

The University of Manchester  
The Old Quadrangle

Hard Surfacing Material Selection

UMOQ-ITR-VV-XX-RP-L-2020

29<sup>th</sup> February 2024

P02

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# 1 Existing Materiality

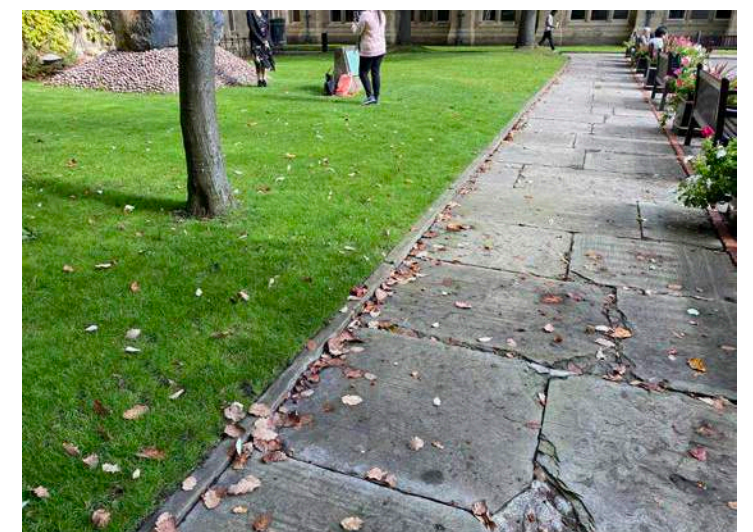
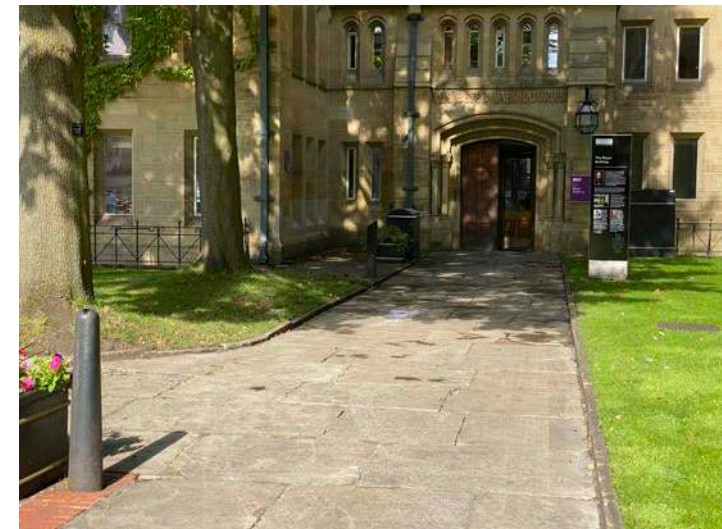
Detailed review of existing surface materials within the Old Quad has been undertaken to aid in the selection of proposed materials for the regeneration scheme.

The Old Quad space is enclosed by tall, historically significant buildings and has twelve large, mature trees within the space. This leads to a significant amount of shade, leaf drop and waste from roosting birds which accelerates the process of greening of the existing Yorkstone, forming a surface slip hazard.

Currently, due to the hazard associated with the Yorkstone, at certain times of the year the University require a street sweeper to clean the paving by the Beyer entrance on a daily basis. This causes unwanted trafficking of the space and undesirable vehicle / fuel use.

This issue is most apparent where shading and tree cover combine to the perimeter of the Old Quad space.

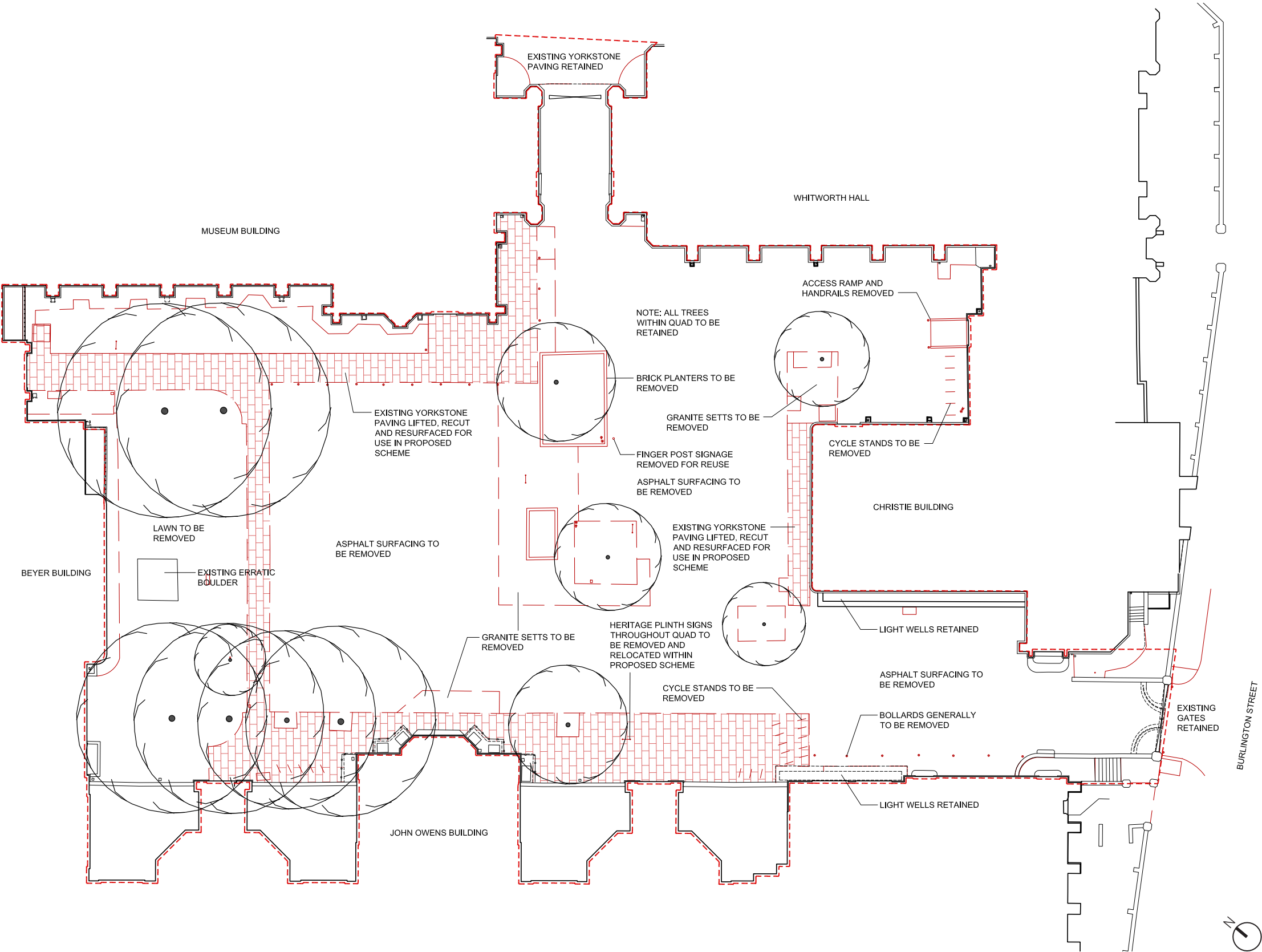
Existing granite setts fare much better in terms of anti-slip properties, though they are not currently associated with key pedestrian routes.



# 2      Material Removal and Recycling

The proposed scheme will reuse the existing Yorkstone in a more suitable location, reducing the likelihood of formation of a slip hazard. Existing Yorkstone will be lifted and transported to a Greater Manchester based stone processor for grading, cutting and cleaning.

The existing Old Quad sub-base / build-up will be retained where possible and reused to reduce the amount of new sub base being introduced to the scheme, and to protect the elevations and basements of the buildings.



**3**

## **The Old Quad Proposed Landscape - Core Hard Landscape Materials**



Sandstone



Granite

# 4 Proposed Surface Material Locations

A space with the significance and historic context of the Old Quad requires the selection of high quality surface materials. Materials should be appropriate to the space and have heritage / local context links to previously used materials. As such, natural stone materials have been selected for the Old Quad rather than concrete based products for their heritage value, historic use, durability and aesthetic quality.

Following review of existing and potential hard surface materials, it is clear that a sandstone / Yorkstone material is unsuitable for areas of consistent shade and tree shadow. Sandstone would be suitable and appropriate in areas which receive better sunlight coverage and are not within tree shadow, such as the centre of the Ellipse.

The proposal locates new sandstone to the centre of the Ellipse to link back to the historic building material heritage of Manchester and to use a material with potential UK sourcing.

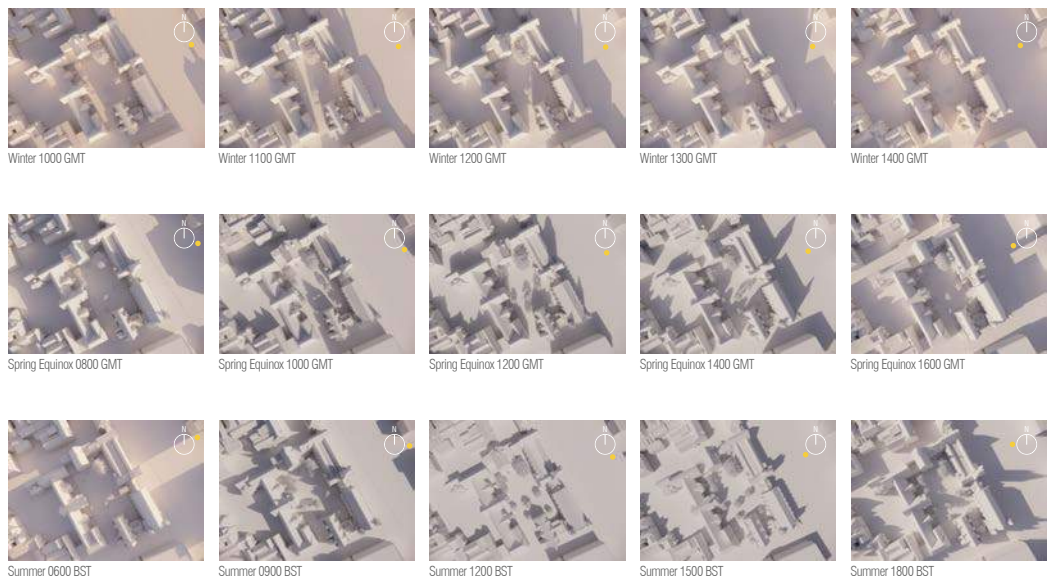
The proposal also locates recycled sandstone to the edges of the space as a trim to create a strong junction between the proposed granite setts and sandstone buildings.

A material with better slip resistance, lower surface porosity and higher flexural strength is required to areas of the Quad which receive lower levels of sunlight, fall within the denser tree shadow areas and will accommodate the majority of vehicle over-run.

Granite is an extremely hard wearing, durable surface material with very low surface porosity (0.1-1% in relation to sandstone at 3-4%) which will form a more slip resistant, lower maintenance surface material to the outside of the Ellipse.

Granite setts are to be specified for the main body of the hard surfaced area outside the Ellipse, with resin bound granite aggregate being used within secondary seating areas, within planted and edge locations.

The flexural strength of granite is greater than sandstone, meaning less depth of material or build-up is required, which results in less material transported to site.



Sun path study thumbnails of the Old Quad space



New Sandstone



Granite



Recycled Sandstone



Granite



Hard landscape material location plan



## 5 Material Sourcing

Material sourcing is key to the environmental success of the project. Detailed consideration has been given to material origin, embodied carbon, total life-cycle carbon and location suitability when selecting materials for the Old Quad project.

As detailed on the previous page, outline material types of sandstone and granite were identified as being suitable for purpose within the high quality proposed landscape of the Old Quad.

Where possible, local products are to be selected as a priority, then UK based products, followed by international products.

### Recycled Sandstone:

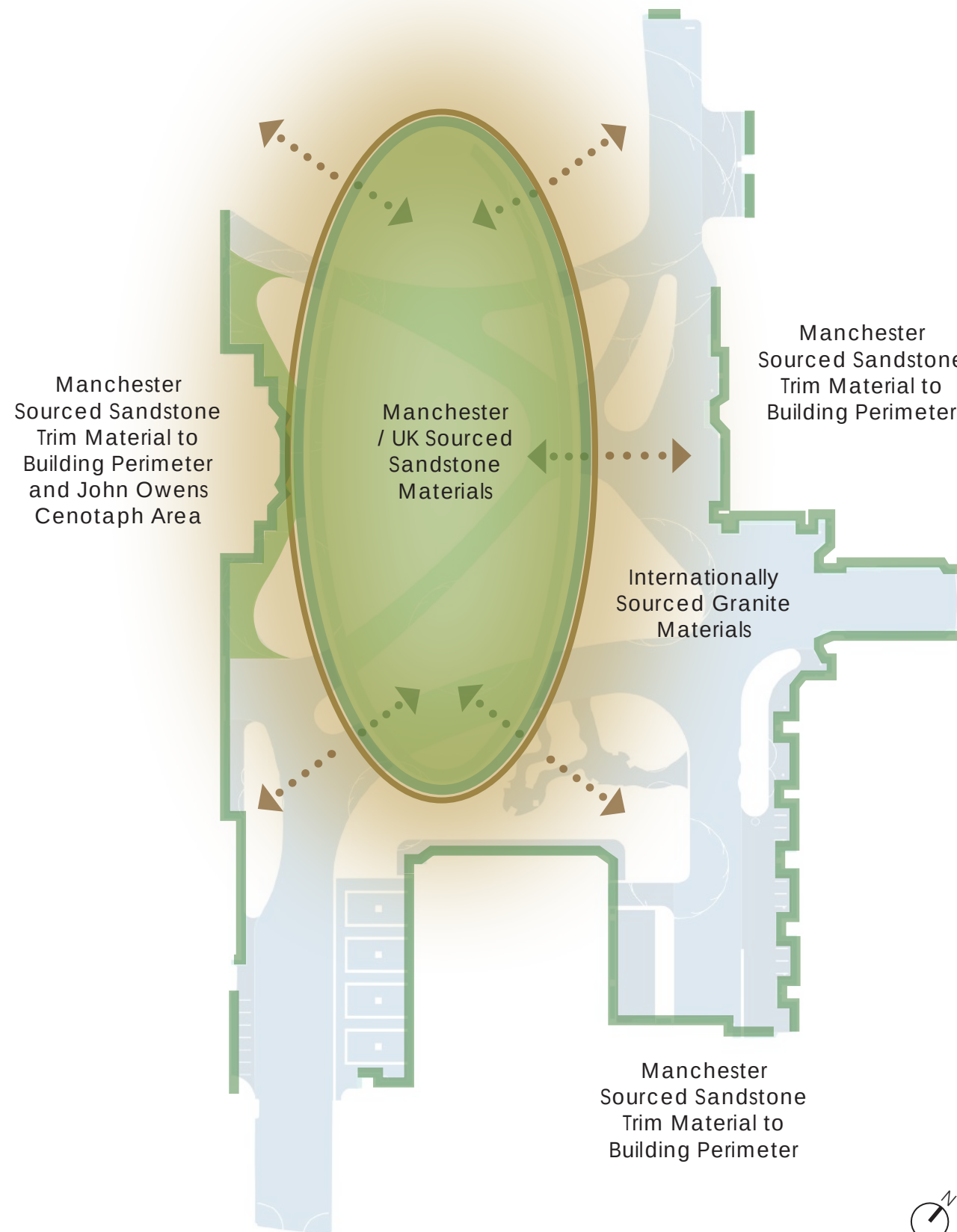
- Local material, sourced within Old Quad site
- Processed (cut and cleaned) within Greater Manchester
- Very low relative embodied carbon

### New Sandstone:

- Material with readily available UK sourcing
- Heritage link to Waterhouse architecture and wider historic Manchester public realm

### Granite:

- Extremely hard wearing, durable and slip resistant material
- Durability leads to extremely long expected lifespan, improving the materials life-cycle carbon value
- Material used on notable project in Manchester, including the new Albert Square regeneration project
- Sourcing within the UK is extremely limited. International sourcing has much improved availability and selection
- International materials would be shipped to Southampton and transported by rail to Manchester
- Processed in Greater Manchester



The design team have researched both hard landscape materials and their suppliers. It is crucial to the environmental success of the project to work alongside a material supplier who takes their environmental responsibility very seriously.

The design team have identified Hardscape, a Greater Manchester-based leading natural hard landscape material supplier, within the Old Quad specification.

Hardscape have a series of detailed policies relating to significant issues with the supply of hard landscape materials, including:

- Group Carbon Reduction Strategy
- Environmental Policy
- Ethical Trade Policy
- Health and Safety General Policy Statement
- Quality Policy
- Modern Slavery Act and Ethical Trading Statement
- Anti-Bribery Policy
- Equality Policy

Hardscape have a series of accreditations which highlight their integrity and commitment to responsible material sourcing:



## 6 Specified Materials

### 1. New sandstone (P2)



Current specification:

Supplier: Hardscape

Product: Mixed Colour Pennant

Finish: Sawn

Size: 300mm wide x 900 / 600mm long and 100mm wide x varying lengths

Laying pattern: Stretcher bond

Origin: Gloucester, UK



Mixed Colour Pennant  
Sawn

### 2. Reclaimed sandstone (P3)



Current specification:

Supplier: Sourced from existing stone within the Old Quad. Hardscape provide a 'Paving Refresh' service to re-purpose lifted / relaid paving.

Product: n/a

Finish: To be re-finished to provide necessary anti-slip properties

Size: Approx 400mm long x 200mm wide but will be cut to radial so dimensions will vary

Laying pattern: Stretcher bond / radial

Origin: Sourced from existing Old Quad landscape and processed at Hardscape in Greater Manchester



Existing sandstone  
reclaimed and re-  
purposed

### 3. Reclaimed sandstone to building trim (P6)



Current specification:

Supplier: Sourced from existing stone within the Old Quad. Hardscape provide a 'Paving Refresh' service to re-purpose lifted / relaid paving.

Product: n/a

Finish: To be re-finished to provide necessary anti-slip properties

Size: Approx 400mm long x 200mm wide

Laying pattern: Stretcher bond

Origin: Sourced from existing Old Quad landscape and processed at Hardscape in Greater Manchester



Existing sandstone  
reclaimed and re-  
purposed

### 4. Granite sett mix (P1)



Current specification:

Supplier: Hardscape

Product: Granite mix  
50% Magma flamed  
50% Yellow Rock bush hammered

Finish: as above

Size: 100x100mm

Laying pattern: Stretcher bond

Origin: China, processed at Hardscape in Greater Manchester



Magma flamed

Yellow Rock bush  
hammered

5. Resin Bound Aggregate (P5)



Current specification:

Supplier: Sureset

Product: Resin bound granite aggregate, Winter Pearl 6mm

Finish: n/a

Origin: tbc



Winter Pearl 6mm

6. Granite ‘Ellipse’ seat wall (W1)



Current specification:

Supplier: Hardscape

Product: Silva Montemuro Cinza

Finish: Flamed

Origin: Portugal, processed at Hardscape in Greater Manchester



Silva Montemuro Cinza  
flamed

7. Granite ‘Ellipse’ flush (P4)



Current specification:

Supplier: Hardscape

Product: Silva Montemuro Cinza

Finish: Flamed

Origin: Portugal, processed at Hardscape in Greater Manchester



Silva Montemuro Cinza  
flamed

8. Granite Edging



Current specification:

Supplier: Hardscape

Product: Yellow Rock

Finish: Bush Hammered

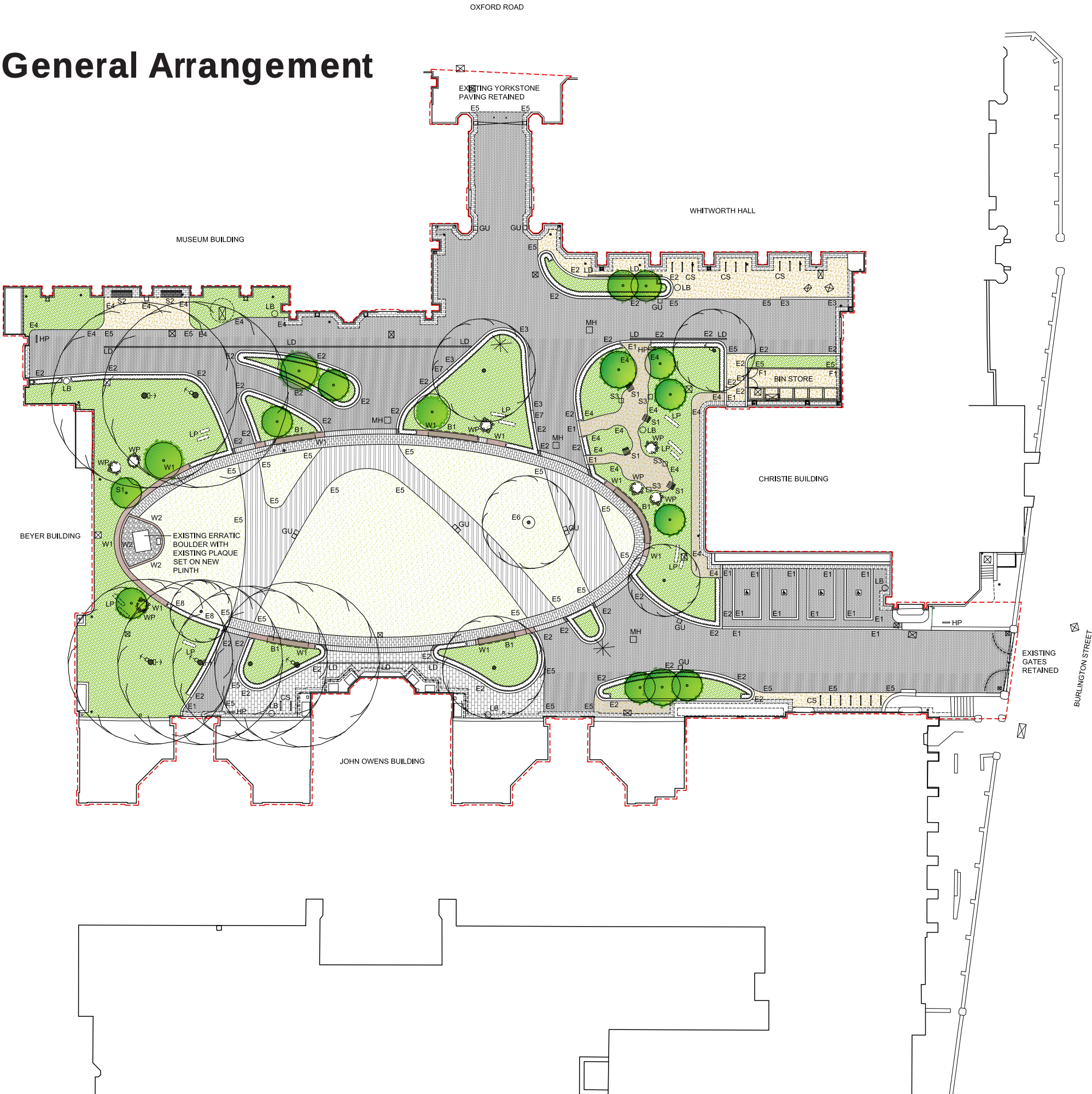
Size: 50mm upstand (above adjacent ground level) or flush to access points

Origin: China, processed at Hardscape in Greater Manchester



Yellow Rock bush  
hammered

General Arrangement



KEY

Site Boundary

P1 - Granite Set Paving to Q25/145 & 330

P2 - Sandstone Paving to Q25/115 & 310

P3 - Reclaimed Sandstone Paving to Q25/117 & 311

P4A - 'Ellipse' Granite Paving Flush to Q25/118 & 312

P4B - 'Ellipse' Granite Paving 50mm Upstand to Edging Transitions to Q25/118 & 312

P5A - Resin Bound Aggregate Paving (Vehicular) to Q23/225 & 226

P5B - Resin Bound Aggregate Paving (Pedestrian) to Q23/225 & 226

P6 - Reclaimed Sandstone Paving Building Trim to Q25/147 & 311

P7 - Granite sets (45W x 100L x 50D) laid under granite seat wall recess

P8 - Reclaimed Sandstone Paving to Q25/117 & 311

Gravel to Infill Boulder Plinth to Q23/165

Accessible Parking Signage Stone to Q25/313

W1 - 'Ellipse' Stone Seating Wall to F10/290

W2 - Stone Wall Boulder Plinth to F10/290A

E1 - Granite Edging Flush to Q10/120

E2 - Granite Edging 50mm Upstand to Q10/120

E3 - Granite Edging 300mm Upstand to Q10/120

E4 - Metal Edging 50mm Upstand to Q10/200

E5 - Metal Edging Flush to Q10/200

E6 - Metal Edging 150mm Upstand to Q10/200

E7 - Granite Edging Transition from 300mm Upstand to 50mm Upstand to Q10/120

E8 - Metal Edging Flush in Soft to Q10/202

Cultivated Turf to Q30

Ornamental Planting with Specimen Shrubs & Grasses to Q31

Low Clipped Hedge to Q31

Existing Trees Retained

Proposed Trees to Q31

F1 Bin Store Timber Fence to Q40/310J and Gate to Q40/570

B1 'Ellipse' Integrated Bench with Backrest to Q50/220

S1 Single Seat with Backrest to Q50/221

S2 Linear Bench with Backrest to Q50/222

S3 Stone Cube Seat to F10/291

CS Cycle Stands to Q50/210

LB Litter Bins to Q50/240

LP Log Pile to Q23/173J

WP Water Pool with small boulders & gravel to Q23/170 & 172J

HP Relocated Existing Heritage Plinth

Wayfinding - Specification by Others

MH - Proposed Manhole with Recessed Cover to Engineers Details

GU - Proposed Gully to Engineers Details

LD - Proposed Linear Drainage Channel to Engineers Details

Existing Manhole - Cover Replacement / Re-levelling to Engineers Details

0

2

4

6

8

10

20m

SCALE BAR 1:200

N

P1 - Granite Set Paving to Q25/145 & 330

P2 - Sandstone Paving to Q25/115 & 310

P3 - Reclaimed Sandstone Paving to Q25/117 & 311

P4A - 'Ellipse' Granite Paving Flush to Q25/118 & 312

P4B - 'Ellipse' Granite Paving 50mm Upstand to Edging Transitions to Q25/118 & 312

P5A - Resin Bound Aggregate Paving (Vehicular) to Q23/225 & 226

P5B - Resin Bound Aggregate Paving (Pedestrian) to Q23/225 & 226

P6 - Reclaimed Sandstone Paving Building Trim to Q25/147 & 311

P7 - Granite sets (45W x 100L x 50D) laid under granite seat wall recess

P8 - Reclaimed Sandstone Paving to Q25/117 & 311

Gravel to Infill Boulder Plinth to Q23/165

Accessible Parking Signage Stone to Q25/313

W1 - 'Ellipse' Stone Seating Wall to F10/290

W2 - Stone Wall Boulder Plinth to F10/290A

E1 - Granite Edging Flush to Q10/120

E2 - Granite Edging 50mm Upstand to Q10/120

E3 - Granite Edging 300mm Upstand to Q10/120

E4 - Metal Edging 50mm Upstand to Q10/200

E5 - Metal Edging Flush to Q10/200

E6 - Metal Edging 150mm Upstand to Q10/200

E7 - Granite Edging Transition from 300mm Upstand to 50mm Upstand to Q10/120

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LB Litter Bins to Q50/240

LP Log Pile to Q23/173J

WP Water Pool with small boulders & gravel to Q23/170 & 172J

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Wayfinding - Specification by Others

MH - Proposed Manhole with Recessed Cover to Engineers Details

GU - Proposed Gully to Engineers Details

LD - Proposed Linear Drainage Channel to Engineers Details

Existing Manhole - Cover Replacement / Re-levelling to Engineers Details

NOTES:

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NOTES:

To be read in conjunction with:

|                          |                                           |
|--------------------------|-------------------------------------------|
| UMOQ-ITR-XX-00-DR-L-0101 | Landscape General Arrangement             |
| UMOQ-ITR-XX-00-DR-L-0102 | Key Plan - Paving Types                   |
| UMOQ-ITR-XX-00-DR-L-0103 | Key Plan - Wall & Edging Types            |
| UMOQ-ITR-XX-00-DR-L-0104 | Key Plan - Topsoil Depths                 |
| UMOQ-ITR-XX-00-DR-L-0105 | Constraints & Material Junctions Plan     |
| UMOQ-ITR-XX-00-DR-L-0201 | External Levels Strategy                  |
| UMOQ-ITR-XX-00-DR-L-0202 | Land Drainage Strategy                    |
| UMOQ-ITR-XX-00-DR-L-0310 | Paving Details Sheet 1                    |
| UMOQ-ITR-XX-00-DR-L-0311 | Paving Details Sheet 2                    |
| UMOQ-ITR-XX-00-DR-L-0312 | Edgings & Wall Details                    |
| UMOQ-ITR-XX-00-DR-L-0313 | Tree PIP Details                          |
| UMOQ-ITR-XX-00-DR-L-0314 | Bespoke Ellipse Details Sheet 1           |
| UMOQ-ITR-XX-00-DR-L-0315 | Bespoke Ellipse Details Sheet 2           |
| UMOQ-ITR-XX-00-DR-L-0316 | Habitat Features                          |
| UMOQ-ITR-XX-00-DR-L-0317 | Bespoke Bin Store Details                 |
| UMOQ-ITR-XX-00-DR-L-0401 | Tree Planting Plan                        |
| UMOQ-ITR-XX-00-DR-L-0402 | Planting Plan                             |
| UMOQ-ITR-VV-XX-SP-L-2000 | NBS Hard and Soft Landscape Specification |

To be read with Civil Engineers drawings:  
For all paving build-up details & all drainage details

| KEY PLAN |                                                                                                                                                                                         |          |            |              |  |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|--------------|--|
| C06      | METAL EDGING RADIUS TO CHRISTIE GLADE SEATING AREA RATIONALISED TO MIN 1M RADIUS.                                                                                                       | MS       | KLH        | 28.02.24     |  |
| C05      | METAL EDGING TO MUSEUM SEATING AREAS REINSTATED TO PREVIOUS ALIGNMENT. PLANTING CENTRAL ISLAND TO ALCOVE SEATING REMOVED.                                                               | MS       | KLH        | 15.02.24     |  |
| C04      | UPDATES MADE TO BEYER ENTRANCE EDGING ALIGNMENT FOLLOWING MANHOLE UNCOVERING AND CONCRETE LOCATION DETAIL. EDGING AND PLANTED ISLAND RELOCATED TO AVOID WELL AND BISCUIT.               | MS       | KLH        | 12.02.24     |  |
| C03      | UPDATED FOLLOWING DRAINAGE INFORMATION CONSTRUCTION ISSUE AND WELL STRUCTURE POSITION CONFIRMATION. RESIN BOUND AGGREGATE TO JOHN OWENS FRONTAGE REPLACED WITH RECLAIMED SANDSTONE (P8) | MS       | KLH        | 05.02.24     |  |
| C02      | CONSTRUCTION UPDATE ISSUE                                                                                                                                                               | MS       | KLH        | 19.01.24     |  |
| C01      | CONSTRUCTION ISSUE                                                                                                                                                                      | MS       | KLH        | 10.01.24     |  |
| P05      | UPDATE ISSUE REVISED TO REPRESENT VE OPTION                                                                                                                                             | MS       | KLH        | 13.12.23     |  |
| P04      | PLANNING UPDATE ISSUE AMENDMENTS MADE TO ELLIPSE FOLLOWING PLANNING FEEDBACK                                                                                                            | MS       | KLH        | 16.11.23     |  |
| P03      | E7 EDGE TYPE ADDED                                                                                                                                                                      | MS       | KLH        | 13.10.23     |  |
| P02      | STAGE 4 ISSUE                                                                                                                                                                           | MS       | KLH        | 22.09.23     |  |
| P01      | FIRST ISSUE                                                                                                                                                                             | MS       | KLH        | 30.08.23     |  |
| REV      | DETAILS                                                                                                                                                                                 | DRAWN BY | CHECKED BY | CHECKED DATE |  |

STATUS

FOR REVIEW, COMMENT AND APPROVAL

CLIENT

MANCHESTER  
1824

The University of Manchester

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PROJECT TITLE

University of Manchester - Old Quad

DRAWING TITLE

Landscape General Arrangement

|          |          |         |
|----------|----------|---------|
| SCALE    | DRAWN BY | DATE    |
| 1:200@A1 | MS       | AUG '23 |

|                          |          |
|--------------------------|----------|
| JOB/DRAWING NUMBER       | REVISION |
| UMOQ-ITR-XX-00-DR-L-0101 | C06      |

## 8 Paving Laying Pattern Detailed Area



### Key



P1 - Granite sett paving



P2 - Sandstone paving



P3 - Reclaimed sandstone paving



P4 - 'Ellipse' granite paving



P6 - Reclaimed sandstone paving to building trim



W1 - 'Ellipse' granite seat wall



Granite edgings (height varies)



Recessed inspection cover aligned with paving and where possible in line with coursing



