

NORTH LONDON WASTE AUTHORITY

REPORT TITLE: DELIVERY AND CONSTRUCTION MANAGEMENT STRATEGY

REPORT OF: PROGRAMME DIRECTOR

FOR SUBMISSION TO: PROGRAMME COMMITTEE

DATE: 29 JULY 2020

SUMMARY OF REPORT:

This report covers the functional strategy for Delivery and Construction Management on the North London Heat and Power Project.

RECOMMENDATIONS:

The Committee is recommended to note the approach set out in the Delivery and Construction Management Strategy in Appendix A.

SIGNED:  **Programme Director**

DATE: 17 July 2020

1. INTRODUCTION

- 1.1. The North London Heat and Power Project (NLHPP) team are currently developing and implementing a programme manual - a suite of documents designed to guide successful delivery of the programme. Within this, a series of strategy documents will form the top level of the manual defining the challenges to be addressed, and the strategic approaches to meeting these. The initial set of strategies identified for development and their outline purpose is included in Table 1.

Strategy	Outline Description	Presented to Members
Information Management	Looks at the control of our information, data and knowledge.	October 2019
Resource Management	Addresses the need for people, assets and funds.	January 2020
Risk Management	Looks at the approach to management of risk	January 2020
Health, Safety & Wellbeing	Considers all aspects of keeping all parties associated with the NLHPP safe and well	March 2020
Technical Assurance	Addresses how the Authority will oversee the development of the technical solution and design development	March 2020
Monitoring & Control	Considers aspects associated with scheduling, controlling costs and reporting on the programme.	July 2020
Delivery and Construction Management	Deals with the core construction activities and the challenges linked to interfaces, operational site working and logistics.	July 2020
Commercial	Considers the procurement and subsequent delivery of contracts	September 2020
Financing Function	Considers the challenges associated with planning, obtaining and managing the necessary financing for the programme	September 2020
Stakeholder Engagement	Addresses the challenges associated with the range of stakeholders in the programme.	November 2020
Social Value	Looks at the aspects of social and community benefits that the works will bring.	November 2020

Table 1 - List of NLHPP Strategy Documents

- 1.2. These strategies will be provided to with Members at suitable opportunities to enable an understanding of these challenges of those elements of the project, and how the project team will address them.
- 1.3. Each management strategy must adapt to changing or emerging needs of the Project and, as such will be reviewed periodically. It is anticipated that the Project strategies will be submitted to the Programme Committee for review and noting approximately annually. Therefore, from December 2020 onwards, the review cycle will begin again.

2. DELIVERY AND CONSTRUCTION MANAGEMENT

- 2.1. This report presents the functional strategy for delivery and construction, which is included in its entirety in Appendix A. The focus of this strategy is to address the challenges faced in safely progressing multiple projects through development, procurement and construction with eventual handover of the assets to the future operator. This has to be delivered in the context of a live and heavily used operational site, and while managing the interfaces between these highly integrated projects and with activities of third parties within and around the EcoPark.
- 2.2. The strategy sets out many of the challenges faced in each phase of the works being delivered and the specific challenges to be faced in the construction environment, of which the North London Waste Authority (NLWA) has limited previous experience. More broadly, the delivery function considers the broad challenges of delivering the works in a way which reflects the programme's Safety First approach, and achieving its social value aims.
- 2.3. The strategy covers the following aspects (with further detail being contained in the document, which is at Appendix A):
 - 2.3.1. Strategic approaches – four broad areas provide the focus of the team's approach:
 - 2.3.1.1. project teamwork, which focusses on building the right collaborative working environment;
 - 2.3.1.2. interface management to address the major risks that sit between projects;
 - 2.3.1.3. planning and execution to ensure the right objectives and means of reaching them are in place; and,
 - 2.3.1.4. construction management, focussing on logistics and local coordination within the EcoPark;
 - 2.3.2. Implementation plans – the next level of documents required to establish the methods of delivery, with a key set being the project execution plans (PEP) prepared for each project, which set out the detailed procedures and requirements for success;
 - 2.3.3. Risks to the strategy – which highlights that delivery of projects in isolation could lead to loss of focus on the overall programme objectives.
- 2.4. The strategy also highlights key resource requirements including the need for suitably qualified and experienced people to fulfil critical delivery roles and the need for key systems and tools to be in place to support that delivery – from Health and Safety (H&S) protocols to project data repositories.
- 2.5. As these resource requirements indicate, this strategy cannot be delivered in isolation and will be implemented in conjunction with the other functional strategies and plans.

3. CURRENT STATUS

- 3.1. In parallel to developing the strategy, significant steps have been taken towards its implementation. Notably, the key resources are in place, including NEC4 accredited project managers and experienced technical site supervisors. Alongside this, the construction management plan has been produced, and individual projects have developed PEPs in line with the phase of their projects. Working protocols have been established with LondonEnergy Ltd (LEL) to coordinate access to and use of the EcoPark and engagement is ongoing with other stakeholders whose works interface with the projects (including Energetik and key utility providers).

4. EQUALITIES IMPLICATIONS

- 4.1. The strategy has no significant implications upon equality.

5. COMMENTS OF THE LEGAL ADVISOR

- 5.1. The Legal Adviser has been consulted in the preparation of this report and has no comments to add.

6. COMMENTS OF THE FINANCIAL ADVISOR

- 6.1. The Financial Adviser has been consulted during the preparation of this report and comments have been incorporated.

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APPENDIX A: DELIVERY AND CONSTRUCTION MANAGEMENT STRATEGY

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1 Context and Vision

The North London Heat and Power Project (NLHPP) is the programme of works authorised by Development Consent Order (DCO) granted in February 2017 through which the existing energy from waste (EfW) plant at the Edmonton EcoPark will be replaced with a new Energy Recovery Facility (ERF). The programme of works includes provision of a Resource Recovery Facility (RRF) for reception and transfer of waste incorporating a public Reuse and Recycling Centre, and EcoPark House (EPH), a visitor centre which will be used to provide community / education space and back up office space. In preparing for and carrying out the works in the NLHPP programme, the management team is working closely with LondonEnergy Ltd (LEL) the operators of the EcoPark and the current EfW plant.

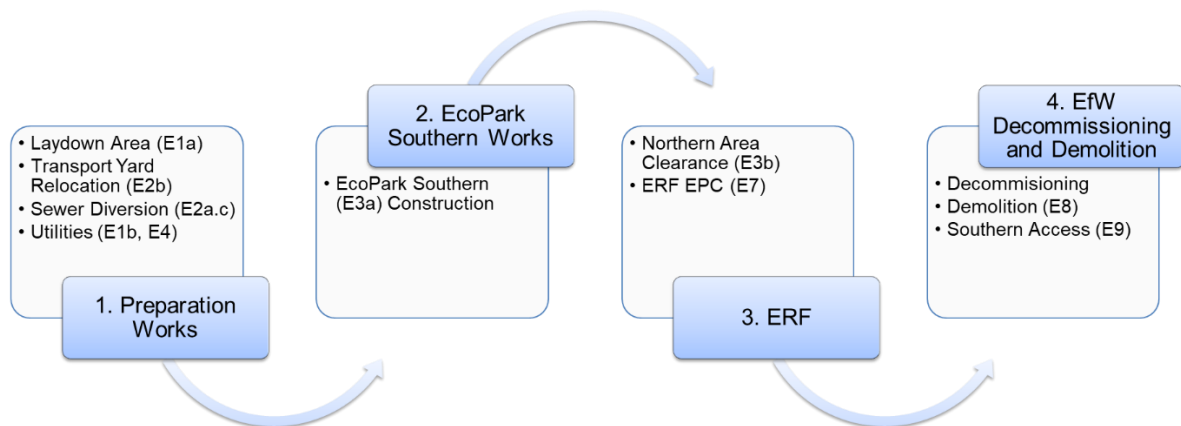
The NLHPP leadership team have developed a vision for the programme, highlighted below.

Create a waste management facility in which local communities take pride, which demonstrates value and is a model for public sector project delivery”

The vision is to be delivered by a series of strategies that each address a set challenges to achieving the vision for the NLHPP as programme of projects.

The NLWA has established an organisation to the deliver the NLHPP as a programme of projects with a set of functions that align with the strategies. This is described in the NLHPP programme manual and includes a Project Delivery Function which leads the construction of the NLHPP facilities, their preparation works and decommissioning and demolition of redundant facilities.

The diagram below shows how the NLHPP’s sequential stages (1 to 4) and the projects that need to be completed to be able to proceed to the next stage.



The other strategies to deliver the NLHPP vision and sit alongside this strategy are defined in the NLHPP programme manual.

2 Purpose

This purpose of this strategy is to address the challenges in constructing the NLHPP facilities in the current EcoPark operational environment without causing unplanned disruption to those operations. It also addresses how the programme of projects will be integrated and managed

deliver the facilities and benefits enabled in the NLHPP DCO in the stages described in the Section above.

Construction Management is concerned with how the works are built (and hence delivered):

- Safely, (following the Health, Safety and Well-being strategy)
- Within the constraints of an operational EcoPark and local environmental restrictions,
- To a set of time, cost and quality requirements, (following the Project Controls strategy)
- In collaboration with the construction industry (following the Commercial strategy)
- And handed over for operation (following the Technical Assurance strategy)

This Construction Management strategy focuses on:

- Project management of the NLHPP projects as defined the project baseline;
- Co-ordination of construction of the works in the EcoPark and adjacent areas;
- Management of the interfaces between the projects to ensure that collectively they deliver the DCO outcomes.

This strategy supports the vision through exemplar project management and the achievement of NLHPP being a model for public sector delivery.

By setting out a strategy for construction management, subsequent management plans can be produced to address how the work will be managed and delivered.

The NLHPP Delivery function is responsible for the implementation of this strategy and the management plans that support it.

3 Starting Point

The DCO sets out the overall scope of the NLHPP and defines a set of projects that collectively will deliver it through a series of stages of construction. Subsequently a Delivery Strategy (version 15) was produced which provided further detail on how the NLHPP would be structured into projects and what construction works would be procured.

Building on the Delivery Strategy, an NLHPP baseline was produced in early 2019 which:

- Defined a series of projects and the scope of each NLHPP project
- Allocated budgets to each NLHPP project based on estimates and risk evaluation
- Set milestones, project durations and interface logic into a master schedule
- Established a risk register of risks pertaining to individual projects and the NLHPP as a whole

This strategy sets out the challenges, risks, strategic approaches and management plans associated with the delivery of the NLHPP as a series of projects. It is noted that all other strategies include important aspects of what is needed to deliver projects successfully and therefore should be read in conjunction with this strategy.

4 Challenges

4.1 Specific to Construction Management

The challenges to the achieving the construction of the NLHPP projects that are specific to Construction Management are listed in the table below.

Challenge	Description
Multiple Contractors	There will be multiple Principal Contractors on site at the same time working under NEC4 contracts with NLWA. Statutory utility companies will also be on site commissioned by NLWA to install service connections to the NLHPP facilities.
Contract Management	Ensuring that construction work is delivered by contractors in accordance with NEC4 or IChemE contract forms and specified requirements (scope), and that NLWA as client and PM fulfils its obligations.
Interfaces between stages and projects	By executing a series of projects, the achievement of objectives and benefits are reliant on integration between the work of the projects in the following aspects: Time related: Planning what needs to be done preceding the project work and what other activities rely on each project. Interface milestones are identified. Logistics: Planning the space required to carry out the works and access to them so that they don't conflict with each other or on-going operations. System (Interim): Designing the works so that interim functionality is enabled during the programme of works as each project progresses. System (Final): Designing the works so that the combined effect of the scope of the projects meets the business objectives
Interfaces between NLHPP and LEL Operations	Ensuring that the construction work and waste management operations can both operate concurrently.
Project Leadership	Ensuring that each project is effectively led with focus and that it is done as a team effort. The team needs to include expertise from each function and other advisors in proportion to its challenges and appropriate for each stage of the project.
Project Delivery Processes	The NLWA has not delivered construction projects of this nature before and therefore project teams have to create NLHPP processes for managing construction.
DCO Construction Code of Practice Compliance	Ensuring that in course of constructing the works, environmental impacts are minimised and do not exceed permitted limits.
Existing Asset Protection	Ensuring that the construction works do not risk damage or disruption to existing operational assets in the EcoPark.
Employment Relations	Ensuring that the project workforce (i.e. those working on site) are treated fairly.
Supply Chain Relations	Ensuring that relationships between contractors and NLWA are based on mutual trust and co-operation.
Design and Build/EPC	Ensuring that contractors deliver design and engineering where applicable as well as construction.

Challenge	Description
Scope gaps and overlaps	Identifying and gaps in scope (provided by the Technical Advisor) and ensuring that they are added to projects. Ensuring that NLHPP scope is allocated without gaps or overlaps to project.

4.2 Stage 1 Preparation Works Stage

The specific challenges to Stage 1 are:

- Procurement of various construction contracts primarily to create the Laydown Area, Sewer Diversion, new Northern Access and temporary off site transport yard for LEL.
- Management of Utility companies works
- Scheduling the high level of interdependency between projects and therefore high level of time criticality
- Establishing working arrangements with LEL as EcoPark owners and operators
- Establishing a contractor supply chain and good working relationships
- Planning the phasing of works and accesses in further detail to establish how waste management operations and construction can proceed.
- Preparing the site for the start of Stage 2
- Master planning utilities to show how services migrate to the final arrangements
- Interface with works to be done by Energetik to link the new ERF facilities to the Lea Valley Heat Network.
- Interface with other 3rd parties working in the EcoPark such as connections to the adjacent data centre.
- Protection of existing assets including utilities services that the works come near or in contract with.

4.3 Stage 2 EcoPark South Works

The specific challenges to Stage 2 are:

- The procurement of the design and build of a large industrial waste management facility contract for the RRF and EcoPark House. Although team members have experience of designing and building major industrial facilities, the NLHPP team has not procured a contract of this scale so far.
- The management of design under a Design and Build contract where changes to requirements and client preferences are costlier than they would be earlier in the lifecycle. As NLWA and LEL see the details of the design they may wish to express preferences and changes.
- The taking over of a major area in the EcoPark without adversely impacting waste management operations, including the need to share access to the EcoPark.
- The overlap in construction activities with the sewer diversion.
- The commissioning and hand over of a new operating facility to LEL – this will be the first time the project has asked LEL to accept a new facility for operation.
- Avoid unacceptable local traffic impacts from the increase in construction traffic (material export and import)
- Interface with works to be done by Energetik to link the new ERF facilities to the Lea Valley Heat Network.
- Protection of existing assets including utilities services that the works come near or in contract with.

4.4 Stage 3 ERF

The specific challenges to Stage 3 are:

- The procurement of the engineering, procurement and construction (EPC) of a major energy recovery facility (aka energy from waste) plant. Although team members have experience in major infrastructure projects, the NLHPP team will not have procured and managed a contract on this scale before.
- The management of design under an EPC where changes to requirements and client preferences are costlier than they would be earlier in the lifecycle. As NLWA and LEL see the details of the design they may wish to express preferences and changes.
- The taking over of a major area in the EcoPark without adversely impacting waste management operations, including the need to share access to the EcoPark. The ERF site is tight up against the current EfW operating area.
- Preparing the ERF work site of underground obstacles and contamination to avoid the EPC contractor having to do additional work (thus delaying completion and increasing cost)
- The commissioning and hand over of a new operating facility to LEL – the ERF will be operated by LEL concurrently with the existing EfW plant for several months until it reaches agreed capacity and reliability targets.

4.5 Stage 4 EfW Decommissioning and Demolition

The specific challenges to Stage 4 are:

The works in Stage 4 follow on from the acceptance of Stage 3 and include the decommissioning of the EfW, and then its demolition. This not yet been planned in detail to identify specific challenges.

4.6 General Challenges

Challenge	Description
Health, safety and wellbeing	Ensuring that the “Safety First” ethos is embedded in how projects are constructed to achieve the H&S vision. This management of health, safety and wellbeing is led by the HSW strategy.
Social Value	Ensuring that the projects deliver social value to the local community. These include opportunities for local employment, skills and training mostly through the construction supply chain. This management of social value led by the Social Value strategy.
Project Controls and Risk Management	Ensuring that each project is progressing to towards its time, cost and quality targets by managing risk. This management of project controls is led by strategies for risk management and monitoring and control.
Permits and Consents	Ensuring that projects proceed into construction with permits and consents in place/discharged or specify what contractors shall be responsible to complete these activities.

5 Strategic Approach

The challenges arising from the delivery and construction of the NLHPP facilities as a programme of projects is addressed across four main workstreams as shown below with bullet points outlining their scope.

Project Teamwork	Interface Management	Project Planning and Execution	Construction Management
<ul style="list-style-type: none"> •Leadership •Collaboration •Roles and Responsibilities •Delivery Function Team •Project Teams 	<ul style="list-style-type: none"> •Between Projects •Between Projects and 3rd Parties •Utility supplies •Transition to/from operations 	<ul style="list-style-type: none"> •Objectives •Work Package structure •Stakeholders •Controls 	<ul style="list-style-type: none"> •Multi-site co-ordination •Access and EcoPark Logistics •Employment Relations •Licences and Permits •DCO Construction Code of Practice

A table showing where the general and specific challenges are met by these workstreams is included in the Appendix.

6 Supporting Management Plans

The management plans are developed for each strategic workstream.

Strategic Workstream	Management Plan(s)
Project Teamwork	A single plan addressing the scope listed in the diagram above.
Interface Management	A single interface management plan addressing the scope listed in the diagram above.
Project Planning and Execution	Multiple project execution plans so that there is one for each project to address the specific objectives of each.
Construction Management	A single construction management plan addressing the scope listed in the diagram above.

Further plans support these strategic plans as necessary which are identified as they are developed. For example, the Employment Relations Plan supports the Construction Management Plan.

7 Risks

Risks which threaten the successful delivery of this strategy are:

Description	Planned Mitigation(s)
Lack of understanding of the strategy by the members of the Project Delivery Team and other functions	Review of other strategies and presentation of this strategy to project delivery team, function leads and the rest of the client team.

Description	Planned Mitigation(s)
Change in NLHPP risk profile introducing new challenges	Periodic review and update of the plan and peer review
The need to change approach as the NLHPP organisation develops and the work transitions	The project execution plans will describe the project organisations in each stage of development and be signed off in the gate process
The focus on project objectives means that the overall NLHPP programme objective is missed.	Integration Management – having a comprehensive plan and someone sufficiently experienced who is the guiding mind for it.
Not having the right Project Delivery team to deliver the strategy (including their retention)	Structuring the PD team to address the challenges and deliver the strategy Competency assessment of individuals to work as project leaders. Collaboration between project delivery team members to work as a unit.
Not learning from mistakes	Collaborative relationships between PD team members and the wider team who support delivery
Not working to other NLHPP strategies	Briefings from function leads. Function leads reviewing project delivery reports. Understanding performance data from Programme Office and responding to it.
Poor quality of management plans	Review of draft plans by function leads and challenge. Peer review of management plans by experts back in Arup.

8 Development

This strategy is intended to be valid for the duration of the NLHPP programme; however, it is recommended that this strategy document and associated plans are reviewed periodically and specifically when the NLHPP enters a new stage in delivery. This is to allow a check that new or emerging challenges and strategic opportunities continue to be addressed suitably.

9 Resources

In establishing and delivering this strategy and its subsequent management plan, some key resource requirements have been identified:

Description	Planned Mitigation(s)
People	Project Managers competence is assessed against APM competency framework. Function leads to allocate resources to projects
Tools	Health, S&E Observation and Incident Reporting Tool Schedule P6 Risk Register Common Data Environment Commercial Management Tool (Asite, Cemar or similar)

10 Functional Stakeholders

A high-level summary of stakeholder interfaces is captured below. A full detailed stakeholder management plan with regards to this function will be prepared within the relevant management plans.

Stakeholder	Relationship
Programme Office	PO provides performance data on projects to assist the PM in assessing where action is needed. PO provides management plans and reporting templates. PO provides planning resource to project teams. Provide information to Programme Office, Technical Advisor and Commercial Teams.
Governance and Legal	G&L provides legal advice and review of contract issues and tender packages.
Commercial	Commercial provides commercial and procurement strategies. Commercial provides a commercial manager to each project team.
Finance	Project Delivery provides finance with capital expenditure forecasts, via the Programme Office. Finance acceptance of ITT is required.
Technical Authority	Design development by the Technical Advisor is managed by the Technical Authority.
Technical Advisors	Provide design solutions and review contractor design submissions and tender proposals.
Legal Advisors	Contact is via Governance and Legal function.
Planning Advisors	Advise what activities are needed to satisfy planning authorities, review submission and may make submissions.
Financial Advisors	Advise what activities are needed to secure finance and require cash flow requirements from project forecast.
Supply Chain/Contractors	Supply chain management.
Operator/LEL	Site Working Group.
Officers	To be decided – on a specific role basis.
Members	Via Programme Director.
Public	As per the NLHPP stakeholder communications plan.

Appendix A Allocation of Specific Challenges to Strategic Workstreams

Delivery Challenge		Strategic Workstream and Management Plans			
		Project Leadership	Interface Management	Project Planning and Execution	Construction Management
Specific to Delivery	Multiple Contractors	✓			
	Contract Management	✓			
	Interfaces between stages and projects		✓		
	Interfaces between NLHPP and LEL Operations		✓		
	Project Leadership	✓			
	Project Delivery Processes	✓			
	DCO Construction Code of Practice Compliance				✓
	Existing Asset Protection				✓
	Employment Relations				✓
	Supply Chain Relations	✓			
	Design and Build/EPC			✓	
Scope gaps and overlaps		✓			
Specific to Preparation Works – Stage 1	Procurement of various construction contracts primarily to create the Laydown Area, Sewer Diversion and new Northern Access.			✓	
	Management of Utility companies works				✓

Delivery Challenge		Strategic Workstream and Management Plans			
		Project Leadership	Interface Management	Project Planning and Execution	Construction Management
	Scheduling the high level of interdependency between projects and therefore high level of time criticality		✓		
	Establishing working arrangements with LEL as EcoPark owners and operators	✓			
	Establishing a contractor supply chain and good working relationships			✓	
	Planning the phasing of works and accesses in further detail to establish how waste management operations and construction can proceed.				✓
	Preparing the site for the start of Stage 2			✓	
	Master planning utilities to show how services migrate to the final arrangements				✓
	Interface with works to be done by Energetik to link the new ERF facilities to the Lea Valley Heat Network.		✓		
	Protection of existing assets including utilities services that the works come near or in contact with				✓
Specific to EcoPark South – Stage 2	The procurement of the design and build of a large industrial waste management facility contract for the RRF and EcoPark House. Although team members have experience of designing and building major industrial facilities, the NLHPP team has not procured a contract of this scale so far.			✓	
	The management of design under a Design and Build contract where changes to requirements and client preferences are costlier than they			✓	

Delivery Challenge		Strategic Workstream and Management Plans			
		Project Leadership	Interface Management	Project Planning and Execution	Construction Management
	would be earlier in the lifecycle. As NLWA and LEL see the details of the design they may wish to express preferences and changes.				
	The taking over of a major area in the EcoPark without adversely impacting waste management operations, including the need to share access to the EcoPark.			✓	
	The overlap in construction activities with the sewer diversion.			✓	
	The commissioning and hand over of a new operating facility to LEL – this will be the first time the project has asked LEL to accept a new facility for operation.			✓	
	Avoid unacceptable local traffic impacts from the increase in construction traffic (material export and import)				✓
	Interface with works to be done by Energetik to link the new ERF facilities to the Lea Valley Heat Network.		✓		
	Protection of existing assets including utilities services that the works come near or in contract with.				✓
Specific to ERF – Stage 3	The procurement of the engineering, procurement and construction (EPC) of a major energy recovery facility (aka energy from waste) plant. Although team members have experience in major infrastructure projects, the NLHPP team will not have procured and managed a contract on this scale before.			✓	
	The management of design under an EPC where changes to requirements and client preferences			✓	

Delivery Challenge		Strategic Workstream and Management Plans			
		Project Leadership	Interface Management	Project Planning and Execution	Construction Management
	are costlier than they would be earlier in the lifecycle. As NLWA and LEL see the details of the design they may wish to express preferences and changes.				
	The taking over of a major area in the EcoPark without adversely impacting waste management operations, including the need to share access to the EcoPark. The ERF site is tight up against the current EfW operating area.			✓	
	Preparing the ERF work site of underground obstacles and contamination to avoid the EPC contractor having to do additional work (thus delaying completion and increasing cost)			✓	
	The commissioning and hand over of a new operating facility to LEL – the ERF will be operated by LEL concurrently with the existing EfW plant for several months until it reaches agreed capacity and reliability targets			✓	