Case information

Reference/Case ID	201508108

Scheduled Monument	Forth and Clyde Canal: Netherton Farm - Cleveden Road		
Index no	M6774	**Grid Ref**	NS545698 254500.0000 669800.0000

Date of Application	24 March 2016	**Application Received**	24 March 2016
Summary of proposed works	Repair works to Knightswood Railway Tunnel		

1. Summary recommendation

This report recommends approval of a proposed scheme to install a water management system, repair spalled and missing brickwork, carry out de-vegetation work and remove an embedded steel drill bit. These proposals have been made because of significant water ingress that is threatening the continued stability of the tunnel.

2. Background

The Knightswood Railway Tunnel was constructed in the 1870s by downtaking the overlying section of the Forth & Clyde Canal and creating an aqueduct to carry the channel. It is included in the scheduling, as the tunnel roof is effectively the base of the aqueduct.

The north end of the tunnel is an original stone segmental round arch from the 1870s, while the south end is a steel-framed structure dating to c. 1941. The tunnel itself consists of a round-headed brick vault, which is largely original but has seen extensive repairs.

The applicant requested pre-application advice on the works from Historic Environment Scotland in early 2016, and our response contained a list of information required in support of an application. This information list has informed the material submitted with the application.

There have been no applications for SMC at the tunnel since at least 2009, and the present works do not require planning consent.

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3. Proposals

The works are proposed as follows:

- *Installation of a water management system*
- *Repair of spalled and missing brickwork*
- *Carry out de-vegetation work*
- *Steel rod consolidation*

Installation of a water management system; this will be installed at the back of the brickwork lining at the crown and haunches in areas affected by water ingress. At the top of the side walls, perforated collector pipes would be installed to collect water into a drainage channel from where it is discharged into existing drains.

Repairing spalled and missing brickwork; Areas of missing brickwork and spalling have been identified throughout the interior of the tunnel. The repairs proposed consist of missing holes in the crown, spalling from crown to side walls and missing bricks in refuges. At the south (rebuilt) end, water is running in between gaps in the stonework immediately behind the steel-framed portal. These gaps would also be infilled in brick.

Carrying out de-vegetation work; Small trees and shrubs pose a risk for further deterioration of the brickwork, particularly at the northern end of the tunnel. The portals and wingwalls would be cleared of vegetation and any remaining roots treated to prevent re-growth.

Other works; a steel drill rod has been observed hanging from the crown with missing brickwork surround it. This would be removed or cut back and brickwork repaired, as above.

4. Representations received

No direct representations were received. Scottish Canals have agreed in principle to the works, subject to a grant of Scheduled Monument Consent from Historic Environment Scotland.

5. Report

a) Policy considerations

The application should be viewed with the following legislative and policy considerations in mind:

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Ancient Monuments and Archaeological Areas Act 1979

- Part 1 Section 2 - Control of works affecting an ancient monument. This is what you will have used to decide if SMC is required for the works described.
- Part 1 Section 2 (3) – authorises works where Scottish Ministers or Historic Environment Scotland have granted consent (scheduled monument consent) for the execution of the works where the works are executed in accordance with the terms of the consent and of any conditions attached to the consent.

The Scottish Historic Environment Policy

3.16. Works on scheduled monuments should therefore normally be the minimum level of intervention that is consistent with conserving what is culturally significant in a monument.

3.18. Scheduled monument consent applications must be considered in terms of the cultural significance of the monument and the impact that the proposals would have upon this cultural significance. The more important particular features of the monument are to its cultural significance, the greater will be the case against interventions which modify these features.

b) Assessment

1. The impact of the proposed works

The installation of the water management system will involve removal of the brickwork at the haunch of the tunnel vault, and the excavation of a channel through the boulder clay behind to accommodate the drainage pipes. The brickwork would then be reinstated to match existing. This would leave the internal appearance of the tunnel essentially undisturbed, and the drainage pipes would reduce the risk of further water intrusion.

The brick repairs and infilling of lost bricks would return the vault to its original appearance, and reduce the risk of further masonry loss. The brick would not be chosen to match existing as no stocks are available, so the replacements would be very similar in composition but would be of a lighter colour. These repairs would therefore be plainly visible from within the tunnel.

Carrying out de-vegetation work would not require Scheduled Monument Consent, as the trunks of the material to be removed is of approximately 5cm diameter.

The removal of the steel drill bit will involve the removal of neighbouring brickwork which is in a failing state. This will involve the impacts noted in the preceding paragraph on brick repair.

2. The impact on the cultural significance of the monument

The aqueduct that carries the canal is of nationally-important cultural significance, as it demonstrates how the canal was altered in the period when competition from the railways was expanding. That is the rationale behind the underlying railway tunnel being scheduled.

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The fabric of the tunnel itself has been significantly altered during its period in use. Neither the northern (original) portal or the southern (20th century) portal are visible from the canal or its towpath, and they are not visible from adjacent roads. The contribution that the external appearance of the tunnel makes to the cultural significance of the monument is therefore not high, as the relationship can only readily be appreciated on maps and aerial photographs. The internal space of the tunnel is not accessible, and its appearance cannot be appreciated even from the windows of a passing train. The contribution that this internal space makes to the scheduled monument is therefore not high.

The loss of boulder clay from behind the brickwork cannot be readily appreciated, and does not constitute an important element in the cultural significance of the monument. This specific impact on the cultural significance of the monument is therefore of a very slight nature.

The lighter colour of the new brick infill will be very obvious, but this cannot be easily appreciated, and it will gradually weather down to a darker hue. It will also positively affect the stability of the structure. This specific impact on the cultural significance of the monument is therefore of a very slight nature.

These works will reduce the level of water ingress into the tunnel. This would have two positive benefits. For the scheduled monument, this would mean that the future risk of having to downtake the canal aqueduct to conduct extensive repairs on the tunnel would be reduced. This represents the positive management of a feature that is primary to the cultural significance of the monument. The other key benefit is that a major commuter railway line would be maintained in a satisfactory condition.

c) Other material considerations, including impact of the works on Protected Species and Places

No impact is predicted on Protected Species or Places.

d) Conclusion

The proposed works would not have an adverse impact on the cultural significance of the scheduled monument, as the proposed methodology would not significantly affect the fabric of the tunnel, and would prevent a higher level of intervention being required in the future. Therefore, the proposed works are consistent with the principle of being the minimum necessary to conserve the cultural significance of the monument (as per SHEP 3.16, cited above).

No timescale is presently available for the work. It might be considered that a condition directing notification to HES of a works timescale could be reasonable. However, the issue here is that inspection of the works would not elicit useful or relevant information to monitoring this consent, as no significant change is predicted to the scheduled area. As the canal is monitored by Scottish Canals, any alteration to its form would also be made promptly known to us by its third party works

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manager. Therefore, a monitoring/notification condition would not be necessary or relevant to the proposal, and therefore not a reasonable imposition.

On that basis, it is recommended that no conditions are attached to a grant of consent.

6. Recommended decision

I recommend that consent is **granted without conditions.**

The works proposed are considered acceptable in meeting the terms of national policy for scheduled monuments, and also accounting for other material considerations.

7. Conditions

None

8. Approval

Officer	**John Malcolm**	**Date**	**18/05/2016**
Approved by	**John Raven**	**Date**	**18/05/2016**

Annex A – list of supporting documents

- Tunnel repair report
- Site Location Plan
- Ecological survey and report
- Consent Supporting Statement

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