ASSET DATA DICTIONARY DEFINITION DOCUMENT (AD4)
L1534 – SPRAYED CONCRETE LINING SYSTEM

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1 Introduction

1.1 Asset Details

Class Code:	L1534
Class Name:	Sprayed concrete lining system
Class Lineage:	Construction Products>Ground treatment and retention products>Land/water retention products>Retaining Units>Sprayed Concrete Lining System

1.2 Description

Sprayed concrete is a mixture of cement, aggregate, admixtures, set accelerators and water projected at high velocity from a nozzle into place to produce a dense, homogeneous mass. Sprayed concrete shall be applied directly to the substrate in one or more layers to form the Sprayed Concrete Lining structure.

The lining system proposed for the Sprayed Concrete Lining tunnels on the Crossrail works consists of a primary lining, a waterproofing membrane and a secondary lining. The system considers both primary and secondary linings as part of the permanent load bearing structure. The primary and secondary linings are fibre reinforced concrete or reinforced concrete depending upon location and loading. The final layer (approximately 50mm) of the linings contain monofilament polypropylene fibres for fire resistance.

A continuous section of sprayed concrete lining will make up a single asset so long as there is no step change in thickness, reinforcement type, sharp change in direction or intervening asset.

The Stations (platforms, excluding those being built as part of the station building) and Caverns (6 off) will be constructed/reinforced using sprayed concrete. The assets will be identified as discrete units by running line.

1.3 Related Functions

All information on the configuration of asset classes (L-Class) to functions is contained within the latest revision of the Asset Data Dictionary Master Configuration document (eB ref: CRL1-XRL-Z3-ADDSD-CR001-50186)

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2 Asset Tag Identification Rules

Assets will be identified as required by the Asset Identification Standard (CRL1-XRL-O6-STD-CR001-00031) in the following format:

<LCS Code>-<Function Code>-<Incremental number to ensure uniqueness>

e.g. CR076-BAF-12345

Information and guidance on the standard naming convention for all asset classes is contained within the latest revision of the Asset Naming Convention Document (eB ref: CRL1-XR1-Z3-ADDSD-CR001-50413).

2.1 Example Images

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3 Attributes

3.1 Generic Attributes

All Classes of assets will have a set of Generic Attributes for which data is collected without exception. Full details relating to these assets can be found at:

AD4 – Generic Attributes CRL1-XRL-Z3-ADDSD-CR001-50069

3.2 Class Specific Attributes

Below is a table of the further specific attributes which are associated with this asset class.

Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Lining Reinforcement		PD		None Fibre Bar Reinforced Fibre and Bar	Description of any reinforcement type in Secondary Lining
Diameter (Metres)	Metres	NU	2		Maximum Diameter of the tunnel section
Length (Metres)	Metres	NU	2		Horizontal length of the sprayed surface
Membrane Type		PD		None Sheet Sprayed	Type of membrane used as per C121 – SCL Specification
Thickness - Initial Lining (Millimetres)	Millimetres	NU	0		Approximate thickness of the initial lining
Thickness - Primary Layer (Millimetres)	Millimetres	NU	0		Approximate thickness of the primary sprayed lining, including thickenings outside of the waterproof membrane
Thickness - Secondary Layer (Millimetres)	Millimetres	NU	0		Approximate thickness of the secondary sprayed lining being the layer sprayed onto the waterproof membrane (including fire protection layer)
Depth of Tunnel (Metres)	Metres	NU	2		Depth of tunnel from surface

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Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Ground Condition		PD		Thames Gravel London Clay Lambeth Group Thanet Sand Chalk	Type of ground condition tunnel is situated in
From Meterage (Metres)	Metres	NU	2		The Meterage (Chainage) of the start point of the asset. To be populated only when the start of the asset is located on track.
To Meterage (Metres)	Metres	NU	2		The Meterage (Chainage) of the end point of the asset. To be populated only when the end of the asset is located on track.

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Attribute Name	Base Unit or Formula	Value Type (See Below)	Decimal Places (nu Only)	Defined Values List (pd only)	Description
LRS Code		PD		C.EB C.EB.CRW5 C.EB.CR1 C.EB.CR7 C.EB.TBC C.WB C.WB.CRW9 C.WB.CRW6 C.WB.CR2 C.WB.CR5 C.WB.TBA C.WB.TBB CNE.EB CNE.WB CSE.EB CSE.EB.CR11 CSE.WB CSE.EB.CR13 CSE.WB.CR15 Non Track	The Crossrail Linear Referencing Standard code (CRL1-XRL-O6-STD-CR001-00026) where the asset is located. When the asset is not located on track then non track should be selected. The LRS codes are as follows: C.EB - Central Section Eastbound C.EB.CRW5 - Crossover between W5 and W4 Points C.EB.CR1 - Crossover between C1 and C4 Points C.EB.CR7 - Crossover between C7 and C8 Points C.EB.TBC - Turnback C C.WB - Central Section Westbound C.WB.CRW9 - Crossover between W9 and W8 Points C.WB.CRW6 - Crossover between W6 and W3 Points C.WB.CR2 - Crossover between C2 and C3 Points C.WB.CR5 - Crossover between C5 and C6 Points C.WB.TBA - Turnback A C.WB.TBB - Turnback B CNE.EB - Central Section North East Spur Eastbound CNE.WB - Central Section North East Spur Westbound CSE.EB - Central Section South East Spur Eastbound CSE.EB.CR11 - Crossover between C11 and C12 Points CSE.WB - Central Section South East Spur Westbound CSE.EB.CR13 - Crossover between C13 and C14 Points CSE.WB.CR15 - Crossover between C15 and C16 Points Non Track - Non Track Assets

pd = Predefined List (Listed Values Only)
nu = Numeric (dp and number format can be stipulated)
ch = Free text (Max 255 Characters)
da = Date (dd-mm-yyyy)
me = Memo (Free text 1GB Limit)

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4 Performance Data

This section is to be used to specify the performance data to be gathered from this Class of asset when in operation. To be populated once the performance measures have been agreed with the Infrastructure Managers.

5 Labelling

Information and guidance on the standard labelling convention for all asset classes is contained within the latest revision of the Asset Naming and Labelling Convention Document (eB ref: CRL1-XR1-Z3-ADDSD-CR001-50413).

6 Other Information

Not Applicable

7 Reference Material

- C121 – SCL Specification – C121-MMD-Z4-RSP-CR001-00001
- Asset Data Dictionary Master Configuration - CRL1-XRL-Z3-ADDSD-CR001-50186
- Asset Identification Standard - CRL1-XRL-O6-STD-CR001-00031
- AD4 – Generic Attributes - CRL1-XRL-Z3-ADDSD-CR001-50069
- Asset Naming Convention Document - CRL1-XR1-Z3-ADDSD-CR001-50413

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8 Crossrail Technical Approvals

Name	Role	Date
[redacted]	Head of Underground Construction	19-Sep-2014

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