Transport Scotland

Trunk Road Information Manual









1 Introduction

1.1 Document Control

This is Version 2 (Amendment 2) issued on (July 2019) of the Transport Scotland Trunk Road Information Manual (Commonly known as TRIM and hereafter referred to as “this Manual”). The version control table identifies the current Version Number of the Manual and the date it was last modified.

Note. This Manual is a working document and will be updated on an ad-hoc basis to reflect changes to the network, amend existing assets, or to encompass additional assets where required.

Version No.	Date	Comment	Initials
1	2010 to March 2019	Original version of Trunk Road Inspection, Inventory & Condition Manuals.	
2.0	22 March 2019	Original TRIM (Inspection, Inventory & Condition Manuals) combined, amendments for NMC Contract, reformatted for Web site.	Redacted - Regulation 11(2)
2.1	May 2019	**Node Marker Point**. Section Start/End Point Fields removed. Node Type, Node Event Type, Node Material, Node Name fields added. **Footways .** Reference to winter service categorisation removed and alternative categorisation method added. **Dead Animal.** Dead Animal defects added to Litter, Refuse and Detritus, Carriageway, Footway & Cycle Facility Assets.	
2.2	August 2019	**Section 5.3, CAT1a & b defect response times.** All other deferred permanent repairs to be carried out within 28 days. **Section 4.3.4.1, Asset Groups.** Section deleted. **Section 4.2.1, 4.2.3, 4.2.4 & 4.2.5.** Clarify that Safety Inspections and Safety Patrols to be carried out by "At least two people (one driver and at least one Inspector)". **Network Referencing and Node Markers** - Changes to asset requirements. **Traffic Signal Controller** - Changes to asset requirements. **Section 4.1 & 1.3.3 –** Definition and requirements of Comprehensive Inspections amended. **Inspection Names** – Inspection Names amended throughout manual. **Section 4.3.4.2 and condition assessments on linear assets** - amended to require 1 condition rating per assets instead of “for each 100m” except for road markings and studs. **Accessibility Inspection -** Added to assets with Accessibility defects and inspection interval added. **Piped Drainage.** Amendment to Asset Description to clarify collection requirements.	Redacted - Regulation 11(2)

Version No.	Date	Comment	Initials
		Appendix H - Inspection Groupings - Added, summarising Inspection Groupings and Inspections. **Consistent use of terminology** "Routine Monitoring Inspection", "Comprehensive Inspections" & "Visual Assessment Inspection" throughout document. Spelling & punctuation corrections throughout document.	
2.3	September 2019	**Road Marking retro-reflectivity thresholds.** Change to reference TD26/17 Annex C and both Figures C.3i & Figures C.3ii.	

1.2 Enquiries

This Manual is controlled by the Roads Directorate, and any queries regarding this manual should be directed to:

Transport Scotland

Roads Directorate

Asset Management Branch

Buchanan House, 58 Port Dundas Road, Glasgow

1.3 Objectives and Scope

1.3.1 Asset Register

A detailed trunk road asset register is an essential prerequisite of establishing a cost effective and adequate maintenance regime. It is also a vital component of Transport Scotland's Road Asset Management Plan (RAMP) and the starting point for valuation of the asset.

The asset register is the foundation on which asset management is built and when analysed in combination with other data, provides crucial decision support information. Transport Scotland has the responsibility to ensure that Operating Companies maintain a comprehensive, accurate and up-to date record of Assets contained on the trunk road network. Sections Two and Three of Schedule 2 of Transport Scotland's Network Management Contracts (hereafter referred to as "the Contract") state that each Operating Company shall comply with this Manual The purpose of this Manual is to ensure the Operating Company's inspection team collect high quality asset data in a consistent and repeatable manner.

The asset register sections of this Manual is designed to:

a. Clearly and unambiguously describe the Asset data required by Transport Scotland.
b. Describe the conventions to be adopted when collecting/ reporting data.
c. Provide clear demarcation between data that can be collected by roads inspectors, General (G) and that which must be collected by specially trained or qualified staff, Specialist (S).
d. Provide clear instructions and photographs illustrating the conventions and rules to be adopted.

1.3.2 Routine Monitoring Inspections

Routine Monitoring Inspections are carried out at regular intervals on all parts of the network and are designed to predominantly focus on ensuring the network is safe and serviceable. Routine Monitoring Inspections include:

- Safety Inspections
- Safety Patrols

- Night Time Lighting Inspections
- Night Time Reflectivity Inspections

All Routine Monitoring Inspections shall be carried out by the Operating Company at the frequency and as detailed in Section 4.2 of this Manual and as specified under each Asset type.

1.3.3 Comprehensive Inspections

Comprehensive Inspections are designed primarily to establish programmes of routine maintenance tasks not requiring urgent attention. Comprehensive Inspections will generally be carried out as a walked inspection, to identify all Defects but predominantly Category 2 high and Category 2 low Defects and condition ratings where specified. Comprehensive Inspections include:

- Visual Assessment Inspections
- Specialist Inspections
- Accessibility Inspections
- Ad-hoc Inspections

All Comprehensive Inspections shall be carried out by the Operating Company as detailed in section 4.3 of this Manual and as specified under each Asset type.

Details of Defects will be used to prioritise, prepare and submit programmes and bids for the repair of Category 2 Defects. This will produce short to medium term programmes of Operations or Works Contracts necessary to keep the road network in good working order, See Schedule 3 of the Contract for further programming requirements.

Effective asset management planning requires the adoption of a long term strategic assessment through the development of lifecycle plans. This is difficult to achieve using short to medium term programmes derived from Category 2 Defects. Accurate lifecycle plans rely upon a detailed and accurate inventory as well as knowledge of the condition of all assets. Further details on Inspection requirements are contained in Section 4 of this Manual.

1.3.4 Cyclic Maintenance

Most assets will be maintained by identifying Defects by inspection and prioritising, preparing and submitting short to medium term bids and programmes of Operations or Works Contracts. Some assets will also be maintained by Cyclic Maintenance. Cyclic Maintenance is a Core Operation that is 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 shall be carried out by the Operating Company in accordance with:

- the Cyclic Maintenance Operation Interval specified in this Manual stated under each asset type under the heading Cyclic Maintenance
- the Cyclic Maintenance Operation Requirements specified in this Manual stated under each asset type under the heading Cyclic Maintenance and
- the Specification in Schedule 5 of this Contract

Particular attention is drawn to Clauses Series 6200AR of Schedule 5. As a Core Operation all costs associate with Cyclic Maintenance are recovered under fixed price lump sum as per Schedule 4 of the Contract.

The Operating Company shall maintain records of all Cyclic Maintenance carried out, including updating of APMS.

1.3.5 Defects

The Defect sections of this manual contains information on Defects that can be raised against each Asset and Inspection including:

- Schedule of Defect codes specific to the Asset, the Defect attribute, unit of measurement, and minimum and maximum values.

- Notes on specific individual Defects (where applicable).
- An indicative list of Category 1a and b Defects requiring immediate action.
- A list of accessibility Defects (where applicable).
- Where appropriate, relevant photographs shall also be included.

1.3.6 Defect Repairs

All Category 1a, 1b and 2 high Defects shall be repaired by the Operating Company within the timescales and as detailed in section 5.1 of this Manual and as specified under each asset type under the Defects heading. Category 2 low priority Defects shall be brought together into suitable programmes of Operations or Work Contracts as per Schedule 2 and Schedule 3 of the Contract. All Defect repairs and Cyclic Maintenance shall be carried out in accordance with the Specification contained in Schedule 5 of the Contract.

2 Asset Performance Management System

2.1 General

The Asset Performance Management System (APMS) is Transport Scotland's primary road asset management system. The APMS 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.

This Manual describes the survey and inspection regimes, and associated data items, that are reviewed and populated in APMS. The terminology and data fields described in this manual align with those used in APMS.

The Operating Company shall use Transport Scotland's APMS to record all data and carry out the requirements of this Manual. The Operating Company shall be fully responsible for the updating and accuracy of all relevant data held in the APMS.

2.2 Routine Management Maintenance function

The APMS implements management procedures for the routine maintenance of the trunk road network. It enables all inspection and other reports, complaints and third party claims to be assessed in conjunction with the inventory, previous maintenance actions and other relevant data.

Inspections are carried out with hand-held data capture devices (DCD's), using standard data capture programs that include check-lists setting out the various Defects to be noted. The check lists are programmed such that:

- Only the permitted inventory codes can be used with the relevant Comprehensive Inspection codes for each infrastructure item, and
- Inventory codes can only be used if the inventory item exists in the individual section.

The data shall be uploaded into APMS preferably immediately when the inspection has been completed but no later than the timescales specified in this Manual. Information from all inspections and surveys, together with any immediate or programmed action is recorded consistently, analysed and reviewed in conjunction with other relevant survey information to enable a holistic view to be taken of maintenance condition and trends related to network characteristics and use. Records of assessments, planned actions and actions taken will be used for performance indicators, benchmarking and efficiency.

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. The APMS forms part of the quality management system and is used for analysis of the records collected and the production of summaries of the information at appropriate levels of detail. Statistical, logistical and financial analyses of the records enable the performance of engineering assets to be assessed over a prolonged period of time.

2.3 General Principals

2.3.1 Section Referencing

Section Referencing provides a consistent and robust location referencing system, enabling the accurate and reliable allocation of data to the trunk road network for which Transport Scotland is responsible.

Transport Scotland's trunk road network is defined such that a unique identifier can be given to any location on the network. The APMS requires the road network to be divided into **Links** which are further divided into **Sections**. The combination of the Link Code and the Section Number is referred to as the Section Identifier, or Section ID. A **node** is specified at each end of the Section and is used to identify a fixed point on the road surface. The location across the road is specified by the use of **Cross Sectional Position** (XSP) codes.

2.3.1.1 Section Referencing Principles

The Scottish trunk road network is defined by a linear network referencing system. This system is used to divide each route on the network into distinct lengths of Links and Sections. Each Link and Section has attributes defining its location, road characteristics and shape, where:

- Links - form the primary division of the trunk road network and are generally assigned to lengths of road between major junctions; and
- Sections - are subdivisions of links and are defined between easily identifiable features such as minor junctions, major structures, change of surface, change of speed restriction, change in the number of permanent lanes, roundabouts, slip road entry and slip road off.

2.3.1.2 Section Reference Markers

The start and end points of Links and Sections are marked by sets of studs, or nodes. Each node represents a fixed definable point on the road surface to which chainage can be related. Nodes also assist with the correlation of the data with other network systems such as the Scottish Roads Traffic Database (SRTDb).

A Link node is indicated by three marker studs while a Section node is indicated by two marker studs:

⋯ Indicates the start of a new Link (assigned a five-digit number, i.e. **99999**/xx)

·· Indicates the start of a new Section (assigned a two-digit number i.e. xxxxx/**99**)

The definitive trunk road network (nodes, links and sections) is held in APMS. This provides the reference basis for all inventory and inspection surveys and shall be used by the Operating Company as the primary referencing system. . Where there are considered to be anomalies in the APMS network it should be discussed with Transport Scotland (where appropriate, following the procedure set down in Schedule 2 of the NMC contract).

Node markers on the trunk road network must be accurately located and visible at all times. All missing or Defective node marker installations are treated as Category 1 Defects and must be replaced by the Operating Company in accordance with the Contract.

Once the network has been defined in terms of Links and Sections, inventory and inspection surveys can be undertaken. There are a number of rules and conditions which the Operating Company shall apply when conducting surveys, as follows:

2.3.1.3 Direction of Survey

In APMS the start and end nodes define the direction of survey. The following conventions are used:

- On single carriageway roads the normal survey direction is that of increasing section numbers, e.g. 10403/05, 10403/06, 10403/07 etc.
- For dual carriageways the start and end of a section is specified in the direction of traffic flow.
- Inventory items lying outside the node positions are recorded at the chainage of the node, for example at approaches to roundabouts.

The inspection team are informed of the survey direction indicated by the APMS before starting its measurements. Surveys in the reverse direction are supported by the system and are used, for example, for safety reasons. If a section is surveyed in the reverse direction the XSP's must be entered facing towards the position at which the survey was started, i.e. look backwards.

2.3.1.4 Nominated Section

An Asset or Defect which occurs in the central reserve of a dual carriageway or motorway and is common to both carriageways is only recorded once. Examples include double sided guardrail, double bracket lamp column and bridges. To facilitate this requirement one direction of the carriageway is 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 or Westbound etc. The nominated direction is contained within the section information of the APMS and should be ascertained before starting any survey.

2.3.2 Measurement of Chainage

In general all chainage measurements are made along the left-hand edge of the carriageway or hardshoulder 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.

2.3.3 Inventory locational accuracy

The purpose of the APMS asset register is to facilitate the management of the asset. An allowable tolerance of +/-5m shall be achieved for most items with a maximum error of +/-10m for a small number of items. This level of locational accuracy should be achievable from commonly available retail GPS devices. In addition the Inspector should also use low scale/high detail maps such as Mastermap to ensure items are well positioned, and correctly represented particularly for the transverse location of items e.g. signs are placed on verges and gullies are at carriageway edges.

2.3.4 Cross-Sectional Position (XSP)

Each APMS Section 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 a number of identifiable longitudinal strips that correspond to features such as lanes, and lines that indicate the edge of the carriageway etc. 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 APMS are shown in Table 1 with the numbering and position of the XSPs across the road.

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		
Right Off Carriageway	R	Strip	1 to 4. Left to Right
Right Boundary Area	RA	Strip	
Right Boundary	RB	Line	

3 Asset Register

3.1 General

This part of the Manual details the asset procedures which are to be followed for the operation of the APMS and describes various conventions to be adopted when undertaking surveys or during other visits to site. The Operating Company shall comply with this Manual in order to ensure consistency in the database record. The data collected for items identified during the surveys or other site visits is entered into the Data Capture Device (DCD) and then uploaded to the APMS. In general terms collected data should include:

a. Location information and a definition and/or description of each item.
b. A schedule of details to be entered into the DCD during 'on-site' data entry including the details of units of measurements and ranges of data input.
c. A schedule of data to be entered directly into APMS derived from information held 'off-site' including the details of units of measurements and ranges of data input.
d. Adhere to and incorporate the rules and details of any conventions which are adopted in defining the item.
e. Where appropriate ensure relevant photographs, Electrical Inspection and Test Certificates (BS7671) and similar are included and inserted along with other data into APMS.

3.2 Asset Items

The list of Assets that shall be recorded by the Operating Company is listed in the table below. Each item within the table references the section detailing the required attributes to be collected for each asset. For some assets, e.g. horticulture or equipment with integral electrical aspects, additional details are to be completed, i.e. the 'off-site' information. It shall be the responsibility of the Operating Company to ensure 'off-site' information is correct and accurately reflects the status of the equipment item on the site. This shall be achieved by all necessary site visits and diligently updating off-site information whenever site replacement, repair, change in electricity supplier, refurbishment work or similar is carried out and is known to alter the recorded status.

Note: Identification of electrical components forming part of electrically energised apparatus should only be carried out by persons competent to carry out such work. Such inventory items are intended to be collected by Specialist staff. Outline guidance with regard to suitable safe working procedures that should be adopted into the Operating Company's own Method Statement for carrying out such work.

3.3 Common Attributes

Field Name	Field Format	Field Required	Comments
Item UID	UID	Mandatory	Comment A Unique ID assigned by the system.
Location Attributes			
Link/Section	Lookup	Mandatory	Comment Network reference assigned by the system based on the asset location (or first point for linear & polygon shapes). The Link/Section value will reference other information such as Area, road, Maintenance organisation etc.
Chainage	Number	Desirable	Comment Chainage along Link/Section assigned by the system based on the asset location (or first point for linear & polygon shapes).
XSP	Lookup	Desirable	Comment Cross Sectional Position (XSP), see section 3.2. Default Value = "?"
Location Description	Text	Optional	Comment Some assets may be located some distance from the road or be difficult to find. A text description should be added where it would be helpful to assist in finding assets.
Item Identity Code	Text	Optional	Comment Some assets may have an identity code attached, where present it shall be entered into APMS.

Field Name	Field Format	Field Required	Comments
Ownership and Maintenance Attributes			
Owner	Lookup	Mandatory	Comment Default Value = "Scottish Ministers". The owner of the asset. The owner will normally be "Scottish Ministers", however, some assets within or adjacent to the Trunk Road which may be owned by other organisations (e.g. Local Authorities, Statutory Undertakers or local land owners) and be required to be recorded. The ownership of certain assets will be important in defining some inspection and maintenance activities (i.e. some inspection/maintenance activities may be required on all assets where as some may only be required on assets owned by Scottish Ministers).
Owner (3rd party/Other)	Text	Conditional (Mandatory)	Comment Where the Owner is not Scottish Ministers details of the owner should be entered.
Maintenance Contract	Lookup	Mandatory	Comment Default Value = OC/DBFO. Where the owner is not Scottish Ministers this field shall be changed to reflect the alternative owner. This field shall be used to define which maintenance Contractor is responsible for certain assets where more than one organisation may be responsible for an asset class. Most commonly it is used to define responsibilities between Operating Companies and Traffic Scotland (e.g. on cabinets). This field will also be used in a small number of cases where ownership and maintenance responsibilities may be split (e.g. street lightning, traffic signs, landscaping).
Start End Dates			
Start Date	Date	Required	Comment Default Value = 1/1/1900. The Start Date shall be entered for all new assets. For existing assets the Start Date should reflect the date an asset was installed. If the exact installation date is not known it can be entered as 01/mm/yyyy if an approximate month is known or 01/01/yyyy where the approximate year is known. If an approximate in installation date is not known then 01/01/1900 shall be entered. For new build schemes the start date can be the opening date. The start date will influence inspection and maintenance KPIs but must not be edited to influence KPI analysis.
End Date	Date	Required	Comment Default Value = 1/1/9999. The End Date shall be entered for all end dated assets. The End Date should reflect the date an asset was removed from the network or decommissioned. If the exact installation date is not known it can be entered as 01/mm/yyyy if an approximate month is known or 01/01/yyyy where the approximate year is known. If an approximate in decommissioning date is not known then the current date shall be entered. For new build schemes replacing old assets the End Date can be the date when the Contractor takes over the site. The End Date will influence inspection and maintenance KPIs but must not be edited to influence KPI analysis.
Survey Date	Date/time	Required	Comment Default Value = current date for new assets. .
GIS Attributes			
Easting	Number (decimal)	Mandatory	Comment Easting co-ordinate based on OSGB36 grid reference (first point of linear/polygon shapes).

Field Name	Field Format	Field Required	Comments
Northing	Number (decimal)	Mandatory	Comment Northing co-ordinate based on OSGB36 grid reference (first point of linear/polygon shapes).
Digital Length	Number (decimal)	System	Comment Derived by the system for linear and polygon shapes.
Digital Area	Number (decimal)	System	Comment Derived by the system for polygon shapes.
XSP Offset	Number (decimal)	System	Comment Derived by the system representing the offset in metres from the assigned link/section shape (first point of linear/polygon shapes).

3.3.1 Asset Shape Type

The position of an inventory item within a section shall be recorded by chainage and cross-sectional position. Inventory items are categorised as 'point', 'continuous' or polygon (area) items.

- Point items – occur at a specific location along a section and have a short length in the chainage direction, i.e. the start chainage is almost the same as the end chainage. A point item is located by its (i) section identifier; (ii) cross-sectional position (XSP); and (iii) chainage, where the chainage is measured from the start of the section. Examples of point items include bollard, lighting point and gully.
- Continuous (linear) items – items that have sufficient length to merit the recording of a start and end chainage. A continuous item is located by its (i) section identifier; (ii) start chainage, where the chainage is measured from the start of the section; and (iii) cross-sectional position (except where the cross-sectional position is not required, e.g. carriageway and bridges). Examples of continuous items include central reserve, cycle facility and verge.
- Polygon (area) items – items that have a significant area but an irregular shape. A polygon is located by its (i) section identifier; (ii) start chainage (of the first point), where the chainage is measured from the start of the section; (iii) cross-sectional position; (iv) sequence of straight line segments defining the boundary of the polygon. Examples of polygon items are embankments and cuttings and woodlands.

3.4 Asset Register accuracy and completeness

3.4.1 New installations

New assets can be added to the network from a variety of situations including:

- Operating Company maintenance schemes
- 3rd part developments, e.g. Local Authority or developer schemes
- Statutory Undertakers works
- Major improvement schemes e.g. mTRIPS schemes

The Operating Company shall be responsible for ensuring that any new or replaced asset installations are recorded into the Asset Performance Management System within 28 days of installation or road opening to traffic.

Wherever possible the Operating Company shall obtain as built information in electronic form such as CAD or GIS files which incorporate information on below ground infrastructure such as drainage pipe and cabling runs. The Operating Company shall extract all relevant information in a format matching the Asset Register and upload it to the Asset Performance Management System. All data uploaded should be ensure by a site visit to verify that it correctly matches the assets on site.

Where it is not possible to obtain electronic data, the Operating Company shall collect asset data on site.

4 Inspections and Patrols

This Manual sets out Transport Scotland's requirements for inspections of Scottish Ministers' assets which the Operating Company is responsible for maintaining. The requirements for inspection types, frequencies and Defect responses have – where appropriate – been specified by Transport Scotland in this Manual. The Operating Company shall comply with these requirements. These take account of the need for the trunk road network to be safe, serviceable and have a good appearance to road users. It also ensures a consistent approach across the Operating Company Units.

In accordance with the Well Managed Highway Infrastructure Code of Practice, the Operating Company should develop their understanding of asset performance through these inspections and may propose alternatives to Transport Scotland for review and approval. Any alternatives must be data led and not increase the level of risk to which road users are exposed to or decrease the serviceability of any assets.

The Operating Company shall treat the safety, health and welfare of its inspection teams with the highest priority at all times and shall ensure the safety, and where possible minimise inconvenience, of the public road users when inspections are being carried out. The Operating Company will be expected to comply with industry best practice and this Manual as well as the Contract and relevant legislation and standards.

For ease of use, this section of the Manual is split into three sub sections

- Planning and Managing Network Inspections
- Routine Monitoring Inspections
- Comprehensive Inspections

4.1 Planning and Managing Network Inspections

4.1.1 Types of Inspections

The inspections are split into the following survey types based on their purpose and the need for specialist training/qualifications. All Routine Monitoring and Comprehensive Inspections shall be carried out by accredited inspectors registered on Transport Scotland's Register of Inspectors, however some inspections require additional qualifications and/or experience.

4.1.1.1 Routine Monitoring Inspections

Routine Monitoring Inspections include:

- **Safety Inspections** – Safety Inspections will predominantly focus on ensuring the network is safe and serviceable. They are generally driven inspections of all assets designed to identify Defects likely to create a danger to the public and therefore require immediate or urgent attention or Defects which can be remedied easily to improve the appearance and function of the network. This includes Defects which have the potential to become a danger to the public prior to the next Safety Inspection or Safety Patrol. Safety inspections shall be carried out at speeds not exceeding 50 miles per hour to ensure inspectors are able to identify and record Defects. Inspectors may be required to carry out parts of the inspection on foot if further inspection of an asset is required. On single carriageways, the direction in which the Safety Inspection is carried out shall alternate weekly to ensure that the perspective of all road users is taken into account.
- **Safety Patrols** – Safety Patrols are visual inspections from a vehicle designed to supplement Safety Inspections by providing a more frequent surveillance of the road network to identify serious Defects or hazards to the road user. Their purpose is identical to Safety Inspections. They are undertaken on all roads during the winter period of 1st October to 31st March and on selected routes only between 1st April and 31st September. Safety Patrols will be carried out midway between Safety Inspections. Safety Patrols may be carried out at the prevailing traffic speed. On single carriageways, the direction in which the Safety Patrol is carried out shall be the opposite to that of the Safety Inspection done immediately before
- **Night Time Lighting Safety Inspections** – Night time inspections of assets whose purpose is to provide illumination or be prominent during darkness to ensure all assets which provide light have the correct visibility. As a minimum, a Night Time Lighting Inspection should inspect all Defects visible from a front seats of a vehicle or by walking where necessary. It may be carried out at the prevailing traffic speed.

- **Night Time Reflectivity Safety Inspections** – Night time inspections of reflective assets (including, but not limited to, road markings and studs, traffic signs and bollards) are to ensure that these can be seen adequately in darkness. This inspection should inspect all Defects visible from a front seats of a vehicle travelling at the prevailing traffic speed.

4.1.1.2 Comprehensive Inspections

Comprehensive Inspections include:

- **Visual Assessment Inspections** – Visual Assessment Inspections are designed primarily to establish programmes of routine maintenance tasks not requiring urgent attention. The data collected also informs future maintenance strategies and can inform an understanding of the typical asset lifecycles. Visual Assessment Inspections are generally carried out on foot, using traffic management, where required, to allow the inspectors to safely and accurately assess assets at close quarters. The frequency of Visual Assessment Inspections varies according to the asset. During each Visual Assessment Inspections, Inspectors shall:
    - Visually assess the condition of each asset at close quarters,
    - Record an inspection record against each individual asset inspected (by clicking on each asset on the inspection software),
    - Confirm the accuracy and completeness of asset attributes and correct all errors,
    - record any defects present against each asset,
    - Record condition ratings for assets required by this manual,
    - Record measurement results e.g. Traffic Sign reflectivity, for assets required by this manual,
    - Record inspection checklists e.g. Safety fence inspection checklist, for assets required by this manual.
- **Specialist Inspections** – Specialist Inspections are similar to Visual Assessment Inspections, however those undertaking the inspection must have appropriate additional qualifications and be competent to assess the specific asset to be inspected. These qualifications are listed in this Manual. A Condition Rating is also required for some assets.
- **Accessibility Inspections** – a subset of Specialist Inspections, Accessibility Inspections are carried out to comply with the Equality Act and Transport Scotland's Roads for All. This inspection shall examine all assets visible during the inspection. Accessibility inspections shall only be undertaken by Specialist Inspectors with specific training and approved by Transport Scotland.
- **Ad-hoc Inspections** – similar to Visual Assessment Inspections, Ad-hoc inspections are carried out on localised sections of the network in response to reports of Defects from the public, Police or other organisations.

4.1.2 Network Appearance

The presentation of the trunk roadwork is crucial to the satisfaction of road users and the communities which the trunk road passes through. It is also an important topic for elected members throughout Scotland. Business who are considering investing in Scotland should have a positive impression of the nation's infrastructure in order to have the confidence to bring employment and opportunities.

Defects, such as overgrown vegetation at traffic signs, litter, worn road markings or flooding can easily create the impression that the network is poorly maintained and managed by Transport Scotland and Operating Companies. The Operating Company therefore shall be proactive in identifying Defects and ensuring they are responded to in the correct way and timescale.

4.1.3 Training

All inspections are to be conducted by suitably trained and qualified operatives. Trainees must be supervised by a qualified inspector at all times until they obtain the relevant qualification. Inspectors are required to log into Transport Scotland's inspection software in order to carry out and record inspections. Each inspector will have unique log-in details (a user identification and a password) which must not be shared with any other member of the Operating Company's staff

Inspectors carrying out Routine Inspections and Comprehensive Inspections must have undertaken the Transport Scotland Road Inspection Course and gained a Trunk Road Network Inspectors Certificate of Competency.

Comprehensive Inspections requiring Specialist inspections must only be conducted by suitably trained and qualified inspectors, as set out in in this Manual. This may require the employment of 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.

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.

There are three grades of Inspector, who are overseen by a Network Data Manager:

- Trainee Inspector: currently undertaking vocational training in order to achieve Accredited Inspector status. Trainee Inspectors may carry out Routine Monitoring Inspections and Comprehensive Inspections provided they are under constant supervision of an Accredited Inspector.
- Accredited Inspector: will have received vocational training, completed and passed Scottish Trunk Road Inspector Accreditation Course (or similar approved by Transport Scotland) and be registered as an Accredited Inspector on Transport Scotland's Register of Trunk Road Inspectors. Accredited Inspectors may carry out Routine Monitoring Inspections and Comprehensive Inspections.
- Specialist Inspector: will have specialist qualifications or experience relevant to the type of inspections being undertaken. Specialist Inspectors shall only be permitted to carry out the types of Specialist Inspection their qualifications allows them to do, however it is acceptable for Accredited Inspectors to carry out some Specialist Inspections provided they meet the relevant criteria for Specialist Inspectors. Specialist Inspectors shall be registered on Transport Scotland's Register of Trunk Road Inspectors for specific types of Specialist Inspection.

The Network Data Manger is responsible for planning inspections including the sufficiency of the number of accredited inspectors available at all times and ensuring the Operating Company's obligations in relation to inspections and associated data provision are fully discharged.

4.1.4 Qualifications for Specialist Inspectors

Inspection	Qualification	Experience
Road Markings Retroreflectivity Specialist Inspection	• Manufacturer's training in using the apparatus required to undertake the inspection	No mandatory experience, however, some experience in using retroreflectivity measurement equipment is desirable
Road Markings Skid Resistance Specialist Inspection	• Manufacturer's training in using the apparatus required to undertake the inspection	No mandatory experience, however, some experience in using measurement equipment is desirable
Internal Drainage Specialist Inspection	• CGLI Level 3 6150	
Geotechnical Assets Specialist Inspector	• Relevant training in methods of inspection, recognition of geotechnical characteristics and the condition of geotechnical assets suitable experience	At least one member of each inspection team shall have specialist experience of geotechnical activities
Landscape Specialist	• Membership of a relevant professional body	Experience in assessing condition of trees, shrubs and other relevant vegetation
Traffic Signs and Bollards Retroreflectivity Specialist Inspection	• Manufacturer's training in using the apparatus required to undertake the inspection	No mandatory experience, however, some experience in using retroreflectivity measurement equipment is desirable
Weather Stations Specialist Inspection	• Manufacturer's training in maintenance of apparatus	
Vehicle Restraint Systems Specialist Inspection	• NHSS10B Foundation Course • NHSS10B Installer Course	Experience in installing and inspecting all types of proprietary systems being inspected and all non-proprietary systems
Traffic Signals Monthly Specialist Inspection	• Relevant training and experience in Inspection and maintenance of Traffic Signals	
Traffic Signals Annual Specialist Inspection	• Relevant training and experience in Inspection and maintenance of Traffic Signals	
Electrical	• Diploma in Highway Electrical Systems • HESA NVQ/SVQ Level 2 – (Supervisor) • HESA NVQ/SVQ Level 3 – (Supervisor)	Sufficient experience and competency measured against The Electricity Association Engineering Recommendation G39/1 'benchmark'
Accessibility Inspections	• Member of the National Register of Access Consultants	
Electrical	• 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'

Internal Drainage	• CGLI Level 2 6150	
Geotechnical Specialist	• A chartered member of a relevant professional body	Experience that is suitable and relative to the activity.
Landscape Architect	• A chartered member of the Landscape Institute.	Experience that is suitable and relative to the activity.
Arborist	• Relevant, nationally recognised qualification and suitable experience	
Specialist Vehicle Restraint Inspection	• FISS/CSCS Gold Card • NHSS10B Foundation Course • NHSS10B Installer Course	Experience in installing and inspecting all types of proprietary systems being inspected and all non-proprietary systems

Transport Scotland may request evidence of qualifications and experience of proposed Specialist Inspectors prior to issuing log-in details to Transport Scotland's Inspection Software.

4.1.5 Data Collection and Management

Operating Companies shall:-

- Capture video images while conducting safety inspections and patrols and upload the footage within 12 hours of completing the inspection or patrol.
- Record Defect information on Transport Scotland's Inspection Software, which is consistent with the Defects in this manual
- Carry out a risk assessment to categorise Defects as set out in this manual
- Capture digital photographic evidence of Defects and upload to APMS within 6 hours.
- Upload inspection data to APMS within 6 hours of completing each day's inspection activities.
- Monitor Category 2 High Defects during subsequent Safety Inspections
- Be responsible for auditing completion and accuracy of inspections and inspectors, and for implementing improvement actions in order to meet the requirements of the Contract.
- Analyse inspection and network condition data at least annually and review the need for any increased inspection frequency based on trends identified in Defect data. The results shall be submitted to Transport Scotland in a report format within 2 months of each anniversary of the commencement of the Contract. The minimum requirements for reporting are specified in the next section of this manual

4.1.5.1 Minimum Requirements for Annual Network Condition and Inspection Report

The Annual Network Condition and Inspection Report shall include the following information in a tabular format (on a Unit-wide and individual route basis) as a minimum:

- Number of Defects in each category per kilometre (end to end) (non-carriageway Defects only)
- Number of Defects in each category per lane kilometre (end to end) (carriageway Defects only)
- Number of Defects in each category and in each Defect code
- Number of Defects in each category by month of recording
- Number of recorded Defects at start of year (excludes accessibility Defects)
- Number of Defects created in year (excludes accessibility Defects)
- Number of Defects closed in year (excludes accessibility Defects)
- Number of recorded Defects at end of year (excludes accessibility Defects)
- Number of Cat 2 Low and Cat 3 Defects (excludes accessibility Defects) remaining open for longer than 12 months
- Number of recorded accessibility Defects at start of year
- Number of accessibility Defects created in year
- Number of accessibility Defects closed in year

- Number of recorded accessibility Defects at end of year
- Number of Defects in each category recorded by Routine Monitoring Inspections (sub divided by each type e.g. Safety Inspections, Safety Patrols) and Comprehensive (sub divided by Inspection group).
- Number of inspections required and number of inspections carried out
- Report number of inspections complying with specification

The Operating Company should discuss other possible sources of information with Transport Scotland prior to their inclusion in the Annual Network Condition and Inspection Report.

4.2 Routine Monitoring Inspections

This section sets out Transport Scotland's requirements for Routine Monitoring inspections of Scottish Ministers' Assets which Operating Companies are responsible for maintaining. The inspection types, frequencies and Defect responses have – where appropriate – been specified by Transport Scotland in this Manual and the Operating Company shall comply with all such requirements. These take account of the need for the trunk road network to be safe, serviceable and have a good appearance to road users. It also ensures a consistent approach across the Operating Company Units.

In accordance with the Well Maintained Highway Infrastructure Code of Practice, Operating Companies should develop their understanding of asset performance through these inspections and may propose alternatives to Transport Scotland for review and approval. Any alternatives must be data led and not increase the level of risk to which road users are exposed to or decrease the serviceability of any assets.

Safety Inspections, Safety Patrols and Night Time Inspections shall inspect all assets visible from the vehicle used to carry out the inspections, with potential Defects inspected on foot if required. Inspections may be required to walk some parts of the inspection in the event of parked cars or other obstructions limiting their view.

Inspectors are reminded to take consider all road users where appropriate, including cyclists, pedestrians, equestrians and those with disabilities.

4.2.1 Safety Inspections

Safety inspections are designed to identify those Defects which are likely to constitute a danger to the public, road users, maintenance personnel, livestock or property and therefore require immediate or urgent attention (Category 1a and 1b Defects).

Safety Inspections shall be carried out by the Operating Company at intervals not exceeding seven days on all Trunk Roads including slip roads. Where possible, Safety Inspections shall be carried out during off-peak traffic periods in order to minimise traffic disruption and improve visibility of the network.

Each year at least two Safety Inspections shall be carried out either during, or immediately following, a period of wet weather to identify areas prone to flooding. There shall be a minimum period of three months between wet weather Safety Inspections.

Safety Inspections shall inspect all that can be seen from a slow moving vehicle, travelling and speeds not exceeding 50mph, and inspecting all that can be seen within the boundary of the Trunk Road (however, where a Defect is observed that may be a danger to the public, road users, maintenance personnel, livestock or property it may be necessary to investigate further on foot). At least two people (one driver and at least one Inspector) shall undertake Safety Inspection. Safety Inspections vehicles shall have the capability to contact the Operating Company's Control Room, TRISS and other emergency support teams in the event of identifying a serious incident or Defect that requires immediate action.

The Operating Company shall document procedures in its Management System for determining the appropriate inspection speeds for Safety Inspections. It may be necessary to undertake some safety inspections on foot, especially on footways, or where electrically energised apparatus is present. The planning of routes should ensure that Inspectors can easily complete the route within a day and allow sufficient float for Inspectors to stop, record Defects and deal with Category 1a Defects.

Safety Inspections shall be recorded against the network referencing and includes the date and time and GPS breadcrumb trail for each part of the network completed. All Safety Inspection data, including inspection route

and Defect data, shall be uploaded into the Asset Performance Management system within 6 hours of the Safety Inspection completion.

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.

It shall be noted that where the item of equipment is electrically energised or contains electrically energised parts the inspection of that item is required to conform to the inspection and testing requirements of BS7671.

4.2.2 Safety Inspection video recording

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 the completion of the inspection. This ensures that an indisputable record of the inspection is available to respond to queries from the public and allows asset condition to be monitored over time.

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 sufficient 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 that includes:

- A date/time and map based search facility
- A map and video playback simultaneously showing the video and its corresponding location on a map
- Have the facility to download videos as necessary.

All videos shall be available on the web based service for a minimum of 1 year after Inspection. Thereafter at least 1 video per month for every part of the network shall be available for the remaining duration of the Contract.

The Operating Company shall provide access to authorised members of Transport Scotland Staff and PAG.

All videos shall be stored offline for the duration of the Contract with acceptable back-up facilities.

4.2.3 Safety Patrols

Safety Patrols are designed to supplement Safety Inspections by providing a structured, more frequent surveillance of the Trunk Road Network to identify Category 1a and 1b Defects.

Safety Patrols shall be carried out by the Operating Company midway between Safety Inspections such that a Safety Inspection or a Safety Patrol shall be carried out at intervals not exceeding 4 days.

Safety Patrols shall be carried out from a vehicle travelling at prevailing traffic speed and shall inspect all that can be seen within the boundary of the Trunk Road (however, where a Defect is observed that may be a danger to the public, road users, maintenance personnel, livestock or property it may be necessary to investigate further on foot). At least two people (one driver and at least one Inspector) shall undertake Safety Patrol. Safety Patrols vehicles shall have the capability to contact the Operating Company's Control Room, TRISS and other emergency support teams in the event of identifying a serious incident or Defect that requires immediate action.

The Operating Company shall document procedures in its Management System for determining the appropriate inspection speeds for Safety Patrols. The planning of routes should ensure that Inspectors can easily complete the route within a day and allow sufficient float for Inspectors to stop, record Defects and deal with Category 1a Defects as well as Inspector/Driver health and welfare considerations.

Safety Patrol shall be recorded against the network referencing and includes the date and time and GPS breadcrumb trail for each part of the network completed. All Safety Patrol data, including inspection route and Defect data, shall be uploaded into the Asset Performance Management system within 24 hours of the Safety Inspection commencing.

On single carriageways the direction of travel should be the opposite from the preceding Safety Inspection (and will therefore alternate from week to week) so that the route can be inspected regularly from both directions of travel.

It may be necessary to undertake some safety inspections on foot, especially on footways, or where electrically energised apparatus is present.

Between 1st October and 31st March for each Annual Period Safety Patrols shall be carried out on all Trunk Roads including slip roads.

Between 1 April and 30th September for each Annual Period Safety Patrols shall be carried out on the following roads:

South East Unit	
Road	**Extents**
M8	from unit boundary 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 Unit	
M74	from the M8 J22 to M74 J12
M77	from the M8 J22 to A77 Ayr Road overbridge
M8	from to J31 at the A8
M80	from the M8 J13 to the south extent of the M80 DBFO at near J2
M898	from the M8 J30 to the A898
A725	from Whitemoss Roundabout to M8DBFO 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 (Figure P) 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 Unit	
A82	from Crianlarich north roundabout to A811 roundabout
A9	from Inveralmond roundabout to the A924 Pitlochry
North East Unit	
M90	from Halbeath Interchange to the A9 Broxden Roundabout

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)

4.2.4 Night Time Lighting Safety Inspections

Night Time Lighting Safety Inspections are designed to primarily identify illuminated signs, illuminated bollards and lighting points (including but not limited to road lighting, flood lighting, underpass lighting, architectural lighting, navigational lighting, pedestrian lighting, bus shelter lighting and festive lighting) that are not providing the required level of illumination.

Night Time Lighting Safety Inspections shall be carried out by the Operating Company on all Trunk Roads including slip roads were there are illuminated signs, illuminated bollards and lighting points. Night time Safety Inspections shall be carried out after dark, between one hour after sunset and one hour before sunrise, in order to undertake the inspection in typical night time conditions. At least two people (one driver and at least one Inspector) shall undertake each Night Time Lighting Safety Inspections .

Night Time Lighting Safety Inspections shall inspect all illuminated signs, illuminated bollards and lighting points. Most assets will be visible from a slow moving vehicle but some will require a walked inspection, e.g. underpass lighting.

The Operating Company shall documented procedures in its Management System for determining the appropriate inspection speeds and methods for Night Time Lighting Safety Inspections , including locations where alternative methods of inspection are required.

Night Time Lighting Safety Inspections shall be recorded against the network referencing and includes the date and time and GPS breadcrumb trail for each part of the network completed. All Night Time Lighting Safety Inspections data, including inspection route and Defect data, shall be uploaded into the Asset Performance Management system within 24 hours of the Night Time Lighting Safety Inspections commencing.

Between 1st October to 31st March Night Time Lighting Safety Inspections shall be carried out at intervals net exceeding 14 days and at intervals not exceeding 28 days between 1st April to 30th September.

4.2.5 Night Time Reflectivity Safety Inspections

Night Time Reflectivity Safety Inspections are designed to primarily identity reflective traffic signs, road markings and road studs that are not providing the required level of reflectivity or providing the required direction.

Night Time Reflectivity Safety Inspections shall be carried out by the Operating Company on all Trunk Roads including slip roads. On single carriageways, the Night Time Reflectivity Inspections shall be carried out in both directions to ensure that so that the route can be inspected from both directions of travel. Night Time Reflectivity Safety Inspections shall be carried out after dark, between one hour after sunset and one hour before sunrise, in order undertake the inspection in typical night time conditions. At least two people (one driver and at least one Inspector) shall undertake each Night Time Reflectivity Safety Inspections.

The Operating Company shall document procedures in its Management System for determining the appropriate inspection speeds and methods for Night Time Reflectivity Safety Inspections. It may be necessary to undertake some Night Time Reflectivity Safety Inspections on foot. The planning of routes should ensure that Inspectors can easily complete the route within a night and allow sufficient float for Inspectors to stop, record defects and deal with Category 1a Defects.

Night Time Reflectivity Safety Inspections shall be recorded against the network referencing and includes the date and time and GPS breadcrumb trail for each part of the network completed. All Night Time Reflectivity Safety Inspections data, including inspection route and Defect data, shall be uploaded into the Asset Performance Management system within 24 hours of the Safety Inspection commencing.

4.3 Comprehensive Inspections

This section sets out Transport Scotland's requirements for comprehensive inspections of assets which Operating Companies are responsible for maintaining. The inspection types, frequencies and Defect responses have – where appropriate – been specified by Transport Scotland in this Manual. These take account of the need for the trunk road network to be safe, serviceable and in the best condition possible. It also ensures a consistent approach across the Operating Company Units.

In accordance with the Well Maintained Highway Infrastructure Code of Practice, Operating Companies should develop their understanding of asset performance through these inspections and may propose alternatives to Transport Scotland for review and approval. Any alternatives must be based on evidence and not increase the level of risk to which road users are exposed to or the serviceability of any assets.

4.3.1 General Requirements

Comprehensive Inspections are generally walked inspections designed to establish programmes of routine maintenance tasks which do not require urgent execution.

All Comprehensive Inspections shall be carried out by the Operating Company at the interval and in accordance with the requirements stated for each asset under the heading "Inspections" in this Manual or at intervals not exceeding 12 months if an interval is not stated.

Unless stated otherwise in this Manual, Comprehensive Inspections shall normally be carried out from the footway, hardshoulder, verge or nearside lane. Certain assets detailed in this manual and within or adjacent to a central reserve on a motorway or dual carriageway shall require an additional inspection of such items to be undertaken from the offside lane.

Comprehensive Inspections should be arranged to minimise disruption to traffic, other road users and the public, while ensuring adequate access to allow proper inspection and provide a safe working environment for the inspection personnel involved. Whenever practicable, Comprehensive Inspections which necessitate Lane Occupations should be carried out in conjunction with other Operations. Where separate Lane Occupations are necessary, Comprehensive Inspections should be undertaken in off-peak traffic conditions. The Operating Company shall plans its schedule of Comprehensive Inspections requiring a Lane Occupation to ensure that as far as is practical, all Comprehensive Inspections are carried out and completed during that Lane Occupation.

During Comprehensive Inspections the Operating Company shall review the accuracy of inventory. Any errors with the mandatory attributes shall be corrected at the time of inspection. All other attributes shall be corrected within four days. Such errors shall also be processed and corrected in accordance with the documented procedures in the Operating Company's Management System.

The Operating Company shall documented procedures in its Management System detailing how Comprehensive Inspections shall be carried out.

Comprehensive Inspections Inspection records shall be uploaded into the APMS within 24 hours of the relevant records being recorded.

4.3.2 Comprehensive Inspection Groupings

To ensure that Comprehensive Inspections are done accurately and produce data which can be used for decision making, Operating Companies shall limit the number of assets inspected during each inspection. The Inspection groupings have been designed to take account of safety of staff and road users, requirements for traffic management, specialist equipment and the location of the assets in the road space. Each Grouping represents an inspection operation which shall not be undertaken by the same Inspector at the same time as any other Operation. To make best use of available road closures, Operating Companies should schedule multiple Inspectors, carrying out multiple Inspection groupings under road closure. Alternatively a single Inspector may carry out multiple Inspection groupings over multiple passes.

Inspections and Inspection groupings are detailed with each asset in this Manual.

The Operating Company may propose alternatives to either the inventory types covered in each group or the inspection frequencies. These should take account of specific network requirements, operational efficiencies and innovative technologies which the Operating Company considers may enhance the service provided to road users and/or Transport Scotland. Should alternatives be proposed, the Operating Company shall submit a

revised proposal to Transport Scotland for consideration. No changes to the Inspection Groupings shall be made without written approval from Transport Scotland.

4.3.3 Visual Assessment Inspections

Visual Assessment Inspections are generally walking inspections designed to establish programmes of routine maintenance tasks which do not require urgent execution.

All Visual Assessment Inspections shall be carried out by the Operating Company at the interval and in accordance with the requirements stated for each Asset in this Manual.

4.3.3.1 Landscape Opportunity Inspections

The Operating Company's Landscape Architect is required to prepare and maintain a schedule of landscape opportunities for use in the preparation of a Landscape Development Plan. The schedule of landscape opportunities is informed by the results of the regular Landscape Opportunities Inspections, information recorded from Comprehensive Inspections, ad-hoc inspections and visits to the network by the Landscape Architect.

The Landscape Opportunities Inspections shall be undertaken by the Operating Company's Landscape Architect. These inspections are undertaken regularly at intervals not exceeding 12 months to identify potential opportunities to improve the landscape associated with the trunk road network (refer to Schedule 2, Section 3.7 Landscape Development Process). Any number of Landscape Opportunity Inspections may be undertaken throughout the year as long as each and every part of the Unit is visited during each Annual Period.

4.3.3.2 Road Signs, Visibility Sightlines and Encroaching Vegetation

All approved road signs and all sightlines on the Trunk Road shall be visible to the intended road user, whether this is a driver, cyclist, pedestrian or other legitimate user. The Operating Company shall cut and/or remove all vegetation obscuring road signs or visibility sightlines as necessary to maintain the sightlines required by standard TD 25/15 or to a level no worse than the current physical constraints allow (i.e. existing locations that do not meet the standard).

When determining the extent of vegetation management to ensure appropriate forward visibility and unobscured signs the Operating Company shall consider opportunities to avoid or reduce the extent of annual repeated maintenance. However, roadside vegetation is often there to provide other objectives for the benefit of the road corridor, its users and/or the adjacent environment, and may in itself represent a valuable asset (i.e. for ecological, environmental or cultural reasons). It is therefore important that any vegetation management deemed necessary to ensure the appropriate visibility of a sign or sightline is also assessed against the wider environmental context.

This requires the involvement of the Landscape Architect to review and advise on the individual circumstances and to arrive at a balanced and considered course of action to effectively manage the visibility requirements for road uses and reduce the extent of annual repeated Cyclic Maintenance without compromising the roadside landscape. For example when carrying out Cyclic Maintenance to prevent repeated cutting, and where it can be accommodated, such cutting should be limited to a maximum of 1.0 m beyond the edge of the sign furthest away from the carriageway, etc. The landscape architect shall be involved and shall advise on all such locations, and the Operating Company shall not be permitted to remove otherwise healthy vegetation to inappropriately prolong the period of time between Cyclic Maintenance visits to the detriment of the local landscape resource.

Where it is identified that vegetation considered to be of high value may impact forward visibility and or signs, the Landscape Architect shall carry out an assessment of opportunities for possible alternative strategies to preventative Cyclic Maintenance. This shall include the following areas:

- Sightlines and Forward Visibility
- Road signs and;
- Areas with Encroaching Vegetation that may cause difficulties for maintenance operations, such grass cutting adjacent to the carriageway, the inspection of barriers, cabinets and other equipment etc. and/or the management of other elements of network infrastructure, such as lighting and roadside cameras etc.

The Landscape Architect shall submit a report of any such opportunities to describe the local circumstances and provide alternative options for the consideration and approval of the Director. The report shall carefully consider

the impact of any proposals on the road user, and shall avoid any change that may have a detrimental impact on their safety.

4.3.4 Condition Ratings

Effective asset management planning requires the adoption of a long term strategic assessment through the development of lifecycle plans. This is difficult to achieve using short and medium-term programmes derived from Category 2 Defects identified from Comprehensive Inspections. A consequence of this is that there may be no information recorded about the condition and, hence, the change in condition of some aspects of the network.

To overcome this lack of information, the Comprehensive Inspection requirements for some asset types include a regular assessment rating and reporting of condition. These inspections are referred to as Condition Ratings and involve recording the state of the asset in accordance with this Manual. The main objective of collating condition data is to provide accurate lifecycle information, and not to supersede the contractual requirements covering the way the Operating Companies manage defects arising from the Comprehensive and Routine Monitoring Inspections. All Condition Ratings shall be assessed by the Operating Company at the interval and in accordance with the requirements stated for each asset in this Manual.

The Condition Ratings are primarily designed to:

- Feed key performance indicators with respect to safety, serviceability and sustainability (to be reported in Transport Scotland's Road Asset Management Plan);
- Compare the performance of ancillary assets across the trunk road network;
- Provide information on deterioration curves to support long-term financial planning.

4.3.4.1 Condition Rating for Non Electrical Ancillary Assets

These are assets which have no electrical parts.

The frequency for Condition Rating inspections carried out by the Operating Company shall be as defined in this Manual for each asset type but shall have a minimum interval of 1 year. Point items will be assessed individually and continuous and area items will be assessed over their entire length and an overall assessment of condition made.

This Manual details the procedures for categorising ancillary assets by the severity of their Defects according to five levels of service or categories as follows:

1. Excellent
2. Good
3. Fair
4. Poor
5. Very Poor

Condition band A is "as new" and is the base year or reset value for all assets after replacement or refurbishment. Assets in condition band C are in fair condition and will be performing to an acceptable standard. Assets in condition band E are in very poor condition and will generally be beyond their serviceable life.

Where deemed necessary, a condition band 'R' has been developed to indicate that routine maintenance is required prior to the assessment of an asset's condition. The Operating Company shall ensure that routine maintenance of the asset is undertaken in a timely manner, particularly if the serviceability of the asset is affected or if there is increased risk to the road user.

4.3.4.2 Condition Rating for Electrically Energised Lighting Assets

These are assets such as lighting points and illuminated signs.

The strategic condition of lighting electrically energised ancillary assets as defined in this Manual will be assessed in accordance with this manual. The assessment shall include those parameters detailed in the condition surveys requirements defined in ILE 'Technical Report 22 – Managing a Vital asset: Lighting Supports'. This work must also address the requirements of the DMRB standards and TD23 and TD25 together with the IEE Wiring Regulations BS7671.

As Comprehensive Inspections require physical inspection of each asset, together with Routine and Periodic Inspection and Testing, the strategic Condition Rating inspection shall be undertaken in conjunction with these Operations by the Operating Company. The frequency for Condition Rating inspections is as defined by the Comprehensive Inspections for each asset type in this Manual. Point items will be assessed individually and continuous and area items will generally be assessed in over their entire length and an overall assessment of condition made.

This Manual details the procedures for categorising lighting assets by reference to the ILE TR22 document. In order to ensure consistency across asset types (i.e. electrical and non-electrical), the severity of Defects being assessed according to the four condition categories shown in the ILE document has been grouped into the Manual categories as shown below. The translation of the five categories into four categories is as follows:

1. Excellent = Good
2. Good = Good
3. Fair = Fair
4. Poor = Poor
5. Very Poor = Bad

Condition band A is “as new” and is the base year or reset value for all assets after replacement or refurbishment. Assets in condition band C are in acceptable condition and will be performing to an acceptable standard. Assets in condition band E are in very poor condition and will generally be beyond their serviceable life.

Where deemed necessary, a condition band ‘R’ has been developed to indicate that routine maintenance is required prior to the assessment of an asset’s condition. This will not apply to Defects in lighting apparatus.

4.3.4.3 Electrically Energised Non-Lighting Assets

These are assets such as electrical pumps and related apparatus.

The strategic condition of the electrical elements of these assets will be assessed as defined in the above Section - Electrically Energised Lighting assets.

The strategic condition of the non-electrical elements of these assets will be assessed as defined in the above Section - Condition Assessment for Non Electrical Ancillary Assets.

4.3.5 Specialist Inspections

Specialist Inspections are similar to Comprehensive Inspections, however those undertaking the inspection must have appropriate qualifications and be competent to assess the specific asset to be inspected. These qualifications are listed in this Manual. A Condition Rating may also be required for some assets, which may be undertaken at the same time as the Specialist Inspection. A list of the Specialist Inspections required to be undertaken by the Operating Company using Specialist Inspectors are stated at section 4.1.4 of this Manual.

4.3.6 Accessibility Inspections

A subset of Specialist Inspections, Accessibility Inspections are carried out to comply with the Equality Act and Transport Scotland’s Roads for All policy. This inspection shall examine all assets visible during the inspection. Accessibility inspections shall only be undertaken by Specialist Inspectors with specific training and approved by Transport Scotland.

In December 2006, a new duty took effect, requiring government departments and agencies to publish a Disability Equality Scheme outlining how they would implement Disability Discrimination Act (DDA) 2005 responsibilities through policy, guidance, planning and stewardship. As trunk road authority, Transport Scotland published the trunk road Disability Equality Scheme and Action Plan document ‘Roads for All’ in December 2006 (http://www.transportscotland.gov.uk/road/maintenance-and-management/accessibility).

The document focuses on the design, construction, operation and maintenance of the trunk road network and forms part of the wider Disability Equality Scheme for Transport Scotland and the Scottish Government. The Action Plan included a requirement to inspect the whole trunk road network, including bus stops, to identify the extent of all types of barrier to travel for all users of the trunk road network.

Transport Scotland is committed to developing a programme to address the removal of these barriers to accessibility on the trunk road network. This will be achieved via a combination of taking opportunities to address these barriers where possible in conjunction with Operations and Works Contracts, and also through future stand-alone works. . All Accessibility Inspections shall be carried out by the Operating Company at the interval and in accordance with the requirements stated for relevant assets in this Manual,

4.3.7 Ad-hoc Inspections

Similar to Comprehensive Inspections, Ad-hoc inspections are carried out on localised sections of the network in response to reports of Defects from the public, Police or other organisations. A photographic or video record of the findings from the Interim Inspection shall be made. All Ad-hoc Inspections shall be carried out by the Operating Company when required.

5 Defects

5.1 Defect Categories

Defects present a potential hazard to network users; the level of risk is dependent on the nature and severity of the defect and the surrounding environment. Defect categorisation enables prioritisation of budgets and resources to address the most serious defects first.

Defects are divided into the following four categories:-

- Category 1a – are emergency Defects which due to their nature and location represent an immediate or imminent hazard, which poses a very serious risk to road users or network integrity, or severe congestion (including road or lane restrictions). These Defects require a response to remove or isolate the defect within a very short timescale, which is far more quickly that Category 1b defects.
    - Examples of Category 1a Defects are, but not limited to:-
        - fallen trees or debris obstructing the carriageway
        - missing inspection chamber covers
- Category 1b – are Defects which due to their nature and location represent an immediate or imminent hazard, which poses a serious risk to the public. This category will also include Defects that may develop into a Category 1a or 1b Defect before the next scheduled safety inspection.
    - Examples of Category 1b Defects are, but not limited to:-
        - Potholes ≥ 40mm
        - Damaged or missing regulatory or warning signs
        - Offensive graffiti
- Category 2 High – are Defects that negatively affect network appearance and can easily be rectified within a short period of time, typically one month. These Defects do not represent an immediate or imminent hazard, and are not expected to become a Category 1a or 1b Defect within 28 days.
    - Examples of Category 2 High Defects are, but not limited to:-
        - Damaged but legible direction signs
        - Non offensive graffiti
- Category 2 Low – are defects that require attention but do not represent an immediate or imminent hazard. These defects can be prioritised and scheduled for programmed maintenance works.

The strategic importance of the trunk road network, along with the large volumes of traffic using it, mean the most serious Defects must be made safe and repaired regardless of the availability of budgets and resources. An Intervention Level is therefore specified in this manual, which set out the circumstances when a Defect must be classed as either Category 1a, Category 1b or Category 2 High. This functionality has been incorporated into Transport Scotland's Inspection Software, however Inspectors should ensure that the categorisation is appropriate for the Defect, the potential risk it poses to road users and its impact on network appearance. In order ensure that correct treatment is undertaken, Category 2 High Defects are only permitted on specific asset types. This is set out in Defect Sections of this Manual. The Operating Company shall classify Defects in accordance with this Manual.

5.2 Investigatory and Intervention Levels

The Manual specifies Investigatory and Intervention Levels for each Defect type. The Investigatory Level is the threshold at which the impacts of a defect should be assessed, while the Intervention Level is the point where the Operating Company shall take action to resolve the Defect. If the cause of a Category 1a or 1b Defect (for example flooding) cannot be identified at the time of the inspection, then a return visit should be scheduled within 7 days to further examine the site. Any Defect which meets or exceeds the Intervention Level will require either a Category 1a or Category 1b or Category 2 High response time. There is no Intervention Level for Category 2 Low Defects.

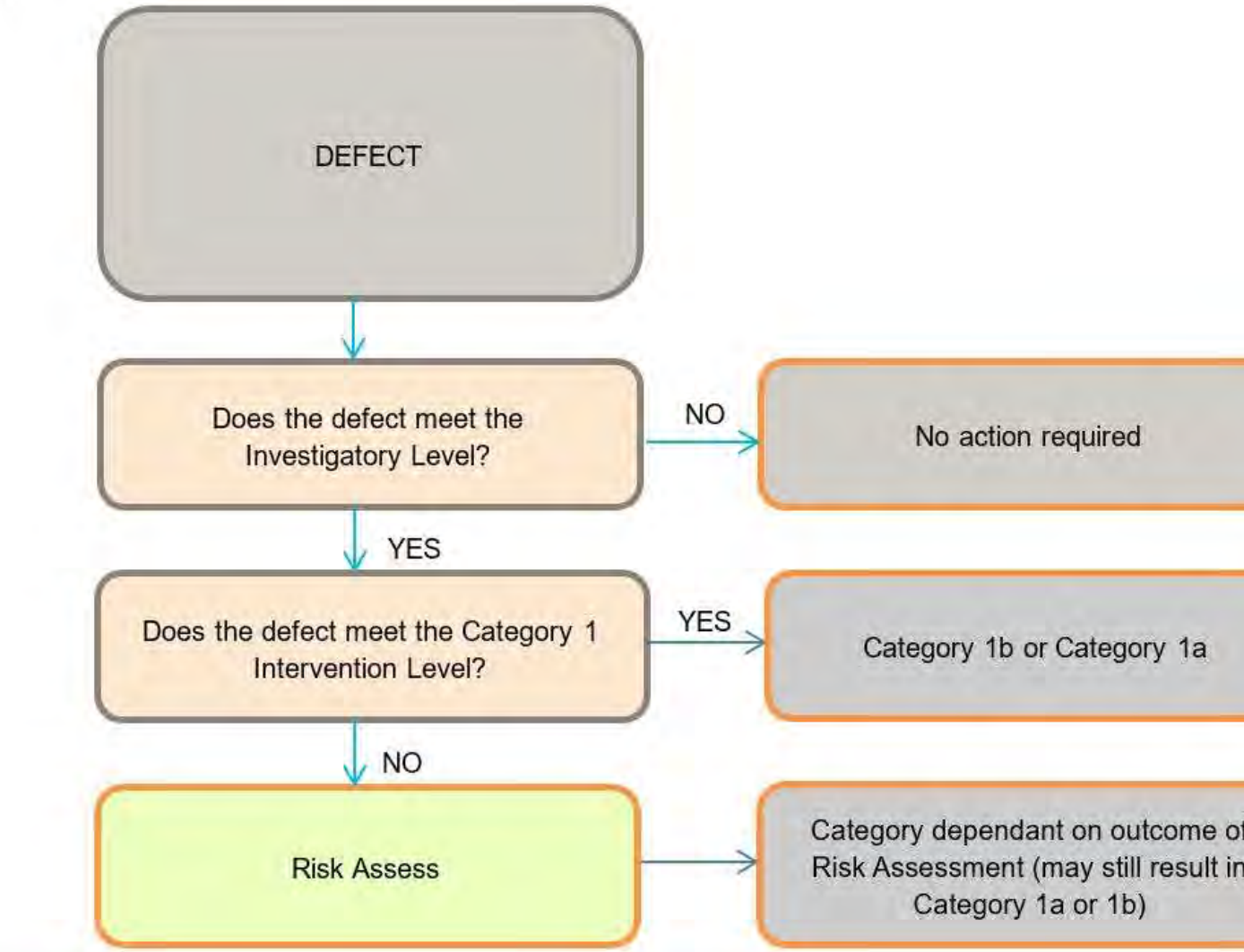
During Routine Monitoring Inspections, any defect which appears to meet the Intervention Level for either Category 1a/1b or Category 2 High shall be subject to risk assessment by the Operating Company using Transport Scotland's Inspection Software and recorded. Any other Defects which could fall within the definitions of these Categories should be investigated and recorded too.

During Comprehensive inspections, any Defect which meets or exceeds the Investigatory Level will be subject to a risk assessment by the Operating Company and recorded within Transport Scotland's Inspection Software. A Condition Rating will be assigned to selected assets. This creates a record that the asset was inspected and, if

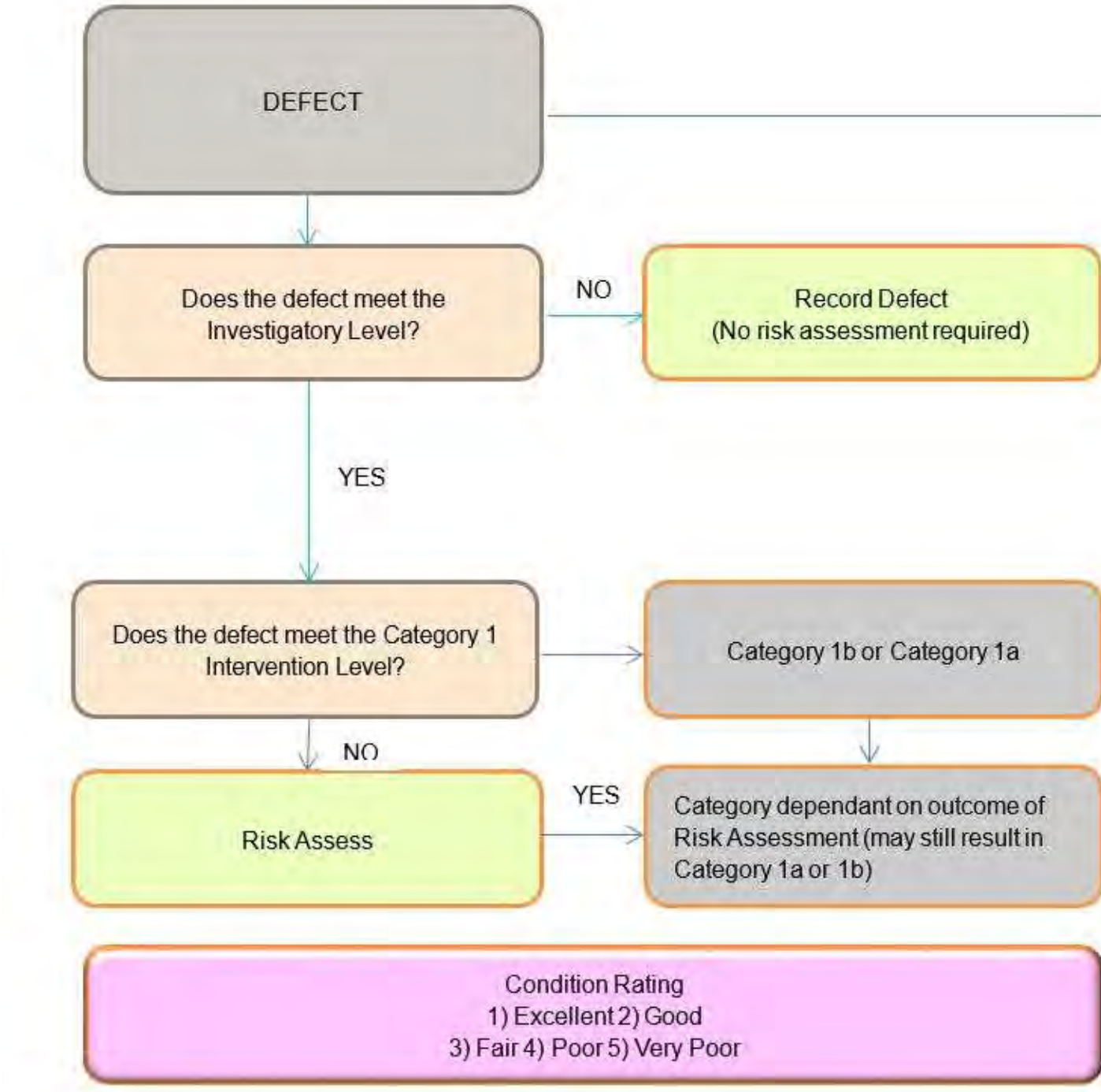
appropriate, that no Defects in excess of the Investigatory Level were identified by the Inspector. It also assists with understanding the typical lifecycle of assets to inform future maintenance strategies.

Response times for each Category are specific to each asset type and are listed in this Manual. Transport Scotland's Inspection Software contains an interactive list of questions for inspectors to complete on site to determine the appropriate response time. The app has been programmed to align with this Manual.

Routine Inspection Flow Chart



Comprehensive Inspection Flow Chart



Where an Inspector considers that the response time determined by the DCC app is inappropriate then discretion should be used to over-ride the result. Inspectors must provide clear justification for their reasons in over-riding the result and this should be reviewed by a senior member of the Operating Company's Inspection Team.

5.3 Defect Response Times

5.3.1 Category 1a Defect response times

Category 1a Defects shall be dealt with in priority order as stated below and within the timescales stated below unless a different timescale is stated elsewhere in the Manual (e.g. some electrical defects)

- The Operating Company's inspection team shall make the Category 1a Defect safe when identified. This shall be through executing immediate temporary or permanent repairs, removing the hazard or by taking any other measures necessary to protect the public and other users of the Unit.
- Where the Inspection team cannot execute the above measures, they shall request initial Incident Response Resources and remain on site until their arrival.
- Where a Category 1a Defect renders a Trunk Road unsafe for road users, the Operating Company shall, under Police instruction or on receipt of an appropriate Order, close the relevant part of the Trunk Road for as short a period as possible while remedial action is undertaken.
- Where a Category 1a Defect cannot be repaired immediately or the hazard cannot be removed, the Operating Company shall take action to make the area safe until the required temporary or permanent repairs have been completed.
- Where a Category 1a Defect cannot be repaired immediately or the hazard cannot be removed, the Operating Company shall complete a temporary or permanent repairs which shall be undertaken as soon as possible and no later than the following timescales, unless otherwise stated against specific assets or defects within tis manual, i.e. specialist electrical defects.:

1.
    1. 06:00 on the day following identification for Category 1a Defects on carriageways, and
    2. within 24 hours of identification for all other Category 1a Defects.

- Where a temporary repair has been carried out, the deferred permanent repair period for the following Defect types shall be:

1.
    1. 56 days for Bridge parapets.
    2. 28 days for all other defects

5.3.2 Category 1b Defect response times

Category 1b Defects shall be with in priority order as stated below and within the timescales stated below unless a different timescale is stated elsewhere in the Manual (e.g. some electrical defects)

- The Operating Company's inspection team shall make the Category 1b Defect safe when identified. This shall be through executing immediate temporary or permanent repairs, removing the hazard or by taking any other measures necessary to protect the public and other users of the Unit.
- Where a Category 1b Defect cannot be repaired immediately or the hazard cannot be removed, the Operating Company shall complete a temporary or permanent repairs which shall be undertaken as soon as possible and no later than the following timescales, unless otherwise stated against specific assets or defects within this manual, i.e. specialist electrical defects:

1.
    1. 06:00 on the day following identification for Category 1b Defects on carriageways, and
    2. within 24 hours of identification for all other Category 1b Defects.

- Where a temporary repair has been carried out, the deferred permanent repair period for the following Defect types shall be:

    1. 56 days for Bridge parapets.
    2. 28 days for all other defects

5.3.3 Category 2 high Defect response times

Category 2 high Defects shall be repaired by the Operating Company within 28 days of the issuing of an Order. Category 2 High Defects that should have been repaired or resolved as part of Cyclic Maintenance Operations shall be considered Core Operations and have been Ordered as part of Annual Operations, and therefore shall not require any additional Order. Such Defects shall be repaired within 28 days of identification.

5.3.4 Category 2 Low Defect response times

Category 2 Low Defects shall be analysed, scheduled and prioritised into programmes of Operations or Works Contracts by the Operating Company as per Schedule 3 of the Contract.

Asset Register

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, including ponds that are sometimes called an attenuation pond or SUDS pond. Some ponds are designed to hold water permanently, some are designed to be largely dry.

Asset Attributes

Asset Shape	Area
Asset Service Level	Balancing Ponds should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. Balancing Ponds are often associated with landscape assets and any maintenance related to the pond and its operation needs to be considered in conjunction with the requirements of the relevant landscape assets. Relatively minor Defects such as silting, blockages around flow control devices or embankment damage can, however, have a significantly impact. Balancing Ponds are often situated away from the road and are unlikely to be inspected by regular Safety Inspections. An enhanced frequency of Comprehensive Inspections will be carried out. Recurring Comprehensive Inspections shall be carried out to record asset condition and Defects. Assets associated with Balancing Ponds, e.g. Grassed Areas, Catchpits, Manholes etc. shall require regular Cyclic Maintenance and any Operation should be recorded against the relevant asset.
Common Attributes	Balancing Pond Attributes shall include the Common Attributes but with the following amendments. Balancing Ponds are often situated away from the road and maybe outside the Trunk Road Boundary. All Balancing Ponds shall be recorded
Parent/Child Assets	Balancing Pond Assets are often associated with other assets including landscape assets, Ancillary Drainage Items, Fences and geotechnical assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Outflow Control	Lookup • ? (Default) • No Outflow Control • Outfall Flow Regulating Device	Mandatory	

Field Name	Field Format	Field Required	Comments
Access document	Document	Desirable	Comment The Access Document shall include details including location, safe parking and access routes (including maps, drawings and photographs), details of any access arrangements with local landowners and their contact details and any other relevant information.

Asset Specific Rules

Rule No.	Rule Description
Rule-BP-1	Balancing Ponds may be located outside of the Trunk Road boundary and may be some distance from the carriageway. All Balancing Ponds shall be recorded and maintained as per the Contract
Rule-BP-2	A Balancing Pond located outside the road boundary is recorded as XSP LB if outside the left-hand boundary and XSP RB if outside the right-hand boundary.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the Defect affecting the drainage capacity?
Is the Defect likely to cause flooding?
Would the flooding cause a hazard, or damage to property or services?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Malfunction of outfall regulating device	Any malfunction	Any malfunction of the outflow regulating device	
Blockage of inlet	Any Blockage	Any blockage causing significant loss of capacity or an indication that flooding of any private property is imminent.	
Blockage of outlet	Any Blockage	Any blockage causing significant loss of capacity or an indication that flooding of any private property is imminent.	
Silted (not at inlet or outlet)	Accumulation of Silt	Sufficient accumulation of silt which is causing, or could cause deficiencies	
Flood	Any Flooding	Sufficient flooding which could cause damage to structures or services, or an indication that flooding of any private property is imminent.	Any Flooding
Erosion of banks / walls / bunds	Any erosion	Sufficient erosion which could affect capacity or structural integrity	
Pollution	Any pollution	Pollution which could cause harm to a person, wildlife or the environment	
Life belt/ring missing (If provided)	Missing if provided	Missing if provided	
Other	All other Defects		
Overgrown vegetation	Any overgrown vegetation causing any operational or access difficulties.		
Impact on other required operations.	Any vegetation that detrimentally affect the ability for carrying out other maintenance.	Where such a restriction poses a risk to people, the environment, or infrastructure.	Where such a restriction detrimentally affects the appearance of the network.

Inspections

Balancing Pond - Visual Assessment Inspection

Inspection Name	Balancing Pond - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection- Drainage Assets Spring/Autumn
Inspection Interval	During September/October and February/March each year

Inspection Requirement	The full area of the Balancing Pond shall be inspected. An overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the asset item shall be checked, including its location and attributes and all errors corrected. The accuracy and validity of the Access Document shall be checked and amended within 7 days. Any missing Access Documents shall be created and attached within 7 days.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Balancing Ponds provide an important function but the need for maintenance can easily be overlooked, since the ponds are sometimes some distance from the road. Particular attention should be paid to the following possible faults: • Blockage of the feeder pipe or ditch • Silting in the pond causing a loss of storage capacity • Damage or erosion to the pond banks, walls or bunds • Damage or obstruction to the pond outlet, which will affect the controlled rate of discharge. • Overgrown vegetation affecting operation or access The majority of Balancing Ponds will also include other Ancillary Drainage assets such as flow control devises, headwalls, aprons or grilles. The inspection Operation of these has a similar inspection frequency and it is anticipated that they will be inspected at the same time. Missing Balancing Ponds can easily be missed. Prior to each inspection cycle the Operating Company shall actively seek to identify any missing balancing ponds. Sources may include, knowledge of newly built roads, investigations etc.

Defects

Condition Rating

Balancing Pond - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of disturbance to the surrounding verge area where the balancing pond has been cut or cleared. Evidence of detritus on banks where pond has been cleared. 
B - Good	No visual Defects and with few visible signs of deterioration. Grassed areas around the balancing pond have returned to vegetation and minor weathering to constructed elements.

Condition	Description
	
C - Fair	Evidence of initial deterioration, including minor erosion to pond outlet, banks, wall or bunds. (Note: Growth of reed beds is beneficial to water quality and should not be considered a Defect). 
D - Poor	Silting in ponds causing loss of storage capacity. Damage or severe erosion of pond banks, walls or bunds. Blockage of inlet feeder pipe. 
E - Very Poor	Damage or obstruction to pond outlet, excess water overflowing. Protective fencing at deep water sites damaged. 
R - Routine Maintenance	

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Bollard

A device placed on a refuge, traffic island or verge to warn drivers of those obstructions or to prevent the passage of vehicles.

Asset Attributes

Asset Shape	Point
Asset Service Level	Bollards convey a variety of information to drivers including providing regulatory direction, information and warning of hazards. Bollards conveying regulatory direction shall be maintained to a high standard. Other bollards can also convey important information and contribute to the visual appearance of the network and shall, subject to available budget, be maintained to an elevated standard. Regular Cyclic Maintenance shall be carried out at regular intervals to clean Bollards and ensure they remain visible in both day and night conditions and preserve their lifespan. All other maintenance shall be identified through inspections. The majority of Bollards will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2 high Defects. All Bollards within the trunk road boundary shall be recorded and the Ownership fields used to record ownership. All Bollards which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. The locations of other Bollards close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. Bollards at junctions, shall be recorded. Bollards owned by third parties forming part of a Trunk Road junction shall be treated as category 1a or b Defects if unsafe, shall be made safe and reported to the owner for further action immediately. Most bollards include features to ensure that they are visible in both daytime and night time conditions. Recurring Comprehensive Inspections shall be carried out during both daytime and night time to record asset condition and Defects.
Common Attributes	Bollard Attributes shall include the Common Attributes.
Parent/Child Assets	The electrically energised components of a Bollards shall be recorded in Bollard - Electrical as a child asset

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Fixing type	Lookup • ? (Default) • Flexible • Self-Righting	Desirable	Images  

Field Name	Field Format	Field Required	Comments
	• Other passively safe • Rigid • Other		Fixing Type = Fixed  Fixing Type = Flexible Fixing Type = Self-righting
Body Material	Lookup • ? (Default) • Concrete • Metal • Wood • Plastic • GRP • Other	Desirable	Images   Body Material = Plastic Body Material = Plastic  Body Material = Metal  Body Material = Metal
Body Manufacturer	Lookup • ? (Default) • Simmon Signs • Haldo • Pudsey Diamond • Signature (Dee Organ) • Glasdon • Other	Desirable	Comment When another manufacturer is to be used regularly contact Transport Scotland to have them added to the list.
Electrically Powered	Yes/No	Mandatory	
Diagram Number (TSRGD 2016/2002 reference)	Text	Desirable	Comment

Field Name	Field Format	Field Required	Comments
			Diagram Number from the Traffic Signs Regulations and General Directions (TSRGD) 2016/2002 edition. See Rule-SB-2
Cleaning interval (months)	Number (int)	Mandatory	Comment Default value =12. See Rule-SB-3 & Rule-SB-4
Cleaning interval change reason	Text	Conditional (Mandatory)	Comment Where the Cleaning Interval is not 12 months, a reason for the change must be entered. See Rule-SB-4.

Asset Specific Rules

Rule No.	Rule Description
Rule-SB-1	Sign diagram no. 560 and 561, sometimes known as Hazard or verge marker posts, shall to be recorded as Bollards, not as Traffic Signs.
Rule-SB-2	For a bollard with a sign, the Traffic Signs Regulations and General Directions 2002 (Page 77-80) & 2016 manuals are referred to for the Diagram Number. Where no sign is present, or no sign Diagram Number can be determined, 'NV' is entered.
Rule-SB-3	The default cleaning interval shall be 12 months. The maximum cleaning interval shall be 12 months. Where Bollards require more frequent cleaning the cleaning interval shall be reduced.
Rule-SB-4	Where the cleaning interval is a value other than 12, a reason for the change shall be recorded for each bollard.
Rule-SB-5	A bollard situated on a central island/reserve is allocated the same XSP as the island/ reserve. Where a bollard is situated other than on central island/reserve, it is allocated the XSP on its left-hand side.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the misplaced bollard obstructing the carriageway or footway?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number
Other	Any other Defect		
Lamp on during day	Any lamp on during the day		
Damaged	Any damaged bollard	Any damaged bollard that has a warning or regulatory sign	
Dirty Bollard	Any dirty bollard	Any dirty bollard that has a warning or regulatory sign	
Loss of surface or paint covering	Any loss of surface or paint covering		
Corrosion of bollard	Any corrosion of bollard	Any corrosion of the bollard that affects its stability	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Need for tree pruning	Any need for tree pruning	Any need for tree pruning near to a warning or regulatory sign	Any need for tree pruning
Exposed Wiring	Any exposed wiring	Any exposed wiring	
Missing	Any missing bollard	Any missing bollard that results in a trip hazard	
Obscured Sign	Any obscured sign	Any obscured regulatory sign	
Other	Any Defect		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Unobstructed height above footway is < 2300mm, including overhanging vegetation
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm
Lack of signage at dedicated accessible parking bay

Inspections

Bollard - Visual Assessment Inspection

Inspection Name	Bollard - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection each Bollard shall be inspected at close quarters and an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Comments	This Inspection is intended to consider the general condition of all bollards and is not intended to consider electrical components of electrically powered Bollards. Assets situated in the central reserve will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Bollard - Night Time Reflectivity Safety Inspections

Inspection Name	Bollard - Night Time Reflectivity Safety Inspections
Inspection Group	Night Time Reflectivity Safety Inspections
Inspection Interval	At intervals not exceeding 6 months
Inspection Requirement	During each Inspection the reflective or illumination properties of Bollard shall be assessed during the hours of darkness to ensure it is visible and delivers its intended message to drivers and any Defects noted. This Inspection will generally be carried out from a slow-moving vehicle with an Inspector and Driver.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Bollard - Accessibility Inspection

Inspection Name	Bollard - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Bollard - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. May show obvious signs that the marker or bollard is new i.e. no discolouration of the surface finish. Footway or verge areas around base of bollard are in new condition compared with surrounding areas.  
B - Good	No visual Defects and with few visible signs of surface deterioration. Surface finish may show signs of weathering. Areas around the bollard returned to vegetation.  
C - Fair	Evidence of initial deterioration including minor discolouration and damage to the surface but otherwise in good overall condition.  
D - Poor	Misalignment or damage to the marker or bollard.  

Condition	Description
	
E - Very Poor	Vandalism or accident damage. Missing or broken bollards.  
R - Routine Maintenance	Not applicable 

Maintenance

Cyclical Maintenance Activities

Bollard - Cleaning

Cyclic Maintenance Name	Bollard - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Bollards shall be cleaned in accordance with Schedule 5 Specification Clause 6119AR. During each Maintenance visit the body of every Bollard shall be cleaned. Hazard posts and marker posts shall be straightened and the ground around the base of the post re-compacted. A note of the Bollard cleanliness along with any Defects shall be made.

Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and cleanliness record. Any Defects shall be recorded and associated with the asset.

Bollard - Electrical

The Illuminated or electrically powered element of a Bollards.

Asset Attributes

Asset Shape	Point
Asset Service Level	Regular Cyclic Maintenance shall be carried out to replace lamps on illuminated bollards before the expiry of the expected lifespan of the lamp and reduce dark lamps and clean all electrical apparatus. All other maintenance shall be identified through inspections. The majority of electrically powered Bollards will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2 High Defects. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Bollard - Electrical Attributes shall include the Common Attributes but with the following amendments. Item Identity Code and Location Description shall be Mandatory fields. All Electrically energised Bollards within the trunk road boundary shall be recorded and the Ownership fields used to record ownership. All Bollards which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. . The locations of other Bollards close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. Bollards at junctions, shall be recorded.
Parent/Child Assets	All Bollard - Electrical assets shall only exist as a child item of a Bollard asset

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Electrically Powered	Yes/No	Mandatory	Comment Default = No
Bollard - Electrical - Base Attributes			

Field Name	Field Format	Field Required	Comments
Base Manufacturer	Lookup • ? (Default) • Simmon Signs • Haldo • Pudsey Diamond • Signature (Dee Organ) • Glasdon • Other	Desirable	
Bollard - Power Supply attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network • 230v DNO 5th Core • 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other	Mandatory	
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Conditional (Mandatory)	Comment Mandatory except when supply type is ELV (e.g. battery/Solar/Wind)
Upstream Asset ID	Number (int)	Mandatory	Comment

Field Name	Field Format	Field Required	Comments
			Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Bollard - Power consumption attributes			
Bollard - No. of Lamps	Number (int)	Mandatory	
Bollard Elexon Code	Lookup • ? (Default)	Mandatory	
Bollard Circuit wattage	Number (int)	Mandatory	Comment Wattage shall be derived from Elexon Code
Regime Code	Lookup • ? (Default) • North Dusk to Dawn (3912) • South Dusk to Dawn (4118) • Continuous (8766) • Offset Dusk To Offset Dawn • Electronic PECU 70/35 • Dimming (Various) • Fixed Dimming • Fixed Trimming • CMS • Other	Mandatory	
Operating Hours	Number (int)	Mandatory	Comment Operating Hours should be derived from the Regime Code.
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Location & Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Site Access, Hard Standing ETC	Yes/No	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe (by TRISS/Incident response) as per incident response timescales. Where a defect requires the attendance of an Electrical Specialist within 4 hours, unless a longer timescale is stated for the defect,
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the exposed wiring have a high risk of pedestrian access?
Is the damaged column or post projecting into the carriageway or footway?
Is the damaged column or component unstable and could fall into the carriageway, footway or private land?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number
Other	Any other Defect		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
low risk of pedestrian access			
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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.			
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Any one lamp out where the bollard is regulatory/mandatory	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 28 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Inspections

Bollard - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Bollard - Periodic Electrical Inspection and Testing - BS7671
Inspection Group	Periodic Electrical Inspection and Testing - BS7671
Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded in the register, by adding and end dating assets as appropriate,

	• all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG001 & EMG005

Bollard - Routine Electrical Inspection & TR22

Inspection Name	Bollard - Routine Electrical Inspection & TR22
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023 including TR22. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • all attributes accurately represent every asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. The TR22 checklists shall also be recorded against each asset. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG001 & EMG005

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Bollard - Electrical - Lamp Change & Clean

<table>
<tr><td>Cyclic Maintenance Name</td><td>Bollard - Electrical - Lamp Change & Clean</td></tr>
<tr><td>Cyclic Maintenance Operation Interval</td><td>As required and at intervals not exceeding those stated in the requirements table below.</td></tr>
<tr><td>Cyclic Maintenance Operation Requirement</td><td>All lamps shall be changed/replaced in accordance with schedule 5 Clauses 6120AR and 6122AR and LDS8023 and at intervals not exceeding those listed in the table below. During each lamp change the associated EMG Task 1 activities shall also be carried out.

<table>
<tr><td colspan="4">Maximum lamp change intervals</td></tr>
<tr><td>Lamp Type</td><td>Nomenclature as TD 23</td><td>Bulk Change Interval for Dusk to Dawn Operation</td><td>Bulk Change Interval for 24 Hour Per Day Operation</td></tr>
<tr><td>Low pressure Sodium</td><td>SOX</td><td rowspan="3">24 months</td><td rowspan="3">12 months</td></tr>
<tr><td>High pressure Mercury</td><td>MBFU</td></tr>
<tr><td>High pressure fluorescent</td><td>MCFE, SL, PL</td></tr>
<tr><td>High pressure sodium</td><td>SON, SON-T</td><td rowspan="3">36 months</td><td rowspan="3">18 months</td></tr>
<tr><td>Low pressure sodium</td><td>SOX-E</td></tr>
<tr><td>Ceramic Metal Halide</td><td>CMH</td></tr>
<tr><td>LED</td><td>LED</td><td>No bulk lamp change required</td><td>No bulk lamp change required</td></tr>
</table>

Operatives carrying out these inspections should be competent to carry out operations on electrical apparatus.</td></tr>
<tr><td>Cyclic Maintenance Operation Records</td><td>On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.</td></tr>
<tr><td>Comments</td><td>References include LDS8023

EMG001 Task 1 (Lamp change & clean), 4, 5, 8 & 9
EMG002 Task 1 (clean & check), 4, 8 & 9
EMG005
</td></tr>
</table>

Bollard - Electrical components - Cleaning

Cyclic Maintenance Name	Bollard - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with schedule 5 Clauses 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.

Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG005 - Cabinets & Pillars - Task 1, 4, 5, 8 & 9 • EMG019 - Festive Lighting Supplies - Task 1, 5, 7, 10 & 11 (

Bulb Area

An area of naturalised or planted bulbs of ecological or environmental value, usually found within grassed verges, cuttings or embankments.

Asset Attributes

Asset Shape	Area
Asset Service Level	Bulb areas should generally be self-supporting and only require occasional maintenance. All other maintenance shall be identified through inspections. High priority defects for the majority of Bulb Areas are likely to be visible from the carriageway and should normally be identified from safety inspections or through other sources such as customer care or incident response and sometimes through annual Comprehensive Inspections. Recurring Comprehensive Inspections shall be carried out by a suitable landscape specialist inspector during the Bulb growing season to record their condition, defects and identify any maintenance operations required or any potential for actions for possible inclusion in the schedule of landscape opportunities and, potentially, the Landscape Development Plan. The Operating Company shall ensure the Landscape Architect is kept fully informed of the results of all Comprehensive Inspections relating to all landscape elements. The majority of Bulb areas are within Grassed Areas and will return to grass after flowering. While growing and flowering, Bulb areas should normally be excluded from grass cutting operations with cutting commencing generally about six weeks after the end of their flowering period. Grass cutting Cyclic Maintenance shall be recorded under the Grassed Area inventory.
Common Attributes	Bulb Area Attributes shall include the Common Attributes.
Parent/Child Assets	Bulb areas tend to be associated with grassed areas or other landscape assets but their linkage will be defined as a Geo-spatial association.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Main Species	Lookup • ? (Default) • Snowdrops • Bluebells • Crocus • Tulips • Daffodils • Mixed Species	Mandatory	Images  Main Species = Daffodils

Field Name	Field Format	Field Required	Comments
	• Other		
Notes	Text	Optional	Comment If the Main Species or Main Objective field is "Other" then further information must be entered
Bulb Area - Main Objective			
Integration	Yes/No	Mandatory	
Visual amenity	Yes/No	Mandatory	
Nature conservation	Yes/No	Mandatory	
Other	Yes/No	Mandatory	
Main Objective Other - Description	Text	Conditional (Mandatory)	Comment Mandatory when Main Objective - Other = Yes.
Bulb Area - Age Category			

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the vegetation obscure regulatory signs or lines?
Does the vegetation force pedestrians to step in to the carriageway?
Could the vegetation cause a pedestrian to trip or be injured?

Defect Category and Response Time Considerations
Does the vegetation obscure visibility for network users?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Overgrowing or overhanging the footway or carriageway	Any overgrowing or overhanging vegetation	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or other risk of injury, damage to a vehicle, or obscures road markings or signs.	Any overgrowing or overhanging vegetation
Obstructed sightline	Any obstructed sightline	Obstruction which limits the view of network users	Any obstructed sightline
Fly tipping/illegal dumping	Any fly tipping or illegal dumping	Any fly tipping or illegal dumping which poses a risk to people, wildlife or the environment	Any fly tipping or illegal dumping
Other	Any other Defects		
Arisings from cutting operations affecting network.	Any arisings affecting the footway or carriageway.	Any arisings which may cause a trip, slip or skid hazard.	Any arisings that may impact other operations or detrimentally affect the appearance of the network.

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Bulbs areas, or selected species therein, in poor condition.		Where dead or dying plants may impact the safety of road users (e.g. slope instability).	Any dead or dying plants that may detrimentally impact the appearance of the network.

Inspections

Bulb - Visual Assessment Inspection

Inspection Name	Bulb - Visual Assessment Inspection
Inspection Group	Landscape - Visual Assessment Inspection
Inspection Interval	Each year during their growing season

Inspection Requirement	The full extents of each Bulb asset shall be inspected by a landscape specialist inspector and an overall assessment of its condition and any Defects present shall be noted. Any potential for landscape opportunities shall also be noted for inclusion in the schedule of landscape opportunities. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be recorded and the inventory updated following each Inspection.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item. Where the asset has been rated as Condition Rating D, at least one Defect shall also be recorded.
Comments	The growing season for Bulb shall be considered to be: • Snowdrops - January to March • Bluebells - June to August • Crocus - January to March • Tulips - February to April • Daffodils - February to April • Mixed Species - February to April • Other - April • ? - April

Bulb - Landscape Opportunity Inspection - Landscape Architect

Inspection Name	Bulb - Landscape Opportunity Inspection - Landscape Architect
Inspection Group	Landscape Opportunity Inspection - Landscape Architect
Inspection Interval	Each Annual Period
Inspection Requirement	The landscape Architect shall visit and inspect all parts of the Network during each Annual Period. Each visit to each part of the network should be carried out at a different time of year so that the Unit can be seen at all stages of the growing season. This Inspection may be carried out as a driven Inspection but with a more detailed inspection of all potential Landscape Opportunities identified by this and other Inspections being carried out on foot. All potential Landscape Opportunities shall be reviewed for inclusion in the schedule of landscape opportunities.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against the network along with a GPS bread crumb trail date/time & User stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item.

Bulb Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection

Inspection Name	Bulb Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Group	Landscape - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection

Inspection Interval	Each year between September to end of February each year
Inspection Requirement	Between September and the end of February each year the full extents of the network shall be inspected to identify any vegetation which may develop during the coming growing season with the potential to detrimentally effect the road envelope visibility. This shall include vegetation encroaching upon or otherwise effecting: • the forward visibility of drivers and other road users, • the sight lines for traffic signs, bollards and other road infrastructure, • the sight lines for junctions, accesses, bends etc. or • the carriageway, footway, cycleway Any identified vegetation shall be recorded for remedial action by the "Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance" Cyclic Maintenance Operations and shall be completed before the end of March in the same period. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be updated during each Inspection.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time/user stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	The aim of this inspection and associated Cyclic Maintenance Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured or driver visibility is compromised. It is important that the required Cyclic Maintenance is carried out before the commencement of the bird nesting season each year. When remedial maintenance is identified it is expected, where practicable and without having a detrimental impact on the local landscape character or any important landscape features, that the relevant vegetation be trimmed back sufficiently to allow several years growth before trimming would be required again in accordance with clause 4.3.3.2 of this Manual.

Defects

Condition Rating

Bulb Area - Condition Rating

Condition	Description
A - Excellent	Not Applicable
B - Good	Asset is healthy, growing well and free from defects.
C - Fair	Asset is generally healthy and growing reasonably well although there are signs of minor damage/decay.
D - Poor	Asset is showing significant signs of decay or damage, or is dead/dying. Asset close to or encroaching into sightlines.
E - Very Poor	Not applicable
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

Bulb Area - 3 year establishment Maintenance

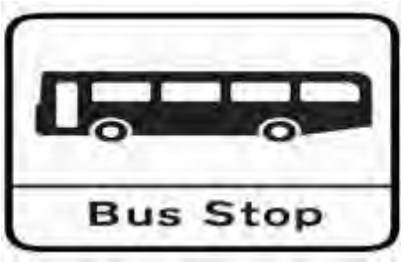
Cyclic Maintenance Name	Bulb Area - 3 year establishment Maintenance
Cyclic Maintenance Operation Interval	At intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	All newly planted bulb areas shall be maintained in accordance with Schedule 5 Specification Clause 3006, 3007 and 3009.
Cyclic Maintenance Operation Records	On completion of each Cyclic Maintenance Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • activities not undertaken and the reasons why • any dead, damaged, missing or otherwise Defective vegetation • weed development observations and any signs of animal browsing • observations regarding vegetation support performance (stakes, ties and shelters) • any vegetation re-firming requirements • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	For the purposes of the KPI this Cyclic Maintenance Activity shall apply to all Bulb Area assets with an age Category of "New"or "?"

Bulb Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance

Cyclic Maintenance Name	Bulb Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	All: • sightlines and forward visibility areas; • road signs and; • areas with Encroaching Vegetation that may cause difficulties for maintenance operations, such grass cutting adjacent to the carriageway, the inspection of Assets including barriers, cabinets and other equipment etc. and/or the management of other elements of network infrastructure, such as lighting and roadside cameras etc. shall be treated and/or cut back by the Operating Company to maintain forward visibility, prevent signs etc being obscured or to maintain safe access to Assets. Such areas shall be as defined in the Asser Register or that required to maintain minimum forward visibility as specified in TD 26/17. The Operating Company shall comply with section 4 of this Manual. Visibility splays and the like shall be cut in accordance with Schedule 5 Specification Clause 3002, 3006, 3007, 3009 & 3010 and Appendix 30/7.

Cyclic Maintenance Operation Records	On completion of each maintenance Operation a record shall be recorded against each inventory item and any associated Defects along with a date/time/user stamp along with any relevant notes. Relevant notes may include: • Potential landscape opportunities (see 4 of this Manual) • Asset record inaccuracies. • Any other notes Any additional Defects noted shall also be recorded against the relevant inventory item.
Comments	The aim of this maintenance Operation and associated Inspection Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured and to ensure preventative maintenance is carried out before the bird nesting season each year. When maintenance is carried out is it expected that trimming of vegetation should be trimmed back far enough to allow several years growth before trimming would be required again.

Bus Stop



A location marked for buses to collect passengers which may incorporate a pole with bus stop flag, lane markings or shelter. Bus Stop inventory does not need to be collected and is currently provided only as a place holder to facilitate the recording of certain other information. Certain assets associated with Bus Stops will be recorded under other Inventory items, e.g. Road Markings, Traffic Signs etc.

Asset Attributes

Asset Shape	Point
Asset Service Level	Bus stops are maintained by local authorities. No Bus Stop Inventory will be recorded and apart from Accessibility Inspections, no Inspections or Maintenance activities will be carried out. The bus Stop Asset is provided as a placeholder to enable the collection of Accessibility Defects.
Common Attributes	Bus Stop Attributes shall include the Common Attributes.
Parent/Child Assets	Bus Stop Assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Bus boarding kerb out with 125 - 160mm range
Bus raised boarding area gradient in excess of 1:12 (8.3%)
Bus raised boarding area is <3000mm long
Flag on bus stop pole is < 300 x 250mm
Route numbers on bus stop flag pole are < 50mm high
Lack of bus shelter
Bus shelter lacks seating
Passengers in bus shelter cannot see or be seen by oncoming vehicle
Bus shelter lacks adequate tonal contrast
Bus timetable positioned out with 900-1800mm range off ground level
Bus timetable font size illegible (character height should be 15-25mm)
Lack of bus stop flag pole
Lack of bus stop timetable
Grating placed in area of main pedestrian flow
Pole at front of footway out with 500-600mm offset from c/way
Seating width is < 500mm
Seating height is not 470-480mm off ground level
Seating does not have back rest
Seating does not have arm rests
Seating lacks adequate tonal contrast
Bus stop cannot be reached by adjoining footways
Footway at bus stop is < 3000mm wide
Width of clear space at bus shelter is < 1000mm
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm
Parking bay does not meet 4800 x 2400mm size
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay

Defect Description
Lack of signage at dedicated accessible parking bay
Clearance between parked vehicle and running lane is < 1200mm
Lack of footway facilities for parked vehicle
Crossfall beside parked vehicle in excess of 1:20 (5%)

Inspections

Bus Stop - Accessibility Inspection

Inspection Name	Bus Stop - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Cabinets & Pillars

A cabinet or pillar, usually containing electronic and/or communications, traffic signal equipment or similar equipment.

Asset Attributes

Asset Shape	Point
Asset Service Level	All Cabinets should only require occasional and irregular maintenance with the need for all maintenance identified through inspections. It should be noted that the majority of cabinets will contain specialist equipment which may be the subject of specific or specialist inspections. The contents of most cabinets will be recorded as Child (or associated) assets with their inspection/maintenance recorded against the relevant child assets. Most cabinets will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority CAT2A Defects. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Cabinets & Pillars Attributes shall include the Common Attributes but with the following amendments. Item Identity Code and Location Description shall be Mandatory fields. Many cabinets will be the responsibility of 3rd parties such as utilities. All cabinets within the trunk road boundary shall be recorded and the ownership fields used to record ownership. All cabinets which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. The locations of other cabinets close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. Street lighting at junctions shall be recorded.
Parent/Child Assets	Cabinet & Pillar associated with Scottish Minsters electrical assets shall have a child Cabinet & Pillar - Electrical assets recorded.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Pillar Function	Lookup • ? (Default) • Traffic Signal • Traffic Counter • Electrical – Lighting Network Feeder • Electrical – Lighting Network Distribution • Weather Station	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Communications Equipment • Speed Cameras • CCTV • Other Feeder Pillar • Other		
Cabinet/Pillar Owner	Lookup • ? (Default) • Scottish Ministers • Local Authority • Utility • Other known 3rd party • Unknown	Mandatory	
Cabinet/Pillar Maintenance Organisation	Lookup • ? (Default) • OC/DBFO Organisation • TSOIC Contactor • MTRIPS/Other Works Contractor • Known 3rd Party • Unknown	Mandatory	
Other/3rd Party Owner details	Text	Required	
Other/3rd Party Maintenance Organisation details	Text	Required	

Asset Specific Rules

Rule No.	Rule Description
Rule-CA-1	Where the ownership of a cabinet can be definitively decided it shall be recorded appropriately. Where it cannot it shall be recorded as "Unknown" until an appropriate specialist can open the cabinet and determine its ownership.
Rule-CA-2	Where the Owner is set to "3rd Party" or "Other", details of the owner must be entered into the "3rd Party or Other Owner" field.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times

Category 1a	Attend and make safe (by TRISS/Incident response) as per incident response timescales. Where a defect requires the attendance of an Electrical Specialist within 4 hours, unless a longer timescale is stated for the defect,
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Other	Any other Defect		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Obstacle free width is < 1300mm
Unobstructed height above footway is < 2300mm, including overhanging vegetation
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Lack of adequate tonal contrast
Redundant street furniture
Accessibility Defects associated with Pedestrian Guardrails
Pole at front of footway outwith 500-600mm offset from c/way
Free standing object does not meet min. height criteria of 1000mm

Inspections

Cabinet - Visual Assessment Inspection (Nearside)

Inspection Name	Cabinet - Visual Assessment Inspection (Nearside)
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	Each Cabinet shall be inspected, and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder or nearside lane with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	This Inspection will be supplemented by the Cabinet & Pillars - Visual Detailed Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Cabinet & Pillars - Visual Assessment Inspection (Central Reserve)

Inspection Name	Cabinet & Pillars - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	Each Cabinet shall be inspected, and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Cabinet & Pillars - Visual Inspection (Nearside) ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Cabinet & Pillars - Accessibility Inspection

Inspection Name	Cabinet & Pillars - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Cabinets & Pillars- Electrical

A cabinet containing electronic and/or communications, traffic signal equipment or similar equipment. Where applicable, the requirements of Transport Scotland's guidance document LDS8023 – Electrical Maintenance Guidelines shall be applied to this item. The EMG equipment type(s) covered by this inventory item are: 003, 026.

Asset Attributes

Asset Shape	Point
Asset Service Level	Cabinets should only require occasional and irregular maintenance. The need for maintenance shall be identified through inspections. Most cabinets will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2 High Defects. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Cabinets & Pillars- Electrical Attributes shall include the Common Attributes but with the following amendments. Item Identity Code and Location Description shall be Mandatory fields. All cabinets within the trunk road boundary shall be recorded and the Ownership fields used to record ownership. All cabinets which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. The locations of other cabinets close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. Street lighting at junctions shall be recorded.
Parent/Child Assets	All Cabinet & Pillar - Electrical assets shall only exist as a child item of a Cabinet & Pillar asset. Cabinet/Pillar - Electrical assets must have child asset when it contains each of the following items: • Traffic signal controller • Highways Distribution Unit (MCB/consumer Unit) • DNO • Festive Lighting supplies

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment

Field Name	Field Format	Field Required	Comments
			From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Pillar Function	Lookup • ? (Default) • Traffic Signal • Traffic Counter • Electrical – Lighting Network Feeder • Electrical – Lighting Network Distribution • Weather Station • Communications Equipment • Speed Cameras • CCTV • Other Feeder Pillar • Other	Mandatory	
Electrically Powered	Yes/No	Mandatory	Comment Default = No
Cabinet/Pillar - Cabinet Attributes			
Cabinet/Pillar Manufacturer	Lookup • ? (Default) • Lucy • Pudsey Diamond • TOFCO • HALDO • Charles Endirect • Other/Unknown	Desirable	Comment When another manufacturer is to be used regularly contact Transport Scotland to have them added to the list.
Cabinet/Pillar Fixing	Lookup • ? (Default) • Root • Flange • Wall Bracket • Post Mounted • Other	Desirable	
Cabinet / Pillar Protective Coating	Lookup • ? (Default) • No Protection • Hot Dipped Galvanise and Painted	Desirable	

Field Name	Field Format	Field Required	Comments
	• Hot Dipped Galvanised • Painted • Plastic Coated • Aluminium spray and external protective coated • Other		
Access Door Mid Height (m)	Number (decimal)	Desirable	Comment Height in metres
Conspicuity Bands	Yes/No	Mandatory	
Cabinet/Pillar - Power Supply Attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network • 230v DNO 5th Core • 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other	Mandatory	
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Conditional (Mandatory)	Comment Mandatory except when supply type is ELV (e.g. battery/Solar/Wind)

Field Name	Field Format	Field Required	Comments
No Phases	Lookup • ? (Default) • 1 • 3	Mandatory	
Upstream Asset ID	Number (int)	Mandatory	Comment Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Cabinet/Pillar - Contents			
Has Highways Distribution Unit (MCB/consumer Unit)	Lookup • ? (Default) • Yes • No	Mandatory	Comment Cabinet has Distribution Unit/MCB/Consumer Unit controlling distribution of electrical supplies to facilities such as road lighting, Weather Stations etc. Ticking this box will indicate that the BS7671 test certificate will be recorded against this cabinet.
Number of Outgoing Circuits	Number (int)	Mandatory	
Contains DNO	Lookup • ? (Default) • Yes • No	Mandatory	Comment Indicates cabinet/Pillar contains a DNO termination point
Electrical Protection Device	Lookup • ? (Default) • MCB • FUSE • RCD • None • N/A	Mandatory	Comment Where asset has no electrical power, Electrical Protection Device shall be “N/A”. Where the asset has electrical power but no protection device is provided Electrical Protection Device shall be “None”.
Main Isolator Rating	Lookup • ? (Default) • 63 • 100 • 120 • 160 • Other	Mandatory	Comment Where asset has no electrical power, Electrical Protection Device shall be “N/A”. Where the asset has electrical power but no protection device is provided Electrical Protection Device shall be “None”.
Has Festive Lighting facilities	Lookup • ? (Default) • Yes	Required	

Field Name	Field Format	Field Required	Comments
	• No		
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Documents in Place	Yes/No	Mandatory	
Schematic Showing Cables	Yes/No	Mandatory	
Location Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Site Access, Hard Standing ETC	Yes/No	Mandatory	

Asset Specific Rules

Rule No.	Rule Description
Rule-CA_Elec-1	When "Has Traffic Signal Controller facilities" = True a Child "Traffic Signal Controller" Asset shall be mandatory.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the exposed wiring have a high risk of pedestrian access?
Is the damaged column or post projecting into the carriageway or footway?
Is the damaged column or component unstable and could fall into the carriageway, footway or private land?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Surface corrosion			
Accident damage	Any damage	Any exposed wiring/ internal equipment	
Inadequate, damaged or incorrect ID label	Any damaged or incorrect ID reference numbers not at a height of 1.5 - 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number
Dirty cabinet			
Missing cabinet	Any missing cabinet	Any exposed wiring/ internal equipment	
Damaged other than accident damage	Any damage	Any exposed wiring/ internal equipment	
Defective conspicuity banding on equipment located in areas accessible to the public			
No electrical supply			
Other	Any other Defect		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
low risk of pedestrian access		a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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.			
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Inspections

Cabinets - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Cabinets - Periodic Electrical Inspection and Testing - BS7671
Inspection Group	Periodic Electrical Inspection and Testing - BS7671

Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded in the register, by adding and end dating assets as appropriate, • all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG003

Cabinets - Routine Electrical Inspection

Inspection Name	Cabinets - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023 including TR22. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG003

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Cabinet & Pillars - Electrical components - Cleaning

Cyclic Maintenance Name	Cabinet & Pillars - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with schedule 5 Clauses 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG003 Task 1 (clean & check), 4, 6, 9 & 10

Cable Chambers

A chamber associated with road lighting, traffic signals, detector loops and other roadside apparatus.

Asset Attributes

Asset Shape	Point
Asset Service Level	Regular Cyclic Maintenance shall be carried out to clean all electrical apparatus. All other maintenance shall be identified through inspections. The majority of cable chamber covers will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2 High Defects. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Cable Chambers Attributes shall include the Common Attributes but with the following amendments. Item Identity Code and Location Description shall be Mandatory fields. All Cable Chambers within the trunk road boundary shall be recorded and the Ownership fields used to record ownership. All Cable Chambers which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. The locations of other Cable Chambers close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. Street lighting at junctions shall be recorded.
Parent/Child Assets	All Cable Chamber assets shall only exist as a child item of a Manhole asset

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Electrically Energised	Yes/No	Mandatory	
Cable Chamber Attributes			
Chamber construction	Lookup • ? (Default)	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Plastic • Pre Cast concrete/cement • Brick • Other		
Cover Load Class (Tonnes)	Lookup • ? (Default) • 12.5 • 22.5 • 40 • Other	Required	Comment If load class of cover is known. If load class is unknown select "?"
Chamber drainage	Lookup • ? (Default) • Drain • Soakaway • Other	Mandatory	
Cover material	Lookup • ? (Default) • Composite • Pressed Steel • Pre Cast concrete/cement • Other	Mandatory	
Chamber Depth (mm)	Number (int)	Mandatory	
Chamber Length (mm)	Number (int)	Mandatory	
Chamber Width (mm)	Number (int)	Mandatory	
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Location & Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Text	Mandatory	
Site Access, Hard Standing ETC	Yes/No	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >= 40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?

Defect Category and Response Time Considerations
Is the difference in level >= 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		
Corrosion			
Accident damage			
Inadequate, damaged or incorrect ID label			
Damaged other than accident damage			
Ducting flooded			
Defective chamber apron, plinth			
Other			

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Unsafe electrical chamber covers and support frames plinths, aprons & surrounds	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	

Inspections

Cable Chamber - Surface Visual Assessment Inspection

Inspection Name	Cable Chamber - Surface Visual Assessment Inspection

Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the cover of every Cable Chamber shall be inspected from the surface and an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Cable Chamber shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner. Assets situated in the central reserve will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Cable Chambers - Routine Electrical Inspection

Inspection Name	Cable Chambers - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023 including TR22. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG025

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Cable Chambers - Electrical components - Cleaning

Cyclic Maintenance Name	Cable Chambers - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with schedule 5 Clauses 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG025 Task 1, 4, 5, 6 & 7

Carriageway

Part of the road constructed for use by vehicular traffic. Carriageway includes turning lanes, bus lanes, crawler lanes and acceleration/ deceleration lanes, Hard-shoulders and laybys. Hard-shoulders (HS), laybys (LB), Footways (FW), cycle facility (CT) and crossovers (XO) that are associated with a carriageway are also recorded as separate items.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Carriageways are the most important and visible assets and shall, subject to available budget, be maintained to an elevated standard. Carriageways will be visible from moving vehicles and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2A Defects. Carriageways should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections.
Common Attributes	Carriageway Attributes shall include the Common Attributes.
Parent/Child Assets	Carriageway Assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level >= 40mm?
Is the pothole >= 20mm at a designated crossing point?
Is the carriageway open to cyclists?
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>=20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation >=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause	Any debris

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		road users to take avoiding action (note: immediate action should be taken to remove such debris).	
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		
Dead Animal. Addition attributes describing the animal species shall also be recorded with the defects,	Any dead animal on the network	Any animal causing an obstruction or risk to health.	Any other animal

Inspections

Carriageway - Visual Assessment Inspection (Nearside)

Inspection Name	Carriageway - Visual Assessment Inspection (Nearside)
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Carriageway shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder or nearside lane with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Comments	This Inspection will be supplemented by the Carriageway - Visual Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Carriageway - Visual Assessment Inspection (Central Reserve)

Inspection Name	Carriageway - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Carriageway shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Carriageway - Annual Walked (Nearside) ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Catchpit

A chamber provided in a drainage system 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 to, but larger in size than a gully.

Asset Attributes

Asset Shape	Point
Asset Service Level	Catchpits by design include a silt/debris trap and require regular cleaning to remove silt/debris. Cleaning of Catchpits is a relatively easy task which reduces silt/debris entering other parts of the drainage system which can cause loss of capacity and which will be considerably more expensive to repair. Clearing of silt/debris/detritus from Catchpits shall be carried out as Cyclic Maintenance. Clearing of silt/debris/detritus from Catchpits shall be carried out as Cyclic Maintenance. Catchpits are can be located where they may not be visible and be inspected by regular Safety Inspection although consequences of blocked Catchpits may result in flooding which can be identified from safety inspections or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Catchpit Attributes shall include the Common Attributes.
Parent/Child Assets	Catchpit Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Maximum Cleansing Interval (Months)	Number (int)	Mandatory	
Cleaning Interval Varied Reason	Text	Conditional (Mandatory)	Comment Mandatory when the Cleaning Interval is a value other than 12 a reason for the change must be entered.

Asset Specific Rules

Rule No.	Rule Description
Rule-CP-1	If it is not known what type of chamber exists below the cover, the chamber shall be recorded under this inventory item Catchpit (CP).

Rule No.	Rule Description
Rule-CP-2	Catchpit covers can also be used to cover Manholes, Soakaways and Interceptors/Separators. Catchpits will normally be found in close proximity to gullies and other drainage items such as filter drains, slot drains and shall be recorded as Catchpits unless it is known otherwise. If it is not known what is beneath the cover it shall be recorded as a Catchpit and checked at the next inspection or maintenance activity when the cover is removed and the chamber/contents checked.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Catchpit - Surface Visual Assessment Inspection

Inspection Name	Catchpit - Surface Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the cover of every Catchpit shall be inspected from the surface at close quarters. Catchpit covers more than 1 lane away from the Inspection position or in the central reserve shall be inspected separately with appropriate traffic management. An overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Catchpits shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner. Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Catchpit - Internal Visual Assessment Inspection

Inspection Name	Catchpit - Internal Visual Assessment Inspection
Inspection Group	Drainage Assets - Internal Visual Condition
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the cover of each Catchpit shall be removed and the internal structure of the Catchpit Inspected, any Defects shall be noted and an overall assessment of its condition made. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Catchpit - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. May show obvious signs of new construction and difference in condition and colour of the gully surround to the main carriageway surface. 
B - Good	No visual Defects and with few visible signs of surface deterioration. Very minor signs of weathering.
C - Fair	Minor rocking and projections. Level difference with carriageway not exceeding 10 mm. Relative movements under load not exceeding 10mm. Minor differential between component levels. Minor corrosion of ironwork. Minor deterioration of the surface around the cover. 
D - Poor	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 of greater than 20mm that could cause danger to cyclists or pedestrians.  

Condition	Description
E - Very Poor	Missing, cracked or broken covers. Rocking grating or cover causing intrusive noise in urban areas. Major corrosion of ironwork. Collapse of chamber, gulley frame and/or major deterioration of the surface around the cover.  
R - Routine Maintenance	Acceptable structural condition but requires unblocking. 

Maintenance

Cyclical Maintenance Activities

Catchpit - Cleaning

Cyclic Maintenance Name	Catchpit - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Catchpits shall be cleaned in accordance with Schedule 5 Specification Clause 6102AR. During each Maintenance visit the cover shall be removed and all silt/debris removed from the Catchpit. A note of the how full the Catchpit silt trap was and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a trap fullness condition record. Any Defects shall be recorded and associated with the asset.

CCTV and Cameras

A closed circuit television camera, speed cameras or other camera.

Asset Attributes

Asset Shape	Point
Asset Service Level	CCTV and camera locations only need to be recorded. CCTV camera assets are maintained by Traffic Scotland under separate arrangements.
Common Attributes	CCTV and Cameras Attributes shall include the Common Attributes.
Parent/Child Assets	CCTV and Cameras Assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm

Inspections

CCTV & Cameras - Accessibility Inspection

Inspection Name	CCTV & Cameras - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Central Island

An obstruction built in the road to split traffic into lanes and/or to provide a pedestrian refuge.

Asset Attributes

Asset Shape	Area
Asset Service Level	Central Islands should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Central Islands are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Central Island Attributes shall include the Common Attributes.
Parent/Child Assets	Central Island Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Central Island • Traffic Island • Pedestrian Refuge	Mandatory	Images  Island Type = Pedestrian Refuge  Island Type = Pedestrian Refuge  Island Type = Central Island Block paved areas with black/white arrow

Field Name	Field Format	Field Required	Comments
			pattern on the roundabout are recorded as inventory item sign (SG). If the grassed area on the roundabout is maintained, it is also recorded as inventory item grassed area (GA).  Island Type = Central Island If the grassed area on the island is maintained, it is also recorded as inventory item grassed area (GA).
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing • Other	Desirable	
Width	Number (decimal)	Desirable	Comment The width of a Central Island is the average width or most common width to the nearest 0.1 meters. If distinct changes in

Field Name	Field Format	Field Required	Comments
			width occur the item shall be stopped, and a new item started. See Rule-CI-4

Asset Specific Rules

Rule No.	Rule Description
Rule-CI-1	A central island constructed in two parts with a pedestrian refuge is treated as a single inventory item.
Rule-CI-2	The maintainable grass width of a central island is recorded under inventory item Grassed Area (GA).
Rule-CI-3	A roundabout including a mini-roundabout with a raised centre and not defined as a separate section is regarded as a central island having a width equal to its diameter. A mini roundabout without a raised centre is regarded as transverse and special road markings (RM).
Rule-CI-4	The width of a Central Island is the average width or most common width to the nearest 0.1 metres. If distinct changes in width occur the item shall be stopped and a new item started.
Rule-CI-5	Central Islands were previously linear assets and have been changed to Area assets. The Asset shape shall be updated.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level = 40mm?
Is the pothole = 20mm at a designated crossing point?
Is the carriageway open to cyclists?

Defect Category and Response Time Considerations
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>=20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation > =40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any debris
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		

Inspections

Central Island - Visual Assessment Inspection (Nearside)

Inspection Name	Central Island - Visual Assessment Inspection (Nearside)
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Central Island shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder or nearside lane with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	This Inspection will be supplemented by the Central Island- Visual Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Central Island - Visual Assessment Inspection (Central Reserve)

Inspection Name	Central Island - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Central Island shall be inspected and any Defects noted.

	During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Central Island - Visual Inspection (Nearside) ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Central Reserve

An area that separates the opposing carriageways of a dual carriageway road or motorway.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Central Reserves should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Central Reserves are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out to record Defects.
Common Attributes	Central Reserve Attributes shall include the Common Attributes.
Parent/Child Assets	Central Reserve Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing	Desirable	Images  Surface: Bitumen Macadam  Surface: Gravel

Field Name	Field Format	Field Required	Comments
	• Other		
Width	Number (decimal)	Desirable	Comment Average or most common width to the nearest 0.1 metres. See Rule-CR-4

Asset Specific Rules

Rule No.	Rule Description
Rule-CR-1	A central reserve is recorded in XSP R1.
Rule-CR-2	Other inventory items situated on a central reservation are allocated the same XSP as the reserve. Inventory items common to both sections are recorded once e.g. double sided safety fence with a shared post.
Rule-CR-3	When the central reserve is crossed by a crossover it shall be stopped and a new item started. The item will also be stopped and a new item started when the surface type changes or the width changes significantly.
Rule-CR-4	The width of a central reserve is the average width. If distinct changes in width occur the item shall be stopped and a new item started.
Rule-CR-5	The maintainable grass width of a central reserve is also recorded under the inventory item Grassed Area (GA).

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?

Defect Category and Response Time Considerations
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level = 40mm?
Is the pothole = 20mm at a designated crossing point?
Is the carriageway open to cyclists?
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>=20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation > =40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on, or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any debris

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		

Inspections

Central Reserve - Visual Assessment Inspection (Central Reserve)

Inspection Name	Central Reserve - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection, the full extends of all Central Reserve shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters
Inspection Records	On completion of each inspection a record shall be recorded against the relevant Link/Section and any Defects recorded.
Comments	Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Counterfort Drain

A field drain, similar to a filter drain (FD), 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.

Asset Attributes

Asset Shape	Area
Asset Service Level	Counterfort Drains should only require occasional and irregular maintenance. The need for maintenance shall be identified through inspections. Counterfort Drains are often not be visible from the road and are therefore unlikely to be inspected by regular safety inspections. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Counterfort Drain Attributes shall include the Common Attributes.
Parent/Child Assets	Counterfort Drain Assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Rule No.	Rule Description
Rule-CD-1	The area covered by Counterfort drains shall be defined as an area as they tend to occur all along a slope and run in zigzags

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.

Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

Counterfort Drain - Visual Assessment Inspection

Inspection Name	Counterfort Drain - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Counterfort Drain shall be inspected, an overall assessment of the condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each 100m length of inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Counterfort Drain - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. New, clean chippings with no discolouration. Maybe evidence of loose chippings within the surrounding carriageway area as the surface level still proud of the surrounding areas or signs of disturbance in the surrounding grassed areas indicating recent Operations or Works.

Condition	Description
	
B - Good	No visual Defects and with few visible signs of deterioration. Maybe slight discolouration to the chippings and the level of the drain would have settled slightly below the surrounding areas. Showing no signs of the original construction works and all surrounding grassed areas returned to vegetation.  
C - Fair	Evidence of initial deterioration, including minor formation of silt crust on the surface. Minor vegetation growth. Drain still functioning correctly.  
D - Poor	Extensive vegetation growth, extensive silt crust on the surface. Ponding in surrounding areas. 

Condition	Description
E - Very Poor	Filter material displaced onto the carriageway or hard shoulder resulting in a difference in level from surface to drain >100mm. Filter material requires replacement. Evidence of severe ponding. 
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

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.

Asset Attributes

Asset Shape	Point
Asset Service Level	Crossovers should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Crossovers are visible from the Carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Crossover Attributes shall include the Common Attributes.
Parent/Child Assets	Crossover Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing • Other	Desirable	
Width (m)	Number (decimal)	Desirable	

Field Name	Field Format	Field Required	Comments
Description	Lookup • ? (Default) • Private driveway/access • Business driveway/access • Field/Farm Access • Central Reserve Maintenance Crossover (Useable) • Central Reserve Maintenance Crossover (not used) • Other	Desirable	Comment Description of the crossover Images   Description = Driveway Description = Closed Central reserve crossover
Crossover Type - Other	Text	Conditional (Mandatory)	Comment Mandatory where Crossover Type = Other. Description of the crossover (e.g. 'factory entrance' or 'across a driveway')

Asset Specific Rules

Rule No.	Rule Description
Rule-XO-1	Central reserve crossovers are recorded even when barriers are present to prevent the passage of vehicles

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level = 40mm?
Is the pothole = 20mm at a designated crossing point?
Is the carriageway open to cyclists?
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>= 20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation > =40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate	Any debris

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		action should be taken to remove such debris).	
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		

Inspections

Crossover - Visual Assessment Inspection (Nearside)

Inspection Name	Crossover - Visual Assessment Inspection (Nearside)
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection, the full extends of all Crossover shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder of lane central with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	This Inspection will be supplemented by the Crossover - Visual Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Crossover - Visual Assessment Inspection (Central Reserve)

Inspection Name	Crossover - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Crossover shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Crossover - Visual Inspection - Nearside ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Cycle Facility

A part of road normally within the trunk road boundary specifically for the use of pedal cycles or a dedicated track remote from the road which may be shared use.

Asset Attributes

Asset Shape	Point
Asset Service Level	Cycle Facilities shall be classified based on their Winter Maintenance Category which is based on location and usage. Cycle Facilities will require occasional sweeping maintenance. Sweeping and cleansing is the responsibility of local authorities except on Motorways and Special Roads. Sweeping and cleansing shall be carried out as necessary. The need for all other maintenance shall be identified through Inspection. Some Cycle Facilities are located where they will be visible and be inspected by regular Safety Inspection or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Cycle Facility Attributes shall include the Common Attributes.
Parent/Child Assets	Cycle Facility Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing	Desirable	

Field Name	Field Format	Field Required	Comments
	• Other		
Width (metres)	Number (decimal)	Desirable	Comment See Rule-CT-5.
Cycleway Category	Lookup • ? (Default) • A • B • C • D	Mandatory	
Cycleway Type	Lookup • ? (Default) • Un-segregated combined cycle facility/footway • Segregated combined cycle facility/footway • Unsegregated combined cycle facility/carriageway • Segregated combined cycle facility/carriageway	Desirable	Images   Un-segregated combined cycle facility/footway Sign is recorded under inventory item sign (SG) with Diagram No. 956. Segregated combined cycle facility/footway White delineator is recorded under road markings (RM) with appropriate Diagram No. (1049 or 1049.1). Sign is recorded under inventory item sign (SG) with Diagram No. 957.

Asset Specific Rules

Rule No.	Rule Description
Rule-CT-1	Combined cycle facility/footway can be segregated or un-segregated. When a cycle facility and footway occur together the item which has the principal use takes priority, and no entry is required for the other item. If in doubt the entry for footway (FW) takes priority.
Rule-CT-2	Where the cycle track is remote from the carriageway, the cycle track may be recorded with its own link/section if it is maintained by Scottish Ministers.
Rule-CT-3	A shared signal controlled crossing (toucan crossing) with green/red cycle indicator and green/red man indicator, associated with a cycleway is recorded under the item pedestrian crossing (PX).
Rule-CT-4	Line markings or painted cycle symbols are recorded as road markings (RM). (Diagram No. Page 198-205, Traffic Signs Regulations and General Directions 2002).

Rule No.	Rule Description
Rule-CT-5	Where the surface changes or there is a significant change in width the item shall be stopped and a new item started.
Rule-CT-6	A cycle facility is recorded in the XSP of the footway or as part of a road lane.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause a network user to slip, trip or fall?
Does the defect cause a difference in level of >= 20mm?
What is the hierarchy of the footway or cycle track?
Could the defect cause a network user to step into the carriageway?
Is footway frequented by a high percentage of vulnerable users?
Is street lighting present?
Are horse riders likely to use the footway/cycleway?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Standing water	Standing water	Standing water which covers 50% of width of the footway or causes a pedestrian to step into the carriageway	Any standing water between October and April inclusive

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Flag/Block profile and uneven/trips	Any depression or projection of >=13mm in any part of the footway or cycle path	Any depression or projection of >=20mm in any part of the footway or cycle path	
Flag/Block rocking	Any rocking block or Flag	Any block or flag that rocks to create a change in level of >=20mm in any part of the footway or cycle path	
Potholes	Any pothole of >=13mm in any part of the footway or cycle path	Any pothole of >=20mm in any part of the footway or cycle path	
Failed patch/Trench	Any abrupt difference in level fretting or deformation >=13mm	Any abrupt difference in level, fretting or deformation >=20mm	
Overgrown by vegetation	Any vegetation which narrows the footway or may cause injury	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or risk of head/facial injury	Any vegetation overgrowing the footway
Bituminous surfacing fretting	Loss of material from the surface of the footway		
Cracking	Cracking with a width > 2mm		
Other	All other Defects		
Dead Animal. Addition attributes describing the animal species shall also be recorded with the defects.	Any dead animal on the network	Any animal causing an obstruction or risk to health.	Any other animal

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Kerb upstand adjacent to c/way < 80mm high (excluding crossing points)
Lack of edge definition (upstand) at rear
Lack of dropped kerb
Kerb upstand at crossing > 6mm high
Width of dropped kerb at uncontrolled crossing is < 1200mm
Width of dropped kerb at controlled crossing is < 2400mm
Cross fall of transition area between footway level and dropped kerb level in excess of 1:12 (8.3%)
Gradient in excess of 1:11 (9%) on dropper kerb
Bus boarding kerb outwith 125 - 160mm range
Bus raised boarding area gradient in excess of 1:12 (8.3%)
Bus raised boarding area is <3000mm long

Defect Description
Step going length outwith 250-425mm range (depth of tread in the horizontal plane)
Flight has in excess of 12 steps
Flight has less than 3 steps
Rise for a single step outwith 150-170mm range
Lack of tonal contrast between step nosing and tread, and step nosing and riser
Step nosing is not non-slip
Nosing projects in excess of 25mm in horizontal plane
Risers are open
Nosings and not parallel with the other nosings
Nosings and not parallel with the ground/landing
Taping rails not provided in line with staircase treads
Stairs are not accompanied by a ramp
Lack of landings between successive flights
Longitudinal gradient in excess of 1:20 (5%)
Crossfall in excess of 1:40 (2.5%)
Abrupt change in gradient (should be rounded)
Identify areas (in excess of 10m2) where surface irregularity exceeds 3mm in a vertical plane
Identify any gaps exceeding 10mm in a horizontal plane
Grating placed in area of main pedestrian flow
Obstacle free width is < 1300mm
Unobstructed height above footway is < 2300mm, including overhanging vegetation
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Edge of footway has sudden level change
Lack of edge definition
Seating not provided every 50m
Seating width is < 500mm
Seating height is not 470-480mm off ground level
Seating does not have back rest
Seating does not have arm rests
Seating lacks adequate tonal contrast
Bus stop cannot be reached by adjoining footways
Footway at bus stop is < 3000mm wide
Width of clear space at bus shelter is < 1000mm
Ramp not accompanied by steps where the level difference exceeds 200mm

Defect Description
Ramp is a stepped ramp
Ramp and landings do not contrast tonally
Ramp longitudinal gradient in excess of 1:10 (10%) for ramp flight up to 600mm going
Ramp longitudinal gradient in excess of 1:12 (8.3%) for ramp flight up to 2m going
Ramp longitudinal gradient in excess of 1:15 (6.7%) for ramp flight up to 5m going
Ramp longitudinal gradient in excess of 1:20 (5%) for ramp flight up to 10m going
Individual ramp flight in excess of 10m long
Individual ramp rise in excess of 500mm
Sides of ramp not protected by a raised kerb of 100mm min height
Ramp crossfall in excess of 1:40 (2.5%)
Total rise in ramped section in excess of 2m
Total length of ramped section in excess of 50m, but less than 132m
Length of landing to top/bottom of flight is < 1200mm
Length of intermediate landing is < 1500mm
Length of landing at change in direction is < 1800mm
A landing has not been applied at change in direction
Landing longitudinal gradient in excess of 1:40 (2.5%)
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm
Gate latch inoperable by person with reach difficulties e.g. wheelchair user
Staggered barriers/access control less than 1200mm apart
Lack of tactile paving
Inappropriate tactile paving type
Inappropriate tactile paving colour
Inappropriate tactile paving layout
Outdated/worn profile on tactile paving
Tactile paving does not contrast tonally with surrounding paving
The back edge of the tactile surface is not at right angles to the direction of crossing/travel
Pedestrian route around a junction is not continuous
Width between handrails is < 1000mm
Width between handrails is < 1800mm (this does not allow two way movement)
Width between handrails is > 1800mm
Handrails not provided on both sides of flight
Handrails on flight not provided at height of 900-1000mm
Handrails not continuous across intermediate landings

Defect Description
Handrails do not extend 300mm past top and bottom of flight
End of handrail projects into route of travel
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users)
Handrail of material which is cold to the touch
Handrails are not tonally contrasted with background
Circular handrails does not have cross section of 40-50mm diameter
Oval handrail does not have cross section of 50 x 35mm
Clear space between handrail and adjacent wall is < 60mm
Parking bay does not meet 4800 x 2400mm size
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay
Lack of signage at dedicated accessible parking bay
Clearance between parked vehicle and running lane is < 1200mm
Lack of footway facilities for parked vehicle
Footway is < 1500mm wide
Crossfall beside parked vehicle in excess of 1:20 (5%)
Crossing point not on obvious pedestrian desire line
Crossing point at junction bellmouth not at ideal location
Lack of refuge at crossing
Refuge at crossing is < 1500mm wide
Pedestrian crossing is zebra type

Inspections

Cycleway category A - Visual Assessment Inspection

Inspection Name	Cycleway category A - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Footway/Cycleway CAT A & B
Inspection Interval	At intervals not exceeding 1 month
Inspection Requirement	During each inspection the full length of each Category A Cycleway (and any uncategorised Cycleways) shall be inspected by walking or cycling. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the Cycleway shall also be inspected to identify other Defects that may affect the usability of the Cycleway, i.e. kerbs, edgings,

	covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking or cycling every part of every Category A Cycleway on each Link/Section.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Unclassified Cycleways shall be considered to be Category A Footways until they have been classified.

Cycleway category B - Visual Assessment Inspection

Inspection Name	Cycleway category B - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Footway/Cycleway CAT A & B
Inspection Interval	At intervals not exceeding 3 months
Inspection Requirement	During each inspection the full length of each Category B Cycleway shall be inspected by walking. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the Cycleway shall also be inspected to identify other Defects that may affect the usability of the Cycleway, i.e. kerbs, edgings, covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking or cycling every part of all Category B Cycleway on each Link/Section.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Cycleway category C & Other - Visual Assessment Inspection

Inspection Name	Cycleway category C & Other - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Category C and any other Cycleway shall be inspected by walking or cycling. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the Cycleway shall also be inspected to identify other Defects that may affect the usability of the Cycleway, i.e. kerbs, edgings, covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking or cycling every part of the Cycleway on each Link/Section.

Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Cycle Facility - Accessibility Inspection

Inspection Name	Cycle Facility - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Cycle Facility - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. May have obvious signs of disturbance in the surrounding grassed areas indicating recent Operations or Works. 
B - Good	An even and comfortable surface, free from Defects and with few visible signs of surface deterioration. Showing no signs of the original construction works and all surrounding grassed areas returned to vegetation.

Condition	Description
	
C - Fair	Free from safety Defects but poor visual aesthetics. Evidence of initial deterioration, minor cracking, crazing and fretting. Minor isolated spot Defects. Poor quality reinstatements including minor differences in level with original surface. Minor settlement/unevenness or filler loss on block paved areas. 
D - Poor	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. 
E - Very Poor	Requires replacement/rehabilitation, life expired. Effects include extensive and severe surface failure, cracking, distortion or slab trips. Complete loss of screed for cycle facilities. 
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Detector Loops

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.

Asset Attributes

Asset Shape	Point
Asset Service Level	Detector Loops should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Detector Loops are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. The Operating Company shall immediately report any damaged asset to the appropriate maintenance contractor if not maintained by the Operating Company. The Operating Company shall plan any carriageway Operation or Works that may affect the loops, including informing and liaison with other maintenance contractors, and the replacement of any removed or damage loops in accordance with Schedule 5 Specification Clause 1540. The Operating Company shall comply with the Special Requirements of Traffic Scotland as contained in Schedule 1 on the Contract. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Detector Loops Attributes shall include the Common Attributes.
Parent/Child Assets	Detector Loops Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Controller Cabinet ID	Lookup • ? (Default) • Dynamic list of nearby cabinets	Mandatory	
Array Type	Lookup • ? (Default) • SRTDB • WIM • Traffic Scotland Counter	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Traffic Signals • Other		
Roadside Chamber	Yes/No	Mandatory	
Roadside Join	Yes/No	Mandatory	
In Use	Yes/No	Mandatory	
No. of Individual Loops	Number (int)	Desirable	

Asset Specific Rules

Rule No.	Rule Description
Rule-DL-1	An item is recorded for each lane in which detector loops are present.
Rule-DL-2	Temporary counter tubes nailed to the road surface are not recorded.
Rule-DL-3	Traffic Signal and Monitoring loop sites will have a cabinet on the verge, varying in size depending upon site functionality.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

Detector Loop - Visual Assessment Inspection (nearside)

Inspection Name	Detector Loop - Visual Assessment Inspection (nearside)
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals net exceeding 12 months
Inspection Requirement	The full extents of each Detector Loop shall be inspected and any Defect noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder of nearside lane with the need for traffic management assessed by the Operating Company.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	This Inspection will be supplemented by the Detector Loops - Visual Detailed Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Detector Loops - Visual Assessment Inspection (Central Reserve)

Inspection Name	Detector Loops - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The full extends of each Detector Loop shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Detector Loop - Detailed Inspection ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Traffic Signal - Detector Loop - TD24 and Visual Assessment Inspection

Inspection Name	Traffic Signal - Detector Loop - TD24 and Visual Assessment Inspection

Inspection Group	Traffic Signals - TD24 Visual Assessment Inspection
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	Comprehensive Inspections of Detector Loops associated with Traffic Signal shall be carried out in accordance with TD24/97. A complete site inspection of each installation covering at least those aspects listed in Table 2.2 of TD24/97 shall be carried out and any Defects noted. During each Inspection the accuracy of all traffic signal assets shall checked and all errors and omissions corrected. Inspectors carrying out these inspections should be competent to carry out inspections of Traffic Signal equipment.
Inspection Records	The Traffic Signal TD24/97 Checklist shall be recorded against the Traffic Signal Location asset. A date/time/user stamp shall be recorded against each asset Any Detector Loops Defects shall be recorded against the relevant Detector Loop asset.
Comments	This inspections shall only be carried out on Detector Loops where Array Type = ? or Traffic Signals. References include LDS8023 - EMG022

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Ditch

A trench adjacent to a carriageway for drainage, generally running parallel to the carriageway.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Ditches should only require occasional and irregular maintenance. The need for maintenance shall be identified through inspections. Relatively minor Defects such as silting, blockages can, however, have a significantly impact. Ditches are often situated away from the road and are unlikely to be inspected by regular Safety Inspections. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Ditch Attributes shall include the Common Attributes.
Parent/Child Assets	Ditch Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Lined • Unlined	Desirable	Images   Type: Lined Type: Unlined

Asset Specific Rules

Rule No.	Rule Description
Rule-DI-1	A lined ditch may show concrete, plastic sheet or gravel beddings. An unlined ditch will be as dug.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

Ditch - Visual Assessment Inspection

Inspection Name	Ditch - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Ditch shall be inspected. An overall assessment of its condition of each 100m length shall be made and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each 100m length of inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Ditch - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition 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 ditch has been cleared. 
B - Good	No visual Defects or blockages and with few visible signs of deterioration. Areas around the ditch returned to vegetation. 
C - Fair	Evidence of initial deterioration, including minor silting/weed growth but not impeding water flow. Minor blockages that do not adversely affect the effective operation of the ditch. 
D - Poor	Bank erosion, overgrown vegetation, presence of debris and rubbish. Blockages to pipe links on drainage runs. Minor disruptions to the water flow. Extensive cracking to concrete on lined ditches. 

Condition	Description
E - Very Poor	Silted up, debris and rubbish causing blockage, water stagnation, Defective ditches causing nuisance to adjacent land users. Collapse of the banks causing complete blockages and flow of water severely impeded. Severe cracking to concrete on lined ditches. 
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Drainage Ancillary Items

Ancillary equipment associated with road drainage including:

- Aprons,
- spillways,
- Grilles,
- Tidal Flaps,
- Headwalls,
- Trash Screens,
- Penstocks,
- Valves,
- Sluices,
- Watergates,
- Flow Control Devices and
- Pumps

Asset Attributes

Asset Shape	Point
Asset Service Level	Ancillary Drainage Items should only require occasional and irregular maintenance. The need for maintenance shall be identified through inspections. Ancillary Drainage Items are often situated away from the road and are unlikely to be inspected by regular Safety Inspections. Small and relatively minor Defects can quickly escalate and have serious consequences e.g. debris, an enhanced frequency of Comprehensive Inspections will be carried out. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Drainage Ancillary Items Attributes shall include the Common Attributes.
Parent/Child Assets	Drainage Ancillary Items Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Aprons • Spillways • Grilles • Tidal Flaps • Headwall • Trash Screens • Penstocks • Valves • Sluices • Watergates	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Flow Control device • Pump • Other		

Asset Specific Rules

Rule No.	Rule Description
Rule-AI-1	Drainage ancillary items may be located outside the trunk road boundary and may be some distance from the carriageway.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the defect affecting the drainage capacity?
Is the defect likely to cause flooding?
Would the flooding cause a hazard or damage to property or services?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Malfunction or poor condition	Any malfunction	Any malfunction causing flooding, blockage or damage	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any Damage	Damage which is, or may cause significant loss of capacity in any part of the drainage system or an indication that flooding of any private property is imminent.	
Blockage	Any Blockage	Blockages which are or may cause significant loss of capacity in any part of the drainage system or an indication that flooding of any private property is imminent.	
Flooding	Any Flooding	Sufficient amount of water which represents a hazard to network users, structures or services, or an indication that flooding of any private property is imminent.	Any water lying on, or running along/across the carriageway between October and April inclusive
Other	All other Defects		

Inspections

Drainage Ancillary - Visual Assessment Inspection

Inspection Name	Drainage Ancillary - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection- Drainage Assets Spring/Autumn
Inspection Interval	During September/October and February/March each year
Inspection Requirement	Each Drainage Ancillary item shall be inspected. For mechanical items such as valves, gates and pumps the operation of each asset shall be checked. The operation of each asset may require specialist competencies, method statements and permissions which shall be arranged prior to each Inspection. An overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Many Ancillary Drainage assets will also be associated with other Drainage assets such as Culverts, Balancing Ponds etc. The inspection Operation of these items has a similar inspection frequency and it is anticipated that they will be inspected at the same time. Missing Ancillary Drainage assets can easily be missed. Prior to each inspection cycle the Operating Company shall actively seek to identify any missing Ancillary Drainage assets. Sources may include, knowledge of newly built roads or investigations etc.

Defects

Condition Rating

Drainage Ancillary Item - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. May show obvious signs that the construction is new i.e. no discolouration to the surfaces.   
B - Good	No visual Defects and with few visible signs of surface deterioration. May have slight discolouration to the surfaces. Equipment operating correctly.   

Condition	Description
	
C - Fair	Evidence of initial deterioration, including Minor cracking/ deformation/ alignment of components. Presence of some refuse, weed growth, roots, silt, grit or other detritus but equipment operating correctly.   
D - Poor	Moderate corrosion or misalignment of components. Moderate cracking of headwalls and aprons or deformation/poor alignment of grilles and screens. Equipment not functioning correctly and excessive accumulations of silt, grit or detritus.  

Condition	Description
	
E - Very Poor	Severe corrosion or misalignment of components. Severe cracking of headwalls and aprons or deformation/alignment of components adversely affecting the structural or hydraulic performance or durability of drainage system components. Equipment nearing the end of serviceable life, including malfunction of the equipment. Excessive accumulations of silt, grit or detritus.  
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

Drainage Ancillary - Cleaning

Cyclic Maintenance Name	Drainage Ancillary - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Moving Parts of Ancillary Drainage Items shall be maintained in accordance with Schedule 5 Specification Clauses 6106AR and 6107AR including: • Sluices • Tidal Flaps • Penstocks • Valves • Pumps • and other specialist equipment

	All mechanisms shall be checked to ensure they are functioning as required and all moving parts shall be lubricated in accordance with the manufacturer's instructions. A note of any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp. Any Defects shall be recorded and associated with the asset.

Drainage Ancillary Items - Electrical

The Electrically powered elements of Ancillary Drainage Items

Asset Attributes

Asset Shape	Point
Asset Service Level	Drainage Ancillary Items - Electrical items should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. Drainage Ancillary Items - Electrical items should normally be visible to regular Safety Inspection, high priority Defects can be identified from safety inspections or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Drainage Ancillary Items - Electrical Attributes shall include the Common Attributes.
Parent/Child Assets	Drainage Ancillary Items - Electrical items shall only exist as a child item to a Drainage Ancillary asset.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Electrically Powered	Text	Mandatory	Comment Default = No
Power consumption attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network • 230v DNO 5th Core	Mandatory	

Field Name	Field Format	Field Required	Comments
	• 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other		
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Mandatory	
Upstream Asset ID	Number (int)	Mandatory	Comment Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Drainage Ancillary - Pump Attributes			
Number of Pumps	Number (int)	Mandatory	
Pumps Elexon Code	Lookup • ? (Default)	Mandatory	
Pumps Circuit Wattage	Number (decimal)	Mandatory	Comment Derived from Pumps Elexon Code
Pumps Regime Code	Lookup • ? (Default)	Mandatory	
Pumps Operating Hours	Number (int)	Mandatory	Comment Derived from Regime Code Pumps
Drainage Ancillary - Monitoring Equip. Attributes			

Field Name	Field Format	Field Required	Comments
Number of Monitoring Equipment	Number (int)	Mandatory	
Monitoring Equipment Elexon Code	Lookup • ? (Default)	Mandatory	
Monitoring Equipment Circuit Wattage	Number (decimal)	Mandatory	Comment Derived from Monitoring Equipment Elexon Code
Monitoring Equipment Regime Code	Lookup • ? (Default)	Mandatory	
Monitoring Equipment Operating Hours	Number (int)	Mandatory	Comment Derived from Regime Code Monitoring Equipment
Drainage Ancillary - Sluice Attributes			
Number of Sluices	Number (int)	Mandatory	
Sluices Elexon Code	Lookup • ? (Default)	Mandatory	
Sluices Circuit Wattage	Number (decimal)	Mandatory	Comment Derived from Sluices Elexon Code
Sluices Regime Code	Lookup • ? (Default)	Mandatory	
Sluices Operating Hours	Number (int)	Mandatory	Comment Derived from Regime Code Sluices

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.

Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the exposed wiring have a high risk of pedestrian access?
Is the damaged column or post projecting into the carriageway or footway?
Is the damaged column or component unstable and could fall into the carriageway, footway or private land?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring with	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
high risk of pedestrian access		a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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.		All Defects. Maximum response time for a deferred permanent repair shall be ahead of next programmed inspection	
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Pump malfunction			
No electrical supply			
Other			

Inspections

Drainage Ancillary Items - Specialist Mechanical/Electrical Inspection

Inspection Name	Drainage Ancillary Items - Specialist Mechanical/Electrical Inspection
Inspection Group	Drainage Ancillary Items - Specialist Mechanical/Electrical Inspection
Inspection Interval	At intervals not exceeding 12 months or as specified by the Maintenance Manual
Inspection Requirement	Pumps and other mechanically/electrically operated Ancillary Drainage Items with specialist equipment shall be Inspected and maintained by a specialist (normally a sub-contractor) as detailed in the Maintenance Manual for each Item. In the absence of a maintenance manual, the Inspection shall as a minimum service and inspect all mechanical & electrical components of the installation. During each Inspection any Defects present shall be noted.
Inspection Records	On completion of each Inspection a record shall be recorded against each inventory item along with a date/time stamp and any Defects associated with the asset.
Comments	The specialist requirements for inspecting maintaining these assets will normally require the services of a specialist sub-contractor.

Drainage Ancillary Items - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Drainage Ancillary Items - Periodic Electrical Inspection and Testing - BS7671
Inspection Group	Periodic Electrical Inspection and Testing - BS7671
Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that:

	• all assets are accurately recorded in the register, by adding and end dating assets as appropriate, • all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.

Drainage Ancillary Items - Routine Electrical Inspection

Inspection Name	Drainage Ancillary Items - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Drainage Ancillary Items - Electrical components - Cleaning

Cyclic Maintenance Name	Drainage Ancillary Items - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with schedule 5 Clauses 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG009 Task 1 (clean & check), 6, 7, 10 & 11

Drainage Ancillary - Electrical - Pump test

Cyclic Maintenance Name	Drainage Ancillary - Electrical - Pump test
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 3 months.
Cyclic Maintenance Operation Requirement	All pumps shall perform a motor, cable and starter test in accordance schedule 5 Clauses 6120AR, 6122AR and LDS8023 - EMG009 - Task 2 and the manufacturer's requirements. Operatives carrying out these activities should be competent to carry out operations on electrical and pump apparatus
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 - EMG009

Drainage Channel

A narrow longitudinal strip, generally near the edge of the carriageway, constructed to carry and lead away surface water.

Kerb Block Drains incorporate a channel within the kerb block however they shall not be recorded as a Channel but as a Kerb Inventory item (historically Kerb Block Drains have been recorded as Channels but this is no longer the case).

Asset Attributes

Asset Shape	Linear
Asset Service Level	Channels will require regular maintenance to remove silt/debris accumulations in channels to ensure water can continue to reach drainage points. Debris can also collect around Gullies/Catchpit gratings and shall be removed at the same time. All other maintenance shall be identified through inspection. The majority of Channels will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Drainage Channel Attributes shall include the Common Attributes.
Parent/Child Assets	Drainage Channel Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Channel Type	Lookup • ? (Default) • Continuous Concrete • Preformed Concrete • Natural Stone • Metal Grating • Slot drain • Other	Mandatory	Images   Channel Type = Metal Grating Channel Type = Continuous Concrete
Maximum Cleansing Interval (Months)	Number (int)	Mandatory	Comment Default Value = 12

Field Name	Field Format	Field Required	Comments
Cleansing Interval Change Reason	Text	Conditional (Mandatory)	Comment Mandatory when the Cleansing Interval is a value other than 12 a reason for the change must be entered.

Asset Specific Rules

Rule No.	Rule Description
Rule-CH-1	When the Channel type changes the item shall be stopped and a new item started.
Rule-CH-2	A lined channel running perpendicular to the carriageway will generally be recorded under the inventory item Grip (GP).
Rule-CH-3	Kerb Block Drains shall be recorded as a Kerb. This is a change to previous guidance.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to	Water lying on, or running along/across the carriageway between

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Drainage Channel - Visual Assessment Inspection

Inspection Name	Drainage Channel - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Channel shall be inspected. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Channel - Condition Rating

Condition	Description
A - Excellent	New or nearly new construction. May show obvious signs that the channel is new construction i.e. no discolouration to the surfaces.

Condition	Description
	
B - Good	No visual Defects and with few visible signs of surface deterioration. May have slight discolouration to the channel surface.  
C - Fair	Minor cracking/ deformation/ alignment of components. Presence of detritus/refuse/weed growth/roots. 
D - Poor	Moderate cracking/ deformation or poor alignment of channel blocks allowing water ingress. Symptoms of blockage or faults of the piped drainage system that prompt further investigation includes backing up and flooding at the entry points, dry outlets, wet areas on verges, and the presence of lush vegetation. Substantial corrosion of metal grating (if used). 
E - Very Poor	Severe cracking/deformation or alignment of components adversely affecting the structural or hydraulic performance or durability of drainage system components. Severe corrosion of

Condition	Description
	metal grating (if used). Failure or incorrect operation of equipment associated with outfall. Failure of surrounding surface areas.  
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

Channel - Cleaning

Cyclic Maintenance Name	Channel - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Maintenance shall be carried out in accordance with Schedule 5 Specification Clause 6131AR. During each Cyclic Maintenance visit all silt/debris/vegetation shall be removed from the full length of each channel to ensure free flow of water. Gullies/Catchpits etc. associated with the Channel shall be cleaned in accordance with Schedule 5 Specification Clause 6102AR, 520 and 521 at the same time. Any Defects shall be noted
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp. Any Defects shall be recorded and associated with the asset.

Electrical Ducting and Cables

An underground ducting system to carry electrical cables to electrically powered apparatus. Where applicable, the requirements of Transport Scotland's guidance document LDS8023 – Electrical Maintenance Guidelines shall be applied to this item. The EMG equipment type(s) covered by this inventory item are: 024, 027, and 028.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Electrical Ducting should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. Electrical Ducting is normally buried in the ground and cannot be easily inspected except at manholes and cable chambers.
Common Attributes	Electrical Ducting and Cables Attributes shall include the Common Attributes.
Parent/Child Assets	Electrical Ducting and Cables Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Downstream Asset ID	Number (int)	Mandatory	Comment Asset ID of Downstream cable connection (Asset Further away from Control Cabinet)

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Corrosion			
Accident damage			
Inadequate, damaged or incorrect ID label			
Damaged other than accident damage			
Ducting flooded			
Unsafe chamber cover and support plinth			
Defective chamber apron, plinth			
Other			

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a or 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in	All Defects shall be treated as Category 1a or 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
excess of the maximum allowable for the protective device.		a deferred permanent repair shall be 7 days.	
Failure of insulation test between live conductor and earth, and disconnection of earthing and bonding conductors.		All Defects. Maximum response time for a deferred permanent repair shall be ahead of next programmed inspection	
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Inspections

Electrical Ducting and Cables - Routine Electrical Inspection

Inspection Name	Electrical Ducting and Cables - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.

Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG003, EMG024, EMG025 & EMG028

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Electrical Ducting & Cables - Electrical components - Cleaning

Cyclic Maintenance Name	Electrical Ducting & Cables - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with Schedule 5 Specification Clause 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG003 • EMG024 Task 1, 4, 5, 6 & 7 • EMG025 & EMG028

Emergency Telephone Box

A telephone box and booth located adjacent to the carriageway solely for use in an emergency.

Asset Attributes

Asset Shape	Point
Asset Service Level	Emergency Telephone locations only need to be recorded. Emergency Telephones are maintained by Traffic Scotland under separate arrangements.
Common Attributes	Emergency Telephone Box Attributes shall include the Common Attributes.
Parent/Child Assets	Emergency Telephone Box Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm

Inspections

Emergency Telephone - Visual Assessment Inspection

Inspection Name	Emergency Telephone - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	Each Emergency Telephone box shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Emergency Telephone - Accessibility Inspection

Inspection Name	Emergency Telephone - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland.

	The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Fences, Walls and Barriers

A boundary fence, wall or barrier which runs alongside the carriageway for screening noise, headlight glare or to prevent access.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Fences and Barriers should operate for long periods without regular maintenance. The need for maintenance shall be identified through Inspection. Most Fences and Barriers are located where they will be visible and be inspected by regular Safety Inspection or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Fences, Walls and Barriers Attributes shall include the Common Attributes but with the following amendments. All fences owned or maintained by Scottish Ministers shall be recorded. All fences within or immediately adjacent to the Trunk Road Boundary shall be record. Most fences adjacent to Motorways and Special Roads will be owned by Scottish Ministers, many fences adjacent to other roads may be the responsibility of 3rd parties.
Parent/Child Assets	Fences, Walls and Barriers Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Function	Lookup • ? (Default) • Anti-Glare • Noise • Boundary • Stockproof • Snow Fence • Wildlife fence • Deer Fence • Other	Mandatory	Images  Function: Boundary Material: Timber   Function: Boundary Material: Mesh

Field Name	Field Format	Field Required	Comments
			Function: Noise Material: Timber  Function: Boundary Material: Timber Post & Wire
Material	Lookup • ? (Default) • Timber • Timber Post & Wire • Metal Post & Wire • Mesh • Vane • Stone • Brick • Other	Desirable	

Asset Specific Rules

Rule No.	Rule Description
Rule-FB-1	If the fence type or material changes the item shall be stopped and a new item started.
Rule-FB-2	Fences and barriers which occur in the central reserve of dual carriageways and motorways and are common to both sections are recorded only once.
Rule-FB-3	VRRS and Pedestrian Guardrails shall be recorded under appropriate inventory item.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the purpose of the fence to restrain livestock or wildlife from entering the carriageway?
Is the purpose of the fence to restrain network users from entering a dangerous area?
Is the purpose of the fence to restrain network users from entering private property?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Missing section of fence or barrier	Any missing fence or barrier	Any missing fence or barrier which is not serving its purpose	Any missing fence or barrier
Damaged or deformed fence or barrier	Any damaged or deformed fence or barrier	Any damaged or deformed fence or barrier which is not serving its purpose	Any damaged or deformed fence or barrier
Loose component	Any loose component		
Other	Any other Defect		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Obstacle free width is < 1300mm
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Free standing object does not meet min. height criteria of 1000mm
Width between handrails is < 1000mm
Width between handrails is < 1800mm (this does not allow two way movement)
Width between handrails is > 1800mm
Handrails not provided on both sides of flight
Handrails on flight not provided at height of 900-1000mm
Handrails not continuous across intermediate landings
Handrails do not extend 300mm past top and bottom of flight

Defect Description
End of handrail projects into route of travel
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users)
Handrail of material which is cold to the touch
Handrails are not tonally contrasted with background
Circular handrails does not have cross section of 40-50mm diameter
Oval handrail does not have cross section of 50 1 35mm
Staggered barriers/access control less than 1200mm apart
Lack of adequate tonal contrast
Redundant street furniture
Gate latch inoperable by person with reach difficulties e.g. wheelchair user
Clear space between handrail and adjacent wall is < 60mm

Inspections

Fences Walls and Barriers - Visual Assessment Inspection

Inspection Name	Fences Walls and Barriers - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Fence and Barrier shall be inspected at close quarters. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each 100m section of asset along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded. Defects shall be recorded against the relevant inventory item and relative position.
Comments	Many Fences and Barriers can be located a significant distance away from the carriageway, at the top of a cutting or at the bottom of an embankment and shall be Inspected. Assets situated in the central reserve will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Fences, Walls and Barriers - Accessibility Inspection

Inspection Name	Fences, Walls and Barriers - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years

Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Fences and Barriers - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Surrounding grassed verge areas showing obvious signs disturbance due to construction Operations or Works. Footway or constructed verge areas around base of posts are in new condition compared with surrounding areas (unless also replaced). 
B - Good	No visual Defects and with few visible signs of surface deterioration. Grassed verge areas surrounding posts returned to vegetation. Minimal weathering or pollution from passing traffic.  
C - Fair	Evidence of initial deterioration, including minor corrosion, superficial accident damage. Loss of paint, galvanising or other protective system. Minor damage or individual missing rails on fences in rural areas or minor damage to infill panels in pedestrian guardrails.

Condition	Description
	
D - Poor	Poor structural condition. Corroded metal that affects function or promotes deterioration. Rotten or missing panels/posts. Cracking or spalling of brickwork or concrete that affects the function. Lack of tension in a strained wire fence. Fences non stock proof. Vandalism or minor accident damage that does not affect the safety or workings of the structure.  
E - Very Poor	Accident damage or vandalism that makes the item structurally unsound or makes the item unsafe to road users. Sections of missing fence. Severely corroded so as to make the unit structurally unsafe. 
R - Routine Maintenance	Where the fence or barrier cannot be inspected e.g. due to being overgrown by vegetation.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

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).

Asset Attributes

Asset Shape	Linear
Asset Service Level	Filter Drains require regular maintenance to prolong their life by breaking up silt crusts and preventing vegetation growth. All other maintenance shall be identified by Inspection. Many Filter Drains are situated away from the road and are unlikely to be inspected by regular Safety Inspections. Regular Derailed Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Filter Drain Attributes shall include the Common Attributes.
Parent/Child Assets	Filter Drain Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Filter Media	Lookup • ? (Default) • Type A • Type B • Type C • Other	Desirable	

Asset Specific Rules

Rule No.	Rule Description
Rule-FD-1	Counterfort drains which are variation upon a filter drain are identified and recorded as a separate inventory item (CD).
Rule-FD-2	Filter drains which occur in the central reserve of dual carriageways and motorways and which are common to both sections are recorded only once.
Rule-FD-3	When a filter drain is crossed by a crossover (XO) it shall be stopped and a new item started.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >= 40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level >= 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Filter Drain - Visual Assessment Inspection

Inspection Name	Filter Drain - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Filter Drain shall be inspected. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Filter Drain - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. New, clean chippings with no discolouration. Maybe evidence of loose chippings within the surrounding carriageway area as the surface level still proud of the surrounding areas or signs of disturbance in the surrounding grassed areas indicating recent Operations or Works. 
B - Good	No visual Defects and with few visible signs of deterioration. Maybe slight discolouration to the chippings and the level of the drain would have settled slightly below the surrounding areas. Showing no signs of the original construction works and all surrounding grassed areas returned to vegetation.

Condition	Description
	 
C - Fair	Evidence of initial deterioration, including minor formation of silt crust on the surface. Minor vegetation growth. Drain still functioning correctly.  
D - Poor	Extensive vegetation growth, extensive silt crust on the surface. Ponding in surrounding areas. 
E - Very Poor	Filter material displaced onto the carriageway or hard shoulder resulting in a difference in level from surface to drain >100mm. Filter material requires replacement. Evidence of severe ponding. 
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

Filter Drain - Harrowing

Cyclic Maintenance Name	Filter Drain - Harrowing
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 3 years
Cyclic Maintenance Operation Requirement	Filter Drain shall be harrowed in accordance with Schedule 5 Specification Clause 6105AR. During each visit the Filter Drain shall be harrowed to break up and silt/detritus in the upper layers of the filter material and minimise retention of water. A note of any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp. Any Defects shall be recorded and associated with the asset.

Footway

A part of the road exclusively for the use of pedestrians or shared with other users such as cycles or horse riders.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Footways shall be classified based on a risk scoring matrix incorporating location, usage and service accessibility. Footways will require occasional sweeping maintenance. Sweeping and cleansing is the responsibility of local authorities except on Motorways and Special Roads. Sweeping and cleansing shall be carried out as necessary and recorded under "Litter, Refuse and Detritus" . The need for all other maintenance shall be identified through Inspection. Some footways are located where they will be visible and be inspected by regular Safety Inspection or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Footway Attributes shall include the Common Attributes.
Parent/Child Assets	Footway Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Footway category	Lookup • ? (Default) • A • B • C • D	Mandatory	
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing • Other		
Width (Metres)	Number (decimal)	Mandatory	Comment Average width to the nearest 0.1m. Where there is a significant change in width the items shall be stopped and a new item started.
Footway - Cycle Facilities			
Cycle Facility Type	Lookup • ? (Default) • Un-segregated combined cycle facility/footway • Segregated combined cycle facility/footway • Dedicated Cycle facility	Required	Images   Un-segregated combined cycle facility/footway Segregated combined cycle facility/footway

Asset Specific Rules

Rule No.	Rule Description
Rule-FW-1	When a footway and cycle facility occurs together, the item which has the principal use takes priority and no entry is required for the other item. If in doubt, the footway entry takes priority.
Rule-FW-2	When the footway surface changes or there is a significant change in width the item shall be stopped and a new item started.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.

Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

;

Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause a network user to slip, trip or fall?
Does the defect cause a difference in level of >=20mm?
What is the hierarchy of the footway or cycle track?
Could the defect cause a network user to step into the carriageway?
Is footway frequented by a high percentage of vulnerable users?
Is street lighting present?
Are horse riders likely to use the footway/cycleway?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Standing water	Standing water	Standing water which covers 50% of width of the footway or causes a pedestrian to step into the carriageway	Any standing water between October and April inclusive
Flag/Block profile û uneven/trips	Any depression or projection of >=13mm in any part of the footway or cycle path	Any depression or projection of >=20mm in any part of the footway or cycle path	
Flag/Block rocking	Any rocking block or Flag	Any block or flag that rocks to create a change in level of >= 20mm in any part of the footway or cycle path	
Potholes	Any pothole of >=13mm in any part of the footway or cycle path	Any pothole of >=20mm in any part of the footway or cycle path	
Failed patch/Trench	Any abrupt difference in level fretting or deformation >=13mm	Any abrupt difference in level, fretting or deformation >=20mm	
Overgrown by vegetation	Any vegetation which narrows the footway or may cause injury	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or risk of head/facial injury	Any vegetation overgrowing the footway
Bituminous surfacing fretting	Loss of material from the surface of the footway		

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Cracking	Cracking with a width > 2mm		
Other	All other Defects		
Dead Animal. Addition attributes describing the animal species shall also be recorded with the defect.	Any dead animal on the network	Any animal causing an obstruction or risk to health.	Any other animal

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Kerb upstand adjacent to c/way < 80mm high (excluding crossing points)
Lack of edge definition (upstand) at rear
Lack of dropped kerb
Kerb upstand at crossing > 6mm high
Width of dropped kerb at uncontrolled crossing is < 1200mm
Width of dropped kerb at controlled crossing is < 2400mm
Cross fall of transition area between footway level and dropped kerb level in excess of 1:12 (8.3%)
Gradient in excess of 1:11 (9%) on dropper kerb
Bus boarding kerb outwith 125 - 160mm range
Bus raised boarding area gradient in excess of 1:12 (8.3%)
Bus raised boarding area is <3000mm long
Step going length outwith 250-425mm range (depth of tread in the horizontal plane)
Flight has in excess of 12 steps
Flight has less than 3 steps
Rise for a single step outwith 150-170mm range
Lack of tonal contrast between step nosing and tread, and step nosing and riser
Step nosing is not non-slip
Nosing projects in excess of 25mm in horizontal plane
Risers are open
Nosings and not parallel with the other nosings
Nosings and not parallel with the ground/landing
Taping rails not provided in line with staircase treads
Stairs are not accompanied by a ramp
Lack of landings between successive flights
Longitudinal gradient in excess of 1:20 (5%)

Defect Description
Crossfall in excess of 1:40 (2.5%)
Abrupt change in gradient (should be rounded)
Identify areas (in excess of 10m2) where surface irregularity exceeds 3mm in a vertical plane
Identify any gaps exceeding 10mm in a horizontal plane
Grating placed in area of main pedestrian flow
Obstacle free width is < 1300mm
Unobstructed height above footway is < 2300mm, including overhanging vegetation
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Edge of footway has sudden level change
Lack of edge definition
Seating not provided every 50m
Seating width is < 500mm
Seating height is not 470-480mm off ground level
Seating does not have back rest
Seating does not have arm rests
Seating lacks adequate tonal contrast
Bus stop cannot be reached by adjoining footways
Footway at bus stop is < 3000mm wide
Width of clear space at bus shelter is < 1000mm
Ramp not accompanied by steps where the level difference exceeds 200mm
Ramp is a stepped ramp
Ramp and landings do not contrast tonally
Ramp longitudinal gradient in excess of 1:10 (10%) for ramp flight up to 600mm going
Ramp longitudinal gradient in excess of 1:12 (8.3%) for ramp flight up to 2m going
Ramp longitudinal gradient in excess of 1:15 (6.7%) for ramp flight up to 5m going
Ramp longitudinal gradient in excess of 1:20 (5%) for ramp flight up to 10m going
Individual ramp flight in excess of 10m long
Individual ramp rise in excess of 500mm
Sides of ramp not protected by a raised kerb of 100mm min height
Ramp crossfall in excess of 1:40 (2.5%)
Total rise in ramped section in excess of 2m
Total length of ramped section in excess of 50m, but less than 132m
Length of landing to top/bottom of flight is < 1200mm
Length of intermediate landing is < 1500mm

Defect Description
Length of landing at change in direction is < 1800mm
A landing has not been applied at change in direction
Landing longitudinal gradient in excess of 1:40 (2.5%)
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm
Gate latch inoperable by person with reach difficulties e.g. wheelchair user
Staggered barriers/access control less than 1200mm apart
Lack of tactile paving
Inappropriate tactile paving type
Inappropriate tactile paving colour
Inappropriate tactile paving layout
Outdated/worn profile on tactile paving
Tactile paving does not contrast tonally with surrounding paving
The back edge of the tactile surface is not at right angles to the direction of crossing/travel
Pedestrian route around a junction is not continuous
Width between handrails is < 1000mm
Width between handrails is < 1800mm (this does not allow two way movement)
Width between handrails is > 1800mm
Handrails not provided on both sides of flight
Handrails on flight not provided at height of 900-1000mm
Handrails not continuous across intermediate landings
Handrails do not extend 300mm past top and bottom of flight
End of handrail projects into route of travel
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users)
Handrail of material which is cold to the touch
Handrails are not tonally contrasted with background
Circular handrails does not have cross section of 40-50mm diameter
Oval handrail does not have cross section of 50 x 35mm
Clear space between handrail and adjacent wall is < 60mm
Parking bay does not meet 4800 x 2400mm size
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay
Lack of signage at dedicated accessible parking bay
Clearance between parked vehicle and running lane is < 1200mm

Defect Description
Lack of footway facilities for parked vehicle
Footway is < 1500mm wide
Crossfall beside parked vehicle in excess of 1:20 (5%)
Crossing point not on obvious pedestrian desire line
Crossing point at junction bellmouth not at ideal location
Lack of refuge at crossing
Refuge at crossing is < 1500mm wide
Pedestrian crossing is zebra type

Inspections

Footway category A - Visual Assessment Inspection

Inspection Name	Footway category A - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Footway/Cycleway CAT A & B
Inspection Interval	At intervals not exceeding 1 month
Inspection Requirement	During each inspection the full length of each Category A Footway (and any categorised Footways) shall be inspected by walking. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the footway shall also be inspected to identify other Defects that may affect the usability of the footway, i.e. kerbs, edgings, covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking every part of every Category A footway on each Link/Section.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Unclassified footways shall be considered to be Category A footways until they have been classified.

Footway category B - Visual Assessment Inspection

Inspection Name	Footway category B - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Footway/Cycleway CAT A & B
Inspection Interval	At intervals not exceeding 3 months

Inspection Requirement	During each inspection the full length of each Category B Footway shall be inspected by walking. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the footway shall also be inspected to identify other Defects that may affect the usability of the footway, i.e. kerbs, edgings, covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking every part of all Category B footway on each Link/Section.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Footway category C & Other - Visual Assessment Inspection

Inspection Name	Footway category C & Other - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Category C and any other Footways shall be inspected by walking. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected. During the Inspection other assets associated with the footway shall also be inspected to identify other Defects that may affect the usability of the footway, i.e. kerbs, edgings, covers, gratings, frames, adjacent hedges, vegetation, signs, fencing and crossing points. This inspection should be carried out by walking every part of the footway on each Link/Section.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Footway - Accessibility Inspection

Inspection Name	Footway - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be Inspected to identify all types of barrier to travel for all users of the trunk road network. The Inspection shall be carried out by Specialist Inspectors with specific training and approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network

Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Footway - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. May have obvious signs of disturbance in the surrounding grassed areas indicating recent Operations or Works. 
B - Good	An even and comfortable surface, free from Defects and with few visible signs of surface deterioration. Showing no signs of the original construction works and all surrounding grassed areas returned to vegetation. 
C - Fair	Free from safety Defects but poor visual aesthetics. Evidence of initial deterioration, minor cracking, crazing and fretting. Minor isolated spot Defects. Poor quality reinstatements including minor differences in level with original surface. Minor settlement/unevenness or filler loss on block paved areas. 

Condition	Description
D - Poor	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. 
E - Very Poor	Requires replacement/rehabilitation, life expired. Effects include extensive and severe surface failure, cracking, distortion or slab trips. Complete loss of screed for cycle facilities. 
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Geotechnical - Earthwork Slopes

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.

Earthwork Slopes were formally "Embankments and Cuttings"

Asset Attributes

Asset Shape	Area
Asset Service Level	The majority of Earthwork Slopes should only require occasional and irregular maintenance with the need for all maintenance identified through Inspections. Embankments will generally not be visible to regular Safety Inspection while cuttings and bunds will generally be visible. Comprehensive Inspections shall be carried out to record asset condition, Defects. Some high risk or poor condition Earthwork Slopes will require more frequent and/or specialist Inspections which shall be identified in the Asset Register.
Common Attributes	Geotechnical - Earthwork Slopes Attributes shall include the Common Attributes but with the following amendments. All Earthwork Slopes within the Trunk Road Boundary and all Earthwork Slopes owner/maintained by Scottish Ministers shall be recorded.
Parent/Child Assets	Geotechnical - Earthwork Slopes Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Position	Lookup • ? (Default) • Above road • Below road	Mandatory	

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Embankment • Cutting • Bund	Mandatory	Comment Cuttings - Carriageway is generally below original ground level. Embankments - Carriageway is generally above original level. Bunds - generally have 2 faces and do not support a carriageway and may have been installed for landscaping, aesthetic or other reasons.
Angle (degrees)	Number (decimal)	Mandatory	Comment Measured at the steepest part of the slope, to the nearest 5 degrees (0-90 degrees).
Height (Metres)	Number (decimal)	Mandatory	Comment Measured at the highest point of the slope to the nearest approximate metre.
Aspect	Lookup • ? (Default) • N • NE • E • SE • S • SW • W • NW	Mandatory	Comment Approximate Aspect (facing direction) of the slope.
Berm 1 - Attributes			
Berm 1 - Height above toe	Number (int)	Required	Comment Mandatory if Berm 1 exists. Measured at the highest point of Berm above toe to the nearest metre. Berm 1 shall be the lowest berm on an Earthwork Slope.
Berm 1 - Width	Number (int)	Required	Comment Mandatory if Berm 1 exists. Measured at the widest point of Berm to the nearest metre. Berm 1 shall be the lowest berm on an Earthwork Slope.
Berm 2 - Attributes			
Berm 2 - Height above toe	Number (int)	Required	Comment Mandatory if Berm 2 exists. Measured at the highest point of Berm above toe to the nearest metre. Berm 2 shall be the 2nd lowest berm on an Earthwork Slope.
Berm 2 - Width	Number (int)	Required	Comment Mandatory if Berm 2 exists. Measured at the widest point of Berm to the nearest metre. Berm 2 shall be the 2nd highest berm on an Earthwork Slope.

Field Name	Field Format	Field Required	Comments
Berm 3 - Attributes			
Berm 3 - Width	Number (int)	Required	Comment Mandatory if Berm 3 exists. Measured at the widest point of Berm to the nearest metre. Berm 3 shall be the 3rd highest berm on an Earthwork Slope.
Berm 3 - Height above toe	Number (int)	Required	Comment Mandatory if Berm 3 exists. Measured at the highest point of Berm above toe to the nearest metre. Berm 3 shall be the 3rd highest berm on an Earthwork Slope.
Earthwork Slope - Condition Inspection Interval			

Asset Specific Rules

Rule No.	Rule Description
Rule-GES-1	All Earthwork Slopes (cuttings, embankments and bunds) greater than or equal to 3m high shall be recorded. Slopes less than 3m high do not need to be recorded.
Rule-GES-2	Natural Slopes greater than or equal to 3m high shall also be recorded as Earthwork Slopes. Slopes less than 3m high do not need to be recorded.
Rule-GES-3	Earthwork Slopes may vary in height/angle and characteristics within a single asset however a new asset should be started where there is a significant change in the characteristics of the slope. For very long Earthwork Slopes, assets should be broken up into separate assets maximum 200m long.
Rule-GES-4	Earthwork Slopes that contain predominantly Rock faces shall be recorded under the Rock Slope asset. Where an Earthwork Slope also contains a smaller rock faces (>3m) both shall be recorded as separate assets.
Rule-GES-5	Embankments/cuttings on both sides of the carriageway shall be recorded separately.
Rule-GES-6	The maintainable grass width of an Earthwork Slopes shall also recorded under inventory item Grassed Area.
Rule-GES-7	The Default value for the "Inspection Interval" field shall be 60 months, The Maximum value for Inspection Interval shall be 60 months.
Rule-GES-8	The Inspection Interval shall only be changed by a Principal Geotechnical Engineer or Principal Engineering Geologist following review of the slope condition.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.

Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Has the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is there a risk of the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is the affected area in an area known to be susceptible to slips or slides?
Is a specialist inspection required for further investigation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Slip/Slide	Any slip or slide	There is a risk the slip or slide may have an impact on the stability or accessibility of the carriageway or footway	
Initiate specialist inspection	A slip or slide	The slip or slide is in an area not previously susceptible to slips or slides, or there is a risk the slip or slide may have an impact on the stability or accessibility of the carriageway or footway	
Other Erosion	Any erosion		
Other	All other Defects		

Inspections

Earthwork Slopes - Visual Assessment Inspection

Inspection Name	Earthwork Slopes - Visual Assessment Inspection
Inspection Group	Geotechnical Assets - Visual Assessment Inspection
Inspection Interval	At intervals not exceeding 60 months
Inspection Requirement	**Onsite Inspection Requirements**

Personnel carrying out Visual Condition Inspections of Earthwork Slopes may not be Geotechnical Engineers or Engineering Geologist status but shall be sufficient trained to identify Defects or potential Defects of Geotechnical Assets. The Principal Geotechnical Engineer or Principal Engineering Geologist shall be responsible for approving the competency and training records of Geotechnical Inspection staff and retaining training records of all staff carrying out Visual Condition Inspections of Earthwork Slopes shall be maintained.

The full area of each Earthwork Slope shall be inspected by walking along the verge. Wherever possible inspectors shall also walk along the top/toe of the slope and inspect the slope area. Any areas which cannot be adequately inspected shall be noted for review by the Principal Engineer. The full length of any drainage assets associated with the top, toe or face of the slope shall be inspected. It is recommended that sufficient photographs are also taken of all aspects of the Earthwork Slope to assist the Principal Engineers review. The Inspection part of the Earthwork Slope - Condition Inspection Checklist shall be completed and any Defects noted.

During each inspection the accuracy of the asset record shall be checked, including its location and attributes, and all errors corrected, any missing assets added and removed assets end dated in the Asset Register. Inspectors shall also identify any other geotechnical assets (Rock Slopes or Special Geotechnical Measures) and associated drainage assets (Filter drains, counterfort drains, ditches or channels) and verify that they are recorded in the asset register.

Desktop review by Principal Engineer, Condition Rating and Special Monitoring Activities

Within 3 months of the Inspection, the Inspection records shall be reviewed by a Principal Geotechnical Engineer or Principal Engineering Geologist Specialist along with the Inspector. The Principal Engineer shall:

- Review the Inspection checklist and photograph.
- Consider if there is sufficient information available from the inspection, including assessing the importance/risk of any areas not inspected, to adequately assess the condition of the asset.
- Consider if further re-inspections or Specialist Inspection (by a Geotechnical Engineer or Engineering Geologist) are required.
- Determine an overall condition rating for the asset.
- Determine the appropriate on-going inspection interval for the asset.
- Determine if any Special Inspection Requirements or Special Maintenance Requirements should be added or amended.
- Complete the Desktop Review section of Earthwork Slope - Condition Inspection Checklist.

The maximum Inspection interval shall be 5 years. It is anticipated that the inspection interval for most Excellent, Good or Fair assets would remain at 5 years but that the Inspection Interval for Poor and Very Poor condition assets would be reduced with the exact interval being determined by the Principal Engineer based on the condition and risk assessment of each individual slope.

Some Earthwork Slopes may benefit from a more frequent and targeted inspection or maintenance regime to manage specific risk/issues. Any specific inspection or maintenance regimes shall be recorded under the Special Inspection Requirements or Special Maintenance Requirements assets including:

- Required frequency (in months)
- Description of the monitoring activities to be carried out
- Description of the required reporting requirements

Inspection Records	On completion of each Inspection the Inspection section of the Earthwork Slope - Condition Inspection Checklist shall be recorded against each asset item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset item. On completion of the Desktop review by Principal Engineer, the Desktop Review section of the Earthwork Slope - Condition Inspection Checklist shall be recorded against each asset along with a date/time stamp, reviewer name and any comments.

Earthwork Slopes - Specialist Inspection

Inspection Name	Earthwork Slopes - Specialist Inspection
Inspection Group	Geotechnical Assets - Specialist Inspection
Inspection Interval	As required
Inspection Requirement	Earthwork Slopes - Specialist Inspection shall generally be carried out by a qualified Geotechnical Engineer or Engineering Geologist in response to: • incidents • as a result of issues being identified by visual condition inspections or other inspections All Specialist Inspections shall be recorded against all assets inspected and on completion of each inspection a report shall be made and attached to each asset.
Inspection Records	On completion of each Inspection a date/time stamp shall be recorded against each asset. On completion of the reporting requirements, a copy of the report shall be attached to the relevant asset.

Defects

Condition Rating

Earthwork Slopes - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of construction to banks of embankments, cuttings or retaining walls, with no or minimal vegetation growth. 
B - Good	No visual Defects, with few visible signs of surface deterioration. Banks areas returned to vegetation.

Condition	Description
	 
C - Fair	No deformation of profile, good vegetation coverage, some runoff rills (but no gullying), No visible drainage issues. Minor road undulations due to underlying peat.  
D - Poor	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. Indication of Defects such that minor slippages of embankments, cutting slopes may occur. Tension cracks in a soil slope. Inadequate drainage. Minor slides that do not interfere with carriageway or cause danger to users. Presence of slope bulge giving indications of possible future failure. Carriageway continuing to receive minor patching repairs. Similar areas of material around current location have already failed. 
E - Very Poor	Significant deformation of profile (e.g. bulging, tension cracks, leaning trees/posts/structures, material loss, uprooted trees, significant erosion e.g. gullying, undercutting and evidence of poor drainage e.g. seepage, flow, flooding. Deep seated soil slippage, normally indicated by slip circle. Non-slip related geotechnical Defects. Settlement causing damage to the carriageway or safety fence. Seepage and contaminated water discharge into the highway drainage. Rock slides resulting in danger to road users or damage to highway condition. Any possible slides causing danger to surrounding public properties.

Condition	Description
	
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Geotechnical - Land Slopes

Land Slopes are natural slopes generally outwith the road boundary which have been assessed by the Scottish Road Network Landslide (SRNL) Study (https://www.transport.gov.scot/publication/scottish-road-network-landslides-study-implementation/) as posing a landslide risk. Generally they are subject to periodical inspection, but higher-risk Land Slopes are actively managed by OCs for Transport Scotland and Special Geotechnical Measures may have been applied in mitigation – for example at Rest and Be Thankful.

Many such slopes are naturally unstable due to their geometry and composition and are strongly influenced by environmental conditions. Intense rainfall in particular may trigger landslides, either as landslips (movement of a body of soil/rock) or debris flows (mobilisation of loose soil/rock by flowing water).

Asset Attributes

Asset Shape	Area
Asset Service Level	The higher risk Land Slope shall be identified in the Asset Register and each asset shall be managed in accordance with its SRNL hazard score and priority ranking. Comprehensive Inspections shall be carried out to record asset condition, Defects. Some high risk or poor condition Land Slopes will require more frequent and/or specialist Inspections which shall be identified in the Asset Register.
Common Attributes	Geotechnical - Land Slopes Attributes shall include the Common Attributes but with the following amendments. Most Land Slopes will exist outside of the Trunk Road Boundary. The initial Land Slope Inventory will be identified by Transport Scotland as a result of studies and recorded in the asset register with SRNLS Studies and other documentation added to asset document folders. Further higher risk Land Slope s shall be added by Transport Scotland or the Operating Company as they are identified as a result of inspections, studies or incidents.
Parent/Child Assets	Geotechnical - Land Slopes Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Angle (degrees)	Number (int)	Mandatory	Comment Measured at the steepest part of the slope, to the nearest 5 degrees (0-90 degrees).
Height (Metres)	Number (decimal)	Mandatory	Comment Measured at the highest point of the slope to the nearest approximate metre.
Aspect	Lookup • ? (Default)	Mandatory	Comment

Field Name	Field Format	Field Required	Comments
	• N • NE • E • SE • S • SW • W • NW		Approximate Aspect (facing direction) of the slope.
Landowner	Text	Optional	
Land Slope - Condition Inspection Interval			
SRNLS			
SRNLS Study Type	Lookup • None (Default) • Main • Opportunistic	Mandatory	
SRNLS Priority	Lookup • N/A (Default) • Priority 1 • Priority 2 • Priority 3 • Priority 4	Mandatory	
SRNLS Initial Hazard Score	Number (decimal)	Mandatory	
SRNLS Final Hazard Score	Number (decimal)	Mandatory	
SRNLS Hazard Ranking	Number (int)	Required	

Asset Specific Rules

Rule No.	Rule Description
Rule-GLS-1	The Default value for the "Inspection Interval" field shall be 60 months, The Maximum value for Inspection Interval shall be 60 months.
Rule-GLS-2	The Inspection Interval shall only be changed by a Principal Geotechnical Engineer or Principal Engineering Geologist following review of the slope condition.
Rule-GLS-3	Only Land Slopes that have been identified as being higher risk need to be entered.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Has the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is there a risk of the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is the affected area in an area known to be susceptible to slips or slides?
Is a specialist inspection required for further investigation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Slip/Slide	Any slip or slide	There is a risk the slip or slide may have an impact on the stability or accessibility of the carriageway or footway	
Initiate specialist inspection	A slip or slide	The slip or slide is in an area not previously susceptible to slips or slides, or there is a risk the slip or slide may have an impact on the stability or accessibility of the carriageway or footway	
Other Erosion	Any erosion		
Other	All other Defects		

Inspections

Land Slopes - Visual Assessment Inspection

Inspection Name	Land Slopes - Visual Assessment Inspection

Inspection Group	Geotechnical Assets - Visual Assessment Inspection
Inspection Interval	At intervals not exceeding 60 months
Inspection Requirement	**Onsite Inspection Requirements** Personnel carrying out Visual Condition Inspections of Land Slopes may not be Geotechnical Engineers or Engineering Geologist status but shall be sufficient trained to identify Defects or potential Defects of Geotechnical Assets. The Principal Geotechnical Engineer or Principal Engineering Geologist shall be responsible for approving the competency and training records of Geotechnical Inspection staff and retaining training records of all staff carrying out Visual Condition Inspections of Land Slopes shall be maintained. The full area of each Land Slopes shall be inspected from suitable vantage points and by walking along the nearest road or by other suitable methods that allow the entire area to be adequately Inspected. Any areas which cannot be adequately inspected shall be noted for review by the Principal Engineer. The full length of any drainage assets associated with the top, toe or face of the slope shall be inspected. It is recommended that sufficient photographs are also taken of all aspects of the Land Slope to assist the Principal Engineers review. The Inspection part of the Land Slope - Condition Inspection Checklist shall be completed and any Defects noted. During each inspection the accuracy of the asset record shall be checked, including its location and attributes, and all errors corrected, any missing assets added and removed assets end dated in the Asset Register. Inspectors shall also identify any other geotechnical assets (Earthwork Slopes, Rock Slopes or Special Geotechnical Measures) and associated drainage assets (Filter drains, Counterfort drains, Ditches or Channels) and verify that they are recorded in the asset register. **Desktop review by Principal Engineer, Condition Rating and Special Monitoring Activities** Within 3 months of the Inspection, the Inspection records shall be reviewed by a Principal Geotechnical Engineer or Principal Engineering Geologist Specialist along with the Inspector. The Principal Engineer shall: • Review the Inspection checklist and photograph. • Consider if there is sufficient information available from the inspection, including assessing the importance/risk of any areas not inspected, to adequately assess the condition of the asset. • Consider if further re-inspections or Specialist Inspection (by a Geotechnical Engineer or Engineering Geologist) are required. • Determine an overall condition rating for the asset. • Determine the appropriate on-going inspection interval for the asset. • Determine if any Special Inspection Requirements or Special Maintenance Requirements should be added or amended. • Complete the Desktop Review section of Rock Slope - Condition Inspection Checklist. The maximum Inspection interval shall be 5 years. It is anticipated that the inspection interval for most Excellent, Good or Fair assets would remain at 5 years but that the Inspection Interval for Poor and Very Poor condition assets would be reduced with the exact interval being determined by the Principal Engineer based on the condition and risk assessment of each individual slope. Some Land Slopes may benefit from a more frequent and targeted inspection or maintenance regime to manage specific risk/issues. Any specific inspection or maintenance

	regimes shall be recorded under the Special Inspection Requirements or Special Maintenance Requirements assets including: • Required frequency (in months) • Description of the monitoring activities to be carried out • Description of the required reporting requirements
Inspection Records	On completion of each Inspection the Inspection section of the Land Slope - Condition Inspection Checklist shall be recorded against each asset item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset item. On completion of the Desktop review by Principal Engineer, the Desktop Review section of the Land Slope - Condition Inspection Checklist shall be recorded against each asset along with a date/time stamp, reviewer name and any comments.

Land Slopes - Specialist Inspection

Inspection Name	Land Slopes - Specialist Inspection
Inspection Group	Geotechnical Assets - Specialist Inspection
Inspection Interval	As required
Inspection Requirement	Land Slopes - Specialist Inspection shall generally be carried out by a qualified Geotechnical Engineer or Engineering Geologist in response to: • incidents • as a result of issues being identified by visual condition inspections or other inspections All Specialist Inspections shall be recorded against all assets inspected and on completion of each inspection a report shall be made and attached to each asset.
Inspection Records	On completion of each Inspection a date/time stamp shall be recorded against each asset. On completion of the reporting requirements, a copy of the report shall be attached to the relevant asset.

Defects

Condition Rating

Land Slope - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of construction to Rock Netting, with no or minimal vegetation growth.
B - Good	No visual Defects, with few visible signs of surface deterioration. Banks areas returned to vegetation.
C - Fair	No deformation of profile, No visible issues.
D - Poor	Minor deformation of profile, some vegetation coverage.
E - Very Poor	Significant deformation of profile.

Condition	Description
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Geotechnical - Rock Slopes

Rock Slopes are generally man-made slopes formed by the removal of rock. Rock Slopes can be stable at much steeper slope angles than Earthwork Slopes or Land Slopes.

While more recent Rock Slopes are engineered to be stable, older Rock Slopes were not, and all Rock Slopes are subject to weakening and degradation by natural weathering.

Asset Attributes

Asset Shape	Area
Asset Service Level	The majority of Rock Slopes should only require occasional and irregular maintenance with the need for all maintenance identified through Inspections. Rock Slopes below the road will generally not be visible to regular Safety Inspection but represent generally lower risk while Rock Sloped above the road will generally be visible to Safety Inspectors. Comprehensive Inspections shall be carried out to record asset condition, Defects and assess risk. Some high risk or poor condition Rock Slopes will require more frequent and/or specialist Inspections and shall be identified in the Asset Register.
Common Attributes	Geotechnical - Rock Slopes Attributes shall include the Common Attributes but with the following amendments. All Rock Slopes within the Trunk Road Boundary and all Rock Slopes owner/maintained by Scottish Ministers shall be recorded.
Parent/Child Assets	Geotechnical - Rock Slopes Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Position	Lookup • ? (Default) • Above road • Below road	Mandatory	
Angle (degrees)	Text	Mandatory	Comment Measured at the steepest part of the slope, to the nearest 5 degrees (0-90 degrees).
Height (Metres)	Text	Mandatory	Comment Measured at the highest point of the slope to the nearest approximate metre.

Field Name	Field Format	Field Required	Comments
Aspect	Lookup • ? (Default) • N • NE • E • SE • S • SW • W • NW	Mandatory	Comment Approximate Aspect (facing direction) of the slope.
Berm 1 - Attributes			
Berm 1 - Height above toe	Text	Mandatory	Comment Measured at the highest point of Berm above toe. Berm 1 shall be the lowest berm on an Earthwork Slope.
Berm 1 - Width	Text	Mandatory	Comment Measured at the widest point of Berm. Berm 1 shall be the lowest berm on an Earthwork Slope.
Berm 2 - Attributes			
Berm 2 - Height above toe	Text	Mandatory	Comment Measured at the highest point of Berm above toe. Berm 1 shall be the 2nd lowest berm on an Earthwork Slope.
Berm 2 - Width	Text	Mandatory	Comment Measured at the widest point of Berm. Berm 1 shall be the 2nd lowest berm on an Earthwork Slope.
Berm 3 - Attributes			
Berm 3 - Width	Text	Mandatory	Comment Measured at the widest point of Berm. Berm 1 shall be the 3rd highest berm on an Earthwork Slope.
Berm 3 - Height above toe	Text	Mandatory	Comment Measured at the highest point of Berm above toe. Berm 1 shall be the 3rd highest berm on an Earthwork Slope.
Rock Slope - Condition Inspection Interval			

Asset Specific Rules

Rule No.	Rule Description
Rule-GRC-1	All Rock Slopes greater than or equal to 3m high shall be recorded. Slopes less than 3m high do not need to be recorded.
Rule-GRC-2	Rock Slopes may vary in height/angle within a single asset. A new asset should be started where there is a significant change in the characteristics of the slope. For very long Rock Slopes, assets should be broken up into separate assets maximum 200m long.
Rule-GRC-3	Rock Slopes on both sides of the carriageway shall be recorded separately.
Rule-GRC-4	The Default value for the "Inspection Interval" field shall be 60 months, The Maximum value for Inspection Interval shall be 60 months.
Rule-GRC-5	The Inspection Interval shall only be changed by a Principal Geotechnical Engineer or Principal Engineering Geologist following review of the slope condition.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Has the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is there a risk of the slip/slide have an impact on the stability or accessibility of the carriageway or footway?
Is the affected area in an area known to be susceptible to slips or slides?
Is a specialist inspection required for further investigation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Slip/Slide	Any slip or slide	There is a risk the slip or slide may have an impact on	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		the stability or accessibility of the carriageway or footway	
Initiate specialist inspection	A slip or slide	The slip or slide is in an area not previously susceptible to slips or slides, or there is a risk the slip or slide may have an impact on the stability or accessibility of the carriageway or footway	
Other Erosion	Any erosion		
Other	All other Defects		

Inspections

Rock Slopes - Visual Assessment Inspection

Inspection Name	Rock Slopes - Visual Assessment Inspection
Inspection Group	Geotechnical Assets - Visual Assessment Inspection
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	**Onsite Inspection Requirements** Personnel carrying out Visual Condition Inspections of Rock Slopes may not be Geotechnical Engineers or Engineering Geologist status but shall be sufficient trained to identify Defects or potential Defects of Geotechnical Assets. The Principal Geotechnical Engineer or Principal Engineering Geologist shall be responsible for approving the competency and training records of Geotechnical Inspection staff and retaining training records of all staff carrying out Visual Condition Inspections of Rock Slopes shall be maintained. The full area of each Rock Slope shall be inspected by walking along the bottom of the slope and inspect the slope area. Wherever possible inspectors shall also walk along the top of the slope. Any areas which cannot be adequately inspected shall be noted for review by the Principal Engineer. The full length of any drainage assets associated with the top, toe or face of the slope shall be inspected. It is recommended that sufficient photographs are also taken of all aspects of the Earthwork Slope to assist the Principal Engineers review. The Inspection part of the Rock Slope - Condition Inspection Checklist shall be completed and any Defects noted. During each inspection the accuracy of the asset record shall be checked, including its location and attributes, and all errors corrected, any missing assets added and removed assets end dated in the Asset Register. Inspectors shall also identify any other geotechnical assets (Earthwork Slopes or Special Geotechnical Measures) and associated drainage assets (Filter drains, counterfort drains, ditches or channels) and verify that they are recorded in the asset register. **Desktop review by Principal Engineer, Condition Rating and Special Monitoring Activities**

	Within 3 months of the Inspection, the Inspection records shall be reviewed by a Principal Geotechnical Engineer or Principal Engineering Geologist Specialist along with the Inspector. The Principal Engineer shall: • Review the Inspection checklist and photograph. • Consider if there is sufficient information available from the inspection, including assessing the importance/risk of any areas not inspected, to adequately assess the condition of the asset. • Consider if further re-inspections or Specialist Inspection (by a Geotechnical Engineer or Engineering Geologist) are required. • Consider if a Rock Slope Hazard Index Inspection should be carried out. • Determine an overall condition rating for the asset. • Determine the appropriate on-going inspection interval for the asset. • Determine if any Special Inspection Requirements or Special Maintenance Requirements should be added or amended. • Complete the Desktop Review section of Rock Slope - Condition Inspection Checklist. The maximum Inspection interval shall be 5 years. It is anticipated that the inspection interval for most Excellent, Good or Fair assets would remain at 5 years but that the Inspection Interval for Poor and Very Poor condition assets would be reduced with the exact interval being determined by the Principal Engineer based on the condition and risk assessment of each individual slope. Some Rock Slopes may benefit from a more frequent and targeted inspection or maintenance regime to manage specific risk/issues. Any specific inspection or maintenance regimes shall be recorded under the Special Inspection Requirements or Special Maintenance Requirements assets including: • Required frequency (in months) • Description of the monitoring activities to be carried out • Description of the required reporting requirements
Inspection Records	On completion of each Inspection the Inspection section of the Rock Slope - Condition Inspection Checklist shall be recorded against each asset item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset item. On completion of the Desktop review by Principal Engineer, the Desktop Review section of the Rock Slope - Condition Inspection Checklist shall be recorded against each asset along with a date/time stamp, reviewer name and any comments.

Rock Slopes - Rock Slope Hazard Index (RSHI)

Inspection Name	Rock Slopes - Rock Slope Hazard Index (RSHI)
Inspection Group	Geotechnical Assets - Specialist Inspection
Inspection Interval	As required
Inspection Requirement	Rock Slopes - Rock Slope Hazard Index (RSHI) Inspections shall be carried out by a qualified Geotechnical Engineer or Engineering Geologist when there is a significant deterioration in the condition of a rock face identified as a result of an incident or from the Rock Slopes - Visual Condition. The RSHI & RSHR Inspections will assist in identifying and ranking treatments. During each inspection the RSHI Checklist shall be completed and the RSHI calculated in accordance with TRL Report PPR 554

Inspection Records	On completion of each Inspection a RSHI checklist form shall be completed, Index calculated and all records attached to the relevant asset record.

Rock Slopes - Rock Slope Hazard Rating (RSHR)

Inspection Name	Rock Slopes - Rock Slope Hazard Rating (RSHR)
Inspection Group	Geotechnical Assets - Specialist Inspection
Inspection Interval	As required
Inspection Requirement	Rock Slopes - Rock Slope Hazard Rating (RSHR) Inspections shall be carried out by a qualified Geotechnical Engineer or Engineering Geologist when required as a result of an RSHI. The RSHI & RSHR Inspections will assist in identifying and ranking treatments. During each inspection the RSHR Checklist shall be completed and the RSHR calculated in accordance with TRL Report PPR 554
Inspection Records	On completion of each Inspection a RSHR assessment form shall be completed for each asset

Rock Slopes - Specialist Inspection

Inspection Name	Rock Slopes - Specialist Inspection
Inspection Group	Geotechnical Assets - Specialist Inspection
Inspection Interval	As required
Inspection Requirement	Rock Slopes - Specialist Inspection shall generally be carried out by a qualified Geotechnical Engineer or Engineering Geologist in response to: • incidents • as a result of issues being identified by visual condition inspections or other inspections All Specialist Inspections (with the exception of RSHI & RSHR) shall be recorded against all assets inspected and on completion of each inspection a report shall be made and attached to each asset.
Inspection Records	On completion of each Inspection a date/time stamp shall be recorded against each asset. On completion of the reporting requirements, a copy of the report shall be attached to the relevant asset.

Defects

Condition Rating

Rock Slop - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of construction to banks of embankments, cuttings or retaining walls, with no or minimal vegetation growth.

Condition	Description
B - Good	No visual Defects, with few visible signs of surface deterioration. Banks areas returned to vegetation.
C - Fair	No deformation of profile, good vegetation coverage, some runoff rills (but no gullying), No visible drainage issues. Minor road undulations due to underlying peat.
D - Poor	Minor deformation of profile (e.g. terracettes), vegetation coverage incomplete, some gullying, localised/minor undercutting of toe or evidence of poor drainage e.g. damp areas, hydrophilic vegetation or desiccation cracks. Indication of Defects such that minor slippages of embankments, cutting slopes may occur. Tension cracks in a soil slope. Inadequate drainage. Minor slides that do not interfere with carriageway or cause danger to users. Presence of slope bulge giving indications of possible future failure. Carriageway continuing to receive minor patching repairs. Similar areas of material around current location have already failed.
E - Very Poor	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, flow, flooding. Deep seated soil slippage, normally indicated by slip circle. Non-slip related geotechnical Defects. Settlement causing damage to the carriageway or safety fence. Seepage and contaminated water discharge into the highway drainage. Rock slides resulting in danger to road users or damage to highway condition. Any possible slides causing danger to surrounding public properties.
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Grassed Areas

A defined area of predominantly 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.

Asset Attributes

Asset Shape	Area
Asset Service Level	All Grassed areas require regular cutting to maintain their health, environment and safety. The frequency of the regular grass cutting shall be determined by the grass type. All other maintenance shall be identified through inspections. High priority defects for the majority of Grassed Areas are likely to be visible from the carriageway and should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out by a suitable landscape specialist inspector during the grass growing season to record their condition, defects and identify any maintenance operations required or any potential for actions for possible inclusion in the schedule of landscape opportunities and, potentially, the Landscape Development Plan. This information shall also be used to inform the development of the Grasslands Report as part of the Annual Landscape Management Report. The Operating Company shall ensure the Landscape Architect is kept fully informed of the results of all Comprehensive Inspections relating to all landscape elements. The Operating Company shall submit a grass cutting program to the litter authority no later than 25 days prior to the start of grass cutting Operations. The Operating Company shall liaise with litter authorities to coordinate litter picking prior to grass cutting. If this is not possible then as part of grass cutting Operations an inspection shall be carried out to identify and remove any litter or debris that maybe a danger to grass cutting or strimming crews or the public, and litter and debris should be requested to be removed by the litter authority from cut areas no later than 48 hours after grass cutting is complete. Where the litter authority is the Operating Company litter picking and debris collection shall always be carried out in coordination with grass cutting.
Common Attributes	Grassed Areas Attributes shall include the Common Attributes.
Parent/Child Assets	Grassed areas may be associated with Bulb and Wildflower areas or other landscape assets but their linkage will be defined as a geospatial association.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Grass Type	Lookup • ? (Default) • High amenity (High frequency)	Mandatory	Comment Heath/Moorland is a sub set of rough grass.

Field Name	Field Format	Field Required	Comments
	• Amenity (Medium frequency) • General grassland (Low Frequency) • Rough grass (Minimum frequency)		
Number of annual cuts	Number (int)	Mandatory	Comment The Number of cuts shall be based on the Grass Type. The Default number of cuts shall be: High Amenity=14, Amenity=7, General=3 and Rough=1. Where the number of cuts is varied, a reason referenced to the Directors agreement must be entered in the following field.
Number cuts varied reason	Text	Conditional (Mandatory)	Comment When the Number of annual cuts has been changed from the default value a reason and reference to Transport Scotland's agreement must be entered
Gradient	Lookup • ? (Default) • Level • 10 degrees or less • 10 degrees to 20 degrees • Greater than 20 degrees • • Varying gradient/undulating ground	Desirable	
Flora interest	Text	Desirable	Comment Where specific species of interest are present the species name(s) shall be recorded. Ensure cross reference with bulbs & flowers.
Boundary	Text	Optional	Comment Relevant information on surrounding borders
Notes	Text	Optional	Comment If any field is "Other" further information must be entered.
Grassed Areas - Considerations			
Rock outcrops or large stones	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Bulbs or wildflowers	Yes/No	Mandatory	
Waterlogged or boggy ground	Yes/No	Mandatory	
Drainage ditches or French drains	Yes/No	Mandatory	
Other obstacles	Yes/No	Mandatory	
Other obstacles - Description	Text	Conditional (Mandatory)	Comment Mandatory when Other Obstacles = Yes.
Grassed Areas - Main Objectives			
Integration	Yes/No	Mandatory	
Visual amenity	Yes/No	Mandatory	
Nature conservation	Yes/No	Mandatory	
Safety	Yes/No	Mandatory	
Visibility Splay - Junction	Yes/No	Mandatory	
Visibility Splay - Bend	Yes/No	Mandatory	
Visibility Splay - Sign or other asset	Yes/No	Mandatory	
Other	Yes/No	Mandatory	
Main Objective Other - Description	Text	Conditional (Mandatory)	Comment Mandatory when Main Objective - Other = Yes.
Rough Grass Attributes			
Grassed Area - Age Category			

Asset Specific Rules

Rule No.	Rule Description
Rule-GA-1	Each grassed area is recorded in the XSP in which it occurs. Different areas are defined for each cut frequency.
Rule-GA-2	Grassed areas which occur in the central reserve of dual carriageways and motorways and which are common to both sections are recorded only once.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the vegetation obscure regulatory signs or lines?
Does the vegetation force pedestrians to step in to the carriageway?
Could the vegetation cause a pedestrian to trip or be injured?
Does the vegetation obscure visibility for network users?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Overgrowing or overhanging the footway or carriageway	Any overgrowing or overhanging vegetation	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or other risk, damage to a vehicle, or obscures road markings or signs.	Any overgrown or overhanging vegetation
Obstructed sightline	Any obstructed sightline	Obstruction which limits the view of network users	Any obstructed sightline
Fly tipping/illegal dumping	Any fly tipping or illegal dumping	Any fly tipping or illegal dumping which poses a risk to people, wildlife or the environment	Any fly tipping or illegal dumping
Other	Any other Defects		
Arisings from cutting operations affecting network.	Any arisings affecting the footway or carriageway.	Any arisings which may cause a trip, slip or skid hazard.	Any arisings that may impact other operations or detrimentally affect the appearance of the network.

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Grassed Areas, or selected species therein, in poor condition.	Dead, dying or patchy grass, or Grassed Areas that are degraded, rutted or overrun.	Where Defective Grassed Areas may impact the safety of road users (e.g. slope instability).	Where Defective Grassed Areas may detrimentally impact the appearance of the network.

Inspections

Grassed Area - Visual Assessment Inspection

Inspection Name	Grassed Area - Visual Assessment Inspection
Inspection Group	Landscape - Visual Assessment Inspection
Inspection Interval	Each year during their growing season
Inspection Requirement	The full extends of each Grassed Area asset shall be inspected by a landscape specialist inspector and an overall assessment of its condition and any Defects present shall be noted. Any potential for landscape opportunities shall also be noted for inclusion in the schedule of landscape opportunities. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be recorded and the inventory updated following each Inspection.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item. Where the asset has been rated as Condition Rating D, at least one Defect shall also be recorded.
Comments	The growing season for Grassed Area assets shall be considered to be from April through to September.

Grassed Areas - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection

Inspection Name	Grassed Areas - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Group	Landscape - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Interval	Each year between September to end of February each year
Inspection Requirement	Between September and the end of February each year the full extents of the network shall be inspected to identify any vegetation which may develop during the coming growing season with the potential to detrimentally effect the road envelope visibility. This shall include vegetation encroaching upon or otherwise effecting: • the forward visibility of drivers and other road users, • the sight lines for traffic signs, bollards and other road infrastructure, • the sight lines for junctions, accesses, bends etc. or

	• the carriageway, footway, cycleway Any identified vegetation shall be recorded for remedial action by the "Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance" Cyclic Maintenance Operations and shall be completed before the end of March in the same period. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be updated during each Inspection.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time/user stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	The aim of this inspection and associated Cyclic Maintenance Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured or driver visibility is compromised. It is important that the required Cyclic Maintenance is carried out before the commencement of the bird nesting season each year. When remedial maintenance is identified it is expected, where practicable and without having a detrimental impact on the local landscape character or any important landscape features, that the relevant vegetation be trimmed back sufficiently to allow several years growth before trimming would be required again in accordance with clause 4.3.3.2 of this Manual.

Grassed Area - Landscape Opportunity Inspection - Landscape Architect

Inspection Name	Grassed Area - Landscape Opportunity Inspection - Landscape Architect
Inspection Group	Landscape Opportunity Inspection - Landscape Architect
Inspection Interval	Each Annual Period
Inspection Requirement	The landscape Architect shall visit and inspect all parts of the Network during each Annual Period. Each visit to each part of the network should be carried out at a different time of year so that the Unit can be seen at all stages of the growing season. This Inspection may be carried out as a driven Inspection but with a more detailed Inspection of all potential Landscape Opportunities identified by this and other Inspections being carried out on foot. All potential Landscape Opportunities shall be reviewed for inclusion in the schedule of landscape opportunities.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against the network along with a GPS bread crumb trail date/time & User stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item.

Defects

Condition Rating

Grassed Area - Condition Rating

Condition	Description
A - Excellent	Not Applicable
B - Good	Asset is healthy, growing well and free from defects.

Condition	Description
C - Fair	Asset is generally healthy and growing reasonably well although there are signs of minor damage/decay.
D - Poor	Asset is showing significant signs of decay or damage, or is dead/dying. Asset close to or encroaching into sightlines.
E - Very Poor	Not applicable
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

High Amenity - Grass cutting

Cyclic Maintenance Name	High Amenity - Grass cutting
Cyclic Maintenance Operation Interval	No. cuts per year
Cyclic Maintenance Operation Requirement	High Amenity Grass Areas shall be cut in accordance with Schedule 5 Specification Clause 3007. The minimum number of cuts per year shall be as specified in the "Number of annual cuts" field for each inventory item.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • Areas not cut and the reasons why e.g. presence of bulbs/wildflowers, wet or boggy areas etc. • Asset Shape not matching cut areas. • Alterations to the asset area due to development of a different asset type e.g. other vegetation • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	This Operation shall only apply to Grassed Areas recorded as Grass Type "High amenity (high frequency)". The default Number of cuts shall be 14 cuts per year but this number may be varied in specific locations across the Unit by agreement with Transport Scotland having been identified in the Landscape Schedule of Opportunities and the Grassland Report, as part of the Annual Landscape Management Report. For the purposes of the KPI a period of 14 months will be used to calculate the number of cuts in a period to take account of variations in growing season from year to year.

Medium Amenity - Grass cutting

Cyclic Maintenance Name	Medium Amenity - Grass cutting

Cyclic Maintenance Operation Interval	No. cuts per year
Cyclic Maintenance Operation Requirement	Medium Amenity Grass Areas shall be cut in accordance with Schedule 5 Specification Clause 3007. The minimum number of cuts per year shall be as specified in the "Number of annual cuts" field for each inventory item.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • Areas not cut and the reasons why e.g. presence of bulbs/wildflowers, wet or boggy areas etc. • Asset Shape not matching cut areas. • Alterations to the asset area due to development of a different asset type e.g. other vegetation • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	This Operation shall only apply to Grassed Areas recorded as Grass Type "Amenity (Medium frequency)". The default Number of cuts shall be 7 cuts per year but this number may be varied in specific locations across the Unit by agreement with Transport Scotland having been identified in the Landscape Schedule of Opportunities and the Grassland Report, as part of the Annual Landscape Management Report. For the purposes of the KPI a period of 14 months will be used to calculate the number of cuts in a period to take account of variations in growing season from year to year.

General grassland - Grass cutting

Cyclic Maintenance Name	General grassland - Grass cutting
Cyclic Maintenance Operation Interval	No. cuts per year
Cyclic Maintenance Operation Requirement	General grassland areas shall be cut in accordance with Schedule 5 Specification Clause 3007. The minimum number of cuts per year shall be as specified in the "Number of annual cuts" field for each inventory item.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • Areas not cut and the reasons why e.g. presence of bulbs/wildflowers, wet or boggy areas etc. • Asset Shape not matching cut areas. • Alterations to the asset area due to development of a different asset type e.g. other vegetation • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	This Operation shall only apply to Grassed Areas recorded as Grass Type "General grassland (low frequency)". The default Number of cuts shall be 3 cuts per year but this

	number may be varied in specific locations across the Unit by agreement with Transport Scotland having been identified in the Landscape Schedule of Opportunities and the Grassland Report, as part of the Annual Landscape Management Report. For the purposes of the KPI a period of 14 months will be used to calculate the number of cuts in a period to take account of variations in growing season from year to year.

Rough grass - Grass cutting

Cyclic Maintenance Name	Rough grass - Grass cutting
Cyclic Maintenance Operation Interval	1 cut during late Summer/autumn following wildflower seeding
Cyclic Maintenance Operation Requirement	Rough grass areas shall be cut in accordance with Schedule 5 Specification Clause 3007. The minimum number of cuts per year shall be as specified in the "Number of annual cuts" field for each inventory item.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • Areas not cut and the reasons why e.g. presence of bulbs/wildflowers, wet or boggy areas etc. • Asset Shape not matching cut areas. • Alterations to the asset area due to development of a different asset type e.g. other vegetation • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	This Operation shall only apply to Grassed Areas recorded as Grass Type "Rough grass (minimum frequency)". The default Number of cuts shall be 1 cut per year but this may be varied in specific locations across the Unit by agreement with Transport Scotland having been identified in the Landscape Schedule of Opportunities and the Grassland Report, as part of the Annual Landscape Management Report For the purposes of the KPI a cutting period shall be August to November.

Grassed Area - 3 year establishment Maintenance

Cyclic Maintenance Name	Grassed Area - 3 year establishment Maintenance
Cyclic Maintenance Operation Interval	At intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	All newly planted Grassed Areas shall be maintained in accordance with Schedule 5 Specification Clause 3005, 3006 and 3007

Cyclic Maintenance Operation Records	On completion of each Cyclic Maintenance Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • activities not undertaken and the reasons why • any dead, damaged, missing or otherwise Defective vegetation • weed development observations and any signs of animal browsing • observations regarding vegetation support performance (stakes, ties and shelters) • any vegetation re-firming requirements • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	For the purposes of the KPI this Cyclic Maintenance Activity shall apply to all Grassed Area assets with an age Category of "New"or "?"

Grassed Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance

Cyclic Maintenance Name	Grassed Area - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	All: • sightlines and forward visibility areas; • road signs and; • areas with Encroaching Vegetation that may cause difficulties for maintenance operations, such grass cutting adjacent to the carriageway, the inspection of Assets including barriers, cabinets and other equipment etc. and/or the management of other elements of network infrastructure, such as lighting and roadside cameras etc. shall be treated and/or cut back by the Operating Company to maintain forward visibility, prevent signs etc being obscured or to maintain safe access to Assets. Such areas shall be as defined in the Asser Register or that required to maintain minimum forward visibility as specified in TD 26/17. The Operating Company shall comply with section 4 of this Manual. Visibility splays and the like shall be cut in accordance with Schedule 5 Specification Clause 3002, 3006, 3007, 3009 & 3010 and Appendix 30/7.
Cyclic Maintenance Operation Records	On completion of each maintenance Operation a record shall be recorded against each inventory item and any associated Defects along with a date/time/user stamp along with any relevant notes. Relevant notes may include: • Potential landscape opportunities (see 4 of this Manual) • Asset record inaccuracies. • Any other notes Any additional Defects noted shall also be recorded against the relevant inventory item.
Comments	The aim of this maintenance Operation and associated Inspection Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured and to ensure preventative maintenance is carried out before the bird nesting season each year. When maintenance is carried out is it expected that trimming of vegetation should be trimmed back far enough to allow several years growth before trimming would be required again.

Grip

A shallow trench across the verge of a road to lead surface water away from the carriageway.

Asset Attributes

Asset Shape	Point
Asset Service Level	Grips require regular cleaning to remove silt/debris to ensure that their capacity to remove water from the carriageway is maintained. All other maintenance shall be identified by inspection Grips are unlikely to be satisfactorily inspected by Safety Inspection although results of grips with reduced capacity will be visible through ponding and flooding of the carriageway. High priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Grip Attributes shall include the Common Attributes.
Parent/Child Assets	Grip Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Lined • Unlined	Mandatory	
Cleaning Interval (months)	Number (int)	Mandatory	
Cleaning Interval Change Reason	Text	Conditional (Mandatory)	Comment Mandatory when the Cleaning Interval is a value other than 12 a reason for the change must be entered.

Asset Specific Rules

Rule No.	Rule Description
Rule-GP-1	Both hand-cut grips (unlined) and pre-formed concrete (lined) types are recorded.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Grip - Visual Assessment Inspection

Inspection Name	Grip - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection every Grip shall be inspected, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection an Inspection record shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset.
Comments	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Grip - Cleaning

Cyclic Maintenance Name	Grip - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Grips shall be cleaned in accordance with Schedule 5 Specification Clause 6103AR. During each Maintenance visit the grip shall be recut and cleaned such that free flow of water shall not be impeded and water does not stand on the carriageway adjacent to the grip. Debris and arising shall be removed and disposed off-site. A note of the how functional the grip was prior to cleaning along with and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a functional condition record. Any Defects shall be recorded and associated with the asset.

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 or can be side entry to a kerb.

Asset Attributes

Asset Shape	Point
Asset Service Level	Gullies by design include a silt/debris trap and require regular cleaning to remove silt/debris. Cleaning of Gullies is a relatively easy task which reduces silt/debris entering other parts of the drainage system which can cause loss of capacity and which will be considerably more expensive to repair. Gullies are unlikely to be inspected satisfactorily by Safety Inspection although results of Gullies with reduced capacity will be visible through ponding and flooding of the carriageway. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Gully Attributes shall include the Common Attributes but with the following amendments. The XSP attribute of all gullies shall be a mandatory attribute to aid planning of Cyclic Maintenance Operations.
Parent/Child Assets	Gully Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Top Entry • Side Entry • Other	Desirable	Images   Gully Type = Top Entry Gully Type = Side Entry
Cleansing Interval (Months)	Number (int)	Mandatory	Comment The Cleansing interval shall not be greater than 12 months. Where gullies require more frequent cleansing, the cleansing interval shall be reduced and a comment to record when and why the interval has been changed recorded in the "Cleansing Interval Change Reason" field.
Cleansing Interval	Text	Conditional (Mandatory)	Comment

Field Name	Field Format	Field Required	Comments
Change Reason			Mandatory when the Cleaning Interval is a value other than 12 a reason for the change must be entered.

Asset Specific Rules

Rule No.	Rule Description
Rule-GY-1	A gully which occurs in a central reserve and collects water from both carriageways (e.g. at a cross over) is recorded only once.
Rule-GY-2	Footway gullies are included in this inventory item and are recorded in the XSP of the footway.
Rule-GY-3	Gullies are recorded in the XSP of the grating or entry point even through the gully pot may be located in a different XSP (e.g. side entry gullies in a central reserve).

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to	Water lying on, or running along/across the carriageway between

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Gully - Surface Visual Assessment Inspection

Inspection Name	Gully - Surface Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the cover, surround and internal pot (as far as is visible from the surface) of every Gully shall be inspected from the surface, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Gullies shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner. Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Gully - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. May show obvious signs of new construction and difference in condition and colour of the gully surround to the main carriageway surface.

Condition	Description
	
B - Good	No visual Defects and with few visible signs of surface deterioration. Very minor signs of weathering. 
C - Fair	Minor rocking and projections. Level difference with carriageway not exceeding 10 mm. Relative movements under load not exceeding 10mm. Minor differential between component levels. Minor corrosion of ironwork. Minor deterioration of the surface around the cover. 
D - Poor	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 of greater than 20mm that could cause danger to cyclists or pedestrians.  

Condition	Description
E - Very Poor	Missing, cracked or broken covers. Rocking grating or cover causing intrusive noise in urban areas. Major corrosion of ironwork. Collapse of chamber, gulley frame and/or major deterioration of the surface around the cover.  
R - Routine Maintenance	Acceptable structural condition but requires unblocking. 

Maintenance

Cyclical Maintenance Activities

Gully - Cleaning

Cyclic Maintenance Name	Gully - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Gullies shall be cleaned in accordance with Schedule 5 Specification Clause 6102AR. During each Maintenance visit the cover shall be removed and all silt/debris removed from the gully. A note of the how full the gully silt trap was and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a silt fullness condition record. Any Defects shall be recorded and associated with the asset.

Hardshoulder

A surfaced strip usually of one traffic lane width adjacent to and abutting a carriageway intended for use by vehicles in the event of an emergency or during obstruction of the carriageway.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Hardshoulders should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Hardshoulders are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Hardshoulder Attributes shall include the Common Attributes.
Parent/Child Assets	Hardshoulder Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags • Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing • Other	Desirable	
Width (metres)	Number (decimal)	Desirable	

Asset Specific Rules

Rule No.	Rule Description
Rule-HS-1	If the hardshoulder is discontinuous it shall be stopped at each obstruction and a new item started.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level >=40mm?
Is the pothole = 20mm at a designated crossing point?
Is the carriageway open to cyclists?
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>=20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation >=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any debris
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		

Inspections

Hardshoulder - Visual Assessment Inspection

Inspection Name	Hardshoulder - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length and width of the Hardshoulder shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder of lane central with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Health and Safety File

Polygon area denoting outline of a major scheme where health and Safety files are recorded.

Asset Attributes

Asset Shape	Area
Asset Service Level	Health and Safety Files need to be recorded in APMS wherever they are produced or amended to ensure compliance with regulatory requirements.
Common Attributes	Health and Safety File Attributes shall include the Common Attributes.
Parent/Child Assets	Health and Safety File Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Scheme Name	Text	Mandatory	
Scheme ID	Text	Mandatory	
Scheme Type	Lookup • ? (Default) • OC Major Maintenance Scheme • OC Works Contract • mTRIPS Major Scheme • Developer scheme • Other 3rd Party Scheme	Mandatory	
Client	Text	Mandatory	
Scheme Completion Date	Date	Mandatory	
Main Contractor	Text	Mandatory	
File	Document	Mandatory	

Asset Specific Rules

Rule No.	Rule Description
Rule-HS-1	A polygon denoting the extent of the scheme shall serve to indicate the area in influence of the H&S file and enable future searches to indicate the presence of information for review.

Asset Maintenance

Defects

Defect Categories and Response Times

No defect response times are applicable to this asset.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

There are no Inspections associated with this Asset.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Hedge/Hedgerow

Distinct linear planting strips of single or mixed species, with or without trees, within the road corridor (usually marking boundary lines). The Hedge/Hedgerow Asset shall include:

- Hedge - which are intended to be formally shaped and maintained.
- Hedgerow - which shall be 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.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Hedges/Hedgerows require regular maintenance, generally in the form of trimming/pruning, to maintain their health, to meet their landscape objectives and ensure the safety of road users. High priority defects for the majority of Hedges and Hedgerows are likely to be visible from the carriageway and should normally be identified from safety inspections or through other sources such as customer care or incident response and sometimes through annual Comprehensive Inspections. Recurring Comprehensive Inspections shall be carried out by a suitable landscape specialist inspector during the Hedge/Hedgerow growing season to record their condition, defects and identify any maintenance operations required or any potential for actions for possible inclusion in the schedule of landscape opportunities and, potentially, the Landscape Development Plan. The Operating Company shall ensure the Landscape Architect is kept fully informed of the results of all Comprehensive Inspections relating to all landscape elements. Some Hedges/Hedgerows adjacent to the Trunk Road will be the responsibility of local land owners but any Hedge/Hedgerow that influences the Trunk Road shall be recorded and Inspected. All Category 1 Defects (irrespective of the asset owner) shall be made safe and all Defects shall be recorded in APMS. Any Defects associated with assets which are the responsibility of 3rd parties shall be notified to them for repair.
Common Attributes	Hedge/Hedgerow Attributes shall include the Common Attributes but with the following amendments. All Hedges/Hedgerows which are owned/maintained by Scottish Ministers shall be recorded along with all Hedges/Hedgerows that can influence the Trunk Road. Many Hedges/Hedgerows adjacent to the Trunk Road boundary may be the responsibility of third part land owners but shall be recorded if they influence the Trunk Road.
Parent/Child Assets	Other assets may be linked by Geo-spatial association.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default)	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Hedge • Hedgerow		
Species Type	Lookup • ? (Default) • Mixed species • Single species • Deciduous • Coniferous • Evergreen • Willow wall (living) • Other	Mandatory	
First Dominant Species	Lookup • ? (Default) • Beech • Blackthorn • Hawthorn • Holly • Honeysuckle • Laurel • Privet • Rose, dog • Other	Mandatory	
Second Dominant Species	Lookup • ? (Default) • Beech • Blackthorn • Hawthorn • Holly • Honeysuckle • Laurel • Privet • Rose, dog • Other	Optional	
Height (m)	Number (decimal)	Desirable	
Width (m)	Number (decimal)	Desirable	
Boundary	Text	Optional	Comment Relevant information on surrounding borders.
Notes	Text	Optional	
Hegde/Hedgerow - Main Objectives			
Visual amenity	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Nature conservation	Yes/No	Mandatory	
Safety	Yes/No	Mandatory	
Screening	Yes/No	Mandatory	
Shelter	Yes/No	Mandatory	
Other	Yes/No	Mandatory	
Main Objective Other - Description	Text	Conditional (Mandatory)	Comment Mandatory when Main Objective - Other = Yes.
Hedge/Hedgerow - Age Category			

Asset Specific Rules

Rule No.	Rule Description
Rule-HG-1	All Hedges/Hedgerows within or on the Trunk Road boundary, or immediately outwith the Trunk Road boundary must be recorded. Hedges/Hedgerows which are the responsibility of others, but may cause nuisance or obstruction to the road, are also recorded.
Rule-HG-2	Hedges/Hedgerows which occur in the central reserve of dual carriageways and motorways and which are common to both sections are recorded only once.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the vegetation obscure regulatory signs or lines?
Does the vegetation force pedestrians to step in to the carriageway?
Could the vegetation cause a pedestrian to trip or be injured?
Does the vegetation obscure visibility for network users?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Overgrowing or overhanging the footway or carriageway	Any overgrowing or overhanging vegetation	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or other risk of injury (including head/facial), damage to a vehicle, or obscures road markings or signs.	Any overgrown or overhanging vegetation
Obstructed sightline	Any obstructed sightline	Obstruction which limits the view of network users	Any obstructed sightline
Fly tipping/illegal dumping	Any fly tipping or illegal dumping	Any fly tipping or illegal dumping which poses a risk to people, wildlife or the environment	Any fly tipping or illegal dumping
Other	Any other Defects		
Dead, damaged or Defective vegetation (or part thereof).	Any such vegetation that may impact the network.	Any such vegetation that poses a risk to the public, operatives or the road infrastructure.	Any such vegetation (or part thereof) that may impact other operations or detrimentally affect the appearance of the network.

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Hedges/Hedgerows, or selected species therein, in poor condition.	Any species in poor condition.	Where dead or dying plants may impact the safety of road users or operatives (e.g. damaged branches etc).	Any dead or dying vegetation that may detrimentally impact the appearance of the network.

Inspections

Hedge/Hedgerow - Visual Assessment Inspection

Inspection Name	Hedge/Hedgerow - Visual Assessment Inspection
Inspection Group	Landscape - Visual Assessment Inspection
Inspection Interval	Each year during their growing season

Inspection Requirement	The full extents of each Hedge/Hedgerow asset shall be inspected by a landscape specialist inspector and an overall assessment of its condition and any Defects present shall be noted. Any potential for landscape opportunities shall also be noted for inclusion in the schedule of landscape opportunities. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be recorded and the inventory updated following each Inspection.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item. Where the asset has been rated as Condition Rating D, at least one Defect shall also be recorded.
Comments	The growing season for Hedge/Hedgerow assets shall be considered to be from April through to September.

Hedge/Hedgerow - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection

Inspection Name	Hedge/Hedgerow - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Group	Landscape - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Interval	Each year between September to end of February each year
Inspection Requirement	Between September and the end of February each year the full extents of the network shall be inspected to identify any vegetation which may develop during the coming growing season with the potential to detrimentally effect the road envelope visibility. This shall include vegetation encroaching upon or otherwise effecting: • the forward visibility of drivers and other road users, • the sight lines for traffic signs, bollards and other road infrastructure, • the sight lines for junctions, accesses, bends etc. or • the carriageway, footway, cycleway Any identified vegetation shall be recorded for remedial action by the "Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance" Cyclic Maintenance Operations and shall be completed before the end of March in the same period. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be updated during each Inspection.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time/user stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	The aim of this inspection and associated Cyclic Maintenance Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured or driver visibility is compromised. It is important that the required Cyclic Maintenance is carried out before the commencement of the bird nesting season each year. When remedial maintenance is identified it is expected, where practicable and without having a detrimental impact on the local landscape character or any important landscape features, that the relevant vegetation be trimmed back sufficiently to

	allow several years growth before trimming would be required again in accordance with clause 4.3.3.2 of this Manual.

Hedge/Hedgerow - Landscape Opportunity Inspection - Landscape Architect

Inspection Name	Hedge/Hedgerow - Landscape Opportunity Inspection - Landscape Architect
Inspection Group	Landscape Opportunity Inspection - Landscape Architect
Inspection Interval	Each Annual Period
Inspection Requirement	The landscape Architect shall visit and inspect all parts of the Network during each Annual Period. Each visit to each part of the network should be carried out at a different time of year so that the Unit can be seen at all stages of the growing season. This Inspection may be carried out as a driven Inspection but with a more detailed Inspection of all potential Landscape Opportunities identified by this and other Inspections being carried out on foot. All potential Landscape Opportunities shall be reviewed for inclusion in the schedule of landscape opportunities.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against the network along with a GPS bread crumb trail date/time & User stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item.

Defects

Condition Rating

Hedge/Hedgerow - Condition Rating

Condition	Description
A - Excellent	Not Applicable
B - Good	Asset is healthy, growing well and free from defects.
C - Fair	Asset is generally healthy and growing reasonably well although there are signs of minor damage/decay.
D - Poor	Asset is showing significant signs of decay or damage, or is dead/dying. Asset close to or encroaching into sightlines.
E - Very Poor	Not applicable
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

Hedge - Trimming/pruning

Cyclic Maintenance Name	Hedge - Trimming/pruning

Cyclic Maintenance Operation Interval	At intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	Hedges shall be cut in accordance with Schedule 5 Specification Clause 3010 between September and February.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • areas not cut and the reasons and why • dead, dying of damaged assets, or parts thereof • missing sections of or gaps within the linear asset • records of any notable ecology associated with the asset • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	For the purposes of the KPI only Hedges owned by Scottish Ministers shall be included in the KPI. Any Hedges/Hedgerows recorded as Type=? shall be considered to be a Hedge for the purposes of calculating the KPI for this Operation.

Hedgerow - Trimming/pruning

Cyclic Maintenance Name	Hedgerow - Trimming/pruning
Cyclic Maintenance Operation Interval	At intervals not exceeding 36 months
Cyclic Maintenance Operation Requirement	Hedgerows shall be cut in accordance with Clause 3010 between September and February.
Cyclic Maintenance Operation Records	On completion of each cutting Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • areas not cut and the reasons and why • dead, dying of damaged assets, or parts thereof • missing sections of or gaps within the linear asset • records of any notable ecology associated with the asset • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	For the purposes of the KPI only Hedgerows owned by Scottish Ministers shall be included in the KPI. Any Hedges/Hedgerows recorded as Type=? shall be considered to be a Hedge for the purposes of calculating the KPI for this Operation.

Hedge/Hedgerow - 3 year establishment Maintenance

Cyclic Maintenance Name	Hedge/Hedgerow - 3 year establishment Maintenance
Cyclic Maintenance Operation Interval	At intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	All newly planted hedges/Hedgerows shall be maintained in accordance with Schedule 5 Specification Clause 3005, 3006 and 3007
Cyclic Maintenance Operation Records	On completion of each Cyclic Maintenance Operation a record shall be recorded against each inventory item along with a date/time stamp along with any relevant notes. Relevant notes may include: • activities not undertaken and the reasons why • any dead, damaged, missing or otherwise Defective vegetation • weed development observations and any signs of animal browsing • observations regarding vegetation support performance (stakes, ties and shelters) • any vegetation re-firming requirements • Any other notes Any Defects noted shall also be recorded against the relevant inventory item.
Comments	For the purposes of the KPI this Cyclic Maintenance Activity shall apply to all Hedge/Hedgerow assets with an age Category of "New"or "?"

Hedge/Hedgerow - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance

Cyclic Maintenance Name	Hedge/Hedgerow - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	All: • sightlines and forward visibility areas; • road signs and; • areas with Encroaching Vegetation that may cause difficulties for maintenance operations, such grass cutting adjacent to the carriageway, the inspection of Assets including barriers, cabinets and other equipment etc. and/or the management of other elements of network infrastructure, such as lighting and roadside cameras etc. shall be treated and/or cut back by the Operating Company to maintain forward visibility, prevent signs etc being obscured or to maintain safe access to Assets. Such areas shall be as defined in the Asser Register or that required to maintain minimum forward visibility as specified in TD 26/17. The Operating Company shall comply with section 4 of this Manual. Visibility splays and the like shall be cut in accordance with Schedule 5 Specification Clause 3002, 3006, 3007, 3009 & 3010 and Appendix 30/7.

Cyclic Maintenance Operation Records	On completion of each maintenance Operation a record shall be recorded against each inventory item and any associated Defects along with a date/time/user stamp along with any relevant notes. Relevant notes may include: • Potential landscape opportunities (see 4 of this Manual) • Asset record inaccuracies. • Any other notes Any additional Defects noted shall also be recorded against the relevant inventory item.
Comments	The aim of this maintenance Operation and associated Inspection Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured and to ensure preventative maintenance is carried out before the bird nesting season each year. When maintenance is carried out is it expected that trimming of vegetation should be trimmed back far enough to allow several years growth before trimming would be required again.

Interceptor/Separator

A pit provided in a drainage system with a built-in filter to prevent unwanted detritus and chemicals from entering the system. It is similar to a Catchpit (CP) but has an advanced system of filters installed. It may have a manhole cover or metal grating cover, similar to, but a lot larger in size than a Gully. Without a site inspection or installation details, it can be very difficult to distinguished from a Catchpit. Also referred to as an Interceptor.

Asset Attributes

Asset Shape	Point
Asset Service Level	Interceptors/Separators by design include a silt/debris/chemical trap and require regular cleaning to remove silt/debris/chemicals and prevent it entering the drainage system. All other maintenance shall be identified by Inspection. Interceptors/Separators are unlikely to be inspected by regular Safety Inspections. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Interceptor/Separator Attributes shall include the Common Attributes.
Parent/Child Assets	Interceptor/Separator Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Interceptor/Separator Type	Lookup • ? (Default) • Oil • Other	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.

Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Interceptor/Separator - Surface Visual Assessment Inspection

Inspection Name	Interceptor/Separator - Surface Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the cover of every Interceptor/Separator shall be inspected from the surface, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item shall be checked, including its location and attributes and all errors corrected.

Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Interceptor/Separators shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner. Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Interceptor/Separator - Internal Visual Assessment Inspection

Inspection Name	Interceptor/Separator - Internal Visual Assessment Inspection
Inspection Group	Drainage Assets - Internal Visual Condition
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the cover of each Interceptor/Separator shall be removed and the internal structure of the Interceptor/Separator and the Interceptor/Separator assemblies Inspected, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	The need for traffic management to access all assets shall be considered be the Operating Company for each asset.

Defects

Condition Rating

Interceptor/Separator - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. May show obvious signs of new construction and difference in condition and colour of the gully surround to the main carriageway surface. 
B - Good	No visual Defects and with few visible signs of surface deterioration. Very minor signs of weathering.

Condition	Description
	
C - Fair	Minor rocking and projections. Level difference with carriageway not exceeding 10 mm. Relative movements under load not exceeding 10mm. Minor differential between component levels. Minor corrosion of ironwork. Minor deterioration of the surface around the cover. 
D - Poor	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 of greater than 20mm that could cause danger to cyclists or pedestrians.  
E - Very Poor	Missing, cracked or broken covers. Rocking grating or cover causing intrusive noise in urban areas. Major corrosion of ironwork. Collapse of chamber, gulley frame and/or major deterioration of the surface around the cover.  

Condition	Description
R - Routine Maintenance	Acceptable structural condition but requires unblocking. 

Maintenance

Cyclical Maintenance Activities

Interceptor/Separator - Cleaning

Cyclic Maintenance Name	Interceptor/Separator - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Interceptor/Separators shall be cleaned in accordance with Schedule 5 Specification Clause 6102AR. During each Maintenance visit the cover shall be removed and all silt/debris/chemical filter/traps cleaned. The cleaning process is likely to require specialist equipment and disposal which shall be arranged. A note of the how full the Separator trap was before cleaning and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a trap fullness condition record. Any Defects shall be recorded and associated with the asset.

Invasive and Injurious Species

An area where there is evidence of Invasive or Injurious Species present. Invasive and Injurious Species include those listed under 'Species' below.

Asset Attributes

Asset Shape	Area
Asset Service Level	Invasive and Injurious Species represent a risk to the natural environment but can be damaging to the road infrastructure and expensive and disruptive to deal with. The Invasive and Injurious Species locations shall be recorded and areas prioritised for treatment within the Invasive or Injurious Species Management Plan. Invasive and Injurious Species shall be treated to prevent their spread and deliver a minimum reduction in total area of 10% of each species each Annual Period. High priority defects for the majority of Invasive and Injurious Areas are likely to be visible from the carriageway and should normally be identified from safety inspections or through other sources such as customer care or incident response and sometimes through annual Comprehensive Inspections. Recurring Comprehensive Inspections shall be carried out by a suitable landscape specialist inspector during the Invasive and Injurious Species growing season to record their condition, defects and identify any maintenance operations required or any potential for actions for possible inclusion in the schedule of landscape opportunities and, potentially, the Landscape Development Plan. The Operating Company shall ensure the Landscape Architect is kept fully informed of the results of all Comprehensive Inspections relating to all landscape elements.
Common Attributes	Invasive and Injurious Species Attributes shall include the Common Attributes but with the following amendments. Invasive and Injurious Species can easily move from/to adjacent land. To record the extent of Invasive Species and their potential development pattern it will be necessary to record assets on 3rd party land in close proximity to the trunk road boundary.
Parent/Child Assets	Other assets may be linked by Geo-spatial association.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Species	Lookup • ? (Default) • Broad Leafed Dock • Curled Dock • Common ragwort • Creeping Thistle	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Spear Thistle • Himalayan Balsam • Japanese knotweed • Giant Hogweed • Rhododendron ponticum • Rosebay willow herb • Horsetail (Marestail) • Rabbits • Oil seed rape • Other		
Density	Lookup • ? (Default) • High • Medium • Low	Mandatory	
Adjacent Infestation Density	Lookup • ? (Default) • High • Medium • Low • None	Desirable	
Notes	Text	Optional	
Invasive or Injurious Species Management Plan			
Invasive Species - Active Maintenance Requirements			
Invasive Species - Treatment Plan	Text	Conditional (Mandatory)	Comment Description of the maintenance plan i.e. treatment method, frequency etc and intended outcome derived from the invasive or injurious species management plan

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the vegetation obscure regulatory signs or lines?
Does the vegetation force pedestrians to step in to the carriageway?
Could the vegetation cause a pedestrian to trip or otherwise be injured or harmed?
Does the vegetation obscure visibility for network users?
Does the vegetation potentially cause harm to any adjacent 3rd party livestock or other domestic animal?
Does the vegetation pose a risk of spreading to or colonising any adjacent 3rd party land?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Overgrowing or overhanging the footway or carriageway	Any overgrowing or overhanging vegetation	Vegetation which narrows the width of the footway by 50%, poses a trip hazard, or other risk of injury (including head/facial), damage to a vehicle, or obscures road markings or signs.	Any overgrowing or overhanging vegetation
Obstructed sightline	Any obstructed sightline	Obstruction which limits the view of network users	Any obstructed sightline
Fly tipping/illegal dumping	Any fly tipping or illegal dumping	Any fly tipping or illegal dumping which poses a risk to people, wildlife or the environment	Any fly tipping or illegal dumping
Other	Any other Defects		
Potential to harm, injure or otherwise impact road users, operatives and 3rd party livestock/animals.	Any injurious Invasive Species growing within the network.	Any injurious Invasive Species areas in close proximity to footpaths, pedestrian areas and boundaries with grazing fields. This includes cut vegetation.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Arisings from cutting operations affecting network.	Any arisings affecting the footway or carriageway.	Any arisings which may cause a trip, slip or skid hazard.	Any arisings that may impact other operations or detrimentally affect the appearance of the network.

Inspections

Invasive Species - Visual Assessment Inspection

Inspection Name	Invasive Species - Visual Assessment Inspection
Inspection Group	Landscape - Visual Assessment Inspection
Inspection Interval	Each year during their growing season
Inspection Requirement	The full extents of the network shall be inspected during each inspection cycle to identify any new occurrences of Invasive Species. The full extents of each area of Invasive Species shall be inspected by a landscape specialist inspector to record the area, density, recent development, associated risk and priority action rating. Any potential for mitigation Operations or Works shall also be noted for inclusion in the invasive or injurious species management plan within the Annual Landscape Management Report and actioned as appropriate. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be recorded and the inventory updated following each Inspection.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against each inventory item along with a date/time stamp. Any relevant details shall be recorded and associated with the relevant inventory item. Notes for any mitigation opportunities, including the treatment priority shall be recorded against each inventory item.
Comments	The growing season for Invasive Species assets shall be considered to be from April through to September.

Invasive Species - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection

Inspection Name	Invasive Species - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Group	Landscape - Road Signs, Visibility Sightlines and Encroaching Vegetation Inspection
Inspection Interval	Each year between September to end of February each year
Inspection Requirement	Between September and the end of February each year the full extents of the network shall be inspected to identify any vegetation which may develop during the coming growing season with the potential to detrimentally effect the road envelope visibility. This shall include vegetation encroaching upon or otherwise effecting: • the forward visibility of drivers and other road users, • the sight lines for traffic signs, bollards and other road infrastructure, • the sight lines for junctions, accesses, bends etc. or

	• the carriageway, footway, cycleway Any identified vegetation shall be recorded for remedial action by the "Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance" Cyclic Maintenance Operations and shall be completed before the end of March in the same period. During each Inspection the accuracy of the Inventory shall be assessed with any errors or omissions corrected. The extents of landscape assets can change over time and any changes to the extents must be updated during each Inspection.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time/user stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	The aim of this inspection and associated Cyclic Maintenance Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured or driver visibility is compromised. It is important that the required Cyclic Maintenance is carried out before the commencement of the bird nesting season each year. When remedial maintenance is identified it is expected, where practicable and without having a detrimental impact on the local landscape character or any important landscape features, that the relevant vegetation be trimmed back sufficiently to allow several years growth before trimming would be required again in accordance with clause 4.3.3.2 of this Manual.

Invasive Species - Landscape Opportunity Inspection - Landscape Architect

Inspection Name	Invasive Species - Landscape Opportunity Inspection - Landscape Architect
Inspection Group	Landscape Opportunity Inspection - Landscape Architect
Inspection Interval	Each Annual Period
Inspection Requirement	The landscape Architect shall visit and inspect all parts of the Network during each Annual Period. Each visit to each part of the network should be carried out at a different time of year so that the Unit can be seen at all stages of the growing season. This Inspection may be carried out as a driven Inspection but with a more detailed Inspection of all potential Landscape Opportunities identified by this and other Inspections being carried out on foot. All potential Landscape Opportunities shall be reviewed for inclusion in the schedule of landscape opportunities.
Inspection Records	On completion of each Inspection an inspection record shall be recorded against the network along with a GPS bread crumb trail date/time & User stamp. Any Defects shall be recorded and associated with the relevant inventory item. Notes for any landscape opportunities shall be recorded against each inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Invasive Species - Treatment

Cyclic Maintenance Name	Invasive Species - Treatment
Cyclic Maintenance Operation Interval	Where required or as defined in the Injurious or Invasive Species Management Plan.
Cyclic Maintenance Operation Requirement	Invasive Species shall be treated in accordance with the priority and treatment regime detailed in the invasive or injurious species management plan within the Annual Landscape Management Report. Maintenance intervals for each area of Invasive Species shall be determined by the Invasive or Injurious Species Management Plan in accordance with Schedule 5 Specification Clause 3002 and Schedule 2, Section 3 Inspection & Maintenance – Roads incl. Landscape, taking account of the priority status of each and the need to comply with legislation regarding control and shall be recorded against each Asset Record.
Cyclic Maintenance Operation Records	On completion of each treatment Operation a record shall be recorded against each inventory item along with a date/time stamp and notes detailing the nature of the treatment. . Relevant notes shall include: • Treatment carried out • List and details of any chemicals used • An assessment of the effectiveness of any previous treatment to the same area • Any impact from the Invasive Species on any adjacent assets or 3rd party interests • Information on treatment of arising, including location where arising were taken for disposal. Any Defects noted shall also be recorded against the relevant inventory item.
Comments	The aim of this maintenance Operation is to ensure that invasive and injurious species within the road boundary are effectively managed and controlled. The intention is to reduce the extent of such species each year and prevent any spreading, particularly to adjacent land owned by others.

Invasive and Injurious - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance

Cyclic Maintenance Name	Invasive and Injurious - Road Signs, Visibility Sightlines and Encroaching Vegetation Maintenance
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	All: • sightlines and forward visibility areas; • road signs and; • areas with Encroaching Vegetation that may cause difficulties for maintenance operations, such grass cutting adjacent to the carriageway, the inspection of Assets including barriers, cabinets and other equipment etc. and/or the management of other elements of network infrastructure, such as lighting and roadside cameras etc. shall be treated and/or cut back by the Operating Company to maintain forward visibility, prevent signs etc being obscured or to maintain safe access to Assets. Such areas shall be

	as defined in the Asset Register or that required to maintain minimum forward visibility as specified in TD 26/17. The Operating Company shall comply with section 4 of this Manual. Visibility splays and the like shall be cut in accordance with Schedule 5 Specification Clause 3002, 3006, 3007, 3009 & 3010 and Appendix 30/7.
Cyclic Maintenance Operation Records	On completion of each maintenance Operation a record shall be recorded against each inventory item and any associated Defects along with a date/time/user stamp along with any relevant notes. Relevant notes may include: • Potential landscape opportunities (see 4 of this Manual) • Asset record inaccuracies. • Any other notes Any additional Defects noted shall also be recorded against the relevant inventory item.
Comments	The aim of this maintenance Operation and associated Inspection Operation is to ensure that vegetation on the network is actively maintained and preventative trimming is carried out before assets are obscured and to ensure preventative maintenance is carried out before the bird nesting season each year. When maintenance is carried out is it expected that trimming of vegetation should be trimmed back far enough to allow several years growth before trimming would be required again.

Kerb

A border, usually upstanding at the edge of a carriageway or hardshoulder.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Kerbs should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Kerbs are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Kerb Attributes shall include the Common Attributes.
Parent/Child Assets	Kerb Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Kerb Type	Lookup • ? (Default) • Full Height • Low Height (dropped kerb) • Extra high (bus boarder, Safety, High deflection) • Other	Desirable	
Kerb Material	Lookup • ? (Default) • Concrete • Stone • Extruded Asphalt • Other	Desirable	

Field Name	Field Format	Field Required	Comments
Drainage Kerb?	Yes/No	Mandatory	Comment Combined kerb Block (sometimes known as beanie blocks), Kerbs with drainage openings, shall be recorded as a Drainage kerb = Yes. Images  Drainage Kerb

Asset Specific Rules

Rule No.	Rule Description
Rule-KB-1	When the kerb type or material changes the current item shall be stopped and a new item started.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause a network user to trip or fall?
Is the trip hazard >=20mm?
Is footway frequented by a high percentage of vulnerable users?
The misaligned kerb project into the carriageway or hard shoulder, or could it impede water flow?
Is the missing kerb on a bend in the road?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Vertical projection /Trip	>=13mm	>=20mm	
Horizontal projection	Any visible projection	Dislodged or misaligned kerbs with a horizontal projection of >=50mm, or that project into carriageway or hardshoulder, or will impede water flow.	
Loose/ rocking	Any visible movement	Loose or rocking kerbs which are likely to constitute a hazard to road users, pedestrians or cyclists.	
Damaged	Any visible damage	Damaged kerbs that are likely to constitute a hazard to road users, pedestrians or cyclists.	
Missing	Any missing kerbs or channels	Missing kerbs where there is no hardshoulder or verge and the kerb is immediately adjacent to the footway or carriageway	
Inadequate upstand	Any inadequate upstand	Less than 80mm where immediately adjacent to a footway and < 25mm at all other areas (excluding drop kerbs)	
Other	All other Defects		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Kerb upstand adjacent to c/way < 80mm high (excluding crossing points)
Lack of edge definition (upstand) at rear
Lack of dropped kerb
Kerb upstand at crossing > 6mm high
Width of dropped kerb at uncontrolled crossing is < 1200mm
Width of dropped kerb at controlled crossing is < 2400mm
Crossfall of transition area between footway level and dropped kerb level in excess of 1:12 (8.3%)
Gradient in excess of 1:11 (9%) on dropper kerb
Bus boarding kerb outwith 125 - 160mm range
Bus raised boarding area gradient in excess of 1:12 (8.3%)

Defect Description
Bus raised boarding area is <3000mm long
Kerb upstand adjacent to c/way < 25mm high (at vehicle crossing points e.g. driveway)
Grating placed in area of main pedestrian flow

Inspections

Kerb - Visual Condition

Inspection Name	Kerb - Visual Condition
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Kerb shall be inspected. An overall assessment of the condition of each 100m length and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	Assets situated in the central reserve will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Kerb - Visual Assessment Inspection (nearside)

Inspection Name	Kerb - Visual Assessment Inspection (nearside)
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Kerb shall be inspected and any Defects present shall be noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder of lane central with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	This Inspection will be supplemented by the Kerb - Visual Detailed Inspection (Central Reserve) Inspection, carried out from the Central Reserve, where a closer inspection can be carried out but any obvious Defects should be identified during this inspection as well.

Kerb - Visual Assessment Inspection (Central Reserve)

Inspection Name	Kerb - Visual Assessment Inspection (Central Reserve)
Inspection Group	Visual Assessment Inspection - Carriageway (Central Reserve)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Kerb shall be inspected and any Defects present shall be noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will be carried out from the offside lane, or central reserve under traffic management to allow assets situated on or near the Central Reserve of Dual Carriageways to be inspected at close quarters as close quarters.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.
Comments	On Dual Carriageway Sections an additional Inspection shall be carried out to supplement the Kerb - Visual Detailed Inspection (Nearside) ensuring that assets on or close to the Central Reserve can be inspected with the same frequency and receive the same Inspection rigor. Dual Carriageway Sections are defined as sections where the "Dual" attribute of the Section Type is true.

Kerb - Accessibility Inspection

Inspection Name	Kerb - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Kerb - Condition Rating

Condition	Description
A - Excellent	New or nearly new Kerb, free from Defects. May be associated with new footway and/or carriageway Operations or Works.  
B - Good	No visual Defects and few visible signs of kerb deterioration. Slight signs of weathering.  
C - Fair	Evidence of initial deterioration, including minor abrasion/Defects minor cracking, and misalignment/projections less than specified maximum (20mm vertical, 50mm horizontal). Presence of detritus/refuse/weed growth. 
D - Poor	Defects including projections greater than specified maximum (20mm vertical, 50mm horizontal). Loose or rocking items, poor alignment including loss of support for surrounding carriageway/footway. Severe cracking to items leading to water ingress. 

Condition	Description
E - Very Poor	Deteriorated kerbs in need of replacement/rehabilitation. Defects including severe disintegration, misalignment and 'significant' number of loose, rocking, missing kerbs, blocked drainage access.  
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

Drainage Kerb - Cleaning

Cyclic Maintenance Name	Drainage Kerb - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Kerb Block Drains and Drainage Kerbs maintenance shall be carried out in accordance with Schedule 5 Specification Clause 6131AR. During each Maintenance visit all silt/debris shall be removed from the full length of each channel, The internal channel and all kerb opening shall be jetted and all associated shall be cleaned to ensure that the free flow of water is not impeded and that the water does not stand on the carriageway or channel. Gullies/Catchpits etc. associated with the Drainage Kerbs shall be cleaned in accordance with Clause 6102AR, 520 and 521 at the same time. Any Defects shall be noted
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp. Any Defects shall be recorded and associated with the asset.

Layby

A part of the road set aside for vehicles to draw out of the traffic lanes and wait for short periods.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Laybys should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. The majority of Laybys are visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Layby Attributes shall include the Common Attributes.
Parent/Child Assets	Layby Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Layby Type	Lookup • ? (Default) • Type A • Type B • Other • Maintenance layby	Desirable	Images   Type B Type B
Layby Surface	Lookup • ? (Default) • Hot Rolled Asphalt (HRA) • Bitumen Macadam • Concrete • Surfaced Dressed • Grass • Gravel • Concrete Flags	Desirable	

Field Name	Field Format	Field Required	Comments
	• Block Paving • Thin Surface Course (TSCS) • High Skid Resistant Surfacing • Coloured Surfacing • Other		
Layby Width (m)	Number (decimal)	Desirable	

Asset Specific Rules

Rule No.	Rule Description
Rule-LB-1	Only one entry per layby should be recorded. If the attributes change then only the most common or average value should be chosen.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Could the defect cause damage to a vehicle?
Could the defect cause a vehicle to swerve and collide?
Is the pothole or other defect causing a difference in level >=40mm?
Is the pothole = 20mm at a designated crossing point?
Is the carriageway open to cyclists?
Where is the defect within the wheel path?
What is the speed of traffic greater than 40mph?

Defect Category and Response Time Considerations
Is street lighting present?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Pothole	>=20 mm depth	>=40mm in any part of the carriageway or >=20mm at a designated crossing point	
Edge deterioration	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Surfacing joints	>=20 mm depth	>=40mm depth	
Defect around ironwork	>=20 mm depth	Fretting or deformation > =40mm in any part of the carriageway or >=20mm at a designated crossing point	
Failed Patch/Trench	Fretting or Deformation >=20mm	Fretting or Deformation >=40mm	
Settlement/ Deformation	>=20 mm depth	>=40mm in any part of the carriageway	
Rutting	>=20 mm depth	>=40 mm depth	
Flooding	Any flooding	Sufficient amount of water lying on, or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to the carriageway, structures or services, or an indication that flooding of any private property is imminent. Standing water that remains in the wheel tracks 30 minutes after rainfall.	Any flooding between October and April inclusive
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any debris
Detritus	Any detritus	Any severe accumulation of dirt, stone, gravel or other material in the hardshoulder or carriageway (note: immediate action should be taken to deal with oil spillages).	Any detritus encroaching more than 50mm into any hardshoulder or carriageway for 1m or more
Bituminous surfacing fretting	Loss of material from the surface of the carriageway		

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Cracking	Cracking with a width > 2mm		
Concrete Carriageway Defect	All concrete Defects		
Missing or damaged nodes	Any missing or damaged nodes	Any missing or damaged nodes	
Missing or damaged reference markers	Any missing or damaged reference marker posts	Any reference marker posts that are in the carriageway	All other missing or damaged reference marker posts
Other	All other Defects		

Inspections

Layby - Visual Assessment Inspection

Inspection Name	Layby - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The purpose of the detailed inspection is predominantly to capture category 2 Defects which give an indication of the general condition of the asset. This data will be used to prioritise and programme future schemes. Any category 1 Defects present should still be recorded and actioned as per standard response times. The full extends of each Layby shall be inspected and any Defects noted. During each Inspection the accuracy of the Inventory shall be assesses with any errors or omissions corrected. This Inspection will generally be carried out from the nearside footway, verge, hardshoulder or nearside lane with the need for traffic management assessed by the OC.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Lighting Point

A lighting installation consisting of a lantern housing and lamp and usually (but not always) including a column,

Asset Attributes

Asset Shape	Point
Asset Service Level	Regular Cyclic Maintenance shall be carried out to replace lamps on Lighting Points before the expiry of the expected lifespan of the lamp and reduce dark lamps and clean all electrical apparatus. All other maintenance shall be identified through inspections. The majority of electrically powered Lighting Points will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections shall also be used to identify higher priority Category 2 High Defects. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Lighting Point Attributes shall include the Common Attributes but with the following amendments. Item Identity Code, Location Description, Ownership & Maintenance Responsibility fields shall be Mandatory fields. All Lighting Points within the trunk road boundary shall be recorded and the Ownership and maintenance fields used to record ownership. All Lighting Points which are the responsibility of Scottish Ministers outside the Trunk Road Boundary shall also be recorded. It may also be beneficial to record locations of other Lighting Points close to the Trunk Road Boundary, particularly where assets of differing ownership are in close proximity i.e. at remote illuminated junctions. Where applicable, the requirements of Transport Scotland's guidance document LDS8023 – Electrical Maintenance Guidelines shall be applied to this item. The EMG equipment type(s) covered by this inventory item are: 001, 002, and 008.
Parent/Child Assets	Lighting Point may have a child item of Festive Lighting Supply

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.

Field Name	Field Format	Field Required	Comments
Electrically Powered	Yes/No	Mandatory	Comment Default = Yes
Lighting Point - Specific Attributes			
Lighting Point - Site Type	Lookup • ? (Default) • Road Lighting • Flood Lighting • Overbridge &Underpass Lighting • Architectural Lighting • Bus Shelter Lighting • Emergency Lighting • Rechargeable Portable Lighting • Other	Desirable	
Lighting Point - Control Type	Lookup • ? (Default) • Group PECU • Group Time lock • Local PECU • CMS • Other/Unknown	Desirable	
Lighting Point - Installation Type	Lookup • ? (Default) • Staggered • Single Sided • Opposite • Central • Opp. plus Central • Roundabout • Other	Desirable	
Lighting Point - Power Supply Attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network	Mandatory	

Field Name	Field Format	Field Required	Comments
	• 230v DNO 5th Core • 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other		
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Conditional (Mandatory)	Comment Mandatory except when supply type is ELV (e.g. battery/Solar/Wind)
Upstream Asset ID	Number (int)	Desirable	Comment Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Lighting Point - Power consumption attributes			
Lighting Point - Lamp - Elexon Code	Lookup • ? (Default)	Mandatory	
Lighting Point - Lamp - Type of Lamps	Lookup • ? (Default) • MBFU • MCFE • SL • PL • SON • SON-T • CMH • LED	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Other		
Lighting Point - Lamp - Circuit Wattage	Number (int)	Mandatory	Comment Derived from Elexon Code
Lighting Point - Lamp - Regime Code	Lookup • ? (Default)	Mandatory	
Lighting Point - Lamp - Operating Hours	Number (int)	Mandatory	Comment Derived from Regime Code
Lighting Point - Lamp - No. of Lamps	Number (int)	Mandatory	Comment Default = 1
Lighting Point - Type of Lamps	Lookup • ? (Default) • MBFU • MCFE • SL • PL • SON • SON-T • CMH • LED • Other	Mandatory	
Lighting Point - Column Attributes			
Lighting Point - Column - Height(m)	Number (decimal)	Desirable	Comment Height in metres
Lighting Point - Column - Type	Lookup • ? (Default) • Concrete • Steel • Aluminium • High Mast • Wood • Fibre reinforced composite • Other	Desirable	
Lighting Point - Column - Integral Banner / Basket Support	Lookup • ? (Default) • Yes	Desirable	

Field Name	Field Format	Field Required	Comments
	• No		
Lighting Point - Column - Ornate	Lookup • ? (Default) • Yes • No	Desirable	
Lighting Point - Column - Bracket Type	Lookup • ? (Default) • Single • Double • Triple • Catenary • Post Top • Wall Mounted • Multi • Other	Desirable	
Lighting Point - Column - Bracket Projection (m)	Number (decimal)	Desirable	
Lighting Point - Column - Passively safe post energy absorption	Lookup • ? (Default) • Not Passively Safe • HE - High Energy Absorption • LE - Low Energy Absorption • Non Energy Absorption • Other	Desirable	
Conspicuity Bands	Yes/No	Mandatory	
Lighting Point - Emergency Lighting Attributes			
Emergency Lighting - Battery Type	Lookup • ? (Default) • Type xxx	Conditional (Desirable)	
Festive Lighting Supply			
Festive Lighting - Electrical Protection Device	Lookup • ? (Default) • MCB • FUSE	Conditional (Desirable)	

Field Name	Field Format	Field Required	Comments
	• RCD • None • N/A		
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Location & Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Site Access, Hard Standing ETC	Yes/No	Mandatory	

Asset Specific Rules

Rule No.	Rule Description
Rule-LP-1	Where Festive Lighting Supplies are provided in a Lighting Point, it shall be mandatory to record a Festive Lighting Supply asset as a child item.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times

Category 1a	Attend and make safe (by TRISS/Incident response) as per incident response timescales. Where a defect requires the attendance of an Electrical Specialist within 4 hours, unless a longer timescale is stated for the defect,
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Does the exposed wiring have a high risk of pedestrian access?
Is the damaged column or post projecting into the carriageway or footway?
Is the damaged column or component unstable and could fall into the carriageway, footway or private land?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m		Missing or illegible reference number

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
	from the ground or not visible from a moving vehicle		
Other	Any other Defect		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Columns or post projecting into carriageway or footway	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Total failure, visible instability, or damaged column or post that may fall onto the carriageway, footway or private land	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damaged or Defective, or visible instability of bracket, arm or lantern that may fall onto the carriageway, footway or private land	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1b Defects	All Defects. 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.			

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1b Defects		
A structural fault requiring maintenance in advance of the next cyclic maintenance visit û Category 3 or 4 from column general inspection	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	
Supply failure to two or more consecutive columns	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	
A phase failure with one in three lamps out in a road section	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 7 days.	
Lamp failure on up to and including 12 metres mounting height - 3 or more consecutive	All Defects shall be treated as Category 1b Defects	All Defects. 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	All Defects shall be treated as Category 1b Defects	All Defects. 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	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	
Lamp failure either side of a pedestrian crossing - 1	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 7 days.	
Lamp failure either side of a pedestrian crossing - 2 or more	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	
Lamp failure opposite or immediately adjacent to a road junction - 1	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		permanent repair shall be 7 days.	
Lamp failure opposite or immediately adjacent to a road junction - 2 or more	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	
Lamp failure on roads subject to a speed limit of 30 mph or less - 1	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 7 days.	
Lamp failure on roads subject to a speed limit of 30 mph or less - 2 or more	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for a deferred permanent repair shall be 24 hours.	

Inspections

Emergency Lighting

Inspection Name	Emergency Lighting
Inspection Group	Emergency Lighting Tests
Inspection Interval	As required by the IET 'Electrician's Guide to Emergency Lighting'
Inspection Requirement	Emergency lighting shall be inspected and tested in accordance with LDS 8023 (EMG032) and the requirements of the IET Electrician's Guide to Emergency Lighting The frequency and type of inspection required will be dependent on the building use and occupancy type and the installation type. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • all attributes accurately represent every asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps.
Comments	This inspection Operation shall only apply to Lighting Points where the "Emergency Lighting Elements" = true.

Lighting Point - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Lighting Point - Periodic Electrical Inspection and Testing - BS7671

Inspection Group	Periodic Electrical Inspection and Testing - BS7671
Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded in the register, by adding and end dating assets as appropriate, • all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.

Lighting Point - Routine Electrical Inspection & TR22

Inspection Name	Lighting Point - Routine Electrical Inspection & TR22
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023 including TR22. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • all attributes accurately represent every asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. The TR22 checklists shall also be recorded against each asset. Any Defects shall be recorded and associated with the relevant asset.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Lighting Point - Electrical - Lamp Change & Clean

<table>
<tr><td>Cyclic Maintenance Name</td><td>Lighting Point - Electrical - Lamp Change & Clean</td></tr>
<tr><td>Cyclic Maintenance Operation Interval</td><td>At intervals not exceeding those stated in the Maximum lamp change intervals table below.</td></tr>
<tr><td>Cyclic Maintenance Operation Requirement</td><td>All lamps shall be changed/replaced in accordance with Schedule 5 Specification Clause 6120AR, 6122AR and LDS8023 and at intervals not exceeding those listed in the table below. During each lamp change the associated EMG Task 1 activities shall also be carried out.

<table>
<tr><td colspan="4">Maximum lamp change intervals</td></tr>
<tr><td>Lamp Type</td><td>Nomenclature as TD 23</td><td>Bulk Change Interval for Dusk to Dawn Operation</td><td>Bulk Change Interval for 24 Hour Per Day Operation</td></tr>
<tr><td>Low pressure Sodium</td><td>SOX</td><td rowspan="3">24 months</td><td rowspan="3">12 months</td></tr>
<tr><td>High pressure Mercury</td><td>MBFU</td></tr>
<tr><td>High pressure fluorescent</td><td>MCFE, SL, PL</td></tr>
<tr><td>High pressure sodium</td><td>SON, SON-T</td><td rowspan="3">36 months</td><td rowspan="3">18 months</td></tr>
<tr><td>Low pressure sodium</td><td>SOX-E</td></tr>
<tr><td>Ceramic Metal Halide</td><td>CMH</td></tr>
<tr><td>LED</td><td>LED</td><td>No bulk lamp change required</td><td>No bulk lamp change required</td></tr>
<tr><td>Any other lamp type</td><td>?/Unknown</td><td>24 months</td><td>12 months</td></tr>
</table>

Operatives carrying out these inspections should be competent to carry out operations on electrical apparatus.</td></tr>
<tr><td>Cyclic Maintenance Operation Records</td><td>On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.</td></tr>
<tr><td>Comments</td><td>References include LDS8023

EMG001 Task 1 (Lamp change & clean), 4, 5, 8 & 9
EMG002 Task 1 (clean & check), 4, 8 & 9
EMG019
</td></tr>
</table>

Lighting Point - Electrical components - Cleaning

Cyclic Maintenance Name	Lighting Point - Electrical components - Cleaning

Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with Schedule 5 Specification Clause 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 - EMG001, EMG002 & EMG019

Litter, Refuse and Detritus

All parts of the network for which the Scottish Ministers are responsible for Litter, Refuse and Detritus duties shall be assigned to a litter, Refuse and Detritus area based on their monitoring regime and shall facilitate the recording of Litter, refuse and detritus Inspections and maintenance activities.

Asset Attributes

Asset Shape	Area
Asset Service Level	Under the *Environmental Protection Act 1990, t*he Scottish Ministers duties relating to litter and refuse are to keep motorways and special roads clear of litter and refuse and to keep them clean. On Trunk Roads, other than Motorways and Special Roads, the local authority shall be responsible for the clearance of litter and refuse. In carrying out the requirements for litter and refuse, the Operating Company shall comply with the *Code of Practice on Litter and Refuse*. All motorways and Special roads shall be considered to be zone 6 for the purposes of the *Code of Practice on Litter and Refuse* (2018). The Operating Company shall define a robust monitoring regime for all areas of the Unit for which the Scottish Ministers are responsible for litter refuse and detritus. The monitoring regime shall be facilitated by creating Litter Refuse and Detritus asset areas, defining a monitoring regime for each asset and recording all inspection and maintenance against each asset. The monitoring and cleansing regime shall taking into account variations in litter, refuse and detritus accumulations, characteristics of the network, historical cleaning records, stakeholder feedback etc. The Operating Company shall regularly review the effectiveness of its monitoring regime in accordance with the *Code of Practice on Litter and Refuse.* Some litter, refuse and detritus issues will be visible from moving vehicles and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Safety Inspections however are unlikely to be able to identify most litter, refuse and detritus issues and the Operating Company shall develop a monitoring and cleaning regime for all sections of the motorways and special roads.
Common Attributes	Litter, Refuse and Detritus Attributes shall include the Common Attributes.
Parent/Child Assets	Litter, Refuse and Detritus Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Area location name/description	Text	Mandatory	Comment A location name and/or short location description
Inspection/Maintenance Regime	Text	Mandatory	Comment Description of the Inspection/Maintenance regime assigned to area including frequency and method of

Field Name	Field Format	Field Required	Comments
			inspection/maintenance and an explanation justifying the regime.
Inspection interval (weeks)	Number (int)	Mandatory	Comment Number of weeks between inspection intervals. If area is to be maintained with regular planned maintenance without planned inspections, the interval shall be 0.
Maintenance interval (weeks)	Number (int)	Mandatory	Comment Number of weeks between planned maintenance intervals. If area is to be maintained with reactive maintenance the interval shall be 0.

Asset Specific Rules

Rule No.	Rule Description
Rule-Litter-1	Litter, Refuse and detritus areas should generally be no longer than 500m.
Rule-Litter-2	Litter, refuse and detritus areas should be broken up into separate areas where a different maintenance regime is required e.g. at top of slip roads, laybys etc.
Rule-Litter-3	Litter, refuse and detritus areas may cover both sides of the carriageway but should be split where a different regime is required.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

Litter and refuse response times shall be as defined in the *Code of Practice on Litter and Refuse as* zone 6 with prevention tactics based on band 1.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Other	Any other Defect		
Debris or Fly Tipping	Any debris or fly tipping	Debris on the network that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any other litter classified in accordance with the Code of Practice on Litter and Refuse.
Debris in Carriageway	Any debris	Debris on the hardshoulder or carriageway that could damage a vehicle or cause road users to take avoiding action (note: immediate action should be taken to remove such debris).	Any other litter classified in accordance with the Code of Practice on Litter and Refuse.
Dead Animal. Addition attributes describing the animal species shall also be recorded with the defects,	Any dead animal on the network	Any animal causing an obstruction or risk to health.	Any other animal

Inspections

Litter and Refuse - Visual Assessment Inspection

Inspection Name	Litter and Refuse - Visual Assessment Inspection
Inspection Group	Litter Refuse and Detritus
Inspection Interval	As defined by the Inspection regime defined for each area
Inspection Requirement	Inspection of all Litter Refuse and Detritus assets shall be carried out as described by each asset monitoring regime and at intervals not exceeding those stated in Inspection Interval field. During each Inspection the litter, refuse and detritus assets inspected shall be graded as described in the *Code of Practice on Litter and Refuse* for: • litter and refuse - grades A to F • Detritus - grades A to D
Inspection Records	On completion of each Inspection the Litter and Detritus Ratings shall be recorded against each asset along with a date/time/user stamp and appropriate response times assigned to each record.

Litter and Refuse - Monitoring Regime effectiveness

Inspection Name	Litter and Refuse - Monitoring Regime effectiveness
Inspection Group	Litter Refuse and Detritus
Inspection Interval	As required and at intervals not exceeding 12 months
Inspection Requirement	The effectiveness of the monitoring regime assigned to all Litter Refuse and Detritus assets shall be reviewed at intervals not exceeding 12 months. Individual areas or collections of areas shall also be reviewed as necessary if there is evidence to suggest a change may be required. In assessing the effectiveness of the monitoring regime assigned to each area, the Operating Company shall comply with the requirements of the *Code of Practice on Litter and Refuse* and take into account: • 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
Inspection Records	On completion of each Inspection an inspection record shall be recorded against each asset along with a date/time/user stamp and the Inspection/maintenance regime attributes of the asset shall be updated accordingly.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Litter and Refuse - cleaning

Cyclic Maintenance Name	Litter and Refuse - cleaning
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	Litter and refuse shall be carried out in accordance with Schedule 5 Specification Clause 6108AR of the Specification and the *Code of Practice on Litter and Refuse*.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset cleaned along with a record of the number of bags and large objects collected. Any other Defects shall be recorded and associated with the relevant asset.

Litter and refuse - Sweeping and Detritus

Cyclic Maintenance Name	Litter and refuse - Sweeping and Detritus
Cyclic Maintenance Operation Interval	As necessary
Cyclic Maintenance Operation Requirement	Sweeping and detritus removal shall be carried out in accordance with Schedule 5 Specification Clause 6108AR and the *Code of Practice on Litter and Refuse*.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset cleaned. Any other Defects shall be recorded and associated with the relevant asset.

Manhole

A chamber constructed to give access to a drain, sewer or other underground service.

Asset Attributes

Asset Shape	Point
Asset Service Level	Many Manholes are the responsibility of 3rd parties such as Utilities, however, the roads authority has a duty of care to ensure all manholes within the Trunk Road Boundary remain in a safe condition. All CAT1 Defects (irrespective of the asset owner) shall be made safe and all Defects shall be recorded in IRIS. Any Defects associated with assets which are the responsibility of 3rd parties shall be notified to them for repair. Manholes associated with Trunk Road Drainage will normally be the responsibility of TS. Manholes should only require occasional and irregular maintenance. The need for maintenance shall be identified through inspections. The majority of Manholes will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Regular Comprehensive Inspections shall be carried out to all Manhole from the surface to record condition and Defects. Regular Detailed Inspections of Manholes owner/maintained by Transport Scotland shall be carried out to assess in internal structural condition and record structural condition and Defects.
Common Attributes	Manhole Attributes shall include the Common Attributes but with the following amendments. The XSP attribute of all gullies shall be a mandatory attribute to aid planning of Cyclic Maintenance Operations.
Parent/Child Assets	Manhole Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Manhole Type	Lookup • ? (Default) • Surface water Sewer • Combined Sewer • Foul water sewer • Water Supply	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Traffic Signal Chamber • Telecommunication • Electricity • Gas • Fire Hydrant • Monklands Canal • Other Provider		
Manhole Shape (cover type)	Lookup • ? (Default) • Triangular • Rectangular • Square • Double Triangular • Circular • Plated over	Desirable	
Inspection Interval (Months)	Number (int)	Mandatory	Comment The maximum inspection interval shall normally be 12 months. Some manholes require more frequent inspection i.e. some Monkland canal Manholes.
Inspection Interval Change Reason	Text	Conditional (Mandatory)	Comment Mandatory when the Inspection Interval is a value other than 12 a reason for the change must be entered.
Cleansing Interval (Months)	Number (int)	Mandatory	Comment The Cleansing interval shall not be greater than 12 months. Where gullies require more frequent cleansing, the cleansing interval shall be reduced and a comment to record when and why the interval has been changed recorded in the "Cleansing Interval Change Reason" field.
Cleansing Interval Change Reason	Text	Conditional (Mandatory)	Comment Mandatory when the Cleaning Interval is a value other than 12 a reason for the change must be entered.

Asset Specific Rules

Rule No.	Rule Description
Rule-MH-1	A Manhole is only recorded if it the base of the chamber is benched. Manhole covers can also be used to cover Catchpits, Soakaways and Interceptors/Separators Catchpits will normally be found in close proximity to Gullies and other drainage and shall be recorded as Catchpits unless it is known

Rule No.	Rule Description
	otherwise. If it is not known what is beneath the cover it shall be recorded as a Catchpit and if in doubt a note of link identifier section, chainage and cross-sectional position is made to be checked by inspection.
Rule-MH-2	All manholes, including those owner or maintained by others shall be recorded.

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Manhole - Surface Visual Assessment Inspection

Inspection Name	Manhole - Surface Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the cover of every Manhole shall be inspected from the surface, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Manhole shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner. Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Manhole - Internal Visual Assessment Inspection

Inspection Name	Manhole - Internal Visual Assessment Inspection
Inspection Group	Drainage Assets - Internal Visual Condition
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the cover of each Manhole owned/maintained by Transport Scotland (and those whose ownership/maintenance responsibility is not known) shall be removed and the internal structure of the Catchpit Inspected, any Defects shall be noted and an overall assessment of its condition made. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected. The cover of every Manhole shall be inspected from the surface, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.

Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	The need for traffic management to access all assets shall be considered be the Operating Company for each asset.

Defects

Condition Rating

Manhole - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. May show obvious signs of new construction and difference in condition and colour of the gully surround to the main carriageway surface. 
B - Good	No visual Defects and with few visible signs of surface deterioration. Very minor signs of weathering. 
C - Fair	Minor rocking and projections. Level difference with carriageway not exceeding 10 mm. Relative movements under load not exceeding 10mm. Minor differential between component levels. Minor corrosion of ironwork. Minor deterioration of the surface around the cover. 

Condition	Description
D - Poor	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 of greater than 20mm that could cause danger to cyclists or pedestrians.  
E - Very Poor	Missing, cracked or broken covers. Rocking grating or cover causing intrusive noise in urban areas. Major corrosion of ironwork. Collapse of chamber, gulley frame and/or major deterioration of the surface around the cover.  
R - Routine Maintenance	Acceptable structural condition but requires unblocking. 

Maintenance

Cyclical Maintenance Activities

Manhole - Cleaning

Cyclic Maintenance Name	Manhole - Cleaning
Cyclic Maintenance	As necessary and at intervals not exceeding 12 months

Operation Interval	
Cyclic Maintenance Operation Requirement	Surface water drainage related Manholes shall be cleaned in accordance with Schedule 5 Specification Clause 6102AR. During each Maintenance visit the cover shall be removed and all silt/debris removed from the Catchpit. A note of the how full the manhole silt trap was and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a trap fullness condition record. Any Defects shall be recorded and associated with the asset.
Comments	For KPI analysis purposes, surface water drainage related manholes shall be defined as manholes of type "Surface water sewer" or "Combined Sewer" or "Unknown".

Miscellaneous Street Furniture

Other inventory not already collected which is not the maintenance responsibility of Scottish Ministers e.g. litter bins, sandwich notice boards, public seating. Miscellaneous Street Furniture assets do not need to be collected and is currently provided only as a place holder to enable the collection of DDA Defects.

Asset Attributes

Asset Shape	Point
Asset Service Level	Any visible Category 1 Defects associated with Miscellaneous Street Furniture assets will be identified and recorded during Safety Inspections, where appropriate made safe, and notified to their owner. No other Inspections or maintenance activities are carried out.
Common Attributes	Miscellaneous Street Furniture Attributes shall include the Common Attributes.
Parent/Child Assets	Miscellaneous Street Furniture Assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Seating not provided every 50m
Seating width is < 500mm
Seating height is not 470-480mm off ground level
Seating does not have back rest
Seating does not have arm rests
Seating lacks adequate tonal contrast
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm

Inspections

Miscellaneous Street Furniture - Accessibility Inspection

Inspection Name	Miscellaneous Street Furniture - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Navigation Aids

Electrically energised marine navigation radar beacons.

Asset Attributes

Asset Shape	Point
Asset Service Level	Regular Cyclic Maintenance shall be carried out to inspection, maintain and clean all electrical apparatus. All other maintenance shall be identified through inspections. Navigation Aids are not normally visible to regular Safety Inspection but regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Navigation Aids Attributes shall include the Common Attributes but with the following amendments. Item Identity Code, Location Description fields shall be Mandatory fields. The location Description and Comments fields shall be populated with appropriate information e.g. location, access arrangements, specialist access requirements and equipment. Where applicable, the requirements of Transport Scotland's guidance document LDS8023 – Electrical Maintenance Guidelines shall be applied to this item. The EMG equipment type(s) covered by this inventory item are: 021.
Parent/Child Assets	Navigation Aids Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Electrically Powered	Yes/No	Mandatory	Comment Default = Yes
Navigation Aids - Specific Attributes			
Navigation Aid - Manufacturer	Lookup • ? (Default) • Tidelands Signal	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Delta • GEC • Plessy • Other/Unknown		
Battery Backup	Yes/No	Mandatory	
Electrical Power Attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network • 230v DNO 5th Core • 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other	Mandatory	
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Mandatory	
Electrical Protection Device	Lookup • ? (Default) • MCB • FUSE • RCD • None	Mandatory	Comment Where asset has no electrical power, Electrical Protection Device shall be “N/A”. Where the asset has electrical power but no protection device is provided Electrical Protection Device shall be “None”.

Field Name	Field Format	Field Required	Comments
	• N/A		
Upstream Asset ID	Number (int)	Desirable	Comment Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Navigation Aid Attributes			
Navigation Aid Circuit wattage	Number (decimal)	Mandatory	Comment Wattage shall be derived from Elexon Code
Navigation Aid - Regime Code	Lookup • ? (Default)	Mandatory	
Standard Operating Hours	Number (int)	Mandatory	Comment Burn hours should be derived from the Regime Code.
No. of Navigation Aids	Number (int)	Mandatory	Comment Default = 1
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Specialist Access Required	Yes/No	Mandatory	
Specialist Access Details	Text	Conditional (Desirable)	Comment Details of specialist maintenance access requirements
Documents in Place	Yes/No	Mandatory	
Schematic Showing Cables	Yes/No	Mandatory	
Location & Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Site Access, Hard Standing ETC	Yes/No	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number
Other	Any other Defect		
Physical condition of fittings			
No electrical supply			
RACON or other device failure			
Other			

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
- exposes live wiring with high risk of pedestrian access		a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Installation failed safety electrical testing or present a safety risk from high Ze value in excess of the maximum allowable.	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1b Defects	All Defects. 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.			
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Inspections

Navigation Aids - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Navigation Aids - Periodic Electrical Inspection and Testing - BS7671
Inspection Group	Periodic Electrical Inspection and Testing - BS7671
Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that:

	• all assets are accurately recorded in the register, by adding and end dating assets as appropriate, • all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG021

Navigation Aids - Electrical - Routine Electrical Inspection

Inspection Name	Navigation Aids - Electrical - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals net exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG021

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Navigation Aids - Electrical components - Cleaning

Cyclic Maintenance Name	Navigation Aids - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with Schedule 5 Specification Clause 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date and time stamp shall be recorded against each Navigation Aid asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG021 Task 1, 4, 5, 8 & 9

Navigation Lights (Sea and Air)

Electrically energised Navigation Lights for Sea and Air craft.

Asset Attributes

Asset Shape	Point
Asset Service Level	Navigation Lights should only require occasional and irregular maintenance. The need for all maintenance shall be identified through inspections. Navigation Lights are not normally visible to regular Safety Inspection but regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Navigation Lights (Sea and Air) Attributes shall include the Common Attributes but with the following amendments. Item Identity Code, Location Description fields shall be Mandatory fields. The location Description and Comments fields shall be populated with appropriate information e.g. location, access arrangements, specialist access requirements and equipment. Where applicable, the requirements of Transport Scotland's guidance document LDS8023 – Electrical Maintenance Guidelines shall be applied to this item. The EMG equipment type(s) covered by this inventory item are: 020.
Parent/Child Assets	Navigation Lights (Sea and Air) Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Identity Code	Text	Mandatory	Comment From Common Attributes. Every Electrically powered asset should have a yellow sticker with a legible Identity Code.
Electrically Powered	Yes/No	Mandatory	Comment Default = Yes
Navigation Lights - Specific Attributes			
Manufacturer	Lookup • ? (Default)	Desirable	

Field Name	Field Format	Field Required	Comments
	• Delta • Alibaba • Other		
Auto Changeover	Yes/No	Mandatory	Comment Default = Yes
Electrical Power Attributes			
Supply Type	Lookup • ? (Default) • 230v Underground Private Network • 230v Overhead Private Network • 230v DNO 5th Core • 230v DNO Direct Underground Feed • 230v DNO Direct Overhead Feed • 400v Underground Private Network • Overhead Private Network • 400v DNO 5th Core • 400v DNO Direct Underground Feed • 400v DNO Direct Overhead Feed • Solar • Wind • Solar and Wind • SELV • Other	Mandatory	
Distribution Network Operator	Lookup • ? (Default) • Scottish Power • Scottish & Southern Energy • Other	Mandatory	
Electrical Protection Device	Lookup • ? (Default) • MCB	Mandatory	Comment Where asset has no electrical power, Electrical Protection Device shall be “N/A”.

Field Name	Field Format	Field Required	Comments
	• FUSE • RCD • None • N/A		Where the asset has electrical power but no protection device is provided Electrical Protection Device shall be “None”.
Upstream Asset ID	Number (int)	Desirable	Comment Asset ID of upstream cable connection (Asset nearer Control Cabinet)
Navigation Light Attributes			
Navigation Lights Circuit wattage	Number (decimal)	Mandatory	Comment Wattage shall be derived from Elexon Code
Navigation Lights - Regime Code	Lookup • ? (Default)	Mandatory	
Operating Hours	Number (int)	Mandatory	Comment Operating Hours should be derived from the Regime Code.
No. of Navigation Lights	Number (int)	Mandatory	Comment Default = 1
Maintenance Safety			
Safe Maintenance Access	Yes/No	Mandatory	
Behind Safety Barrier	Yes/No	Mandatory	
Specialist Access Required	Yes/No	Mandatory	
Specialist Access Details	Text	Conditional (Desirable)	Comment Details of specialist mainteance access requirements
Documents in Place	Yes/No	Mandatory	
Schematic Showing Cables	Yes/No	Mandatory	
Location & Environmental Risk Issues			
Salting of the Road	Yes/No	Mandatory	
Road Environment	Yes/No	Mandatory	

Field Name	Field Format	Field Required	Comments
Environment Situation	Yes/No	Mandatory	
Wind Exposure	Yes/No	Mandatory	
Designed for Fatigue	Yes/No	Mandatory	
Traffic Flow	Yes/No	Mandatory	
Traffic Speed	Yes/No	Mandatory	
On a Bridge	Yes/No	Mandatory	
Traffic Disruption Caused By Failure	Yes/No	Mandatory	
Pedestrian Density	Yes/No	Mandatory	
Effect of Location (Missing)	Yes/No	Mandatory	
Overhead Cable Restriction	Yes/No	Mandatory	
Site Access, Hard Standing ETC	Number (int)	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe (by TRISS/Incident response) as per incident response timescales. Where a defect requires the attendance of an Electrical Specialist within 4 hours, unless a longer timescale is stated for the defect,
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damaged	Any damage	Fallen or leaning roadside electrical apparatus	
Damage to columns, cabinets or other roadside electrical apparatus which exposes wiring/internal equipment	Any damage to columns, cabinets or other roadside electrical apparatus	Any exposed wiring/ internal equipment	
Missing or unsecured doors on columns or feeder pillars which exposes wiring	Any missing or unsecured doors	Any exposed wiring	Any missing or unsecured doors
Difficult access to column or cabinet	Any difficult access to column or cabinet		
Lamp failures	Any lamp failure	Lamp failures on a road subject to a speed limit of 30 mph or less. Any lamp failure at a pedestrian crossing or near a junction	Any lamp failure
Lamp on during day	Any lamp on during the day		Any lamp on during the day
Need for tree pruning	Any need for tree pruning	Where luminaires or access routes are obscured by trees	Any need for tree pruning
Missing or illegible reference number	Lighting columns reference numbers not at a height of 1.5 û 2.0m from the ground or not visible from a moving vehicle		Missing or illegible reference number
Other	Any other Defect		
Lighting failure			
Physical condition of fittings			
No electrical supply			
Obscured lamp			
Lamp or other circuit failure causing faulty illumination			
Electrical condition			
Other			

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets or other roadside electrical apparatus that exposes wiring/internal equipment - exposes live wiring with low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Damage to cabinets that exposes wiring/internal equipment - no live wiring exposed and low risk of pedestrian access	All Defects shall be treated as Category 1b Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring with high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - exposes live wiring but low risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Missing or unsecured doors on columns or feeder pillars (excluding central reservation) - no live wiring exposed but high risk of pedestrian access	All Defects shall be treated as Category 1a Defects	All Defects. 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 on columns or feeder pillars (excluding central reservation) - no live wiring exposed and	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
low risk of pedestrian access		a deferred permanent repair shall be 28 days.	
Component or other miscellaneous failure not covered in other items listed here which results in high electrical safety risk	All Defects shall be treated as Category 1a Defects	All Defects. 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.	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Cables that have failed safety electrical testing or present a safety risk from high earth loop impedance (Zs) value in excess of the maximum allowable for the protective device.	All Defects shall be treated as Category 1b Defects	All Defects. 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.			
Exposed or extraneous conductive parts of electrical apparatus made live under fault conditions	All Defects shall be treated as Category 1b Defects	All Defects. Maximum response time for Electrical Specialist shall be 24 hours. Maximum response time for a deferred permanent repair shall be 28 days.	
Electrical Check failure as BS7671 GN3 Section & 3.5 Table 3.2	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	
Hazardous electrical Defect	All Defects shall be treated as Category 1a Defects	All Defects. Maximum response time for Electrical Specialist shall be 4 hours. Maximum response time for a deferred permanent repair shall be 7 days.	

Inspections

Sea and navigation Lights - Periodic Electrical Inspection and Testing - BS7671

Inspection Name	Sea and navigation Lights - Periodic Electrical Inspection and Testing - BS7671
Inspection Group	Periodic Electrical Inspection and Testing - BS7671

Inspection Interval	At intervals not exceeding 5 years
Inspection Requirement	Electrical Inspection and testing of all electrical assets shall be carried out in accordance with LDS8023 and BS7671. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded in the register, by adding and end dating assets as appropriate, • all attributes of every asset shall be validated to ensure that they accurately represent each asset, • all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	BS7671 electrical Inspection and Testing certificate shall be held against the relevant cabinet asset containing the Distribution Unit (MCB/Consumer unit) to which the asset is connected along with date/time/user stamps. On completion of the inspection of each asset a date/time/user stamp and other asset specific attributes shall also be recorded against the relevant asset record. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG020

Sea and Navigation Lights - Routine Electrical Inspection

Inspection Name	Sea and Navigation Lights - Routine Electrical Inspection
Inspection Group	Routine Electrical Inspection & TR22
Inspection Interval	At intervals not exceeding 24 months
Inspection Requirement	Routine Electrical Inspections of all electrical assets shall be carried out in accordance with LDS8023. During each Inspection, the Asset Register shall be validated to ensure that: • all assets are accurately recorded and located in the register, by moving, adding and end dating assets as appropriate, • that all attributes accurately represent every asset, • and all errors are corrected. Inspectors carrying out these inspections should be competent to carry out inspections of electrical equipment.
Inspection Records	On completion of each Inspection a record shall be recorded against each asset including date/time/user stamps. Any Defects shall be recorded and associated with the relevant asset.
Comments	References include LDS8023 - EMG020

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

Navigation Lights - Electrical components - Cleaning

Cyclic Maintenance Name	Navigation Lights - Electrical components - Cleaning
Cyclic Maintenance Operation Interval	As required and at intervals not exceeding 24 months
Cyclic Maintenance Operation Requirement	All electrical components shall be cleaned in accordance with Schedule 5 Specification Clause 6120AR, 6122AR and LDS8023. Operatives carrying out these activities should be competent to carry out operations on electrical apparatus.
Cyclic Maintenance Operation Records	On completion of each Operation a date/time/user stamp shall be recorded against each asset. Any Defects shall be recorded against the relevant asset.
Comments	References include LDS8023 • EMG020 Task 1, 5, 8 & 9

Network Referencing

The network shall be defined by georeferenced lines and attributes defining the shape and extents of the Network

Asset Attributes

Asset Shape	Linear
Asset Service Level	The Network Referencing if fundamental to the definition of the network and will be maintained by Transport Scotland. The Operating Company shall be responsible for reviewing and inspecting the Network Referencing and identifying any potential future changes, errors, omissions and discrepancies. When changes are required to the Network Referencing, the Operating Company shall be responsible for obtaining and supplying information to enable Transport Scotland to update the Network Referencing definition. Recurring Comprehensive Inspections shall be carried out by the Operating Company to identify errors, omissions and discrepancies.
Common Attributes	Network Referencing Attributes shall include the Common Attributes.
Parent/Child Assets	Network Referencing shall be linked to Node Marker Points with each Start and End points associated with a Node Marker Point. All assets are referenced to the network Referencing system.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Link/Section	Text	Mandatory	Comment Link/Section reference in the format 12345/67
Section Name	Text	Mandatory	Comment Name describing the location, start and end of the section.
Section Type	Lookup • ? (Default) • Single Carriageway • Wide Single Carriageway • Dual Carriageway • Roundabout	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Wide Dual Carriageway • Slip • Layby • Remote Cycleway • Monklands Canal		
No. Lanes	Number (int)	Mandatory	
Section Length (m)	Number (int)	Mandatory	
Speed Limit (mph)	Number (int)	Desirable	
Start Node (ID)	Number (int)	Mandatory	
End Node (ID)	Number (int)	Mandatory	
Area	Lookup • ? (Default) • North East Unit • North West Unit • South East Unit • South West Unit • Forth Bridge Unit • M6 DBFO • M80 DBFO • M77 DBFO • M8 DBFO • AWPR DBFO • Detrunked • Not Live	Mandatory	
Road	Lookup • ? (Default)	Mandatory	Comment To be populated with the current list of Roads
Maintenance Hierarchy	Lookup • ? (Default) • Motorway • Dual All Purpose • Single All Purpose • Closed Section	Mandatory	
Sequence No.	Number (int)	Mandatory	
Accident Route	Text	Desirable	
Safety Patrol Required	Yes/No	Mandatory	
Hierarchy Link	Number (int)	Mandatory	
Hierarchy Score	Number (int)	Mandatory	

Field Name	Field Format	Field Required	Comments
Year of first construction	Number (int)	Desirable	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Other			
Network Referencing Error	Any error, omission or discrepancy in the Network Referencing definition.		

Inspections

Network Referencing - Definition and Shape

Inspection Name	Network Referencing - Definition and Shape

Inspection Group	Network Referencing Review
Inspection Interval	As necessary and at intervals not exceeding 12 months
Inspection Requirement	The Operating Company in its capacity as network managers will become aware of potential future changes to the network including as a result of planning applications, communications, co-ordination with 3rd parties and Transport Scotland or network access requests. When the Operating Company becomes aware of potential changes to the Network Referencing they shall inform Transport Scotland by emailing TRNMD_Network_Updates_Mailbox@gov.scot with details of potential changes. The Operating Company shall assist Transport Scotland in maintaining the Network Referencing by obtaining and supplying information relating to the definition of the amended network. The Operating Company also shall review the full extents of the Network within their Unit to identify and changes, omissions or discrepancies in the network referencing 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 issues.
Inspection Records	The Inspection record shall be recorded against the Network Referencing along with date/time/user stamps. Any Defects shall be recorded against Network Referencing.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Node Marker Point

A Node marker point is used to show the position of the start and end of sections on high speed roads and is formed of 2 or 3 studs or spots on the carriageway.

Asset Attributes

Asset Shape	Point
Asset Service Level	Node Marker Points should only require occasional and irregular maintenance. The need for all maintenance shall be identified through Inspection. Node Marker Points will usually be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Node Marker Point Attributes shall include the Common Attributes.
Parent/Child Assets	Node Marker Points shall be linked to Network Referencing Assets, forming their Start and End points.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Node Marker - Code	Number (int)	System	Comment A sequential number code defined by the System
Node Marker - IRIS Code	Number (int)	System	Comment Historical Node Marker Code used by IRIS
Node Marker - Node Type	Lookup • ? (Default) • Link Marker - 3 marks • Section Marker - 2 marks	Mandatory	
Node Marker - Node Event Type	Lookup • ? (Default)	Mandatory	

Field Name	Field Format	Field Required	Comments
	• Structure - Bridge Over • Structure - Bridge Under • Structure - Start of Major Structure • Structure - End of Major Structure • Junction - Crossroads • Junction - T Junction • Junction - LHS Junction • Junction - RHS Junction • Dual Carriageway - Start • Dual Carriageway - End • Slip Road Entry • Slip Road Off • Speed Derestriction Sign • Speed Restriction Sign • Roundabout • Change of Surface • Not a Junction • Other		
Node Marker - Node Material	Lookup • ? (Default) • Thermoplastic Core • Metal Studs • Other	Desirable	
Node Marker - Node Name	Text	Desirable	
Node Marker - Location Document	Document	Mandatory	Comment All node marker Points shall have a "Node Marker Location Document" Approved by Transport Scotland attached to each record

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Missing or obscured	Any missing or obscured Node Marker Point	Any missing or obscured Node Marker Point	

Inspections

Node Marker Point - Visual Assessment Inspection

Inspection Name	Node Marker Point - Visual Assessment Inspection
Inspection Group	Network Referencing Review
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection each node marker shall be inspected against its location recorded in IRIS and its Node Marker Location Document. Any discrepancies shall be noted as a Defect.
Inspection Records	On completion of each Inspection an Inspection record shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Any discrepancies in the Node Marker Location Document shall be amended and sent to Transport Scotland for approval and upload to IRIS. Any missing Node Marker Documents shall be created by the Operating Company and sent to Transport Scotland for approval and upload to IRIS

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Pavement Construction Records

The Carriageway comprises layers of bound and unbound material layers which shall be recorded as Pavement Construction Records.

Asset Attributes

Asset Shape	Area
Asset Service Level	The Pavement Construction Records shall be updated and maintained by Transport Scotland with information supplied by Operating Companies using the MSD Sheet, see Appendix G. The Pavement Construction Records represent the most important and visible asset and significantly influence the analysis of the highest value asset. The Pavement Construction Records shall be updated following all Works and Operations carried out on the Carriageway. The Pavement Construction Records shall also be updated when errors, omissions or discrepancies are found and more accurate information is available e.g. as a result of any pavement investigation.
Common Attributes	Pavement Construction Records Attributes shall include the Common Attributes.
Parent/Child Assets	Pavement Construction Records Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Layer	Lookup • ? (Default) • Surface Course • Binder Course • Base Couse • Sub Base • Surface Treatment • Asphalt/Geotechnical Reinforcement Layer • Bridge Deck Waterproofing • Stress Absorbing Layer • Other/Unknown Layer	Mandatory	
Treatment Type	Lookup • ? (Default)	Mandatory	

Field Name	Field Format	Field Required	Comments
	• ANTI SKID (HFS) • INLAY • OVERLAY • RECONSTRUCTION • RETEXTURING • STRUCTURAL INLAY • SURFACE DRESSING • MICROSURFACING • NEW CONSTRUCTION • CRACK & SEAT • RUBBLISATION & SEAT • BRIDGE DECK WATERPROOF • ASPHALT REINFORCEMENT • INSITU RECYCLING • Stress Absorbing Membrane Interface		
Material Type	Lookup • ? (Default) • TS2010 • Cl 942 • HRA • SMA • AC • EME2 • HBM • Concrete Pavement • Crack & Seat • Rubblisation & Seat • Recycling - Insitu • Recycling - Exsitu • Sub Base • HFS • Surface Dressing • Microsurfacing • Retexturing • Reinforcement - Asphalt Reinforcement • Reinforcement - Geotechnical Reinforcement • Bridge Deck Waterproofing • Stress Absorbing Membrane Interface • Other Surface	Mandatory	
Material Specification	Lookup • ? (Default)	Required	Comment List of Current Material Specifications available from APMS

Field Name	Field Format	Field Required	Comments
Supplier	Lookup • ? (Default) • AI • Breedon • Tarmac	Required	Comment List of Current Suppliers available from APMS
Layer thickness (mm)	Number (int)	Mandatory	Comment Layer thickness in mm, normally rounded to the nearest 5mm
% Recycled material	Number (int)	Desirable	
Mixing Temp	Lookup • ? (Default) • Cold Mix • Warm Mix (80-120C) • Hot Mix (>120C)	Required	
Binder Type	Lookup • ? (Default) • Bituminous • Cement • Concrete • None	Mandatory	
Binder Specification	Lookup • ? (Default)	Required	Comment Full list of available Binder Specifications available in APMS
Grading	Lookup • ? (Default) • Dense • Medium • Open	Mandatory	
Aggregate Type	Lookup • ? (Default) • Crushed Rock • Crushed Gravel	Mandatory	
Aggregate Size	Number (int)	Mandatory	
AAV	Number (int)	Mandatory	

Field Name	Field Format	Field Required	Comments
Design PSV	Lookup • ? (Default) • TS2010 Class 1 • TS2010 Class 2 • TS2010 Class 3 • 50 • 55 • 60 • 65 • 68+ • HFS • NA	Conditional (Mandatory)	Comment Mandatory for all surface course layers
Laid PSV	Number (int)	Conditional (Mandatory)	Comment Mandatory for all surface course layers
Plant	Lookup • ? (Default)	Required	Comment List of current plants available in APMS
Coarse Aggregate Source	Lookup • ? (Default)	Required	Comment List of current Quarries available in APMS
Fine Aggregate Source	Lookup • ? (Default)	Required	Comment List of current Quarries available in APMS
Notes	Text	Desirable	
Layer Date	Date	Mandatory	Comment Date Layer laid.
End Date	Date	Mandatory	Comment Date layer removed (planned out)

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times

Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Other			

Inspections

Pavement Construction Records - MSD

Inspection Name	Pavement Construction Records - MSD
Inspection Group	Pavement Construction Records
Inspection Interval	Within 28 days of Construction
Inspection Requirement	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. changes to the pavement layers shall be notified to Transport Scotland in a MSD Sheet, see Appendix G.
Inspection Records	On completion, the MSD sheet shall be emailed to MSD@Transport.gov.scot and shall be attached to the relevant scheme records in APMS

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Pedestrian Crossing

A transverse strip of carriageway marked to indicate where pedestrians can cross the road including controlled crossings with Traffic Signals and uncontrolled crossings which may only be indicated by dropped kerbs.

Asset Attributes

Asset Shape	Point
Asset Service Level	Node Marker Points should only require occasional and irregular maintenance. The need for all maintenance shall be identified through Inspection. Node Marker Points will usually be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Pedestrian Crossing Attributes shall include the Common Attributes.
Parent/Child Assets	Pedestrian Crossing Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Type	Lookup • ? (Default) • Pelican • Puffin • Toucan • Zebra • Uncontrolled • Other	Mandatory	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Wear (for example erosion)*	Any Wear	>=20% of the area worn on regulatory markings, or at critical areas**, or >=30% of the area worn on any line, or a residual rib height of <=6mm on motorways or <= 3mm on trunk roads for raised rib markings	
Colour (Discolouration)	Any discolouration		
Detritus or vegetation	Any detritus	Any vegetation, or severe accumulation of dirt, stone, gravel or other material which is obscuring road markings	
Other	All other Defects		
Loose catseye or stud	Any loose catseye or stud	Any single loose or displaced road stud or casing on the carriageway	
Damaged catseye or stud	Any damaged catseye or stud	Any damage which affects the performance of the studs	
Missing catseye or stud	Any missing catseye or stud	Any single loss of road stud where studs are a legal requirement, or more than one in any ten consecutive studs at other areas	
Sinkage, settlement or masking	Any sinkage, settlement or masking	Any sinkage, settlement or masking that affects the performance of the studs	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Misalignment	Any misalignment		
Other	All other Defects		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Width of dropped kerb at uncontrolled crossing is < 1200mm
Width of dropped kerb at controlled crossing is < 2400mm
Crossfall of transition area between footway level and dropped kerb level in excess of 1:12 (8.3%)
Gradient in excess of 1:11 (9%) on dropper kerb
Kerb upstand adjacent to c/way < 25mm high (at vehicle crossing points e.g. driveway)
Longitudinal gradient in excess of 1:20 (5%)
Crossfall in excess of 1:40 (2.5%)
Abrupt change in gradient (should be rounded)
Identify areas (in excess of 10m2) where surface irregularity exceeds 3mm in a vertical plane
Identify any gaps exceeding 10mm in a horizontal plane
Grating placed in area of main pedestrian flow
Obstacle free width is < 1300mm
Unobstructed height above footway is < 2300mm, including overhanging vegetation
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Edge of footway has sudden level change
Lack of edge definition
Ramp longitudinal gradient in excess of 1:10 (10%) for ramp flight up to 600mm going
Ramp longitudinal gradient in excess of 1:12 (8.3%) for ramp flight up to 2m going
Ramp longitudinal gradient in excess of 1:15 (6.7%) for ramp flight up to 5m going
Ramp longitudinal gradient in excess of 1:20 (5%) for ramp flight up to 10m going
Lack of adequate tonal contrast
Redundant street furniture
Free standing object does not meet min. height criteria of 1000mm
Staggered barriers/access control less than 1200mm apart
Lack of tactile paving
Inappropriate tactile paving type

Defect Description
Inappropriate tactile paving colour
Inappropriate tactile paving layout
Outdated/worn profile on tactile paving
Tactile paving does not contrast tonally with surrounding paving
The back edge of the tactile surface is not at right angles to the direction of crossing/travel
Pedestrian route around a junction is not continuous
Crossfall beside parked vehicle in excess of 1:20 (5%)
Crossing point not on obvious pedestrian desire line
Crossing point at junction bellmouth not at ideal location
Lack of refuge at crossing
Refuge at crossing is < 1500mm wide
Pedestrian crossing is zebra type

Inspections

Pedestrian Crossing - Visual Assessment Inspection

Inspection Name	Pedestrian Crossing - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Carriageway (Nearside)
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection the full extents of each Pedestrian Crossing shall be inspected and an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection an Inspection record shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant asset.

Pedestrian Crossing - Accessibility Inspection

Inspection Name	Pedestrian Crossing - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010.

	The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

There are no Condition Ratings associated with this Asset.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

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.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Pedestrian Guardrails should only require occasional and irregular maintenance, the need for all other maintenance shall be identified by Inspection. The majority of Pedestrian Guardrails will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Recurring Comprehensive Inspections shall be carried out record asset condition and Defects.
Common Attributes	Pedestrian Guardrail Attributes shall include the Common Attributes.
Parent/Child Assets	Pedestrian Guardrail Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Material	Lookup • ? (Default) • Steel • Aluminium • Timber • Other	Desirable	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times

Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the barrier still structurally sound?
Is the damaged barrier causing an obstruction to the footway?
Is the damaged barrier causing an obstruction to the carriageway?
Is the missing barrier in a location frequented by above average numbers of vulnerable road users?
Is the barrier still structurally sound?
Is the damaged barrier causing an obstruction to the footway?
Is the damaged barrier causing an obstruction to the carriageway?
Is the missing barrier in a location frequented by above average numbers of vulnerable road users?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Rotten or corroded fence	Any rotten or corroded fence	Any rotten or corroded fence that makes pedestrians vulnerable	
Missing û section of fence or barrier	Any missing section of fence or barrier	Any missing section of fence or barrier that makes pedestrians vulnerable	Any missing section of fence or barrier
Damaged or deformed fence or barrier	Any damaged or deformed fence or barrier	Any damaged or deformed fence or barrier that makes pedestrians vulnerable	Any damaged or deformed fence or barrier
Loose panel	Any loose panel		
Loose bolt	Any loose bolt		
Safety fence too high		As per individual specification	
Safety fence too low		As per individual specification	
Loose tension bolts	Any loose tension bolts		
Other	Any other Defect		

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Obstacle free width is < 1300mm
Inconsistent position of a succession of obstacles necessitates weaving
Width at footway is restricted locally to < 1000mm
Pole at front of footway outwith 500-600mm offset from c/way
Free standing object does not meet min. height criteria of 1000mm
Width between handrails is < 1000mm
Width between handrails is < 1800mm (this does not allow two way movement)
Width between handrails is > 1800mm
Handrails not provided on both sides of flight
Handrails on flight not provided at height of 900-1000mm
Handrails not continuous across intermediate landings
Handrails do not extend 300mm past top and bottom of flight
End of handrail projects into route of travel
End of handrail does not return into wall/ground or have 100mm downturn (to prevent injury to users)
Handrail of material which is cold to the touch
Handrails are not tonally contrasted with background
Circular handrails does not have cross section of 40-50mm diameter
Oval handrail does not have cross section of 50 1 35mm
Staggered barriers/access control less than 1200mm apart
Lack of adequate tonal contrast
Redundant street furniture
Gate latch inoperable by person with reach difficulties e.g. wheelchair user
Clear space between handrail and adjacent wall is < 60mm

Inspections

Pedestrian Guardrail - Visual Assessment Inspection

Inspection Name	Pedestrian Guardrail - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each inspection the full length of each Pedestrian Guardrail shall be inspected at close quarters. An overall assessment of the condition of each 100m length and any Defects present shall be noted.

	During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each 100m section of asset along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded. Defects shall be recorded against the relevant inventory item and relative position.
Comments	Assets situated in the central reserve will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Pedestrial Guardrail - Accessibility Inspection

Inspection Name	Pedestrial Guardrail - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be Inspected to identify all types of barrier to travel for all users of the trunk road network. The Inspection shall be carried out by Specialist Inspectors with specific training and approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Pedestrian Guardrail - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Surrounding grassed verge areas showing obvious signs disturbance due to construction Operations or Works. Footway or constructed verge areas around base of posts are in new condition compared with surrounding areas (unless also replaced). 
B - Good	No visual Defects and with few visible signs of surface deterioration. Grassed verge areas surrounding posts returned to vegetation. Minimal weathering or pollution from passing traffic.

Condition	Description
	 
C - Fair	Evidence of initial deterioration, including minor corrosion, superficial accident damage. Loss of paint, galvanising or other protective system. Minor damage or individual missing rails on fences in rural areas or minor damage to infill panels in pedestrian guardrails. 
D - Poor	Poor structural condition. Corroded metal that affects function or promotes deterioration. Rotten or missing panels/posts. Cracking or spalling of brickwork or concrete that affects the function. Lack of tension in a strained wire fence. Fences non stock proof. Vandalism or minor accident damage that does not affect the safety or workings of the structure.  
E - Very Poor	Accident damage or vandalism that makes the item structurally unsound or makes the item unsafe to road users. Sections of missing fence. Severely corroded so as to make the unit structurally unsafe. 
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Piped Drainage

An underground drainage system that uses drain pipes to carry surface water collected through drainage elements such as Gullies, Separators, Soakaways, Manholes and field drains, to the outfall.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Piped Drainage items tend to connect between other assets such as Manholes, Catchpits etc. Traditionally piped drainage assets have not been collected by Transport Scotland, only their inflow, outflow and intermediate assets have been maintained in an Asset Register. Collection of piped drainage assets is a very expensive and time consuming task and, therefore, will not be collected as part of routine inspection activities. However, where drainage investigations or surveys are carried out by the Operating Company, any identifiable Piped Drainage assets and attributes shall be recorded in the Asset Register. Where the Operating Company installs new Piped Drainage assets, all assets and attributes shall be collected. Piped Drainage can be very difficult to inspect without specialist equipment (i.e. cameras) but issues and potential Defects can generally be identified from the inspection of other connected assets such as Catchpits, Manholes and Outfalls etc. Detailed Inspection of Piped Drainage assets will normally only be carried out when other Inspections identify potential issues and a Specilaist Inspection is ordered.
Common Attributes	Piped Drainage Attributes shall include the Common Attributes.
Parent/Child Assets	Piped Drainage Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Diameter	Number (decimal)	Required	Comment Required for all new/replaced installations and should be collected whenever possible during Inspections and Maintenance activities.
Material	Lookup • ? (Default) • Clay • Concrete • Plastic	Required	Comment Required for all new/replaced installations and should be collected whenever possible during Inspections and Maintenance activities.

Field Name	Field Format	Field Required	Comments
	• Ceramic • Steel • Other		
Drainage Network Linkage			
Downstream Asset ID	Number (int)	Required	Comment Asset ID of downstream asset (e.g. Manhole, Catchpit etc) Required for all new/replaced installations and should be collected whenever possible during Inspections and Maintenance activities.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

Piped Drainage - Visual Assessment Inspection

Inspection Name	Piped Drainage - Visual Assessment Inspection
Inspection Group	Specialist & Adhoc Inspections
Inspection Interval	When Ordered

Inspection Requirement	When Inspections of piped drainage systems are carried out, details of all assets inspected shall be entered in IRIS with as much details as it is possible to determine from the Inspection. A note of the asset condition and any Defects present shall also be noted.
Inspection Records	On completion of each Inspection details of all assets found shall be entered into IRIS along with an inspection record with date/time/user stamp and where appropriate a Condition Rating recorded against each inventory item. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Defects

Condition Rating

Piped Drainage - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of disturbance to the surrounding verge area where construction Operations or Works have taken place.
B - Good	No visual Defects or blockages and with few visible signs of deterioration. Areas around the works returned to vegetation.
C - Fair	Evidence of initial deterioration, including minor cracking/ deformation/ alignment of piped drainage system Presence of detritus/refuse/weed growth/roots. Minor build-up of silt/detritus giving slight disruptions to water flow.
D - Poor	Symptoms of blockage or faults of the piped drainage system that prompt further investigation including backing up and flooding at the entry points, dry outlets, wet areas on verges, and the presence of lush vegetation. Build-up of silt/detritus that impedes the water flow through the system.
E - Very Poor	Severe cracking/deformation/alignment of piped drainage system adversely affecting the structural or hydraulic performance or durability of system components. Failure or deformation of surrounding surface areas. Severe blockages to drainage run causing standing water onto surrounding carriageway.
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Piped Grip

A piped conduit across the verge of a road to lead surface water away from the carriageway.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Piped Grips require regular cleaning to remove silt/debris to ensure that their capacity to remove water from the carriageway is maintained. All other maintenance shall be identified by inspection. Piped Grips are unlikely to be satisfactorily inspected by Safety Inspection although results of grips with reduced capacity will be visible through ponding and flooding of the carriageway. Regular Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Piped Grip Attributes shall include the Common Attributes.
Parent/Child Assets	Piped Grip assets are not associated with other assets.

Asset Specific Attributes

There are no Asset specific attributes.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
Is the difference in level >=40mm on a carriageway?
Could the defect cause a vehicle to swerve and collide?
Is the carriageway open to cyclists?
Where is the defect positioned within the carriageway?
Is the defect at a designated crossing point?
What is the speed and volume of traffic?
Is the difference in level = 20mm on a footway or cycle track?
Is the footway used by a high proportion of vulnerable members of the public?
Is a cover rocking under load causing a noise nuisance in a built up area?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Difference in level	Any abrupt difference in level of >=20mm on a carriageway or >=13mm on a footway	Any abrupt difference in level of >=40mm on a carriageway or >=20mm on a footway	
Rocking under load	Rocking grating or covers	Rocking grating or covers in urban areas causing intrusive noise	
Broken	Broken or damaged covers in the footway or carriageway	Broken or damaged covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Cracked	Cracked covers in the footway or carriageway	Cracked covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	
Missing cover	Missing covers in the footway or carriageway	Missing covers in the footway or carriageway which are likely to constitute a hazard to road users, pedestrians or cyclists	Missing covers in the footway or carriageway
Parallel gratings	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow	Incorrectly fitted gratings where the water bars are parallel to the direction of traffic flow which are likely to constitute a hazard to cyclists	
Smooth surface	Smooth surface (visual assessment) on manhole covers in footways or carriageway	Smooth surface on manhole covers in footways or carriageway which are likely	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		to constitute a hazard to road users, pedestrians or cyclists	
Blockage	Any significant loss of capacity in any part of the drainage system.	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	
Weed growth	Any weed growth	Sufficient weed growth which is, or could lead to deficiencies in the drainage system	
Filter material displaced	Displaced filter material	Significant displacement of filter material	Any displaced filter material
Flooding*	Water lying on, or running along/across the carriageway	Sufficient amount of water lying on or running along/across the carriageway which represents a hazard to road users, may interrupt the free flow of traffic, or cause damage to other structures or the carriageway.	Water lying on, or running along/across the carriageway between October and April inclusive
Seized	Seized covers, gratings or frames	Seized open covers, gratings or frames which are likely to constitute a hazard to road users, pedestrians or cyclists	
Other	All other Defects		

Inspections

Piped Grip - Visual Assessment Inspection

Inspection Name	Piped Grip - Visual Assessment Inspection
Inspection Group	Visual Assessment Inspection - Off Carriageway Assets
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection every Piped Grip shall be inspected from the surface, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.
Comments	All Piped Grip shall be inspected irrespective of ownership. Any Defects associated with third party assets shall be notified to their owner.

	Assets situated in the central reserve or more than 1 lane away from the Inspection position will require a separate visit with appropriate traffic management to adequately assess the condition of the asset.

Defects

Condition Rating

Piped Grip - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition with no obvious visual Defects. Obvious signs of disturbance to the surrounding verge area where construction Operations or Works have taken place.
B - Good	No visual Defects or blockages and with few visible signs of deterioration. Areas around the works returned to vegetation.
C - Fair	Evidence of initial deterioration, including minor cracking/ deformation/ alignment of piped drainage system Presence of detritus/refuse/weed growth/roots. Minor build-up of silt/detritus giving slight disruptions to water flow. 
D - Poor	Symptoms of blockage or faults of the piped drainage system that prompt further investigation including backing up and flooding at the entry points, dry outlets, wet areas on verges, and the presence of lush vegetation. Build-up of silt/detritus that impedes the water flow through the system. 
E - Very Poor	Severe cracking/deformation/alignment of piped drainage system adversely affecting the structural or hydraulic performance or durability of system components. Failure or deformation of surrounding surface areas. Severe blockages to drainage run causing standing water onto surrounding carriageway.

Condition	Description
	
R - Routine Maintenance	Not applicable.

Maintenance

Cyclical Maintenance Activities

Piped Grip - Cleaning

Cyclic Maintenance Name	Piped Grip - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Piped Grips shall be cleaned in accordance with Schedule 5 Specification Clause 6131AR. During each Maintenance visit the Piped Grip shall be jetted, cleared and all silt/debris removed from around the entry, exit and pipe of the Piped Grip. A note of the how functional the grip was prior to cleaning along with and any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and a functional condition record. Any Defects shall be recorded and associated with the asset.

Reference Marker Point

A reference marker point is used to show location and the direction to the nearest emergency phone boxes on Motorways, some dual carriageways and occasionally on other roads. They can also be used to show the location of various other assets such as:

- culverts,
- bridges,
- balancing ponds,
- laybys.

Asset Attributes

Asset Shape	Point
Asset Service Level	Reference Marker Points should only require occasional and irregular maintenance. The need for all maintenance shall be identified through Inspection. Reference Marker Points will usually be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Comprehensive Inspections shall be carried out to record asset condition and Defects.
Common Attributes	Reference Marker Point Attributes shall include the Common Attributes.
Parent/Child Assets	Reference Marker Point Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Reference Marker Point - Type	Lookup • ? (Default) • Marker Post • Bar Code • Other	Mandatory	
Identity Code	Text	Conditional (Mandatory)	Comment Where the Marker Post Type = Marker Post the chainage value displayed on the marker post must be entered. The majority of other Marker Posts will include a text identity code which must be recorded if present.

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Made safe at the time of inspection or at latest within 24 hours and a permanent repair within 28 days.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
There are no Defect Category and Response Time Considerations currently configured for this asset.

Inspections

Reference Marker Point - Visual Assessment Inspection

Inspection Name	Reference Marker Point - Visual Assessment Inspection
Inspection Group	Network Referencing Review
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection each reference marker point shall be inspected at close quarters, an overall assessment of its condition and any Defects present shall be noted. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Defects

Condition Rating

Reference Marker Point - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. Score of 5/5 on the visual assessment of 'Wear' (TD26/07).

Condition	Description
	
B - Good	No visual Defects and with few visible signs of deterioration. Good night time conspicuity and very little wear, score of 4/5 on the visual assessment of 'Wear' (TD26/07). >100mcd/m²/lux retroreflectivity. 
C - Fair	Some initial visible wear and/or fair night time conspicuity characteristics score of 3/5 on the visual assessment of 'Wear' (TD26/07). 80-100 mcd/m²/lux retroreflectivity. 
D - Poor	Visible but has bare spots and poor night time conspicuity, score of 2/5 on the visual assessment of 'Wear' (TD26/07). <80 mcd/m²/lux retroreflectivity. Skidding resistance results close to threshold. 
E - Very Poor	Barely visible, score 0 or 1/5 on the visual assessment of 'Wear' (TD26/07). Below any threshold levels on critical road areas (e.g. Give Way or Stop lines). Below threshold skidding resistance levels detailed in BS EN 1436. <80 mcd/m²/lux retroreflectivity on unlit single carriageway. Life expired asset.

Condition	Description
	
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

Reference Marker Post - Cleaning

Cyclic Maintenance Name	Reference Marker Post - Cleaning
Cyclic Maintenance Operation Interval	As necessary and at intervals not exceeding 12 months
Cyclic Maintenance Operation Requirement	Reference Marker Posts shall be cleaned in accordance with Schedule 5 Specification Clause 6119AR. During each Maintenance visit the face of every Reference Marker Post shall be cleaned. A note of the cleanliness along with any Defects shall be made.
Cyclic Maintenance Operation Records	On completion of each maintenance visit a maintenance record shall be recorded against each asset along with a date/time stamp and cleanliness record. Any Defects shall be recorded and associated with the asset.

Road Markings Hatched

Road markings on the carriageway with a distinctive hatched design.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Road Markings should only require occasional and irregular maintenance, all maintenance shall be identified by Inspection. Some Road Markings have regulatory significance and will be maintained to a high standard. Other Road Markings can also convey important information and contribute to the visual appearance of the network and shall, subject to available budget, be maintained to an elevated standard. The majority of Road Marking will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Most Road Markings include features to ensure that they are visible in both daytime and night time conditions. Recurring Detailed Inspections shall be carried out during both daytime and night time to record asset condition and Defects. Comprehensive Inspection shall be carried out in accordance with the principals of TD26 but at the frequencies stated in this manual.
Common Attributes	Road Markings Hatched Attributes shall include the Common Attributes.
Parent/Child Assets	Road Markings Hatched Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Diagram Number (TSRGD 2016/2002)	Text	Mandatory	Comment Diagram Number from the TSRGD 2016/2002.
Category	Lookup • ? (Default) • Regulatory • Warning • Informatory • Other	Mandatory	

Field Name	Field Format	Field Required	Comments
Colour	Lookup • ? (Default) • White • Yellow • Red	Desirable	
Pattern	Lookup • ? (Default) • Diagonal • Chevron • Cross • Solid • Bars • Other	Conditional (Desirable)	
Type of Edge Line	Lookup • ? (Default) • Prohibitory • Warning/ Information • None	Conditional (Desirable)	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
What percentage of the area of the road marking is worn?
Is the marking regulatory or at a critical area?
Is the marking raised rib lines?
Are the markings obscured by detritus or vegetation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Wear (for example erosion)*	Any Wear	>=20% of the area worn on regulatory markings, or at critical areas**, or >=30% of the area worn on any line, or a residual rib height of <=6mm on motorways or <=3mm on trunk roads for raised rib markings	
Colour (Discolouration)	Any discolouration		
Detritus or vegetation	Any detritus	Any vegetation, or severe accumulation of dirt, stone, gravel or other material which is obscuring road markings	
Other	All other Defects		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Poor reflection during darkness	Any poor reflection		
Retro-reflectivity test failure	Any test failure		Area under investigation falls below threshold level
Detritus or vegetation	Any detritus		Any vegetation, or severe accumulation of dirt, stone, gravel or other material which affect the reflectivity of road markings
Deterioration of Skid Resistance	Deterioration of Skid Resistance		
Skid Resistance Test Failure	Skid Resistance Test Failure		Area under investigation falls below threshold level

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay

Inspections

Road Marking Hatched - Visual Assessment Inspection

Inspection Name	Road Marking Hatched - Visual Assessment Inspection
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	During each Inspection each Road Marking Hatched shall be inspected and an overall assessment of its condition and any Defects present shall be noted. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect. During each inspection the accuracy of the inventory item recorded in IRIS shall be checked, including its location and attributes and all errors corrected.
Inspection Records	On completion of each Inspection a Condition Rating shall be recorded against each inventory item along with a date/time stamp. Any Defects shall be recorded and associated with the relevant inventory item. Where the asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Road Markings Hatched - Night Time Reflectivity Safety Inspections

Inspection Name	Road Markings Hatched - Night Time Reflectivity Safety Inspections
Inspection Group	Night Time Reflectivity Safety Inspections
Inspection Interval	At intervals not exceeding 6 months
Inspection Requirement	During each Inspection the reflective properties of Road Markings Hatched shall be assessed during the hours of darkness to ensure it is visible and delivers its intended message to drivers and any Defects noted. This Inspection will generally be carried out from a slow moving vehicle with and Inspector and Driver.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Road Marking Hatched - Accessibility Inspection

Inspection Name	Road Marking Hatched - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Road Markings (Hatched) - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. Score of 5/5 on the visual assessment of 'Wear' (TD26/07).  
B - Good	No visual Defects and with few visible signs of deterioration. Good night time conspicuity and very little wear, score of 4/5 on the visual assessment of 'Wear' (TD26/07). >100mcd/m²/lux retroreflectivity.  

Condition	Description
C - Fair	Some initial visible wear and/or fair night time conspicuity characteristics score of 3/5 on the visual assessment of 'Wear' (TD26/07). 80-100 mcd/m²/lux retroreflectivity.  
D - Poor	Visible but has bare spots and poor night time conspicuity, score of 2/5 on the visual assessment of 'Wear' (TD26/07). <80 mcd/m²/lux retroreflectivity. Skidding resistance results close to threshold.  
E - Very Poor	Barely visible, score 0 or 1/5 on the visual assessment of 'Wear' (TD26/07). Below any threshold levels on critical road areas (e.g. Give Way or Stop lines). Below threshold skidding resistance levels detailed in BS EN 1436. <80 mcd/m²/lux retroreflectivity on unlit single carriageway. Life expired asset. 
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Road Markings Longitudinal

Longitudinal lines, road markings which lie along the carriageway or along the edge of the carriageway.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Road Markings should only require occasional and irregular maintenance, all maintenance shall be identified by Inspection. Some Road Markings have regulatory significance and will be maintained to a high standard. Other Road Markings can also convey important information and contribute to the visual appearance of the network and shall, subject to available budget, be maintained to an elevated standard. The majority of Road Marking will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Most Road Markings include features to ensure that they are visible in both daytime and night time conditions. Recurring Detailed Inspections shall be carried out during both daytime and night time to record asset condition and Defects. Comprehensive Inspection shall be carried out in accordance with the principals of TD26 but at the frequencies stated in this manual.
Common Attributes	Road Markings Longitudinal Attributes shall include the Common Attributes.
Parent/Child Assets	Road Markings Longitudinal Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Diagram Number (TSRGD 2016/2002)	Text	Mandatory	Comment Diagram Number from the TSRGD 2016/2002.
Category	Lookup • ? (Default) • Regulatory • Warning • Informatory • Other	Mandatory	

Field Name	Field Format	Field Required	Comments
Line Type	Lookup • ? (Default) • Double • Single • Hazard • Other	Desirable	
Colour	Lookup • ? (Default) • White • Yellow • Red	Desirable	
Type	Lookup • ? (Default) • Broken • Unbroken • Broken & Unbroke • Zigzag • Other	Desirable	
Length (m)	Number (decimal)	Desirable	
Gap (m)	Number (decimal)	Desirable	
Width (mm)	Number (int)	Desirable	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
What percentage of the area of the road marking is worn?
Is the marking regulatory or at a critical area?
Is the marking raised rib lines?
Are the markings obscured by detritus or vegetation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Wear (for example erosion)*	Any Wear	>=20% of the area worn on regulatory markings, or at critical areas**, or >=30% of the area worn on any line, or a residual rib height of <=6mm on motorways or <=3mm on trunk roads for raised rib markings	
Colour (Discolouration)	Any discolouration		
Detritus or vegetation	Any detritus	Any vegetation, or severe accumulation of dirt, stone, gravel or other material which is obscuring road markings	
Other	All other Defects		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Poor reflection during darkness	Any poor reflection		
Retro-reflectivity test failure	Any test failure		Area under investigation falls below threshold level
Detritus or vegetation	Any detritus		Any vegetation, or severe accumulation of dirt, stone, gravel or other material which affect the reflectivity of road markings
Deterioration of Skid Resistance	Deterioration of Skid Resistance		

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Skid Resistance Test Failure	Skid Resistance Test Failure		Area under investigation falls below threshold level

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Parking bay does not meet 4800 x 2400mm size
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay
Lack of signage at dedicated accessible parking bay
Clearance between parked vehicle and running lane is < 1200mm
Lack of footway facilities for parked vehicle
Footway is < 1500mm wide
Crossfall beside parked vehicle in excess of 1:20 (5%)
Pedestrian crossing is zebra type

Inspections

Road Markings Longitudinal - Night Time Reflectivity Safety Inspections

Inspection Name	Road Markings Longitudinal - Night Time Reflectivity Safety Inspections
Inspection Group	Night Time Reflectivity Safety Inspections
Inspection Interval	At intervals not exceeding 6 months
Inspection Requirement	During each Inspection the reflective properties of Road Markings Longitudinal shall be assessed during the hours of darkness to ensure it is visible and delivers its intended message to drivers and any Defects noted. This Inspection will generally be carried out from a slow moving vehicle with and Inspector and Driver.
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Road Marking Longitudinal - Retro-Reflectivity Measurement - Machine

Inspection Name	Road Marking Longitudinal - Retro-Reflectivity Measurement - Machine
Inspection Group	Condition Assessment - Road Markings and Studs

Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The retro-reflectivity and condition of all Longitudinal Road Markings shall be assessed in accordance with the principals of TD26/17 using either of the following processes: **Inspection Process** Machine measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C, Figures C.3i & Figures C.3ii.~~Annex C and Figures C.3ii~~ Handheld measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C and Figures C.4 **TRIM inspection** Inspections shall be recorded as • Road Marking Transverse & Special - Condition assessment - Machine retro-reflectivity measurement and where required • Road Marking Transverse & Special - Condition assessment - Visual Assessment Inspections shall be recorded as • Road Marking Transverse & Special - Condition assessment - Handheld retro-reflectivity and visual assessment Where machine measurement of retroreflectivity shall be undertaken the Inspection shall be carried out in accordance with the following requirements. The measurement of retro-reflectivity of road markings shall be measured by vehicle mounted devices approved for use by Transport Scotland. Measured retro-reflectivity data shall be assessed in accordance with the process and thresholds set out in TD26/17 except that the process and thresholds stated in Figure C.3ii shall be used for all road types (lit and unlit) The measured retro-reflectivity data shall also be processed by the Operating Company to: • Match 100m retro-reflectivity summary segments to APMS asset records and associated start/end chainages • Identify assets which require a further visual assessment, see TD26/17 Figure C.3ii, • Convert measured retro-reflectivity measurements to condition categories, see condition ratings section, • Analyse the data to identify CAT1 and CAT2 High Defects, All Critical Defects defined by TD26/17 shall be considered to be a Category 1 Defect, • Convert all data to a format suitable for loading into APMS. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect.
Inspection Records	On completion of each Inspection all Inspection data shall be converted into a format suitable for loading into IRIS including: • Relevant APMS Asset Record ID

	• Relevant APMS asset start/end chainage • Measured retro-reflectivity reading summarised to 100m length • Derived asset condition rating Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Road Marking Longitudinal - Road Marking Longitudinal - Visual Assessment

Inspection Name	Road Marking Longitudinal - Road Marking Longitudinal - Visual Assessment
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The retro-reflectivity and condition of all Longitudinal Road Markings shall be assessed in accordance with the principals of TD26/17 using either of the following processes: Inspection Process: Machine measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C, Figures C.3i & Figures C.3ii~~in Annex C and Figures C.3ii~~ TRIM inspection Inspections shall be recorded as • Road Marking Transverse & Special - Retro-Reflectivity measurement - Machine and where required • Road Marking Transverse & Special - Visual Assessment Inspections shall be recorded as Handheld measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C and Figures C.4 • Road Marking Transverse & Special - Retro-Reflectivity - Handheld Where machine measurement of retroreflectivity has been carried out and a Visual Assessment shall be required (TD26/17 Figure C.3ii), the Inspections shall be carried out in accordance with the following requirements. The road marking shall be assessed in accordance with the principals of TD26/17 including Figure C.3ii, Table C.1 and the photographic examples in Annex E. The visually assessed score shall also be processed by the Operating Company to: • Match individual visually assessed scores to APMS asset records and associated start/end chainages, • Analyse the data to identify CAT1 and CAT2 High Defects, All Critical Defects defined by TD26/17 shall be considered to be a Category 1 Defect,

	• Record individual visually assessed scores against the relevant APMS asset record. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect.
Inspection Records	On completion of each Inspection all Inspection data shall be converted into a format suitable for loading into IRIS including: • Relevant APMS Asset Record ID • Relevant APMS asset start/end chainage • Measured retro-reflectivity reading summarised to 100m length • Derived asset condition rating Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Road Marking Longitudinal - Retro-Reflectivity Measurement - Handheld

Inspection Name	Road Marking Longitudinal - Retro-Reflectivity Measurement - Handheld
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The retro-reflectivity and condition of all Longitudinal Road Markings shall be assessed in accordance with the principals of TD26/17 using either of the following processes: **Inspection Process** Machine measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C, Figures C.3i & Figures C.3ii.~~Annex C and Figures C.3ii~~ Handheld measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C and Figures C.4 **TRIM inspection** Inspections shall be recorded as • Road Marking Transverse & Special - Condition assessment - Machine retro-reflectivity measurement and where required • Road Marking Transverse & Special - Condition assessment - Visual Assessment Inspections shall be recorded as • Road Marking Transverse & Special - Condition assessment - Handheld retro-reflectivity and visual assessment Where the measurement of retroreflectivity is carried out by handheld device with visual assessment, the Inspections shall be carried out in accordance with the following requirements.

	The road marking shall be assessed in accordance with the principals of TD26/17 including Figure C.4, Table C.1 and the photographic examples in Annex E. • The retro-reflectivity of each road marking shall be measured using a hand held retro-reflectivity meter. • The wear of the road marking shall be visually assessed and scored in accordance with TD26/17 • The Luminance factor assessed. • A condition rating derived based on the above assessments. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect.
Inspection Records	On completion of each Inspection all Inspection data shall be converted into a format suitable for loading into IRIS including: • Relevant APMS Asset Record ID • Relevant APMS asset start/end chainage • Measured retro-reflectivity reading summarised to 100m length • Derived asset condition rating Where a 100m length of asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Road Marking Longitudinal - Skid Resistance

Inspection Name	Road Marking Longitudinal - Skid Resistance
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 48 months and on approximately 1/4 of the critical assets per year
Inspection Requirement	The skid resistance of all critical Road Markings shall be measured and any Defects present shall be noted. Skid Resistance measurements shall be carried out in accordance with the principals of TD26/17 Appendix C4, measured using the British Pendulum Tester in accordance with BS EN 1436. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect. Skid Resistance measurements shall be carried out on all critical road markings, see definition in comments section below.
Inspection Records	On completion of each Inspection a skid resistance reading shall be recorded against each inventory item along with a date/time stamp and any Defects associated with the asset.

Comments	Critical Road markings shall include all Road Markings Listed below.
	
	• All Give Way and Stop Lines on the Trunk Road at junctions and roundabouts , See TSRGD 2016 - Schedule 9 - Part 6 .
	  ○ Stop Line (Diag 1002.1).
	  ○ Give Way Line (Diag 1003A).
	  ○ Give Way Line at roundabout (Diag 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 in the carriageway ahead, see TSRGD 2016 - Schedule 11 - Part 4
	  ○ Yellow bar markings (Diag. 1067).

	○ Bifurcation arrows (Diag. 1039). ○ SLOW markings (Diag. 1024). ○ Arrows where there is a reduction in the number of traffic lanes in the carriageway ahead (Diag. 1014). • Any other road markings suspected of having poor skid resistance.

Road Marking Longitudinal - Accessibility Inspection

Inspection Name	Road Marking Longitudinal - Accessibility Inspection
Inspection Group	Accessibility Inspection
Inspection Interval	Within 2 years of Commencement of Service and then at Intervals not exceeding 5 years
Inspection Requirement	During each Inspection all assets on the Network shall be inspected to identify all situations where the network fails to make provision for disabilities and specific age groups (elderly and children) in accordance with the Public Sector Equality Duty of the Equality Act 2010. The Inspection shall be carried out by Specialist Inspectors with specific training and be approved by Transport Scotland. The Inspection shall assess all assets, including third party assets such as bus stops, cabinets etc. and access points onto the Trunk Road Network. The defects listed in this manual reflect the requirements of Roads for all Good Practice for Roads (TS), Inclusive Mobility (DfT) and Guidance on the Use of Tactile Paving (DfT).
Inspection Records	The Inspection record shall be recorded against the Network Referencing in the form of a breadcrumb trail of GPS co-ordinates and date/time stamps. Any Defects shall be recorded against the relevant inventory item.

Defects

Condition Rating

Road Markings (Longitudinal) - Condition Rating

Condition	Description
A - Excellent	New or nearly new condition. Score of 5/5 on the visual assessment of 'Wear' (TD26/07).  
B - Good	No visual Defects and with few visible signs of deterioration. Good night time conspicuity and very little wear, score of 4/5 on the visual assessment of 'Wear' (TD26/07). >100mcd/m²/lux retroreflectivity.

Condition	Description
	 
C - Fair	Some initial visible wear and/or fair night time conspicuity characteristics score of 3/5 on the visual assessment of 'Wear' (TD26/07). 80-100 mcd/m²/lux retroreflectivity.  
D - Poor	Visible but has bare spots and poor night time conspicuity, score of 2/5 on the visual assessment of 'Wear' (TD26/07). <80 mcd/m²/lux retroreflectivity. Skidding resistance results close to threshold.  
E - Very Poor	Barely visible, score 0 or 1/5 on the visual assessment of 'Wear' (TD26/07). Below any threshold levels on critical road areas (e.g. Give Way or Stop lines). Below threshold skidding resistance levels detailed in BS EN 1436. <80 mcd/m²/lux retroreflectivity on unlit single carriageway. Life expired asset. 
R - Routine Maintenance	Not applicable

Maintenance

Cyclical Maintenance Activities

There are no maintenance activities associated with this Asset.

Road Markings Transverse & Special

Road markings which lie across the carriageway, at the edge of the carriageway, on the kerb, or are special markings.

Asset Attributes

Asset Shape	Linear
Asset Service Level	Road Markings should only require occasional and irregular maintenance, all maintenance shall be identified by Inspection. Some Road Markings have regulatory significance and will be maintained to a high standard. Other Road Markings can also convey important information and contribute to the visual appearance of the network and shall, subject to available budget, be maintained to an elevated standard. The majority of Road Marking will be visible from the carriageway and high priority Defects should normally be identified from safety inspections or through other sources such as customer care or incident response. Most Road Markings include features to ensure that they are visible in both daytime and night time conditions. Recurring Detailed Inspections shall be carried out during both daytime and night time to record asset condition and Defects. Comprehensive Inspection shall be carried out in accordance with the principals of TD26 but at the frequencies stated in this manual.
Common Attributes	Road Markings Transverse & Special Attributes shall include the Common Attributes.
Parent/Child Assets	Road Markings Transverse & Special Assets are not associated with other assets.

Asset Specific Attributes

Field Name	Field Format	Field Required	Comments
Diagram Number (TSRGD 2016/2002)	Text	Mandatory	Comment Diagram Number from the TSRGD 2016/2002.
Category	Lookup • ? (Default) • Regulatory • Warning • Informatory • Other	Mandatory	

Field Name	Field Format	Field Required	Comments
Colour	Lookup • ? (Default) • White • Yellow • Red	Desirable	
Size	Number (decimal)	Desirable	

Asset Specific Rules

Asset Maintenance

Defects

Defect Categories and Response Times

Defect Category	Response Times
Category 1a	Attend and make safe as per incident response timescales.
Category 1b	Permanently repair or make safe by no later than by 0600 the following day (or within 24 hours if earlier) and permanent repair within 28 days of recording.
Category 2 High	Repair within 28 days of being ordered.
Category 2 Low	Analyse data prioritise and schedule for programmed Operations or Works.

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Defect Category and Response Time Consideration

The following considerations should be taken into account when determining Defect category and response times for this asset.

Defect Category and Response Time Considerations
What percentage of the area of the road marking is worn?
Is the marking regulatory or at a critical area?
Is the marking raised rib lines?
Are the markings obscured by detritus or vegetation?

General Defect List

The following Defects shall be recorded if identified at any Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Wear (for example erosion)*	Any Wear	>=20% of the area worn on regulatory markings, or at critical areas**, or >=30% of the area worn on any line, or	

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
		a residual rib height of <=6mm on motorways or <=3mm on trunk roads for raised rib markings	
Colour (Discolouration)	Any discolouration		
Detritus or vegetation	Any detritus	Any vegetation, or severe accumulation of dirt, stone, gravel or other material which is obscuring road markings	
Other	All other Defects		

Specialist Defect List

The following Defects shall generally only be identified and recorded by Specialists during any Specialist Inspection Operation.

Defect Description	Investigatory Level	Category 1a / Category 1b Intervention Level	Category 2 High Intervention Level
Poor reflection during darkness	Any poor reflection		
Retro-reflectivity test failure	Any test failure		Area under investigation falls below threshold level
Detritus or vegetation	Any detritus		Any vegetation, or severe accumulation of dirt, stone, gravel or other material which affect the reflectivity of road markings
Deterioration of Skid Resistance	Deterioration of Skid Resistance		
Skid Resistance Test Failure	Skid Resistance Test Failure		Area under investigation falls below threshold level

Accessibility Defect List

The following accessibility Defects shall be identified and recorded during any Accessibility Audit Inspection Operation.

Defect Description
Parking bay does not meet 4800 x 2400mm size
Accessible parking bay (parallel/kerb side) does not meet 6600 x 3600mm size
No dedicated accessible parking bay provided
Lack of 1.2m hatched aisles at dedicated accessible parking bay
Lack of signage at dedicated accessible parking bay
Clearance between parked vehicle and running lane is < 1200mm

Defect Description
Lack of footway facilities for parked vehicle
Footway is < 1500mm wide
Crossfall beside parked vehicle in excess of 1:20 (5%)
Pedestrian crossing is zebra type

Inspections

Road Marking Transverse & Special - Retro-Reflectivity Measurement - Machine

Inspection Name	Road Marking Transverse & Special - Retro-Reflectivity Measurement - Machine
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The retro-reflectivity and condition of all Transverse and Special Road Markings shall be assessed in accordance with the principals of TD26/17 using either of the following processes: Inspection Process — TRIM inspection Machine measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C, Figures C.3i & Figures C.3ii~~Annex C and Figures C.3ii.~~ — Inspections shall be recorded as • Road Marking Transverse & Special - Rretro-Reflectivity Measurement - Machine and where required • Road Marking Transverse & Special - Visual Assessment Handheld measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C and Figures C.4 — Inspections shall be recorded as • Road Marking Transverse & Special - Retro-Reflectivity - Handheld Where machine measurement of retroreflectivity shall be undertaken the Inspection shall be carried out in accordance with the following requirements. The measurement of retro-reflectivity of transverse and special road markings shall be measured by vehicle mounted devices approved for use by Transport Scotland. Measured retro-reflectivity data shall be assessed in accordance with the process and thresholds set out in TD26/17 except that the process and thresholds stated in Figure C.3ii shall be used for all road types (lit and unlit) The measured retro-reflectivity data shall also be processed by the Operating Company to: • Match individual retro-reflectivity measurements to APMS asset records,

	• Identify assets which require a further visual assessment, see TD26/17 Figure C.3ii, • Convert measured retro-reflectivity measurements to condition categories, see condition ratings section, • Analyse the data to identify CAT1 and CAT2 High Defects, All Critical Defects defined by TD26/17 shall be considered to be a Category 1 Defect, • Convert all data to a format suitable for loading into APMS. Defects assessed as "Critical Defects" by TD26/17 shall be classified as a Category 1 Defect.
Inspection Records	On completion of each Inspection all Inspection data shall be converted into a format suitable for loading into IRIS including: • Relevant APMS Asset Record ID, • Relevant APMS asset start/end chainage, • Measured retro-reflectivity reading summarised to each asset, • Derived asset condition rating. Where an asset has been rated as Condition Rating D or E, at least one Defect shall also be recorded.

Road Marking Transverse & Special - Condition assessment - Visual Assessment

Inspection Name	Road Marking Transverse & Special - Condition assessment - Visual Assessment
Inspection Group	Condition Assessment - Road Markings and Studs
Inspection Interval	At intervals not exceeding 12 months
Inspection Requirement	The retro-reflectivity and condition of all Transverse and Special Road Markings shall be assessed in accordance with the principals of TD26/17 using either of the following processes: Inspection Process: Machine measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out Annex C, Figures C.3i & Figures C.3ii~~in Annex C and Figures C.3ii~~ TRIM inspection Inspections shall be recorded as • Road Marking Transverse & Special - Retro-Reflectivity Measurement - Machine and where required • Road Marking Transverse & Special - Visual Assessment Handheld measurement of retro-reflectivity of Transverse and Special Road Markings with Visual Assessment generally in accordance with TD26/17 and the process and thresholds set out in Annex C and Figures C.4 Inspections shall be recorded as • Road Marking Transverse & Special - Retro-Reflectivity Measurement - Handheld