



Mainer Associates

# Pioneering Sustainable Development

**We are agile**

**We are expert led**

**We are innovators**



# BAM | OCH Library & Foodhall

Appendix A: Work Stage 4 KPI Update

#Mainer5385 | Revision A | 18 December 2024



## VERSION CONTROL

Quality Information			
Project Title:	OCH Library & Foodhall		
Version:	A		
Date:	18/12/2024		
Author:	Jacob Smith	Review:	Ben Sidebottom
Job Title:	Sustainability Consultant	Job Title:	Associate Director

Version History			
Version	Version Details	Issued Date	Issued By
A	Initial Version for Review	18/12/2024	BPS

Distribution List	
Name	Association / Company Name
Chris Benbow	Bam Construction Ltd
Adam Bowman	Bam Construction Ltd
Ben Wells	Mainer Associates
Ben Sidebottom	Mainer Associates
Dom Wintie	Mainer Associates

© Mainer Associates Ltd ("Mainer") owns the copyright of this report and it has been written for the sole and confidential use of our client (the "Client") in accordance with generally accepted consultancy principles. It must not be reproduced whole or in part without the express written authorisation of Mainer Associates Ltd. Any third party relying on this report does so at their own risk. Mainer accepts no duty or responsibility (including negligence) to any such third party.

## Contents

<b>Version Control</b>	<b>4</b>
<b>1.0 Introduction</b>	<b>7</b>
<b>2.0 The Proposed Development</b>	<b>9</b>
<b>3.0 Sustainability Appraisal</b>	<b>11</b>
<b>Circular Economy &amp; Embodied Carbon</b>	<b>11</b>
<b>Net Zero Operational Carbon</b>	<b>14</b>
<b>Certification</b>	<b>17</b>
<b>Biodiversity, Ecology &amp; SUDS</b>	<b>20</b>
<b>Climate Risk</b>	<b>22</b>
<b>Transport</b>	<b>25</b>
<b>Health &amp; Wellbeing</b>	<b>28</b>
<b>Water Use &amp; Sustainable Urban Drainage</b>	<b>30</b>
<b>4.0 Conclusion</b>	<b>33</b>
<b>Appendix A: EVIDENCE</b>	<b>36</b>

# Introduction



# 1.0 INTRODUCTION

The 'Our Cultural Heart' (OCH) development aims to establish a landmark centrepiece in Huddersfield Town Centre. Our Cultural Heart aims to reinvigorate the area of Huddersfield town centre between Queensgate, Queen Street, King Street and Victoria Lane. This ambitious project aims to benefit both Huddersfield and the wider Kirklees area with the refurbishment of the Grade II listed Queensgate Market building.

The following document is a sustainability statement written in reference to 'Kirklees Cultural Heart – Sustainability Statement' (Ref. AR-5878-01), by Etude, dated 30.09.2022 – Submitted as part of the Planning Submission pertaining to the overall Kirklees Cultural Heart Development. In reference to the aforementioned, this document reviews the changes made to the Library and Food Hall elements of the development scheme and how they relate to the original Sustainability Brief of the project.

This document will explore how the OCH project has met the KPI metrics set out for the project previously in line with the aims and priorities of the 'Kirklees Local Plan, 2019'. Along with providing clear evidence and explanation as to how the project has met the core targets set out in the original sustainability brief, this statement will examine if and how the project team has attempted to achieve the aspirational metrics.

In addition, this statement identifies and explores where this phase of the development has failed to meet the targets set. Where shortfalls have been identified, this statement goes on to establish the reasons behind the development not achieving its targets and then goes on to establish how the development can realign itself with the targets.

# The Proposed Development



## 2.0 THE PROPOSED DEVELOPMENT

The Kirklees Cultural Heart in Huddersfield is a Council-led regeneration initiative in Huddersfield town centre. The first phase of the initiative focuses on the redevelopment of a Grade II listed indoor market hall and library into a modern state-of-the-art public library and indoor food hall. The building will undergo a transformative redevelopment including demolition of parts of the market and a refurbishment of the remaining fabric into a fit for purpose cultural hub.

The Food Hall will be housed in the former market hall and become a venue for people to enjoy food and drink during the nighttime, contributing to the local economy. The space will celebrate the character of the Grade II listed building and will spill out into the new external square which will be able to host large scale external events of up to 3,000 people.

The current library has declined in popularity with less and less visitors each year which has been attributed to the closure of local shops and the impact of the Covid pandemic. The redevelopment will see the library become a state-of-the-art public library that will also house the West Yorkshire Archive Service (WYAS). The aim of the redevelopment is to reinvigorate the area of Huddersfield town centre and become a focal point for social and community engagement.



# Sustainability Appraisal



## 3.0 SUSTAINABILITY APPRAISAL

### Circular Economy & Embodied Carbon

Table 1.0: Circular Economy & Embodied Carbon

Core Targets		Metric	Achieved	Evidence
1	Undertake a pre-demo & refurbishment audit	TBC	Yes	Pre-demolition and Refurbishment audit, carried out on 28.06.2022
2	Target best practice embodied carbon performance	Per Building	No	Whole Life Carbon Assessments for the Library and Foodhall completed by Mainer Associates
3	Waste diversion from landfill	100%	Yes	Commitment
4	Construction Waste Management   Refurbishment	≤ 3.5 tonnes / 100m <sup>2</sup> GIA	Yes	Commitment
5	Construction Waste Management   New Build	≤ 11.1 tonnes / 100m <sup>2</sup> GIA	Yes	Commitment
6	Sustainable and responsibly sourced timber	100%	Yes	Commitment
7	Responsibility sourced materials - EPDs	50%	Yes	Commitment
Aspirational Targets		Metric	Achieved	Evidence
8	Construction Waste Management   Refurbishment	≤ 0.4 tonnes / 100m <sup>2</sup> GIA	N/A	Commitment
9	Construction Waste Management   New Build	≤ 3.2 tonnes / 100m <sup>2</sup> GIA	N/A	Commitment

## Core Targets:

1. **UNDERTAKE A PRE-DEMOLITION & REFURBISHMENT AUDIT:** A Pre-demolition and Refurbishment audit was carried out by Sustainable Construction Services across the wider Our Cultural Heart redevelopment site. This report was issued on the 28<sup>th</sup> of June 2022. Though this report applies to the wider development site, pages 14-18 contain an audit specifically for the Market Hall building.

The audit determined the material make-up of the building prior to any work or changes whilst also identifying where in the building major material groups are located. In addition, the audit identified a significant number of fixtures present in the building which would be suitable for “relocation prior to/ to be retained through- the refurbishment process”. Examples of these include Fans, Radiators, Phones, Water tank, etc. The Audit also contains a thorough examination of specific materials and fittings from across the site and identifies not only the proposed changes they will undergo during the refurbishment, e.g. to be retained or stripped, but also it recommends actions to be taken in order to minimise waste as well as maximise recycling.

From the above, it is evident that a thorough and timely Pre-demolition and Refurbishment audit was carried out for this redevelopment. As such, this Core target has been achieved.

2. **TARGET BEST PRACTICE EMBODIED CARBON PERFORMANCE:** Mainer Associates undertook a Whole Life Carbon Assessment (WLCA) for both the Library and the Foodhall. The WLCA was undertaken in line with the RICS 2<sup>nd</sup> Edition Professional Standard for Whole Life Carbon assessments in the built environment (2023) using material quantities and specifications provided by BAM Construction Ltd.

The WLCA results showed that Whole Life Embodied Carbon (A1-A5, B1-B5, C1-C4) of the Library and Foodhall was 735 kgCO<sub>2e</sub>/m<sup>2</sup> & 602 kgCO<sub>2e</sub>/m<sup>2</sup>. Moreover, these results include an uncertainty factor of 11% which is a mandatory inclusion for a RICS v2 (2024) and is designed to account for the uncertainty in material quantities included in the assessment as well as the quality of the carbon datapoints selected for each material. The Whole Life Embodied Carbon (A1-A5, B1-B5, C1-C4) of the Library and Foodhall, excluding the uncertainty factor, was 662 kgCO<sub>2e</sub>/m<sup>2</sup> & 544 kgCO<sub>2e</sub>/m<sup>2</sup>.

The Stage 4 result falls short of the project target of embodied carbon performance of <350 kgCO<sub>2e</sub>/m<sup>2</sup>, set out at early stages in the Energy and Sustainability KPI tracker.

However, it should be noted that the results above include some worst-case assumptions due to limited information availability. The divergence of the fabric and servicing designs from the Stage 2 design, and the more intrusive than expected remedial works required to the building structure, are two of the changes instigated since the original targets were set, which should also be acknowledged. For refurbishment projects, it is vital that as the design progresses, WLCA results and targets are updated to ensure they fully reflect the work taking place.

The WLCA report argued that the Embodied Carbon target is potentially misleading, given that the building's do not fit exactly the LETI office benchmark, which was initially used, nor the original designs in place when the targets were set. As such, the report recommends amending the targets to more accurately reflect the building type and newly established industry benchmarks.

3. **WASTE DIVERSION FROM LANDFILL:** The Design Stage Site Waste Management Plan (SWMP) was produced by ARUP in line with the Kirklees Councils requests and was included in the planning submission. The SWMP contained waste diversion from landfill commitments which are in line with the targets set out above. At this stage of the development no updated SWMP can be provided to confirm that the landfill diversion target has been met. However, the commitments made within the SWMP are still upheld and a current this is considered evidence of this target being met.
4. **CONSTRUCTION WASTE MANAGEMENT | REFURBISHMENT:** The Design Stage Site Waste Management Plan (SWMP) was produced by ARUP in line with the Kirklees Councils requests and was included in the planning submission. The SWMP contained refurbishment construction waste management commitments which are in line with the targets set out above. At this stage of the development no updated SWMP can be provided to confirm that the construction waste target has been met. However, the commitments made within the SWMP are still upheld and a current this is considered evidence of this target being met.
5. **CONSTRUCTION WASTE MANAGEMENT | NEW BUILD:** The Design Stage Site Waste Management Plan (SWMP) was produced by ARUP in line with the Kirklees Councils requests and was included in the planning submission. The SWMP contained new build construction waste management commitments which are in line with the targets set out above. At this stage of the development no updated SWMP can be provided to confirm that the construction waste target has been met. However, the commitments made within the SWMP are still upheld and a current this is considered evidence of this target being met.
6. **SUSTAINABLE AND RESPONSIBLY SOURCED TIMBER:** At the current design stage, no evidence can be provided to confirm that all the timber used on site will be sustainably and legal sourced. However, the developer has committed to the use of 100% sustainably and responsibly sourced timber. Evidence of this commitment can be seen in the most recent BREEAM assessment tracker, which shows that the Man03 and Mat03 pre-requisites have been targeted. Furthermore, both require that all timber and timber-based products used on the project is legally harvested and FSC or PEFC certified.
7. **RESPONSIBILITY SOURCED MATERIALS – EPDs:** At this current stage, it is not possible to provide evidence to confirm that at least 50% of the materials specified and utilised on site are responsibly sources and have currently valid EPD's. However, the developer has committed to ensuring that the 50% minimum target will be met.

Evidence for this commitment for the New Construction section of the development can be found within the latest BREEAM assessment tracker. The assessment shows the commitment to achieving the Mat02 Criteria for the Library BREEAM New construction assessment.

### Aspirational Targets:

8. **CONSTRUCTION WASTE MANAGEMENT | REFURBISHMENT:** The Design Stage Site Waste Management Plan (SWMP) was produced by ARUP in line with the Kirklees Councils requests and was included in the planning submission. The SWMP contained refurbishment construction waste management aspirational commitments which are in line with the aspirational targets set out above. At this stage of the development no updated SWMP can be provided to confirm that the construction waste target has been met. However, the commitments made within the SWMP are still upheld and a current this is considered evidence of this target being met.
9. **CONSTRUCTION WASTE MANAGEMENT | NEW BUILD:** The Design Stage Site Waste Management Plan (SWMP) was produced by ARUP in line with the Kirklees Councils requests and was included in the planning submission. The SWMP contained new build construction waste management aspirational commitments which are in line with the aspirational targets set out above. At this stage of the development no updated SWMP can be provided to confirm that the construction waste target has been met. However, the commitments made within the SWMP are still upheld and a current this is considered evidence of this target being met.

## Net Zero Operational Carbon

Table 2.0: Net Zero Operational Carbon				
	Core Targets	Metric	Achieved	Evidence
1	Space heating & cooling demand	kWh/m <sup>2</sup> <sub>TFA</sub> /yr	Library – Yes Foodhall – No (marginal)	Confirmation from Nulla Carbo
2	Energy use intensity	kWh/m <sup>2</sup> <sub>GIA</sub> /yr	Library – Yes Foodhall – No (justified)	Confirmation from Nulla Carbo
3	Renewable energy	kWh/m <sup>2</sup> <sub>fp</sub> /yr	No	It was not possible to installed PV cells to this phase of works
4	No fossil fuels combusted on site	Not present	Yes	TM54 reports from Nulla Carbo and Building plans
5	Carbon content of heating / cooling	20gCO <sub>2</sub> /kWh	Likely - TBC	Confirmation from Nulla Carbo – confirmation of correct calculation method required to confirm
6	Carbon emission offsetting	Tonnes CO <sub>2</sub>	N/A	Confirmation from Nulla Carbo

### Core Targets:

- 1. SPACE HEATING AND COOLING DEMAND:** Nulla Carbo has confirmed that the space heating and cooling demand for the buildings based on the current project designs. These are 10.93 kWh/m<sup>2</sup><sub>TFA</sub>/yr for the Library and 41.45 kWh/m<sup>2</sup><sub>TFA</sub>/yr for the Foodhall. Therefore, the Library has met its target of 40 kWh/m<sup>2</sup><sub>TFA</sub>/yr, while the Foodhall has exceeded this target but only very slightly.

It should be noted that the heating and cooling demand target was based on previous designs for the Foodhall as an untreated space. As the Foodhall is now being designed as a treated space, the current target may be too stringent for the new design and should potentially be reassessed to ensure its relevance.

- 2. ENERGY USE INTENSITY:** Nulla Carbo has confirmed the energy use intensity for the buildings based on the current project designs. These are 21.97 kWh/m<sup>2</sup><sub>GIA</sub>/yr for the Library and 193.72 kWh/m<sup>2</sup><sub>GIA</sub>/yr for the Foodhall. Therefore, the Library has met its target of 60 kWh/m<sup>2</sup><sub>GIA</sub>/yr, while the Foodhall has exceeded this target.

It should be noted that energy intensity target does not suitably consider tenant energy use / the servicing to the now 'treated' foodhall space. The TM54 analysis completed by Nulla Carbo, which has been used here to assess the building's energy use intensity, does include tenant energy use and full servicing to the foodhall. Therefore, it cannot be expected to meet this target based on these calculations.

- 3. RENEWABLE ENERGY:** It can be confirmed by design drawings and the TM54 reports completed by Nulla Carbo that no renewable energy generation will take place on site. The installation of any form of solar array would lead to significant alterations to the existing building fabric which would be against the heritage requirements of the building. As such, this sustainability target will not be examined at this stage or carried forward.
- 4. NO FOSSIL FUEL COMBUSTED ON SITE:** The two stage 4 operational energy reports from Nulla Carbo, produced on 21.06.2024 (Library) and 31.07.2024 (Foodhall), as well as the proposed building plans all show that no fossil fuel combustion will take place on site post-redevelopment.

Nulla Carbo's operation energy reports predict the operational energy performance of the proposed buildings. They aim to account for all energy consumption in the redeveloped buildings and have the advantage of being better informed as well as more detailed than compliance calculations. The reports do this by accurately modelling the redevelopment's energy use under various scenarios which begins with collecting accurate building information from the design team through a TM54 compliant worksheet. As such, the reports are able to accurately show that none of the energy utilised in the building will be from on-site fossil fuel combustions.

In addition, the stage four building plans show that there will be no fossil-fuel combustion equipment installed on site as part of this development. Furthermore, it can be confirmed that the OCH redevelopment meets the No fossil fuel combusted on site core target.

5. **CARBON CONTENT OF HEATING / COOLING:** Nulla Carbo has confirmed the Carbon content of heating/cooling for the buildings based on the current project designs. These are 144.29 gCO<sub>2</sub>/kWh for the Library and 141.49 gCO<sub>2</sub>/kWh for the Foodhall. The reported figures are based on current grid emissions. The 20 gCO<sub>2</sub>/kWh target should be achievable with the decarbonisation of the grid in future as all the building systems are electric – the correct calculation method required by the KPI report is required to progress in this area.
  
6. **CARBON EMISSION OFFSETTING:** Nulla Carbo has confirmed the Carbon emission offsetting for the buildings based on the current project designs. These are 118.38 Tonnes CO<sub>2</sub> for the Library and 55.43 Tonnes CO<sub>2</sub> for the Foodhall.

## Certification

Table 3.0: Certification				
Core Targets		Metric	Achieved	Evidence
1	BREEAM New Construction 2018 for Library	Excellent	Yes	BREEAM Design Stage Tracker
2	BREEAM Refurb & Fit-out 2014 for Library	Excellent	Yes	BREEAM Design Stage Tracker
3	BREEAM Refurb & Fit-out 2014 for Foodhall	Excellent	Yes	BREEAM Design Stage Tracker
Aspirational Targets		Metric	Achieved	Evidence
4	BREEAM New Construction 2018 for Library	Outstanding	No	Not part of present cost plan – as per Stage 2
5	BREEAM Refurb & Fit-out 2014 for Library	Outstanding	No	Not part of present cost plan – as per Stage 2
6	BREEAM Refurb & Fit-out 2014 for Foodhall	Outstanding	No	Not part of present cost plan – as per Stage 2
7	Passivhaus Certification	Achieve	No	Not part of present cost plan – as per Stage 2
8	EnerPHit Certification	Achieve	No	Not part of present cost plan – as per Stage 2
9	Passivhaus Process with Bespoke Targets	Achieve	No	Not part of present cost plan – as per Stage 2

### Core Targets:

- 1. BREEAM EXCELLENT NEW CONSTRUCTION 2018 FOR LIBRARY:** The most recent BREEAM Design Stage Tracker document provided by the BREEAM assessor confirms that the assessment is on track to achieve the targeted assessment rating. The baseline targeted assessment rating for the new construction development is 79.4% with an extra target of 80.2% and a current achieved rating of 62.6%. This confirms that the BREEAM assessment is currently course to achieving the targeted rating as the minimum requirement for an excellent rating is 70%.
- 2. BREEAM EXCELLENT REFURB & FIT-OUT 2014 FOR LIBRARY:** The most recent BREEAM Design Stage Tracker document provided by the BREEAM assessor confirms that the assessment is on track to achieve the targeted assessment rating. The baseline targeted assessment rating for the new construction development is 74.3% with an extra target of 75.8% and a current achieved rating of 56.7%. This confirms that the BREEAM assessment is currently course to achieving the targeted rating as the minimum requirement for an excellent rating is 70%.
- 3. BREEAM EXCELLENT REFURB & FIT-OUT 2014 FOR FOODHALL:** The most recent BREEAM Design Stage Tracker document provided by the BREEAM assessor confirms that the assessment is on track to achieve the targeted assessment rating. The baseline targeted assessment rating for the new construction development is 75.5% with an extra target of 77.1% and a current achieved rating of 61.5%. This confirms that the BREEAM assessment is currently course to achieving the targeted rating as the minimum requirement for an excellent rating is 70%.

### Aspirational Targets:

- 4. BREEAM OUTSTANDING NEW CONSTRUCTION 2018 FOR LIBRARY:** Under the current cost plan there is no intention or possibility of achieving a BREEAM Outstanding rating on the new construction assessment of the library. This is confirmed by the most recent BREEAM Design Stage assessment trackers which confirm that only a rating of BREEAM Excellent is being targeted for this assessment. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.
- 5. BREEAM OUTSTANDING REFURB & FIT-OUT 2014 FOR LIBRARY:** Under the current cost plan there is no intention or possibility of achieving a BREEAM Outstanding rating on the Refurb & Fit-out assessment of the library. This is confirmed by the most recent BREEAM Design Stage assessment trackers which confirm that only a rating of BREEAM Excellent is being targeted for this assessment. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.

6. **BREEAM OUTSTANDING REFURB & FIT-OUT 2014 FOR FOODHALL:** Under the current cost plan there is no intention or possibility of achieving a BREEAM Outstanding rating on the Refurb & Fit-out assessment of the Foodhall. This is confirmed by the most recent BREEAM Design Stage assessment trackers which confirm that only a rating of BREEAM Excellent is being targeted for this assessment. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.
7. **PASSIVHAUS CERTIFICATION:** Under the current cost plan there is no intention of assessing for and achieving a Passivhaus Certification for either the library or foodhall. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.
8. **ENERPHIT CERTIFICATION:** Under the current cost plan there is no intention of assessing for and achieving a EnerPHit Certification for either the library or foodhall. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.
9. **PASSIVHAUS PROCESS WITH BESPOKE TARGETS:** Under the current cost plan there is no intention of assessing for and undertaking the Passivhaus Process with Bespoke Targets for either the Library or Foodhall. As such, this aspirational target has not been achieved. Therefore, no change since Stage 2.

## Biodiversity, Ecology & SUDS

Table 4.0: Biodiversity, Ecology & SUDS				
Core Targets		Metric	Achieved	Evidence
1	Protection of existing features of high importance	100%	Yes	Planting Plan and planning statement & Arup Ecological Design Strategy and Habitat Management Plan for Phase 1
2	Biodiversity Net Gain	50%+	Yes – within potential for phase	Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup Ecology
3	Kirklees Council's Biodiversity Action Plan – Planting	100%	Yes – within potential for phase	Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup Ecology
4	Urban Greening Factor	>0.4	Yes – within potential for phase	Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup Ecology
5	Tree canopy cover	10%	Yes – within potential for phase	Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup Ecology
Aspirational Targets		Metric	Achieved	Evidence
6	Building with Nature certification	Achieve	No	Not part of the current plan
7	Carbon Sequestration	Report	No	N/A

### Core Targets:

1. **PROTECTION OF EXISTING FEATURES OF HIGH IMPORTANCE:** In line with Kirklees Local Plan Planning Policy LP 30 – Biodiversity and Geodiversity, the redevelopment's planning statement confirms that an Ecological appraisal carried out by AECOM in 2019 concluded that there was limited ecological value on site.

However, the Arup Ecological Design Strategy confirms that although Phase 1 plans caused the loss of 0.146 hectares of 'Urban tree' and 0.017 hectares of 'modified grassland'. Nevertheless, none of the losses were of any existing features of high importance as part of Phase 1 of the redevelopment.

2. **BIODIVERSITY NET GAIN:** The Ecological Design Strategy by Arup confirms that Phase 1 of the development plan delivers 0.53 habitat units. This leaves 2.02 units to be delivered by subsequent phases in order to achieve the 10% BNG minimum required by the Local Planning Authority. As such, potential gains in this area exist outside the boundary of Phase 1 of the development as the opportunities for gains within it have been maximised.
3. **KIRKLEES COUNCIL'S BIODIVERSITY ACTION PLAN – PLANTING:** The Habitat Management Plan compiled by Arup Ecology provides evidence of the Kirklees Council's Biodiversity Action Plan (KC BAP) habitats created within Phase 1. In addition, The Habitat Management Plan provides advice on the cultivation and management of the KC BAP habitats within Phase 1 of the design.
4. **URBAN GREENING FACTOR:** The potential for this development to achieve an Urban Greening Factor of greater than 0.4 exists outside of the boundary of Phase 1. However, the Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup confirms that the potential for achieving this within this phase of the development has been maximized.
5. **TREE CANOPY COVER:** The potential for this development to achieve 10% tree canopy cover exists outside of the boundary of Phase 1. However, the Ecological Design Strategy and Habitat Management Plan for Phase 1 by Arup confirms that the potential for achieving this within this phase of the development has been maximized.

### Aspirational Targets:

6. **BUILDING WITH NATURE CERTIFICATION:** As current, there is no plans to achieve this certification during Phase 1 of the development. Therefore, no change since Stage 2.
7. **CARBON SEQUESTRATION:** As current, there is no plans to achieve this during Phase 1 of the development. Therefore, no change since Stage 2.

## Climate Risk

Table 5.0: Climate Risk				
	Core Targets	Metric	Achieved	Evidence
1	Designing comfortable places – CIBSE TM52	Achieve	Yes	Thermal Comfort Reports for both the Foodhall and Library
2	Climate resilient SuDS	40% + improvement on greenfield runoff	Yes	Sustainable Drainage System Audit and Drainage Design Plan
3	Designing for durability and climate change	100%	Yes	Mainer climate change assessment. BREEAM Wst05 & BREEAM Mat05 have been achieved.
4	Extreme weather resilience	Ensure floor levels are more than 600mm above the flood level predicted for a 1:100 year flood event (plus climate change)	Yes	Flood Risk Assessment, Drainage Statement and Floor level drawings

### Core targets:

1. **DESIGNING FOR COMFORTABLE PLACES – CIBSE TM52:** Two separate CIBSE TM52-compliant thermal comfort reports were produced by Nulla Carbo for the Library (produced on 13.06.2024) and Foodhall (produced on 06.06.2024) sections of the redevelopment. The reports were conducted accurately to simulate the thermal performance of the redevelopment during both the summer and winter.

Both thermal comfort reports were undertaken in accordance with CIBSE AM11 'Building performance modelling'. They utilised the IES Virtual Environment software version 2023.5.1.0 to create a dynamic thermal model of the most current redevelopment building. Furthermore, these models were simulated using VE ApacheSim dynamic thermal

modelling software throughout an entire year. In line with the CIBSE recommendations for accurate TM52 calculation, the simulated internal conditions were recorded at one-hour intervals and DSY weather data was employed. These recordings were then compared to the requirements in Table 1.5 of CIBSE Guide A.

Nulla Carbo's reports showed that both buildings, under the current redevelopment plans, will meet all of the CIBSE TM52 thermal comfort requirements under current conditions as well as the conditions of projected climate change scenarios. As such, it can be confirmed that the OCH redevelopment's Designing for Comfortable Spaces target has been achieved.

2. **CLIMATE RESILIENT SUDS:** The Drainage Statement prepared by ARUP confirms that a Sustainable Drainage System Audit has been undertaken to identify where SuDs could be included in the drainage design. The SuDs identified for use of the wider redevelopment include blue roofs, bioretention systems, tree planting, attenuation tanks and permeable paving. These have been implemented into the drainage system of the wider site to ensure that there is a 30% reduction in run-off when compared to the existing site. In addition, the drainage design with SuDs included is designed to resist surface water flooding up-to the 1 in 100-year event which includes a 40% allowance for climate change. As such, we can see that the SuDs have been implemented into the wider redevelopments design and done so in-line with climate resilience.

As this site is not a greenfield pre-redevelopment, it is not possible to reach a 40% improvement on greenfield runoff. Given the number of SuDs included within the drainage system, the 30% runoff reduction compared to the existing site and the climate resilient flood prevention measures, it can be concluded that this design has achieved this core target.

3. **DESIGNING FOR DURABILITY AND CLIMATE CHANGE:** At stage 4, the project design has included for both designing for durability and climatic changes. The inclusion of designing for durability is evidenced by the design for durability report produced and included as part of the BREEAM Mat05 assessment. As the Mat05 criteria have been achieved, the design for durability report can be considered evidence that this core target has been achieved.

Designing for climate change has been included in the project as evidenced by the climate change adaptation report, which is included as part of the BREEAM Wst05 assessment. The Wst05 criteria have been achieved and as such, the Wst05 climate change adaptation report is evidence that the designing for climate change core target has been achieved.

As further evidence that this core target has been achieved, Mainer associates have produced Whole Life Carbon Assessment and Life Cycle Assessment reports for both the Library and the Foodhall. These reports detail the embodied carbon and life cycle carbon of the redevelopment. In addition, they provide options appraisals to provide lower carbon alternative materials. The Whole Life Carbon Assessment allows developers and designers to track not only the embodied carbon of the whole development, but also the embodied carbon of different elements of the redevelopment.

The achievement of the Mat05 and Wst05 criteria as well as the Carbon assessments, confirm that the redevelopment has been designed for durability and climate change.

4. **EXTREME WEATHER RESILIENCE:** As this project is a redevelopment which is retaining much of the existing building, it is difficult to ensure that the floor levels are more than 600mm above the predicted flood level. However, the design team have confirmed that the floor plate levels will not be altered as part of the redevelopment. This is also confirmed by the section drawings which show no alterations being made to the floor plate levels.

In addition to the above, both the Drainage Statement and Flood Risk Assessment completed by Ove Arup & Partners International Ltd provide evidence for that this target has been achieved. The Flood Risk Assessment confirms that there is a surface water flood risk present on site. However, both reports confirm that the drainage infrastructure has been designed to manage surface water flows and ensure that no flooding on site up to and including a 1:100year event with a 40% uplift due to climate change.

In combination, the above evidence confirms that the Extreme Weather Resilience Core Target has been achieved.

## Transport

Table 6.0: Transport				
Core Targets		Metric	Achieved	Evidence
1	Cycle spaces	1 per 10 people	Yes	Stage 4 Ground Floor General Arrangements
2	Electric car charging points	20% Active / 80% Passive	NA	No Car Parking associated with the development.
3	Accessibility for all users	100%	Yes	Stage 3 Access and Inclusivity Statement
Aspirational Targets		Metric	Achieved	Evidence
4	Electric Bike changing points	Report	No	Confirmation from design team and External plan drawings
5	Enhanced (larger) bike spaces	Report	No	Confirmation from design team and External plan drawings

### Core Targets:

- CYCLE SPACES:** The current design plans confirm that 15 bicycle hoops are planned to be installed externally, each with two cycle spaces which will total 30 cycle spaces available for public use on the site. In addition, 10 cycle spaces for staff will be provided within the buildings.

Occupancy calculations completed by Sustainable Construction Services Partnership, confirm that they require 10 spaces in total for staff across both the Library and Foodhall buildings to meet the BREEAM requirements. In addition, it confirms that 25 spaces are required in the public realm to meet the BREEAM requirements. As such, the provision of 40 spaces (10 internal and 30 external) across the site meets the 1 per 10 people requirements. Meaning, this core target has been achieved.

2. **ELECTRIC CAR CHARGING POINTS:** It was confirmed through the OCH redevelopment masterplans and design team discussions that no car parking will be present on the site. As such it can be confirmed that this core target was is not applicable to the OCH redevelopment.
3. **ACCESSIBILITY FOR ALL USERS:** The stage 3 Access and Inclusivity Statement, provided as part of the RIBA Stage 3 report, confirms the accessibility and inclusivity measures that will be undertaken or installed as part of the redevelopment.

The report confirms that during the design phase, an audit was carried out in order to identify all possible barriers and review key elements to ensure compliance with Building Regulations and best practice has occurred. It also confirms that the project team met with Kirklees' Inclusivity and Diversity Hub, Carers Count, Community Plus, Everybody Active, Huddersfield Wellness Centre, Kirklees Council BAME Network, Outlookers, Support to Recovery, Touchstone Support Autism Speaks, Young People's Activity Team, Kirklees Dementia Hub and others during the development of the scheme. This was to workshop the design proposals and tailor the scheme for accessibility and inclusion.

In addition, the Access and Inclusivity statement confirms that the future public spaces created by the redevelopment project will implement the following improvements to ensure a safe and accessible environment:

- A mixture of sloped and level accessible routes across the masterplan
- A publicly accessible lift between Queensgate and the park level
- New external ramp from Victoria Lane to the Museums Southern Entrance
- Sloped access from the park level to Queen St
- Sloped access from the outdoor event space, Library and Foodhall levels to Peel St
- Covered landscape seating
- Areas of rest on stair routes
- Level thresholds to all buildings
- Tactile paving at the top and bottom of stairs as well as at crossings

Furthermore, the statement confirms that there is excellent public transport around the site as it is close to rail, bus and cycle routes. Its close proximity to the Huddersfield Rail Station (~500m) and Huddersfield Bus Station (~350m), provides access to a range of local, regional and national rail and bus services. Also adjacent to the site are a number of cycle routes which pass through the town centre and a series of taxi drop-off bays. In summary, the site is very well connected and future users will be within walking distance of transport options which are varied and numerous.

The Access and inclusivity statement also contains the servicing strategy for the site. The servicing strategy contains details of the planned access tunnels for different delivery vehicles. Moreover, these access tunnels will allow deliveries to be made safely and directly to the Foodhall which ensures accessibility.

In summary, the site has been designed with accessibility and inclusivity in mind. The workshops with various charities during planning, the planned measures to ensure the new public spaces are accessible and safe, the accessible public transport connections and the planned services access are all evidence that this development meets this core target.

### Aspirational Targets:

4. **ELECTRIC BIKE CHARGING:** It has been confirmed by the design team that no Electric Bike Charging points will be installed as part of phase 1 of the wider redevelopment. This can also be seen by the lack of Electric Bike Charging points on the External plans. As such, we can confirm that the Electric Bike Charging Aspirational target will not be achieved for Phase 1, although is more appropriate for the carp parking areas as part of separate works.
5. **ENHANCED (LARGER) BIKE SPACES:** It has been confirmed by the design team that no Enhanced bike spaces will be installed as part of phase 1 of the wider redevelopment. This can also be seen by the lack of Enhanced bike spaces on the External plans. As such, we can confirm that the Enhanced bike spaces Aspirational target will not be achieved for Phase 1, although is more appropriate for the carp parking areas as part of separate works.

## Health & Wellbeing

Table 7.0: Health & Wellbeing				
Core Targets		Metric	Achieved	Evidence
1	An air quality neutral scheme	Improve air quality	Yes	TM54 reports, Building plans and Planting plans
2	No fossil fuels combusted on site	Not Present	Yes	TM54 reports from Nulla Carbo and Building plans
3	Daylighting Performance	Varies depending on building type	N/A – not targeted for this phase	BREEAM Design Stage Tracker
Aspirational Targets		Metric	Achieved	Evidence
4	Reduced NO <sub>x</sub> & O <sub>3</sub> levels	Report	Yes	TM54 reports, Building plans and Planting plans
5	Plant & Tree planting to improve air quality	Report	Yes	Planting plans

### Core targets:

- AN AIR QUALITY NEUTRAL SCHEME:** As previously discussed in this sustainability statement, the operational energy reports and the building plans show that no fossil fuel combustion will take place on site after the redevelopment (See page 16 for details). The planting specification and planting plans also provide evidence that this redevelopment will lead to improvements in air quality as there is extensive planting taking place across the wider site. The Landscape and Public Realm Strategy confirms that through vegetation filtration, the redevelopment will contribute to improvements in air quality.

By ensuring there is no fossil fuel combustion on site and by creating an outdoor space with enhanced vegetation coverage, the redevelopment will have a positive effect on air quality and thus achieve this core target.

2. **NO FOSSIL FUEL COMBUSTED ON SITE:** As previously discussed in this sustainability statement, the operational energy reports and the building plans show that no fossil fuel combustion will take place on site after the redevelopment (See page 16 for details). As such, it can be confirmed that the OCH redevelopment meets the no fossil fuel combusted on site core target.
3. **DAYLIGHTING PERFORMANCE:** The most recent BREEAM Assessment tracker, provided by Sustainable Construction Services, confirm that there has been no commitment to achieving daylighting performance. The BREEAM Hea 01 Daylighting Credit has not been targeted for the Library New Construction assessment, the Library Refurbishment assessment or the Foodhall Refurbishment assessment. As such, this target has not been achieved.

### Aspirational Targets:

4. **REDUCED NO<sub>x</sub> & O<sub>3</sub> LEVELS:** As previously discussed in this sustainability statement, the operational energy reports and the building plans show that no fossil fuel combustion will take place on site after the redevelopment (See page 16 for details). This will minimise the NO<sub>x</sub> being produced on site which will lower its levels in air. This will also have the knock-on effect of reducing the amount of ground level O<sub>3</sub> in the air as NO<sub>2</sub> is a key part in the reactions that form it.

In addition, the design team has committed to specifying the lowest possible volatile organic compound (VOC) containing materials on site. This will also lead to reduced O<sub>3</sub> as VOC's make up the other part of the reaction that leads to its formation at ground level.

In combination these two measures will result in reduced NO<sub>x</sub> & O<sub>3</sub> Levels on the site and thus achieve this target.

5. **PLANT & TREE PLANTING TO IMPROVE AIR QUALITY:** The project planning statement confirms that there are plans for a variety of planting around the site. This planting is mostly centred around the public space located near both the Foodhall and Library. Furthermore, this planting around the site will have a positive impact on the air quality around the OCH development. Evidence of this can be seen in the Stage 4 planting plans which show the most up to date locations for trees as well as wider planting. These plans are sufficient evidence that the project is complying with the 'Plant and Tree planting to improve air quality' Aspiration target.

## Water Use & Sustainable Urban Drainage

Table 7.0: Water Use & Sustainable Urban Drainage				
Core Targets		Metric	Achieved	Evidence
1	Internal water use	13 litres/person/day ARCB Standard flowrates	No	Commitment
2	External (landscape) area water use	No irrigation	Yes	External site plan and planting specification
3	Sustainable Urban Drainage	40% Improvement over Greenfield Rates	Yes	Commitment to current drainage plan
Aspirational Targets		Metric	Achieved	Evidence
4	Internal water use	10 litres/person/day	No	Commitment

### Core Targets:

- INTERNAL WATER USE:** It can be confirmed that the BREEAM Pre-assessment targets have been met in accordance with BREEAM target alignment. What is more, the WC's and Basin taps are improvements upon the AECB water standards. However, the specified showers do not meet the AECB requirements and as such should be re-specified to those with a flow rate of less than 8 l/min. Once this has taken place, both buildings will be in alignment with the required target for Internal Water Use.
- EXTERNAL (LANDSCAPE) AREA WATER USE:** The planting plan and planting specification both produced by Gillespies LLP confirm that the plants confirmed to be planted around the site will not require permanent irrigation. As such, external water use for landscaping and green areas will be rainfed only meaning that this core target has been met.

- 3. SUSTAINABLE URBAN DRAINAGE:** The Drainage Statement prepared by ARUP confirms that a Sustainable Drainage System Audit has been undertaken to identify where SuDs could be included in the drainage design. The SuDs identified for use of the wider redevelopment include blue roofs, bioretention systems, tree planting, attenuation tanks and permeable paving. These have been implemented into the drainage system of the wider site to ensure that there is a 30% reduction in run-off when compared to the existing site. In addition, the drainage design with SuDs included is designed to resist surface water flooding up-to the 1 in 100-year event which includes a 40% allowance for climate change. As such, we can see that the SuDs have been implemented into the wider redevelopments design and done so in-line with climate resilience.

As this site is not a greenfield pre-redevelopment, it is not possible to reach a 40% improvement on greenfield runoff. Given the number of SuDs included within the drainage system, the 30% runoff reduction compared to the existing site and the climate resilient flood prevention measures, it can be concluded that this design has achieved this core target.

#### Aspirational Targets:

- 4. INTERNAL WATER USE:** As per the Stage 2 design, this target will not be met for functionality / maintenance reasons.

# Conclusion



## 4.0 CONCLUSION

This Sustainability Statement demonstrates how the development proposals for the Our Cultural Heart Development adheres to sustainability planning policy at national and local levels. As a whole, both the Library and Foodhall developments are on track to or have demonstrated that they have met the requirements set out in the sustainability statements prepared at earlier stages as well as the Energy and Sustainability KPI's. This includes targets related to Carbon, Energy, Circular Economy, Water use, Ecology, Transport, Health and Certification.

Some targets are no longer applicable or appropriate to Phase 1 of the development these include the following:

1. Outstanding ratings on the Library NC as well as the Library and Foodhall RFO BREEAM assessments. In addition, the aspiration to achieve a PasivHaus and EnerPHit certification. These are no longer applicable as there is currently no plan to achieve them.
2. Targets to achieve an Urban Green Factor of more than 0.4 and to establish a minimum of 10% Tree Canopy Cover across the wider development site. These targets are no longer applicable as then potential for achieving them exists outside of Phase 1 of the development.
3. The aspirational targets to achieve Carbon Sequestrations through the site and to achieve a Building with Nature Certification. These aspirational targets are no longer applicable as then potential for achieving them exists outside of Phase 1 of the development.
4. The aspirational targets to install Electric Bike Charging stations and Enhanced bike spaces. These aspirational targets are no longer applicable as the potential for achieving them exists outside of Phase 1 of the wider development.
5. The target to achieve 30 kWh/m<sup>2</sup><sub>fp</sub>/yr Renewable energy generation on site. This target is no longer applicable as the PV supply to the roof has not gone forward due to architectural, aesthetic and maintenance concerns.
6. The target to achieve the BREEAM required Daylighting Performance. This target is no longer applicable as this BREEAM target is no longer being targeted for the assessments.

This Sustainability Report has also identified areas where both, or either the Library of Foodhall, has thus far failed to meet the pre-defined targets in several areas including both building's Embodied Carbon and water use figures, as well the energy intensity and carbon content of heating and cooling of the Foodhall. Where these shortfalls have occurred, this report has identified either pathways for improvement or areas where the targets may no longer be wholly appropriate for this phase of the development. These include:

1. Currently, the developments do not meet the internal water use target due to the specified showers having a flowrate higher than the ACEB water standards. This could be easily rectified by re-specifying the showers to units with flow rates lower than the 8 l/min required to be in line with AECB.
2. The stage 4 WLCA results show the developments are currently not meeting the required embodied carbon performance target ( $<350 \text{ kgCO}_2\text{e}/\text{m}^2$ ). The WLCA reports for the project explore this in detail, exploring future actions which would lead to a reduction in the figures achieved. The reports also seek to begin a conversation around the establishment of more suitable targets for the building uses concerned, as well as the Stage 4 scope of works, which is significantly altered from the Stage 2 assumptions.
3. Nulla Carbo have confirmed that the Foodhall is not meeting the targets for space heating and cooling demand as well as energy use intensity. It should be noted that both initial targets are based on previous designs for the Foodhall Space being an untreated space, and did not account adequately for tenant energy use.

# Appendices



## APPENDIX A: EVIDENCE

See Evidence.zip archive available on request from Mainer Associates