ASSET DATA DICTIONARY DEFINITION DOCUMENT (AD4) L1532 - PRE-CAST CONCRETE LINING SYSTEMS

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1 Introduction

1.1 Asset Details

Class Code:	L1532
Class Name:	Pre-cast concrete lining systems
Class Lineage:	Construction Products>Ground treatment and retention products>Land/water retention products>Retaining Units>Pre-cast Concrete Lining Systems

1.2 Description

Crossrail tunnels will utilise a number of different tunnel segment/ring types as follows:

- Precast concrete segments forming Standard ring system (left ring and right ring)
- Precast concrete segments forming Universal ring system

Tunnel rings are usually built up with a number of segments (8 including the key for Crossrail running tunnels), according to the geometry and tunnel constraints.

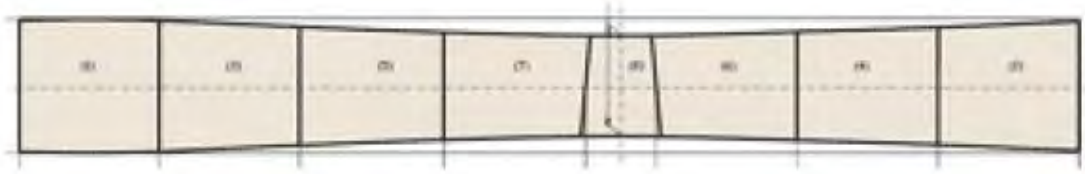

Figure 1: Unrolled tunnel ring showing segments (Crossrail will have 8 segments for main running tunnels)

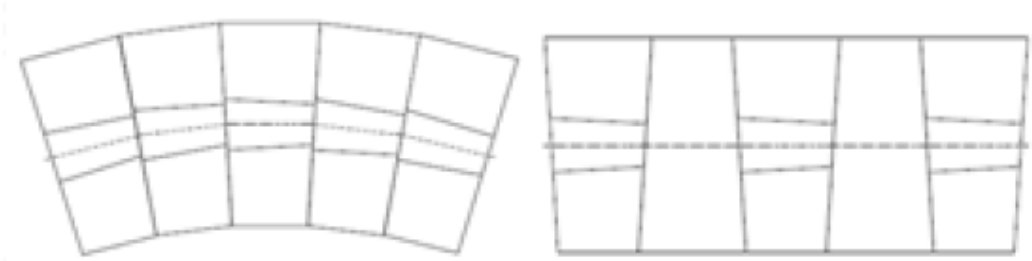

Figure 2: Set of rings aligned for curved and straight tunnel sections

For straight tunnel sections left and right rings are built alternatively or rings are rolled approximately 180 degrees when using universal rings. To achieve maximum curvature, the key segments are aligned. The “roll”, or relative positioning, of keys in successive rings can be adjusted to modify the tunnel curvature.

The void between the lining extrados and the excavated ground and profile is filled with cementitous grout.

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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)

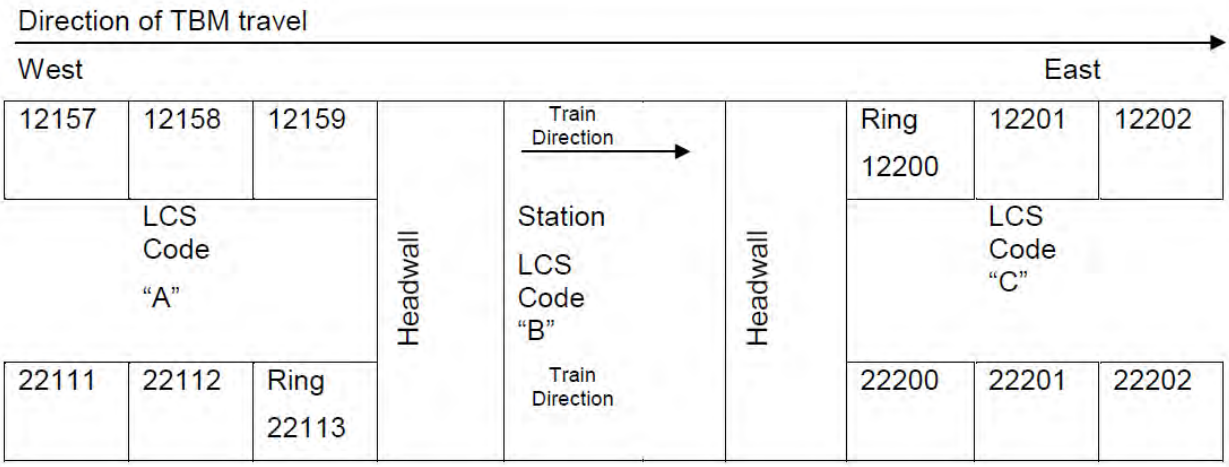
2 Asset Tag Identification Rules

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).



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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
Depth of Tunnel (Metres)	Metres	NU	2		Depth of tunnel from surface to outer crown of tunnel.
Diameter (Metres)	Metres	NU	2		Diameter of ring
Ground Condition		PD		Thames Gravel London Clay Lambeth Group Thanet Sand Chalk	Type of ground condition tunnel is situated in
Includes Gaskets		PD		Yes No	Is there a membrane behind the concrete ring
Length (Metres)	Metres	NU	2		Nominal Length of ring measured in the direction of travel
Lining System Type		PD		Shaft Sump Tunnel Ring	The type of lining system of the asset.

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Attribute Name	**Base Unit or Formula**	**Value Type** (See Below)	**Decimal Places** (nu Only)	**Defined Values List** (pd only)	**Description**
Lining Thickness (Millimetres)	Millimetres	NU	0		Thickness of lining
Meterage (Metres)	Metres	NU	0		Meterage (Chainage) location of asset.
Reinforced Tunnel Ring		PD		Yes No	Is the tunnel ring reinforced
TBM Drive		PD		G H X Y Z	TBM Tunnel Drive asset was installed on
TBM Ring Number (#)	#	NU	0		The tunnel ring number allocated by the TBM at install; only applicable for tunnel ring assets

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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

- 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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