

# The Forth Bridge

Nomination for Inclusion in  
the World Heritage List

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Management Plan

# The Forth Bridge



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Management Plan  
2014 – 2019

# Foreword

Many would argue that the World Heritage listing of the Forth Bridge is long overdue, and others mistakenly believe that it is already a World Heritage Site. Add to this the fact that the bridge will in 2015 see its 125th birthday, and that it is in as good condition as it has ever been after a massive restoration project, and it becomes clear that this is an excellent time to be putting forward a nomination for World Heritage inscription.

With this in mind, we, the lead organisations within the Forth Bridges Forum, are delighted to be able to take forward this World Heritage nomination. There is, in addition, the added excitement of the neighbouring Forth Road Bridge reaching its 50th anniversary in 2014, and the prospect of the completion of the new Queensferry Crossing in 2016. Three consecutive years from 2014 to 2016 will therefore celebrate major engineering achievements spanning three centuries, and the aspiration is that World Heritage inscription in 2015 will provide a major focus within this celebratory festival period, providing a solid foundation for the future conservation and promotion of the Forth Bridge.

There is no doubt that the Forth Bridge is hugely important for Fife, the City of Edinburgh, Scotland, and for the UK, both as a major piece of operational transport infrastructure, and as an icon of a great industrial age. The bridge has now been operating for 124 years, a fact which demonstrates beyond doubt the success of its design, which was born in the most difficult circumstances - the aftermath of the Tay Bridge disaster. It is also a testament to the quality of the maintenance regimes and staff of the various railway companies and contractors that have cared for the bridge over the last twelve and half decades. The fact is, especially following the most recent period

of investment and restoration, the bridge is in remarkably good condition, and with the help of this Management Plan, should remain so for many decades to come.

Whilst potential inscription of the Forth Bridge will not itself impact on its operational function as an essential part of the UK's mainline rail network, it is likely to have a significant effect upon the areas adjacent to each end of the bridge, and potentially on the region, Scotland and the UK more generally. The bridge is already a tourist attraction in its own right, and the publicity generated by potential inscription as a World Heritage Site has the potential to attract many more visitors and create challenges and opportunities for the adjacent communities in Fife, Edinburgh and the Lothians. This Management Plan will therefore seek to identify ways in which the benefits of inscription can be maximised beyond the management and care for the bridge itself, whilst also considering ways of minimising or preventing some of the problems that might ensue as a consequence of an increase in visitors to the area. It will also look beyond the regional confines of the bridge and its setting, and consider wider benefits that may ensue, not least in the context of education and skills, and in the promotion of engineering amongst our younger generations in particular.

This Management Plan is being implemented with the assistance of many partner organisations and local people. It is encouraging that the nomination has received such strong support from the public and all the member organisations of the Forth Bridge World Heritage Steering Group, and we very much look forward to working together over the next six years to ensure both the successful management of the Forth Bridge itself, and the impact of inscription more broadly, should the nomination be successful.



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The Gresley A4 Pacific steam locomotive (built in 1937) 'Union of South Africa' travelling north over the Fife tower of the Forth Bridge, April 2013. © Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Duncan Peet, dpfb\_210413\_031)

# Preface

It gives me immense pleasure as Chair of the Forth Bridges Forum to play my part in promoting the nomination of the Forth Bridge for inclusion in the World Heritage List. As the major stakeholder organisation championing the interests of the communities and businesses that are situated around the Forth Bridges, it is more than appropriate that the Forum is playing such a vital role not only in the nomination, but also in the subsequent planning process that will be so vital if the benefits of inscription are to be fully realised.

To achieve this ambition, the Forum has invested considerable time and energy in developing this Management Plan, which is a live document that will evolve over time as opportunities and challenges emerge in the coming years. I have been delighted to be able to contribute to this process, and look forward to maintaining the support of the Forum for the duration of the Plan, and if the opportunity arises, for subsequent plans also.

At a personal level, and as a Chartered Civil Engineer and member of the Institution of Civil Engineers, I am especially thrilled that the Forth Bridge now stands a good chance of being properly recognised for being the extraordinary, awe-inspiring structure that it is. There is nothing else like it, and I truly believe it has the power to enthuse and inspire new generations of engineers across the world.



*Roy Brannen*

**Roy Brannen**  
Chairman,  
Forth Bridges Forum

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# The Function of the Management Plan

This Management Plan has been developed to support the future management needs of the property, to coordinate the interests of associated organisations, groups and individuals, and to maximise the benefits that might ensue from inscription whilst minimising any negative impacts that might also arise. The process of developing this Plan has been led by the Forth Bridges Forum, which includes Network Rail as the owner of the property. The preparation of the Management Plan has been overseen by the World Heritage Nomination Steering Group (known as the 'Steering Group'), a sub-group of the Forth Bridges Forum, and has also drawn on information gathered through a 12-week public consultation, which included four public meetings incorporating workshop sessions in the local communities. As a consequence, the Management Plan has assimilated the views of local people who are likely to be most affected by inscription as well as baseline information on the current condition of the property, maintenance and monitoring programmes, together with anticipated pressures and threats that may emerge during the period of the plan.

The Plan expresses an ambition for the management of the property, which is to:

*Manage it in a sustainable manner, to conserve, enhance and present its Outstanding Universal Value locally, nationally and internationally, and to balance the needs of conservation, operation and access alongside the interests of the adjacent local communities, whilst also contributing more generally to sustainable economic growth.*

*Consequently, it aims to engage with and deliver benefits to the local communities around the property; to attract visitors to the area; to develop opportunities for education and learning and adds value to the local and national economy.*

The Plan sets out a prioritised list of agreed actions for a six year period, with lead partners for each. This Action Plan is subject to measurement and monitoring as set out in Section 6 of the Nomination. It will be under regular review by the Forth Bridge World Heritage Nomination Steering Group. This will ensure co-ordination of effort and alteration of actions to reflect any changes in circumstances or needs of the property.

This Management Plan focuses on maintaining the conservation of the Forth Bridge, together with managing the potential impact of its inscription. In particular, it will focus on processes that contribute to protecting and enhancing its

setting, and improve interpretation, access and facilities both for local communities and for visitors to the area. It will also attempt to accommodate the needs of people seeking virtual access to the bridge, whether for monitoring or in an educational context.

The associated Action Plan covers the period 2014–2019, during which the nomination will be submitted and considered for inscription. Actions in the first years are geared towards information-gathering and project development, as well as establishing the essential mechanisms for engagement by local communities. These will help to deliver improvements to local infrastructure and site interpretation.

The Management Plan also acts as the framework for the Forth Bridge World Heritage Nomination Steering Group to co-ordinate specific actions and make effective use of other plans, policies and programmes that may cover the area around the property. It has been produced in consultation with key stakeholders to ensure it can be effectively supported and implemented by the wide range of organisations and communities that have an interest in the property.

# The Vision



In 2012, the Forth Bridge World Heritage Nomination Steering Group invited James Rebanks to assess the potential economic benefits that might be realised, with work put in by the partners if the Forth Bridge were inscribed. In his subsequent report, he proposed the vision outlined below.

*"The Forth Bridge will be a World Heritage site that changes people's lives for the better. A World Heritage Site that brings stakeholders together to make new things possible, at a global, national, regional and local scale. A World Heritage Site that people from around the world can learn about, or visit and have a genuinely world class experience.*

*A World Heritage Site that is an exemplar of best practice: stimulating*

*progressive changes to the infrastructure of local communities to ensure tourism is effectively managed and sustainable. Also, crucially, World Heritage listing will benefit local communities by improving quality of life and by raising the profile of local communities as places to live, work and invest. This nomination aspires to make a Scottish icon into a global icon: a showcase of the best of Scottish endeavour, imagination, engineering and design."*  
James Rebanks (2013), The Forth Bridge World Heritage Nomination: - *Realising the Potential Benefits*

The Steering Group aspires towards the ambition articulated in these words, and this Management Plan attempts to outline ways in which it might be achieved.

Forth Bridge from the north west, November 2012. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Duncan Peet, dpfb271112010)

# Section 1 – Description, Extent, Ownership, Baseline Condition, Partners and Stakeholders

## 1.a Site Description

### Context

The Forth Bridge represents the pinnacle of 19th-century bridge construction and is without doubt the world's greatest trussed bridge. It is a keystone achievement in the world history of bridge-building and of steel construction, and it continues to act as a major artery connecting the north and south of the country by train.

The railway crosses the Firth of Forth in the east of Scotland, 14 kilometres (9 miles) west of central Edinburgh, leaving Lothian at Dalmeny and arriving in Fife at North Queensferry. The point chosen is where the Forth Estuary narrows, separating the inner from the outer Forth. Here volcanic sills of hard quartz dolerite outcrop through the sandstone at Hound Point, Inchgarvie, and have long been quarried at North Queensferry.

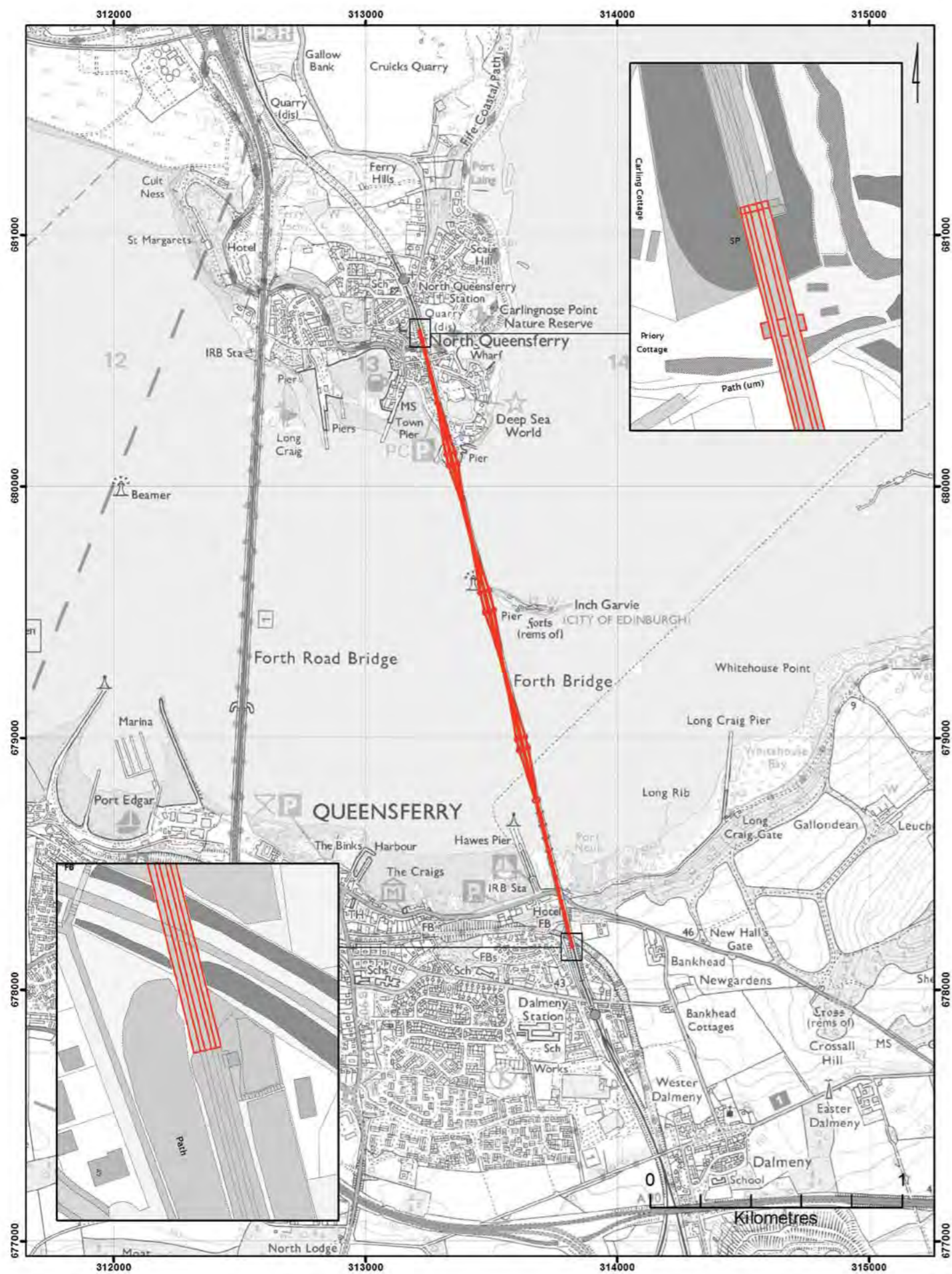
The Forth Bridge Company was formed in 1873 to carry into effect the design of Thomas Bouch for a twin suspension bridge hung from immensely tall towers.

It would take the shortest crossing point via Inchgarvie Island, separated by two equally deep and wide channels. This meant that each of the main spans would be the biggest the world had yet seen. Bouch's Tay Rail Bridge was already the longest viaduct in the world. Its 3.26 km route from Fife to Dundee covered a broad but relatively shallow expanse of water, and so could be made of multiple girder spans. The disastrous collapse of that bridge in 1879 had a seminal impact on bridge design and construction world-wide, and it brought work on the Forth Bridge to an immediate halt. Yet the North British Railway had confidence that the Tay Bridge would be rebuilt and also that the Forth could safely be crossed.

In 1880 John Fowler and Benjamin Baker started design on the present bridge and in 1882 tenders were issued. Their cantilever viaduct was begun in 1883 by Tancred, Arrol and Co, lead contractor, devising in the

**Opposite:** The Forth Bridge's Inchgarvie tower in July 2011, showing scaffolding providing access and encapsulation designed both to contain the old paint following its removal and assist the drying of the new paint. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe)





**Title:** Forth Bridge

**Scale:** 1:20,000

**Projection:** British National Grid

**Key:** — Nominated Property

Map of the Nominated Property, 2013. Contains public sector information and Ordnance Survey data (© Crown Copyright, 2013 Ordnance Survey [Licence Number 100021521])



process ways of overcoming many challenges. The bridge opened in 1890 and still operates today as a vital passenger and freight rail connection.

A world wonder of its age, this Victorian engineering marvel was made possible by new technologies. Steel was used here for the first time on a large-scale European construction project, thanks to the Anglo-French Siemens-Martin process that made economically possible the delivery of great quantities of steel, mostly made in Scotland and Wales.

53,000 tonnes of mild steel is used in two ways, as main compression struts of rolled steel plate riveted into 4m diameter tubes, and lighter spars that are used in tension. The overall length is of 2,529 metres (8,297 feet). Each of the two largest spans of the bridge reach across 521 metres (1,710 feet). Of balanced cantilever design-built so as to balance each other during

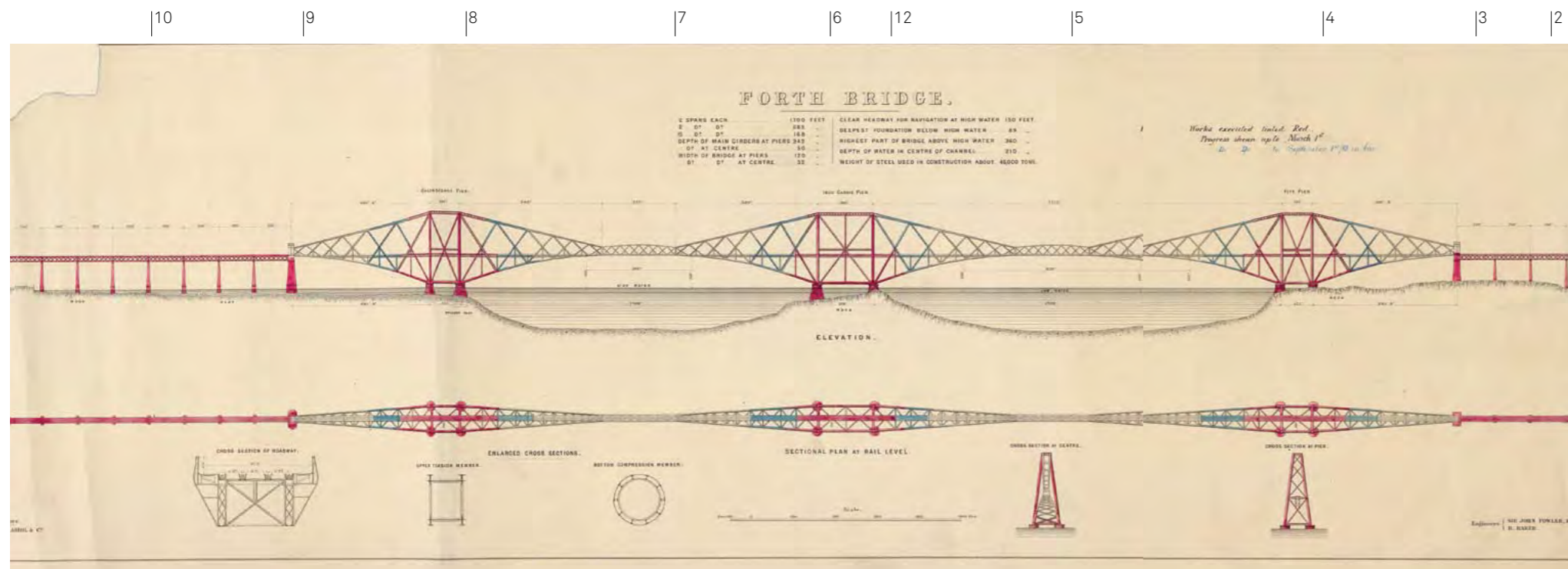
construction-once they met each other main span comprised two 207 metre (680 feet) cantilevers and a 107 metre (350 feet) suspended span hung between them. When completed they were equally the greatest spans in the world, and stayed so until 1917, when 549 metres (1,801 feet) was achieved in just one span at Quebec, at the third attempt, the first two having failed with much loss of life. No other attempt has been made to build such a large steel trussed bridge, and none has ever matched the perfect balance of structural elegance and strength represented by the Forth Bridge.

When completed as a bridge in 1889, and opened to rail traffic in March 1890, the bridge was the greatest example of its type. It holds the record for the world's longest multi-span cantilever bridge. Its distinctive profile is recognised world-over and the bridge is internationally regarded as an icon of Scotland and as a symbol of engineering prowess.

Progress photograph of the Forth Bridge from the south shore showing the south approach viaduct, Hawes Pier and surrounding buildings, 9 Aug 1887. (© Crown Copyright, National Records of Scotland, BR/ FOR/4/34/395, Evelyn Carey, AAA01539)

# 1.b Extent of the Property

The drawing is numbered to show the component parts of the bridge. The colour red marks progress achieved by March 1 1888 and in blue, progress by September 1 1888 (source Network Rail Archives: [www.networkrail.co.uk/VirtualArchive/forth-bridge/](http://www.networkrail.co.uk/VirtualArchive/forth-bridge/)) Forth Bridge Elevation and Section (coloured), 1 January 1888. (© Network Rail, Sir John Fowler and B. Baker, NRCA110040Sb)



Bridge Component	Main Construction Materials
1. North Approach Arches	Three granite arches and parapet (not shown)
2. North Approach Viaduct	Five-span steel viaduct set on stone piers
3. North Tower	Stone tower containing north portal and counterweight
4. Fife Pier and Cantilevers	North steel double-cantilever tower on stone piers, with steel internal viaduct
5. North Suspended Span	Steel bow-truss span linking cantilevers
6. Inchgarvie Pier and Cantilevers	Central steel double-cantilever tower on steel caissons, with steel internal viaduct
7. South Suspended Span	Steel bow-truss span linking cantilevers
8. Queensferry Pier and Cantilevers	South steel double-cantilever tower on steel caissons, with steel internal viaduct
9. Jubilee Tower	Stone tower containing north portal and counterweight
10. South Approach Viaduct	Ten-span steel viaduct set on stone piers
11. South Approach Arches	Four granite arches and stone parapet (not shown)
12. Lighthouse on pier for Bouch's Forth Suspension Bridge	Iron, glass, brick and sandstone

The property contains all the attributes needed to sustain the property's Outstanding Universal Value. It comprises the entire bridge, and nothing more than the bridge. Its arches spring from natural ground, partly buried in embankment, and its approach spans rise from the midst of North Queensferry, and from the eastern edge of Queensferry. The three towers from which the cantilevers balance are founded on caissons sunk into rock in the sea, on the sea-covered part of Inchgarvie Island, and either side of Battery Pier on the North Queensferry headland. It is accessed from either end at track level from Dalmeny and North Queensferry stations respectively.

Construction of the bridge was awarded as a distinct contract and this is demarcated from the contracts for building the connecting lines north and south. Contract drawings show: "Point Marked A (and B) on Contract Plan No. 1 Termination of Contract Works". The bridge construction contract physically ends where the stone parapet ends, and where the embankments start. This defines the full extent of the property.

The South (or Queensferry) cantilever pier stands on and includes the caissons set into the water. The central pier stands on the submerged rock of Inchgarvie Island. The Fife pier stands on rock in North Queensferry and allows

close access to appreciate the colossal scale of the skewbacks from which the riveted steel tubes forming the main frame of the structure spring. All parts of the bridge form the property, whether lying in conservation areas or stretching across water between the two conservation areas.

Beyond the property, elements associated with earlier ferry piers, and the later Road Bridge, inform the understanding of the crossing point but are not essential to the Outstanding Universal Value of the bridge. These are already adequately protected through presence in Conservation Areas and Inventory Designed Landscapes, and form part of the immediate setting of, and location of viewpoints for, the bridge.

The railway runs northward through cuttings, and quarries (formed as building materials for the bridge were extracted) to an approach viaduct at Inverkeithing (an under-deck steel girder, also listed and recently painted Forth Bridge red), and it runs southward on an embankment above Dalmeny. But beyond North Queensferry and Dalmeny stations, it ceases to have the character of one viaduct, so those stretches of track need not be considered part of the property.

One of the islands in the Firth of Forth is very close to the bridge. Inchgarvie Island is a scheduled monument containing fortifications from medieval times to the First and Second World Wars. Some use was made of

the island, like other land in the vicinity, during construction of the bridge, and again by Network Rail in its recent work to the bridge. It is in private ownership and is uninhabited. It is not proposed to include this within the property, just as the scheduling of the island excludes the active Forth Bridge. The bridge does not connect to the island, but to the underlying rock below lowest sea level.

Consideration has been given to the inclusion within the nomination of the embankments beyond the north and south ends of the bridge. These are man-made, and in Fife soon give way to a tunnel and cutting. They were essential to give level access to trains crossing the bridge, and were completed early in the construction works, but they are clearly not physically part of the bridge. Equally, although also maintained by Network Rail, they are not included within the same management regime, and have therefore been excluded from the property as defined in the nomination.

In conclusion, the property is considered to be complete as a single railway viaduct stretching across the estuary from escarpment to escarpment.

Some use was made of



## 1.c Ownership

Network Rail is the owner of the bridge and responsible for its ongoing day-to-day maintenance and management. It is a non-profit making virtual public limited company funded by railway users and Government support.

## 1.d Baseline Studies of Current Condition of the Property

### 1.d.1 Condition Assessments

A baseline resource from which to monitor change is given by the photographic surveys routinely carried out by Network Rail and its contractors (currently Balfour Beatty), and historically through the collections in the National Records of Scotland, Historic Scotland, the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), Imperial College London, and the Institution of Civil Engineers.

In partnership with the Glasgow School of Art, the creation of a 3D digital model through detailed and extremely accurate laser scanning technology is also being investigated, with the aim of providing a baseline survey and data set. A pilot survey was completed with excellent results in August 2013, and a complete survey of the bridge is being considered as an action of this Management Plan.

More generally, Network Rail routinely reports to the Office of Rail Regulation, and the Partnership Management Agreement provides a means by which local authorities, in certain cases consulting Scottish Ministers, will be able to monitor the condition of the bridge.

### 1.d.2 Latest State of Conservation Report

Considering its age, the Forth Bridge is in an excellent state of conservation. The recently completed refurbishment of the bridge was very thorough and assures the site against risk from neglect or decay to its Outstanding Universal Value for the foreseeable future. There is no discernible threat to its continued use as an essential part of the national rail network, which is the best means to ensure its continued maintenance and high state of conservation.

Network Rail performs Mandatory Visual Inspections of the Structure. These are documented as written reports with a view to highlighting urgent issues. These are carried out from existing walkways adjacent to the track and the walkways immediately below track level in the Internal and Approach viaducts. These inspections (by eye and binoculars) are to some degree limited to everything that can be seen from these walkways but serve as a very good general health check. Effectively one sixth of the bridge is inspected each year.

**The Condition of the Bridge in 1995:** the UK Health and Safety Executive (HSE) then



**Far Left:** The poor condition of the old paint in 1989, a decade before the commencement of restoration project and the application of the new paint system. (© Crown Copyright: RCAHMS. Licensor [www.rcahms.gov.uk](http://www.rcahms.gov.uk) Miles Oglethorpe, SC676298)

**Left:** View from the top of the Fife tower showing much improved paintwork, July 2013. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe, DSC\_3705)

commissioned an independent assessment of the bridge using consultants Pell Frischmann. It determined the strength of the various members of the bridge by means of condition survey, hazard assessment and structural analysis, and found:

- The bridge was safe, in its current condition, to carry Railtrack's (the custodian of the bridge from 1994 to 2002) present loading requirement
- Although the bridge had been allowed to deteriorate, at that time the structural integrity of the bridge was not compromised
- The assessed capacity of the bridge in its then current condition complied with modern standards of safe design of bridge structures
- The existing maintenance regime required improvement if the deterioration of the bridge was to be arrested and potential structural problems in the future were to be avoided.

This gave the impetus for the comprehensive programme of refurbishment that followed and was completed by Network Rail in 2011. It shows how far the bridge has come thanks to that investment. To take as an example:

**The bridge's bearings** are original, have never been replaced and were deemed fit for purpose as part of the structural integrity calculations carried out in 1995. One of these had had a crack patch-repaired in 1934.

On-going maintenance of the bridge includes periodic checking of the bearings and in the event that serious problems develop, Network Rail would consider replacement as a solution. A "modern" greasing system has been introduced into the secondary bearings in the approach viaducts and suspended spans. The lubrication arrangement is made up of a series of "grease-o-matic" canisters that effectively feed the bearings with a low viscosity grease. These followed recommendations made in the HSE report in 1996, and was not deemed necessary in the principal bearings at the North and South Jubilee Towers.

**Past Repairs:** Other repairs are known to have taken place in the past, such as the strengthening of the deck trough that carries trains in 1919-24 and in 1934 a patched repair using a section of rail in an abutment. These enabled full and non-stop operation of the bridge.

In the recent past all repairs have been carried out sympathetically in keeping with the bridge structures, using, for example, "modern rivets" or cup-head bolts incorporating a round head on the most visual of surfaces to mimic the original rivets used in the construction of the bridge. This technique is more often used in the repair of riveted structures than the reintroduction of hot riveting. That process died out in World War Two.

**Fatigue:** Wear and tear: The bridge is not now stretched to its limits. Fatigue was considered in the HSE report in 1995: "...the results indicated that, in the context of modern train loading, only a small percentage of the estimated total endurance had been used up. Fatigue effects from temperature and wind loading were also considered but were not significant".

The Forth Bridge and the rail network associated with it can still significantly increase capacity and services. Therefore there was no case for including heavy rail as a precaution in the new Forth Replacement Crossing. This is built only for road transport because the Forth Bridge can continue to be relied on for rail.



50 Microns dft

**Acrylic Urethane Top Coat**

400 Microns dft

**Glass-flake epoxy Main Coat**

50 Microns dft

**Epoxy zinc phosphate blast primer**

12-20,000 Microns dft

**Steelwork (Surface prepared To Swedish Standard Sa 2½)**

train numbers has freed capacity to permit an increase in the numbers of passenger train paths across the bridge.

In summary, general wear and tear has little significant impact on the bridge. Regular maintenance of the railway itself, along with a routine care and maintenance regime for the structure addresses any items of general wear and tear. Replacement of worn components is generally limited to the rails themselves and to the embedded timber baulks on which they sit. The timbers in the troughs absorb some of the impact energy of the trains and spread the load.

#### Conservation Measures

The property is protected through the planning system by its designation as a Category 'A' Listed building. The draft Management Plan identifies actions to further protect and enhance the condition of the historic fabric, many of which will be achieved through the Partnership Management Agreement.

One such measure is for example, the recent removal by Network Rail of some unsightly cable troughs from the south face of the South Jubilee Tower, which has returned this granite elevation to its original clear view. A Conservation Management Plan (CMP), will help to build on the achievements of the recent restoration works.

Historically the Forth Bridge had been the principal path for coal trains serving the large thermal power station at Longannet, but the re-opening of the Stirling-Alloa-Kinross railway line has greatly reduced this load. At its height, the overall freight traffic amounted to some 6,000 freight train journeys per annum, each outward train being up to 1,400 tonnes in weight – but very much less coming back because they usually returned empty. However, the bridge remains an important freight route (e.g. for pipes and cement) and can be called on at any time as the only diversionary route to again service Longannet. Meanwhile, the reduction in freight

**Top:** While it was possible to spray paint many of the surfaces, many parts of the Forth Bridge required final hand painting, July 2009. (© Courtesy of Balfour Beatty)

**Below:** The new Epoxy glass-flake coating system that has been applied to the bridge, replacing the original paint, which contained lead. (© Courtesy of Duncan Sooman, Scot Rail)

**Opposite:** An abseiler carrying out maintenance work beneath the permanent way within the north approach viaduct of the Forth Bridge, August 2012. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Miles Ogletorpe, DSC.7864)

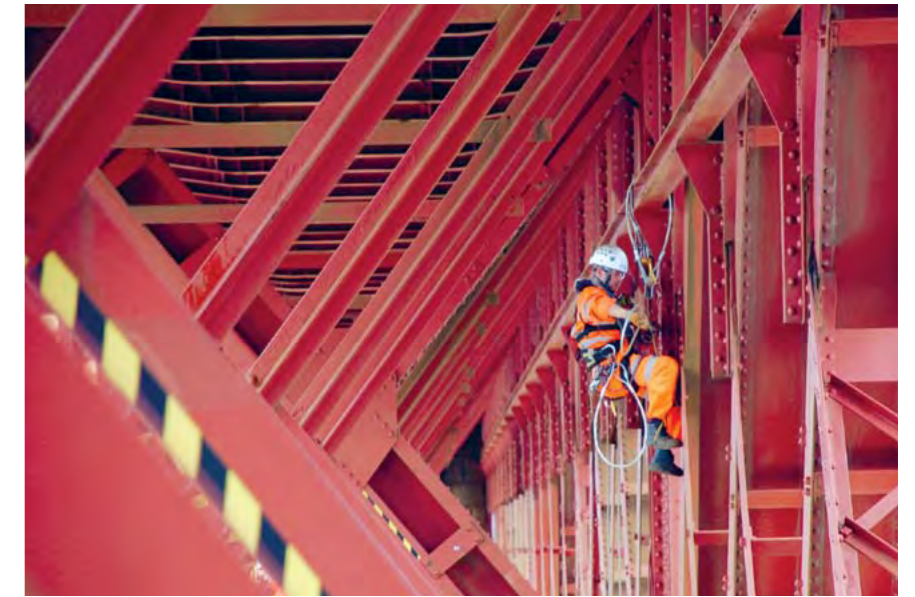


Table collated from information in the Network Rail CARRS report (and see 6.a Monitoring)

#### South Arches 3 Span Masonry Arch Viaduct

Constructed in granite. Arches noted to be in good overall condition with no notable defects reported for many years. Widespread leaching and efflorescence reported in addition to vegetation ingress issues.

#### North Approach Viaduct

Constructed in early steel, metallic 5-spans viaduct, coated in old 5-coat Alkyd system throughout between 1993 and 1997. Oldest and therefore poorest paint on the bridge but still serviceable. Envisage need to commence repainting in approximately 5 years' time. Systematic attention required regarding contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points. As this travels over dry land in Fife, and is relatively easily accessed, this part has what is now the oldest paint. So it is early in the programme for attention.

#### North Tower, Constructed of Granite

Twin barrel arch over the running lines. Internal Spiral Staircase in relatively poor condition, though non-essential. Maintenance of stairs to be programmed in within the next 5 years. No repainting envisaged within next 15 years. Systematic attention to contact points.

#### North Queensferry, Internal Viaduct

All elements coated in glass-flake epoxy system with exception of bays 5 and 6 North. North Queensferry internal viaduct. Glass-flake systems applied during 1997 to 2011. Alkyd System applied 1996/ 1997. Repainting may be expected to Alkyd system areas within 5 to 10 years. No repainting of glass-flake system envisaged within 10 years. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### North Queensferry Pier and Cantilever

All elements coated in glass-flake epoxy system except Fife North "C" Bracings, glass-flake systems applied during 1997 to 2011. Alkyd system applied 1996/ 1997. No repainting envisaged to glass-flake areas for 10 to 15 years. Possible need to repaint areas of Alkyd coatings areas within 5 to 10 years. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### North Suspended Span

Soffit coated in 1996 with old 5 coat Alkyd system and we could expect to have to repaint within 5 to 10 years. Structure above base of wind fence coated in epoxy glass-flake system 2004 to 2010. No repainting of this area expected in next 15 years. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points. Some attention may be required to the old gantry system - now locked off at end of span.

#### Inchgarvie Internal Viaduct

All Elements coated in epoxy glass-flake main coat system between 2005 and 2011. No repainting envisaged within the next 15 years. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### Inchgarvie Tower and Cantilevers

No expectation to repaint within 15 years. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### South Suspended Span

Structure above base of wind fence coated in epoxy glass-flake system 2003 to 2008. Soffit coated in 1996 with "Old" 5 coat Alkyd system and we could expect to have to repaint within 5 to 10 years. Attention also may be required to the old gantry system - now locked off at end of span. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.



Detail of the access walkway and structural steel work beneath the permanent way in the south viaduct of the Forth Bridge, July 2011. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historic-scotland.gov.uk](http://www.historic-scotland.gov.uk) Miles Oglethorpe)

The next major intervention priority in a hard-to-access area like Inchgarvie tower would then arise in 2028. The bridge is in as good a condition as it was before the First World War. This is most unusual in bridges of this age.

#### South Queensferry Pier and Cantilever

All elements coated in epoxy glass-flake main coat system applied between 1998 and 2011. No repainting envisaged within the next 10 years at least - and 15 years for more recently painted elements e.g struts and top members. Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### South (Jubilee) Tower

Support tower constructed in granite. Twin barrel arch over the running lines. New external cantilevered wrap around walkway installed in 2012. Internal spiral staircase is redundant and currently out of general use. Minor repairs required. Externally available faces coated in epoxy glass-flake system approx 2006. In excellent condition. No repainting envisaged within 15 to 20 years. Systematic attention to Contact points.

#### Ten-Span Metallic Viaduct Numbered from Low Mileage End from Dalmeny

Constructed in early steel. South approach spans 1 to 9 - counting from the South All coated in 3 coats. Epoxy glass-flake main coat. 1996 to 1999 coat 1997. Systematic attention required regarding Contact points. Span 10 ( nearest to Jubilee Tower) coated in "Old" 5 Coat Alkyd system in 1996, possibly need to repaint 2018 onwards. Systematic attention required regarding Contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### South Approach Arches

4-span masonry arch viaduct numbered from low mileage end from Dalmeny. Constructed in granite. End support completely buried under embankment at Dalmeny end. Arches noted to be in good overall condition with no notable defects reported for many years. Widespread leaching and efflorescence continually reported in addition to vegetation issues.

#### Lighthouse

The Lighthouse is a category A listed structure and is owned by Network Rail.

## 1.d.3 Landscape Assessment and Visual Appraisal

The property is a landmark from a distance of up to 20km, and contributes in various ways to the setting of so many places that it would be misleading to define a limited area as the only one in which the setting of the bridge must be safeguarded. In light of the UNESCO publication 25, *World Heritage Buffer Zones* (2009), the Steering Group has concluded that many of the desirable aspirations that could be addressed in the vicinity of the property could better be achieved by avoiding use of the term "buffer", with its connotations of visual impact and protection against harm, rather than pro-active planning. In order to demonstrate this, the setting of the property has been subject to rigorous study by means of Key View photography and by Viewshed analysis, the results of which can be found in Section 5.c.8 of the Nomination Document.

For key-view photography, viewpoints were chosen by physical investigation from as many points as possible, supplemented by internet searches of photographic images of the Forth Bridge. The viewpoint study demonstrated that it is the Fife Tower and cantilever

that stands most prominently because it projects into the Forth, whereas the Queensferry cantilevers to the south are more sheltered, enclosed by a hill to the east and by gently rising ground to the west.

From points north and south, much depends on climatic conditions where land is the backdrop. The bridge stands out against sunshine and shadows that give a visual contrast, but on other occasions it might merely vanish into the landscape. The Forth Bridge and the adjacent Forth Road Bridge are sufficiently far apart in north-south axes that in most cases one or the other bridge will be captured in a photograph, but not usually both together.

The tallest modern building in the vicinity is the control tower of Edinburgh Airport, 57m high, built in 2005. It can be seen from the top of the Forth Bridge, and vice versa. They are, however, hardly in competition at a distance of around 5-6 Km. When viewed in line from hills 16-20 km away to the south, the control tower would need to have been twice as high again to intrude into the sight line of the Forth Bridge. From higher points in these hills, the bridge is a distant element, unobstructed by man-made competition. This suggests that development does not need to be controlled to protect such long views.

From east and west, long views benefit where a backdrop is either sky or water. This particularly applies to views from the west looking out to sea. Development on the Forth shoreline should therefore take into consideration impact on some cherished views. However it is evident that existing structures along the edge of the Forth have almost no adverse effect when viewed as part of the backdrop to the Forth Bridge. The Forth Road Bridge is clearly distinguishable even when views pass through it, and the Queensferry Crossing now under construction will have a similar effect. Large buildings by the shore at Rosyth Dockyard, and at Longannet, the largest power station in Scotland, do not compete

against the Forth Bridge even when they come into the background frame.

In order to further better understand the setting of the bridge, a 'Viewshed analysis' was also undertaken. Using topographic data from digital maps, a scoring system for viewpoints was applied, the higher the score, the more of the bridge that can be seen at any specific location. Each 'viewshed' can be rotated through 90 degrees into any number of cross-sections showing the profile of land between the bridge and a viewer. The most important viewshed sightlines show that development in the centre of Edinburgh cannot obstruct views of the Forth Bridge. The others show that some hills could potentially affect views from a greater distance.

City of Edinburgh Council adopted key view assessment to help assess the impact of proposed high-rise development within the city. This has proved to be useful in determining the potential impact of proposed development on the Old and New Towns of Edinburgh existing World Heritage Site, even well beyond the property itself (there is no Buffer Zone). What may be built in low-lying folds of hills may have less impact than would a new building of the same height on the crest of a hill. It may then be possible to adjust the massing of that development so as to minimise harm to the setting of specific landmarks. The system worked well, and Planning Authorities considering setting as a factor in determining planning applications may also take guidance from: <http://www.historic-scotland.gov.uk/setting-2.pdf>.

In the case of the Forth Bridge, the scale and setting of the structure is such that monitoring proposed developments using Viewshed analysis and controlling development through the existing system of Planning and designations will be at least as effective as has proved to be the case in the City of Edinburgh. It is therefore our view that a strictly-defined Buffer Zone would not be helpful in the context of the Forth Bridge.

## 1.e Partners and Major Stakeholders in the Property

The Nomination and Management Plan have been developed by the Forth Bridge World Heritage Nomination Steering Group, a sub-group of the Forth Bridges Forum. The Steering Group comprises representatives of the following organisations:

- **Network Rail:** the owner and operator of the Forth Bridge. It is a 'not for shareholder dividend' company, all its profits being reinvested in improving the UK railway network.
- **Transport Scotland:** the Scottish Government agency responsible for transport, whose responsibilities include railway infrastructure in Scotland. Transport Scotland also manages and funds the Forth Bridges Forum.
- **Historic Scotland:** the Scottish Government agency responsible for protecting and promoting Scotland's historic environment.
- **Fife Council:** the local authority covering the area around North end of the bridge, including North Queensferry.
- **City of Edinburgh Council:** the local authority covering the south end of the bridge, including Queensferry.
- **Forth Estuary Transport Authority (FETA):** the public body responsible for maintaining the existing Forth Road Bridge.
- **Visit Scotland:** the national organisation responsible

for promoting tourism in collaboration with private businesses, public agencies and local authorities both in Scotland itself, the UK and overseas.

- **Queensferry Ambition:** Business Improvement District (BID) established in 2012 to promote Queensferry as a quality destination for businesses, residents and visitors, through strengthening local involvement and partnership.
- **Queensferry & District Community Council:** a voluntary but statutory body representing the people of Queensferry and Dalmeny.
- **North Queensferry Community Council:** a voluntary but statutory body representing the people of North Queensferry.
- **North Queensferry Heritage Trust:** a voluntary organisation dedicated to preserving and promoting the history and beauty of North Queensferry and its immediate surroundings.

The Steering Group has overseen the production of the Nomination Document and Management Plan, supported by a secretariat in Transport Scotland, and will continue to co-ordinate actions for the implementation of the Management Plan and its vision. A concordat to this effect has been agreed by the group:

*We, the representatives of the Scottish Ministers (Transport Scotland and Historic Scotland), Network Rail, Visit Scotland, Fife Council, City of Edinburgh Council, the Forth Estuary Transport Authority, Queensferry Ambition, Queensferry & District Community Council, North Queensferry Community Council and North Queensferry Heritage Trust declare our support for the nomination of the Forth Bridge as a World Heritage Site. We confirm that all parties are committed to working together to achieve appropriate recognition for the Forth Bridge in the cultural heritage of Scotland, the UK and its wider international context. Moreover, all parties confirm that they will work together to improve the protection, management, presentation and interpretation of the Forth Bridge and so deliver sustainable development for the economic and social benefit of the communities that live alongside it.*

Membership of the Steering Group remains open and others with active interests around the property will be encouraged to join as appropriate. In the event of inscription being achieved in 2015, the word 'Nomination' will be removed from the full title of the Steering Group, and in the longer term it will review and revise the Management Plan.

## 1.f The Consultation Process for the Nomination

The process of engaging local communities and businesses in the development of the World Heritage Site nomination commenced with the commissioning in December 2012 of Rebanks Consulting Ltd to examine the potential economic benefits of nomination to the local communities around the bridge. There followed a formal twelve-week public consultation exercise to provide an opportunity for local residents, businesses, organisations, visitors and others to comment on the nomination and management proposals for the Forth Bridge.

A public consultation document was produced which contained a summary of the proposals for nomination and management of the Site, highlighting the key issues, including potential benefits, threats, opportunities and restrictions. A consultation questionnaire accompanied the document, and both were made available throughout a twelve week period and at public venues across the area. The consultation commenced on Monday 20th May and ended on Sunday 11th August 2013, and was available online through a dedicated website at [www.forthbridgeworldheritage.com](http://www.forthbridgeworldheritage.com). In addition, four drop-in workshop sessions were arranged from May to August 2013 to enable the public to speak to members of the Steering Group about the proposals, and a promotion day



was held at Edinburgh Waverley Station on 30th July.

The consultation focused on management issues relating to the local communities situated around the Forth Bridge, for whom the impact of World Heritage is likely to be most intense. Fifty-eight valid responses were received via the online questionnaire. Of the four public events that were held, two were hosted in Queensferry (south of the river), and two in North Queensferry, together attracting 93 people. The meetings took the form of facilitated workshops and proved to be lively and constructive events.

Billy Steven (left) and Grant Ritchie (right), winners of the Transport Scotland Forth Bridge Photo Competition, with Keith Brown, MSP (centre), Minister for Transport and Veterans in the Scottish Government, 26 November 2013, (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Santiago Arribas)

## 1.g Summary of Response to the Consultation

The response to the consultation was broadly very positive, with the overwhelming majority of online respondents welcoming the nomination of the bridge. Of those who were less confident about the perceived benefits of World Heritage inscription, most were also in favour, but were concerned about potentially negative impacts upon the quality of life in the two communities.

Much of the concern in the online questionnaire focused on road infrastructure, parking, potential congestion and worsening traffic hazards caused by a predicted increase in visitor numbers. These were perceived by many to be problems that already exist, and so the World Heritage nomination was thought by some to be a good opportunity for the local authorities to take the initiative and propose solutions before the situation gets even worse. There was a consensus that action needs to be taken as soon as possible, rather than waiting until potential inscription in 2015.

These issues also emerged strongly in the workshops, where it was stressed that a co-ordinated, sustainable approach to transport and parking was needed. Suggested solutions included better use of both of train services and of boat transport, as well as an expansion of park & ride facilities.

A small number of people expressed concern at the possibility of a surge in the number of visitors, so harming the existing character of the communities on both banks of the Forth, and any potentially negative impact on the natural environment. However, overall,

responses were both positive and helpful, and have been incorporated into this Management Plan.

Many believe that World Heritage will bring with it opportunities for business, including tourism, and has the potential to feed into many forms of education. Perceived benefits ranged in scale from those affecting local businesses to national and international developments. There was an almost universal sense of pride and cultural value associated with the bridge, even amongst those who were concerned about harmful impacts from World Heritage inscription.

All the workshops expressed the hope that World Heritage would result in the attraction of more investment into the communities, with better networking, improved and better co-ordinated public transport, and with this, the potential for 'Green Tourism'. There was therefore a strong feeling that effective management will be needed to ensure adequate systems and enhanced infrastructure to minimise the potentially detrimental effects of more traffic and people, if World Heritage inscription is achieved.

Meanwhile, the widespread support for the nomination was further demonstrated during the day of promotion at Waverley Station.

No negative reactions to the nomination were detected amongst a wide range of passing passengers and other pedestrians throughout the day. Some even expressed surprise that the Forth Bridge is not already a World Heritage Site.

**Opposite:** Nocturnal view of the Forth Bridge taken from the Town Pier, North Queensferry, by Ian Appleton in March 2012. (© Ian Appleton, Forth Bridge Photographic Competition Finalist, Ian Appleton, FBPC0115)



Aerial view from the south of Queensferry, with the Forth Bridge and Forth Road Bridge, 2012. © RCAHMS Aerial Photography Collection. Licensor [www.rcahms.gov.uk](http://www.rcahms.gov.uk), DP114662)

# Section 2 – Analysis of Significance, Heritage Protection, Land- Use Planning, Designations and Management Arrangements

## 2.a Analysis of Significance

## 2.a.2 Justification for Inscription

### 2.a.1 Statement of Outstanding Universal Value

The Forth Bridge is a globally-important triumph of engineering, at once structural and aesthetic. It represents the pinnacle of 19th century bridge construction and is without doubt the world's greatest cantilever trussed bridge. When opened in 1890 it had the longest bridge spans in the world, a record held for 27 years. No other trussed bridge approaches its perfect balance of structural elegance and strength, nor its overall scale, and no bridge is so distinctive from others as is the Forth Bridge from its peers.

Superlative in its application of novel technologies, the Forth Bridge used and influenced engineering know-how that had become international in scope. The bridge continues to act as a vital transport artery and shows in an exemplary way how an historic bridge can be sensitively managed to meet modern needs. Painted Forth Bridge red, a task famously set into folklore as endless, this icon of Scotland perfectly encapsulates 19th century belief in mankind's ultimate ability to overcome any obstacle: the impossible could indeed be made possible.

The Forth Bridge is the world's first monumental-scale steel bridge. When it was built it had the longest spans in the world, was unique in its scale and superlative in its application of novel technologies. It is a keystone achievement in the world history of bridge-building and of steel construction. It has worldwide iconic status as a globally-important triumph of historic engineering.

The genius of its design is at once structural and aesthetic. The ideas enshrined in this iconic industrial monument had worldwide scientific and architectural application that

## 2.b Heritage Protection

### 2.b.1 Listed Buildings

significantly advanced the condition of mankind and society across the world.

The overall span of 2,529 metres links Fife to Edinburgh and beyond. Of counterbalanced cantilever design, each of the 521 m (1710 feet) spans of the bridge consists of two 207m (680 feet) cantilevers and a 107m (350 feet) suspended span. When opened in 1890, they were equally the greatest spans in the world, and stayed so until 1917. The overall size of the Forth Bridge remains unsurpassed by any other steel trussed bridge, and none of these has matched the perfect balance of structural elegance and strength represented by the Forth Bridge.

On completion in 1889 the bridge was therefore the greatest example of its type. It simultaneously achieved the longest and second longest spans in the world and held that record for an unprecedented length of time. It still holds the record for the world's longest multi-span cantilever bridge, whilst its distinctive profile is recognised world-over and internationally regarded both as an icon of Scotland and a symbol of engineering prowess.

The criteria on which this nomination is based are therefore that the Forth Bridge:

**Criterion i): Represents a Masterpiece of Human Creative Genius**

The Forth Bridge is an aesthetic triumph in its avoidance of decoration and yet an achievement of tremendous grace for something so solid. Its steel-built cantilever design represents a unique level

of new human creative genius in conquering a scale and depth of natural barrier that had never before been overcome by man.

**Criterion ii): Exhibits an Important Interchange of Human Values on Developments in Architecture and Technology**

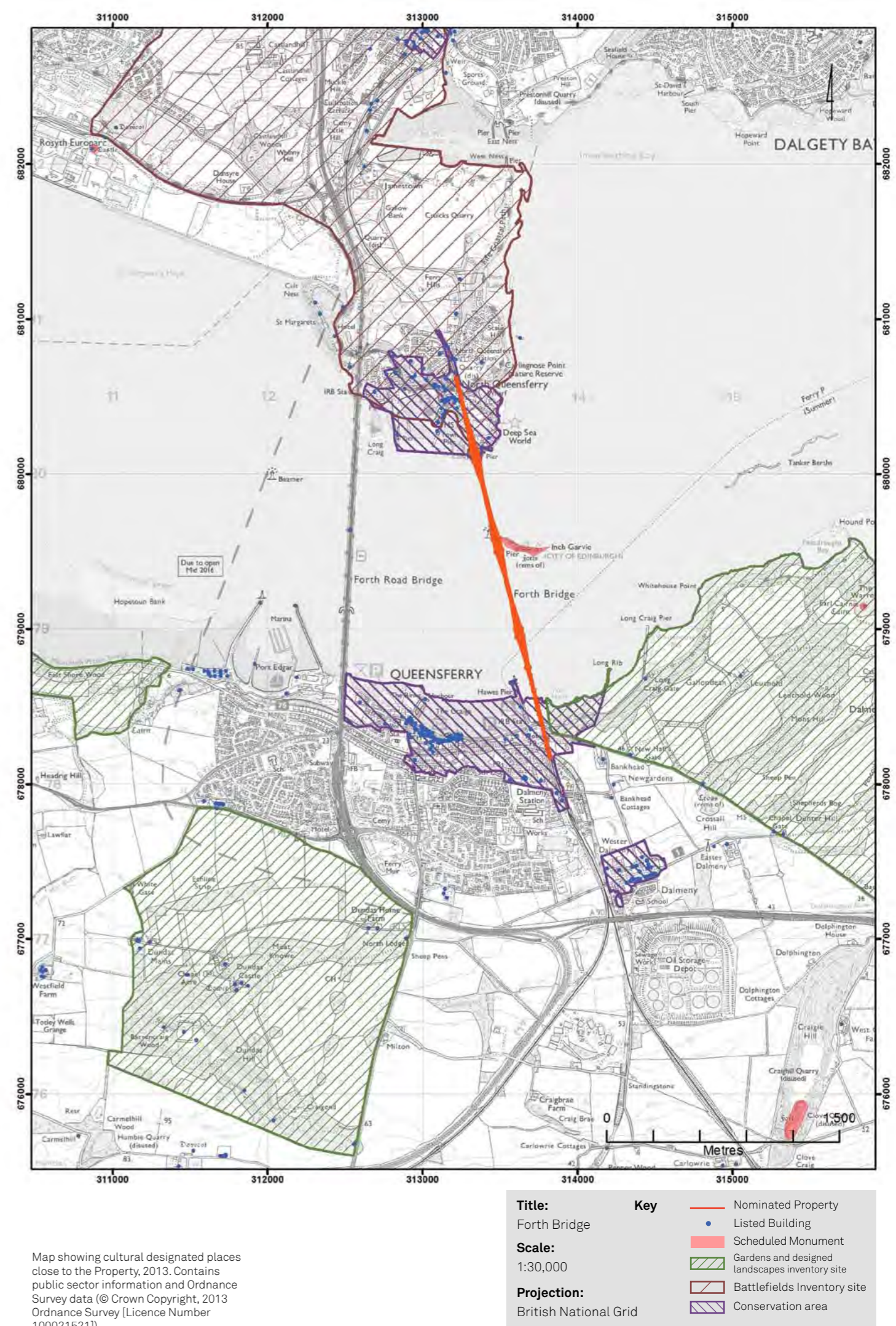
The Forth Bridge was a crucible for the application to civil engineering of new design principles and new construction methods. It was at that time the most-visited and best-documented construction project in the world. It therefore exerted great influence on civil engineering practice world-over and is an icon to engineers world-wide.

**Criterion iv): An Outstanding Example of a Type of Building, Architectural or Technological Ensemble or Landscape Which Illustrates (a) Significant Stage(s) in Human History**

The Forth Bridge represents a significant stage in human history, namely the revolution in transport and communications. The railway age, of which it is a potent symbol, was made possible by, and influenced the speed and connectivity of, the industrial revolution. The bridge forms a unique milestone in the evolution of bridge and other steel construction, is innovative in its design, its concept, its materials and in its enormous scale. It marks a landmark event in science and architecture that went on to profoundly influence mankind in ways not limited to bridge-building.

The Forth Bridge itself is listed at Category 'A' for its international and national importance. This gives it statutory protection and any change to the character of the bridge requires Listed Building Consent, which has to be obtained from City of Edinburgh and Fife Councils, with advice from Historic Scotland on behalf of Scottish Ministers. The date of statutory listing was 18th June 1973.

In addition to the Forth Bridge itself, in the adjacent bridgehead zone (at its north and south ends), there are a number of other listed buildings. Those relating to crossing the Forth are included in the table on page 28.



Map showing cultural designated places close to the Property, 2013. Contains public sector information and Ordnance Survey data (© Crown Copyright, 2013 Ordnance Survey [Licence Number 100021521])



## 2.b.2 Scheduled Monuments

There is no scheduled monument as part of the property. This designation applies to assets of national importance that are not expected to be put into use. So the nearby Island of Inchgarvie is scheduled, and specifically excludes the Forth Bridge. The central cantilever tower of the bridge stands on rock that is near the island. The Chapel to St James in North Queensferry is a scheduled monument. St James is the patron saint of travellers.

Name of Building	Designation
Light House and pier of the first bridge by Thomas Bouch, 1878, included within the listing of the Forth Bridge itself	Category A
Forth Road Bridge, 1964	Category A
Name of Building, Fife	Designation
North Queensferry Station, 1890	Category B
Town Pier, 1810-18,	Category A
East and West Battery Piers, 1810-13, altered 1883-90	Category A
Railway Pier, 1872-7,	Category B
Pilot Boat Slipway circa 1883,	Category C
Pierhead Tower House, 1810	Category C
Pierhead Signal House, 1810	Category B
Royal Naval Signal Station Cottages,	Category B
Carlingnose Battery, 1901-2	Category A
Name of Building, City of Edinburgh	Designation
Dalmeny Station, 1890	Category B
Hawes (New Hall) Pier and Leading Light, 1810	Category B
Queensferry Harbour 16th century/ 1809-18	Category B
Bridge House, 22-23 Newhalls Rd, 1882	Category C
Hawes Garage, 18th century	Category C
Hawes Inn, 1838/1893	Category B

The Hawes Pier with leading light and the Hawes Inn and stables, all listed, situated at the east side of Queensferry, close to the bridge, and located within a Conservation Area, July 2013. The pier, inn and stables all served ferry travellers prior to the opening of the Forth Road Bridge in 1964. (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotland.images.gov.uk](http://www.historicscotland.images.gov.uk) Miles Oglethorpe, DSC\_3687)

## 2.b.3 Conservation Areas

The springing point at each end of the bridge is protected by Conservation Area designation: North Queensferry Conservation Area and Queensferry Conservation Area. These cultural designations link into the relevant local development plans. Any development there must enhance or preserve the special character of the area, as is set out in their respective conservation area character appraisals. Trees and buildings are protected from felling, lopping or demolition without the appropriate permissions. Certain works to buildings that are within conservation areas may need planning permission.

**North Queensferry Conservation Area** includes the ground carrying the entire approach viaduct, north portal and all of the Fife Tower. The land here is bounded by the masonry blocks of the East and West Battery Piers, topped by tubular iron railings. The Conservation Area includes the Station and part of the escarpment that is at track level between the road and rail bridges. The conservation area boundary was amended to cover this larger area in 2005 and the Character Appraisal of the conservation area went through public consultation and was adopted in 2011. [http://www.fifedirect.org.uk/publications/index.cfm?fuseaction=publication\\_pop&pubid=068CBC54-003E-D5A7-53D540E1E10A0E3F](http://www.fifedirect.org.uk/publications/index.cfm?fuseaction=publication_pop&pubid=068CBC54-003E-D5A7-53D540E1E10A0E3F)

### Queensferry Conservation Area

The Conservation Area includes the masonry arches and the first seven spans of the Queensferry viaduct of the property, as far as the tidal Low Water Mark. The Conservation Area is enclosed at the west end by the Forth Road Bridge. The Conservation Area Character Appraisal was published by City of Edinburgh Council in 2001, so the council proposes to prepare a review of this appraisal in the short to medium term. [http://www.edinburgh.gov.uk/downloads/file/1507/queensferry\\_conservation\\_area\\_character\\_appraisal](http://www.edinburgh.gov.uk/downloads/file/1507/queensferry_conservation_area_character_appraisal)

### Dalmeny Conservation Area

appraisal emphasises the rural character of this village conservation area, the landmark buildings, predominant vernacular building forms and materials, and the mainly residential character. The Forth Bridge is visible in gaps between houses from the green and from the road running northwards. The Conservation Area Character Appraisal was approved by City of Edinburgh Council in 2000. [http://www.edinburgh.gov.uk/directory\\_record/10196/dalmeny\\_conservation\\_area](http://www.edinburgh.gov.uk/directory_record/10196/dalmeny_conservation_area)

A tree preservation order (TPO) has an equal effect on felling and lopping of trees, even where not actually a conservation area. This applies in respect of tree cover at the escarpment that is at track level between the road and rail bridges at Northcliff, North Queensferry.

## 2.b.4 World Heritage Sites

The local authority area to the south of the property, City of Edinburgh, contains a World Heritage Site, the 'Old and New Towns of Edinburgh', but this is over 15 km away to the south east. The Forth Bridge is just visible from high points like the Castle and Calton Hill but not from most parts of that site.

The Frontiers of the Roman Empire World Heritage Site has its most northerly component, the Antonine Wall, commence at Bo'ness on the Forth estuary, 11 km to the west, within the Falkirk local authority area.

Note that World Heritage Sites in the UK are afforded protection through the national planning system and have no separate statutory protection from that.



## 2.c Land-Use Planning

This Section provides details of the development control and planning system covering the property and the areas at each end of the bridge. Existing plans and policies support the heritage protection system outlined above and provide for the protection of the landscape and wider setting. Local Plans and frameworks are currently being revised and so present opportunities for new specific policies to be introduced. The Steering Group, including the local authority partners with responsibility for planning, is committed to the full and effective use of existing policies for the protection, conservation and presentation of the property while the new planning policies are continually being developed and implemented.

Scotland has a similar but devolved system to the rest of the UK for the control of development, which is achieved through the spatial planning system. Much of the detail of this system of development control and spatial planning is exercised through the Local Authorities responsible for spatial planning and development control, with government guidance.

### 2.c.1 World Heritage Sites and Planning

World Heritage Sites in Scotland are protected by the following legislation. The Town and Country Planning (Scotland) Act 1997 and The Planning etc (Scotland) Act 2006 provide a framework for local and regional planning policy and act as the principal primary legislation guiding planning and development in Scotland. Additionally, individual buildings, monuments and areas of special archaeological, architectural or historic interest are designated and protected under the Planning (Listed Building and Conservation Areas) (Scotland) Act 1997 and the 1979 Ancient Monuments and Archaeological Areas Act. In this case, the property is a category A listed building, whilst the Queensferry and North Queensferry Conservation Areas, themselves containing listed buildings, provide adequate protection to the immediate bridgehead zones.

The Scottish Historic Environment Policy (SHEP) is the primary policy guidance on the protection and management of the historic environment in Scotland. Scottish Planning Policy (SPP) sits alongside the SHEP and includes the Government's national planning policy on the historic environment. It provides for the protection of World Heritage Sites by considering the impact of development on their Outstanding Universal Value, authenticity and integrity. Local policies specifically protecting the property are contained within City of Edinburgh and Fife Local Development Plans.

### 2.c.2 Relevant Local Plans

There are four levels of planning in Scotland:

- The National Planning Framework for Scotland
- Strategic Development Plans (these have replaced Structure Plans)
- Local Development Plans (these replace Local Plans)
- Supplementary Guidance (e.g. Conservation Area Appraisals or, potentially, planning aspects of a World Heritage Site Management Plan)

Local Development Plans (LDP) set out policies and proposals for the development and use of land in their area. They are the local interpretation of regional and national planning policy, and must conform to the relevant Strategic Development Plan (SDP) for their region and the National Planning Framework (NPF). The Scottish Historic Environment Policy (SHEP) is the strategic statement of national policy relating specifically to the historic environment. Below the LDP, more detailed local guidance is set out in Supplementary Guidance documents.

The policies in each LDP are used to determine applications for development. The LDP also informs decisions on investment opportunities, the provision of infrastructure and community facilities. Local residents and community groups are encouraged to use the LDP to understand and engage with the planning issues affecting their area.

LDP policies therefore provide the means by which development affecting the designated sites is managed, and by which they are protected from inappropriate development. All development is approved, or not, under the terms of the relevant LDP, which set out a vision as to how areas will change. They describe where development will take place and where it will not. These are updated in a regular cycle of review and consultation.

The planning authorities surrounding the bridge are currently in a state of transition between the old Local Plans system and the new LDP/SDP system. However the principles behind, and the strength of the policies affecting the bridge and its setting remain the same through this period of change. The local authorities are both represented on the Steering Group, which will play a part in ensuring that the conservation of the property is adequately promoted in any new and revised Plans and guidance.

#### Fife Policy Summary

The Dunfermline and West Fife Local Plan (DWFLP), adopted 2012, is to be replaced by the Fife Local Development Plan in 2015. The DWFLP remains the current, adopted statement of Council policy until the LDP is formally adopted. Once the Proposed LDP is published in June 2014, however, it will become a material consideration in the determination of current planning applications. In the Fife LDP it is intended to include policy specifically directed at protecting the context of the Forth Bridge. The broad policies are listed below Edinburgh as there is a general read-across between those of each local authority, but one specific to Fife should also be mentioned:

- Development on the undeveloped coast [in Fife] will not be supported unless certain safeguards are followed, directing development first to developed coastline and which:
  - demonstrates high standards of design and siting,

- demonstrates appropriate scale and character
- is not subject to nor will it contribute to coastal erosion or flood risk
- safeguards cultural / natural heritage resources, footpath/cycle networks
- avoids obtrusive lighting or coalescence of coastal villages

#### City of Edinburgh Policy Summary

The Rural West Edinburgh Local Plan (RWELP), adopted 2006, altered 2011, was joined by the Edinburgh Local Development Plan (LDP), published in March 2013. The RWELP remains the current, adopted statement of Council policy until the LDP is formally adopted, anticipated to be by late 2015. The proposed LDP is, however, a material consideration in the determination of current planning applications.

The DWFLP, RWELP and LDP contain key policy objectives that are broadly comparable across both local authorities. They include those to:

- ensure that new development meets the objective of sustainable development and contributes to a healthy and attractive environment;
- protect, conserve and enhance the key environmental and heritage resources, including landscape, built heritage and important natural habitats;
- encourage quality of design in all new forms of development; and
- protect the special character of historic buildings and townscapes.

Detailed policies then focus on the following themes which are of particular relevance to the property and its setting:

- Design of new development – the Council encourages innovation and well designed developments that relate sensitively to the existing quality and character of the local and wider environment, generate distinctiveness and a sense of place, and help build stronger communities.

- Development in the Green Belt and countryside – here, development is only permitted where it meets certain restricted criteria and would not detract from the landscape quality and/or rural character of the area.
- Nature conservation and biodiversity – development is not permitted which would adversely affect the integrity of designated areas, protected landscapes or species unless in exceptional circumstances of demonstrable public benefit.
- Special or Local Landscape Areas – development is not permitted which would damage or detract from the overall character and appearance of the area.
- Trees – development will not be permitted which is likely to have a damaging impact on a protected tree or one considered worthy of retention, unless necessary for good arboricultural reasons.
- Archaeology – development is not permitted which would adversely affect nationally important remains or their setting. Archaeological evaluation, preservation in situ or excavation, recording and analysis will be required where non-designated remains are likely to be affected.
- Historic buildings – there is a general presumption against demolition or significant alterations which would have an adverse effect on the character of historic buildings. Other alterations will be permitted only if not detrimental to the special character, historic interest or setting of the building.
- Conservation areas – development must preserve or enhance the special character or appearance of the conservation area and its setting.
- Historic gardens and designed landscapes – development will only be permitted where there is no detrimental impact on the character of a site or its component features.

### 2.c.3 Local Landscape Areas and the Capacity for Wind Farms

In place of the former designation “Area of Great Landscape Value” and “Areas of Outstanding Landscape Quality” (AGLV/ AOLQ) local authorities have developed proposals for what were called Candidate Special Landscape Areas (cSLA). The term ‘candidate’ will be dropped after consultation is complete and then the term will be Local Landscape Areas, as already adopted in Fife (see map). As the landscape areas are at different stages in the consultation process they carry different names in each local authority (see map). These tend to be areas that are rural in character, and so policies will aim to retain that character.

In West Lothian the Forth Shore AGLV will in due course become the Forth Coast Local Landscape Area.

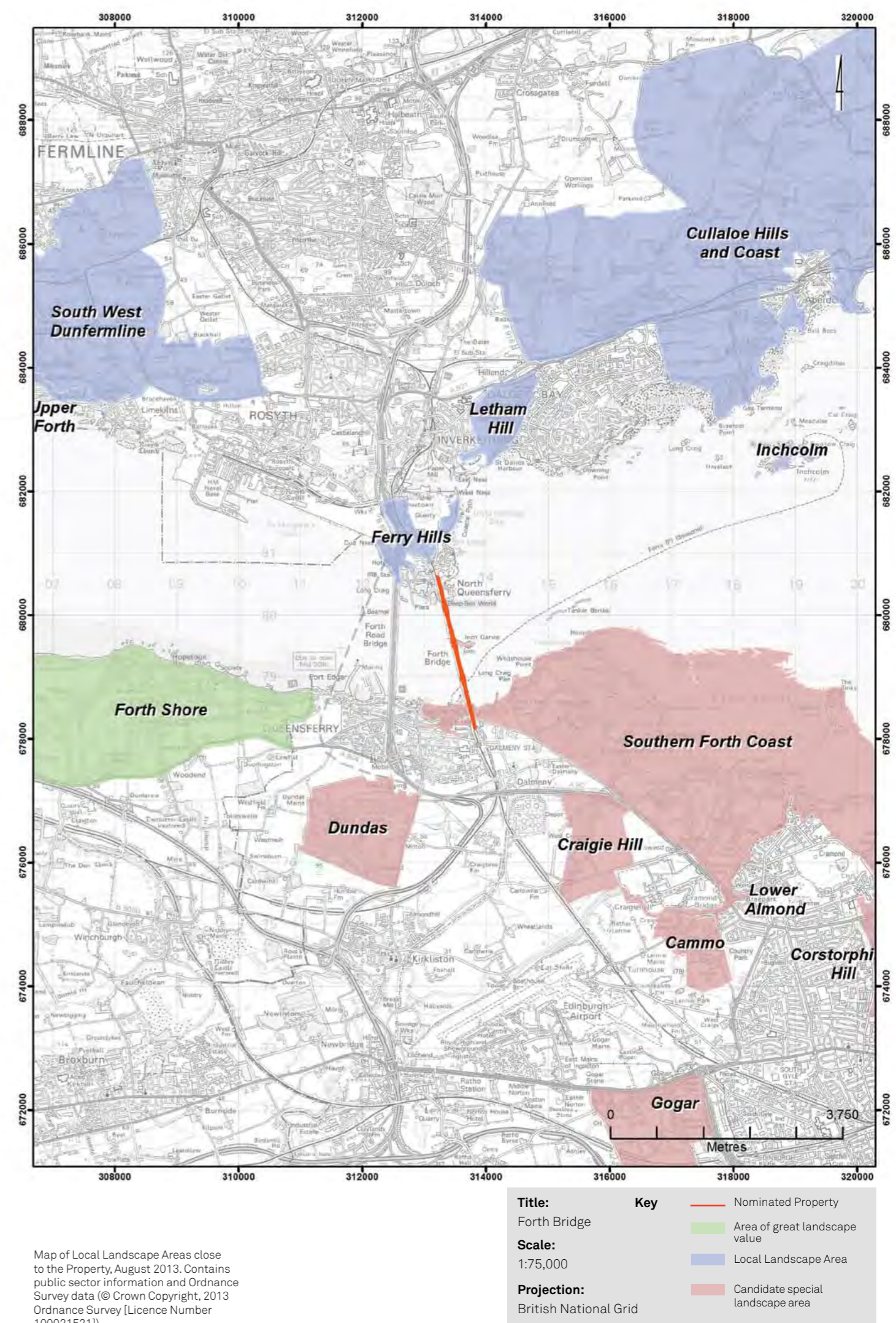
- City of Edinburgh has these:
- cSLA01: Southern Forth Coast
  - cSLA04 Dundas Estate
  - sSLA22 Craigie Hill (south of A90)

- Fife has these:
- Ferry Hills
  - Letham Hill
  - South West Dunfermline
  - Forth Islands

To inform the Local Development Plan, specific research has addressed, for example, the capacity for Wind Energy Development in West Lothian,

in a consultation published in 2011. This found that only limited pockets around Livingston New Town, the M8 Motorway and around Black Law to the south west had that potential. The part nearest the Forth shore, Hopetoun Estate, was considered to be on the “highest scale of sensitivity” and therefore unsuited to use as a wind farm. Even if that were not the case we have argued that wind turbines would not threaten the Outstanding Universal Value of the bridge.

A similar capacity study into windfarms in Fife found that there are no landscape areas of Fife suitable for development of extensive windfarms with large scale turbines. In contrast with much of Scotland there is no or very limited capacity for wind turbines in the highest upland areas, due to the limited extent, high visual sensitivity and landscape value of these areas within Fife. Larger scale lowland farming areas have the greatest inherent capacity for wind turbine development. Some smaller scale lowland valley and basin areas have no or very limited capacity. Some coastal areas have limited capacity. Similar areas, whilst of a suitable scale and character for wind turbines, are visually sensitive and have a high landscape value and therefore have no capacity for development. (*Onshore Wind Energy Strategy for Fife 2012*)



Map of Local Landscape Areas close to the Property, August 2013. Contains public sector information and Ordnance Survey data (© Crown Copyright, 2013 Ordnance Survey [Licence Number 100021521])

## 2.d Other Designations and Protection

The Forth Estuary Forum monitors and coordinates actions that enhance the environment of the Firth of Forth.

### Gardens and Designed Landscapes

There is no designed Garden or Designed Landscape within the property, but there are some nearby, and they therefore play an important role in protecting the setting of the bridge. Those referred to here are all included in the Inventory of Gardens and Designed Landscapes compiled for Scottish Ministers by Historic Scotland. These are particularly evident in the more open landscape of the south side of the River Forth. That part of Dalmeny estate that stretches from the Forth Bridge to Mons Hill and Hound Point is so protective of the landscape setting as to be considered part of the bridgehead zone to the Forth Bridge. To the other side of Queensferry, Hopetoun House has on its axis a direct view of the Forth Bridge, and also views of it in elevation through the Forth Road Bridge from the shore line of that estate, Society Point to Abercorn. The Monument at The Binns, a property of the National Trust for Scotland, achieves a similar but more elevated view across Hopetoun. Inland is Dundas Castle which mainly looks south and east but also from a low ridge to the north and both bridges. The

route taken by the M90 towards the Forth Bridge and soon the Queensferry Crossing intervenes but the top towers of the Forth Bridge are still in view.

The wider landscape in Fife north and east of the bridge and beyond its bridgehead zone includes estates like Fordell Castle, Pittencrieff and Donibristle (a remaining part of which is the inventory entry St Colme) that look onto the Forth. The foregrounds of these Key Viewpoints benefit from Inventory designation.

Implications: Under the Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2008, planning authorities are required to consult Historic Scotland on development proposals considered to affect an Inventory Garden or Designed Landscape. This applies only to developments that require planning permission, and is a material consideration but not a prohibition on development. Developments within designed landscapes will be considered in terms of their impact on that designed landscape, and only rarely will impact on the Outstanding Universal Value of a World Heritage Site beyond those boundaries also be a consideration.

The gardens and designed landscapes listed and mapped here predate the construction of the Forth Bridge, excepting

Pittencrieff Park (1903). The focus of the Inventory designation is the conservation of the landscape within the park, but views to and from that landscape will be a consideration, according to the weighting of the values in the Statement of Significance. Thus Dalmeny designed landscape provides the setting for category A listed buildings and so has outstanding architectural value, and is of outstanding "scenic significance as it can be viewed from the Firth of Forth, the Forth Bridges and the south coast of Fife..." Although not initially laid out with a view to protecting a bridge that had yet to be built, these landscapes are cultural and natural components in the safeguards in place for the setting of the Forth Bridge.

Reference is made in the table opposite to views towards and from the Forth Bridges and Firth of Forth extracted from the Inventory of Gardens and Designed Landscapes:

Dalmeny	The designed landscape itself is of high scenic significance as it can be viewed from the Firth of Forth, the Forth Bridges, and the south coast of Fife as well as being significant from the adjacent locality.
Dundas Castle	There are long-distance views over the parkland to the Firth of Forth and views northwards out to the Forth Bridges.
Hopetoun House	Hopetoun House was sited facing due east. An avenue extending east from the house was described on the layout plan by William Adam as 'carrying your eye over two miles of the River Forth to the island and ruins of Inchgarvie and from thence forward along the River 22 miles or more to North Berwick Law, being a high Mount in form of a sugar loaf which terminates the Avenue'. This designed view has been interrupted by the road and rail bridges across the Forth.
House of The Binns	"Panoramic Views to the bridges of the Forth" from Monument over Hopetoun to all of the bridge.
Pittencrieff Park	Views can be obtained southwards to the Forth Road Bridge and the Lothian hills.
Fordell Castle	From the site of Fordell House (demolished 1962) there are expansive views south over open parkland towards Dalgety Bay and the Firth of Forth.
St Colme	St Colme is set on elevated ground overlooking Barnhill Bay, with extensive views over the Firth of Forth to Edinburgh and the Lothian coast. The eastern approach from Aberdour allows uninterrupted views over the Firth of Forth. Along the remainder of the old east drive to Donibristle House there are panoramic views over the Firth of Forth to the Lothians and towards Donibristle House. From the site of the old summerhouse in Temple Plantation there is a panoramic view over the Forth. Perimeter tree belts enclose the landscape to the north.
Reference	<a href="http://www.historic-scotland.gov.uk/index/heritage/gardens.htm">http://www.historic-scotland.gov.uk/index/heritage/gardens.htm</a>

Those contiguous parts of the Inventory sites on the Lothian/south side of the River Forth and within the visual contour are within the bridgehead zone. They offer some protection from development within their boundaries to key views indicated in the map, as also do the Inventory Sites not in the bridgehead zone.

### Battlefields

The property stands at its northern end within the designated

Inverkeithing Battlefield, which is included in the Inventory of Historic Battlefields. North Queensferry was the landing point in 1651 of an invading English army. Since then, the battle landscape has physically changed through land reclamation, the new Rosyth garden city, the growth of Inverkeithing and the concentration of transport infrastructure at this headland. Topography and contemporary accounts give clues to the location of initial stances of the English army

at Ferryhills, cut through by the Forth Bridge tunnel, and of the Scots at Whinny and Castland Hills and their last stand at Pitreavie Castle.

The Inventory of Historic Battlefields is a non-statutory designation for Scotland's nationally significant battlefields, which seeks to retain key landscape characteristics and important features for the future, protecting, managing, enhancing and promoting them as appropriate, while allowing the landscape to accommodate modern demands. There are no new legal restrictions on the area identified by the Inventory maps. Instead, the Inventory sites will be given particular consideration in the planning process and in the plans and policies of other relevant public bodies. Planning authorities and public bodies may consult Historic Scotland on development proposals considered to affect an Inventory battlefield and may give them consideration in the determination of a case.

A whinstone quarry is in occasional operation on the north side of the headland, evidence of the longstanding use of volcanic basalt from North Queensferry over many years, not least for use in construction of the Forth Bridge. Its expansion to the south is circumscribed by the position of a public road.

A recent archaeological investigation was organised by North Queensferry Heritage Trust

and Fife Council into a possible English army breastwork on the Ferry Hills. It uncovered a bank composed of very large lumps of angular whinstone rock with mechanical quarry drilling holes, making this a feature most likely associated with the construction of the railway and the bridge. The bridge and its approaches simultaneously impact on the landscape of the battlefield and are reminders of the most direct route that an invading army could take. The possible landing point at Port Laing, and the initial defensive position of the English Army on the Ferry Hills nonetheless lie on the North Queensferry peninsula, and Castland Hill is one of its key view points within the further setting of the bridge.

### Natural Designations

The inter-tidal zone close to and below the bridge benefit from natural designations that are layered according to their value to different species. Of these, Ramsar sites give the strongest protection available to natural sites of European importance in the European Union. Ramsar sites are wetlands of international importance, designated under the Ramsar Convention of 1971 (ratified by the UK in 1976). This designation applies to the inter-tidal shoreline of North Queensferry round to and including Inverkeithing Bay, and on the corresponding southern Shore, the area from Port Edgar and Queensferry around Dalmeny and Hound Point, taking in Cramond Island as far as and including Granton Harbour west breakwater. (Only Rosyth, Dalgety Bay and Hopetoun are stretches of the shore not within this designation). This

means that the rocky shore beneath the Forth Bridges (both Road and Rail), and all the ferry slipways in their immediate environs are protected from actions that might harm their value to migratory bird species, in particular. A side effect is protection of the foreground in views from the shore of the Forth Bridge.

Specific natural designated sites and areas include:

#### Firth of Forth Ramsar (Wetland) Natural Site:

[http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa\\_code=8424](http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8424)  
Link to more about Ramsar Sites:  
[www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/ramsar-sites/](http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/ramsar-sites/)

#### Firth of Forth Sites of Special Scientific Interest (SSSI)

[http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa\\_code=8163](http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8163)  
Sites of Special Scientific Interest (SSSI) are those areas of land and water (to the seaward limits of local authority areas) that Scottish Natural Heritage (SNH) considers to best represent natural heritage – its diversity of plants, animals and habitats, rocks and landforms, or a combinations of such natural features. They are the essential building blocks of Scotland's protected areas for nature conservation. Many are also designated as Natura sites (Special Protection Areas or Special Areas of Conservation). The national network of SSSI in Scotland forms part of the wider GB series. SNH designates SSSI under the Nature Conservation (Scotland) Act 2004. SSSI are protected by law. It is an

offence for any person to intentionally or recklessly damage the protected natural features of an SSSI.

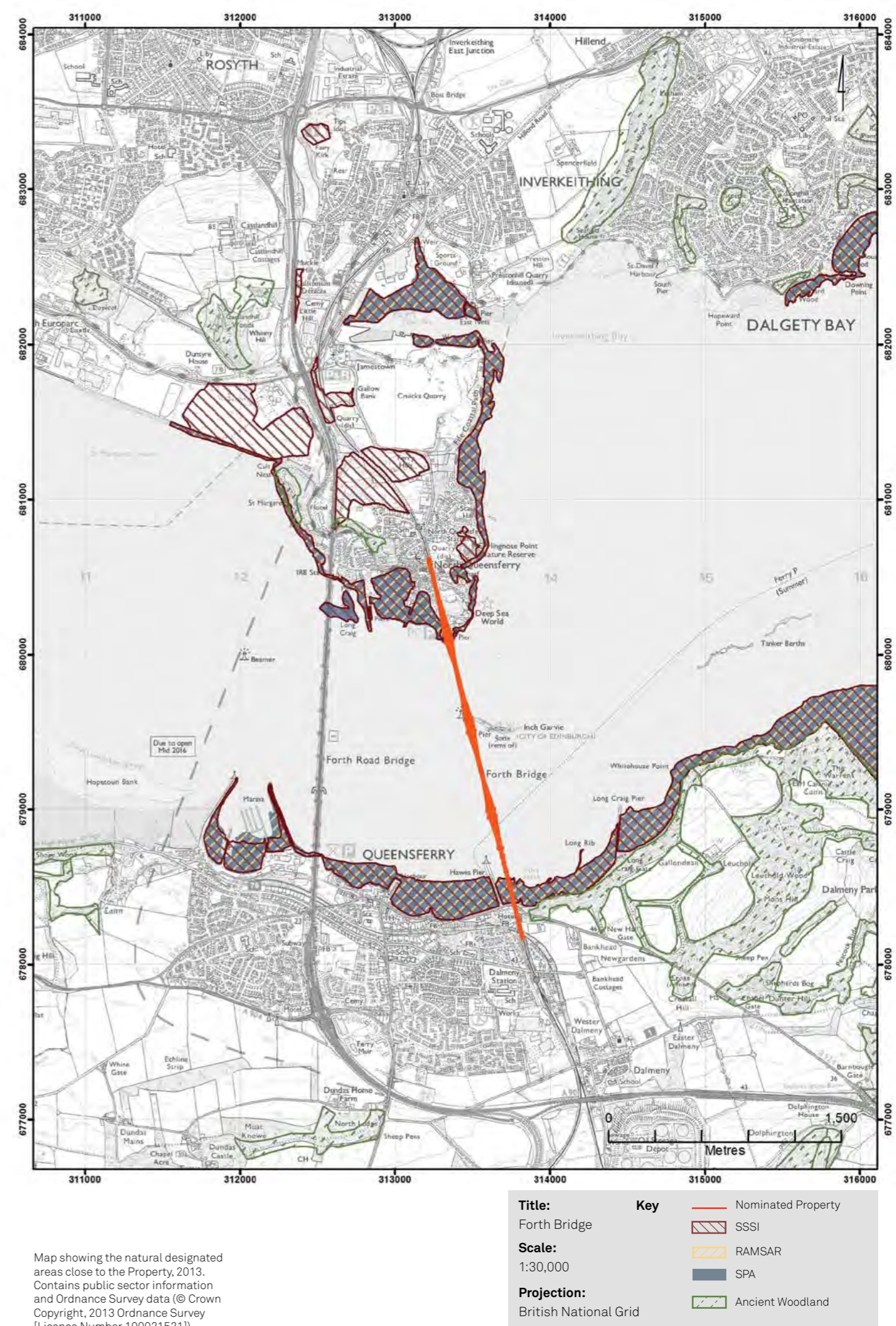
The Site Management Statement, site code 8163, sets out five broad objectives for management:

- maintaining bird populations,
- maintaining the area in a favourable condition for feeding, resting, roosting and breeding
- maintaining habitat, botanical and invertebrate interest,
- maintaining the geological features of interest,
- encouraging recreational enjoyment while recognising the need to protect the nature conservation interest.

**Carlingnose Quarry SSSI** is managed by Scottish Wildlife Trust and includes a stage in the Fife Coastal Path that offers good views towards the bridge. It has a high degree of habitat and plant diversity. Management aims are to reduce invasive scrub. Quarrying will not resume. 'Operations requiring consent' are set out here: [http://gateway.snh.gov.uk/sitelink/documentview.jsp?p\\_pa\\_code=8163&p\\_Doc\\_Type\\_ID=28](http://gateway.snh.gov.uk/sitelink/documentview.jsp?p_pa_code=8163&p_Doc_Type_ID=28)

#### Firth of Forth Special Protection Area (SPA)

[http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa\\_code=8499](http://gateway.snh.gov.uk/sitelink/siteinfo.jsp?pa_code=8499)  
SPA are strictly protected sites classified in accordance with Article 4 of the EC Birds Directive, which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species, at, for example, Port Edgar.



Map showing the natural designated areas close to the Property, 2013. Contains public sector information and Ordnance Survey data (© Crown Copyright, 2013 Ordnance Survey [Licence Number 100021521])

## 2.e Existing Management Arrangements

The members of the Steering Group and other bodies undertake many activities around The Forth Bridge, but Network Rail and its contractors are solely responsible for managing the property itself. A key purpose of the Management Plan is therefore to support Network Rail with this task, but also to co-ordinate wider efforts relating to the impact of potential inscription, and to focus on the priorities for the area around the property that is most likely to be affected if the nomination is successful.

### 2.e.1 Network Rail

The nominated property is owned, operated and maintained by Network Rail, the national railway company responsible for maintaining and operating the railway infrastructure in the UK. Network Rail routinely reports to the Office of Rail Regulation. Although at present there is no unified, published Heritage Policy for the railways in the UK, Network Rail, like its predecessor, Railtrack, has a proud track record in protecting, conserving and restoring railway heritage.

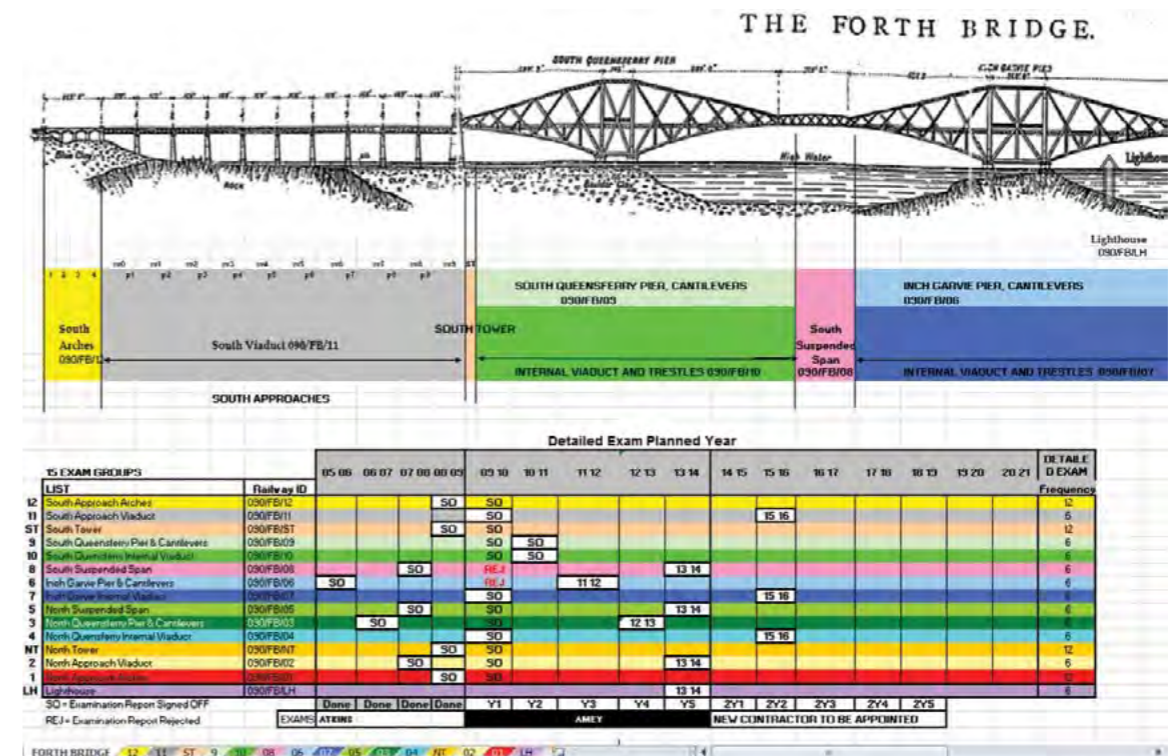
In Scotland, this is achieved by actively adhering to the policies laid down in the Scottish Historic Environment Policy (SHEP), working with Historic Scotland on upgrading and rationalising designations, the most recent example being thematic work on signal boxes. Network Rail has a central team, including planners, archivists and engineers, to provide a strategic view of building and architectural issues, like managed stations, many of which are listed buildings. Part of this work involves producing conservation and development management plans for managed, listed stations in association with local authorities and Historic Scotland. In the case of larger structures such as Glasgow Central Station and the Forth Bridge, this can involve a formal Partnership Management Agreement. In situations where historic railway infrastructure is

no longer used, disposal is carefully managed through the Railway Heritage Committee, which was recently incorporated to come under the Trustees of the Science Museum Group, including the National Railway Museum.

In the case of the Forth Bridge, Network Rail uses its Civil Asset Register and electronic Reporting System (CARRS), to ensure that each part of the bridge is programmed to be inspected and works are prioritised according to their urgency. Each section of the bridge is colour coded, as illustrated below. It has a time-span appropriate to the cycle of attention needed at each part.

In addition, a Partnership Management Agreement for the Forth Bridge provides a means by which local authorities, in certain cases consulting Scottish Ministers, will be able to monitor works affecting the bridge.

**Below:** These sample pages (© Network Rail) refer to the work recently done to parts of the bridge, including the Fife cantilevers and pier. It shows that this area had some paintwork done by the old, but not original, five-coat Alkyd system. Those areas will therefore be the first to be recoated by the system applied elsewhere on the bridge in the last decade.



#### FORTH BRIDGE

##### North Queensferry Pier & Cantilevers

Railway ID: FB/090/03

Description: Jan.13

All elements coated in Glass Flake epoxy system except Fife North "C" Bracings, Tower B Bracings and part of Bays 5 and 6 North which are coated in "old" 5 coat Alkyd System. Glass flake systems applied during 1997 to 2011. Alkyd System applied 1956/1957. No Repainting envisaged to Glass Flake areas for 10 to 15 years. Possible need to repaint areas of Alkyd Coatings areas within 5 to 10 years.

Systematic attention required to contact points during annual maintenance contract. Minor non-urgent steelwork repairs envisaged to be carried out along with contact points.

#### Examination of Structures

Extracted Works Items from CARRS system  
List of works Items accepted for intervention/remedial works for Project Planning

Suggested Major Intervention Priority is 2018  
Suggested Intervention Year for Group Works Listed below is ????

Group Number	Contractors Name	Contract Number	Territory	DSDPack Number	SAD	ELR	Structure Type	Structure Number	Mileage	OS Grid Ref	Local Name	Brief Scope	Work Details Ref	Work Location	Work Defect	Work Quantification	Notes	Work Estimate
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## 2.e.2 Local and National Authorities

Fife and City of Edinburgh Councils are represented on the World Heritage Nomination Steering Group, and together own and maintain some of the infrastructure within and around the communities at each end of the bridge. The local authorities work in the public interest with other organisations, landowners, and service providers, as well as the Community Councils.

The national authority is the Scottish Government, working through its agencies such as Transport Scotland and Historic Scotland. The United Kingdom as state party to the World Heritage Convention is represented by the Department for Culture Media and Sport (DCMS).



## 2.e.3 Private Owners and Businesses in the Bridgehead Zone

There is a variety of businesses within the communities at each end of the bridge, and in the case of Queensferry, since 2012, business interests have been co-ordinated through the Business Improvement District (BID) Queensferry Ambition. Another Business Improvement District is making progress in Dunfermline, Fife. Many of these businesses have an interest in possible enhancements to local infrastructure, as increases in visitors might follow inscription. The adjacent estates of Dalmeny and Hopetoun also promote tourism and provide leased business space in farm steadings. Many business premises make reference in their signage and shopfronts to one or both bridges, showing a long-standing symbiotic relationship to the Forth bridges.

## 2.e.4 Presentation and Education

There is a wide variety of signage and displays indoors, in print and online provided through a range of local organisations, ranging from North Queensferry Heritage Trust, South Queensferry Museum (under City of Edinburgh council), to the 'Briggs partnership', together with the provision of bus, boat and walking tours organised by businesses and volunteers. For many years, information on the Forth Bridge was made available by the Forth Bridges Visitor Centre Trust, which operated a website and a small exhibition at the Queensferry Hotel. However the hotel elected to reclaim the exhibition space for its own business use, and in 2012, the trustees chose to wind up the Trust.

There is therefore currently no formal visitor centre dedicated only to presentation and interpretation of the Forth Bridge. There is, however, the Forth Bridges 'Contact and Education Centre', established by Transport Scotland in 2013 in Queensferry, at the south end of the Forth Road Bridge. This contains an exhibition space and viewing area serving all three bridges (the Forth Bridge, the Forth Road Bridge, and Queensferry Crossing). Meanwhile, the Forth Bridges Forum has established a website at [www.forthbridgeworldheritage.com](http://www.forthbridgeworldheritage.com) which provides on line information and a means for consultation on the Forth Bridge and its World Heritage nomination.

## 2.e.5 World Heritage Management and the Forth Bridge World Heritage Nomination Steering Group

Network Rail is consulting on a proposal to establish visitor centres with interpretation and education facilities at one end of the bridge, and is exploring the possibility of providing public access to both ends of the bridge superstructure.

There have, meanwhile, been a number of schools-based education initiatives that have promoted the Forth Bridge to children. These have taken the form of art and writing initiatives, organised by City of Edinburgh and Fife Councils. Queensferry and Inverkeithing High Schools have invested time and resources in the 2013/2014 academic year. A competition was designed to engage young people in the nomination process, raising their awareness of the bridge, its history and significance, to actively engage with and feel a part of the World Heritage nomination. The premise for all entries is a piece of writing - fiction, non-fiction, historical or science fiction, using the bridge as centre piece. *The Bridge* by the late Iain Banks has been set by the schools to offer inspiration.

**Left:** A Forth Bridges tour bus outside the Hawes Inn in Queensferry, which brings visitors from Edinburgh to see the Forth Bridge, May 2013 (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Miles Oglethorpe, MKO 049)

**Right:** Members of the Steering Group join a health and safety induction session before visiting the Forth Bridge, October 2012. (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe, DSC\_8548)

The Steering Group's purpose and composition is outlined above, and plays a key role in ensuring community engagement. It has met on a monthly basis, with a secretariat provided by Transport Scotland, and has fulfilled a governance role, overseeing the production of the Nomination Document and Management Plan. Following the submission of the Nomination dossier, it will meet regularly. Once the decision of the World Heritage Committee is known, and if favourable, it will continue to function, but will lose the word 'Nomination' from its title. In the longer term it will be responsible for revising the Management Plan.

Much of the technical side of managing the property will come under the auspices of a Partnership Management Agreement (PMA). It will focus on the conservation, maintenance and operation of the bridge itself, will link with the Steering Group and feed into the conservation-related actions in this Management Plan. Indeed, the completion and signing up to the PMA is one of the first actions of the Plan. The PMA itself involves Network Rail, Historic Scotland, Fife Council and City of Edinburgh Council, whose representatives will meet as a group (the PMAG) on a regular basis.



Train leaving the Forth Bridge and approaching Dalmeny railway station, October 2012.  
 (© Crown Copyright, reproduced courtesy of Historic Scotland.  
[www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk)  
 Duncan Peet, dpfb261012001)



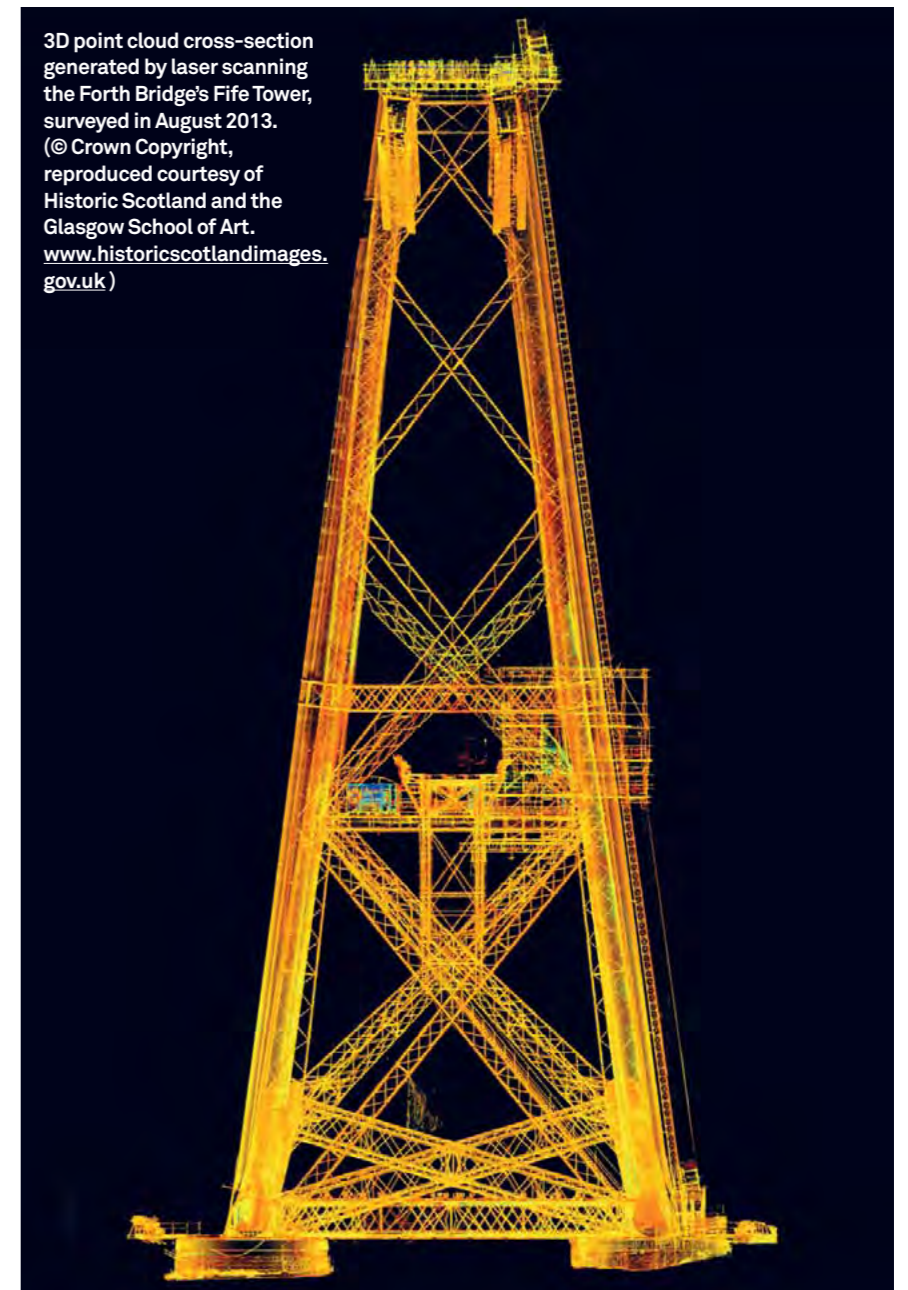
## Section 3 – Pressure On/Threats to the Property and Opportunities for Improvements

Since its formation under the wing of the Forth Bridges Forum, The Forth Bridge World Heritage Nomination Steering Group has considered the potential pressures, threats and opportunities that face the property. In taking these issues forward, the Steering Group has chosen to address them under the headings developed from the UNESCO Operational Guidelines for World Heritage. These are:

- Conservation and maintenance of the property
- Development
- Presentation – including education, skills and learning, and visitor/tourism pressures
- Natural environmental pressures
- Disasters and risk preparedness

In addition to discussions within the Steering Group, many of these issues emerged within the work commissioned from Rebanks Consulting Ltd in 2012, which is summarised in the report *'The Forth Bridge World Heritage Nomination: - Realising the Potential Benefits'*, completed in January 2013. This was further augmented by feedback received during the public consultation in the summer of 2013. A summary of the key themes that emerged is included below. See [www.forthbridgeworldheritage.gov.uk](http://www.forthbridgeworldheritage.gov.uk).

3D point cloud cross-section generated by laser scanning the Forth Bridge's Fife Tower, surveyed in August 2013.  
 (© Crown Copyright, reproduced courtesy of Historic Scotland and the Glasgow School of Art.  
[www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk))



## 3.a Pressures

### 3.a.1 Issues and Challenges

World Heritage Sites can be complex to manage and protect. In ensuring the effectiveness of management and protection regimes, it is important that there is a clear understanding of the issues and challenges that are likely to present themselves. In the case of the Forth Bridge, two distinct strands emerge. These relate specifically to the Forth Bridge itself, and then to the areas surrounding the bridge which, although not included within the property, may be affected if it is inscribed. This Management Plan therefore aims to address both the conservation of the Forth Bridge and the opportunities, issues and challenges that may arise immediately outside the nominated property.

A key issue that arose at the outset of the nomination process was whether or not there is a need for a Buffer Zone, and of its potential effectiveness were one applied to such a large and dominant structure. As has been explained previously, it was concluded that the immense scale and visibility of the bridge is such that a buffer zone would be unnecessary and impracticable. Instead, it was decided that the setting of the bridge can be better protected through the local planning system, and in particular, through the range of designation systems (both natural and historic) that already exist,

supported by the use of Key View and Viewshed data (see 5.c.8 in the Nomination). This Management Plan does not therefore provide for a Buffer Zone, but this position can be reviewed during the Plan period if circumstances suggest a change.

Meanwhile, work undertaken by the Forth Bridge World Heritage Steering Group and by Rebanks Consulting Ltd identified in a number of key issues and challenges. These can broadly be broken down into five areas – Operational Integrity and Conservation, Development Pressures, Presentation and Understanding, Management and Governance, and Local Community Benefits.

#### **Operational Integrity and Conservation**

Unusually, this particular nomination is for only one site, but the simplicity of there being only one entity with a single owner is offset considerably by the fact that it is 2.5 kilometres long, is a busy operating structure, straddles two local authorities, and has a direct impact upon the communities that live around it. Perhaps most significant, however, is the fact that it is currently in excellent condition, having just benefited from a major restoration programme. Indeed, it has never within living memory looked so good, and there are no known threats to the conservation of the property.

A major factor lying behind its excellent condition is that the Forth Bridge remains in daily use today, some 124 years from its opening, as the major rail artery connecting the north-east and south-east of Scotland. It is maintained to an exacting standard as a fully functioning railway bridge in daily commercial use.

These facts are central to the Outstanding Universal Value of the bridge. It is, therefore, crucial that it retains its central function, and this must be central both to the World Heritage nomination, and to the ongoing operation, management, and conservation of the bridge.

#### **Development Pressures**

The partners in the Steering Group are aware that, if not properly managed, the impact of inscription might impact negatively on some aspects of life in the areas around the bridge. There are a number of potential development pressures that might follow the inscription of the Forth Bridge as a World Heritage site, and some of these were highlighted during the public consultation. These could include:

- A significant increase in the number of visitors to both North and South Queensferry;
- Heightened pressure on existing services and infrastructure, including roads and public transport

- Potentially harmful alterations or additions to properties within or immediately adjacent to the bridge;
- Destruction of valuable features and views around the bridge in response to pressure from development;
- Influence on the value of property in the neighbourhoods close to the bridge;
- Increased demand for development in the setting of the bridge.

#### **Presentation and Understanding**

Promoting appreciation and respect for any World Heritage Site is dependent on effective presentation. A key challenge in the management and promotion of the site will therefore be to develop ways in which the understanding of the bridge, its construction and its past, can translate to a wide audience and generate a range of benefits, not least in education. Part of this will include better understanding of World Heritage, how the bridge compares to others and yet is adjudged as having Outstanding Universal Value.

At present there is very little in the way of physical access or interpretation for visitors. There is also no single focal point for online information, although the Forth Bridges Forum website at [www.forthbridgeworldheritage.com](http://www.forthbridgeworldheritage.com) now fulfils part of this function. These and other access issues

will need to be addressed as part of the management of the property, but the Steering Group has already commissioned a 3D laser scanning survey with a view to providing virtual access to the property, and ways in which physical access might be provided are also already being considered.

#### **Local Community Benefits**

A central ambition of this nomination is to examine ways in which World Heritage can help deliver benefits to local communities. At the same time, it will be important to help people understand that World Heritage is not an answer for all issues. Attempting to deliver benefits for the communities will require a strong stakeholder group, a clear direction, co-operation and effective co-ordination between management partners, local communities and other stakeholders.

One key example of an issue on which World Heritage could look to deliver benefits emerged during the consultation on both the north and south banks of the Forth. This was the need to provide better infrastructure in local communities. There was a strong sense that local road and parking infrastructure was already stretched, being constrained by water, but other issues such as public transport and visitor facilities were also cited.

#### **Management and Governance**

A key challenge will be ensuring that the good work from the nomination phase can be continued into the delivery phase. It will be important to ensure that Management partners do not assume that the hard work is over in the event of inscription. An efficient and effective management structure will need to be put in place that can deliver the objectives and actions from the Management Plan.

Management objectives at World Heritage Sites are going to be limited in a time of restricted funding and resources, so it will be essential that creative thinking and joint working play a central part in the management of sites. This is especially important when working to deliver benefits for the local communities. Drawing on the experience of the existing community of World Heritage Sites in Scotland will therefore be important, especially through the World Heritage Site co-ordination team at Historic Scotland.



### 3.a.2. Pressures Affecting the Nominated Property

The table below contains a list of perceived pressures potentially affecting the bridge

Pressure	Status/Comment	
<b>Conservation and Maintenance</b>		
P-1	Prevention of decay – need for ongoing maintenance	Critical to maintaining OUV. Addressed comprehensively by recent Restoration Project
P-2	Operational issues, such as functional change, including line upgrades and electrification	Should continue to be tackled through normal listed building consent process
P-3	Inappropriate methods or materials for repairs through lack of understanding, skills or materials, or changing modern standards	Essential for maintaining authenticity: high standards maintained during and prior to the recent restoration project
P-4	Prioritisation and allocation of resources – maintaining the high standards established by the recent restoration work within tightening budgets	Essential to levels of maintenance and repair
P-5	Maintenance of management arrangements and standards across partners and contractors to ensure effective implementation	Essential to long-term management. Measures in place
P-6	Effects of any previous inappropriate repairs or alterations (e.g. the 1990 floodlights scattered all over the bridge were steadily removed in the recent refurbishment)	Repair needed to maintain authenticity. Not perceived to be a significant problem, but previous minor interventions reversed during recent restoration
P-7	Need for economic activities associated with the bridge to generate income to reinvest in the management and presentation of the bridge	Income-earning capacity not an issue except as part of overall rail network
<b>Development</b>		
P-8	Maintenance of effective protection of areas adjacent to the bridge through designation and planning policies	Necessary to long-term protection of the setting of the property
P-9	Potential increase in development pressure in the areas around the bridge, especially in event of inscription	Potential impact on the setting of the property
P-10	Changes to land use within areas around the bridge, including farming, housing and business development	Potential impact on the setting of the property
P-11	Loss of or change to historic and natural features in the areas around the bridge	Potential impact on the setting of the property
P-12	Potential alterations or additions to properties close to or immediately adjacent to the bridge,	Impacts on the value and presentation of the property
P-13	Increased vehicular and pedestrian traffic in the communities around the bridge	A growing pressure on local services and infrastructure, even prior to the nomination

Pressure	Status/Comment	
<b>Presentation – Visitor/Tourism Pressures, Education and Learning</b>		
P-14	Need to develop the presentation of the Outstanding Universal Value – how to get the story across	Critical UNESCO objective
P-15	Need to continue engaging the local community to support the property	Essential UNESCO objective and critical to long-term management of the surrounding area
P-16	Need to maintain health and safety for visitors both to the property and to the surrounding area without compromising the historic fabric	Essential for presentation and protection, and statutory compliance
P-17	Need to ensure long-term sustainable access without congestion, erosion, damage or compromised safety	Essential to protecting the fabric of the property and the quality of life in the surrounding area
P-18	Need to improve physical and non-physical accessibility to the property	Important for presentation and visitor management, whilst not undermining the integrity of the property
P-19	Need for enhanced visitor facilities	Important for presentation and visitor management, whilst not undermining the integrity of the property
P-20	Anti-social behaviour, litter and graffiti	Important for protection of quality of life of residents, and presentation and visitor experience
<b>Environmental Pressures</b>		
P-21	Management of the potential impact on natural designated sites near to the bridge	Important layer of statutory protection in the conservation of the setting of the property
P-22	Climate change impact: sea level change	The anticipated rises in sea level are not a threat to the bridge
P-23	Climate change impact: more intense precipitation	The increasing intensity of precipitation is not a threat to the bridge, but may affect the stretches of railway beyond each of its ends
P-24	Encroachment of vegetation onto the fabric of the property	Maintenance programmes are in place to prevent the establishment of vegetation in the fabric of the bridge
P-25	Birds nesting on the structure, and the associated build-up of detritus and corrosive guano	Maintenance programmes are in place to prevent the accumulation of debris and waste from birds on the bridge
<b>Disasters and Risk Preparedness</b>		
P-26	Storm damage, particularly high winds	The bridge has a history of sustaining storm force weather conditions over its 124-year life, including wind speeds in excess of 177 kph without any detrimental structural effects - evidence of the strength inherent in the bridge design. The structural condition of the bridge is constantly monitored, with specific visual inspections in the aftermath of heavy storms.
P-27	Collision of rail traffic on the bridge	Network Rail operates a modern signalling system to ensure separation of trains. It also has contingency plans that are ready to come into operation in the event of a collision or other serious incident on the bridge. Arrangements vary depending on the incident, but all emergency services are conversant with the bridge structure. Furthermore, arrangements exist between Network Rail and train operating companies to supply rail-mounted support as necessary.
P-28	Collision of river/ocean-going vessel or aircraft with the piers or spans of the bridge	All major craft in the Firth of Forth are marshalled by The Forth Ports Authority along strict navigation channels and bearings. Geologically and topographically, the bed profile is understood to offer the bridge good protection. All aircraft in UK airspace are controlled by National Air Traffic Services which ensures aircraft fly well clear of the bridge. Even so, Network Rail maintains contingency plans that are ready to come into operation in the highly unlikely event of the collision of a ship, boat or aircraft with the bridge. This includes response from all emergency services including the Royal National Lifeboat Institute (RNLI) whose life boat station is located immediately beside the bridge.
P-29	Visitor incidents, including trespass, wilful damage	All organised visits take place under the direct control of Network Rail and its Principal Contractor. A full briefing and support arrangement is in place for any emergency that can arise. Security of the property is provided by full fencing of land-accessible areas. Railway stations at either end of the bridge are monitored by closed circuit security cameras.

## 3.b Opportunities for Improvement/ Benefits

World Heritage Site listing does not automatically deliver benefits to the site in question or to its local communities. There are, however, significant opportunities and benefits that can be achieved if the site is managed well.

Rebanks Consulting suggests that if the Forth Bridge becomes a World Heritage Site, its inscription can be used in an innovative and progressive manner that ensures it can be a leading example of a sustainable World Heritage Site which delivers significant benefits both for its local communities,

and for a much wider audience with potential interest in the site.

With these observations in mind, the table below includes possible opportunities that have been identified by the Steering Group and which have the potential to enhance the conservation and presentation of the property. The priority column on the right side of the table indicates whether implementation is in progress or will be carried out at the earliest opportunity, in the short term (years one, two and three of the Action Plan) or in the longer term.

Opportunities	Status/Comment/Priority
O-1 Development of a Partnership Management Agreement (PMA) for the Forth Bridge to tackle statutory (listed building consent) cases as efficiently and effectively as possible, and to manage issues such as line upgrades, electrification and visitor access.	Nearing completion 2013/2014
O-2 Review heritage protection designation to update Listing and consider all elements of the bridge.	Completed in 2013
O-3 Develop a Landscape Plan from the Viewshed and Viewpoint photographic data to set out a strategy for managing views and visual access, to improve the landscape setting by vegetation management and inform land-use planning decisions in the areas around the property.	Initial analysis complete Commence in Year 1
O-4 Explore with transport companies, regulators, local authorities and local communities the development of better co-ordinated, sustainable public transport to and around the property.	Year 1 priority
O-5 With the Forth Bridges Forum, consider the implications for road traffic access to the two communities adjacent to the property and the existing Forth Road Bridge and the new Queensferry Crossing.	Year 2 priority. Issues will include the ease with which passing motorway traffic can access the Queensferry, and the use to which the Forth Road Bridge will be put.
O-6 Investigate the possibility of repairing and re-instating piers adjacent to the property, and actively promoting more boat-based transport.	Year 1 priority
O-7 Explore the possibility of leveraging in more external investment, including local authority and national heritage funding for community projects, including interpretation and infrastructure.	Year 1 onwards
O-8 Use the Nomination and potential inscription as a means of cementing relationships between the communities on each side of the Forth.	Ongoing
O-9 Forge closer community links by engaging more formally with and reviving local Heritage Trusts, creating an ongoing programme of activities and events.	Propose commencing in Year 2
O-10 Work towards the creation of a must-see international tourist attraction with enhanced visitor facilities and interpretation, transforming the property into attraction in its own right.	Year 1 onwards developed by Network Rail



Paper lithograph advertising poster entitled 'Scotland for Your Holidays'; depicting the Forth Bridge for British Railways, by Terence Cuneo, original artwork painted from life, printed by Waterlow & Sons Ltd, London, c. 1952. (© National Railway Museum / Science & Society Picture Library)

Opportunities	Status/Comment/Priority
O-11 Develop an Audience Development Plan examining how the presentation of the bridge can be improved, and to whom. This will inform some of the specific initiatives that might emanate from the opportunities listed here.	Commence in Year 1
O-12 Consider developing physical access onto the property, to include people with different physical abilities, incorporating strong educational content and high-quality presentation.	Planning in progress. Action anticipated from Year 1
O-13 Consider developing virtual access to the property using the latest available 3D modelling technologies.	Pilot survey completed 2013. Action anticipated from Year 1
O-14 Develop an interpretation style and strategy (with associated branding) to ensure consistency of signage and mobile interpretation.	Year 1 priority
O-15 Improve viewpoints of the bridge and associated interpretation, with the collaboration of local communities, heritage trusts and business organisations.	Year 1 priority. To include vegetation control
O-16 Raise the profile of tourism in the region by integrating the property into established tourist packages and promotion.	Gateway to Fife and Northern Scotland, add value to the Edinburgh offer
O-17 Develop a Scottish World Heritage package, in collaboration with the existing five sites in Scotland. This could involve widening and sharing existing educational support, and integration into established events and programmes.	Proposed for Year 1  Could embrace international World Heritage Sites and Cultural Routes like the European Route of Industrial Heritage (ERIH).
O-18 Develop off-site marketing and pre-visit information through websites, Tourist Information Centres, and collaboration with wider regional initiatives to encourage more visits and extend awareness of the Site.	Year 2 priority, with the help of Visit Scotland
O-19 Develop Forth Bridge education modules for use in the Curriculum for Excellence within the Scottish education system, and also more widely, such as within professional occupations, like engineering or design.	Year 2 onwards
O-20 Develop a central online web resource promoting the property, with key pages in other languages.	Site established. To be developed incrementally throughout the period of this Management Plan.

# Section 4 – Dealing with the Issues

## 4.a Proposed Actions

This Section presents actions in response to each of the pressures identified in Section 3.a for inclusion in the Action Plan. Some actions also relate to opportunities from Sections 3.b. As in Section 3,

the priority column indicates whether implementation is in progress or will be carried out at the earliest opportunity, in the short term (years two and three of the Action Plan) or in the longer term.

**Opposite:** Newly painted steelwork in the Queensferry (south) tower, July 2011. (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Miles Oglethorpe, DSC\_5863)

Issue	Proposed Actions	Priority	
Conservation & Maintenance			
P-1	Prevention of decay – need for ongoing maintenance.	Already part of Network Rail's management regime for the property.	Constant – in progress
P-2	Operational issues, such as functional change, including line upgrades, electrification, and potential visitor access.	O-1 - To be accommodated within a Partnership Management Agreement that is being drawn up between Network Rail, Fife and City of Edinburgh Councils, and Historic Scotland. Experience in other World Heritage sites such as in the Historic Centre of Porto suggests that electrification would have minimal impact on the property.	Nearing completion
P-3	Inappropriate methods or materials for repairs through lack of understanding, skills or materials, or changing modern standards.	Network Rail's maintenance and management regime maintains high standards of conservation.	Not perceived to be a problem – standards constantly monitored.
P-4	Prioritisation and allocation of resources – maintaining the high standards established by the recent restoration work within tightening budgets.	Following the completion of the recent restoration work, resources have been set aside for continued annual maintenance (approximately £1.2 million per annum – i.e. £1.0 million for maintenance and c. £0.2 million on annual structural inspections).	Constant – in progress
P-5	Maintenance of management arrangements and standards across partners and contractors to ensure effective implementation.	High standards are maintained and monitored both by Network Rail and its contractors, currently Balfour Beatty. This is a statutory requirement because the property is an operational structure.	Constant – in progress
P-6	Effects of any previous inappropriate repairs or alterations.	Considered to be minimal, and where possible, reversed during the recent restoration programme.	Not considered to be a problem
P-7	Need for economic activities associated with the bridge to generate income to reinvest in the management and presentation of the bridge.	There is no pressure for the property to generate its own income. Its maintenance is resourced directly from Network Rail as part of its wider maintenance programme, which itself is supported by funding from the Scottish Government.	Not considered to be an issue or practicable

Issue	Proposed Actions	Priority	
<b>Development</b>			
P-8	Maintenance of effective protection of the areas adjacent to the bridge through designations and planning policies.	O-2 - Ensure heritage protection designations are kept up to date. O-3 – develop a Landscape Plan to help protect the setting of the property.	In progress
P-9	Potential increase in development pressures in the areas around the bridge, especially in anticipation of inscription.	Make sure that existing planning systems and associated designations are observed and implemented. As for P-8 above, opportunities O-2 and O-3 also apply.	In progress
P-10	Changes to land use within the areas around the bridge, including forestry, housing and business development.	As P-3 above – make sure that existing planning systems and associated designations are observed and implemented.	In progress
P-11	Loss of undesignated features in the areas around the bridge.	Most significant historic features near to the property should be protected by Conservation Areas, and therefore covered by existing planning systems.	In progress
P-12	Potential alterations or additions to properties close to or immediately adjacent to the bridge, if not adequately controlled.	As P-3 above – make sure that existing planning systems and associated designations are observed and implemented.	In progress
P-13	Increased vehicular and pedestrian traffic in the communities around the bridge.	O-4 – work towards the development of an integrated public transport system. O-5 – Forth Bridges Forum to consider the role of the two Forth road bridges in the management of traffic in the communities. O-6 – investigate repairing and bringing into use more piers and encouraging more river boat traffic. O-7 - lever in more funding for local infrastructure.	Year 1
<b>Presentation – Education, Learning, and Visitors/Tourism</b>			
P-14	Need to develop the presentation of the Outstanding Universal Value – how to get the story across.	Consider a variety of options for actual and virtual visitors. These are articulated in O-11 – to work on an 'Audience Development Plan'. O-12 - consider developing visitor access onto the property itself, and also develop virtual access through 3D digital modelling (O-13). In addition, it will be important to develop a consistent style and/or brand, especially for interpretation and signage (O-14). It will also be important to present the property in the context of Scotland's existing five World Heritage Sites (O-17), and to integrate it into existing tourism packages (O-16).	Year 1
P-15	Need to continue engaging the local community to support the property.	O-8 – cementing relationships between the communities at the north and south ends of the property. O-9 – forging closer community links, especially via local Heritage Trusts.	In progress
P-16	Need to maintain health and safety for visitors both to the property and to the surrounding area without compromising the historic fabric.	Establish a monitoring regime which measures changes in traffic within each local community and identifies risks and hazards that need to be addressed.	Year 1
P-17	Need to ensure long-term sustainable access without congestion, erosion, damage or compromised safety.	Actions as for P-13 above. Review public transport provision (O-4), and consider virtual means of gaining access to the property (O-13), as well as the development of a dedicated website (O-20). At the same time, it will be important to improve and maintain visibility from key viewpoints (O-15).	Year 1
P-18	Need to improve physical and non-physical accessibility to the property.	O-12 and O-13 - Consider developing physical and virtual access onto the property, to include people with different physical abilities, incorporating strong educational content and high-quality presentation. This could evolve into a 'must-see' international tourist attraction (O-10), and through the development of off-site marketing and pre-visit information (O-18).	In progress

Issue	Proposed Actions	Priority	
P-19	Need for enhanced visitor facilities.	In addition to O-12 and O-13 in P-18 above, the possibility of developing enhanced visitor facilities in each community should also be considered. In an educational context, this should also include the development of education modules to help younger visitors appreciate the property (O-19).	Years 1 to 6
P-20	Anti-social behaviour, litter and graffiti.	Routine monitoring within both communities, and in the vicinity of the property.	Years 1-6
<b>Natural Environment</b>			
P-21	Management of the potential impact on natural designated sites near to the Bridge.	Routine monitoring of the shoreline and other designated areas, in collaboration with local organisations, Scottish Natural Heritage and other national bodies.	Years 1-6
P-22	Climate change impact: sea level change, increases in storminess and sea level rise and consequent increases in coast erosion; torrential rain and flooding.	No impact on the property is anticipated as this is a resilient structure intended to stand in the sea.	On-going monitoring
P-23	Climate change impact: more intense precipitation; changes to wetting and drying cycles.	No impact on the property is anticipated as steel is protected against surface corrosion, the masonry is substantial and the joints are tight.	On-going monitoring
P-24	Encroachment of vegetation onto the fabric of the property.	Vegetation encroachment onto the structure of the property will be tackled through the routine maintenance regime.	On-going monitoring in progress
P-25	Birds nesting on the structure, and the associated build-up of detritus and corrosive waste.	Debris and waste from nesting birds on the structure of the property will be tackled through the routine maintenance regime.	In progress
<b>Disasters and Risk Preparedness</b>			
P-26	Storm damage, particularly high winds.	The bridge has a history of sustaining storm-force weather conditions over its 124 Year life (in particular wind speeds in excess of 110mph) without any detrimental structural effect whatsoever, which is testimony to the stiffness and strength inherent in the bridge design. The structural condition of the bridge is effectively constantly monitored, including a specific visual inspection in the aftermath of heavy storms.	Routine – in progress
P-27	Collision of rail traffic on the bridge.	Network Rail operates a modern signalling system to ensure separation of trains.. It also has contingency plans that are ready to come into operation in the event of a collision or other serious incident on the bridge. Arrangements vary depending on the incident, but all emergency services are conversant with the bridge structure. Furthermore, arrangements exist between Network Rail and train operating companies to supply rail-mounted support as necessary.	Routine – in progress
P-28	Collision of river/ocean-going vessel or aircraft with the piers or spans of the bridge.	All major craft in the Firth of Forth are marshalled by The Forth Ports Authority along strict navigation channels and bearings. Geologically and topographically, the bed profile is understood to offer the bridge good protection. All aircraft in UK airspace are controlled by National Air Traffic Services which ensures aircraft fly well clear of the bridge. Even so, Network Rail maintains contingency plans that are ready to come into operation in the highly unlikely event of the collision of a ship, boat or aircraft with the bridge. This includes response from all emergency services including the RNLI whose life boat station is located immediately beside the bridge.	Routine – in progress
P-29	Visitor incidents, including trespass, wilful damage.	All Organised visits take place under the direct control of Network Rail and its Principal Contractor. A full briefing and support arrangement is in place for any emergency that can arise. Security to the property is provided by full fencing of land-accessible areas. Railway Stations at either end of the bridge are monitored by closed-circuit security cameras.	Routine – in progress

# Section 5 – Long-Term Vision

## 5.a Management Vision

Using information gathered through community engagement and the public consultation in 2013, the Steering Group has worked together to develop a vision of how both the property should be managed in the future, and how the benefits of World Heritage listing might be harnessed if the nomination is successful. The intention is that this will guide the implementation and future revision of the Management Plan.

Establishing a clear vision is an essential means of ensuring that a World Heritage Site can be effectively managed and protected, whilst also delivering benefits for its local communities. As part of this process, it is important that management partners and local communities understand what World Heritage listing might achieve, if everyone works towards those goals. The creation of an agreed vision also allows for the development of a framework of longer-term aims, which in turn informs the priorities for medium-term objectives, based on the analysis of key current issues.

In the case of the Forth Bridge, the excellent state of the bridge itself following Network Rail's recent restoration programme allows more of a focus on wider benefits that World Heritage inscription might bring.

The Vision on which this Management Plan has been founded has been captured in the words of James Rebanks at the introductory section of this document. In practical terms, this can be summarised in terms of the following specific aims:

- To manage the property in a sustainable manner which conserves, enhances and promotes its Outstanding Universal Value both within and around the Site itself, but also at a national and international scale
- To carefully balance the requirements of protection and conservation against the need for access to the property, and the interests of the local communities in encouraging sustainable economic growth
- To engage with and deliver benefits to the local communities around the property whilst also minimising any negative effects that might follow a successful nomination
- To develop opportunities for education and learning, especially in the context of the adjacent road bridges
- To generate income and employment that adds value to the local economy and can contribute to the conservation and promotion of the property.

**Opposite:** View looking south from the top of the Fife tower, also showing the central tower of the Bridge, and Inchgarvie island, July 2013. (© Crown Copyright, reproduced Courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe, DSC\_3649)



## 5.b Management Principles

Realisation of the above vision will require the appropriate management of the property and its surroundings. This in turn will depend upon an active cycle of research, recording, monitoring, planning, and review. With this in mind, and drawing on the experience of existing World Heritage Sites, the Steering Group has identified a number of Management Principles which it intends to help shape the Action Plan in Section 6. These actions relate closely to the Pressures and Opportunities already identified in Sections 3 and 4.

### Identification

- to conduct further research and surveys as required to improve knowledge and understanding of the property

### Protection

- to review the statutory protection of the property, and where appropriate, in the areas adjacent to the site

### Conservation

- to maintain, and where desirable enhance the system of assessment and monitoring of the state of conservation of the property already implemented by Network Rail
- to build on the extensive recent restoration work, prioritising essential maintenance works to ensure an appropriate state of conservation of the property, securing additional resources where necessary; and
- to develop and implement effective management measures for all identified environmental pressures, disasters and risks to the property.

### Presentation

- to implement sustainable visitor management to improve the attractiveness of the property and the surrounding area to visitors without detriment to its Outstanding Universal Value and to the quality of life of the communities living around the bridge; and
- to develop improved interpretation to foster wider understanding and appreciation of the property and present its values to a wide range of audiences.

### Community Benefit

- to improve the local transport and infrastructure of the areas around the bridge not only to facilitate tourism and other business opportunities, but also for the benefit of the local communities.

### Transmission to Future Generations

- to further engage the local communities and a wider audience in the promotion and appreciation of the property, helping them to harvest the benefits of potential inscription both now and in the future.

### Management

- to ensure that the efforts and resources of all partners and stakeholders are properly co-ordinated and work towards the achievement of the Vision; and
- to routinely monitor progress and regularly report on the condition of the property, developments in the areas adjacent to the site, and other sensitive areas relating to its wider setting.

**Opposite:** View from the top of the Fife Tower, looking back to the north portal of the Forth Bridge, with North Queensferry Station in the background. The stubs on the top of the steelwork, which are not visible from the ground, were welded on to allow the erection of scaffolding in the future, facilitating long-term maintenance. July 2013. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe, DSC\_3640)



# Section 6 – Strategic Action Plan for the First Six Years

This Action Plan is designed to mesh with the requirements of the standard reporting cycle to UNESCO for World Heritage Sites. It attempts to organise and prioritise the actions identified by the Steering Group under the headings defined by the issues and management principles as laid out in Sections 4 and 5 (above). The Action Plan comprises actions

that have been recognised in 2014 as being essential for the successful management of the property and the delivery of the agreed Vision. Inevitably, details of these actions are subject to revision based on further evidence, consultation or experience during the six years of the Action Plan. Those that relate to the first year of the Plan presented in Section 9.

**Opposite:** View of the bridge from the north west, with part of North Queensferry in the foreground, November 2012, (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk))

Action	Timescale/Group
Identification	
<b>ID-1</b> In the interests of education and the promotion of the site, build on the work of the Comparative Study and further analyse the position of the property amongst the World's most important historic bridges.	<b>Years 2-6</b> Historic Scotland
<b>ID-2</b> Conduct a survey to confirm the existence and location of the most important surviving records across the world relating to the property.	<b>Years 2-6</b> Historic Scotland
Protection	
<b>PRO-1</b> Conduct a review of the designation of the property. Reconsider if necessary during the lifetime of the Plan.	<b>Completed, 2013</b>
<b>PRO-2</b> Ensure that conserving the property and its wider setting is properly integrated into Local Development Plans and Frameworks.	<b>Years 1-6</b> Fife, City of Edinburgh and West Lothian Councils
<b>PRO-3</b> Review the appraisals of the bridgehead Conservation Areas as required. This is more urgent on the south bank of the Forth where the Conservation Area Appraisal is 12 years old, and less so in Fife where it is only a year old.	<b>Year 2</b> City of Edinburgh Council and <b>year 5</b> Fife Council
<b>PRO-4</b> Assess the need to review other designated sites and areas within the setting of the property.	<b>Years 2-6</b> Fife and City of Edinburgh Councils, Historic Scotland
Conservation	
<b>CON-1</b> Draft and agree a Partnership Management Agreement (PMA) which defines and improves the processes through which consent is achieved for works on the property.	<b>Completed, 2014</b>
<b>CON-2</b> To define and agree standards of maintenance through the Partnership Management Agreement Group, developing a formal Conservation Management Plan.	<b>Year 1</b> PMAG

Action	Timescale/Group
<b>Conservation</b>	
<b>CON-3</b> To agree a system of monitoring of the property which feeds directly into the State of Conservation reporting process.	<b>Year 1</b> PMAG
<b>CON-4</b> Future maintenance and other works to be aligned with the agreed Conservation Management Plan	<b>Years 1-6</b> PMAG
<b>CON-5</b> Continue to undo previous inappropriate repairs or alterations as appropriate.	<b>Years 1-6</b> Network Rail
<b>CON-6</b> Manage anti-social side effects of public access (legal and otherwise), such as graffiti and litter, metal theft etc.	<b>Years 1-6</b> Network Rail
<b>CON-7</b> Monitor changes to the key views in order to review the need for a defined Buffer Zone.	<b>Years 3-6</b> Fife and City of Edinburgh Councils, Historic Scotland
<b>CON-8</b> Monitor the need for an enhanced View cone and Viewshed analysis to better implement protection of the setting of the property. View cones to consider the appropriateness of planned built elements in defined vertical and horizontal planes.	<b>Years 3-6</b> Fife and City of Edinburgh Councils, Historic Scotland
<b>CON-9</b> Maintain existing site emergency arrangements between operators, the local authorities, the emergency services and the Scottish Government, and review as levels of public access evolve.	<b>Years 1-6</b> PMAG
<b>CON-9</b> DRM: Review the Historic Buildings Fire Database Record prepared in 2005 with specific notes about railway procedures and alternative water supply. Consider full fire or other risk assessment.	<b>Years 3-6.</b> Network Rail, HS and Fire Scotland
<b>Presentation</b>	
<b>PRES-1</b> To develop a site-wide Audience Development Plan, assessing how the property can be better presented, and the need to manage and improve infrastructure to reap the benefits of increased visitor numbers whilst minimising the negative impact on local communities.	<b>Year 1+</b> Steering Group
<b>PRES-2</b> Consider the possibility of developing visitor access onto the property.	<b>Year 1</b> Network Rail
<b>PRES-3</b> Develop a consistent site-wide signage and interpretation strategy.	<b>Years 1-6</b> Steering Group
<b>PRES-4</b> Develop off-site marketing and pre-visit information through existing and potential new routes, through Tourist Information Centres, websites and social media.	<b>Years 1-6</b> Visit Scotland, with the Steering Group
<b>PRES-5</b> Develop mobile interpretation using guidebooks and digital media.	<b>Year 2+</b> Steering Group
<b>PRES-6</b> Conduct a laser-scan survey of the property and create a 3D model for a wide range of uses including education, virtual tourism, and asset management.	<b>Year 1+</b> (pilot survey completed) Historic Scotland
<b>PRES-7</b> Create interpretation panels for deployment at key viewpoints around the property.	<b>Year 2+</b> Steering Group
<b>PRES-8</b> Introduce a programme of vegetation management around key public viewpoints.	<b>Years 1-6</b> Fife and City of Edinburgh Councils,
<b>PRES-9</b> Further integrate views of the property into national bicycle networks and local footpaths and trails, existing and those being developed such as the Ferryhill Heritage Trail.	<b>Years 1-5</b> Steering Group
<b>PRES-10</b> Co-ordinate presentation of the property with promotional activities and events supporting the Forth Road Bridge and the Queensferry Crossing.	<b>Years 1-6</b> Steering Group
<b>PRES-11</b> Develop a World Heritage package involving Scotland's existing World Heritage Sites, and where possible, linking with international World Heritage sites and cultural routes like ERIH.	<b>Year 2</b> Historic Scotland; Visit Scotland
<b>Community Benefit</b>	
<b>CB-1</b> In anticipation of further increases in visitors, initiate an infrastructure review, to include roads and parking, in both Queensferry and North Queensferry, as well as in adjacent areas where more capacity might be available.	<b>Year 1+</b> Transport Scotland, Fife and City of Edinburgh Councils
<b>CB-2</b> Carry out a review of public transport (co-ordinated with PRES-3) serving the communities at both ends of the property, to include ways in which it can be better integrated and improved to help accommodate an anticipated increase in visitors.	<b>Year 1+</b> Transport Scotland, Fife and City of Edinburgh Councils

Action	Timescale/Group
<b>Transmission to Future Generations</b>	
<b>TRA-1</b> Bring together community groups around the property (on both sides of the Forth) and develop an integrated programme of activities and events.	<b>Years 1-6</b> Steering Group
<b>TRA-2</b> Widen existing educational activity relating to the property in support of local schools and colleges.	<b>Years 1-6</b> Steering Group
<b>TRA-3</b> Develop education modules for inclusion within Scotland's Curriculum for Excellence, and within Scran (Scottish Cultural Resources Access Network).	<b>Years 2-3</b> Steering Group
<b>TRA-4</b> Promote knowledge and appreciation of the property through existing railway heritage networks.	<b>Years 2-6</b> Network Rail
<b>TRA-5</b> In partnership with the Institution of Civil Engineers, promote awareness, appreciation and scholarship in support of the property, especially amongst emerging generations of professional engineers.	<b>Years 2-6</b> Steering Group
<b>Management</b>	
<b>MAN-1</b> Following the submission of the nomination dossier, maintenance of the Forth Bridge World Heritage Steering Group at least until the decision by the World Heritage Committee in 2015.	<b>Year 1+</b> Steering Group
<b>MAN-2</b> The Steering Group to seek out sources of external funding to help further the aims of the Management Plan.	<b>Years 1-6</b> Steering Group
<b>MAN-3</b> The Steering Group to monitor the impact of the Nomination and potential inscription on local communities around the property.	<b>Years 1-6</b> Steering Group
<b>MAN-4</b> The Steering Group to continue to manage the dedicated website at <a href="http://www.forthbridgeworldheritage.com">www.forthbridgeworldheritage.com</a> .	<b>Years 1-6</b> Transport Scotland
<b>MAN-5</b> The Steering Group to act upon the recommendations of the Audience Development Plan (PRES-1).	<b>Years 2-6</b> Steering Group
<b>MAN-6</b> The Steering Group to ensure that the property (and this Management Plan, including later revisions) is properly included in any future Development Plans, planning policies, revisions etc. in both Fife and City of Edinburgh.	<b>Years 1-6</b> Fife, City of Edinburgh and West Lothian Councils
<b>MAN-7</b> The Steering Group to seek sources of funding (internal and external) to fund a full 3D digital survey (and the creation of a 3D digital model) of the property (PRES-6).	<b>Year 1</b> Historic Scotland
<b>MAN-8</b> The Steering Group to seek funding to support the development of visitor facilities that provide access to the property.	<b>Year 1</b> Network Rail
<b>MAN-9</b> The Steering Group to seek to ensure that existing levels of resources provided for the conservation and operation of the property are, at the very least, maintained in the coming years.	<b>Years 1-6</b> Network Rail and Transport Scotland
<b>MAN-10</b> Through business communities, actively explore means by which the property can act as a positive socio-economic driver in the local communities.	<b>Years 1-6</b> Steering Group
<b>MAN-11</b> Assess the need to have a World Heritage Site co-ordinator dedicated to the site.	<b>Year 2</b> Steering Group



# Section 7 – Means of Implementation

## 7.a Forth Bridge World Heritage Nomination Steering Group

Following the submission of the Nomination Dossier in January 2014, the Steering Group will remain in place at least until the decision of the World Heritage Committee in 2015. It will continue to meet at regular intervals, and will oversee the implementation of the first actions outlined in this Management Plan. As its work evolves, the Steering Group will consider whether or not it should remain in place following potential inscription, or if a new governance structure is necessary.

If the property deferred, referred (to the State Party) or rejected from inclusion in the World Heritage List, the title and purpose of the group will be reviewed. Many of the management actions in respect of monitoring the bridge, monitoring change through the Partnership Management Agreement, and in safeguarding setting through existing designations, will continue in any case.

## 7.b Membership of the Forth Bridge World Heritage Nomination Steering Group

The group currently comprises representatives from:

- Network Rail (as owner of the property)
- Transport Scotland (Chair)
- Historic Scotland
- City of Edinburgh Council and Fife Council (the local authorities)
- Visit Scotland (the national tourism organisation)
- FETA (Forth Estuary Transport Authority)
- Queensferry & District and North Queensferry Community Councils
- Queensferry Ambition
- North Queensferry Heritage Trust

This group has already worked together to deliver the nomination, and the intention is that it continues to collaborate, taking forward this Management Plan. In doing so, the plan will evolve, and the membership of the group may broaden, involving, for example, other business organisations and adjacent council areas.

**Opposite:** Newly painted steelwork in the Fife (north) tower, October 2012. (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk). Miles Oglethorpe, DSC\_8567)



## 7.c The Forth Bridge Partnership Management Agreement Group

A core priority will inevitably be the conservation, maintenance and operation of the nominated property itself, and a central element within this process will therefore be the implementation of a Partnership Management Agreement (PMA) as part of this Management Plan. The completion and signing up to the PMA is one of the first actions of the Plan, and specifically involves the following members of the Steering Group:

- Network Rail
- Historic Scotland
- Fife Council
- City of Edinburgh Council

The specific function of the PMA is to ensure the safe and efficient operation of the bridge by monitoring, and where appropriate, consenting any works that are required, whilst at the same time protecting its integrity, and specifically, its Outstanding Universal Value. A group comprising the PMA partners meets regularly to ensure that the agreement is properly implemented.

## 7.d Transition Arrangements

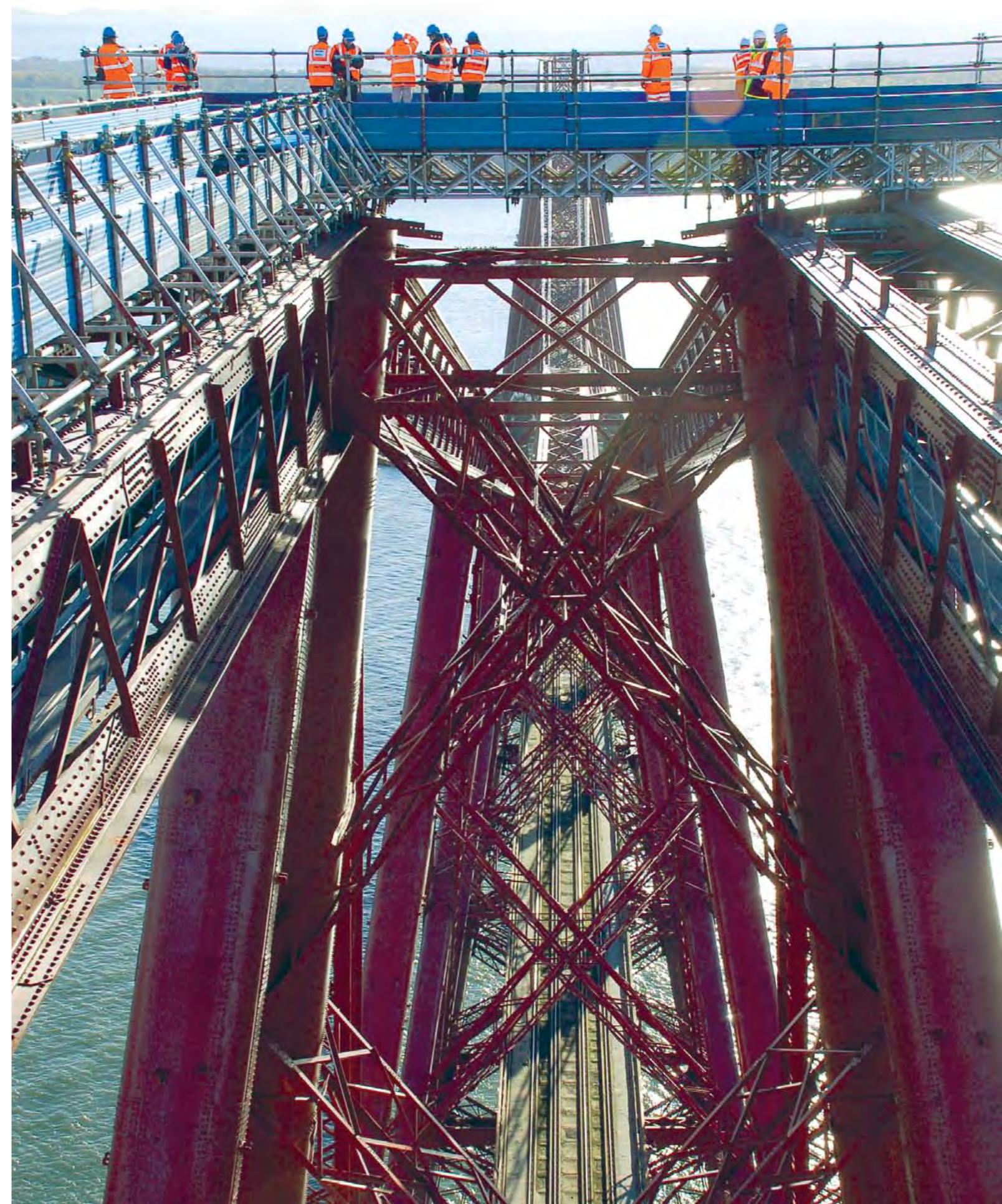
With the continuation of the Steering Group after the submission of the Nomination to UNESCO in early 2014, the only significant change will be the implementation of the Partnership Management Agreement, and the introduction of regular meetings of the partners. The PMA will therefore in effect cover the technical management of the property itself, leaving the broader issues relating to the stakeholders more generally to be covered by the Steering Group.

## 7.e Existing Allocation of Resources

For the property itself, Network Rail has earmarked an annual budget of £1 million to support the continued maintenance and conservation of the property. In addition, there will be weekly maintenance of the track and fittings as part of the overall railway maintenance at further cost of approximately £0.2 million per annum. Overall, these works therefore cover 'Permanent Way' teams from Network Rail itself, with the support of experienced and sometimes specialist contractors. These include multi-disciplined rope-access technicians, railway safety-critical specialist staff, steelwork and protective coatings specialists, and most important, safety management of those working on the bridge through the Principal Contractor, Balfour Beatty.

The Steering Group has resourced financially and in kind, the support required in the preparation, economic research, outreach, consultation and publication of the nomination. Any surplus funds that exist following the submission will be used to capitalise on this work, to support the continuing activities of the Group, in furtherance of the actions outlined in this Management Plan.

Visitors at the top of the Fife tower, October 2012. (© Crown Copyright reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Miles Oglethorpe, DSC\_8596)



# Section 8 – Monitoring

## 8.a Key Indicators for Measuring the State of Conservation

In accordance with Article 29 of the World Heritage Convention, the Department for Culture, Media and Sport, on behalf of the United Kingdom Government, must produce periodic reports on the legislative and administrative provisions and state of conservation of a World Heritage Site every six years. To assist in this process, key indicators for measuring quantitatively and qualitatively the state of conservation have been established in the Management Plan for the Forth Bridge. They will be monitored within the six-year periodic reporting time scale of the World Heritage Convention and guided by best practice. The results will be used to assess the implementation of the Strategic Action Plans detailed in this Management Plan.

The nominated property is a single structure which is an important part of an operating national railway network. The constant monitoring of its condition is therefore a statutory requirement, with Network Rail routinely reporting to the Office of Rail Regulation.

This means that a rigorous condition monitoring mechanism is already in place, harnessed through the Civil Asset Register and electronic Reporting System (CARRS), and through the Partnership Management Agreement Group's (PMA Group) regular meetings and reporting process. This in turn will integrate with the activities of the Steering Group, which is charged with taking forward and monitoring progress relating to the actions identified in the Management Plan.

The Steering Group will therefore depend on the PMA Group for information on activities directly affecting the property, and will collate regular summaries of works undertaken, any changes to the condition of the bridge, and potential for future change. Annual Reports by the Steering Group will draw together this data and information from other sources (including other stakeholders within the Group). This will be used to satisfy the needs of UNESCO's periodic reporting cycle, which requires a formal report by the State Party every six years.

At present the property is in exceptionally good condition, the extensive refurbishment project providing an excellent baseline position from which to monitor change. In addition, there is a possibility that the bridge will be fully documented using 3D laser scanning technologies which have the capability to produce an immensely accurate record. A pilot survey was conducted in August 2014, and if the results demonstrate that it is possible to record the entire property in this way, then resources will be sought to do so.

## 8.a.1 Listed Buildings

The Forth Bridge is a Category 'A' listed building. It does not currently feature in the Buildings at Risk Register.

## 8.a.2 Network Rail Inspections

A system of inspections is already in place as part of the routine maintenance programme, the information from which is recorded in the Civil Asset Register and electronic Reporting System (CARRS).

## 8.a.3 Monitoring Within the Areas Adjacent to the Property

The Forth Bridge World Heritage Nomination Steering Group will be responsible for monitoring the impact of potential inscription and the progress of the various actions outlined in Section 6.

Forth Bridge as seen from the Fife Coastal Path, North Queensferry, October 2012. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Duncan Peet, dpfb091012033)

# Section 9 – Plan for Year One (2014-15)

The actions identified below are derived from the Strategic Action Plan in Section 6. They relate only to the first year of the Plan, and therefore the numbers of the Actions in this particular table are not necessarily consecutive.

Action	Timescale/Group
Protection	
<b>PRO-2</b> Ensure that the property and its wider setting are properly integrated into Local Development Plans and Frameworks	<b>Years 1-6</b> Fife, City of Edinburgh and West Lothian Councils
Conservation	
<b>CON-2</b> To define and agree standards of maintenance through the Partnership Management Agreement Group, developing a formal Conservation Management Plan	<b>Year 1</b> PMAG
<b>CON-3</b> To agree a system of monitoring of the property which feeds directly into the State of Conservation reporting process	<b>Year 1</b> PMAG
<b>CON-4</b> Future maintenance and other works to be aligned with the agreed Conservation Management Plan	<b>Years 1-6</b> PMAG
<b>CON-5</b> Continue to undo previous inappropriate repairs or alterations as appropriate	<b>Years 1-6</b> Network Rail
<b>CON-6</b> Manage anti-social side effects of public access (legal and otherwise), such as graffiti and litter, metal theft etc.	<b>Years 1-6</b> Network Rail
<b>CON-9</b> Maintain existing site emergency arrangements between operators, the local authorities, the emergency services and the Scottish Government, and review as levels of public access evolve	<b>Years 1-6</b> PMAG
Presentation	
<b>PRES-1</b> to develop a site-wide Audience Development Plan, assessing how the property can be better presented, and the need to manage and improve infrastructure to reap the benefits of increased visitor numbers whilst minimising the negative impact on local communities	<b>Year 1+</b> Steering Group
<b>PRES-2</b> Consider the possibility of developing visitor access onto the property	<b>Year 1</b> Network Rail
<b>PRES-3</b> Develop a consistent site-wide signage and interpretation strategy	<b>Years 1-6</b> Steering Group
<b>PRES-4</b> Develop off-site marketing and pre-visit information through existing and potential new routes, through Tourist Information Centres, websites and social media	<b>Years 1-6</b> Visit Scotland, with the Steering Group

Action	Timescale/Group
Presentation	
<b>PRES-6</b> Conduct a laser-scan survey of the property and create a 3D model for a wide range of uses including education, virtual tourism, and asset management	<b>Year 1+ (pilot survey completed)</b> Historic Scotland
<b>PRES-8</b> Introduce a programme of vegetation management around key public viewpoints	<b>Years 1-6</b> Fife and City of Edinburgh Councils
<b>PRES-9</b> Further integrate views of the property into national bicycle networks and local footpaths and trails	<b>Years 1-2</b> Steering Group
<b>PRES-10</b> Co-ordinate presentation of the the property with promotional activities and events supporting the Forth Road Bridge and the Queensferry Crossing	<b>Years 1-6</b> Steering Group
Community Benefit	
<b>CB-1</b> in anticipation of further increases in visitors, initiate an infrastructure review, to include roads and parking, in both Queensferry and North Queensferry, as well as in adjacent areas where more capacity might be available	<b>Year 1+</b> Transport Scotland, Fife and City of Edinburgh Councils
<b>CB-2</b> Carry out a review of public transport (co-ordinated with PRES-3) serving the communities at both ends of the property, to include ways in which it can be better integrated and improved to help accommodate an anticipated increase in visitors	<b>Year 1+</b> Transport Scotland, Fife and City of Edinburgh Councils
Transmission to Future Generations	
<b>TRA-1</b> Bring together community groups around the property (on both sides of the Forth) and develop an integrated programme of activities and events	<b>Years 1-6</b> Steering Group
<b>TRA-2</b> Widen existing educational activity relating to the property in support of local schools and colleges	<b>Years 1-6</b> Steering Group
Management	
<b>MAN-1</b> Following the submission of the nomination dossier, maintenance of the Forth Bridge World Heritage Steering Group at least until the decision by the World Heritage Committee in 2015	<b>Year 1+</b> Steering Group
<b>MAN-2</b> The Steering Group to seek out sources of external funding to help further the aims of the Management Plan	<b>Years 1-6</b> Steering Group
<b>MAN-3</b> The Steering Group to monitor the impact of the Nomination and potential inscription on local communities around the property	<b>Years 1-6</b> Steering Group
<b>MAN-4</b> The Steering Group to continue to manage the dedicated website at <a href="http://www.forthbridgeworldheritage.com">www.forthbridgeworldheritage.com</a> .	<b>Years 1-6</b> Transport Scotland
<b>MAN-6</b> The Steering Group to ensure that the property (and this Management Plan, including later revisions) is properly included in any future Development Plans, planning policies, revisions etc. in both Fife and City of Edinburgh.	<b>Years 1-6</b> Fife, City of Edinburgh and West Lothian Councils
<b>MAN-7</b> The Steering Group to seek sources of funding (internal and external) to fund a full 3D digital survey (and the creation of a 3D digital model) of the property (PRES-6)	<b>Year 1</b> Historic Scotland
<b>MAN-8</b> The Steering Group to seek funding to support the development of visitor facilities that provide access to the property	<b>Year 1</b> Network Rail
<b>MAN-9</b> The Steering Group to seek to ensure that existing levels of resources provided for the conservation and operation of the property are, at the very least, maintained in the coming years	<b>Years 1-6</b> Network Rail and Transport Scotland
<b>MAN-10</b> Through business communities, actively explore means by which the property can act as a positive socio-economic driver in the local communities	<b>Years 1-6</b> Steering Group



The east side of the Queensferry tower, looking north towards the skewbacks based on its central piers, August 2012. (© Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk) Miles Oglethorpe, DSC\_7876)

# Section 10 – Acknowledgements

Eleven key organisations within the Forth Bridge World Heritage Nomination Steering Group gave constant support towards this nomination. They are, in alphabetical order:

## Members of the Steering Group

City of Edinburgh Council  
Fife Council  
Forth Estuary Transport Authority (FETA)  
Historic Scotland  
Network Rail  
North Queensferry Community Council  
North Queensferry Heritage Trust  
Queensferry Ambition  
Queensferry & District Community Council  
Scottish Government Historic Environment Policy Unit  
Transport Scotland  
Visit Scotland

In addition, thanks are due to a number of people and organisations without whom the development of this nomination dossier and management plan would have been impossible. These include:

## The Editorial Team

Alastair Fyfe  
Ian Heigh  
Mari McKee  
Miles Oglethorpe  
Mark Watson

## Members of the Forth Bridges Forum World Heritage Nomination Steering Group

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Roland Paxton

## National Records of Scotland

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National Records of Scotland  
Royal Commission on the Ancient and Historical Monuments of Scotland  
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It is likely, given the scale of the work involved with this nomination, that we will have accidentally omitted significant names from these acknowledgements. We therefore apologise if we have missed naming you as a contributor.

# Section 11 – Bibliography

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# Closing Statement on the Management Plan

This Management Plan has been compiled in support of the nomination of the Forth Bridge for World Heritage listing by the Forth Bridge World Heritage Steering Group on behalf of the Forth Bridges Forum. It represents commitment to action in support of an agreed vision by the key partners supporting the nomination, and covers the period 2014-2019. The Steering Group comprises representatives from City of Edinburgh Council, Fife Council,

the Forth Estuary Transport Authority, Historic Scotland, Network Rail, North Queensferry Community Council, North Queensferry Heritage Trust, Queensferry Ambition, Queensferry & District Community Council, Scottish Government Historic Environment Policy Unit, Transport Scotland and Visit Scotland.

Inevitably, this and other World Heritage Site Management Plans are dynamic in nature, requiring regular

amendment as actions are completed and new situations and opportunities arise. This Plan, produced specifically in support of the World Heritage Site nomination, will require early and constant review and revision. Even if the bridge were not to be inscribed, many of the outputs (deliverable results) and broader outcomes contained in the management plan will still be achieved thanks to the impetus given by the nomination to UNESCO.

**Below:** Second Place in the Contemporary Category, Transport Scotland Forth Bridge Photographic Competition, taken by Nigel Darling, April 2013. (© Nigel Darling, Forth Bridge Photo Competition Finalist, Nigel Darling FBPC0018)





The Forth Bridge from Ferryhills, North Queensferry, October 2012. © Crown Copyright, reproduced courtesy of Historic Scotland. [www.historicscotlandimages.gov.uk](http://www.historicscotlandimages.gov.uk), Duncan Peet, dpfb091012039)





