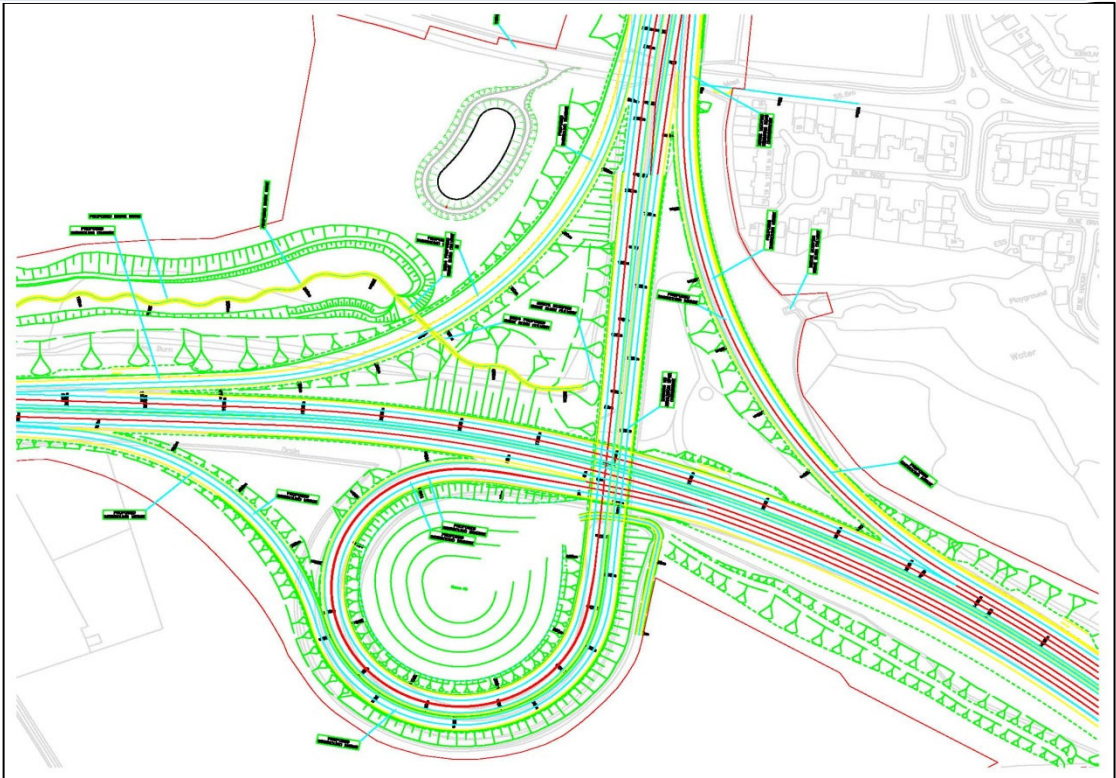




FORTH REPLACEMENT CROSSING M9 Junction 1a – Project Quality Plan: Volume 4 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN







FORTH REPLACEMENT CROSSING M9 Junction A1

Construction Environmental Management Plan

CONTROLLED DOCUMENT

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Revision Record

Rev	Date	By	Summary of Changes	Chkd	Aprvd
01	18 th September 2011	RT	Reflect EDT, Statutory Bodies and Local Authorities Consultations and Review	SOB	SOB
02	10 th October 2011	RT	Reflect EDT Review	SOB	SOB
03	14 th March 2012	RT	Review by SRB personnel, completion of additional Management Plans and input of EDT comments on additional Management Plans	SOB	SOB

VOLUME 4: Construction Environmental Management Plan (CEMP)

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1.0 INTRODUCTION TO CEMP

1.1 Submissions and Approvals

The CEMP will be developed by the Environmental Manager (EM) and submitted to the Employer, along with completed Submission Certificate for review and approval at least 21 days prior to Works commencing.

1.2 Distribution Policy -LIVE document Status

The CEMP and its subsidiary plans are live documents subject to updating and refinement as required in response to the changing needs of the Works during construction. The CEMP will be placed on the Four Projects Server with read-only access to all Project Parties.

1.3 Website

After sign-off by the Employer's Representative, the CEMP and its subsidiary plans will be made available on the Transport Scotland Project information website.

1.4 Development of CEMP

This CEMP has been developed from the Jacobs Arup Outline CEMP Template (December 2010, Revision 0)

1.5 Integration of the CEMP with the Project Quality Plan

The John Sisk and Son Ltd. – Roadbridge JV (SRB), will operate the Environmental Management System and the Construction Environmental Management Plan (CEMP) under the umbrella of the Project Quality Plan (PQP).

By integrating the EMS into the overall Project Management Plan, SRB propose to incorporate the environmental checks and balances into all aspects of the Project and all Project Documents. We will make environmental considerations part and parcel of all processes and procedures, led by Senior Management. This will align the EMS and CEMP with the Quality Management System and provide for an integrated approach to the management of the Project.

This will also effectively translate down to the workforce in every activity and elements of their day to day work. We will share common procedures, tools and techniques with other Project Departments (e.g. Health and Safety, Quality, Commercial and Programming) to minimise the amount of duplication and dilution of the environmental message and allow the Team to focus on the Project Objectives. The hierarchy and integration of SRB documentation is shown in Figure 1.1.

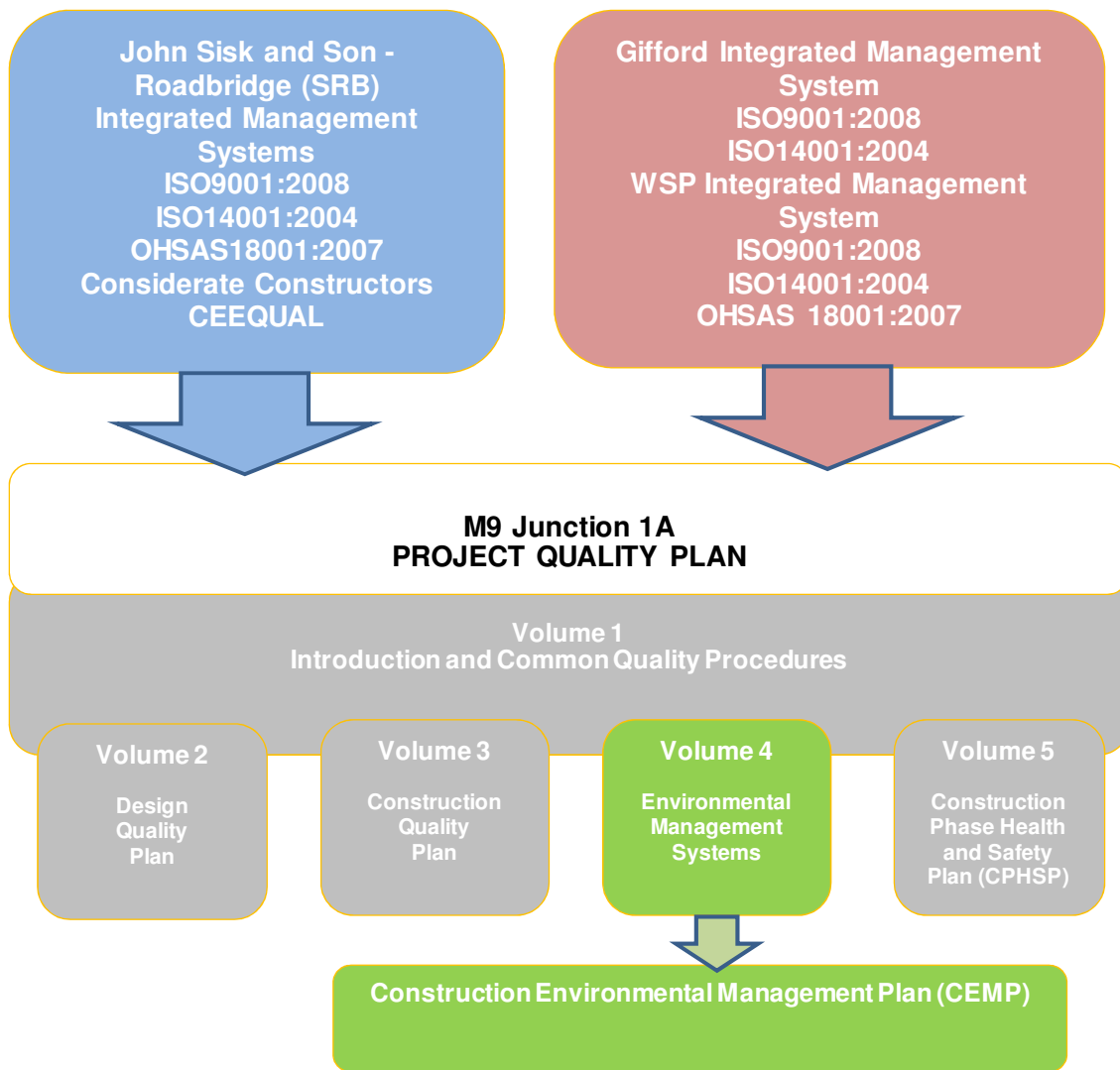


Figure 1.1 Hierarchy and Integration of SRB Quality and Environmental Documentation

Figure 1.2 below illustrates the hierarchy of contract documentation with the CEMP and its interaction with the other Management Plans and documents prepared for the project. These Management Plans provide more detailed actions for the mitigation and monitoring of key environmental issues.

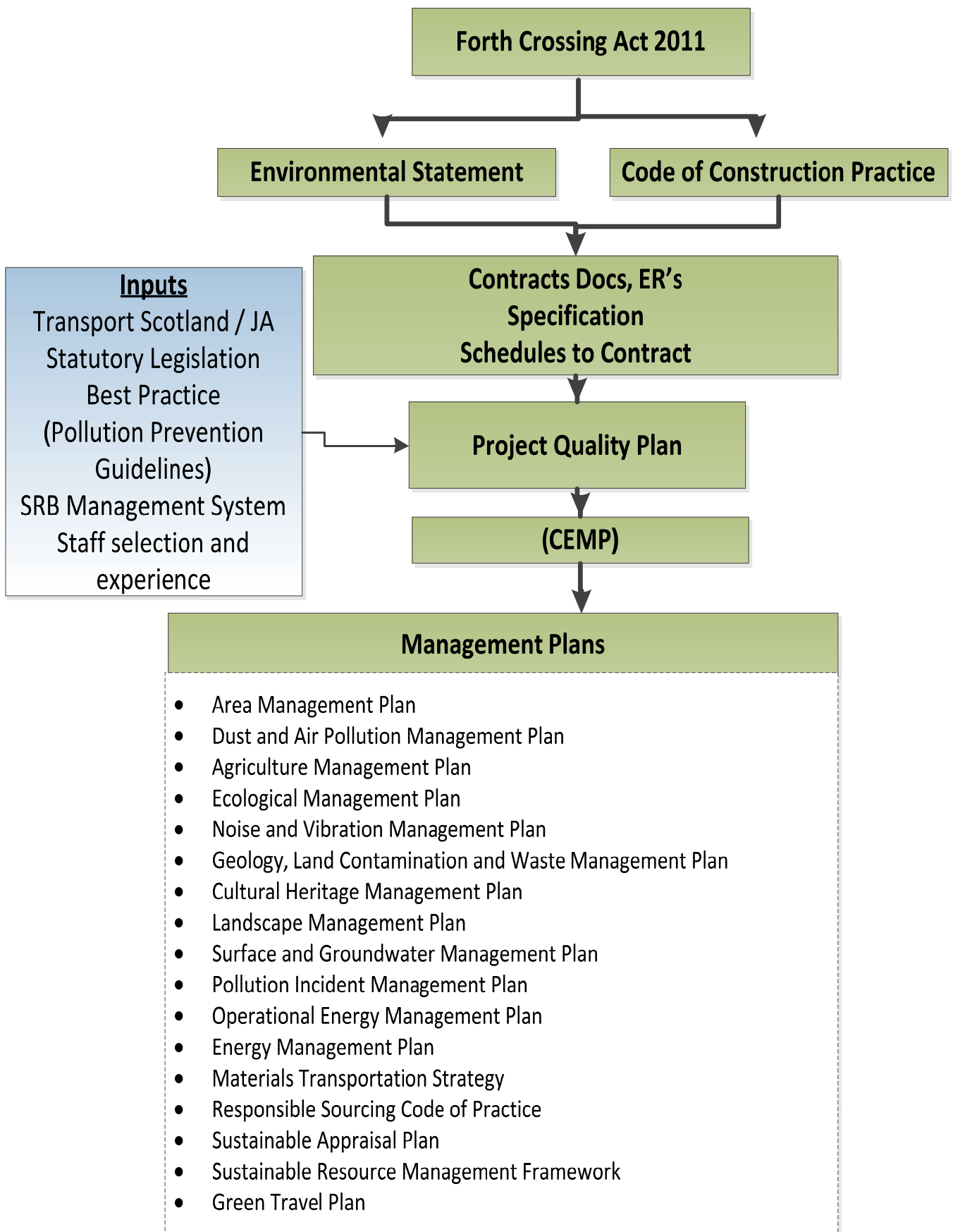


Figure 1.2 Hierarchies of Contract Documentation and the CEMP

1.6 Project Scope and Background

General Description

The Stage 3 design for M9 Junction 1A comprises a grade separated junction arrangement, which is capable of facilitating all movement access between the M9 and the M9 Spur. Located on the site of the existing junction, the new arrangement makes best use of existing infrastructure whilst minimising the amount of new land-take required in its implementation. The east facing functionality provided by the existing junction is enhanced through revisions to both the existing loop arrangement, from the M9 westbound to the M9 Spur, and the slip road from the M9 Spur to the M9 eastbound. Each of these links will provide two general traffic lanes, assisting traffic flow through the junction area.

To better serve West Lothian traffic, the re-design of M9 Junction 1A will incorporate west facing slip roads, a feature not encompassed within the existing junction design. The provision of these slip roads will remove the current requirement for traffic to navigate Newbridge Roundabout when making this movement.

In the provision of the revised M9 Junction 1A, whilst new structures will be required to carry new sections of road and realigned watercourses, where possible, existing structures will be utilised or widened.

To complement the improvements to the junction, the section of the M9 between Newbridge Roundabout (M9 Junction 1) and M9 Junction 1A is to be widened to provide four lanes of traffic in the southbound direction and an auxiliary slip road lane as far as the River Almond underbridge northbound. The interaction of traffic between these junctions is a known constraint on the operation of the strategic network, weaving being a particular issue. The southbound widening of the M9 in tandem with the provision of two lane merge and diverge slip roads at Newbridge Roundabout and M9 Junction 1A will improve the connectivity and operational performance of the network through this section.

The Works shall include, but shall not be limited to, the following

- (a) provision of new west facing link roads between the M9 and the M9 Spur, including construction of approximately 800 metres of new single lane link roads plus hard shoulders;
- (b) improvements to the existing east facing link roads including widening both to accommodate two lanes plus hard shoulders;
- (c) widening of the existing M9 between Junction 1a and the River Almond crossing (towards Newbridge Junction) over a length of approximately 1 kilometre, incorporating a new auxiliary lane in the westbound direction and the addition of a lane in the eastbound direction;
- (d) construction of a new overbridge adjacent to the existing Junction 1a overbridge, with a total length of approximately 86 metres;
- (e) widening of the existing Overton Road underbridge on the M9 by approximately 6 metres;
- (f) widening of the existing B9080 underbridge on the M9 Spur by approximately 23 metres;
- (g) diversion of Swine Burn including a new culvert beneath the eastbound diverge link road of approximately 70 metres length;
- (h) road boundary fencing and vehicle restraint systems;
- (i) road drainage infrastructure and outfalls comprising a sustainable drainage system (“**SUDS**”);
- (j) earthworks and ground improvement works;

- (k) kerbs, footways and paved areas;
- (l) traffic signs and road lighting;
- (m) provision of ITS facilities, as detailed in Part C, at Gantry Sites within the LMA. The Contractor shall provide all of the infrastructure, including, without limitation: Gantry structure, maintenance hard standing, hard landscaping, ducting, cabinet sites, earthworks, landscaping, VRS, drainage, road markings, signs and the like;
- (n) diversionary and other similar works for Statutory Undertakers, private utility companies and the like;
- (o) environmental and landscaping measures;
- (p) Accommodation Works, and
- (q) all other works generally associated with a Trunk Road scheme.

Two Number Scheme Layout Drawings are attached in Appendix A

1.7 Project Environmental Policy

The SRB Integrated Management System Policy Statement is included in this plan as Appendix C and will be reviewed throughout the project for relevance.

During this project, SRB will also demonstrate their commitment to the environment by participating in the following schemes:

- Considerate Constructors Scheme (CCS)
SRB will demonstrate its commitment to its wider social responsibilities through registration and participation in the Considerate Constructor's Scheme and will commit to following the best practice guide in all site activities. The Considerate Constructors Auditor visited the site on the 14th December 2011 and achieved a score of 36.5/40.
- Civil Engineering Environmental Quality Assessment Scheme (CEEQUAL)
SRB are committed to maintaining or improving the interim award of 92.7% for the Scheme (*source: Transport Scotland Website*). SRB will provide at least one CEEQUAL assessor to the Project Team.
Performance will be reviewed monthly by the SRB Project Team, championed by the Environmental Manager.

1.8 Statement of compliance with EN ISO 14001:2004

This CEMP complies with BS EN ISO 14001:2004

1.9 Conflict between CEMP and SEPA CAR Licence

Where any part of the CEMP is found to conflict with a condition of the SEPACAR Licence, the condition of the Licence shall take precedence.

1.10 Project Environmental Complaints Procedure

The complaints procedure is outlined in the Project Quality Plan Volume 3 Section 3. Complaints received from affected persons and interests will be logged in the Complaints Register and actioned against agreed timeframes.

2.0 CEMP SCOPE OBJECTIVES AND TARGETS

2.1 Introduction and purpose of the CEMP

The purpose of the SRB Construction Environmental Management Plan (CEMP) is to provide a tool which can be developed to manage environmental issues associated with construction of the M9 Junction 1A project.

This CEMP sets out a series of objectives and measures to be applied throughout the construction period to:

- Manage and operate the construction works;
- Maintain satisfactory levels of environmental protection; and
- Limit disturbance from construction activities.

This CEMP has been prepared taking into account guidance published by the Institute of Environmental Management and Assessment (IEMA, 2008) as well as the requirements of ISO 14001, the SRB Integrated Management System, the Environmental Statement (ES) for the Forth Replacement Crossing Project (FRC), Contract Documents and the Construction Code of Practice (CoCP) for the Forth Replacement Crossing (Rev5Dec 2010).

The project was promoted by the Scottish Ministers by a Parliamentary Bill titled the "Forth Crossing Act". Part of the Act deals with environmental issues including the requirement to mitigate environmental impacts and also the requirement to meet the minimum standards of mitigation and protection provided for in the ES and CoCP.

The CEMP will be reviewed periodically to ensure that it is relevant to the works being undertaken. It may also be reviewed following internal and external audit findings, as well as after changes to work methodologies or technological advances.

The CEMP will be developed by the Environmental Manager and submitted to the Employer, along with the completed Submission Certificate for review and approval at least 21 days prior to Works commencing.

2.2 Scheme Timetable

Overall Contract Duration is: **21 months including Section C**

Project Award	20 th July 2011
Mobilisation to Site	21 st August 2011
Handover Section A	05 th April 2012
Handover Section B	16 th March 2013
Handover Section C	18 th April 2013

2.3 Key Objectives & Targets of the CEMP

The key objective of the CEMP is to ensure delivery of the environmental commitments and requirements of the project and so reduce the environmental impacts of construction. The EMS forms an integral part of the Project Quality Plan. The procedures and processes detailed in the PQP will also apply to the operation of the EMS.

The CEMP:

- Sets out actions to ensure the practical delivery of commitments set out in the Environmental Statement including the Code of Construction Practice (CoCP);
- Sets out actions to ensure the topic and locational specific requirements are delivered;
- Sets out actions to achieve the requirements of all relevant statutory legislation, standards and guidance;
- Sets out actions to meet all contractual obligations with respect to the environment, including those set out in the Employer's Requirements
- Sets out actions to achieve best practice environmental design and sustainability principles;
- Ensures effective engagement with key stakeholders is undertaken as appropriate in the delivery of mitigation.

The key objectives of the project are as follows:

- To use practicable means during construction works to minimise noise and vibration at neighbouring residential properties and other sensitive receptors arising from construction activities;
- To carry out the works in such a way that emissions of dust and other pollutants including odour are limited and that best practice means are employed to avoid the creation of a statutory nuisance and risks to human health and to avoid unnecessary impacts on sensitive habitats;
- To take reasonable precautions in carrying out the works to prevent, contain, or limit adverse environmental impacts and health and safety risks arising from construction on or adjacent to land affected by contamination or disturbance of contaminated soils during construction activities, including limiting adverse impacts on designated geological features;
- To comply with relevant statutory provisions, including any consents required, in respect of the water environment, to protect both physical habitat and morphology and to avoid unacceptable adverse impacts including changes to flow volume, water levels and water quality due to construction;
- To carry out construction works in such a way as to avoid unnecessary impacts to valuable habitats and species, or to control and limit construction impacts in line with the ES;
- To carry out the works in such a way to protect good quality agricultural land from damage and to contain and limit adverse effects on agricultural resources as far as reasonably practicable;
- To carry out the works in such a way as to prevent, so far as is reasonably practicable, disturbance or damage to built heritage, within the scope of the M9J1a Section, and other sites of archaeological interest as defined in relevant legislations and the Environmental Statement;
- To carry out construction works so that disturbance to the landscape is contained within the construction site in order to protect the existing landscape elements such as soils, woodland, trees, hedges, grassland and other habitat.

CEMP Targets

In addition to these Objectives, the key SRB targets for this project are as follows:

Description	Target	Measured March 2012
"Moderate" to "significant" environmental incidents during the Project	Zero	Zero
Prosecutions or warnings during the Project	Zero	Zero
Score on monthly SRB Internal Environmental Audits of the site	95% as minimum	Average 98.2%
CEEQUAL	Maintaining of the "excellent" interim score achieved through to Whole Project Award	In progress
Scoring for Considerate Constructors Scheme	Very Good (min.)	"An exceptionally considerate site"
ISO14001:2004 Certification	Maintain	Maintained
Surface and groundwater readings outside agreed limits	Target Zero	Zero
Dust monitoring readings outside allowable agreed limits	Target Zero	Zero
Zero noise monitoring readings outside allowable contract limits	Zero without LA approval	NLG satisfied - no readings in exceedence of contract limits
Vibration monitoring readings outside allowable contract limits	Zero without LA approval	NLG satisfied - no readings in exceedence of contract limits

2.4 Scope of the CEMP

The scope of the CEMP applies to the construction of the M9 Junction 1A project by SRB and all subcontractors and employees.

The CEMP forms an integral part of the Project Quality Plan. The procedures and processes detailed in the PQP will also apply to the operation of the CEMP.

3.0 PROJECT ENVIRONMENTAL MANAGEMENT SYSTEMS AND PROCEDURES

3.1 Project Environmental Management System

As per Part A2 (Specification) of the Employer's Requirements, Appendix 1/24, the partner contractors that form SRB are both certified to BS EN ISO 14001:2004, ISO 9001:2008 and OHSAS 18001:2007 and copies of these certificates will be included in the Project Quality Plan (PQP).

The CEMP has been developed to be compliant with the requirements of the SRB Integrated Management System and ISO 14001:2004.

3.2 Procedures in the event of Changes to the Proposed Scheme

The CEMP will be updated at intervals of no more than six months or earlier if required e.g. following feedback from the Environmental Liaison Group or the Client. If changes to the Contract occur and Appendix R of the Contract is utilised, SRB will review and update the CEMP to reflect any agreed changes to the scheme.

4.0 IMPLEMENTATION AND OPERATION

4.1 Management Team and Structure

The Project Management Team and Organisational Chart is included in the Project Quality Plan: Volume 1.

4.2 Key Personnel Responsible for Implementation of the Environmental Management System

Listed in Table 4.1 are the Key Personnel Responsible for the implementation and operation of the Environmental Management System:

Personnel	Role
On Site:	
Seamus O'Brien	Project Manager
Roland Tarrant	M9J1a Environmental Manager
ChrissReidy	Noise and Vibration Clerk of Works
Andy Follis	Landscape Clerk of Works
Beccy Osborne / Ruth Maguire Direct Ecology	Ecological Clerk of Works
Barry O Riordan	Assistant Engineer - Environmental Office
Off-Site:	
David Bunyan	Environmental Advisor
Mike Brownstone	Noise Specialist
Peter Byrne	SRB External Environmental Manager

Table 4.1 List of Key Environmental Personnel

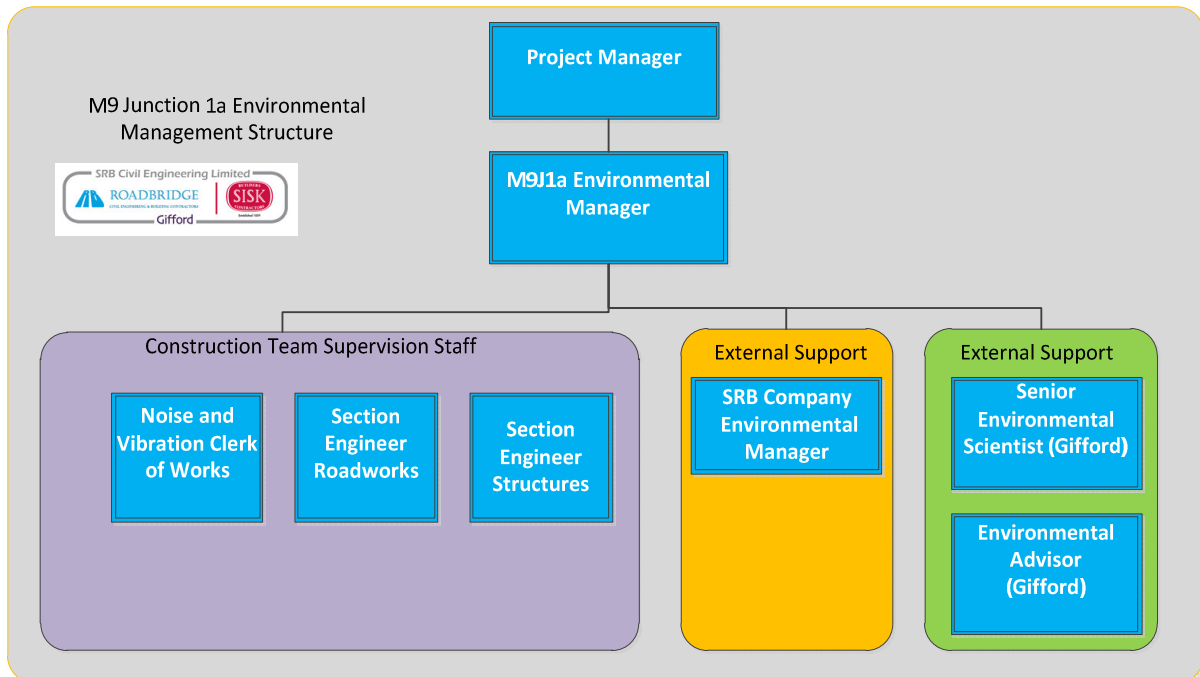
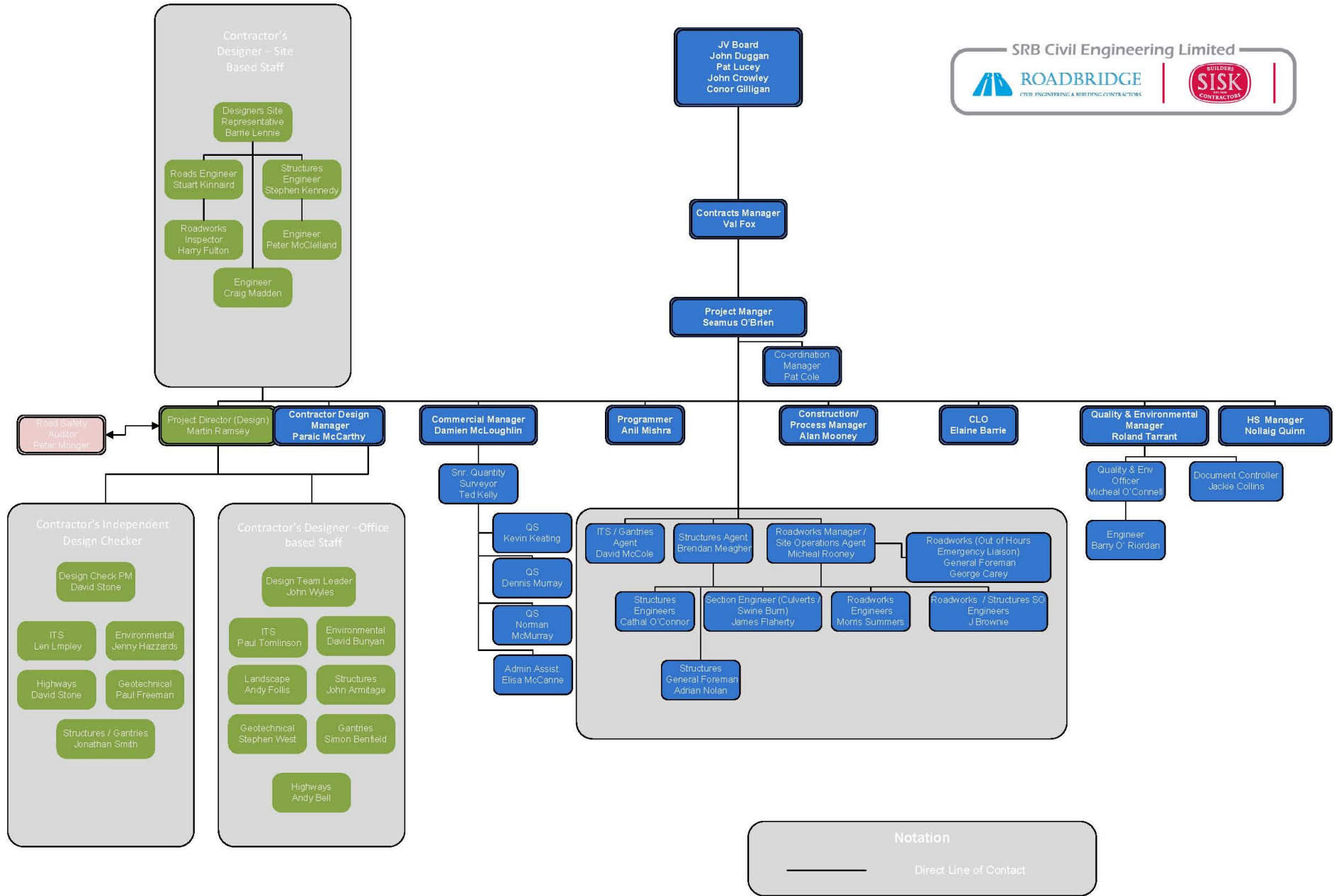


Figure 4.1 Reporting structure to the Environmental Manager regarding Environmental Issues within the SRB Team



4.3 Roles Responsibility and Authority

All Management on the Project, regardless of position, have the authority to stop works where there are concerns over environmental controls, at any stage.

The chart below outlines the environmental roles and responsibilities for this project:

	PM	Con	HSA	EM	Com	Eng	FM	GO	CS
Evaluate environmental aspects of the project prior to starting on site.	X	X	X	X					
Ensure that all personnel are competent to carry out their respective tasks.	X	X	X	X		X	X		
The maintenance and implementation of the EMS, ensuring its compliance with IS EN ISO 14001: 2004.			X	X					
Approve/Implement Environmental Policies	X	X	X	X	X	X			
Approve/Implement Project Environmental Management Plan	X	X	X	X		X			
Have an awareness of the Environmental Policies, CEMP, SOPs, Method Statements etc	X	X	X	X		X	X	X	X
Ensure that all relevant Environmental documentation (SOPs, Method Statements etc) are produced and signed off	X			X					
Have an awareness of all relevant Environmental Legislation	X	X	X	X	X	X	X		X
Have an awareness of site sensitivities and required mitigation measures	X	X	X	X		X	X	X	X
Ensure that all activities are planned and performed to minimise risk to the environment	X	X	X	X		X	X		
Inform all relevant persons of the sites environmental policies, procedures and rules			X	X		X	X		
Identify any inadequacies of the sites environmental policies, procedures and rules	X	X	X	X	X	X	X	X	X
See that plant, equipment and materials supplied are not environmentally damaging		X		X		X	X	X	
Act on any breach of environmental rules or environmentally damaging situations and report to site management	X	X	X	X	X	X	X	X	X
Carry-out environmental monitoring works identified in the Environmental Monitoring Plan				X					X
Generate/approve the weekly and monthly environmental reports	X			X					
Ensure all required mitigation measures are installed and maintained		X		X		X			X
Investigate incidents of potential, actual or significant, environmental damage				X					
Assist with the identification of training required and; subsequent training for all employees		X		X					
Ensure that Environmental matters are taken into account when considering Subcontractors	X	X			X	X			
Be aware of any potential env risks relating to the Subcontractors and bring these to the notice of management.					X	X	X		
Reporting to Client Representative and all relevant regulatory authorities or interested 3 rd parties									X

Legend:

PM	= Project Manager	HSA	=Health & Safety Advisor	FM	= Foremen
Con	= Construction Manager	Com	= Commercial Manager	GO	= General Operatives
EM	= M9J1a Environmental Manager	Eng	= Engineers	CS	= Client Staff

Table 4.2 Roles, Responsibility of Project Staff

M9J1a Environmental Manager (also Environmental Clerk of Works)

SRB have appointed a full-time Environmental Manager to the **Project**. He is the main point of contact for the Design and Construction Team and the Employer's Representative on Environmental matters. He is suitably qualified and will liaise with the Environmental advisor and Ecological Clerk of Works (ECoW) to develop and implement suitable Environmental controls.

In addition to Table 4.2, his specific responsibilities will include:

- a) Day-to day environmental controlling of planned works;
- b) Management of Environmental issues relating to the site;
- c) Implementation of the CEMP
- d) Developing Environmental procedures for Method Statements and Work Plans;
- e) Overseeing of Site Environmental Processes
- f) Carrying out of Environmental Audits and Inspections
- g) Reviewing Environmental Procedures
- h) Continual Improvement of the EMS
- i) To monitor and advise on vegetation removal and other environmental matters
- j) To participate in the Environmental Liaison Group (ELG) meetings
- k) Liaison with Employer's Representative & Designer's representatives on site
- l) Development of the SRB commitment to the CEEQUAL and CCS Schemes.
- m) Liaisons with the Noise Specialist, Noise Clerk of Works and the Clients Team regarding the implementation of the Noise and Vibration Management Plan and the Plans for the Control of Noise and Vibration
- n) All other responsibilities covered in Table 4.2 above

Note: The Environmental Clerk of Works Role is separate to the Ecological Clerk of Works Role required elsewhere in the documents.

4.4 Environmental Commitments

Reference is made throughout this document to Chapter 23: Schedule of Environmental Commitments from the ES, which was used as a starting point for the development of this plan. These are included in **Appendix B**.

4.5 Environmental Monitoring, Inspections and Auditing

4.5.1 Compliance Audits

Daily Site Walkover

The Environmental Manager (EM) or his assistant will carry out a Daily Site Walkover of the Works. During the walkover, the EM will inspect the environmental control measures that are in place as part of the monitoring arrangements for each of the management plans and record them using EMS002a (Refer to **Appendix D**). Any deficiencies found will be actioned within stated timescales. Major defective items or items not actioned within the appropriate timescales will be raised as Non-conformance Reports and investigated and actioned through the NCR System.

Weekly Site Inspection

On a Weekly basis, the EM will carry out a more detailed inspection of the various environmental control measures that are in place and the necessary physical testing and sampling required through the Management Plans. As with the Daily Site Walkover, any deficiencies found will be recorded and actioned within stated timescales (refer to **Appendix D**). Major defective items or items not actioned within the appropriate timescales will be raised as Non-conformance Reports and investigated and actioned through the NCR System

Key Processes for Management Inspections, Audit and review

- RBS 003 – Procedure for Audit
- RBS 008 – Procedure for Non-conformance
- EMS 002a – Daily Site Environmental Inspection (refer to **Appendix D**)
- EMS 002 – Weekly Inspection Sheet (refer to **Appendix D**)
- EMS008 – Monthly Environmental Audit Report

4.5.2 Internal Audits

For the **M9J1a Project**, RBS 003 – Procedure for Audit) has been developed for Internal Auditing the SRB management systems, which covers ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007. An audit schedule is prepared and reviewed/updated quarterly by the Project Quality Director and the Quality Assurance Manager. The proposed audits cover a physical site inspection as well as a compliance audit with ISO14001:2007 and the requirements of the SRB Management System. An audit report is completed and forwarded to the relevant site personnel for action. Once actions are carried out, the auditor closes out the report comments.

4.5.3 Corrective Action

Any failures identified in the Environmental System through inspections and audits processes are recorded as Non-conformance Reports. The NCR procedure provides a framework for agreeing remedial and corrective action and monitoring so that the failure is rectified.

4.5.3 External Audits

Monthly – External auditing of the Environmental System will be carried out monthly of both the site activities and the environmental documentation by the SRB Company Environmental Manager and or SiteLab UK using Form EMS 008. The audit report and score will be used to evaluate the effectiveness of the environmental management of the site and to highlight improvements that can be made to increase safety through all of the System elements. These improvements are then tracked and progress evaluated at the next monthly Progress Meeting.

Twice Yearly – All partner contractors have BS EN ISO14001 Certification, it is likely that at least one of the six-monthly Surveillance Audits will be carried out on this Project. This will provide oversight that the assessment and management of risk on the Project is in line with ISO 14001, CEEQUAL and the Considerate Constructor's Scheme requirements.

Achilles and Constuctionline

In addition to the ISO14001:2004 Certification, both John Sisk and Sons and Roadbridge are currently registered with Achilles and constructionline. This will add another layer of auditing and checks to ensure that our EMS is operating to the highest industry standards

4.5.4 Reporting and Review

SRB senior management will review environmental performance on a yearly basis. Targets and objectives for the following year will be agreed and policies and procedures continually improved.

5.0 CONTRACTOR MANAGEMENT PLANS

5.1 Purpose of Contractor Management Plans

Contractor Management Plans will be live documents that are subject to updating and refinement by SRB as required in response to the changing needs of the works during construction.

The general format of each management plan will include the following headings:

- Introduction
- Key Issues
- Management and Mitigation
- Monitoring

The SRB Management Plans developed will include the following (refer to **Appendix E**):

- Area Management Plan (AMP)
- Noise and Vibration Management Plan
- Dust and Air Pollution Management Plan
- Geology, Land Contamination and Waste Management Plan
- Surface and Groundwater Management Plan
- Ecological Management Plan
- Agriculture Management Plan
- Cultural Heritage Management Plan
- Landscape Management Plan
- Pollution Incident Response Plan
- Pest Control Plan (incorporated as part of the Area Management Plan)
- Sustainability Plans
 - Sustainable Resource Management Framework
 - Materials Transportation Strategy
 - Green Travel Plan
 - Energy Management Plan
 - Operational Energy Plan
 - Responsible Sourcing Code of Practice

6.0 SUSTAINABILITY

6.1 Sustainability Manager

The Environmental Manager will carry out the role of Sustainability Manager for SRB. He will be supported by the SRB Company Environmental Manager and will liaise with the Designers Sustainability Manager and the Clients Sustainability Team to ensure all contract requirements are met.

The Sustainability Manager will report at regular intervals to the FRC Sustainability Core Management Group regarding progress in achieving the sustainability goals of the Projects.

6.2 Sustainability Progress Report

The Sustainability Manager will produce a Sustainability Progress Report for inclusion in the monthly progress report. This shall be reviewed and discussed at the monthly progress meeting. The sustainability Progress Report shall include but not be limited to the following:

- (a) information on progress in delivering sustainability objectives and targets through the tracking of appropriate indicators, throughout the period between the Commencement Date and the date of the Taking-Over Certificate for Section C issued by the Employer pursuant to Sub-Clause 10;
- (b) sustainable materials planning (to include a comparison between estimated material quantities and quantities actually used, with a monthly report on the progress in delivering targets);
- (c) information on progress relative to the completing of the carbon footprint calculation, using both the FRC carbon footprint calculator and Transport Scotland's Carbon Management System (CMS); The Employer will deliver training to the Contractor in completing both carbon footprint calculators;
- (d) an update on sustainable energy management during the execution of the Works;
- (e) details on the sustainable waste management measures being implemented, including information on waste minimisation, and the recycling / reuse of materials;
- (f) information on the green travel measures being adopted;
- (g) biodiversity enhancement information including opportunities and achievements;
- (h) information on the innovative solutions

6.3 Carbon Footprint Analysis

The Sustainability Manager shall prepare a range of Construction Plans for the Project. These Plans shall detail the SRB proposals for the following areas and these will be built into the overarching CEMP document:

- Design
- Whole Life Value
- Conserving Resources (e.g. minimise water consumption – rainwater harvesting)
- Promoting and conserving non-renewable resources
- Carbon footprint calculations
- Promoting and enhancing natural environment (landscape and Biodiversity)
- Use of recycled materials and renewable energy/ low GHG emission sources
- Reduce impact on local community and effects of road users
- Pollution Avoidance
- Operational Energy Plan (Detailing the energy requirements of the design of the Works) including:
 - use energy efficient plant (after consideration of the use and maintenance of construction plant)
 - run an energy efficiency programme on Site (e.g. cutting out unnecessary heating, switch-off campaigns etc).
 - Maintenance of construction plant and ancillary equipment to maximise fuel efficiency and minimise as far as practicable carbon emissions
 - Explore opportunities for using energy derived from renewable (ie low or zero carbon) resources during construction and where practicable implement them.
- Materials transportation strategy
- Promoting and enhancing natural heritage

- Responsible Sourcing Code of Practice for the Works based on the BRE Sustainability Standard – BES 6001: *Issue 2 Framework Standard for the Responsible Sourcing of Construction Products*. This shall set out key principles and guidance in relation to supply chain management, stakeholder engagement, management systems and site stewardship relevant to the Works.
- The Sustainable Resource Management Framework (based on the framework set out in Appendix 5 of the *Forth Replacement Crossing: Sustainability Appraisal and Carbon Management Report* (Transport Scotland) – in compliance with A1:3.6.2.1)

SRB will use the following tools to give a predicted carbon figure for the Project:

- TS CMS Road Infrastructure Projects Tool 2011 V2
- CMS Road Tool Contractor Data Template (monthly)

6.4 Project Log

The Environmental Manager will maintain a project log during the execution and completion of the Works that will identify any lessons learned with regards the use of sustainable measures and best practice techniques.

7.0 CEMP REVIEW SCHEDULE

7.1 Protocol for Changes to the CEMP

The CEMP and its constituent Plans will be reviewed every six months or as required, in response to the changing needs of the works during construction, by the Environmental Manager to ensure it remains relevant to the Project.

8.0 REGISTER OF RELEVANT ENVIRONMENTAL LEGISLATION

8.1 Use of serviced web alerts for notification of updates to legislation

It is the responsibility of SRB to identify the need to obtain relevant statutory consents, licences, approvals and notifications in relation to the project and to consult and comply with those organisations detailed in the Contract, Environmental Statement, including the CoCP (Section 3.12) and Employer's Requirements regarding environmental matters.

Reference has been made through this plan to the ES including various sections of the CoCP for guidance on the consents and licences that may be required during construction, together with key legislative requirements.

SRB maintains a web-based register of environmental registration, and the site management of the project have access to this register. All users receive email notifications of changes to pertinent legislation. The online register also contains a self-evaluation questionnaire of each piece of legislation, so the Client can be assured that SRB are compliant with current best practice. The Web address is included below:

www.PegasusLegalRegister.com.

9.0 DETAILS OF CONSENTS, LICENCES AND PERMISSIONS REQUIRED

9.1 Drainage consents, protected species licenses etc.

This section shall record all licenses, consents etc. granted during the Project.

Reference	Consenting Body	Status	Consent Description
CAR/S/1089331	SEPA	Granted 3 rd June 2011	Swine Burn, Niddry Burn and Niddry Burn Tributary Works
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Consents will be filed in the Quality and Environmental Office.

9.2 Consultations with bodies listed in Paragraph 1.5.7 of the CoCP during the planning and execution of the works

The following bodies will be consulted regarding the CEMP and its constituent plans:

- City of Edinburgh Council and West Lothian Council
- Scottish Natural Heritage (SNH)
- Scottish Environment Protection Agency (SEPA)
- Historic Scotland
- Kirkliston Community Council
- Winchburgh Community Council

Consultations will take place during the development of the CEMP and its Plans and any reasonable requirements, highlighted by each Agency, will be incorporated into the Plan.

10.0 PROCEDURES AND METHOD STATEMENTS

10.1 Method Statements

All Project Method Statements will recognise and highlight the environmental risks associated with the particular activity.

- They will demonstrate how the proposed Works ensure that impacts are restricted to the best possible environmental option.
- They will include contingency plans and environmental procedures to minimise damage caused by accidents, spillages or other unforeseen events.
- They will include procedures for notifying the relevant authorities
- They will include for the requirements detailed in Volume 5: A2 Employer's Requirements Clause 6.2 and 6.3.
- Method Statements will be set out following a step by step process and will reference and consult with all other relevant plans.

All Project Method Statements will be reviewed and approved by the Site Environmental Manager, the Designer's Representative and reviewed by the Employer's Representative prior to the Works commencing.

10.2 List of Method Statements and Contractor's Management Plans **LIVE**

Integration of Environmental Risk Assessment into Method Statements

All Method Statements for the Project will incorporate an assessment of the environmental risk as a consequence of the operation. This will be carried out by the EM for the Project. Risk removal / mitigation measures will be incorporated into the Method Statement activities along with measurements of compliance.

Environmental Risk Assessments will be filed in the Quality office.

Environmental "Witness" and "Hold" Points

Environmental "Witness" and "Hold" points will be built into the Works inspections where environmental control measures are specified. This will enable the measures to be checked and approved by the relevant supervisory personnel prior to works commencing. The Environmental Manager, Health and Safety Advisor and the Quality Assurance Manager will develop the necessary framework in consultation and agreement with the Employer.

SRB will implement comprehensive procedures for the preparation of Method Statements, Temporary Traffic Management Plans and Risk assessments that will ensure that all potential environmental impacts, considerations and mitigation options are assessed and factored into the Works Plans. SRB will carry out a Plan, Do, Check, Act approach to the Works. This will ensure that all aspects of the work to be carried out are properly resourced, that appropriate approvals and consultations are obtained and will result in smooth flowing, continuous works, thus avoiding rushed and ill-planned activities.

11.0 ENVIRONMENTAL PROGRAMME

11.1 Integration with construction programme

Environmental activities and monitoring will be integrated into the overall Project Programme so that any impacts on the programme can be accurately measured and progress tracked.

12.0 ENVIRONMENTAL TRAINING

12.1 Training Format and Schedule

SRB will operate a training database for all employees and personnel (including sub-contractors) on the Project. This database will record and track all relevant environmental training and provide early warning where training requires to be updated. A Training Matrix will be developed for various roles where training needs will be evaluated and training provided appropriate to the Project activities to be carried out by personnel. Sub-contractors and suppliers will be treated the same as for direct labour with regards to training, responsibilities and inductions. SRB will maintain a training database for all personnel on site with built in checks to ensure early warnings are given to ensure training remains up-to-date.

Key Processes for Personnel selection and Training

- RBS 024 – Procedure for Personnel Selection, Training and Development
- RBS 035– Procedure for Evaluation of Staff Competence
- RBS 043 – Procedure for Toolbox Talks
- SF020 – Training Requirements Matrix
- SF026 – Site Safety Induction Form
- SF032 – Toolbox Talk Modules
- SRB "TASC" Training Database
- Management Environmental Inductions & Environmental Site Rules
- Proposed Environmental Performance award for "zero environmental incidents"
- Proposed award scheme for personnel that come up with suggestions for improvements in environmental performance

12.2 Project Environmental Inductions

Prior to commencing on site, all personnel will undergo a Site Induction, where SRB will communicate the environmental objectives, requirements and responsibilities to the workforce. Environmental Site Rules will detail site personnel's obligations while on site and travelling to the site. This will introduce accountability for personnel working on the Project.

The Project Induction and training shall cover relevant parts of the following areas to a level of sufficient detail for the workforce:

- Environmental Site Rules
- Spill Kit use and Location
- Emergency Spill Procedures
- Energy Management
- Biodiversity protection and enhancement

12.3 Project Environmental Toolbox Talks

Throughout the Life of the Project, the Environmental Manager and / or Health and Safety Advisor will carry out regular Environmental Toolbox Talks with the workforce, including sub-contractors and suppliers personnel, to reinforce the environmental message in the areas mentioned above and to remind personnel of the risks and hazards on-site, environmental procedures and locations of spill kit, waste receptacles etc. All personnel attending the toolbox talks will be required to sign attendance sheets.

12.4 Poster Campaigns

The environmental message will be reinforced through regular toolbox talks, poster located in public areas (canteen, site offices etc.) and competitions held on site.

12.5 Training Records

The Health and Safety Officer will maintain the register of training records for personnel on site. A RAG traffic light system (Red, Amber, Green) will be maintained so that early warnings of training due dates are given enabling timely refresher courses and Certification to be maintained.

13.0 COMMUNICATION AND REPORTING

13.1 External Communication and consultations

13.1.1 Development of the CEMP

SRB will consult with and take consideration of the views of the following local authorities and statutory bodies during the development of the CEMP.

- City of Edinburgh Council
- West Lothian Council
- Scottish Natural Heritage
- Scottish Environment Protection Agency (SEPA)
- Historic Scotland
- Kirkliston Community Council
- Winchburgh Community Council

The adequacy of monitoring proposals and additional monitoring will be discussed and agreed with these bodies.

13.1.2 Environmental Liaison Group

The Environmental Manager will represent SRB to the Group and will inform and consult with them on all environmental matters as defined in the CoCP. The EM

will submit a project update and 3month look ahead programme at each ELG Meeting. Meetings will be held monthly or more frequently as may be required.

13.1.3 Technical Working Group

As required, Technical Working Groups will be formed to manage key issues as they arise between SRB and the Client.

13.1.4 Traffic Management Working Group

The Traffic Management Working Group will meet monthly to discuss proposed and ongoing Traffic Management issues.

13.1.5 Noise Liaison Group

The EM will consult with the Noise Liaison Group to provide oversight on all aspects of noise planning, control during construction and monitoring. The EM shall attend the meetings held at monthly intervals or more frequently as required. The EM will submit a project update and 3month look ahead programme at each ELG Meeting. Meetings will be held monthly or more frequently as may be required.

The EM will submit the Noise and Vibration Management Plan and monitoring records as required in Appendix 5:A2 Employers Requirements Specification Appendix 1/9.

Additionally, SRB will consult with these organisations as required by the contract documents, through the planning and construction stage of the works

13.2 Internal Communication

Weekly Team Meetings

Informal weekly Team Meetings will be held, or more frequently as required, where environmental issues will be discussed.

Internal communications will be carried out through the use of Tool Box Talks with the site workers and site meetings, which will include sub-contractors.

Monthly Reporting.

The following reports will be provided to the Client on a monthly basis as part of the Progress Report format:

- Monthly Environmental Reports
- Annual Sustainable Construction Report
- Sustainable Summary Construction Report

13.3 Arrangements for Liaison with Employer's and Auditor's Personnel

SRB will provide full cooperation and will accommodate auditing carried out by the Employer and his personnel and attend meetings where required

13.4 Communications and Stakeholder Consultation

SRB are committed to meeting the requirements for Community Consultations, as detailed in Section 2 of the CoCP. Among the Community Groups on the M9J1a Project that will require consultations are:

- Kirkliston Community Council
- Winchburgh Community Council

- Newton Community Council
- South Queensferry Community Council

The SRB Community Liaison Officer (CLO) will champion community engagement and liaise with the Employer to ensure that all required consultations are carried out. Community Forum meetings will be held at least quarterly during construction and the CLO will attend along with Key members of the SRB Site Team, as required.

SRB will also implement a number of communications management plans to co-ordinate and delegate roles to Team members regarding interaction with outside agencies.

Statutory Body Consultations

The following organisations will be consulted and involved in the construction of the project, including the planning, review of on-going construction and monitoring.

Where the Employer's Requirements require SRB to obtain approval for any proposal, method statement, specification or the like then the item requiring approval shall be submitted as a Contractor's Document under the Review Procedure. SRB shall state explicitly on the relevant Submission Notice that approval is sought from the Employer for the submitted Contractor's Document and the reference to the relevant Section of the Employer's Requirements requiring approval to be sought shall be stated.

List of relevant bodies to be consulted on environmental matters, including:

- City of Edinburgh Council
- West Lothian Council
- Scottish Natural Heritage (SNH)
- Scottish Environment Protection Agency (SEPA)
- Historic Scotland

List of relevant bodies not required to be consulted on environmental matters, including:

- Coal Authority

The Contractor shall, in accordance with Section 8.8 Volume 5 Part A1 Employers Requirements, consult and comply with the requirements of those organisations identified throughout the Employer's Requirements including those consultees identified in APPENDIX B, and any other organisations with whom the Contractor requires to consult in order to comply with his obligations under the Contract.

A list of consultees and contact details is provided in Appendix H. For each plan or approval requiring consultation with the bodies listed above, a spreadsheet will be maintained that will show the details of the consultations including the following:

- Contact person for SRB
- Contact person for relevant body
- Date of contact
- Date of reply
- Consultation Certification Status
- Other relevant comments

Key Processes for effective Project Communications

- RBS 014 - Third Party Consultations and Contacts,
- RBS 015 - Reviewing legal and compliance requirements,
- RBS 016 – Procedure for dealing with Complaints
- RBS 017 - Contract Communications.
- Communications Management Plan (CMP) – Included in Quality Plan

14.0 ENVIRONMENTAL MONITORING

14.1 Environmental Monitoring

Monitoring shall be carried out as required by Volume 5:A2 of the Employers Requirements and the CoCP and the Management Plans located within this CEMP. The type, location and frequency of monitoring will vary according to the nearest sensitive receptor, weather conditions, plant and processes used etc. Prior to commencing Works, SRB will consult and comply with the relevant Statutory bodies, Employer's Representatives and contract documentation in order to produce the necessary Contractor Management Plans as outline in Section 3 of this Volume. These plans will contain details of the proposed monitoring regimes to be implemented during the Project.

14.2 Audits

The EM will include regular audits (every three months) of the EMS, CEMP and the Contractor Management Plans into the Audit Schedule for the Project. Each part of the EMS will be audited at least once every twelve months.

14.3 Corrective Action

The NCR system will be used to propose remedial / corrective action. The NCR system is described in the Project Quality Plan.

14.4 Reporting of Environmental monitoring results

Noise and air quality monitoring records will be made available on the Project Information website, the bodies listed in 16.1.1 of this Volume and also reported monthly (fortnightly in the case of Air Quality) to the Employer's Representative.

- Employers Representative
- Local Authorities / Environmental Liaison Group
- Information Website

15.0 SITE WASTE MANAGEMENT PLANNING

15.1 Site Waste Management Plan (SWMP) in compliance with Volume 5: Employer's Requirements, Section 24.7.4.1

The Site Waste Management Plan is contained within the **Geology, Land Contamination and Waste Management Plan** (refer to **Appendix E**)

16.0 ENVIRONMENTAL COMMITMENTS REGISTER/ENVIRONMENTAL ACTIONS

This Register contains a categorised register of environmental commitments and environmental actions extracted from the ES and the development of the CEMP and Method Statements for the Project.

This Register is held in **Appendix G**.

17.0 ENVIRONMENTAL MASTER PLAN (EMP) DRAWINGS

17.1 Location of EMP drawings

EMP drawings are located in **Appendix H**. The Environmental Management Plans show the existing known environmental issues on the scheme and immediate surrounds. For example, local footpaths, any ecological designations, where protected species have been recorded. In addition, they show known environmental mitigation measures, such as noise barriers, badger fencing, mammal passes and the like. They are a live set of drawings, which SRB will update as pre-construction continues, right through the construction phase.

For example, if SRB discover an additional badger sett that was not previously recorded this would be added, or if SRB needed a footpath diversion, this would be marked on.

The EMP Drawings will be used as a first port of call for all on site and in the design office to verify whether proposed works will interfere with existing environmental receptors.

Note - that the EMP Drawings are not included in this redacted version of the EMP as they contain confidential information.

18.0 LEGISLATIVE, POLICY AND FRAMEWORK GUIDANCE

18.1 Legal and Regulatory Requirements

It is the responsibility of SRB to identify the need to obtain relevant statutory consents, licences, approvals and notifications in relation to the project and to consult and comply with those organisations detailed in the Contract, Environmental Statement, including the CoCP (Section 3.13) and Employer's Requirements regarding environmental matters.

Reference has been made through this plan to the ES including various sections of the CoCP for guidance on the consents and licences that may be required during construction, together with key legislative requirements

18.2 Environmental related Change Control /Continual Improvement

SRB will use the Pegasus Register of Legislation website to ensure that all standards and documents referenced are the most current versions.

19.0 COMMERCIAL

19.1 Evaluation of Supplier and Sub-Contractor environmental credentials

Where appropriate, Supplier and sub-contractor environmental credentials shall be taken into consideration during the tender process. Performance in this process will be taken into account when deciding the successful tenderer.

SRB will engage with Sub-contractors and Suppliers in the same way as with directly employed personnel. They will be subject to the same inductions and training, roles and responsibilities and Site rules as directly employed personnel.

As mentioned above, prior to appointment, Supplier and Sub-contractor environmental credentials will be assessed to ensure that they understand the environmental requirements of the Project. SRB will deal severely with personnel that compromise the zero incidents ethos of the Project including removal from site, if required. Regular inspections and audits both on-site and off-site will take place at Sub-contractors and Suppliers places of operations and environmental performance measured.

Key Processes for Control of sub-contractors and suppliers

- RBS 003 - Audit,
- RBS 004 - Materials Control,
- RBS 008 Non-conformance,
- RBS 011A - Supplier appointment and control,

- RBS 011B - Sub-contractor appointment and control,
- RBS 011C - Procedure for Off-site Inspections.
- RBS 038 – Procedure for Sub-contractor database
- QMS 110 – Sub-contractor Appraisal Form
- QMS 131 - Appointment of Sub-contractor Form

20.0 DEVELOPMENT OF FOLLOW-ON PLANS (To be confirmed)

As the works progress, the following plans will be prepared and finalised at specific stages in the Project Lifecycle:

- Environmental Mitigation Measures Maintenance Manual (EMMMM)
- Final Environmental Design Performance Report (FEDPR)
- Biannual Monitoring Reports; Biannual monitoring meetings
- HEMP and MEMP Initiation

APPENDICES

Appendix A – Scheme Layout Drawing

Appendix B – Schedule of Environmental Commitments

Appendix C – SRB Integrated Management System Policy

Appendix D – Site Inspection Checklists

Appendix E – SRB Management Plans

Appendix F - Carbon Footprint Analysis Registers

Appendix G – Environmental Commitments Register

Appendix H – Environmental Masterplan (EMP) Drawings (to be included)

Appendix I – Reproduction of Appendix B – Volume 5: Part A1 of the Employers Requirements

SECTION C – MAINTENANCE ENVIRONMENTAL MANAGEMENT PLAN (MEMP)

To be developed from the CEMP prior to Completion

SECTION D – HANDOVER ENVIRONMENTAL MANAGEMENT PLAN (HEMP)

To be developed from the MEMP prior to Handover