



This document is shared for the purposes of learning legacy. It is a snapshot in time and hence many of the links within the document will become obsolete over time. Some links/document references will refer to a document storage location that isn't accessible. Users should refer to the learning legacy website where these documents may be published separately.

DELIVERY

Management Plan Volume 2 Central Section Delivery

Document Number: CR-XRL-O4-GPG-CR001-00004

*Supersedes PDP Project Execution Plan (CRL1-PDP-N2-TPL-CR001-00002 V2.0) and
CRL Implementation Delivery Plan (CRL1-XRL-K1-GPL-CR001-00001 V1.0)*

Current Document History:

Revision:	Effective Date:	Author(s) (‘Owner’ in eB *)	Reviewed by: (‘Checked by’ in eB *)	Approved by:	Reason for Issue:
4.0	14-04-15	[REDACTED]	[REDACTED]	[REDACTED]	Updated

This document contains proprietary information. No part of this document may be reproduced without prior written consent from the chief executive of Crossrail Ltd.

Previous Document History:

Revision	Prepared Date:	Author:	Reviewed by:	Approved by:	Reason for Issue
2.1	04-Apr-11	[REDACTED]	[REDACTED] [REDACTED] [REDACTED] [REDACTED]	[REDACTED]	Preface added and Sections 1 & 2 amended as interim revision to reflect integrated Crossrail Team
3.0	14-Nov-11	[REDACTED]	[REDACTED]	[REDACTED]	Updated to reflect integrated team

Revision Changes:

Revision	Status / Description of Changes
4.0	General Update.

Learning Legacy Document

Contents

1 Introduction and Objectives	4
2 Scope	5
3 Definitions and Abbreviations	6
4 Project Management	7
4.1 Organisation	7
4.2 Functional, corporate and specialist support to CSDT	7
4.2.1 Corporate Functions	8
4.2.2 Support Functions	8
4.2.3 Programme Specialists.....	8
4.3 Sector Project Organisation	10
4.4 Contractor Management and Contract Administration	11
4.5 Third Party Interfaces and Communications	11
4.6 Logistics	11
4.7 Field Engineering Management	12
4.8 Performance Management	13
5 Delivery Plans, Processes and Procedures	14
6 Key Reference Documents	14
7 Standard Forms / Templates	15

1 Introduction and Objectives

The Crossrail Management Plan documents the arrangements adopted by Crossrail for the delivery of the Crossrail Programme in accordance with the Delivery Strategy [Ref 17]. It is arranged in four volumes as follows:

Volume 1: Corporate, Support and Specialist Function Directorates [Ref 1]

Documents the governance arrangements and references corporate function, support function and Programme specialist management plans.

Volume 2: Central Section Delivery [Ref 2] – **This document**

Mandates how the Crossrail Central Section Delivery Directorate manages the Central Section which comprises of the Central Section Works by contractors engaged directly by Crossrail and other works by Delivery Partners. Invoking appropriate function support plans, processes and procedures (mandated in corporate and programme support directorate management plans) and augmenting them with appropriate Central Section Delivery specific processes and procedures and referencing the Construction Management Plan, Construction Quality Plan and Project Construction Execution Plans.

Volume 3: Surface Delivery [Ref 3]

Mandates how the Crossrail Surface Directorate manage the Surface Works which comprise the On Network Works undertaken by Network Rail and other work by contractors engaged directly by Crossrail. Invoking appropriate function support plans, processes and procedures (mandated in corporate and programme support directorate management plans) and augmenting them with appropriate Surface Delivery specific processes and procedures and referencing supporting plans.

Volume 4: Operations [Ref 4]

The Operations Management Plan describes elements of the Crossrail project for which the Operations Directorate is accountable, including the delivery of the Rolling Stock, Depot and associated Services and working as RfL's agent to manage the delivery phase.

Mandates how the Crossrail Operations Directorate will bring the railway into operation invoking appropriate function support plans, processes and procedures. Mandated in corporate, support and programme specialist management plans and augmenting them with appropriate Operations Directorate specific processes and procedures.

The functional plans that support these volumes are held in the Crossrail Management System (CMS); an online system described in section 6 of Management Plan Volume 1. [Ref1]

This management plan mandates how the Delivery Directorate, referred to herein as the Central Section CSDT (CSDT), will manage the Central Section Works under the new operating model and in accordance with the Delivery Strategy [Ref 17].

Under the operating model adopted 04/04/2011 CRL, PP and the PDP combined to create an integrated team known as the Crossrail Team. The CRL Implementation Directorate was disbanded and the CSDT was created with responsibility for managing the delivery (excluding design or procurement) of the central section.

The overarching Delivery Strategy [Ref 17] provides detail on the overall structure of the integrated organisation and roles and responsibilities of the CSDT, corporate & support functions and programme specialists.

2 Scope

This management plan provides a brief description of organisation, processes and tools the Central Section Delivery Directorate (CSDT) will use to manage the scope of work. This plan also describes how the corporate & support functions and programme specialists interact with delivery and how this will be managed. Detailed specification of the plans, processes and procedures to be used by CSDT are contained within the Central Section Delivery Management System and can be found in the Central Section Construction Management Plan [Ref 18] and Central Section Construction Quality Plan [Ref 19] described below.

The Crossrail Management Plans for directorates which provide corporate & support functions and programme specialists have been developed in conjunction with and in support of this plan and delivery of the works. The framework for these management plans is shown in Figure 1.

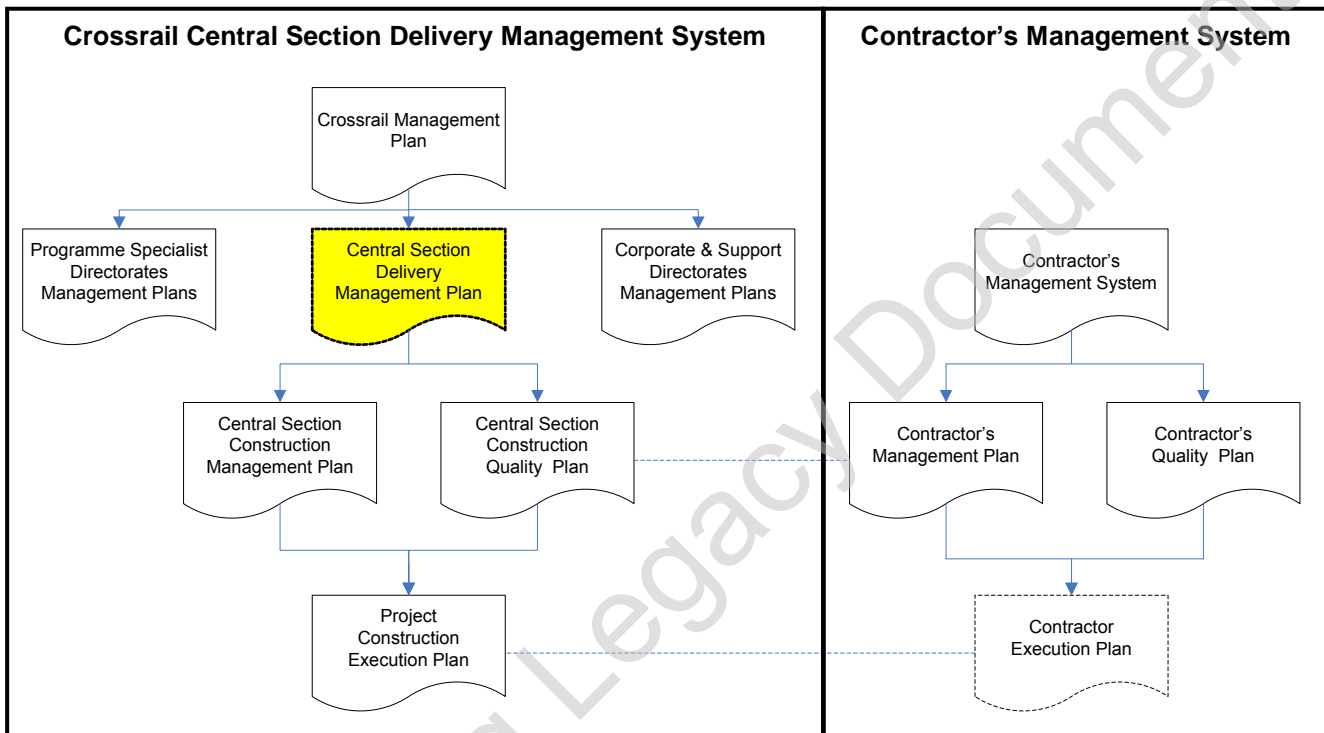


Figure 1. Position of Central Section Delivery Management Plan within the Crossrail management system.

Details of the Central Section Delivery Management System can be found in the Central Section Construction Management Plan [Ref 18] which describes the organisational structure, roles and responsibilities, processes and tools for the management of site and construction activities, and in the Central Section Construction Quality Plan [Ref 19] which describes the organisational structure, responsibilities, processes and tools for the management of construction quality in the implementation of construction works. It describes the roles and responsibilities of the CSDT and the contractor in delivery of construction quality. It also covers the delivery of Systemwide contracts. These are also described in the System wide Execution Plan [Ref 20]

Project specific details on the management of delivery and quality can be found in the Project Construction Execution Plans (PCEPs) developed as required by the project managers' teams with site specific and contract specific systems and tools specified.

Plans on the management of programme controls, health and safety, technical, stakeholder management and other corporate & support functions can be found in the respective sections of the CMS.

Overall assurance that all requirements on delivery of the Programme are being met is provided in the CRL Programme Assurance Strategy [Ref 21].

3 Definitions and Abbreviations

Employer, Project Manager, Supervisor and Contractor are as defined in NEC3 ECC.

Contractor	Supplier engaged to deliver physical elements of the Crossrail infrastructure
Central Section	The central area across London, (referred to as Central Core Area in the Project Development Agreement), largely tunnelled between Portobello Junction in the west and Pudding Mill Lane Junction in the east, with a branch from Stepney Green to Plumstead Portal in the south east, including shafts, track, signalling, communications, control and route control centre, traction power, enabling works and utilities and the following new stations and associated work required for oversite development: Paddington; Bond Street; Tottenham Court Road; Farringdon; Liverpool Street; Whitechapel, Custom House, Isle of Dogs (Canary Wharf Station) and Woolwich Station Box.
CSDT	Central Section Delivery Team
CMS	Crossrail Management System
CRL	Crossrail Limited
DLR	Docklands Light Railway
EM	Engineering Manager
IMs	Infrastructure Managers
LU	London Underground
NR	Network Rail
OSD	Over Site Development
PCEP	Project Construction Execution Plan
PDP	Project Delivery Partner
PEP	Project Execution Plan
PM	Project Manager: The DT project role described in the Construction Management Plan
PP	Programme Partner
Project Manager (Italicised)	The role as described in the NEC3 ECC contract
PTR	Project Technical Request: An automation tool within eB, used to initiate, route, track, and approve Requests for Information (RFIs), Field Change Document (FCDs), and NCRs.
QMS	Quality Management System
QP	Quality Plan
Supervisor (Italicised)	The role as described in the NEC3 ECC contract
Supervisor Rep (PFE)	<i>Supervisor Representative (Project Field Engineer)</i> The role as described in the NEC3 ECC contract
Third Party	A party who may be affected by the Crossrail Works but is not a principal party to a contract, for example LU, NR, DLR, EH, City of Westminster, Utility Companies etc
Works Information	Volume 2B - Civils: Ref 51 Volume 2B - Systemwide: Ref 58

4 Project Management

The CSDT has responsibility for safely delivering the Central Section to time, cost and quality requirements. Reporting to the Central Section Delivery Director are Sector Delivery Directors for geographical and central projectwide construction; see section 4.2.

4.1 Organisation

This Central Section CSDT is led by the Central Section Delivery Director who reports into the Programme Director who is responsible for the Delivery organisation and direction of construction and related activities for the entire project. The current organisation charts can be found through the “Organisation” hyperlink on the front page of Connect Online, the Crossrail intranet site:

<http://connect.crossrail.co.uk/sites/crossrailconnect/Pages/CrossrailConnect.aspx>

The Sector Delivery Directors have overall responsibility within the Crossrail Programme Team for safety, environment, cost, schedule, technical and finished product functionality/quality within their respective areas with support from corporate & support functions and programme specialist groups.

A matrix style organisation has been established with delivery responsibility along the vertical axis and functional support responsibility along the horizontal axis.

Responsibility for *Employer*, *Project Manager* and *Supervisor* roles relating to Contractors directly engaged by CRL and as defined in the New Engineering Contract are allocated as below:

NEC Title	Crossrail Appointment
<i>Employer</i>	<i>CRL represented by the Programme Director</i>
<i>Project Manager</i>	<i>Sector Director</i>
<i>Project Manager's Representative</i>	<i>Project Manager</i>
<i>Supervisor</i>	<i>Head of Quality</i>
<i>Supervisor Representative</i>	<i>Supervisor Rep (PFE)</i>

4.2 Functional, corporate and specialist support to CSDT

CSDT is supported by a number of corporate & support functions and programme specialist groups as detailed above in section 4.1 Organisation.

The role of these corporate & support functions and programme specialist groups are summarised below and detailed in supporting management plans (see Section 6) which cover their roles, responsibilities and management of interfaces within the integrated team organisation.

4.2.1 Corporate Functions

- **Commercial**

Policies, procedures, responsibilities, levels of authority and deliverables are defined in Parts 1 & 2 of the Procurement Code Section 1 General [Ref 22] and Section 2 Deliverables [Ref 23]

- **Talent & Resources**

This corporate function supports CSDT in the day to day management of HR services and provision of specialist training.

Further details can be found in the Talent & Resources Management Plan [Ref 5].

- **External Affairs**

Further details can be found in the External Affairs Management Plan.

4.2.2 Support Functions

- **Finance Operations**

Responsibilities include providing Finance Reports to the Board, ensuring timely and accurate payment of approved expenditure to suppliers and the forecasting of budget requirements & performance.

Further details can be found in the Finance Management Plan [Ref 6].

- **Information Technology**

IT supports the CSDT through the provision of IT equipment and systems to sites and through the development of IT systems.

Further details can be found in the Information Technology Management Plan [Ref 7].

- **Land & Property**

The Land & Property support function assist the CSDT in number of areas including land acquisitions, OSD interface management, urban integration and route development & protection.

Further details can be found in the Land & Property Management Plan [Ref 8].

4.2.3 Programme Specialists

- **Health & Safety**

The H&S programme specialist group provides H&S strategic directions, guidance and oversight to support the safety managers within the CSDT and to define the H&S standards and project aspirations in addition to providing data support (frequency rates, incident trends etc.).

Further details can be found in The Health & Safety Manual [Ref 9].

- **Technical**

As a specialist area within the Programme Directorate, the Technical Directorate provides support to CSDT which includes but is not limited to the lists below. Further details can be found in the Technical Management Plan [Ref 10].

Engineering

- Technical Interface for Infrastructure Protection
- Technical Assurance
- Authorising Design Products for Construction
- Manage Technical Risk During Construction
- Engineering Support to Construction

Further details can be found in the Technical Management Plan [Ref 10].

Systemwide

- Engineering Safety Management
- European Interoperability Directive
- Technical Interfaces with Stations, Tunnels, Portals, Shafts, Rolling Stock & Depot and Network Rail
- Systemwide Delivery Strategies
- Managing delivery of the Central Section Systemwide Program of Works
- Managing the testing, integrated commissioning & handover of Central Section railway systems into passenger operation

Further details can be found in the Systemwide Execution Plan [Ref 20].

Sustainability and consents (inc. Environmental Management)

- Planning (including Consents)
- Sustainability
- Environmental Minimum Requirements
- Undertakings & Assurances
- Traffic & Highways (including Consents)
- Environmental Consents
- Environmental audit and monitoring

Further details can be found in The Environment Manual [Ref 24] and Planning, Environment, Traffic Consents Procedure [Ref 25].

Quality

- Establishing contract quality management requirements
- Establishing coordinated works contract records & certification requirements
- Providing quality management and certification support to the delivery directorates
- Leading & coordinating HSQE audits of contract teams
- Conducting quality surveillance on site teams

Further details on quality function and interfaces can be found in the Technical Management Plan [Ref 10].

Further details for the management of quality within CSDT can be found in the Construction Quality Plan [Ref 19].

Technical Information

- Geographical Information Systems (GIS): Managing & distributing intelligent mapping data
- Document Control: Responsibilities within and outside the site teams are identified in the Document Management Procedure [Ref 26].
- CAD Management & Support Services
- Asset Register and Information Management: The framework and implementation is outlined in the Asset Information Management [Ref 27].

Stakeholder Engagement

The stakeholder engagement function provides support to the CSDT relating to the planning and management of community relations, site communications and the 24/7 public helpdesk.

Further details can be found in the Incident Communications Plan [Ref 28] and the 2014/15 Crossrail Communications Strategy [Ref 29].

Programme Controls

The CSDT is supported by the Programme Management and Programme Controls function who retain responsibility for development of programme-wide control processes for:

- cost
- schedule;
- estimating;
- change control;
- risk management; and
- value management

Further details can be found in the Programme Controls Management Plan [Ref 11].

The Change Control and Budget Management Procedure [Ref 30] establishes a methodology for the early identification, control and ultimate approval of all potential changes (trends) from the agreed programme and project baselines including requirements, scope, quality, schedule, budget and operations.

4.3 Sector Project Organisation

The CSDT organisation is structured around three delivery sectors; Stations, Civils, and Systemwide each under the leadership of a Sector Delivery Director who report into the Central Section Delivery Director. Under each Sector Delivery Director are a number of projects under the leadership of Project Managers. Within each of these projects is a delivery organisation commensurate with the type and extent of construction within the project.

Supporting the individual project teams is a sector team under the leadership of the Sector Delivery Director.

In addition the Construction & Field Engineering team provides Construction Function support to project teams which includes settlement monitoring, third party interfaces, logistics, geomatic survey, painting & welding specialist inspections, and utility coordination.

The Commissioning & Handover team manages the handover of the completed railway to the IMs.

4.4 Contractor Management and Contract Administration

The construction contracts are NEC contracts and require self certification to various degrees dependant on the specific activity. The contractor's Quality Plan together with Inspection & Test and Certification Plans specify the level of self certification required for a particular contract. The level of CSDT oversight required by Field Engineering is established in the CMDL Distribution Matrix and Inspection & Test Plan mark ups.

The role of the Crossrail project teams is to provide H&S and Field Engineering oversight, manage interfaces and manage the contract to enable the contractors to deliver the construction works safely, to the required standard, to time and budget. Interpretation and implementation of NEC3 through the management system procedures and proformas is detailed in sections of the Contract Administration Manual [Ref 31].

4.5 Third Party Interfaces and Communications

The CSDT are responsible for managing or assisting the contractor in managing all the interfaces within the Project envelope to ensure the Project is delivered safely, on time and to budget. Effective communications have been established between the CSDT and third parties such as Network Rail, London Underground, Docklands Light Railway, Berkeley Homes, Canary Wharf Group, and the nominated Delivery Partners of the parties.

Specific interface coordinators have been assigned within the CSDT to document and manage the interfaces with Network Rail, DLR and London Underground.

Periodic LU/NR/DLR interface coordination meetings are held to consider progress, resolve issues and ensure that the prioritisation of key activities/requirements taken forward.

The key documents to manage the LU/NR/DLR interface include:

- LU Infrastructure Protection Plan - LU Assets [Ref 32];
- LU Works Package Plan Procedure [Ref 33];
- Access to DLR for Crossrail Works [Ref 34].
- NR Scope Book Procedure [Ref 35].
- NR Crossrail Worksites on Network Rail - Booking and Implementation [Ref 36].

The Community Relations Strategy Framework [Ref 37] and the Community Relations Procedure [Ref 38] set out requirements on Crossrail and third parties in relation to external communications with those impacted by works.

All works by statutory undertakers including utilities works undertaken on behalf of Crossrail must comply with the Environmental Minimum Requirements. This is set out in the Procedure for Coordination of Utilities Work Performed by the Statutory Utility Company [Ref 39].

4.6 Logistics

The Logistics function supports the logistics activities of the main contracts and manages the logistics interface between main contracts and logistics contracts. The Logistics function supports the project teams in three key areas:

1. Management of excavated material contracts
2. Management of traffic management contracts

3. Logistics support to project teams.

In addition the Logistics function also operates the Incident Response Desk (IRD).

The scope of the Logistics function is described in detail in the Logistics Plan for the Central Section Delivery Area [Ref 40].

4.7 Field Engineering Management

As per section 4.1 the Supervisor Rep (PFE)s act as the *Supervisor's Representatives* and hold the contractual responsibilities of the *Supervisor* (for specified contracts) which are delegated in full (except for clause 14.1 relating to further delegation of authority) from the Head of Quality who is the named *Supervisor* under the NEC construction contracts. The Head of Quality sits within the Technical Directorate which is separate from the CSDT thus ensuring the independence of the *Supervisor* is maintained. The Head of Quality provides written notification to the contractor(s) of appointments of the individuals with delegated *Supervisor's* responsibilities. All day-to-day project functional support to the Supervisor Rep (PFE) and Field Engineering is provided by the Construction & Field Engineering Manager team within the CSDT. At project level the Field Engineers report into the Supervisor Rep (PFE) who in turn report into the Project Manager. See figure 2.

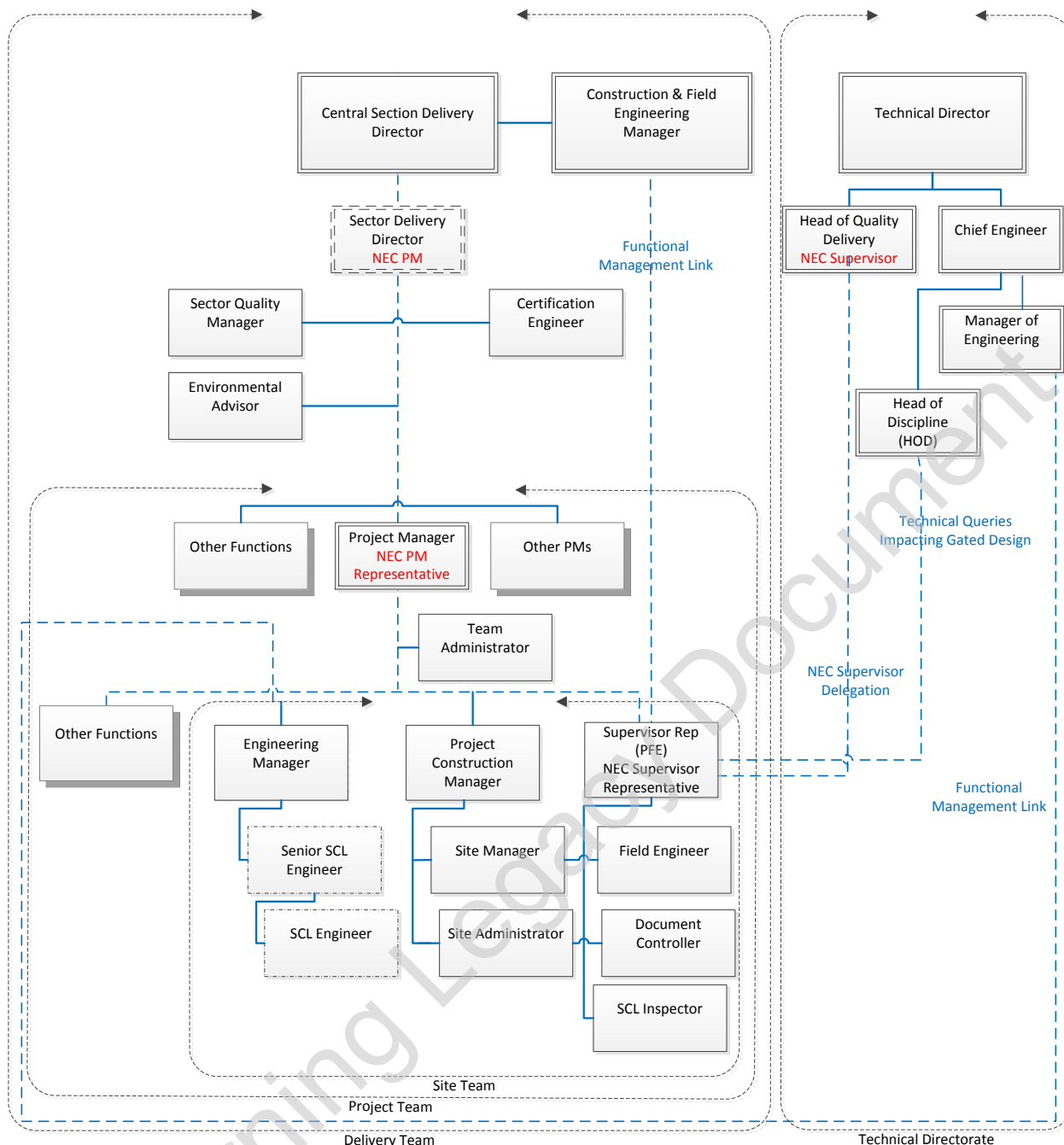


Figure 2. Generic organisation chart showing Field Engineering with project team structure and support from Technical Directorate.

4.8 Performance Management

The Crossrail Team have annual performance goals against which the project is measured. These goals are cascaded at the start of the financial year. Individuals within the project teams have individual quarterly and annual objectives which link back into the overall project goals.

Performance goals are weighted against typical elements including schedule, cost and other goals (Undertakings & Assurances compliance, HS&E targets, media coverage etc.).

5 Delivery Plans, Processes and Procedures

A full list of strategies, plans, procedures, guidance notes, templates and forms owned within the CSDT is provided in the Delivery Section of the Crossrail Management System (CMS). The respective Sector Directors are the custodians for these documents.

Key Delivery reference documents are shown in section 7 – these are referenced throughout this document.

6 Key Reference Documents

Ref:	Document Title	Document Number:
1	Management Plan Volume 1: Corporate, Support and Specialist Function Directorates	CR-XRL-O4-GPG-CR001-00001
2	Management Plan Volume 2: Central Section Delivery (This Document)	CR-XRL-O4-GPG-CR001-00004
3	Management Plan Volume 3: Surface Delivery	CR-XRL-O4-GPG-CR001-00005
4	Management Plan Volume 4: Operations	CR-XRL-K2-STP-CR001-50001

Directorate Management Plans (relevant to this document only)

Complete list held in Management Plan Volume 1

5	Talent & Resources Management Plan	CR1-XRL-Z2-GPD-CR001_Z-50001
6	Finance Management Plan	CR-XRL-V2-GMN-CR001-00001
7	Information Technology Management Plan	CR-XRL-Z5-GML-CR001_Z-50001
8	Land & Property Management Plan	CRL1-XRL-T2-STP-CR001-50004
9	Health & Safety Manual	CR-XRL-Z7-GMN-CR001-00001
10	Technical Management Plan	CR-XRL-N2-GPL-CR001-00007
11	Programme Controls Management Plan	CR-XRL-Z9-GST-CR001-00002
12	Not used	
13	Not used	
14	Not used	
15	Not used	
16	Not used	

Other Key Reference Documents

Ref:	Document Title	Document Number:
17	Delivery Strategy	CR-XRL-Z-GST-CR001-00001
18	Central Section Construction Management Plan	CRL1-XRL-N2-STP-CR001-50002
19	Construction Quality Plan	CRL1-XRL-N2-STP-CRG03-50004
20	Systemwide Execution Plan	CRL1-XRL-R-STP-CRG03-50001

21	Programme Assurance Strategy	CR-XRL-O4-GPL-CR001-00001
22	Procurement Code Section 1 - General	CRL1-XRL-V3-GUI-CR001_Z-50004
23	Procurement Code Section 2 - Deliverables	CRL1-XRL-V3-GUI-CR001-50001
24	Environment Manual	CR-XRL-T1-GMN-CR001-00001
25	Planning, Environment, Traffic Consents Procedure	CR-XRL-T1-GPR-CR001-00001
26	Document Management Procedure	CRL1-XRL-Z3-GPD-CR001-50001
27	Asset Information Management Plan	CRL1-XRL-Z3-STP-CR001-50002
28	Incident Communications Plan	CR-XRL-Z1-STP-CR001-50004
29	Crossrail Communications Strategy	CR-XRL-Z1-STP-CR001-50003
30	Change Control and Budget Management Procedure	CR-XRL-Z9-GPD-CR001-50003
31	Contract Administration Manual	CRL1-XRL-W-GML-CR001-50001
32	Infrastructure Protection Plan - LU Assets	CRL1-XRL-N2-STP-CR001-50003
33	LU Works Package Plan Procedure	CRL1-XRL-O4-STP-CR001-50002
34	Access to DLR for Crossrail Works	CRL1-XRL-C-GPD-CR001-50002
35	NR Scope Book Procedure	CRL1-XRL-Z-GPD-CRG03-50008
36	NR Crossrail Worksites on Network Rail - Booking and Implementation	CRL1-XRL-Z-GPD-CR001-50013
37	Community Relations Strategy Framework	CR-XRL-Z1-GST-CR001-00002
38	Community Relations Procedure	CR-XRL-Z1-GPR-CR001-00005
39	Procedure for Coordination of Utilities Work Performed by the Statutory Utility Company	CRL1-XRL-U-GPD-CRG03-50001
40	Logistics Plan for the Central Section Delivery Area	CRL1-XRL-R5-STP-CR001-50001

7 Standard Forms / Templates

Ref:	Document Title	Document Number:
	Not Used	