

HS2

eTool – Step-by-Step

Lisa Ithurralde – Sustainability Specialist

HS2

Development & Guidance

Process

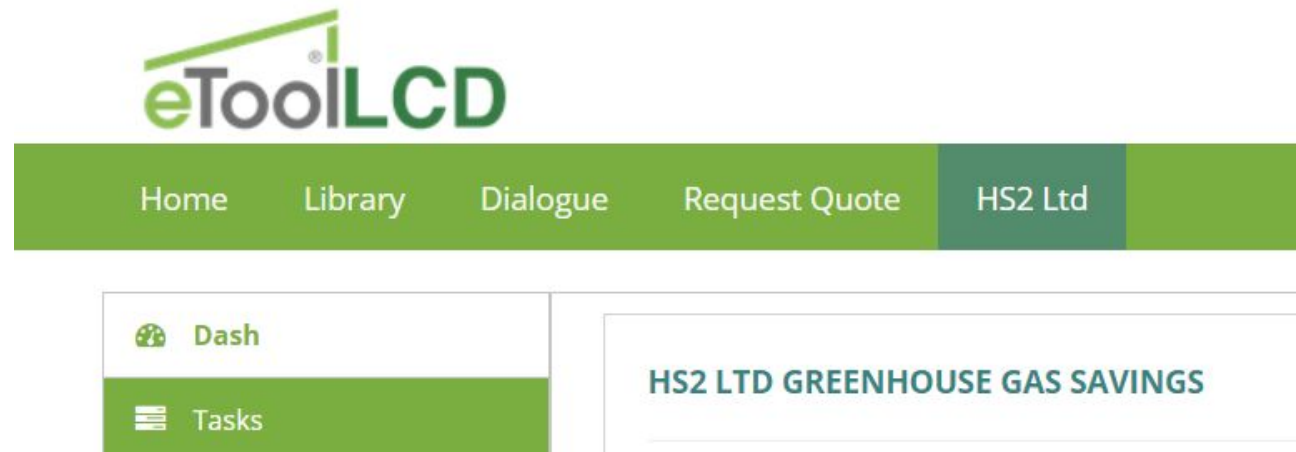
- Getting Set Up
 - Login in details & HS2 domain
 - Project Setup and Access
- Design Versions
- Assurance Activities
- Linking model to Asset Numbers
- Adding & Editing Templates
- Adding & Editing EPDs
- Recommendations – recording design changes
- Bulk Upload
- Reports – deliverable outputs



Getting Started

<https://etoollcd.com/>

- HS2 LCA Leads – Lisa Ithurralde & Mark Fenton – contacted by etool@hs2.org.uk
- Click on the above link, go to login and create your account, select the free read only option.
- Then inform HS2 LCA Lead and email ITetoolenquiries@hs2.org.uk which will raise a work order to create your access.



Access Project

Go to the HS2 space – top of the page



To the right is the phase specific space

Your projects will be in the relevant phase areas.

HS2 LTD PROJECTS

Include Archive

+

=

+ New Project

			State
		Innovation Location	England
		Phase 2b	England
		Phase 2a	England
		Test Location	England
		Phase 1	England

If you cannot access or see the design, contact your phase LCA lead to arrange access or set up.

Collaborators

- Each contract space has a list of registered users
- Collaborator access – LCA practitioners who will be updating the data
- Read-Only – viewing rights but no data access

Structure Info	Construction Scope	Energy and Water Scope	Quality Checks	Collaborators
Search... Q Search				
Name		Types		
Lisa Ithurralde		Lead ▾		
George Vergoulas		Not Involved ▾		
Andy Whiting		Not Involved ▾		
Steven Ross		Not Involved ▾		
James Langstraat		Not Involved ▾		
Michael Bentham		Not Involved ▾		

Access Rights

There are three levels of licenced access to the HS2 domain – Read-Only, Enterprise and Specialist.

Read-Only – view the project and carrying out high level assurance activities – you cannot change the data.

Enterprise – full access and the ability to carryout 20 actions a month – for updates and minor changes to assessments.

Specialist – full access and unlimited activity.

Your licence level will change depending on your access needs at any given time – please inform the ID team when you plan to undertake updates and we will ensure you have the appropriate licence assigned for the duration.



Project Space

Within the phase space is the project areas and the versions of designs displayed as below

Test Location

Action

Include Archive

New Structure

Structures and Designs	Functional Unit	Design Life
Test 1		
Baseline Test 1	Absolute(No Functional Unit)	120
Design Option 1	Absolute(No Functional Unit)	120
Design Option 2	Absolute(No Functional Unit)	120
Design Option 3	Absolute(No Functional Unit)	120

Phase 1

Action

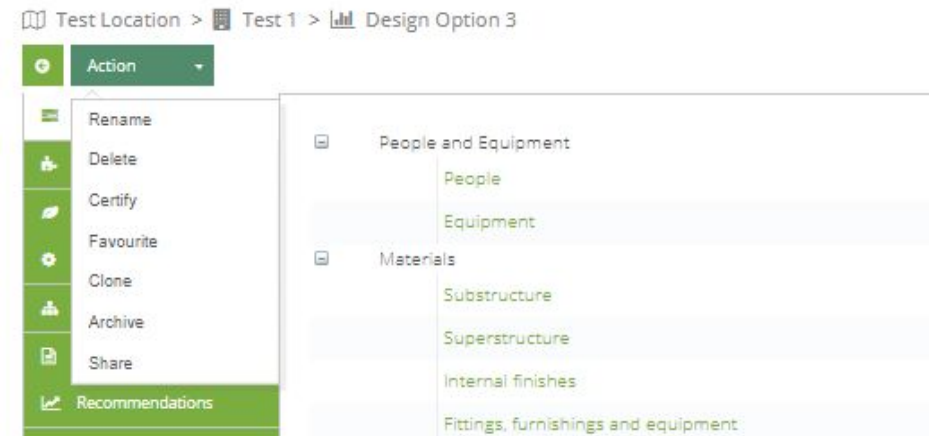
Include Archive

New Structure

Structures and Designs	Functional Unit	Design Life
Phase 1 Railway Systems - Package 1 - Track		
LCA Baseline	Absolute(No Functional Unit)	120
Phase 1 Railway System - Package 1 - OCS		
LCA Baseline	Absolute(No Functional Unit)	120

Creating New Design Level

- Baseline Designs will be created by HS2 during project set up
- To create the next version of the design, select the latest design, within the design space select the action tab on the left hand, select Clone.
- Enter name – Design Option 1, 2, 3-etc. or As-built if this is the final design.
- Leave 'current structure' selected
- Purpose – Select for relevant design level.
 - LCA Baseline – LCA Proposed
 - Design Options - LCA Improved (multiple versions are expected)
 - As-Built – LCA As Built



New Design Level Details – do not change

Design Name – add **LCA Baseline, Design Option 1->, As-built** depending on design phase

Purpose – Select for relevant design level. **LCA Baseline – LCA Proposed, Design Options - LCA Improved** (multiple versions are expected), **As-Built – LCA As Built**

Benchmark – blank, there is no industry average for high speed rail currently.

Stories or levels – retain **1** story for all design features unless feature is for a station or assert that is greater than 1 story. – this has no effect on the infrastructure elements

Commissioning Date (Start of Life) – Align with current program date

Decommissioning Date (End of Life – 120y after start of life date

Energy Monitoring Adjustment Factor – **100%**, leave as 100 unless modelling a LCA Improved alternative that has a recognised % improvement in energy consumption, then reduce – e.g. 10% saving reduce due to changes the number should be 90. This allows for quick comparison of design alternatives.

Design Quality – select **very high** – this sets the standard service life of the design

Ownership – select **one owner** – HS2

Structural Service Life Limit – in years – **120y**

Suburb Redevelopment Potential – select **Very Low**

Predicted Service Life – **120y** study period of the LCA assessment

Categories Tab



[Home](#) [Library](#) [Dialogue](#) [Request Quote](#) [HS2 Ltd](#)

[Projects](#) [Reports](#)

Test Location > Test 1 > Design Option 3

Action

Categories

Templates

EPDs

Details

Functions

Reports

Recommendations

EN 15978

Alerts

Docs

Quality Checks

Scale Costs

Import

Collapse Tabs

		GWP (kg CO2 eq)	
People and Equipment			
People	11,402,920		Edit
Equipment	4,918,002		Edit
Materials			
Substructure	139,557,670		Edit
Superstructure	45,693,635		Edit
Internal finishes	1,145,785,488		Edit
Fittings, furnishings and equipment	13,685		Edit
Services equipment	67,399		Edit
Prefabricated buildings and building units	0		Edit
Work to existing building	0		Edit
External works	1,450		Edit
Facilitating works	0		Edit
Project/design team	0		Edit
Undefined	0		Edit
Energy and Water			
Operational Energy	62,192		Edit
Water Use	0		Edit
Total	1,347,502,442		

Categories Tab

Select Edit for the section of the design to be updated.

Materials			
Substructure	306,087		Edit
Superstructure	597,733		Edit
Internal finishes	0		Edit

Then select Edit for the template to be updated and make required change.

+ Add Template

+ Add Superstructure

Category	Description	Quantity	Product Life	GWP(kg CO2 eq)		
Concrete Reinforced 1.0% Reinforcement by mass Blast Furnace Slag Blends 20 MPa 40% BFS Industry Average						
Frame	Support beam	400 m3	120 yrs	197,766	Edit	✕
Concrete column structural, 50Mpa, 4% reo by volume					Edit Custom Template	
Formwork - Walls (in-situ concrete)					Edit Custom Template	
Timber Softwood Industry Average						
External enclosing walls above ground level	Formwork timber	400 #	150 yrs	20,180	Edit	✕



Category Selection Breakdown

When entering data to the model select the recommended category.

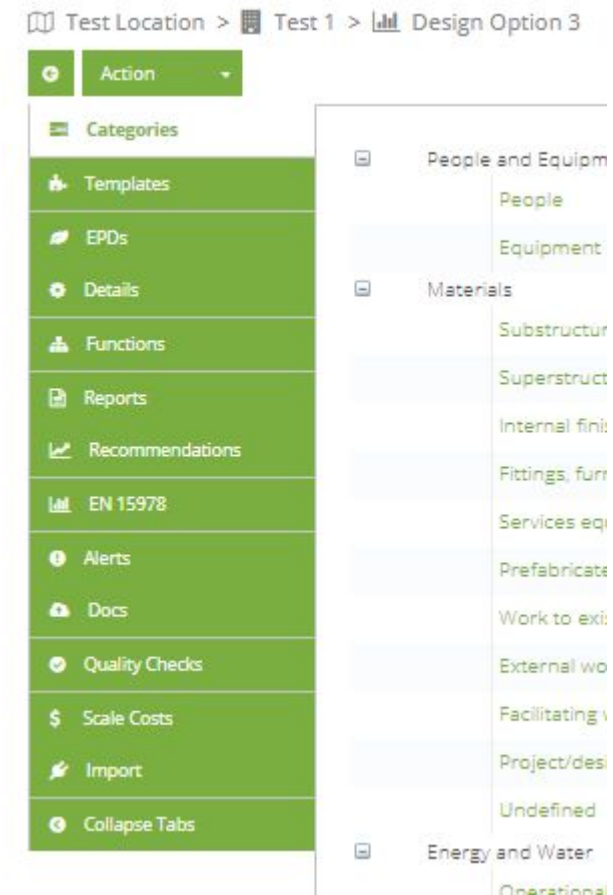
Categories	Applicable Assets
Substructure	Below ground structures and foundations. MWCCs assets. Culvert/Underpass, underbridge, cutting, embankment, drainage, highway features, underground structures, depot, workshops, station structures.
Superstructure	Above ground structures and infrastructure. MWCCs assets. Footbridge, over bridge, viaduct, retaining wall, platforms, track, signalling, telecommunication, traction power, fences and walls, depot, workshops, station structures.
Internal Finishes	Depot, workshops, station structures. Building Specific
Fittings, Furnishing and Equipment	Depot, workshops, station structures. Building Specific
Service Equipment	Depot, workshops, station structures. Rolling Stock.

Categories	Applicable Assets
Prefabrication building and building units	Depot, workshops, station structures. Building Specific
Work to existing building	Depot, workshops, station structures. Building Specific
External Works	Depot, workshops, station structures. Building Specific
Facilitating Works	Enabling works. Temporary earthworks, mitigating earthworks, remediation earthworks
Project/Design Team	Modelling energy and time used by the design elements of the project.
Undefined	If unclear about appropriate category, select undefined and bring the issue to the peer working group.

Navigation Tabs

Each tab takes you to a different function of the tool.

Templates and EPDs list all library items that are currently applied to the tool – making up the model



Functions = HS2 Asset Number

Main asset numbers should be provided by HS2 at function level at or soon after project set up.

Assets currently in the project can be reviewed by selecting the Function tab to the left of the screen.

Users can add assets to the functions as to the main structure as needed in line with guidance note.

Edit the function by clicking on the green pen.

Functions

+ New Function

Building Function	Description	Functional Unit	Time Frame	Actions
Urban Long Distance Rail Station	Euston station	Absolute(No Functional Unit)	No Time Scale	  

Name

Euston station

Space Type

Usable Area

Unique Asset ID

123456

Characteristics:

Occupants

0 #

Work Stations

0 #

Annual Operating Hours

0 hrs

Life Cycle Occupant Hours

0 hrs

Annual Passenger Throughput

0 #

Life Cycle Passenger Throughput

0 #

Annual Freight Throughput

0 t

Life Cycle Freight Throughput

0 t

Life Cycle Workload Units

0 #

Floor Areas:

Usable Floor Area

10000 m2

Fully Enclosed Covered Area

7000 m2

Unenclosed Covered Area

0 m2

Gross Floor Area

7000 m2

Services:

	Treated Area (m2)	Thermal Demand (MJ/m2/Annum)	Average Run Time (hrs/year)	Lux (lx)
Cooling	1000 m2	0 MJ / m2		
Heating	1000 m2	0 MJ / m2		
Mechanical Ventilation				
Lighting	0 m2		0 hrs / year	0 lx

Functional Unit:

Function

Absolute(No Functional Unit)

Time Frame

No Time Scale



Docs

Into this space any documentation relating to the design can be stored and used to evidence the model for verification purposes

- Designs
- EPDs
- Reports
- Scope documents
- Etc.

Upon submittal the date of upload or creation and the organisation or author should be included.

Attach Design Documents

Type

Reference Type

Attachment

Drop files here or click to upload

Title

Enter Title here

Date

Month

Year

Authors

☐ Organization?

First Name

Last Name

+

Cancel

Save

Library – Templates, EPDs and Recommendations

This contains the pre-existing templates, EPDs and recommendation suggestions used to calculate the projects LCA assessment.



2  Lisa Ithurralde

HomeLibraryDialogueRequest QuoteHS2 Ltd

HelpSign out

TemplatesEPDBenchmarksRecommendationsReferences

Templates



AllTitle

☐ Show Archived Templates

+ New Template

Action	Template Name	LciGroup	LciSource	Category	Quantity	Unit	Public	Archived	Shared
 	 Ceiling lining mineral wool factory finished tile 	BRE IMPACT	BRE IMPACT EN15804 Version 5	Internal finishes	1	m2	Yes	No	No
 	 Foundation rigid insulation board XPS 150mm (m2) 	BRE IMPACT	BRE IMPACT EN15804 Version 5	Superstructure	1	m2	Yes	No	No
 	 Internal wall framing steel stud metal framing (metsec 70...	BRE IMPACT	BRE IMPACT EN15804 Version 5	Internal finishes	1	m2	Yes	No	No

+Add Existing Template

- Category - Select category from drop down list, most assets will be substructure or superstructure although others will be applicable.
- Use the Search Template Name to find an appropriate template
- Click validated templates – use these as a preference, unless none available or searching for HS2 specific data set.
- Design Function - Select relevant asset number from the list, you can add additional functions as needed.
- Design Template Quantity - Input amount – hover over final box to see template metric and add appropriate amount – m3/m2/kg

The screenshot shows the 'Add Template' dialog box with the following fields and options:

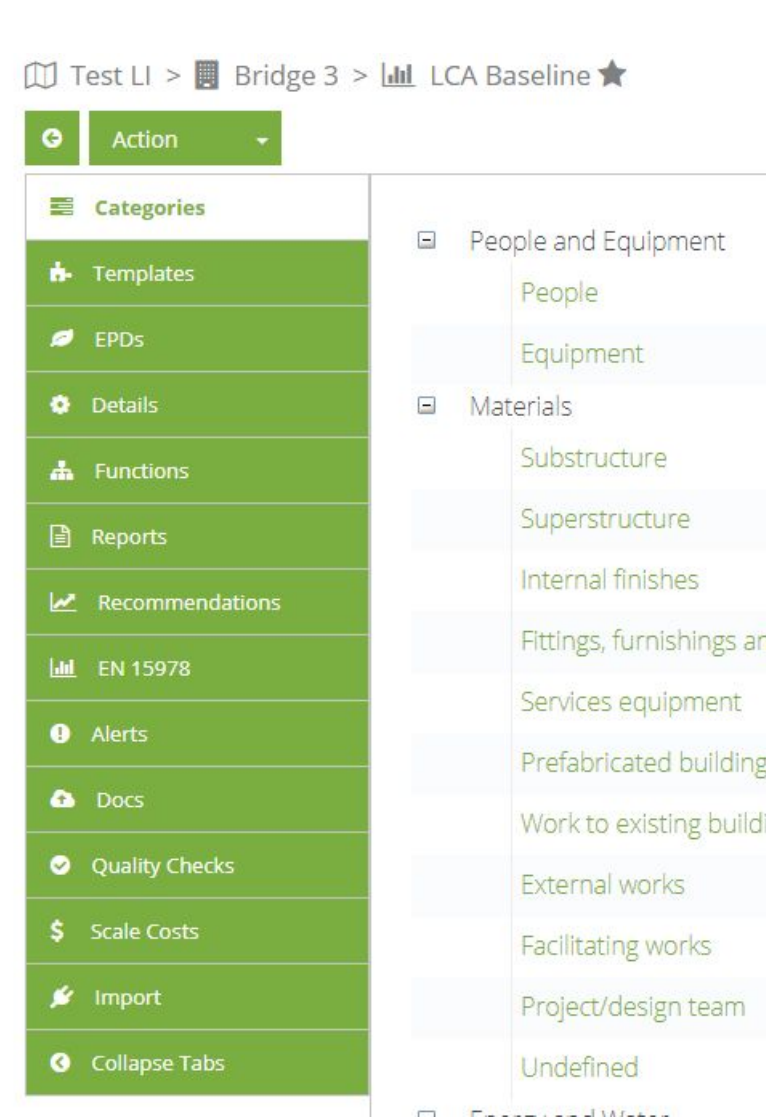
- Category:** A dropdown menu labeled 'Select Category'.
- Search Template Name:** A text input field with a 'New Template' link to its right.
- Validated templates only?:** A checkbox that is currently unchecked.
- Choose Template:** A list box containing the following items:
 - (LCA) Generic Operational - lighting & HVAC (incl
 - (LCA) Office - Operational (incl embodied)
 - (TS) BCA Compliant Common Area Lighting for
 - (TS) Car Park basement above ground (op and emb
 - (TS) Car park basement below ground residential
 - (TS) Car park basement below ground, NABERS 3.5
 - (TS) Car park basement below ground, Residential
 - (TS) Child Care Centre - Embodied
 - (TS) Generic Operational - lighting & HVAC
- Design Function:** A dropdown menu labeled 'Select Function Type' with 'Test 1' selected. Other visible options include: Rural Long Distance Rail Station, Urban Long Distance Rail Station, High Speed Railway, Misc Railway Facility, Culvert, and LIAT test MF.
- New Element Name:** A text input field.
- Design Template Quantity:** A text input field.
- Buttons:** 'Save & Add Another' and a green 'Save' button.
- Bottom Section:** A table with four rows, each starting with a '0' in a small box, followed by a larger input field.

Editing LCA Model

There are several ways to edit the LCA model once created.

Select relevant tab along the left hand side menu.

This is for minor changes and updates – for materials to be used repetitively create a new templates



Edits Existing Templates in the Design

Design Function – Select appropriate function

Material Quantity – Change volume/weight

Construction Waste Factor – leave as standard until as built when accurate % should be input.

Lost or Damaged in Transport - leave as standard until as built when accurate % should be input.

Material life – set to 120 years unless less.

Maintenance or Repair Intervals – number of years

Maintenance Quantity - % of original construction required at each maintenance events.

Update disposal method and transport figures as appropriate.

Edit Material

Category

External enclosing walls above ground level

Material (☒ show all)

Industry Average

Density

2423

Description

Poured Concrete Wall

Design Function

Bridge at chainage 123123

Material Quantity

400

m3

Application Description

Construction Waste Factor

10 %

Lost or Damaged in Transport

0.5 %

Material Life

150 years

Maintenance or Repair Interval

Maintenance Quantity

Disposal or Recovery Method

Inert Waste Landfill

Transport Detail

New Product Transport to Site

☒ Material Default

☐ Manual Locations

☐ Manual Distances

Transport ModeDistance (km)

Rigid truck50.00

End of Life Disposal Transport from Site

Save

Templates/Nested Templates Tab

This sections provides a list of templates being utilised for your design,

By selecting the template title the details behind each template can be accessed.

Within this section select the details tab on the left menu to evaluate the assumptions behind the template for appropriateness.

Template		Unit	Quantity		GWP (kg CO2 eq)			
☰	Concrete column structural, 50Mpa, 4% reo by volume	m3	400	400,123			Edit	
☰	Poured Concrete - foundations 40MPa, 40%BFS	m3	500	244,471			Edit	
	Other			268,130				
	Total			912,724				

Nesting Template Effect

Templates are either base elements or developed where the individual template is the product of multiple template.

For example a brick walls nesting templates would contain

- Bricks
- Mortar
- Trade people
- Equipment used
- Etc.

Concrete Floor, 225mm slab. 40MPa. 2% Reinforcment

Action

This template is locked. Feel free to clone this template to run your own scenario.

Categories

Nested Templates

EPDs

Details

Alerts

Scale Costs

Collapse Tabs

Template	Unit	Quantity
Poured Concrete 40MPa - floors (substructure)	m3	0.225
Formwork - Floors (substructure)	m3 concrete	0.225
Reinforcement Bar 9.5mm floors	m of 9.5mm steel bar (0.56kg)	63
Other		0
Total		

+Add New Templates

Either select an existing template and clone the template, then rename and change the nested template aspects to meet the design needs.

Or select +New Template and create a new template from scratch – detailed background LCA data or material composition will be required for this.

Use Naming convention detailed in guidance document for all new templates

Templates										
Search...		All	Title	☐ Show Archived Templates + New Template						
Action	Template Name	LciGroup	LciSource	Category	Quantity	Unit	Public	Archived		
Edit Delete	+ (LCA) Generic Operational - lighting & HVAC (incl embodied)	eTool Default	Australasian LCI V10.2	Services equipment	100	m2 of floor area	Yes	No		
Edit Delete	+ (LCA) Office - Operational (incl embodied)	eTool Default	Australasian LCI V10.2	Services equipment	100	m2 of floor area	Yes	No		
Edit Delete	+ (TS) BCA Compliant Common Area Lighting for Residential Building	eTool Default	Australasian LCI V10.2	Services equipment	1200	m2	Yes	No		
Edit Delete	+ (TS) Car Park basement above ground (op and emb nat vent)	eTool Default	Australasian LCI V10.2	Substructure	1600	m2 of space	Yes	No		

Activity 1

Adding a template to a design

- Go to superstructure
- Select + New Template
- Search for 215mm Concrete Block and add 200m2 to the design

Adding a new template

- Go to template library
- Select +New Template, select etool default as LCI source
- Use the naming convention in table 4 of the guidance note – Pre-cast slab track (Open Route)
- Select appropriate Category – see slide 15
- LCI source – United Kingdom
- Library template Quantity – 1
- Unit – km
- Select appropriate templates and volumes to create 1 km of the pre-cast slab track (open route) from the example sheet provided.
- The add 365km of slab track to the design using the add template to design method

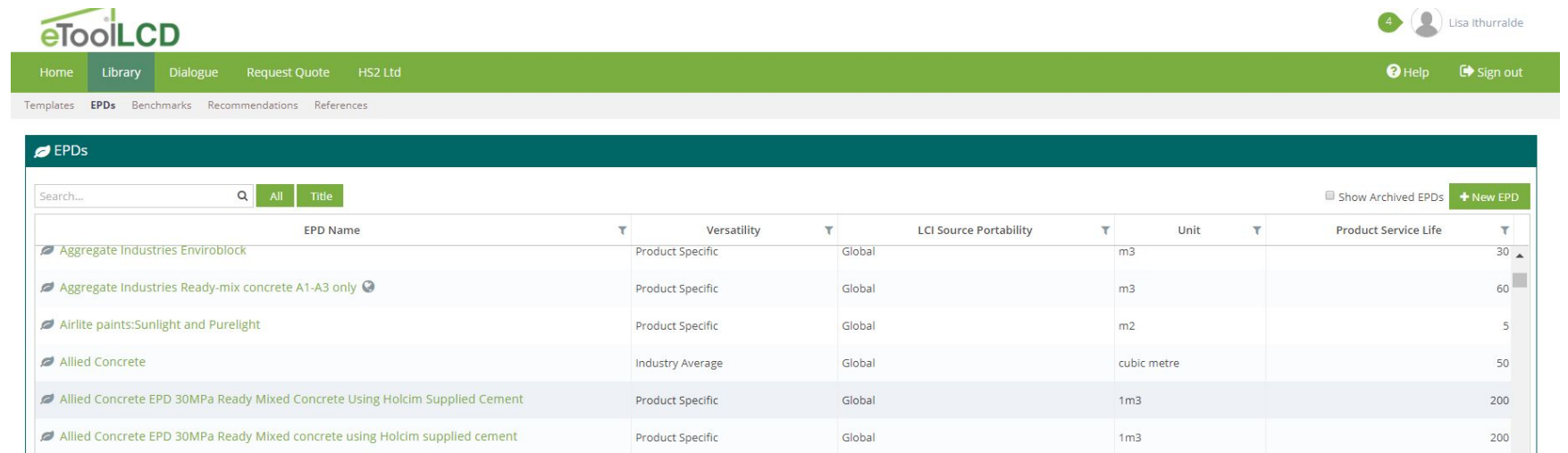
Clone an existing template and edit its properties

- Go to template library
- Search for Concrete Floor, 225mm slab. 40MPa. 2% Reinforcement
- Select template
- Select Action and Clone from the drop down list.
- Select clone master and all nested templates as new templates
- Rename using naming convention in table 4 of the guidance note – HS2-HS2-Concrete Floor, 450mm slab. 40MPa. 4% Reinforcement
- Go to nested templates – edit the concrete and formwork to double the volume to 450mm, edit reinforcement to 4x original value.
- Then add 100m2 of the new template to design using the add template to design method

Library - EPDs

This contains the pre-existing EPDs used to calculate the projects LCA assessment.
Globe Icon – available to all

Versatility – product specific or industry average – do not use industry average unless the product does not have a specific EPD and there is no compatible template available or buildable.



The screenshot shows the eToolLCD web application interface. At the top, there is a green navigation bar with links for Home, Library, Dialogue, Request Quote, and HS2 Ltd. On the right of this bar, there is a user profile for Lisa Iturralde and links for Help and Sign out. Below the navigation bar is a sub-header for EPDs with links for Templates, EPDs, Benchmarks, Recommendations, and References. The main content area is titled 'EPDs' and features a search bar, filters for 'All' and 'Title', and a 'Show Archived EPDs' checkbox. A '+ New EPD' button is also present. The table below lists various EPDs with columns for EPD Name, Versatility, LCI Source Portability, Unit, and Product Service Life.

EPD Name	Versatility	LCI Source Portability	Unit	Product Service Life
Aggregate Industries Enviroblock	Product Specific	Global	m3	30
Aggregate Industries Ready-mix concrete A1-A3 only	Product Specific	Global	m3	60
Airlite paints:Sunlight and Purelight	Product Specific	Global	m2	5
Allied Concrete	Industry Average	Global	cubic metre	50
Allied Concrete EPD 30MPa Ready Mixed Concrete Using Holcim Supplied Cement	Product Specific	Global	1m3	200
Allied Concrete EPD 30MPa Ready Mixed concrete using Holcim supplied cement	Product Specific	Global	1m3	200

EPD = HS2 requirements

Select the globally available EPD and review the Impacts for compliance with the list.

There should be scoring for all the listed impacts

It is acceptable for product specific EPDs that are actually being used onsite not to meet all requirements, but industry average EPDs should only be used if all impacts are compliant.

- Global Warming Potential (kg CO2e)
- Ozone Depletion Potential; ODP (kg CFC 11e)
- Acidification Potential for Soil and Water; AP (kgSO2-e)
- Eutrophication Potential; EP (kg (PO4)3-e)
- Photochemical Ozone Creation; POCP(kg C2H4e)
- Abiotic Depletion Potential – Elements; ADPE (kg Sbe)
- Abiotic Depletion Potential – Fossil Fuels; ADPF (MJe)
- Net use of fresh water; FW (m3)
- Hazardous waste disposed; HWD
- Non-hazardous waste disposed; NHWD (kg)
- Radioactive waste disposed (high-level nuclear waste); RWD (kg)

Tarmac Asphalt

This epd is locked. Feel free to clone this epd to run your own scenario.

	A1-A3	A4	A5
Global Warming Potential, GWP(kg CO2 eq)	84%	8%	7%
Embodied Energy(MJ NCV)	0%	0%	0%
Australian Dollars(AUD)	0%	0%	0%
Water Footprint(m3 deprived)	0%	0%	0%
Land Use(m2.year arable)	0%	0%	0%
Ozone Depletion Potential, ODP(kg CFC-11 eq)	96%	4%	0%
Acidification Potential for Soil and Water, AP(kg SO2 eq.)	86%	4%	10%
Human Toxicity Potential(uDALY)	0%	0%	0%
Eutrophication potential, EP(kg PO4--- eq)	86%	4%	10%

+Add Existing EPD to design

In design select +Add EPD

Search EPD Name – add key words to search existing EPDs

Choose EPD – this will bring up the summary information about is covered by the EPD. (globe beside the EPD shows they are available to all)

Design Function - Select relevant asset number.

Category - Select category from drop down list, most assets will be substructure or superstructure although others will be applicable.

Quantity - Input amount – hover over final box to see template metric – m3/m2/kg

Add EPD

Search EPD Name

[New EPD](#)

Choose EPD

Carbon Steel Reinforcing Bar (secondary production)

TATA Steel Structural Hollow Sections

EPD based on industry average data gathered from 17 manufacturers in the UK

This is a Trade Association EPD, a declaration of an average product originating from several plants of several manufacturers. Production data has been supplied by 17 clients of UK CARES. Data Quality: Background data are consistently sourced from PE databases. All these datasets are less than 5 years old. The primary data collection was thorough, considering all relevant mass and energy input and output flows and these data have been verified by UK CARES. Allocation: EAF slag and mill scale are produced as a co-products from the steel manufacturing process; with mill scale also a by-product at the rolling mill. Impacts are allocated between the steel, the slag and the mill scale based on economic allocations. Production losses of steel during the production process are recycled in a closed loop offsetting the requirement for external scrap.

Design Function

Category

New EPD Name

Quantity

✓

Save & Add Another

Save

EPDs Tab

This section provides a list of environmental product declarations being utilised for your design,

By selecting the EPDs title the details behind each template can be accessed.

Within this section select the details tab on the left menu to evaluate the assumptions behind the EPD for appropriateness.

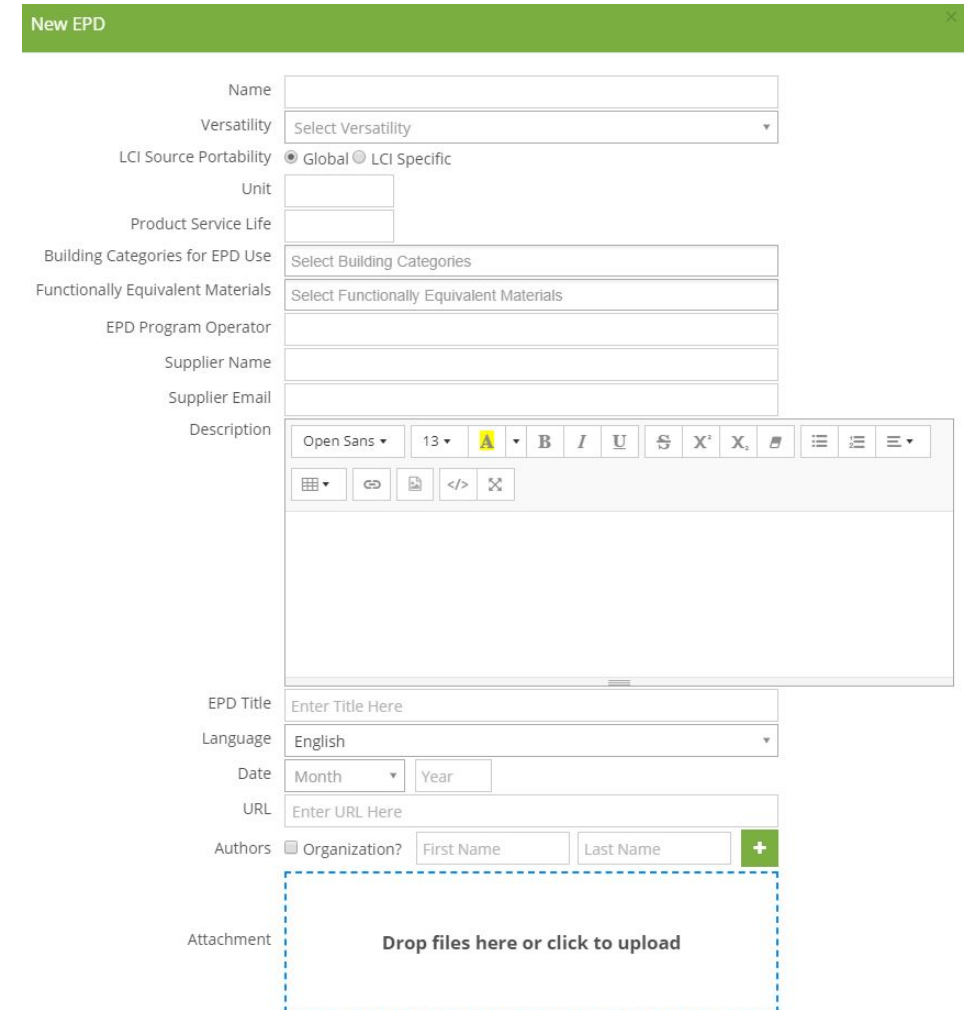
		GWP (kg CO2 eq)			
	Carbon Steel Reinforcing Bar (secondary production route – scrap), UK Sector Average (Cares)	66,671		Edit	
	Other	846,053			
	Total	912,724			

+Add New EPDs

New EPDs that you wish to upload should be 3rd party verified EPDs documentation.

See guidance document for further details.

Once submitted they will then be verified by the etool team to ensure data has been correctly inputted.



The screenshot shows a web form titled "New EPD" with a green header bar. The form contains the following fields and controls:

- Name:** A text input field.
- Versatility:** A dropdown menu with "Select Versatility" as the placeholder.
- LCI Source Portability:** Radio buttons for "Global" (selected) and "LCI Specific".
- Unit:** A text input field.
- Product Service Life:** A text input field.
- Building Categories for EPD Use:** A dropdown menu with "Select Building Categories" as the placeholder.
- Functionally Equivalent Materials:** A dropdown menu with "Select Functionally Equivalent Materials" as the placeholder.
- EPD Program Operator:** A text input field.
- Supplier Name:** A text input field.
- Supplier Email:** A text input field.
- Description:** A rich text editor with a toolbar containing options for font face (Open Sans), size (13), bold (B), italic (I), underline (U), strikethrough (ABC), subscript (x²), superscript (x₂), link, unlink, bulleted list, numbered list, and indent. Below the toolbar is a large text area for the description.
- EPD Title:** A text input field with placeholder text "Enter Title Here".
- Language:** A dropdown menu with "English" as the selected option.
- Date:** Two separate dropdown menus for "Month" and "Year".
- URL:** A text input field with placeholder text "Enter URL Here".
- Authors:** A section with a checkbox for "Organization?", and two text input fields for "First Name" and "Last Name", followed by a green "+" button.
- Attachment:** A dashed blue box containing the text "Drop files here or click to upload".

New EPDs - Details

Name – **product name** as listed on the EPD document

Versatility – **Product Specific** or **Industry Average**

LCI Source Portability – **global**

Unit – m3/tonne/m/km/etc.

Product Service Life – in years - until replacement or major maintenance required.

Building Category for EPD use – mostly, **high speed rail** or **station** – see guidance document

Functionally Equivalent Material – **ignore** unless known

Suppliers Name – **Product Manufacture**

Suppliers email – if available

Description – as summarised in the EPD

EPD Title- **product name** as listed on the EPD document

Date – **EPD assured/produced**

URL – if available

Author – **name** or **organisation** – will be listed within the EPD – remember to click the + button

Attachment – drag and drop **EPD document**



New EPDs - Impacts

Align EPD Impacts and add the totals to the relevant impacts.

Most EDPs will not cover all, submit everything that is assessed.

Once complete – click save

KONE MonoSpace 500 Action

Impacts

Details

Save

Cancel

	A1-A3	A4	A5	B1	B2-B3
Global Warming Potential, GWP(kg CO2 eq)	6743.46	663	179	3440	273
Embodied Energy(MJ NCV)					
Australian Dollars(AUD)					
Water Footprint(m3 deprived)					
Land Use(m2/year arable)					
Ozone Depletion Potential, ODP(kg CFC-11 eq)					
Acidification Potential for Soil and Water, AP(kg SO2 eq.)	142.2	2.7	60	6.4	90
Human Toxicity Potential(uDALY)					
Eutrophication potential, EP(kg PO4--- eq)	71	70	20	2.5	30
Abiotic Resource Depletion Minerals And Energy(kgSbe)					
Photochemical Ozone Creation Potential, POCP(kg ethylene)	903.46	14	400	33	700
Ionizing Radiation (DA) (SvID)					

Activity 2

Add existing EPD to model – does it meet HS2 requirements

- Go to EPD library
- Search for Tarmac Asphalt
- Select and review impacts for compliance with HS2 requirements
- Return to EPD library – select another EPD with a globe beside it and review impacts for HS2 compliance
- Return to Design, select +New EPD, search for Tarmac Asphalt and add an estimated amount for an access road.

Add new EPD to library

- Go to EPD library, select +New EPD
- Use EPD provided to complete the EPD input and upload



Library - Recommendations

This contains the pre-existing examples of recommended LCA reduction activities.

Globe Icon – available to all

Improvement Category – What aspect of the LCA model is effected by the recommended change

eToolLCD

HomeLibraryDialogueRequest QuoteHS2 Ltd

HelpSign out

TemplatesEPDs BenchmarksRecommendationsReferences

Recommendation Templates

Search...

AllTitle

Show Archived TemplatesNew Recommendation Template

Recommendation Name	Improvement Category
100% Solar Pool Heating	Energy Efficiency
AAA Recommendation Template	Materials
Alternative cladding material	Materials
Appliances: Extended Warranty & Lifespan	Materials
Appliances: High Efficiency	Energy Efficiency
Automated Standby	Energy Efficiency
Battery Storage	Other

Recommendations Tab

Utilised to record recommendations and alternative design options.

Either select pre-loaded recommendations from the library or create from scratch.

Recommendations record only the changes from the current design – for example – change design to 30% GGBS will have a saving, but in the next design changing this to 40% will have a smaller saving as the 30% has already been banked.

Add New Recommendation

New Recommendation

Recommendation Template

EPD Suggestions

Name

Report as

☒ Preferred Strategy
 ☐ Reserve Strategy
 ☐ Do not Report

Improvement Category

Select Improvement Category ▼

Factor of Safety

20 %

Motivation

Open Sans ▼

13 ▼

A ▼

B

I

U

S

X²

X₃

</>



Recording Effect of Recommendations

1. Once LCA design is complete, either clone design and select purpose - LCA Improved and name Design Option 1, 2, etc. or create in baseline to track savings.
2. List all the recommendations in the section, what changes are you planning to the design to improve the LCA model
3. Select the first recommendation, click record in the lower left corner.
4. Make the change to the design.
5. Click stop recording in the top left corner of the screen.
6. The change has now been applied to the design and the specific effect of this change has been recorded on the recommendation page.
7. Select the next recommendation on the list and follow the same process.
8. For further development work, clone the latest version and update – all purpose LCA Improved & update the design option number.



Activity 3

Set up several recommendation – both existing and at least one from scratch

- Go to the recommendation tab within the design
- Select +Add New
- Select one of the three tabs
 - New Recommendation – add recommendation from scratch
 - Recommendation Template – existing recommendation template
 - EPD Suggestions – based on industry standards
- Add several recommendations either based on the information added to the design or

Run the recommendations – some or all

- Select a recommendation and run the through the process on slide 34.



Bulk Upload – Upload File

Select +Import Template

Then either drag and drop or double click to select file to upload.

Data can be bulk uploaded via a CSV file only.

It must contain a Material (template name), Quantity, Unit and either Asset Name or ID Number columns – in this order

A	B	C	D	E
Template	Unit	Quantity	Function Name	Asset ID

Drop csv files here or click to upload.



Bulk Upload – Set Up

You then need to select the appropriate header from the top of the column.

Material – Template Name

Volume or weight - Quantity

Unit - Unit

Function Name – Asset Name

Asset ID – Asset Number

1

Upload File

2

Set up

3

Match

4

Success

Ignore

Template Name

Quantity

Unit

Cost

Ignore

Upper Floor 200mm reinforced concrete slab raised access floor carpet

450x200 reinforced concrete column 40MPa 2% reo

Ignore

Quantity

Unit

Cost

1000	m	2000
1200	m2	500
3000	m3 of excavated earth	10000
3490	m2	120000
500	m	5000

Bulk Swap

Add Template

Add EPD

Bulk Upload - Match

Match materials being uploaded to existing library template.

Etool will offer suggestions

Be sure to keep a record of aligned templates – so that they can be used again

Additionally the selected template may need to be edited later if they do not align specifically with the item being uploaded.

Bulk SwapAdd TemplateAdd EPD

3 Match

4 Success

Unit	Cost	Match Template	Lock Costs
m	2000	Choose concrete p Suggestions Reinforced Concrete Pipe - 300mm/50MPa/2% reo by volume Others Reinforced Concrete Pipe - 1200mm/50MPa/5% reo by volume Reinforced Concrete Pipe - 225mm/50MPa/2% reo by volume Reinforced Concrete Pipe - 300mm/50MPa/2% reo by volume Reinforced Concrete Pipe - 375mm/50MPa/3% reo by volume Reinforced Concrete Pipe - 450mm/50MPa/3% reo by volume Secant concrete piling 7500, sand base (11 storey) Choose	OFF OFF OFF OFF OFF OFF OFF
m2	500		OFF
m3 of excavated earth	10000		OFF
m2	120000		OFF
m	5000		OFF
m2	40000		OFF
Storeys	600		OFF

Bulk Upload - Success

Once complete Import the file into the doc space.

Type – Other Design Document

Title – As appropriate

Date – Month and Year

Author/Organisation – write in and select the + button to add.

Select Finish

The screenshot shows a progress bar at the top with two steps: '2 ✓ Set up' and '3 ✓ Match'. Below the progress bar is a green banner with the text: 'Your import was Successful! 16 new templates were added to your design!'. Below the banner is a form with the following fields:

- 'Save the import file as a doc?' with a blue 'ON' button.
- 'Type' dropdown menu with 'Other Design Documentation' selected.
- 'Title' text input with 'Test bulk 1' and a green checkmark.
- 'Date' dropdown menu with 'March' selected.
- 'Date' text input with '2019' and a green checkmark.
- 'Authors' section with two checkboxes, both checked: 'Organization?' and 'Organization?'. The first 'Organization?' has a text input with 'Organization Name' and a green '+' button. The second 'Organization?' has a text input with 'HS2' and a red 'x' button.
- A green 'Finish' button at the bottom right.

Analysis Tab

The analysis tab allows for in tool investigation and improvement to the data.

Categories

Analysis

Templates

EPDs

Details

Functions

Reports

Recommendations

Alerts

Docs

Quality Checks

Scale Costs

Import

Collapse Tabs

Function by Module

Template by Function Type

Year by Function Type

Materials

Energy and Water

Custom

Load All Impacts

Top Rows

1235101520773

Top Columns

123510

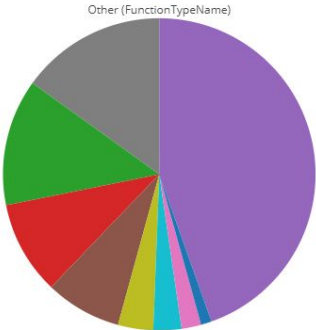
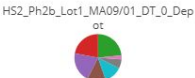
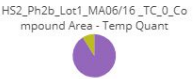
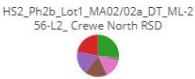
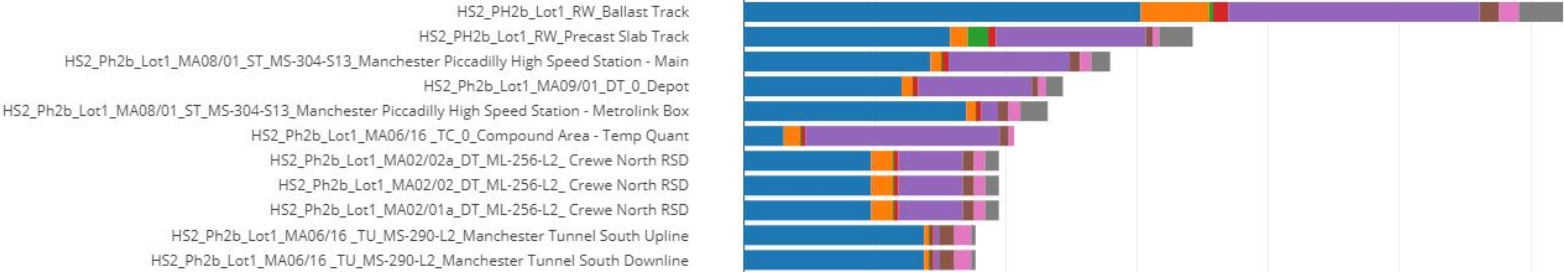
Sum of Global Warming Potential (kgCO2e), Function by Life Cycle Module

	Module	A1A3	A4	A5	B2B3	B4	C2	C4	D2	D3	D4	Total
	Module Description	Product Stage	Transport of Equipment and Materials	Construction	Maintenance and Repair	Replacement	Transport of Waste Offsite	Disposal	Closed Loop Recycling	Open Loop Recycling	Materials Energy Recovery	
DesignFunctionName												
HS2_PH2b_Lot1_RW_Ballast Track		151,307,784.41	26,116,475.23	1,512,941.86	5,758,781.34	95,836,861.79	7,434,196.29	7,430,116.19	16,867,298.91	0.00	0.00	312,164,486.63
HS2_PH2b_Lot1_RW_Precast Slab Track		78,716,346.70	6,705,931.03	7,799,635.34	2,956,189.69	57,142,241.03	2,548,007.72	2,502,204.41	12,773,860.41	0.00	0.00	171,144,416.61
HS2_Ph2b_Lot1_MA08/01_ST_MS-304-S13_Manchester Piccadilly High Speed Station - Main		71,253,640.26	4,482,065.60	82,451.34	2,335,118.93	46,160,673.87	3,938,976.11	4,263,136.11	7,171,406.79	0.00	-102.83	139,687,366.61
HS2_Ph2b_Lot1_MA09/01_DT_0_Depot		60,236,812.44	4,345,618.59	55,134.00	1,925,242.57	43,239,787.36	2,544,679.38	2,962,543.30	6,387,768.90	0.00	-80.56	121,697,505.59
HS2_Ph2b_Lot1_MA08/01_ST_MS-304-S13_Manchester Piccadilly High Speed Station - Metrolink Box		84,888,719.01	3,743,724.79	85,224.19	1,923,870.39	6,339,670.98	4,038,796.34	4,483,622.31	10,422,540.32	0.00	-42.11	115,926,126.61
HS2_Ph2b_Lot1_MA06/16_TC_0_Compound Area - Temp Quant		15,341,632.40	6,685,070.31	55,470.69	1,480,397.47	74,019,873.42	3,486,450.88	2,060,617.64	0.00	0.00	0.00	103,129,512.68
HS2_Ph2b_Lot1_MA02/01a_DT_ML-256-L2_Crewe North RSD		48,651,275.03	8,728,972.23	85,560.78	1,588,739.87	24,463,569.60	4,323,474.20	4,232,604.23	5,218,792.89	0.00	-16.76	97,292,972.61
HS2_Ph2b_Lot1_MA02/02_DT_ML-256-L2_Crewe North RSD		48,651,275.03	8,728,972.23	85,560.78	1,588,739.87	24,463,569.60	4,323,474.20	4,232,604.23	5,218,792.89	0.00	-16.76	97,292,972.61
HS2_Ph2b_Lot1_MA02/02a_DT_ML-256-L2_Crewe North RSD		48,651,275.03	8,728,972.23	85,560.78	1,588,739.87	24,463,569.60	4,323,474.20	4,232,604.23	5,218,792.89	0.00	-16.76	97,292,972.61
HS2_Ph2b_Lot1_MA06/16_TU_MS-290-L2_Manchester Tunnel South Downline		68,780,265.37	2,257,238.75	123,136.15	1,203,410.63	2,097,533.03	5,860,604.50	6,453,010.19	1,639,817.36	0.00	-51.14	88,414,964.61
HS2_Ph2b_Lot1_MA06/16_TU_MS-290-L2_Manchester Tunnel South Upline		68,780,265.37	2,257,238.75	123,136.15	1,203,410.63	2,097,533.03	5,860,604.50	6,453,010.19	1,639,817.36	0.00	-51.14	88,414,964.61

Analysis Tab

The data can be viewed in table, graph and pie chart formatted and copied for use within project reports.

Sum of Global Warming Potential (kgCO2e), Function by Life Cycle Module

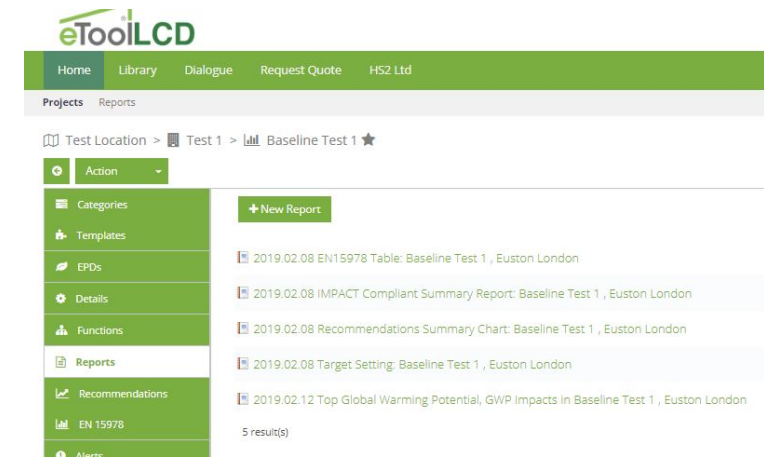


Reports Tab

Reports will be watermarked prior to etool validation – this will occur upon request of HS2 when designs are locked.

Any report that requires comparison to the benchmark can only be used for comparison to the project baseline – there is no industry benchmark for high speed rail currently available.

Click +New Report to run a report, they can be saved for record purposes or downloaded.



Reports described here with a * in beside the title are recommended.

All Impact Details *

Excel export of Life cycle impacts broken down by asset number.

The excel file shows the whole project effect in an editable format.

Also available in this report is the material efficiency metric and its breakdown

Adding a filter function allows review of specific assets.

New Report

Report Type

All Impact Details

Report Title

All Impact Details: Baseline Test 1

Your Report is Ready!



All Impact Details: Baseline Test 1

Proceed to Download

EN15978 Table

This report provides an evaluation of embedded environmental impacts.

Outputs in either pdf or excel.

Appropriate for AIMs upload

Running multiple reports will allow comparison of design stages

Ensure only the following embedded environmental impacts are selected when the report is run.

- Global Warming Potential, GWP
- Ozone Depletion Potential, ODP
- Acidification Potential for Soil and Water, AP
- Eutrophication potential, EP
- Photochemical Ozone Creation Potential, POCP
- Net use of fresh water, FW
- Abiotic Depletion Potential - Elements, ADPE
- Abiotic Depletion Potential - Fossil Fuels, ADPF
- Hazardous waste, HWD
- Non-hazardous waste, NHWD
- Radioactive waste (total), RWD

IMPACT Compliant Summary Report

BREEAM compliant output to be used for award evidence.

Outputs in either pdf or excel.

Characterised		Materials and Construction			Use Stage								End of Life Stage				Benefits and Loads Beyond the System Boundary	Total
		A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B6+	B7	C1	C2	C3	C4	D	
Global Warming Potential, GWP	kg CO2 eq	1.76e+8	1.53e+7	3.26e+6	0	0	MNA	MNA	15284	9832	0	0	0	1.79e+7	0	5.82e+6	-9.69e+6	2.09e+8
Embodied Energy	MJ NCV	1.34e+9	2.49e+8	6.13e+7	0	0	MNA	MNA	3.11e+5	1.08e+7	0	0	0	3.02e+8	0	1.80e+8	-9.35e+7	2.05e+9
Water Footprint	m3 deprived	7.16e+5	28487	15325	0	0	MNA	MNA	124	10986	0	0	0	33638	0	1.12e+5	-9193	9.07e+5
Land Use	m2 year arable	5.65e+2	1.08e+2	34.474	0	0	MNA	MNA	0.134	1.302	0	0	0	1.46e+2	0	1.96e+2	-26.478	1.02e+3
Ozone Depletion Potential, ODP	kg CFC-11 eq	9.46e+0	2.64e+0	6.36e-1	0	0	MNA	MNA	1.24e-3	1.07e-2	0	0	0	3.07e+0	0	1.80e+0	-4.44e-1	1.72e+1
Acidification Potential for Soil and Water, AP	kg SO2 eq	5.02e+5	1.07e+5	23471	0	0	MNA	MNA	109	968	0	0	0	1.27e+5	0	41903	-38973	7.64e+5
Human Toxicity Potential	uDALY	2.44e+1	1.1596	0.2311	0	0	MNA	MNA	0.0223	0.0497	0	0	0	1.5972	0	0.3788	-0.7734	2.71e+1
Eutrophication potential, EP	kg PO4--- eq	1.68e+5	2.55e+4	5346.1	0	0	MNA	MNA	98.8	484.6	0	0	0	3.03e+4	0	8476	-1.17e+4	2.27e+5
Abiotic Resource Depletion Minerals And Energy	kg5be	6.21e+5	1.10e+5	27199	0	0	MNA	MNA	141	649	0	0	0	1.34e+5	0	77882	-56879	9.14e+5
Photochemical Ozone Creation Potential, POCP	kg ethylene	2.73e+4	3.37e+3	690.36	0	0	MNA	MNA	5.03	426.31	0	0	0	4.29e+3	0	1737.5	-6.60e+3	3.15e+4
Ionizing Radiation (DALY)	IR	2.55e-1	3.44e-2	7.54e-3	0	0	MNA	MNA	5.58e-5	1.65e-4	0	0	0	4.35e-2	0	2.13e-2	-7.32e-3	3.54e-1
Marine Aquatic Ecotoxicity	uDay	1.34e-1	4.98e-3	8.45e-4	0	0	MNA	MNA	1.80e-4	4.14e-4	0	0	0	6.70e-3	0	1.13e-3	6.45e-4	1.47e-1
Terrestrial Aquatic Ecotoxicity	uDay	1.24e-5	5.51e-7	1.24e-7	0	0	MNA	MNA	2.31e-9	1.68e-7	0	0	0	6.66e-7	0	4.00e-7	2.28e-7	1.40e-5
Ecotoxicity	uCTUe	3.01e-2	4.14e-4	9.95e-5	0	0	MNA	MNA	1.25e-6	5.20e-4	0	0	0	4.28e-4	0	4.49e-4	1.41e-3	3.06e-2
Particulate Matter	kg PM2.5	5.36e+4	16926	3610.7	0	0	MNA	MNA	10.7	298.9	0	0	0	1.97e+4	0	5587.8	-6609.8	9.31e+4
Net use of fresh water, FW	m3	4.19e+8	2.57e+7	2.15e+7	0	0	MNA	MNA	10134	51101	0	0	0	2.74e+7	0	1.76e+8	-3.00e+6	6.66e+8
Abiotic Depletion Potential - Elements, ADPE	kg antimony	5.51e+3	253.67	82.21	0	0	MNA	MNA	5.08	28.62	0	0	0	745.31	0	54.34	-51.66	6.62e+3
Human Toxicity Cancer	CTUh	5.77e+0	1.38e-1	2.46e-2	0	0	MNA	MNA	4.71e-4	7.31e-3	0	0	0	1.80e-1	0	3.40e-2	-6.70e-2	6.08e+0
Human Toxicity Non-Cancer	CTUh	1.72e+1	5.78e-1	0.115	0	0	MNA	MNA	7.26e-3	2.57e-1	0	0	0	8.30e-1	0	0.1963	-0.4861	1.87e+1
Freshwater Ecotoxicity	CTUe	3.57e+11	1.66e+10	3.29e+9	0	0	MNA	MNA	2.73e+8	1.95e+9	0	0	0	2.40e+10	0	6.15e+9	-2.45e+10	3.84e+11
Water Scarcity	m3 eq	1.18e+6	47008	25290	0	0	MNA	MNA	204	18147	0	0	0	55509	0	1.84e+5	-15170	1.50e+6
Ionizing Radiation	kBq U235 eq	4.90e+6	4.08e+5	80982	0	0	MNA	MNA	187	5188	0	0	0	5.68e+5	0	2.16e+5	-1.47e+5	6.04e+6
Abiotic Depletion Potential - Fossil Fuels, ADPF	MJ	1.16e+9	2.35e+8	5.81e+7	0	0	MNA	MNA	2.54e+5	1.14e+6	0	0	0	2.82e+8	0	1.69e+8	-8.82e+7	1.82e+9
Hazardous waste, HWD	KG	2.20e+4	2.49e+4	5377	0	0	MNA	MNA	103.9	34.8	0	0	0	2.94e+4	0	8492	-1425.5	8.89e+4
Non-hazardous waste, NHHWD	KG	2.75e+7	1.34e+7	7.30e+7	0	0	MNA	MNA	2907	29906	0	0	0	1.28e+7	0	7.19e+8	-5.31e+5	8.45e+8
Radioactive waste (total), RWD	KG	6.74e+3	1.61e+3	3.83e+2	0	0	MNA	MNA	0.948	2.765	0	0	0	1.89e+3	0	1.09e+3	-1.78e+2	1.15e+4

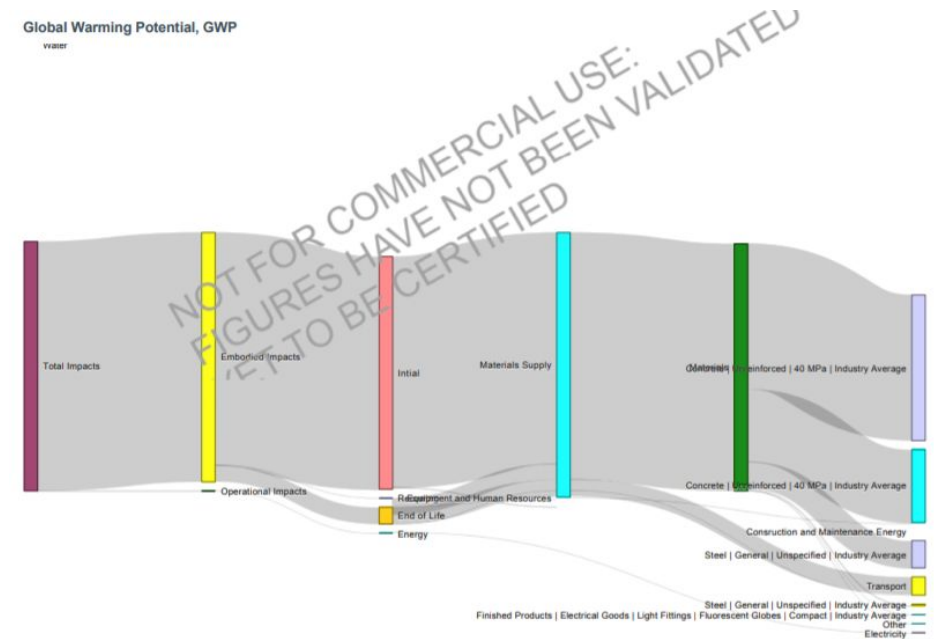
Impact Sankey Diagram Report

Visual breakdown of sources of environmental impact from total down to component materials.

Select from all available embedded environmental impacts – see difference.

Can be run in pdf – but if live on the website then hovering over areas will bring up further detail

Can be utilised to identify high impact areas for focused reduction activities.



Impact Saving Summary

Only usable on Improved Designs or As-built as it compares against the baseline.

Visual illustration of saving against the baseline.



Emission Certificate

Only usable on Improved Designs options or As-built as it compares against the baseline.

This clearly shows the reduction between the baseline and the later stage design.

Shows savings in embodied carbon, operational carbon and the total – percentage and bronze to platinum rating.

Clear single page showing % reduction in Carbon. Used to Evidence 50% reduction.



Design Life Inventory

This report breaks the model down into material streams used in the main construction and the amounts required for maintenance activities.

Clearly shows differing material life's and effect of multiple replacements across the 120y project life.

Good for ensuring all material life's are consistent and looking at alternative options

Description	Units	Quantity	Material Life (years)	Recurring Quantity	Recycled Content	Recycling Rate
Light Globes For Internal Fittings	# (Default)	132	4	3,960	0%	0%
Light fitting	kg	66	20	396	40.33%	80%
Light Fittings	kg	264	20	1,584	0%	0%
Poured Concrete wall	m3	100,000	150	0	0%	0%
Steel Piles	kg	775,500	150	0	40.33%	80%
Pour Concrete Foundations	m3	200,000	150	0	0%	0%
steel reinforcement bars (foundation)	kg	15,800,000	150	0	40.33%	80%
White Internal Wall Paint	m3	50,000	40	100,000	0%	0%

Impact Time Series Comparison Report

Compare to design levels against each other.

Shows effect of environmental impact over the 120y life in a visual manor, with increase at maintenance intervals to show the effect of replacement.

Also a table breaking down these impacts across energy & water, materials, labour & equipment for each year from 1-120y.

Global Warming Potential, GWP Performance of Improve Op2



LCA Design Feedback Report *

This report will only run if all assets have been set up with usable space rather than common space.

This report can only be run for improved designs options - it requires a baseline design for comparison.

When selecting the baseline – choose the project baseline design and up to one other previous version of the design to compare against.

The report provides a summary of all environmental impacts required by HS2 and the Material Efficiency Metric – Available in pdf and word format.

The report highlights savings against the baseline and low impact strategy's recorded at each stage.



Materials Inventory Summary

Lists all materials with kg and m3 of volume currently contained within the model.



Material Inventory Summary

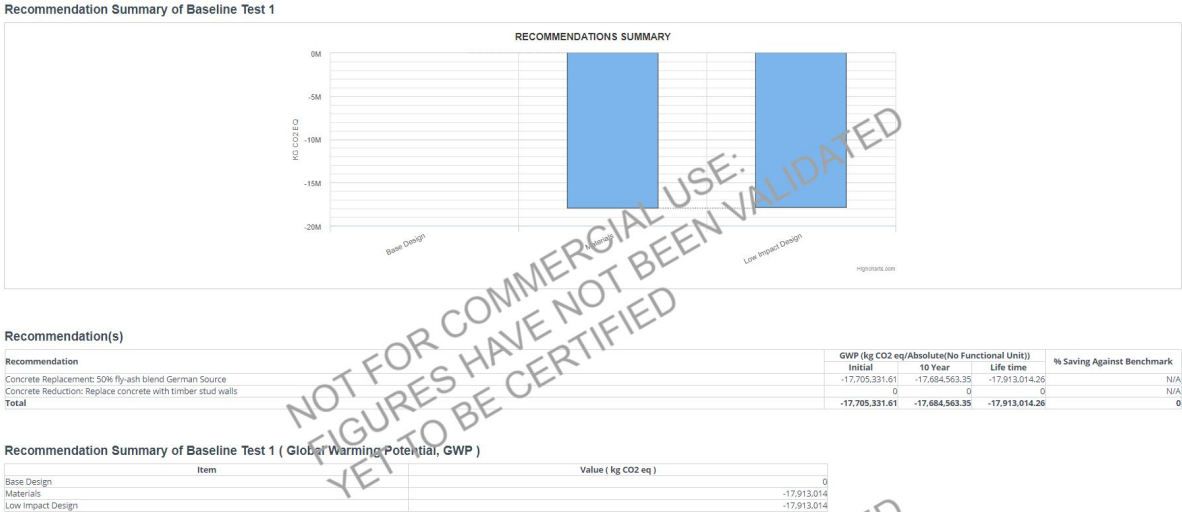
Material	Mass(kg)	Volume(m3)
Concrete Unreinforced 40 MPa Industry Average	238,400,000	100,000
Finished Products Electrical Goods Light Fittings Fluorescent Globes Compact Industry Average	0	0
Plastics General Unspecified Industry Average	264	.191
Steel Coated Sheet Zinc Coated & Coloured Sheet 0.43mm Industry Average	66	.008



Recommendation Summary Chart

Highlights savings per recommendation against the base design.

This can be run after each substantive update to the main design.



Target Setting

Only usable on Improved Designs options as it compares against the baseline and earlier options.

Shows comparisons between design levels and listed recommendations that have not yet been actioned.

Set up as a baseline for a workshop to develop further design improvements



Top Impact Reports

Change top 10 items to 200 to show the main materials used within the model.

Provides report that list all materials in the model in order of greatest impact on the overall model.

This allows for identification of the highest impact materials either by volume or carbon effect.

Can be run for different environmental indicators.

Top 200 Materials By Total Impact

Material	Initial (kg CO2 eq)	Transport (kg CO2 eq)	Recurring (kg CO2 eq)	Recycling (kg CO2 eq)
Paints and Finishes Water Based 1 Coat Industry Average	425,398,979.4000	24,766,893.9892	2,259,680,315.4577	0.0
Concrete Unreinforced 40 MPa Industry Average	102,944,168.6592	5,407,908.4193	0.0000	0.0
Concrete Unreinforced Blast Furnace Slag Blends 20 MPa 40% BFS Industry Average	29,365,712.7236	7,125,762.4694	0.0000	0.0
Steel General Unspecified Industry Average	22,048,488.4424	6,476,484.8908	0.0000	-9,687,297.6
Finished Products Electrical Goods Light Fittings Fluorescent Globes Compact Industry Average	256.3347	11.3733	7,763.5318	0.0
Plastics General Unspecified Industry Average	787.8313	119.3062	4,535.6874	0.0
Steel Coated Sheet Zinc Coated & Coloured Sheet 0.43mm Industry Average	214.2466	2.0325	1,085.2077	-244.2

Top 200 Materials By Transport Impact

Material	Initial (kg CO2 eq)	Transport (kg CO2 eq)	Recurring (kg CO2 eq)	Recycling (kg CO2 eq)
Paints and Finishes Water Based 1 Coat Industry Average	425,398,979.4000	24,766,893.9892	2,259,680,315.4577	0.0
Concrete Unreinforced Blast Furnace Slag Blends 20 MPa 40% BFS Industry Average	29,365,712.7236	7,125,762.4694	0.0000	0.0
Steel General Unspecified Industry Average	22,048,488.4424	6,476,484.8908	0.0000	-9,687,297.6
Concrete Unreinforced 40 MPa Industry Average	102,944,168.6592	5,407,908.4193	0.0000	0.0
Plastics General Unspecified Industry Average	787.8313	119.3062	4,535.6874	0.0
Finished Products Electrical Goods Light Fittings Fluorescent Globes Compact Industry Average	256.3347	11.3733	7,763.5318	0.0
Steel Coated Sheet Zinc Coated & Coloured Sheet 0.43mm Industry Average	214.2466	2.0325	1,085.2077	-244.2

Top 200 Materials By Recurring Impact

Material	Initial (kg CO2 eq)	Transport (kg CO2 eq)	Recurring (kg CO2 eq)	Recycling (kg CO2 eq)
Paints and Finishes Water Based 1 Coat Industry Average	425,398,979.4000	24,766,893.9892	2,259,680,315.4577	0.0
Finished Products Electrical Goods Light Fittings Fluorescent Globes Compact Industry Average	256.3347	11.3733	7,763.5318	0.0
Plastics General Unspecified Industry Average	787.8313	119.3062	4,535.6874	0.0
Steel Coated Sheet Zinc Coated & Coloured Sheet 0.43mm Industry Average	214.2466	2.0325	1,085.2077	-244.2

Activity 4

Run reports

- Go to report tab in design
- Select +New Report
- Create a LCA Design Feedback Report
- Create a All Impact Details Report
- Create a Impact Time Series Comparison Report
- Choose another report to create



Workshop time

Any Questions?

