 - Process to determine Baseline Asset Standard***

# Next Steps to Evolve the Standard

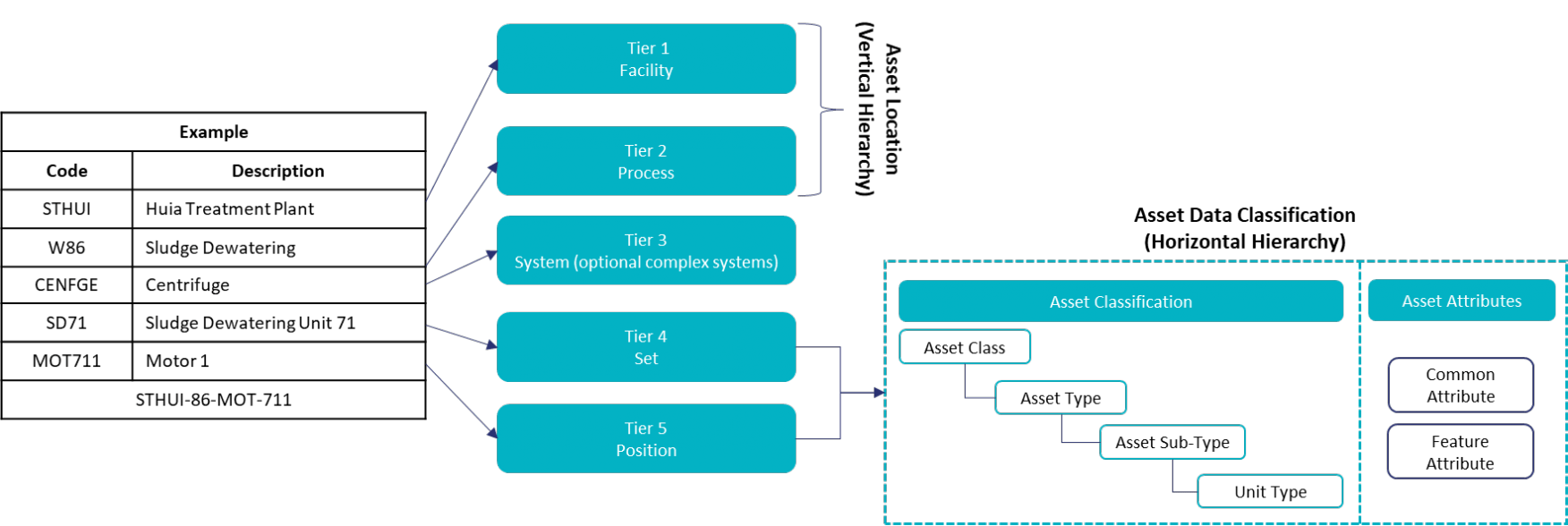
The Asset Data Standard is intended to be largely stable through transition, however, there are a set of open actions that will be closed out during transition.

As transition proceeds, and as requirements evolve and are conformed, the Asset Data Standard may need to be amended in a controlled manner.

# Asset Hierarchy and Classification

The asset hierarchy and classification are used to identify and classify assets required to be operated and maintained.

The asset data hierarchy structures asset data by functional location and by asset class and type. Assets are organised and categorised by the 5-tier asset hierarchy, and then by the 4-tier asset classification. The Working Group agreed to adopt and evolve Watercare’s asset hierarchy and classification structure which is illustrated in Figure 2 below.



***Figure 2 - Asset hierarchy and classification structure, and example***

## 4.1 Asset Hierarchy

The asset hierarchy organises asset data by facility, process area, system, set, and position. The asset hierarchy provides a parent / child tiered structure to allow for convenient and organised management of assets. Each tier of the asset hierarchy is described in Table 2 below.

### Table 2 - Asset Hierarchy Tier Descriptions, and examples

|  | **Tier** | | **Description** | **Example** |
| --- | --- | --- | --- | --- |
| **Asset Location** | **1** | **Facility** | Plant Assets – this is the Facility Name.  Network Assets – this is the Waters Network Type and the Organisation | Huia Treatment Plant  Network Water Reticulation - WSL |
| **2** | **Process** | Identifies the main Process Area associated with an Asset | Sludge Dewatering  Treated Water Line Valving |
| **Asset**  **Parent and Child Structure** | **3** | **System** | Is used for large or complex systems, such as treatment facilities, where a process area contains many assets that can be broken down further (optional). | Centrifuge |
| **4** | **Set** | The assigned parent asset that child assets are associated to. | Sludge Dewatering Unit 71 |
| **5** | **Position** | List of child assets of the assigned parent asset (i.e., the Set at Tier 4), also any Orphan assets associated with the Facility | Motor 1 |

## 4.2 Asset Classification

The asset classification is a structure used to logically organise assets with the similar functional purpose. It is grouped into a 4-level classification structure to align main characteristics and definitions. The asset classification enables the grouping, structuring, and storing data, to support maintenance, operation, and reporting. The asset classification structure is illustrated below in Figure 3.

**Asset Class**

**Asset Type**

**Asset Sub Type**

**Unit Type**

***Figure 3 - Asset classification structure***

### Table 3 - Asset Classification Structure Descriptions

The table below provides a description for each level of the asset classification structure, and worked example - this is also expanded in Section 6 for each asset class:

|  | **Description** | **Example** |
| --- | --- | --- |
| **Asset Class** | Classifies various asset types into logical categories. Aids in grouping different assets into logical views and maintaining different attributes and descriptors. | Pipes and Conduits |
| **Asset Type** | The primary code used to describe the type of asset. The code is used as a prefix in the unit type. | Conduit  Culvert  Pipe |
| **Asset Sub Type** | The secondary code used to further describe the usage and type of the asset. The code is used as a suffix in the unit type. | Standard  Non Pressure Rated  Pressure Rated  Siphon  Tunnel Vacuum  Sub Soil Drain |
| **Unit Type (Asset Type - Asset Sub Type)** | The combined code using the asset type and sub type used to describe an asset in abbreviated codes. Aids in individualised handling for various assets as required. | Conduit - Standard  Culvert - Standard  Pipe - Non Pressure Rated  Pipe - Pressure Rated  Pipe - Siphon  Pipe - Tunnel  Pipe - Vacuum  Pipe - Sub Soil Drain |

# Asset Classes

Asset Classes are principally split along engineering disciplines for Communications and Control, Mechanical, Electrical and Civil, however some of these disciplines are broken down further in order to match main attributes and descriptors.

The asset class descriptions have been reviewed and agreed by the Working Group. The asset class descriptions utilised Watercare’s standard were used as a starting point and augmented as required by the Working Group. Table 4 below provided the asset classes and their descriptions.

### Table 4 - Asset Class Descriptions

| **Asset Classes** | **Descriptions** |
| --- | --- |
| **Building** | A structure with floor, roof, and walls with above ground walk-in access. |
| **Chambers & Manholes** | A partially below ground or below ground enclosure where equipment and pipework is housed for inspection or maintenance purposes. |
| **Civil** | A structure that provides adequate rigidity to withstand its own weight and can resist external loads. The load elements relate to civil structures e.g., anchor blocks, bridge piers or equipment bases. |
| **Containment Structures** | A structure or vessel that manages media for storage or process balancing such as reservoirs, and process tanks. |
| **Control Structures** | A structure that holds back any material or fluid, typically to separate terrain or fluid at different elevations. |
| **Control System** | Asset systems that integrate software and hardware with network connectivity to manage, command, direct or regulate the behaviour of other devices or systems using control loops that are either automated and / or manually directed. |
| **Electrical Rotating** | Electrical equipment that is the motive or drive to mechanical equipment to perform work or rotated by a mechanical machine to produce electricity. |
| **Electrical Static** | Equipment used in the distribution, protection and management of AC and DC electricity supply. |
| **Equipment** | Facility equipment not related to water services, captured for the sake of financial valuation. |
| **Instruments and Monitoring** | A device used directly or indirectly to measure and / or control a variable. The term does not apply to parts (e.g., a receiver bellows or a resistor) that are internal components of an instrument. |
| **Intangibles** | Facility intangible assets, captured for the sake of financial valuation. |
| **Land** | Earth surface not permanently covered by water vested or procured to secure access rights to water supply and treatment of large infrastructure. |
| **Mechanical Rotating** | Mechanical equipment that with the addition of kinetic energy can move other equipment, move material from one point to another, or to agitate media. |
| **Mechanical Static** | Mechanical equipment that is not used for rotation, movement, or agitation. Static mechanical equipment is used to connect civil structures such as pipe fittings, supports a mechanical process, or is used as a physical interface with a mechanical machine. |
| **Meter** | Instrument used for measuring water volume in the transmission and network areas. |
| **Nodes** | Nominal asset to represent connection points between linear assets. |
| **Pipes and Conduits** | A tube that conveys fluid or gas or may be used for the protection of another service such as an electric cable. |
| **Roads, Bridges & Rail** | Transport corridor facilitating the transfer of goods and people by vehicle and / or the support of utility services along a designated infrastructure corridor. |
| **Site Services** | Ancillary site components that support the infrastructure site functions such as access, security, and office equipment. |
| **Treatment Devices** | Storm Treatment are proprietary devices used to improve the quality of stormwater prior to discharging to a receiving environment. |
| **Tools** | Handheld devices or devices that are small enough to be moved by hand that aids in accomplishing a work task such as cutting, shaping, measuring, or tightening. |
| **Valves** | A device halting or controlling the passage of a fluid or gas through pipes, ducts and at the inlet or outlet of containment vessels. |
| **Vehicles** | An asset used for the transportation of people or goods. |
| **Waterway** | Waterway that conveys water in lined or unlined constructed channels where the water is not stream water. A lined channel is a constructed channel with either a lined base or bank(s) whereas an unlined channel is an open constructed earthen channel with no lined base and banks. |

# Asset Attributes - Common and Feature Attributes

For each asset class, the Working Group has defined the Consolidated list of common and feature attributes. Common attributes are common to all asset classes whereas feature attributes are only relevant for a specific asset class. In addition, the Working Group has identified the Baseline attributes for each of the asset classes, being the subset of attributes required to maintain and operate assets for Day 1.

The output of this work has been documented in the following format for both common and feature attributes.

**Table 5 - Asset attribute table legend** -*to obtain a detailed view of the common and feature attributes for each asset class, click on the embedded excel file in* [*Appendix 7.1*](#_iswuqq6ijkzu)*.*

| **Columns** | **Description** |
| --- | --- |
| **Attribute Name** | Name of the attribute. |
| **Attribute Type** | Data type of the attribute:  Numeric - numeric, with the number decimals specified (maximum of 16 digits, including any decimal places)  Integer - numeric, no decimals  Text - free text to a maximum of the number of characters specified within the ()**,** excluding any special characters and ‘carriage returns’ |
| **Attribute Unit** | Measure unit of the attribute value. |
| **Description** | Description of the attribute. |
| **Attribute Usage** | Business value of the attribute. |
| **Example** | Example of the attribute. |
| **Mandatory Field** | System required field. |
| **Dropdown Value** | Attribute supported by a dropdown list - the list of dropdowns provided in Appendix 7.2. |
| **Timeline for Go Live Date** | All the attributes are part of Consolidated attributes, used to distinguish:  **Baseline**: The subset of attributes required to support asset management operations for go live date.  **Recommended**: A subset of attributes recommended to support asset management operations for go live date**,** but not essential if the information is not available.  **Optional**: A subset of attributes which can be captured if the information is available  **Future**: The remaining attributes which can be captured but will not be available in the target system(s) for go live date. Attributes have been highlighted in grey font |
| **\***  **\*\*** | Attribute type to be assessed.  To be reviewed by the Working Group |

## 6.1 Common

Common attributes across all asset classes.

### Common Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Common and Financial Attributes Tab

**Note:** The ‘’Asset Attributes by Asset Class’’ text above is a Bookmark (point the cursor and press <Ctrl>) to jump to the spreadsheet link in Appendix 7.1

## 6.1.1 Financial Attributes

Each physical asset will also have a valuation record, the valuation record is used to record the asset value, the replacement cost and the expected life of the asset.

This information is used for financial entries related to the asset e.g., depreciation, revaluation, written down value but also provides information for asset renewals planning e.g., effective life and replacement cost.

### Financial Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Common and Financial Attributes Tab

## 6.2 Building

A structure with floor, roof, and walls with above ground walk-in access.

### Building Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘BLDS’ and Asset Class Description =’Buildings’

### Building Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Building FT Attributes Tab

## 6.3 Chambers and Manholes

A partially below ground or below ground enclosure where equipment and pipework is housed for inspection or maintenance purposes.

### Chambers and Manholes Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CHAM’ and Asset Class Description =’Chambers and Manholes’

### Chambers and Manholes Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Chamber & Manhole FT Attributes Tab

## 6.4 Civil

A structure that provides adequate rigidity to withstand its own weight and can resist external loads. The load elements relate to civil structures e.g., anchor blocks, bridge piers or equipment bases.

### Civil Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CIVL’ and Asset Class Description = ‘Civil’

### Civil Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Civil FT Attributes Tab

## 6.5 Containment Structures

A structure or vessel that manages media for storage or process balancing such as reservoirs and process tanks.

### Containment Structures Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CONT’ and Asset Class Description = ‘Containment Structure’

### Containment Structures Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Containment Stru. FT Attributes Tab

## 6.6 Control Structures

A structure that holds back any material or fluid, typically to separate terrain or fluid at different elevations.

### Control Structures Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CSTR’ and Asset Class Description = ‘Control Structures’

### Control Structures Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Control Structure FT Attributes Tab

## 6.7 Control System

Asset systems that integrate software and hardware with network connectivity to manage, command, direct or regulate the behaviour of other devices or systems using control loops that are either automated and / or manually directed.

### Control System Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CNTS’ and Asset Class Description = ‘Control System’

### Control System Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Control System FT Attributes Tab

## 6.8 Electrical Rotating

Electrical equipment that is the motive or drive to mechanical equipment to perform work or rotated by a mechanical machine to produce electricity.

### Electrical Rotating Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘ELRO’ and Asset Class Description = ‘Electrical Rotating’

### Electrical Rotating Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Elec. Rotating FT Attributes Tab

## 6.9 Electrical Static

Equipment used in the distribution, protection and management of AC and DC electricity supply.

### Electrical Static Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘ELST’ and Asset Class Description = ‘Electrical Static’

### Electrical Static Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Elec. Static FT Attributes Tab

## 6.10 Equipment

Facility equipment not related to water services, captured for the sake of financial valuation.

### Equipment Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘PEQ’ and Asset Class Description = ‘Equipment’

### Equipment Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Equipment FT Attributes Tab

## 6.11 Instruments and Monitoring

A device used directly or indirectly to measure and/or control a variable. The term does not apply to parts (e.g., a receiver bellows or a resistor) that are internal components of an instrument.

### Instruments and Monitoring Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘INST’ and Asset Class Description = ‘Instruments and Monitoring’

### Instruments and Monitoring Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Instruments FT Attributes Tab

## 6.12 Intangibles

Facility intangible assets, captured for the sake of financial valuation.

### Intangibles Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘PMS’ and Asset Class Description = ‘Intangibles’

### Intangibles Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Intangibles FT Attributes Tab

## 6.13 Land

Earth surface not permanently covered by water, vested, or procured to secure access rights to water supply and treatment of large infrastructure.

### Land Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘LAND’ and Asset Class Description = ‘Land’

### Land Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Land FT Attributes Tab

## 6.14 Mechanical Rotating

Mechanical equipment that with the addition of kinetic energy can move other equipment, move material from one point to another, or to agitate media.

### Mechanical Rotating Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘MECR’ and Asset Class Description = ‘Mechanical Rotating’

### Mechanical Rotating Asset Attributes

Refer to [Asset Attributes by Asset Class -](#ADS_Spreadsheet) Mech. Rotating FT Attributes Tab

## 6.15 Mechanical Static

Mechanical equipment that is not used for rotation, movement, or agitation. Static mechanical equipment is used to connect civil structures such as pipe fittings, supports a mechanical process, or is used as a physical interface with a mechanical machine.

### Mechanical Static Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘MECS’ and Asset Class Description = ‘Mechanical Static’

### Mechanical Static Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Mech. Static FT Attributes Tab

## 6.16 Meter

Instrument used for measuring water volume in the transmission and network areas.

Note: the last 2 digits in the Unit Type Code represent the number of dials on the meter. This is critical for billing purposes and meter ‘rollovers’.

### Meter Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘WMTR’ and Asset Class Description = ‘Meter’

### Meter Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Meter FT Attributes Tab

## 6.17 Nodes

Mainly nominal asset to represent connection points between linear assets. However, some nodes are physical assets when they are represented by physical objects such as joints, inlets and outlets.

### Nodes Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘NODE’ and Asset Class Description = ‘Nodes’

### Nodes Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Nodes FT Attributes Tab

## 6.18 Pipes and Conduits

A tube that conveys fluid or gas or may be used for the protection of another service such as an electric cable.

### Pipes and Conduits Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘CONP’ and Asset Class Description = ‘Pipes and Conduits’

### Pipes and Conduits Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Pipes & Conduits FT Attributes Tab

## 6.19 Roads, Bridges and Rail

Transport corridor facilitating the transfer of goods and people by vehicle and / or the support of utility services along a designated infrastructure corridor.

### Roads, Bridges and Rail Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘ROBR’ and Asset Class Description = ‘Roads, Bridges and Rail’

### Roads, Bridges and Rail Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Roads, Bridge, R. FT Attributes Tab

## 6.20 Site Services

Ancillary site components that support the infrastructure site functions such as access, security, and office equipment.

### Site Services Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘SISV’ and Asset Class Description = ‘Site Services’

### Site Services Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Site Service FT Attributes Tab

## 6.21 Treatment Devices

Treatment devices are used to improve the quality of stormwater or wastewater prior to discharging to a receiving environment.

### Treatment Devices Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘TRMT’ and Asset Class Description = ‘Treatment Devices’

### Treatment Devices Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Treatment Devices FT Attributes Tab

## 6.22 Tools

Handheld devices or devices that are small enough to be moved by hand that aids in accomplishing a work task such as cutting, shaping, measuring, or tightening.

### Tools Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘TOOL’ and Asset Class Description = ‘Tools’

### Tools Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Tools FT Attributes Tab

## 6.23 Valves

A device halting or controlling the passage of a fluid or gas through pipes, ducts and at the inlet or outlet of containment vessels.

### Valves Asset Classification

Refer to [Asset Attributes by Asset Class -](#ADS_Spreadsheet) Asset Classification Tab

Where Asset Class Code = ‘VALV’ and Asset Class Description = ‘Valve’

### Valves Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Valves FT Attributes Tab

## 6.24 Vehicles

An asset used for the transportation of people or goods.

### Vehicles Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘VEH’ and Asset Class Description = ‘Vehicles’

### Vehicles Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Vehicles FT Attributes Tab

## 6.25 Waterway

Waterway that conveys water in lined or unlined constructed channels where the water is not stream water. A lined channel is a constructed channel with either a lined base or bank(s) whereas an unlined channel is an open constructed earthen channel with no lined base and banks.

### Waterway Asset Classification

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Asset Classification Tab

Where Asset Class Code = ‘WWAY’ and Asset Class Description = ‘Waterway’

### Waterway Asset Attributes

Refer to [Asset Attributes by Asset Class](#ADS_Spreadsheet) - Waterway FT Attributes Tab

# Appendix

## 7.1 Embedded Asset Standard

| **File Name** | **Embedded File** |
| --- | --- |
| **Water Services Reform** **Asset Standards** | Asset Attributes by Asset Class –  [Asset Data Standard Attribute by Asset Class v3.6](https://azurediagovt.sharepoint.com/sites/WSRCustomerDigital-EXT/SoR/Asset%20Data%20Standard/Asset%20Data%20Standard%20v3.6/ADS%20v3.6%20-%20Asset%20Attributes%20by%20Asset%20Class.xlsx) |

## 7.2 Dropdown List

Predefined list of attribute values to select from.

| **File Name** | **Embedded File** |
| --- | --- |
| **Water Services Reform Attribute Dropdown List** | [Asset Attribute Drop Down List v3.6](https://azurediagovt.sharepoint.com/sites/WSRCustomerDigital-EXT/SoR/Asset%20Data%20Standard/Asset%20Data%20Standard%20v3.6/ADS%20v3.6%20-%20Asset%20Attribute%20Drop%20Down%20Lists.xlsx) |

## 7.3 Key Decisions

### Table 6 - Key Decisions Table

| **Asset Class** | **Attribute** | **Notes** |
| --- | --- | --- |
| **General** | General | Storm Catchpit will be combined with Chambers and Manholes as a Subtype as it better aligns with the asset class. |
| **General** | General | Storm Structures will be combined with Control Structures as it better aligns with the asset class. |
| **General** | General | Storm Treatment Device renamed to Treatment Devices due to the variety of assets included. |
| **General** | General | Rename Retaining Structures + Headwall to Control Structures to provide more clarification. |
| **General** | General | Rename Channel to Waterways to provide more clarification. |
| **General** | Cover vs Lid | We have agreed that Chambers and Manholes will include Lid Material, Lid Level, Cover Type and Cover Level as a baseline attribute and all other relevant asset classes (Containment Structure, Site Services and Storm Treatment) will include Cover Type and Cover Level. This aligns with the function of each individual asset class. |
| **General** | Other Material Attributes | For baseline implementation, the working group has decided that ‘Material’ will cover additional material attributes (e.g., headwall material). |
| **Common** | Address ID | All more granular address attributes are stored as not baseline (e.g., suburb). |
| **Common** | Safety Critical Element | More detailed safety attributes (e.g., safety guard / rail) could be implemented. Further discussion on how safety critical element is used and what is required. |
| **Control System** | STF Attributes | Have these attributes as a drop- 'Functional Output Pipes and Conduits' down list rather than multiple attributes. Just need to address what STF attributes to include. (e.g., if an asset was in the STF asset) |
| **Valves** | Functional Output Attributes | Have these attributes as a drop-down list rather than multiple attributes. Just need to address what Functional Output attributes to include. |
| **Meter** | General | Further details (e.g., Type of Meter, Number of dials, etc) is covered under unit type. Level of detail stated in the attributes is sufficient for baseline implementation. |
| **General** | General | Changed Unit of Measure for the following attributes from Millimetre to Metre:   * Cover Level * Lid Level   Changed Unit of Measure for the following attributes:   * Pressure Rating to have two UoM as a dropdown (PN or kPa) * Stiffness Rating from Kilo Newton per Metre Squared to SN |

## 7.4 Members of the Asset Data Standard Working Group

### Table 7 - Working group member details

|  |  |  |
| --- | --- | --- |
| **Organisation** | **Name** | **Notes** |
| Auckland City Council - Healthy Waters | Jean Pierre Gallet | [jeanpierre.gallet@aucklandcouncil.govt.nz](mailto:jeanpierre.gallet@aucklandcouncil.govt.nz) |
| Auckland City Council - Healthy Waters & AMOS | Nina Sardareva | [nina.sardareva@aucklandcouncil.govt.nz](mailto:nina.sardareva@aucklandcouncil.govt.nz) |
| Canterbury University | Greg Preston | [greg.preston@canterbury.ac.nz](mailto:greg.preston@canterbury.ac.nz) |
| Department of Internal Affairs | David Pinkney | [david.pinkney@dia.govt.nz](mailto:david.pinkney@dia.govt.nz) |
| Christchurch City Council | Tyler McMilan | tyler.mcmilan@ccc.govt.nz |
| Colab Solutions | Rachael Casey | [rachael.casey@colabsolutions.govt.nz](mailto:rachael.casey@colabsolutions.govt.nz) |
| Colab Solutions | Emma Good | emma.good@colabsolutions.govt.nz |
| Tauranga City Council | Keith Glaholm | [keith.glaholm@tauranga.govt.nz](mailto:keith.glaholm@tauranga.govt.nz) |
| Tauranga City Council | Kim Fraser | [kim.fraser@tauranga.govt.nz](mailto:kim.fraser@tauranga.govt.nz) |
| Department of Internal Affairs | Barry Smith | [barry.smith2@dia.govt.nz](mailto:barry.smith2@dia.govt.nz) |
| Watercare | Brendon Harkness | [brendon.harkness@water.co.nz](mailto:brendon.harkness@water.co.nz) |
| Watercare | Jennifer Lordan | [jennifer.lordan@water.co.nz](mailto:jennifer.lordan@water.co.nz) |
| Watercare | Waldo Strydom | [waldo.strydom@water.co.nz](mailto:waldo.strydom@water.co.nz) |
| Wellington Water | Dylan Hopkins | [dylan.hopkins@wellingwater.co.nz](mailto:dylan.hopkins@wellingwater.co.nz) |
| Wellington Water | Wade Gosper | [wade.gosper@wellingwater.co.nz](mailto:wade.gosper@wellingwater.co.nz) |

## 7.5 Embedded Change Log for version 3.6

| **File Name** | **Embedded File** |
| --- | --- |
| Water Services Reform **Changelog for v3.6** | [V3.6 Changelog](https://azurediagovt.sharepoint.com/sites/WSRCustomerDigital-EXT/SoR/Asset%20Data%20Standard/Asset%20Data%20Standard%20v3.6/ADS%20v3.6%20Changelog.xlsx) |