SILVERTOWN TUNNEL

DOCUMENT TITLE:

Construction Environmental Management Plan London Borough of Newham

DOCUMENT NUMBER:

ST150030-RLC-ZZZ-17-ZZ-PLN-EN-0001

PURPOSE OF ISSUE	For Acceptance	**DOCUMENT SUITABILITY**	S3 - For Review & Comment	**TOTAL PAGES** (Including this page)	29

Prepared by	Checked by	Approved by	Date	Revision
[redacted] CJV Environmental Manager	[redacted] CJV Consents Manager	[redacted] CJV Project Director	19/06/2020	P03

Issue and Revision Control

Document uncontrolled when printed.

Revision History			
Rev No	**Date**	**Summary of Changes**	**Section & Number**
P01	21/02/2020	First Issue	
P02	14/05/2020	Second Issue, updates following TfL comments	1.2, 2.3
P03	19/06/2020	Update to align with RBG plan and consultation with PLA	

Contents

1. Overview

1.1 Introduction

The Silvertown Tunnel (STT) scheme involves the construction of a twin bore road tunnel providing a new connection between the A102 Blackwall Tunnel Approach on the Greenwich Peninsula (Royal Borough of Greenwich) and the Tidal Basin roundabout junction on the A1020 Lower Lea Crossing / Silvertown Way (London Borough of Newham). The project was formally granted development consent through a Development Consent Order (DCO) issued by the Department of Transport in May 2018. STT will be approximately 1.4km long and able to accommodate large vehicles including double-decker buses. It will include a dedicated bus, coach and goods vehicle lane, enabling TfL to provide additional cross-river bus routes. The tunnel will cause changes to the existing road network on both sides of the River Thames. On the north side of the river, in Silvertown, the following changes will occur; modification of the existing Tidal Basin Roundabout to connect the STT approach roads with Dock Road, realigning the Dock Road so that it links with the modified roundabout and introducing new pedestrian and cycle facilities within the modified roundabout.

Transport for London (TfL) have entered into a Project Agreement with the Project Company Riverlinx (Project Co) who are responsible for the detailed design, construction, financing and maintenance of the tunnel and supporting infrastructure. A 5 year period of design and construction will be followed be a further 25 years of operation and maintenance. The Project Co has appointed Riverlinx CJV as the Design and Construction (D&C) Contractor responsible for undertaking the detailed design and construction of the STT scheme all in accordance with the constraints and parameters of the DCO, TfL specifications and other commitments made by TfL to stakeholders. Riverlinx CJV is a joint venture formed between Ferrovial Agroman (UK) Ltd, BAM Nuttall and SK Engineering and Construction Co Ltd.

1.2 Purpose

The Construction Environmental Management Plan (CEMP) is the overarching plan that establishes the roles and responsibilities of those within Riverlinx CJV in demonstrating compliance with the documents listed in Section 1.4 below. This CEMP covers the works required to construct STT, within the London Borough of Newham only, covering main works and commissioning. It does not cover the operation of STT. The CEMP will be administered by the Riverlinx CJV Environmental Manager supported by an Environmental Team. In addition, the CEMP will be supported by a number of other management plans that focus on specific site areas and specific topics. All mitigation developed to address specific environmental topics will be done with due consideration of other environmental topics to ensure that no additional impacts are inadvertently generated. The coordination of environmental mitigation will be the responsibility of the Riverlinx CJV Environmental Manager.

Schedule 2 (Requirement 5) of the STT DCO requires that all works are undertaken in accordance with the Code of Construction Practice (CoCP) and that no part of the authorised development may be commenced until the specified management plans are either prepared or prepared and approved by the relevant planning authority or other regulator as relevant to that element of the works. Table 1 below, extracted from the CoCP summarises the plans required, and nature of approvals or consultations sought. While approval of the overarching CEMP and its subsidiary plans is sought there may be occasions when this DCO requirement is partially discharged by virtue of producing a separate, dedicated CEMP and subsidiary plans to cover smaller aspects of works.

Table 1 Summary of Environmental Management Plans

	Document	Role	Role of Local Authorities and/or Stakeholders
1	Construction Environmental Management Plan (CEMP)	The CEMP will set out the Contractor's roles and responsibilities to demonstrate compliance with the measures and controls of the CoCP	The CEMP will be prepared in consultation with the relevant planning authorities and other

	Document	Role	Role of Local Authorities and/or Stakeholders
		and the DCO (including its Requirements and Protective Provisions).	relevant stakeholders including the PLA.
2	Emergency Plan (including Emergency Spill Response Plan)	The Emergency Plan will relate to the Order land that is not within the River Thames and will include: • notification procedures for Emergency Services in the event of an incident; • coordination procedures for TfL Customer Services and the Traffic Control Centre; • flood risk emergency procedures; • emergency spill response procedures; • emergency phone numbers; and • a Flood Warning and Evacuation Plan	The Emergency Plan will be produced by the Contractor in consultation with the local Emergency Services, and the relevant local authority emergency planning officer. It will include a Flood Warning and Evacuation Plan to be approved by the relevant local authority emergency planning officer in consultation with the Environment Agency.
3	Fire Plan	The Fire Plan will include procedures for evacuation in the event of fire during construction including details of escape routes, emergency doors, meeting points, and fire training.	The Fire Plan will be produced by the Contractor in consultation with the London Fire and Emergency Planning Authority.
4	Construction Traffic Management Plan (CTMP)	The CTMP will include: • details of how logistics will be managed, e.g. lorry routes, diversions, main access/egress points; • traffic incidents plan dealing with incidents or severe congestion on agreed construction routes; and • construction workers travel plan, developed to encourage the use of sustainable modes of transport (including river transport) to and from the worksite by those working on the project.	A CTMP will be produced by the Contractor for each worksite and approved by the relevant planning authority in consultation with the relevant highway authority.
5	Passage Plan (PP)	To establish cycle times for loading, unloading and both journeys for vessels in relation to tides and will permit an informed decision regarding the number of vessels required to meet the production rates achieved for the TBM and civil works, and will include an updated navigational risk assessment which will reflect the findings and recommendations of the Navigational Issues and Preliminary Risk Assessment submitted with the application. To make provision in respect of the River Thames that is equivalent to the provision for dry land in the Emergency Plan.	The Passage Plan will be produced by the Contractor for approval by the PLA.

	Document	Role	Role of Local Authorities and/or Stakeholders
6	Construction Site River Strategy (CSRS)	The CSRS will include details of the approach adopted by the Contractor to maximise river transport for construction and excavated materials and to meet the commitments in respect of the use of river transport set out in this CoCP.	The CSRS prepared by the Contractor will be submitted to TfL for approval in consultation with the relevant planning authority and the PLA.
7	Community Engagement Plan (CEP)	The CEP will identify how communication with stakeholders will be managed and programmed throughout the construction period. It will include steps that will be taken to liaise with specific stakeholders, where they are potentially affected by the works.	The Community Engagement Plan (CEP) will be prepared by the Contractor and submitted to the relevant planning authorities for approval.
8	Air Quality Management Plan (AQMP)	The AQMP will contain details of the measures to limit vehicle, plant and dust emissions during construction.	An AQMP will be prepared for each worksite by the Contractor and submitted for approval to the relevant planning authority.
9	Archaeological Written Scheme of Investigation (AWSI)	An AWSI will outline the mitigation measures and recording proposals for dealing with the currently unknown subsurface archaeological remains that could potentially be affected by the Scheme on both the north and south side of the Scheme.	The AWSI will be prepared by the Contractor in consultation with Historic England and submitted for approval to the relevant planning authority. Where mitigations measures within the river Thames are identified in the AWSI, the Contractor shall consult the MMO and PLA.
10	Ecology Management Plan (EMP)	The Ecology Management Plan will set out measures to manage the risk of adversely affecting flora and fauna on and within the vicinity of the worksites, including method statements in the event invasive species are encountered and details how additional survey requirements would be accommodated in the programme for both the north and south side of the Scheme. A Site Clearance Plan will form part of each Ecology Management Plan.	The Ecology Management Plan will be prepared by the Contractor substantially in accordance with the Draft Ecology Management Plan (Appendix G of the CoCP) and in consultation with Natural England and then submitted for approval to the relevant planning authority.
11	Construction Materials Management Plan (CMMP)	The CMMP will set out measures to ensure materials are handled and used in a way that prevents harm to human health and pollution of the environment.	The CMMP will be prepared by the Contractor and will be subject to approval by the relevant planning authorities.
12	Groundwater Monitoring and Verification Plan (GMVP)	The Groundwater Monitoring and Verification Plan will set out monitoring and reporting criteria during pre-construction, construction and post construction.	The GMVP will be prepared by the Contractor and will be subject to approval by the Environment Agency.

	Document	Role	Role of Local Authorities and/or Stakeholders
13	Noise and Vibration Management Plan (NVMP)	The NVMP will set out measures to control and limit noise and vibration levels in the vicinity of the construction works.	An NVMP will be prepared by the Contractor for each Worksite and will be subject to approval by the relevant planning authority.
14	Lighting Management Plan (LMP)	The Lighting Management Plan will include appropriate industry standard procedures which will be implemented at both worksites.	The Lighting Management Plan for each worksite will be prepared by the Contractor in consultation with the relevant planning authority, the Environment Agency, and the PLA.
15	Site Waste Management Plan (SWMP)	The SWMP submitted with the DCO application will be updated by the Contractor. The updated SWMP will consider how the waste hierarchy will be applied and details of how all wastes will be managed. The SWMP will also provide a framework for checking compliance with waste legislation and the Duty of Care.	No consultation/approval needed.

Approvals from regulators are gained via a 4-week formal draft submission (unless waived), followed by an 8-week determination. Riverlinx CJV will endeavour to precede this process with pre-application engagement and consultation, as the plans are being developed, with the following authorities as appropriate:

- Transport for London
- London Borough of Newham
- London Borough of Tower Hamlets
- Royal Borough of Greenwich
- Port of London Authority
- Environment Agency
- Historic England
- Natural England
- Marine Management Organisation

1.3 Environmental Management System

Riverlinx CJV shall develop an Environmental Management System (EMS) that will describe how the organisation will deliver the design and construction of the STT project in conformance with contractual, ISO 14001, legal, client, best practice requirements, objectives and principles. The Riverlinx CJV EMS shall comply with the requirements of the following;

- Relevant DCO Functions
- Silvertown Tunnel Environmental Statement (ES)
- Riverlinx CJV Environmental Policy
- Riverlinx CJV Sustainability Policy
- Silvertown Tunnel Code of Construction Practice (CoCP)
- Relevant Technical standards

The Riverlinx CJV EMS shall be developed in accordance with the ISO14000 series with a view to gaining ISO 14001 certification. The Riverlinx CJV EMS provides a framework for environmental management across all CJV operations on the STT project encompassing all key environmental aspects and how they will be managed. It will detail legal and other monitoring requirements, make provisions for record keeping and ensuring staff competence.

2. Planning

2.1 Environmental Policy

Riverlinx CJV have produced an Environmental Policy that aligns with the environmental principles set out in the TfL Health, Safety and Environment Policy. This sets the scene for the framework for environmental protection and management set out within TfL's suite of environmental requirements and guidance documents and is starting point for the Riverlinx CJV EMS.

2.2 Sustainability Policy

Riverlinx CJV shall develop an Environmental Management System that provides a framework that promotes sustainable development of the Project and accords with the Sustainability Statement developed as part of the STT DCO. Riverlinx CJV have developed a Sustainability Policy to outline how the Riverlinx CJV will align with TfL's sustainability aspirations. The Policy will set out how Riverlinx CJV will address the DCO's sustainability commitments and show how Riverlinx CJV will incorporate sustainability into the design and delivery of the works, covering:

- Biodiversity
- Energy and carbon
- Environmental management
- Local business and community
- Materials and resource efficiency
- Sustainable Procurement
- Waste
- Water

Riverlinx CJV will seek to achieve continuous improvements and minimum standards of sustainability. For example, the use of sustainably sourced timber, conservation of energy, materials, water and other resources and how a sustainable approach to construction is taken throughout the project's lifecycle. Riverlinx CJV will seek to achieve good practice for sustainable development, using guidance by the Construction Industry Research and Information Association (CIRIA) and the Construction Industry Council (CIC), among others. Riverlinx CJV recognises CEEQUAL as a leading sustainability assessment and awards scheme and will use it throughout the design and construction of the project. Riverlinx CJV will seek a CEEQUAL Whole Team Award to at least 'Very Good', aspiring to achieving 'Excellent' where the Project scope allows. A fully trained and qualified CEEQUAL assessor or assessors will be engaged throughout the whole project lifecycle to best implement sustainability benefits and ensure evidence collation to support achieving the highest possible scoring. In addition, Riverlinx CJV shall seek to ensure all STT buildings will conform to the same sustainability rating as the wider civil engineering works and thus the buildings will be included in the CEEQUAL assessment, where applicable.

2.3 Carbon Management

Riverlinx CJV have developed a Carbon Policy to illustrate the management of carbon emissions throughout the design and construction of STT. This will include considering embodied carbon in construction materials and carbon emissions associated with fossil fuel and electricity used on site and transport. The carbon footprint of the project will be measured during construction through monitoring of material and energy use. Opportunities for cement replacement will be investigated where feasible, though the specifications for concrete will determine the possibility of cement alternatives offering reduced carbon content. Aspects of energy use controls that will be considered include early transfer to mains electricity, minimising use of generators and use of LED lights. The possibility of using an electric powered service vehicle during tunnelling as opposed to diesel powered will also be considered such that are no adverse health and safety implications. Transport options maximising river over road, which will contribute to a reduced carbon footprint, will be considered along with the practicalities of wharf access, tidal restrictions and facilities at supply and receiving destinations. Compliance with Energy Saving Opportunities Scheme requirements will be verified via relevant assessments and monitoring. A carbon footprint calculation will be made during the design

and construction phase to compare against that made within the Environment Statement to determine whether a reduction has been achieved relative to the same scope of works, using the same Highways England Carbon Calculation Tool used in the Energy and Carbon Statement.

2.4 Environmental Registers

Riverlinx CJV will use the initial registers and background information included in the DCO to develop a suite of environmental registers that will be updated as required. The registers will include the:

a) Environmental Risks Register and associated procedures to show how environmental risks will be addressed.

b) Environmental Inspection, Monitoring and Audit Register.

c) Environmental Impacts and Aspects Register, a compilation of all environmental impacts and aspects potentially arising during the project.

d) Environmental Commitments Register including all environmental commitments in, or as a result of, the Transferred DCO Functions

e) List of consultees, acknowledging the DCO and CoCP mandated requirements for third-party approval of plans, for which we will submit documents and plans to statutory bodies and boroughs as required.

f) Register of Environmental, Legal and Other Requirements.

g) Consents Register.

Maintenance of the registers will depend on the function of the register: baseline and reference registers (e.g. baseline, risks, impacts and aspects, commitments, consultees, legal and other requirements) will typically have six-monthly reviews or updates whenever there is a significant change in works, whereas live registers (inspections, monitoring, audits, consents) will be updated weekly. Environmental aspects and impacts related to activities, products and services that Riverlinx CJV control and may have an influence over shall be reviewed where changes to the scope of works takes place. They will also be reviewed annually as a minimum. The controls used will be a mix of formal plans, procedures, method statements and risk assessments. The processes will be subject to review and improvement, based upon feedback from users, clients and subcontractors.

2.5 Documentation

The following information has been reviewed in development of this CEMP:

- Development Consent Order, APFP Regulation 5(2)(b) Revision 6, April 2017
- Code of Construction Practice, APFP Regulation 5(2)(q) Revision 4, April 2017. Including
  - Site Waste Management Plan
  - Groundwater Monitoring Strategy
  - Construction Noise and Vibration Mitigation Scheme
  - Outline Ecology Management Plan
- Environmental Statement Document Reference 6.1 and all associated documents, including appendices

2.6 Legislation

Riverlinx CJV are committed to complying fully with all legislation, regulations, industry best practice, and codes of practice relating to the environment, as an absolute minimum requirement. Riverlinx CJV shall adopt a proactive and responsible approach to the environment by implementing our IMS and participating in industry best practice events. Principal legislative, regulatory and other requirements, currently applicable to environmental aspects of construction activities, will be recorded in the Register of Environmental, Legal and Other Requirements. This

register will be modified as appropriate to project requirements and developments in legislation. The Environmental Manager will seek to ensure that all relevant environmental legal and regulatory requirements are identified by reviewing environmental plans and consulting environmental legislation update services. The Environmental Manager will communicate such requirements to all Riverlinx CJV personnel and supply chain, as appropriate. Legal and regulatory requirements will be audited as part of our EMS and our subcontractors' EMSs, in line with our Audit Schedule for internal and third-party audits, e.g. by certification bodies for standards including ISO14001 and ISO50001.

2.7 Objectives and Targets

Table 2 below summarises Riverlinx CJV's environmental objectives and targets in delivery of STT. These targets have been collated from various sources included the contractual requirements, CoCP requirements, TfL environmental and sustainability objectives and parent company aspirations. The targets will be tracked throughout the design and delivery of the scheme to ensure performance is actively managed and understood. The targets will be communicated to all within Riverlinx CJV and subcontractors via training sessions, briefings and other applicable forums. Riverlinx CJV will maintain open and ongoing communication with Project Co and TfL to discuss progress against targets and objectives. The Riverlinx CJV Environmental Manager will develop an environmental management programme to support the successful achievement of objectives and targets for each site. In the event of underperformance improvement plans will be produced and disseminated to relevant people in order to seek out improvements in performance.

	Objective	**Target**
1	Approval of all management plans as required under the CoCP	100% approval of required plans prior to commencement of specific works or part of works, as required.
2	Environmental Design Management	100% of submissions to the Review Procedure relating to environmental design in the previous TfL reporting period vs. the number of planned submissions in accordance with the Review Submissions Schedule in Schedule 9
3	Compliance with the CoCP	0 contraventions of the CoCP during the period
4	Assurance	Completion of all planned audits in the period
5	Minimising Environment Incidents	0 notifiable incidents in the period
6	Reduction of waste; reduce reuse, recycle.	80% of total construction, demolition and excavation waste reused on site or removed from site for beneficial use in the previous three TfL reporting periods with as aspirational target of 95%.
7	Procurement of responsibly sourced timber	Achieve as a minimum 95% FSc or PEFC certified timber with aspiration of 100%
8	Achieve CEEQUAL certification	Achieve score of "Very Good" as a minimum with aspiration of score of "Excellent" for the Whole Team Award
9	Reduction of pollutant emissions	Cars: maximum certified CO_2 emissions of 105 g/km. Vans with a kerb weight equal to or less than 1205 kg: maximum certified CO_2 emissions of 115 g/km CO_2 Vans with a kerb weight greater than 1205 kg but equal to or less than 1660 kg: maximum certified CO_2 emissions of 155 g/km CO_2 Vans with a kerb weight greater than 1660 kg: maximum certified CO_2 emissions of 215 g/km CO_2 HGVs: Euro VI compliant Transport at least 55% by weight all materials associated with the Scheme by River; and 100% of suitable excavated material out by River.
10	Minimising plant emissions	All Non-Road Mobile Machinery (of net power 37kW to 560kW) will be Stage IIIA compliant as a minimum and by September 2020 will be Stage IIIB compliant

11	Low-embodied-carbon materials	At least 10% of construction materials with reused and recycled content Minimal primary aggregate by selecting secondary materials when possible
12	Biodiversity	Achieve a net gain in biodiversity in line with commitments made in during the Environmental Statement.

Table 2 CJV Environmental Objectives and Targets

3. Resources

3.1 Management Structure and Responsibilities

The Riverlinx CJV Project Director is ultimately responsible for our environmental management performance however all members of Riverlinx CJV shall have responsibility for elements of environmental management appropriate to their function, experience and seniority. Figure 1 below illustrates the organisational structure including TfL, Project Co and Riverlinx CJV.

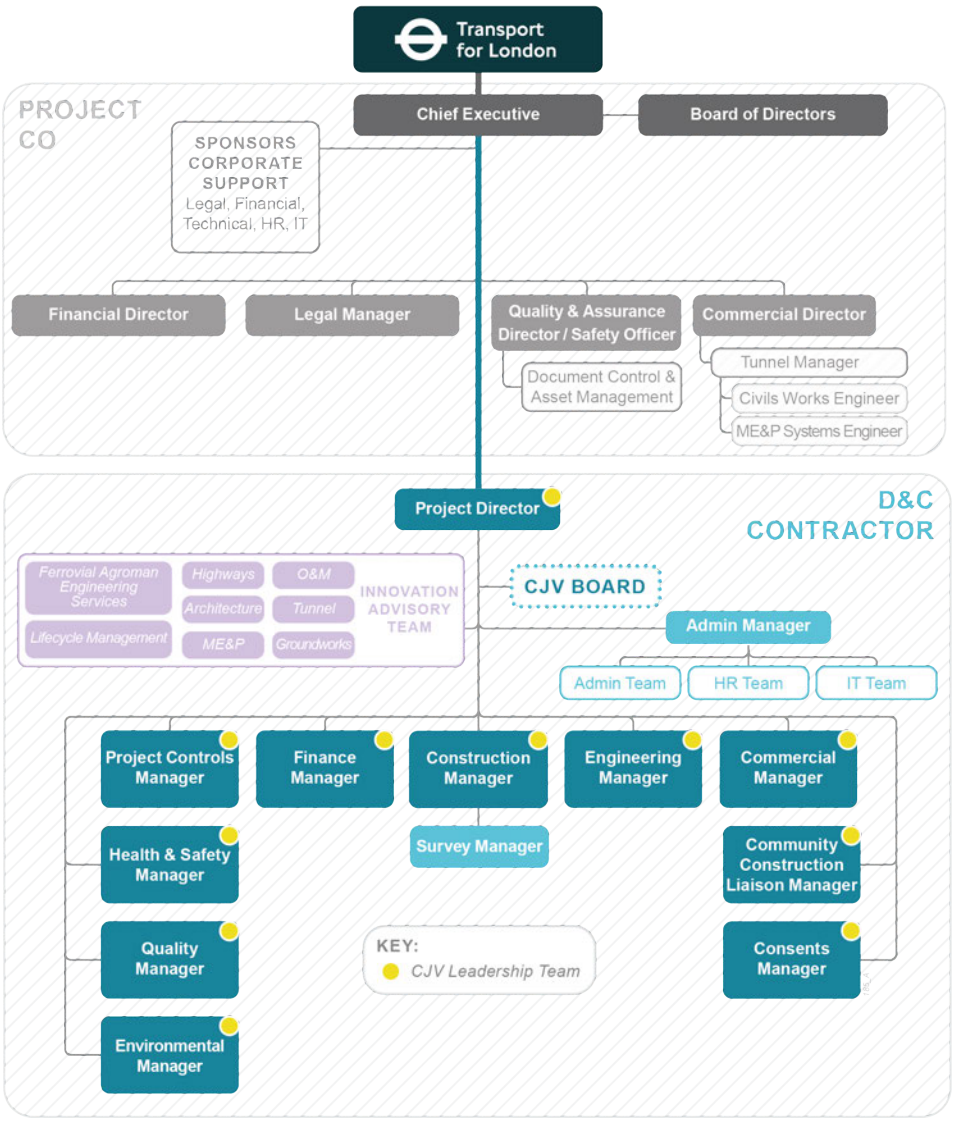

Figure 1 Organisational Structure

3.2 Environmental Manager and Team

The Riverlinx CJV Environmental Manager will lead the Riverlinx CJV Environmental & Sustainability Team as illustrated in Figure 3 below. The Environmental Manager will provide the principle environmental reporting role and will report into the Project Director as part of the Riverlinx CJV Leadership Team.

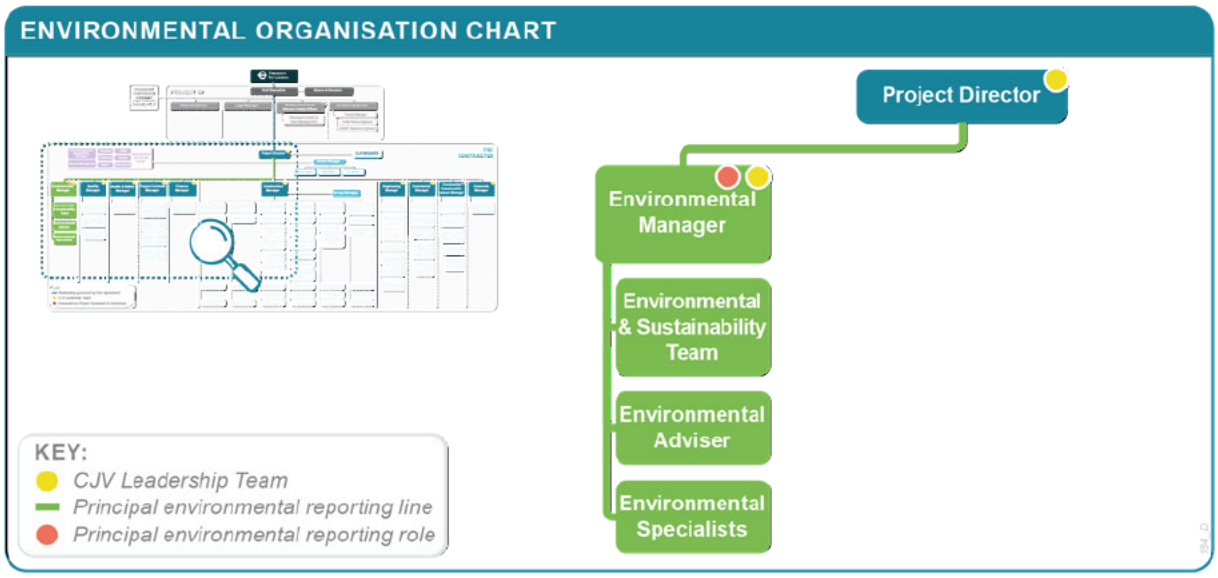

Figure 3 Environmental Team

The Environmental Manager shall be responsible for;

- establishing, maintaining and implementing the CEMP and all other environmental plans related to the works
- establishing an internal monitoring, audit and reporting regime
- leading the appointment of environmental specialists and ensuring that all specialist staff employed are appropriately qualified and suitably experienced to undertake the required tasks
- developing training material, identifying and reviewing training needs and recording environmental training delivered to personnel within the project team in accordance with the Environmental Training Plan;
- setting up a programme for environmental audits and site inspections to ensure that identified and appropriate control measures are effective;
- seeking to ensure the design and construction of the Works are carried out in compliance with the CEMP;
- providing environmental reporting in accordance with the requirements of Schedule 15 (Design and Construction Performance Monitoring) and Schedule 16 (Records and Reporting), and other objectives proposed by the Contractor;
- acting as a main point of contact between relevant regulatory authorities and the Project on environmental issues.

The Environmental Team shall advise on all environmental issues, including ecology, landscape architecture, landscape management, arboriculture, archaeology, noise, vibration, air quality, contaminated land, waste, hydrology, water quality, groundwater, surface water, biodiversity, geology, archaeology and built heritage.

3.3 CJV Roles and Responsibilities

The competence of individuals with environmental responsibilities will be assessed by the Environmental Manager by, initially reviewing CVs in line with roles and responsibilities as described in Table 3 below;

Role Title	Responsibilities
Project Director	Overall responsibility and accountability for compliance to the DCO, ES, and contractual environmental requirements

Role Title	Responsibilities
Environmental Manager	Leads on environmental compliance with the DCO, ES, and contractual requirements. Ensures that this CEMP and associated plans and procedures are updated as required. Leads on engagement with the local authorities and other regulators in matters concerning the CEMP and other related plans. Identifies environmental resourcing and training requirements within Riverlinx CJV. Oversees the appointment and management of subcontractors.
Senior Environmental Advisor	Provides support to Environmental Manager on all matters. Leads on the development and implementation of the Environmental Management System.
Environmental Advisors	Site Environmental Advisors will support our Environmental Manager; engineering, design and site teams; and subcontracted design and construction teams to ensure compliance with TfL's ES, Riverlinx CJV's CEMP, and other plans and legal and contractual compliance. They will undertake site audits and inspections.
CEEQUAL Assessor	The CEEQUAL Assessor will carry out the assessment and advise on action required to achieve the target score. This role will be partially filled by a number of individuals from CJV to encompass
Environmental Auditor	The Environmental Auditor(s) will undertake environmental audits of the EMS including legal and contractual requirements.
Consents Manager	Prepare, implement, maintain and update the Consents Register. Manage discharge of DCO conditions and obtain and maintain appropriate licences for all activities.
Subcontractor Environmental Advisors	Subcontractors will be required to provide Environmental Advisors to oversee operations. Typical duties will include: Ensuring compliance with Riverlinx CJV and TfL requirements Preparing activity based EMPs Undertaking assessments and mitigation as required by relevant EMPs Providing monthly environmental and sustainability reporting data Undertaking environmental audits and site inspections Reporting and investigating environmental incidents or complaints in accordance with Riverlinx CJV and TfL requirements Providing training and toolbox talks as appropriate
Noise and Vibration Specialist	The Noise and Vibration Specialist will support the preparation of specific Noise and Vibration Management Plans, carry out noise predictions and noise modelling, prepare and submit Section 61 applications, and undertake monitoring as set out in the Noise and Vibration Management Plan.
Air Quality Specialist	The Air Quality Specialist will support the preparation of the Air Quality Management Plan, advise on air quality aspects, and manage the air quality monitoring programme.
Ecologist	The Ecologist will prepare the Ecological Management Plan, carry out surveys, provide advice, and implement ecological mitigation.
Water Specialist	Water Specialists are required to prepare Hydrological Management Plans, Flood Risk Assessments, and review designs.
Archaeologist	To prepare the Archaeological Written Scheme of Investigation, liaise with relevant authorities, and supervise archaeological works.
Landscape Specialist	Landscape Specialists are required to co-ordinate tree surveys and woodland evaluation assessments in accordance with Technical Standards. Additional specialists may be procured, as required, to provide technical assurance.
Arboriculture Specialist	Arboriculture Specialists as required to carry out tree surveys and advise on tree protection measures.
Site construction team	Ensure all personnel for whom they are responsible are aware of the CEMP and implement the relevant requirements.

Role Title	Responsibilities
	Seek to ensure significant environmental aspects identified for the Project, over which they are deemed to have influence and control, are managed appropriately. Assign specific environmental duties to competent team members. Establish timely and efficient reporting of environmental and sustainability data. Provide suitable and sufficient environmental induction to personnel before starting work on the project. Monitor performance of personnel and activities under their control and put arrangements in place, so all personnel can work in a manner which minimises risks to themselves and the environment. Identify the competence of all contractors and suppliers such that they are made aware of, and comply with, the CEMP, project specific management procedures and any documentation requirements. Establish a consultation and communication system with all relevant interested parties associated with the project site, including employees, partners, contractors, clients, designers and third parties, etc. where relevant. Comply with environmental incident investigation and reporting procedures as appropriate. Instigate a programme of regular environmental inspections. Implement environmental performance measurement, review and reporting requirements. Promote the continual improvement of environmental performance and co-operate with auditors during environmental audits. Carry out corrective actions resulting from any non-conformances, and reporting of near incidents, near misses and observations using the appropriate systems.
All employees	Being familiar with and demonstrating commitment to the implementation of the Environmental Policy and CEMP Co-operating with Riverlinx CJV in fulfilling its legal obligations Conforming to the applicable requirements of relevant Environmental Management Plans Monitoring their work place for potential environmental risks and alerting their immediate line manager if any are observed, assisting Riverlinx CJV in its pursuit of continual improvement in environmental performance Ensuring site staff are appropriately aware of environmental legislative controls, protected species and consents.

Table 3 Roles and Responsibilities

3.4 Training

Riverlinx CJV shall produce an Environmental Training Plan (see Appendix A) specific to STT that will apply to all members of Riverlinx CJV, subcontractors and other related parties. The primary objective shall be to explain the proposed environmental protection measures to be followed by construction managers and site operatives. In addition, there shall be a provision on added value environmental enhancement and material and energy resource management. The Riverlinx CJV Environmental Manager will be responsible for overseeing the implementation of the Environmental Training Plan. The Environmental Team will provide environmental information and training to staff and operatives at all levels (and, when appropriate, to others involved in or affected by work activities) to achieve and maintain a high standard of environmental awareness and risk control. Training needs will be determined by the team the individual is based within to ensure that personnel performing specific tasks are appropriately informed to undertake/plan that task to both safeguard the environment and/or promote environmental enhancement.

All those working for Riverlinx CJV or on behalf of Riverlinx CJV shall undertake an induction that includes an introduction to the key aspects of environmental management on the project including information on the various management plans and the central focus of the CoCP. In addition all Riverlinx CJV personnel will undertake the

bespoke Environmental Awareness training session that will introduce personnel to how to manage site environment risks relevant to STT and provide practical guidance for specific topics such as waste management, noise, dust, contamination and light pollution. It will also cover monitoring plans implemented to demonstrate compliance with permits, licences, consents, and other requirements, including the requirements stipulated in the CoCP and other documentation issued by TfL and statutory bodies. It shall also include environmental performance focusing on the environmental objectives and targets of the project including how individuals can contribute towards KPIs and discuss areas of environmental innovation as a means to promote improved environmental performance.

The Riverlinx CJV Competence Matrix will be used to record training and specific competences, as part of tracking adherence to the Environmental Training Plan. Training will be co-ordinated by their CJV Human Resources Manager. The Environmental Team, environmental specialists and the wider CJV team will deliver environmentally themed toolbox talks to site and office teams making use of best practice materials from parent companies and organisations such as CIRIA. Subcontractors will be required to attend the Project Induction and environmental briefings as relevant to their work. They will remain responsible for keeping their own specialist training up to date. Subcontractors' training and competences will be audited in line with our Audit and Inspection Schedule. Subcontractors will be asked to report monthly on any updates to environmental training delivered to their staff, including toolbox talks and site / task briefings. Environmental information will be displayed in offices, site cabins and at sensitive locations, e.g. at contaminated ground, re-fuelling areas, and stores compounds. Notice boards will be used to increase awareness of environmental issues and consents.

3.5 Internal communication on environmental matters

Internal communication procedures will be established as part of the EMS. These will include:

- Inductions
- Training Briefings
- Ensuring environmental aspects are addressed in progress meetings
- Daily briefings
- Toolbox talks
- Posters

The procedures will set out the programme and responsibility for preparation and delivery of the communications. The Environmental Manager will ensure that communications are prepared and delivered by competent persons and that the frequency of delivery is sufficient to meet environmental objectives and requirements. The induction, which will be attended by all personnel, will include environmental issues relevant to the all sites and environmental behaviours that are expected of all personnel, including suppliers and subcontractors. Environmental issues will be included as an item on the agenda during internal and subcontractor weekly progress meetings to ensure due consideration is given to environmental aspects of construction. Onsite communications, such as daily shift and activity briefings, will be used to advise the site workforce of environmental matters. This will include constraints (e.g., working hours) detailed in the CoCP and information obtained from the community regarding aspects such as noise generation and access. Toolbox talks and posters will be used as a means to disseminate information to the workforce on a routine basis.

3.6 External communication on environmental matters

External communication on environmental matters will occur in a number of ways. The Riverlinx CJV Environmental Manager, Consents Manager and members of the Environmental team will meet statutory bodies and other authorities at appropriate and agreed intervals to keep them appraised of environmental issues. Meetings and consultations with other interested parties will be arranged as necessary.

Where practicable Riverlinx CJV will seek to consult relevant authorities before making formal applications for licences, consents and permits, to ensure all of the authorities' requirements are incorporated into the submission. The Riverlinx CJV Community Relations representative will seek to maintain dialogue with local communities and associations by various means including the Helpdesk. Should pollution incidents occur due to construction activities, Riverlinx CJV will report details to relevant authorities in accordance with the Emergency Plan.

3.7 Control of records

Riverlinx CJV will use TfL's Document Management System for record and report keeping. Additional environmental data will be captured in accordance with TfL data capture and reporting requirements. All environmental records will be retained for the duration of the contract.

4. Operational Control

4.1 Emergency Plan

The Riverlinx CJV Emergency Plan, including the Emergency Spill Response Plan shall be prepared in consultation with the local emergency services and the relevant planning authority, will include:

- Definitions of environmental incidents. Types will include oil spills, water pollution, heritage damage, waste, and noise.
- The emergency arrangements for works and activities on site, including entry to confined spaces and working on and adjacent to structures.
- An emergency management structure detailing roles, responsibilities and notification procedures for emergency services and other relevant parties.
- Plans for identification, definition, categorisation, notification, response, management, reporting, review and investigation of incidents occurring during the Works.
- Potential impacts beyond the site boundary, particularly where there are interfaces with the road network.
- Procedures for ensuring staff are familiar with the site and plans for training arrangements for our staff, related parties and any other relevant person.
- Plans for simulated emergency exercises, which take place six-monthly, including one simulated emergency exercise carried out in consultation with the Emergency Services in every 12-month period, starting from the Major Works until the Permit to Use Date.
- A Flood Warning and Evacuation Plan, which will be submitted for approval to the relevant planning authority, in consultation with the Environment Agency.

4.2 Fire Plan

The Riverlinx CJV Fire Plan, which will be prepared in consultation with the London Fire and Emergency Planning Authority, will include the following:

- Fire Risk Assessments identifying the nature and level of risk for the scope of work in accordance with the:
  - Regulatory Reform (Fire Safety Order): Fire Safety on Construction Sites (HSG168) published by the HSE
  - Fire Prevention on Construction Sites: The Joint Code of Practice published by the Fire Protection Association
  - BS6164 Code of Practice for health and safety in tunnelling in the construction industry
- Site access points, which shall be designed to the requirements of LFEPA Publication: Fire Safety Guidance Note 29: Access for Fire Appliances. This will also provide suitable access for ambulances
- Communications equipment, including radio equipment to enable firefighters attending emergency incidents below ground to use their normal radio equipment to communicate
- Firefighting water supply system designed, installed, maintained and tested in accordance with BS9990:2015 and BS6164:2011
- A simplified pack of reception point information immediately available for the London Fire Brigade during an incident, containing at least:
  - Key contact information
  - A3-sized laminated site plans and sections for all levels with identified hazards and equipment
  - Key / security cards for personnel access
- Fire prevention and fire precautions training for all Related Parties carrying out activities on project land, including fire wardens, fire marshals, and key emergency management personnel.
- Our Fire Plan will detail how provisions for the above will be maintained, tested and used.

4.3 Construction Traffic Management Plan

The Riverlinx CJV Construction Traffic Management Plan (CTMP) shall be prepared for approval by the relevant planning authority in consultation with the relevant highway authority. It will address the relevant requirements of the CoCP, specifically sections 2.3.3, 2.3.4, and 3.1. The CTMP establishes the management of construction logistics and shall include information on lorry routes, diversions, main access/egress points, traffic incident plans and a construction workers' travel plan. Any changes to the CTMP during construction will be discussed and approved by the relevant planning authority in consultation with the relevant highways' authority prior to implementation. The CTMP will be developed in accordance with relevant best practice including TfL's guidance on Construction Logistics Plans. The CTMPs will include information on the following aspects:

- Site information
- Construction details
- Constraints and restrictions on road vehicle movements
- Traffic management
- Policies and procedures
- Monitoring, compliance and reporting

The CTMP will ensure that safety measures are implemented to minimise road-related risks. The Contractor will specify the highest current standards in construction vehicle safety, including visibility. This includes but is not limited to FORS Gold (Fleet Operator Recognition Scheme), CLOCS (Construction Logistics and Cycle Safety), SLS (Safety Lorry Scheme) and WRRR (Work Related Road Risk) scheme.

4.4 Passage Plan

The Riverlinx CJV Passage Plan (PP) shall be prepared for approval by the PLA, prior to the first movement of materials by river. It will address the relevant requirements of the CoCP, specifically sections 3.2.15 and 3.2.16. The PP will establish cycle times for loading, unloading and journeys for vessels in relation to tides and will permit an informed decision regarding the number of vessels required to meet the production rates achieved for the TBM and civil works. The PP will include an updated navigational risk assessment which will reflect the findings and recommendations of the Navigational Issues and Preliminary Risk Assessment prepared during the DCO application.

4.5 Construction Site River Strategy

The Riverlinx CJV Construction Site River Strategy (CSRS) shall be prepared for approval by TfL in consultation with the relevant planning authority and the PLA. The CSRS.will include proposals to maximise river transport for construction and excavated materials to meet the commitments in respect of the use of river transport set out in the CoCP, sections 3.2.1 to 3.2.14.

4.6 Community Engagement Plan

The Riverlinx CJV Community Engagement Plan (CEP) shall be prepared for approval by the relevant planning authorities. It will address the relevant requirements of the CoCP, specifically section 4. The CEP will identify how communication with stakeholders will be managed and programmed throughout the construction period. It indicates an outline of communications, including newsletters, letter drops, and meetings with stakeholders potentially affected by the works. The Community Engagement Plan will be submitted to the relevant planning authorities for approval.

4.7 Air Quality Management Plan

The Riverlinx CJV Air Quality Management Plan (AQMP) shall be prepared for approval by the relevant planning authorities. The AQMP will address the relevant requirements of the CoCP, specifically section 5. It will include:

- Identifying residential properties and other sensitive receptors that may be affected by works
- Details of the measures to limit vehicle, plant and dust emissions during construction
- Details of the inspection regime and protocol for identifying and remedying any system inadequacies or failings, and associated reporting
- Details of the Contractor's weather monitoring and weather influenced measures
- Details of our proposals for auditing and monitoring records and submission of audit reports
- Details of our procedures for conducting air pollution risk assessments and
- A table of air emission control measures that we will implement during the Works, together with clear guidance on implementation, including roles and responsibilities.

4.8 Archaeological Written Scheme of Investigation

The Riverlinx CJV Archaeological Written Scheme of Investigation (AWSI) for works undertaken in the London Borough of Newham shall be prepared in consultation with Historic England and submitted for approval by the planning authority. Where mitigation measures within the River Thames are identified in the AWSI, the Marine Management Organisation and the Port of London Authority will be consulted. The AWSI will address the relevant requirements of the CoCP, specifically section 6. The AWSI will detail the approach to archaeology on the project and will specify where fieldwork will be required. The AWSI shall outline the mitigation measures and recording proposals for dealing with subsurface archaeological remains that could potentially be affected by the works.

4.9 Ecology Management Plan

The Riverlinx CJV Ecology Management Plan (EcMP) shall be developed in consultation with Natural England and submitted for approval by the relevant planning authorities. The EcMP will address the relevant requirements of the CoCP, specifically sections 7 and 8. The EcMP will build on the Outline Ecology Management Plan included in the Code of Construction Practice and will include general control measures relating to ecological protection across RiverLinx CJV worksites. Riverlinx CJV will seek to ensure there are no adverse impacts caused to ecologically sensitive receptors through the design, survey and mitigation, including onsite management and post-works monitoring. The EcMP will detail the surveys required and mitigations. It will identify the permits and licenses required for ecological works.

4.10 Construction Materials Management Plan

The Riverlinx CJV Construction Materials Management Plan (CMMP) shall be developed for approval by the relevant planning authorities. The CMMP will address the relevant requirements of the CoCP, specifically sections 9.1, 9.2, 9.3 and 13. The CMMP will set out measures to ensure materials are handled in a way that prevents harm to human health and pollution of the environment. It will also incorporate commitments to river transport and materials re-use.

4.11 Groundwater Monitoring and Verification Plan

The Riverlinx CJV Groundwater Monitoring and Verification Plan (GMVP) shall be developed for approval by the Environment Agency. The GMVP will address the relevant requirements of the CoCP, specifically sections 9.1.2, 9.4.9, 9.4.10 and 9.4.11. The GMVP will be developed with regard to the Groundwater Monitoring Strategy (Appendix F of the Code of Construction Practice) and contain the details of measures for the monitoring of baseline, construction and post construction effects. Pre-construction baseline monitoring will commence as soon as practicable and continue until the commencement of construction or the implementation of the construction phase of the GMVP. The preconstruction monitoring will be used to establish a baseline which will inform the setting of alert and trigger levels, for both water quality and groundwater elevations, against which the construction phase monitoring will be compared. Monitoring will be undertaken throughout the construction and post construction of the relevant part of the project and reported to the Environment Agency. These reporting requirements will be outlined in the GMVP. Any changes to the GMVP shall be approved by the Environment Agency before being adopted.

4.12 Noise and Vibration Management Plan

The Riverlinx CJV Noise and Vibration Management Plan (NVMP) shall be prepared for approval by the relevant planning authorities. The NVMP will address the relevant requirements of the CoCP, specifically section 11. The NVMP will set out the procedure for local authority approvals, including Section 61 applications. The plan will identify working hours and general control measures to be applied to reduce noise and vibration. As the plan will be approved by the local authorities, site-specific requirements for the north and south sites will be set out separately and will list key activities, providing an outline construction programme and indicative timetable for Section 61 applications. The plan will provide details of noise and vibration monitoring, including noise monitoring locations, equipment, and noise compliance checks. Baseline and trigger levels will be given, and a procedure developed to manage the event of non-compliance with noise and vibration requirements/specified mitigation. Vibration monitoring will be undertaken where required. Management of complaints and community liaison will be addressed primarily in other plans but will be referred to in the Noise and Vibration Management Plan

4.13 Lighting Management Plan

The Riverlinx CJV Lighting Management Plan (LMP) shall be prepared in consultation with the relevant planning authority, the PLA and the Environment Agency. The LMP will address the relevant requirements of the CoCP, specifically sections 2.3.4 and 12.2. All Riverlinx CJV compounds will be lit as required. The time of year is a factor in determining the hours of lighting, as well as the sensitivity of the receiving environment and the requirements of the site. All electrical use will be monitored and reported as required. Any sustainability initiatives or opportunities regarding lighting will be included in the Risk Register or the Innovation Register. Lighting will be designed to provide safe working conditions.

4.14 Site Waste Management Plan

The Riverlinx CJV Site Waste Management Plan (SWMP) shall be prepared in consultation with the relevant planning authority and the Environment Agency. The SMWP will address the relevant requirements of the CoCP specifically section 13.3. The SWMP will include:

- Waste types and quantities, including estimates
- Waste movement and transport, including waste carriers
- Duty of Care obligations and recording requirements
- Waste facilities, listing all receiving sites and associated permits
- Waste classification
- Waste testing regimes
- Contingency arrangements, including dealing with contaminated and unexpected wastes.

4.15 Water Environment

Riverlinx CJV will implement measures to protect surface water from pollution in adherence of the requirements of the CoCP, specifically section 15. Site drainage will meet the effluent standards required by Thames Water or the Environment Agency as appropriate by use of settling tanks, separators and other measures as may be required. All drainage shall be maintained and inspected regularly to ensure efficient operation. Where possible temporary site drainage will be put in place to retain surface water within order limits and any water entering excavations will be suitably cleaned prior to discharge in accordance with an applicable consent. Riverlinx CJV will implement methods that control water consumption and ensure water is efficiently used during construction through water audits, staff engagement and training, an effective monitoring regime and reuse of any surface water entering site for construction operations e.g. dust suppression. Riverlinx CJV will work to ensure that all existing flood defences are protected throughout construction. Any works carried out under the DCO within 16m of the banks of the River Thames or River Lea, or which might affect flood defences require the prior approval of the Environment Agency. During the construction phase flood warning and emergency procedures will be in place, as part of the Emergency Plan. Construction site operatives would use the plan to assess the need to put evacuation and shutdown

procedures into action, thereby mitigating the residual risk of flooding in the very unlikely scenario of a breach on the River Thames defences during the construction period.

5. Compliance

5.1 Compliance with the CoCP

STT underwent an environmental impact assessment as part of the DCO process and an Environmental Statement (ES) was produced in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, as amended. Through the assessment process, mitigation identified with respect to construction effects is embedded within the CoCP. Therefore, compliance with the controls defined in the CoCP is fundamental. The CoCP sets out the controls to which the CJV must adhere during construction to minimise adverse impacts. This is a formal element of the DCO, as referenced under Schedule 2, and comprises much of the construction phase mitigation specified by the ES. The DCO and associated documents, including the CoCP, are legally binding. Since much of the CoCP contents is incorporated in the Environmental Impact Assessment as mitigation, failure to adhere to the CoCP could result in a materially new or materially different environmental effect occurring, beyond those reported in the ES − a scenario that would invalidate the consent to undertake those works. The CJV, as guided by the CJV Environmental Manager, are responsible for ensuring that works are executed in accordance with the CoCP. S/he will be supported by a team of advisors and specialists, and will have a formal reporting responsibility to our senior leadership team, and be supported by our commitment at senior level for DCO-compliant delivery of the project. Adherence to the CoCP is a consent condition as well as a contractual obligation, and the Consents Manager will take on a supporting role to provide internal CoCP compliance and assurance resource. The CoCP specifies that CJV are to prepare and submit for approval a number of management plans (mostly re-stated with in the DCO Schedule 2 requirements) before starting associated works. Since phased access to working areas is likely there is potential a need for multiple versions of each management plan to allow works to commence unimpeded. Controls will be kept universal as much as practically possible however there may be some variations and it will be the role of the Environmental Manager to ensure that the correct controls are applied by the workforce pertinent to each part of the site that they are operating. Method statements will be reviewed for compliance with the CoCP and other consent and third-party obligations and signed off by either the Environmental Manager or, as appropriate, by the Consents Manager before associated activities start. The ES comprises an assessment of the likely effects resulting from assumptions as to how the project is to be constructed and operated, and reports on the likely significance of these effects. It is a fundamental principal of EIA qualifying projects that, while it is accepted that amendments from prior construction assumptions can be made, these must not result in additional ‘significant’ effects. Significance is defined by criteria set out in the ES. Riverlinx CJV are aware that Section 1 of the CoCP provides the requirements for ES compliance. Riverlinx CJV will undertake assessments, where appropriate, on any material changes to the assumptions utilised as a basis for the ES assessment, and where assessments are undertaken, these shall be submitted to the relevant statutory bodies for approval in accordance with the requirements set out within section 1.4 of the CoCP.

5.2 Environmental Design Management Procedure

The Environmental Design Management Procedure will describe how Riverlinx CJV will:

- Reduce whole life environmental impacts as far as reasonably practicable. This will include energy management and assessment of impacts of the design on construction strategy and consequent energy impacts.
- Ensure material usage, energy usage and waste are minimised, which shall include considering the use of cleaner technologies and fuels, such as hydrogen and fuel cells, hybrid technologies, emissions abatement equipment and renewables.
- Address the environmental requirements for the design of the works.
- Ensure that the design meets the environmental requirements detailed in the ES and Code of Construction Practice, including the achievement of a high standard in the mitigation of adverse environmental effects.
- Comply with the hierarchy of waste management to avoid, reduce, remedy, or compensate significant risks and impacts identified in its environmental risk register, and its environmental impacts and aspects register.

The Riverlinx CJV design processes and procedures will embed the environmental requirements into the design and the overarching continuous design assurance process. Environmental specialists will be integral to the design team, involved from the outset and present at key decision making workshops, design reviews and the key design

stages. Riverlinx will also evaluate if the design has met the key environmental and sustainability requirements outlined in the DCO, ES, TfL Contract Requirements including the Design Principles and CEEQUAL requirements. There will be a consistent focus on eliminating, controlling or reducing environmental effects and maximising opportunities for enhancements to environmental performance.

5.3 Compliance with the DCO

Riverlinx CJV view adherence to the DCO to be of equal importance to gaining further approvals to advance the Works. Notwithstanding that a breach of the DCO could constitute a criminal offence, the potential reputational damage is likely to be significant and may have a considerable effect on the project's relationships with the communities in which Riverlinx CJV work, as well as with third-party stakeholders. To maximise compliance with our DCO and other consent-related environmental obligations, Riverlinx CJV will:

- Look to ensure that consent applications best reflect preferred methods of working, helping to promote a natural compliance of the works with obtained consents
- Undertake a comprehensive training and awareness-raising programme targeted at different roles in the workforce and support staff. The training will be included in project inductions, Toolbox Talks and 'quick reference guides' to the bespoke Silvertown Tunnel environmental consents regime
- Provide targeted support and capacity building via Riverlinx CJV Environmental and Consents teams to assist with compliance. This will include site inspections, audits and action plans for improvements to consents applications
- Embed consent and DCO compliance within the Riverlinx CJV supply chain

While the DCO already contains many environmental obligations (mostly within the CoCP), Riverlinx CJV recognise that these will be expanded continually via approval of subsidiary environmental management plans. Approvals will be by consent-granting bodies, Section 61 (Control of Pollution Act) consents, and approvals under the Deemed Marine Licence and DCO (Protective Provisions from the three river regulators). The Project's Consents Register will be a key tool that Riverlinx CJV will use to track, manage and evidence the discharge of environmental obligations, with additional obligations (e.g. consent conditions) added to the register when received throughout construction. Riverlinx CJV have extensive experience of undertaking complex civils works within the River Thames, including using the river for logistics. Riverlinx CJV understands the challenges of gaining approvals under the Port of London Authority's and Environment Agency's Protective Provisions (Schedule 13, Parts 4 and 5 of the DCO), as well as from the MMO under a Deemed Marine Licence (Schedule 12 of the DCO). Riverlinx CJV understand that all three of these parts of the DCO require submissions to the regulatory bodies for approval for the Project works that are on, under or over the river Thames (beyond the Mean High Water Mark). Additionally, the Environment Agency's protective provisions extend landward to pick up those works that have a potential effect on the integrity of flood defences (river walls) and works which could affect the flow or purity of ground water bodies.

The Riverlinx CJV programme for the development of temporary works design and construction proposals reflects the level of detail and certainty required by these organisations for obtaining approvals, and reflects the seasonal constraints on activities, e.g. percussive piling and dredging within the river. Already possessing a detailed knowledge of the requirements of the river regulators (further identified within the CoCP), Riverlinx CJV are actively designing the in-river works to be constructed in a manner that will represent best practice and is likely to efficiently achieve the necessary approvals. Riverlinx CJV know the likely conditions that will be imposed upon such consent approvals, and we have made adequate programme allowances for these to be discharged before associated Works start. Riverlinx CJV note that the Deemed Marine Licence and Schedule 13 (Parts 4 and 5) include a number of restrictive conditions mandating the manner in which the works must progress. Riverlinx CJV will undertake works in the stated manner within applications for approval, and there are likely to be additional restrictive conditions placed upon approvals received. In common with successful approaches that Riverlinx CJV have taken previously, ownership of adherence to these requirements will be passed to the site-based construction teams with a clear and comprehensive 'handover' of the consent once achieved by the Consents team. The Consents team will provide thorough training and ongoing guidance to ensure that the obligations of approval are understood by those team members responsible for discharging them and will provide continuous assurance and advice to verify that conditions are discharged appropriately and the relationship with those regulatory bodies managed in the most constructive manner.

Further to the protective provisions, Riverlinx CJV appreciate that Schedule 2 of the DCO, Article 5 (relating to CEMP documentation) also specifies several submissions that will need to be made to the PLA and / or the Environment Agency or Marine Management Organisation either for approval or for consultation (in addition to the relevant local authority). These include the:

- Construction Site River Strategy (Port of London Authority)
- Lighting Management Plan (Port of London Authority and Environment Agency)
- Site Waste Management Plan (Environment Agency)
- Archaeological Written Scheme of Investigation (Port of London Authority and Marine Management Organisation)
- Flood Warning and Evacuation Plan (Environment Agency)
- Groundwater Monitoring and Verification Plan
- Passage Plan (Port of London Authority)
- Construction Environmental Management Plan (Port of London Authority).

In addition, Riverlinx CJV anticipate that the Environment Agency will be heavily consulted in the local authorities' discharge of Article 17 of the DCO Schedule 2 Requirements (Contaminated Land). The Deemed Marine Licence requires that both a Benthic Ecology Monitoring and Mitigation Plan and a Marine Pollution Contingency Plan are approved by the Marine Management Organisation before marine Works progress under the DCO.

6. Checking

6.1 Environmental monitoring

Environmental monitoring will be undertaken to verify compliance of work activities with the various permits, licences, consents, objectives, and targets for the works at site level. Environmental inspections and audits will be undertaken to check compliance with site-specific control plans and requirements, including commitments. All operations and activities with the potential to have a significant impact on the environment will be monitored regularly. Riverlinx CJV will monitor environmental performance throughout the contract, to verify compliance with all legal and contractual requirements. Details of environmental monitoring will be provided in the subsidiary Environmental Management Plans. Each monitoring plan will identify alert levels representing the need for investigation or precautionary response and trigger levels representing the need for corrective action to mitigate the impact associated with the aspect. Alert and trigger levels will be subject to review and, where change is required, the relevant Environmental Management Plan will be updated. Certain alert and trigger levels will require consultation or approval of a regulatory body, e.g. the local authority or Environment Agency.

The Environmental Management Plans will set out the reporting procedures for environmental monitoring. Where monitoring has to be agreed with a regulatory authority, the plans will identify the format in which monitoring will be reported. Where disciplines have considerable cross-over, such as ecology, water and landscape, the plans will be reviewed by the specialists to identify reporting requirements needed to inform each of the specialist disciplines. Environmental monitoring results will be used to inform corrective action and updates to subsidiary plans. Riverlinx CJV will record monitoring results electronically and share them with TfL and Relevant Authorities whenever useful. Corrective action informed by monitoring results will be specific to disciplines (e.g. ecology or landscaping), and subsidiary environmental management plans will be updated based on monitoring findings and required corrective action.

6.2 Audits and Inspections

All internal audits and inspections will be led by fully trained and qualified auditors. Audit findings will be recorded in an online database. When non-conformances or improvement opportunities are raised, they will be actioned to a named delegated individual for closure. Audits will be recorded in a SHEQ Tracker, which records non-conformances, sends notifications, and tracks actions allocated to individuals. Site operations will be inspected and monitored by the environmental specialists or other members of the Environmental team against compliance with this CEMP. The audit frequency will be determined on a risk basis. The Environmental Audit and Inspection Schedule will be updated quarterly. Weekly inspections will use an Environmental Inspection Checklist. Completed inspection check sheets will be stored as environmental records and circulated to individuals depending on actions identified. Non-Conformance Reports will be raised, as necessary, in accordance with requirements of the CJV EMS.

Environmental inspections will verify that environmental risk management procedures and processes are implemented effectively, and that the environmental management programme continues to reflect work activities posing significant environment risks. If a non-compliance is raised, the Environmental Manager will be responsible for undertaking an investigation to determine root causes. Close-out actions will be identified and allocated to owners. The subsidiary environmental management plans will include procedures to address specific non-conformances. The Environmental Manager will retain responsibility for ensuring that these procedures are implemented and will review the effectiveness of procedures at the Environmental Management Review, where analysis of site inspections, audits, incidents and non-conformities will inform any revision to procedures.

6.3 Environmental Incidents

Riverlinx CJV will work to minimise the risk of any environmental incident occurring. Environmental incidents will fall principally fall in two categories;

- Category 1 - Notifiable Environment Incident

  - formal enforcement action
  - significant pollution event
  - significant environmental damage i.e. injured or killed wildlife

- Category 2 - Minor Environment Incident

  - potential CoCP non-compliance
  - potential consent non-compliance
  - minor pollution event

6.4 Community relations

Riverlinx CJV will establish and maintain good relationships with neighbours and stakeholders, informing them of upcoming works, how Riverlinx CJV will manage unplanned works (including emergencies), and providing an overview of the programme. The strategy for maintaining good relationships with neighbours is set out in the Riverlinx CJV Community Engagement Plan to guide the Riverlinx CJV team and all subcontractors in the required behaviours. A central record of communications will be maintained in the Riverlinx CJV Communications Register.

6.5 Consents management

The Riverlinx CJV Consents Manager will manage consents in accordance with the Riverlinx CJV Consents Register. The Consents Manager will oversee the process of obtaining consents and will work to ensure that consents requirements are incorporated in works planning, preparation of Risk Assessments and Method Statements, and site supervision.

6.6 Procurement of materials and equipment

Environmental and sustainability criteria will be considered in the procurement of equipment and materials for temporary works in accordance with our:

- Sustainability Policy
- Responsible Procurement Plan
- Construction Materials Management Plan.

Most equipment and materials will be procured by the Riverlinx CJV supply chain. Subcontractors will identify requirements, which they will assess in accordance with the above documents, with support from our Environment and Procurement teams, as required. CJV will prioritise non-hazardous, reused, refurbished, recycled, and recyclable equipment and materials, and those made from renewable sources with low(er) embodied energy, carbon footprint and water footprint. In compliance with Section 13.2 of the CoCP and, where specifications allow, Riverlinx CJV will use:

- Low-embodied-carbon materials
- At least 10% of construction materials with reused and recycled content
- Minimal primary aggregate by selecting secondary materials when possible
- Timber sourced in accordance with the Government’s Timber Procurement Policy.

Designers will provide forecasts of materials for environmental and sustainability reporting data. Measures to manage materials as part of the Construction Materials Management Plan will include those in Section 13.2.1 of the CoCP. Riverlinx CJV will manage construction, demolition and excavated material in accordance with the commitments agreed by TfL and set out in Appendix C of the CoCP.

6.7 Subcontractor Assurance

Subcontractors providing products or services will be required to provide evidence for Riverlinx CJV approval, e.g. Method Statements, to show how they will control environmental risks in their works. Subcontractors will appoint senior staff as principal points of contact and will be required to provide suitably qualified/experienced environmental personnel for all environmental management matters. Riverlinx CJV will assure the commitments of the contract undertaken by the subcontractor through environmental site inspections and audits. Riverlinx CJV will prepare an Inspection and Audit Schedule for subcontractors' activities in line with Section 6.2 above.

Subcontractors will be provided with details of the objectives, targets and KPIs to which their works will contribute. Subcontractors will be required to demonstrate how they intend to achieve targets. To ensure sufficient controls, subcontractors will be consulted in the development and update of the CEMP and subsidiary plans. They must also ensure updated environmental impacts and requirements are passed on to their own supply chains. All Riverlinx CJV obtained licences and consents received for the worksite relevant to the subcontractor will be briefed before any work starts. Subcontractors will be involved, as appropriate, in the preparation of consent submissions to help ensure that applications appropriately facilitate the scope of the work undertaken, and that subcontractors are committed to their obligations.

6.8 Environmental Management Review

The Environmental Manager will meet with senior team members, including the Project Director, Quality Manager, and Engineering Manager, at least annually for formal management reviews. They will review all aspects of the EMS, including the CEMP and subsidiary plans. These reviews will not preclude more frequent intermediate reviews, as required. Riverlinx CJV will agree Improvement Plans for any underperforming areas and record any actions generated during the management review and manage those to closure. The Environmental Manager will issue all review attendees with a report including the following items before the meeting:

- Performance against KPIs and objectives
- Adequacy of environmental resourcing
- Training undertaken and planned
- Analysis of site inspections, audits, incidents and non-conformities
- Recurring issues and time taken to complete actions
- Follow-up actions from previous management review
- Recommendations for improvement.

Appendix A – Environmental Training Plan

Training	Type	Duration	SLT	Design	Construction	Commercial	HSQE	Subcontractors
CJV Induction (inc. Environment)	*Internal*	*2 hours*	✓	✓	✓	✓	✓	✓
Environmental Awareness (inc. environmental protection, performance and compliance)	*Internal*	*3 hours*	✓	✓	✓	✓	✓	✓
Consent Management	*Internal*	*2 hours*	✓	✓	✓	✓	✓	✓
Emergency Spill Response Training	*External*	*1 day*			✓		✓	
CEEQUAL Assessor Training	*External*	*2 days*		✓			✓	
Environmental Auditor Training	*External*	*1 day*					✓	