Achieving best practice in demolition
Leading the way
Introduction

The High Speed Two (HS2) Demolition Working Group consists of representatives from HS2, our Enabling Works Contract (EWC) joint venture partners, the demolition contractors working on HS2 Phase One EWC, the Institution of Demolition Engineers, and the National Federation of Demolition Contractors (NFDC).

This document explains how the HS2 demolition community will push the boundaries of best practice beyond business as usual and describes approaches that we will adopt on HS2 and use to influence future demolition.

“High Speed Two will be the backbone of Britain's transport network, helping to bridge the north-south divide, freeing up space on congested rail lines and improving reliability for millions of people using Britain's railways.

As Europe's largest infrastructure project, the scale of the programme means that we need to work collaboratively with the UK’s leading demolition companies to develop and deploy best practice. We want to ensure all our work is carried out as safely and effectively as possible. We will encourage innovation and continuous improvement as we strive to reduce demolition risks and the impact on our neighbours, whilst improving the health and wellbeing of our personnel carrying out these works.

In this way, we hope to lead by example and leave a legacy for the industry that will be championed and further developed by major programmes in the future.”

Rob Carr
HS2 Programme Director Phase One – South
Key risks associated with demolition

The Health and Safety Executive has identified nine key risk areas associated with demolition. The working group will concentrate on developing, collecting, and sharing best practice within these areas. More detail for each area is included on the following pages.

We are:
- Using collaborative readiness reviews to identify all major risks during the demolition planning phase and where possible eliminate the risks through design and planning.
- Assuring all controls are in place through the use of a check sheet prior to commencing each phase of demolition.

We will:
- Issue Permits to Demolish for each phase of demolition identified in the readiness reviews.

Reducing the risk from falling materials

We are:
- Where practicable using demolition methodologies which eliminate the need for falling materials.
- Strictly controlling drop zones and demolition sequence/methodology to minimise the risk of falling materials.
- Ensuring that materials cannot fall outside controlled drop zones.

We will:
- Develop technological solutions to the implementation of drop zones and exclusion zones.
- Eliminate the possibility of human error.
- Ensure that nobody enters an ‘Exclusion Zone’.
We are:
- Using a pre-commencement checklist to support the Permits to Demolish.
- Confirming the construction method and structural details of all buildings intended for demolition so far as is required to develop demolition methodologies.

We will:
- Develop a risk based approach to determine the extent to which Demolition Information Modelling (DIM), is required to be used for each demolition project.
- Develop DIM to be utilised alongside Building Information Modelling.
- Demolish buildings virtually to test the methodology and sequence prior to commencing works.
- Continue to use the DIM model to communicate as the works progress.

We are:
- Maintaining positive control of vehicle and pedestrian segregation at our site entrances.

We will:
- Ensure that the needs of vulnerable road users takes precedence and that site traffic imposes minimal impact on all road users.
- Employ easily identifiable Customer Interface Personnel positioned at strategic interfaces to advise and direct the public.

We are:
- Providing all individuals working on HS2 Enabling Works Contracts opportunity to access the occupational health and wellbeing medicals.

We will:
- Develop workforce understanding of the significance of occupational ill health effects caused by exposure to hazardous substances during demolition.
- Use technology to reduce harmful emissions from plant and vehicles.
- Promote the use of sustainable, low harm, re-usable and/or recyclable materials in all new build projects connected with HS2.

We are:
- Utilising methods to eliminate where possible the need for people to work at height.
- Ensuring controls are in place to prevent falls through openings in buildings.

We will:
- Start our planning from the premise that our people will not need to work at height; where they have to, we design out any risk of falling.
- Develop a platform for the demolition community to capture and share best practice around working at height.

Eliminating uncontrolled collapse

Control of traffic and pedestrians

Eliminating the risk from hazardous materials

Eliminate falls from height
Reducing the impact of noise and vibration

We are:
• Exploring all opportunities to use remotely controlled plant and to eradicate the direct operative hand arm vibration transmission and noise exposure.

We will:
• Use wearable monitors to measure our people’s exposure to noise and vibration to confirm the accuracy of predictions.
• Use technology to develop an innovative method of occupational health promotion.
• Use visual monitors to alert personnel when noise is approaching thresholds.

Improving workforce behaviour and engagement

We are:
• Leading by example by using behavioural management to improve workforce engagement.

We will:
• Develop a comprehensive programme for on-boarding our people and for good leadership within HS2.
• Use a detailed scoring and reporting system for performance leading indicators across HS2.
• Simplify technical information and communicate visually.
• Work with the demolition industry to further upskill the workforce engaged on HS2 EWC, particularly new entrants to the industry.

Eliminating the risk from fire

We are:
• Maintaining automatic temporary fire detection systems at all stages of the demolition.

We will:
• Develop a common standard to be adopted by all demolition contractors for wireless fire detection and alarm systems.
• Ensure that best practice emergency response points are deployed.
• Minimise the use of methods requiring naked flames or which create sparks.

Reducing the risk from connected services

We are:
• Complying with PAS 128, the British Standard Institution’s Specification for underground utility detection, verification, and location, for all our works.

We will:
• Ensure that the principle of full disconnection/isolation of services is incorporated into all planning before commencing demolition operations.
We will:

• Share lessons learnt and best practice from early HS2 demolition projects and the wider industry.
• Work with the Institute of Demolition Engineers (IDE) and the National Federation of demolition Contractors to incorporate our learning into best practice documentation and future revisions of the Code of Practice for full and partial demolition, BS6187.
• Produce further documentation and other deliverables to share our learning with both HS2 Phase 2 and the wider demolition industry.
• Disseminate our experiences to the designers working on the new HS2 buildings and structures to incorporate best practice to ensure that the new buildings designed can be safely demolished in the future.
• Work with academic institutions to incorporate our learning into relevant courses.