



**12d<sup>®</sup> Model**  
Civil and Surveying Software

# PW Survey Guidelines

## Public Works – Codes

Version 15.0

13 November 2025



**12d<sup>®</sup> Model**

Do More With Your Software.



ROADS AND  
HIGHWAYS



LAND  
DEVELOPMENT



RAIL



DRAINAGE,  
SEWER AND  
SERVICES



AIRPORT  
INFRASTRUCTURE



PORTS AND  
DREDGING



MINING  
INFRASTRUCTURE



SURVEYING



OIL AND GAS



RIVERS,  
DAMS AND  
HYDROLOGY



CONSTRUCTION



ENVIRONMENTAL



# Disclaimer

## 12d Model V15.0 Introduction to 12d Model Manual

V15.0 November 25

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|                |                            |             |            |



## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of this survey standard is to provide the surveying community with a comprehensive suite of core survey files to enable consistent and interoperable framework for data capture. By aligning with this standard, surveyors can record field features with greater accuracy and consistency, ensuring compatibility with Public Works authority requirements and minimizing the need for designers to develop custom workflows and templates during subsequent design phases.

The annotations will be the following:

|                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  | A thick red line to indicate where a measurement should be strung.                |
|  | A blue cross to indicate where a measurement should be taken.                     |
| *                                                                                 | Indicates mandatory attribute, that later describes symbols or linestyles or both |
| **                                                                                | Indicates possible office attributes                                              |

If features like tunnels do not exist within your region, simply remove these codes from this manual and code list, for ease of use and adoption.

For Field codes that contain too many attributes (excluding Under Ground Utilities, which are addressed later in this manual), delete any unnecessary attribute names. However, retain those marked with an asterisk (\*), as they affect the linestyle or symbol used for that feature.

### 1.2 Objective

To standardize the capture, classification, and delivery of survey data for Public Works projects, enabling consistent field data collection, seamless integration with design processes, and reduced duplication of effort across surveying and design teams.

- **Standardization:** Establish a uniform set of field files and data structures for use across surveying teams.
  - Including additional project-specific requirements, including but not limited to:
    - **BIM (Building Information Modelling) integration**
    - **ADAC (Asset Design As Constructed), asset capture and handover of information to asset owners**
    - **IFC (Industry Foundation Classes) exports**

- **Consistency:** Ensure consistent and accurate capture of field features in line with Public Works requirements, deliverables and plot files.
- **Efficiency:** Reduce the need for custom workflows and template creation by designers.
- **Interoperability:** Improve compatibility between survey data and downstream design and asset management systems.
- **Quality Assurance:** Enhance the reliability and usability of survey data throughout the project lifecycle, and GIS compatibility.

### 1.3 Survey and Presentation

Survey data collection and presentation must be carried out to the highest professional standard to ensure accuracy, reliability, and fitness for purpose. The data must support a diverse group of stakeholders — including engineers, designers, asset managers, construction teams, and decision-makers — throughout the lifecycle of Public Works and infrastructure projects.

To ensure national consistency, legal compliance, and integration with broader digital engineering initiatives, this standard maximises the use of relevant **Australian Standards** and national frameworks wherever practicable. Key references include:

- **AS 5488 – Classification of Subsurface Utility Information (SUI):**  
Establishes a consistent method for classifying and documenting underground utilities based on data accuracy and source. It helps manage risk in infrastructure planning and construction by defining four Quality Levels (QL-A to QL-D).
- **AS 4970 – Protection of Trees on Development Sites:**  
This is relatively a new trend capturing trees in Australia, provides guidelines for assessing and protecting trees on or adjacent to construction sites, including definitions of Tree Protection Zones (TPZ) and required offsets to minimise disturbance.
- **BYDA – Before You Dig Australia:**  
BYDA governs the process of locating and managing underground assets prior to excavation. Survey deliverables must account for BYDA (Before You Dig Australia) responses and asset owner requirements. This includes correctly referencing utility locations, incorporating digital responses into field files, and aligning with asset owner-specific spatial and data format requirements.

By embedding these standards and requirements into survey practice, this framework supports better risk mitigation, enhances data interoperability, and ensures deliverables are immediately usable across workflows such as **BIM**, **ADAC**, and **IFC** exports — reducing rework and increasing project efficiency.

### 1.3.01 Disclaimer

The information, standards, and references outlined in this document are intended as a general guide to support best practices in survey field capture and data presentation.

Users are advised to consult with the **relevant authority, asset owner, or project lead** to confirm any updates, amendments, or specific requirements that may apply.

All files, data sources, templates, and digital deliverables should be **independently tested and verified** for accuracy, currency, and compatibility prior to use. The authors of this document accept no responsibility for errors, omissions, or consequences arising from the use of outdated or unverified materials.

### 1.3.02 Coordinate information/datum

It is essential to follow recognised best practice guidelines, which are often defined usually as part of the project brief, or work instructions. However, always confirm requirements with relevant authorities to ensure that the specified **accuracies, uncertainties, and residuals** are appropriate and acceptable for the specific project outcomes.

Adhere to best practice guides, these are often set at a national level, however, check with relevant authorities, for the acceptable accuracies, uncertainties and residuals which are best suitable for the project outcome.

Summary,

**12d Model** supports coordinate transformation between many different systems and enables the ability for its users to customise these settings, to suit the project requirements. You can transform data between:

- Local coordinate systems
- State-based grids
- National or country-specific datums,
- Custom coordinate systems/datums, and parameters

This functionality ensures your data aligns with recognised spatial references and adheres to standard surveying practices.

- **Best Practices**
- **Follow National Guidelines:** Use nationally recognised best practice guides wherever available.
- **Check with Authorities:** Confirm the required levels of **accuracy, uncertainty, and residuals** with relevant project authorities or regulatory bodies.
- **Match Project Needs:** Ensure that your coordinate transformations meet the accuracy requirements for your specific project outcomes.

### 1.3.03 Survey codes overview

The process of capturing survey features has largely remained consistent over time. Features are typically recorded as **points, lines, or polygons**. Measurements are usually taken facing the direction of traffic, when working near roads, to maintain awareness of the environment and surroundings.



## PW Survey Guideline

### Public Works – Codes

It's important to note that most features can also be captured using alternative surveying methods such as **reflectorless total stations**, **laser scanners**, and other modern technologies.

#### 1.3.04 References

This guideline must be read in conjunction with the following documents:

- PW Guidelines 12d Standards and Procedures
- PW Survey Guidelines – Asset Capture (**future release**), focus on ADAC, principle applies most asset custodians.

Other Standards may include:

- AS5488 – Subsurface Utility Information (SUI)
- AS4970 – Protection of Trees on Development Sites, this includes TPZ and SRZ zones
- Technical Drawing Standard AS1100.
- Before You Dig Australia (BYDA)

## 1.4 Survey Requirements

This Public Works Guideline aims to establish **consistency and uniformity** in the provision and export of survey data across construction projects, key stakeholders and asset custodians/asset owners. Delivering **high-quality exports** for all aspects of design is essential and requires a **systematic and standardised approach** to preparing construction data for each project, and seamless data exchange between common systems that relate to the same utilisation of this standard.

This manual provides sufficient guidance to support users in beginning their design work and producing reliable outcomes. It assumes that the reader has a **basic working knowledge of 12d Model and CAD** software.

This standard is included as part of the **12d Model configuration and installation package**. Users who choose to adopt this standard as part of their daily workflow will benefit from its integration with industry best practices and ongoing updates. These updates are typically available to users with current **12d Model maintenance agreements**, ensuring access to the latest tools and industry requirements relevant to surveying, many of which may have already been anticipated and addressed within this standard.





## 2.0 12D MODEL STARTUP

### 2.1 General 12d Model Project Startup

12d Model projects should be run from a location on a Network or in a CDE (common data environment). They should be saved and closed, and if using a CDE, checked in at the end of the workday at a minimum. This ensures the projects are backed up and allows model and tin data to be shared between multiple operators.

A design type or area is to be run in its own project, that is, one project per working folder. This allows defined separation of the data files and allows easy sharing between operators. Survey and other external data are also to be setup in separate projects. This promotes this data as read only but still allows seamless updates to be shared between all operators. In the projects:

- Fill in the project details as required
- Use the Project Description panel to record specific information about the project. This will also ensure smooth handovers between operators if required and keeps vital information with the project.

Types of information that can be recorded here, are

- What standards are used
- Variations to Standards
- Variations to standard naming conventions
- Map grid information
- Survey updates, from and why, etc.

### 2.2 Support Files

The Public Works Standard 12d Model files is the standard Setup and Library files that are shipped and installed with the 12d Model software. These files have been developed in conjunction with the local government authorities to be a common standard.

Any changes to these files for your company specific additions or modifications should be placed into a specified **User** and **User\_Lib** folder that will then override the installed files. These User and User\_Lib folders can be specified either via an **env.4d** file (environment file) or by using a start up **env\_configs.4d** file (Configuration file). A **User** and **User\_Lib** folder may be kept in a company Library location or in the project for specific project modifications and or for easier archiving purposes.

**Note:** If using company overriding setup files, these should be checked against the installed files for updates, when the 12d Model software is updated also.

To define a User and or User\_lib path in the env.4d or env\_configs.4d file they are defined with the variables:

User > **USER\_4d** > Define by path, Fixed or relative.

User\_lib > **USER\_LIB\_4d** > Define by path, Fixed or relative.



### 2.3 Subsurface Utility Infrastructure (SUI)

#### 2.3.01 Overview in detail

**AS 5488** is the **Australian Standard for the classification of Subsurface Utility Information (SUI)**. It provides a nationally consistent framework for the collection, depiction, and communication of information about underground utilities such as water, gas, electricity, telecommunications, and sewer infrastructure.

The standard was developed by Standards Australia to improve safety, reduce risk, and enable better planning and decision-making during the design and construction phases of civil and infrastructure projects.

#### 2.3.02 Why is AS 5488 Used?

AS 5488 is used to:

- **Minimise the risk** of damaging underground utilities during excavation.
- **Standardise the documentation** of underground utility data across projects.
- **Support better decision-making** by clearly communicating the **accuracy and reliability** of underground utility information.
- **Improve collaboration** between surveyors, designers, engineers, asset owners, and contractors.

#### 2.3.03 Purpose of AS 5488

The main purposes of the standard are to:

- Provide a **classification system** for subsurface utility information (SUI), based on how the data was obtained and its spatial accuracy.
- Define **Quality Levels (QL-A to QL-D)** to describe the confidence level and methods used to obtain utility information.
- Promote consistent **data recording, sharing, and presentation** practices across all stakeholders.
- Enhance **risk management** by enabling informed decisions about where and how to dig.

#### 2.3.04 Accuracy Classifications (Quality Levels)

AS 5488 defines four **Quality Levels (QLs)**, which describe how the subsurface utility information was obtained and its expected accuracy:

| Quality Level | Description                               | Method of Data Collection                                           | Accuracy                |
|---------------|-------------------------------------------|---------------------------------------------------------------------|-------------------------|
| QL-D          | <b>Desktop information only</b>           | Based on existing records, plans, or verbal advice                  | Lowest accuracy         |
| QL-C          | Correlation with visible surface features | Alignment of QL-D info with visual cues (e.g. pits, valves)         | Low to moderate         |
| QL-B          | <b>Non-invasive detection</b>             | Utility locating using geophysical methods (e.g. GPR, EMF locators) | Moderate to high        |
| QL-A          | <b>Physically exposed and surveyed</b>    | Utility verified by potholing or exposure and surveyed              | <b>Highest accuracy</b> |

### 2.3.05 Best Field Practices for SUI Classification

Field capture consists of a methodical approach to ensure data integrity and traceability:

#### 1. Identify Known Utility Infrastructure

- Commence SUI data collection from **visible or known utility features** such as:
  - Electrical or communications **pits** and **pillars**
  - Utility **poles**, **Valve boxes**, **hydrants**, and **access chambers**
  - **Conduits** or other exposed services
  - Validate features against BYDA plans and prior asset owner records.

#### 2. Observe and Record Physical Evidence

- Correlate desktop utility plans (QL-D) with physical indicators in the field (QL-C).
- Use **non-destructive detection methods** (e.g. GPR, EMF locators) for QL-B classification.
- If permitted, use **potholing** to expose services for QL-A classification and survey to precise tolerances.

#### 3. Attribute Each Utility Segment with Correct Quality Level

- Assign an appropriate **Quality Level (A–D)** to each utility segment based on the method of detection, as per AS 5488 guidelines.
- Maintain metadata records, including:
  - Detection method used
  - Source of information
  - Asset owner (if known)
- Surveyor notes or photos (optional)

### 2.3.06 Accuracy Levels (Quality Levels):

| Quality Level | Horizontal Accuracy     | Vertical Accuracy       | Data Source                         | Use Case                                |
|---------------|-------------------------|-------------------------|-------------------------------------|-----------------------------------------|
| QL-A          | ± 50 mm                 | ± 50 mm                 | Physical exposure (e.g. potholing)  | Construction, pre-excavation validation |
| QL-B          | ± 300 mm                | ± 500 mm                | Electronic detection (e.g. EML/GPR) | Design development, risk reduction      |
| QL-C          | ± 200 mm                | <b>Not defined</b>      | Surface features + existing records | Early-stage design, feasibility         |
| QL-D          | <b>Existing Records</b> | <b>Existing Records</b> | Historical records / BYDA only      | Concept planning, broad location        |

### 2.3.07 Possible Factors Affecting Accuracy:

- **Ground Conditions:** Soil type, moisture, and presence of other materials can affect the performance of geophysical methods.
- **Depth of Utilities:** Deeper utilities are more difficult to locate accurately.
- **Material of the Utility:** The type of material (e.g., metal, plastic) can affect how easily it can be detected by geophysical methods.

### 2.3.08 Possible Survey/Locate Methods:

- **Geophysical Methods:**
  - GPR: Uses radar waves to detect subsurface objects.
  - Electromagnetic Induction: Uses electromagnetic fields to locate metallic objects.
  - Other Methods: Visual inspection, radio frequency location (RFL).
- **Non-Destructive Methods (Potholing):** Excavating small areas to directly view and measure utilities.
- **Direct Measurement:** Using scanners, total stations or RTK GPS to measurements and record the utilities.

### 2.3.09 Survey Requirements in Detail:

- **Review Existing Data:** Surveyors should review any existing site plans, utility records, and other relevant information.
- **Site Inspection:** Conducting a visual inspection of the site to identify visible utility features.
- **Marking and Mapping:** Using spray paint, flags, or other markers to mark utility locations, and using specialized equipment to map them.
- **Reporting:** Providing a detailed report that includes the location and depth of utilities, as well as any potential hazards or issues.

### Extract from AS 5488 Australian Standards

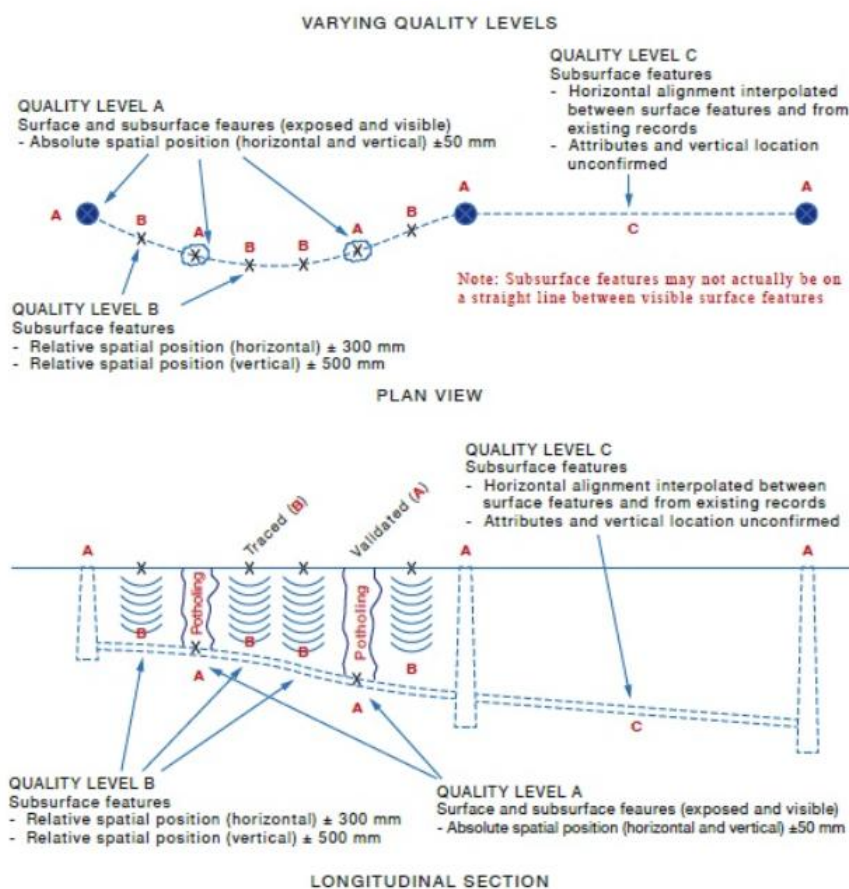
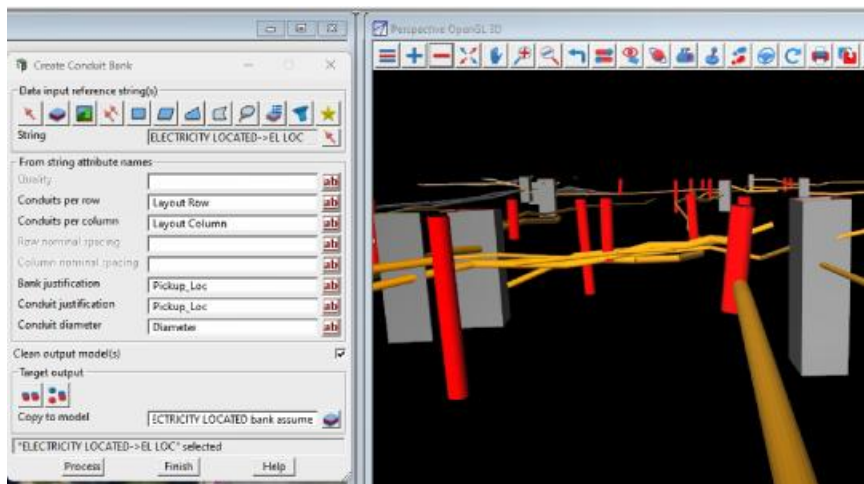
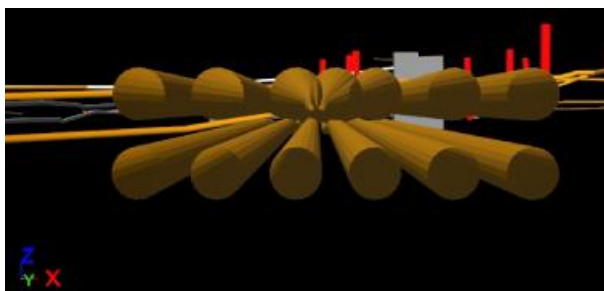


FIGURE A5 VARYING QUALITY LEVELS

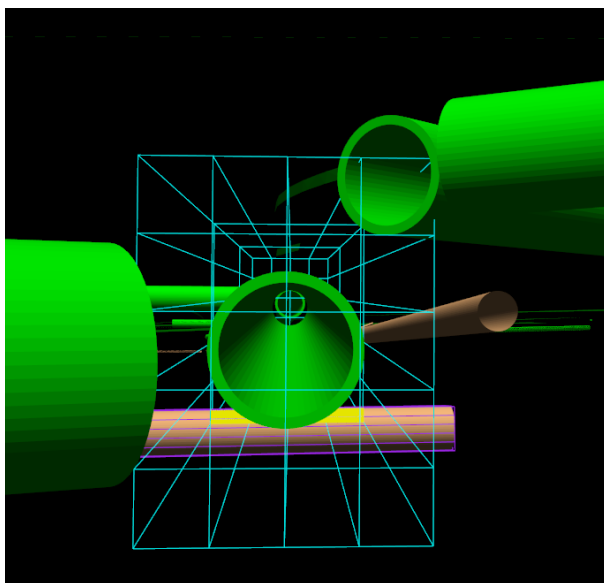
12d Model offers the capability to automate information easily a visual representation of the subsurface utilities.



Once this information is processed, the seamless automation within 12d Model allows the bank of conduits to be calculated from a single referenced string, while still displaying the original source data



Additional information can be displayed as a Zone of Influence, as illustrated below. This incorporates SUI classification, which defines an exclusion zone around the subsurface utility, as shown below.





### 2.4 SUI Colour

Surface Utility colours are the Australian Standard AS5488 colours for utility types. The primary colours for SUI AS5488 are:

|                              |  |
|------------------------------|--|
| Communications (White)       |  |
| Drainage (Green)             |  |
| Electricity (Orange)         |  |
| Fire Service (Red)           |  |
| Gas (Yellow)                 |  |
| Petroleum (Brown)            |  |
| Recycled Water (Purple)      |  |
| Sewer (Cream)                |  |
| Unidentified Services (Pink) |  |
| Water (blue)                 |  |

Due to plot ability, the Public Works has modified some these colours to display as the following:

| Utility                      | SUI Colour | PW Colour |
|------------------------------|------------|-----------|
| Communications (White)       |            |           |
| Drainage (Green)             |            |           |
| Electricity (Orange)         |            |           |
| Fire Service (Red)           |            |           |
| Gas (Yellow)                 |            |           |
| Petroleum (Brown)            |            |           |
| Recycled Water (Purple)      |            |           |
| Sewer (Cream)                |            |           |
| Unidentified Services (Pink) |            |           |
| Water (blue)                 |            |           |



### 2.5 Tree Protection Zones

The **purpose of Australian Standard AS 4970 – Protection of Trees on Development Sites** is to provide **guidelines for protecting trees** during the planning, design, and construction phases of development projects.

#### 2.5.01 The key objectives of this standard

- Preserve trees that are to be retained on or near development sites, and within City's infrastructure
- Minimize damage to tree roots, trunks, and canopies from construction activities.
- Guide developers, planners, arborists, and contractors in best practices for tree protection
- Ensure **sustainable urban development** that integrates existing vegetation into the built environment.

#### 2.5.02 Core Components of the Standard:

- Tree Protection Zones (TPZs): Specifies how to calculate and implement a safe buffer around trees to protect roots and structural integrity.

$$\text{TPZ (radius in metres)} = \text{DBH} \times 12$$

- **DBH** = Diameter at Breast Height (in **metres**)
  - Measured at **1.4 metres above ground level**
- **Minimum TPZ = 2.0 meters**
- **Maximum TPZ = 15.0 meter, unless known**
  - **TPZ = 0.75 x 12 = 9.0 meters**
- TPZ with multi-stemmed trees
- For trees with multiple trunks emerging from the ground, the DBH calculation changes, this calculation would require manual intervention.

$$\text{TPZ radius} = \sqrt{(\text{DBH}_1)^2 + (\text{DBH}_2)^2 + \dots} \times 12$$

- Structural Root Zones (SRZs): Defines the area around a tree that must not be disturbed to prevent instability.

$$\text{SRZ radius} = (\text{D} \times 50)^{0.42} \times 0.64$$

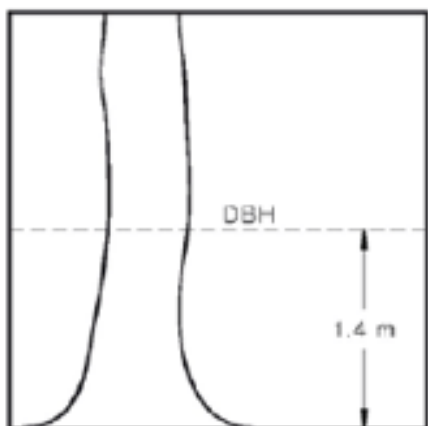
- D = trunk diameter in metres measured just above the root flare (not at 1.4 m)
- The formula is non-linear to account for root architecture across different species

- D = 0.3m
- $\text{SRZ} = (0.3 \times 50)^{0.42} \times 0.64 \sim 2.1 \text{ m radius}$

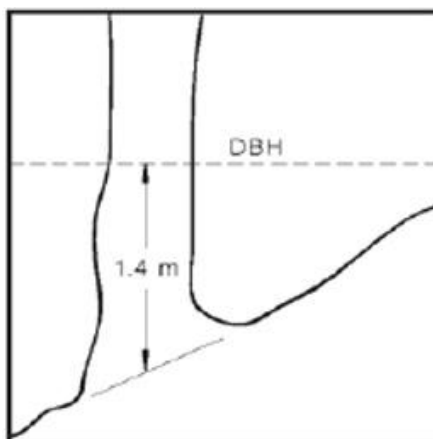
- Minimum SRZ: Always 1.5 m minimum, regardless of tree size
- Structural Root Zones (SRZs): Defines the area around a tree that must not be disturbed to prevent instability.
- Structural Root Zones (SRZs): Defines the area around a tree that must not be disturbed, as it contains the tree's critical structural roots responsible for stability and anchorage.

- Planning Considerations: Addresses tree assessment, site planning, and consultation with qualified arborists.
- Construction Guidelines: Covers fencing, ground protection, and restrictions on machinery or materials within TPZs.

AS 4970 is widely referenced by local councils, landscape architects, and environmental consultants across Australia to ensure that development is done responsibly and trees are not unnecessarily harmed or removed.



1. Tree on level ground



2. Tree on sloping ground

## 3.0 CODE LIST – GENERAL

Subsurface utilities to be captured preferable from known positions of accuracy or later changed during office processing. Purpose of this is to ensure that the accuracy quality levels of the captured feature is drawn correctly within 12d Model and later published to CAD correctly.

### 3.1 Bridge

This section includes common constructed elements of a bridge structure.

#### [BRAB] Bridge – Abutment

String physical features of the abutment, record appropriate attributes.

**Survey Geometry:** Minimum 2 points per edge line.

| Attribute | Mandatory | Type | Value                                   |
|-----------|-----------|------|-----------------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                         |



### [BRDK] Bridge – Deck

String extents of the bridge deck and any changes of grade.

**Survey Geometry:** Minimum 2 points per edge and change of grade line.

| Attribute | Mandatory | Type | Value                                   |
|-----------|-----------|------|-----------------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                         |



### [BRNDF] – [BRNDFS] Bridge – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

**Survey Geometry:** Point or String feature, based upon the attribute name "Point-Line".

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| PHOTO      | Y         | Text |             |
| Point-Line | Y         | Text | LINE, POINT |
| Comment    | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



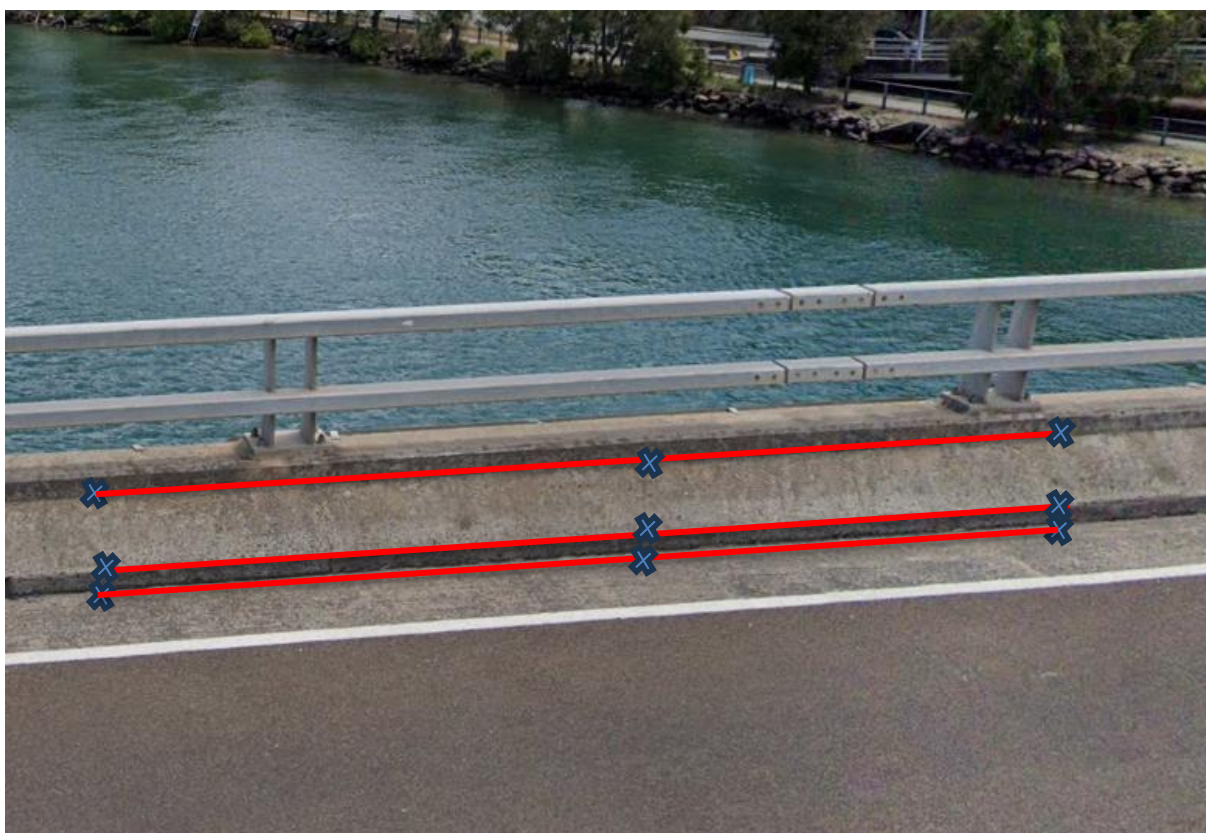


### [BRPAR] Bridge – Parapet

Depending on the type of parapet being surveyed, a string may need to be measured on the hinge line, top of parapet, as well as any other defining features.

**Survey Geometry:** Minimum 2 points per feature line.

| Attribute | Mandatory | Type | Value                                            |
|-----------|-----------|------|--------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                  |



**[BRPR] Bridge – Pier**

Locate the centre of the pier with a single point preferably at ground level, and record appropriate attributes.

**Survey geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Length    | Y         | Real |                                                |
| Width     | Y         | Real |                                                |
| Material  | Y         | Text | BRICK, CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Shape     | Y         | Text | EXTENDED, RECTANGULAR, ROUND, SQUARE, NON_STD  |
| Comment   | N         | Text |                                                |



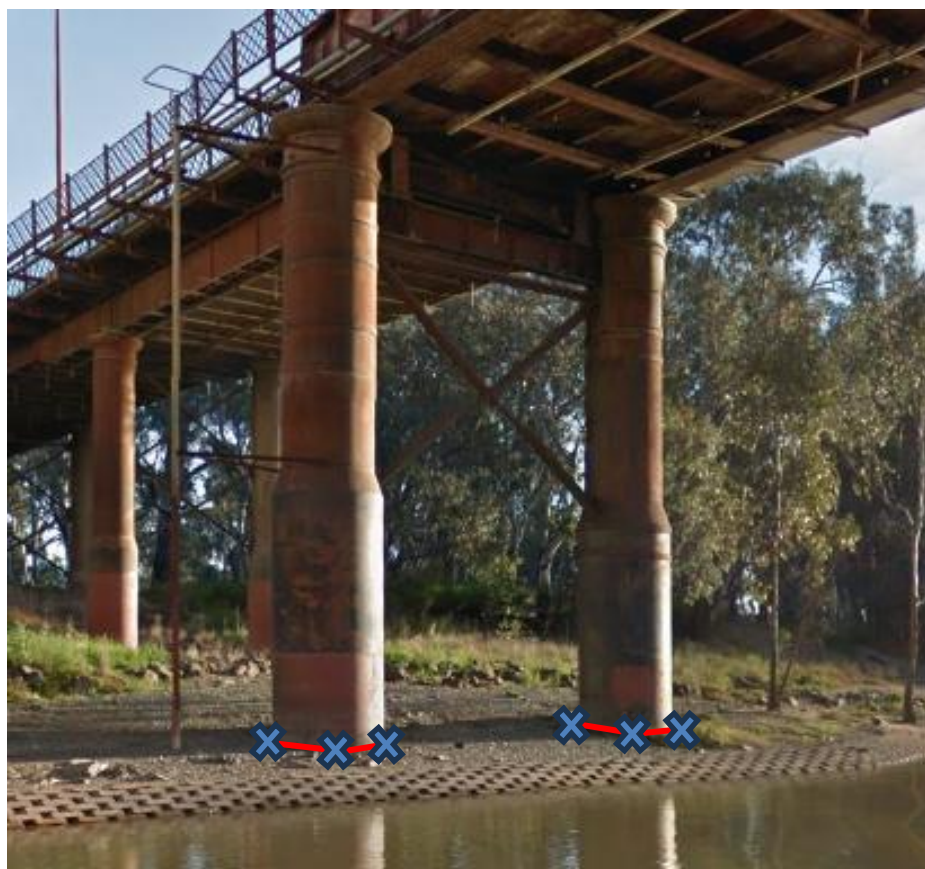


**[BRPRS] Bridge – Pier Strung**

String around the physical structure, preferably at ground level, record appropriate attributes.

**Survey geometry:** For square or rectangular piers, record 4 points around the base to calculate the centre. For round piers, record 3 points around the base and use opcodes to arc/create circle between the points and then calculate the centre.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Length    | Y         | Real |                                                |
| Width     | Y         | Real |                                                |
| Material  | Y         | Text | BRICK, CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Shape     | Y         | Text | EXTENDED, RECTANGULAR, ROUND, SQUARE, NON_STD  |
| Comment   | N         | Text |                                                |

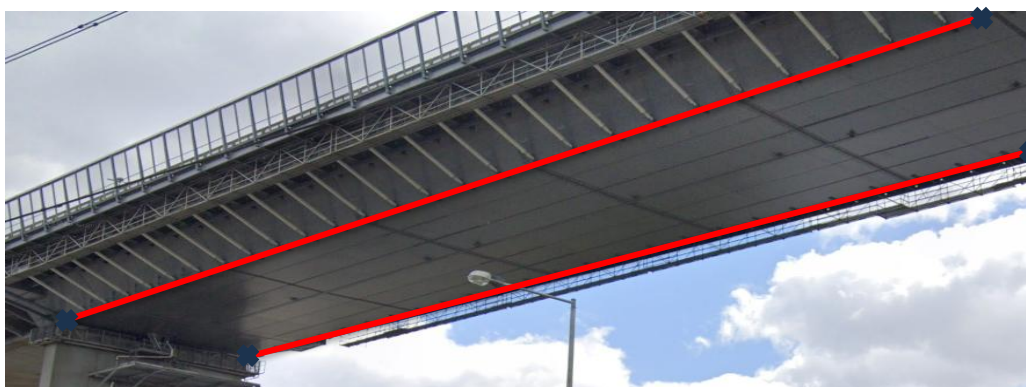


### [BRSOFF] Bridge – Soffit

String extents of the bridge soffit and any changes of grade.

**Survey geometry:** Minimum 2 points per edge and change of grade line.

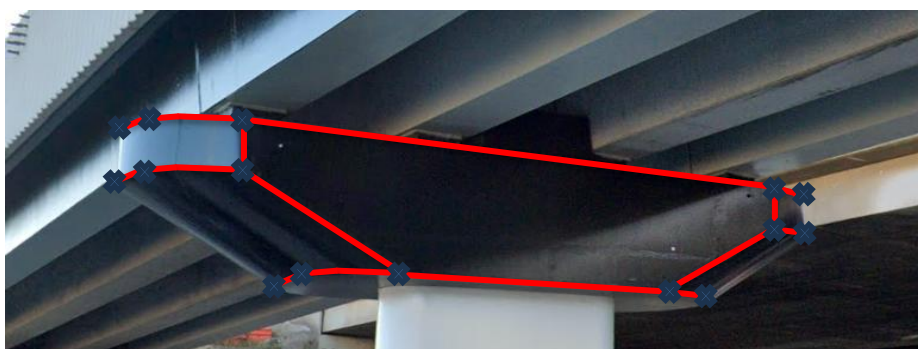
| Attribute | Mandatory | Type | Value                                            |
|-----------|-----------|------|--------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                  |



### [BRSTR] Bridge – Structure

This includes deck rails, soffits, build outs, etc. Description of points located needs to be added to the attributes.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Type      | Y         | Text | BEAM, CROWN, DECK, HEADSTOCK, SOFFIT, NON_STD  |
| Material  | Y         | Text | BRICK, CONCRETE, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                |



**Above:** Example of a concrete headstock.





### 3.2 Building

This section includes common elements of a building.

#### [BUAF] Building – Awning

String lowest level on roadside of awning face. Feature set non tinalbe by mapping file.

Record appropriate attributes.

**Survey geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Material  | Y         | Text | CONCRETE, FIBRO, GLASS, METAL, TIMBER, NON_STD |
| Comment   | N         | Text |                                                |



### [BUAP] Building – Awning Post

Locate centre of the awning post at ground level, record appropriate attributes.

**Survey geometry:** Depending on the size of the post, the measurement can either be offset to the centre, or for large square or rectangular posts, record 4 points around the base to calculate the centre. For round posts, record 3 points around the base and use opcodes to arc/circle between the points and then calculate the centre.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Material  | Y         | Text | CONCRETE, FIBRO, GLASS, METAL, TIMBER, NON_STD |
| Shape     | Y         | Text | RECTANGLE, ROUND, SQUARE, NON_STD              |
| Size      | N         | Text |                                                |
| Size2     | N         | Text |                                                |
| Comment   | N         | Text |                                                |



**[BUCOL] Building – Column**

Locate centre of pylons at ground level, record appropriate attributes.

**Survey geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Material  | Y         | Text | CONCRETE, FIBRO, GLASS, METAL, TIMBER, NON_STD |
| Shape     | Y         | Text | RECTANGLE, ROUND, SQUARE, NON_STD              |
| Size*     | N         | Real |                                                |
| Size2     | N         | Real |                                                |
| Comment   | N         | Text |                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



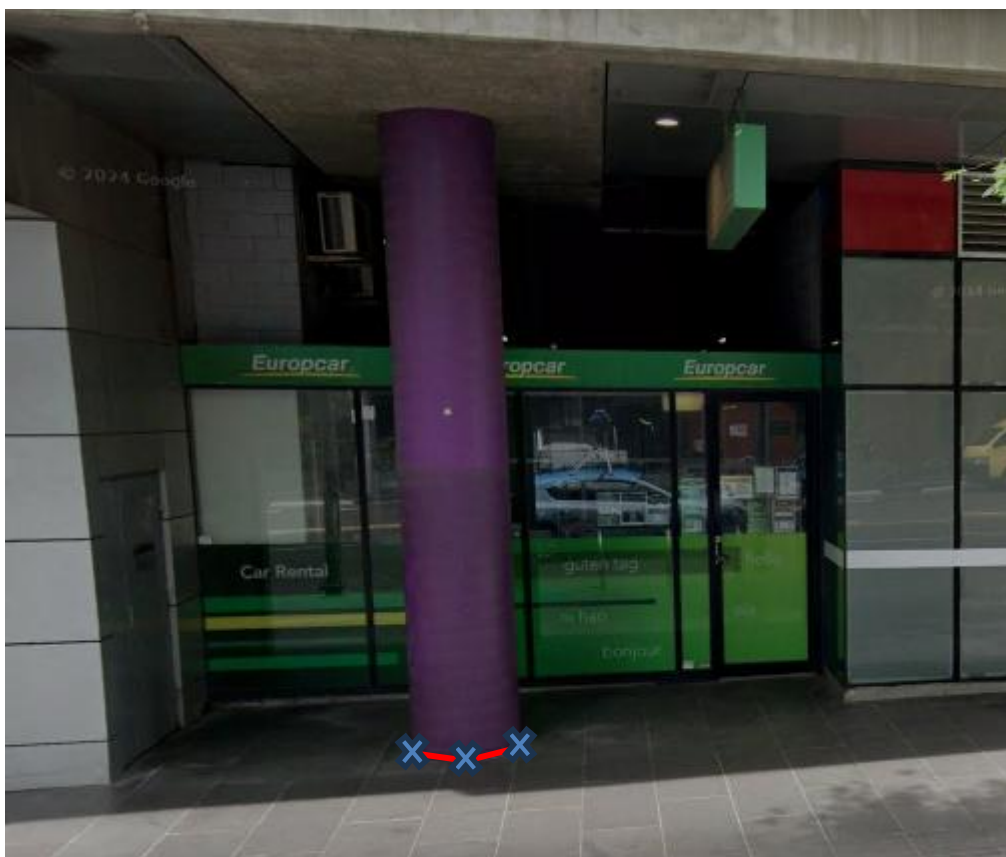


### [BUCOLS] Building – Columns

String around feature preferably at ground level, record appropriate attributes.

**Survey Geometry:** Minimum 3 points recorded for circular columns, with opcodes used to arc/circle points. 4 points recorded for square or rectangular columns.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Material  | Y         | Text | CONCRETE, FIBRO, GLASS, METAL, TIMBER, NON_STD |
| Comment   | N         | Text |                                                |





### [BUDK] Building – Deck

String around the physical structure, preferably at deck level, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                         |
|-----------|-----------|------|-----------------------------------------------|
| Material  | Y         | Text | BRICK, CONCRETE, METAL, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                               |



### [BUDR] Building – Door

Single shot in the centre of the doorway, record appropriate attributes.

**Survey Geometry:** Single measured point at floor level.

| Attribute | Mandatory | Type | Value                                                               |
|-----------|-----------|------|---------------------------------------------------------------------|
| Material  | Y         | Text | GLASS, METAL, TIMBER, NON_STD                                       |
| Type*     | Y         | Text | BI_FOLD, DOUBLE_DOOR, ROLLER_DOOR, SINGLE_DOOR, SLIDE_DOOR, NON_STD |
| Width     | Y         | Real |                                                                     |
| Comment   | N         | Text |                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [BUDRO] Building – Door Opening

String entire opening into building at entrance level. If door opening is a different elevation to the footpath a BUSTP (step) string is also required along the front face to show the step.

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[BUDRS] Building – Door Strung**

String either side of door at floor level, record appropriate attributes.

**Survey Geometry:** 2 points per string at floor level.

| Attribute | Mandatory | Type | Value                                                               |
|-----------|-----------|------|---------------------------------------------------------------------|
| Material  | Y         | Text | GLASS, METAL, TIMBER, NON_STD                                       |
| Type      | Y         | Text | BI_FOLD, DOUBLE_DOOR, ROLLER_DOOR, SINGLE_DOOR, SLIDE_DOOR, NON_STD |
| Comment   | N         | Text |                                                                     |





### [BUEAV] Building – Eaves

Under side of fascia, outside edge, not including gutter.

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value                                |
|-----------|-----------|------|--------------------------------------|
| Material  | Y         | Text | BRICK, FIBRO, METAL, TIMBER, NON_STD |
| Comment   | N         | Text |                                      |



### [BUFLR] Building – Floor Level

Single measurement inside doorway for floor level or as near as practical.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

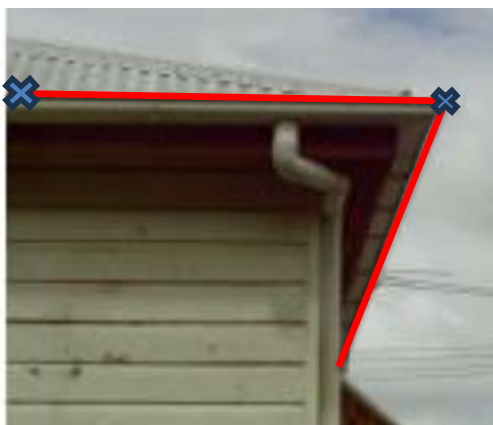


### [BUGUT] Building – Gutter

String outer edge of gutter. Mainly for use when encroachment surveys are required.

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

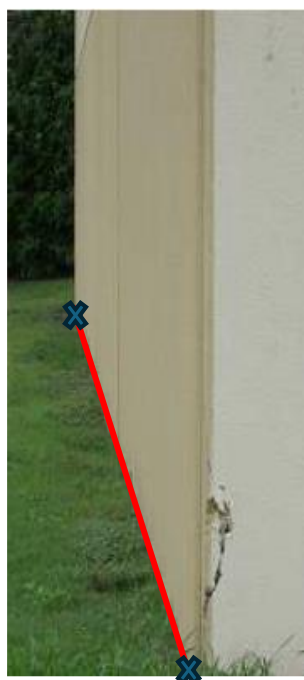


### [BULN] Building – Line

String the outer most edge of the building line.

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value                                                                            |
|-----------|-----------|------|----------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BRICK, CONCRETE, CONC_RENDER, FIBRO, GLASS, METAL, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                  |



### [BUNDF] or [BUNDFS] Building – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| Photo       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [BURF] or [BURFS] Building – Roof

String all ridge lines of the roof and where they meet the gutters.

**Survey Geometry:** Minimum 2 points per string.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| Photo       | N         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [BURWB] Building – Retaining Wall Base

String points at bottom face ground level along the base of the retaining wall, record appropriate attributes.

**Survey Geometry:** Minimum 2 points per string and points picked up at all changes of direction.

| Attribute | Mandatory | Type | Value                                                                                                                    |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BLUE_STONE, BOULDER, BRICK, CONCRETE, CRIB, METAL, PORPH-STONE, SPRAYCRETE, STONE, STONE_PITCHED, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                          |



### [BURWT] Building – Retaining Wall Top

String the top front face of the retaining wall, including vertical steps, record appropriate attributes and if applicable width of wall. Width is not a mandatory attribute. Top should be the face closest to the located retaining wall base.

**Survey Geometry:** Minimum 2 points per string and points picked up at all changes of direction.

| Attribute | Mandatory | Type | Value                                                                                                                    |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BLUE_STONE, BOULDER, BRICK, CONCRETE, CRIB, METAL, PORPH-STONE, SPRAYCRETE, STONE, STONE_PITCHED, TIMBER, NON_STD |
| Width     | Y         | Text |                                                                                                                          |
| Comment   | N         | Text |                                                                                                                          |

**[BUSHD] Building Shed – Including Bus Shelter**

String outside of shed at ground level, record appropriate attributes.

For ad shell bus shelters, string footprint and leave string at footpath level. Leave string open/closed, based upon project requirements.

**Survey Geometry:** Minimum 2 measured points per edge string.

| Attribute | Mandatory | Type | Value                                                      |
|-----------|-----------|------|------------------------------------------------------------|
| Material  | Y         | Text | CONCRETE, COR.IRON, GLASS, METAL, PLASTIC, TIMBER, NON_STD |
| Type      | Y         | Text | BUS_SHELTER, GARAGE, GARDEN, PARK_SHELTER, NON_STD         |
| Comment   | N         | Text |                                                            |



**[BUSILL] Building – Window Sill**

String sill level at front and back of opening.

**Survey Geometry:** Minimum 2 measured points per edge string.

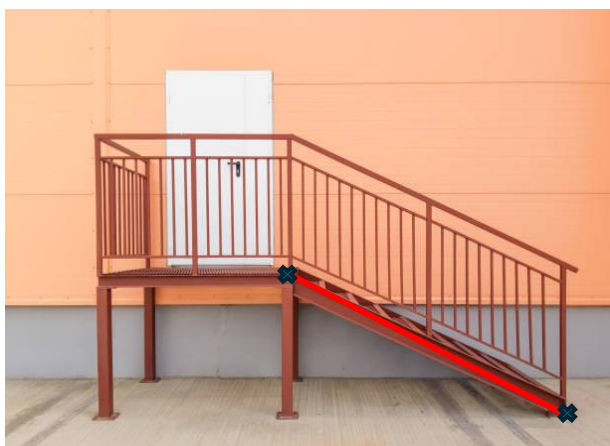
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Photo     | N         | Text |       |
| Comment   | N         | Text |       |



### [BUSTP] Building – Steps

String outside of steps, 4 shots starting at ground level then at platform elevation. If more detail is required, string each tread. Total string height should be from the bottom step to top step encompassing all the goers and risers.

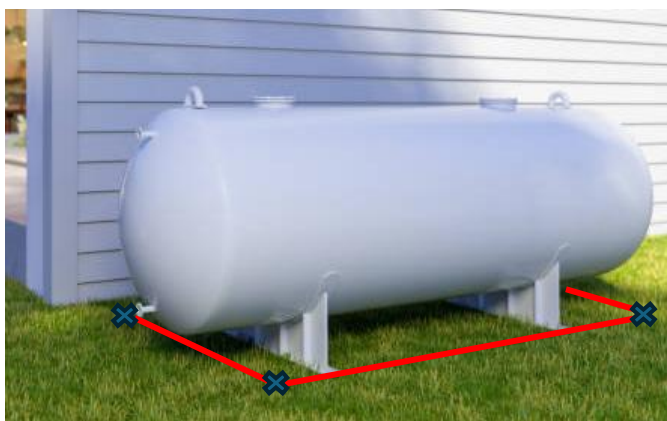
| Attribute | Mandatory | Type | Value                                                               |
|-----------|-----------|------|---------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BRICK, CONCRETE, METAL, PAVERS, STONE, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                     |



### [BUTAN] Building – Tank

String outside extents of tank at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





## Communications

This section contains common communication utilities and infrastructure.

### [COBOX] Communications – Box

String outside edge of feature at ground level. For new telephone boxes, string ground level footprint.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Photo     | N         | Text |       |
| Comment   | N         | Text |       |

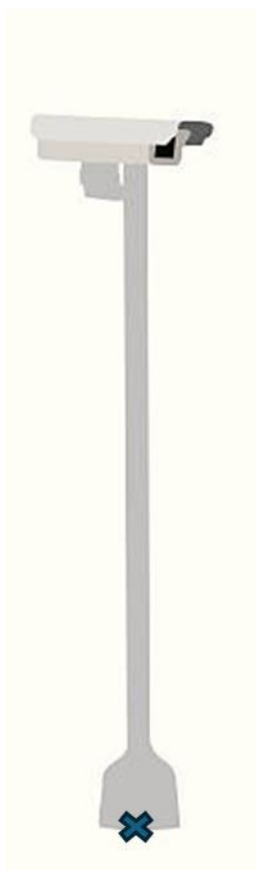


**[COCCTV] Communications – CCTV Camera**

Locate centre of camera at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                     |
|-----------|-----------|------|---------------------------|
| Type      | Y         | Text | CAMERA, SECURITY, NON_STD |
| Photo     | N         | Text |                           |
| Comment   | N         | Text |                           |



### [COCON] Communications – Conduit

Capture conduit as clear defined deflection locations, and where practical and suitable.

**Survey Geometry:** Direct measurements should be taken on the top of the conduit.

| Attribute     | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|---------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type          | Y         | Text | COAXIAL CABLE, COM - HOUSE CONN, COM MAIN, FIBRE - CONDUIT, FIBRE -UGROUND, ITS CABLE, UNKNOWN, NON_STD                                                                                                                                                                                        |
| Diameter*     | Y         | Real |                                                                                                                                                                                                                                                                                                |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner         | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Comment       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [COLOC] Communication – Located Service

Location where underground services have been located. Record depth, diameter and other relevant Information.

**Note:** Pickup located services with the pit as the origin, working outwards from known locations. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute     | Mandatory | Type | Value                                                                                                                                                                                                                                                                               |
|---------------|-----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                         |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDE, TRACE WIRE, NON_STD                                                                                                                                          |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                        |
| Depth*        | Y         | Real |                                                                                                                                                                                                                                                                                     |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                           |
| Type          | Y         | Text | COAXIAL CABLE, COM - HOUSE CONN, COM MAIN, FIBRE – CONDUIT, FIBRE - UGROUND, ITS CABLE, UNKNOWN, NON_STD                                                                                                                                                                            |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                               |
| Owner         | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, GCCC, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Diameter*     | Y         | Real |                                                                                                                                                                                                                                                                                     |
| Layout Row    | N         | Text |                                                                                                                                                                                                                                                                                     |
| Layout Col    | N         | Text |                                                                                                                                                                                                                                                                                     |
| Comment       | N         | Text |                                                                                                                                                                                                                                                                                     |
| Comment2      | N         | Text |                                                                                                                                                                                                                                                                                     |
| Comment3      | N         | Text |                                                                                                                                                                                                                                                                                     |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                      |
| PHOTO         | N         | Text |                                                                                                                                                                                                                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[COMH] Communications – Maintenance Hole**

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Type      | Y         | Text | SOLID, GRATE, NON_STD               |
| Depth     | N         | Real |                                     |
| SUI       | Y         | Text | A+, A, B, C, D                      |
| PHOTO     | N         | Text |                                     |
| Comment   | N         | Text |                                     |



### [COMHC] Communications – Maintenance Chamber

String internal extents of chamber, floor of the chamber and or the soffit of the chamber.

| Attribute | Mandatory | Type | Value           |
|-----------|-----------|------|-----------------|
| Depth     | N         | Real |                 |
| SUI       | Y         | Text | A+, A, B, C, D. |
| Comment   | N         | Text |                 |



### [COMHS] Communications – Maintenance Hole Strung

String around lids, record number of lids and material. Lid position should be strung, not surrounding slab.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |



### [COMK] Communications – Cable Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D              |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [CONDF] Communications – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [COOF] Communications – Optic Fibre

String located underground service, record appropriate attributes and other relevant Information.

| Attribute     | Mandatory | Type    | Value                                                                                                                                                                                                                                                                                          |
|---------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text    | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method | Y         | Text    | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Pickup_Loc*   | Y         | Text    | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Status        | N         | Text    | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type          | Y         | Text    | FIBRE - CONDUIT, FIBRE -UGROUND, ITS CABLE, UNKNOWN, NON_STD                                                                                                                                                                                                                                   |
| Diameter*     | Y         | Real    |                                                                                                                                                                                                                                                                                                |
| Material      | Y         | Text    | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner         | N         | Text    | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| SUI*          | Y         | Text    | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Depth         | Y         | Real    |                                                                                                                                                                                                                                                                                                |
| Layout ROW    | Y         | Integer |                                                                                                                                                                                                                                                                                                |
| Layout COL    | Y         | Integer |                                                                                                                                                                                                                                                                                                |
| PHOTO         | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment       | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment2      | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment3      | N         | Text    |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [COOH] Communications – Over Head

String along overhead cable. Taking enough points to show sag, via reflectorless or other surveying technologies.

| Attribute     | Mandatory | Type | Value                                                       |
|---------------|-----------|------|-------------------------------------------------------------|
| Date          | Y         | Text |                                                             |
| Time          | Y         | Text |                                                             |
| Air Temp      | Y         | Text |                                                             |
| Wind Speed    | N         | Text |                                                             |
| WindDirection | N         | Text |                                                             |
| Atmospherics  | Y         | Text | CLEAR, CLOUDY, MOSTLY SUNNY, OVERCAST, PARTLY CLOUDY, SUNNY |
| Comment       | N         | Text |                                                             |
| Clearance**   | N         | Real |                                                             |

\*\* Indicates possible office attributes – Clearance to ground



**[COP] Communications – Pole**

Single shot middle recording material and pole number.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |



### [COPH] Communications – Pothole

String located underground service, record appropriate attributes and other relevant Information.

**Survey Geometry:** Minimum 2 points per string to show direction.

| Attribute     | Mandatory | Type    | Value                                                                                                                                                                                                                                                                                          |
|---------------|-----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text    | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method | Y         | Text    | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Pickup_Loc    | Y         | Text    | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Status        | N         | Text    | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type          | Y         | Text    | FIBRE - CONDUIT, FIBRE -UGROUND, ITS CABLE, UNKNOWN, NON_STD                                                                                                                                                                                                                                   |
| Diameter      | Y         | Real    |                                                                                                                                                                                                                                                                                                |
| Material      | Y         | Text    | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner         | N         | Text    | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| SUI           | Y         | Text    | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Depth         | Y         | Real    |                                                                                                                                                                                                                                                                                                |
| Layout ROW    | Y         | Integer |                                                                                                                                                                                                                                                                                                |
| Layout COL    | Y         | Integer |                                                                                                                                                                                                                                                                                                |
| PHOTO         | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment       | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment2      | N         | Text    |                                                                                                                                                                                                                                                                                                |
| Comment3      | N         | Text    |                                                                                                                                                                                                                                                                                                |

**[COFIL] or [COFILS] Communications – Pillar**

Single shot on top of pillar.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Shape     | Y         | Text | RECTANGULAR, ROUND, NON_STD |
| Comment   | N         | Text |                             |





### [COPIT] Communications – Pit

Locate centre of pit, record appropriate attributes. For use with single pit only. When selecting size from the attributes, if the pit is regular on dropdown list, no length or width is required. If it is non regular select NO9 xx\*xx and enter length and width. Images are essential for this code.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                                                                                              |
|------------|-----------|------|----------------------------------------------------------------------------------------------------|
| Material   | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD                                                                  |
| Size*      | Y         | Text | CIRC 652, NO1 475*195, NO2 620*250, NO3 495*270, NO4 650*345, NO7 950*495, NO8 1315*495, NOX xx*xx |
| Dual Comms | N         | Text | NO, YES                                                                                            |
| Width      | N         | Real |                                                                                                    |
| Length     | N         | Real |                                                                                                    |
| Depth      | N         | Real |                                                                                                    |
| SUI        | Y         | Text | A+, A, B, C, D                                                                                     |
| PHOTO      | N         | Text |                                                                                                    |
| Comment    | N         | Text |                                                                                                    |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [COPITS] Communications – Pit Strung

String around lids, record appropriate attributes. For use with grouped pit lids, Lid position should be strung not surrounding slab.

| Attribute  | Mandatory | Type | Value                                                                                              |
|------------|-----------|------|----------------------------------------------------------------------------------------------------|
| Material   | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD                                                                  |
| Size       | Y         | Text | CIRC 652, NO1 475*195, NO2 620*250, NO3 495*270, NO4 650*345, NO7 950*495, NO8 1315*495, NOX xx*xx |
| Dual Comms | N         | Text | NO, YES                                                                                            |
| Width      | N         | Text |                                                                                                    |
| Length     | N         | Text |                                                                                                    |
| Depth      | N         | Real |                                                                                                    |
| SUI        | Y         | Text | A+, A, B, C, D                                                                                     |
| PHOTO      | N         | Text |                                                                                                    |
| Comment    | N         | Text |                                                                                                    |



### 3.3 Construction

This section contains common elements related to formation layers and construction stake out points/lines.

#### [CSBASE] Construction – Base Layer

Base layer.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [CSFSL] Construction – Finish Surface Level

Finished surface level.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [CSLSB] Construction – Lower Subbase

Lower subbase.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [CSSB] Construction – Subbase

Subbase.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [CSSG] Construction – Subgrade

Subgrade.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [CSSTK] Construction – Stakeout Point

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [CSSTKS] Construction – Stakeout String

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [CSUN] Construction – Unsuitable Point

**Survey Geometry:** Single point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [CSUNS] Construction – Unsuitable String

**Survey Geometry:** Minimum 2 points per string.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### 3.4 Creek

This section contains common elements related to creeks and associated topography.

#### [CKFLD] Creek – Flood Debris

For point features, select attribute point and locate top edge of debris. Requires an image of the feature.

| Attribute   | Mandatory | Type | Value |
|-------------|-----------|------|-------|
| Point-Line* | Y         | Text |       |
| PHOTO       | Y         | Text |       |
| Comment     | N         | Text |       |

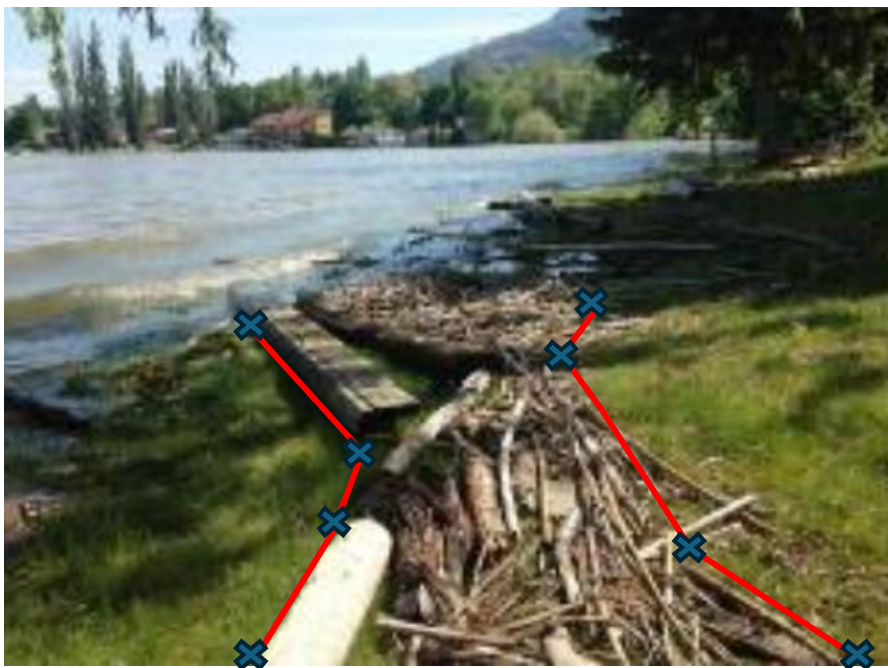
\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[CKFLDS] Creek – Flood Debris String**

For string features, select attribute line and string along debris at ground level. Requires an image of the feature.

| Attribute  | Mandatory | Type | Value |
|------------|-----------|------|-------|
| Point-Line | Y         | Text |       |
| PHOTO      | Y         | Text |       |
| Comment    | N         | Text |       |



**[CKINV] Creek – Invert**

String deepest points of the creek.

**Survey Geometry:** Minimum 2 points per string

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [CKMHG] Creek – Max Height Gauge

Single shot, split middle of maximum height gauge with the height recorded being the top of the gauge.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                              |
|------------|-----------|------|------------------------------------|
| Gauge_No   | N         | Text |                                    |
| Pickup_Loc | Y         | Text | GROUND_SURFACE, TOP_GUAGE, NON_STD |
| Comment    | N         | Text |                                    |



### [CKNDF] or [CKNDFS] Creek – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [CKSEC] Creek – Section

String section, record section number. Sections should have start chainage of 0 on the left looking downstream. Used only for Creek Sections.

| Attribute  | Mandatory | Type | Value                                                                                                                                        |
|------------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Section No | Y         | Text |                                                                                                                                              |
| Material   | Y         | Text | BITUMEN, CONCRETE, DIRT, EROSION, EX_AGG, GARDEN_BED, GRASS, GRAVEL, NON_STD, PAVERS, ROCK, SAND, SEDIMENT, STEEL, STONE, SUB_GRADE, NON_STD |
| Feature    | Y         | Text | CHANGE OF GRADE, CONCRETE, FENCE LINE, SURFACE LEVEL, TOE, TOP, WATER EDGE, NON_STD                                                          |
| Comment    | N         | Text |                                                                                                                                              |

### [CKTOE] Creek – Toe

Toe of creek bank.

**Survey Geometry:** Points measured along string at all changes of direction.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[CKTOP] Creek – Top**

Top of creek bank.

**Survey Geometry:** Points measured along string at all changes of direction.

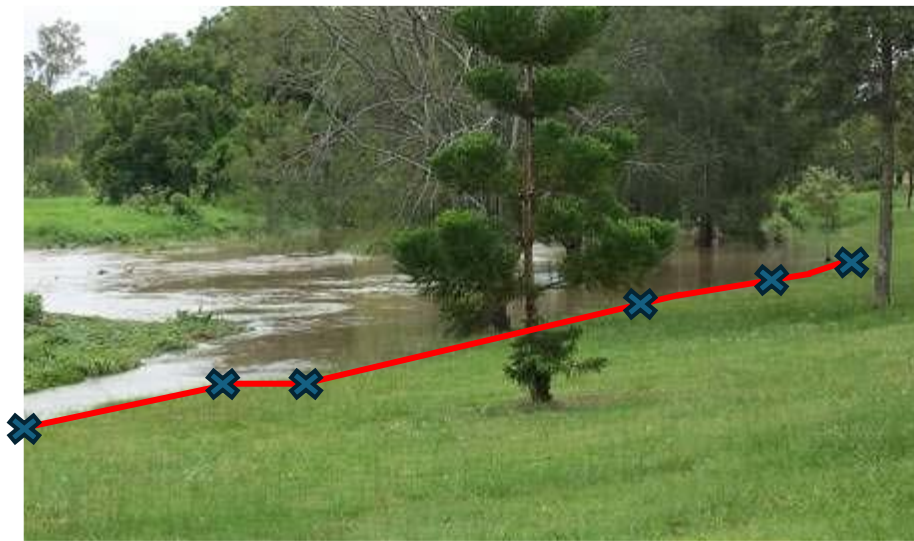
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[CKWE] Creek – Water Edge**

String edge of water, record the date and time attributes which is applied to string information.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Date      | Y         | Text |       |
| Time      | Y         | Text |       |
| Comment   | N         | Text |       |





### 3.5 Drainage

This section contains common elements relating to both in ground and surface drainage.

#### [DRAPR] Drainage – Apron

String top and toe of inlet/outlet apron recording material.

| Attribute | Mandatory | Type | Value                                   |
|-----------|-----------|------|-----------------------------------------|
| Material  | Y         | Text | CONCRETE, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                         |





### [DRBC] Drainage – Culverts

String through box culverts, each side tunnel should be one string, record internal box height. Each side of the box is run as a separate string.

| Attribute     | Mandatory | Type | Value                                                                                                                                       |
|---------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type          | Y         | Text | BOX, PIPE, LINK SLAB, UNKNOWN, NON_STD                                                                                                      |
| Material      | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                |
| Owner         | N         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Height*       | Y         | Real |                                                                                                                                             |
| Width*        | Y         | Real |                                                                                                                                             |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                                                                              |
| Comment       | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[DRDP] Drainage – Downpipe**

Locate downpipe, record appropriate attributes. Can be traced from roof level to ground if needed.

| Attribute  | Mandatory | Type | Value                         |
|------------|-----------|------|-------------------------------|
| Point-Line | Y*        | Text | LINE, POINT                   |
| Material   | Y         | Text | CONCRETE, METAL, PVC, NON_STD |
| Comment    | N         | Text |                               |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [DRDPO] Drainage – Downpipe Outlet

Locate downpipe invert at outlet point, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                       |
|-----------|-----------|------|---------------------------------------------|
| Material  | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD |
| Comment   | N         | Text |                                             |



### [DREND] Drainage – End Structure

String the headwall wall end structure on the outside edge of top of wing wall, recording material.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONCRETE, PRE_CAST, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                                   |



### [DRFI] Drainage – Field Inlet

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                      |
|-----------|-----------|------|--------------------------------------------|
| Lid Type* | Y         | Text | DOMES, RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Type      | Y         | Text | SOLID, GRATE, NON_STD                      |
| Depth**   | N         | Real |                                            |
| SUI       | Y         | Text | A+, A, B, C, D                             |
| Comment   | N         | Text |                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

\*\* Indicates possible office attributes, calculated via pipes





**[DRFLD] Drainage – Flood Debris Mark**

For point features, select attribute point and locate top edge of debris. Option may require an image of the feature.

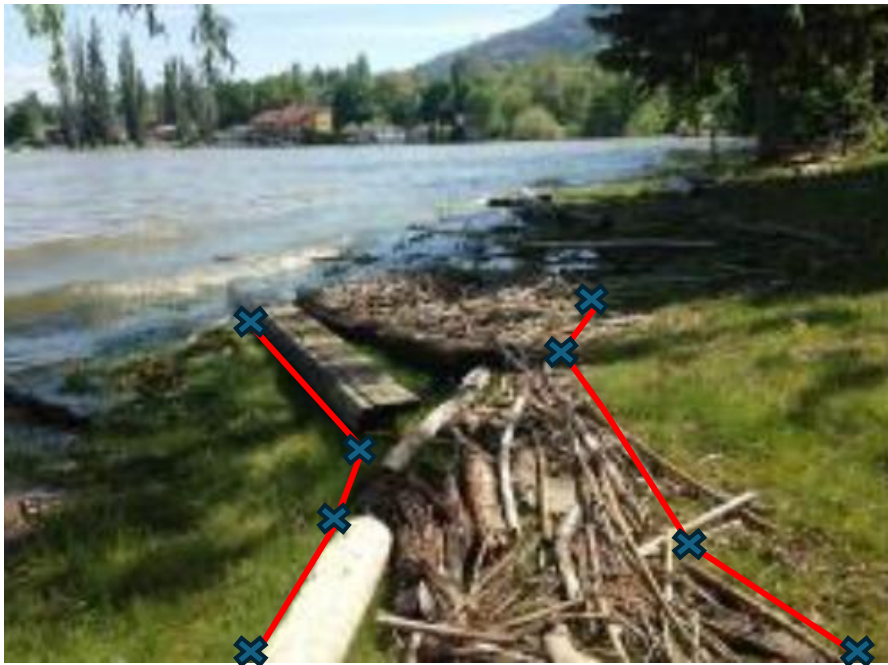
| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | Y         | Text |             |
| Comment    | N         | Text |             |



**[DRFLDS] Drainage – Flood Debris Mark Strung**

For string features, select attribute line and string along debris at ground level. Options may require an image of the feature.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | Y         | Text |             |
| Comment    | N         | Text |             |



### [DRGT] Drainage – Gully Trap

String gully trap grate extents, record appropriate attributes. Single point used for circle 0.120, field inlets and square 0.3 inlets. Used for Field inlets and all gully traps.

| Attribute | Mandatory | Type | Value                                                                        |
|-----------|-----------|------|------------------------------------------------------------------------------|
| Type      | Y         | Text | CIRCLE 0.120, CITY, FIELD_INLET, SIDE_ENTRY, SQUARE 0.300, STANDARD, NON_STD |
| Depth     | N         | Real |                                                                              |
| Material  | Y         | Text |                                                                              |
| SUI       | Y         | Text | A+, A, B, C, D                                                               |
| Comment   | N         | Text |                                                                              |



### [DRHW] Drainage – Headwall

String bottom of wing wall then outside edge of top of wing wall, recording material and comment for top or bottom

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONCRETE, PRE_CAST, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                                   |



**[DRIL] Drainage – Invert Level**

Locate invert level of drainage.

**Survey Geometry:** Single measured point.

| Attribute    | Mandatory | Type | Value |
|--------------|-----------|------|-------|
| Diameter     | Y         | Real |       |
| Soffit Depth | N         | Real |       |
| Width        | Y         | Real |       |
| Length       | Y         | Real |       |
| Comment      | N         | Text |       |





**[DRILC] Drainage – Invert Level Chamber**

Locate centre of chamber at chamber invert level, record appropriate attributes. Can be used as invert of Gully traps. If using extended a length is required.

**Survey Geometry:** Single measured point.

| Attribute    | Mandatory | Type | Value                                                |
|--------------|-----------|------|------------------------------------------------------|
| Diameter*    | Y         | Text | 1.050, 1.200, 1.350, 1.500, EXTENDED, GULLY, NON_STD |
| Soffit Depth | N         | Real |                                                      |
| Width        | Y         | Real |                                                      |
| Length       | Y         | Real |                                                      |
| Comment      | N         | Text |                                                      |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [DRLOC] Drainage – Located Service

Location where underground drainage has been located, record depth, diameter and other relevant information.

**Survey Geometry:** Record a minimum of a 2-point string to show direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Depth          | N         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | Y         | Text | BOX, PIPE, UNKNOWN, NON_STD                                                                                                                 |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, RCP, UNKNOWN, NON_STD                                                                                           |
| Owner          | N         | Text | Local Authority, OTHER                                                                                                                      |
| Diameter*      | N         | Real |                                                                                                                                             |
| Height         | N         | Real |                                                                                                                                             |
| Width          | N         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| Comment        | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[DRMH] Drainage – Maintenance Hole**

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                               |
|------------|-----------|------|-------------------------------------|
| Lid Shape* | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Type       | Y         | Text | SOLID, GRATE, NON_STD               |
| Depth      | N         | Real |                                     |
| SUI        | Y         | Text | A+, A, B, C, D                      |
| PHOTO      | N         | Text |                                     |
| Comment    | N         | Text |                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [DRMHC] Drainage – Maintenance Hole Chamber

String internal outline of chamber, at the best location to represent the shape, elevation is not critical. Mainly used when scanning manholes to cut a shape of the manhole at the best location.

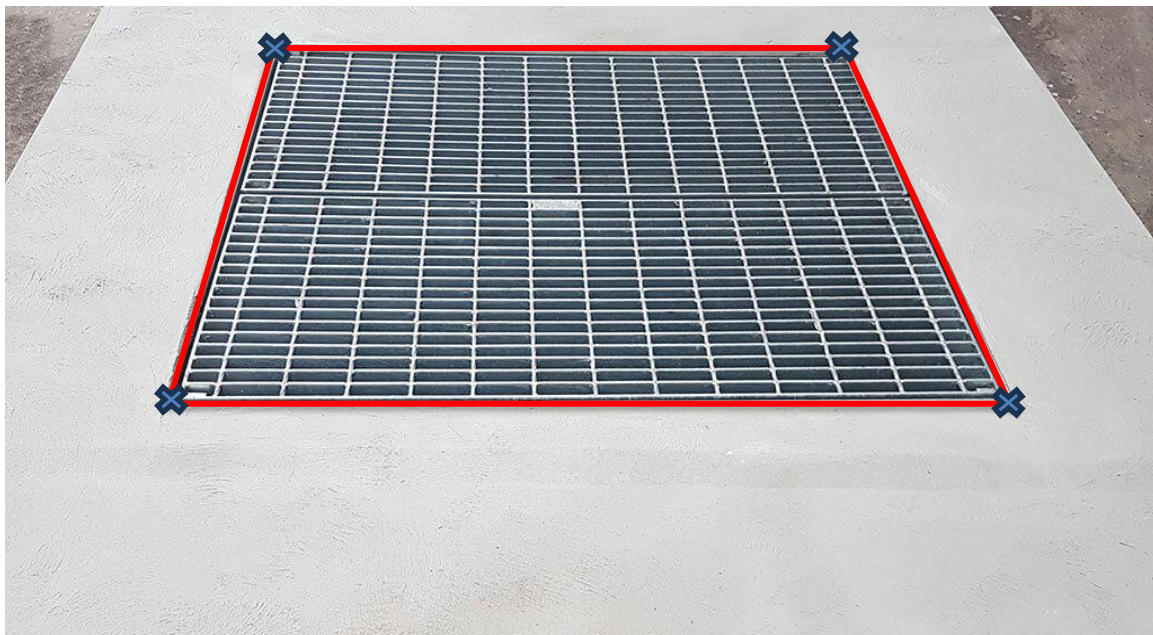
| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Depth     | N         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |



**[DRMHS] Drainage – Maintenance Hole Strung**

String outside of lids, record appropriate attributes. Lid position should be strung, not surrounding slab.

| Attribute | Mandatory | Type | Value                                            |
|-----------|-----------|------|--------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, METAL, PAVERS, STONE, NON_STD |
| Depth     | N         | Real |                                                  |
| SUI       | Y         | Text | A+, A, B, C, D                                   |
| PHOTO     | N         | Text |                                                  |
| Comment   | N         | Text |                                                  |



### [DRMK] Drainage – Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [DRNDF] or [DRNDFS] Drainage – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

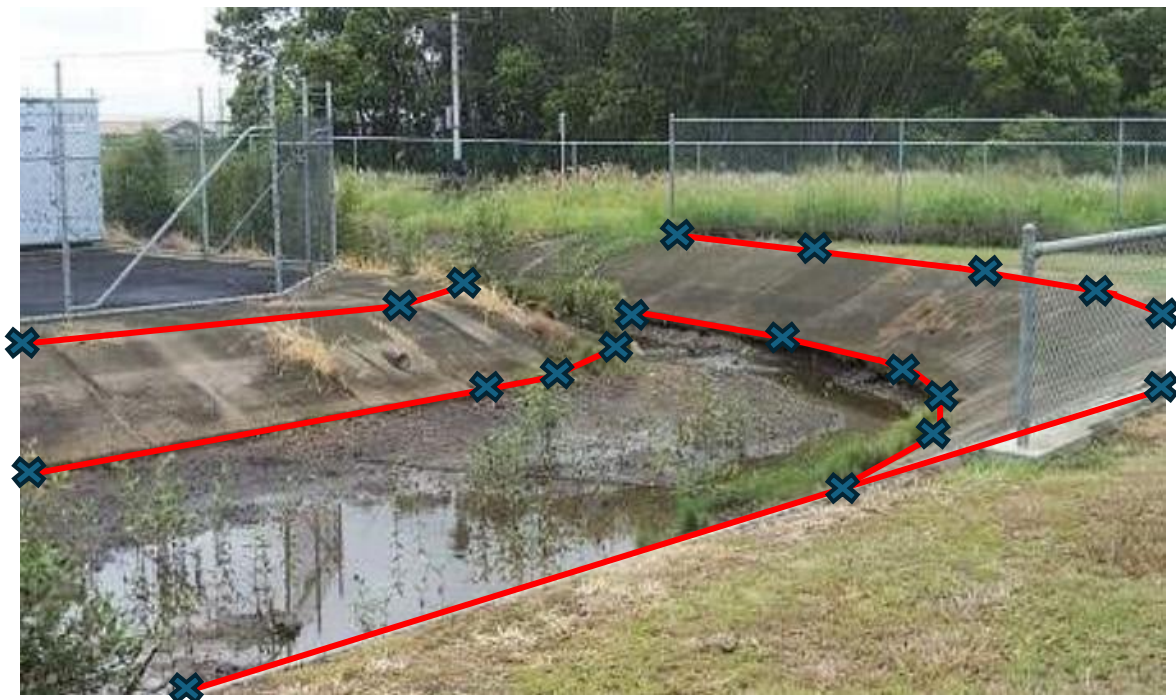
\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [DROC] Drainage – Open Channel

String top and bottom of each side of the drain, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                         |
|-----------|-----------|------|-------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, DIRT, EARTH, EXP_AGG, METAL, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                                                               |





### [DRP] Drainage – Pipe

String along pipe and record attributes. The same position on the pipe should be strung along the pipe if possible. Swapping invert to crown should be avoided if possible.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Material       | Y         | Text | BRICK, CLAY, METAL, PLASTIC, PVC, RCBC, RCP, NON_STD                                                                                        |
| Owner          | N         | Text | Local Authority, OTHER                                                                                                                      |
| Diameter*      | Y         | Real |                                                                                                                                             |
| Wall thickness | N         | Text |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| Comment        | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [DRPH] Drainage – Service Located Pothole

Capture underground services, record appropriate attributes.

**Survey Geometry:** Measure all changes of grade and direction of the service.

| Attribute     | Mandatory | Type | Value                                                                                                                                       |
|---------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Loc    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Depth         | N         | Real |                                                                                                                                             |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type          | Y         | Text | BOX, PIPE, UNKNOWN, NON_STD                                                                                                                 |
| Material      | Y         | Text | BRICK, METAL, PLASTIC, PVC, RCP, UNKNOWN, NON_STD                                                                                           |
| Owner         | N         | Text | Local Authority, OTHER                                                                                                                      |
| Diameter      | Y         | Real |                                                                                                                                             |
| Height        | Y         | Real |                                                                                                                                             |
| Width         | Y         | Real |                                                                                                                                             |
| SUI           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO         | N         | Text |                                                                                                                                             |
| Comment       | N         | Text |                                                                                                                                             |
| Comment2      | N         | Text |                                                                                                                                             |
| Comment3      | N         | Text |                                                                                                                                             |

### [DRSD] Drainage – Strip Drain

String along the top edge/s of drain.

| Attribute | Mandatory | Type | Value                                        |
|-----------|-----------|------|----------------------------------------------|
| Depth     | Y         | Text | LINE, POINT                                  |
| Material  | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD |
| Width     | N         | Real |                                              |
| Height    | Y         | Real |                                              |
| Status    | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD    |
| Type      | N         | Text | BOX, PIPE, UNKNOWN, NON_STD,                 |
| SUI       | Y         | Text | A+, A, B, C, D                               |
| Comment   | N         | Text |                                              |

### [DRSP] Drainage – Stone Pitching

String along the top edge/s and invert of surface / spoon drains. Care should be taken to pickup all changes of direction and grade.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | N         | Text | CONCRETE, PRE_CAST, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                                   |

### [DRSSD] Drainage – Sub Soil Drain

String along the sub soil drain. Care should be taken to pickup all changes of direction and grade.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | BRICK, METAL, PLASTIC, PVC, RCP, UNKNOWN, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D                                    |
| Comment   | N         | Text |                                                   |

### [DRWW] Drainage – Wing Wall

String bottom inside of wall then inside edge top of wing wall, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONCRETE, PRE_CAST, STONE, STONE_PITCHED, NON_STD |
| Comment   | N         | Text |                                                   |



### [DRPITRDN] Drainage – Pit Round

String outside of lid, record appropriate attributes. Lid position should be strung, not surrounding slab.

| Attribute | Mandatory | Type | Value                                            |
|-----------|-----------|------|--------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, METAL, PAVERS, STONE, NON_STD |
| Depth     | N         | Real |                                                  |
| PHOTO     | N         | Text |                                                  |
| Comment   | N         | Text |                                                  |



### 3.6 Electrical

This section contains common electrical utilities and infrastructure.

#### [ELCBS] Electrical – Control Box

**Survey Geometry:** Record 3 or 4 points as a string around the base of the control box.

| Attribute | Mandatory | Type | Value                                   |
|-----------|-----------|------|-----------------------------------------|
| Material  | Y         | Text | CONCRETE, STONE, STONE_PITCHED, NON_STD |
| Type      | Y         | Text | ABOVE GROUND, BELOW GROUND, NON_STD     |
| Comment   | N         | Text | ABOVE GROUND, BELOW GROUND, NON_STD     |



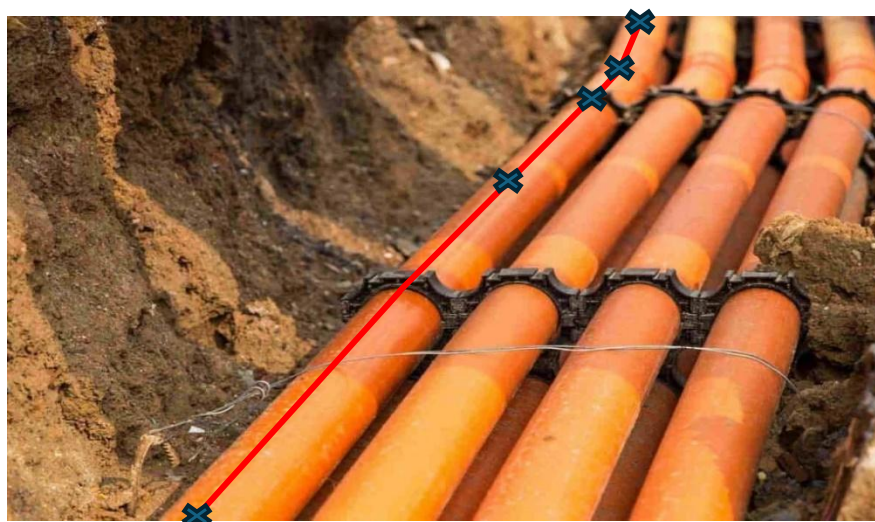


### [ELCON] Electrical – Conduit Observed

String along the conduit, record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| Material       | Y         | Text | CONCRETE, FIBRO, METAL, PVC, NON_STD                                                                                                                                                                                                                                                           |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Position*      | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, U/G ON POLE, NON_STD                                                                                                                                                                                                                                    |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[ELH] Electrical – Pole High Voltage**

Locate centre of post at ground level, record appropriate attributes. High voltage lines usually have 3 wires at the same elevation, or 3 wires in groups.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV   | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |



### [ELL] Electrical – Pole Low Voltage

Locate centre of post at ground Level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV   | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |



**[ELLH] Electrical – Pole Low and High Voltage**

Locate centre of post at ground level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation, high voltage lines usually have 3 wires at the same elevation or in groups of 3.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV   | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |





### [ELLHS] Electrical – Pole Low and High Voltage and Light

Locate centre of post at ground Level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation, high voltage lines usually have 3 wires at the same elevation or in groups of 3. More than 3 lights places a 3 light symbol.

**Survey Geometry:** Single measured point.

| Attribute    | Mandatory | Type | Value                                                                                                      |
|--------------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV      | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter     | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                                                                                             |
| Number       | N         | Text |                                                                                                            |
| PHOTO        | N         | Text |                                                                                                            |
| Type         | Y         | Text | OUTREACH, FLOOD_LIGHT, COMBINED, NON_STD                                                                   |
| Comment      | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [ELLHT] Electrical – Pole Low and High Voltage and Transformer

Locate centre of post at ground Level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation, high voltage lines usually have 3 wires at the same elevation or in groups of 3. This pole will also have a transformer on it.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV   | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |



### [ELLHTS] Electrical – Pole L/H Voltage & Transformer & Light

Locate centre of post at ground Level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation, high voltage lines usually have 3 wires at the same elevation or in groups of 3. This pole will also have a transformer and light on it.

**Survey Geometry:** Single measured point

| Attribute    | Mandatory | Type | Value                                                                                                      |
|--------------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV      | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter     | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                                                                                             |
| Number       | N         | Text |                                                                                                            |
| PHOTO        | N         | Text |                                                                                                            |
| Type         | Y         | Text | OUTREACH, FLOOD_LIGHT, COMBINED, NON_STD                                                                   |
| Comment      | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[ELLL] Electrical – Light**

Locate centre of Light. record appropriate attributes. Used for all lights not mounted on a pole.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type    | Value                                                                                                      |
|-----------|-----------|---------|------------------------------------------------------------------------------------------------------------|
| Diameter  | Y         | Text    | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| No_Lights | Y         | Integer |                                                                                                            |
| PHOTO     | N         | Text    |                                                                                                            |
| Type      | Y         | Text    | BOLLARD, BOX, CEILING, FLOOD_LIGHT, IN_GROUND, WALL_MOUNTED, NON_STD                                       |
| Comment   | N         | Text    |                                                                                                            |





### [ELLOC] Electrical – Service Located

String located underground service, record appropriate attributes

**Survey Geometry:** Minimum 2 point string to show direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth*         | N         | Real |                                                                                                                                                                                                                                                                                                |
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| Layout Col     | Y         | Text |                                                                                                                                                                                                                                                                                                |
| Layout Row     | Y         | Text |                                                                                                                                                                                                                                                                                                |
| Material       | Y         | Text | CONCRETE, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| PHOTO          | N         | Text |                                                                                                                                                                                                                                                                                                |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Type           | N         | Text | ELECTRICAL, HIGH, LOW, UNKNOWN, NON_STD                                                                                                                                                                                                                                                        |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [ELLS] Electrical – Pole Low Voltage and Street Light

Locate centre of post at ground level, record appropriate attributes. Low voltage lines usually have 4 wires at the same elevation. More than 3 lights places a 3 light symbol. All poles with a light have low volt power.

**Survey Geometry:** Measure 3 points around the pole to create a circle and calculate the centre point.

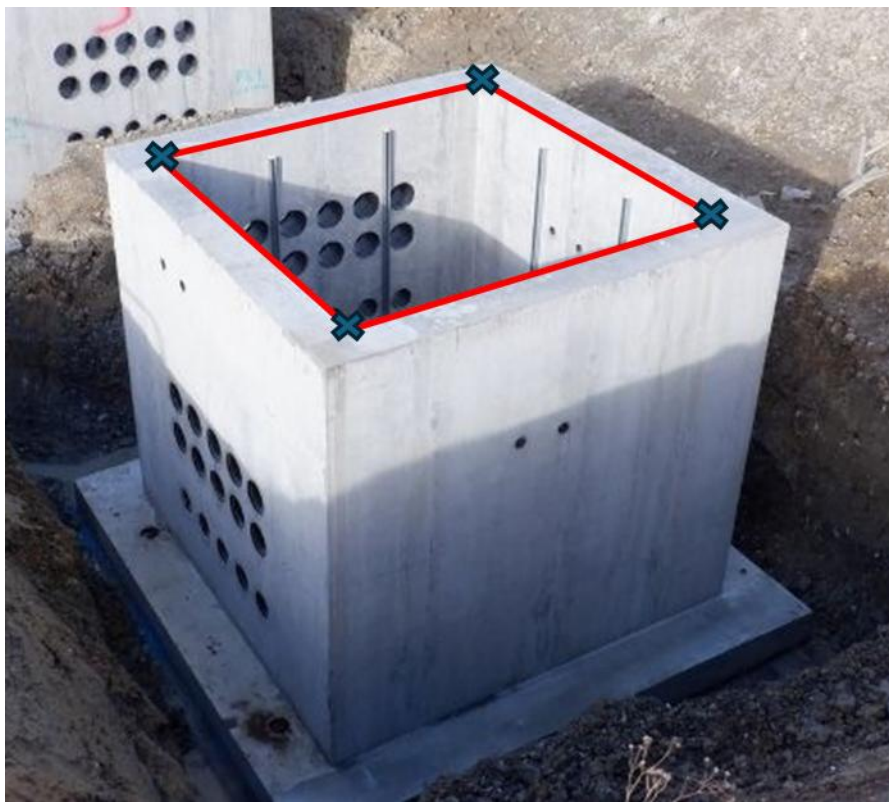
| Attribute    | Mandatory | Type | Value                                                                                                      |
|--------------|-----------|------|------------------------------------------------------------------------------------------------------------|
| CableTV      | N         | Text | NO, UNKNOWN, YES                                                                                           |
| Diameter     | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                                                                                             |
| Number       | N         | Text |                                                                                                            |
| PHOTO        | N         | Text |                                                                                                            |
| Type         | Y         | Text | BOLLARD, BOX, CEILING, FLOOD_LIGHT, IN_GROUND, WALL_MOUNTED, NON_STD                                       |
| Comment      | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

**[ELMHO] Electrical – Chamber Outline**

String internal outline of chamber, at the best location to represent the shape. Mainly used when scanning manholes to cut a shape of the manhole at the best location.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Depth     | N         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |



**[ELMHS] Electrical – Manhole Strung**

String around outside of lids, record appropriate attributes.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Depth     | N         | Real    |                                   |
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| PHOTO     | N         | Text    |                                   |
| SUI       | Y         | Text    | A+, A, B, C, D                    |
| Comment   | N         | Text    |                                   |





### [ELMK] Electrical – Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Depth     | N         | Real |                             |
| Offset    | N         | Text |                             |
| Direction | N         | Text |                             |
| Comment   | N         | Text |                             |
| SUI       | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [ELNDF] Electrical – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Option may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| Comment     | N         | Text |             |
| PHOTO       | Y         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [ELOH] Electrical – Over Head Service

String along overhead cable. Taking enough points to show sag, via reflectorless or other surveying technologies.

| Attribute      | Mandatory | Type | Value                                                       |
|----------------|-----------|------|-------------------------------------------------------------|
| Date           | Y         | Text |                                                             |
| Time           | Y         | Text |                                                             |
| Air Temp       | Y         | Text |                                                             |
| Wind Speed     | N         | Text |                                                             |
| Wind Direction | N         | Text |                                                             |
| Atmospherics   | Y         | Text | CLEAR, CLOUDY, MOSTLY SUNNY, OVERCAST, PARTLY CLOUDY, SUNNY |
| Comment        | N         | Text |                                                             |
| Clearance**    | N         | Text | Office input to Ground                                      |

\*\* Indicates possible office attributes



**[ELPIL] or [ELPILS] Electrical – Pillar**

Locate top centre of pillar.

**Survey Geometry:** Single measured point

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [ELPH] Electrical – POTHOLE

String located underground service, record appropriate attributes

**Survey Geometry:** Minimum 2 point string to show direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth*         | N         | Real |                                                                                                                                                                                                                                                                                                |
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| Layout Col     | Y         | Text |                                                                                                                                                                                                                                                                                                |
| Layout Row     | Y         | Text |                                                                                                                                                                                                                                                                                                |
| Material       | Y         | Text | CONCRETE, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| PHOTO          | N         | Text |                                                                                                                                                                                                                                                                                                |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| Type           | N         | Text | ELECTRICAL, HIGH, LOW, UNKNOWN, NON_STD                                                                                                                                                                                                                                                        |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [ELPIT] Electrical – Pit

Locate centre of pit, record appropriate attributes. For use with single pit only.

When selecting size from the attributes, if the pit is regular, no length or width is required. Selection can be made from choice list. If it is non regular select NO9 xx\*xx and enter length and width. Images are essential for this code. SUI attribute added automatically.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type    | Value                                                                                              |
|------------|-----------|---------|----------------------------------------------------------------------------------------------------|
| Material   | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD                                                                  |
| Size*      | Y         | Text    | CIRC 652, NO1 475*195, NO2 620*250, NO3 495*270, NO4 650*345, NO7 950*495, NO8 1315*495, NOX xx*xx |
| Dual Comms | N         | Text    | NO, YES                                                                                            |
| Width      | N         | Real    |                                                                                                    |
| Length     | N         | Real    |                                                                                                    |
| No_Lids    | Y         | Integer |                                                                                                    |
| Depth      | N         | Real    |                                                                                                    |
| Comment    | N         | Text    |                                                                                                    |
| SUI        | Y         | Text    | A+, A, B, C, D                                                                                     |
| PHOTO      | N         | Text    |                                                                                                    |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[ELPITS] Electrical – Pit Strung**

String around outside of lids, record appropriate attributes. For use with grouped pit lids. Lid position should be strung, not surrounding slab.

| Attribute  | Mandatory | Type    | Value                             |
|------------|-----------|---------|-----------------------------------|
| Material   | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| Dual Comms | N         | Text    | NO, YES                           |
| No_Lids    | Y         | Integer |                                   |
| Depth      | N         | Real    |                                   |
| Comment    | N         | Text    |                                   |
| SUI        | Y         | Text    | A+, A, B, C, D                    |
| PHOTO      | N         | Text    |                                   |



**[ELPP] Electrical – POWER Pole**

Locate centre of post at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Number    | N         | Text |                                                                                                            |
| PHOTO     | N         | Text |                                                                                                            |
| Comment   | N         | Text |                                                                                                            |



### [ELPTR] Electrical – Pad Transformer

String surrounds of electricity pad transformer, close string.

**Survey Geometry:** String with vertices at each corner of the transformer.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [ELSO] Electrical – Street Light Without Overhead

Locate centre of post at ground level, record appropriate attributes. Pole with street light, no overhead power attached.

**Survey Geometry:** Measure 1 points at the centre point.

| Attribute    | Mandatory | Type | Value                                                                                                      |
|--------------|-----------|------|------------------------------------------------------------------------------------------------------------|
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Type         | Y         | Text | FLOOD_LIGHT, OUTREACH, ORNAMENTAL, PEDESTAL, SOLAR, NON_STD                                                |
| Number       | N         | Text |                                                                                                            |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                                                                                             |
| Diameter     | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| PHOTO        | N         | Text |                                                                                                            |
| Comment      | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [ELSTAY] Electrical – Stay Line

Locate centre of feature, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                      |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------|
| Type*     | Y         | Text | POLE, WIRE, NON_STD                                                                                        |
| Diameter  | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| Comment   | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[ELTOW] Electrical – Tower**

String surrounds of electrical tower, close string.

**Survey Geometry:** String with vertices at each corner of the tower.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### 3.7 Fence

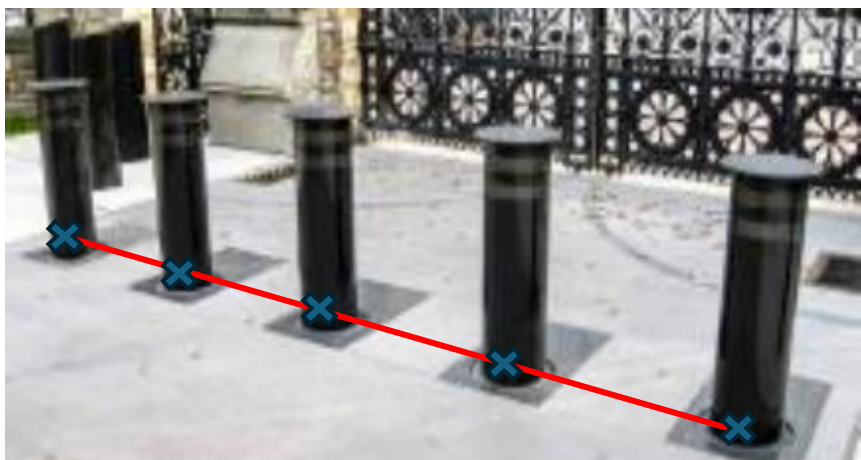
This section contains common elements relating to fences, gates and handrails.

#### [FEBOLS] Fence – Bollards Strung

Locate centre of bollards at ground level, record appropriate attributes.

**Survey Geometry:** This is a strung feature.

| Attribute  | Mandatory | Type | Value                                                              |
|------------|-----------|------|--------------------------------------------------------------------|
| Pickup Loc | Y         | Text | CENTRE, CENTRE_FACE, CORNER, NON_STD                               |
| Material   | Y         | Text | BRICK, CONCRETE, CONC_BLOCK, GIFF, METAL, PLASTIC, TIMBER, NON_STD |
| Shape      | Y         | Text | ORNAMENTAL, RECTANGULAR, ROUND, SQUARE, NON_STD                    |
| Size       | Y         | Real |                                                                    |
| Size2      | N         | Real |                                                                    |
| Comment    | N         | Text |                                                                    |





### [FEBOL] Fence – Bollards Single Point

Locate centre of bollard at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point

| Attribute  | Mandatory | Type | Value                                                              |
|------------|-----------|------|--------------------------------------------------------------------|
| Pickup Loc | Y         | Text | CENTRE, CENTRE_FACE, CORNER, NON_STD                               |
| Material   | Y         | Text | BRICK, CONCRETE, CONC_BLOCK, GIFF, METAL, PLASTIC, TIMBER, NON_STD |
| Shape      | Y         | Text | ORNAMENTAL, RECTANGULAR, ROUND, SQUARE, NON_STD                    |
| Size       | Y         | Real |                                                                    |
| Size2      | N         | Real |                                                                    |
| Comment    | N         | Text |                                                                    |



### [FEGAS] Fence – Gate Strung

Measure either side of the gate. Recording material is required.

**Survey Geometry:** Two-point string.

| Attribute | Mandatory | Type | Value                                                                                |
|-----------|-----------|------|--------------------------------------------------------------------------------------|
| Material  | Y         | Text | CHAIN, CHAINWIRE, Local Authority_PIPE, IRON, METAL, TIMBER, WELDMESH, WIRE, NON_STD |
| Comment   | N         | Text |                                                                                      |





### [FEGR] Fence – Guard Rail / Vehicular Barrier Fence

String at top level of 'W' beam along road face, record appropriate attributes. String complete rail, including the roll back.

**Survey Geometry:** Measurements along the top rail of the 'W' beam are required for conformance reporting.

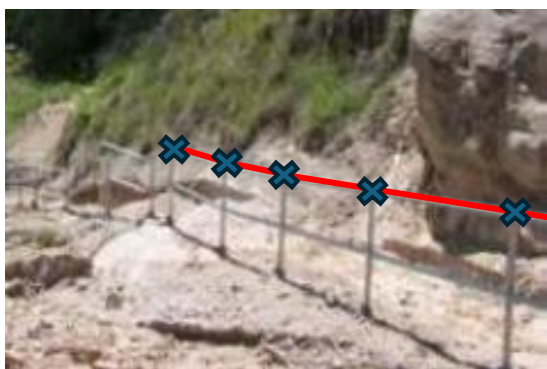
| Attribute | Mandatory | Type | Value                                                                           |
|-----------|-----------|------|---------------------------------------------------------------------------------|
| Type      | Y         | Text | ARMCO, BANANA, CONC_BARRIER, GI-PIPE, METAL, PLASTIC, TIMBER, WELDMESH, NON_STD |
| Comment   | N         | Text |                                                                                 |



### [FEHR] Fence – Hand Rail

String centre of hand rail at top of Hand Rail level, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                     |
|-----------|-----------|------|-------------------------------------------|
| Material  | Y         | Text | CONCRETE, GI_PIPE, METAL, TIMBER, NON_STD |
| Comment   | N         | Text |                                           |



### [FELN] Fence – Line

String at ground level along fence, record appropriate attributes. String Road/Face of fence, for side fences string centre.

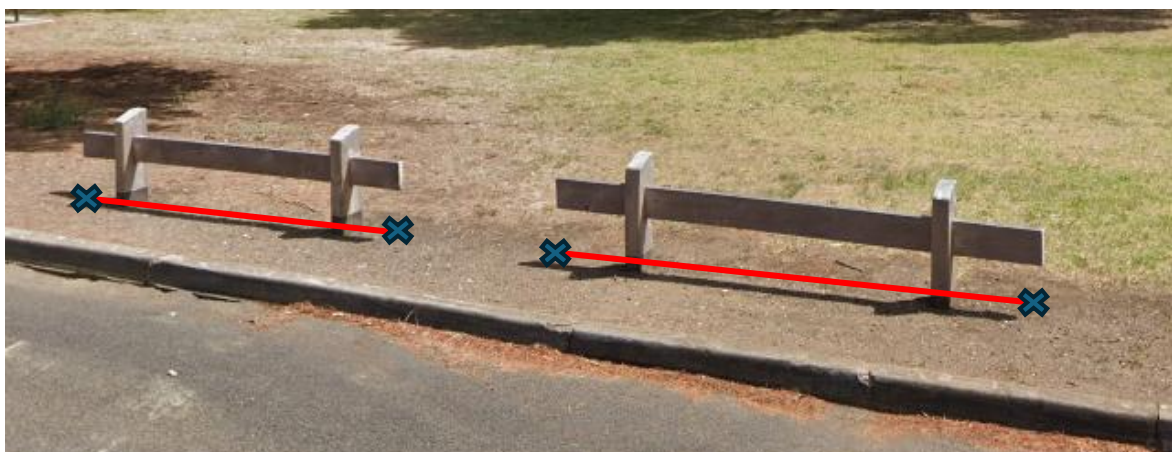
| Attribute | Mandatory | Type | Value                                                                                                                                                                                       |
|-----------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BRICK, CHAIN_WIRE, COLORBOND, CONCRETE, CONC_RENDER, FIBRO, G.IRON, GLASS, LETTERBOX, LOG, METAL, PALING, POSTRAIL, SOUND_BARRIER, STONE, TEMPORARY, TIMBER, WELDMESH, WIRE, NON_STD |
| Height    | Y         | Real |                                                                                                                                                                                             |
| Comment   | N         | Text |                                                                                                                                                                                             |



### [FELO] Fence – Log

String at ground level along fence. Used for Council Log Fences, a regular interval should be run if possible. E.g. Start/end of each log.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [FENDF] Fence – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[FEP] Fence – Post**

Locate centre of post at ground level, record appropriate attributes.

Survey Geometry: Single measured point.

| Attribute  | Mandatory | Type | Value                                                                         |
|------------|-----------|------|-------------------------------------------------------------------------------|
| Pickup Loc | Y         | Text | CENTRE, CENTRE_FACE, CORNER, NON_STD                                          |
| Material   | Y         | Text | BRICK, CONCRETE, CONC_BLOCK, GIFF, LETTERBOX, METAL, PLASTIC, TIMBER, NON_STD |
| Shape      | Y         | Text | RECTANGULAR, ROUND, SQUARE, NON_STD                                           |
| Size       | Y         | Real |                                                                               |
| Size2      | N         | Real |                                                                               |
| Comment    | N         | Text |                                                                               |





### 3.8 Fire Service

This section contains common fire service utilities and infrastructure.

#### [FSCON] Fire Service – Conduit

String located underground conduit, record appropriate attributes.

**Survey Geometry:** Measure points along the conduit at all changes of grade and direction.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Depth          | N         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner          | N         | Text |                                                                                                                                             |
| Diameter*      | N         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| Comment        | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[FSFH] Fire Service – Hydrant**

Locate centre of lid at lid level.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                         |
|------------|-----------|------|-------------------------------|
| Point-Line | Y         | Text | LINE, POINT                   |
| Type       | Y         | Text | HYDRANT, HYDRANT_BOX, NON_STD |
| SUI        | Y         | Text | A+, A, B, C, D                |
| PHOTO      | N         | Real |                               |
| Comment    | N         | Text |                               |



**[FSGEN] Fire Service – General**

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Record appropriate attributes. Both options require an image of the feature. Used for booster boxes and post hydrants.

| Attribute  | Mandatory | Type | Value                                                          |
|------------|-----------|------|----------------------------------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                                                    |
| Type       | Y         | Text | BOOSTER, BOOSTER BOX, HOSE_REEL, HOSE_REEL_BOX, VALVE, NON_STD |
| SUI        | Y         | Text | A+, A, B, C, D                                                 |
| PHOTO      | Y         | Real |                                                                |
| Comment    | N         | Text |                                                                |



### [FSLOC] Fire Service – Located

String located underground service, record appropriate attributes.

**Survey Geometry:** Measure points along the service at all changes of grade and direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Depth          | N         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | N         | Text | STANDARD, UNKNOWN, NON_STD                                                                                                                  |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner          | N         | Text |                                                                                                                                             |
| Diameter       | N         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO          | N         | Text |                                                                                                                                             |
| Comment        | N         | Text |                                                                                                                                             |
| Comment2       | N         | Text |                                                                                                                                             |
| Comment3       | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [FSMK] Fire Service – Marker

Single measured point split middle of marker at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [FSNDF] Fire Service – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature. Images may be essential for this code.

| Attribute   | Mandatory | Type | Value          |
|-------------|-----------|------|----------------|
| Point-Line* | Y         | Text | LINE, POINT    |
| SUI         | Y         | Text | A+, A, B, C, D |
| PHOTO       | Y         | Text |                |
| Comment     | N         | Text |                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [FSP] or [FSPS] Fire Service – Pipe

String pipe, record point/line type and record appropriate attributes.

| Attribute  | Mandatory | Type | Value                                          |
|------------|-----------|------|------------------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                                    |
| Pickup_Loc | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD |
| Material   | Y         | Text | CONCRETE, FIBRO, METAL, PVC, NON_STD           |
| Diameter   | Y         | Real |                                                |
| SUI        | Y         | Text | A+, A, B, C, D                                 |
| Comment    | N         | Text |                                                |



### [FSTANK] Fire Service – Tank

String around extents of tank at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





## PW Survey Guideline

### Public Works – Codes

#### [FSV] Fire Service – Valve

Single measured point split middle of valve at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### 3.9 Gas

This section contains common gas utilities and infrastructure.

#### [GALOC] Gas – Located Service

String located underground service, record type, depth, diameter and other relevant Information.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Depth          | N         | Real |                                                                                                                                                                                                                                                                                                |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type           | Y         | Text | ETHANE PIPELINE, HOUSE CONNECTION, MAIN-HIGH PRESSU, MAIN-LOW PRESSUR, MAIN-NYLON, MAIN-POLYETHYLEN, UNKNOWN, NON_STD                                                                                                                                                                          |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| PHOTO          | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [GAMH] Gas – Manhole

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth     | N         | Real |                                     |
| PHOTO     | N         | Text |                                     |
| Comment   | N         | Text |                                     |



### [GAMHO] Gas – Manhole Chamber Outline

String internal outline of chamber, at the best location to represent the shape. Mainly used when scanning manholes to cut a shape of the manhole at the best location.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Depth     | Y         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |



### [GAMHS] Gas – Manhole (Surround)

String around outside of lids, record appropriate attributes.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |

### [GAMK] Gas – Offset Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Depth     | N         | Real |                             |
| Offset    | N         | Text |                             |
| Direction | N         | Text |                             |
| SUI       | Y         | Text | A+, A, B, C, D              |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [GAMT] Gas – Meter

Locate centre of meter record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Depth     | N         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |



### [GANDF] or [GANDFS] Gas – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

**[GAP] Gas – Pipe Observed**

String along the pipe, record point/line type, record appropriate attributes.

| Attribute   | Mandatory | Type | Value                                          |
|-------------|-----------|------|------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                    |
| Pickup_Loc* | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD |
| Material    | Y         | Text | METAL, PLASTIC, NON_STD                        |
| Diameter*   | Y         | Real |                                                |
| SUI*        | Y         | Text | A+, A, B, C, D                                 |
| Comment     | N         | Text |                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [GAPH] Gas – Pothole

String located underground service, record type, depth, diameter and other relevant Information.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD                                                                                                                                                    |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Depth          | N         | Real |                                                                                                                                                                                                                                                                                                |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type           | Y         | Text | ETHANE PIPELINE, HOUSE CONNECTION, MAIN-HIGH PRESSU, MAIN-LOW PRESSUR, MAIN-NYLON, MAIN-POLYETHYLEN, UNKNOWN, NON_STD                                                                                                                                                                          |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| PHOTO          | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [GAPIT] Gas – Pit

Record appropriate attributes. For use with grouped pit lids. Lid position should be strung not surrounding slab.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| SUI       | Y         | Text    | A+, A, B, C, D                    |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |

### [GAPITS] Gas – Pits Strung

String around outside of lids, record appropriate attributes. For use with grouped pit lids. Lid position should be strung not surrounding slab.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| SUI       | Y         | Text    | A+, A, B, C, D                    |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |

### [GASN] Gas – Sign

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Depth     | N         | Real |                             |
| Offset    | N         | Text |                             |
| Direction | N         | Text |                             |
| SUI       | Y         | Text | A+, A, B, C, D              |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [GASYP] Gas – Syphon

Locate centre of syphon.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |

**[GATST] Gas – Test Point**

Locate centre of test point.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |

**[GAV] Gas – Valve**

Locate centre of lid at lid level.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |





### 3.10 General

This section contains general features that are not covered by other feature classes.

#### [GNBIN] General – Bin

String bin at base.

| Attribute | Mandatory | Type | Value                        |
|-----------|-----------|------|------------------------------|
| Type      | Y         | Text | RUBBISH, RECYCLE, VEGETATION |
| Comment   | N         | Text |                              |



#### [GNGPS] General – GPS Point

Measured GPS point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [GNGS] General – Sign

Single shot at centre of sign, record attributes comment of object.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[GNMB] General – Post Box**

Locate centre of post at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                  |
|-----------|-----------|------|------------------------|
| Type      | Y         | Text | BOX, PEDESTAL, NON_STD |
| Comment   | N         | Text |                        |

**[GNMBS] General – Post Box (Strung)**

String around the perimeter of the Post Box at slab height. Supplementary shots around outside of slab at ground level, coded as change of grade are required.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [GNPDF] General – Non-Defined Feature

For Point Features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

Should only be used when the feature cannot be classified into one of the other categories.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [GNPHOTO] General – Photo

Locate point on the feature being photographed. Generally used in office for placement of photos on features. If used in the field record filename of image. Point is placed on the object being photographed.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| FileName  | Y         | Text |       |
| PHOTO     | N         | Text |       |
| Comment   | N         | Text |       |

### [GNPOTSL] General – Pothole

Single shot, record comment of object.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | Y         | Text |       |

### [GNSTL] General – Street Light

Locate centre of post at ground level, record appropriate attributes.

**Survey Geometry:** Measure 1 points at the centre point.

| Attribute    | Mandatory | Type | Value                                                                                                      |
|--------------|-----------|------|------------------------------------------------------------------------------------------------------------|
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD                                                                             |
| Type         | Y         | Text | FLOOD_LIGHT, OUTREACH, ORNAMENTAL, PEDESTAL, SOLAR, NON_STD                                                |
| Number       | N         | Text |                                                                                                            |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                                                                                             |
| Diameter     | Y         | Text | 0 - 200mm, 200-300mm, 300-400mm, 400-500mm, 500-600mm, 600-700mm, 700-850mm, 850mm ABOVE, UNKNOWN, NON_STD |
| PHOTO        | N         | Text |                                                                                                            |
| Comment      | N         | Text |                                                                                                            |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [GNVP] General – Vent Pipe

Single point measured at the centre of the vent pipe.

| Attribute | Mandatory | Type | Value                                 |
|-----------|-----------|------|---------------------------------------|
| Material  | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD |
| Diameter  | Y         | Real |                                       |
| SUI       | Y         | Text | A+, A, B, C, D                        |
| Comment   | N         | Text |                                       |





### 3.11 Geo-Tech

This section contains common geo-tech related features including those for monitoring and testing.

#### [GOBH] Geo-Tech – Borehole

Locate centre of feature at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | Y         | Text |       |
| Comment   | N         | Text |       |



### [GOCON] Geo-Tech – Leachate Pipe

String along pipe, record appropriate attributes.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute     | Mandatory | Type | Value                                                                               |
|---------------|-----------|------|-------------------------------------------------------------------------------------|
| Material      | Y         | Text | CONCRETE, FIBRO, METAL, PVC, NON_STD                                                |
| Diameter*     | Y         | Real |                                                                                     |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Owner         | N         | Text |                                                                                     |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                      |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Comment       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [GOGW] Geo-Tech – Gas Well

Measure centre of well.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Type      | Y         | Text | MANIFOLD, WELL |
| Comment   | N         | Text |                |

### [GOLMH] Geo-Tech – Leachate Manhole

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

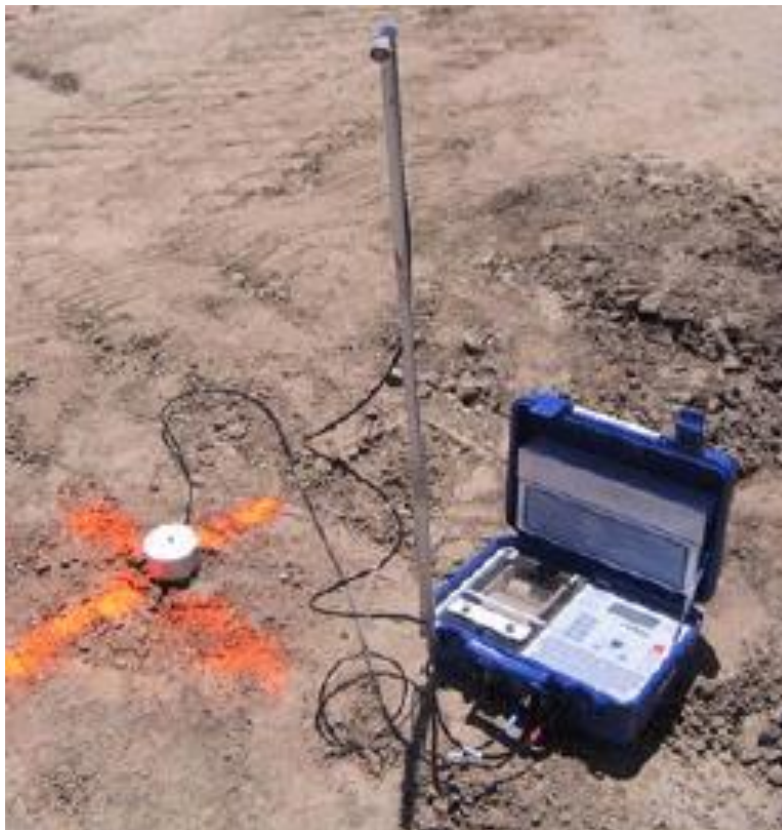
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[GOMP] Geo -Tech – Monitoring Point**

Middle of monitoring point marker.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Category  | Y         | Text | GROUNDWATER, LANDFILL GAS, LEACHATE, NON_STD      |
| Type      | Y         | Text | ELEVATED_PIPE, FLUSH_LID, FLUSH_CONC_LID, NON_STD |
| Position  | Y         | Text | LID, POST, PVC, NON_STD                           |
| Number    | N         | Text |                                                   |
| Comment   | N         | Text |                                                   |



### [GONDF] or [GONDFS] Geo-Tech – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [GOPIT] Geo-Tech – Pit

Locate centre of pit.

**Survey Geometry:** String around extents of test pit/trench.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| Comment    | N         | Text |             |

### [GOWMP] Geo-Tech – Water Monitoring Point

Locate centre of monitoring point.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### 3.12 Hydro

This section contains common hydrographic features.

#### [HYEP] Hydro – Environmental Protection Point

Single measurement of environmental protection objects.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [HYEPS] Hydro – Environmental Protection String

String of environmental protection features.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [HYJET] Hydro – Jetty

String outside edge of Jetty.

| Attribute | Mandatory | Type | Value                                                                                                              |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | AC, BITUMEN, CONCRETE, EXP_AGG, GRAVEL, METAL, PAVERS, PHORPHY, STAMPED, STENCILED, STONE, TACTILES, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                    |



### [HYMK] Hydro – Marker

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature. Used for buoys or other river/hydro related markers.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | Y         | Text |             |
| Comment    | N         | Text |             |



### [HYNDF] Hydro – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [HYPON] Hydro – Pontoon

String outside edge of Pontoon.

| Attribute | Mandatory | Type | Value                                           |
|-----------|-----------|------|-------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, PAVERS, STEEL, WOOD, NON_STD |
| Comment   | N         | Text |                                                 |



### [HYRAM] Hydro – Ramp

String outside edge of Boat Ramp, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                              |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | AC, BITUMEN, CONCRETE, EXP_AGG, GRAVEL, METAL, PAVERS, PHORPHY, STAMPED, STENCILED, STONE, TACTILES, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                    |



**[HYROC] Hydro – Rock**

String edge of rock formations.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| Comment    | N         | Text |             |

**[HYSL] Hydro – Point**

Single hydrographic shot.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [HYSTR] Hydro – Structure

String around edge of structure.

| Attribute   | Mandatory | Type | Value                                           |
|-------------|-----------|------|-------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                     |
| Type        | Y         | Text | GANGWAY, JETTY, PILE, PONTOON, WALKWAY, NON_STD |
| PHOTO       | N         | Text |                                                 |
| Comment     | N         | Text |                                                 |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [HYTG] Hydro – Tide Gauge

Single measured point on tide gauge.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | N         | Text |             |
| Comment    | N         | Text |             |



**[HYWL] Hydro – Water Level**

Single point at water level, record appropriate attributes.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Date      | Y         | Text |       |
| Time      | Y         | Text |       |
| Comment   | N         | Text |       |



**[HYWM] Hydro – Marker**

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature. Used for buoys or other river/hydro related markers.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | Y         | Text |             |
| Comment    | N         | Text |             |



### 3.13 Landfill

This section contains common landfill utilities and infrastructure.

#### [LFBH] Landfill – Borehole

Locate centre of borehole at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |



#### [LFGF] Landfill – Gas Flow Line

Locate centre of pipe, record appropriate attributes.

**Survey Geometry:** Measure points along flow line at all changes of grade and direction.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Position  | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD |
| Comment   | N         | Text |                                                |



**[LFGH] Landfill – Gas Head Line**

Locate centre of pipe, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Position  | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD |
| Comment   | N         | Text |                                                |



**[LFGM] Landfill – Gas Manifold**

String around base of structure.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[LFGW] Landfill – Gas Well**

Locate centre of feature.

**Survey Geometry:** Single measured point.

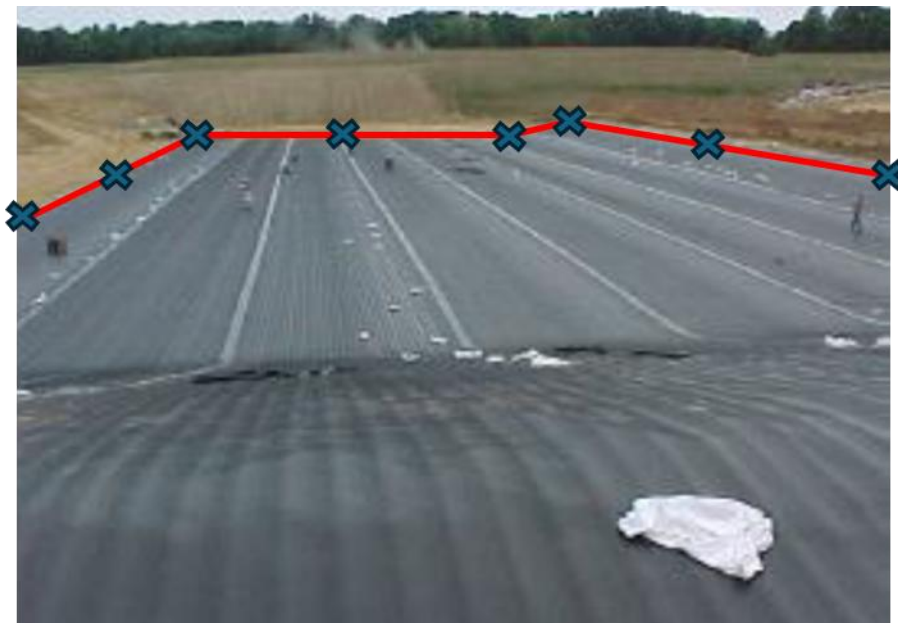
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |

**[LFLIN] Landfill – Liner**

Locate the liner and record the following attribute information.

**Survey Geometry:** String around edges of liner.

| Attribute  | Mandatory | Type | Value |
|------------|-----------|------|-------|
| Material   | N         | Text |       |
| Class      | N         | Text |       |
| Cert No.   | N         | Text |       |
| Panel No.  | N         | Text |       |
| Repair No. | N         | Text |       |
| Comment    | N         | Text |       |



### [LFLMH] Landfill – Leachate Manhole

Locate centre of lid at lid level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Comment   | N         | Text |                                     |



### [LFLMHS] Landfill – Leachate Manhole Strung

String around outside of lids, record appropriate attributes.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |





### [LFLP] Landfill – Leachate Pipe

String along pipe, record point/line type. Record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                       |
|----------------|-----------|------|---------------------------------------------|
| Point-Line     | Y         | Text | LINE, POINT                                 |
| Position       | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT       |
| Material       | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD |
| Diameter       | Y         | Real |                                             |
| Wall Thickness | N         | Real |                                             |
| Comment        | N         | Text |                                             |

### [LFMP] Land fill – Monitoring Point

Locate centre of monitoring point at monitoring level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                  |
|-----------|-----------|------|--------------------------------------------------------|
| Category  | Y         | Text | GROUNDWATER, LANDFILL, LANDFILL GAS, LEACHATE, NON_STD |
| Type      | Y         | Text | ELEVATED_PIPE, FLUSH_CONC_CIRC, TEST_PIT, NON_STD      |
| Position  | Y         | Text | GROUND LEVEL, LID, POST, PVC, NON_STD                  |
| Number    | N         | Text |                                                        |
| Comment   | N         | Text |                                                        |

### [LFMPW] Land fill – Monitoring Point Water

Locate centre of monitoring point at monitoring level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |



### **[LFWP] Landfill – Ground Water Pipe**

String along pipe, record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                       |
|----------------|-----------|------|---------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                 |
| Material       | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD |
| Diameter       | Y         | Real |                                             |
| Position       | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT       |
| Wall Thickness | N         | Real |                                             |
| Comment        | N         | Text |                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### 3.14 Line Marking

This section contains common line marking types and descriptions.

#### [LMBB] Line Marking – 2 Solid Lines

String centre gap between lines. Two solid parallel lines

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



#### [LMBL] Line Marking – Barrier LHS

String centre gap between lines. LHS solid RHS Spaced lines.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[LMBR] Line Marking – Barrier RHS**

String centre gap between lines. RHS solid LHS Spaced lines

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[LMBUS] Line Marking – Bus Stop Line**

String centre of line, record colour. Bus stop line marking is usually 0.6m line with 0.9m gap, painted orange.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





**[LMCL] Line Marking – Continuity Line**

String centre of line (usual continuity line is a 3m gap, followed by a 1m line).

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[LMEL] Line Marking – Edge Line**

String centre of line along edge of running lane. Single Solid line, usually 100mm wide white line.

| Attribute | Mandatory | Type | Value                 |
|-----------|-----------|------|-----------------------|
| Width     | Y         | Text | 100mm, 150mm, NON_STD |
| Comment   | N         | Text |                       |



### [LMHLL] Line Marking – Giveway Bar 0.3m

String intersection face of line. Holding lines are usually 0.6m line with 0.6m gap, 300mm wide. Points strung should be along the front edge of line work (intersection side).

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [LMHLS] Line Marking – Giveway Bar 0.2m

String intersection face of line. Holding lines are usually 0.6m line with 0.6m gap, 200mm wide. Points strung should be along the front edge of line work (intersection side) not centre of line.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [LMLL] Line Marking – Lane Line Broken

String centre of line (usually 3m line and a 9m gap).

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [LMNDF] or [LMNDFS] Line Marking – Non-Defined

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature. Images are essential for this code.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [LMPCS] Line Marking – Pedestrian Crossing at Signals

String shots along pedestrian crossing. Each side should be strung independently.

Pedestrian Crossing at signals line work is usually 1m line with 0.3m gap.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [LMPKL] Line Marking – Parking Bay Line Left

String centre of line, record appropriate attributes. Record type of parking bay, E.g. L

Shape (end of Multi Bay Parks), T Shape (middle of Multi Bay Parks), solid or non-defined.

| Attribute | Mandatory | Type | Value                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------|
| Type      | Y         | Text | L_END, SOLID, T_MULTI, NON_STD                                        |
| Colour    | Y         | Text | BLACK, BLUE, GREEN, ORANGE, PUCE, PURPLE, RED, WHITE, YELLOW, NON_STD |
| Comment   | N         | Text |                                                                       |





### [LMPKR] Line Marking – Parking Bay Line Right

String centre of line, record appropriate attributes. Record type of parking bay, E.g. L Shape (end of Multi Bay Parks), T Shape (middle of Multi Bay Parks), solid or non-defined.

| Attribute | Mandatory | Type | Value                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------|
| Type      | Y         | Text | L_END, SOLID, T_MULTI, NON_STD                                        |
| Colour    | Y         | Text | BLACK, BLUE, GREEN, ORANGE, PUCE, PURPLE, RED, WHITE, YELLOW, NON_STD |
| Comment   | N         | Text |                                                                       |



### [LMS] Line Marking – Single Line Solid

String centre of line, record appropriate attributes. Used exclusively for off road line work.

| Attribute | Mandatory | Type | Value                                                                   |
|-----------|-----------|------|-------------------------------------------------------------------------|
| Colour    | Y         | Text | BLACK, BLUE, GREEN, ORANGE, PURPLE, RED, SILVER, WHITE, YELLOW, NON_STD |
| Width     | Y         | Text | 100mm, 150mm, NON_STD                                                   |
| Comment   | N         | Text |                                                                         |



**[LMSB] Line Marking – Stop Bar**

String intersection face of line. Usually, 300mm wide solid line. centre of line should not be strung for any reason.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[LMSLB] Line Marking – Single Broken (Separation)**

String centre of line. Separation lines are usually 6m line with 6m gap with 100mm width, between contra flow traffic.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[LMTL] Line Marking – Turning Line**

String centre of line. Turning lines are usually 0.6m Line with 0.6m Gap, 3 point arcs can be used if segments are set non-tinnable.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[LMZL] Line Marking – Zone Line**

String centre of line work. Includes loading zones, taxi zones, etc.

| Attribute | Mandatory | Type | Value                                                                         |
|-----------|-----------|------|-------------------------------------------------------------------------------|
| Colour    | Y         | Text | BLACK, BLUE, GREEN, ORANGE, PUCE, PURPLE, RED, SILVER, WHITE, YELLOW, NON_STD |
| Comment   | N         | Text |                                                                               |



### 3.15 Parks

This section contains common infrastructure features relating to parks.

#### [PKEQ] Parks – Play Equipment

For point features select value POINT for the point-line attribute and locate centre of feature. For line features select value LINE for point-line attribute and string outside edge of play equipment, record appropriate attributes. Can be used for all forts, swings, springs, slides, etc.

| Attribute   | Mandatory | Type | Value                                                                               |
|-------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                                                         |
| Type        | Y         | Text | FORTS, RUBBER_SOFT_FALL, SHADECLOTH, SLIDE, SPRING, SWING, SYNTHETIC GRASS, NON_STD |
| Comment     | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



Example above of a shade cloth feature.



### [PKF] Parks – Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Images may be essential for this code.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| Description | Y         | Text |             |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [PKFE] Parks – Fitness Equipment

For point features select value POINT for the point-line attribute and locate centre of feature. For line features select value LINE for point-line attribute and string outside edge of play equipment, record appropriate attributes. Can be used for all outdoor fitness equipment.

| Attribute  | Mandatory | Type | Value                                                                               |
|------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line | N         | Text | LINE, POINT                                                                         |
| Type       | Y         | Text | FORTS, RUBBER_SOFT_FALL, SHADECLOTH, SLIDE, SPRING, SWING, SYNTHETIC GRASS, NON_STD |
| Comment    | N         | Text |                                                                                     |

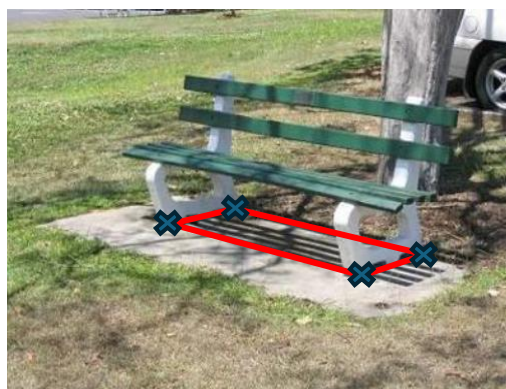


### [PKFN] Parks – Furniture

For point features, locate centre of feature, for string features, string around footprint of feature, record type. All string features should be closed strings. Point features include BBQ wood, BBQ Gas, bin and wheelie bin.

| Attribute   | Mandatory | Type | Value                                                                                                               |
|-------------|-----------|------|---------------------------------------------------------------------------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                                                                                         |
| Type        | Y         | Text | BBQ_ELEC, BBQ_GAS, BBQ_WOOD, BIKE_RACK, BIN, BIN_WHEELY_x_1, BIN_WHEELY_x_2, SEAT, TABLE, TABLE/SEAT_COMBO, NON_STD |
| Material    | Y         | Text | CONCRETE, METAL, PLASTIC, TIMBER, NON_STD                                                                           |
| Comment     | N         | Text |                                                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [PKNDF] Parks – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

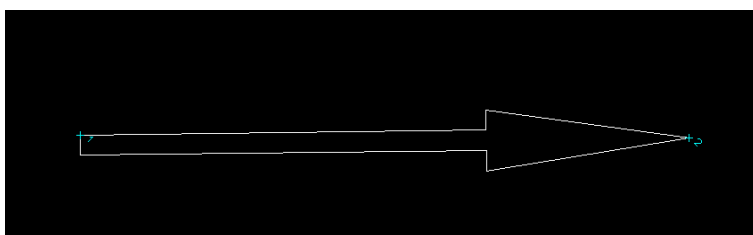
### 3.16 Pavement Marking

This section contains common pavement markings.

#### [PMA] or [PMAS] Pavement Marking – Arrow

Locate bottom left corner of arrow and furthest tip of arrow, record type. The arrow is orientated and sized when using this code. Should be used on all non-standard sizes. Strung from bottom to furthest tip.

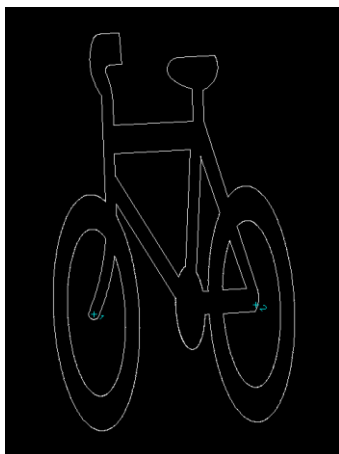
| Attribute | Mandatory | Type | Value                                                                                                                            |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | STRAIGHT RIGHT LEFT, STRAIGHT LEFT, STRAIGHT RIGHT, ARROW U TURN, LEFT TURN, RIGHT TURN, MERGE LEFT, MERGE RIGHT, STRAIGHT ARROW |
| Comment   | N         | Text |                                                                                                                                  |



#### [PMBK] Pavement Marking – Bike Symbol

String centre of each wheel. Locate front wheel of bike first, each bike needs a new string.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[PMCOL] Pavement Marking – Pavement Colour Outline**

String outer edge of coloured area, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                     |
|-----------|-----------|------|-------------------------------------------------------------------------------------------|
| Colour    | Y         | Text | BLACK, BLUE, BLUE_WHITE, GREEN, ORANGE, PUCE, PURPLE, RED, SILVER, WHITE, YELLOW, NON_STD |
| Comment   | N         | Text |                                                                                           |





### [PMCV] Pavement Marking – Chevron Outline

String solid filled areas. Only used on solid fill areas, not the solid line around the areas.

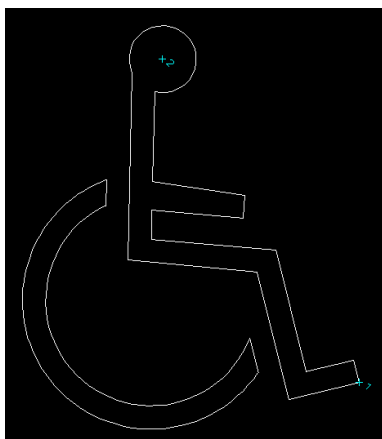
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMDA] Pavement Marking – Disable Parking

Two-point line pickup. One point on the bottom edge of the foot, second point on the centre of the head

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[PMHM] Pavement Marking – Hydrant Mark**

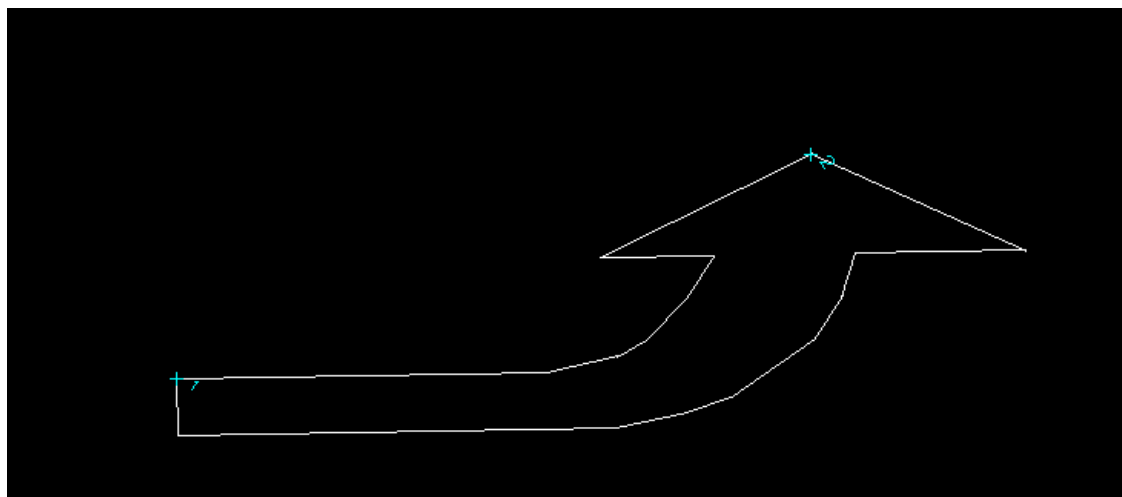
XXXXXX

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[PMLT] Pavement Marking – Arrow Left Turn**

String base and arrow.

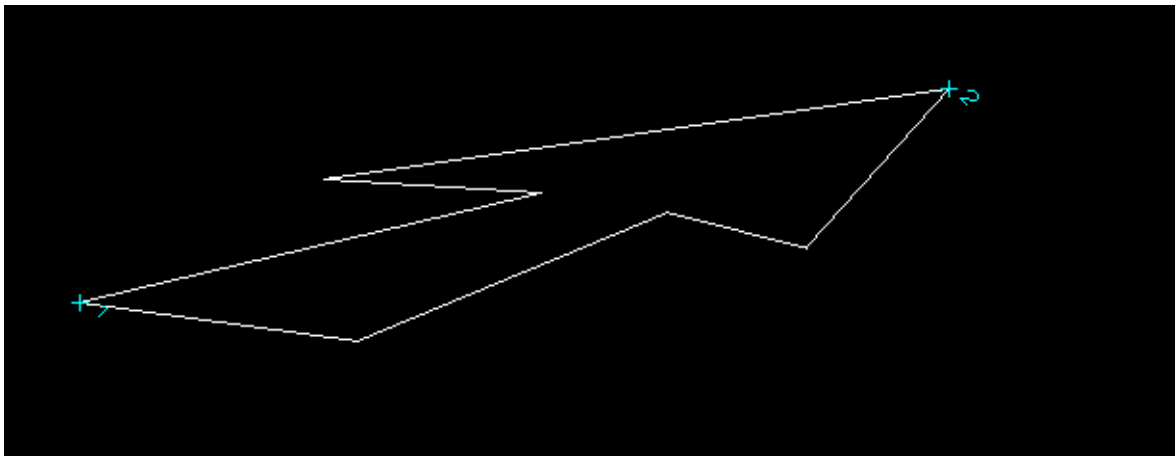
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[PMML] Pavement Marking – Arrow Merge Left**

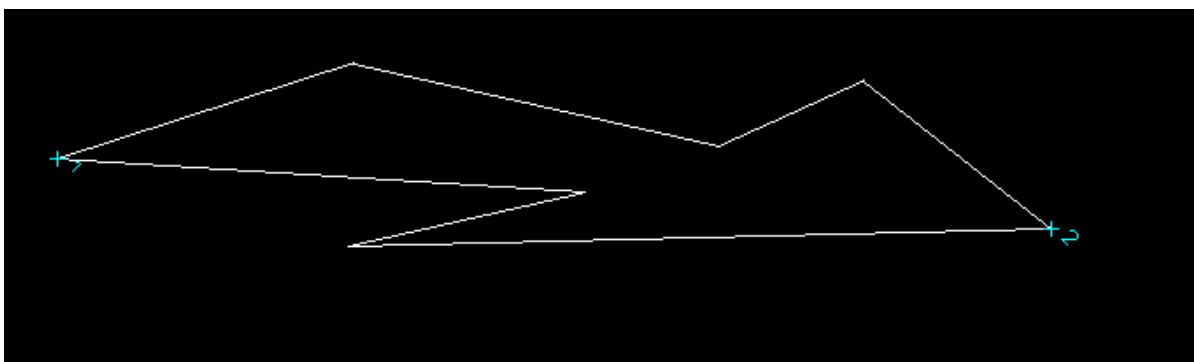
String base and arrow.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[PMMR] Pavement Marking – Arrow Merge Right**

String base and arrow

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMNDF] Pavement Marking – Non-Defined Feature

Single Point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [PMPED] Pavement Marking – Disable Parking

2 point capture, front-right of the foot, second point, centre of the head.

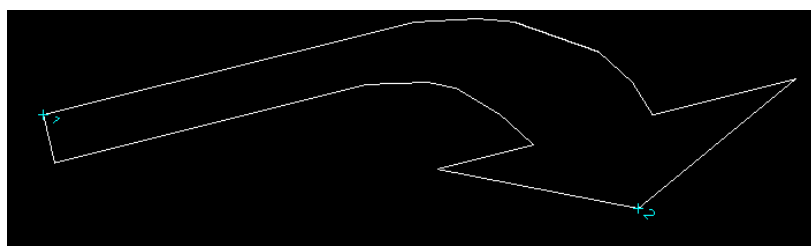
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMRT] Pavement Marking – Arrow Right Turn

String base and arrow

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

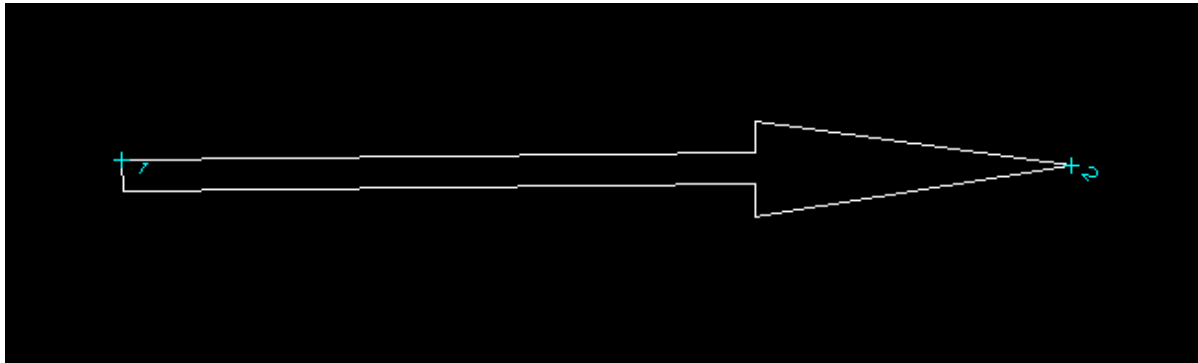




**[PMS] Pavement Marking – Arrow Straight**

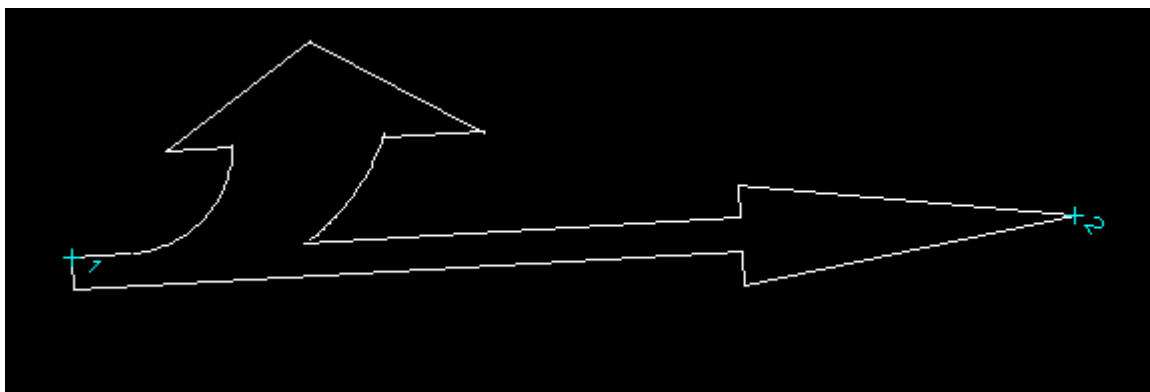
String base and arrow

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[PMSL] Pavement Marking – Arrow Straight / Left**

String base and arrow

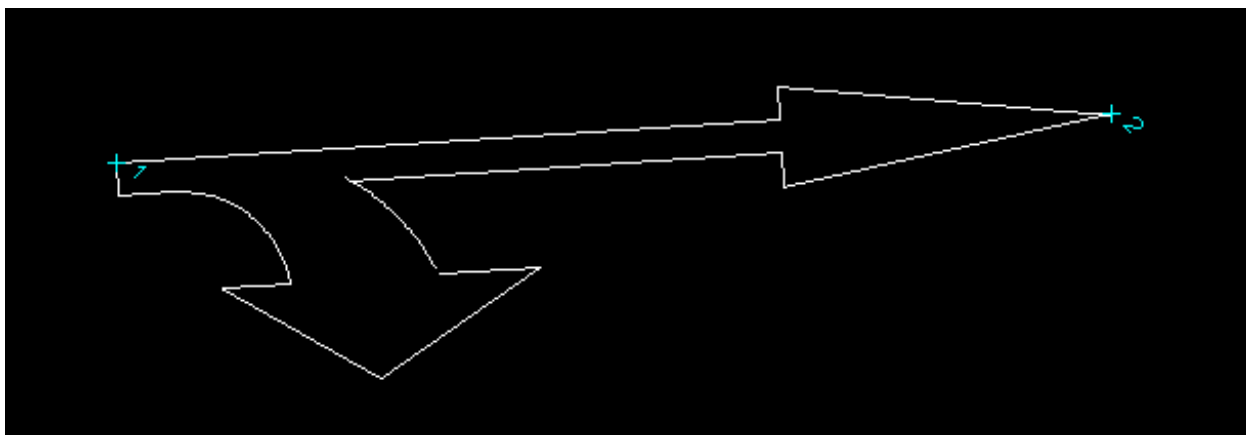
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMSR] Pavement Marking – Arrow Straight / Right

String base and arrow

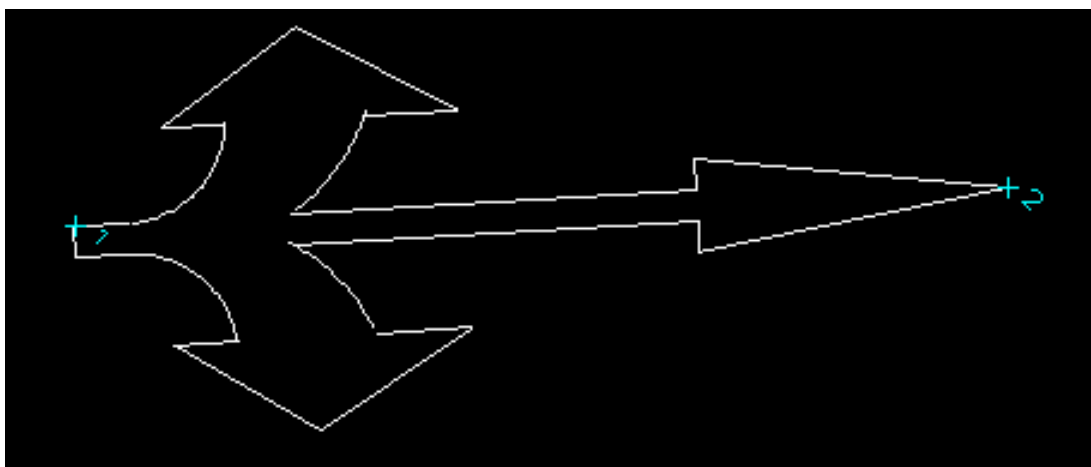
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMSRL] Pavement Marking – Arrow Straight and Right / Left

String base and arrow

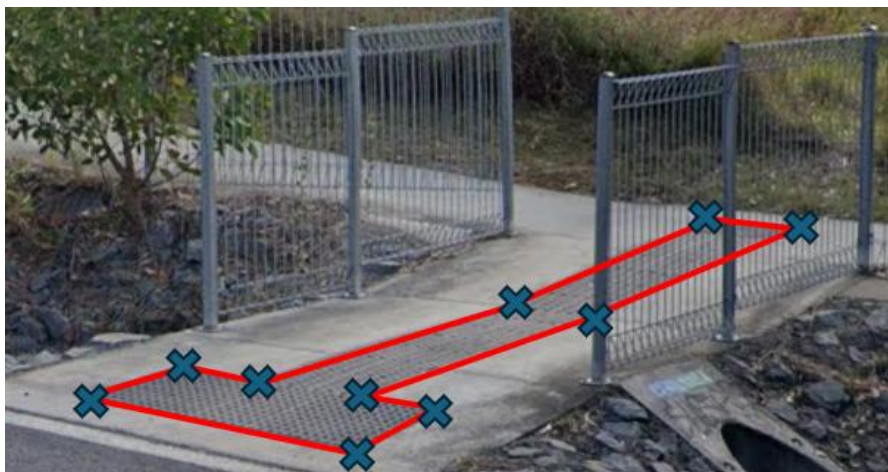
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMTAC] Pavement Marking – Tactile

String outline of tactile.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [PMTXT] Pavement Marking – Road Text

String around extents of road text, capture image of road text. Text height of road text is important. Images may be required for this code.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Text      | Y         | Text |       |
| PHOTO     | Y         | Text |       |
| Comment   | N         | Text |       |



**[PMUT] Pavement Marking – Arrow U-Turn**

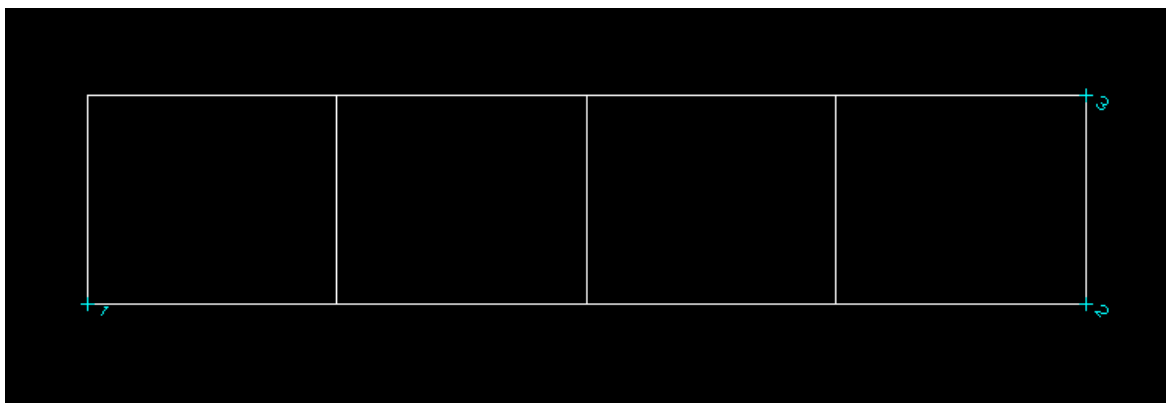
String base and arrow

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[PMZC] Pavement Marking – Zebra Crossing**

Three-point string around pedestrian crossing, with the long side measured first followed by the short side.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### 3.17 Petroleum

This section contains common petroleum utilities and infrastructure.

#### [PECON] Petroleum – Conduit

String located underground service, record appropriate attributes and other relevant Information.

**Survey Geometry:** Measure points along the service at all changes of grade and direction.

| Attribute     | Mandatory | Type | Value                                                                               |
|---------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth         | Y         | Real |                                                                                     |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type          | N         | Text | DESIEL, GAS, OIL, PETROL, STANDARD, UNKNOWN, NON_STD                                |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner         | N         | Text |                                                                                     |
| Diameter*     | Y         | Real |                                                                                     |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                      |
| Photo         | N         | Text |                                                                                     |
| Comment       | N         | Text |                                                                                     |
| Comment2      | N         | Text |                                                                                     |
| Comment3      | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [PELOC] Petroleum – Service Located

String located underground service, record appropriate attributes and other relevant Information.

**Survey Geometry:** Measure points along the service at all changes of grade and direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth          | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type           | N         | Text | DESIEL, GAS, OIL, PETROL, STANDARD, UNKNOWN, NON_STD                                |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner          | N         | Text |                                                                                     |
| Diameter*      | Y         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| Photo          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [PEMK] Petroleum – Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [PENDF] Petroleum – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[PEPIT] Petroleum – Pit**

Locate centre of pit, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                             |
|-----------|-----------|------|-----------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD |
| Shape     | Y         | Text | RECTANGLE, ROUND, SQUARE, NON_STD |
| Width     | Y         | Real |                                   |
| Length    | Y         | Real |                                   |
| Depth     | N         | Real |                                   |
| SUI       | Y         | Text | A+, A, B, C, D                    |
| PHOTO     | N         | Text |                                   |
| Comment   | N         | Text |                                   |





### [PEPH] Petroleum – Pothole

String located underground service, record appropriate attributes and other relevant Information.

**Survey Geometry:** Measure points along the service at all changes of grade and direction.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth          | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type           | N         | Text | DESIEL, GAS, OIL, PETROL, STANDARD, UNKNOWN, NON_STD                                |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner          | N         | Text |                                                                                     |
| Diameter*      | Y         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| Photo          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[PEPITS] Petroleum – Pit Surround**

String around outside of lids, record appropriate attributes. Used for grouped pit lids.

| Attribute | Mandatory | Type    | Value                                     |
|-----------|-----------|---------|-------------------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, TIMBER, NON_STD |
| No_Lids   | Y         | Integer |                                           |
| Depth     | N         | Text    |                                           |
| SUI       | Y         | Text    | A+, A, B, C, D                            |
| PHOTO     | N         | Text    |                                           |
| Comment   | N         | Text    |                                           |



### [PETAN] or [PETANS] Petroleum – Tank

String around tank, record appropriate attributes.

| Attribute  | Mandatory | Type | Value          |
|------------|-----------|------|----------------|
| Point-Line | Y         | Text | LINE, POINT    |
| Depth      | N         | Real |                |
| SUI        | Y         | Text | A+, A, B, C, D |
| Comment    | N         | Text |                |



### [PEV] Petroleum – Valve

Locate centre of valve, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |

### 3.18 Railway

This section contains common features and infrastructure relating to railways.

#### [RWBAB] Railway – Ballast Bottom

String interface between ballast and other surfaces.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





**[RWBAT] Railway – Ballast Top**

String interface between ballast and edge of sleepers.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

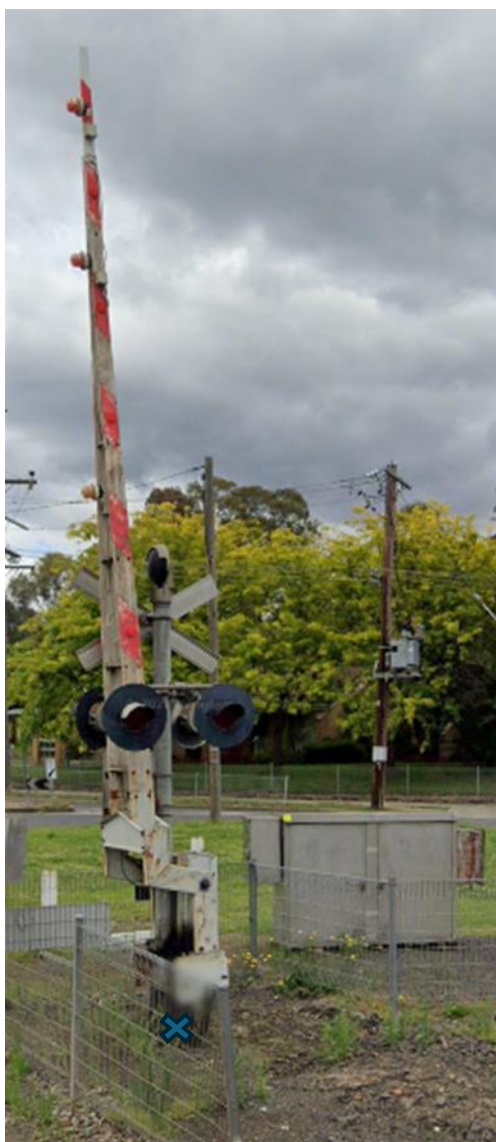


**[RWBOM] Railway – Boom**

Locate centre of boom, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Width     | Y         | Text |       |
| Comment   | N         | Text |       |



### [RWCG] Railway – Communications General Service

String centre of located railway service and record appropriate attributes.

**Survey Geometry:** Measure points along the service at all changes in grade and direction.

| Attribute     | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|---------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*   | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD                                                                                                                                                                                                            |
| Pickup_Loc*   | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Depth*        | Y         | Real |                                                                                                                                                                                                                                                                                                |
| Status        |           | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type          | Y         | Text | CABLE, COMM, POWER, TRACK, UNKNOWN, NON_STD                                                                                                                                                                                                                                                    |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner         | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Diameter*     | Y         | Real |                                                                                                                                                                                                                                                                                                |
| SUI*          | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| PHOTO         | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2      | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3      | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [RWCON] Railway – Conduit

String centre of located railway service record appropriate attributes.

**Survey Geometry:** Measure points along the conduit at all changes in grade and direction.

| Attribute      | Mandatory | Type | Value                                                                                                                                                                                                                                                                                          |
|----------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                                                                                                                                                                    |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD                                                                                                                                                                                                            |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                                                                                                                                                                   |
| Depth*         | N         | Real |                                                                                                                                                                                                                                                                                                |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                                                                                                                                                                      |
| Type           | Y         | Text | CABLE, COMM, POWER, TRACK, UNKNOWN, NON_STD                                                                                                                                                                                                                                                    |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                                                                                                                                                                          |
| Owner          | N         | Text | AAPT/POWERTEL, AARNET PTY LTD, APA (ALLGAS), APA (NETWORK), APA (ORIGIN), ENERGEX, ESSENTIAL ENERGY, Local Authority, LINKWATER, NBN CO, NETWORK TECH, NEXTGEN, OPTUS / UECOMM, PIPE NETWORKS, POWERLINK, SEQ WATER, SOUL AUS COMM, TELSTRA, UNITYWATER, VEOLIA WATER, WESFARMERS GAS, NON_STD |
| Diameter*      | Y         | Real |                                                                                                                                                                                                                                                                                                |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                                                                                                                                                                                 |
| PHOTO          | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment        | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment2       | N         | Text |                                                                                                                                                                                                                                                                                                |
| Comment3       | N         | Text |                                                                                                                                                                                                                                                                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [RWIJT] Railway – Isolator Joint

Locate centre of joint.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [RWJT] Railway – Line Joint

Locate centre of joint.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [RWKP] Railway – Kilometre Post

Locate centre of post.

**Survey Geometry:** Single measured point.

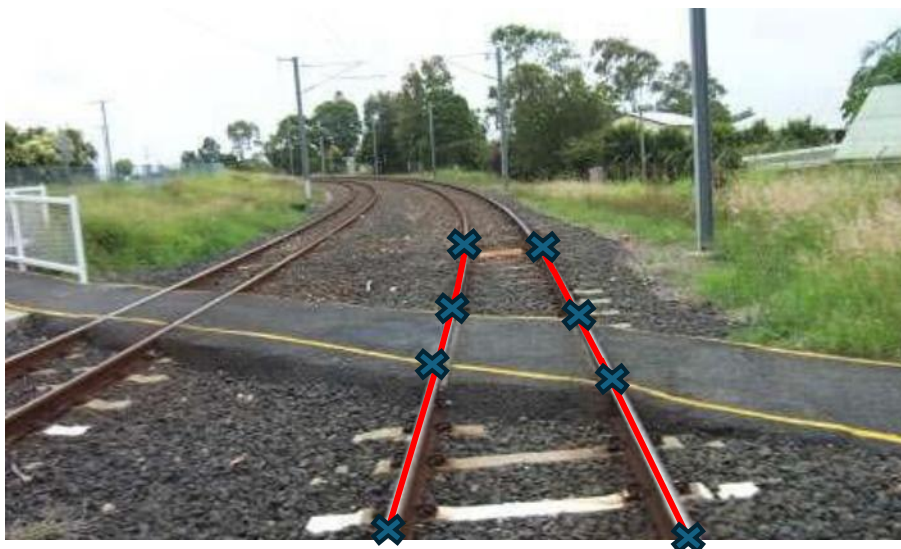
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[RWLN] Railway – Line**

String centre of rail at top of rail.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [RWMAS] Railway – Mast Arm

Single shot split centre middle of structure shape on ground, with level being top of concrete.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [RWNDF] Railway – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [RWPIT] Railway – Pit

Locate centre of pit, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                             |
|-----------|-----------|------|-----------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD |
| Width     | Y         | Real |                                   |
| Length    | Y         | Real |                                   |
| Depth     | N         | Real |                                   |
| PHOTO     | N         | Text |                                   |
| Comment   | N         | Text |                                   |

### [RWPITS] Railway – Pit Surround

String around outside of lids, record appropriate attributes. For use with grouped pit lids

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| Comment   | N         | Text    |                                   |

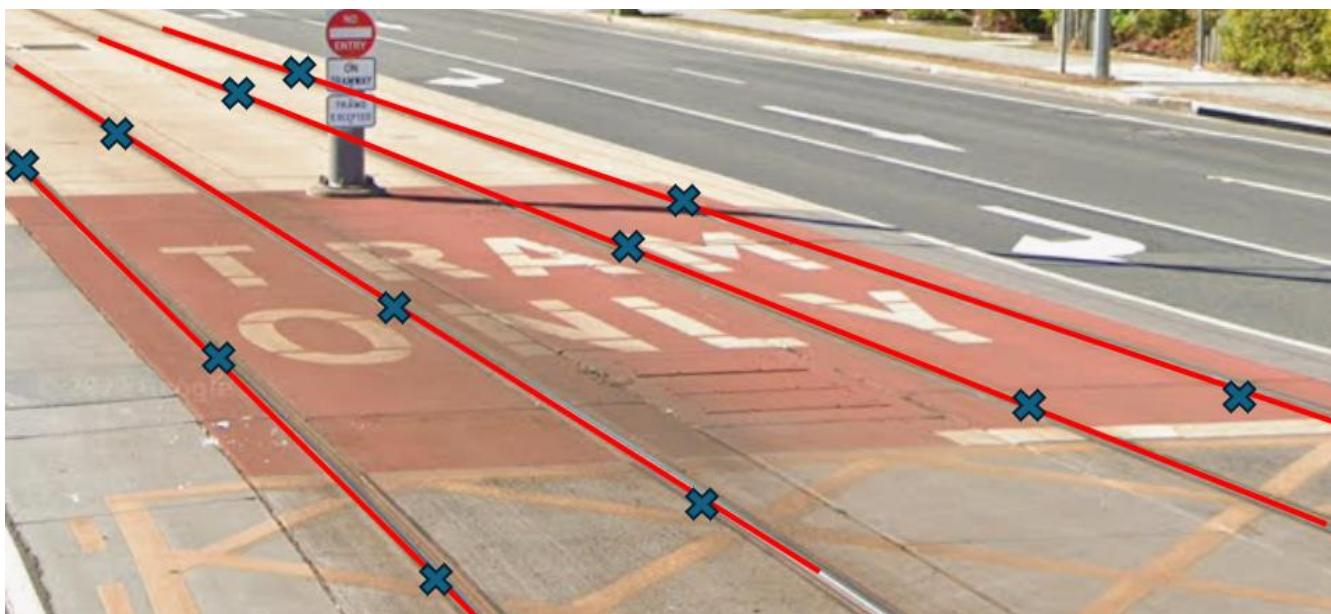


**[RWR] Railway – Rail Line**

Locate centre of rail at ground level, record image. If recording with no post, locate bottom middle of lowest sign.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[RWSGN] Railway – Sign Strung**

Locate centre of post at ground level, record image. If recoding with no post, locate bottom middle of lowest sign. For use with grouped signs.

| Attribute | Mandatory | Type | Value   |
|-----------|-----------|------|---------|
| Post      | Y         | Text | NO, YES |
| PHOTO     | N         | Text |         |
| Comment   | N         | Text |         |

**[RWSIG] Railway – Signal**

Locate centre of structure at ground level.

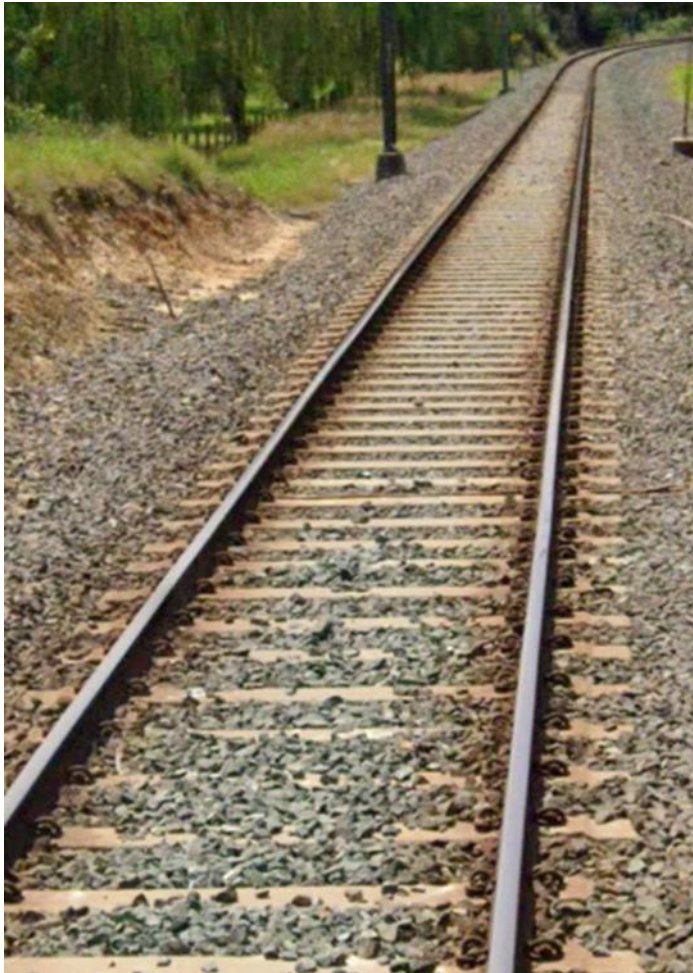
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[RWSL] Railway – Sleeper**

Locate centre of sleeper at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [RWSWL] Railway – Switch Lever

Locate centre of lever.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [RWTOS] Railway – Toe of Switch

Locate centre of structure at ground level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### 3.19 Roads

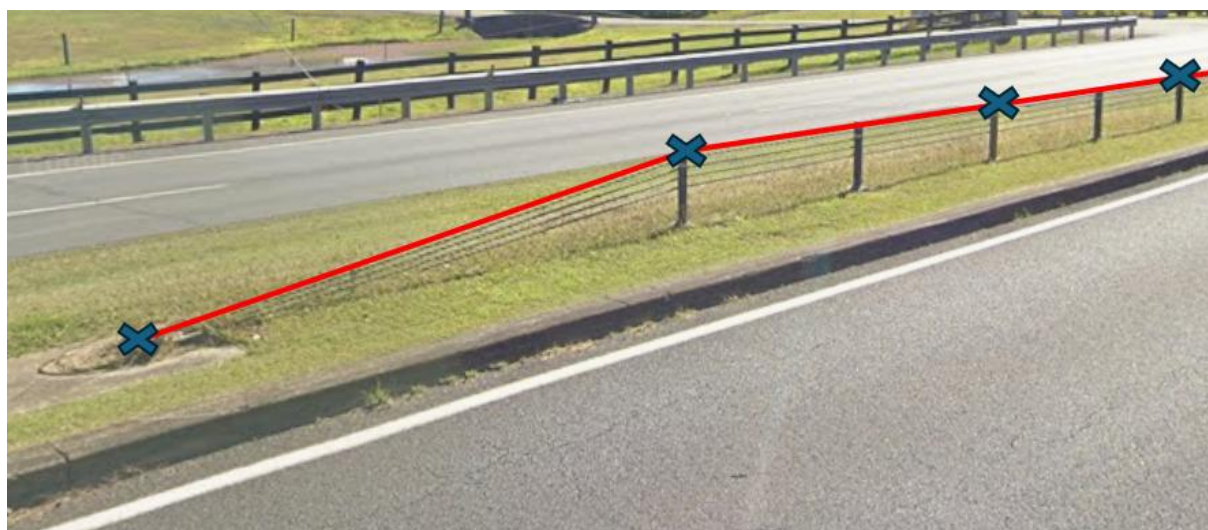
This section contains common features and infrastructure relating to roads.

#### [RDBWR] Roads – Wire Rope Barrier

Locate centre of wire rope barrier.

**Survey Geometry:** String along extent of barrier.

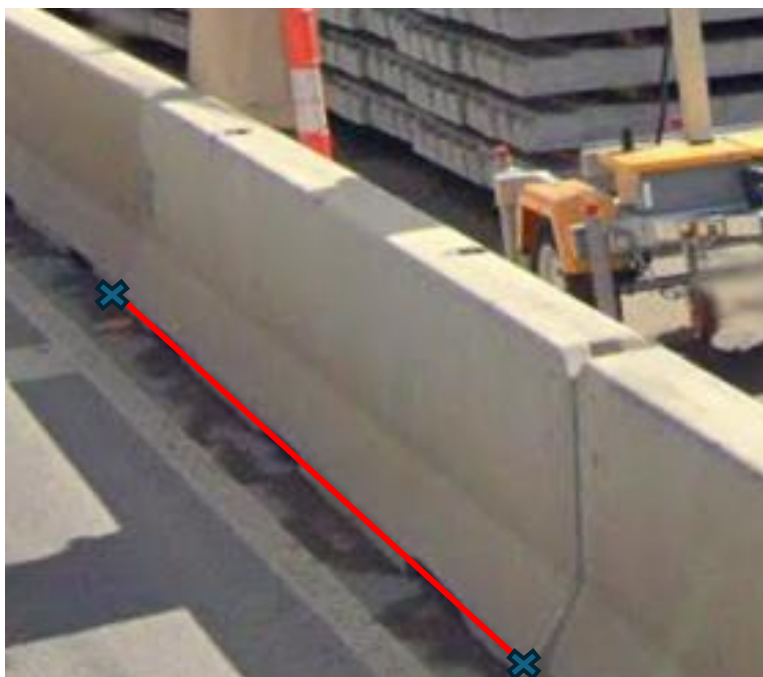
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[RDCB] Roads – Concrete Barrier**

String along toe of concrete barrier, noting type of barrier.

| Attribute | Mandatory | Type | Value                     |
|-----------|-----------|------|---------------------------|
| Type      | Y         | Text | TEMPORARY, FIXED, NON_STD |
| Comment   | N         | Text |                           |



### [RDCG] Roads – Change of Grade

String along changes in slope on the road, record appropriate attributes. Required for defining road shape.

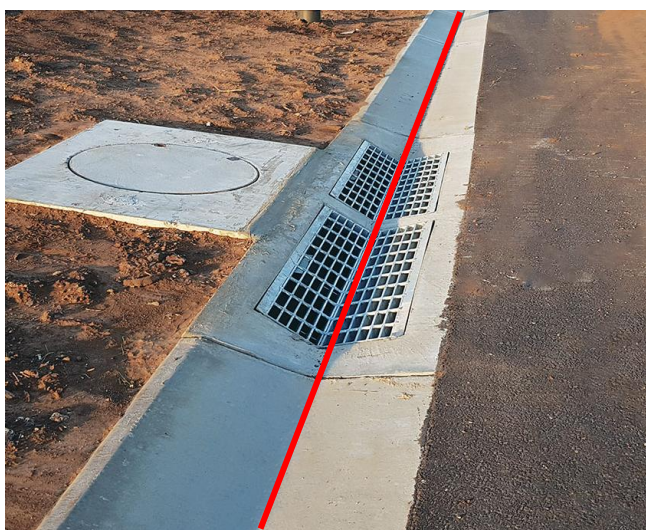
| Attribute | Mandatory | Type | Value                                                        |
|-----------|-----------|------|--------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BLUE_METAL, CONCRETE, DIRT, GRAVEL, PAVERS, NON_STD |
| Comment   | N         | Text |                                                              |



**[RDCI] Roads – Concrete Invert Spoon Drain**

String invert of spoon drain, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                  |
|-----------|-----------|------|--------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BLUE_METAL, CONCRETE, GRAVEL, PAVERS, NON_STD |
| Comment   | N         | Text |                                                        |

**[RDDPTH] Roads – Depth Indicator**

Locate centre of water over road depth indicator.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





**[RDEB] Roads – Edge Bitumen**

String edge of bitumen at road level, record appropriate attributes.

| Attribute | Mandatory | Type | Value                              |
|-----------|-----------|------|------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, PAVERS, NON_STD |
| Comment   | N         | Text |                                    |



**[RDEG] Roads – Edge (Unsealed)**

String edge of unsealed road.

| Attribute | Mandatory | Type | Value                                              |
|-----------|-----------|------|----------------------------------------------------|
| Material  | Y         | Text | BLUE_STONE, CRUSH_DUST, GRAVEL, SUB_GRADE, NON_STD |
| Comment   | N         | Text |                                                    |

**[RDES] Roads – Edge Shoulder**

String edge of shoulder at road level, record appropriate attributes.

| Attribute | Mandatory | Type | Value                              |
|-----------|-----------|------|------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, PAVERS, NON_STD |
| Comment   | N         | Text |                                    |



**[RDET] Roads – Edge Track**

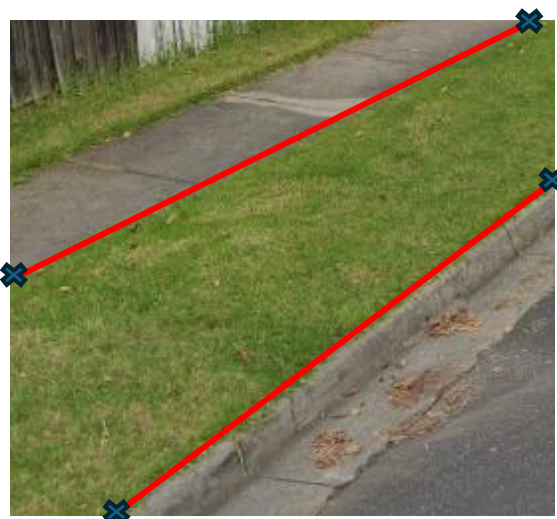
String edge of unsealed road on track side.

| Attribute | Mandatory | Type | Value                                              |
|-----------|-----------|------|----------------------------------------------------|
| Material  | Y         | Text | CRUSH_DUST, DIRT, GRAVEL, SAND, SUB_GRADE, NON_STD |
| Comment   | N         | Text |                                                    |

**[RDEV] Roads – Edge Verge**

String edge of verge, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                              |
|-----------|-----------|------|----------------------------------------------------|
| Material  | Y         | Text | CRUSH_DUST, DIRT, GRAVEL, SAND, SUB_GRADE, NON_STD |
| Comment   | N         | Text |                                                    |



**[RDFP] Roads – Flush Point**

Locate centre of flush point.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[RDGP] Roads – Guide Post**

Locate centre of post.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [RDGR] Roads – Guard Rail

String at top level of 'W' beam along road face, record appropriate attributes. String complete rail, including the roll back.

**Survey Geometry:** Measurements along the top rail of the 'W' beam are required for conformance reporting.

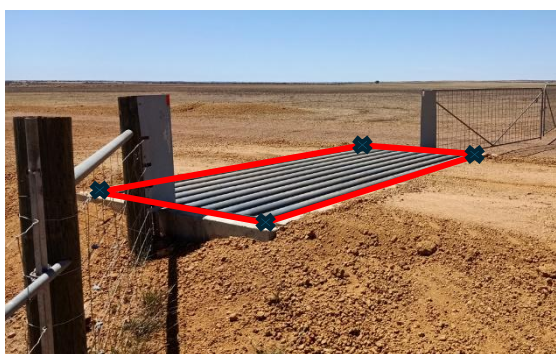
| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [RDGRD] Roads – Grid (Cattle Grid)

String around grid.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[RDHM] Roads – Hydrant Marker**

Locate centre of hydrant reflector. Locate if no hydrant found.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[RDKB] Roads – Kerb back**

String along feature, record appropriate attributes. Part of kerb furthest from carriageway, recorded at all gully traps.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONC. BLOCK, CONCRETE, PHORPHY, PRE-CAST, NON_STD |
| Type      | N         | Text | BACKSTONE, STANDARD, NON_STD                      |
| Comment   | N         | Text |                                                   |



**[RDKI] Roads – Kerb Invert**

String lowest point of kerb, record appropriate attributes. Part of standard pickup

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONC. BLOCK, CONCRETE, PHORPHY, PRE-CAST, NON_STD |
| Type      | N         | Text | ROUND, TYPE_D, TYPE_E, TYPE_F, NON_STD            |
| Comment   | N         | Text |                                                   |



**[RDKL] Roads – Kerb Lip**

String edge of kerb Lip, record appropriate attributes. Part of kerb closest to carriageway, part of standard pickup.

| Attribute | Mandatory | Type | Value                                             |
|-----------|-----------|------|---------------------------------------------------|
| Material  | Y         | Text | CONC. BLOCK, CONCRETE, PHORPHY, PRE-CAST, NON_STD |
| Type      | N         | Text | ROUND, TYPE_D, TYPE_E, TYPE_F, NON_STD            |
| Comment   | N         | Text |                                                   |





**[RDKO] Roads – Kerb Only (Face)**

String lowest point of kerb, record appropriate attributes. Part of kerb closest to carriageway, part of standard pickup.

| Attribute | Mandatory | Type | Value                                                                            |
|-----------|-----------|------|----------------------------------------------------------------------------------|
| Material  | Y         | Text | CONC. BLOCK, CONCRETE, PHORPHY, PRE-CAST, NON_STD                                |
| Type      | N         | Text | EDGE, MOUNTABLE, MOUNTABLE_STRIP, ROUND, TYPE_D, TYPE_E, TYPE_F, TYPE_G, NON_STD |
| Comment   | N         | Text |                                                                                  |



**[RDKT] Roads – Kerb Top**

String along kerb top on roadside, record appropriate attributes. Part of standard pickup.

| Attribute | Mandatory | Type | Value                                                                            |
|-----------|-----------|------|----------------------------------------------------------------------------------|
| Material  | Y         | Text | CONC. BLOCK, CONCRETE, PHORPHY, PRE-CAST, NON_STD                                |
| Type      | N         | Text | EDGE, MOUNTABLE, MOUNTABLE_STRIP, ROUND, TYPE_D, TYPE_E, TYPE_F, TYPE_G, NON_STD |
| Comment   | N         | Text |                                                                                  |



### [RDLE] Roads – Spot Level

Single shots, recording material.

| Attribute | Mandatory | Type | Value                                                                                                                      |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, SAND, STENCIL, STONE, SUB_GRADE, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                            |



### [RDNDF] Roads – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [RDRC] Roads – Crown

String along the crown of the road.

| Attribute | Mandatory | Type | Value                                                                                                                      |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, SAND, STENCIL, STONE, SUB_GRADE, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                            |

### [RDSG] Roads – Sign

Locate centre of sign. If mounted on a post, measure the centre of post at ground level.

**Survey Geometry:** Single measured point.

#### REMOVE ATTRIBUTES

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                                                  |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | CHEVRON, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, ROUNDABOUT_AHEAD, ROUNDABOUT_GWAY, SPEED_100, SPEED_40, SPEED_50, SPEED_60, SPEED_80, STOP, NON_STD |
| Direction | N         | Text | CHEVRON, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, ROUNDABOUT_AHEAD, ROUNDABOUT_GWAY, SPEED_100, SPEED_40, SPEED_50, SPEED_60, SPEED_80, STOP, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                                                                                                        |





### [RDSNG] Roads – Sign

Locate centre of sign. If mounted on a post, measure the centre of post at ground level.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                                                  |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | BIKEWAY, BUS_STOP, DIRECT_AR, FORM_1_LA, PED_XING, SHOP_AWNING, STREET_SI, TURN_LEFT, WARNING, NON_STD                                                                                                                                                 |
| Direction | N         | Text | CHEVRON, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, ROUNDABOUT_AHEAD, ROUNDABOUT_GWAY, SPEED_100, SPEED_40, SPEED_50, SPEED_60, SPEED_80, STOP, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                                                                                                        |

### [RDSNGM] Roads – Sign Multi-Sign

String centre of signs and record appropriate attributes. Used for grouped signs.

| Attribute | Mandatory | Type | Value                                                                                                                                                               |
|-----------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sign1     | N         | Text | ###, BIKEWAY, BUS_STOP, DIRECT_AR, FORM_1_LA, PED_XING, SHOP_AWNING, STREET_SI, TURN_LEFT, WARNING, NON_STD                                                         |
| Sign2     | N         | Text | ###, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, SPEED, STOP, NON_STD |
| Sign3     | N         | Text | ###, BIKEWAY, BUS_STOP, DIRECT_AR, FORM_1_LA, PED_XING, SHOP_AWNING, STREET_SI, TURN_LEFT, WARNING, NON_STD                                                         |
| Sign4     | N         | Text | ###, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, SPEED, STOP, NON_STD |
| Sign5     | N         | Text | ###, BIKEWAY, BUS_STOP, DIRECT_AR, FORM_1_LA, PED_XING, SHOP_AWNING, STREET_SI, TURN_LEFT, WARNING, NON_STD                                                         |
| Direction | N         | Text | Parallel, Perpendicular                                                                                                                                             |
| Comment   | N         | Text |                                                                                                                                                                     |



**[RDSNS] Roads – Sign Strung**

String bottom corner to top corner of sign on the diagonal, take image of sign.

**ADD ATTRIBUTE VMS**

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                                                  |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | CHEVRON, CLEARWAY, GIVEWAY, KEEP_LEFT, KEEP_RIGHT, MERGE_RIGHT, NO_ENTRY, NO_L_TURN, NO_R_TURN, NO_STANDING, NO_THRU_RD, NO_U_TURN, ONE_WAY, PARK, ROUNDABOUT AHEAD, ROUNDABOUT GWAY, SPEED 100, SPEED 40, SPEED 50, SPEED 60, SPEED 80, STOP, NON_STD |
| Direction | N         | Text | Parallel, Perpendicular                                                                                                                                                                                                                                |
| Comment   | N         | Text |                                                                                                                                                                                                                                                        |



### 3.20 Sewer

This section contains common sewer utilities and infrastructure.

#### [SEEDS] Sewer – Effluent

Locate the feature.

| Attribute   | Mandatory | Type | Value                                          |
|-------------|-----------|------|------------------------------------------------|
| Pickup_Loc* | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD |
| Diameter*   | Y         | Real |                                                |
| Material    | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD   |
| SUI*        | Y         | Text | A+, A, B, C, D                                 |
| Comment     | N         | Text |                                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

#### [SEGT] Sewer – Grease Trap

Locate centre of manhole lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D                      |
| PHOTO     | N         | Text |                                     |
| Comment   | N         | Text |                                     |



**[SEIL] Sewer – Invert Level**

Locate the feature.

| Attribute | Mandatory | Type | Value                                                      |
|-----------|-----------|------|------------------------------------------------------------|
| Material  | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD                |
| Diameter  | Y         | Text | 1.050, 1.200, 1.350, 1.500, EXTENDED, RECTANGULAR, NON_STD |
| Comment   | N         | Text |                                                            |





**[SEILC] Sewer – Invert Level Chamber**

Locate invert of sewer manhole chamber.

| Attribute    | Mandatory | Type | Value                                                      |
|--------------|-----------|------|------------------------------------------------------------|
| Diameter     | Y         | Text | 1.050, 1.200, 1.350, 1.500, EXTENDED, RECTANGULAR, NON_STD |
| Soffit Depth | N         | Real |                                                            |
| Width        | Y         | Real |                                                            |
| Length       | Y         | Real |                                                            |
| Comment      | N         | Text |                                                            |

**[SEIO] Sewer – Inspection Opening**

Locate centre of inspection lid.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| PHOTO     | N         | Text |       |
| Comment   | N         | Text |       |

### [SELOC] Sewer – Service Location

Location where underground services have been located, record depth, diameter and other relevant Information.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Depth          | Y         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                                                                                         |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                |
| Owner          | N         | Text | Local Authority, PIPE Networks, SEQ Water                                                                                                   |
| Diameter*      | Y         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO          | N         | Text |                                                                                                                                             |
| Comment        | N         | Text |                                                                                                                                             |
| Comment2       | N         | Text |                                                                                                                                             |
| Comment3       | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

**[SEMH] Sewer – Maintenance Hole**

Single shot in middle of manhole recording shape (triangle, circle or rectangle).

| Attribute  | Mandatory | Type | Value                               |
|------------|-----------|------|-------------------------------------|
| Lid Shape* | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth      | Y         | Real |                                     |
| SUI        | Y         | Text | A+, A, B, C, D                      |
| PHOTO      | N         | Text |                                     |
| Comment    | N         | Text |                                     |



\* Indicates mandatory attribute, that later describes symbols or linestyles or both



## PW Survey Guideline

### Public Works – Codes

#### [SEMHC] Sewer – Maintenance Hole Chamber

String internal outline of chamber, at the best location to represent the shape. Mainly used when scanning manholes to cut a shape of the manhole at the best location.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| Depth     | N         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |



**[SEMHS] Sewer – Maintenance Hole Surround**

String around outside of lids, record appropriate attributes.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| No_Lids   | Y         | Text |                |
| Depth     | N         | Real |                |
| SUI       | Y         | Text | A+, A, B, C, D |
| PHOTO     | N         | Text |                |
| Comment   | N         | Text |                |



### [SEMK] Sewer – Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| Depth     | N         | Real |                             |
| Offset    | N         | Text |                             |
| Direction | N         | Text |                             |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [SENDF] Sewer – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [SEP] Sewer – Pipe

String along pipe, record point/line type, record appropriate attributes. The same position on the pipe should be strung along the pipe. Swapping invert to crown should be avoided if possible.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute      | Mandatory | Type | Value                                                                        |
|----------------|-----------|------|------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                  |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD |
| Status         | Y         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                    |
| Type           | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                          |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                 |
| Owner*         | N         | Text | Local Authority, PIPE Networks, SEQ Water                                    |
| Diameter       | Y         | Real |                                                                              |
| Wall Thickness | N         | Real |                                                                              |
| SUI*           | Y         | Text | A+, A, B, C, D                                                               |
| PHOTO          | N         | Text |                                                                              |
| Comment        | N         | Text |                                                                              |
| Comment2       | N         | Text |                                                                              |
| Comment3       | N         | Text |                                                                              |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [SEPH] Sewer – Pothole

String sewer services, record appropriate attributes.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute     | Mandatory | Type | Value                                                                                                                                       |
|---------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD                                                                |
| Depth         | Y         | Real |                                                                                                                                             |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type          | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                                                                                         |
| Material      | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                |
| Owner         | N         | Text | Local Authority, PIPE Networks, SEQ Water                                                                                                   |
| Diameter      | Y         | Real |                                                                                                                                             |
| SUI           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO         | N         | Text |                                                                                                                                             |
| Comment       | N         | Text |                                                                                                                                             |
| Comment2      | N         | Text |                                                                                                                                             |
| Comment3      | N         | Text |                                                                                                                                             |



**[SEPITRDN] Sewer – Maintenance Hole Round**

Single shot in middle of manhole recording shape (triangle, circle or rectangle).

| Attribute  | Mandatory | Type | Value                               |
|------------|-----------|------|-------------------------------------|
| Lid Shape* | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth      | Y         | Real |                                     |
| SUI        | Y         | Text | A+, A, B, C, D                      |
| PHOTO      | N         | Text |                                     |
| Comment    | N         | Text |                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

\*\* Possible Office input



### [SEPM] Sewer – Pressure Main

String along pipe, record point/line type, record appropriate attributes. The same position on the pipe should be strung along the pipe. Swapping invert to crown should be avoided if possible.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute      | Mandatory | Type | Value                                                                        |
|----------------|-----------|------|------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                  |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD |
| Status         | Y         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                    |
| Type           | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                          |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                 |
| Owner*         | N         | Text | Local Authority, PIPE Networks, SEQ Water                                    |
| Diameter       | Y         | Real |                                                                              |
| Wall Thickness | N         | Real |                                                                              |
| SUI*           | Y         | Text | A+, A, B, C, D                                                               |
| PHOTO          | N         | Text |                                                                              |
| Comment        | N         | Text |                                                                              |
| Comment2       | N         | Text |                                                                              |
| Comment3       | N         | Text |                                                                              |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [SEPR] Sewer – Pipe Recycled

String along pipe, record point/line type, record appropriate attributes. The same position on the pipe should be strung along the pipe. Swapping invert to crown should be avoided if possible.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute      | Mandatory | Type | Value                                                                        |
|----------------|-----------|------|------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                  |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD |
| Status         | Y         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                    |
| Type           | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                          |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                 |
| Owner*         | N         | Text | Local Authority, PIPE Networks, SEQ Water                                    |
| Diameter       | Y         | Real |                                                                              |
| Wall Thickness | N         | Real |                                                                              |
| SUI*           | Y         | Text | A+, A, B, C, D                                                               |
| PHOTO          | N         | Text |                                                                              |
| Comment        | N         | Text |                                                                              |
| Comment2       | N         | Text |                                                                              |
| Comment3       | N         | Text |                                                                              |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### [SERES] Sewer – Reclaimed Effluent

String along pipe, record point/line type, record appropriate attributes. The same position on the pipe should be strung along the pipe. Swapping invert to crown should be avoided if possible.

**Survey Geometry:** Measure points along the pipe at all changes in grade and direction.

| Attribute      | Mandatory | Type | Value                                                                        |
|----------------|-----------|------|------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                  |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD |
| Status         | Y         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                    |
| Type           | Y         | Text | GRAVITY, PRESSURE, UNKNOWN, NON_STD                                          |
| Material       | Y         | Text | BRICK, METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                 |
| Owner*         | N         | Text | Local Authority, PIPE Networks, SEQ Water                                    |
| Diameter       | Y         | Real |                                                                              |
| Wall Thickness | N         | Real |                                                                              |
| SUI*           | Y         | Text | A+, A, B, C, D                                                               |
| PHOTO          | N         | Text |                                                                              |
| Comment        | N         | Text |                                                                              |
| Comment2       | N         | Text |                                                                              |
| Comment3       | N         | Text |                                                                              |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





**[SESTR] Sewer – Structure**

String outside edge of structure recording enough descriptive details to identify it. Images may be required for this code.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| PHOTO     | Y         | Text |       |
| Comment   | N         | Text |       |

**[SETAN] Sewer – Septic Tank Point**

Single point of septic tank.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[SETANS] Sewer – Septic Tank Strung**

String outline of septic tank.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SEV] Sewer – Valve**

Locate centre of valve lid.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SEVP] Sewer – Vent Pipe**

Locate centre of pipe at ground level.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| PHOTO     | N         | Text |       |
| Comment   | N         | Text |       |



### 3.21 Surface

This section contains common surface features.

#### [SFAP] Surface – Aerial Photo Point

Single measured point at the location of the aerial photo point.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BARK_CHIPS, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, RUBBER_SOFT_FALL, SAND, STAMPED, STENCILED, STONE, STONE_PITCHED, SUB_GRADE, SYNTHETIC GRASS, TILE, TIMBER, NON_STD |
| PHOTO     | N         | Text |                                                                                                                                                                                                                       |
| Comment   | N         | Text |                                                                                                                                                                                                                       |

#### [SFCE] Surface – Concrete Edge

String around feature on structure side, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                                                              |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | AC, BITUMEN, CONCRETE, EXP_AGG, GRAVEL, METAL, PAVERS, PHORPHY, POLISHED, STAMPED, STENCILED, STONE, STONE_PITCHED, SYNTHETIC GRASS, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                                                    |





### [SFCG] Surface – Change of Grade

String change of aspect / grade and record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BARK_CHIPS, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, RUBBER_SOFT_FALL, SAND, STAMPED, STENCILED, STONE, STONE_PITCHED, SUB_GRADE, SYNTHETIC GRASS, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                                                                       |



### [SFDW] Surface – Driveway

String edge of driveway, recording material.

| Attribute | Mandatory | Type | Value                                                                                                                            |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | AC, BITUMEN, CONCRETE, DIRT, EXP_AGG, GRASS, GRAVEL, PAVERS, POLISHED, STAMPED, STENCILED, SYNTHETIC GRASS, STONE, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                                  |



### [SFEOR] Surface – Edge of Rock

String edge of rock line.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [SFEOW] Surface – Edge of Water

String edge of water line.

| Attribute | Mandatory |  | Type | Value |
|-----------|-----------|--|------|-------|
| Comment   | N         |  | Text |       |



### [SFFP] Surface – Footpath

String edge of footpath recording material.

| Attribute | Mandatory | Type | Value                                                                                                                       |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | AC, BITUMEN, CONCRETE, EXP_AGG, GRAVEL, PAVERS, POLISHED, STAMPED, STENCILED, SYNTHETIC GRASS, STONE, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                             |



### [SFHP] Surface – Hydrographic

Single surface shot recording material.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BARK_CHIPS, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, RUBBER_SOFT_FALL, SAND, STAMPED, STENCILED, STONE, STONE_PITCHED, SUB_GRADE, SYNTHETIC GRASS, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                                                                       |



### [SFLE] Surface – Spot Level

Single surface shot recording material.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                 |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BARK_CHIPS, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, RUBBER_SOFT_FALL, SAND, STAMPED, STENCILED, STONE, STONE_PITCHED, SUB_GRADE, SYNTHETIC GRASS, TILE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                                                                       |



### [SFNDF] Surface – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value                                                                                                                                                                                                                 |
|-------------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                                                                                                                                                                                           |
| Material    | Y         | Text | BITUMEN, BARK_CHIPS, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, RUBBER_SOFT_FALL, SAND, STAMPED, STENCILED, STONE, STONE_PITCHED, SUB_GRADE, SYNTHETIC GRASS, TILE, TIMBER, NON_STD |
| PHOTO       | N         | Text |                                                                                                                                                                                                                       |
| Comment     | N         | Text |                                                                                                                                                                                                                       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [SFRWB] Surface – Retaining Wall Base

String points at bottom face ground level along the base of the retaining wall, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                                    |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BLUE_STONE, BOULDER, BRICK, CONCRETE, CRIB, METAL, PORPH-STONE, SPRAYCRETE, STONE, STONE_PITCHED, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                          |



### [SFRWT] Surface – Retaining Wall Top

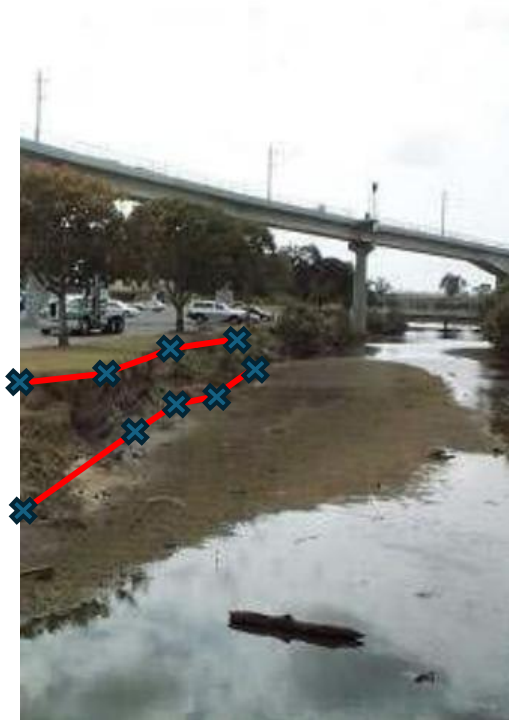
String the top front face of the retaining wall, including vertical steps, record appropriate attributes. and if applicable width of wall. Width is not a mandatory attribute. Top should be the face closest to the located retaining wall base (SFRWB) string.

| Attribute | Mandatory | Type | Value                                                                                                                    |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BLOCK, BLUE_STONE, BOULDER, BRICK, CONCRETE, CRIB, METAL, PORPH-STONE, SPRAYCRETE, STONE, STONE_PITCHED, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                          |

### [SFTOE] Surface – Toe of Bank

String most abrupt change of aspect, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                                                |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, ROCK, STENCIL, STONE, SUB_GRADE, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                                      |



### [SFTOP] Surface – Top of Bank

String most abrupt change of aspect, record appropriate attributes.

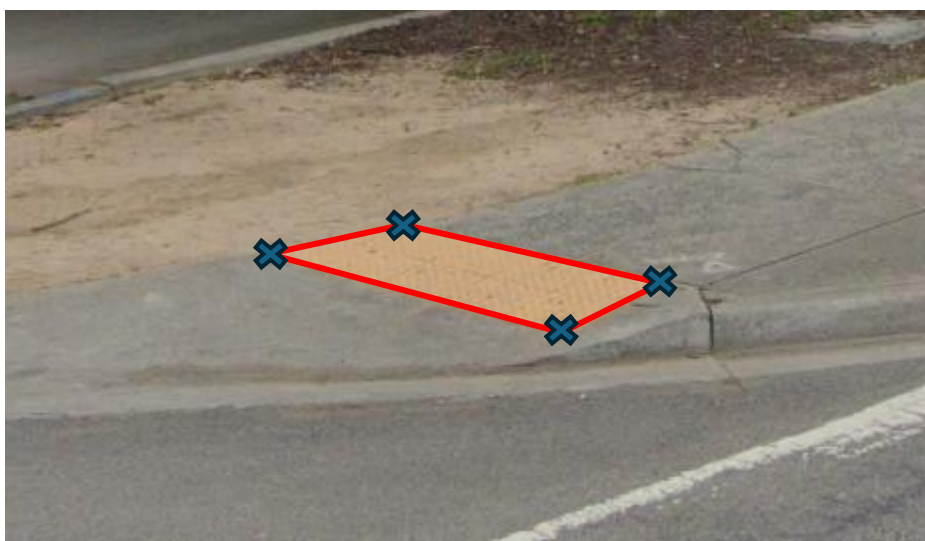
| Attribute | Mandatory | Type | Value                                                                                                                                |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, CONCRETE, DIRT, EXP_AGG, GARDEN_BED, GRASS, GRAVEL, METAL, PAVERS, POLISHED, ROCK, STENCIL, STONE, SUB_GRADE, TILE, NON_STD |
| Comment   | N         | Text |                                                                                                                                      |



**[SFTT] Surface – Tactile**

String around tactile, record appropriate attributes. All tactiles are to be strung and photos taken.

| Attribute | Mandatory | Type | Value                                   |
|-----------|-----------|------|-----------------------------------------|
| Material  | Y         | Text | METAL, PAVERS, PLASTIC, RUBBER, NON_STD |
| PHOTO     | Y         | Text |                                         |
| Comment   | N         | Text |                                         |



### 3.22 Survey Marks

This section contains commonly used survey and cadastral marks.

#### [SVBASE] Survey Marks – Base Station

Locate centre of mark base station.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

#### [SVBM] Survey Marks – Bench Mark

Locate centre of mark, record type.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                                                                                       |
|-----------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | BOLT_CON, BOLT, CAD_PEG, DPY_PEG, GI_NAIL, INK MARK, IRON_PIN, NAIL, NAIL_CONC, NAIL_KERB, NO_MARK, PSM, PUNCH_MARK, SCREW, SCREW_CON, SCREW_KERB, SPIKE, STAR_PKT, NON_STD |
| Comment   | N         | Text |                                                                                                                                                                             |

#### [SVBS] Survey Marks – Back Sight

Locate centre of mark. Redundant under Leica Coding.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [SVCH] Survey Marks – Check Shot

Single shot centre of mark.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVCP] Survey Marks – Control Point

Locate centre of mark, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute         | Mandatory | Type | Value                                                                                                                                                                       |
|-------------------|-----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type              | Y         | Text | BOLT_CON, BOLT, CAD_PEG, DPY_PEG, GI_NAIL, INK MARK, IRON_PIN, NAIL, NAIL_CONC, NAIL_KERB, NO_MARK, PSM, PUNCH_MARK, SCREW, SCREW_CON, SCREW_KERB, SPIKE, STAR_PKT, NON_STD |
| Origin            | Y         | Text | FOUND, ORIGINAL, PLACED, NON_STD                                                                                                                                            |
| Vertical_Method   | Y         | Text | GNSS, LEVELLED, TRIG, NON_STD                                                                                                                                               |
| Horizontal_Method | Y         | Text | GNSS, RADIATION, RESECTION, TRAVERSE, NON_STD                                                                                                                               |
| Control           | Y         | Text | PRIMARY, SECONDARY                                                                                                                                                          |
| Comment           | N         | Text |                                                                                                                                                                             |



### [SVCS] Survey Marks – Cadastral Marks

Locate centre of mark, record appropriate attributes. Original if the mark is on a registered plan, found if the mark is not on a registered plan, and placed if it is a new mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                      |
|-----------|-----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type      | Y         | Text | BOLT, CAD_PEG, DPY_PEG, DRILL_HOLE, GI_NAIL, IRON_PIN, NAIL, NAIL_CONC, NAIL_KERB, OFFSET_PEG, PSM, PUNCH_MARK, REF_TREE, RFP, SCREW, SCREW_CON, SCREW_KERB, SFP, SPIKE, STAR_PKT, NON_STD |
| Origin    | Y         | Text | FOUND, ORIGINAL, PLACED, NON_STD                                                                                                                                                           |
| Comment   | N         | Text |                                                                                                                                                                                            |



### [SVIB] Survey Marks – Iron Bar

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [SVIR] Survey Marks – Iron Rod

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVIS] Survey Marks – Iron Spike

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVIT] Survey Marks – Iron Tube

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVOIB] Survey Marks – Old Iron Bar

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SVOIR] Survey Marks – Old Iron Rod**

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SVOIS] Survey Marks – Old Iron Spike**

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SVOIT] Survey Marks – Old Iron Tube**

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[SVOP] Survey Marks – Old Peg**

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [SVORT] Survey Marks – Old Reference Tree

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVPEG] Survey Marks – Peg

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVPSM] Survey Marks – Permanent Survey Mark

Locate centre of mark, record PSM number and type. Used only when a PSM is not going to be occupied as a control point.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [SVRE] Survey Marks – Recovery Mark

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVRM] Survey Marks – Round Mark

Locate centre of mark.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVRO] Survey Marks – Survey Check Shot

Locate centre of mark. Redundant under Leica Coding.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVRT] Survey Marks – Reference Tree

Locate centre of mark on tree.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [SVTMP] Survey Marks – Survey Temporary Mark

Locate centre of mark

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVTRIG] Survey Marks – Trig Station

Locate centre of mark

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

### [SVTVL] Survey Marks – Traverse Lines

Locate centre of mark, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute         | Mandatory | Type | Value                                                                                                                                                            |
|-------------------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type              | Y         | Text | BOLT_CON, BOLT, CAD_PEG, DPY_PEG, GI_NAIL, INK MARK, IRON_PIN, NAIL, NO_MARK, NAIL_KERB, PSM, PUNCH_MARK, SCREW, SCREW_CON, SCREW_KERB, SPIKE, STAR_PKT, NON_STD |
| Origin            | Y         | Text | FOUND, ORIGINAL, PLACED, NON_STD                                                                                                                                 |
| Vertical_Method   | Y         | Text | GNSS, LEVELLED, TRIG, NON_STD                                                                                                                                    |
| Horizontal_Method | Y         | Text | GNSS, RADIATION, RESECTION, TRAVERSE, NON_STD                                                                                                                    |
| Control Class     | Y         | Text | PRIMARY, SECONDARY                                                                                                                                               |
| Comment           | N         | Text |                                                                                                                                                                  |

### 3.23 Traffic

This section contains common traffic utilities and infrastructure.

#### [TRCAM] Traffic – Camera

Locate centre of camera at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                      |
|-----------|-----------|------|--------------------------------------------|
| Type      | Y         | Text | CAMERA, FLASH, REDLIGHT, SECURITY, NON_STD |
| PHOTO     | N         | Text |                                            |
| Comment   | N         | Text |                                            |





**[TRCBS] Traffic – Lights Controller**

String around box at slab level.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



### [TRCON] Traffic – Conduit Located

String located underground conduit, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of conduit.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth          | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type           | Y         | Text | UNKNOWN, NON_STD                                                                    |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner          | N         | Text | Local Authority, OTHER                                                              |
| Diameter*      | Y         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [TRLOC] Traffic – Service Located

String located underground service, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of service.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth          | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type           | Y         | Text | UNKNOWN, NON_STD                                                                    |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner          | N         | Text | Local Authority, OTHER                                                              |
| Diameter*      | Y         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

**[TRLT] Traffic – Lights**

Locate centre of post at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                  |
|-----------|-----------|------|------------------------------------------------------------------------|
| Type      | Y         | Text | BOOM, BUTTON_POST, BIKE, MOUNTED, PEDESTRIAN, PILLAR, WARNING, NON_STD |
| PHOTO     | N         | Text |                                                                        |
| Comment   | N         | Text |                                                                        |





### [TRLTSL] Traffic – Joint Use Traffic Lights / Streetlight

Locate centre of post at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute    | Mandatory | Type | Value                          |
|--------------|-----------|------|--------------------------------|
| Material     | Y         | Text | CONCRETE, METAL, WOOD, NON_STD |
| Type         | Y         | Text | BOOM, PILLAR, NON_STD          |
| Number       | N         | Text |                                |
| No_Outreach* | Y         | Text | 0, 1, 2, 3, 4+                 |
| PHOTO        | N         | Text |                                |
| Comment      | N         | Text |                                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [TRNDF] Traffic – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [TRP] Traffic – Post

Locate centre of post.

**Survey Geometry:** Single shot, if possible, for small post. For larger round posts, measure 3 points around and create an arc to calculate the centre. For square or rectangular posts, record a measurement at each corner to calculate the centre.

| Attribute  | Mandatory | Type | Value                               |
|------------|-----------|------|-------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                         |
| Material   | Y         | Text | CONCRETE, METAL, TIMBER, NON_STD    |
| Diameter   | Y         | Real |                                     |
| Shape      | Y         |      | RECTANGULAR, ROUND, SQUARE, NON_STD |
| Comment    | N         | Text |                                     |



### [TRPIT] Traffic – Pit

Locate middle of lid, record appropriate attributes. If irregular record width and length. For use with single pit only. When selecting size from the attributes, if the pit is regular no length or width is required. If it is non regular select xxx\*xxx and enter length and width. Images are essential for this code.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                                |
|-----------|-----------|------|----------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD                                                                                    |
| Size*     | Y         | Text | CIRC 652, NO1 475*195, NO2 620*250, NO3 495*270, NO4 650*345, NO7 950*495, NO8 1315*495, NOX xx*xx, RNDtoSQR 650*500 |
| Width     | Y         | Real |                                                                                                                      |
| Length    | Y         | Real |                                                                                                                      |
| Depth     | N         | Real |                                                                                                                      |
| PHOTO     | N         | Text |                                                                                                                      |
| Comment   | N         | Text |                                                                                                                      |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[TRPITS] Traffic – Pit Strung**

String around outside of lids, record appropriate attributes. For use with grouped pit lids.

| Attribute | Mandatory | Type    | Value                             |
|-----------|-----------|---------|-----------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, NON_STD |
| No_Lids   | Y         | Integer |                                   |
| Depth     | N         | Real    |                                   |
| PHOTO     | N         | Text    |                                   |
| Comment   | N         | Text    |                                   |





**[TRPKM] Traffic – Parking Meter**

For a point feature select Point-Line attribute value POINT and locate centre of feature, record type. For a line feature select Point-Line attribute value of LINE and string around the feature. Images are essential for strung features that use this code.

| Attribute   | Mandatory | Type | Value                                    |
|-------------|-----------|------|------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                              |
| Type        | Y         | Text | MULTI-BAY, PEDESTAL, CITY_CYCLE, NON_STD |
| Comment     | N         | Text |                                          |



\* Indicates mandatory attribute, that later describes symbols or linestyles or both



## PW Survey Guideline

### Public Works – Codes

#### [TRS] Traffic – Sign

Locate centre of post, record post option and take image of sign. If recoding with no post, locate bottom middle of lowest sign.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value   |
|-----------|-----------|------|---------|
| Post      | Y         | Text | NO, YES |
| PHOTO     | N         | Text |         |
| Comment   | N         | Text |         |

**[TRSNS] Traffic – Sign Strung**

String bottom corner to top corner of sign on the diagonal, take image of sign.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| PHOTO     | Y         | Text |       |
| Comment   | N         | Text |       |

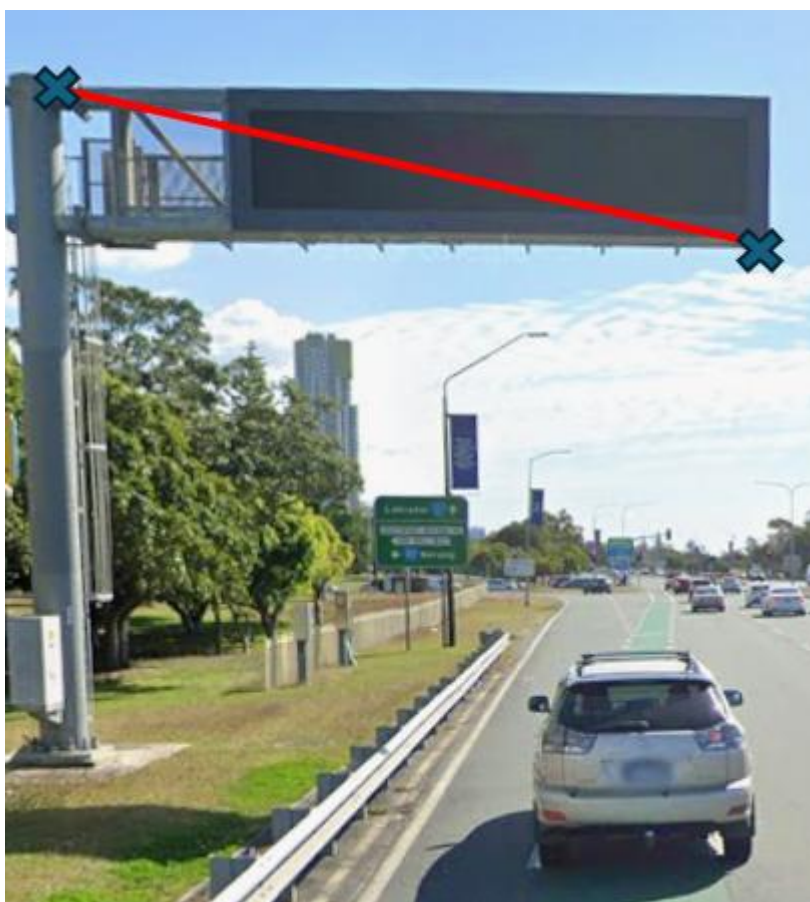


**[TRVMS] Traffic – VMS Sign**

Locate centre of post, record post option and take image of sign. If recoding with no post, locate bottom middle of lowest sign. If using LINE option, string bottom corner to top corner of sign on the diagonal, take image of sign.

| Attribute   | Mandatory | Type | Value                               |
|-------------|-----------|------|-------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                         |
| Type        | Y         | Text | SAM, FLASHING, PID, GANTRY, NON_STD |
| PHOTO       | Y         | Text |                                     |
| Comment     | N         | Text |                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





### 3.24 Tunnel

This section contains common tunnel utilities and infrastructure.

#### [TNCB] Tunnel – Cabinet

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Both options require an image of the feature.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| Comment    | N         | Text |             |



#### [TNCOM] Tunnel – Comms

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute  | Mandatory | Type | Value       |
|------------|-----------|------|-------------|
| Point-Line | Y         | Text | LINE, POINT |
| PHOTO      | Y         | Text |             |
| Comment    | N         | Text |             |



**[TNCON] Tunnel – Conduit Observed**

String along the conduit, record appropriate attributes.

| Attribute   | Mandatory | Type | Value                                                       |
|-------------|-----------|------|-------------------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                                 |
| Pickup_Loc* | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, U/G ON POLE, NON_STD |
| Material    | Y         | Text | CONCRETE, FIBRO, METAL, PVC, NON_STD                        |
| Diameter*   | Y         | Real |                                                             |
| PHOTO       | N         | Text |                                                             |
| Comment     | N         | Text |                                                             |

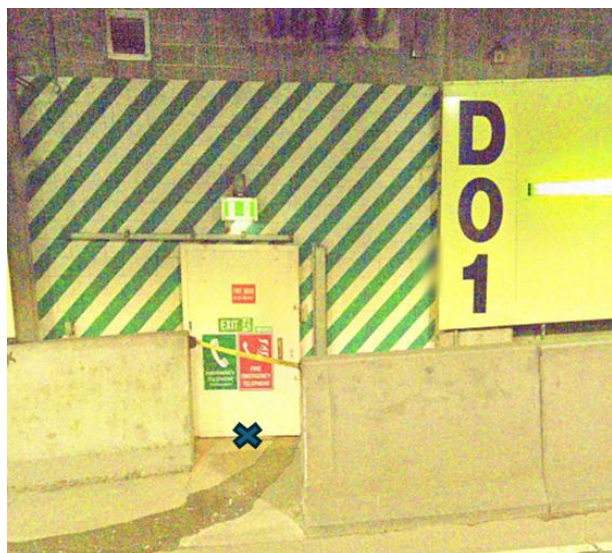
\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [TNDOR] Tunnel – Door

Locate centre of door at floor level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                               |
|-----------|-----------|------|---------------------------------------------------------------------|
| Type      | Y         | Text | BI_FOLD, DOUBLE_DOOR, ROLLER_DOOR, SINGLE_DOOR, SLIDE_DOOR, NON_STD |
| Width     | Y         | Real |                                                                     |
| Material  | Y         | Text | GLASS, METAL, TIMBER, NON_STD                                       |
| PHOTO     | N         | Text |                                                                     |
| Comment   | N         | Text |                                                                     |



### [TNDORS] Tunnel – Door Strung

String either side of door at floor level, record appropriate attributes. An alternative code to single shot doors.

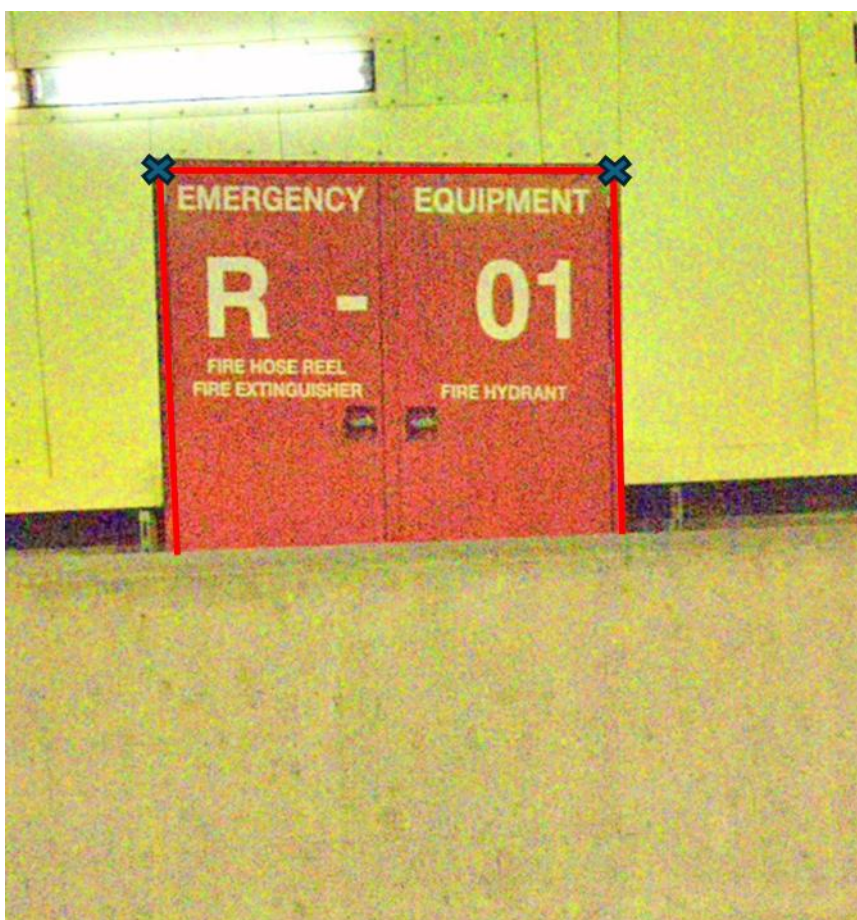
| Attribute | Mandatory | Type | Value                                                               |
|-----------|-----------|------|---------------------------------------------------------------------|
| Type      | Y         | Text | BI_FOLD, DOUBLE_DOOR, ROLLER_DOOR, SINGLE_DOOR, SLIDE_DOOR, NON_STD |
| Material  | Y         | Text | GLASS, METAL, TIMBER, NON_STD                                       |
| PHOTO     | N         | Text |                                                                     |
| Comment   | N         | Text |                                                                     |



**[TNFS] Tunnel – Fire Service**

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature

| Attribute  | Mandatory | Type | Value                                           |
|------------|-----------|------|-------------------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                                     |
| Type       | Y         | Text | BOOSTER, HOSE_REEL, HYDRANT, SPRINKLER, NON_STD |
| PHOTO      | N         | Text |                                                 |
| Comment    | N         | Text |                                                 |





**[TNFW] Tunnel – Fascia Wall**

String edge of feature, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                |
|-----------|-----------|------|----------------------------------------------------------------------|
| Material  | Y         | Text | BRICK, CONCRETE, METAL, PLASTIC, PRECAST, SHOTCRETE, TIMBER, NON_STD |
| PHOTO     | N         | Text |                                                                      |
| Comment   | N         | Text |                                                                      |



**[TNLIN] Tunnel – Lining**

String edge of feature, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                |
|-----------|-----------|------|----------------------------------------------------------------------|
| Material  | Y         | Text | BRICK, CONCRETE, METAL, PLASTIC, PRECAST, SHOTCRETE, TIMBER, NON_STD |
| PHOTO     | N         | Text |                                                                      |
| Comment   | N         | Text |                                                                      |



### [TNLOC] Tunnel – Located Service

String located service, record appropriate attributes and other relevant information.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth          | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [TNPDF] Tunnel – Non-Defined Feature

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[TNRF] Tunnel – Roof**

For point features, select attribute point and grid roof of tunnel. For strings select attribute line and string along changes of aspect.

| Attribute   | Mandatory | Type | Value                                                                |
|-------------|-----------|------|----------------------------------------------------------------------|
| Point-Line* | Y         | Text | LINE, POINT                                                          |
| Material    | Y         | Text | BRICK, CONCRETE, METAL, PLASTIC, PRECAST, SHOTCRETE, TIMBER, NON_STD |
| PHOTO       | N         | Text |                                                                      |
| Comment     | N         | Text |                                                                      |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





**[TNVS] Tunnel – Ventilation System**

For point features, select attribute point and locate centre of feature. For string features, select attribute line and string around feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | N         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### 3.25 Unknown Services

This section contains unknown service codes. These codes should only be used if the utility can not be identified.

#### [UNCON] Unknown – Conduit

String along conduit, record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                      |
| Material       | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD                                         |
| Diameter*      | Y         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [UNLOC] Unknown – Service Locations

String underground services, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of the service.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                      |
| Depth*         | Y         | Real |                                                                                     |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Material       | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD                                         |
| Owner          | N         | Text | Local Authority, OTHER                                                              |
| Diameter*      | Y         | Real |                                                                                     |
| Layout Row     | N         | Text |                                                                                     |
| Layout Col     | N         | Text |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |
| Comment2       | N         | Text |                                                                                     |
| Comment3       | N         | Text |                                                                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [UNMH] Unknown – Maintenance Hole

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                               |
|------------|-----------|------|-------------------------------------|
| Lid Shape* | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth      | N         | Real |                                     |
| SUI        | Y         | Text | A+, A, B, C, D                      |
| PHOTO      | N         | Text |                                     |
| Comment    | N         | Text |                                     |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [UNMHS] Unknown – Maintenance Chamber Surround

String around outside of lids, record appropriate attributes. Used for grouped maintenance chambers.

| Attribute | Mandatory | Type    | Value                                                    |
|-----------|-----------|---------|----------------------------------------------------------|
| Material  | Y         | Text    | BITUMEN, CONCRETE, METAL, PAVERS, STONE, TIMBER, NON_STD |
| No_Lids   | Y         | Integer |                                                          |
| Depth     | N         | Real    |                                                          |
| SUI       | Y         | Text    | A+, A, B, C, D                                           |
| PHOTO     | N         | Text    |                                                          |
| Comment   | N         | Text    |                                                          |





### [UNMK] Unknown – Marker

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type*     | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| PHOTO     | N         | Text |                             |
| Comment   | N         | Text |                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [UNNDF] Unknown – Non-Defined Feature

For point Features, select attribute 'Point' and locate centre of feature. For string features, select attribute 'Line' and string around feature at ground level. Both options require an image of the feature.

| Attribute   | Mandatory | Type | Value          |
|-------------|-----------|------|----------------|
| Point-Line* | Y         | Text | LINE, POINT    |
| SUI         | Y         | Text | A+, A, B, C, D |
| PHOTO       | Y         | Text |                |
| Comment     | N         | Text |                |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [UNOH] Unknown – Overhead

String around outside of lids, record appropriate attributes. Used for grouped pit lids.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





## PW Survey Guideline

### Public Works – Codes

#### [UNP] Unknown – Pipe

String along pipe, record point/line type, record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                                                               |
|----------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc*    | Y         | Text | BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                      |
| Material       | Y         | Text | BRICK, CLAY, METAL, PVC, RCBC, RCP, NON_STD                                         |
| Diameter*      | Y         | Real |                                                                                     |
| Wall Thickness | N         | Real |                                                                                     |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO          | N         | Text |                                                                                     |
| Comment        | N         | Text |                                                                                     |

### [UNPH] Unknown – Pothole Service Located

String underground services, record appropriate attributes.

| Attribute     | Mandatory | Type | Value                                                                               |
|---------------|-----------|------|-------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text | LINE, POINT                                                                         |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD |
| Pickup_Loc    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, GROUND_SURFACE, INVERT, OBVERT, NON_STD        |
| Depth         | Y         | Real |                                                                                     |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                           |
| Type          | Y         | Text | UNKNOWN, NON_STD                                                                    |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                               |
| Owner         | N         | Text | Local Authority, OTHER                                                              |
| Diameter      | Y         | Real |                                                                                     |
| Layout (RxC)  | N         | Text |                                                                                     |
| SUI           | Y         | Text | A+, A, B, C, D                                                                      |
| PHOTO         | N         | Text |                                                                                     |
| Comment       | N         | Text |                                                                                     |
| Comment2      | N         | Text |                                                                                     |
| Comment3      | N         | Text |                                                                                     |

### [UNPIT] Unknown – Pit

Locate centre of pit, record appropriate attributes.

| Attribute | Mandatory | Type | Value                             |
|-----------|-----------|------|-----------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, PLASTIC, NON_STD |
| Shape     | Y         | Text | RECTANGLE, ROUND, SQUARE, NON_STD |
| Width     | Y         | Real |                                   |
| Length    | Y         | Real |                                   |
| Depth     | N         | Real |                                   |
| SUI       | Y         | Text | A+, A, B, C, D                    |
| PHOTO     | N         | Text |                                   |
| Comment   | N         | Text |                                   |

### [UNPITS] Unknown – Pit Strung

String around outside of lids, record appropriate attributes. Used for grouped pit lids.

| Attribute | Mandatory | Type    | Value                                     |
|-----------|-----------|---------|-------------------------------------------|
| Material  | Y         | Text    | CONCRETE, METAL, PLASTIC, TIMBER, NON_STD |
| No_Lids   | Y         | Integer |                                           |
| Depth     | N         | Real    |                                           |
| SUI       | Y         | Text    | A+, A, B, C, D                            |
| PHOTO     | N         | Text    |                                           |
| Comment   | N         | Text    |                                           |





## PW Survey Guideline

### Public Works – Codes

#### [UNPOL] Unknown – Pole

Locate centre of pole at ground level. record appropriate attributes.

| Attribute | Mandatory | Type | Value                          |
|-----------|-----------|------|--------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD |
| CableTV   | N         | Text | NO, YES                        |
| Number    | N         | Text |                                |
| SUI       | Y         | Text | A+, A, B, C, D                 |
| PHOTO     | N         | Text |                                |
| Comment   | N         | Text |                                |

#### [UNSTR] Unknown – Structure

String around structure and record appropriate attributes.

| Attribute | Mandatory | Type | Value                          |
|-----------|-----------|------|--------------------------------|
| Material  | Y         | Text | CONCRETE, METAL, WOOD, NON_STD |
| PHOTO     | N         | Text |                                |
| Comment   | N         | Text |                                |

#### [UNV] Unknown – Valve

Locate centre of valve, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| PHOTO     | N         | Text |                |
| Comment   | N         | Text |                |





### **[UNVP] Unknown – Vent Pipe**

Locate centre of pipe.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| PHOTO     | N         | Text |                |
| Comment   | N         | Text |                |

### 3.26 Vegetation

This section contains common vegetation features.

#### [VECAN] Vegetation – Tree Canopy

String the drip line, outside perimeter of tree canopy projected to ground level, usually utilised with a row of trees, and is usually found on the outskirts of the project extents.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



#### [VECU] Vegetation – Cultivation

String around edge of cultivation area.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



**[VEEV] Vegetation – Edge of Vegetation**

String edge of dense trees line. Can be used for hedges or dense tree groups. Large trees contained within the area still need to be located.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### [VEGE] Vegetation – Garden Edge

String along garden edge at ground level, record appropriate attributes.

| Attribute | Mandatory | Type | Value                                                                                                            |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------------|
| Material  | Y         | Text | BITUMEN, BARK_CHIPS, BRICK, CONC.KERB, CONCRETE, DIRT, EARTH, GRASS, METAL, PAVERS, ROCK, STONE, TIMBER, NON_STD |
| Comment   | N         | Text |                                                                                                                  |



### [VEROT] Vegetation – Tree Roots

String outside edge of tree root structure.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |



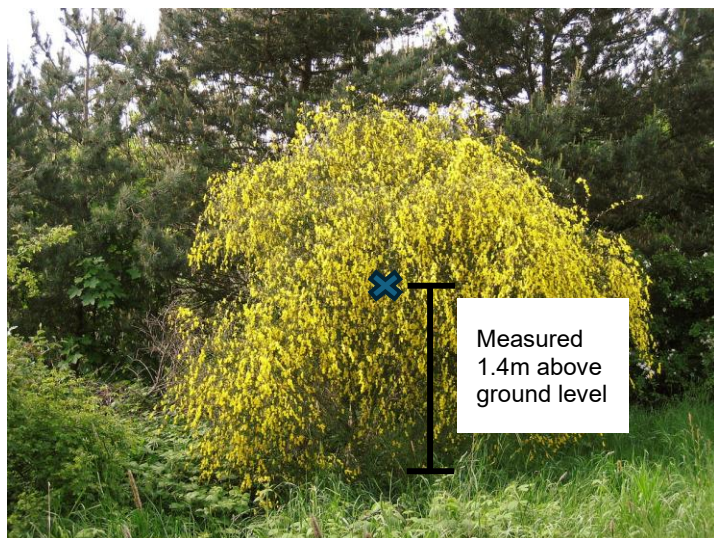
**[VESHR] Vegetation – Shrub**

Locate centre of shrub at breast height level (1.4m), record appropriate attributes. shrub position and diameter should be recorded at breast height (DBH 1.4m).

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Diameter* | Y         | Real |       |
| Spread*   | Y         | Real |       |
| Height    | Y         | Real |       |
| Comment   | N         | Text |       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [VETRE] Vegetation – Tree

Locate centre of tree at breast height level (1.4m), record appropriate attributes. Tree position and diameter should be recorded at breast height (DBH 1.4m).

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                                                                                                                                                                                                                                                                    |
|-----------|-----------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type*     | Y         |      | BLOODWOOD, BOTTLEBRUSH, BOX, CAMPHOR_LAUREL, CASUARINA, CITRUS, COTTONWOOD, DEAD, EXOTIC, FIG, FRUIT, GUM, IRONBARK, JACARANDA, LEOPARD, LILLYPILLY, MAHOGANY, MANGO, MANGROVE, NATIVE, PALM, PAPERBARK, PINE, POINCIANA, SHRUB, SILKY_OAK, STRING_BARK, STUMP, TI_TREE, WATTLE, NON_STD |
| Diameter* | Y         | Real |                                                                                                                                                                                                                                                                                          |
| Spread*   | Y         | Real |                                                                                                                                                                                                                                                                                          |
| Height    | Y         | Real |                                                                                                                                                                                                                                                                                          |
| Comment   | N         | Text |                                                                                                                                                                                                                                                                                          |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both





**[VETRS] Vegetation – Tree Strung**

String edge of dense trees line. Can be used for hedges or dense tree groups. Large trees contained within the area still need to be located.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |





### 3.27 Water Recycled

This section contains common recycled water utilities and infrastructure.

#### [RECON] Water Recycled – Conduit

String underground conduit, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of the conduit.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                                                                |
| Depth          | Y         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                                                                                     |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER                                                       |
| Diameter*      | Y         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO          | N         | Text |                                                                                                                                             |
| Comment        | N         | Text |                                                                                                                                             |
| Comment2       | N         | Text |                                                                                                                                             |
| Comment3       | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [RELOC] Water Recycled – Located

String underground services, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of the service.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                                                                |
| Depth          | Y         | Real |                                                                                                                                             |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                                                                                     |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER                                                       |
| Diameter*      | Y         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO          | N         | Text |                                                                                                                                             |
| Comment        | N         | Text |                                                                                                                                             |
| Comment2       | N         | Text |                                                                                                                                             |
| Comment3       | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### **[REMH] Water Recycled – Maintenance Hole**

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth     | N         | Real |                                     |
| PHOTO     | N         | Text |                                     |
| Comment   | N         | Text |                                     |

### **[REMHS] Water Recycled – Maintenance Hole Strung**

String outside of lids, record appropriate attributes.

| Attribute | Mandatory | Type    | Value                                            |
|-----------|-----------|---------|--------------------------------------------------|
| Material  | Y         | Text    | BITUMEN, CONCRETE, METAL, PAVERS, STONE, NON_STD |
| No_Lids   | Y         | Integer |                                                  |
| Depth     | Y         | Real    |                                                  |
| PHOTO     | N         | Text    |                                                  |
| Comment   | N         | Text    |                                                  |

**[REMK] Water Recycled – Marker**

Locate centre of marker, record appropriate attributes. Usually Purple in colour.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type      | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D              |
| Comment   | N         | Text |                             |





### [REMT] Water Recycled – Meter

Locate centre of meter, record material. Usually purple in colour.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                                      |
|------------|-----------|------|--------------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                                |
| Material   | Y         | Text | CONCRETE, EXPOSED, METAL, PLASTIC, NON_STD |
| Depth      | Y         | Real |                                            |
| SUI        | Y         | Text | A+, A, B, C, D                             |
| Comment    | N         | Text |                                            |



### [RENDF] Water Recycled – Non-Defined Feature

For point Features, select attribute 'Point' and locate centre of feature. For string features, select attribute 'Line' and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [REP] Water Recycled – Pipe

String pipe, record point/line type, record appropriate attributes.

| Attribute      | Mandatory | Type | Value                                                                                                                                       |
|----------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                                                                |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                                                                                     |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER                                                       |
| Diameter*      | Y         | Real |                                                                                                                                             |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO          | N         | Text |                                                                                                                                             |
| Comment        | N         | Text |                                                                                                                                             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [REPH] Water Recycled – Pothole

String underground services, record appropriate attributes.

| Attribute     | Mandatory | Type | Value                                                                                                                                       |
|---------------|-----------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text | LINE, POINT                                                                                                                                 |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, ELECTROMAGNETIC, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, THUMPED, TRACEABLE RODDER, TRACE WIRE, NON_STD |
| Pickup_Loc    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                                                                                |
| Depth         | Y         | Real |                                                                                                                                             |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                                                                                   |
| Type          | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                                                                                     |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                                                                       |
| Owner         | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER                                                       |
| Diameter      | Y         | Real |                                                                                                                                             |
| SUI           | Y         | Text | A+, A, B, C, D                                                                                                                              |
| PHOTO         | N         | Text |                                                                                                                                             |
| Comment       | N         | Text |                                                                                                                                             |
| Comment2      | N         | Text |                                                                                                                                             |
| Comment3      | N         | Text |                                                                                                                                             |

**[RETAP] Water Recycled – Tap**

Locate centre of tap at ground level.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value          |
|-----------|-----------|------|----------------|
| SUI       | Y         | Text | A+, A, B, C, D |
| Comment   | N         | Text |                |





**[REV] Water Recycled – Valve**

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                     |
|-----------|-----------|------|-------------------------------------------|
| Type      | Y         | Text | IRRIGATION, SCOURVALVE, STOPCOCK, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D                            |
| Comment   | N         | Text |                                           |



### 3.28 Water Irrigation

This section contains common water irrigation often found within parks, garden beds and of agriculture land.

#### [IRCON] Water Irrigation – Conduit Observed

String conduits, record appropriate attributes and other relevant Information.

**Survey geometry:** Measure all changes in grade and direction of the conduit.

| Attribute      | Mandatory | Type | Value                                                                                 |
|----------------|-----------|------|---------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                           |
| Pickup_Method* | N         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD   |
| Pickup_Loc*    | N         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                          |
| Depth          | Y         | Real |                                                                                       |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                             |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                               |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                 |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER |
| Diameter*      | Y         | Real |                                                                                       |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                        |
| PHOTO          | N         | Text |                                                                                       |
| Comment        | N         | Text |                                                                                       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [IRGA] Water Irrigation – Genera

Single point describe object

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |

### [IRGA] Water Irrigation – Sprinkler

Single point of sprinkler location

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |



### 3.29 Water Service

This section contains common water utilities and infrastructure.

#### [WSBH] Water Service – Borehole

Locate centre of borehole at ground level, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Number    | N         | Text |       |
| Comment   | N         | Text |       |



### [WSCON] Water Service – Conduit Observed

String conduits, record appropriate attributes and other relevant Information.

**Survey geometry:** Measure all changes in grade and direction of the conduit.

| Attribute      | Mandatory | Type | Value                                                                                 |
|----------------|-----------|------|---------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                           |
| Pickup_Method* | N         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD   |
| Pickup_Loc*    | N         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                          |
| Depth          | Y         | Real |                                                                                       |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                             |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                               |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                 |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER |
| Diameter*      | Y         | Real |                                                                                       |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                        |
| PHOTO          | N         | Text |                                                                                       |
| Comment        | N         | Text |                                                                                       |
| Comment2       | N         | Text |                                                                                       |
| Comment3       | N         | Text |                                                                                       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



**[WSDF] Water Service – Drinking Fountain**

Locate centre of feature, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                 |
|-----------|-----------|------|---------------------------------------|
| Type      | Y         | Text | BUBBLER, COMBO, DOG_TAP, TAP, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D                        |
| Comment   | N         | Text |                                       |



### [WSLOC] Water Service – Service located

String underground services, record appropriate attributes and other relevant Information.

**Survey Geometry:** Measure all changes in grade and direction of the conduit.

**Note:** Pickup located services with the pit as the origin, working outwards with your pickup. SUI linestyles will be created based on the SUI classification between each segment.

| Attribute      | Mandatory | Type | Value                                                                                 |
|----------------|-----------|------|---------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                           |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD   |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                          |
| Depth          | Y         | Real |                                                                                       |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                             |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                               |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                 |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER |
| Diameter*      | Y         | Real |                                                                                       |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                        |
| PHOTO          | N         | Text |                                                                                       |
| Comment        | N         | Text |                                                                                       |
| Comment2       | N         | Text |                                                                                       |
| Comment3       | N         | Text |                                                                                       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

**[WSMH] Water Service – Maintenance Hole**

Locate centre of lid, record appropriate attributes.

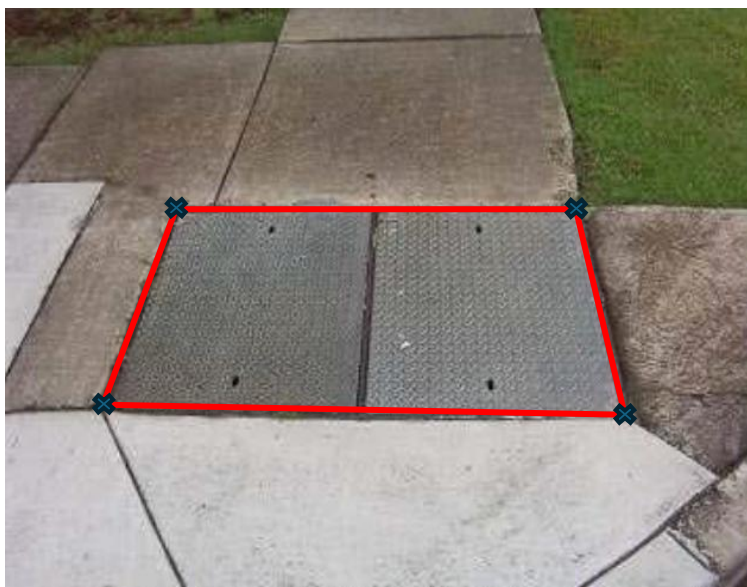
**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                               |
|-----------|-----------|------|-------------------------------------|
| Lid Shape | Y         | Text | RECTANGLE, ROUND, TRIANGLE, NON_STD |
| Depth     | N         | Real |                                     |
| PHOTO     | Y         | Text |                                     |
| Comment   | Y         | Text |                                     |

**[WSMHS] Water Service – Maintenance Hole Strung**

String outside of lids, record appropriate attributes. Used for grouped maintenance holes.

| Attribute | Mandatory | Type    | Value                                            |
|-----------|-----------|---------|--------------------------------------------------|
| Material  | Y         | Text    | BITUMEN, CONCRETE, METAL, PAVERS, STONE, NON_STD |
| No_Lids   | Y         | Integer |                                                  |
| Depth     | N         | Real    |                                                  |
| PHOTO     | N         | Text    |                                                  |
| Comment   | N         | Text    |                                                  |





**[WSMK] Water Service – Marker**

Locate centre of marker, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                       |
|-----------|-----------|------|-----------------------------|
| Type      | Y         | Text | PLAQUE, POST, SIGN, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D              |
| Comment   | N         | Text |                             |



### [WSMT] Water Service – Water Meter

Locate centre of meter, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute  | Mandatory | Type | Value                                      |
|------------|-----------|------|--------------------------------------------|
| Point-Line | Y         | Text | LINE, POINT                                |
| Material   | Y         | Text | CONCRETE, EXPOSED, METAL, PLASTIC, NON_STD |
| SUI        | Y         | Text | A+, A, B, C, D                             |
| Comment    | N         | Text |                                            |



### [WSNDF] Water Service – Non-Defined Feature

For point features, select attribute Point and locate centre of feature. For string features, select attribute Line and string around feature at ground level. Options may require an image of the feature.

| Attribute   | Mandatory | Type | Value       |
|-------------|-----------|------|-------------|
| Point-Line* | Y         | Text | LINE, POINT |
| PHOTO       | Y         | Text |             |
| Comment     | N         | Text |             |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both

### [WSP] Water Service – Pipe

String pipe, record point/line Type, record appropriate attributes.

**Survey Geometry:** Measure all changes in grade and direction of the pipe.

| Attribute      | Mandatory | Type | Value                                                                                 |
|----------------|-----------|------|---------------------------------------------------------------------------------------|
| Point-Line*    | Y         | Text | LINE, POINT                                                                           |
| Pickup_Method* | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD   |
| Pickup_Loc*    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                          |
| Status         | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                             |
| Type           | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                               |
| Material       | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                 |
| Owner          | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER |
| Diameter*      | Y         | Real |                                                                                       |
| SUI*           | Y         | Text | A+, A, B, C, D                                                                        |
| PHOTO          | N         | Text |                                                                                       |
| Comment        | N         | Text |                                                                                       |

\* Indicates mandatory attribute, that later describes symbols or linestyles or both



### [WSPH] Water Service – Pothole

String underground services, record appropriate attributes and other relevant Information.

**Survey Geometry:** Measure all changes in grade and direction of the service.

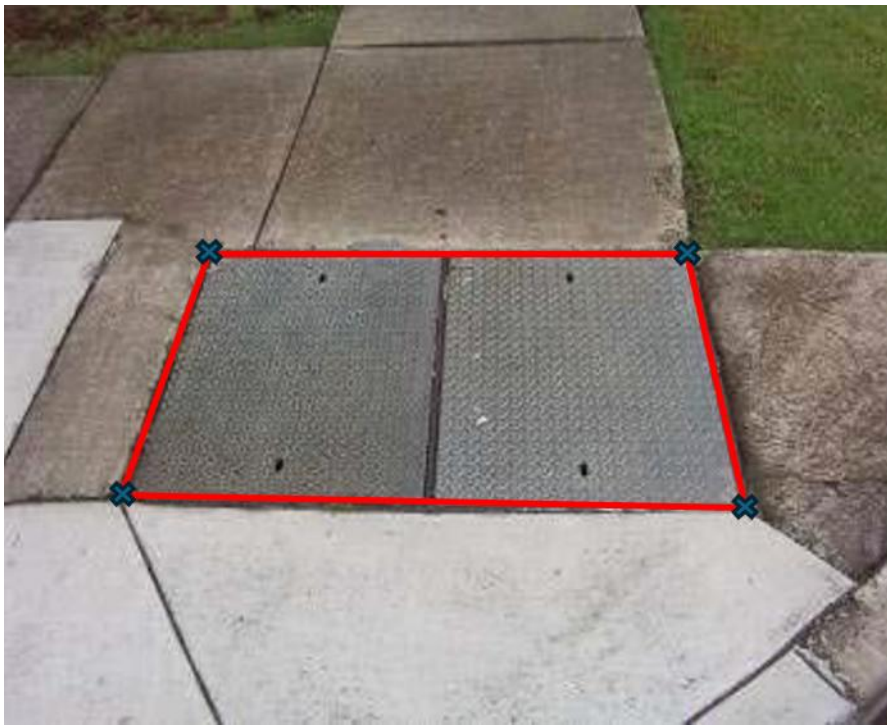
| Attribute     | Mandatory | Type | Value                                                                                 |
|---------------|-----------|------|---------------------------------------------------------------------------------------|
| Point-Line    | Y         | Text | LINE, POINT                                                                           |
| Pickup_Method | Y         | Text | CABLE LOC 2D, CABLE LOC 3D, DBYD, EXPOSED, GPR, POTHOLED, POTHOLE_BACKFILL, NON_STD   |
| Pickup_Loc    | Y         | Text | BARRIER_TAPE, BOTTOM, CENTRE, CROWN, INVERT, OBVERT, NON_STD                          |
| Depth         | Y         | Real |                                                                                       |
| Status        | N         | Text | IN_SERVICE, OUT_SERVICE, UNKNOWN, NON_STD                                             |
| Type          | Y         | Text | MAINS, PROPERTY_CONNC, UNKNOWN, NON_STD                                               |
| Material      | Y         | Text | METAL, PLASTIC, PVC, UNKNOWN, NON_STD                                                 |
| Owner         | N         | Text | Local Authority, LINKWATER, PIPE NETWORKS, SEQ WATER, UNITYWATER, VEOLIA WATER, OTHER |
| Diameter      | Y         | Real |                                                                                       |
| SUI           | Y         | Text | A+, A, B, C, D                                                                        |
| PHOTO         | N         | Text |                                                                                       |
| Comment       | N         | Text |                                                                                       |
| Comment2      | N         | Text |                                                                                       |
| Comment3      | N         | Text |                                                                                       |



**[WSPIT] Water Service – Pit**

String outside of lids, record appropriate attributes. Used for grouped pit lids.

| Attribute | Mandatory | Type    | Value                                            |
|-----------|-----------|---------|--------------------------------------------------|
| Material  | Y         | Text    | BITUMEN, CONCRETE, METAL, PAVERS, STONE, NON_STD |
| No_Lids   | Y         | Integer |                                                  |
| Depth     | N         | Real    |                                                  |
| PHOTO     | N         | Text    |                                                  |
| Comment   | N         | Text    |                                                  |



**[WSSO] Water Service – Scour Outlet**

Locate centre of outlet.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Comment   | N         | Text |       |

**[WSTANK] Water Service – Tank**

String around extents of tank at ground level and record appropriate attributes.

| Attribute | Mandatory | Type | Value |
|-----------|-----------|------|-------|
| Depth     | N         | Real |       |
| Comment   | N         | Text |       |



**[WSTAP] Water Service – Tap**

Locate centre of tap, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute    | Mandatory | Type | Value                                                               |
|--------------|-----------|------|---------------------------------------------------------------------|
| Type         | Y         | Text | BORE, NDW, GENERAL, NDF                                             |
| SUI          | Y         | Text | A+, A, B, C, D                                                      |
| WaterQuality | Y         | Text | Drinking Water, Recycled Aplus, Recycled A, Other, Disused, Unknown |
| Comment      | N         | Text |                                                                     |



**[WSV] Water Service – Valve**

Locate centre of lid, record appropriate attributes.

**Survey Geometry:** Single measured point.

| Attribute | Mandatory | Type | Value                                          |
|-----------|-----------|------|------------------------------------------------|
| Type      | Y         | Text | IRRIGATION, SCOURVALVE, STOPCOCK, AIR, NON_STD |
| SUI       | Y         | Text | A+, A, B, C, D                                 |
| Comment   | N         | Text |                                                |





[illegible]



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