

# Environmental Impact Assessment



TIPLEX

ARUP



Our population is growing. And growing fast. By 2030 over 70 million people will live in the United Kingdom. Europe's fourth largest country by population, squeezed into Europe's 11th largest country by area.

If we are to embrace this population growth, recognise it as an opportunity not a risk, significant investment in social and economic infrastructure will be essential. Currently, the infrastructure pipeline for the UK stands at a staggering combined £425 billion. And it continues to grow.

As well as high profile projects such as High Speed Two (HS2), Hinkley Point C and Heathrow Airport, the pipeline contains over 600 individual projects across the private and public sectors, each designed to strengthen capability and promote growth.

But at what cost to society and our environment? How do we ensure that development does not undermine our chance at a green and sustainable future?

Environmental Impact Assessment (EIA) responds to the environment balanced against the needs of development.

The expectation to do this is rising, the breadth of work is growing, the process more democratic and the audiences more engaged and varied.

At Arup, we know what works and why. Shaped by our engineering heritage, informed by our diverse skills, and powered by technology, we are working at the forefront of the EIA industry to inform and communicate a clear understanding of the issues and opportunities and to enable the right decisions to be made.

# What is an EIA?

EIA is an important procedure for ensuring that the likely effects of developments on the environment are understood and taken into account in the planning process. EIA must be carried out for certain types of project while in other cases may be necessary if significant effects on the environment are likely.

Arup has a successful track record in undertaking complex and challenging EIAs. We identify and tailor the assessment strategy for each project to meet its specific objectives. We assess all environmental topics in-house, providing an integrated and responsive service for our clients. This approach ensures early identification of significant risks and constraints as well as highlighting opportunities. This allows us to focus resources cost-effectively and efficiently.

We encourage excellent working relationships between our clients and stakeholders to optimise the benefits to all parties through appropriate environmental design and thereby facilitate the planning process. This approach assists post-submission; smoothing the process of discharging conditions and construction operations. The EIA process is likely to continue as the UK transitions out of the European Union.

Our capabilities also include strategic environmental assessment, sustainability appraisal, preliminary environmental appraisal and feasibility studies.



# Supporting you at every stage

## Screening

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Helping you understand where your proposal stands in relation to current regulations. This will help you establish if an EIA is mandatory (called 'Schedule I') or potentially required (termed 'Schedule II'), depending on what is being proposed and the effects on the environment.

## Scoping

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Environmental impact assessments can be complex. Ensuring they are proportionate to the key issues associated with a scheme is critical to reducing risk, and in the end, delivering a successful EIA. This is achieved through scoping.

## Assessment

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Working from baseline evaluations, assessments indicate the likely significant effects of development including direct, indirect, secondary, cumulative, short, medium and long-term, positive and negative effects. This incorporates the following:

- 1 Preventing impact through design, and the mitigation of significant adverse effects.
- 2 Reduces impacts through additional mitigation.
- 3 Offsets effects through compensatory measures.
- 4 Incorporates opportunities for environmental enhancement.

## Documenting the assessment process

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Whether large or small, summarising and then delivering the wealth of information required to assess the impacts of a development or scheme is a key part of the assessment process.

## Supporting the planning submission

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Information reported in the Environmental Statement and supporting documents must be taken into account by decision makers. Communication is essential to informing a clear understanding of the issues affecting a scheme. It is also critical to reduce risks and uncertainty for all stakeholders.



# EIA Toolkit

Arup uses an internal EIA Toolkit to ensure quality and consistency across all assessments that we carry out.

The toolkit comprises a series of practical guidance notes. These have been developed over a period of time and are based on our collective experience of managing a wide range of EIA projects in the UK.

The toolkit provides a number of tools for use by EIA coordinators and assist with matters such as:

- managing scheme information
- developing an assessment strategy
- liaising with legal specialists
- understanding case law and EIAs
- preparing an effective and compliant Environmental Statement and Non-Technical Summary
- programme management



# Defence and National Rehabilitation Centre

Supporting the development of the UK's leading major trauma rehabilitation centre.

2017

Opening in 2017, the new facility will support the rehabilitation of service and civilian personnel in the UK.

146 ha

The estate features 146 hectares of listed parkland, farmland and woodland.

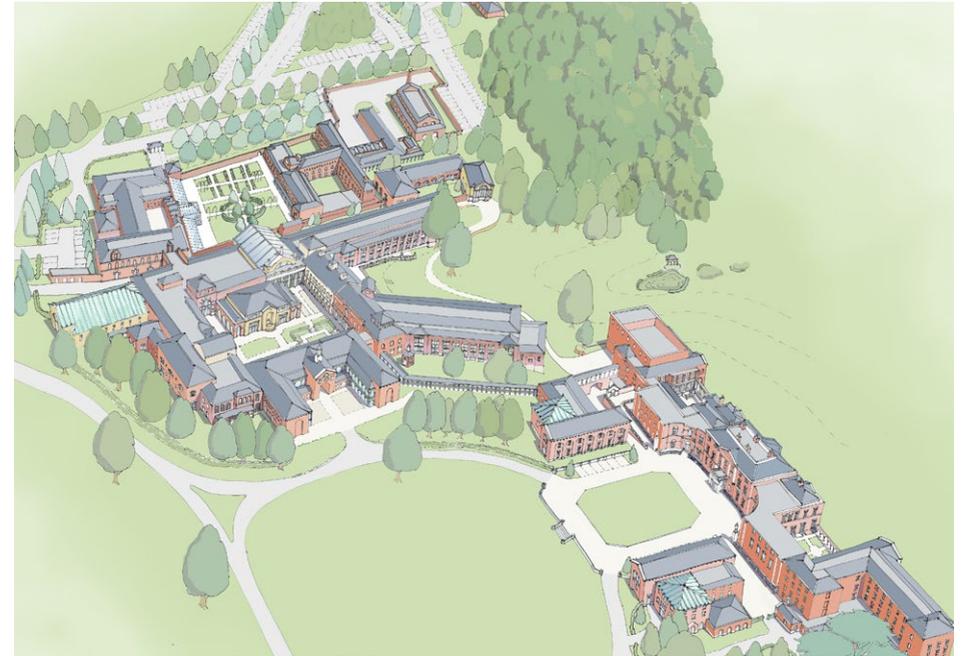
The Defence and National Rehabilitation centre will be the UK's leading clinical rehabilitation facility for those who have suffered major trauma. It will help restore health, provide a better quality of life and help people remain in, or return to work. The estate, which includes a Grade II\* listed hall is also a registered parkland. Arup's EIA team identified and addressed key impacts of the new development along with mitigation measures. A key

14,500m<sup>2</sup>

The facility will offer over 14,500m<sup>2</sup> of accommodation.

consideration was safeguarding the site's wildlife which includes protected species like the great crested newt and globally threatened red list birds.

Following extensive collaboration with stakeholders including Rushcliffe Borough Council, the NHS and Historic England, Arup's work helped the client secure planning permission in 2015.



# Royal Hospital for Sick Children and Department of Clinical Neurosciences

Providing critical care to a generation of young Scots.

36000m<sup>2</sup>

The hospital's new four storey building provides 36,000m<sup>2</sup> of accommodation.

£150m

Construction on the new £150m building began in February 2016.

2018

The hospital building opens in 2018.

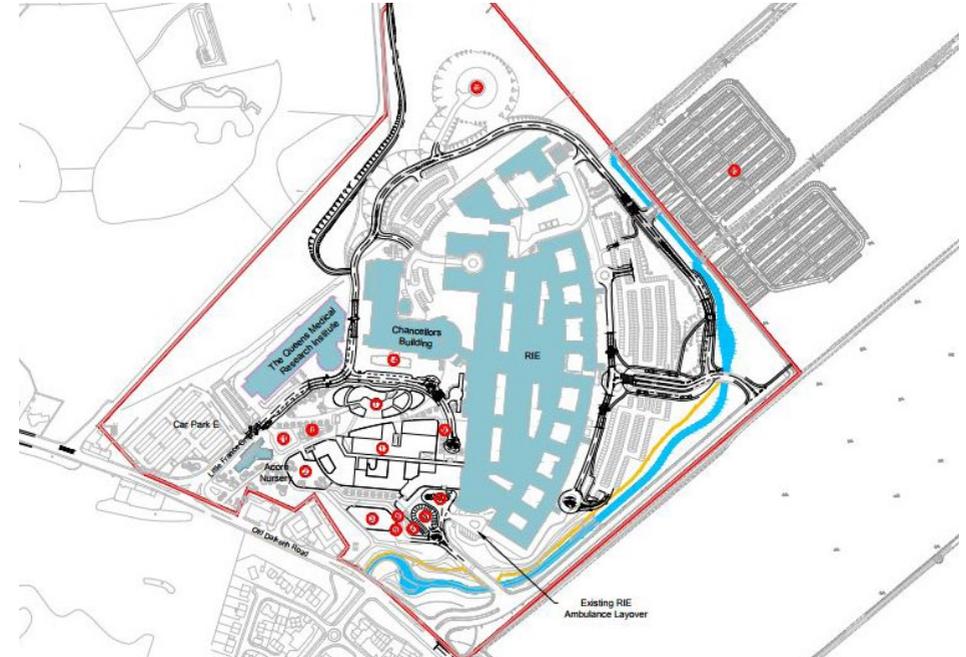
A new purpose built specialist hospital for children as well as a department of clinical neurosciences is critical to ensuring excellent medical care to residents living in the Lothian region and beyond.

Along with the new building, the site features a new energy centre, transportation and access facilities, a new public realm.

With risks associated with flooding and ecology, as well as the proximity of the historic Craigmillar Castle, our EIA team were challenged to keep the EIA

proportional, removing cultural heritage from the scope but fully assessing cultural features as part of the landscape and visual assessment.

Our work successfully helped the client secure planning permission in 2015 with construction underway ahead of a 2018 opening.



# Manchester Proton Beam Therapy Centre

Supporting the delivery of world-class revolutionary cancer treatment in the North West of England.

£250m

The Manchester development is part of the Government's investment of £250m in proton beam therapy.

1 of 2

The centre will be one of only two high energy NHS proton beam therapy centres in the UK.

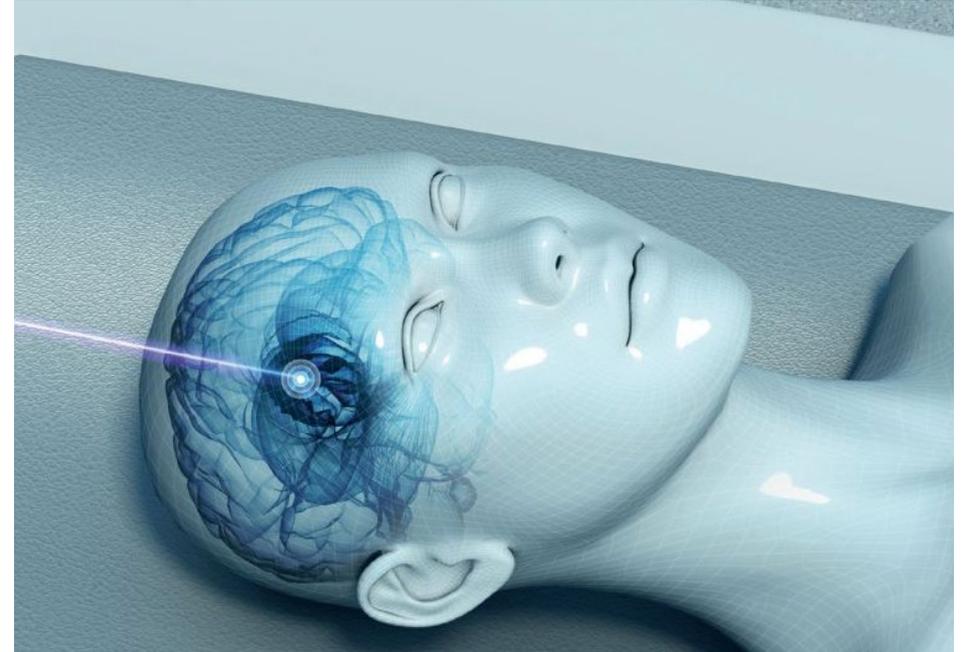
Revolutionary proton beam therapy targets tumours and delivers a highly focussed dose of ionising radiation, potentially sparing surrounding healthy tissue and reducing side effects.

The Manchester facility requires large structures with thick shielding that is used to contain radiation produced in operation. Arup's EIA team supported the challenging planning application that took into account the constraints of the hospital site which is located in a dense residential area.

2018

The centre is due to open in 2018.

Our specialist expertise around radiological effects, noise and vibration was critical in supporting the successful planning application which was accepted by Manchester City Council in 2015. The facility will open in 2018.



# Pinewood Studios

Driving the UK's film industry through world-class facilities.

**£4.6bn**

Film in the UK contributes over £4.6bn to the nations GDP.

**£200m**

A £200m scheme led by Pinewood Studios Ltd and Peel Holdings.

Pinewood Studios is the UK's leading studio facilities. Arup was appointed to undertake the EIA for the reconfiguration and expansion of facilities for screen-based media including film, television and video games. Located in the Colne Valley Park and on green belt land, the project was faced with significant political, planning and environmental sensitivities.

Our EIA team gave a particular focus to scale and massing of the proposed film studio extension supported by landscaping measures to reduce visual impacts.

**2.4ha**

The project features 2.4 hectares of green roofs.

Our team successfully integrated landscape and ecological mitigation and enhancement into the development. This included the early provision of replacement habitat to minimise disturbance to ecology. Outline planning consent was granted in 2014.

“It is hugely gratifying that every aspect of Arup’s work held up under scrutiny [in the Public Inquiry] and cleared the way for the decision to be made on the right issues, the importance of the film industry to the national economy, and Pinewood’s place in that arena.”

Peter Nears, Strategic Planning Director, Peel Holdings PLC



# Cardiff International Sports Village

World class winter sport facilities built on a brownfield site at the heart of the Welsh capital.

£100m

The waterfront regeneration project is worth £100m.

3,000

The two rink ice arena has a capacity of 3,000 seats.

Arup was appointed to undertake the EIA for a planning application for this mixed use development in St David's Bay. The proposal included a two rink Ice Arena, a ski slope and numerous commercial, retail and residential units.

The site, which sits on mudflats reclaimed in the 1800s, was occupied by industrial units but was more recently filled with significant volumes of landfill in the 1980s.

2012

The facilities were used as a training ground as part of the 2012 Olympic Games.

In response to the resulting contamination, Arup's EIA land quality specialists worked with our engineers to develop an environmentally safe design that provided remediation and in-situ containment of contaminants.

Arup helped the client to secure planning permission in 2013. The ice arena opened in 2016, and the scheme is expected to be fully completed by 2018.



# Sky Campus

The sustainable redevelopment of one of the UK's leading state of the art media campuses.

41,000m<sup>2</sup>

The campus has 41,000m<sup>2</sup> of office and studio space.

7,500

The campus is home to 7,500 employees.

Arup has provided environmental services to Sky since 2006 for the comprehensive redevelopment of their campus in west London. This required Sky to demolish existing buildings and construct an award winning state of the art broadcasting centre and media campus.

Our EIA team supported Sky through three iterations of their campus masterplan enabling them to achieve outline planning consent for the site each time. Rather than limit, EIA helped optimise the

60m

The new development includes a 60m wind turbine which provides 133 MWh/year of clean energy to the site.

environmental design of the scheme including the incorporation of an ecological corridor and the attenuation of surface water run-off from the substantial impermeable areas on site.

Arup continues to assist Sky as they progress the project in phases, providing expert advice and support to the engineering and construction teams, as well as supporting the discharge of planning conditions.



# High Speed Two: Phase One London to Birmingham

An engine for growth in the United Kingdom.

## 230km

Arup led the EIA work on the 230km Phase One between London and Birmingham.

## £17.16bn

The target price for Phase One is £17.16bn.

## 2026

Phase One is scheduled to open in 2026.

Arup (collaborating with AECOM) was the lead EIA consultant for the High Speed Two project (Phase 1) responsible for overseeing the assessment of project wide issues and providing the technical leadership and oversight for the four EIA packages covering the railway route between London and the West Midlands.

The highly constrained programme required Arup to work closely with HS2 Ltd and the wider project team. This highly interactive working was achieved through colocation aiding the design process as Arup's environmental specialists worked collaboratively with engineers to produce integrated designs that met environmental requirements within shorter timescales.

Engagement with large numbers of stakeholders regarding environmental issues along the proposed route was

also critical. Arup represented HS2 Ltd providing technical input at community forums, local authority and parish council meetings as well as meetings with major landowners and key businesses to be affected by the proposals. Attendance at these meetings enabled Arup to build relationships with stakeholders as well as understand concerns first hand that informed the EIA.

The High Speed 2 Phase 1 Hybrid Bill has now passed through parliament with Arup leading the provision of supplementary environmental information as required. HS2 have now appointed Arup (in collaboration with ERM) as lead EIA consultant for the High Speed 2 Phase 2a and Phase 2b.

“We have just delivered the largest, most complex bill in history, in record time, to programme and the required quality standards...the complexity, the interactions, the lack of time, the changing priorities, the last minute rushes have all challenged your professionalism and patience. To have achieved so well and still be smiling is just fantastic and a tribute to your character and professionalism.”

Andrew Skidmore, HS2 West Midlands Area Manager



# A8 Belfast to Larne Dual Carriageway

Revolutionising efficiency of the Republic of Ireland – Northern Ireland – Scotland strategic transport corridor.

## 14km

The scheme will upgrade 14km of the existing A8.

## 300,000

tonnes of material has been used in construction.

## 17,000

The road is used by 17,000 vehicles each day.

Arup was commissioned by Transport Northern Ireland to undertake full multidisciplinary design and assessment services for the upgrade of the A8, a strategic transport route.

Using highway specific assessment methods ('WebTAG' and 'DMRB'), Arup's work informed the choice of a preferred route, culminating in the preparation of the Environmental Statement. Our team provided specialist environmental survey services including ecology, noise, geomorphological, landscape and visual and a Water Framework Directive assessment.

Arup helped Transport Northern Ireland establish a project Environmental Liaison Group for engagement with key statutory stakeholders. The forum allowed two-way

engagement with stakeholders and enabled consensus to be reached between different parties and subsequently reducing the risk of objections during consultation.

By integrating the highway design and environmental teams, efficient and workable designs could be integrated into the final scheme. Arup led the scheme through public inquiry, providing objection responses and lead specialist expert witness on environmental matters.

Following a successful public inquiry, Arup continued to provide environmental expertise throughout the construction phase as well as auditing the main contractor's construction environmental management processes on site.

“I wish to take this opportunity to express my appreciation for the excellent work carried out by your team who...have delivered a really excellent piece of work within a very demanding timescale.”

John White, Director for Strategic Programming, Roads Service



# Basingstoke Training and Development Centre

Providing state of the art training facilities for Network Rail's Wessex network.

£48m

The site was developed at a cost of £48m.

220

The campus can train up to 220 people each day.

120m

Features 50m indoor and 120m outdoor track layouts.

We provided planning and environmental services to Network Rail to support the development of a bespoke training facility on a brownfield site adjacent to railway lines and close to Basingstoke station. The campus supports a variety of activity including an operating centre, workforce training facilities and a route office.

Arup's Environmental and Planning teams worked closely to resolve complex planning and environmental issues such as the need for diversion of overhead cables to facilitate

the development of the site. The mitigation of potential ecological effects was a key aspect of the EIA as redevelopment of the site necessitated the loss of the majority of the existing vegetation which supported wildlife. The Basingstoke Campus opened in November 2015.



# London Legacy Development Corporation (LLDC)

Securing a sustainable legacy for east London.

150

The Olympic park is the largest urban park to be built in Europe for 150 years.

25,000

The park has office space for 25,000 workers.

10,000

The park will deliver 10,000 new homes for Londoners.

LLDC are the planning authority for the 560 acre Queen Elizabeth Olympic Park. They advise on development proposals and policy for this area of major sustained regeneration.

This work is informed by the wealth of experience developed by Arup whilst playing a central role in delivering the infrastructure and facilities on the site for the 2012 Olympic Games.

Arup is providing rigorous environmental advice to the LLDC on all aspects of environment assessments across the park through to 2020. Our teams are undertaking a high volume of complex and diverse tasks. These encompass development ranging from residential and commercial through to the new Cultural and Education District and International Quarter projects.

“Arup continue to provide a full range of environmental and site contamination remediation expertise to LLDC Planning Policy and Decisions Team supporting the vision of achieving a sustainable legacy for East London. They work to a high standard, show attention to detail whilst remaining solutions focused and do so within tight timescales. We are delighted with the collaborative way of working with Arup; they have repeatedly exceeded our expectations.”

Anthony Hollingsworth, Director of Planning Policy and Decisions, London Legacy Development Corporation



# Thames Tideway Tunnel

The first substantial upgrade of London’s sewer system since 1865.

## 120 Years

The tunnel will support London’s population growth for the next 120 years.

## £4.2bn

The cost of constructing the 25km tunnel is £4.2bn.

## 2022

Completion is scheduled for 2022.

The Thames Tideway Tunnel will ensure that London’s sewer system is fit to support its projected population for at least the next 100 years. The new tunnel will be the biggest infrastructure project ever undertaken by the UK water industry.

Drawing on previous project experience, Arup prepared bespoke assessment guidance for the EIA team to ensure consistency in the structure and approach. The application for Development Consent Order was submitted in 2013, following which the Arup team supported the client through the examination period. The project was granted development consent in 2014.

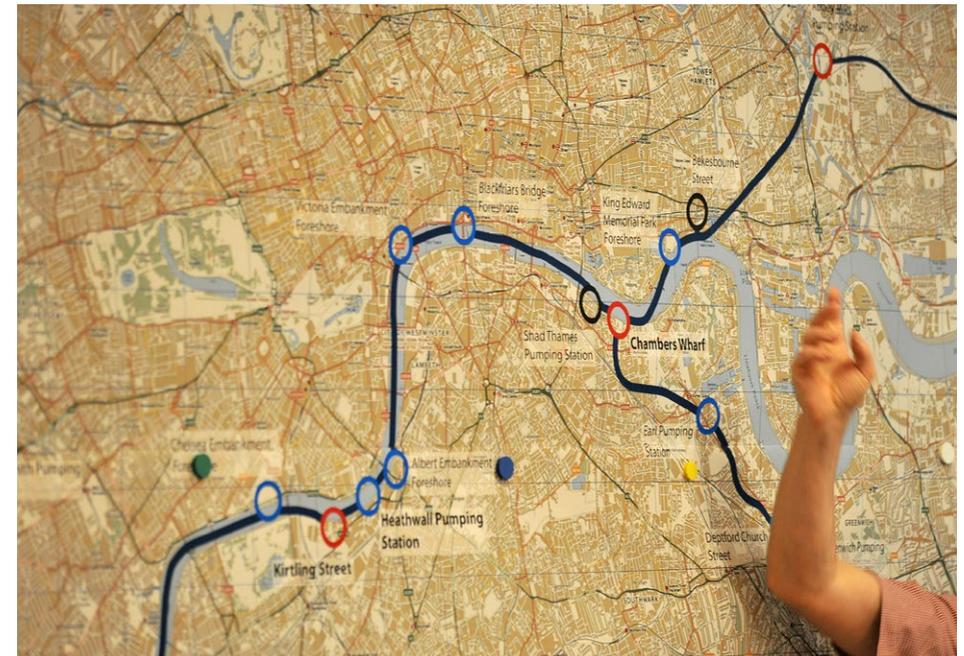
The tunnel is approximately 25km long and requires 24 sites across 14 local planning authorities in London. Arup seconded EIA specialists within the Thames Tideway Tunnel environment team.

Arup is now supporting delivery.

Our secondees have been responsible for managing the environmental specialist inputs to the EIA at all sites across the project to ensure the timely delivery of high quality topic input. Technical assessments for ecology, landscape, noise and vibration, and transport were also undertaken by Arup. Achieving consistency in assessments for 24 sites across 10 topics was complex.

“The seconded Arup staff have been instrumental in the delivery of the EIA for the Thames Tideway Tunnel.”

Suzanne Burgoyne, Environmental Manager, Thames Tideway Tunnel



# North London Heat and Power Project (NLHPP)

Reclaiming energy from north London's waste.

£450m

The project is comprised of a £450m energy recovery facility.

127,000

The facility will generate enough electricity to power around 127,000 homes.

2025

The nationally significant infrastructure project will be complete in 2025.

Arup led the EIA to support the Development Consent Order application for the NLHPP, an Energy Recovery Facility which will replace an existing energy from waste facility in Edmonton that will reach end of life in 2025.

In addition to leading the EIA, Arup undertook technical assessments and played a key role in supporting the project through the statutory consultation process. A Development Consent Order was issued by the Secretary of State in 2017.

The location of the facility above a thick layer of London clay which protects an underlying aquifer was informed by the assessment process. Our environmental design measures were written into the Environmental Commitments and Mitigation Schedule which was a key resource at examination stage.



# Hinkley Point C Connections

Providing increased energy security to homes and business in the United Kingdom.

60km

The project involves the construction of 60km of transmission infrastructure.

400,000

The connection provides a new 400,000 volt connection.

6

Arup worked with six local authorities during the EIA process.

We worked closely with promoter National Grid and a number of local authorities to deliver a robust and compliant EIA enabling the connection of Hinkley Point C into the UK energy grid.

Arup provided a key coordination and independent review role, supporting a joint working group of six local host authorities. This included strategic advice to ensure that the local authorities were fully engaged and influencing the project throughout the pre-application stages and through examination of the Development Consent Order by the Planning Inspectorate.

The project was the first to include the National Grid's new T pylon design. Our landscape and visual design advice, based on test site field analysis and local landscape assessment, was integral to the formulation of the design colour and finish of the T pylons proposed.



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Arup is advising the London Legacy Development Corporation on all aspects of environment assessments up until 2020.

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