

BRITAIN'S LEADING SUPPLIER
OF NATURAL HARD YORKSTONE



Natural Stone Review
Piccadilly Warehouse Project
Manchester

Preface

The following document was prepared on 1st April 2021 with the intention of providing information to support the stone proposed for the restoration of the Piccadilly Warehouse Project, Manchester M1 3EF (11 Bloom Street and Mindel House, 10 Minshull Street).

No attempt has been made to provide an exhaustive in-depth geological study, rather a brief overview that will provide a general understanding of minerals historically available to the area and used within Manchester's built environment and those used for the above buildings. Information has been obtained from a combination of published sources, site investigation and the knowledge and experience of the author.

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Building Location – Minshull Street & 11 Bloom Street, Central Manchester.

Bedrock Geology

Manchester is surrounded by a variety of sedimentary mineral deposits. Locally, the geology is dominated by Mudstone, Siltstone and Sandstone.

South West - Sandstones and Conglomerates, Interbedded Sedimentary Bedrocks of the Triassic age (circa 200-251 million years old).

North and central Manchester - Pennine Lower Coal Measures including Mudstone, Siltstone, Sandstone, Coal, Ironstone and Sedimentary Bedrock formed in the Carboniferous Period (circa 309 – 312 million years old).

South East - Dinantian Rocks, Limestone with Subordinate Sandstone and Argillaceous Rocks of the Carboniferous Period (circa 326 – 359 million years old).

East & North East -Pennine Lower Coal Measures including Mudstone, Siltstone, Sandstone, Coal, Ironstone and Sedimentary Bedrock formed during the Sedimentary period (circa 313 – 326 million years old).

Building Information

11 Bloom Street & 10 Bloom Street - Minshull House

No information is available relating to the precise date of construction however both buildings are listed as being mid to later 19th century.

Site Observations

Both buildings contain ashlar and worked masonry dressings. The stones used are generally yellow to buff with subtle variations in both colour and granular composition.

Elements holding a primary visual location or those containing a moderate degree of masonry detail are generally cut from stone that is more consistent in terms of colour and tend to exhibit a finer, medium to course grained texture. Elements of a more robust aesthetic have been produced from a less consistent material and contain a wider degree of bedding striation and granular size. For example, the loading bay to the rear of 11 Bloom Street (Fig 1) is produced from a course grained stone containing much larger quartz pebbles.

Although a detailed petrographic study has not been undertaken an optical inspection under high magnification indicates the following. The stone used on both building is similar in nature although most likely not from the same quarry. Both buildings contain stone containing a high proportion of quartz particles consolidated by clay and silts. The quartzite particles range in size depending on the location of the stone component within the building. The quartz particles observed under magnification are of mixed size, well sorted, angular in shape and typical of those found in a Millstone Grit series of sandstone. The stone used on both buildings is consistent in terms of colour and granular shape.

The following images have been taken from site photographs at various locations around both buildings.



Fig 1



Fig 2



Fig 3



Fig 4



Fig 5



Fig 6



Fig 7



Fig 8



Fig 9



Fig 10

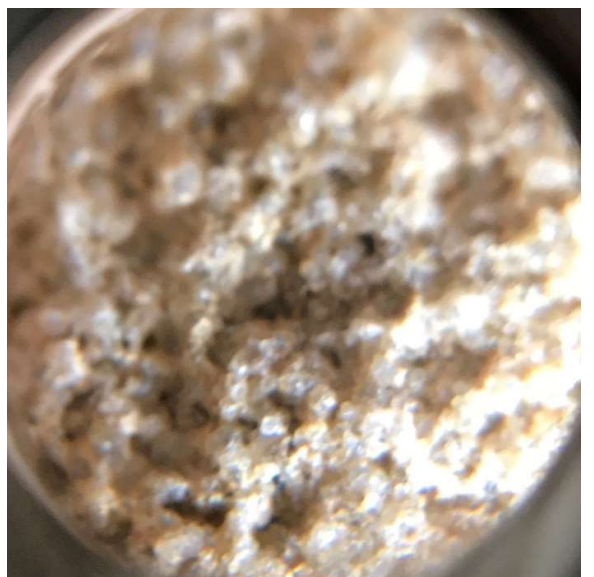


Fig 11



Fig 12

First logic dictates that the stone provided to a building of this type during this period will have come from a single quarry. The variations in colour and granular composition within the building will most likely be the result of selection at the works due to one or more of the following dictates:

1. Client Brief
2. Stone availability
3. Ease in obtaining required level of masonry of detail

Stone Proposal

Crosland Hill Hard Yorkstone. The quarry is located approximately 22-miles North East of the site. The stone matches the assumed geological classification identified by site investigation and is similar in both colour and texture to that used on both buildings. The quarry can provide block stone of sufficient dimensional to accommodate full unit replacement of any components required should the need arise. Johnsons Wellfield have sufficient resources in terms of mineral deposit and manufacturing capability to produce any masonry work required. Crosland Hill quarry is extracting mineral that can be selected to accommodate both consistent or variant colour and granular size.

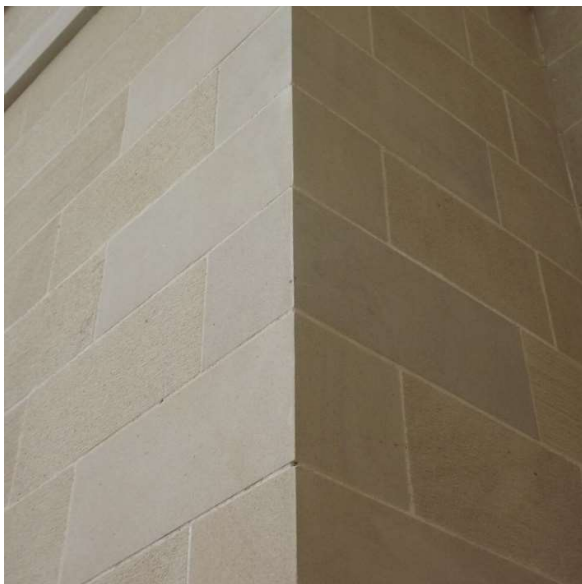


Fig 13

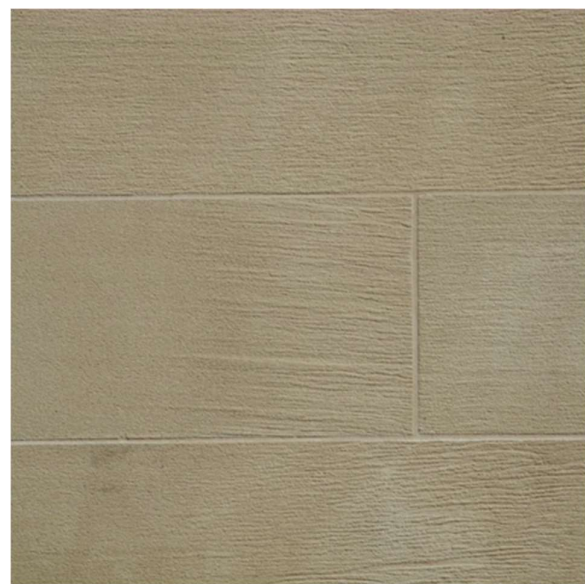


Fig 14



Fig 15

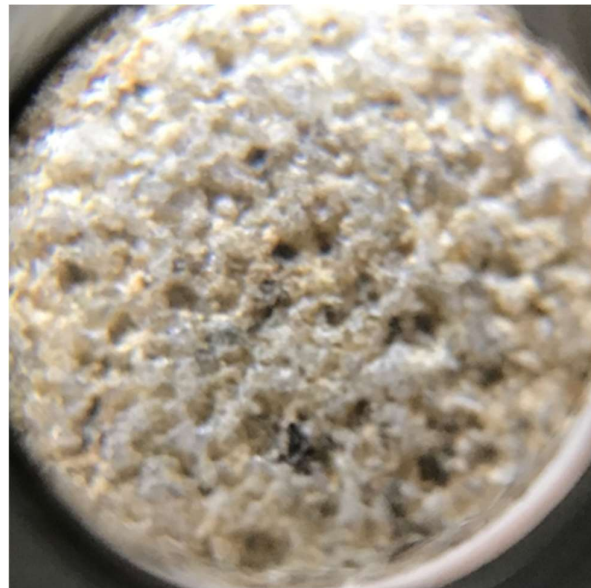


Fig 16

Johnsons Wellfield was established in 1854 consolidating several smaller quarries extracting Millstone Grit from the rough rock measures from the Pennine hills above Huddersfield. The Quarry lies 1.5 miles south of the Huddersfield Narrow Canal which connects directly to the Ashton Canal that bypasses the site. Although it is unlikely that the stone provide to these buildings came specifically from an existing quarry area is likely that the mineral was provided from one extracting from the same but wider geological deposit of Carboniferous Gritstone.

Specification

- F21 Natural Stone ashlar walling
- Sandstone [Crosland Hill Hard Yorkstone selected]
- Petrological family: [Carboniferous]
- Colour: [Predominantly Buff]
- Origin [Huddersfield]
- Finish [Fine Rubbed finish to 50-grit]
- Supplier: [Johnsons Wellfield Quarry Ltd]
- Blackmoorfoot Rd, HD4 7AB
- Tel: 01484 652 311
- Email: sales@johnsons-wellfield.co.uk
- Quality: Free from vents, cracks, fissures, discoloration, or other defects deleterious to strength/ colour. Design, supplied and installed in accordance with BS8298 parts 1-4 and BS EN 1469:2004
- Samples: Provided in accordance with BS EN 12440
- Size [Various TBC]
- Thickness [Various]
- Tolerances: BSEN 1469 Ashlar Cladding
- Test data : [to BSEN 771-6]
- Slip resistance value (SRV) (minimum) to BS EN 14231: [N/A]
- Surface roughness (Rz) (minimum) to BS 1134 : [19.6]
- Freeze thaw cycle [N/A]
- Density 2410kg/m³
- Other Requirements: [N/A]
- Ethical sourcing: Verification Status within Ethical Stone Register
- Background/Base: [cavity tray/DPC should be built in approx. 150mm above pavement level, weep holes should be incorporated at this location within the perpendicular joints.

- Preparation: []
- Intermediate substrate: [140mm thick solid concrete blocks]
- Bedding: [50mm semi dry sand/cement 4:1 bed]
- Reinforcement: [N/A]
- Adhesive to BS EN 12004: [N/A]
- Joint width: [10mm with matching mortar fully bedded perps and bed joints]
- Mortar: [to match stone – sample to be provided for approval]
- Fixings: [stainless steel restraint and support fixings to stone specialist sub-contractors design for hand fixed masonry]
- Admixture: [N/A]
- Movement joints: [N/A]
- Mock up: Sample panel to be provided approx 1.5x1.5m high Crosland Hill stone to include return built on or off site for approval prior to manufacture of stone

Image references

Fig 1 – 4 Images taken at rear including ultra-close up showing granular structure.

Fig 5 – Images taken at front including 2 ultra-close ups showing granular structure.

Fig 9 – 12 Images showing ultra-close ups of granular structure at various locations round the buildings.

Fig 13 – 16 Images of Crosland Hill including ultra-close ups of granular structure.

Written and produced by Michael Gorman, Specification manager for and on behalf of Johnsons Wellfield Quarries.

All opinions are that of the author.

Michael.gorman@johnsons-wellfield.co.uk

m: 07590 472 688