TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

TRANSPORT SCOTLAND
TRUNK ROAD INFORMATION MANUAL
REQUIREMENTS & ADDITIONAL INFORMATION

April 2022
Version 1.0

Contents

Release Note

Version	Date	Details of Amendments
1	Apr 2022	TRIM documents (Requirements & Additional Information and Asset Data Catalogue) created to outline the asset data/information requirements, inspection requirements, maintenance requirements and review requirements.

Foreword

The Trunk Road Information Manual (TRIM) sets out Transport Scotland's asset data requirements, inspection requirements, and maintenance requirements to achieve both its corporate objectives as well as its asset management objectives.

The TRIM is formed of two documents:

1. Requirements and Additional Information – defines the asset information, inspection, and maintenance requirements, and additional information associated with asset data management and the approved network model.
2. Asset Data Catalogue – defines the data requirements for Transport Scotland's assets. This includes:
    a. Asset classifications and codes,
    b. Attributes and their relevant formatting/constraints,
    c. Lookup values,
    d. Asset data rules.

Requirements and Additional Information

The Requirements and Additional Information document details the following:

Section One – Asset Data Management: outlines the asset data management requirements, asset information principles and any roles and responsibilities. Additionally, guidance around the Approved Network Model is provided.

Section Two – Asset Information Management: details the asset groups and items referenced throughout this document; provides guidance on asset shape and how assets should be recorded; and instruction on inventory validation and asset information quality. Additionally, further information is provided around the asset data requirements in the Asset Data Catalogue (e.g. definitions of attribute statuses, etc.)

Section Three – Inspection Requirements: defines the inspection types required by Transport Scotland, and which assets these apply to. Additionally, further guidance around defect categories and responses; and required training for specific inspection types is provided.

Section Four – Maintenance Requirements: outlines the cyclic maintenance activities required by Transport Scotland, and which assets these apply to.

Section Five – Review Requirements: outlines the review exercises required by Transport Scotland, and which assets these apply to.

Abbreviations

Abbreviation	Definition
AMPS	Asset Management Performance System
NMC	Network Management Contract
PAG	Performance Audit Group
RAMP	Road Asset Management Plan
SGM	Special Geotechnical Measures
TAMP	Scottish Trunk Road Network Asset Management Strategy
TRISS	Trunk Roads Incident Support Service

Terms & Definitions

Term	Definition
Comprehensive Inspection	Are undertaken to support the establishment of programmes of routine maintenance and to assign condition ratings to assets.
Condition	A physical assessment of the asset, to record the rate of deterioration.
Cyclic Maintenance	Cyclic maintenance is an operation undertaken at regular intervals to maintain the safety, condition and functionality of an asset and reduce the need for other, normally more expensive, maintenance.
Defect	A defect to the asset is that which: 1. Causes an unintended hazard, nuisance, or danger to the users of the trunk road network. 2. Represents a deterioration from the normal condition. 3. Prevents the asset from acting in its intended manner. 4. Is damaged. 5. Is likely to increase the rate of deterioration of another asset.
Inventory Validation	The process of comparing and, if necessary, updating the inventory record contained in the AMPS with the actual characteristics of the asset item.
Review	Primarily desktop exercise with minimal, if any, site activity. This task typically involves reviewing an assets inventory data, or how it operates (e.g. Traffic Signals).
Routine Monitoring Inspection	Are undertaken to identify defects on the trunk road network. Two forms exist – Safety Inspections and Safety Patrols.

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1 Asset Data Requirements

1.1 Asset Data Management

Effective management of asset data enables Transport Scotland to make appropriate decisions to reach its strategic objectives facilitating reduced costs, reduced risks, and increased asset performance.

The Trunk Road Network Asset Management Policy (TAMP) *[Ref 1]* confirms Transport Scotland's commitment to asset management and details how their approach supports the delivery of the Scottish Government's Purpose and Strategic Objectives.

The Scottish Trunk Road Network Asset Management Strategy and the Road Asset Management Plan (RAMP) *[Ref 2]* support the Asset Management Policy by detailing how asset management will be delivered through enhancements to procedures and practices (TAMP) and at an operational level (RAMP).

Additionally, the TAMP *[Ref 1]* explains the value of asset data to support asset management practices and Transport Scotland's need to enhance its data management requirements to *'enhance accountability for the provision of accurate and meaningful data'*.

1.1.1 Asset Information Principles

The asset information principles outline the requirements for asset information within Transport Scotland. They ensure a consistent approach to all asset information including business as usual and change functions. The asset information principles cover all asset groups, are system agnostic and apply to current and future systems. Asset information shall be managed according to the following principles:

1. **Assure** – The formal governance of asset information management activities and improvement initiatives.
2. **Define** – The definition of requirements for asset information including responsibilities for completeness and accuracy.
3. **Maintain** – Ensuring asset information is appropriate to Transport Scotland's need and is collected and updated in a timely and efficient manner:
4. **Collate** - Addressing issues created by multiple asset data repositories and the need to establish a hierarchical relationship between multiple datasets, establishing and confirming primacy.
5. **Inform** – Ensuring asset information collected, stored, and maintained on Transport Scotland's asset management system is appropriate to support and inform business decision making:
6. **Capable** - Ensuring that those delivering a requirement are sufficiently competent and equipped to engage with all stages of the asset information process and to use the information appropriately.

Further individual contributing sub-principles for each asset information principle are provided. These sub-principles should be applied where appropriate, where not in conflict with existing documentation or contractual obligations.

1.1.1.1 Assure

1. The provision and communication of a strategy for improving the quality of asset information, aligned to Transport Scotland's strategic objectives.
2. The strategy is implemented through a programme of asset information improvement initiatives.

3. Asset information improvement initiatives are evaluated using a defined process against business needs.
4. Transport Scotland supports and promotes developments that build upon previous successful investments, e.g. by developing new technology from existing ones, and makes use of lessons learned to inform the development approach.
5. Transport Scotland is required to manage asset information quality, in a consistent way, aligned to the national approach to provide one version of the truth.
6. The achieved level of quality is measured and evaluated, against formally defined requirements.
7. The prime asset information repository must be regularly reviewed for effectiveness and alignment with Transport Scotland's objectives, with changes implemented where required.

1.1.1.2 Define

1. Asset information requirements are derived in consultation with relevant business stakeholders, including commercial and technical representatives.
2. Asset information standards list all attributes that are a mandatory requirement for a specific dataset.
3. Asset information requirements must be information system agnostic.
4. Asset information requirements, standards and specifications are easily available to Transport Scotland.
5. There are defined, named individuals with responsibilities for the quality of information within specific asset dataset(s) and information systems.
6. Where asset information responsibilities are shared with the supply chain, there is an agreed accountability for the quality of asset information within the contract.

1.1.1.3 Maintain

1. The quantity and level of detail of asset data is collected, updated, and maintained in line with defined requirements, processes and procedures reflecting business requirements.
2. Asset data capture processes and techniques are designed around data requirements, not system requirements/limitations.
3. Where possible, the capture of asset information should utilise safer technologies to enable a safer network and working environment.
4. Where possible, data should be reused by considering existing datasets which may be suitable, maximising efficiencies while reducing operational road exposure.
5. Data is captured, collected, and updated in a timely manner into the prime asset information repository, reflecting changes to the network and business requirements.
6. Asset information is validated as part of data capture and processing to ensure it is complete and accurate.

1.1.1.4 Collate

1. Asset Information Primacy Policy sets out the requirements with respect to data primacy.
2. Primacy of asset information is communicated to the business and widely understood.
3. All asset information is collated and maintained in prime asset information repositories to retain one version of the truth.

4. Asset data is stored in an appropriate reusable format.
5. Appropriate technology is employed to collate asset information and provide access to relevant parties geared towards maximising the ability to discover, access and use the business' asset data
6. The security of asset information is managed in accordance with business requirements.
7. Asset data is validated before storage.
8. Where asset information is migrated or exchanged between asset information systems, protocols and validation activities must be defined and agreed to retain one version of the truth.
9. The prime asset information repository must be regularly reviewed for effectiveness and alignment with business requirements (such as health and safety requirements) with changes implemented where required.

1.1.1.5 Inform

1. Asset information made available to Transport Scotland shall be applicable (relevant, timely and be of sufficient quality) as appropriate to the asset management decisions and activities it supports.
2. Asset information use by Transport Scotland is in accordance with established processes / national approach.
3. Asset information reporting by Transport Scotland is in accordance with established processes / national approach.
4. Frequency of reporting will be defined to balance the need for regular monitoring, the costs and ease of creating reports and the time for changes to take effect.
5. All external reporting of asset information is subject to senior management approval. All reporting of asset information is subject to relevant approvals.
6. Asset performance indicators are developed and reported to provide understanding and assurance of our asset lifecycle management and performance (including safety and serviceability) to the business and stakeholders.

1.1.1.6 Capable

1. Transport Scotland promotes the importance of good quality asset information reinforcing the message that all staff have responsibilities in this regard.
2. Transport Scotland will identify and monitor its level of asset information management capability in the organisation.
3. Transport Scotland will review staff competencies in line with roles and responsibilities to the use of data within business processes in operating a safe and serviceable network.
4. Key work objectives relating to asset information will be assigned to staff through individual appraisal processes.
5. Development of infrastructure to build staff capability, including self-service, formal training and guidance is easily accessible to all relevant parties.
6. Arrangements will be established to periodically evaluate the training provision and adapt to respond to changing needs.
7. Weaknesses identified in reviews relating to asset information will be addressed, where appropriate, through training.

1.1.2 Asset Information Roles and Responsibilities

These roles define and govern asset management requirements, provide asset management support, assurance, and monitor improvement of asset information.

1.1.2.1 Asset Information Custodian

A Transport Scotland role with overall accountability for defining and assuring asset information for business purposes and defining the Asset Management Framework:

- Gather framework improvements.
- Communicate strategic level asset management policy, strategy, etc.
- Define and govern framework reviews.
- Monitor framework performance.
- Provide asset management training and ongoing support.
- Provide feedback to senior management from Asset Steward reviews, audits, and updates on progress towards pre-defined strategic asset management objectives.
- Liaise with internal and external stakeholders.
- Document and govern asset information requirements.
- Monitor and assure quality of national asset information.
- Facilitate delivery of continuous improvement of asset information requirements.

1.1.2.2 Asset Information Specialist

Asset class related specialist role within Transport Scotland responsible for setting asset strategy, supporting the organisation, and assuring complete, valid, and accurate asset information:

- Support operations and capital works projects with engineering and technical queries.
- Own the respective Asset Group Strategy for each asset type.
- Identify asset information gaps and opportunities in their area of specialism and collaborate with Asset Information Custodian on improvements to asset information requirements.
- Support engineering Team Managers' requirements from designated asset management information systems.
- Support regional teams and supply chain to achieve compliance with asset information requirements as defined in the TRIM, and other as built and asset information processes.

1.1.2.3 Asset Manager

The Asset Manager is a senior NMC service provider manager accountable for all assets and asset information within the NMC region, including:

- Taking full accountability for both the governance and performance against pre-defined business objectives/targets.
- Ensuring all relevant asset management policies, procedures, standards, and processes are adopted within their region.
- Provide necessary resources to enable all required asset management activities to be conducted effectively in accordance with the NMC contractual obligations.
- Ensure asset information policy is implemented e.g. primacy, access and update cycles as detailed in the TRIM and its contractual obligations.

- Ensure national and/or local asset information management processes are implemented, resourced and are operationally effective.

1.1.2.4 Asset Data Specialist

The Asset Data Specialist is responsible for data quality and ensuring custodial care of asset data in the NMC suppliers' organisation. The roles of these asset data custodians are not mutually exclusive and one individual in the NMC supplier's organisation may carry out more than one role.

The Asset Data Specialists will ensure that all relevant asset data is:

- complete,
- correct,
- accurate,
- current,
- compliant with the TRIM,
- available in the relevant asset data system in a timely manner; and,
- referenced using the metadata as defined in the relevant asset data management system.

1.1.3 Asset Data Management Requirements

1.1.3.1 Spatial Referencing

Co-ordinates are required for each asset; the Easting and Northing (XY) coordinates are referenced to the OSGB36 (Ordnance Survey Great Britain 1936) datum. Transport Scotland requires the accuracy level for locating assets to be less than, or equal to five metres in the direction of travel and at the appropriate cross-sectional position (XSP). Reference data such as mapping, and aerial imagery can be used to ensure assets are correctly represented, particularly when locating transverse assets (e.g. signs placed on verges and gullies at the carriageway edge).

1.1.3.2 Format

Data shall be provided in the appropriate format as defined in the Asset Data Catalogue (section 2.3.5). Where no format is specified, the format of the data must be agreed with the Asset Information Custodian (section 1.1.2.1) or the delegated Asset Manager (section 1.1.2.3) receiving the data.

1.1.3.3 Currency

All data created by an activity shall be loaded into the relevant asset data system within 28 days of installation or the road opening to traffic. When possible, the Operating Company shall provide as-built information in electronic form to incorporate information on underground infrastructure.

1.1.3.4 Completeness

All asset data which is changed by an activity shall be updated in the relevant prime asset data system in its entirety.

1.1.3.5 Accuracy

The asset data which is changed by an activity shall be updated as defined by the Asset Data Catalogue into the relevant prime asset data system.

1.1.3.6 Asset Data Systems

Transport Scotland is responsible for the provision of a number of systems which enable it to meet the need to store and retrieve asset data.

When the Asset Information Custodian delegates responsibility for asset data management to an Asset Manager, the data will be provided through these systems. Therefore, the Asset Information Custodian is responsible for ensuring that an initial population of data is available in these systems to enable the Asset Manager to create, update and use data as required.

1.1.3.7 Governance

An Asset Manager will not release asset data without the prior approval of the Asset Information Custodian or their named representatives. Appropriate care should be given to the distribution of asset data as without proper context it can be easily misinterpreted causing reputational damage to Transport Scotland and its partners.

1.1.3.8 Retention Policies

Management procedures to ensure that records are retained in an appropriate archive for the necessary period, such that they remain secure, accessible, and retrievable shall be established by the Operating Company and followed.

1.2 Asset Data Systems

1.2.1 Asset Management Performance System

The Asset Management Performance System (AMPS) is one of Transport Scotland's asset management systems. AMPS applications provide the following business capabilities:

- Data management by holding network, construction, definitive inventory, traffic, accident, and condition data on a single database.
- Analysis and reporting of the data both in map-based and textual formats.
- Integrated tools for the optimisation of pavement maintenance at both a scheme and network level.

The asset data requirements defined in the Asset Data Catalogue align with AMPS. The AMPS Mobile application should be used to enter records from data capture devices.

1.3 The Approved Network Model

1.3.1 Approved Network Model

An approved network model is a construct which maps the position of the trunk road network, facilitating the geospatial location of assets and linear referencing in relation to the carriageway. The master approved network model is held in the AMPS.

1.3.2 Referencing Principles

The trunk road network is divided into links and sections:

1. **Links** – are sub-divisions of the trunk road network; generally assigned to lengths of road between major junctions.

2. **Sections** - links are further sub-divided into sections, each have fixed start and end positions and road alignment.

   Each section has constant characteristics along its length, e.g. the number of permanent lanes.

   Accordingly, Sections shall be terminated at the following locations:

   - End of a slip road taper (sections on both the slip road and main carriageway must terminate).
   - Change from one-way to two-way traffic or vice versa.
   - Change in the number of permanent lanes (short lengths of additional or reduce lanes at or around junctions may be ignored).
   - Unit boundary.
   - Change of road number.
   - End of trunk road network (e.g. the road becomes a local road).

The start and end points of Links and Sections are referenced on the ground by one or more pairs of Node Marker Points (NP). A new link is indicated by three node marker points and a new section is indicated by two node marker points.

A section identifier combines the link code and section number which is formulated as follows:

Format	Link Code	/	Section Number
Example	12345	/	99

Table 1-1: Format required to formulate the section identifier, with an example.

Each section identifier is individual to that section, irrespective of surrounding sections. Section referencing also assists with cross-referencing data in other systems (e.g. Scottish Road Traffic Database).

1.3.3 Chainage

All chainage measurements are made along the left-hand edge of the carriageway or hard shoulder on motorways from start node to end node in the direction specified above.

A large roundabout (but not a mini roundabout) is designated as a separate section and its start/end point is identical. Measurements of chainage are made around the outside of the roundabout in the direction of the traffic flow. The start point is considered the middle of the Central Island in the first exit in the sequential direction of the section numbers.

1.3.4 Cross-Sectional Position (XSP)

Each section in AMPS represents a strip of road that includes both the carriageway and off-carriageway features (e.g. footways and verges) up to the trunk road boundary. As such, the section can be considered to consist of several identifiable longitudinal strips that correspond to features such as lanes, and lines that indicate the edge of the carriageway. These longitudinal strips and lines are referred to as Cross Sectional Positions (XSPs). It should be noted that each strip does not have to have a constant width.

The XSPs that shall be used within AMPS are shown in Table 1-2 with the numbering and position of the XSPs across the road, section 1.3.4.1 provides further visual guidance around the application of XSPs.

Name of XSP	Abbreviation	Strip or Line	Number Convention
Left Boundary	LB	Line	
Left Boundary Area	LA	Strip	
Left Off Carriageway	L	Strip	1 to 4, right to Left
Left Edge	LE	Line	
Left Hard Shoulder	LH	Strip	
Left Additional Nearside Lane	-L	Strip	1 to 2, Right to Left
Left Permanent Lane	CL	Strip	1 to 3, Left to Right
Left Additional Offside Lane	+L	Strip	1 to 2, Left to Right
Centre Line	CC	Line	
Right Additional Offside Lane	+R	Strip	1 to 2, Right to Left
Right Permanent Lane	CR	Strip	1 to 3, Right to Left
Right Additional Nearside Lane	-R	Strip	1 to 2, Left to Right
Right Hard Shoulder	RH	Strip	
Right Edge	RE	Line	
Right Off Carriageway	R	Strip	1 to 3, Left to Right
Right Boundary Area	RA	Strip	
Right Boundary	RB	Line	

Table 1-2: **XSPs to be used in AMPS.**

1.3.4.1 XSP Positions for Different Carriageway Types

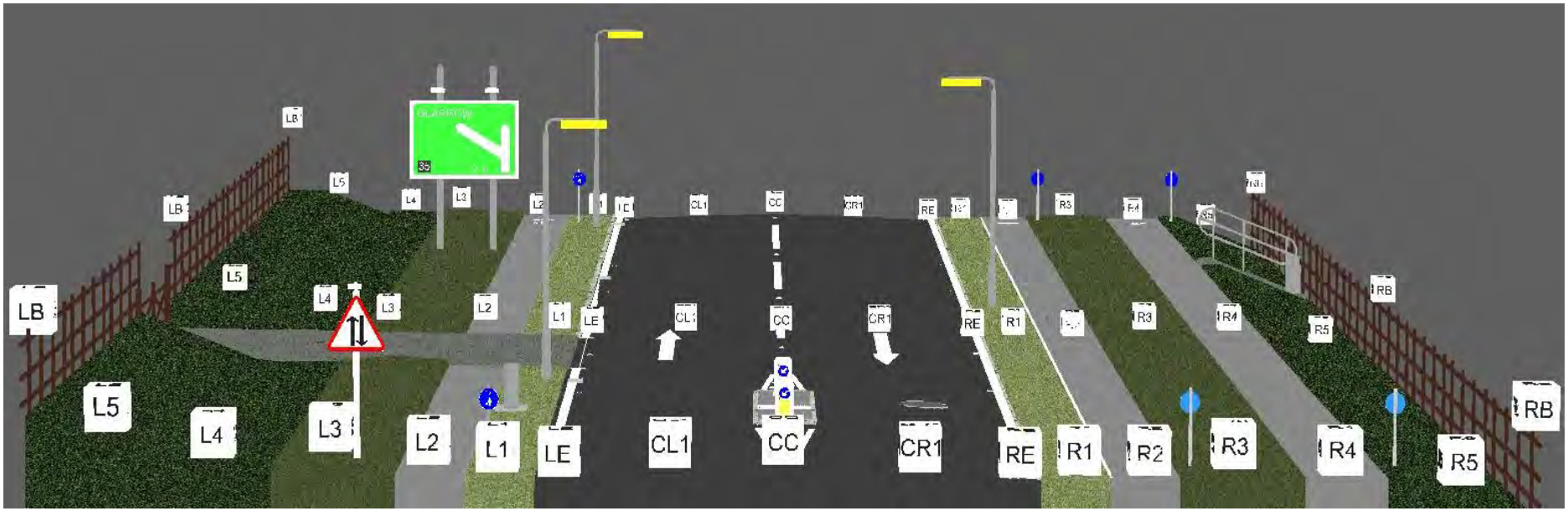


Figure 1-1: All-purpose rural section XSP example.

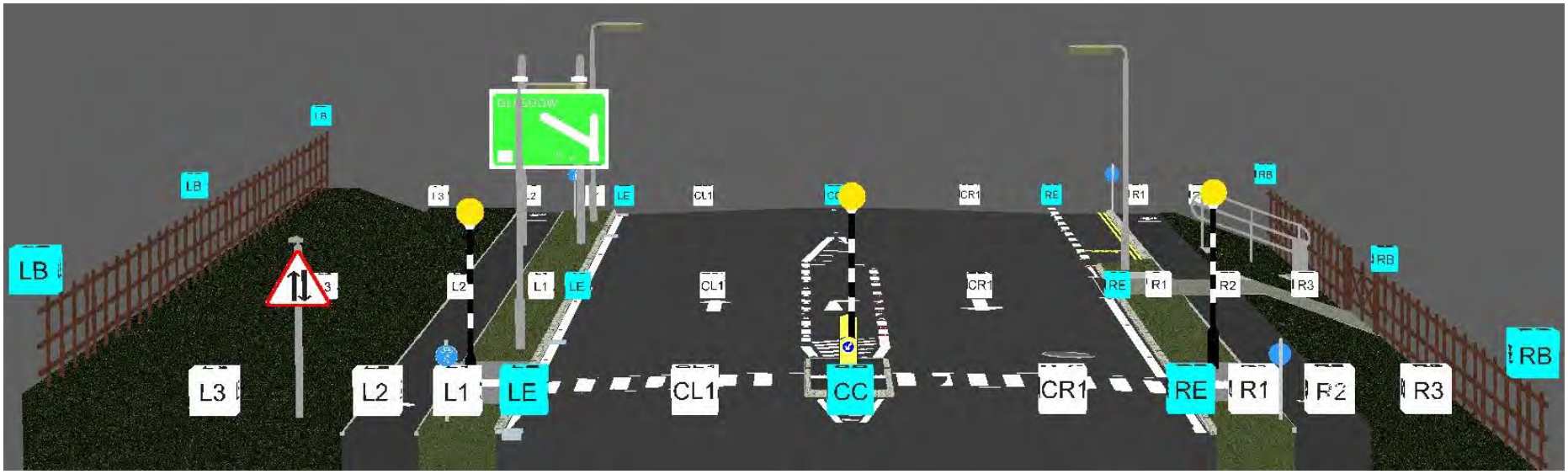


Figure 1-2: All-purpose urban section XSP example.

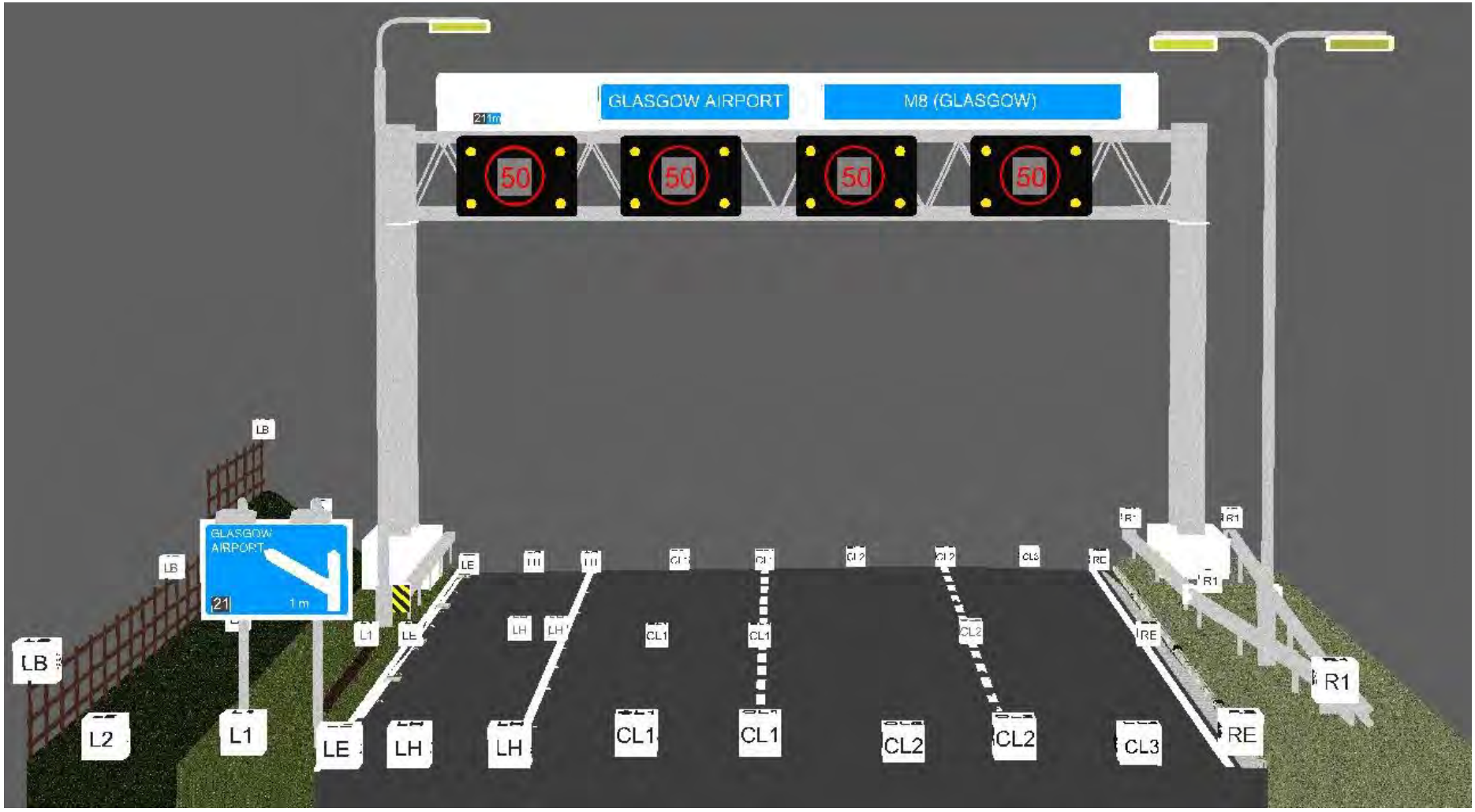


Figure 1-3: Lit motorway section XSP example.

2 Asset Information Requirements

2.1 Asset Position and Shape

The position of an asset within a section shall be recorded by chainage and cross-sectional position (XSP). Individual assets are categorised as ‘point’, ‘continuous’ or ‘polygon’ (area) items.

2.1.1 Point Items

The asset location should be recorded as a centroid (geographic centre) in accordance with Transport Scotland’s spatial referencing requirements (section 1.1.3.1). Recorded assets must not overlap other recorded assets unless this is the true representation of the asset.

Figure 2-1: Point item spatial referencing example

2.1.2 Continuous Items

The asset location shall be recorded with a start/end point with sufficient vertices to ensure an accurate spatial representation of the centre line of the asset in accordance with Transport Scotland’s requirements for spatial referencing (section 1.1.3.1). These requirements also apply to the vertices and vectors between vertices as well as the whole asset. The digitised feature of continuous assets which connect to other assets shall be snapped onto the connecting asset digitisation creating a contiguous feature. Digitised features shall not overlap other features unless this is the true representation of the asset.

2.1.3 Polygon (Area) Items

The asset location shall be recorded with enough vertices to ensure an accurate spatial representation of the boundary or outline of the asset, in accordance with Transport Scotland’s spatial referencing requirements (section 1.1.3.1). These requirements apply to the vertices and vectors between vertices as well as the whole asset. A polygon asset that borders another polygon asset shall be snapped onto the bordering asset, so its contiguous. A digitised feature must not overlap other features unless this is the true representation of the asset.

2.1.4 Recording Individual Assets

Each asset record shall have a single consistent set of attribute values. Where a physical asset continues uninterrupted, but the attributes vary, the record must be divided, creating multiple assets corresponding to the position and variation of attributes (e.g. a Safety Fence/Barrier can transition its beam profile from 'boxed’ to ‘corrugated’).

2.1.5 Asset Referencing

Individual assets shall be recorded and referenced back to a single network section. Assets are referenced to a corresponding section based on their position orthogonal to the network.

Point assets occupy a single discrete position; however, continuous/polygonal assets run along(side) the carriageway; and can appear in consecutive sections. For example, a Safety Fence/Barrier may appear continuously, running adjacent to the carriageway through multiple sections.

Where a physical asset crosses more than one section, the record must be divided, creating multiple assets corresponding to the sections they fall within. If less than 1m (measured longitudinally to the carriageway) of the asset crosses into an adjacent section, this is not considered an independent asset as 1m is the minimum recorded length for continuous assets.

2.1.6 Nominated Section

Assets which are relative to or share between two separate sections (i.e. a double-sided safety barrier in the central reserve of a dual carriageway) shall be recorded in the nominated carriageway only. To facilitate this one direction of the carriageway shall be referred to as the 'nominated section'.

The nominated section of a dual carriageway or motorway is pre-determined and will generally be in a set direction for each route (e.g. Northbound, Westbound, etc.). The nominated direction is contained within the section information of the AMPS and should be ascertained before starting any survey.

2.2 Asset Groups and Items

The recognised asset groups and their associated assets that shall be recorded by the Operating Company is listed in Table 2-1. Appendix A contains further information pertaining to each asset item.

Asset Group	Asset Items
Drainage	Balancing Pond Catchpit Combined Kerb and Drainage Counterfort Drain Ditch Drainage Ancillary Item Drainage Channel Filter Drain Grip Gully Interceptor/Separator Manhole Piped Drainage Piped Grip Small Culvert Soakaway
Fences & Barriers	Fence/Wall/Barrier Pedestrian Guardrail Traffic Control Barrier
Geotechnical	Anchor/Bolt/Dowel Barrier Fencing System Debris Trap Earthwork Slope Granular Replacement Land Slope Monitoring Equipment Protection/Rigid Support Reinforced Soil System Rock Netting Rock Slope Soil Nailing

Asset Group	Asset Items
Landscape	Bulb Area Grassed Area Hedge/Hedgerow Invasive and Injurious Species Scrub Shrub Tree Wetland Wildflower Area Wildlife Mitigation Measure Woodland
Lighting & Electrical	Cable Chamber Electrical Component of Bollard Electrical Component of Cabinet/Pillar Electrical Component of Drainage Ancillary Item Electrical Component of Roadside Service Electrical Component of Structure Electrical Component of Traffic Control Barrier Electrical Component of Traffic Sign Electrical Ducting and Cable Lighting Point Navigation Aid Navigation Light (Sea and Air)
Miscellaneous	Bus Stop Equipment Storage Location Roadside Service Salt Bin
Network	Carriageway Central Island Central Reserve Crossover Layby Node Marker Point
Pedestrian & Cycle Facilities	Cycle Facility Footway
Road Markings, Studs & Kerbs	Kerbs Road Marking Hatched Road Marking Longitudinal Road Marking Transverse & Special Road Studs
Technology Equipment	Cabinet/Pillar CCTV/Camera Detector Loop Emergency Telephone Box Weather Station
Traffic Signs & Signals	Bollard Pedestrian Crossing Reference Marker Post Snow Pole Traffic Sign Traffic Signal-Controller Traffic Signal-Signal Apparatus
Vehicle Road Restraint Systems	Arrester Bed Crash Cushion Safety Fence/Barrier Transition
Other	Designated Site Health and Safety File Section Special Site

Table 2-1: **Asset groups and the associated assets that shall be recorded by the Operating Company.**

2.3 Attribute Metadata

The Asset Data Catalogue details a series of attributes that apply to specific asset items. These attributes shall be accompanied by permissible metadata to dictate the nature of the data that must be recorded.

2.3.1 Attribute Types

To effectively organise the range of requirements in the Asset Data Catalogue the individual attributes have been categorised based on their type (e.g. Location, Ownership & Maintenance, etc.). This approach helps differentiate the origin of data, what purpose it serves, and who is responsible for its population and/or update.

2.3.2 Unique Identifiers

All records must have a unique identifier (UID); a reference, code, or system-assigned identifier, which is unique, typically numerical in form. No two records can share the same UID, regardless of system or asset type. A UID shall be automatically created in AMPS.

2.3.3 Attribute Status

Attribute status refers to the level of 'need' when populating data. This can be thought of as a hierarchy:

- **Mandatory –** the attribute must be populated, and the data record is not complete unless all mandatory fields have been populated.
- **Required –** the attribute must be populated, from the point in time it was introduced. Therefore, attributes with a Required status must also have metadata identifying the date from which the attribute was introduced.

  This exists to facilitate the introduction of would-be Mandatory attributes, for which historic data does not immediately exist. Required attributes are treated as Mandatory from a point in time, without the need to back-fill large quantities of data which may be impossible, or prohibitively costly/impractical to capture.
- **Desirable –** the attribute provides useful information but may not apply in all cases for all assets. This information is non-critical, however must be populated where available.
- **Optional –** the attribute can be populated where it is of benefit to the user / Transport Scotland.
- **Conditional –** the attribute is dependent on the population and/or value of another attribute. These will be accompanied by data rules to dictate the relationship, e.g. if "Attribute A" has a specific value, then "Attribute B" must also have a value.

2.3.4 On-Site/Off-Site

Attributes have been categorised based on how the information should be recorded.

- **On-Site** - it is recommended that these attributes be recorded whilst being on-site with the asset.
- **Off-Site** - it is recommended that these attributed be recorded whilst off-site (e.g. as part of a desktop exercise).

2.3.5 Format, Constraints, and Rules

Additionally, attributes will be accompanied by guidance dictating the nature of the data itself:

- **Format –** the required format for the data values, e.g. string, integer, decimal, binary, date formats, etc.

- **Constraints –** logical limitations on the data values, e.g. lookup vales, etc.
- **Rules –** guidance on how real-world observations are to be recorded. Also, any conditional relationships between attributes.

2.4 Inventory Validation

Inventory validation is the process of comparing the inventory contained in AMPS with the actual inventory physically fixed on the asset item. An update to the assets inventory shall be required where the inventory contained in AMPS is different from the actual inventory physically fixed on the asset item.

The inventory of all asset items shall be validated and updated in accordance with the scenarios and timescales outlined in the contract.

2.5 Asset Information Quality

Section 5.2 of Transport Scotland's RAMP *[Ref 2]* specifically references inventory surveys, noting that "*Good quality information is fundamental for asset management. A detailed trunk road inventory is an essential prerequisite of establishing a cost effective and adequate maintenance regime. It is the foundation on which asset management is built and when analysed in combination with other data, provides crucial decision support information*".

Asset data is fundamental to everything Transport Scotland does supporting and informing decision making, reporting and performance monitoring yet, despite this, is often overlooked sometimes with significant negative consequences for business efficiency, service delivery and best practice. Decisions made on limited or inaccurate information may lead to the wrong decisions being made, increased risks of service failure or opportunities being missed.

2.5.1 Individual Components of Quality

Data quality is primarily derived from the assessment of:

- **Completeness** - Informs an understanding of the proportion of network assets that are recorded (Inventory) and the density of information available at the attribute level.
- **Accuracy** – Describes the extent to which the data reflects the real world. Accuracy informs an understanding of how 'correct' the dataset is.

Completeness and Accuracy are further refined through the contribution of the following four subsidiary components that are variably applied to each depending on whether the assessment takes place at the Inventory (Figure 2-2) or Attribute (Figure 2-3) level:

- **Uniqueness** - The asset or attribute manifests as a singular instance, distinguished from other, similar assets or attributes, according to an established ruleset. This serves to improve information clarity and prevents misrepresentation within the asset population.
- **Timeliness** – The data is current or within prescribed temporal tolerances. For example, are the inspection records in date or time expired?
- **Compatibility** – The data is presented in a suitable format for re-use; providing data that is accessible to organisation via its systems
- **Consistency** –the data describing a particular asset is consistent with business and data rules and these rules are uniformly applied across the dataset.

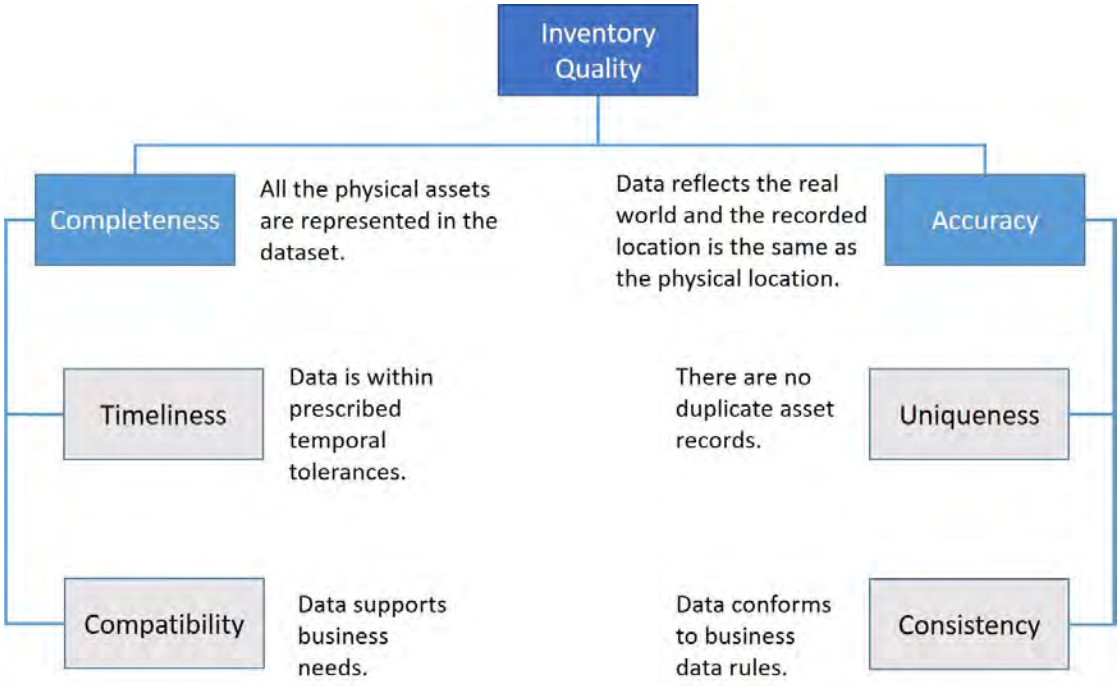


Figure 2-2: Inventory Quality

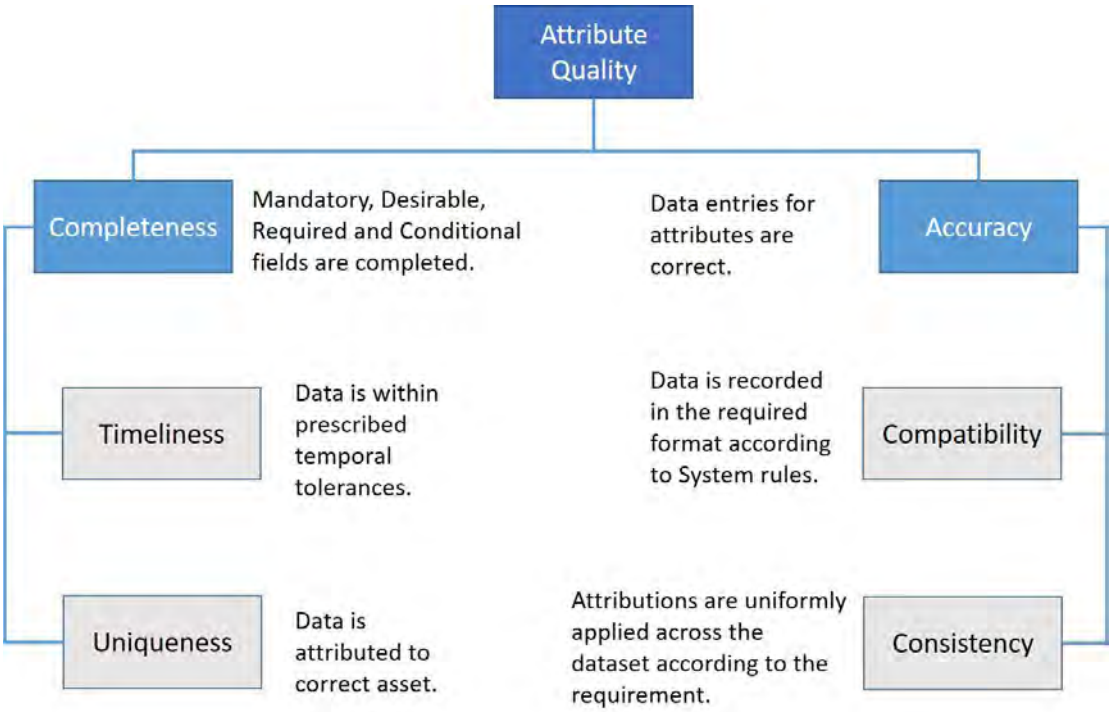


Figure 2-3: Attribute Quality

2.5.2 Data Quality Metrics

Completeness and accuracy metrics are defined as follows:

2.5.2.1 Inventory

In accordance with the relevant performance indicator an accurate count, length or volume and actual location of Transport Scotland's asset inventory is paramount and to that end the requirement is set at 95% confidence for all assets (± 2.5%).

To achieve this, all physical assets must be represented in the dataset and a minimum of all mandatory attribute fields completed. Of importance is the completion of the attributes relating to the geospatial position of the asset in relation to the real-world, within the accuracy level as defined in section 1.1.3.1.

2.5.2.2 Attribute

In accordance with the relevant performance indicator for asset data quality the asset items are split into two according to the individual asset criticality - we need to know more about high criticality assets all the time over lower criticality assets we need to know less about all the time (Table 2-2):

- For the 20 most important assets the requirement is set at 90% (±2.5%) confidence, and
- For the remaining assets in section 2.2 the minimum requirement is set at 85% (±2.5%) confidence.

	Asset Group	Asset Item	Inventory	Attribute
1	Lighting & Electrical	Electrical Component of Traffic Sign	95%	90%
2	Lighting & Electrical	Lighting Point	95%	90%
3	Traffic Signs & Signals	Traffic Signal-Controller	95%	90%
		Traffic Signal-Signal Apparatus		
4	Vehicle Road Restraint Systems	Safety Fence/Barrier	95%	90%
5	Drainage	Gully	95%	90%
6	Landscape	Grassed Area	95%	90%
7	Drainage	Grip	95%	90%
8	Drainage	Manhole	95%	90%
9	Pedestrian & Cycle Facilities	Footway	95%	90%
10	Road Markings, Road Studs & Kerbs	Road Marking Longitudinal	95%	90%
11	Landscape	Tree	95%	90%
12	Technology Equipment	Cabinet/Pillar	95%	90%
13	Road Markings, Road Studs & Kerbs	Road Marking Transverse & Special	95%	90%
14	Network	Crossover	95%	90%
15	Fences & Barriers	Fence/Wall/Barrier	95%	90%
16	Landscape	Invasive and Injurious Species	95%	90%
17	Road Markings, Road Studs & Kerbs	Road Studs	95%	90%
18	Drainage	Small Culvert	95%	90%
19	Road Markings, Road Studs & Kerbs	Kerbs	95%	90%
20	Drainage	Catchpit	95%	90%

Table 2-2: Inventory and attribute quality requirement for the 20 most important assets.

3 Inspection Requirements

The Operating Company shall comply with the inspection requirements for network condition and network safety set out in this section to ensure the trunk road network is safe and serviceable.

The Operating Company shall treat the safety, health, and welfare of its inspection teams with the highest priority and shall ensure the safety, and where possible minimise inconvenience, to road users. The Operating Company will be expected to comply with industry best practice, the contract and relevant legislation and standards.

3.1 Inspections for Trunk Road Network Condition

In accordance with the asset management objectives outlined in the TAMP an assessment of the condition of trunk road assets is required to facilitate the following:

- To feed key performance indicators with respect to safety, serviceability and;
- To compare the performance of assets across the trunk road network;
- To provide information on deterioration curves to support long-term financial planning.

3.1.1 Condition Ratings

The assets specified in section 3.1.3 shall be assessed using a 5-point condition rating (Table 3-1). Point items shall be assessed individually and continuous and area items shall be assessed over their entire length/area.

Description	Description
Excellent (E)	Includes 'as new' assets and is the default value for all assets after replacement or refurbishment.
Good (G)	Assets appear in a good condition and are performing to an acceptable standard.
Fair (F)	Assets appear in fair condition and will be performing to an acceptable standard.
Poor (P)	Assets appear in a poor condition and will be performing below the acceptable standard.
Very Poor (VP)	Assets appear in a very poor condition and will generally be beyond their serviceable life.

Table 3-1 The 5-point condition ratings for asset items.

Detailed condition rating criteria for the application of the 5-point condition rating scale to each relevant asset is included in Appendix B:.

3.1.2 Comprehensive Inspections

Comprehensive inspections are undertaken to support the establishment of programmes of routine maintenance and to assign condition ratings.

All comprehensive inspections shall be carried out by the Operating Company at the specified interval and in accordance with the requirements stated for each asset group in section 3.1.3.

Any inspection records shall be uploaded into AMPS within 24 hours of completion.

Comprehensive inspections include:

1. Visual condition inspections.
2. Specialist inspections.

3.1.2.1 Visual Condition Inspections

Visual condition inspections are undertaken to establish programmes of routine maintenance tasks which do not require urgent attention, although urgent defects shall be recorded if present in accordance with section 3.2.2. The data collected also informs future maintenance strategies and provides further understanding of the asset lifecycle.

Visual condition inspections are generally carried out on foot by suitably experience inspectors (section 3.3), using traffic management, where required, to allow the inspectors to safely assess assets. Assets located in the central reserve or more than one lane away from the inspection position will require a separate inspection with the appropriate traffic management to adequately assess the condition of the asset. The frequency of these inspections varies based on the asset item. During each visual condition inspection inspectors shall:

- Visually assess the condition of each asset specified in section 3.1.3.
- Record the date and time the inspection was undertaken.
- Record an inspection record against each individual asset inspected.
- Record any defects present against each asset in accordance with section 3.2.2.
- Record condition ratings for assets specified in section 3.1.3 in accordance with section 3.1.1.
- Validate the inventory held against each asset in accordance with section 2.4.

3.1.2.2 Specialist Inspections

Specialist inspections require specific knowledge and/or equipment. Additionally, they will likely provide further information instead of a single condition rating (i.e. specific measurements). The qualifications required to undertake specific specialist inspections are detailed in section 3.3. Table 3-2 outlines the specialist inspections to be undertaken by the Operating Company, section 3.1.3 outlines which asset items require these inspections.

Inspection Subtype	Additional Information
Accessibility Inspection	Directed at identifying defects associated with specific objectives and statutory commitments (section 3.1.2.3).
Arborist Inspection	An assessment of the condition of Trees and whether they pose any risk to public, the network and/or its users.
Calibration Check	Only required for Weather Stations to ensure they function as necessary.
Drainage (Internal) Inspection	Applicable to internal Drainage assets (e.g. Piped Drainage) which require specialist equipment to conduct (e.g. CCTV surveys).
Periodic Electrical Inspection and Testing	Carried out in accordance with BS 7671 *[Ref 3]*.
Emergency Lighting Inspection	Carried out in accordance with the IET 'Electrician's Guide to Emergency Lighting' *[Ref 4]*.
Enhanced Inspection	Applicable to assets that require a more enhanced assessment to understand its condition.
Hazard Index (RSHI)	Required where there is significant deterioration to the condition of the rock face. Inspection assists with identifying and ranking treatments.
Hazard Rating (RSHR)	Required because of the Hazard Index inspection. Inspection assists with identifying and tanking treatments.

Inspection Subtype	Additional Information
Landscape Opportunity Inspection	Required to support Landscape Development Plans.
Mechanical/Electrical Inspection	Associated with mechanical/electrical assets (e.g. Drainage Ancillary Items). Involves inspection of all mechanical/electrical components.
Retro-Reflectivity Inspection (Handheld)	Carried out in accordance with CS 126 *[Ref 5]*.
Retro-Reflectivity Inspection (Machine)	Carried out in accordance with CS 126 *[Ref 5]*.
Rock Debris Inspection	Inspection to identify any fallen rocks within the netting that require removal.
Routine Electrical Inspection	Carried out in accordance with LDS8023 *[Ref 6]*.
Routine Geotechnical Inspection	Associated with all Geotechnical assets. Requires the completion of the relevant condition inspection checklist.
Routine GN 22 Inspection	Carried out in accordance with GN 22 *[Ref 7]*.
Routine Signal Inspection	Carried out in accordance with section 3.1.3 and Appendix C:.
Routine VRRS Inspections	Associated with Vehicle Road Restraint System assets.
Skid Resistance Inspection	Carried out in accordance with CS 126 *[Ref 4]*.

Table 3-2: The specialist inspection subtypes that shall be undertaken by the Operating Company.

3.1.2.3 Accessibility Inspections

Accessibility inspections are required to comply with the Equality Act *[Ref 8]* and the Trunk Road Action Plan document 'Roads for All' *[Ref 9]*. The document outlines Transport Scotland's requirements for inclusive design in the construction, operation and maintenance of road infrastructure and forms part of Transport Scotland's wider Disability Equality Scheme.

Transport Scotland is committed to developing a programme to enhance and improve accessibility on the trunk road network. In accordance with Transport Scotland's Addressing Barriers to Accessibility on the Trunk Road Network: Guidance Note for Operating Companies *[Ref 10]* this will be achieved, in part, via accessibility inspections which are undertaken to identify any barriers to access associated with an asset item.

Section 3.1.3 outlines which asset items require these inspections. The observations listed in Appendix E reflect the requirements of Transport Scotland's Roads for All – Good Practice for Roads *[Ref 9]* and the Department for Transport's Inclusive mobility *[Ref 11]* and Guidance on the use of tactile paving *[Ref 12]*.

3.1.2.4 Manufacturer Inspections

Some asset items may require further inspections as defined by the manufacturer. These shall be carried out in accordance with the intervals and requirements set forth by the manufacturer, and with the required training/experience as specified by the manufacturer. Asset items that require these inspections shall have the inspection interval and requirements defined as part of the asset inventory.

3.1.3 Asset Inspection Requirements

3.1.3.1 Drainage Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		Balancing Pond Drainage Ancillary Item Small Culvert	Twice annually during September/October and February/March.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B. No asset condition rating shall be recorded for the following assets: • Grip The following requirements shall also be acknowledged: • Assets shall be visually inspected from the surface without lifting any covers irrespective of ownership. • The owner of any third-party assets shall be notified if a defect is identified. • For the Balancing Pond the access document shall be checked and amended within 7 days of the inspection. • The operation of any mechanical items associated with an asset shall be checked. • Areas of the drainage system that are habitually troublesome shall be inspected more frequently.
		Catchpit Combined Kerb and Drainage Counterfort Drain Ditch Drainage Channel Filter Drain Grip Gully Interceptor/Separator Manhole Piped Grip Soakaway	At intervals not exceeding 12 months.	
Specialist	Drainage (Internal)	Catchpit Combined Kerb and Drainage Interceptor/Separator Manhole Soakaway	At intervals not exceeding 12 months.	During each inspection any covers shall be removed, and the internal structure of the asset inspected. An assessment of overall condition, the date/time the inspection was undertaken and whether any defects are were identified shall be recorded.
		Piped Drainage Piped Grip Small Culvert	As required.	
	Mechanical/ Electrical	Drainage Ancillary Item	At intervals not exceeding 12 months or as specified by the maintenance manual.	Mechanically/electrically operated equipment shall be maintained in accordance with the maintenance manual for each item. If there is no maintenance manual all mechanical and electrical components of the installation shall be inspected. Any defects identified shall also be recorded.

Table 3-3: The inspection types applicable to asset items in the Drainage asset group

3.1.3.2 Fences & Barriers Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		All assets (see section 2.2).	At intervals not exceeding 12 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B.
Specialist	Accessibility	Fence/Wall/Barrier Pedestrian Guardrail	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).

Table 3-4: The inspection types to asset items in the Fences & Barriers asset group.

3.1.3.3 Geotechnical Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Specialist	Routine Geotechnical Inspection	Rock Slope	At intervals not exceeding 24 months.	The full area of the asset shall be inspected by walking along the verge and, where possible, along the top/toe of the slope. The full length of any Drainage assets associated with top, toe or face of the slope shall be inspected. Any area which cannot be adequately inspected shall be noted. The inspection shall be recorded in accordance with the data requirements specified in AMPS. Within 3 months the inspection record shall be reviewed by a Principal Geotechnical Engineer/Geologist Specialist and an overall condition rating for the asset determined. The review shall be recorded in accordance with the data requirements specified in the Asset Data Catalogue. Assets in a poor/very poor condition may require more regular inspections as defined by the Principal Geotechnical Engineer.
		Anchor/Bolt/Dowel Barrier Fencing System Debris Trap Earthwork Slope Granular Replacement Land Slope Protection/Rigid Support Reinforced Soil System Rock Netting Soil Nailing	At intervals not exceeding 60 months.	
		Monitoring Equipment	As stated by manufacturers or at intervals not exceeding 60 months.	
	Enhanced	Anchor/Bolt/Dowel Barrier Fencing System Debris Trap Earthwork Slope Granular Replacement Land Slope Protection/Rigid Support Reinforced Soil System Rock Netting Rock Slope Soil Nailing	As required.	Inspections shall be carried out in response to incidents or as a result of issues identified as part of the Routine Geotechnical Inspection. Upon completion a report shall be made and attached to the applicable asset/s,
	Periodic Electrical Inspection and Testing	Monitoring Equipment	At intervals not exceeding 5 years.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]* and BS 7671 *[Ref 3]*. A BS 7671 Electrical and Inspection Testing Certificate is required for the Cabinet asset containing an MCB/Consumer Unit associated with the inspected asset. Any defects identified shall also be recorded.

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
	Rock Debris	Rock Netting	At intervals not exceeding 12 months.	The full length of each asset shall be inspected to identify fallen rocks trapped within the netting that require removal.
	Rock Slope Hazard Index	Rock Slope	As required.	Inspections shall be carried out when there is significant deterioration in the condition of a rock face. The Rock Slope Hazard Index checklist shall be completed and calculated in accordance with TRL Report PPR 554 *[Ref 13]*.
	Rock Slope Hazard Rating	Rock Slope	As required.	Required in conjunction with a Rock Slope Hazard Index inspection to assist in identifying and ranking treatments. The Rock Slope Rock Hazard checklist shall be completed and calculated in accordance with TRL Report PPR 554 *[Ref 13]*.
	Routine Electrical Testing	Monitoring Equipment	At intervals not exceeding 60 months.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]*.

Table 3-5: The inspection types applicable to asset items in the Geotechnical asset group.

3.1.3.4 Landscape Asset Group

<table>
<tr><th>Inspection Type</th><th>Inspection Subtype</th><th>Asset(s)</th><th>Frequency</th><th>Inspection Requirements</th></tr>
<tr><td>Visual Condition</td><td></td><td>All assets (see section 2.2).</td><td>At intervals not exceeding 12 months.</td><td>Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B. No condition rating shall be recorded for the following assets:
Invasive and Injurious Species
This inspection shall identify any vegetation which may cause the following:
Encroach or effect the forward visibility of road users.
Encroach or effect sightlines for Traffic Signs, Bollards, and other road infrastructure.
Encroach or effect the sightline for junctions, accesses, bends, etc.
Encroach or effect the Carriageway, Footway, or a Cycle Facility.
Identification triggers the road sign, visibility sightline, and encroaching vegetation maintenance activity in accordance with section 4.1.3.
Any landscape opportunities shall be recorded against the inventory item for consideration. Inspections shall be undertaken during the assets growing season (excluding Wildlife Mitigation Measure). The growing seasons for each asset item are April-September unless specified differently below:
<table>
<tr><th>Asset</th><th>Species</th><th>Growing Season</th></tr>
<tr><td rowspan="8">Bulb Area</td><td>Snowdrops</td><td>January-March</td></tr>
<tr><td>Bluebells</td><td>June-August</td></tr>
<tr><td>Crocus</td><td>January-March</td></tr>
<tr><td>Tulips</td><td>February-April</td></tr>
<tr><td>Daffodils</td><td>February-April</td></tr>
<tr><td>Mixed Species</td><td>February-April</td></tr>
<tr><td>Other</td><td>April</td></tr>
<tr><td>Wildflower Area</td><td></td><td>April</td></tr>
</table>
</td></tr>
<tr><td>Specialist</td><td>Arborist</td><td>Tree Woodland</td><td>At intervals not exceeding 5 years, during the growing season (April-September).</td><td>Inspections shall include all mature (above 10m in height and/or over 15 years old) Trees and any that may impact the trunk road network (i.e. is within falling distance of the carriageway). The condition of the Tree and any risk it may pose to the public, trunk road network and or its uses shall be determined, and any defects identified recorded. A report shall be submitted to the Director within four weeks of competition detailing the results and any recommendations.</td></tr>
</table>

Table 3-6: The inspection types applicable to asset items in the Landscape asset group.

3.1.3.5 Lighting & Electrical Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		Cable Chamber Navigation Aid Navigation Light (Sea and Air)	At intervals not exceeding 12 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1. No condition rating shall be recorded for these assets.
Specialist	Emergency Lighting	Lighting Point	As specified in the IET 'Electrician's Guide to Emergency Lighting'.	Any Lighting Point assets with Emergency Lighting elements shall be inspected and tested in accordance with LDS8023 *[Ref 6]* and the requirements of the IET 'Electrician's Guide to Emergency Lighting' *[Ref 4]*. The frequency and type of inspection required will be dependent on the installation type, building use and occupancy type where applicable.
	Periodic Electrical Inspection and Testing	Electrical Component of Bollard Electrical Component of Cabinet/Pillar Electrical Component of Drainage Ancillary Item Electrical Component of Roadside Service Electrical Component of Structure Electrical Component of Traffic Control Barrier Electrical Component of Traffic Sign Lighting Point Navigation Aid Navigation Light (Sea and Air)	At intervals not exceeding 5 years.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]* and BS 7671 *[Ref 3]*. A BS 7671 Electrical and Inspection Testing Certificate is required for the Cabinet/Pillar asset containing an MCB/Consumer Unit associated with the inspected asset. Any defects identified shall also be recorded.
	Routine Electrical Inspection	Electrical Component of Roadside Service Electrical Component of Traffic Control Barrier	At intervals not exceeding 12 months.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]*. Any defects identified shall also be recorded.
		Cable Chamber Electrical Component of Bollard Electrical Component of Cabinet/Pillar Electrical Component of Drainage Ancillary Item Electrical Component of Structure	At intervals not exceeding 24 months.	

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
		Electrical Component of Traffic Sign Electrical Ducting and Cable Lighting Point Navigation Aid Navigation Light (Sea and Air)		
	Routine GN 22 Inspection	Electrical Component of Bollard Electrical Component of Traffic Sign Lighting Point	At intervals not exceeding 24 months.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]*. Any defects identified shall also be recorded.

Table 3-7: The inspection types applicable to asset items in the Lighting & Electrical asset group.

3.1.3.6 Miscellaneous Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		Equipment Storage Location Salt Bin	At intervals not exceeding 12 months.	Visual inspections to assess asset condition shall be carried out accordance with section 3.1.2.1 No condition rating shall be recorded for these assets.
Specialist	Accessibility	Bus Stop	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).

Table 3-8: The inspection types applicable to asset items in the Miscellaneous asset group.

3.1.3.7 Network Asset Group

Inspection Type	Asset(s)	Frequency	Inspection Requirements
Visual Condition	All asset items (see section 2.2).	At intervals not exceeding 12 months.	Visual inspections to assess asset condition shall be carried out accordance with section 3.1.2.1. No condition rating shall be recorded for these assets. Node Marker Points require a review and, if necessary, amendment of the Node Marker Location Documents.

Table 3-9: The inspection types applicable to asset items in the Network asset group.

3.1.3.8 Pedestrian & Cycle Facilities Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		All assets (see section 2.2).	• Category A Cycle Facility's and Footway's shall be inspected at intervals not exceeding 1 month, and; • Category B Cycle Facility's and Footway's shall be inspected at intervals not exceeding 3 months. • Category C Cycle Facility's and Footway's shall be inspected at intervals not exceeding 12 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B.
Specialist	Accessibility	All assets (see section 2.2).	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).

Table 3-10: The inspection types applicable to asset items in the Pedestrian & Cycle Facilities asset group.

3.1.3.9 Road Markings, Road Studs & Kerbs Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		All assets (see section 2.2).	At intervals not exceeding 12 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B.
Specialist	Accessibility	Kerbs Road Marking Hatched Road Marking Longitudinal Road Marking Transverse & Special	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).
	Retro-Reflectivity Inspection (Handheld)	Road Marking Longitudinal Road Marking Transverse & Special	At intervals not exceeding 12 months.	Retro-reflectivity shall be assessed in accordance with CS 126 (including Figure B.3, Table B.1 and Appendix C). • The inspection shall be undertaken using a retro-reflectivity meter. • The wear of the road marking shall be visually assessed and scored in accordance with CS 126. • The luminance factor will be assessed. • A condition rating shall be derived based on these assessments.
	Retro-Reflectivity Inspection (Machine)	Road Marking Longitudinal Road Marking Transverse & Special	At intervals not exceeding 12 months.	Retro-reflectivity shall be assessed in accordance with CS 126 *[Ref 5]* (including Appendix B, Figure B.1 and Figure B.2). The inspection shall be undertaken with vehicle mounted devices approved for use by Transport Scotland. All retro-reflectivity data shall be processed by the Operating Company to: • Match 100m summary segments to the AMPS asset records and associated start/end chainages. • Identify assets that require a further visual assessment. • Convert the measurements to condition categories. • Analyse data to identify any defects. • Convert data to suitable format for loading into the AMPS.
	Skid Resistance	Road Marking Longitudinal Road Marking Transverse & Special	At intervals not exceeding 48 months, and on approximately a quarter of the critical assets per year.	Skid resistance measurements shall be carried out in accordance with CS 126 *[Ref 5]* (Appendix B1.3), using the British pendulum tester in accordance with BS EN 1436 *[Ref 14]*. This inspection shall be carried out on all critical road markings, this includes the following: • All give way and stop lines on the trunk road network at junctions and roundabouts (TSRGD number 1002.1, 1003A, 1003.3).

				• All transverse yellow bar markings on dual carriageway approaches to junctions. All bifurcation arrows, all slow markings, all arrows where there is a reduction in the number of traffic lanes ahead (TSRGD number 1067, 1039, 1024, 1014).

Table 3-11: The inspection types applicable to asset items in the Road Markings, Road Studs & Kerbs asset group.

3.1.3.10 Technology Equipment Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		Cabinet/Pillar CCTV/Camera Detector Loop Weather Station	At intervals not exceeding 12 months.	Visual inspections to assess asset condition shall be carried out accordance with section 3.1.2.1. No condition rating shall be recorded for these assets.
Specialist	Accessibility	Cabinet/Pillar CCTV/Camera Emergency Telephone Box	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).
	Calibration Check	Weather Station	Bi-annually during August to September and December to February.	The asset shall be fully assessed, and a calibration and test certificate completed.
	Periodic Electrical Inspection and Testing	Weather Station	At intervals not exceeding 5 years.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]* and BS 7671 *[Ref 3]*. A BS 7671 Electrical and Inspection Testing Certificate is required for the Cabinet asset containing an MCB/Consumer Unit associated with the inspected asset. Any defects identified shall also be recorded.
	Routine Electrical Testing	Weather Station	At intervals not exceeding 12 months.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]*. Any defects identified shall also be recorded.
	Routine Signal Inspection	Detector Loop	At intervals not exceeding 12 months.	Inspections shall be carried out in accordance with Appendix C:. Shall only be carried out where the Array Type = Traffic Signals.

Table 3-12: The inspection types applicable to asset items in the Technology Equipment asset group.

3.1.3.11 Traffic Signs & Signals Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Visual Condition		Bollard Pedestrian Crossing Reference Marker Post Snow Pole Traffic Sign	At intervals not exceeding 12 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B. No condition rating shall be recorded for the following assets: • Pedestrian Crossing
Specialist	Accessibility	Bollard Pedestrian Crossing Traffic Sign	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).
	Periodic Electrical Inspection and Testing	Traffic Signal-Controller Traffic Signal-Signal Apparatus	At intervals not exceeding 5 years.	Inspections shall be carried out in accordance with LDS8023 *[Ref 6]* and BS 7671 *[Ref 3]*. A BS 7671 Electrical and Inspection Testing Certificate is required for the Cabinet asset containing an MCB/Consumer Unit associated with the inspected asset. Any defects identified shall also be recorded.
	Retro-Reflectivity Inspection (Handheld)	Traffic Sign	At intervals not exceeding 24 months.	Retro-reflectivity shall be assessed using a handheld measurement device, and a condition rating determined.
	Routine Signal Inspection	Traffic Signal-Controller Traffic Signal-Signal Apparatus	At intervals not exceeding 1 month.	Inspections shall be carried out in accordance with Appendix C:. Only items 1-12 shall be inspected.
			At intervals not exceeding 12 months.	Inspections shall be carried out in accordance with Appendix C:.

Table 3-13: The inspection types applicable to asset items in the Traffic Signs & Signals asset group.

3.1.3.12 Vehicle Road Restraint System Asset Group

Inspection Type	Inspection Subtype	Asset(s)	Frequency	Inspection Requirements
Specialist	Accessibility	Safety Fence/Barrier	Within 2 years of service commencement and then at intervals not exceeding 5 years.	In accordance with the public sector equality duty (Equality Act, 2010) *[Ref 8]* assets shall be inspected to identify situations where there has been a failure to make the appropriate provision for those with disabilities and specific age groups (elderly and children).
	Routine VRRS Inspection	All assets (see section 2.2).	At intervals not exceeding 24 months.	Visual inspections to assess and record asset condition shall be carried out accordance with section 3.1.2.1 and Appendix B.

Table 3-14: The inspection types applicable to asset item in the Vehicle Road Restraint Systems asset group.

3.1.3.13 Other Inspection Requirements

Inspection Type	Inspection Subtype	Frequency	Inspection Requirements
Specialist	Cleanliness Assessment	As defined by the inspection regime for each area.	During each inspection of motorways and special roads an assessment of litter, refuse and detritus shall be undertaken in accordance with the Code of Practice on Litter and Refuse *[Ref 15]*.
	Designated	As required.	Inspection undertaken against a designated site (e.g. trial sites that require monitoring).
	Landscape Opportunity Inspection	At intervals not exceeding 12 months.	Inspections shall be undertaken to identify potential opportunities to improve the landscape associated with the trunk road network. Any number can be undertaken annually provided each applicable asset is inspected at least once. Inspections shall be undertaken in accordance with the schedule associated with the Landscape Development Plan. Upon completion of each inspection the date, time and any identified defects shall be recorded.

Table 3-15: Other comprehensive inspection requirements.

3.2 Inspections for Trunk Road Network Safety

3.2.1 Defect Types

A defect to the asset is that which:

1. Causes an unintended hazard, nuisance, or danger to the users of the trunk road network.
2. Represents a deterioration from the normal condition.
3. Prevents the asset from acting in its intended manner.
4. Is damaged.
5. Is likely to increase the rate of deterioration of another asset.

Appendix D contains the common defect types that can be recorded against certain assets.

3.2.2 Defect Categories

A defect to an asset can cause a potential hazard to network users; the level of risk is dependent on the nature and severity of the defect and the surrounding environment. Defects are divided into two categories (Table 3-16) to enable prioritisation of budgets and resources to rectify defects that require prompt attention.

Defect Category	Description	Example
Category 1	A defect which due to their nature and location represent an immediate or imminent hazard posing a risk to one or more of the following: • Injury to any party using or repairing the trunk road network. • Significant disruption to the normal flow of traffic through the trunk road network. • Significant deterioration of any specific part or infrastructure of the trunk road network. • Damage to a third party's property, livestock, or equipment. • Damage to the environment. • Liable to leave Scottish Ministers in breach of one or more of their statutory duties. • Failure to effectively enforce the legality of an asset that has a mandatory or prohibitory function. • Failure of an asset to fulfil its intended function where such an asset protects the road user, maintenance personnel, environment, the trunk road network infrastructure, and/or facilitates the safe use of the trunk road network. • Failure of an asset to fulfil its intended function resulting in a service level failing. • Offence to road users from graffiti that is obscene, blasphemous, or otherwise offensive. Also includes defects which may develop into a category 1 before the next scheduled safety inspection.	• Fallen trees or debris obstructing the carriageway. • Missing inspection chamber covers. • Damaged or missing regulatory or warning signs. • Offensive graffiti.
Category 2	All other defects which, following a risk assessment, are deemed not to represent an immediate or imminent hazard or risk of short-term structural deterioration.	• Damaged but legible direction signs. • Non-offensive graffiti

Table 3-16: **Description of the different categories that can be assigned to a defect.**

3.2.3 Defect Intervention Levels

The intervention level defines the point where the Operating Company shall take action to resolve the defect. Any defect which meets or exceeds the intervention level shall be categorised as category 1 or category 2 and shall need to be rectified within the timescales specified in section 3.2.4. Intervention levels for category 1 defects have been defined for some common defect types applicable to the asset items on the trunk road network in Appendix D. Any defect which appears to meet the intervention level for either a category 1 defect or a category 2 defect shall be subject to a risk assessment by the Operating Company before being categorised (Figure 3-1).

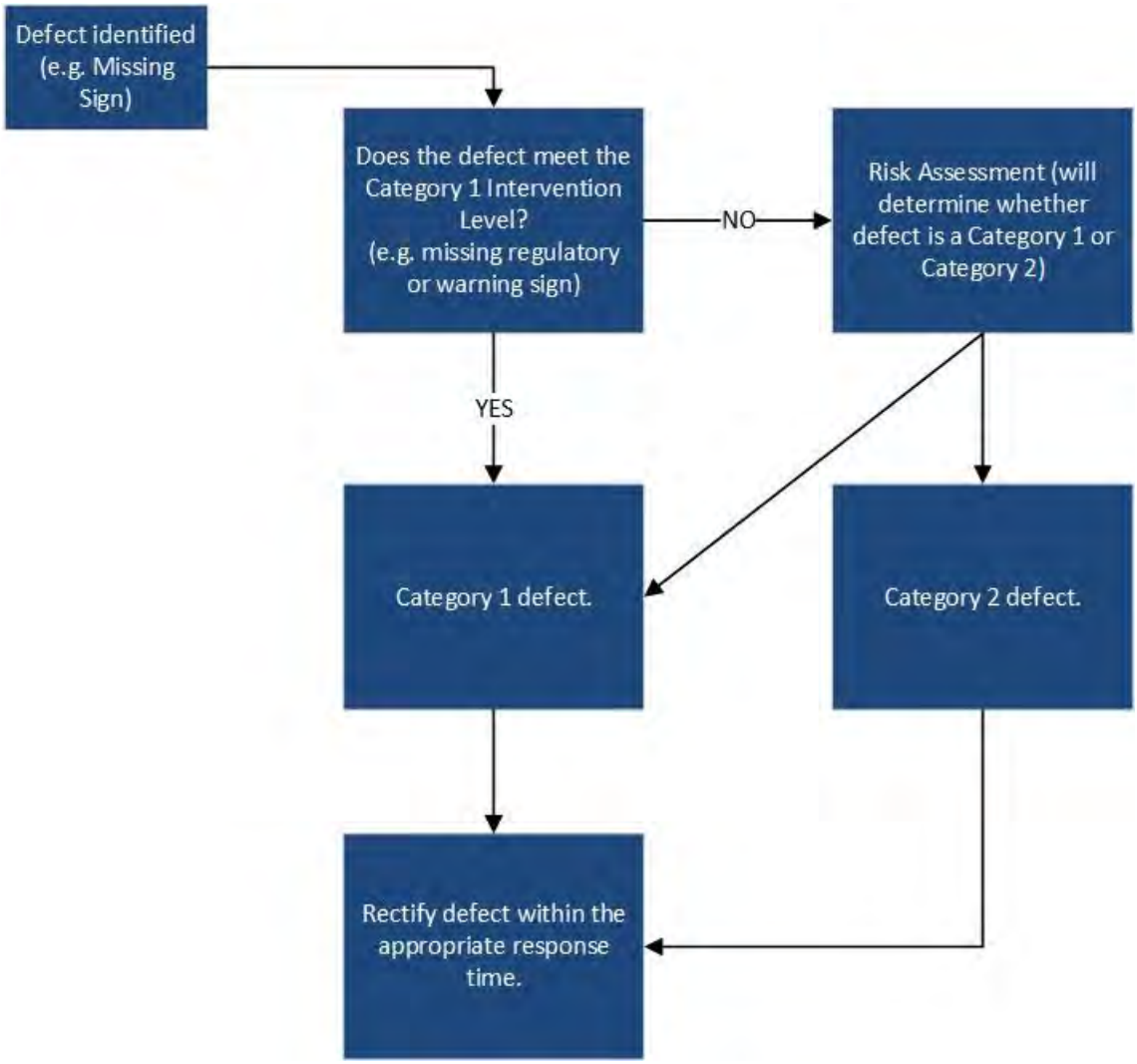


Figure 3-1: Process for categorising defects using an intervention level.

3.2.4 Defect Response Times

3.2.4.1 Category 1 Defect Response Time

Category 1 defects shall be rectified within the timescales stated as follows:

1. The Operating Company's inspection team shall rectify the category 1 defect when identified. This shall be through undertaking immediate temporary or permanent repairs, removing the hazard or by taking any other measures to protect trunk road users. This should be undertaken in accordance with the following timescales:
    a. The timescale stated for the defect/asset (see Appendix D), or;
    b. 06:00 the following day for Category 1 defects on the carriageway, or;
    c. within 24 hours of identification for all other Category 1 defects.

2. If a temporary repair has been carried out, the deferred permanent repair period shall be:
    a. 56 days for Bridge Parapets.
    b. 28 days for all other defects.
3. If the inspection team cannot execute the above measures, they shall request incident response resources and remain on site until their arrival.

3.2.4.2 Category 2 Defect Response Time

Category 2 defects shall be scheduled and prioritised into programmes of operations or works contracts by the Operating Company. Category 2 defects that should have been resolved as part of cyclic maintenance activities shall be rectified by the Operating Company within 28 days of identification.

3.2.5 Routine Monitoring Inspections

Two types of routine monitoring inspections are undertaken to identify defects on the trunk road network:

1. Safety Inspections
2. Safety Patrols

3.2.5.1 Safety Inspections

Safety inspections are undertaken to identify category 1 defects. This includes identifying defects which impact the sightline and visibility of the trunk road network (e.g. vegetation encroaching the visibility of traffic signs). Safety inspections shall also be undertaken at night-time to identify category 1 defects associated with illuminated (e.g. Lighting Point) and reflective assets (e.g. Road Studs). All data recorded during a daytime safety inspection shall be uploaded to AMPS within 6 hours of completion. All data recorded during a night-time safety inspection shall be uploaded to AMPS within 24 hours of the inspection commencing.

Assets	Time	Interval	Requirements
All assets.	Daytime	At intervals not exceeding 7 days.	Shall be undertaken on all trunk roads including slips roads during off-peak traffic periods. On single carriageways the direction of travel should be alternated from week to week so that the route can be inspected regularly from both directions of travel.
Any illuminated assets.	Night-time	At intervals not exceeding 14 days between 1st October and 31st March.	Shall be undertaken on all trunk roads including slips roads during off-peak traffic periods.

		At intervals not exceeding 28 days between 1st April and 30th September.	On single carriageways the direction of travel should be alternated so that the route can be inspected regularly from both directions of travel.
Any reflective assets.	Night-time	At intervals not exceeding 6 months.	Shall be undertaken on all trunk roads including slips roads during off-peak traffic periods. On single carriageways the inspection shall be undertaken in both directions.

Table 3-17: The intervals and requirements for day time and night time safety inspections.

Each year at least two safety inspections shall be carried out either during, or immediately following a period of extensive rainfall to identify areas prone to flooding. A minimum period of three months is required between each of these safety inspections.

All safety inspections shall be undertaken by at least two people (one driver and at least one inspector) and carried out from a vehicle travelling at speeds not exceeding 50mph. If a defect is identified further investigation on foot may be necessary. Vehicles shall have the capability to contact the Operating Company's Control Room, TRISS and other emergency support teams if a defect that requires immediate action is identified.

Safety inspections shall be recorded in their entirety using a forward-facing video recording system and uploaded to a web-based system within 12 hours of completion. The video recording system shall be provided by the Operating Company and shall include video cameras which meet or exceed the following specification:

- High definition recording with minimum resolution of 1920x1080 at 30 frames per second.
- Battery, or appropriate in-vehicle charging, and memory to allow continuous recording for a duration of 24 hours.
- Georeferencing attachment to video files to align with referencing for the trunk road network.

The Operating Company shall ensure that internet connectivity is available to ensure video files are uploaded within 12 hours of the completed inspection. The Operating Company shall provide a secure web-based service that provides an interface including:

- A date/time and map-based search facility.
- A simultaneous map and video playback showing the video and its corresponding location on a map.
- Video download functionality.

Videos shall be available on the web-based service for a minimum of 1 year after the safety inspection. Thereafter at least 1 video per month for every part of the trunk road network shall be available for the remaining duration of the contract. All videos shall be stored offline for the duration of the contract with acceptable back-up facilities. The Operating Company shall provide access to authorised members of Transport Scotland and PAG.

3.2.5.2 Safety Patrols

Safety patrols shall be carried out by the Operating Company in addition to safety inspections on the trunk road network to identify category 1 defects. Safety patrols shall be carried out between safety inspections ensuring that either a safety patrol or safety inspection shall be carried out at intervals not exceeding 4 days.

Safety patrols shall be undertaken by at least two people (one driver and at least one inspector) and carried out from a vehicle travelling at average traffic speed. If a defect is identified, it may be necessary to investigate further on foot. Vehicles shall have the capability to contact the Operating Company's

Control Room, TRISS and other emergency support teams if a serious defect that requires immediate action is identified.

All data recorded during a safety patrol shall be uploaded to AMPS within 24 hours of the inspection commencing.

On a single carriageway the direction of travel should be the opposite from the preceding safety inspection so that the route can be inspected regularly from both directions of travel. Between 1st October and 31st March safety patrols shall be carried out on all trunk roads including slip roads. Between 1 April and 30th September safety patrols shall be carried out on the following roads:

Unit	Road	Extents
South East	M8	From unit boundary to near J6 Newhouse to Hermiston Gate.
	M9	From the M8 to the A9 Keir roundabout.
	M80	From unit boundary near J7 Haggs to M9 J9 Bannockburn.
	M876	From the M80 Bankhead to the M9, and from the M9 to the A876 at Bowtrees.
	M90	From the M9 Kirliston to the A92 Halbeath.
	A1	From unit boundary at Old Craighall to the National Boundary.
	A720	From unit boundary near Hermston junction to A1 Old Craighall.
	A823(M)	From the M90 J2 to the B980.
	A876	From Bowtrees junction to Kilbagie roundabout and North Approach Road.
	A90	From the A985 Admiralty to Dalmeny.
	A985	From A876 Higgins Neuk roundabout to M90 Admiralty.
South West	M74	From the M8 J22 to M74 J12.
	M77	From the M8 J22 to A77 Ayr Road overbridge.
	M8	From M8 Junction 10 Easterhouse to J31 at the A8.
	M80	From the M8 J13 to the south extent of the M8 DBFO near J2.
	M898	From the M8 J30 to the A898.
	A725	From Whitemoss roundabout to M8 DBFO boundary before Raith.
	A737	From M8 J29 St James Interchange to A738 Kilwinning.
	A738	From A737 Kilwinning to A78 Pennyburn roundabout.
	A76	From Auchinleck roundabout to A77 Hurlford Interchange roundabout.
	A77	From Meiklewood to A714 Shallochpark roundabout, Girvan.
	A78	From A8 Bull Ring roundabout to A77 Dutch House roundabout.
	A8	From M8 J31 to A78 Bull Ring roundabout, Greenock.
	A82	From Old Kilpatrick to A811 roundabout, Balloch.
	A898	Erskine Crossing from the M898 to the A82.
North West	A82	From Crianlarich North roundabout to A811 roundabout.
	A9	From Inveralmond roundabout to the A924 Pitlochry.
North East	M90	From Halbeath interchange to the A9 Broxden roundabout.

Unit	Road	Extents
	A9	From Stirling to Inveralmond roundabout, Perth.
	A90	From Perth to Hatton.
	A92	From M90 Halbeath interchange to A972 Arbroath Road roundabout.
	A96	From A90 to A95 Keith.
	A972	Dundee.

Table 3-18: **Roads that require safety patrols between 1st April and 30th September.**

3.3 Training

All inspections shall be conducted by suitably trained and qualified operatives. Inspectors are required to log into AMPS to carry out and record inspections. Each inspector will have unique log-in details (a user identification and password) which must not be shared with any other Operating Company staff.

Inspectors carrying out comprehensive or routine monitoring inspections must have undertaken the Transport Scotland Road Inspection Course and gained a Trunk Road Network Inspectors Certificate of Competency. It is the responsibility of the inspector to only conduct inspections for which they are trained, competent to conduct and consider are safe to perform. The Operating Company shall ensure the comprehensive inspections types associated with the Lighting & Electrical and Technology Equipment asset groups and Traffic Signal assets are undertaken by individuals competent to carry out the inspection.

Specialist inspections must only be conducted by suitably trained and qualified inspectors (see section 3.3.1). This may require specialist subcontractors subject to agreement with Transport Scotland. No sub-contracting of inspections is permitted without prior written consent from Transport Scotland. It is the responsibility of the Operating Company to ensure all inspectors, including subcontractors, have undertaken adequate training, hold the relevant qualifications and are competent to conduct the inspections.

The Network Data Manger is responsible for planning inspections, ensuring a sufficient number of accredited inspectors are always available and ensuring the Operating Company's obligations in relation to inspections and associated data provision are met.

There are three grades of inspector, who are overseen by the Network Data Manager:

- Trainee Inspector – shall be undertaking vocational training to achieve accredited status. Trainee Inspectors may carry out comprehensive and routine Monitoring under the supervision of an accredited inspector.
- Accredited Inspector - shall have completed and passed Scottish Trunk Road Inspector Accreditation Course (or a similar course approved by Transport Scotland) and be registered as an accredited inspector on Transport Scotland's Register of Trunk Road Inspectors. Accredited Inspectors may undertake comprehensive and routine monitoring inspections.
- Specialist Inspector - shall have specialist qualifications or experience relevant to the inspection being undertaken. The qualifications dictate which types of specialist inspection a specialist inspector can undertake. It is acceptable for accredited inspectors to carry out some specialist inspections if they meet the relevant criteria for specialist inspectors. Specialist inspectors shall be registered on Transport Scotland's Register of Trunk Road Inspectors for the relevant specialist inspection types. Transport Scotland may request evidence of qualifications and experience of proposed Specialist Inspectors prior to issuing log-in details to AMPS.

3.3.1 Qualifications for Specialist Inspections

Inspection	Qualification	Experience
Accessibility Inspection	Member of the national Register of Access Consultants.	
Arborist Inspection	Relevant, nationally recognised qualification.	Suitable experience.
Calibration Check	Manufacturers training in maintenance of equipment.	
Drainage (Internal) Inspection	CGLI Level 2 Confined Spaces (6150) CGLI Level 3 Confined Spaces (6150)	

Inspection	Qualification	Experience
Enhanced Inspection (Geotechnical)	A chartered member of a relevant professional body.	Relevant training in inspection methods, familiarity of geotechnical characteristics and condition of geotechnical assets. At least one member of each inspection team shall have specialist experience of geotechnical activities.
Landscape Opportunity Inspection	Membership of a relevant professional body (i.e. the Landscape Institute).	Experience in assessing condition of trees, shrubs, and other relevant vegetation.
Periodic Electrical Inspection and Testing Routine Electrical Inspection	Diploma in Highway Electrical Systems HESA NVQ/SVQ Level 2 – Operator HESA NVQ/SVQ Level 3 – Supervisor	Sufficient experience and competency measured against the Electricity Association Engineering Recommendation G39/1 benchmark.
Retro-Reflectivity Inspection (Handheld) Retro-Reflectivity Inspection (Machine)	Manufacturers training in using the equipment required to undertake the inspection.	No mandatory experience, however, some experience in using retro-reflectivity measurement equipment is desirable.
Routine Geotechnical Inspection	The Principal Geotechnical Engineer is responsible for approving the inspector is qualified to undertake the inspection.	Sufficient experience required to identify potential defects.
Routine VRRS Inspection	FISS/CSCS Gold Card NHSS10B Foundation Course NHSS10B Installer Course	Experience in installing and inspecting all types of proprietary and non-proprietary systems.
Skid Resistance Inspection	Manufacturers training in using the equipment required to undertake the inspection.	No mandatory experience, however, some experience in using measurement equipment is desirable.

Table 3-19: **The qualifications and experience required by specialist inspectors to undertake specific specialist inspections.**

4 Maintenance Requirements

Cyclic maintenance is an operation undertaken at regular intervals to maintain the safety, condition and functionality of an asset and reduce the need for other, normally more expensive, maintenance. All cyclic maintenance activities shall be carried out by the Operating Company in accordance with the following:

1. The cyclic maintenance operation requirements specified in section 4.1 stated under each asset group;
2. The cyclic maintenance operation interval specified in section 4.1 under each asset group, and;
3. The specification in Schedule 5 of the Contract.

The Operating Company shall ensure the cyclic maintenance activities for assets belonging to the Lighting & Electrical and Technology Equipment asset groups and Traffic Signal assets are undertaken by individuals competent to carry out the operation. The Operating Company shall maintain records of all cyclic maintenance activities carried out, including updating of AMPS. During each cyclic maintenance activity, the following shall be recorded:

- The date and time the activity was undertaken.
- The individual/s carrying out the activity.
- Any further information as specified in section 4.1 against each individual asset.
- Any defects present against each asset in accordance with section 3.2.2.
- Validation of the inventory held against each asset in accordance with section 2.4.

Some asset items may require further maintenance activities as defined by the manufacturer. These shall be carried out in accordance with the intervals and requirements set forth by the manufacturer, and with the required training/experience as specified by the manufacturer. Asset items that require these maintenance activities shall have the interval and requirements defined as part of the asset inventory.

4.1 Asset Maintenance Requirements

4.1.1 Drainage Asset Group

Asset	Activity	Frequency	Additional Information
Catchpit Gully Manhole Soakaway	The cover shall be removed, and all silt/debris removed from the asset.	At intervals not exceeding 12 months.	An assessment of the trap fullness shall be recorded.
Combined Kerb and Drainage Drainage Channel	All silt/debris/vegetation shall be removed from the full length of each channel. The internal channel and all kerb openings shall be jetted and cleaned to ensure the flow of water is not impeded and does not impact the carriageway or channel.	At intervals not exceeding 12 months.	
Drainage Ancillary Item	Moving components of Drainage Ancillary Item shall be maintained. This shall include the following: • Sluices; • Tidal Flaps; • Penstocks; • Valves; • Pumps, and; • Other specialist equipment. All mechanisms shall be assessed to ensure they are functioning appropriately, and all moving parts shall be lubricated in accordance with the manufacturer's instructions.	At intervals not exceeding 12 months, or as per the manufacturer's instructions.	
	All components shall be cleaned, and all silt/debris removed from the asset.	At intervals not exceeding 12 months.	
Filter Drain	The Filter Drain shall be harrowed to break up any silt/detritus in the upper layers of the filter material and to minimise the retention of water.	At intervals not exceeding 3 years.	
Grip	The Grip shall be recut and cleaned to ensure the flow of water is not impeded. Debris and any arisings shall be removed and disposed off-site.	At intervals not exceeding 12 months.	
Interceptor/ Separator	The cover shall be removed, and all silt/debris/chemical filters/traps cleaned.	At intervals not exceeding 12 months.	The cleaning process may require specialist equipment and disposal which shall be arranged as required. An assessment of the trap fullness shall be recorded.
Piped Grip	The Piped Grip shall be jetted, cleared and all silt/debris removed from the entry, exit and pipe.	At intervals not exceeding 12 months.	

Table 4-1: Cyclic maintenance operations for applicable assets in the Drainage asset group.

4.1.2 Geotechnical Asset Group

Asset	Activity	Frequency
Monitoring Equipment	Monitoring Equipment shall be maintained in accordance with the requirements specified in the asset inventory (Attribute = Manufacturer Recommended Maintenance Requirements)	As necessary and as specified in the asset inventory (Attribute= Manufacturer Recommended Maintenance Interval)
Monitoring Equipment	All electrical components shall be cleaned in accordance with LDS8023.	At intervals not exceeding 24 months.

Table 4-2: Cyclic maintenance operations for applicable assets in the Geotechnical asset group.

4.1.3 Landscape Asset Group

4.1.3.1 Road Signs, Visibility Sightlines, and Encroaching Vegetation

All approved road signs and all sightlines on the trunk road network shall be visible to all road users, this includes drivers, cyclists, pedestrians, and any other road user. The Operating Company shall cut and/or remove all vegetation obscuring forward visibility, sightlines (e.g. Traffic Signs or junctions), and encroaching onto the carriageway, footway, or cycle facility as required and to a level no worse than what is physically permissible.

The Operating Company shall consider opportunities to avoid or reduce maintenance to maintain forward visibility and sightlines and prevent encroaching vegetation. Roadside vegetation often provides benefits to the trunk road network, and its users and/or the adjacent environment, and may be a valuable asset (e.g. for ecological, environmental, or cultural purposes). Therefore, any cyclical maintenance deemed necessary to maintain forward visibility and sightlines and prevent encroaching vegetation should be assessed against the wider environmental context.

The Landscape Architect shall review and advise on all individual circumstances to determine a balanced course of action to reduce the frequency of maintenance activities required to maintain forward visibility, sightlines and prevent encroaching vegetation without compromising the roadside landscape. The Operating Company shall not remove healthy vegetation to inappropriately prolong the period between cyclic maintenance activities. Where a high value Landscape asset may impact forward visibility and asset/carriageway sightlines, or encroach causing difficulties for inspections or maintenance activities, the Landscape Architect shall carry out an assessment of opportunities for alternatives to preventive cyclic maintenance.

The Landscape Architect shall submit a report of any opportunities, describing the local circumstances, impact on the trunk road users, and provide alternative options for the consideration and approval of the Director.

Asset	Activity	Frequency	Additional Information
Bulb Area Grassed Area Hedge/Hedgerow Shrub Tree Woodland	Newly planted areas shall be maintained over three years. Trees and Woodland shall be maintained over five years.	At intervals not exceeding 12 months.	If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Bulb Area Grassed Area Hedge/Hedgerow Invasive and Injurious Species Scrub Shrub Tree Wetland Wildflower Area Woodland	Areas shall be treated and/or cut back to maintain forward visibility or sightlines; to prevent vegetation encroaching the edge of the carriageway and likely to impact traffic; to prevent traffic signs and traffic signals being obscured; and to maintain safe access to assets in accordance with section 4.1.3.1.	As required (Hedge/Hedgerow shall be cut between September and February).	Any maintenance shall be carried out before the bird nesting season. Any potential landscape opportunities shall be recorded.
Grassed Area	High amenity grassed areas shall be cut.	As specified in asset inventory (Attribute = Number of Annual Cuts).	This operation only applies to high amenity Grassed Areas (Attribute = Grass Type). If the activity could not be undertaken or any alterations to the cut area are required justification shall be recorded.
Grassed Area	Medium amenity grassed areas shall be cut.	As specified in asset inventory (Attribute = Number of Annual Cuts).	This operation only applies to medium amenity Grassed Areas (Attribute = Grass Type). If the activity could not be undertaken or any alterations to the cut area are required justification shall be recorded.
Grassed Area	General grassed areas shall be cut.	As specified in asset inventory (Attribute = Number of Annual Cuts).	The operation only applies to general Grassed Areas. (Attribute = Grass Type). If the activity could not be undertaken or any alterations to the cut area are required justification shall be recorded.
Grassed Area	Rough grass areas shall be cut.	As specified in asset inventory (Attribute = Number of Annual Cuts).	The operation only applies to rough Grassed Areas. (Attribute = Grass Type). If the activity could not be undertaken or any alterations to the cut area are required justification shall be recorded
Hedge/Hedgerow	Hedges shall be trimmed between September and February.	At intervals not exceeding 24 months.	The operation only applies to Hedges (Attribute = Type). If the activity could not be undertaken

Asset	Activity	Frequency	Additional Information
			justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Hedge/Hedgerow	Hedgerows shall be trimmed between September and February.	At intervals not exceeding 36 months.	This operation only applies to Hedgerows (Attribute = Type). If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Invasive & Injurious Species	Invasive Species shall be treated in accordance with the priority and treatment regime detailed in the Invasive or Injurious Species Management Plan.	As specified by the Invasive or Injurious Species Management Plan.	Details of the treatment undertaken, and an assessment of its previous effectiveness shall be recorded.
Shrub	Ornamental high maintenance of shrub areas shall be maintained.	Monthly (during the growing season).	This operation only applies to ornamental-high maintenance Shrubs. (Attribute = Category). If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Shrub	Ornamental medium maintenance shrub areas shall be maintained.	Three times (during the growing season).	This operation only applies to ornamental-medium maintenance Shrubs. (Attribute = Category). If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Shrub	Ornamental low maintenance shrub areas shall be maintained.	Once (during the growing season).	This operation only applies to ornamental-low maintenance Shrubs. (Attribute = Category). If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.
Wildflower Area	Wildflower areas shall be cut to a height between 90-100mm following the seeding of desirable species. Cuttings should be finely chopped and evenly dispersed over the area.	Once (during late summer/autumn).	If the activity could not be undertaken justification shall be recorded. Any observations relating to the vegetation and its development shall be recorded.

Table 4-3: Cyclic maintenance operations for applicable assets in the Landscape asset group.

4.1.4 Lighting & Electrical Asset Group

Asset	Activity	Frequency
Electrical Component of Bollard Electrical Component of Traffic Sign Lighting Point (SOX, MBFU, MCFE, SL, PL)	All lamps shall be changed or replaced in accordance with LDS8023 *[Ref 6]*.	At intervals not exceeding 24 months (for dusk to dawn operation). At intervals not exceeding 12 months (for 24 hour per day operation).
Electrical Component of Bollard Electrical Component of Traffic Sign Lighting Point (SON, SON-T, SOX-E, CMH)	All lamps shall be changed or replaced in accordance with LDS8023 *[Ref 6]*.	At intervals not exceeding 36 months (for dusk to dawn operation). At intervals not exceeding 18 months (for 24 hour per day operation).
Electrical Component of Roadside Service	All lamps shall be changed or replaced in accordance with LDS8023 *[Ref 6]*.	At intervals not exceeding 24 months (for dusk to dawn operation). At intervals not exceeding 12 months (for 24 hour per day operation).
Cable Chamber Electrical Component of Bollard Electrical Component of Cabinet/Pillar Electrical Component of Drainage Ancillary Item Electrical Component of Structure Electrical Component of Traffic Sign Electrical Ducting and Cable Lighting Point Navigation Aid Navigation Light (Sea and Air)	All electrical components shall be cleaned in accordance with LDS8023 *[Ref 6]*.	At intervals not exceeding 24 months.
Electrical Component of Roadside Service Electrical Component of Traffic Control Barrier		At intervals not exceeding 12 months.
Electrical Component of Roadside Service Electrical Component of Structure Electrical Component of Traffic Sign Lighting Point	If an installation has a residual current device (RCD) an RCD test will be required.	At intervals not exceeding 3 months or as stated in BS7671 *[Ref 3]*.
Electrical Component of Drainage Ancillary Item	All pumps shall be subject to a motor, cable, and starter test in accordance with LDS8023 *[Ref 6]* and the manufacturers requirements.	At intervals not exceeding 3 months.

Table 4-4: **Cyclic maintenance operations for applicable assets in the Lighting & Electrical asset group.**

4.1.5 Technology Equipment Asset Group

Asset	Activity	Frequency
Weather Station	All electrical components shall be cleaned in accordance with LDS8023 *[Ref 6]*.	At intervals not exceeding 24 months.
Weather Station	If an installation has a residual current device (RCD) an RCD test will be required.	At intervals not exceeding 3 months or as stated in BS7671.

Table 4-5 Cyclic maintenance operations for applicable assets in the Technology Equipment asset group.

4.1.6 Traffic Signs & Signals Asset Group

Asset	Activity	Frequency	Additional Information
Bollard Reference Marker Post Traffic Sign	The asset shall be cleaned. Any posts shall be straightened and the ground around the base of the post re-compacted.	At intervals not exceeding 12 months.	An assessment of cleanliness before commencement of the operation shall be recorded.
Traffic Signal-Controller	Backup batteries shall be replaced.	At interval not exceeding 36 months (or as specified by the manufacturer).	
Traffic Signal-Signal Apparatus	All electro-mechanical parts shall be inspected yearly. Any worn parts shall be adjusted or replaced. Electro-mechanical lamps relays shall be replaced, and RCD's test tripped.	Annually (or as specified by the manufacturer).	
Traffic Signal-Signal Apparatus	Filament lamps shall be replaced.	At intervals not exceeding 6 months.	
Traffic Signal-Signal Apparatus	All traffic signals lens shall be cleaned.	At intervals not exceeding 12 months.	

Table 4-6: Cyclic maintenance operations for applicable assets in the Traffic Signs & Signals asset group.

4.1.7 Other Maintenance Requirements

The following cyclic maintenance operations can apply to multiple assets across different asset groups:

Activity	Frequency	Additional Information
The removal of litter and refuse shall be carried out in accordance with the Code of Practice on Litter and Refuse *[Ref 15]*.	As required.	The quantity of bags and large objects removed shall be recorded.
The sweeping and removal of detritus shall be carried out in accordance with the Code of Practice on Litter and Refuse *[Ref 15]*.	As required.	
Weed control shall be carried out across the trunk road network.	As required.	If the activity could not be undertaken justification shall be recorded. Details of the treatment undertaken, and an assessment of its previous effectiveness shall be recorded.
Special maintenance operations not covered by existing contract requirements.	As required.	

Table 4-7: Other cyclic maintenance operations that could be applied to assets across different asset groups.

5 Review Requirements

The following exercises primarily involve desktop work with minimal, if any site activity and typically involve reviewing an assets inventory data, or how it operates. All review exercises shall be carried out by the Operating Company in accordance with the following:

1. The review exercise requirements specified in section 5.1;

2. The review exercise intervals specified in section 5.1.

The Operating Company shall ensure the exercises for Traffic Signal assets are undertaken by individuals competent to carry out that exercise. The Operating Company shall maintain records of all review exercises carried out, including updating of AMPS.

5.1 Asset Review Requirements

5.1.1 Traffic Signs & Signals Asset Group

Exercise	Asset(s)	Frequency	Inspection Requirements
Equipment Review	Traffic Signal-Controller	At intervals not exceeding 12 months.	A review of the equipment shall be carried out to collate and maintain the following records for each asset: 1. Installation drawing, 2. Electrical supply and distribution details, 3. Designer's specification for Traffic Signal-Controller TR2500, (or equivalent), 4. Final specification for Traffic Signal-Controller TR2500 (or equivalent), 5. Communications details, 6. Detector location plans, 7. Operational strategy, 8. Valid electrical test certificate, 9. Valid detector test certificate, 10. Outstation transmission unit and or remote equipment wiring schedule, and 11. Site maintenance logbook. All information shall be attached to the asset as a digital copy and a physical copy placed in the relevant controller cabinet (excluding the site maintenance logbook which shall be solely kept in the controller cabinet and updated on every visit). During each inspection, or within 3 weeks of the inspection, any required changes to the records shall be made to all copies. All missing records shall be sourced or created within 2 weeks of the inspection.
MOVA/ SCOOT Validation	Traffic Signal-Controller	At intervals not exceeding 36 months.	Only applicable to Traffic Signals controlled by MOVA or SCOOT. In the event of a significant change to the road layout occurring out with the validation periods for MOVA or SCOOT, the Operating Company shall revalidate the control system at the affected junctions as required. If the asset has no previous record of a MOVA or SCOOT validation, the first validation shall be carried out during the first annual period of the Contract. Where the urban traffic control facility is provided by a local road's authority, the Operating Company shall give a minimum of 10 working days' notice of any validation works and comply with the local road's authority requirements for access to the urban traffic control facility.
Operational Strategy	Traffic Signal-Controller	At intervals not exceeding 12 months.	Each Traffic Signal location shall have an Operational Strategy document which links to the overall Network Operational Strategy. The Operational Strategy document will consist of two elements: 1. A high-level strategy detailing: control strategies to be used, such as MOVA or SCOOT control systems, and locations where these are currently in use.

			2. A low-level strategy to address the operational issues for each individual installation including: a. control strategy hierarchy, b. operational plans, c. vehicle priority actions, and d. any maintenance restrictions. The Operational Strategy of each individual installation shall be reviewed, and any amendments made. Where there is no Operational Strategy available, one shall be created. Any amendments required, or confirmation that no changes are necessary shall be submitted to the Director for approval no later than 25 working days after the exercise.
Phasing and Operation	Traffic Signal-Controller	At intervals not exceeding 12 months.	The annual operational review shall be carried out by suitably experienced persons and shall include the following: 1. Operation of the traffic signal settings for control of traffic, including any additional control systems; 2. on-street assessment including measurement of queue lengths; 3. updating traffic models, using LINSIG or TRANSYT as specified; 4. updating controller settings, 5. validation of MOVA and SCOOT control systems as specified, and 6. production of a performance report summarising the performance of each installation including the methodology adopted, issues identified, and the actions taken. This shall be completed within 3 weeks of the exercise commencement.

Table 5-1: Review exercises for applicable assets in the Traffic Signs & Signals asset group.

5.1.2 Other Review Requirements

Exercise	Frequency	Inspection Requirements
Monitoring Regime Effectiveness	As required and at intervals not exceeding 12 months.	An assessment of the effectiveness of the maintenance operation for removing/sweeping litter and refuse shall be assigned to each area; the Operating Company shall comply with the requirements of the Code of Practice on Litter and Refuse *[Ref 15]* and consider the following: • Feedback and communications from stakeholders. • Historical Inspection records and the frequency of poor condition. • Historical maintenance records and the amount of litter, refuse, or detritus cleaned. • Changes in network characteristics and any other factors.
Maintenance Scheme Data (MSD)	Within 28 days of construction.	Exercise shall be undertaken within 28 days of any of the following: • New construction; • Any change (removal, overlaying, or replacement) to existing carriageway pavement layers; • Identification of errors (e.g. through scheme investigation or coring activities). Upon completion the MSD data record shall be submitted in AMPS.
Section Referencing	As necessary and at intervals not exceeding 12 months.	The Operating Company shall be aware of future changes to the network through planning applications, communications, co-ordination with 3rd parties and Transport Scotland or network access requests. The Operating Company shall inform Transport Scotland of potential changes to the Approved Network Model by emailing TRNMD_Network_Updates_Mailbox@gov.scot with details of potential changes. The Operating Company shall assist Transport Scotland in maintaining the Approved Network Model by obtaining and supplying information relating to the definition of the amended network. The Operating Company shall also review the full extents of the Network within their Unit to identify and changes, omissions or discrepancies in the Approved Network Model including the network definition, shape, and attributes. Any issues shall be reported to Transport Scotland by emailing TRNMD_Network_Updates_Mailbox@gov.scot with details of the issues.
SCRIM Site	At intervals not exceeding 36 months and on approximately a third of the network each year.	The SCRIM Site exercise involves the following: • Reviewing current network video and mapping to identify junctions, crossings, and network characteristics; • Reviewing and checking measured curvature and gradient data; • Calculating accident rates. The validity of each SCRIM Site shall be assessed, and any errors or omissions corrected. If necessary, a site visit shall be carried out to confirm any discrepancies.

Table 5-2: Other review exercises that could be applied to assets across different asset groups.

References

Ref 1	Transport Scotland. Road Asset Management Plan for Scottish Trunk Roads, 2016.
Ref 2	Transport Scotland. Scottish Trunk Road Network Asset Management Strategy, 2018.
Ref 3	The Institution of Engineering and Technology. BS 7671, 'Wiring Regulations', 2018.
Ref 4	The Institution of Engineering and Technology. Electrician's Guide to Emergency Lighting, 2019.
Ref 5	National Highways. CS 126, 'Inspection and assessment of road markings and road studs', 2020.
Ref 6	Transport Scotland. LDS8023, 'Electrical Maintenance Guidelines and requirements in the Specification'.
Ref 7	Institute of Lighting Professionals. GN 22, ‘Asset Management Toolkit: Minor Structures (ATOMS), 2020.
Ref 8	Legislation.gov.uk. Equality Act, 2010.
Ref 9	Transport Scotland. Roads for all - Good practice guide for roads, 2013.
Ref 10	Transport Scotland. Addressing Barriers to Accessibility on the Trunk Road Network: Guidance for Operating Companies, 2020.
Ref 11	Department for Transport. Inclusive mobility, 2005.
Ref 12	Department for Transport. Guidance on the use of tactile paving surfaces, 2005.
Ref 13	Transport Research Laboratory. McMillan, P & Nettleton, IM. TRL PPR 554, 'Rock slope risk assessment', 2011.
Ref 14	British Standard Institution. BS EN 1426, Road marking materials. Road marking performance for road users and test methods, 2018.
Ref 15	DEFRA. Code of Practice on Litter and Refuse, 2019

Appendix A: Asset Item Catalogue

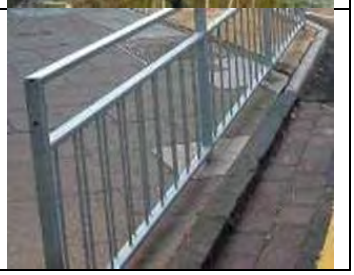
A.1 Drainage Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Balancing Pond	A catchment area adjacent to a carriageway to collect surface water run-off following heavy rain and subsequently control its discharge into a drainage system to prevent flooding, can include attenuation or SUDS ponds. Some ponds are designed to hold water permanently, some are designed to be largely dry.	Area	BP	
Catchpit	A chamber with a sump or pit to collect silt or solid material and prevent it from blocking inaccessible parts of the drains. It may have a manhole cover or metal grating cover, similar, but larger in size than a gully.	Point	CP	
Combined Kerb and Drainage	Monolithic kerb-drains have an internal drainage channel within the pre-cast concrete or metal kerb unit.	Linear	KD	
Counterfort Drain	A field drain filled with granular material such as large stone or gravel, which may be a laid over a porous or perforated pipe. Counterfort Drains are only found running down the slope of an embankment or a cutting.	Area	CD	
Ditch	A trench adjacent to a carriageway for drainage, generally running parallel to the carriageway.	Linear	DI	
Drainage Ancillary Item	Ancillary equipment associated with road drainage including: • Aprons, • Spillways, • Grilles, • Tidal Flaps, • Headwalls, • Trash Screens, • Penstocks, • Valves, • Sluices, • Watergates, • Flow Control Devices and	Point	AI	

Asset Item	Description	Asset Shape	Asset Code	Example Image
	• Pumps			
Drainage Channel	A narrow longitudinal strip, generally near the edge of the carriageway, constructed to carry and lead away surface water.	Linear	CH	
Filter Drain	A filter drain is surrounded by granular material which remains visible (such as gravel), within which may be laid a porous or perforated pipe. Filter drains are usually found adjacent and running parallel to a carriageway (in either the verge or central reserve).	Linear	FD	
Grip	A shallow trench across the verge of a road to lead surface water away from the carriageway.	Point	GP	
Gully	A chamber at the side of the road connected to a drainage system to receive surface water and to trap debris. The chamber is usually covered by a grating.	Point	GY	
Interceptor /Separator	A pit with a built-in filter to prevent unwanted detritus and chemicals from entering the system. It may have a manhole cover or metal grating cover.	Point	SP	
Manhole	A chamber constructed to give access to a drain, sewer, or other underground service.	Point	MH	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Piped Drainage	An underground drainage system that uses drainpipes to carry surface water collected through drainage elements such as Gullies, Separators, Soakaways, Manholes, and field drains, to the outfall.	Linear	PD	
Piped Grip	A piped conduit across the verge of a road to lead surface water away from the carriageway.	Linear	PG	
Small Culvert	An enclosed channel or large pipe for water to flow under or alongside the trunk road. A Small Culvert shall either span or have a diameter less than or equal to 0.9 metres (corrugated steel) or 2.0 metres (any other material). Culverts may also make provision for pedestrian, wildlife, or livestock movements.	Linear	CV	
Soakaway	A chamber provided in a drainage system, normally with perforated walls or gravel filled chamber, enabling water to dissipate into the ground while collecting silt or solid material in its chamber. May be buried with no visible surface features or it may have a manhole cover or metal grating cover.	Point	SO	

A.2 Fences & Barriers Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Fence/ Wall/ Barrier	A boundary fence, wall or barrier which runs alongside the carriageway for screening noise, headlight glare or to prevent access.	Linear	FB	
Pedestrian Guardrail	A protective fence usually on the edge of a footway intended to prevent pedestrians from stepping on to the carriageway or other hazardous areas.	Linear	PR	

Traffic Control Barrier	A moveable barrier or gate which can control the flow of traffic or close sections of the road in severe weather conditions.	Point	CB	

A.3 Geotechnical Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Anchor /Bolt /Dowel	Anchors/Bolts/Dowels are used to stabilise Rock Slopes. They are designed to sustain a specific load for a specific design life. Anchors and Bolts are tensioned to provide active support. Anchors have a wide range of structural applications and tend to be longer and stronger than Bolts which are primarily confined to rock stabilisation. Dowels are not tensioned and provide passive support. Anchors may also be used to provide support or fixings for Structures or other SGM's.	Area	AN	 
Barrier Fencing System	Barrier Fencing Systems are freestanding fences used to contain rockfalls and landslides to prevent them reaching the road or other assets. They may be located on the slope, on a berm on the slope, at or near the toe of the slope, or at or near the crest of the slope. Many are proprietary engineered systems designed to retain specific forces over a specific design life. Although ad-hoc barriers with a containment function may also be installed.	Area	GB	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Debris Trap	Debris Traps comprise earthwork bunds, ditches or pits constructed to contain rock falls, landslides or debris flows and prevent them reaching the road. Some may have additional functions such as drainage. More recent Debris Traps are designed to accommodate a specific volume/mass/energy of material.	Area	DT	 
Earthwork Slope	Earthwork Slopes are engineered slopes formed by the removal or placement of soil, rock or fill material using earthworks processes (excavation, filling, compaction). The principle types of earthwork are: • Embankments – supporting a carriageway raised above original ground level. • Cuttings – accommodating a carriageway below original ground level. • Bunds – generally small embankments for a purpose other than supporting the carriageway, for example for drainage or environmental purposes. Earthwork Slopes are designed to be inherently stable at a specific slope angle, but variability in and degradation of the natural materials of which they are made and the environmental conditions in which they perform may lead to instability.	Area	ES	 
Granular Replacement	Granular Replacement is used to temporarily remediate a slope failure where other solutions are not practicable. The failed or weakened slope material is excavated and replaced with a coarse granular fill having a higher friction angle to restore stability.	Area	GR	
Land Slope	Land Slopes are natural slopes generally out with the road boundary which have been assessed by the Scottish Road Network Landslide (SRNL) Study as posing a landslide risk. Higher-risk Land Slopes are actively managed and SGM's may have been applied.	Area	GLS	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Monitoring Equipment	Monitoring Equipment is installed to measure and collect data about characteristics of slopes and/or provide warnings of certain activities.	Point	GM	
Protection/ Rigid Support	Protection/Rigid Support covers a range of rigid support/protection constructions including: • Retaining walls <1.5m (taller retaining walls are deemed to be Structures), • Buttresses, • Beams, columns, props, • Dentition, • Revetments, • Sprayed concrete facings (except where part of a Soil Nailing System), • Riprap and armourstone as toe ballast or erosion protection. Any rigid construction (not deemed to be a Structure) which has a supporting or protecting function should be recorded. More recent applications are designed to appropriate codes for a specific design life.	Area	GP	 
Reinforced Soil System	Reinforced Soil Systems consist of fill with reinforcing bars/strips/sheets, usually attached to a stabilised facing, which permits a steeper slope angle than could be achieved with unreinforced fill. Many are proprietary engineered systems with a specific design life, but ad-hoc mesh/geotextile-based reinforcing/facing systems should be recorded. Reinforced soil slopes steeper than 70 degrees and with hard facings should be recorded as a Structure.	Area	RS	 
Rock Netting	Rock Netting Systems comprise netting fixed with anchors and ropes and are designed to manage rock falls in two ways: • Draped netting allows falls to occur but contains them close to the face and toe • Fixed netting retains detached rock on the face and prevents it from falling Many are proprietary engineered systems designed to contain or retain specific particle sizes for a specific design life but ad-hoc netting with a containment function should be recorded.	Area	RN	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Rock Slope	Rock Slopes are generally man-made slopes formed by the removal of rock. They can be stable at much steeper slope angles than Earthwork Slopes or Land Slopes. Recent Rock Slopes are engineered to be more stable than older Rock Slopes. Although, they are all subject to weakening and degradation by natural weathering.	Area	GRC	
Soil Nailing	Soil Nailing Systems comprise an array of soil nails usually with a protective facing which together permit a steeper slope angle than could be achieved by the unreinforced slope. Many are engineered systems designed to codes and based on proprietary nails, with a specific design life.	Area	SN	

A.4 Landscape Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Bulb Area	An area of naturalised or planted bulbs of ecological or environmental value, usually found within grassed verges, cuttings, or embankments.	Area	BB	
Grassed Area	A defined area of grass cover ranging from highly maintained road verges or feature areas to unimproved, low maintenance grasslands which are often more remote from the carriageway or covering embankments or cuttings.	Area	GA	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Hedge /Hedgerow	Distinct linear planting strips of single or mixed species, with or without trees. Includes: • Hedge - intended to be formally shaped and maintained. • Hedgerow - defined as informal or rough linear planting strips of single species or a mixture of wild shrubs and occasional trees, typically rural in character and which are not intended to be formally shaped and maintained.	Linear	HG	
Invasive and Injurious Species	An area where there is evidence of Invasive or Injurious species.	Area	IV	
Scrub	An area of self-seeded vegetation, often comprising gorse, broom, birch, alder and/or bramble up to a height of approximately 3m.	Area	SC	
Shrub	An area of small to medium-sized woody plants that are generally smaller than trees. Can vary between the following: • Ornamental shrub areas are planted to improve the visual element of the road corridor. Usually associated with cities, towns, villages, and urban roundabouts. • Informal shrub areas are native shrub species (excluding gorse and broom) informally planted or developing along the road corridor; up to a height of approximately 3.5m. • Wetland shrub areas are planted or developing areas associated with water margins and can include native and non-native species.	Area	SR	
Tree	A perennial plant with a woody self-supported trunk (or trunks, if multi stemmed tree) and branches. Can include the following: • Lone trees with no interlocking canopy. • Sporadic trees with a loose arrangement of established trees with or without interlocking canopies. • Avenue trees where there is a formal alignment of trees in a linear form, often at regular spacing. • Informal linear tree belt. • Individual trees within a Hedge/Hedgerow or Woodland area.	Point	TR	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Wetland	An area associated with permanent or semi-permanent water from open water bodies to areas of boggy ground.	Area	WT	
Wildflower Area	An area of sown, naturalised or naturally occurring herbaceous and/or flowering ground cover species. Will be of ecological or environmental value. Found within grassed verges, cuttings, or embankments.	Area	WF	
Wildlife Mitigation Measure	Intended to mitigate the potential impact of the road or traffic on wildlife.	Area	WM	
Woodland	Grouping of predominantly tree species. Can include an understory of shrub species and a ground cover layer.	Area	WD	

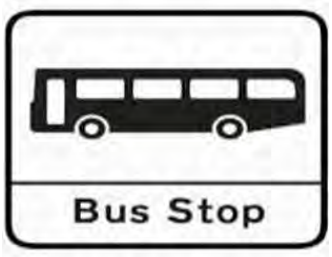
A.5 Lighting & Electrical Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Cable Chamber	A chamber associated with road lighting, traffic signals, detector loops and other roadside apparatus.	Point	CC	
Electrical Component of Bollard	The illuminated component of the Bollard powered from within by an electrical light source.	Point	BLE	
Electrical Component of Cabinet/ Pillar	A cabinet containing electronic and/or communications, traffic signal equipment or similar equipment.	Point	CPE	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Electrical Component of Drainage Ancillary Item	The electrically powered components of Drainage Ancillary Items	Point	DAe	
Electrical Component of Roadside Service	Electrically energised apparatus associated with Roadside Services including: • Frost protection heaters; • Water heaters; • Luminaires.	Point	SV	
Electrical Component of Structure	Electrically powered elements of a Structure. Includes cathodic protection, gantries, and movable bridge mechanism.	Linear	STe	
Electrical Component of Traffic Control Barrier	Electrically powered elements of a traffic control barrier.	Point	CBe	
Electrical Component of Traffic Sign	Illuminated or electrically powered elements of a traffic sign, Includes lit signs, variable message signs, rotating prism signs and similar.	Point	TSe	 
Electrical Ducting and Cable	An underground ducting system to carry electrical cables to electrically powered apparatus.	Linear	ED	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Lighting Point	A lighting installation consisting of a lantern housing, lamp and usually a column.	Point	LP	
Navigation Aid	Electrically energised marine navigation radar beacons.	Point	NA	
Navigation Light (Sea and Air)	Electrically energised Navigation Lights for Sea and Aircraft.	Point	SN	

A.6 Miscellaneous Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Bus Stop	A location marked for buses to collect passengers which may incorporate a pole with bus stop flag, lane markings and/or shelter.	Point	BS	
Equipment Storage Location	A location normally on or very close to the Trunk Road Network where equipment and/or materials are stored. Storage locations are normally locked sheds or small buildings but may incorporate uncovered areas and used to store for example signs for diversion routes and other equipment and/or materials that may be needed in emergency situations.	Point	ESL	
Roadside Service	Roadside services are buildings and/or enclosures providing a service or shelter to other apparatus including: • Administration buildings • Roadside services such as toilets, car parking or information points • Control building e.g. pump houses, control points.	Point	SV	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Salt Bin	A bin containing salt or grit for use during winter conditions.	Point	SH	

A.7 Network Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Carriageway	Road constructed for use by vehicular traffic. Carriageway includes turning lanes, bus lanes, crawler lanes and acceleration/ deceleration lanes.	Linear	CW	
Central Island	An obstruction built in the road to split traffic into lanes and/or to provide a pedestrian refuge.	Area	CI	
Central Reserve	An area that separates the opposing carriageways of a dual carriageway or motorway.	Linear	CR	
Crossover	A pedestrian or vehicular crossing of a footway/cycleway, verge, central island, or central reserve. This includes minor junctions, driveways, field entrances and central reserve crossovers.	Point	XO	
Layby	A part of the road set aside for vehicles to turn of the traffic lanes and wait for short periods.	Linear	LB	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Node Marker Point	A Node Marker Point is used to show the position of the start and end sections on the trunk road network and is formed of 2 or 3 markers on the carriageway.	Point	NP	

A.8 Pedestrian & Cycle Facilities Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Cycle Facility	A part of the road or footway, normally within the trunk road boundary, specifically for the use of bicycles.	Linear	CT	
Footway	A footway is a constructed off-carriageway area exclusively for the use of pedestrians.	Linear	FW	

A.9 Road Markings, Road Studs & Kerbs Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Kerbs	A border, usually upstanding at the edge of carriageways, hard shoulders, and around central islands.	Linear	KB	
Road Marking Hatched	Road markings on the carriageway with a distinctive hatched design.	Linear	LH	

Road Marking Longitudinal	Continuous road markings which lie along the carriageway or carriageway edge.	Linear	LL	
Road Marking Transverse & Special	A standard-length road marking positioned on the carriageway, kerb, or footway.	Linear	RM	
Road Studs	Colourised, lit, or reflective studs placed on or into the carriageway to assist the user with lane guidance and delineation.	Linear	RS	

A.10 Technology Equipment

Asset Item	Description	Asset Shape	Asset Code	Example Image
Cabinet/ Pillar	A cabinet or pillar, usually containing electronic and/or communications, traffic signal equipment or similar equipment.	Point	CA	
CCTV/ Camera	The post and foundation supporting a closed-circuit television camera, speed camera or other camera. The camera apparatus is maintained by TSIOS.	Point	TV	
Detector Loop	A wire loop embedded in the road surface to detect the presence or speed of a vehicle (shown as black lines on the lane in the picture). Detector loops are normally associated with traffic signals or automatic traffic counters.	Point	DL	

Emergency Telephone Box	A telephone box and booth located adjacent to the carriageway for use in an emergency.	Point	TB	
Weather Station	A remote electronic monitoring device to detect road surface and atmospheric conditions to give early warning of ice and frost.	Point	WS	

A.11 Traffic Signs & Signals Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Bollard	A device placed on a refuge, traffic island or verge to warn drivers of those obstructions or to prevent the passage of vehicles.	Point	BL	
Pedestrian Crossing	A transverse strip of carriageway marked to indicate where pedestrians have priority to cross the road.	Point	PX	
Reference Marker Post	Physical markers, typically located on the hard shoulder or central reserve, showing the direction to the nearest emergency telephone every 100m on motorway sections. They can also be used to show the location of various other assets such as: • Culverts, • Bridges, • Balancing Ponds, • Laybys.	Point	RF	
Snow Pole	Poles mounted at the side of the road to aid snow clearing operations.	Point	SR	

Asset Item	Description	Asset Shape	Asset Code	Example Image
Traffic Sign	Any object or device (whether fixed or portable) for conveying to traffic on roads or any specified class of traffic; warnings, information, requirements, restrictions, or prohibitions of any description.	Point	SG	
Traffic Signal-Controller	A control unit controlling several associated Traffic Signal components.	Point	TSC	
Traffic Signal-Signal Apparatus	Normally a pole holding one or more of the following assets: • Traffic Signal Head • Traffic Detector • Pedestrian Signal Head • Pedestrian Push Button • Pedestrian Detector	Point	TSP	

A.12 Vehicle Road Restraint System Asset Group

Asset Item	Description	Asset Shape	Asset Code	Example Image
Arrester Bed	Area of land adjacent to the road filled with a particular material to decelerate and arrest errant vehicles.	Linear	VRa	
Crash Cushion	A crash cushion (vehicle attenuator) is a device that absorbs energy at a controlled rate; found installed in front of a structure or mounted on the end of a safety fence/barrier, facing oncoming traffic.	Point	VRc	
Safety Fence/ Barrier	Safety Fence/Barriers appear on the trunk road network in several forms: creating an upstanding barrier running parallel to the carriageway (adjacent to or within the central reserve). The main purpose is to contain and redirect errant road vehicles to reduce the risk of them crossing central reservations or leaving the carriageway.	Linear	VRs	

Transition	Provides a gradual change in performance from one road restraint system to another, and to prevent the hazards of abrupt variations.	Linear	VRt	

A.13 Other Asset Items

Asset Item	Description	Asset Shape	Asset Code
Designated Site	An area denoting where Special Inspection Requirements exist which are not covered by other inventory items. The intent of this item is to capture special inspections that are not covered by the existing inventory inspections and ensure that where required the inspection activities continue to be ordered, carried out, reported, and recorded. Examples may include: • Trial panels of pavement construction where a long monitoring and reporting regime has been implemented. • Trial or comparison panels of pavement where no monitoring and reporting regime has been implemented but need to be recorded for future reference. • Items where specific inspection manuals have been created with inspection activities not covered by the Inspection Manual.	Area	SI
Health and Safety File	Polygon area denoting outline of a major scheme where health and Safety files are recorded.	Area	HS
Section	The network shall be defined by georeferenced lines and attributes defining the shape and extents of the Network.	Linear	NR
Special Site	An area denoting where Special Maintenance Requirements exist which are not covered by other inventory items. The intent of this item is to capture special maintenance activities that are not covered by the existing Contract requirements and ensure that where required maintenance activities continue to be ordered, carried out, reported, and recorded. Examples may include: • Geotechnical assets that require regular cleaning, e.g. rock netting or debris traps that require cleaning more frequently than every 5 years.	Area	SM

Appendix B: Asset Condition Criteria

B.1 Drainage Asset Group

Balancing Pond

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of disturbance to the surrounding verge area. • Evidence of detritus on banks where the Balancing Pond has been cut or cleared.
Good (G)	• No visual defects and few visible signs of deterioration. • Minor weathering to constructed elements.
Fair (F)	• Evidence of initial deterioration, including minor erosion to pond outlet, banks, wall, or bunds.
Poor (P)	• Silting in ponds causing loss of storage capacity. • Damage or severe erosion of pond banks, walls, or bunds. • Blockage of inlet feeder pipe.
Very Poor (VP)	• Damage or obstruction to pond outlet, excess water overflowing. • Protective fencing at deep water sites damaged.

Catchpit, Gully, Interceptor/Separator, Manhole, Soakaway

Condition Grade	Description
Excellent (E)	• New or nearly new. • May show obvious signs of new construction and differences in the condition and colour of the surrounding carriageway surface.
Good (G)	• No visual defects with few visible signs of surface deterioration. • Very minor signs of weathering.
Fair (F)	• Minor rocking and projections. • Level different with carriageway not exceeding 10mm. • Relative movement under load not exceeding 10mm. • Minor differential between component levels. • Minor corrosion of ironwork. • Minor deterioration of the surface around the cover.
Poor (P)	• Projections greater than specified maximum (20mm). • Level difference with carriageway exceeding 10mm. • Rocking under load. • Worn covers. • Major differential in component levels. • Moderate corrosion of ironwork. • Longitudinal gaps greater than 20mm that may cause danger to cyclists or pedestrians.
Very Poor (VP)	• Missing, cracked or broken covers. • Rocking grating/cover causing intrusive noise in urban areas. • Major corrosion of ironwork. • Collapse of chamber, gully frame and /or major deterioration of the surface around the cover.

Combined Kerb and Drainage, Drainage Channel

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • May show obvious signs that it has been recently constructed/installed (i.e. no discolouration to the surfaces).
Good (G)	• No visual defects and few visible signs of surface deterioration. • May have slight discolouration to the channel surface.
Fair (F)	• Minor cracking/deformation/misalignment of components. • Presence of detritus/refuse/weed growth/roots.
Poor (P)	• Moderate cracking/deformation or poor alignment of channel blocks allowing water ingress.

	• Evidence of blockage or faults of the piped drainage system that may prompt further investigation – this may include flooding at entry points, dry outlets, wet areas on verges. • Substantial corrosion of metal grating.
Very Poor (VP)	• Severe cracking/deformation or misalignment of components which impact the structural/hydraulic performance of the asset. • Severe corrosion of metal grating. • Failure or incorrect operation of equipment associated with outfall. • Failure of surrounding surface areas.

Counterfort Drain, Filter Drain

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • New, clean chippings with no discolouration. • Possible evidence of loose chippings within the surrounding carriageway area.
Good (G)	• No visual defects and few visible signs of deterioration. • May be slight discolouration to the chippings. • Level of the drain would have settled slightly below the surrounding areas.
Fair (F)	• Evidence of initial deterioration, including minor formation of silt on the surface. • Minor vegetation growth. • Drain still functioning correctly.
Poor (P)	• Extensive vegetation growth, extensive silt crust on the surface. • Ponding in surrounding areas.
Very Poor (VP)	• Filter material displaced onto the carriageway or hard shoulder causing a different in the surface level to the drain (>100mm). • Filter material requires replacement. • Evidence of severe ponding.

Ditch

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of disturbance to the surrounding verge area where the ditch has been cut or cleared. • Evidence of detritus on banks where the ditch has been cleared.
Good (G)	• No visual defects or blockages. • Few visible signs of deterioration.
Fair (F)	• Evidence of initial deterioration, including minor silting/weed growth; but does not impede water flow. • Minor blockages that do not significantly affect the effective operation of the Ditch.
Poor (P)	• Bank erosion, overgrown vegetation, presence of debris and rubbish. • Blockages to pipe links on drainage runs. • Minor disruption to the water flow. • Extensive cracking to concrete on lined ditches.
Very Poor (VP)	• High levels of silt, debris and rubbish causing blockages. • Water stagnation. • Defective causing nuisance to adjacent land users. • Collapse of the banks causing blockage and severely impeding water flow. • Severe cracking to concrete on lined ditches.

Drainage Ancillary Item

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • May show obvious signs that it has been recently constructed/installed (i.e. no discolouration to the surfaces).
Good (G)	• No visual defects and few visible signs of surface deterioration. • May have slight discolouration to the surface. • Equipment operating correctly.
Fair (F)	• Evidence of initial deterioration including minor cracking/deformation/misalignment of components. • Presence of some refuse, weed growth, roots, silt, grit, or other detritus. • Equipment operating correctly.
Poor (P)	• Moderate corrosion or misalignment of components. • Moderate cracking of headwalls and aprons or deformation/misalignment of grills and screens. • Equipment not functioning correctly. • Excessive accumulation of silt, grit, or detritus.
Very Poor (VP)	• Severe corrosion or misalignment of components. • Severe cracking of headwalls and aprons or deformation/misalignment of components adversely affecting the structural/hydraulic performance or durability of components. • Equipment nearing end of serviceable life. • Malfunction of the equipment. • Excessive accumulations of silt, grit, or detritus.

Piped Grip

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of disturbance to the surrounding areas where construction has taken place.
Good (G)	• No visual defects or blockages, with very few signs of deterioration.
Fair (F)	• Evidence of initial deterioration, including minor cracking/deformation/misalignment of Piped Drainage system. • Presence of detritus/refuse/weed growth/roots. • Minor build-up of silt/detritus resulting in minor disruptions to water flow.
Poor (P)	• Evidence of blockage or faults to the Piped Drainage system – i.e. flooding at the entry points, dry outlets, wet areas on verges. • Build-up of silt/detritus that impedes the water flow.
Very Poor (VP)	• Severe cracking/deformation/misalignment affecting the structural/hydraulic performance. • Failure or deformation of surrounding surface areas. • Severe blockages causing standing water on surrounding carriageway.

Small Culvert

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious defects. • Evidence of recent construction (i.e. no discolouration to the surfaces). • Signs of disturbance to the surrounding areas that indicate recent construction.
Good (G)	• No visual defects and few visible signs of surface deterioration.
Fair (F)	• Evidence of initial deterioration, including superficial cracking to the structure. • Minor silting or vegetation growth around the structure. • Slight discolouration to the constructed areas of the structure.
Poor (P)	• Moderate cracking or deformation. • Some silting and vegetation growth which impacts the flow of water. • Blockages to any fitted grills across the culvert entrance.
Very Poor (VP)	• Required replacement/restoration.

	• Severe cracking/deformation. • Structure in danger of collapse. • Major blockages restricting the flow of water, may result in flooding to surrounding areas.

B.2 Fences & Barriers Asset Group

Fence/Wall/Barrier, Pedestrian Guardrail, Traffic Control Barrier

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Surrounding grassed areas showing obvious disturbance sign due to construction. • Footway or constructed verge areas around the base of posts are in new condition.
Good (G)	• No visual defects and few visible signs of deterioration. • Minimal weathering or pollution from passing traffic.
Fair (F)	• Evidence of initial deterioration, including minor corrosion, superficial damage. • Loss of paint, galvanizing or other protective system. • Minor damage or individual missing rails on fences in rural areas or minor damage to infill panels in Pedestrian Guardrails.
Poor (P)	• Poor structural condition. • Corroded metal that affects function or increases deterioration. • Rotten or missing panels/posts. • Cracking or spalling of brickwork/concrete that affects functionality. • Lack of tension in a strained wire fence. • Non stockproof fencing. • Vandalism or damage that foes not significantly affect the safety or function of the asset.
Very Poor (VP)	• Damage, vandalism, or corrosion that causes the asset to be structurally unsound, or unsafe to road users. • Sections of missing panels.

B.3 Geotechnical Asset Group

Earthwork Slope, Rock Slope

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Signs of recent construction to the surrounding areas of the embankment, cutting or retaining wall (i.e. no or minimal vegetation growth).
Good (G)	• No visual defects and few visible signs of surface deterioration. • Vegetation growth in the surrounding areas.
Fair (F)	• No deformation of profile. • Good vegetation coverage. • Some runoff rills. • No visible drainage issues. • Minor road undulations due to underlying peat.
Poor (P)	• Minor deformation of profile (e.g. terracettes). • Vegetation coverage incomplete. • Some gullying. • Localised/minor undercutting of toe. • Evidence of poor drainage (e.g. damp areas, hydrophilic vegetation, and desiccation cracks). • Minor slides that do not interfere with carriageway or cause danger to road users. • Presence of slope bulge suggesting future failure.
Very Poor (VP)	• Significant deformation of profile (e.g. bulging, tension cracks, leaning trees/posts/structures, material loss, uprooted trees). • Significant erosion (e.g. gullying, undercutting). • Evidence of poor drainage (e.g. seepage, flooding). • Rockslides interfering with the carriageway, causing danger to road users, or impacting

	surrounding public properties.

Land Slope, Anchor/Bolt/Dowel, Barrier Fencing System, Debris Trap, Granular Replacement, Protection and Rigid Support System, Reinforced Soil, Rock Netting, Soil Nailing

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of construction with no or minimal vegetation growth.
Good (G)	• No visual defect with few visible signs of surface deterioration.
Fair (F)	• No deformation of profile. • No visible issues.
Poor (P)	• Minor deformation of profile. • Some vegetation coverage.
Very Poor (VP)	• Significant deformation of profile.

B.4 Landscape Asset Group

Bulb Area

Condition Grade	Description
Excellent (E)	• Healthy, growing well with a dense cover of desirable species, and is of significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy although there are signs of minor damage/encroachment of undesirable species/thinning of the bulbs.
Poor (P)	• Showing significant signs of degradation, with clear evidence of damage/encroachment of undesirable species/thinning of the bulbs.
Very Poor (VP)	• Highly degraded.

Grassed Area

Condition Grade	Description
Excellent (E)	• Healthy, growing well with a dense cover of desirable species, and is of significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy although there are signs of minor damage/encroachment of undesirable species/thinning of patches within the sward.
Poor (P)	• Showing significant signs of degradation, with clear evidence of damage/encroachment of undesirable species/thinning of patches within the sward.
Very Poor (VP)	• Highly degraded.

Hedge/Hedgerow, Scrub, Shrub

Condition Grade	Description
Excellent (E)	• Healthy, growing well, is free from defects, and represents a high-quality asset that adds significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy and growing reasonably well although there are signs of minor damage/decay/disease or some weed growth.
Poor (P)	• Showing significant signs of decay, disease or damage, significant weed growth, or is dying.
Very Poor (VP)	• Highly degraded.

Tree

Condition Grade	Description
Excellent (E)	• Healthy, growing well, is free from defects, and represents a high-quality asset that adds significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy and growing reasonably well although there are signs of minor damage/decay/disease.

Poor (P)	• Showing significant signs of decay, disease, or damage, or is dying.
Very Poor (VP)	• Is dead.

Wetland

Condition Grade	Description
Excellent (E)	• Healthy, water quality is high, associated vegetation is growing well, free from defects, and represents a significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy although there are signs of minor damage/decay/degradation and some weed growth.
Poor (P)	• Showing significant signs of degradation, decay, or damage, and/or significant weed growth.
Very Poor (VP)	• Highly degraded.

Wildlife Mitigation Measure

Condition Grade	Description
Excellent (E)	• Performing well and is of high value to the local habitat area.
Good (G)	• Intact, free from defects/obstructions and sill meeting its original mitigation objectives.
Fair (F)	• Generally intact, largely free from defects/obstruction and is broadly capable of meeting its intended function.
Poor (P)	• Showing significant signs of decay, damage, or obstruction and is materially compromised in its ability to meet its original function.
Very Poor (VP)	• Completely degraded and is no longer serviceable.

Woodland

Condition Grade	Description
Excellent (E)	• Healthy, growing well, is free from defects, and represents a high-quality asset that adds significant value to the local environment.
Good (G)	• Healthy, growing well and free from defects.
Fair (F)	• Generally healthy and growing reasonably well although there are signs of minor damage/decay/disease, and/or weed growth.
Poor (P)	• Showing significant signs of decay, disease, or damage, or is significantly overgrown with weeds, or is dying.
Very Poor (VP)	• Highly degraded.

B.5 Pedestrian & Cycle Facilities Asset Group

Cycle Facility, Footway

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of construction with no or minimal vegetation growth.
Good (G)	• An even and comfortable surface. • Free from defects and with few visible signs of surface deterioration.
Fair (F)	• Free from safety defects but displaying poor visual aesthetics. • Evidence of initial deterioration (i.e. minor cracking, crazing, and fretting). • Minor isolated spot defects. • Poor quality reinstatements including minor different in level. • Minor settlement/unevenness or filler loss on bloc paved areas.
Poor (P)	• Extensive cracking. • Failed patching • Potholes. • Standing water (>10mm deep). • Small areas of depression (>25mm) or slab trips (>20mm). • Extensive missing filler and/or loose blocks. • Extensive wearing of screed for cycle facilities.

Very Poor (VP)	• Requires replacement/restoration. • Effects include extensive and severe surface failure, cracking, distortion, or slap trips. • Complete loss of screed for cycle facilities.

B.6 Road Markings, Road Studs & Kerbs Asset Group

Kerbs

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • Obvious signs of construction with no or minimal vegetation growth.
Good (G)	• No visual defect and few visible signs of kerb deterioration. • Slight signs of weathering.
Fair (F)	• Evidence of initial deterioration, including minor abrasions/minor cracking and misalignment. • Projections less than specified maximum (20mm vertical, 50mm horizontal). • Presence of detritus/refuse/weed growth.
Poor (P)	• Defects including projections greater than specified maximum (20mm vertical, 50mm horizontal). • Loose or rocking. • Poor alignment including loss of support or surrounding carriageway/footway. • Severe cracking leading to water ingress.
Very Poor (VP)	• Deteriorated and in need of replacement/restoration. • Defect include severe disintegration, misalignment, and many loose rocking/missing kerbs stones. • Blocked drainage access.

Road Marking Hatched, Road Marking Longitudinal, Road Marking Transverse and Special

Condition Grade	Description
Excellent (E)	• New or nearly new.
Good (G)	• No visual defects and with very few visible signs of deterioration. • Good night-time conspicuity. • Very little wear.
Fair (F)	• Some initial visible wear and/or fair night-time conspicuity characteristics.
Poor (P)	• Visible but has bare spots and poor night-time conspicuity.
Very Poor (VP)	• Barely visible.

Road Studs

Condition Grade	Description
Excellent (E)	• New or nearly new. • No missing of defective studs.
Good (G)	• Few defects or visible signs of deterioration during either the day or night. • Up to 5% defective studs (e.g. showing wear/corrosion/missing/sinkage).
Fair (F)	• Evidence of initial deterioration. • Between 5%-10% defective studs (e.g. showing wear/corrosion/missing/sinkage).
Poor (P)	• Between 10%-25% defective studs (e.g. showing wear/corrosion/missing/sinkage). • Between 10%-25% of studs with poor reflective qualities.
Very Poor (VP)	• More than 25% defective studs (e.g. showing wear/corrosion/missing/sinkage). • More than 25% of studs with poor reflective qualities. • Any single missing studs in double white lines (legal requirement areas) or loose/displaced studs or loose casings on carriageway.

B.7 Traffic Signs & Signals

Bollard, Reference Marker Post

Condition Grade	Description
Excellent (E)	• New or nearly new. • May show obvious signs that the Bollard/Reference Marker Post (i.e. no discolouration of the surface finish). • Footway or verge areas around the base of the bollard are in new condition compared with surrounding areas.
Good (G)	• No visual defects with few visible signs of surface deterioration. • Surface finish may show signs of weathering.
Fair (F)	• Evidence of initial deterioration including minor discolouration and damage to the surface but otherwise in fair overall condition.
Poor (P)	• Misalignment or damage to the Bollard/Reference Marker Post.
Very Poor (VP)	• Vandalism or damage. • Missing or broken Bollard/Reference Marker Post.

Snow Pole

Condition Grade	Description
Excellent (E)	• New or nearly new. • May show obvious signs that the Snow Pole (i.e. no discolouration of the surface finish). • Footway or verge areas around the base of the bollard are in new condition compared with surrounding areas.
Good (G)	• No visual defects with few visible signs of surface deterioration. • Surface finish may show signs of weathering.
Fair (F)	• Evidence of initial deterioration including minor discolouration and damage to the surface but otherwise in fair overall condition.
Poor (P)	• Misalignment or damage.
Very Poor (VP)	• Vandalism or damage. • Missing.

Traffic Sign

Condition Grade	Description
Excellent (E)	• New or nearly new. • May show obvious signs that it has been recently installed (i.e. no discolouration of the surface finish). • Obvious signs of disturbance in the surrounding grassed areas. • Footway or constructed verge areas around base of posts are in new condition compared with surrounding areas.
Good (G)	• No visual defects and few visible signs of deterioration. • Surface finish may show signs of weathering.
Fair (F)	• Evidence of initial deterioration including minor colour fade.
Poor (P)	• Misalignment or major obscuration to the road user. • Poor condition of associated post and fixings.
Very Poor (VP)	• Defect represent immediate or imminent failure. • Structural failure of the sign or fixings. • Missing/obsolete sign. • Warning/regulatory sign damaged, defective, or displaced.

Traffic Signal – Controller, Traffic Signal – Signal Apparatus

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious defects. • Shows obvious signs the signals are new (i.e. no discolouration of the surface finishes). • Obvious signs of disturbance in the surrounding grassed areas.

	• Footway or constructed verge areas around the base of posts appear new in comparison with surrounding areas.
Good (G)	• No visual defects and few visible signs of surface deterioration. • Surface finishes may show signs of weathering.
Fair (F)	• Evidence of initial deterioration including minor visible deterioration. • Signal element still functioning. • Still fit for purpose.
Poor (P)	• Ongoing deterioration. • Minor intervention required, and substantial cost expected if delayed. • Misaligned to road user.
Very Poor (VP)	• Damage due to vandalism or a vehicle incident. • Equipment nearing end of serviceable life. • Signal failure. • Inadequate light phasing.

B.8 Vehicle Road Restraint System Asset Group

Arrester Bed

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • New, clean chippings with no discolouration. • Possible evidence of loose chippings in the surrounding area or evidence of disturbance to the surrounding grassed areas.
Good (G)	• No visual defects and few visible signs of deterioration. • Possible slight discolouration to the chippings.
Fair (F)	• Evidence of initial deterioration, including gravel compaction or evidence of vehicle use. • Minor vegetation growth. • Arrester Bed still functioning appropriately.
Poor (P)	• Extensive vegetation growth. • Extensive compaction on the surface or deterioration to the approaches. • Arrester Bed still functioning but capacity to stop heavy-duty vehicles reduced.
Very Poor (VP)	• Extensive weed growth. • Extensive displacement or compaction of gravel or extensive deterioration to the approaches. • Substantial reduction in the capacity of the Arrester Bed to stop heavy-duty vehicles.

Crash Cushion

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • May have obvious signs of disturbance to the surrounding grassed areas. • Footway or constructed verge areas around the base of posts may appear new in comparison with surrounding areas.
Good (G)	• No visual defects and few visible signs of surface deterioration. • Minimal weathering or pollution from passing traffic.
Fair (F)	• Evidence of initial deterioration including minor corrosion/visual deterioration/damage.
Poor (P)	• Poor structural condition. • Corroded metal that impacts the function or facilitates deterioration. • Minor damage that does not impact the assets function. • Missing bolts.
Very Poor (VP)	• Damage that impacts the assets function. • Broken/deformed/missing/loose/cracked components that impact the assets function. • Structurally unsound. • Missing tension bolts. • Road Restraint Risk Assessment Process (RRRAP) failure. • Wooden posts/presence of ‘P’ terminals or ‘fishtails’.

Transition

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • May show signs of indicating recent construction (i.e. disturbance to grassed areas).
Good (G)	• No visual defects and few visible signs of surface deterioration. • Minimal weathering or pollution from passing traffic.
Fair (F)	• Evidence of initial deterioration including minor corrosion/visual deterioration/damage.
Poor (P)	• Poor structural condition. • Corroded metal that affects function or facilitate deterioration. • Minor damage that does not impact the assets function. • Missing bolts.
Very Poor (VP)	• Asset not visible (e.g. due to overhanging vegetation).

Safety Fence/Barrier

Condition Grade	Description
Excellent (E)	• New or nearly new with no obvious visual defects. • May show signs of indicating recent construction (i.e. disturbance to grassed areas).
Good (G)	• No visual defects and few visible signs of surface deterioration. • Minimal weathering or pollution from passing traffic.
Fair (F)	• Evidence of initial deterioration including minor corrosion/visual deterioration/damage.
Poor (P)	• Poor structural condition. • Corroded metal that affects function or facilitate deterioration. • Minor damage that does not impact the assets function. • Missing bolts.
Very Poor (VP)	• Broken/deformed/missing/loose/cracked components that impact function. • Structurally unsound. • Missing tension bolts.

Appendix C: Routine Signal Inspection Requirements

The following items shall be inspected as part of the Routine Signal Inspection for the applicable assets in accordance with the requirements in section 3.1.3.

	Item
1	Controller operational.
2	Operation of all signal lamps and regulatory signs.
3	Signals stuck.
4	Detector fault monitor lamp illuminated.
5	Operation of pushbuttons and other manual inputs.
6	Illumination of all 'wait' and other indicator lamps.
7	Operation of audible and tactile signals.
8	No gross misalignment of signals or above ground detectors and no obvious deterioration in optical performance of signals.
9	Physical condition of push button units and detector housings.
10	Physical condition of poles, signal heads, support brackets and baking board (including any white edge tapes, etc.).
11	Physical condition of regulatory and variable message signs.
12	Obscuration of signs, signals or above ground detectors by lamp columns, signs, etc.
13	Operation of red lamp monitor circuit.
14	Operation of all user selected and fall-back modes.
15	Maximum green, minimum green, intergreen and pedestrian blackout times.
16	Lamp dimming.
17	Fault log contents.
18	Reversion to fallback mode of operation.
19	Correct operation of all detectors including above ground detector alignment.
20	Operation of all manual panel facilities.
21	Illumination of all manual panel indicators.
22	Operation of cable-less linking.
23	Operation of local links to other apparatus.
24	All equipment clock times.
25	Illumination of and operation of variable message signs.
26	Operation of Speed Assessment or Speed Discrimination Equipment (SA/SDE).
27	Operation of ancillary equipment (e.g. Outstation Monitoring Unit (OMU), Outstation Transmission Unit, etc.).
28	Condition of earth connections, wiring, pole cap assemblies and mechanical support of cables.
29	Condition of cabinet, door seals, locks, and hinges.
30	Condition of cabinet base sealing or gas plinth ventilation as applicable.

31	Accessibility of equipment cabinet.
32	Data sheets and logbooks present in cabinet.
33	Condition of earth connections and wiring to poles.
34	Condition and effectiveness of all bonding and earthing.
35	Physical condition of loop and feeder slots and their sealing.
36	Condition of road markings and studs.
37	Mast arm assembles.

Appendix D: Asset Defect Types

D.1 Drainage Asset Class

Balancing Pond

Defect Type	Defect Code	Category 1 Intervention Level
Blockage of Inlet	INLT	Any blockage causing significant loss of capacity or indicates that flooding of any private property is imminent.
Blockage of Outlet	OUTL	Any blockage causing significant loss of capacity or indicates that flooding of any private property is imminent.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Erosion of Banks/Walls/Bunds	ERSN	Sufficient erosion which could affect capacity or structural integrity.
Flooding	FLOD	Sufficient flooding which could cause damage to structures or services or indicates that flooding of any private property is imminent.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Impact on other required operations	IMOO	Where a restriction poses a risk to people, the environment, or infrastructure.
Life Belt/Ring Missing (if provided)	BELT	Missing if provided.
Malfunction of Outfall Regulating Device	OUTF	Any malfunction of outflow regulating device.
Other	OTHR	
Pollution	POLN	Pollution which could cause harm to people, wildlife, or the environment.
Silted (not at Inlet or Outlet)	SILT	Sufficient accumulation of silt which is causing or could cause deficiencies.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Catchpit, Drainage Channel, Gully, Interceptor/Separator, Manhole

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken or damage cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Cracked	ICRK	Cracked cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.

Defect Type	Defect Code	Category 1 Intervention Level
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Missing Cover	MISV	Missing cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	
Parallel Gratings	PARL	Incorrectly filled gratings where the water bars are parallel to the direction of traffic and likely to constitute a hazard to cyclists.
Rocking under Load	IRLD	Rocking grating or cover in an urban area causing intrusive noise.
Seized	SIEZ	Seized open cover, grating or frame which constitutes a hazard to road users, pedestrians, or cyclists.
Smooth Surface	SMTH	Smooth surface on cover in carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Combined Kerb and Drainage

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken or damage cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Cracked	ICRK	Cracked cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Other	OTHR	
Rocking under Load	IRLD	Rocking grating or cover in an urban area causing intrusive noise.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Counterfort Drain

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Filter Material Displaced	FMDS	Significant displacement of filter material.
Other	OTHR	
Silted	SILT	Sufficient accumulation of silt which is causing or could cause deficiencies.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Ditch

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Collapsed Bank	CLBK	
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Other	OTHR	
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Drainage Ancillary Item

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of private property is imminent.
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Damaged (other than accident damage)	DAMG	Damage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of private property is imminent.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.

Defect Type	Defect Code	Category 1 Intervention Level
Malfunction or Poor Condition	SLUI	Any malfunction causing flooding, blockage, or damage.
Other	OTHR	
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Filter Drain

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.	
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.	
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.	Any abrupt difference in level of ≥20mm on the carriageway or ≥13mm on the footway.
Filter Material Displaced	FMDS	Significant displacement of filter material.	
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.	
Other	OTHR		
Silted	SILT	Sufficient accumulation of silt which is causing or could cause deficiencies.	
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.	

Grip

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken or damaged cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.

Defect Type	Defect Code	Category 1 Intervention Level
Cracked	ICRK	Cracked cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Missing	MISS	
Missing Cover	MISV	Missing cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	
Parallel Gratings	PARL	Incorrectly filled gratings where the water bars are parallel to the direction of traffic and likely to constitute a hazard to cyclists.
Rocking under Load	IRLD	Rocking grating or cover in an urban area causing intrusive noise.
Seized	SIEZ	Seized open cover, grating or frame which constitutes a hazard to road users, pedestrians, or cyclists.
Smooth Surface	SMTH	Smooth surface on cover in carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Piped Drainage

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken or damaged to an extent that constitutes a hazard to road users, pedestrians, or cyclists.
Collapsed	COLP	A collapse which undermines the stability of the asset, represents a risk to network users via impeding the flow of water, leading to flooding, or damaging other assets.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Other	OTHR	
Roots Present	ROOT	

Piped Grip

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken to the extent that it constitutes a hazard to road users, pedestrians, or cyclists.
Cracked	ICRK	Cracked cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Damaged (other than accident damage)	DAMG	Damaged to the extent that it constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Missing Cover	MISV	Missing cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	
Parallel Gratings	PARL	Incorrectly filled gratings where the water bars are parallel to the direction of traffic and likely to constitute a hazard to cyclists.
Rocking under Load	IRLD	Rocking grating or cover in an urban area causing intrusive noise.
Seized	SIEZ	Seized open cover, grating or frame which constitutes a hazard to road users, pedestrians, or cyclists.
Smooth Surface	SMTH	Smooth surface on cover in carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

Small Culvert

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Collapsed	COLP	A collapse which undermines the stability of the culvert, represents a risk to network users via impeding the flow of water, leading to flooding, or damaging other assets.
Cracking	CRCK	Cracking which is causing, or could lead to deficiencies in the culvert, or pose a hazard to network users.

Defect Type	Defect Code	Category 1 Intervention Level
Deformation	DEFM	Deformation which is causing, or could lead to deficiencies in the culvert, or pose a hazard to network users.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, cause damage to other structures or the carriageway, or indicates that flooding of private property is imminent.
Free Flow Impeded	FRFL	Where the flow of water is sufficiently impeded and could lead to flooding, or damage to other assets.
Other	OTHR	
Roots Present	ROOT	
Scour	SCOR	Excessive scour.

Soakaway

Defect Type	Defect Code	Category 1 Intervention Level
Blockage	BLOK	Blockage which is or may cause significant loss of capacity in any part of the drainage system. Or is an indication that flooding of any private property is imminent.
Broken	IBRK	Broken to the extent that it constitutes a hazard to road users, pedestrians, or cyclists.
Cracked	ICRK	Cracked cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on the carriageway or ≥20mm on the footway.
Filter Material Displaced	FMDS	Significant displacement of filter material.
Flooding	FLOD	Enough water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to other structures or the carriageway.
Missing Cover	MISV	Missing cover in the carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	
Parallel Gratings	PARL	Incorrectly filled gratings where the water bars are parallel to the direction of traffic and likely to constitute a hazard to cyclists.
Rocking under Load	IRLD	Rocking grating or cover in an urban area causing intrusive noise.
Seized	SIEZ	Seized open cover, grating or frame which constitutes a hazard to road users, pedestrians, or cyclists.

Smooth Surface	SMTH	Smooth surface on cover in carriageway or footway which constitutes a hazard to road users, pedestrians, or cyclists.
Weed Growth	WEED	Sufficient weed growth which is or could lead to deficiencies in the drainage system.

D.2 Fences & Barriers Asset Group

Fence/Wall/Barrier

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damaged or deformed asset not serving its purpose.
Corroded Metal Fence, Barrier or Post	CMTF	Any corroded fence or barrier that poses a risk to pedestrians.
Damaged (other than accident damage)	DAMF	Any damaged or deformed asset not serving its purpose.
Loose Component	LOSP	
Missing Section of Fence or Barrier	MISF	Any missing asset not serving its purpose.
Not Stockproof	NSTK	
Other	OTHR	
Rotten – Wooden Fence	RWDF	

Pedestrian Guardrail

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damaged or deformed asset not serving its purpose.
Corroded Metal Fence, Barrier, or Post	CMTF	Any corroded fence or barrier that poses a risk to pedestrians.
Damaged or Deformed Fence or Barrier	DAMF	Any damaged or deformed fence or barrier that poses a risk to pedestrians.
Loose Bolt	LOSB	
Loose Panel	LOSP	
Loose Tension Bolts	LTEN	
Missing Section of Fence or Barrier	MISF	Any missing section of fence or barrier that poses a risk to pedestrians.
Other	OTHR	
Safety Fence too High	SBTH	As per individual specification.
Safety Fence too Low	SBTL	As per individual specification.

Traffic Control Barrier

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damage which is impairing functionality or is a risk to network users.
Damaged (other than accident damage)	DAMG	Damage to the gate which is impairing functionality or is a risk to network users.
Damaged Gate	DGTC	Damage which is impairing functionality or is a risk to network users.
Loss of Paint/Surface Coating	LOPT	
Mechanical or Electrical Failure	METC	Mechanical or electrical failure which is impairing functionality or is a risk to network users.
Missing	MISS	Any missing barrier that poses a risk to network users.
Other	OTHR	

D.3 Geotechnical Asset Group

Anchor/Bolt/Dowel, Barrier Fencing System, Debris Trap, Earthwork Slope, Granular Replacement, Land Slope, Protection/Rigid Support, Reinforced Soil System, Rock Netting, Rock Slope, Soil Nailing

Defect Type	Defect Code	Category 1 Intervention Level
Initiate Specialist Inspection	INSI	The slip/slide is in an area not previously susceptible to slips/slides, or there is a risk the slip/slide may impact the stability or accessibility of the carriageway or footway.
Other	OTHR	
Other Erosion	OTHE	
Slip/Slide	SLIP	There is a risk the slip/slide may have an impact on accessibility of the carriageway or footway.

Monitoring Equipment

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Any fallen or leaning roadside electrical apparatus.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Condition of Base Seals	CBSL		
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Initiate Specialist Inspection	INSI	The slip/slide is in an area not previously susceptible to slips/slides, or there is a risk the slip/slide may impact the stability or accessibility of the carriageway or footway.	
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		
Other Erosion	OTHE		
Physical Condition of Cabinet	PHCD		
Slip/Slide	SLIP	There is a risk the slip/slide may have an impact on accessibility of the carriageway or footway.	

D.4 Landscape Asset Group

Bulb Area

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting the network.	DETR	Any arisings that may cause a trip, slip, or skid hazard.
Bulb Area, or selected species therein, in poor condition.	DYPL	Asset has highly degraded.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of the network to users.
Other	OTHR	
Overgrowing or Overhanging the Footway/Carriageway	OVER	Vegetation which narrows the width of footway/carriageway by 50%, poses a risk of injury, risk of vehicle damage, or obscures road markings or signs.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Grassed Area

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting network.	DETR	Any arisings which may cause a trip, slip, or skid hazard.

Defect Type	Defect Code	Category 1 Intervention Level
Dead, Dying or Damaged Areas	DPDY	
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Grassed Area, or selected species therein, in poor condition.	DYPL	Where the poor condition of the asset may impact the safety of road users (e.g. slope instability).
Injurious Weeds	IWED	
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, poses a risk of vehicle damage, or obscures road markings or signs.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Hedge/Hedgerow

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting network.	DETR	Any arisings which may cause a trip, slip, or skid hazard.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Hedge/Hedgerow, or selected species therein, in poor condition.	DYPL	Where the poor condition of the asset may pose a risk to the public, operatives, or the road infrastructure.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, poses a risk of vehicle damage, or obscures road markings or signs.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Invasive and Injurious Species

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting network.	DETR	Any arisings which may cause a trip, slip, or skid hazard.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	

Defect Type	Defect Code	Category 1 Intervention Level
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, risks vehicle damage, or obscured road markings or signs.
Potential to harm, injure, or otherwise impact road users, operatives, and third-party livestock/animals.	HARM	Any areas near footpaths, pedestrian areas, and boundaries with grazing fields. This includes cut vegetation.

Scrub

Defect Type	Defect Code	Category 1 Intervention Level
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Fallen tree or branch affecting road users, operatives, vehicles, or road infrastructure.	DBRA	Any fallen tree or branch which impacts the safety of roads users, operatives, vehicles, or road infrastructure.
Fly Tipping/ Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, vehicle damage, or obscures road markings or signs.
Scrub area in poor condition.	DYPL	Any dead, dying, or overcrowded vegetation which impacts the safety of road users or operatives.

Shrub

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting network.	DETR	Any arisings which may cause a trip, slip, or skid hazard.
Fly Tipping/ Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Impact on other required operations.	IMOO	Where impacts pose a risk to people, the environment, or infrastructure.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, vehicle damage, or obscures road markings or signs.
Shrub area, or selected species therein, in poor condition.	DYPL	Any dead, dying, or overcrowded vegetation which impacts the safety of road users or operatives.

Defect Type	Defect Code	Category 1 Intervention Level
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Tree

Defect Type	Defect Code	Category 1 Intervention Level
Any Tree in Poor Condition	DYPL	Any dead, dying, or overcrowded vegetation which impacts the safety of road users or operatives.
Fallen tree or branch affecting road users, operatives, vehicles, or road infrastructure.	DBRA	Any fallen tree or branch which impacts the safety of roads users, operatives, vehicles, or road infrastructure.
Fly Tipping/ Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Impact on other required operations.	IMOO	Where impacts pose a risk to people, the environment, or infrastructure.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, vehicle damage, or obscures road markings or signs.

Wetland

Defect Type	Defect Code	Category 1 Intervention Level
Flooding	FLOD	Sufficient amount of water which represents a hazard to network users, structures, or services, or indicates that flooding of any private property is imminent.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Other	OTHR	
Pollution	POLN	Pollution which could cause harm to people, wildlife, or the environment.
The Wetland area and/or any associated vegetation in poor condition.	DYPL	Where the condition of the Wetland may impact the safety of road users, or operatives.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Wildflower Area

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting network.	DETR	Any arisings which may cause a trip, slip, or skid hazard.

Defect Type	Defect Code	Category 1 Intervention Level
Fly Tipping/ Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, vehicle damage, or obscures road markings or signs.
Wildflower Area and/or any associated vegetation in poor condition.	DYPL	Asset has highly degraded.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

Wildlife Mitigation Measure

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damaged, deformed, or unstable component which outs road users, or wildlife in danger.
Damage to a Wildlife Counter	DCOU	
Damaged, Deformed, or Unstable	DAMM	Any damaged, deformed, or unstable component which outs road users, or wildlife in danger.
Missing	MISS	Any missing component which puts road users, or wildlife in danger.
Obstructed	OBST	Any blockage which prevents wildlife from utilising the asset and may result in a risk to road users, or wildlife.
Other	OTHR	
Tunnel Created Under Fence	TUNF	Any tunnel which bypasses a fence intended to prevent the movement of wildlife and which is likely to increase the risk to road users, or wildlife.

Woodland

Defect Type	Defect Code	Category 1 Intervention Level
Fallen tree or branch affecting road users, operatives, vehicles, or road infrastructure.	DBRA	Any fallen tree or branch which impacts the safety of roads users, operatives, vehicles, or road infrastructure.
Fly Tipping/ Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of network users.
Other	OTHR	
Overgrowing or Overhanging the Carriageway or Footway	OVER	Vegetation which narrows the width of the footway by 50%, poses a risk of injury, vehicle damage, or obscures road markings or signs.

Defect Type	Defect Code	Category 1 Intervention Level
Woodland Area and/or any associated vegetation in poor condition.	DYPL	Asset has highly degraded.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.

D.5 Lighting & Electrical Asset Group

Cable Chamber

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Blockage	BLOK		
Broken	IBRK	Broken or damaged cover in the carriageway or footway which may constitute a hazard to road users, pedestrians, or cyclists.	
Corrosion	SFCO		
Cracked	ICRK	Cracked cover in the carriageway or footway which may constitute a hazard to road users, pedestrians, or cyclists.	
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Defective Chamber, Apron, or Plinth	DFAP		
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.	
Difference in Level	IDLV	Any abrupt difference in level of ≥40mm on a carriageway or ≥20mm on a footway.	
Ducting Flooded	DUFL		
Flooding	FLOD		
Missing Cover	MISV	Missing cover in the carriageway or footway which may constitute a hazard to road users, pedestrians, or cyclists.	
Missing or Illegible Reference Number	VISN		
Other	OTHR		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Parallel Gratings	PARL	Incorrectly fitted gratings which may constitute a hazard to road users, pedestrians, or cyclists.	
Rocking Under Load	IRLD	Rocking grating or cover in an urban area causing an intrusive noise.	
Seized	SIEZ	Seized open covers, gratings or frames which may constitute a hazard to road users, pedestrians, or cyclists.	
Smooth Surface	SMTH	Smooth surface which may constitute a hazard to road users, pedestrians, or cyclists.	
Unsafe electrical chamber covers and support frames, plinths, aprons, and surroundings.	UECC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Weed Growth	WEED	Sufficient weed growth which could impact the performance of the asset.	

Electrical Component of Bollard

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Fallen or leaning roadside electrical apparatus.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		

Electrical Component of Cabinet/Pillar

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Difficult Access to Cabinet	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or presents a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or Illegible Reference Number	VISN		
No Electrical Supply	NOSP		
Other	OTHR		

Electrical Component of Drainage Ancillary Item

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
excess of maximum allowable for the protective device.			deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing	MISS	Any exposed wiring/internal equipment.	
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		
Pump Malfunction	PUMP		

Electrical Component of Roadside Service

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus, or any exposed wiring/internal equipment.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
No Electrical Supply	NOSP		
Other	OTHR		

Electrical Component of Structure

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or Illegible Reference Number	VISN		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		

Electrical Component of Traffic Control Barrier

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Mechanical or Electrical Failure	METC		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
No Electrical Supply	NOSP		
Other	OTHR		
Time switch Failure	TMSW		

Electrical Component of Traffic Sign

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Fallen or leaning roadside electrical apparatus.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Obsolete	OBSO		
Other	OTHR		

Electrical Ducting and Cable

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required, or constitutes a hazard to road users, pedestrians, or cyclists.	

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Corrosion	SFCO		
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG		
Ducting Flooded	DUFL		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing	MISS		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Other	OTHR		

Lighting Point

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
A phase failure with one in three lamps out in a road section.	NOPH	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 7 days.
A structural fault requiring maintenance in advance of the next cyclic maintenance visit.	SFNW	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Accident Damage	ACCD	Any fallen or leaning roadside electrical apparatus.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Column or Post Projecting into Carriageway or Footway	COPP	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 28 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.	
Damaged or defective, or visible instability of bracket, arm, or lantern that may fall onto the carriageway, footway, or private land.	COLU	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Difficult Access	ACES		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Lamp failure either side of a pedestrian crossing (1)	NOPX	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 7 days.
Lamp failure either side of a pedestrian crossing (2 or more).	NPXT	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Lamp failure on single multi optic post top or high mast column – 25% or more.	NOTF	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Lamp failure on roads subject to a speed limit of 30mph or less (1).	RLFO	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 7 days.
Lamp failure on roads subject to a speed limit of 30mph or less (2 or more).	RLFW	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Lamp failure on up to and including 12 metres mounting height (3 or more consecutive).	NOLT	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Lamp failure opposite or immediately adjacent to a road junction (1).	JLFO	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 7 days.
Lamp failure opposite or immediately adjacent to a road junction (2 or more).	JLFW	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Lamp failure over 12 metres mounting height including both lamps in dual optic units (2 or more consecutive).	NOLW	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Loss of Paint/Surface Coating	LOPT		
Missing	MISS	Any missing component of the asset which exposes wiring.	
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		
Physical Condition of Post	COPT		
Supply failure of two or more consecutive columns.	NOSC	Always a category 1 defect.	Maximum response time for a deferred permanent repair shall be 24 hours.
Total failure, visible instability, or damaged column or post that may fall onto the carriageway, footway, or private land.	COPF	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.

Navigation Aid

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days,

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or presents a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Other	OTHR		
Physical Condition of Fittings	COFT		
RACON or other device failure.	NAVF		

Navigation Light (Sea & Air)

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD		
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.	
Difficult Access	ACES		
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Installation failed safety electrical testing or presents a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.	
Lamp on During Day	LPON		
Lamp or other circuit failure causing faulty illumination.	EFAL		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
			deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Obscured Lamp	OBLP		
Other	OTHR		
Physical Condition of Fittings	COFT		

D.6 Miscellaneous Asset Group

Bus Stop

Defect Type	Defect Code	Category 1 Intervention Level
Other	OTHR	

Equipment Storage Location

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Contents Missing	CONT	
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	

Roadside Service

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Other	OTHR	

Salt Bin

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Damaged (other than accident damage)	DAMG	Damaged to the extent that the asset can no longer function as required or constitutes a hazard to road users, pedestrians, or cyclists.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.
Missing	MISS	
Other	OTHR	

D.7 Network Asset Group

Carriageway, Central Island, Crossover, Layby

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Bituminous Surfacing Fretting	BFRT		
Concrete Carriageway Defect	CONC		
Cracking	LOCK		Cracking with a width >2mm should be monitored.
Dead Animal	ANIM	Any animal causing an obstruction or risk to health.	
Debris	DBTL	Debris that could damage a vehicle or cause risk to road users.	
Defect around Ironwork	CKIR	Fretting or deformation ≥40mm on any part of the carriageway or ≥20mm at a designated crossing point.	Fretting or deformation ≥20mm should be monitored.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.	
Edge Deterioration	LODT	Fretting or deformation ≥40mm	Fretting or deformation =>20mm should be monitored.
Failed Patch/Trench	PATH	Fretting or deformation ≥40mm	Fretting or deformation =>20mm should be monitored.
Flooding	FLOD	Sufficient amount of water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to the	

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
		carriageway, structures, or services, or indicates that flooding of private property is imminent.	
Other	OTHR		
Pothole	POTH	≥40mm in depth on any part of the carriageway or ≥20mm in depth at a designated crossing point.	≥20mm in depth should be monitored.
Rutting	RUTT	≥40mm in depth.	≥20mm in depth should be monitored.
Settlement/Deformation	SETT	≥40mm in depth on any part of the carriageway.	≥20mm in depth should be monitored.
Surfacing Joints	SRJT	≥40mm in depth.	≥20mm in depth should be monitored.

Central Reserve

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Bituminous Surfacing Fretting	BFRT		
Concrete Carriageway Defect	CONC		
Cracking	LOCK		Cracking with a width >2mm should be monitored.
Dead Animal	ANIM	Any animal causing an obstruction or risk to health.	
Debris	DBTL	Debris that could damage a vehicle or cause risk to road users.	
Defect around Ironwork	CKIR	Fretting or deformation ≥40mm on any part of the carriageway or ≥20mm at a designated crossing point.	Fretting or deformation ≥20mm should be monitored.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.	
Edge Deterioration	LODT	Fretting or deformation ≥40mm	Fretting or deformation =>20mm should be monitored.
Failed Patch/Trench	PATH	Fretting or deformation ≥40mm	Fretting or deformation =>20mm should be monitored.
Flooding	FLOD	Sufficient amount of water lying or running along/across the carriageway which represents a hazard to road users, may interrupt the flow of traffic, or cause damage to the	

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
		carriageway, structures, or services, or indicates that flooding of private property is imminent.	
Other	OTHR		
Pothole	POTH	≥40mm in depth on any part of the carriageway or ≥20mm in depth at a designated crossing point.	≥20mm in depth should be monitored.
Rutting	RUTT	≥40mm in depth.	≥20mm in depth should be monitored.
Settlement/Deformation	SETT	≥40mm in depth on any part of the carriageway.	≥20mm in depth should be monitored.
Surfacing Joints	SRJT	≥40mm in depth.	≥20mm in depth should be monitored.
Weed Growth	WEED		

Node Marker Point

Defect Type	Defect Code	Category 1 Intervention Level
Missing	MISS	Any missing Node Marker Point.
Other	OTHR	
Worn or Faded	WEAR	Any worn or faded Node Marker Point that can no longer fulfil its purpose.

D.8 Pedestrian & Cycle Facilities Asset Group

Cycle Facility

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Bituminous Surfacing Fretting	BFRT	Significant loss of material from the surface of the asset.	
Cracking	BLCK		Cracking with a width >2mm should be monitored.
Dead Animal	ANIM	Any animal causing an obstruction or risk to health.	
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material.	

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Failed Patch/Trench	FPCK	Any abrupt difference in level, fretting or deformation ≥20mm	Any abrupt difference in level, fretting or deformation ≥13mm should be monitored.
Flag/Block Profile and Uneven/Trips	SLPF	Any block or flag that rocks to create a change in level of ≥20mm on any part of the asset.	
Flag/Block Rocking	SROK	Any depression or projection of ≥20mm on any part of the asset.	Any depression or projection of ≥13mm should be monitored.
Flooding	FLOD	Standing water which covers 50% of the asset width or causes the pedestrian to step into the carriageway.	
Other	OTHR		
Pothole	BPOT	Any pothole of ≥20mm on any part of the asset.	Any pothole ≥13mm should be monitored.
Weed Growth	WEED	Weed growth which narrows the width of the asset by 50%, poses a trip hazard, or risk of injury.	

Footway

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Bituminous Surfacing Fretting	BFRT	Significant loss of material from the surface of the asset.	
Cracking	BLCK		Cracking with a width >2mm should be monitored.
Dead Animal	ANIM	Any animal causing an obstruction or risk to health.	
Detritus/Refuse	DETR		
Failed Patch/Trench	FPCK	Any abrupt difference in level, fretting or deformation ≥20mm	Any abrupt difference in level, fretting or deformation ≥13mm should be monitored.
Flag/Block Profile and Uneven/Trips	SLPF	Any block or flag that rocks to create a change in level of ≥20mm on any part of the asset.	
Flag/Block Rocking	SROK	Any depression or projection of ≥20mm on any part of the asset.	Any depression or projection of ≥13mm should be monitored.
Flooding	FLOD	Standing water which covers 50% of the asset width or causes the pedestrian to step into the carriageway.	
Other	OTHR		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Pothole	BPOT	Any pothole of ≥20mm on any part of the asset.	Any pothole ≥13mm should be monitored.
Weed Growth	WEED	Weed growth which narrows the width of the asset by 50%, poses a trip hazard, or risk of injury.	

D.9 Road Markings, Road Studs & Kerbs Asset Group

Kerbs

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Damaged kerbs that are likely to constitute a hazard to road users, pedestrians, or cyclists.	
Damaged (other than accident damage)	DAMG	Damaged kerbs that are likely to constitute a hazard to road users, pedestrians, or cyclists.	
Horizontal Projection	EHPJ	Dislodged or misaligned kerbs with a horizontal projection of ≥50mm, or the project into the carriageway or hard shoulder, or impede water flow.	
Inadequate Upstand	INUP	<80mm where adjacent to a footway and <25mm at all other areas (excluding drop kerbs).	
Loose/Rocking	ELRK	Loose or rocking kerbs that are likely to constitute a hazard to road users, pedestrians, or cyclists.	
Missing	MISS	Missing kerbs where there is no hard shoulder or verge and is adjacent to the carriageway or footway.	
Other	OTHR		
Vertical Projection/Trip	EVPJ	Dislodged or misaligned kerbs with a vertical projection of ≥20mm.	Any vertical projection ≥13mm should be monitored.
Weed Growth	WEED	Weed growth which narrows the width of the asset by 50%, poses a trip hazard, or risk of injury.	

Road Marking Hatched, Road Marking Longitudinal, Road Marking Transverse & Special

Defect Type	Defect Code	Category 1 Intervention Level
Colour (discolouration)	COLR	
Deterioration of Skid Resistance	SKID	
Detritus/Refuse	DETR	Any vegetation, or severe accumulation of dirt, stone, gravel, or other material which obscured the road markings.
Missing	MISS	
Other	OTHR	
Poor Reflection during Darkness	RETN	
Retro-Reflectivity Test Failure	RETT	
Skid Resistance Test Failure	SKIT	
Worn or Failure	WEAR	≥20% of the area worn if there are regulatory markings, or if at critical areas. ≥30% of the area worn for any other marking, or a residual rib height of ≤6mm on motorways or ≤3mm on trunk roads.

Road Studs

Defect Type	Defect Code	Category 1 Intervention Level
Conspicuity Test Failure	REFF	
Damaged Catseye or Stud	DAMC	Any damage which affects the performance of the road studs.
Loose Catseye or Stud	LCAS	Any single loose or displaced road studs or casings on the carriageway.
Misalignment	MALI	
Missing Catseye or Stud	MISC	Any single missing road stud where they are a legal requirement, or more than one in ten consecutive missing road studs at other areas.
Other	OTHR	
Poor Reflection at Night	RETN	
Sinkage, Settlement, or Masking	SINK	Any sinkage, settlement, or masking that affects the performance of the road studs.

D.10 Technology Equipment Asset Group

Cabinet/Pillar

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD	Any exposed wiring/internal equipment.	

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any exposed wiring/internal equipment.	
Dirty	DIRT		
Loss of Paint/Surface Covering	LOPT		
Missing	MISS	Any exposed wiring.	
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Other	OTHR		
Physical Condition of Cabinet	PHCD		

CCTV/Camera

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which constitutes a risk to people, or wildlife.
Damaged (other than accident damage)	DAMG	Any damage which constitutes a risk to people, or wildlife.
Loss of Paint/Surface Covering	LOPT	
Other	OTHR	
Physical Condition of Post	COPT	

Detector Loop

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which constitutes a risk to people, or wildlife.
Condition of Loop/Feeder	CLOF	
Damaged (other than accident damage)	DAMG	Any damage which constitutes a risk to people, or wildlife.
Other	OTHR	
Weed Growth	WEED	

Emergency Telephone Box

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which constitutes a risk to people, or wildlife.
Damaged (other than accident damage)	DAMG	Any damage which constitutes a risk to people, or wildlife.
Other	OTHR	

Weather Station

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Accident Damage	ACCD		
Any functional failure of equipment.	AFFE		
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of maximum allowable for the protective device.	EPIC	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
CCTV Failure (defined as loss of any function)	TVFL		
Columns or Post projecting into Carriageway or Footway.	COPP		
Component or other miscellaneous failure which results in high electrical safety risk.	COEL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for deferred permanent repair shall be 7 days.
Damaged or defective, or visible instability of bracket, arm, or lantern that may fall onto the carriageway, footway, or private land.	COLU		
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Damage that exposes wiring/internal equipment – exposes live wiring with low risk of pedestrian access.	EXLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Damage that exposes wiring/internal equipment – no live wiring exposed but high risk of pedestrian access.	EXNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Damage that exposes wiring/internal equipment – no live wiring exposed and low risk of pedestrian access.	EXNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.	
Electrical Check Failure.	ERCK	Always a category 1 defect.	See BS 7671 GN3 Section 3.5 and Table 3.2. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions.	EPIE	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.	EPII		
Hazardous Electrical Defect	EHAZ	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Installation failed safety electrical testing or presents a safety risk from high Ze value in excess of the maximum allowable.	EPIT	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Loss of Paint/Surface Covering	LOPT		
Missing Equipment essential for operation.	MISS		
Missing or Illegible Reference Number	VISN		
Missing or unsecured doors – exposes live wiring but low risk of pedestrian access.	EHLL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for deferred permanent repair shall be 28 days.
Missing or unsecured doors – exposes live wiring with high risk of pedestrian access.	EHLH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.
Missing or unsecured doors – no live wiring exposed and low risk of pedestrian access.	EHNL	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.
Missing or unsecured doors – no live wiring exposed but high risk of pedestrian access.	EHNH	Always a category 1 defect.	Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.
No Electrical Supply	NOSP		
Obscuration effecting equipment performance, particularly the CCTV cameras (where fitted).	ALOB		
Other	OTHR		
Other Sensor Failure	OTSE		

Defect Type	Defect Code	Category 1 Intervention Level	Additional Information
Physical Condition of Post	COPT		
Processor Failure	PROC		
RCD Failure	RCDF		
Road Sensor Failure	ROSE		
Total failure, visible instability or damage column or post that may fall onto the carriageway, footway, or private land.	COPF	Always a category 1 defect.	

D.11 Traffic Signs & Signals Asset Group

Bollard

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damaged Bollard that has a warning or regulatory sign.
Damaged (other than accident damage)	DAMG	Any damaged Bollard that has a warning or regulatory sign.
Dirty	DIRT	Any dirty Bollard that has a warning or regulatory sign.
Loss of Surface or Paint Covering	LOPT	
Missing	MISS	Any missing Bollard that results in a trip hazard.
Obscured Sign	OBSG	Any obscured Bollard that has a regulatory sign.
Other	OTHR	
Physical Condition of Post	COPT	

Pedestrian Crossing

Defect Type	Defect Code	Category 1 Intervention Level
Colour (discolouration)	COLR	
Damaged Catseye/Stud	DAMC	Any damage which affects the performance of the studs.
Detritus/Refuse	DETR	Any severe accumulation of dirt, stone, gravel, or other material which obscured road markings.
Loose Catseye/Stud	LCAS	Any single loose or displaced road stud or casing on the carriageway.
Misalignment	MALI	
Missing Catseye/Stud	MISC	Any single loss of road studs where they are a legal requirement, or more than one in any ten consecutive studs is missing at other areas.
Other	OTHR	

Sinkage, Settlement, or Masking	SINK	Any sinkage, settlement, or masking that affects the performance of the studs.
Worn or Faded	WEAR	≥20% of the area worn if there are regulatory markings, or if at critical areas. ≥30% of the area worn for any other marking, or a residual rib height of ≤6mm on motorways or ≤3mm on trunk roads.

Reference Marker Post

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which a risk to road users, pedestrians, or cyclists.
Damaged (other than accident damage)	DAMG	Any damage which a risk to road users, pedestrians, or cyclists.
Missing	MISS	
Other	OTHR	
Physical Condition of Post	COPT	

Snow Pole

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which a risk to road users, pedestrians, or cyclists.
Damaged (other than accident damage)	DAMG	Any damage which a risk to road users, pedestrians, or cyclists.
Missing	MISS	Two or more consecutive missing snow poles.
Other	OTHR	
Physical Condition of Post	COPT	

Traffic Sign

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damage to a warning or regulatory sign affecting the visibility.
Damage to Sign	DAMS	Damage to a warning or regulatory sign affecting the visibility.
Damaged (other than accident damage)	DAMG	Damage to a warning or regulatory sign affecting the visibility.
Difficult Access	ACES	
Dirty	DIRT	
Faded	FADE	Faded warning or regulatory sign.
Graffiti (Offensive)	OFFS	Any offensive graffiti.
Inadequate Reflectivity	SFLN	
Loss of Paint/Surface Coating	LOPT	
Missing	MISS	

Defect Type	Defect Code	Category 1 Intervention Level
Missing Sign	MISS	Missing regulatory or warning signs.
Obscured Sign	OBSG	Visual impairment of a warning or regulatory sign.
Obsolete	OBSO	
Other	OTHR	
Physical Condition of Post	COPT	Instability of the post which has, or may cause it to fall onto the carriageway, footway, or private property.
Wrong Facing	WFAC	Any wrong facing warning or regulatory sign.

Traffic Signal-Controller

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which a risk to road users, pedestrians, or cyclists.
Alignment or Obstruction	ALOB	
Audible Circuit Failure	AUDC	
Condition of Base Seals	CBSL	
Condition of Loop/Feeder	CLOF	
Controller Failure	NOOP	
Damaged (other than accident damage)	DAMG	Any damage which a risk to road users, pedestrians, or cyclists.
Equipment Cabinet Condition	EQCB	
Equipment Wiring and Earth Condition	EQWE	
Link Failure	LINK	
No Electrical Supply	NOSP	
Phase Times Incorrect	TIME	
Signals Stuck	STUK	

Traffic Signal-Signal Apparatus

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Any damage which a risk to road users, pedestrians, or cyclists.
Condition of Buttons/Detectors	CBDT	
Condition of Poles/Caps/Heads/Boards	PLCD	
Condition of Regulatory Sign/Illumination	CRSI	

Defect Type	Defect Code	Category 1 Intervention Level
Damage that exposes wiring/internal equipment – exposes live wiring with high risk of pedestrian access.	EXLH	
Damaged (other than accident damage)	DAMG	Any fallen or leaning roadside electrical apparatus.
Difficult Access	ACES	
Hardware Physical Condition	HPCD	
Lamp Failures	LAMP	Lamp failures on a road with a speed limit of 30mph or less. Any lamp failure at a pedestrian crossing or near a junction.
Lamp on During Day	LPON	
Missing	MISS	Any missing signal apparatus.
Missing or Illegible Reference Number	VISN	
Missing or unsecured doors on columns or feeder pillars which exposes wiring.	MISD	
Other	OTHR	
Push Button Failure	PUSH	
Red Lamp Monitor Circuit Fault	RLMC	

D.12 Vehicle Road Restraint System Asset Group

Arrester Bed

Defect Type	Defect Code	Category 1 Intervention Level
Arisings from cutting operations affecting the network	DETR	Any arisings that may cause a trip, slip, or skid hazard.
Fly Tipping/Illegal Dumping	FTIP	Any fly tipping or illegal dumping which poses a risk to people, wildlife, or the environment.
Obstructed Sightline	OBSL	Obstruction which limits the view of the network to users.
Other	OTHR	
Top-Up Level Insufficient	TLEV	Insufficient level of material.
Vehicle Incursion	VEIN	Vehicle incursion that prevents the asset from being used.
Weed Growth	WEED	

Crash Cushion, Safety Fence/Barrier, Transition

Defect Type	Defect Code	Category 1 Intervention Level
Accident Damage	ACCD	Damage or deformation that affects the integrity or performance of the fence or barrier.
Corroded Metal Fence, Barrier or Post	CMTF	Corrosion that affects the integrity or performance of the fence, barrier, or post.
Damaged or Deformed Fence or Barrier	DAMF	Damage or deformation that affects the integrity or performance of the fence or barrier.
Loose Anchor	LOSA	Any loose anchor.
Loose Bolt	LOSB	Any loose bolt.
Loose Panel	LOSP	Any loose panel.
Loose Tension Bolts	LTEN	Any loose tension bolts.
Missing Section of Fence or Barrier	MISF	Any missing section.
Other	OTHR	
Safety Fence Rail Too High	SBTH	As per the individual specification.
Safety Fence Rail Too Low	SBTL	As per the individual specification.

Appendix E: Accessibility Inspection Observation Types

E.1 Fence & Barriers Asset Group

Fence/Wall/Barrier, Pedestrian Guardrail

Observation Description	Code
Circular handrails do not have cross section of 40-50mm diameter.	DD096
Clear space between handrail and adjacent wall is <60mm.	DD102
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users).	DD093
End of handrail projects into route of travel.	DD092
Free standing object does not meet minimum height criteria of 1000mm.	DD076
Gate latch inoperable by person with reach difficulties (e.g. wheelchair user).	DD101
Handrail of material which is cold to the touch.	DD094
Handrails are not tonally contrasted with background.	DD095
Handrails do not extend 300mm past top and bottom of flight.	DD091
Handrails not continuous across intermediate landings.	DD090
Handrails not provided on both sides of flight.	DD080
Handrails on flight not provided at height of 900-1000mm.	DD089
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Lack of adequate tonal contrast.	DD099
Obstacle free width is <1300mm.	DD042
Oval handrail does not have cross section of 50-135mm.	DD097
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Redundant street furniture.	DD100
Staggered barriers/access control <1200mm apart.	DD098
Width at footway is restricted locally to <1000mm.	DD045
Width between handrails is <1000mm.	DD077
Width between handrails is <1800mm (this does not allow two-way movement).	DD078
Width between handrails is >1800mm.	DD079

E.2 Miscellaneous Asset Group

Bus Stop

Observation Description	Code
Accessible parking bay (parallel/kerb side) does not meet 6600x3600mm size.	DD104
Bus boarding kerb out with 125-160mm range.	DD009
Bus raised boarding area gradient is >1:12 (8.3%).	DD010
Bus raised boarding area is <3000mm long.	DD011
Bus shelter lacks adequate tonal contrast.	DD018
Bus shelter lacks seating.	DD016
Bus stop cannot be reached by adjoining footways.	DD055
Bus timetable font size illegible (character height should be 15-25mm).	DD020
Bus timetable positioned out with 900-1800mm range off ground level.	DD019
Clearance between parked vehicle and running lane is <1200mm.	DD108
Crossfall beside parked vehicle is >1:20 (5%).	DD111
Flag on bus stop pole is <300x250mm.	DD013
Footway at bus stop is <3000mm wide.	DD056
Free standing object does not meet minimum height criteria of 1000mm.	DD078

Observation Description	Code
Grating placed in area of main pedestrian flow.	DD041
Lack of 1.2m hatched aisles at dedicated accessible parking bay.	DD106
Lack of adequate tonal contrast.	DD076
Lack of bus shelter.	DD015
Lack of bus stop flagpole.	DD021
Lack of bus stop timetable.	DD022
Lack of footway facilities for parked vehicle.	DD109
Lack of signage at dedicated accessible parking bay.	DD107
No dedicated accessible parking bay provided.	DD105
Parking bay does not meet 4800x2400mm size.	DD103
Passengers in bus shelter cannot see or be seen by oncoming vehicle.	DD017
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Redundant street furniture.	DD077
Route numbers on bus stop flagpole are <50mm high.	DD014
Seating does not have arm rests.	DD053
Seating does not have back rest.	DD052
Seating height is not 470-480mm off ground level.	DD051
Seating lacks adequate tonal contrast.	DD054
Seating width is <500mm.	DD050
Width of clear space at bus shelter is <1000mm.	DD057

E.3 Pedestrian & Cycle Facilities Asset Group

Cycle Facility, Footway

Observation Description	Code
A landing has not been applied at change in direction.	DD074
Abrupt change in gradient (should be rounded).	DD038
Accessible parking bay (parallel/kerb side) does not meet 6600x3600mm size.	DD104
Bus boarding kerb out with 125-160mm range.	DD009
Bus raised boarding area gradient is >1:12 (8.3%).	DD010
Bus raised boarding area is <3000mm long.	DD011
Bus stop cannot be reached by adjoining footways.	DD055
Circular handrails do not have cross section of 40-50mm diameter.	DD100
Clear space between handrail and adjacent wall is <60mm.	DD102
Clearance between parked vehicle and running lane is <1200mm.	DD108
Cross fall of transition area between footway level and dropped kerb level is >1:12 (8.3%).	DD007
Crossfall beside parked vehicle is >1:20 (5%).	DD111
Crossfall is >1:40 (2.5%).	DD037
Crossing point at junction bellmouth not at ideal location.	DD113
Crossing point not on obvious pedestrian desire line.	DD112
Edge of footway has sudden level change.	DD047
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users).	DD097

Observation Description	Code
End of handrail projects into route of travel.	DD096
Flight has >12 steps.	DD024
Flight has less than 3 steps.	DD025
Footway at bus stop is <3000mm wide.	DD056
Footway is <1500mm wide.	DD110
Free standing object does not meet minimum height criteria of 1000mm.	DD078
Gate latch inoperable by person with reach difficulties e.g. wheelchair user.	DD079
Gradient is >1:11 (9%) on dropper kerb.	DD008
Grating placed in area of main pedestrian flow.	DD041
Handrail of material which is cold to the touch.	DD098
Handrails are not tonally contrasted with background.	DD099
Handrails do not extend 300mm past top and bottom of flight.	DD095
Handrails not continuous across intermediate landings.	DD094
Handrails not provided on both sides of flight.	DD092
Handrails on flight not provided at height of 900-1000mm.	DD093
Identify any gaps exceeding 10mm in a horizontal plane.	DD040
Identify areas (>10m^2) where surface irregularity exceeds 3mm in a vertical plane.	DD039
Inappropriate tactile paving colour.	DD083
Inappropriate tactile paving layout.	DD084
Inappropriate tactile paving type.	DD082
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Individual ramp flight is >10m long.	DD065
Individual ramp rise <500mm.	DD066
Kerb upstand adjacent to carriageway <80mm high (excluding crossing points).	DD001
Kerb upstand at crossing >6mm high.	DD004
Lack of 1.2m hatched aisles at dedicated accessible parking bay.	DD106
Lack of adequate tonal contrast.	DD076
Lack of dropped kerb.	DD003
Lack of edge definition.	DD048
Lack of edge definition (upstand) at rear.	DD002
Lack of footway facilities for parked vehicle.	DD109
Lack of landings between successive flights.	DD035
Lack of refuge at crossing.	DD114
Lack of signage at dedicated accessible parking bay.	DD107
Lack of tactile paving.	DD081
Lack of tonal contrast between step nosing and tread, and step nosing and riser	DD027
Landing longitudinal gradient is >1:40 (2.5%).	DD075
Length of intermediate landing is <1500mm.	DD072
Length of landing at change in direction is <1800mm.	DD073
Length of landing to top/bottom of flight is <1200mm.	DD071
Longitudinal gradient is >1:20 (5%).	DD036
No dedicated accessible parking bay provided.	DD105

Observation Description	Code
Nosing projects is >25mm in horizontal plane.	DD029
Nosings are not parallel with the ground/landing.	DD032
Nosings are not parallel with the other nosings.	DD031
Obstacle free width is <1300mm.	DD042
Outdated/worn profile on tactile paving.	DD085
Oval handrail does not have cross section of 50x35mm.	DD101
Parking bay does not meet 4800x2400mm size.	DD103
Pedestrian crossing is zebra type.	DD116
Pedestrian route around a junction is not continuous.	DD088
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Ramp and landings do not contrast tonally.	DD060
Ramp crossfall is >1:40 (2.5%).	DD068
Ramp is a stepped ramp.	DD059
Ramp longitudinal gradient is >1:10 (10%) for ramp flight up to 600mm.	DD061
Ramp longitudinal gradient is >1:12 (8.3%) for ramp flight up to 2m.	DD062
Ramp longitudinal gradient is >1:15 (6.7%) for ramp flight up to 5m.	DD063
Ramp longitudinal gradient is >1:20 (5%) for ramp flight up to 10m.	DD064
Ramp not accompanied by steps where the level difference exceeds 200mm.	DD058
Redundant street furniture.	DD077
Refuge at crossing is <1500mm wide.	DD115
Rise for a single step out with 150-170mm range.	DD026
Risers are open.	DD030
Seating does not have arm rests.	DD053
Seating does not have back rest.	DD052
Seating height is not 470-480mm off ground level.	DD051
Seating lacks adequate tonal contrast.	DD054
Seating not provided every 50m.	DD049
Seating width is <500mm.	DD050
Sides of ramp not protected by a raised kerb of 100mm min height.	DD067
Staggered barriers/access control less than 1200mm apart.	DD080
Stairs are not accompanied by a ramp.	DD034
Step going length out with 250-425mm range (depth of tread in the horizontal plane).	DD023
Step nosing is not non-slip.	DD028
Tactile paving does not contrast tonally with surrounding paving.	DD086
Taping rails not provided in line with staircase treads.	DD033
The back edge of the tactile surface is not at right angles to the direction of crossing/travel.	DD087
Total length of ramped section is >50m, but less than 132m.	DD070
Total rise in ramped section is >2m.	DD069
Unobstructed height above footway is <2300mm, including overhanging vegetation.	DD043
Width at footway is restricted locally to <1000mm.	DD045
Width between handrails is <1000mm.	DD089
Width between handrails is <1800mm (this does not allow two-.way movement)	DD090

Observation Description	Code
Width between handrails is >1800mm.	DD091
Width of clear space at bus shelter is <1000mm.	DD057
Width of dropped kerb at controlled crossing is <2400mm.	DD006
Width of dropped kerb at uncontrolled crossing is <1200mm.	DD005

E.4 Road Markings, Road Studs & Kerbs Asset Group

Kerbs

Observation Description	Code
Bus boarding kerb out with 125-160mm range.	DD009
Bus raised boarding area gradient is >1:12 (8.3%).	DD010
Bus raised boarding area is <3000mm long.	DD011
Crossfall of transition area between footway level and dropped kerb level is >1:12 (8.3%).	DD007
Gradient is >1:11 (9%) on dropped. kerb.	DD008
Grating placed in area of main pedestrian flow	DD041
Kerb upstand adjacent to carriageway <25mm high (at vehicle crossing points e.g. driveway).	DD012
Kerb upstand adjacent to carriageway <80mm high (excluding crossing points).	DD001
Kerb upstand at crossing is > 6mm high.	DD004
Lack of dropped kerb.	DD003
Lack of edge definition (upstand) at rear.	DD002
Width of dropped kerb at controlled crossing is <2400mm.	DD006
Width of dropped kerb at uncontrolled crossing is <1200mm.	DD005

Road Marking Hatched

Observation Description	Code
Lack of 1.2m hatched aisles at dedicated accessible parking bay.	DD106
No dedicated accessible parking bay provided.	DD105

Road Marking Longitudinal, Road Marking Transverse & Special

Observation Description	Code
Accessible parking bay (parallel/kerb side) does not meet 6600x3600mm size.	DD104
Clearance between parked vehicle and running lane is <1200mm.	DD108
Crossfall beside parked vehicle is >1:20 (5%).	DD111
Footway is <1500mm wide.	DD110
Lack of 1.2m hatched aisles at dedicated accessible parking bay.	DD106
Lack of footway facilities for parked vehicle.	DD109
Lack of signage at dedicated accessible parking bay.	DD107
No dedicated accessible parking bay provided.	DD105
Parking bay does not meet 4800x2400mm size.	DD103
Pedestrian crossing is zebra type.	DD116

E.5 Technology Equipment Asset Group

Cabinet/Pillar

Observation Description	Code
Free standing object does not meet minimum height criteria of 1000mm.	DD076
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Lack of adequate tonal contrast.	DD076
Obstacle free width is <1300mm.	DD042
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Redundant street furniture.	DD077
Unobstructed height above footway is <2300mm, including overhanging vegetation.	DD043
Width at footway is restricted locally to <1000mm.	DD045

CCTV/Camera, Emergency Telephone Box

Observation Description	Code
Free standing object does not meet minimum height criteria of 1000mm.	DD078
Lack of adequate tonal contrast.	DD076
Redundant street furniture.	DD077

E.6 Traffic Signs & Signals Asset Group

Bollard

Observation Description	Code
Free standing object does not meet minimum height criteria of 1000mm.	DD078
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Lack of adequate tonal contrast.	DD076
Lack of signage at dedicated accessible parking bay.	DD107
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Redundant street furniture.	DD077
Unobstructed height above footway is <2300mm, including overhanging vegetation.	DD043
Width at footway is restricted locally to <1000mm.	DD045

Pedestrian Crossing

Observation Description	Code
Abrupt change in gradient (should be rounded).	DD038
Crossfall beside parked vehicle is >1:20 (5%).	DD111
Crossfall is >1:40 (2.5%).	DD037
Crossfall of transition area between footway level and dropped kerb level is >1:12 (8.3%).	DD007
Crossing point at junction bellmouth not at ideal location.	DD113
Crossing point not on obvious pedestrian desire line.	DD112
Edge of footway has sudden level change.	DD047
Free standing object does not meet minimum height criteria of 1000mm.	DD078
Gradient is >1:11 (9%) on dropper kerb.	DD008

Observation Description	Code
Grating placed in area of main pedestrian flow.	DD041
Identify any gaps exceeding 10mm in a horizontal plane.	DD040
Identify areas (>10m^2) where surface irregularity exceeds 3mm in a vertical plane.	DD039
Inappropriate tactile paving colour.	DD083
Inappropriate tactile paving layout.	DD084
Inappropriate tactile paving type.	DD082
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Kerb upstand adjacent to carriageway <25mm high (at vehicle crossing points e.g. driveway).	DD012
Lack of adequate tonal contrast.	DD076
Lack of edge definition.	DD048
Lack of refuge at crossing.	DD114
Lack of tactile paving.	DD081
Longitudinal gradient is >1:20 (5%).	DD036
Obstacle free width is <1300mm.	DD042
Outdated/worn profile on tactile paving.	DD085
Pedestrian crossing is zebra type.	DD116
Pedestrian route around a junction is not continuous.	DD088
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Ramp longitudinal gradient is >1:10 (10%) for ramp flight up to 600mm.	DD061
Ramp longitudinal gradient is >1:12 (8.3%) for ramp flight up to 2m.	DD062
Ramp longitudinal gradient is >1:15 (6.7%) for ramp flight up to 5m.	DD063
Ramp longitudinal gradient is >1:20 (5%) for ramp flight up to 10m.	DD064
Redundant street furniture.	DD077
Refuge at crossing is <1500mm wide.	DD115
Staggered barriers/access control less than 1200mm apart.	DD080
Tactile paving does not contrast tonally with surrounding paving.	DD086
The back edge of the tactile surface is not at right angles to the direction of crossing/travel.	DD087
Unobstructed height above footway is <2300mm, including overhanging vegetation.	DD043
Width at footway is restricted locally to <1000mm.	DD045
Width of dropped kerb at controlled crossing is <2400mm.	DD006
Width of dropped kerb at uncontrolled crossing is <1200mm.	DD005

Traffic Sign

Observation Description	Code
Control unit at crossing does not have red/green person indicator.	DD120
Control unit at crossing has incorrect push button.	DD122
Control unit at crossing has no rotating knurled cones.	DD119
Control unit at crossing not at 1000-1100mm height.	DD124
Control unit at crossing not close to tactile surface.	DD123
Control unit at crossing not directed to oncoming traffic.	DD121
Control unit at crossing not placed at the right hand-side of the crossing.	DD125
Controlled crossing has no audible signals.	DD118

Observation Description	Code
Controlled crossing has no infra-red detectors.	DD117
Crossing point at junction bellmouth not at ideal location.	DD113
Crossing point not on obvious pedestrian desire line.	DD112
Green man shows for <4 seconds on a crossing up to 7.5m.	DD126
Green man shows for <7 seconds on a crossing wider than 12.5m.	DD127
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Lack of refuge at crossing.	DD114
Obstacle free width is <1300mm.	DD042
Pedestrian crossing is zebra type.	DD116
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Refuge at crossing is <1500mm wide.	DD115
Unobstructed height above footway is <2300mm, including overhanging vegetation.	DD043
Width at footway is restricted locally to <1000mm.	DD045

E.7 Vehicle Road Restraint System Asset Group

Safety Fence/Barrier

Observation Description	Code
Circular handrails do not have cross section of 40-50mm diameter.	DD096
Clear space between handrail and adjacent wall is < 60mm.	DD102
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users).	DD093
End of handrail projects into route of travel.	DD092
Free standing object does not meet minimum height criteria of 1000mm.	DD076
Gate latch inoperable by person with reach difficulties (e.g. wheelchair user).	DD101
Handrail of material which is cold to the touch.	DD094
Handrails are not tonally contrasted with background.	DD095
Handrails do not extend 300mm past top and bottom of flight.	DD091
Handrails not continuous across intermediate landings.	DD090
Handrails not provided on both sides of flight.	DD080
Handrails on flight not provided at height of 900-1000mm.	DD089
Inconsistent position of a succession of obstacles necessitates weaving.	DD044
Lack of adequate tonal contrast.	DD099
Obstacle free width is <1300mm.	DD042
Oval handrail does not have cross section of 50-135mm.	DD097
Pole at front of footway out with 500-600mm offset from carriageway.	DD046
Redundant street furniture.	DD100
Staggered barriers/access control is < 1200mm apart.	DD098
Width at footway is restricted locally to <1000mm.	DD045
Width between handrails is <1000mm.	DD077
Width between handrails is <1800mm (this does not allow two-way movement).	DD078
Width between handrails is >1800mm.	DD079