NATIONAL HIGHWAYS

Asset Management Development Group

ASSET DATA MANAGEMENT MANUAL

Part 4 – Asset Reference Catalogue

October 2021

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Revision Sheet

For revisions across all ADMM documents see the Revision Log available on Standards for Highways:
http://www.standardsforhighways.co.uk/ha/standards/admm/index.htm

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Foreword

The Asset Data Management Manual (ADMM) sets out National Highways (the Company's) asset data requirements to achieve both its corporate objectives as well as its asset management objectives. It brings clarity and consistency to reflect National Highways asset data needs and is revised annually to accommodate changes and expansion to the business needs.

The ADMM contains the company's asset data requirements to ensure the company collects and maintains the asset data it needs to operate safely and efficiently. It is for use by anyone creating, maintaining, or using data on behalf of or within National Highways.

What are its components?

- **Part 1 – Data Principles and Governance**, which introduces the asset data management concept and defines how this is structured and governed within National Highways. Additionally, further guidance surrounding the purpose of the ADMM is provided.
- **Part 2 – Requirements and Additional Information**, which includes National Highways requirements for asset data management and provides supporting guidance for each asset class.
- **Part 3 – Data Dictionary,** which defines the asset data requirements, hierarchy, and rules for individual assets and attributes.
- **Part 4 – Asset Reference Catalogue**, which includes a tool to assist in identifying and recording specific assets.

Additionally, a Revision Log and Change Request Submission Form are provided with each iteration of the ADMM:

- **Revision Log:** provides a full listing of all changes made between versions.
- **Change Request Submission Form**: provides instructions for submitting a change request. An overview of the change process is detailed in Part 1 – Data Principles and Governance document under Section 2.4 "Change Management".

Due to the upcoming expiry of Asset Support Contract's any related requirements have been removed from the ADMM. Access to these requirements is only permitted via earlier versions of the ADMM. If access is required please contact AssetInformationQueries@highwaysengland.co.uk.

Part 4 – Asset Reference Catalogue

The Asset Reference Catalogue provides supporting guidance to Part 3 - Data Dictionary and assists in identifying and recording specific assets and provides details regarding the surfacing materials available for a range of highway inventory.

1 Introduction

Part 3 - Data Dictionary holds primacy over asset data specification; and much of the information given within this document is a direct reflection of the Data Dictionary (e.g. hierarchies, descriptions, asset codes, and attribute field domains).

The Asset Reference Catalogue is broken down by the major asset classes, with the entries following in alphabetical order by asset name:

- Ancillary
- Carriageway Control
- Drainage
- Environmental
- Geotechnical
- Lighting
- Pavements
- Road Restraint
- Roadside Operational Technology
- Structures

For each asset entry there is:

- Asset Class Hierarchy – an overview of the asset class hierarchy. This takes on of the following forms:
    - Asset Class – Asset Subclass – Asset
    - Asset-Component Relationship

For each asset entry (excluding Drainage, Roadside Operational Technology and Structures asset classes):

- Description – a textual description detailing the asset, matching the description found in the Data Dictionary.
- An example image – a generic example image demonstrating the asset (this may be further highlighted to specify the asset in context).
- Asset Code – the four-digit code, referencing the asset within the Data Dictionary.
- Asset Class/Subclass –the class and subclass the asset belongs to, indicative of its relationship to a group of other assets as set out in the Data Dictionary, and the relevant procedures, rules, and personnel.
- Asset Geometry – i.e. Point, Line, or Polygon: this corresponds to the geospatial reference data for the asset and gives an idea of the space it occupies in the real world.
    - Assets that occupy a single location are considered **Point** (e.g. Sign Face, Reference Marker Locations, Bollards, etc.)

- Assets that are continuous are considered **Linear** (e.g. Vehicle Restraint Systems, Kerbs, Drainage Channels, etc.)
- Assets that occupy substantial ground space are considered **Polygon** (e.g. Drainage Ponds, Woodland).

- Visual examples – an additional table of less-generic examples for the asset; giving demonstration of a variety of attributes.
- Note: these examples are not exhaustive, they simply demonstrate several distinct attribute examples for guidance purposes. A full specification of data and attributes for each asset is found within Part 3 - Data Dictionary.

2 Ancillary

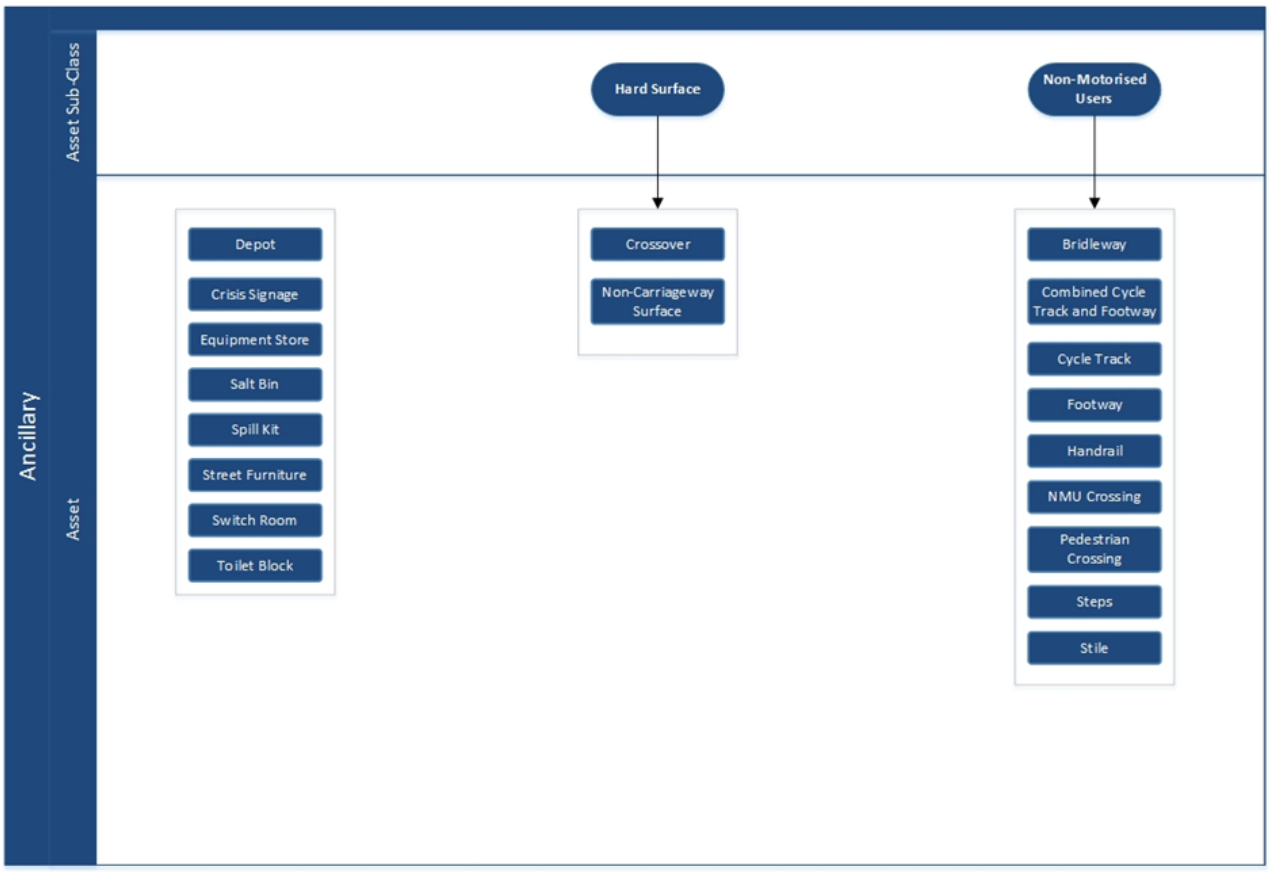


Figure 2-1 – Ancillary asset class hierarchy.

2.1.1 Depot

Description	A National Highways owned maintenance facility; typically encompassing salt barns, storage/maintenance facilities, offices, and vehicle storage.	
Asset Code	GNDP	
UniClass	En_80_35_35	
Geometry	Point	

2.1.2 Crisis Signage

Description	Used throughout the SRN with the aim of encouraging people who are considering taking their own lives to seek help.
Asset Code	ANCS
UniClass	-
Geometry	Point

2.1.3 Equipment Store

Description	A container, typically coloured plastic, storing materials for use during incidents on the network relating to the containment of hazardous materials entering the watercourse.	
Asset Code	GNEQ	
UniClass	SL_90_50_27	
Geometry	Point	

2.1.4 Salt Bins

Description	Predominantly yellow box which holds a mixture of salt and grit to spread over roads if they have snow or ice on them.	
Asset Code	GNGB	
UniClass	Pr_40_50_07_35	
Geometry	Point	

2.1.5 Spill Kit

Description	A container, typically coloured plastic, storing materials for use during incidents on the network relating to the containment of hazardous materials entering the watercourse. Not to be confused with Salt Bins (Section 2.1.4).	
Asset Code	LSSK	
UniClass	Pr_40_70_75_81	
Geometry	Point	

2.1.6 Street Furniture

Description	Street furniture and amenities.	
Asset Code	TSSF	
UniClass	-	
Geometry	Point	

Attribute Examples:

Type	Bench	
Description	Benches are commonly found in laybys and rest areas.	

Type	Litter Bin	
Description	Litter bin.	
Type	Picnic Tables	
Description	Picnic tables are commonly found in laybys and rest areas.	
Type	Bus Shelter	
Description	A roofed structure for people to wait under at a bus stop.	
Type	Art	

Description	Features which have a visual value distinct from their function.	
Type	Interpretation Panels	
Description	Provide information to educate and inform visitors about the environment around them.	

2.1.7 Switch Room

Description	A Switch Room is a small building that houses equipment for a nearby electronic installation.	
Asset Code	GNSR	
UniClass	SL_90_90_85	
Geometry	Point	
Note	Switch rooms can appear in either brick, or prefabricated small buildings typically painted green or grey. Avoid confusion with Communications Cabinets/Distribution Points, which lack the size and access for personnel to physically enter them.	

2.1.8 Toilet Block

Description	Toilet buildings/block.
Asset Code	GNTB
UniClass	EN_35_80_90
Geometry	Point

2.2 Hard Surface

2.2.1 Crossover

Description	A location for pedestrian or vehicular users to transversely cross non-network linear assets, including footway/cycleway, verge, or central reserve. For example, locations such as minor junctions, driveways, field entrances, and central reserve locations.
Asset Code	MLOX
UniClass	SL_80_35_18
Geometry	Point

Attribute Examples:

Surface Material	Asphalt, Block Paving, Concrete, Concrete Flags, Grass, Gravel, Other, Surface Dressed, TSCS.
Note	For detailed information on network-wide surface materials refer to Section 12.

Reason for Crossover	Vehicular access to residence	
Description	Asphalt crossover, giving access to a private residence.	
Reason for Crossover	Other	
Description	Crossover constructed from a single concrete block, providing access to an Emergency Roadside Telephone.	
Reason for Crossover	Access to farm	
Description	Gravel crossover, providing access to a private lane/drive.	
Reason for Crossover	Access to field	

Description	Grass crossover, providing access to a field. Note: the dropped kerb, and road markings indicating the entrance. As per Rule MLOX_3, a change in surface is not mandatory for a Crossover to occur.	

2.2.2 Non-Carriageway Surface

Description	A hard-surfaced section of the network that is not part of the carriageway (i.e. Central Island, Central Reserve).
Asset Code	ANNS
UniClass	-
Geometry	Linear

Attribute Examples:

Type	Central Island	
Description	An obstruction built in the road to split traffic into lands and/or to provide a pedestrian refuge.	

Material	Asphalt, Block Paving, Concrete, Gravel, Other	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Material	Asphalt	

Description	Asphalt island, featuring an island which is split into two parts (by a crossover) – this is still considered to be one asset. Only assets that have a definitive boundary kerb and terminate allowing continuation of the carriageway are considered separate.	
Material	Block paving	
Description	Central island surfaced in set blocks.	
Material	Concrete	
Description	Large central island surfaced in concrete.	
Material	Gravel	

Description	Large central island surfaced in gravel.	
Material	Other	
Description	Central island surfaced in set stone cobbles.	

Type	Central Reserve	
Description	An area that separates the opposing carriageways of a dual carriageway or motorway.	

Material	Asphalt, Block Paving, Concrete, Gravel, Other	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Material	Asphalt	

Description	Central reserve surfaced in asphalt.	
Material	Block Paving	
Description	Central reserve surfaced in blocks (i.e. manmade material).	
Material	Concrete	
Description	Central reserve surfaced in concrete.	
Material	Gravel	

Description	Central reserve surfaced in gravel. Note: avoid confusion with filter drains, which appear as narrow gravel strips adjacent to the carriageway or in the central reserve (counterexample below).	 

Type	Hard Standing	
Description	An area adjacent to the edge of the carriageway that is usually utilised in an emergency or by maintenance vehicles and is not specifically signed for; parking (layby), as a refuge, rest area, or for police vehicles.	

Material	Asphalt, Block Paving, Coloured Surfacing, Concrete, Concrete Flags, Grasscrete, Gravel, High Skid Resistant Surface, Other, Surface dressed, Tactile, TSCS	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Material	Asphalt	

Description	Asphalt hard standing next to the carriageway, though similar to a layby note the blue sign reading “authorised vehicles only” indicating its purpose, TSRGD No. 829.6.	 
Material	Concrete	
Description	Concrete hard standing, positioned behind the VRS (access at the far right).	

Type	Rest Area	
Description	Rest areas may be provided on rural roads as a safe place for motorists to pull off the highway and leave the vehicle.	

Material	Asphalt, Block Paving, Coloured Surfacing, Concrete, Concrete Flags, Gravel, High Skid Resistant Surface, Other, Surface dressed, Tactile, TSCS
Note	For detailed information on network-wide surface materials refer to Section 12.

2.3 Non-Motorised Users

2.3.1 Bridleway

Description	A right of way over privately-owned land, allowing the public to travel on horseback (or to lead a horse). Many public bridleways are also suitable for pedestrian and cycle traffic.	
Asset Code	NMBW	
UniClass	En_80_40_08	
Geometry	Linear	

Attribute Examples:

Material	Asphalt, Bare Earth, Grass, Gravel, Other
Note	For detailed information on network-wide surface materials refer to Section 12.

Edging Type	None	
Description	No edging type, the bridleway is generally separated by the beginning of vegetation patches.	

2.3.2 Combined Cycle Track and Footway

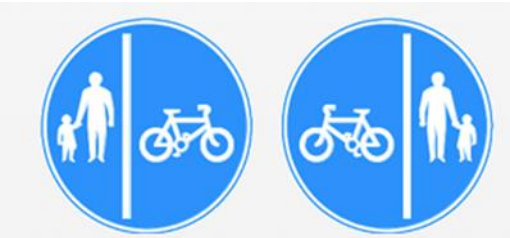
Description	A part of a footway normally within the trunk road boundary, specifically designed for the shared use of pedestrians and bicycles.	
Asset Code	NMCF	
UniClass	En_80_40	
Geometry	Linear	

Attribute Examples:

Surface Material	Asphalt, Block Paving, Coloured Surfacing, Concrete, Concrete Flags, Grass, Gravel, High Skid Resistant Surfacing, Other, Surface Dressed, Tactile, TSCS	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Surface Material	Asphalt	

<table>
<tr><td>Description</td><td>Combined cycle track on footway, surfaced in asphalt, adjacent to the carriageway.

Note: the combined surface type, with usage only divided by a white surface marking.

Additionally: sign faces denoting combined usage:
• TSRGD No. 956
• TSRGD No. 957</td><td> 
 
  </td></tr>
<tr><td>Surface Material</td><td>Asphalt</td><td rowspan="2">  </td></tr>
<tr><td>Description</td><td>Combined cycle track on footway adjacent to the carriageway.
• Note: the white ‘bike’ and ‘person’ markings, TSRGD No.1057.</td></tr>
<tr><td>Surface Material</td><td>Tactile</td><td></td></tr>
</table>

Description	Area of combined cycle track and footway featuring tactile surfacing, designed to aid visually impaired users.	

Note	A counterexample of separate cycle track and footway assets, running in parallel. Note: the rules regarding classification: • If there is a change in surface material and/or physical delineation between the two (e.g. a dropped kerb) they are considered separate assets. • Assets delineated by a surface marking, possessing the same surface material are classified as a Combined Cycle Track and Footway.	

Edging Type	None	
Description	The combnied cycle track and footway has no edging, and is instead seperated by the kerb and the end of the pavement.	
Edging Type	Concrete	

Description	Concrete edging is used to separate the combined cycle track and footway from the edge of track/footway.	

2.3.3 Cycle Track

Description	A part of a road or footway, normally within the trunk road boundary, specifically for the use of bicycles.	
Asset Code	NMCT	
UniClass	En_80_40_20	
Geometry	Linear	

Attribute Examples:

Surface Material	Asphalt, Block Paving, Coloured Surfacing, Concrete, Concrete Flags, Grass, Gravel, High Skid Resistant Surface, Other, Surface Dressed, Tactile, TSCS	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Surface Material	Asphalt	

Description	Asphalt cycle track at the left-hand margin of the main carriageway – defined by a longitudinal edge line, and a transverse/special cycle marking TSRGD No. 1057.	
Surface Material	Coloured Surfacing	
Description	Cycle track surfaced in red Coloured Surfacing. This is a separate asset from the adjacent footway, and not considered a combined cycle track and footway. Note: the rules regarding classification: • If there is a change in surface material and/or physical delineation between the two (e.g. a dropped kerb) they are considered separate assets. • Assets delineated by a surface marking, possessing the same surface material are classified as a Combined Cycle Track and Footway.	
Surface Material	Concrete	

Description	Concrete cycle track separated from the main carriageway by a narrow verge. Note: the kerb dividing the cycle track from the footway beyond, despite them running in parallel – e.g. not classed as Combined Cycle and Footway.	

Edging Type	None	
Description	There is no edging type on this cycle track. Instead the track is separated by either the pavement or kerb.	
Edging Type	Concrete	
Description	The sides of the cycle track are seperated by concrete edging.	

2.3.4 Footway

Description	A footway is a constructed off-carriageway area exclusively for the use of pedestrians.	
Asset Code	NMFW	
UniClass	En_80_40_30	
Geometry	Linear	

Attribute Examples:

Surface Material	Asphalt, Block Paving, Coloured Surfacing, Concrete, Concrete Flags, Grass, Gravel, High Skid Resistant Surface, Other, Surface Dressed, Tactile, TSCS	
Note	For detailed information on network-wide surface materials refer to Section 12.	
Surface Material	Asphalt	
Description	Footway surfaced in asphalt.	
Surface Material	Block Paving	
Description	Footway surfaced in block paving – in this example manmade material (composite blocks/bricks).	

Surface Material	Coloured Surfacing	
Description	Footway with a strip of blue coloured surfacing along the kerb edge.	
Surface Material	Concrete	
Description	Footway surfaced in concrete. Note: the cast in-situ concrete with regular joints.	
Surface Material	Concrete Flags	
Description	Footway surfaced in concrete flags, note the regular longitudinal and transverse joints.	
Surface Material	Other	

Description	Footway surfaced in this example are natural stone sets, typically granite, chosen for its high skid resistance properties.	

Access	Public right of way	
Description	Generic public footway found adjacent to the carriageway (non-motorway routes).	

Edging Type	Maintenance	

<table>
<tr><td>Description</td><td>Maintenance footway, to provide access to other network assets (e.g. technology, communications cabinets, gantries etc.) These footways can often be situated behind VRS barriers, or run non-parrallel to the carriageway.
1. Maintenance footway providing access to structure.
2. Maintenance footway just visible behind the VRS barrier, providing access to assets along the carriagway edge (in front of the piling retaining wall).</td><td> 
  </td></tr>
<tr><td>Edging Type</td><td>None</td><td rowspan="2">  </td></tr>
<tr><td>Description</td><td>There is no edging type for this form of footway. Instead the side is generally indicated by the presence of vegetation.</td></tr>
<tr><td>Edging Type</td><td>Concrete</td><td rowspan="2">  </td></tr>
<tr><td>Description</td><td>Concrete edging in the form of a narrow, linear block seperates the edge of the footway.</td></tr>
</table>

2.3.5 Handrail

Description	Provides support when traversing steep gradients.	
Asset Code	FEHR	
UniClass	Pr_25_30_36	
Geometry	Point	

Attribute Examples:

Material	Metal	
Description	Metal handrail protecting access to a feeder pillar from the steep drop beyond.	
Material	Wood	
Description	Wooden handrail stairway from steep embankment.	

2.3.6 NMU Crossing

Description	A location for cyclists, pedestrian, or equestrian users to transversely cross the	

	network; that is not a structure, or formal constructed crossing of any type i.e. not Pedestrian Crossing with associated infrastructure.	
Asset Code	NMNC	
UniClass	SL_80_35_57	
Geometry	Point	

Attribute Examples:

NMU Cross Type	Pedestrian	
Tactile Paving	Yes	
Description	A pedestrian NMU Crossing, showing other assets commonly associated with this feature; dropped kerb, Tactile surfacing, and occasionally a central island. Note: type is determined by the user, inferred from the surrounding non-motorised routes (e.g. a Cycle Track leading to an NMU would define it as Type: Cycle Crossing).	
NMU Cross Type	Cycle	
Description	NMU Crossings, where a cycle track crosses the road.	
NMU Cross Type	Equestrian	

Description	NMU crossings, where equestrian riders cross the road.	
NMU Cross Type	Pedestrian	
Description	An NMU crossing for pedestrians, with dropped a kerb and textured surfacing.	

2.3.7 Pedestrian Crossing

Description	A transverse strip of carriageway marked to indicated where pedestrians have priority to cross the road.	
Asset Code	NMPX	
UniClass	SL_80_35_62	
Geometry	Point	

Attribute Examples:

Type	Pelican	

<table>
<tr><td>Description</td><td>Pelican crossing, with tactile surfacing.

Note: the defining characteristic (below): the pair of lighted crossing indicators (red man/green man) mounted facing the opposite kerb, for the benefit of waiting pedestrians.</td><td rowspan="2">  </td></tr>
<tr><td>Type</td><td>Puffin</td></tr>
<tr><td>Description</td><td>Puffin crossing, with Central Island.

Note: the defining characteristic (below): lack of mounted crossing indicators facing the opposing kerb (Pelican). In the case of Puffins, the yellow control box mounted on the post, also provides lighted crossing indicators (red man/green man) to pedestrians on the kerb.</td><td>  </td></tr>
<tr><td>Type</td><td>Toucan</td><td rowspan="2">  </td></tr>
<tr><td>Description</td><td>The defining characteristic is subtle. Toucan crossings are specifically suitable for use by pedestrians and cyclists, their classification may be shown by the surrounding Non-Motorised Routes, and the lighted control box showing both cyclists and pedestrians (below).</td></tr>
</table>

		
Type	Zebra	
Description	Defined by white bar markings crossing the carriageway, and yellow “Belisha” beacon posts on each side of the carriageway.	

2.3.8 Steps

Description	Designed for access to equipment not at carriageway level e.g. Communication Cabinets.	
Asset Code	NMST	
UniClass	Ss_35_10_25	
Geometry	Point	

Attribute Examples:

Material	Brick	

<table>
<tr><td>Description</td><td>Set of brick steps, with a Handrail.

Note: the material refers to the overall construction not just the “riser” i.e. vertical face or the step itself.</td><td rowspan="2">  </td></tr>
<tr><td>Material</td><td>Concrete</td></tr>
<tr><td>Description</td><td>Set of concrete steps.</td><td rowspan="2">  </td></tr>
<tr><td>Material</td><td>Steel</td></tr>
<tr><td>Description</td><td>1. Steps made from steel, providing access to distribution cabinets and a large message sign.
2. Ladder-like steps made from steel, providing access to the top of a retaining wall.</td><td> 
  </td></tr>
</table>

Material	Wood	
Description	These can exist as wooden post/plank construction, or as ground-embedded wooden slats retaining an earth/gravel stepway.	

2.3.9 Stile

Description	A stile provides passage through or over a fence or boundary via steps or narrow gaps.	
Asset Code	FESI	
UniClass	Ss_25_32_35_85	
Geometry	Point	

Attribute Examples:

Material	Wood	
Description	Generic example of a wooden stile next to a Fence Gate, providing pedestrian access to the field without opening the gate.	
Material	Other	

Description	Stone ‘squeeze’ stile, providing a gap in a dry-stone wall; narrow enough to ensure the containment of livestock, but large enough to allow the passage of pedestrians.	

3 Carriageway Control

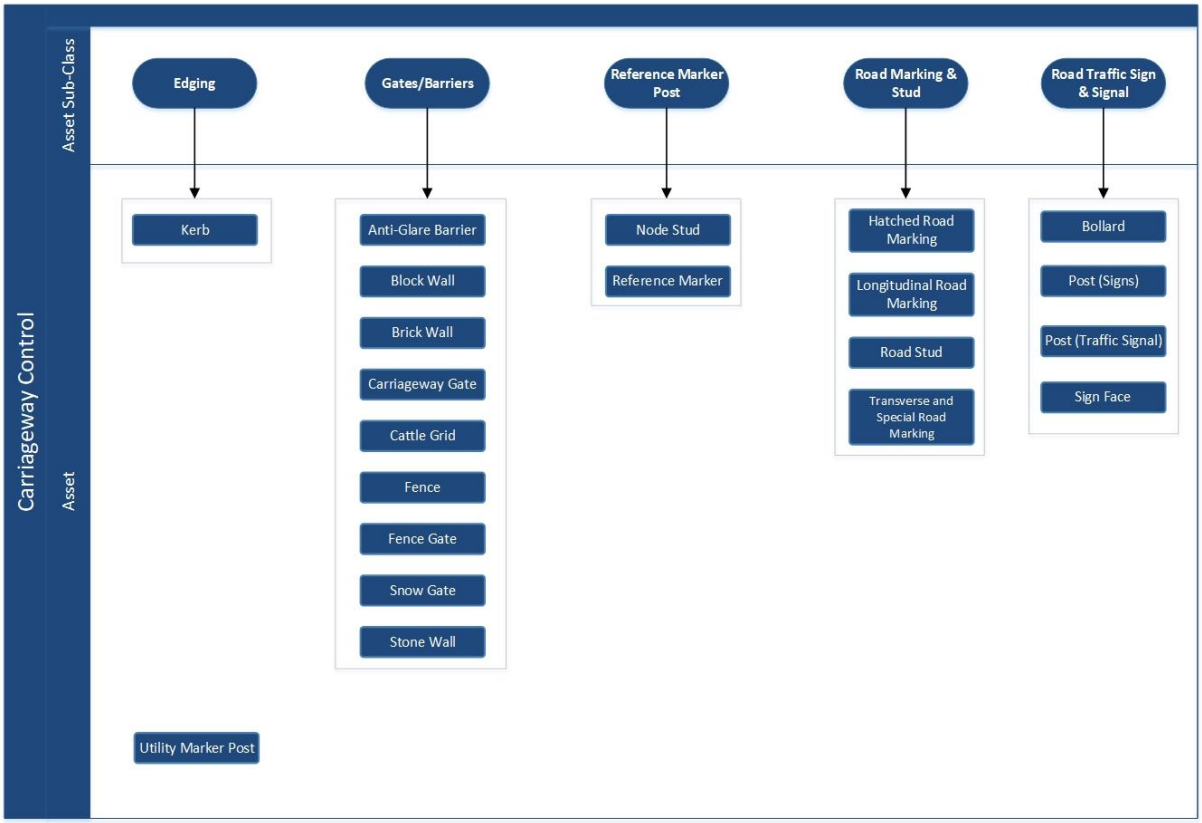


Figure 3-1 – Carriageway Control asset class hierarchy.

3.1 Utility Marker Post

Description	Physical markers, typically located on the hard shoulder or central reserve, denoting physical features above or beneath the carriageway (e.g. Oil/Gas pipeline, overhead power cables).	
Asset Code	GNUM	
UniClass	Pr_40_10_57_50	
Geometry	Point	

Attribute Examples:

Type	Overhead Power	
Colour	Yellow	
Description	Yellow and black marker post indicating the presence of overhead power cables crossing the carriageway at the location, typically found in pairs either side of the overhead hazard and on both side of the carriageway it crosses.	
Type	Gas/oil pipeline	
Colour	Other	
Description	Typically red and white banded marker post indicating the presence of a burried oil or gas pipeline crossing under the road at the location.	

3.2 Edging

3.2.1 Kerb

Description	A border, usually upstanding at the edge of carriageways, hard shoulders, and around central islands/traffic islands.	
Asset Code	KFKB	
UniClass	Ss_30_75_45_85	
Geometry	Linear	

Attribute Examples:

Material	Concrete	
Type	Normal	

<table>
<tr><td>Description</td><td>Example of a normal kerb, made from pre cast concrete blocks.</td><td rowspan="1">  </td></tr>
<tr><td>Material</td><td>Concrete</td><td rowspan="3">  </td></tr>
<tr><td>Type</td><td>Dropped</td></tr>
<tr><td>Description</td><td>Example of a dropped kerb, made from pre cast concrete blocks, providing division between the carriageway and an area of hard standing.</td></tr>
<tr><td>Material</td><td>Concrete</td><td rowspan="3"> 
  </td></tr>
<tr><td>Type</td><td>Safety Kerb</td></tr>
<tr><td>Description</td><td>Two examples of safety kerb, made from pre cast concerete blocks.

Note: the high profile and deep concave shape, designed to prevent vehicles mounting the kerb.</td></tr>
</table>

Material	Extruded Asphalt	 
Type	Other	
Description	Example of a normal kerb, constructed from extruded asphalt. Note: this is a continuous extruded kerb, with very few joints (close-up below).	
Material	Natural Stone	
Type	Dropped	
Description	Example of a dropped kerb, constructed from natural stone sets.	
Material	Other	
Type	Dropped	
Description	Example of a dropped kerb, constructed from brick or block sets (i.e. manmade material).	

3.3 Gates/Barriers

3.3.1 Anti-Glare Barrier

Description	A barrier designed to prevent glare from headlights crossing onto other areas of carriageway, or neighbouring property. Not considered to offer protection against the passage of large animals.	
Asset Code	CCAG	
UniClass	Pr_30_59_07_03	
Geometry	Linear	

3.3.2 Block Wall

Description	Free standing or retaining walls that have an important visual or screening objective
Asset Code	CCBW
UniClass	Ss_25_13_35
Geometry	Linear

3.3.3 Brick Wall

Description	Free standing or retaining walls that have an important visual or screening objective
Asset Code	CCBR
UniClass	Ss_25_12_10
Geometry	Linear

3.3.4 Carriageway Gate

Description	A barrier across the carriageway to stop traffic proceeding.	
Asset Code	FEGA	
UniClass	Ss_25_32_35	
Geometry	Point	

Attribute Examples:

Type	Full width double	
Material	Metal	
Description	Gates with two parts (double) that close to block the entire carriageway.	
Type	Full width double	
Material	Metal	
Description	A pair of light metal swing gates.	
Type	Full width single	
Material	Metal	

Description	Single drop-down barrier to obstruct the footway when the route is closed.	
Type	Half width	
Material	Metal	
Description	Pair of drop-down barriers to obstruct a single carriageway direction (half width) of the dual carriageway pictured.	

3.3.5 Cattle Grid

Description	A device designed to prevent passage of animals, or animals of any description, but allow the passage of vehicles and includes fencing or other works necessary to secure its efficient operation.	
Asset Code	FECG	
UniClass	Ss_30_34_03_11	
Geometry	Point	

Attribute Examples:

Type	Cattle	
Material	Metal	

Description	Metal cattle grid designed to prevent movement of cattle (depth, span, and bar design suitable for cattle).	
Type	Sheep or Deer	
Material	Metal	
Description	Metal cattle grid designed to prevent movement of sheep or deer (depth span and bar design suitable for sheep or deer).	

3.3.6 Fence

Description	Free standing fences of timber or other materials.	
Asset Code	CCFE	
UniClass	Ss_25_14	
Geometry	Linear	

Attribute Examples:

Stockproof	Mesh	

Description	Metal fence with a mesh design suitable for stopping the passage of large animals (and people), without restricting visibility.	
Stockproof	Wire Stand	
Description	Metal fence with a wire strand design, suitable for stopping the passage of large animals.	

3.3.7 Fence Gate

Description	A gate in a fence, wall, or barrier which allows access across the fence, wall, or barrier.	
Asset Code	FEFG	
UniClass	Pr_30_59_34	
Geometry	Point	

Attribute Examples:

Primary Material	Timber	
Secondary Material	Metal	

Description	Metal gates with timber posts securing a field.	
Primary Material	Concrete	
Secondary Material	Metal	
Description	Metal, gate with concrete posts securing a field.	

3.3.8 Snow Gate

Description	A barrier across the carriageway to stop traffic proceeding due to heavy or potentially heavy snowfall.	
Asset Code	FESG	
UniClass	Pr_30_59_59_39	
Geometry	Point	

Attribute Examples:

Type	Full width double	

Description	Example of a pair of full-width double gates.	
Type	Full width single	
Description	Example of a single full-width gate.	
Type	Half width	
Description	Example of a snow gate. Note: the grey 'flip' signs showing no face while the gate is not in use, these will show appropriate warning notices when the gates are closed.	

3.3.9 Stone Wall

Description	Free standing or retaining walls that have an important visual or screening objective.	
Asset Code	CCSW	
UniClass	Ss_25_13_24	
Geometry	Linear	

3.4 Reference Marker Post

3.4.1 Node Stud

Description	Physical markers, typically located on the carriageway surface, denoting the following: • Twin circular markers, known as Nodes, denoting start, and end of physical maintenance sections on the network. • Paint pads, typically circular or square, denoting VASCAR locations used by enforcement officers.	
Asset Code	MKNS	
UniClass	Pr_40_10_77_86	
Geometry	Point	

Attribute Examples:

Type	Node	

Description	Pair of circular, solid white, thermoplastic cores on the centre of the lane – denoting the start/end of maintenance sections. Note: these section reference markers are part of the approved network model, for further detail on placement and construction refer to “Approved Network Model” section.	
Type	Paint pad	
Description	Rectangular, solid white, marking on the centre of the lane – for use with the VASCAR (Visual Average Speed Computer and Recorder) system.	

3.4.2 Reference Marker

Description	Physical markers, typically located on the hard shoulder or central reserve, showing the direction to the nearest ERT approximately every 100m on motorways sections.	
Asset Code	MKRF	
UniClass	Pr_40_10_77_37	
Geometry	Point	

3.5 Road Markings & Studs

3.5.1 Hatched Road Marking

Description	Road markings on the carriageway with a distinctive hatched design.
Asset Code	MKHM
UniClass	Ss_40_10_90_36
Geometry	Linear

Attribute Examples:

Pattern	Bars
Type of Edge Line	None
TSRGD Diagram Number	1067
Description	Transverse yellow bar markings used to indicate approaches to roundabouts typically on dual and single carriageways.

Pattern	Bars
Description	Horizontal marker bars on the carriageway associated with traffic monitoring cameras.

Pattern	Chevron	
Type of Edge Line	Warning/Information	
TSRGD Diagram Number	1041	
Description	V-shaped chevrons, bounded by broken edge-lines, typically separating the entrance/exit of slip roads to provide a non-obstructive definition for two separate lanes merging.	
Pattern	Cross	
TSRGD Diagram Number	1043	
Description	Hatched, yellow markings denoting an area of the carriageway where traffic are not authorised to stop (typically at a junction/roundabout to allow the flow of traffic through intersecting lanes).	
Pattern	Diagonal	
Type of Edge Line	Prohibitory	
TSRGD Diagram Number	1013.5	
Description	Diagonal road markings, bounded by solid lines, denoting segmentation of the carriageway where it is not permissible to cross lanes (e.g. leading to an upcoming central island).	

3.5.2 Longitudinal Road Marking

Description	Continuous road markings which lie along the carriageway or carriageway edge.	
Asset Code	MKLR	
UniClass	Ss_40_10_90_18	
Geometry	Linear	

Attribute Examples:

Class	Double	
Type	Unbroken	
Colour	Yellow	
TSRGD Diagram Number:	1018.1	
Description	Double yellow lines at the carriageway edge to indicate prohibition of vehicles waiting always, or vehicles stopping at a layby except in case of emergency.	
Class	Edge	
Type	Unbroken	
Colour	White	
TSRGD Diagram Number:	1012	
Description	Continuous solid line to indicate the carriageway edge. Note: these may also be embossed with raised ribs (8-11mm) designed to provide vibration	

	(i.e. TSRGD Diagram Number 1012.2 & 1012.3).	
Class	Other	
Type	Broken	
Colour	Yellow	
TSRGD Diagram Number:	1025.1	
Description	Yellow broken line and text, indicating clearway for a bus stop – where vehicles must not stop. Note: the text in this instance is part of the marking.	
Class	Single	
Type	Broken	
Colour	White	
TSRGD Diagram Number:	1004.1	
Description	Single broken lines, indicating lane division for motorways and dual carriageways, and/or the centreline of single carriageways.	
Class	Warning	
Type	Unbroken	
Colour	White	
TSRGD Diagram Number:	1013.1A	
Description	Carriageway lane warning: visually indicating a legal requirement to avoid crossing the solid white line into the	

	other carriageway (without exceptional cause).	
Class	Warning	
Type	Broken and unbroken	
Colour	White	
TSRGD Diagram Number:	1013.1D	
Description	Carriageway lane warning: visually indicating a requirement to avoid crossing the solid white line into the other carriageway (without exceptional cause).	

3.5.3 Road Stud

Description	Colourised, lit or reflective, studs placed on or into the carriageway to assist the user with lane guidance and delineation.	
Asset Code	MKRS	
UniClass	Pr_35_90_60	
Geometry	Linear	

Attribute Examples:

Type	Embedded depressible	
Description	Depressible road stud embedded in the road surface. The depressible element i.e. the white centre part is self-cleaning – when a vehicle passes over it the lenses are depressed and wiped.	

Type	Embedded non-depressible	
Description	Non-depressible road stud embedded in the road surface.	
Type	Glass	
Description	Glass road stud embedded in the road surface.	
Type	Mains powered	
Description	Mains powered road stud. Note: this type of stud is only usually found in tunnels.	
Type	Solar powered	
Description	Road stud with solar energy cell, to provide power.	

Type	Stick on/double sided	
Description	Double sided reflective road stud which is adhered to the road surface.	
Type	Stick on/single sided	
Description	Single sided reflective road stud which is adhered to the road surface. As above, except with a reflective surface only on one side – typically found on single-direction carriageways i.e. Motorways and Dual carriageways.	

3.5.4 Transverse and Special Road Marking

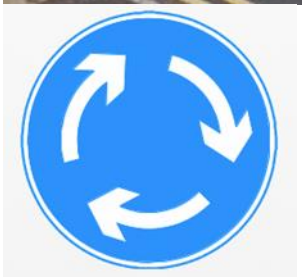
Description	A standard-length Road Marking positioned on the carriageway, kerb, or footway.	
Asset Code	MKTS	
UniClass	Ss_40_10_90_23	
Geometry	Point	

Attribute Examples:

Class	Arrow	
TSRGD Diagram Number:	1038	
Description	White arrow markings (2 No.) on the carriageway.	

<table>
<tr><td>Class</td><td>Give way</td><td rowspan="2">  </td></tr>
<tr><td>TSRGD Diagram Number:</td><td>1023A</td></tr>
<tr><td>Description</td><td>White give-way triangle on the carriageway, indicating to vehicles they must yield and give priority at the upcoming junction to prevailing traffic.</td></tr>
<tr><td>Class</td><td>Loading</td><td rowspan="3">  </td></tr>
<tr><td>TSRGD Diagram Number:</td><td>1019
1020.1</td></tr>
<tr><td>Description</td><td>Single or double yellow marking on the carriageway or kerb, perpendicular to the direction of travel, denoting an are where loading is prohibited:
A single mark is uncontinuous throughout the year.
A double mark is continuous throughout the year.</td></tr>
<tr><td>Class</td><td>Other</td><td rowspan="3"> 

 </td></tr>
<tr><td>TSRGD Diagram Number:</td><td>1064</td></tr>
<tr><td>Description</td><td>White chevrons (3 No.), at set intervals along the carriageway designed to advise vehicle spacing, used in conjunction with TSRGD No. 2933 (below)</td></tr>
</table>

Class	Roundabout	 
TSRGD Diagram Number:	1003.4	
Description	White thermoplastic forming a mini roundabout in the centre of a junction, used in conjunction with TSRGD No. 611.1 (below). Note: the arrows are considered part of this marking (not similar CLASS = Arrow markings).	
Class	Stop	
TSRGD Diagram Number:	1002.1	
Description	Solid white lines across the carriageway, showing vehicles where they must stop (when stipulated by give way and stop signs, traffic signals, or junctions).	
Class	Words	
TSRGD Diagram Number:	1024	
Description	White words on the carriageway to give warning or instruction to drivers. In this example: warning that vehicular traffic should proceed with caution because of a potential hazard ahead.	

3.6 Road Traffic Signs & Signals

3.6.1 Bollard

Description	A device placed on a refuge, traffic island, or verge to warn drivers of those obstructions or to prevent the passage of vehicles.	
Asset Code	RRSB	
UniClass	Ss_25_16_94_10	
Geometry	Point	

Attribute Examples:

Type	Flexible	
Illuminated	Internal	
Description	Hollow plastic 'box' bollard found at junctions and central islands, illuminated from within by an electrical light source.	

Type	Flexible	
Reflectorised	Yes	
Description	Flexible plastic Bollards typically found near junctions/roundabouts.	
Type	Flexible	
Reflectorised	Yes	

<table>
<tr><td>Description</td><td>Black and white bollards, featuring reflectors on two sides; denoting edge of carriageway or obstruction near that edge.

Note: the reflector on these bollards has a TSRGD Diagram Number = 560 or 561 however, the elements are <u>not</u> recorded separately as a Sign Face

• Red coloured variant on the leading face, e.g. the left side of the carriageway.

White coloured variant on the leave face, e.g. the right side of the carriageway.</td><td rowspan="2">  </td></tr>
<tr><td>Type</td><td>Rigid</td></tr>
<tr><td>Reflectorised</td><td>Yes</td><td rowspan="3"> 
  </td></tr>
<tr><td>Description</td><td>Rigid bollards designed to stop the passage of vehicles:

1: Top - tall metal bollards (4 No.) with coloured reflectorised tops.

2: Bottom - pair of concrete rigid bollards.</td></tr>
<tr><td>Type</td><td>Self-Righting</td></tr>
<tr><td>Reflectorised</td><td>Yes</td><td></td></tr>
</table>

Description	Self-righting bollards (2 No.) with a sprung base typically found on central islands.	

3.6.2 Post (Signs)

Description	An item for signs to be located on.	
Asset Code	SNPS	
UniClass	Pr_20_76_64	
Geometry	Point	

Attribute Examples:

Material	Aluminium	
Number of Posts	2	
Description	Lattix Sign Post with two posts, supporting a large sign. Note: Lattix is a proprietary brand product.	
Material	Concrete	
Number of Posts	3	

<table>
<tr><td>Description</td><td>Concrete sign post with three posts.</td><td rowspan="2">  </td></tr>
<tr><td>Material</td><td>Galvanised steel</td></tr>
<tr><td>Number of Posts</td><td>3</td><td rowspan="2">  </td></tr>
<tr><td>Description</td><td>Galvanised steel sign post with three posts.
Note: the pale grey, bare metal surface – indicating that it has been galvanised. Close up shows crystalline ‘spangle’ surface features, characteristic of galvanised steel.</td></tr>
<tr><td>Material</td><td>Other</td><td rowspan="2">  </td></tr>
<tr><td>Number of Posts</td><td>1</td></tr>
<tr><td>Description</td><td>Black plastic sign post; modern post composed of vertical plastic tubes, occassionally seen suspporting smaller signs.</td><td></td></tr>
</table>

Material	Steel	
Number of Posts	2	
Description	Steel sign post with two posts. Note: the I-beam profile, definitive of cast steel beams.	
Material	Steel	
Number of Posts	3	
Description	A steel signpost with three posts – this style of cylindrical, coated steel post is the most common on the network.	

3.6.3 Post (Traffic Signal)

Description	A post to support the mounting of Traffic Signals.	
Asset Code	SNTS	
UniClass	Pr_20_85_50_90	
Geometry	Point	

Attribute Examples:

Material	Aluminium	
Description	Aluminium post supporting traffic signals, at a junction.	
Material	Steel	
Description	Steel post with grey protective coating, common design for traffic signal posts.	
Material	Steel	
Description	Steel post with black protective coating, common design for traffic signal posts.	

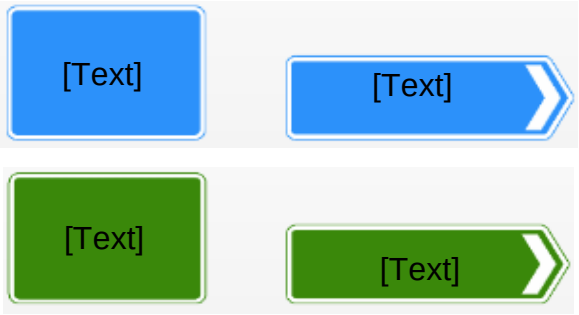
Note	Rule SNTS_4; Posts which only support the mounting of a traffic signal control box are still to be recorded.	

3.6.4 Sign Face

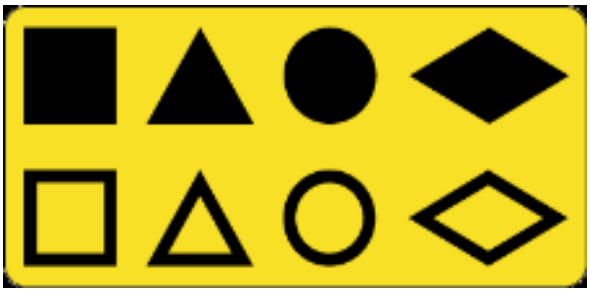
Description	Any object or device (whether fixed or portable) for conveying to traffic on roads or any specified class of traffic; warnings, information, requirements, restrictions, or prohibitions of any description.	
Asset Code	SNSF	
UniClass	Pr_40_10_77_72	
Geometry	Point	

Attribute Examples:

Category	Bus, tram & cycle	
Description	Round blue signs pertaining to buses, trams, and bicycles.	
Category	Driver location	

Description	Unique Driver Location sign placed at 500m intervals on all motorway routes – predominately as a safety feature, to allow motorists and operational personel to specify their location to incident response teams.	
Category	Informatory	
Description	Typical informatory signs, which will exhibit information text. Note: The background colour refers to the content or the class of road. Blue corresponds to motorways, green corresponds to dual and single carriageways.	
Category	Other	
Description	Example of a 'flip-sign' which has a hidden face under normal circumstances. Should the need arise (e.g. an incident) an operative will manually reveal the sign, directing traffic off the next exit slip road, onto local authority routes to circumvent the incident i.e. diversionary routes.	
Category	Regulatory	
Description	Typical regulatory sign (i.e. dictating a vehicle speed limit) – the red border and circular shape illustrate its category.	
Category	Warning	

Description	Typical warning sign (i.e. indicating an upcoming roundabout) – the red border and triangular shape illustrate its category.	

ADR Patches	Yes/No	
Description	Examples of Agreed Diversionary Routes (ADR) patches which appear on a variety of informatory signs. These are designed to assist road users in following agreed diversion routes on to other SRN or local authority routes, in event of an incident which prevents direct use of the SRN to reach their destination.	

Type	Fixed	
Description	Stationary sign face, commonly found on posts.	
Type	Rotating	

Description	A rotating sign, also known as a prism sign can revolve to reveal road information and is typically used for diversion routes, road closure warnings or pedestrian zones.	
Type	Flip	
Description	A ‘flip-sign’ which has a hidden face under normal circumstances. Should the need arise (e.g. an incident) an operative will manually reveal the sign, directing traffic.	
Type	Mutliple	
Description	A ‘multiple-sign’ has many sign face panels. These are generally found at a roundabout to denote the direction of travel.	

4 Drainage

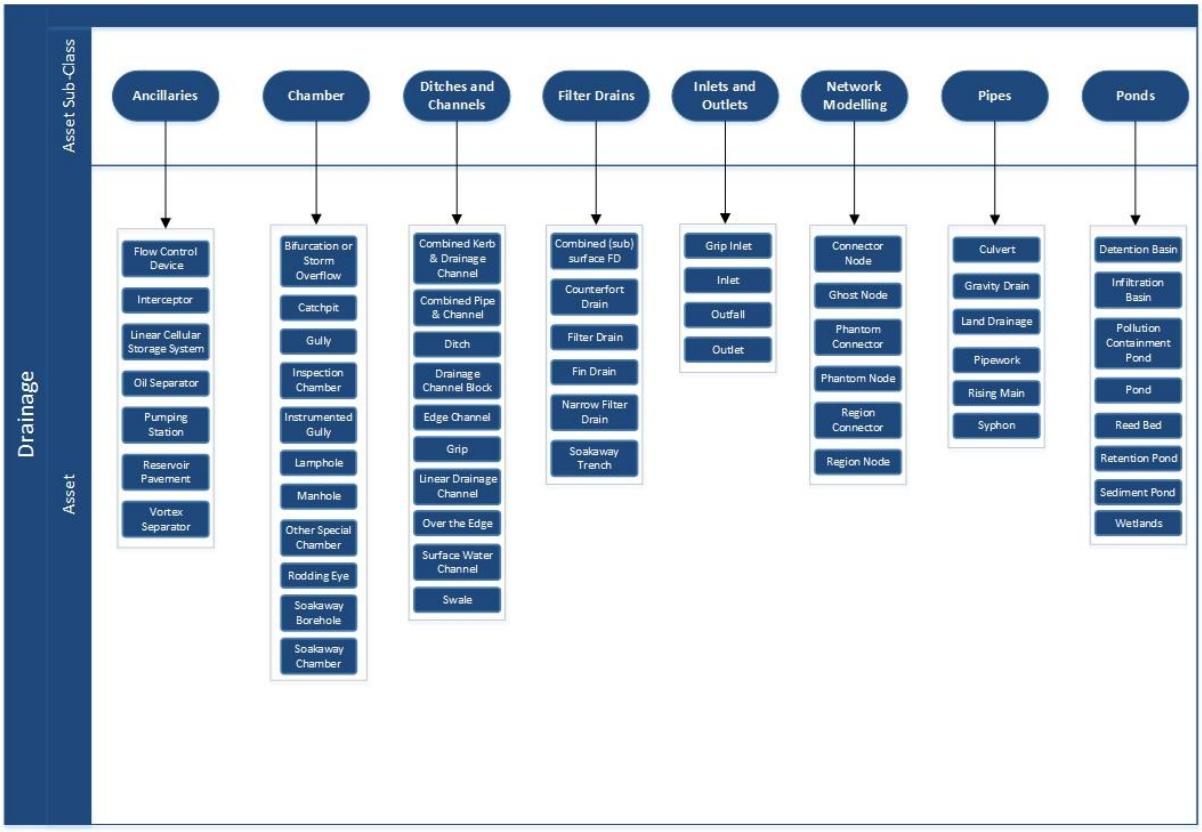


Figure 4-1 – Drainage asset class hierarchy.

See Appendix A of CD 535 for example photographs of assets where appropriate.

5 Environmental

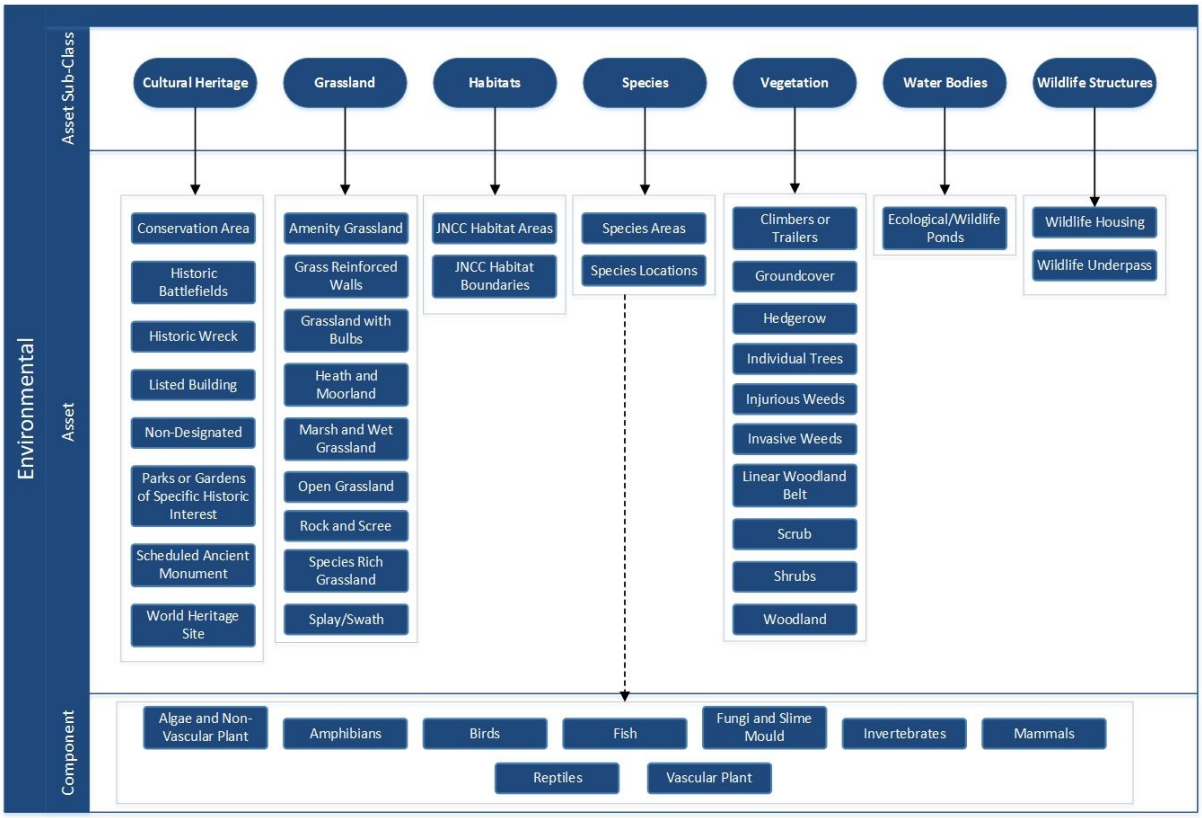


Figure 5-1 – Environmental asset class hierarchy.

5.1 Grassland

5.1.1 Amenity Grassland

Description	Grass species appropriate to the location and intensive maintenance regime. Likely to contain a maximum of 10% herb species, and no scrub.
Asset Code	ENAG
UniClass	SL_32_80_03
LD 117 Code	LE1.1
Geometry	Polygon

5.1.2 Grass Reinforced Walls

Description	Reinforced, vegetated earth structures, commonly used for improvements where land take is limited.	
Asset Code	ENGR	
UniClass	Ss_45_35_45_70	
Geometry	Polygon	

5.1.3 Grassland with Bulbs

Description	Grassland with bulbs dispersed around the area covering 30-50%, with grass and herb species covering the remaining area.
Asset Code	ENGB
UniClass	Ss_45_35_05_35
LD 117 Code	LE1.2
Geometry	Polygon

5.1.4 Heath and Moorland

Description	Grass, herb, and scrub species appropriate to the heath or moorland location or as exists already on-site with species composition and diversity.	
Asset Code	ENHM	
UniClass	SL_32_65_53	
LD 117 Code	LE1.5	
Geometry	Polygon	

5.1.5 Marsh and Wet Grassland

Description	Inundated or waterlogged lowland habitats differing from bogs in that, water is supplied by ground water or slow-moving rainwater and this flows through them and peat does not form.
Asset Code	ENWP
UniClass	SL_32_65_50
LD 117 Code	LE6.4
UK Habitat Classification Reference	f2 – Fen marsh and swamp
Geometry	Polygon

5.1.6 Open Grassland

Description	Vegetation, not on waterlogged soils, with more than 75% cover of herbaceous species (grasses, rushes, herbs).	
Asset Code	ENOG	
UniClass	SL_32_65_59	
LD 117 Code	LE1.6	
UK Habitat Classification Reference	g - Grassland	
Geometry	Polygon	

5.1.7 Rock and Scree

Description	Natural and artificial exposed rock surfaces which are mappable, such as inland cliffs, caves, and screes and limestone pavements, as well as various forms of excavations and waste tips such as quarries and quarry waste.	
Asset Code	ENRS	
UniClass	SL_32_65_73	
LD 117 Code	LE1.4	
UK Habitat Classification Reference	s1 – Inland Rock	
Geometry	Polygon	

5.1.8 Species Rich Grassland

Description	The sward is species-rich (as determined by the area/region Environmental team) or there is high cover of wildflowers and sedges (more than 30%, excluding white clover, creeping buttercup and injurious weeds) or the grassland is a priority habitat/targeted as part of a local plan/NIA/LNP.	
Asset Code	ENSR	
UniClass	SL_32_65_82	
LD 117 Code	LE1.3	
Geometry	Polygon	

5.1.9 Splay/Swath

Description	Area of grass and herb species appropriate to the location, subject to an intensive management regime (in accordance with operational and safety needs).	
Asset Code	ENSS	
UniClass	-	
Geometry	Polygon	

5.2 Vegetation

5.2.1 Climbers or Trailers

Description	Climbing plants appropriate to the location or as exists on site.
Asset Code	ENCY
UniClass	Pr_45_30_80
LD 117 Code	LE3.4
Geometry	Polygon

5.2.2 Groundcover

Description	May include shrubs and/or herbaceous plants, normally maximum 600mm in height, for visibility or safety/personal security.
Asset Code	ENGC
UniClass	
LD 117 Code	LE3.3
Geometry	Polygon

5.2.3 Hedgerow

Description	A boundary line of shrubs, provided that at one time the shrubs were stock proof and continuous.	
Asset Code	ENNH	
UniClass	En_32_10_37	
LD 117 Code	LE4.1, LE4.2, LE4.3, LE4.4	
UK Habitat Classification Reference	h2 - Hedgerows	
Geometry	Linear	

5.2.4 Individual Trees

Description	Tree species appropriate to the location or as exists on site, identifiable as individual trees.	
Asset Code	ENIT	
UniClass	Pr_45_30_90	
LD 117 Code	LE5.1	
Geometry	Point	

5.2.5 Injurious Weeds

Description	A weed designated by an agricultural or other governing authority as a plant that is injurious to agricultural or horticultural crops, natural habitats or ecosystems, or humans or livestock.
Asset Code	ENIJ
Geometry	Polygon

5.2.6 Invasive Weeds

Description	Weeds that establish, persist, and spread widely in natural ecosystems outside the plants native range.
Asset Code	ENIV
Geometry	Polygon

5.2.7 Linear Woodland Belt

Description	Linear belt of tree and shrub species appropriate to the location or as exists already on site. Too narrow to be considered woodland and more substantial than a hedgerow.	
Asset Code	ENTS	
UniClass	Co_32_65_96	
LD 117 Code	LE5.1	
Geometry	Polygon	

5.2.8 Scrub

Description	Patches of shrubs less than 5 metres tall with continuous (>90%) cover.
Asset Code	ENSC
UniClass	SL_32_65_76
LD 117 Code	LE2.8
UK Habitat Classification Reference	h3 – Dense Scrub
Geometry	Polygon

5.2.9 Shrubs

Description	Individual shrub species (i.e. Dwarf Shrub or woody species) less than 5 metres tall.	
Asset Code	ENSH	
UniClass	Pr_45_30_80	
LD 117 Code	LE2.6, LE3.2	
Geometry	Polygon	

5.2.10 Woodland

Description	Land with more than 25% canopy cover of trees and more than 5m in height.	
Asset Code	ENWD	
Uniclass	Co_32_65_96	
LD 117 Code	LE2.1, LE2.2	
UK Habitat Classification Reference	w - Woodland	
Geometry	Polygon	

5.3 Water Bodies

5.3.1 Ecological/Wildlife Ponds

Description	Open water areas, wetland species appropriate to the location or as already exists within the highway estate. Water features that have been designed entirely to promote environmental interests.	

Asset Code	ENWP	
UniClass	Co_32_65_64	
LD 117 Code	LE6.1	
Geometry	Polygon	

5.4 Wildlife Structures

5.4.1 Wildlife Housing

Description	Purpose built feature to accommodate wildlife. Often such measures are used to mitigate for the loss of breeding or rest sites used by wildlife, or to enhance the value of an area for a particular species.	
Asset Code	ENWO	
UniClass	Pr_40_30_04	
Geometry	Point	

5.4.2 Wildlife Underpass

Description	Structure designed to facilitate the safe movement of species between habitats. Examples of underpasses include Badger Tunnels, Amphibian Tunnels, Otter Ledges and Combined Tunnel (e.g. badger/otter or deer/cattle).	
Asset Code	ENWU	

UniClass	Ss_45_55_27	
Geometry	Linear	

Attribute Examples:

Type	Otter Ledge	

6 Geotechnical

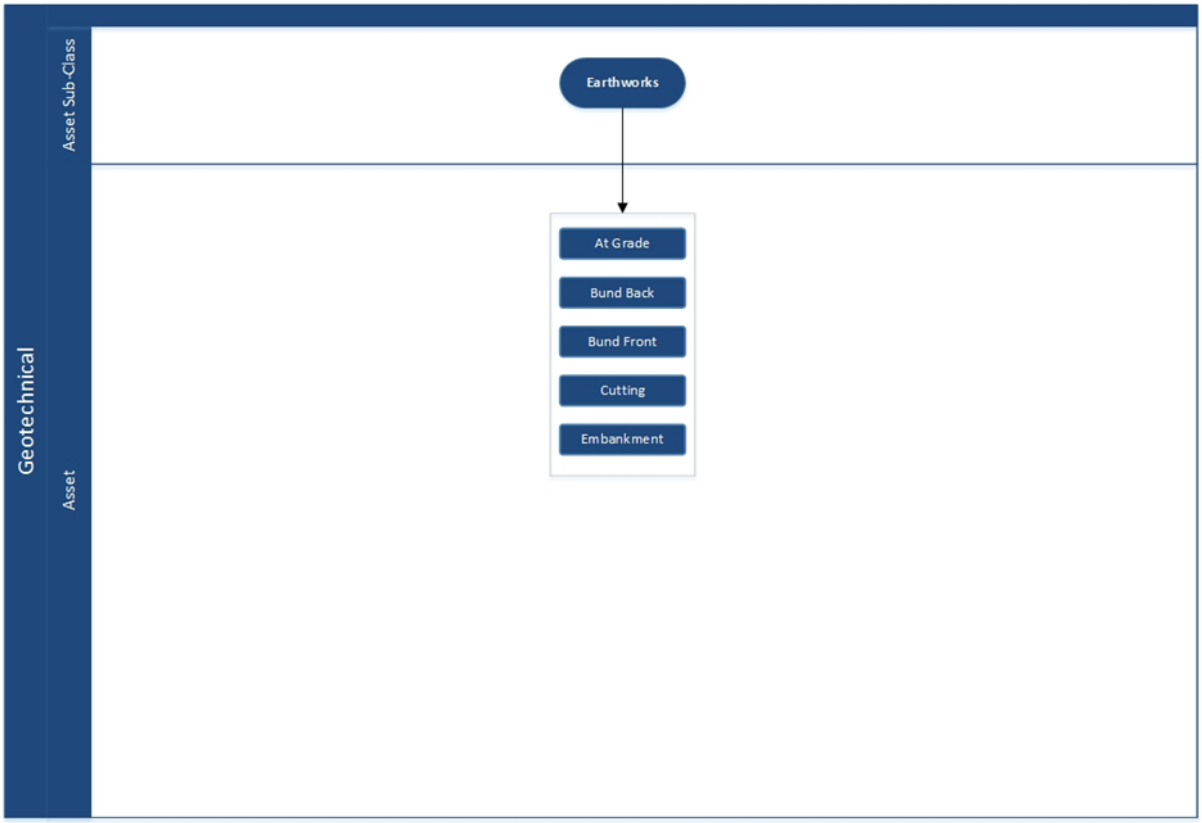


Figure 6-1 – Geotechnical asset class hierarchy.

6.1 Earthworks

6.1.1 At Grade

Description	An earthwork that may be level with, extend above, or extend below the road formation and complies with Section 4 of CS 641.	
Asset Code	GTAG	
UniClass	-	
Geometry	Linear	

6.1.2 Bund Front

Description	The carriageway-side of an earthwork that is not a cutting, embankment, or at-grade earthwork.	
Asset Code	GTBF	
UniClass	En_32_40_30	
Geometry	Linear	

6.1.3 Bund Back

Description	The non-carriageway-side of an earthwork that is not a cutting, embankment, or at-grade earthwork.
Asset Code	GTBB
UniClass	En_32_40_30
Geometry	Linear

6.1.4 Cutting

Description	An earthwork that extends above the road formation and complies with Section 4 of CS 641.	
Asset Code	GTCU	
UniClass	En_32_40_20	
Geometry	Linear	

6.1.5 Embankment

Description	An earthwork that extends below the road formation and complies with Section 4 of CS 641.	
Asset Code	GTEM	
UniClass	En_32_40_26	
Geometry	Linear	

7 Lighting

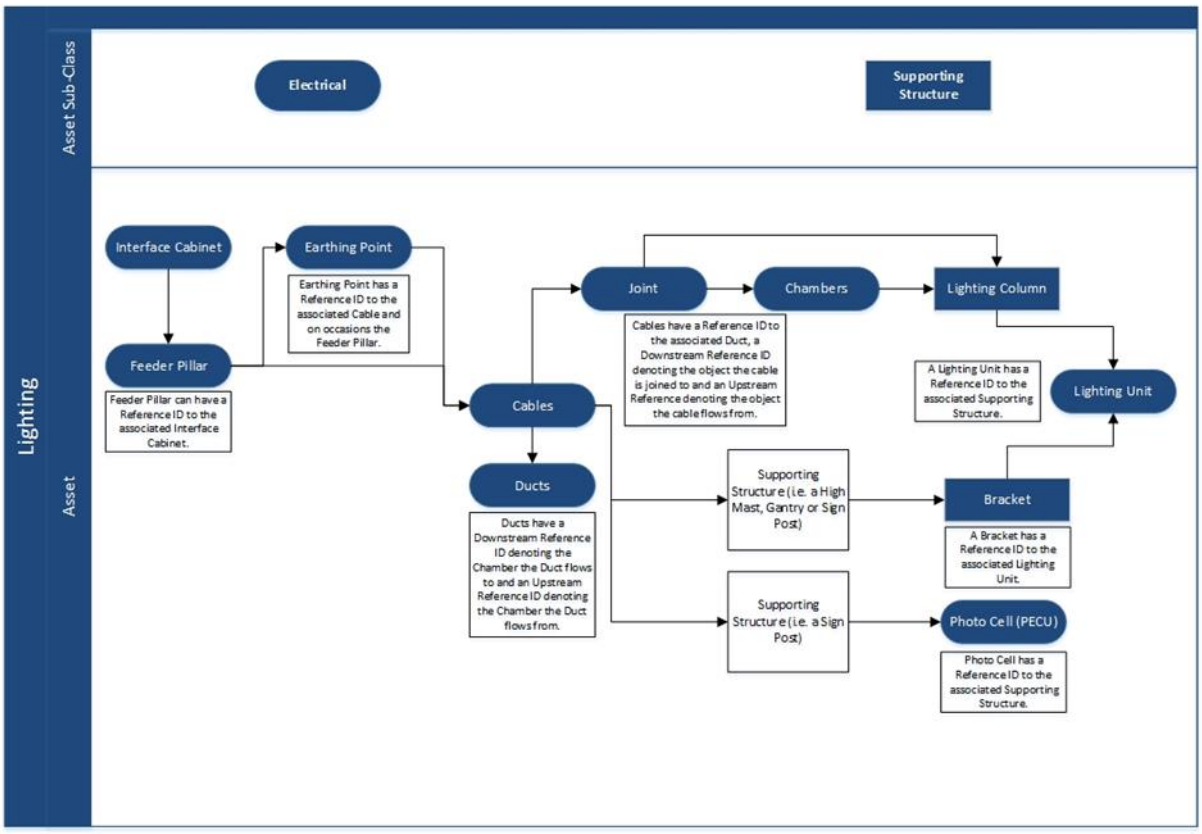


Figure 7-1 – Lighting asset class hierarchy.

7.1 Electrical

7.1.1 Cables

Description	Carries electricity from the Interface Cabinet/Feeder Pillar/Lighting Column to the Feeder Pillar/Lighting Column/Lighting Unit.
Asset Code	LGCA
UniClass	Pr_65_70_48
Geometry	Linear

7.1.2 Chambers

Description	A chamber associated with a Lighting asset. Specifically, Cables and Ducts.
Asset Code	LGCH

UniClass	Pr_65_70_11_12
Geometry	Point

7.1.3 Ducts

Description	Underground Duct system to carry electrical Cables to Lighting equipment.
Asset Code	LGDU
UniClass	Pr_65_52_61_65
Geometry	Linear

7.1.4 Earthing Point

Description	The reference point in an electrical circuit for which voltages are measured, a common return path for electric current, or a direct physical connection to the earth.
Asset Code	LGEP
UniClass	Pr_65_70_46_27
Geometry	Point

7.1.5 Feeder Pillar

Description	Supplies electricity to lighting installations.
Asset Code	LGFP
UniClass	Pr_60_70_22_11
EPS Feature Type	Feeder Pillars
Geometry	Point

.

7.1.6 Interface Cabinet

Description	Supplies electricity to the Feeder Pillar
Asset Code	LGIC
UniClass	Co_70_30
Geometry	Point

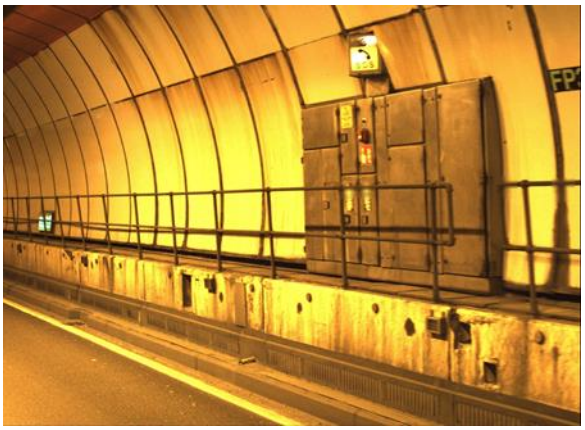
7.1.7 Joint

Description	Acts a connector between a cable/circuit.
Asset Code	LGJO
UniClass	-
Geometry	Linear

7.1.8 Lighting Unit

Description	A lighting installation usually consisting of a column, lantern housing, and lamp.	
Asset Code	LGLU	
UniClass	Pr_70_70_49_73	
Geometry	Point	

Attribute Examples:

Type	Emergency Lighting	
Description	Example of Emergency Lighting.	
Type	High Mast Lighting	
Description	Example of High Mast Lighting. Mounted on top of high mast columns (20m+).	
EPS Feature Type	High Mast	
Type	Illuminated Bollard	
Description	Example of an Illuminated Bollard.	
EPS Feature Type	Bollard	
Type	Pedestrian Warning Beacon	
Description	Example of a Pedestrian Warning Beacon.	

EPS Feature Type	Ped Crossing Beacons	
Type	Road Lighting	
Description	Example of Road Lighting.	
EPS Feature Type	Catenary Lighting, Street Lighting, Subway	
Type	Sign Lighting	
Description	Example of Sign Lighting	
EPS Feature Type	Gantry, Lit Sign Post, Lit Traffic Signs	
Type	Warning Lighting	
Description	Example of Warning Lighting	

EPS Feature Type	School Crossing	

Supporting Structure Type	Structure	
Description	Examples of a structure. High mast columns (20m+), mounted with post top brackets containing multiple lights.	
Supporting Structure Type	Structure	
Description	Examples of a Sign Gantry with Lighting.	
Supporting Structure Type	Column	

Description	Example of a standard lighting column (10m).	

7.1.9 Photo Cell

Description	A standalone Photo-Electric Cell Unit (PECU). Should be recorded when not attached to a Lighting Unit.	
Asset Code	LGPC	
UniClass	-	
Geometry	Point	

7.2 Supporting Structure

7.2.1 Bracket

Description	The supporting structure for the Light unit when not attached to a Lighting Column (LGLC).	
Asset Code	LGBR	
UniClass	Pr_80_77_48	

Geometry	Point	

Attribute Examples:

Mounting Bracket	Catenary	
Description	Catenary light mounting – evenly spaced lighting suspended from a supported wire. Note: rules regarding recording of columns with respect to catenary lighting.	
Mounting Bracket	Gantry mounted	

Description	Example of a typical gantry bracket lighting point.	
Mounting Bracket	Post (Sign)	
Description	Example of a typical post bracket lighting point.	
Mounting Bracket	Soffit	
Description	Example of a typical single soffit mounted lighting. These lights are embedded into the mounting surface (generally found in tunnels). Note: Rule LGLU_8 – this example shows multiple Soffit lighting points.	
Mounting Bracket	Wall mounted	
Description	Example of a wall mounted lighting point.	

7.2.2 Lighting Column

Description	A supporting structure for a lighting unit.	
Asset Code	LGLC	
UniClass	Pr_80_77_48	
Geometry	Point	
EPS Feature Type	Street Lighting Column	

Attribute Examples:

Material	Aluminium	
Description	Typical aluminium lighting columns, with a cylindrical shape.	
Material	Concrete	
Description	Concrete lighting column.	
Material	Steel	

Desciption	Steel (galvanised) lighting column. Note: the pale grey, bare metal surface – indicating that it has been galvanised. Close up shows crystalline 'spangle' surface features, characteristic of galvanied steel.	 
Mounting Bracket	Single	
Description	Example of a typical single bracket lighting point.	
Mounting Bracket	Double	
Description	Two examples of double bracket column lighting points.	

8 Pavements

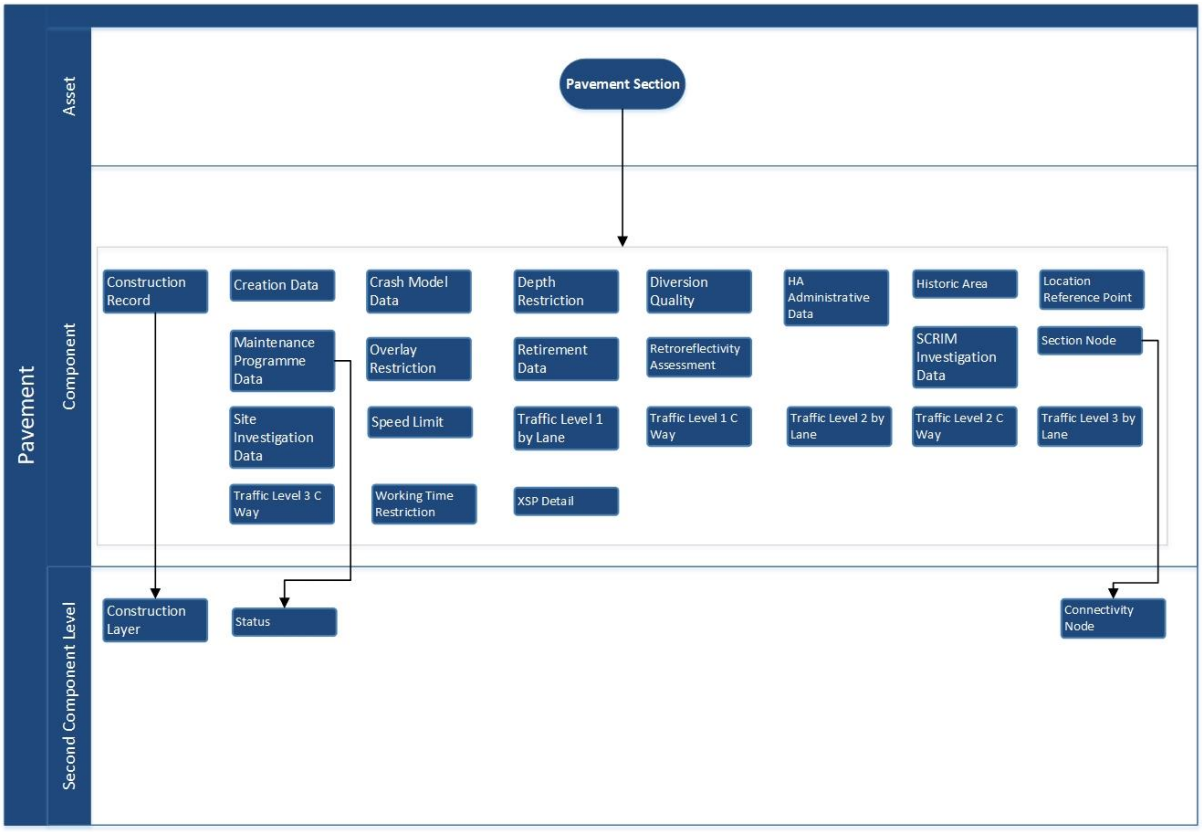


Figure 8-1 – Pavement asset class hierarchy.

Due to the continuous, constructed nature of the Pavements asset class; appropriate visual examples do not exist for the Asset Reference Catalogue. Refer to Section 12 for guidance on surface materials which may be relevant to the Pavement surface.

9 Roadside Operational Technology

9.1 Ambient Light Monitors

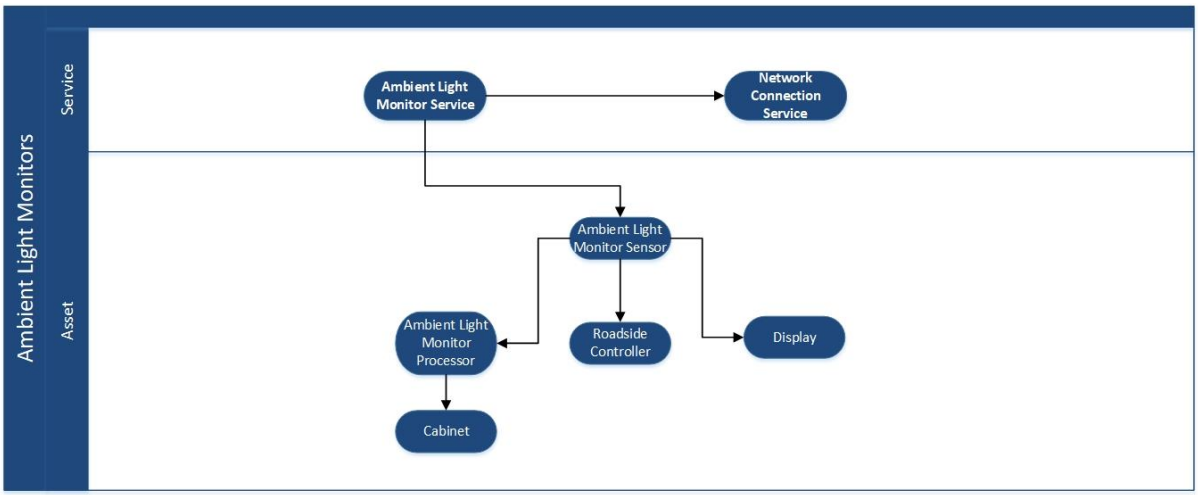


Figure 9-1 – Ambient Light Monitors asset hierarchy.

9.2 Camera

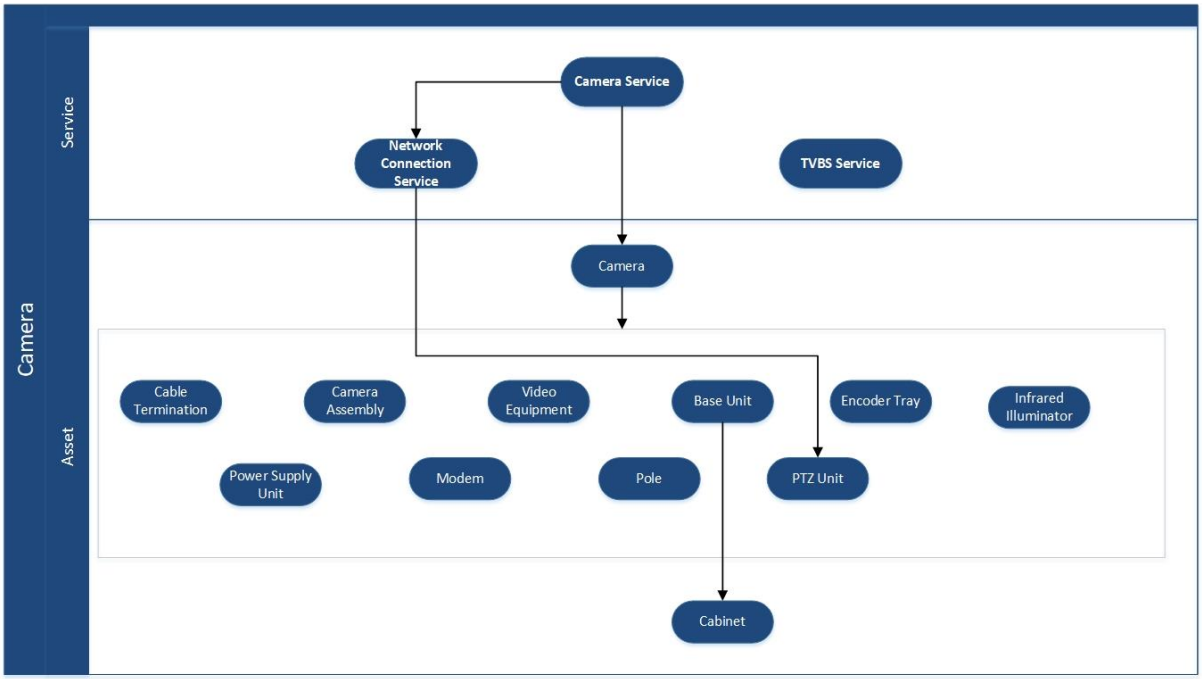


Figure 9-2 – Camera asset hierarchy.

9.3 Message Sign

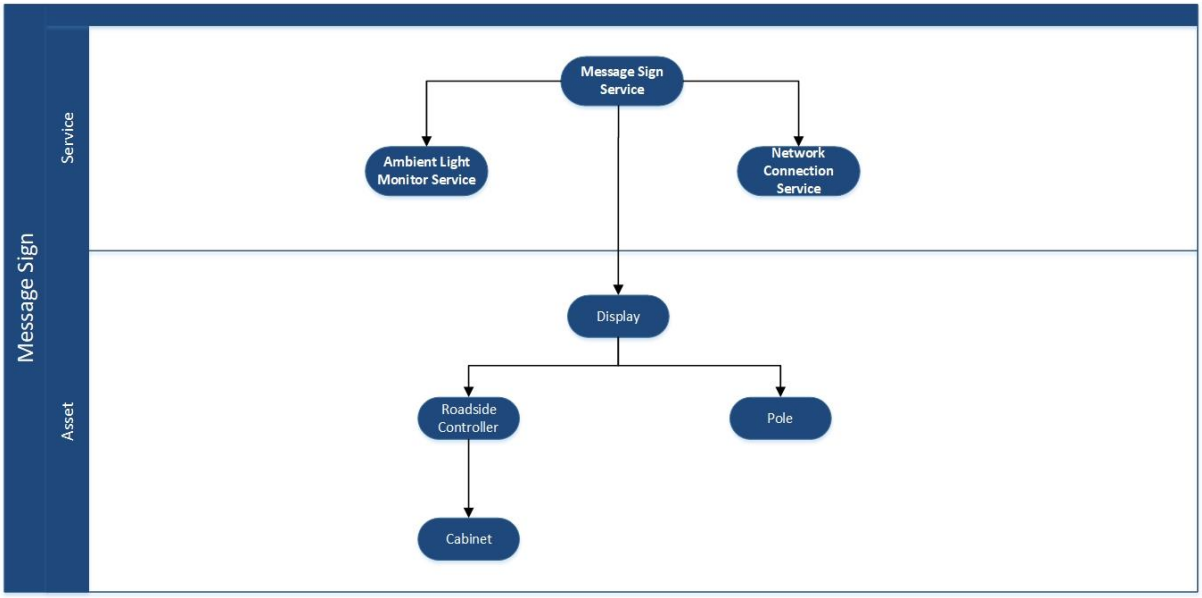


Figure 9-3 – Message Sign asset hierarchy.

9.4 Meteorology

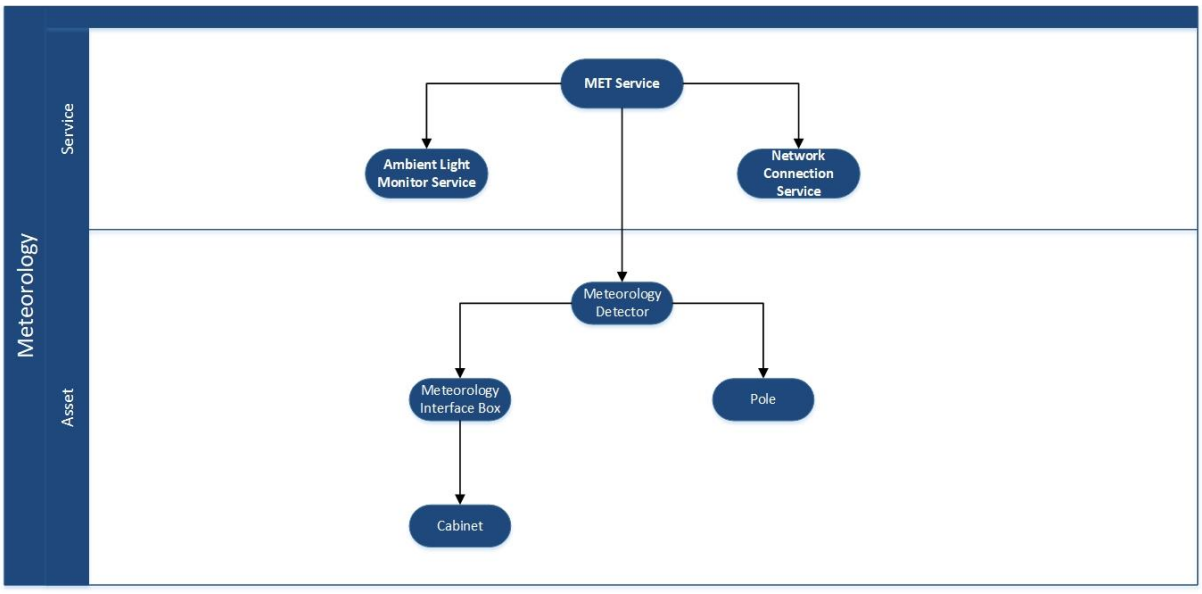


Figure 9-4 – Meteorology asset hierarchy.

9.5 MIDAS

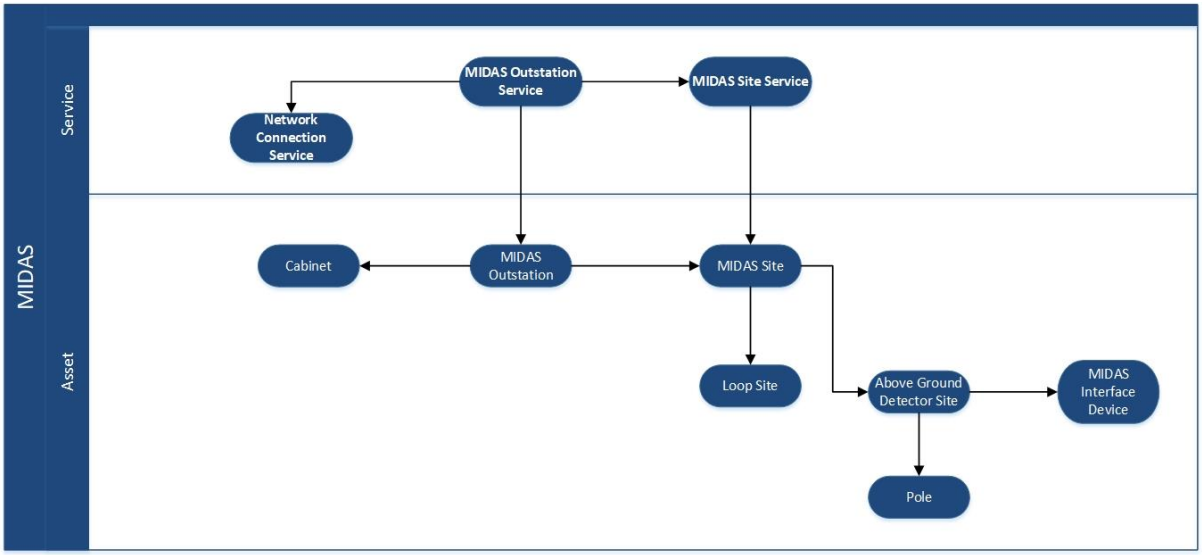


Figure 9-5 – MIDAS asset hierarchy.

9.6 NTIS

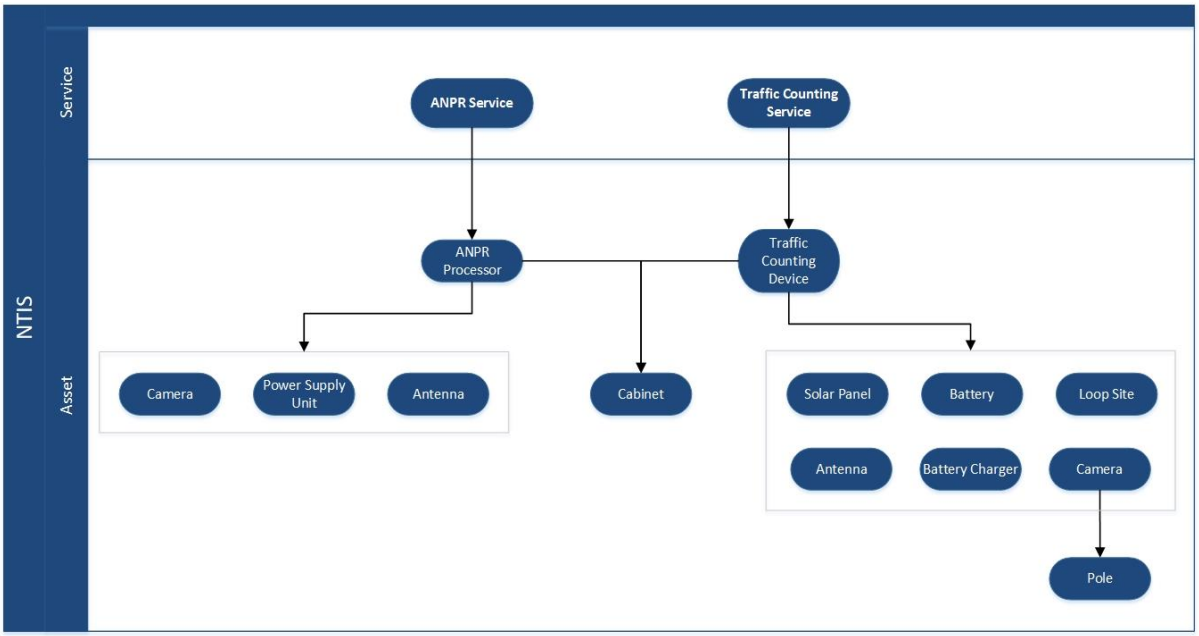


Figure 9-6 – NTIS asset hierarchy.

9.7 Ramp Metering

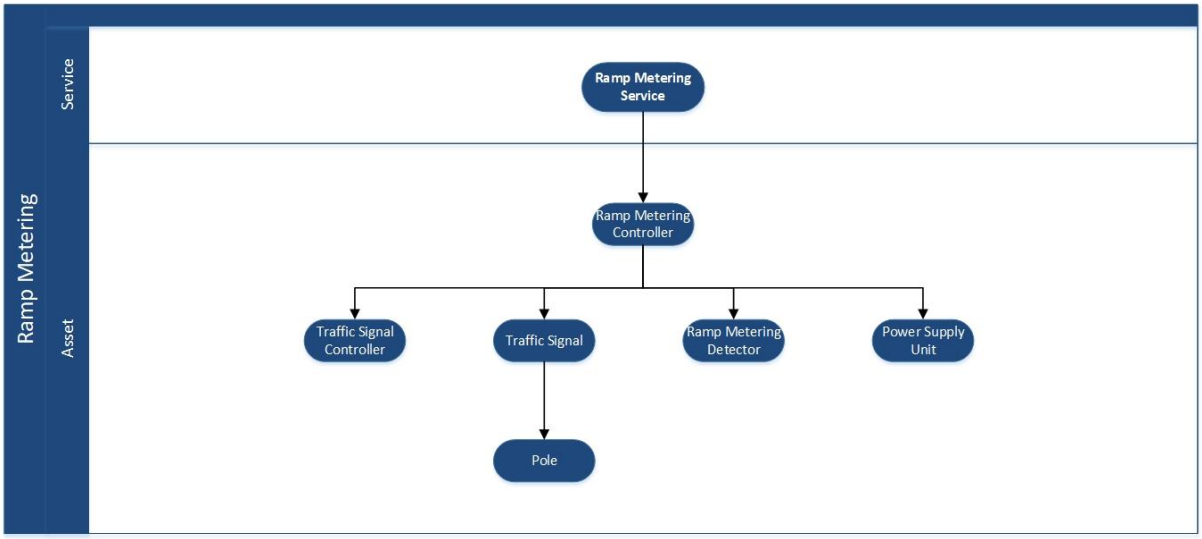


Figure 9-7 – Ramp Metering asset hierarchy.

9.8 Signals

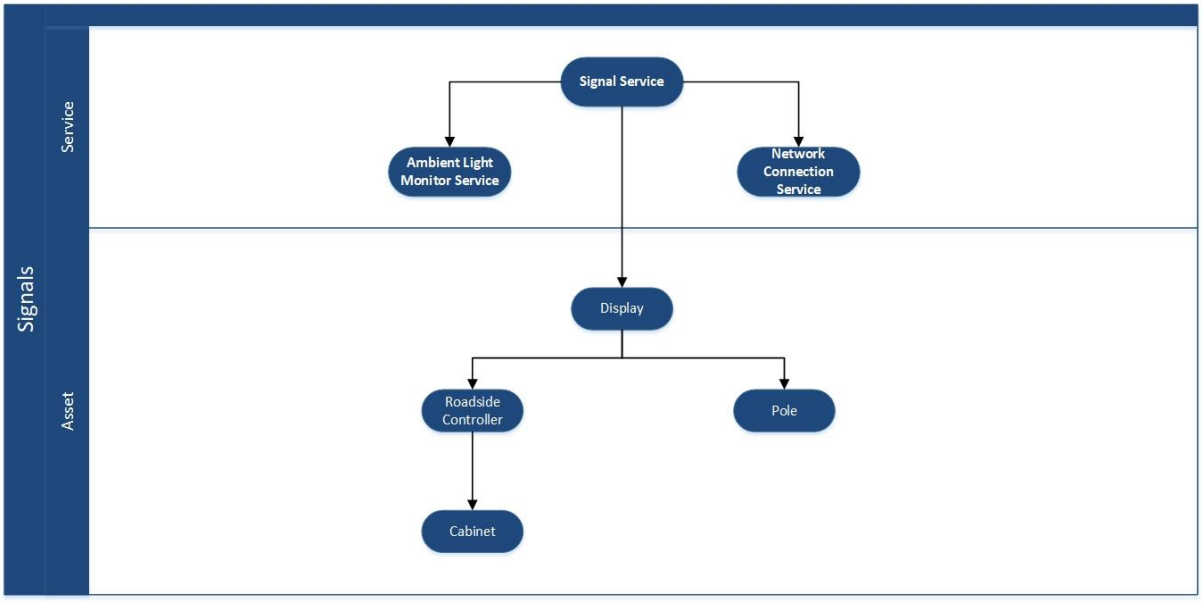


Figure 9-8 – Signals asset hierarchy.

9.9 SVD Detector

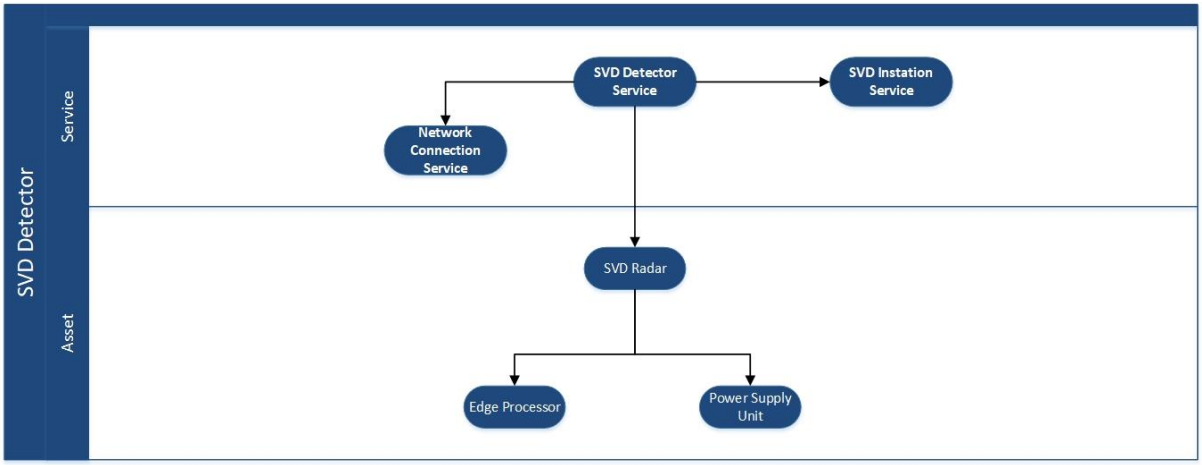


Figure 9-9 – SVD Detector asset hierarchy.

9.10 SWIS

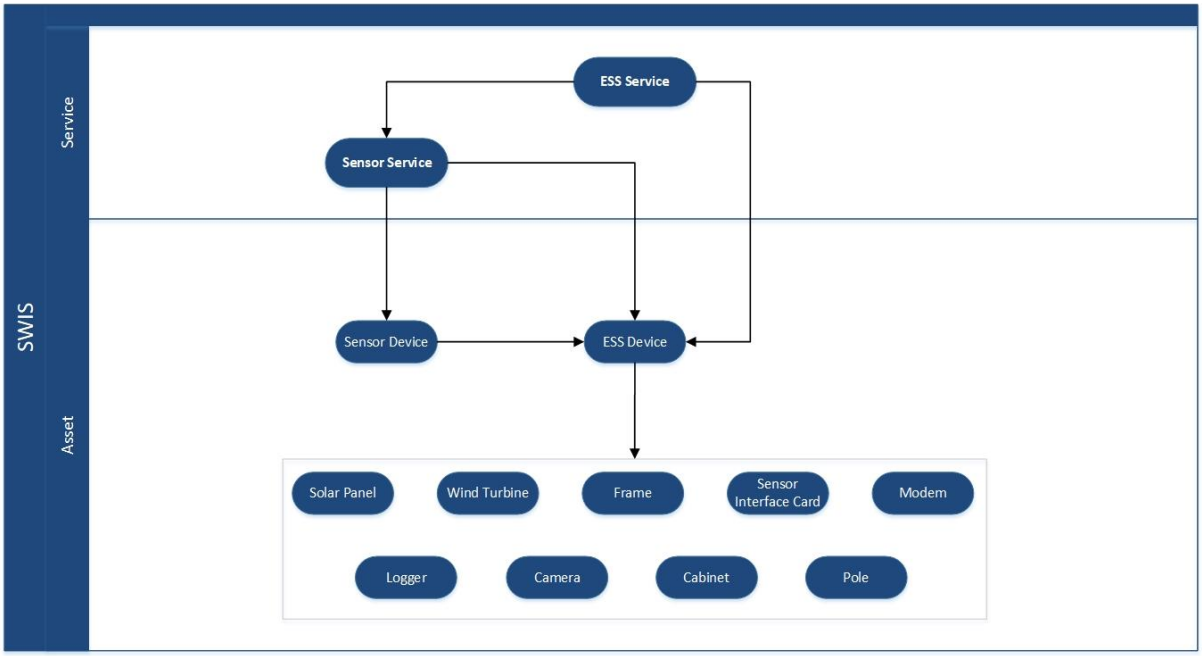


Figure 9-10 – SWIS asset hierarchy.

9.11 Telephone

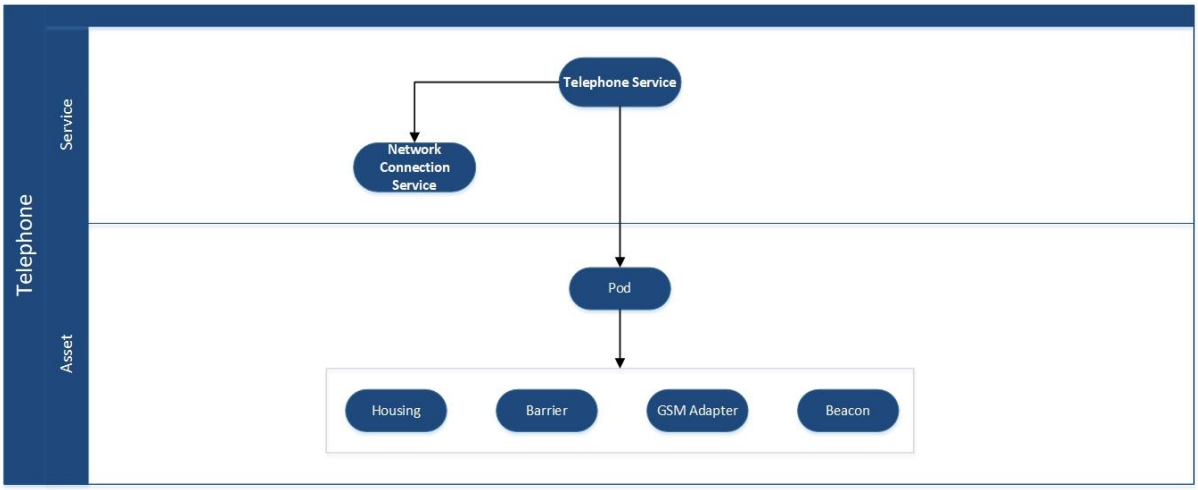


Figure 9-11 – Telephone asset hierarchy.

9.12 Traffic Signal

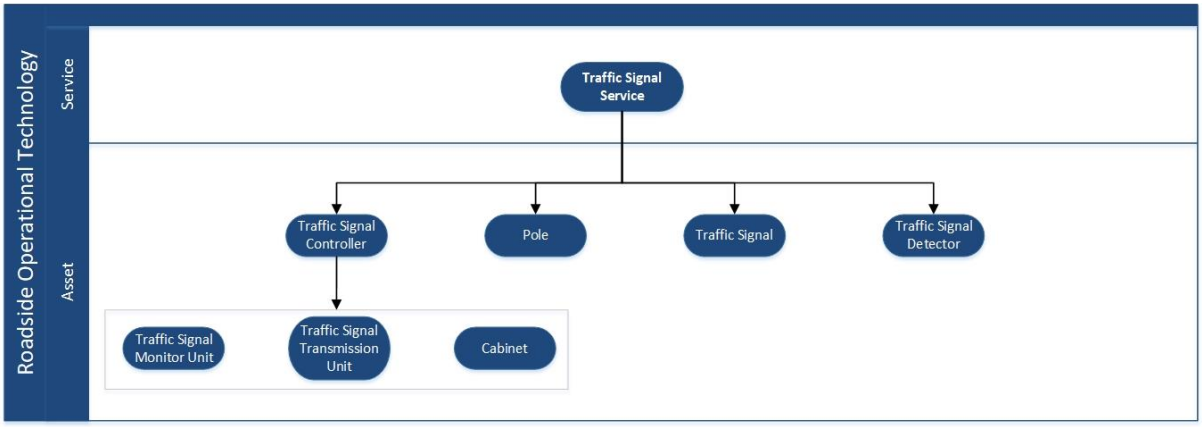


Figure 9-12 – Traffic Signal asset hierarchy.

10 Road Restraint

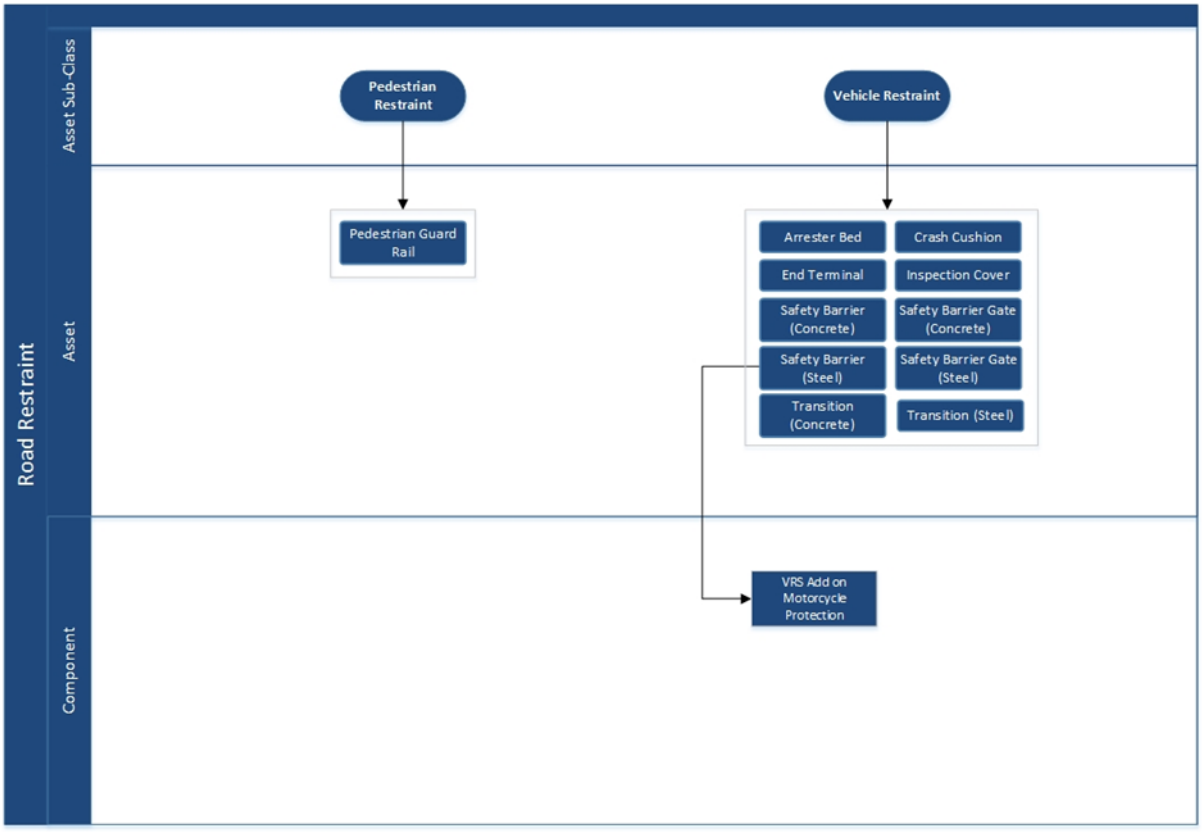


Figure 10-1 – Road Restraint asset class hierarchy.

10.1 Pedestrian Restraint

10.1.1 Pedestrian Guardrail

Description	A restraint system along the edge of a footway or footpath intended to restraint pedestrians and other users from stepping onto or crossing a road or entering other areas likely to be hazardous. Note: these railings are not designed to act as road restraint for vehicles (i.e. they are NOT a Vehicle Restraint System).	
Asset Code	RRPG	
UniClass	Ss_25_15_60	
Geometry	Linear	

Attribute Examples:

Material	Metal	
Description	Visi-rail pedestrian guard rail made from steel. Note: the high visibility grouped spacing of the vertical bars (Visi-rail is a brand product).	
Material	Metal	
Description	Plain pedestrian guard rail made from steel. Note: the even spacing and simple construction.	

10.2 Vehicle Restraint

10.2.1 Arrester Bed

Description	Area of land adjacent to the road filled with a particular material to decelerate and arrest errant vehicles.	
Asset Code	RRAB	
UniClass	SL_80_35_04	
Geometry	Polygon	

Note	1. Close up of the start of an arrester bed. Note: the soft ground overgrown with dead grasses. This ground will impede the progress of an out of control vehicle – bringing it to a controlled stop. 2. Close up of the main length of the arrester bed. Note: soft material better visible here, with less grasses (as per maintenance requirement). 3. Example of a sign indicating an upcoming arrester bed. TSRGD No. 817.2.	   

10.2.2 Crash Cushion

Description	A crash cushion (vehicle attenuator) is a device that absorbs energy at a controlled rate; found installed in front of a structure or mounted on the end of a safety barrier, facing oncoming traffic.	
Asset Code	RRCC	
UniClass	Ss_25_16_94_95	
Geometry	Polygon	

Note	1. Crash cushion protecting road users from an overhead sign post at an exit slip road. 2. Crash cushion protecting road users from the ends of the VRS at an exit slip road.	 

10.2.3 End Terminal

Description	Specialised treatment mounted at the beginning or end of a safety barrier, where	

	there is no connection to a parapet/transition to another barrier. Designed to mitigate the effects of an impact from an errant vehicle. May also provide an anchorage for the barrier system.	
Asset Code	RRET	
UniClass	Ss_25_16_94	
Geometry	Linear	

Attribute Examples:

Type	P4	
Description	P4 end terminals.	
Type	P1	
Description	Where the VRS descends into the ground. Above shows a departure end P1 terminal, and below shows an approach end P1 terminal. Note: lack of a concrete 'nose' found in TYPE = Pre TD19/06.	
Type	Pre TD19/06	

Description	Note: the concrete 'nose' at the end of the steel VRS barrier (differentiating it from P1 end terminals). This type of end terminal was common before the publication of TD19/06 (hence its name). It has now been replaced in many instances, in line with new requirements.	

10.2.4 Inspection Cover

Description	The removable section of safety barrier for inspection purposes only.	
Asset Code	RRIC	
UniClass	-	
Geometry	Point	

10.2.5 Safety Barrier (Concrete)

Description	Safety Barriers appear on the road network in several forms: creating an upstanding barrier running parallel to the carriageway (adjacent or within the central reservation). The main purpose of Safety Barriers is to contain and redirect errant road vehicles to reduce the risk of them crossing central reservations or leaving the carriageway.	
Asset Code	RRVC	
UniClass	Ss_25_16_94_16	

Geometry	Linear	

10.2.6 Safety Barrier (Steel)

Description	Safety Barriers appear on the road network in several forms: creating an upstanding barrier running parallel to the carriageway (adjacent to or within the central reservation). The main purpose of Safety Barriers is to contain and redirect errant road vehicles to reduce the risk of them crossing central reservations or leaving the carriageway.	
Asset Code	RRVS	
UniClass	Ss_25_16_94_50	
Geometry	Linear	

10.2.7 Safety Barrier Gate (Concrete)

Description	Part of a barrier which allows for quick removal and reinstallation for emergency and/or maintenance reasons.	
Asset Code	RRSC	
UniClass	-	
Geometry	Linear	

10.2.8 Safety Barrier Gate (Steel)

Description	Part of a barrier which allows for quick removal and reinstallation for emergency and/or maintenance reasons.
Asset Code	RRSS
UniClass	-
Geometry	Linear

10.2.9 Transition (Concrete)

Description	Provides a gradual change in performance from one road restraint system to another, and to prevent the hazards of abrupt variations.
Asset Code	RRTC
UniClass	-
Geometry	Linear

10.2.10 Transition (Steel)

Description	Provides a gradual change in performance from one road restraint system to another, and to prevent the hazards of abrupt variations.
Asset Code	RRTS
UniClass	-
Geometry	Linear

10.2.11 VRS Add on Motorcycle Protection

Description	A system attached to a vehicle restraint system to improve safety performance when impacted by motorcyclists; the systems typically prevent errant motorcyclists from passing under the safety barrier.	
Asset Code	RRVA	

UniClass	Ss_25_16_94_65	
Geometry	Linear	

Attribute Examples:

Manufacturer **Product Name/ID**	Bike Guard	
Description	Bike Guard motorcycle protection add on. The system functions by preventing motorcyclists from sliding under (and subsequently beyond) the barrier in a dangerous manner, should they collide with it. Note: while visually and functionally like other types, this is a specific product from Highway Care Ltd. The obviously visible rivets (in single and cross shaped [5x] configurations) differentiate it from “TYPE = Flex Guard”.	
Manufacturer **Product Name/ID**	Flex Guard	
Description	Flex Guard motorcycle protection add on. The system functions by preventing motorcyclists from sliding under (and subsequently beyond) the barrier in a	

	dangerous manner, should they collide with it. Note: while visually and functionally like other types, this is a specific product from Hill & Smith – for use with their VRS products. The frequent evenly spaced holes, and lack of rivets in the beam face are the easiest way to differentiate it from “TYPE = Bike Guard”.	

11 Structures

11.1 Bridge and Large Culvert

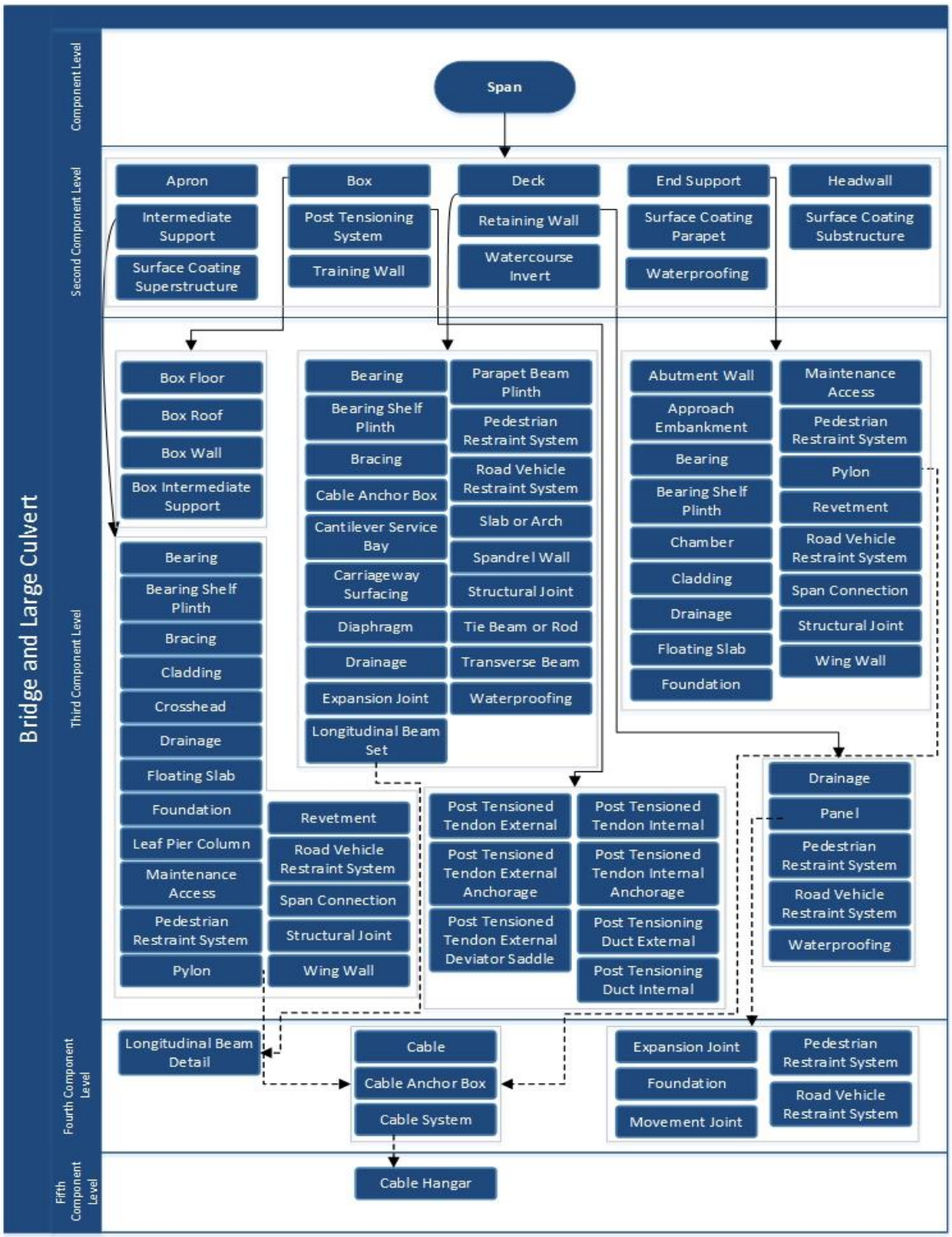


Figure 11-1 – Bridge and Large Culvert asset hierarchy.

11.2 High Sign Structure

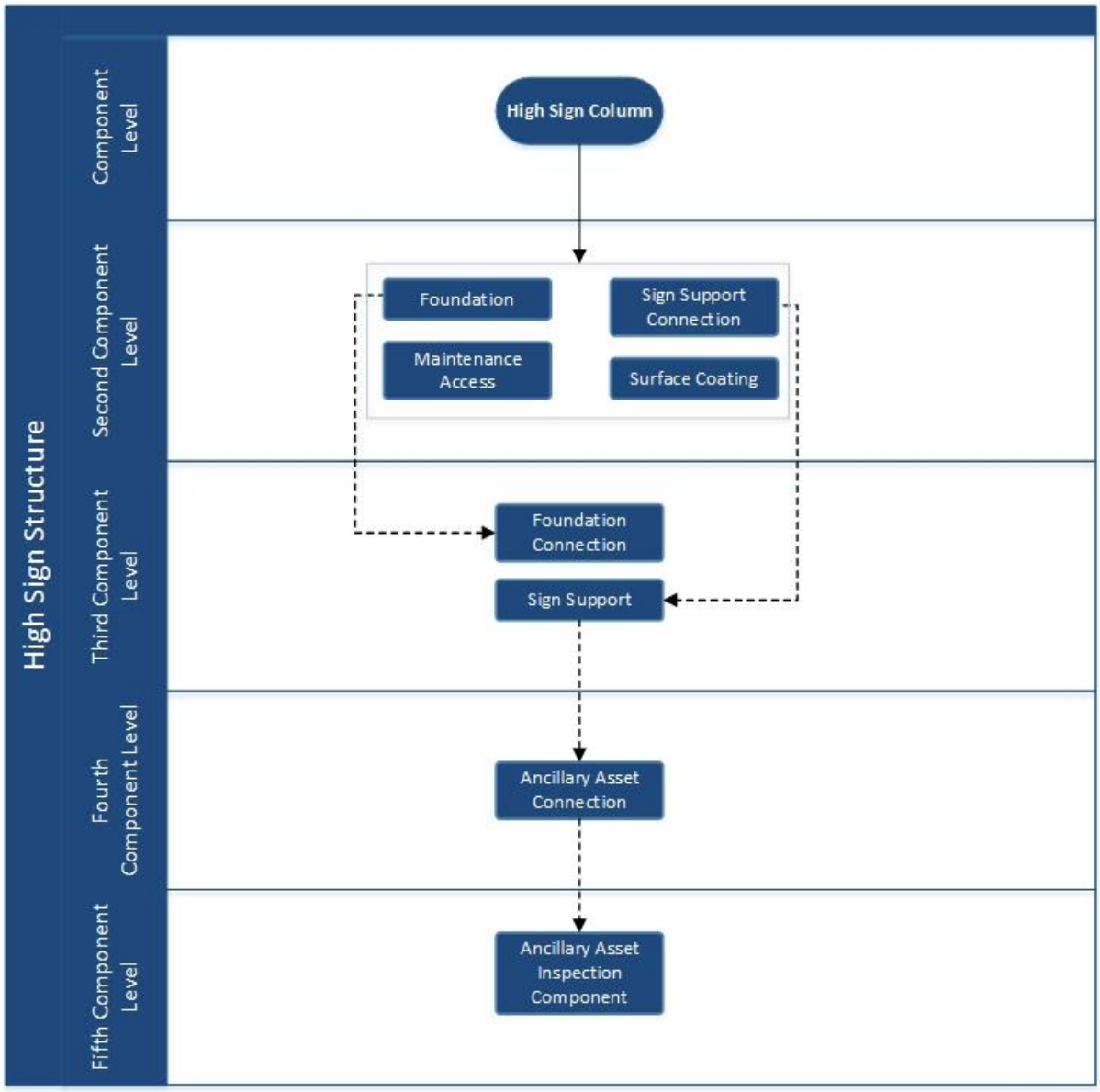


Figure 11-2 – High Sign Structure asset hierarchy.

11.3 Mast and Catenary Structures

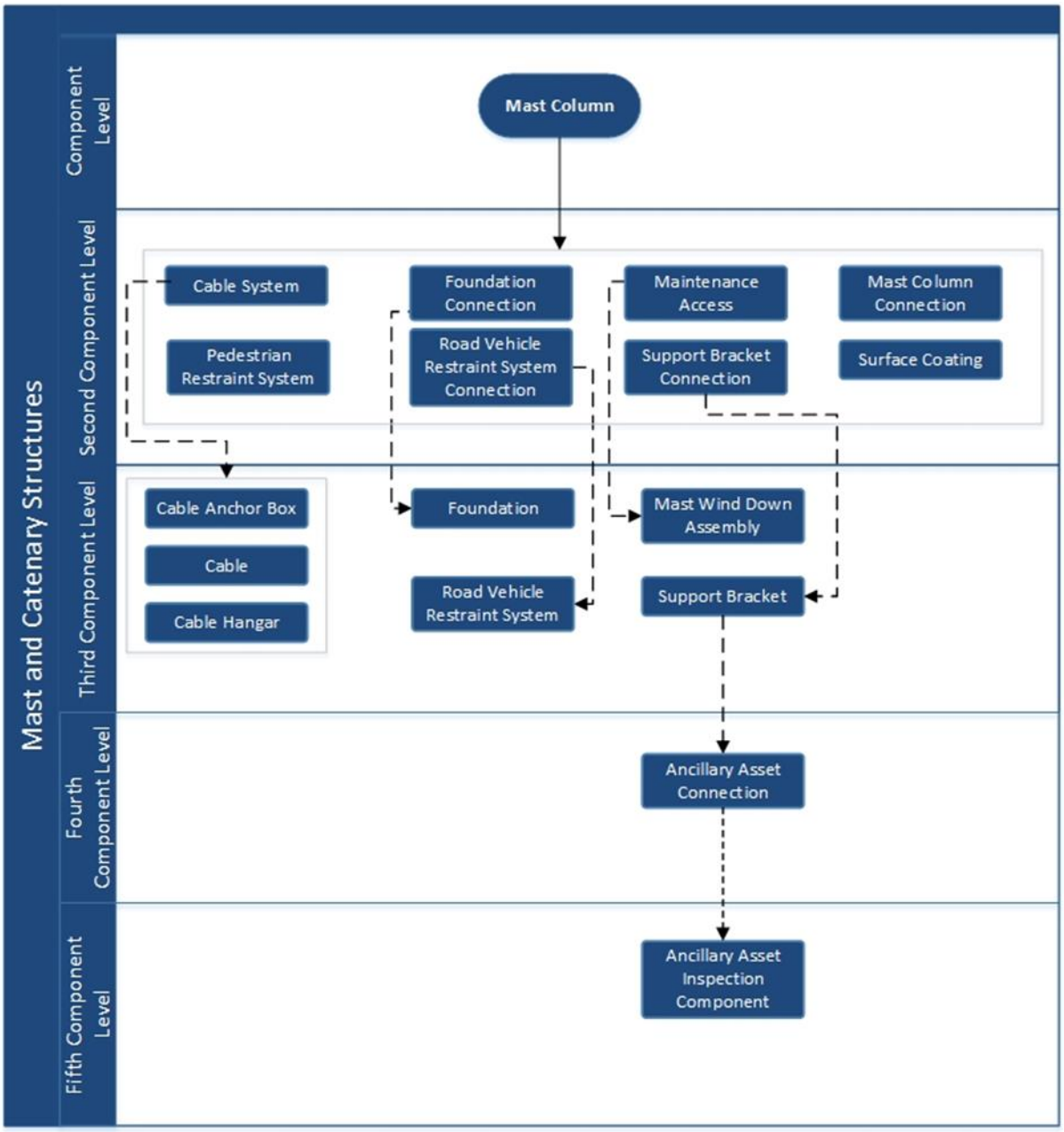


Figure 11-3 – Mast and Catenary Structures asset hierarchy.

11.4 Retaining Wall

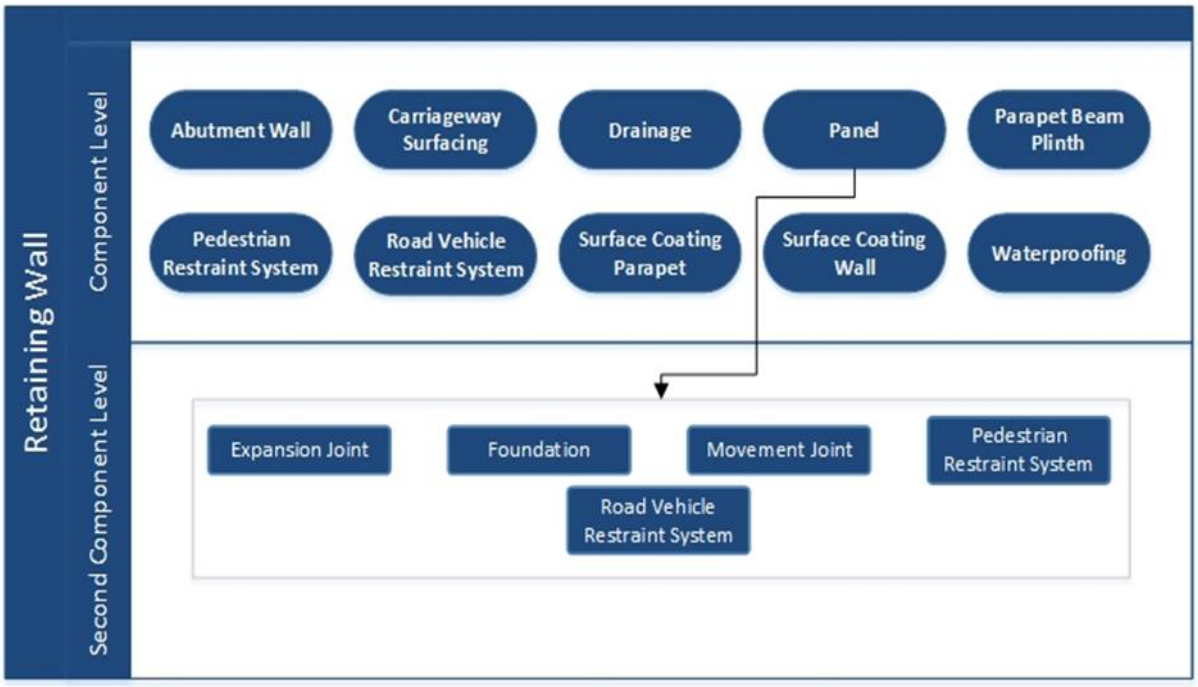


Figure 11-4 – Retaining Wall asset hierarchy.

11.5 Service Crossing

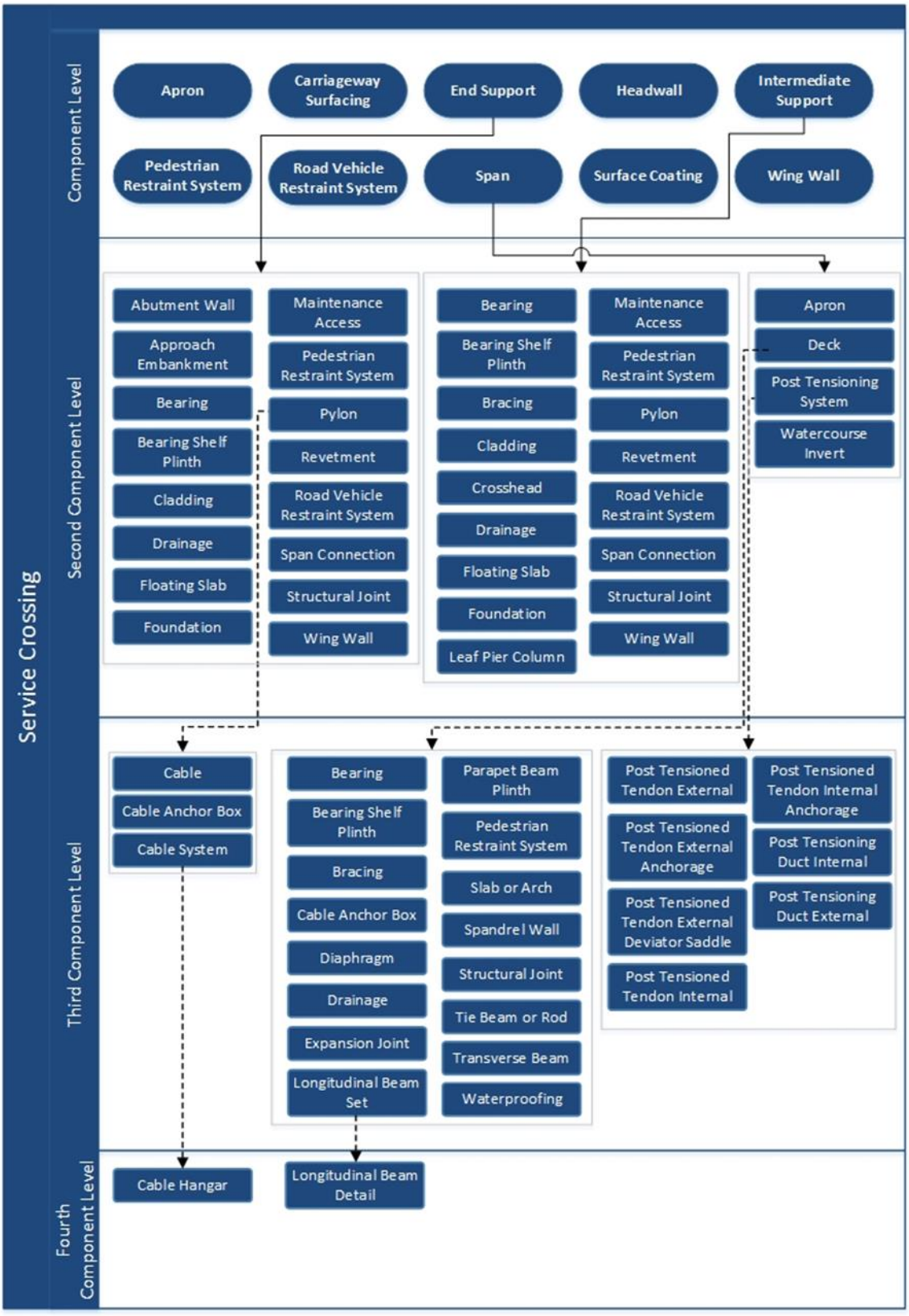


Figure 11-5 – Service Crossing asset hierarchy.

11.6 Sign Gantry

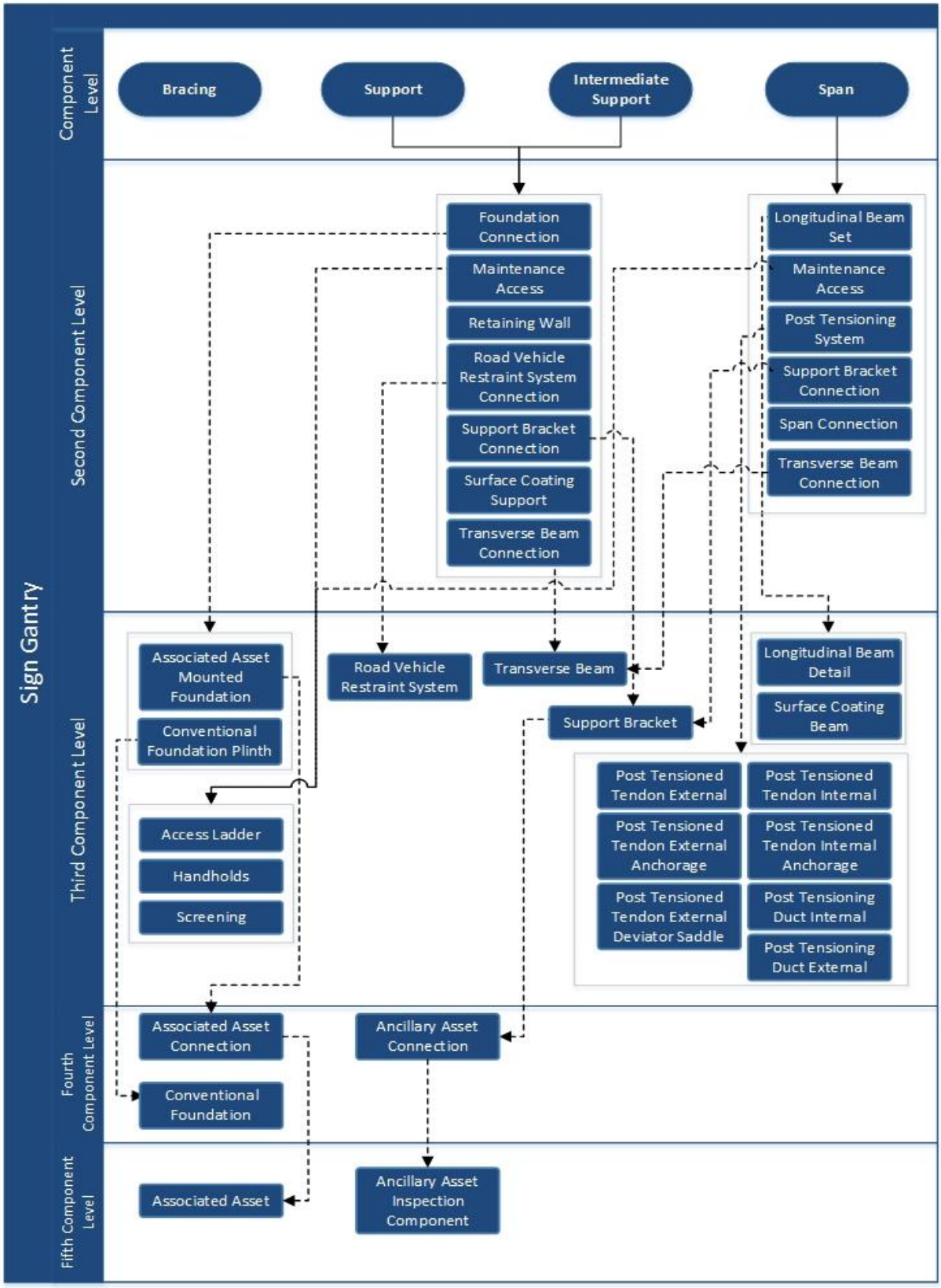


Figure 11-6 – Sign Gantry asset hierarchy.

11.7 Small Span Structures

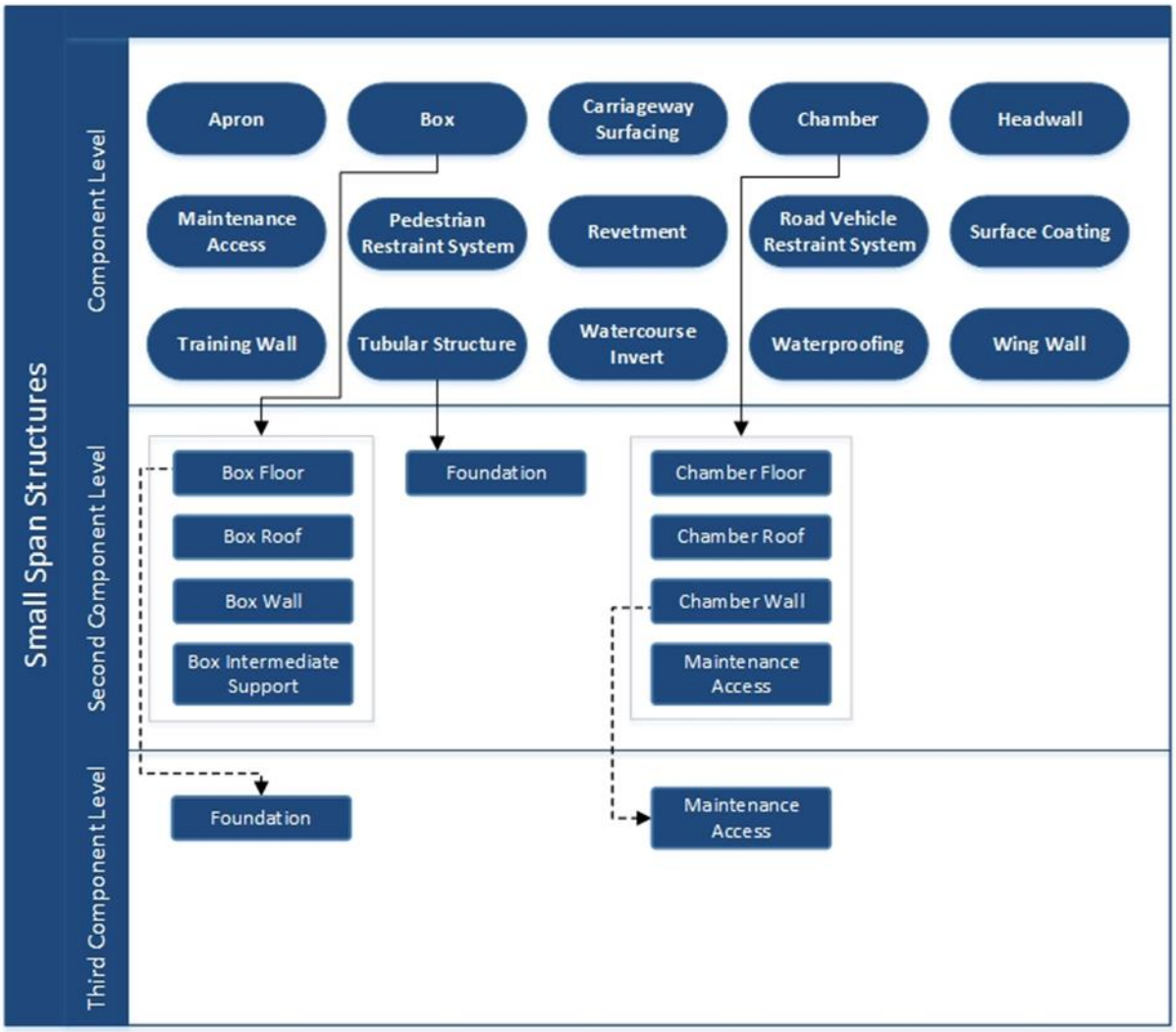


Figure 11-7 – Small Span Structures asset hierarchy.

11.8 Tunnels

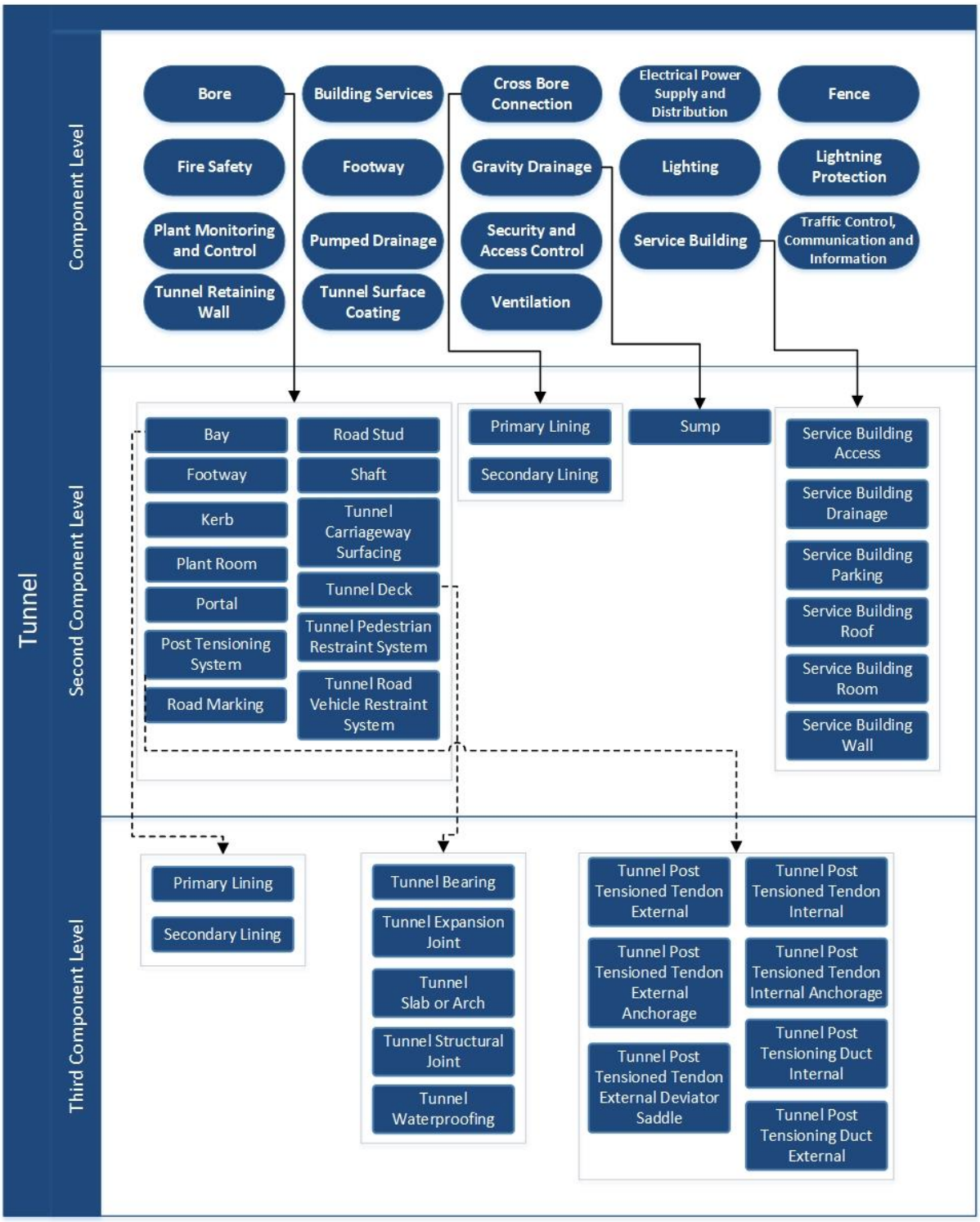


Figure 11-8 – Tunnel asset hierarchy.

12 Network Asset Surface Materials

12.1 Introduction

This section gives description, example, and details regarding the surfacing materials available for a range of highway inventory assets. Primarily this information applies to:

- Crossover (MLOX)
- Combined Cycle Track and Footway (NMCF)
- Cycle Track (NMCT)
- Footway (NMFW)
- Non-Carriageway Surface (ANNS)

Note: the information on surface materials listed here is intended for visual identification of the Ancillary asset class, and not suitable for use with the Pavement asset class (i.e. carriageways), which require engineering documentation to detail their surfacing and construction.

12.2 Asphalt

The term 'Asphalt' is used in the Part 3 - Data Dictionary to refer to an asset surface that is composed of either of two similar, yet distinct, materials: Hot-rolled Asphalt and Bitumen Macadam. The reasoning for this being considerable specialist expertise is required to differentiate the surfacing materials.

Type	Hot-rolled Asphalt (HRA)	
Description	Hot rolled asphalt is a bituminous material that contains large proportions of fine (small) aggregate, filler, and bitumen (binder) and hardly any coarse aggregate. HRA as laid therefore has a very smooth, closed surface. To provide surface texture (which is needed to aid skid resistance), bitumen coated chippings are spread onto the surface and are rolled into the HRA mat immediately after it is placed. Hence the material's full name is "chipped" HRA but the term "chipped" is dropped. Identifying Hot-Rolled Asphalt can be done effectively via two	

	visible features of its construction: • When applied the material is usually laid in lanes, leaving a visible joint between them. • It is also common practice not to lay stone chippings into the mastic mixture in the channel area along the kerb line – leaving a smoother and darker surface (highlighted in the bottom image). The most common problem associated with HRA is rutting. However much of this was down to poor mix design and the use of inappropriate aggregate. Most of the material that remains on the SRN is more than 15 years old and if it has not rutted yet then it is most unlikely to suddenly start rutting. Instead the majority of HRA failures now seen on the SRN are chip loss and fretting linked to the ageing of the bitumen.	
Type	Bitumen Macadam	
Description	Bituminous macadam, also known as asphaltic concrete, provides a resilient surface suitable for minor carriageways, and non-motorised routes. It is a well-graded aggregate material, formed from stone chips with a bituminous binder. The surface provides moderate structural strength.	

12.3 Block Paving

Description	Block paving is typically used in non-carriageway areas of hard surface. It is constructed from set blocks, either of cut natural stone, or manmade material. This sort of paving comes in a variety of forms and colours, however, is always distinct due to its surface texture, and obvious definition between individual blocks.	

12.4 Coloured Surfacing

Description	Coloured surfacing is a brightly coloured area of material, designed to provide signal or warning to users – it is typically applied in; bus lanes, cycle lanes, to highlight other hatched road markings, or as a band on the carriageway to indicate of upcoming hazard. The surface is made from coloured (natural and/or dyed) polished stone aggregate, with a binder. Typically, it is laid as a veneer over existing asphalt surfacing.	 

12.5 Concrete

Description	Concrete is a common material for both carriageways and other asset surfaces. It is extremely durable, with a lifespan of >40 years, however it generates more traffic noise than Asphalt pavements. Concrete surfacing can be formed from reinforced, or unreinforced concrete. They both feature regular bays with transverse joints (25-30m spacing for reinforced, 4-6m spacing for unreinforced). The surface may also contain dowel bars, to bridge between the bays, and offer improved surface resilience and load bearing. In the simplest sense, it is constructed by pouring and levelling concrete, to make a solid surface.	 

12.6 Concrete Flags

Description	Concrete flags are a common material for footways and other non-carriageway areas, as an effective alternative to block paving (typically being cheaper, easier to construct, and more durable). The surface is made from pre-cast concrete slabs, which are set on a layer of mortar or sand, with or without a mortar binding between them.	

12.7 Grass

Description	Grass is a basic and inexpensive natural surfacing, suitable for non-carriageway areas that do not require a resilient hard surface. It offers a permeable surface, with a naturally bonded structure. However, this only represents low structural strength compared to manmade materials. Application is done by preparing bare soil and seeding with grass, or by laying pre-grown turf which is rolled and allowed to take hold.	

12.8 Grasscrete

Description	Grasscrete is a surfacing material suitable for non-carriageway areas, where a combination of permeability and resilience is required. It is formed from pre-cast shaped settings (concrete, or other composite materials), with regular spaces designed to provide purchase for natural grass to grow. Application is done by laying the pre-cast shapes then filling the intended spaces with soil and seed, or turf.	

12.9 Gravel

Description	Gravel is a basic and inexpensive surfacing material for non-carriageway areas. The surface is loose, unbonded, material providing a permeable surface with some grip. However, it provides no structural strength, and has low resilience (requiring replacement over time). Application is done by clearing the relevant area and spreading and compacting sufficient gravel to cover it.	

12.10 High Skid Resistant Surfacing

Description	This is an additional surface treatment used at locations where resistance to skidding is required, more sufficiently than normal surfacing will provide – such as the approach to, traffic signals, crossings, roundabouts, or tight radii in the highway. The surface is a composite veneer, which is applied on top of the existing carriageway at the desired location. It is typically composed from a resin binder and a fine calcined bauxite aggregate, giving a very hard surface with a high Polished Stone Value (PSV) e.g. high toughness, resistance to wear, and retention of grip. The application can be done in two ways: • A sprayed hot-film resin followed by aggregate spread and embedded within it.	

	• A pre-mixed aggregate, which is screened directly onto the carriageway. The surface is typically coloured in brown or grey, using natural colour from the aggregate. However, it may be deliberately coloured in more overt colours (e.g. red, blue) through pigmentation.	

12.11 Surface Dressed

Description	Surface Dressing is an economical treatment to seal the surface against water ingress and restore skid resistance. The surfacing is typically used on minor rural roads, as it is less resilient than other asphalt materials – prone to fretting (visible in both images as loose gravel-like material). The surface has a positive texture composed of bitumen with embedded stone chips but is only a **laminate,** providing no improvement in structural strength. Application is done by spraying a bitumen emulsion or tar onto the surface, then stone chips are immediately spread across the surface, to set into the binder.	

12.12 Tactile Surfacing

Description	Tactile surfacing is used in specific locations, typically; crossovers, pedestrian crossings, and NMU crossings, to provide tactile indication to pedestrians. It is a major part of the National Highways initiative to provide increased usability features for disabled persons, under the Disabled Persons Act 1981: • Addressing a conflict between the necessity of ramped kerbs (for wheelchair users) and the danger of no discernible kerb edge at these locations (for the visually impaired). • Allowing visually impaired pedestrians to identify the safe right-of-way where a footway and cycle track run in parallel. They are composed from pre-cast slabs with studs or ridges on the upward face. These physical details can be felt underfoot by visually impaired pedestrians, warning them of the related hazard. Image 3 shows a particular type specific to cycle tracks and footways running in parallel: where perpendicular grooves indicate pedestrian right of way, and parallel grooves indicate cycle lane; allowing a visually impaired user to discern the difference but providing no tactile interruption to cyclists. Slabs are laid similarly to concrete flags, on a bed of mortar or sand with or without mortar between them. Where necessary the existing surface of the footway is cut out in the required area, to allow level placement.	

12.13 Thin Surface Course Systems (TSCS)

Description	Thin surface course system (TSCS) is a generic term covering proprietary surface course materials that are laid at a thickness of less than 50mm. There are **many** different thin surfacing's available that are classed as TSCS and they are normally classified by their thickness as follows: • Type A <18mm	
	• Type B 18-25mm	

	• Type C >25 to <50mm TSCS are specified as a “system” which covers their design, manufacture, and installation. These materials are regulated and certified by third parties and their specification is covered by Clause 942 of the Specification for Highway Works. Most TSCS are based on materials developed originally in France and Germany and generally contain an interlocking mix of coarse aggregate held together by a “mastic” of bitumen, filler, and sand. They include stone mastic asphalts (SMA) and thin asphalt concrete materials. Polymers and/or cellulose fibres are often used to modify the mastic and improve the performance of the material.