

East West Rail Phase 2

Technical Note:

Drainage and Culverts Design-Stage Maintenance Plan

Discipline/Grip Stage: Drainage Consents/GRIP 5

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Document History

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Project:	East West Rail Phase 2	To:	Bedford Council Bedford Group of Internal Drainage Boards Buckinghamshire Council Central Bedfordshire Council Environment Agency Milton Keynes Council Oxfordshire County Council
Discipline:	Drainage Consents	From:	East West Rail Alliance (on behalf of Network Rail)
Grip Stage:	5		
Title:	Drainage and Culverts Design-Stage Maintenance Plan		



1. Introduction and Network Rail Standards

As part of the East West Rail Phase 2 (EWR2) works being carried out under The Network Rail (East West Rail) (Bicester to Bedford Improvements) Transport and Works Act Order 2020, approval will be sought from the Drainage Authority as required by the order. In order to support these consent applications, the following draft inspection and maintenance schedule for drainage and culverts has been proposed.

It should be noted that inspection and maintenance requirements will be finalised as part of Network Rail's Route Drainage Management Plan (RDMP) prior to operational use of the railway. It is proposed that this document serves as the design-stage maintenance plan to support submissions for approval, however will be superseded by the inspection and maintenance requirements established in the RDMP.

All inspections and maintenance operations of drainage and culvert assets shall be the responsibility of Network Rail (as the asset owner), in accordance with the Network Rail processes and methodologies stated in Table 1.

Table 1: Relevant Network Rail Drainage and Culverts Maintenance Standards

Document Reference	Issue	Compliance Date	Document Title
NR/L2/CIV/005/04	1	03 December 2018	Drainage Systems Manual: Inspections
NR/L2/CIV/005/05	1	03 December 2018	Drainage Systems Manual: Drainage Surveys
NR/L2/CIV/005/11	1	03 December 2018	Drainage Systems Manual: Drainage Maintenance
NR/L2/CIV/005/12	1	03 December 2018	Drainage Systems Manual: Maintenance of Chambers
NR/L2/CIV/005/13	1	03 December 2018	Drainage Systems Manual: Maintenance of Pipes
NR/L2/CIV/005/14	1	03 December 2018	Drainage Systems Manual: Maintenance of Channels including Ditches
NR/L2/CIV/005/15	1	03 December 2018	Drainage Systems Manual: Maintenance of Culverts

Visual / detailed asset inspections shall be carried out on an annual and 5-yearly basis respectively or as stated in the RDMP, following significant storm events where safe and practicable to do so.

2. Drainage Inspection and Maintenance Requirements

Table 2 provides details of inspection and maintenance activities linked to the proposed drainage networks, consisting of drainage pipes, catchpits / manhole chambers, ditches, and outfall headwalls.

Table 2: Drainage Inspection and Maintenance Requirements

Frequency	Activity
Annually	<p>Carry out a visual survey of drainage ditches, chambers, and outfall structures to identify any areas that are not operating correctly.</p> <p>Undertake remedial actions as required and remove debris which could cause a blockage risk or result in loss of performance of the drainage system.</p>
5-Yearly	<p>Undertake a detailed survey of drainage chambers for sediment build-up, removing sediment if necessary. It is expected that CCTV survey of drainage pipes is undertaken to support these detailed inspections at a minimum of 10-Yearly intervals.</p>
Remediation inspections & tasks following significant storm events	<p>Carry out a visual survey of drainage chambers, inlets and outlets to identify areas that are not operating fully / have been damaged during the storm event. Repair / rehabilitate damaged components of the drainage network as identified by the inspection.</p>

3. Culverts Inspection and Maintenance Requirements

Table 3 provides details of inspection and maintenance activities linked to culvert assets. Culvert assets consist of circular / arched / box culverts and their associated headwalls and / or chambers at both the up and downstream ends.

Table 3: Culverts Inspection and Maintenance Requirements

Frequency	Activity
Annually	<p>Carry out a visual inspection of the culvert, associated headwalls and chambers for signs of damage, blockage or loss of performance.</p> <p>Undertake remedial actions as required and remove debris which could cause a blockage risk or result in loss of performance of the culvert.</p>
5-Yearly	<p>In addition to the annual visual inspection, undertake a detailed survey of the culvert and associated chambers to assess for loss of performance or internal structural damage to the culvert. It is expected that CCTV survey is undertaken to support these inspections at a minimum of 10-Yearly intervals.</p> <p>Undertake sediment / debris removal to maintain performance of the culvert and carry out repairs / culvert rehabilitation as required.</p>
Remediation inspections & tasks following significant storm events	<p>Carry out a visual / CCTV survey of the culvert, chambers and headwalls chambers, to identify areas that have been damaged during a storm event. Repair / rehabilitate damaged parts of the culvert network as identified by the inspection.</p> <p>Carry out a visual inspection of up and downstream of scour protection, replace riprap scour protection that has been displaced during a storm event and provide remediation to areas exhibiting signs of channel erosion.</p>

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