



London
Underground

Scour on London Underground

Definition

Scour is defined as the removal of a riverbed or river banks by flowing water. LU regard any structure that spans flowing water as at potential risk of scour, it has 85 such structures



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Strategy

In 1990 LU carried out the first assessment of the risk of scour on what were regarded as the most significant structures spanning flowing water. There were 35 structures in this first tranche. The assessment was carried out in accordance with British Rail Handbook 47. The results were:

10 Problem

24 Marginal

1 Low



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Strategy

Subsequently in 1997 LU assessed the remaining 50 structures that had been regarded as less significant . The assessment was carried out in accordance with the HR Wallingford document – **Hydraulic Aspects of Bridges: Assessment of Risk of Scour. Report EX2502.** This was a private document commissioned by British Rail a copy of which had been given to LU.



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Strategy cont'

This standard rated the risk under 6 categories , 1 being the highest priority. The results were :

Priority 1 – 1 structure

Priority 2 – 1 structure

Priority 3 -15 structures

Priority 4 - 22 structures

Priority 5 – 8 structures



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Strategy cont'

Subsequently the bridge file front sheets were marked with the degree of risk of scour and the likely parts of the foundation where scour is likely to occur. Inspection of these bridges should include a very careful check of these areas with a detail description and photographs for inclusion in the inspection report



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Reality

A recent review has shown that with the exception of one bridge (D220 carrying the District Line over the River Thames), no scour inspections have ever been carried out.

The PPP contract has resulted in records being archived, lost and forgotten.



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Future Intentions

The present situation is unacceptable, and LU are instigating the following actions:

- All structures at risk from scour will be re-assessed in accordance with HR Wallingford Report EX 2502.
- All structures that have a risk Priority of 15 or more will be reviewed in accordance with the CIRIA publication “Manual on scour at bridges and other hydraulic structures”.
- Implement the actions for High Priority bridges defined in clause 9.1 of EX2502.
- For all structures generating a risk priority of 13 to 15 the actions recommended in clause 9.2 of EX2502 shall be implemented.



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Future Intentions cont'

Bridge D220 will have the scour inspection carried out by the PLA Hydrographer using their launches fitted with multibeam echosounders, as an extension of their contract to check scour over our tunnels at Embankment

