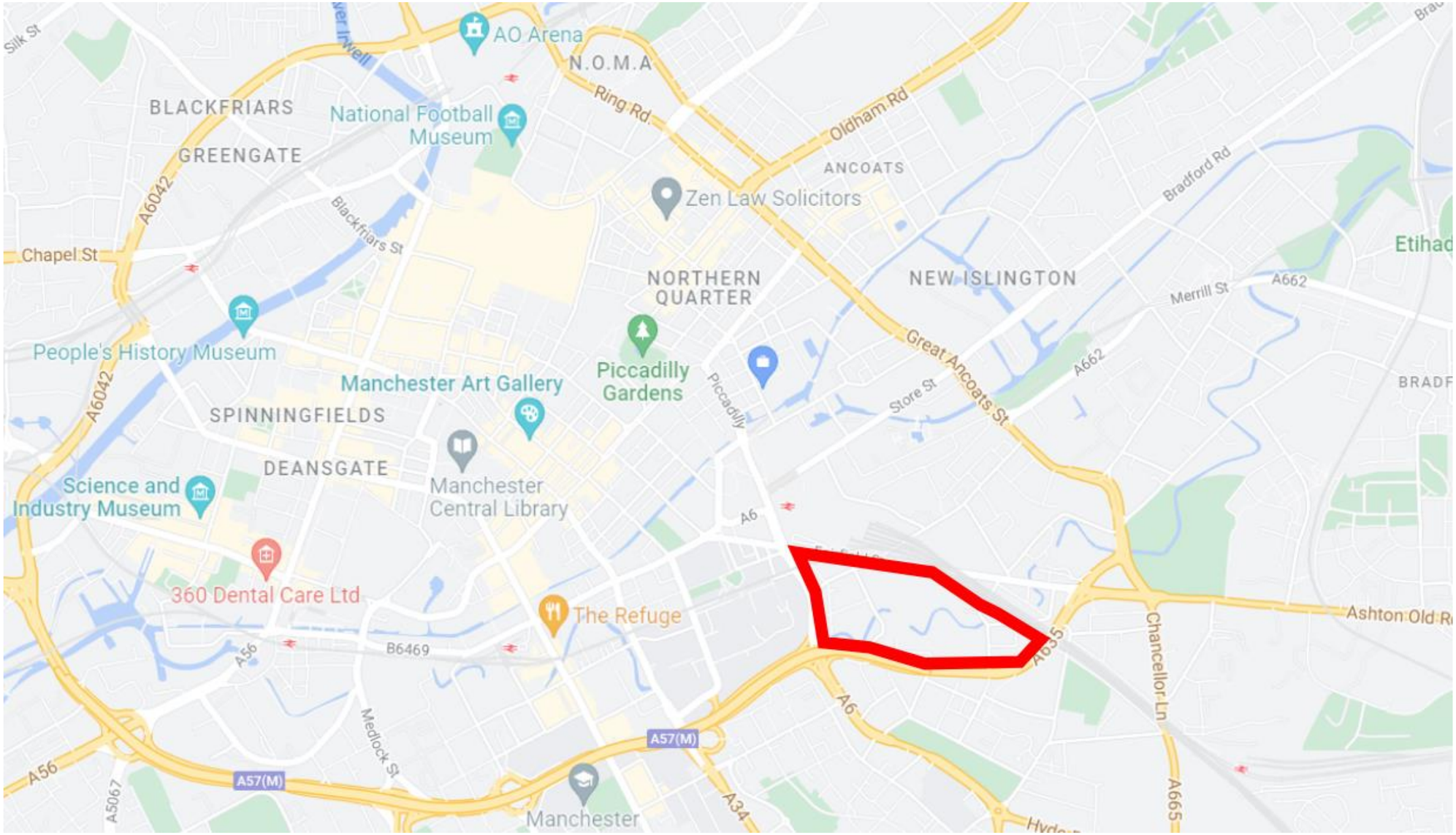
Civic Engineers

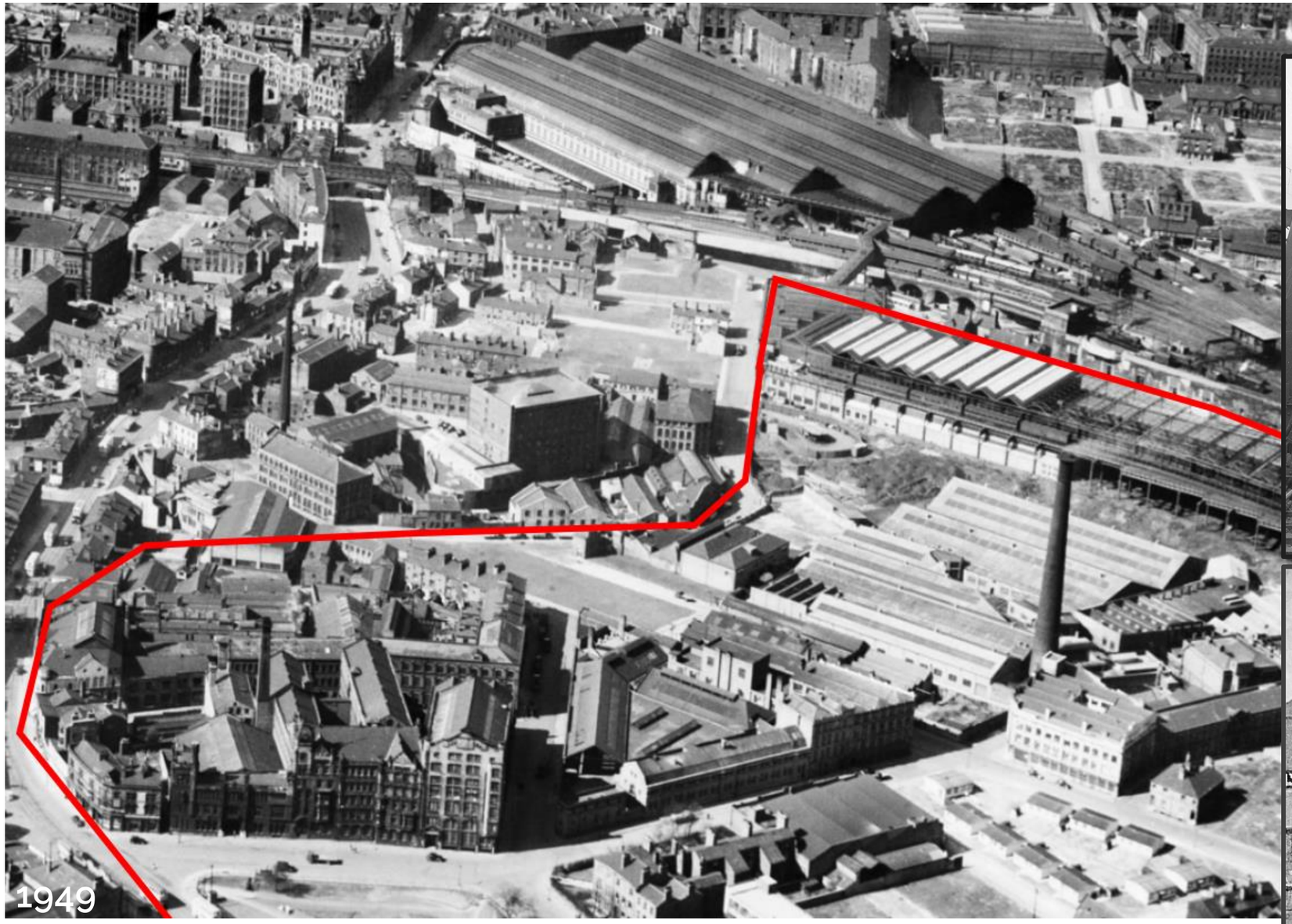
Mayfield, Manchester – Project Presentation

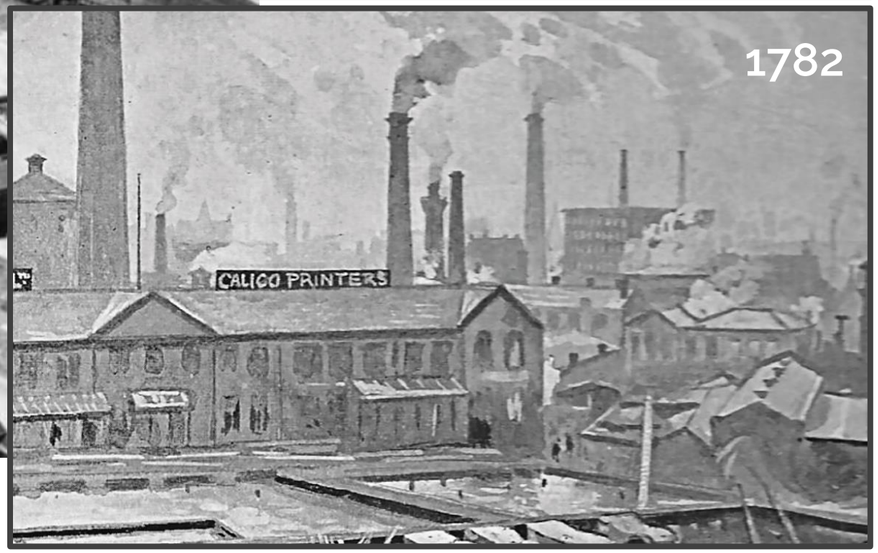
07.10.2022

Mayfield – Location



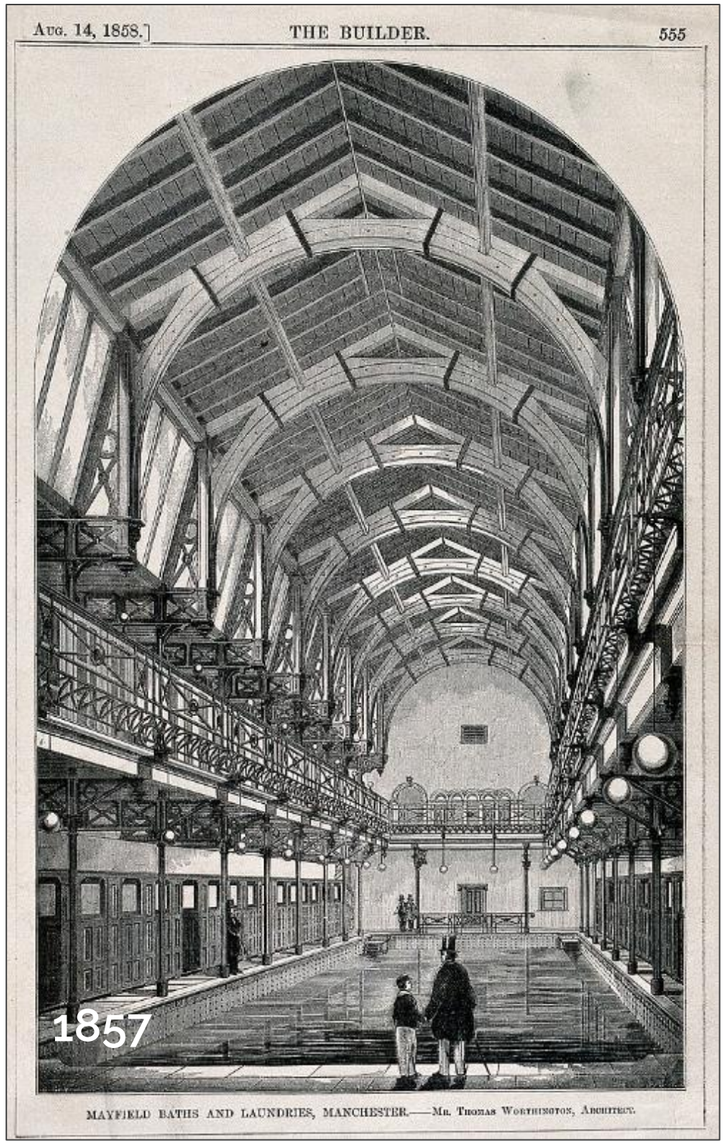
Mayfield – History

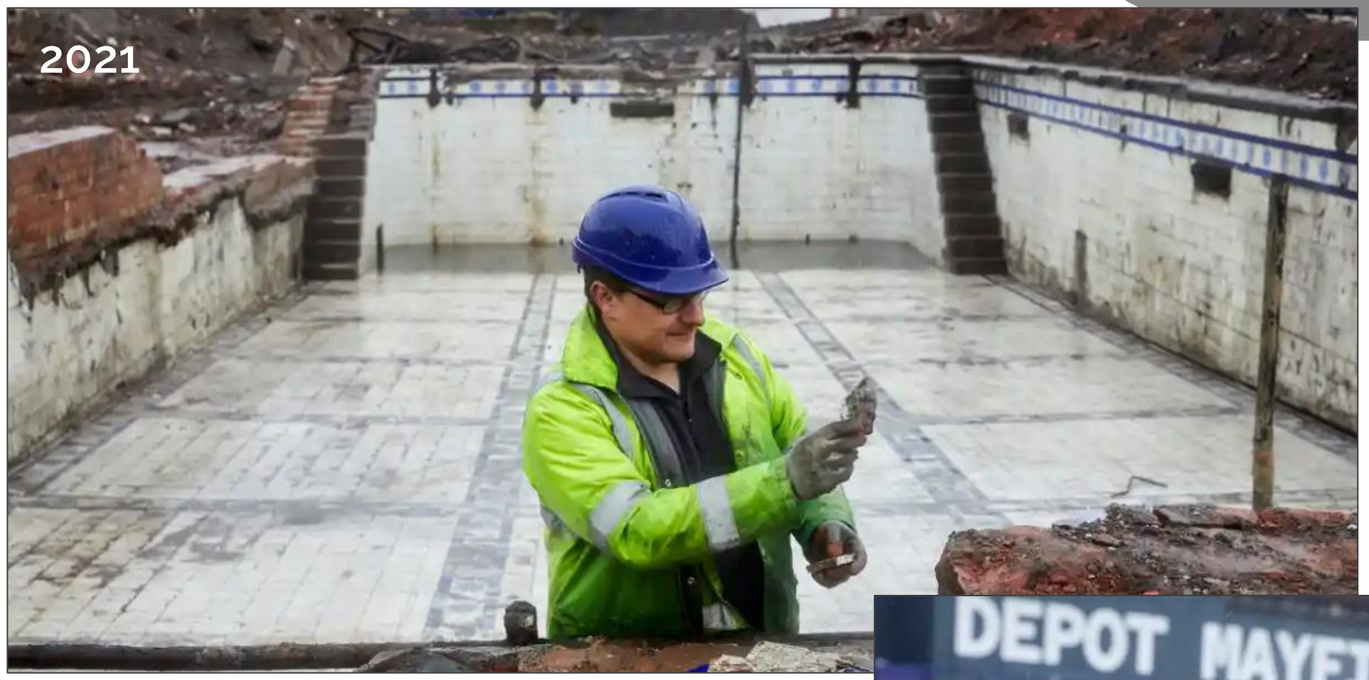




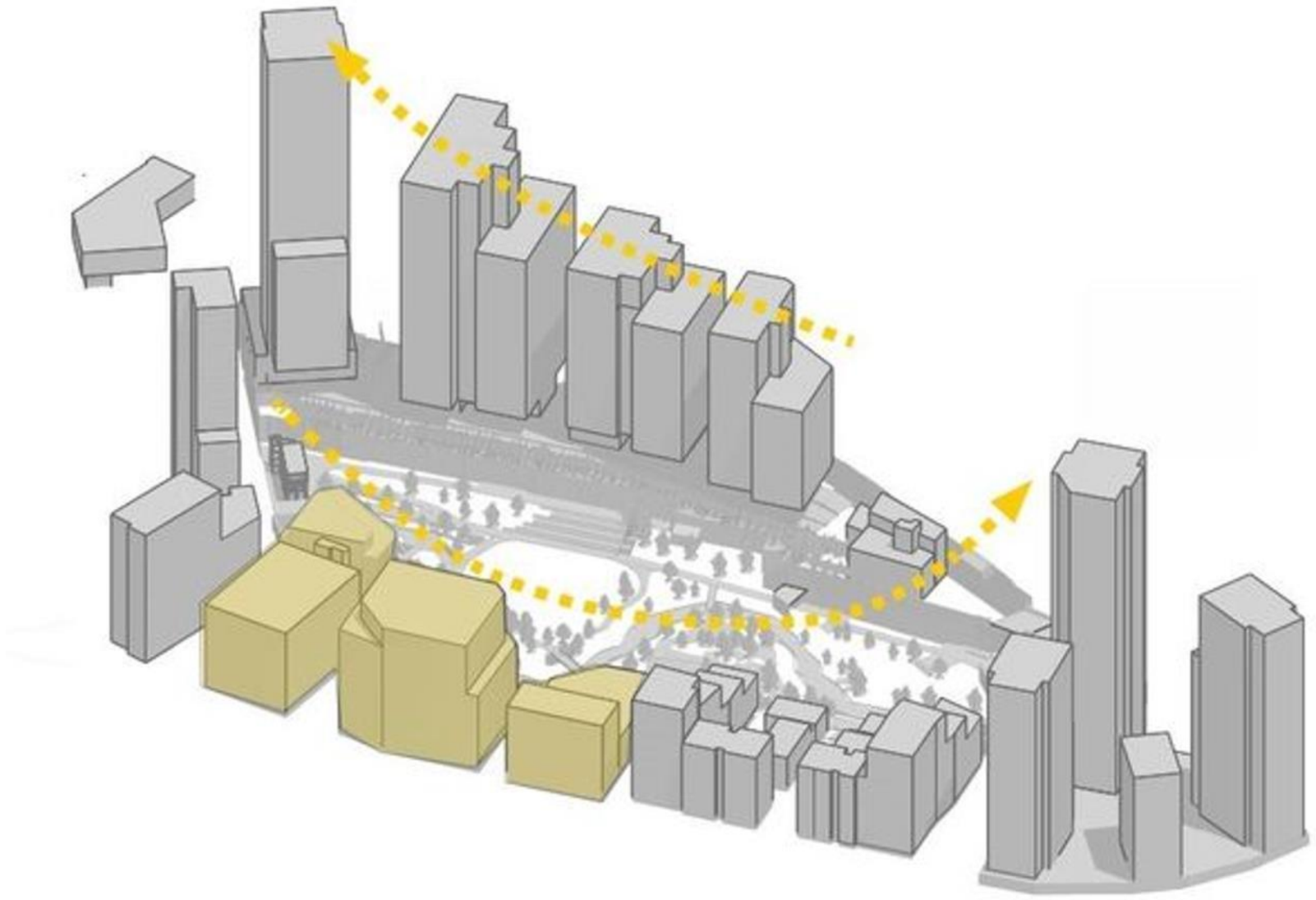
Mayfield – History

Baths

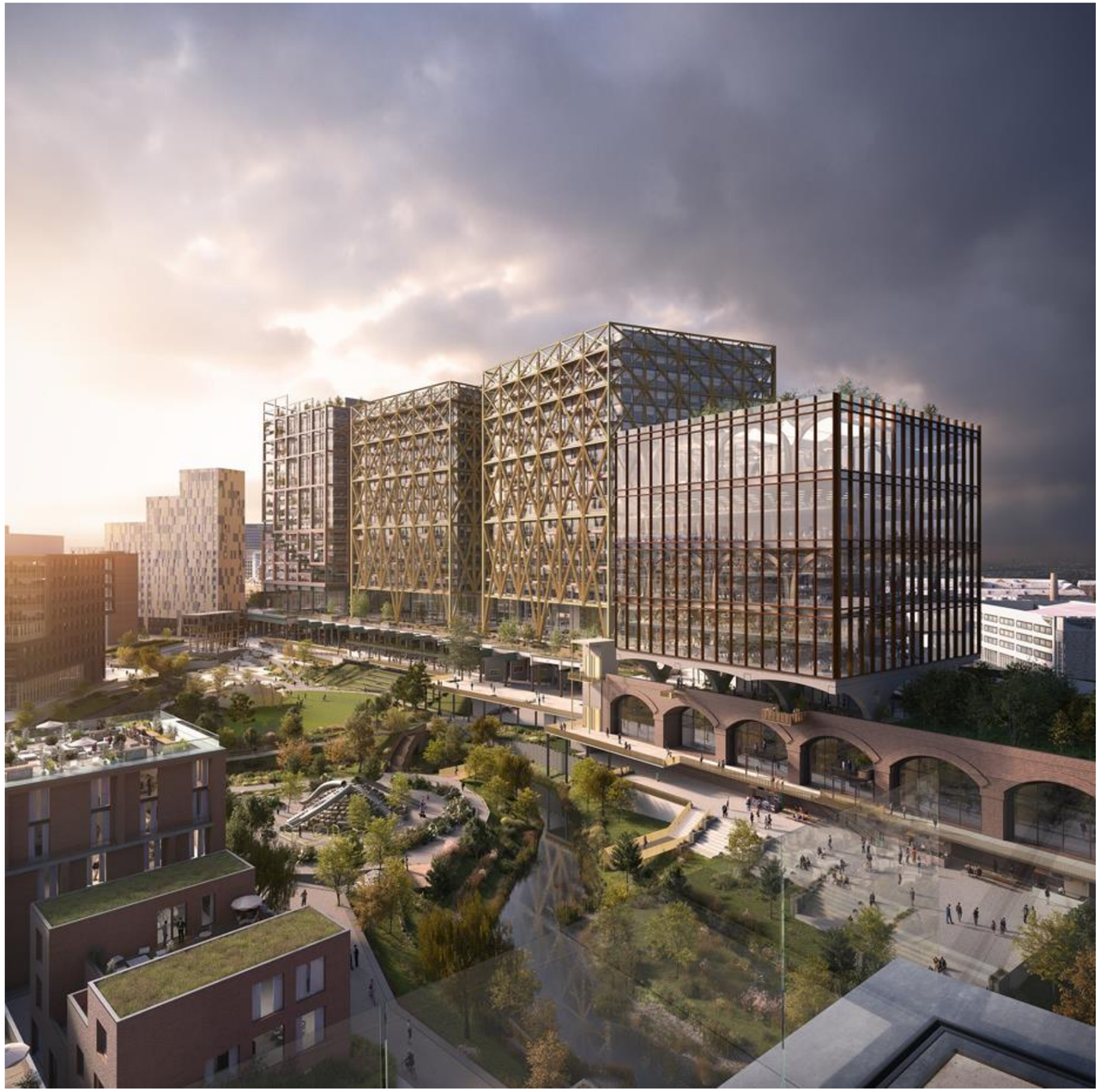




Mayfield – Masterplan



Mayfield – Scale and Impact



Mayfield Park, Manchester

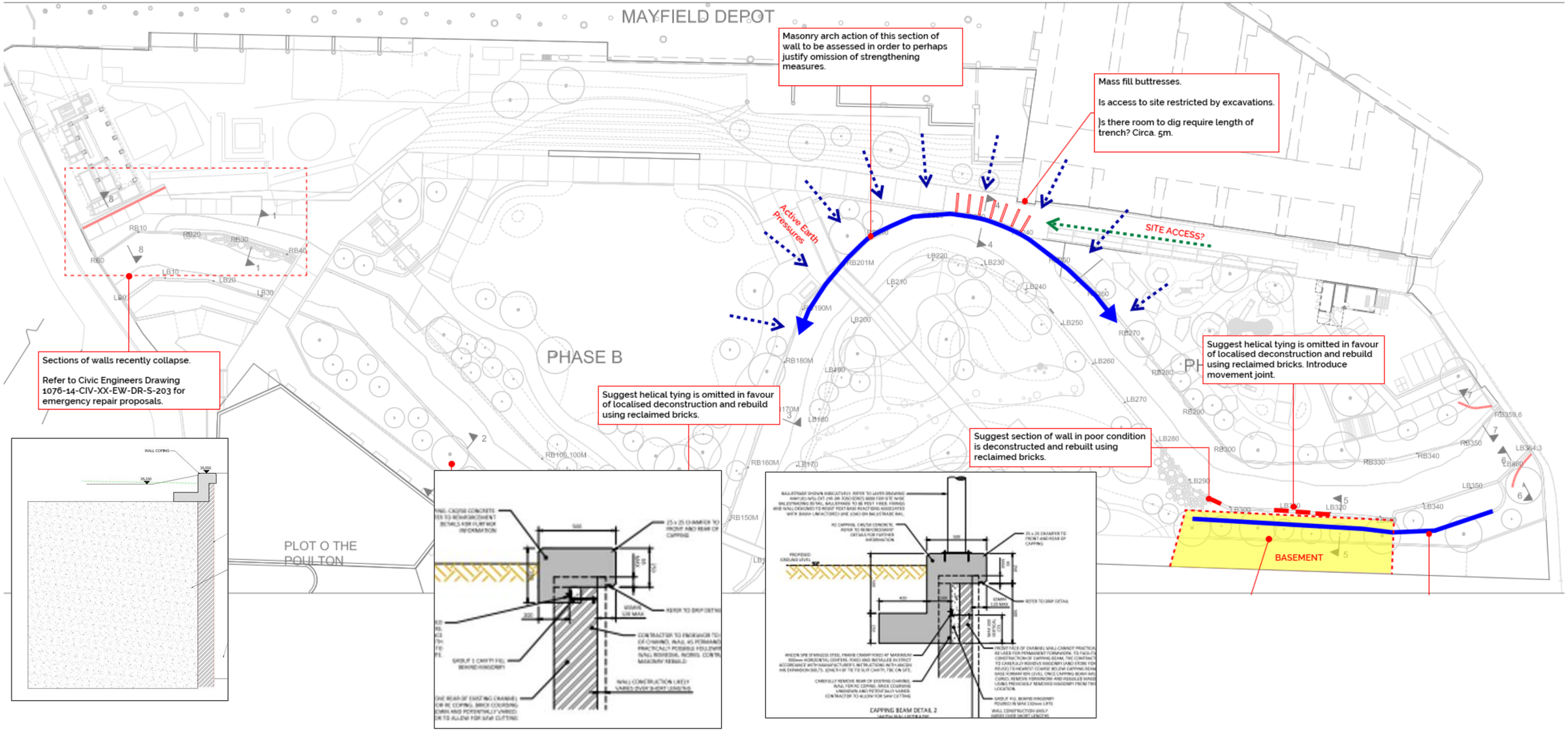
Scope

Mayfield Park, Manchester

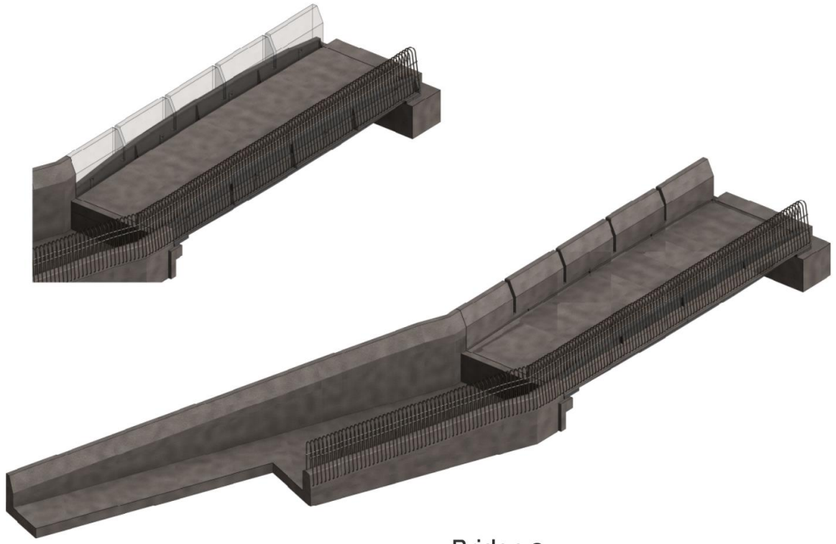
Before...

Mayfield Park, Manchester

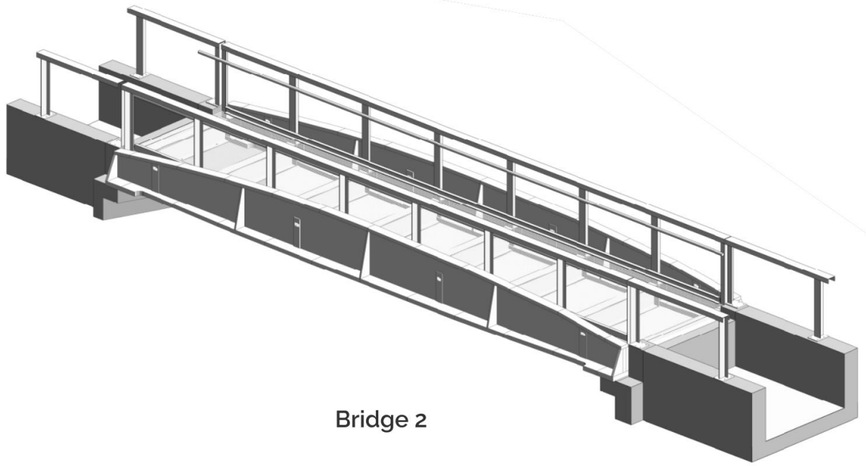
Lean Design



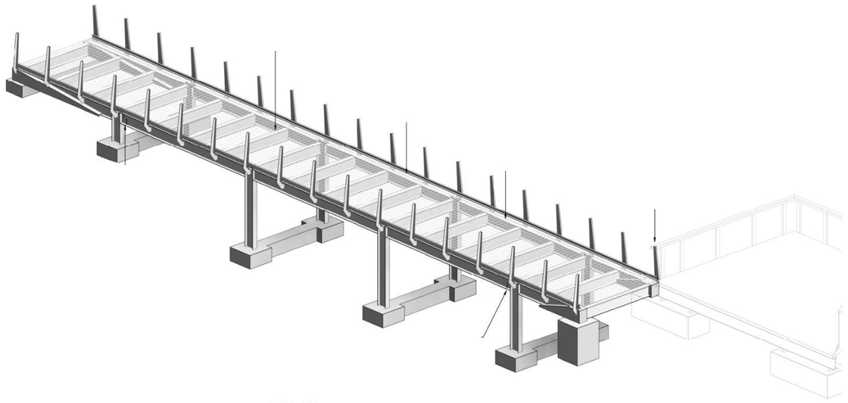
Bridges and Jetties



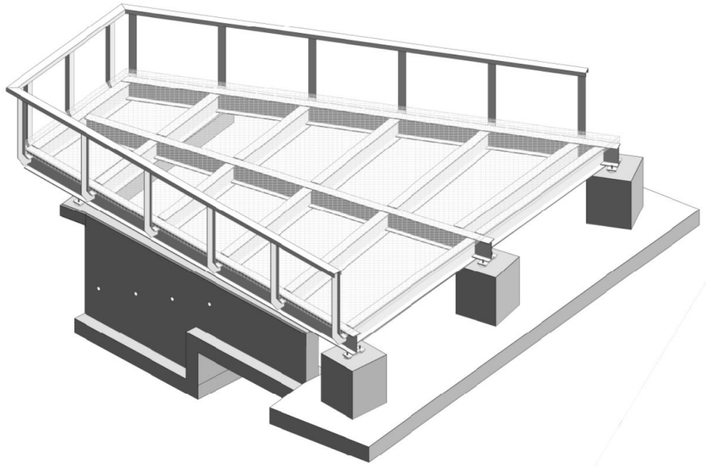
Bridge 3



Bridge 2



Walkway

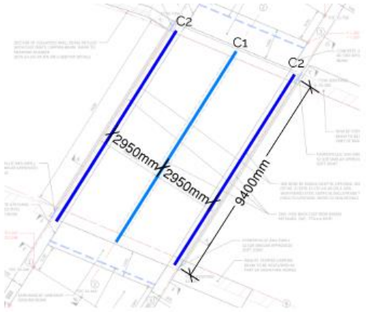


Jetty 1

Steel Tonnage Savings from Re-using Cast Iron Beams

Mayfield Bridges

Culvert Bridge



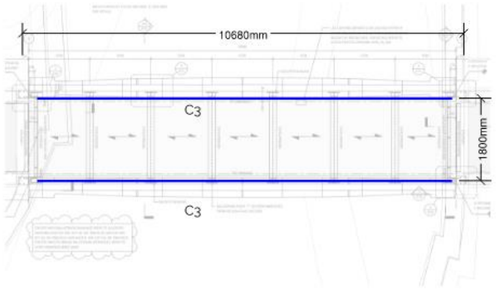
C1 New Beam Required Size:
UB 533 x 210 x 12

C2 New Beam Required Size:
C2 = UB 838 x 292 x 194

Total Tonnage of 3 New UBs = 4.8 tonnes

Total Embodied Carbon saved from using Cast Iron Beams over New UB sections = **11.8 tCO2e**

Bridge 2

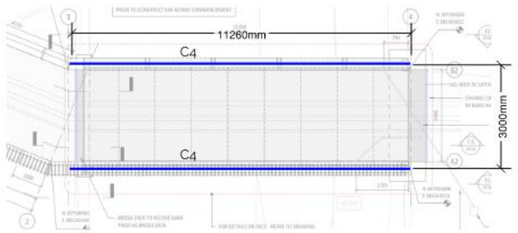


C3 New Beam Required Size:
500DP 220WD 12mm Web 15mm Flanges

Total Tonnage of 2 New UB = 2.1 tonnes

Total Embodied Carbon saved from using Cast Iron Beams over New UB sections = **5.1tC02e**

Bridge 3



C4 New Beam Required Size:
C4 = UB 610 x 209 x 113

Total Tonnage of 2 New UB = 2.6 tonnes

Total Embodied Carbon saved from using Cast Iron Beams over New UB sections = **6.4tC02e**

Total Steel Tonnage = **9.5t**
Equivalent tc02e - **23tc02e**

This project scheme releases carbon equivalent to:

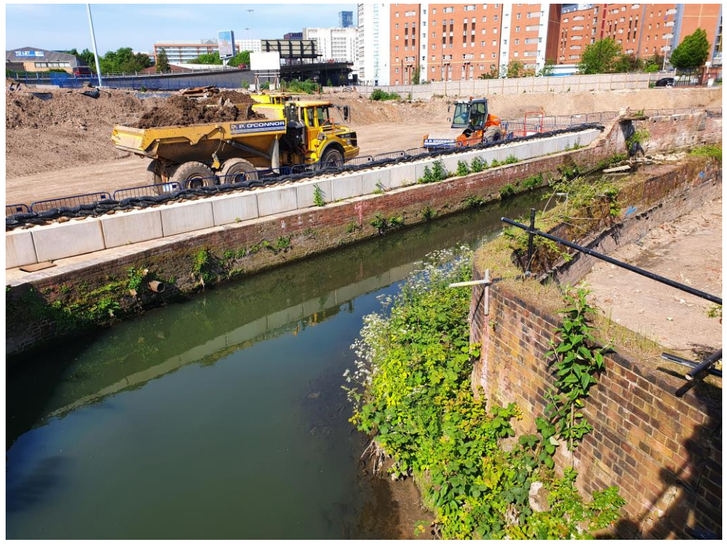
27 one-way flights from London to New York

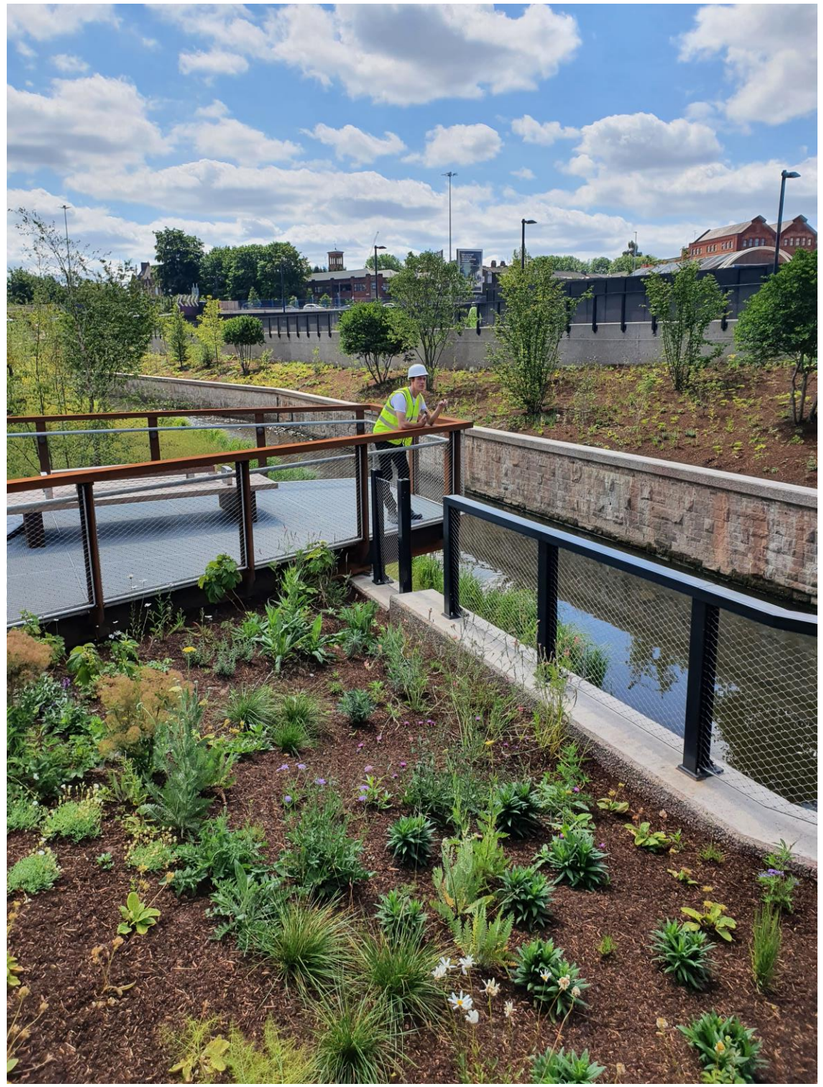
14 people's consumption of meat, dairy and beer for 1 year

8 average family cars running for 1 year

Mayfield Park, Manchester

Construction





Mayfield Park, Manchester

Construction

Mayfield Park, Manchester

Finished Product

Mayfield Park, Manchester

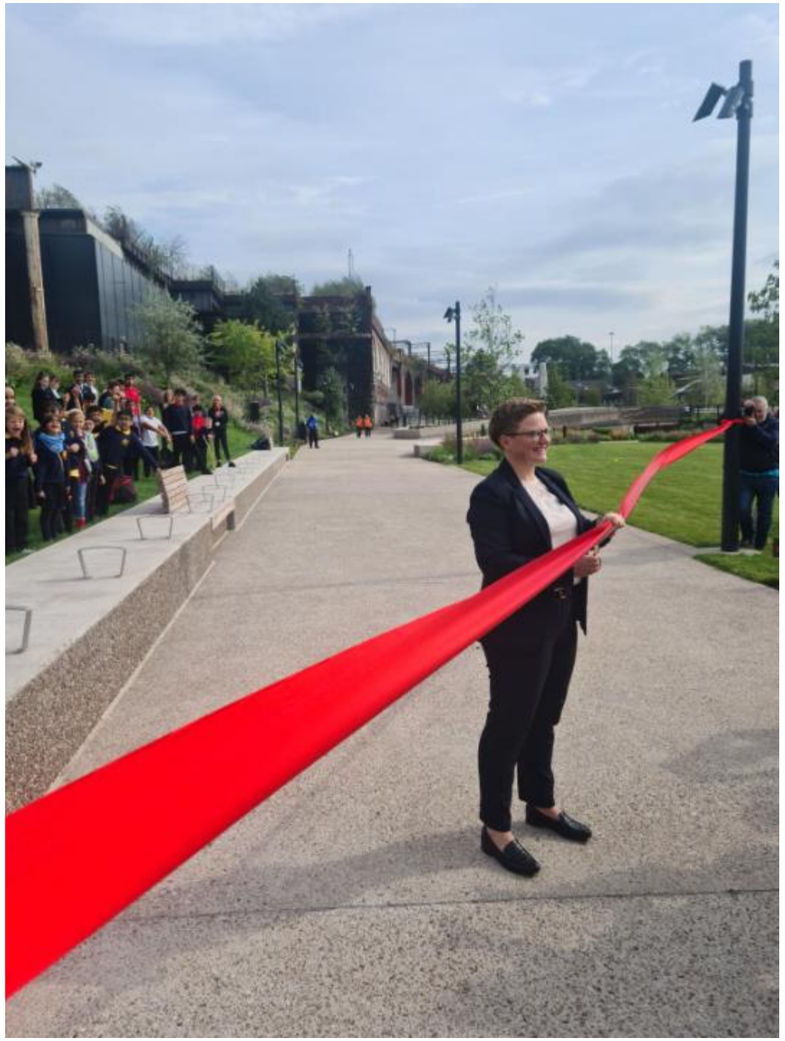
Finished Product

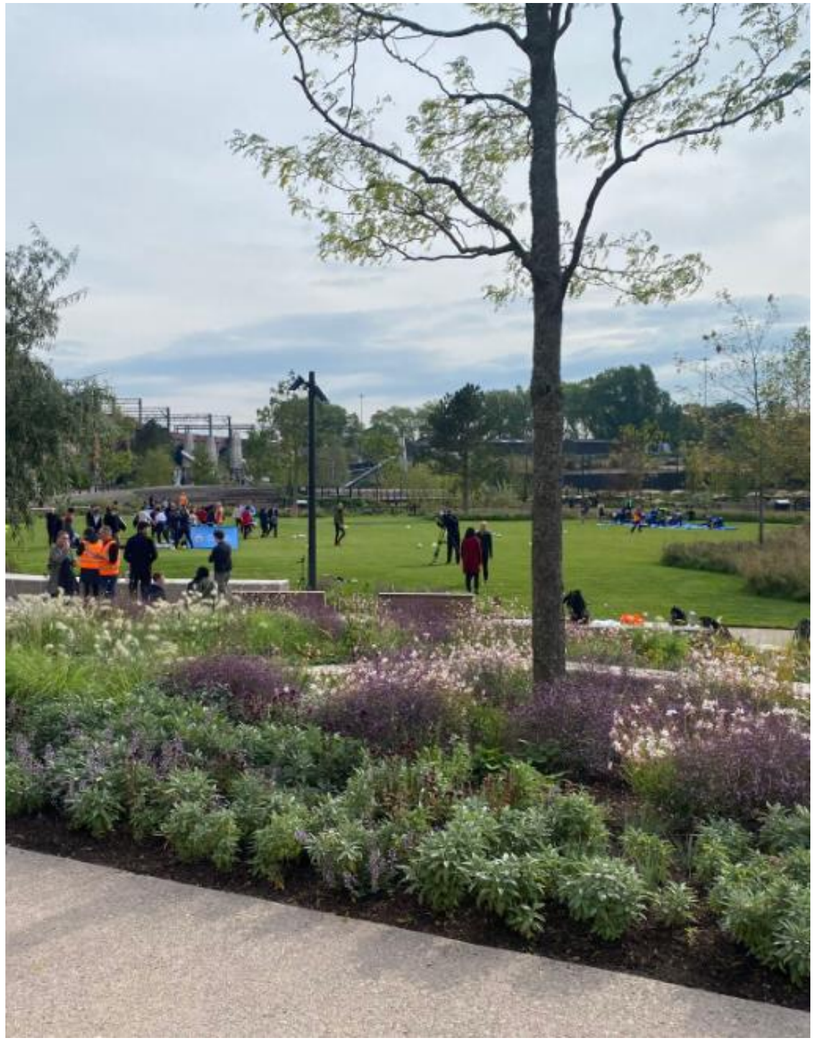
Mayfield Park, Manchester

Finished Product

Mayfield Park, Manchester

Park Opening – 22.09.22



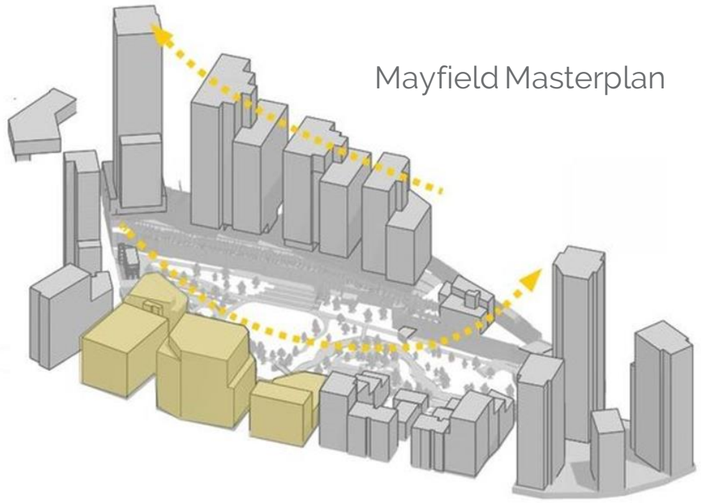


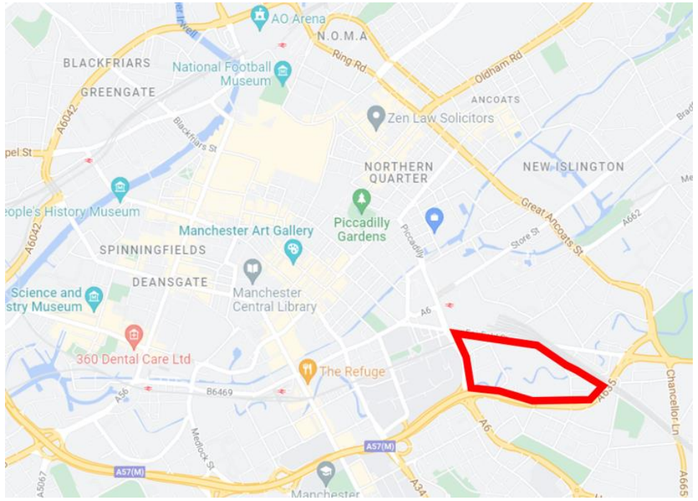
Mayfield Park, Manchester

Park Opening – 22.09.22

Escape to Freight Island, Mayfield Depot, Manchester

Project Overview

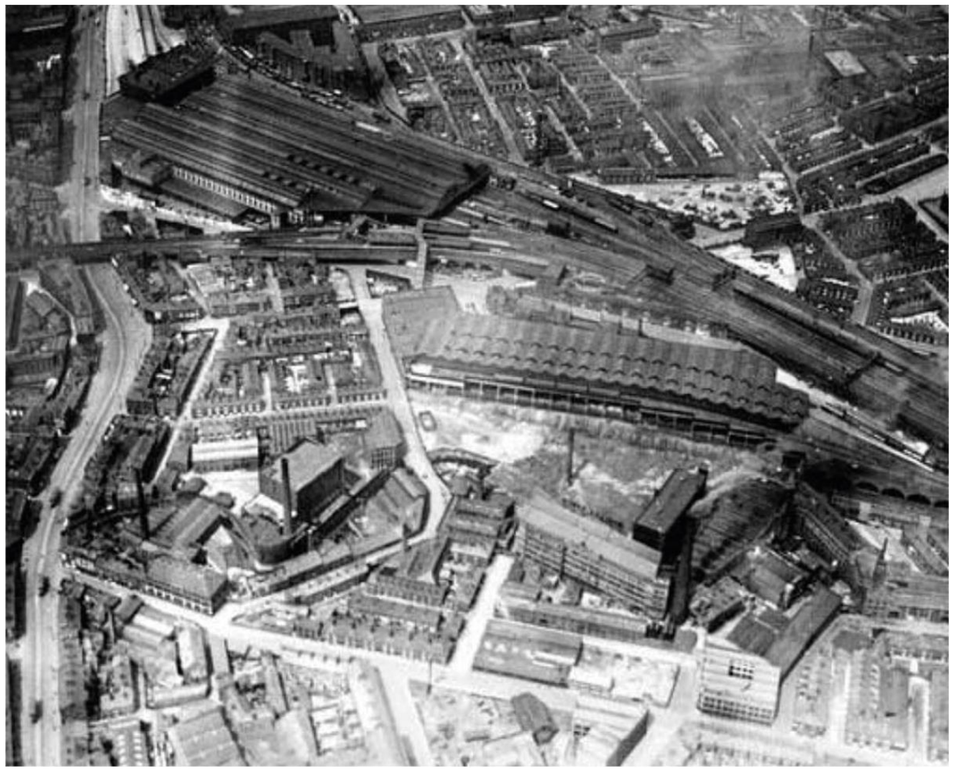




Escape to Freight Island, Mayfield Depot, Manchester

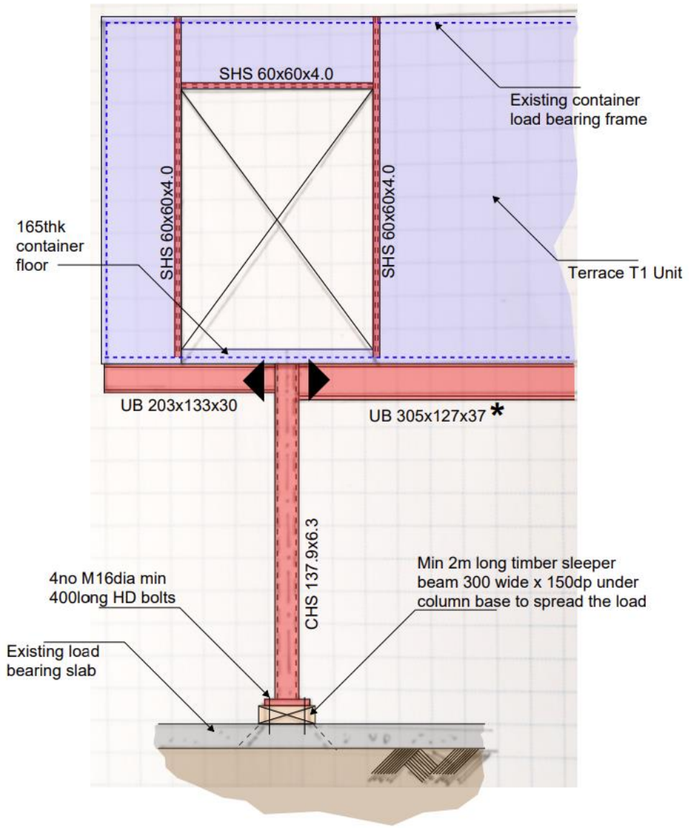
Site history

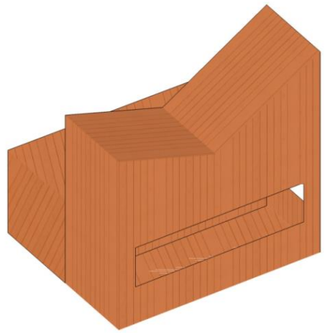
- Opened in **1910**, Mayfield was constructed as a four-platform relief station adjacent to Piccadilly to alleviate overcrowding.
- In 1960, the station was closed to passengers and in 1970 used as a parcel freight depot
- In **1986**, it was permanently closed to all services

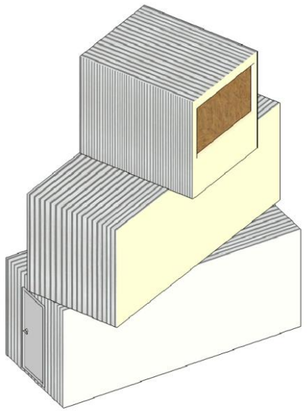


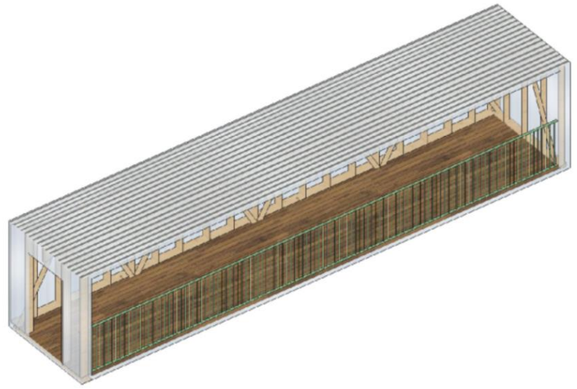
Escape to Freight Island, Mayfield Depot, Manchester

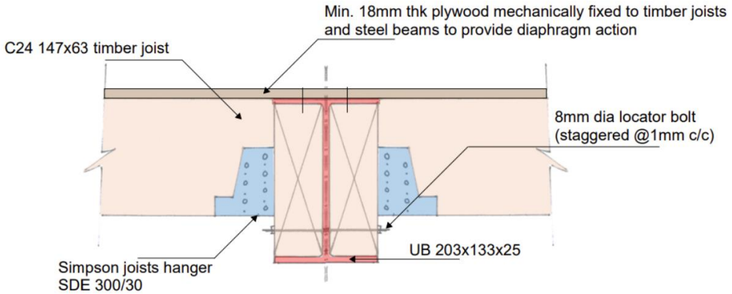
Selected Details – Shipping Containers

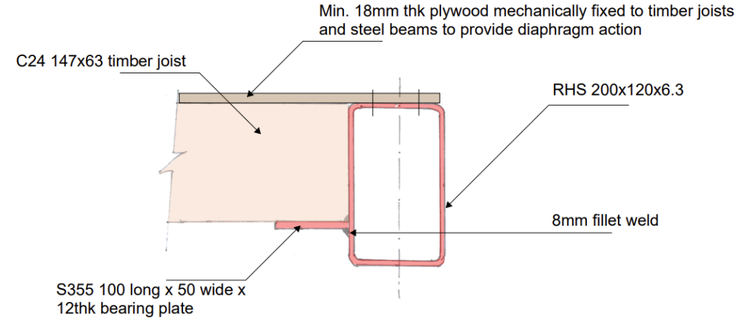


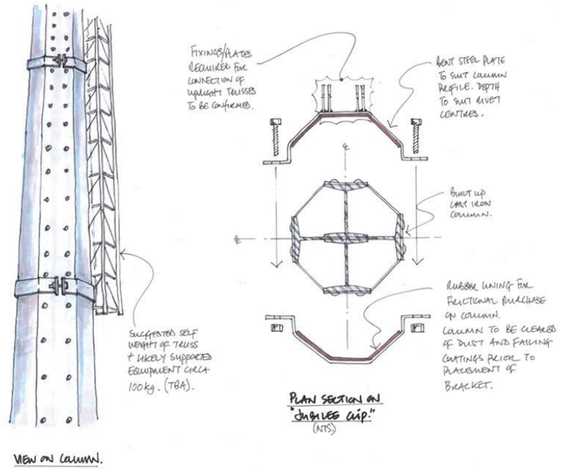










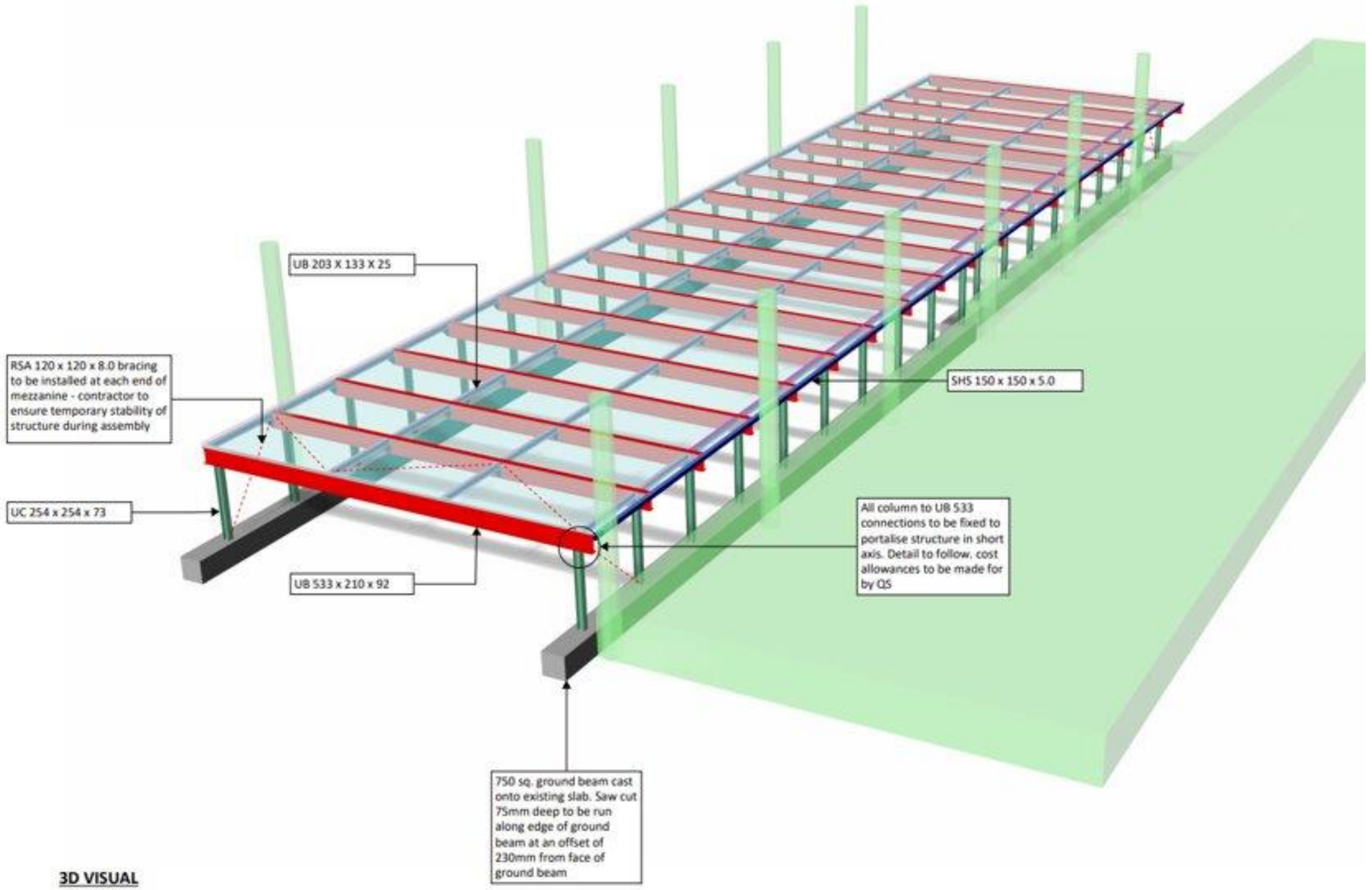


Escape to Freight Island, Mayfield Depot, Manchester

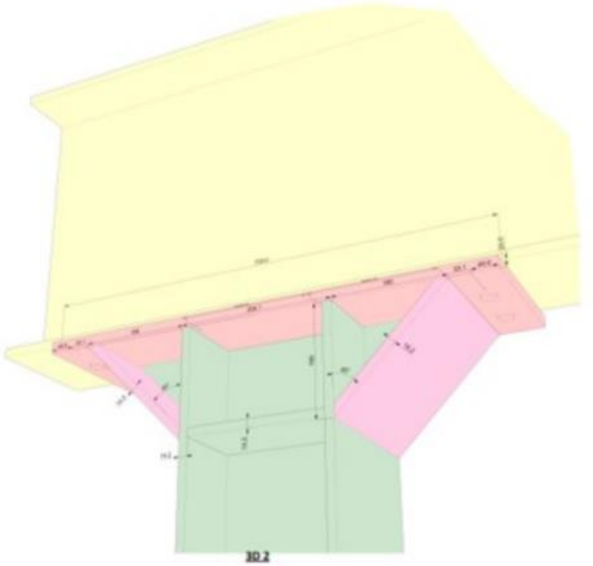
Selected Photographs – Shipping Containers

Escape to Freight Island, Mayfield Depot, Manchester

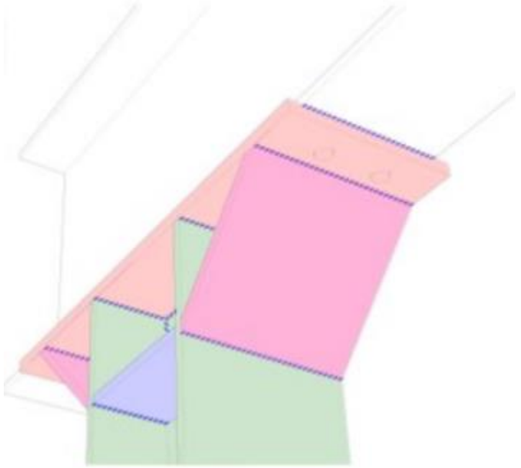
Mezzanine - Selected Details



3D VISUAL

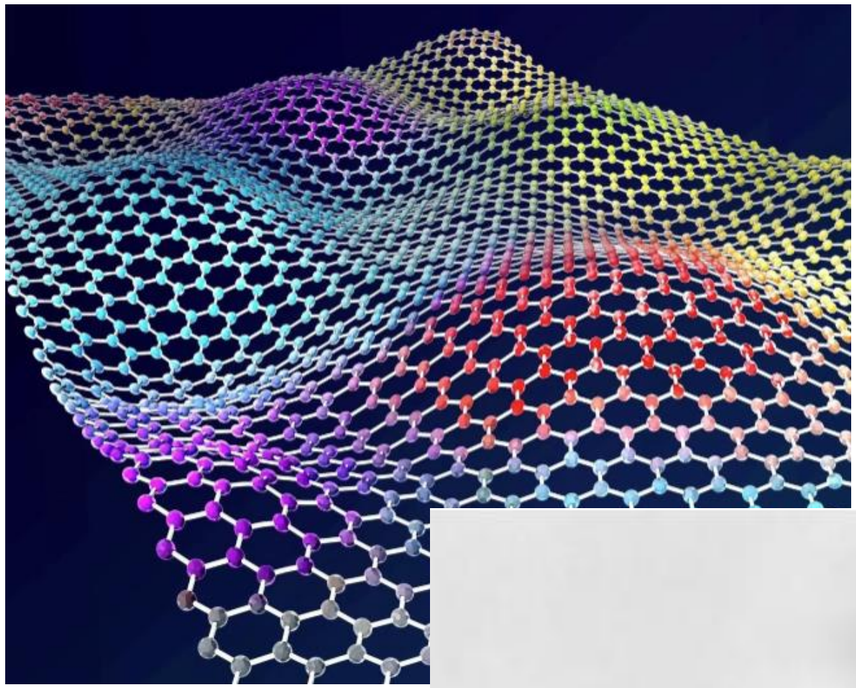


3D 2



Escape to Freight Island, Mayfield Depot, Manchester

Graphene Enhanced Concrete - Concretene



Escape to Freight Island, Mayfield Depot, Manchester

Mezzanine - Photographs

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NEWS

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The super material reinforcing rinks, cars and buildings

By Chris Baraniuk
Technology of Business reporter

4 days ago

U+I MARK WAUGH

It's not any old concrete at Manchester's Depot Mayfield development

Escape to Freight Island, Mayfield Depot, Manchester

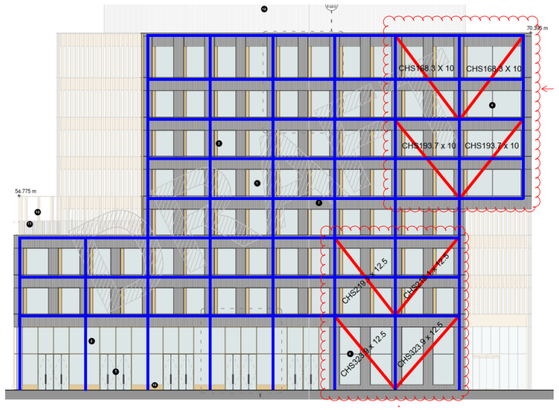
Finished Product Photographs

https://www.youtube.com/watch?v=ljofPHaxtXQ

Mayfield – Plot O

Mayfield – Plot O

6m Cantilever



VIERENDEEL TRUSS OPTION

UB 610x305x179

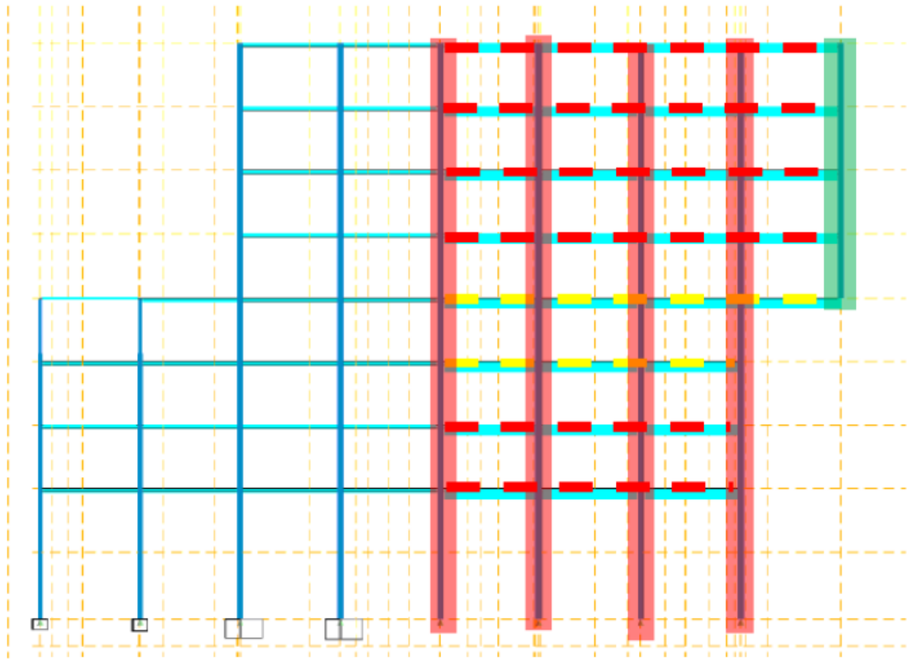
UB 610x305x149

UC 350x406x287

UC 350x406x340

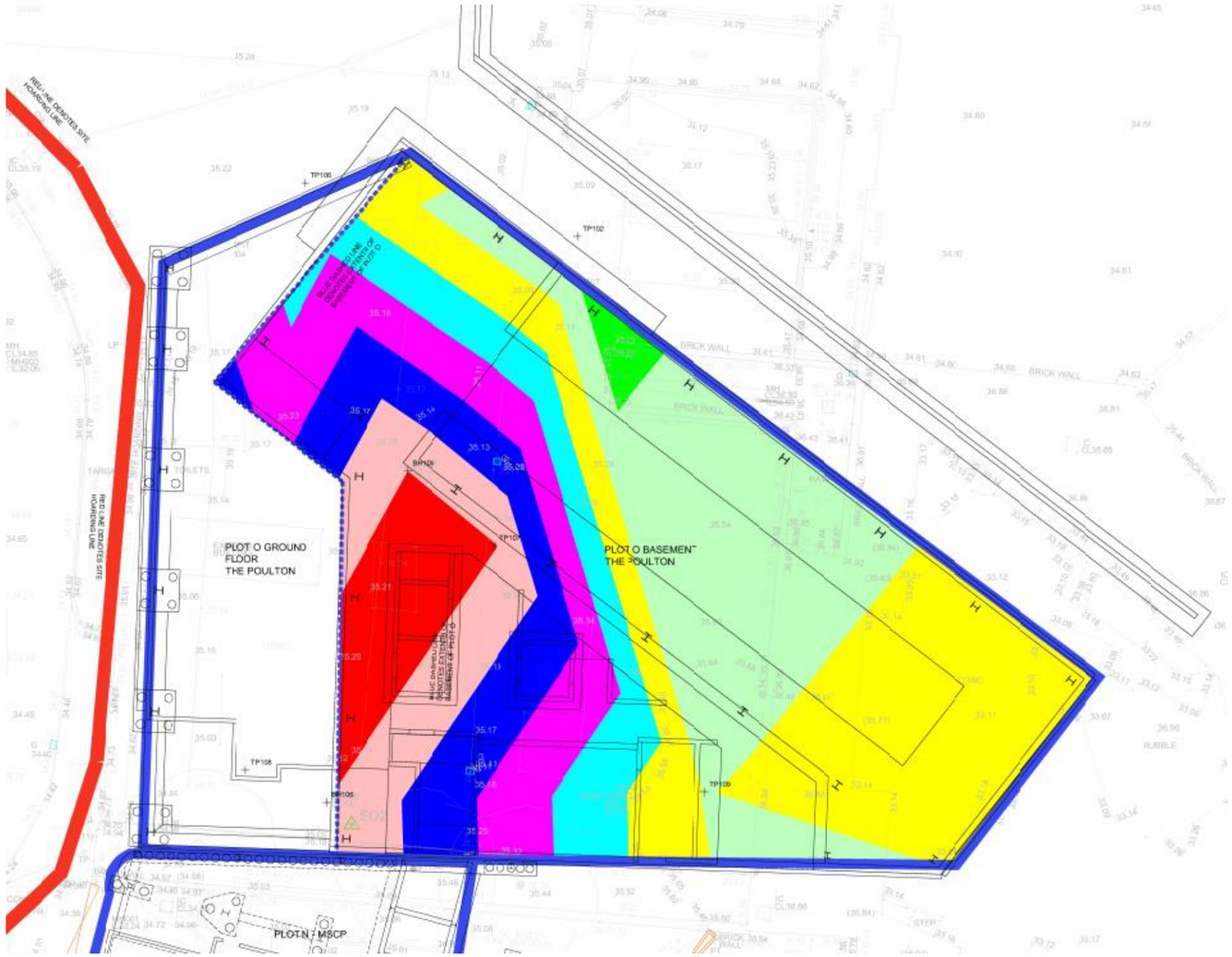
NOTE

Analysis shows a 6% increase in structural steelwork weight. Compared with the initial braced proposal.



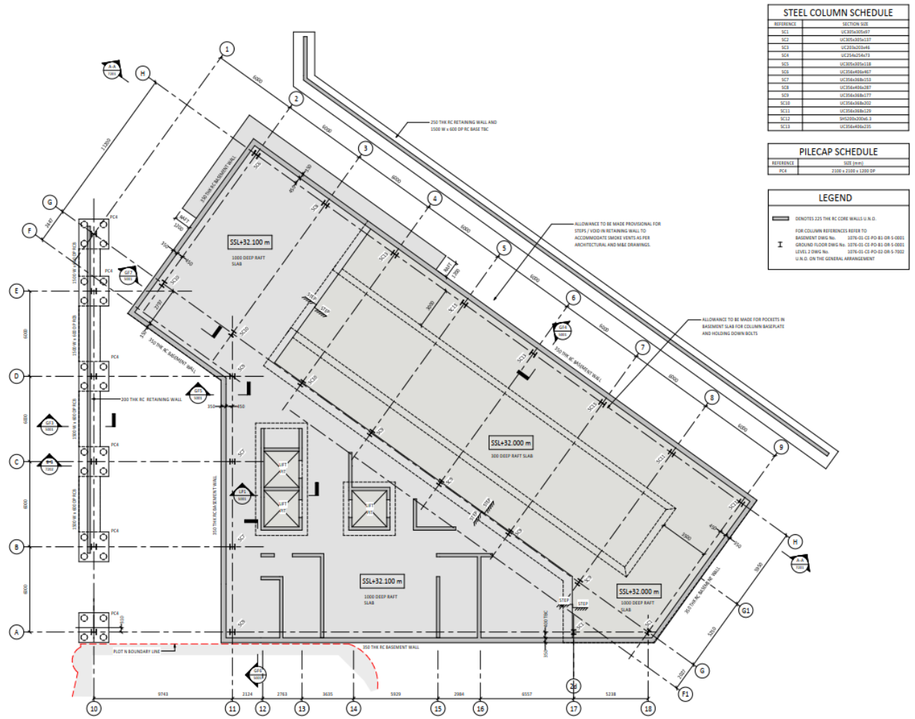
Mayfield – Plot O

Basement



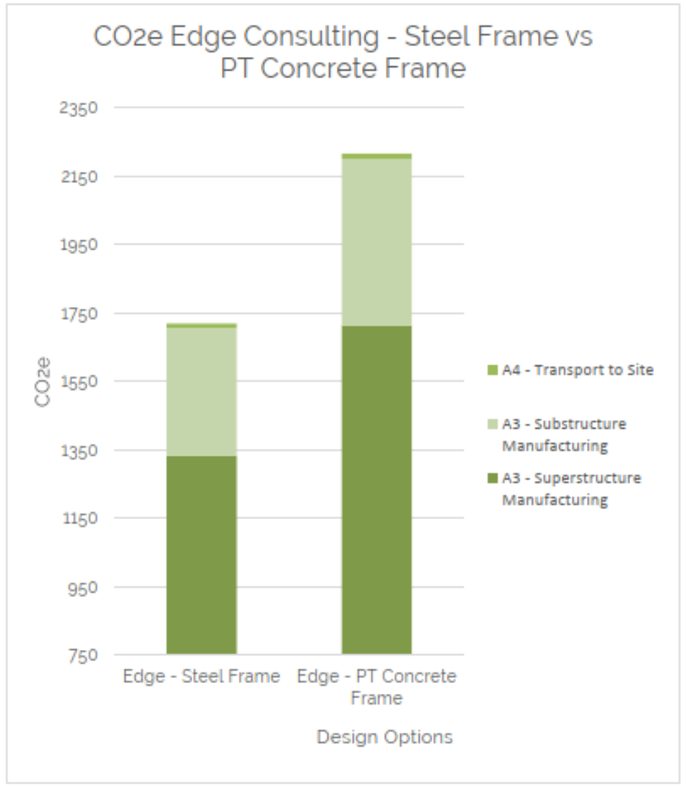
LEGEND

SURFACE LEVEL DATA			
NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	-4.00	-3.50	
2	-3.50	-3.00	
3	-3.00	-2.50	
4	-2.50	-2.00	
5	-2.00	-1.50	
6	-1.50	-1.00	
7	-1.00	-0.50	
8	-0.50	0.00	



Mayfield – Plot O

Embodied Carbon



A4-A5: 188 $kgCO_2e/m^2$ NIA
Steel Frame - Superstructure

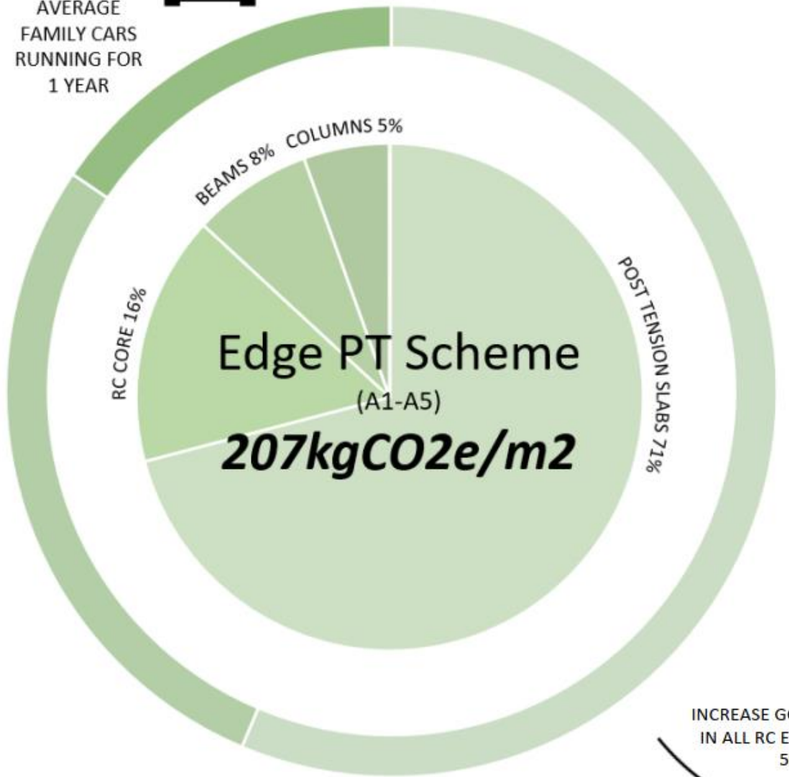
A4-A5: 242 $kgCO_2e/m^2$ NIA
PT Frame - Superstructure

Edge Embodied Carbon levels - PT Scheme

CONSIDERS ONLY SUBSTRUCTURE AND SUPERSTRUCTURE

691
AVERAGE FAMILY CARS RUNNING FOR 1 YEAR

1256
PEOPLES MEAT, DAIRY AND BEER CONSUMPTION FOR 1 YEAR



2513
ONE-WAY FLIGHTS FROM LONDON TO NEW YORK

THIS SCHEME EQUATES TO...

INCREASE GGBS CONTENT IN ALL RC ELEMENTS TO 50%

22%
CARBON SAVING

162kgC02e/m2

RIBA TARGET (A1-A5)	LANDSEC TARGET (A1-A5)
144kgC02e/m2 (this value considers superstructure plus substructure)	**900kgC02e/m2** (this value considers all embodied carbon elements i.e architectural fit-out, M&E equipment etc...)