

Dismantling and Consolidation of
West Gatehouse West Wall.

at Monk Bretton Priory, Barnsley.



Crooks
Architecture

Specifications

Materials & Workmanship:

To be read in conjunction with the Schedule of Works and Preliminaries & General Conditions.

SCAF Scaffolding:

SCAF.1 Fixed Scaffolding:

- Ensure that any standing scaffolding is erected early enough and/or dismantled late enough to suit the programmes of all subcontractors.
- The scaffold is to be erected in accordance with BS 5973 and the Construction (Working Places) Regulations.
- A Certificate of compliance for the erected scaffold is to be provided by the Main Contractor to the Architect. Thereafter, the scaffold is to be inspected at weekly intervals (and after any periods of heavy winds or suspected unauthorised access) by a competent person who is to certify to the Main Contractor that the standing scaffold complied in every respect with the statutory and regulatory requirements. The Contractor is responsible for maintaining a full record of all inspections on site.
- All scaffold is to be free-standing from the building and self-supporting as far as is possible. Where there is a requirement for the scaffold to be tied to the existing building, there will be a presumption that this should be achieved either within stonework bed joints, or alternatively in the centre of individual stones which will then need to be pointed up and made good at the completion of the Works to the Architect's satisfaction. No fixing into the structure will be allowed without the express agreement of the Architect.
- All cross poles are to be capped with plastic end caps to prevent any ferrous staining of existing fabric to be retained. Where adjacent to fragile or important detailing the ends are to be additionally padded with fleece or hessian.
- All scaffolding poles are to be positioned on scaffold end plates so to distribute any downward pressure and all poles below 3m sheathed in yellow scaffold pole padding. Where poles bear onto the existing structure spreader boards of sufficient size shall be fitted.
- The scaffold is to be erected with sufficient lifts and to be altered as necessary to allow the carrying out of the full scope of the repair works specified.
- The Contractor will determine whether or not there is to be an electric or other hoist provided to the scaffold and make all necessary arrangements regarding the safety of any such installation.

SCAF.2 Hoarding:

- Scaffold will need to be protected to prevent unauthorised access to the area of the Works. As a minimum requirement all external scaffold is to be fully enclosed by a hoarding to a height of four metres. The facing must comprise flame retardant plywood sheeting fixed to 75mm x 100mm timbers. The timbers must be either clipped to the scaffolding by appropriate scaffold clips or secured to a substantial stand-alone timber frame complete with adequate internal bracing to prevent collapse if attacked.
 - If the scaffolding abuts low-level structures/lifts/features, then the height is to be increased to maintain 4m from the top of said structure.
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- All joints of the facing will be tightly butted to prevent tools being used to prise them apart and each joint to overlap a post on the timber frame by 75mm.
- Sheeting will be required to be fixed to the timber frame using 75mm annular ring shank nails at 150mm centres. Tamper proof screws may be used as an alternative.
- The bottom of the hoarding will follow the contour of the ground leaving no gaps between the hoarding and the ground.
- Where the hoarding abuts the masonry walls the facing will be cut to match closely the contours of the building to prevent any gaps being formed.
- **At no point during the scaffolding erection should it be left unprotected without complete, unbroken 4m hoarding. Therefore, at the end of the first day, the hoarding must be fully installed – see SCAF.5**

SCAF.3 Doors & Access:

- There is to be one door only in the hoarding. To be secured via a heavy-duty bolt and sufficient surrounding frame to resist impact. No external handle to be provided only a simple external lock.
- No ladders are to be left accessible from ground, on site at any point while the site is inaccessible (or while there is no presence in the locale of the ladder).

SCAF.4 Protection of Scaffolding During Erection:

- At no point during the erection of the scaffolding should the site be left unattended without the scaffolding being subject to the full protection measures described above. This means that lighting and alarms must be in place on day one and hoarding may need to be temporarily erected around exposed ends of scaffolding at the end of the day, pending continuation of the erection the following day.
- The Contractor will be required to provide photographic evidence of the “as left” scaffolding at the end of each working day, during erection, to seek confirmation of compliance, prior to scaffolders leaving the site.

SCAF.5 Building Off Other Structure:

- Contractor to ascertain that the structural integrity and load-bearing capacity of the surface off which they are erecting the scaffolding is sufficient to take the self-imposed weight and any dead loading of materials, labour, tools, etc.
- Feet are to bear on spreader plates/scaffold boards to prevent damage to roof structures/decks beneath.
- No element of the scaffold can bear onto, or be fixed to, the existing masonry walls.

SCAF.6 Temporary Access:

- Temporary access is defined by any access provisions which will be erected and deconstructed each working day (e.g. ladders/MEWPs/towers).
 - Where temporary access is provided this is not to be left unattended at any point and is to be entirely dismantled and stored in a pre-agreed secure location on site (or taken away) overnight.
 - All tower scaffolding is to be erected by a person trained in that particular system and have undertaken the “Towers for Users” PASMA training as a minimum.
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HS Health & Safety:

H&S.1 Generally:

- All parties are to employ a collaborative approach to improving health and safety on the project. The Contractor is encouraged to raise concerns regarding safety as soon as possible with the design team and client.
- Parties are encouraged to seek and recommend alternative approaches/methodologies/materials which may reduce risk on the project.

H&S.2 Construction (Design & Management) Regulations 2015:

- The Construction (Design & Management) Regulations 2015 apply to all projects, in some capacity, and all parties must familiarise themselves with their applicable duties and responsibilities under those Regulations.
 - o English Heritage is a "Commercial Client" under the Regulations.
 - o The appointed Contractor will assume the role of CDM Principal Contractor under the Regulations.
 - o Crooks Architecture Ltd. is the CDM Principal Designer.

H&S.3 Contractor's Responsibilities:

- The Contractor should ensure that the works are planned and executed in full accordance with the Construction (Design & Management) Regulations 2015, under which the Contractor is deemed to be the "CDM Principal Contractor" and therefore must ensure full compliance with all the duties and responsibilities of that role, including, but not limited to:
 - o Plan, manage, monitor and coordinate the entire construction phase,
 - o Take account of the health and safety risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them,
 - o Liaise with the client and principal designer for the duration of the project to ensure that all risks are effectively managed,
 - o Prepare a written construction phase plan (PDF) before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose,
 - o Have ongoing arrangements in place for managing health and safety throughout the construction phase,
 - o Consult and engage with workers about their health, safety and welfare,
 - o Ensure suitable welfare facilities are provided from the start and maintained throughout the construction phase,
 - o Check that anyone they appoint has the skills, knowledge, experience and, where relevant, the organisational capability to carry out their work safely and without risk to health,
 - o Ensure all workers have site-specific inductions, and any further information and training they need,
 - o Take steps to prevent unauthorised access to the site,
 - o Liaise with the principal designer to share any information relevant to the planning, management, monitoring and coordination of the pre-construction phase.
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H&S.4 Notification:

- The proposed works are not notifiable under the CDM 2015 Regulations.

Common Hazards

H&S.5 Working with Lime:

- Specific precautions for the specific lime product specified is to be found in the Material Safety Data Sheet (MSDS) of the product, available from the manufacturer.

Worker Safety

- Lime, particularly quicklime, is an alkaline material that is reactive in the presence of moisture. All workers handling lime must be trained and wear proper protective equipment.
- *Eye protection:* (chemical goggles, safety glasses and/or face shield) should be worn where there is a risk of lime exposure. Contact lenses should not be worn when working with lime products.
- *Skin Hazards:* Protective gloves and clothing that fully covers arms and legs are recommended. Particular care should be exercised with quicklime because its reaction with moisture generates heat capable of causing thermal burns.
- *Inhalation Hazards:* Lime dust is irritating if inhaled. In most cases, nuisance dusts masks provide adequate protection. In high exposure situations, further respiratory protection may be appropriate, depending on the concentration and length of exposure (consult MSDS for applicable exposure limits).

Product Safety

- Care should be taken to avoid accidental mixing of quicklime and water (in any form, including chemicals containing water of hydration) to avoid creating excessive heat. Heat released by this reaction can ignite combustible materials or cause thermal damage to property or persons. Lime dust can be removed from vehicles using rags dampened with dilute vinegar. After applying dilute vinegar, vehicles (especially chrome surfaces) must be washed with water.

First Aid

- The Material Safety Data Sheet (MSDS) for the specific lime product should always be consulted for detailed first aid information. The following guidelines are general in nature.
- If skin contact occurs, brush off dry lime and then wash exposed skin with large amounts of water. If skin burns occur, administer first aid and seek medical attention, if necessary.
- If lime comes in contact with the eyes, they should first be flushed with large amounts of water. Seek medical attention immediately after administering first aid.
- For inhalation, remove exposed person to fresh air. Seek medical attention immediately after administering first aid.

H&S.6 Working with Stone (Silica) Dust:

- Before work starts, review ways of stopping or reducing the amount of dust produced when cutting stone. Prevention over management should always be considered preferable. Use different materials, less powerful tools or other work methods. For example you could use:
 - Ensure stone is accurately cut to site prior to delivery to site.
 - Any on site cutting to use low-powered tools.
 - On-tool extraction – removes dust as it is being produced. It is a type of local exhaust ventilation (LEV) system that fits directly onto the tool. This ‘system’ consists of several individual parts – the tool, capturing hood, extraction unit and tubing. Use an extraction unit to the correct specification (ie H (High) M (Medium) or L (Low) Class filter unit). Don't just use a general commercial vacuum.
 - Where water or on-tool extraction is not adequate, provide respiratory protection (RPE).
 - Other passive protective measures may include:
 - limiting the number of people near the work;
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- rotating those doing the task;
 - enclosing the work to stop dust escaping. Use
 - sheeting or temporary screens;
 - general mechanical ventilation to remove dusty air
 - from the work area (eg in enclosed spaces such as
 - indoors);
 - selecting work clothes that do not keep hold of
 - the dust.
- Where Further information on dust and other construction health risks can be found at www.hse.gov.uk/construction/healthrisks/index.htm and HSE Information Sheet "Construction Dust" <https://www.hse.gov.uk/pubns/cis36.pdf>

H&S.7 Unstable Structures:

- The Contractor is responsible for the protection of the masonry for the duration of the works and must include provision for prevention of collapse within their Construction Phase Plan.
- Before work starts, undertake a review of the existing structure to ascertain any movement since the last inspection. Report any concerns to the Architect and the Structural Engineer and make any adjustments to the site set up which may be necessary to mitigate the risk to structural integrity.
- The Contractor must take all precautions to mitigate the risk of falling debris to site operatives, members of the public and the neighbouring property to the West or the public highway to the East.

H&S.8 Hidden Fabric:

- During the dismantling hidden fabric may become exposed. Any fabric should be reported to the Architect for confirmation on whether evidence of earlier structures is contained within it. The Contractor should undertake a photographic record of any fabric containing evidence of previous construction.
- Toxic materials maybe concealed within the wall. Contractor is to undertake a full assessment prior to commencing the dismantling process to ascertain specific risks. All operatives are to be provided with full PPE to prevent against the risk of concealed items which maybe chemically or physically harmful.
- Concealed structural ties between the West Wall and the North and South Walls may become visible during the dismantling process. In this event the Contractor is to secure the masonry and report to the Structural Engineer to confirm a safe approach to removal.

H&S.9 Adjacent Footpath:

- A public footpath runs at the base of the wall. This will be diverted through the far Eastern archway for the duration of the works. However, the Contractor is responsible for mitigating all risks to the public either through the impact on the surrounding masonry, or through the operation of the site.
 - Contractor to liaise with the Client over the footpath closure and to update on any impact of the works on the close
 - Anti-social activity is known to occur on the site and so the Contractor must plan to prevent access to site by unauthorised persons and maintain site security in accordance with SCAF.4
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H&S.10 Unknown Services:

- The location of the neighbouring properties may mean that services are located beneath the footpath or along the boundary.
- The Contractor must ensure a full survey of all services has been undertaken prior to commencing works including a Ground Penetrating Radar (GPR) scan in accordance with STR.6. The Contractor is to plan the works to mitigate all risks to operatives, the public, the adjacent properties and the wider structure from impact on unknown services.

STR Stripping Out:

STR.1 Generally:

- All works, including stripping out/demolition are to be carried out with the upmost care to avoid any damage to the adjacent structure, fixtures and finishes. The Contractor is deemed to have included for undertaking all works with such care.

STR.2 Extent of Stripping Out:

- Only materials scheduled for removal and for which the requisite statutory consents have been obtained, are to be removed. If there is any question as to the scope of removal, then the Architect must be consulted first.

STR.3 Substrate & Hidden Structure:

- Prior to full stripping out, the Contractor is to ascertain that the structure, substrates and general detailing of the area of the building in question accord with the Architect's drawings. Any discrepancies are to be brought to the Architect's attention and an instruction sought where a variation to the stripping out scope/methodology may be required.
- Upon conclusion of the stripping out provide at least 5 days' notice to the Architect to attend site to inspect hidden and previously unseen structure to ascertain the condition, to confirm the nature and extent of repair/renovation/conservation work shown on drawings and described in survey reports and schedules of work.

STR.4 Structural Support & Temporary Works:

- Do not damage or destabilise the retained structure. Provide all necessary shoring and support to ensure the stability is not compromised. Where stripping out requires removal of structural elements, or excavations, which may destabilise adjacent structure, then the Contractor is to provide an annotated version of the Architect's drawing, illustrating the extent and nature of the shoring up/support structure. Where this will require the involvement of a Structural Engineer to prove supporting structure, the cost of this is to be included in the Contractor's tender.

STR.5 Existing Services:

- Existing, known services (cables/ducts/wires/pipes/etc.), which might affect the works are marked on the Architect's drawings.

STR.6 Unknown Services:

- Undertake a Ground Penetrating Radar (GPR) scan to ascertain any unknown services below ground level.
 - Any previously unknown services, exposed during stripping out are to be made known to the Architect.
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STR.7 Retention of Materials:

- All materials scheduled for retention, re-use, storage or turning over to the Employer are to be carefully labelled and securely stored in a pre-agreed location.
- Where specified in the Schedule of Works, the Contractor shall include for, and provide evidence upon completion, crediting the Employer with the salvage value of high-value materials (e.g. lead, copper, etc.).

STR.8 Removal of Defective Timber/Stone:

- The Contractor is to refer to the relevant sections of the Specifications for the detailed methodology to employ in the removal of defective timber/stone (or other materials).

TIM Timberwork/Joinery/Conserving Timber:

TIM.1 Inspection:

- Following stripping out allow for inspection of the structure by the Architect (and if necessary Structural Engineer) to confirm the extent of the timber repairs.
- Allow at least 5 working days' notice of a requirement to attend site.
- Subsequent revisions to specified/scheduled repairs will be given in writing.

TIM.2 Removing Decayed Timber Generally:

- All timber to be carefully removed from the structure.
- The timber has largely decayed but care should be taken to retain any larger sections of the beam. All timber is to be retained by English Heritage and so care must be taken to protect timber during the dismantling process and prepare for transit and storage as necessary.

TIM.3 Recyclable Material:

- Any timber used in propping, supporting or other temporary works should be re-used elsewhere, either on this project or another, and avoid sending it to landfill.
 - Avoid contamination of timber (new or old), which might otherwise render it unfit for re-use/recycling.
 - If they cannot be re-used, all material is to be retained and delivered to a local recycling project to be turned into furniture or made available to buy in their raw state or taken to a timber recycling company such as *Timberpak Yorkshire, Knowsthorpe Way, Leeds, LS9 0SW*.
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MAS Masonry Conservation:

MAS.1 Standards:

- Generally comply with the following standards: BS 5642, Parts 1 and 2 specifications for sills and copings; BS 5628, Part 1 structural use of unreinforced masonry; and BS 5390, stone masonry.

Generally & Preparation:

MAS.2 Scope of Works:

- The scope of repairs is as set out on the Architect's drawings and listed in the Schedule of Works.
- Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, profiles, special features, etc.
- Mark clearly, but not indelibly, on face of masonry units or parts of units to be cut out and replaced.

MAS.3 Review of Scope:

- A minimum of 7 days prior to commencement of stone conservation works, arrange access and inspection with the Conservation Architect to conform scope. Use this opportunity to highlight any further work evident as being required.
- Before starting work, use measurements and photographs as appropriate to record bonding patterns, joint widths, profiles, special features, etc.
- Any variations to scope to be confirmed in writing by the Contract Administrator/Architect prior to being undertaken.

MAS.4 Removal of Vegetation Within Stonework:

- Vegetation to be cut back from base of wall as early as possible prior to commencement on site and allowed to die back – do not pull green ivy off stonework.
- Remove roots from ground only or from masonry where it is scheduled to be dismantled for repair.
- Where growths cannot be removed completely without disturbing masonry seek instructions from the Architect.
- Where removal of root system is not possible or desirable, cut through stem as close as possible to the ground or cut/drill back a min. 25mm from the face of the masonry to be allow over-pointing. Remove bark from resultant stump and apply herbicide paste. Leave stump to wither.
- Where later decay of stump/roots is likely to cause movement or settlement within the stonework, seek instruction from the Architect.

MAS.5 Removal of Fixtures/Fittings Generally:

- Where fixtures or fittings, including hooks, rails, cramps, etc. are to be removed, attach labels or otherwise mark items using durable, non-permanent means, to identify location and describe refixing instructions, where applicable.
- Securely store on site for reinstallation in location to be agreed with Architect.
- Refit in locations (to be agreed as Schedule of Works/Drawings) using original installation methods.
- Where constructed of ferrous metal, consult with Architect.

MAS.6 Removal/Treatment of Ferrous Metal Fixings:

- Surface fixings are to be drilled out or unscrewed.
 - Any lead infill is to be removed with small pieces of wood, using a non-percussive drill on a very low speed (as rapid drilling will melt the lead and clog the drill bit) and the lead cut out in pieces progressively.
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- Hidden cramps must be accurately plotted. Treatment/removal methodology to be agree with Architect and may include removal or retention and treatment of corroded surfaces:
 - Removal: Carefully removing the minimum required surrounding stonework, propping that which is to remain in place, to allow for the cramp to be carefully drilled out and (usually) replaced with non-ferrous equivalent, before piecing stones back in.
 - Treatment: May include cathodic protection of retained cramps or exposed surfaces treated with anti-corrosion paint.

Workmanship:

MAS.7 Use of Power Tools:

- Permitted only with prior approval from Conservation Architect, which is unlikely to be granted. Do not assume use of power tools.

MAS.8 Maintaining Structural Stability:

- Maintain stability of wider masonry. Report to Conservation Architect & Structural Engineer any defects, including signs of movement that are exposed or become apparent during the removal of masonry units.
- Ensure that existing stonework is disturbed as little as possible during the works. Prop or wedge retained loose masonry units and those vulnerable to movement during repair works so as to be firmly and correctly positioned.
- Support structure to be non-ferrous, such as timber. Where scaffolding bars are used, ensure plastic end caps are fitted and a layer of hessian or carpet is placed between poles and stonework to prevent damage.

MAS.9 Protection of Masonry:

- To new or removed masonry units, prevent overstressing during transit, storage, handling and fixing. Store on level bearers clear of the ground, separated with resilient spacers. Protect from adverse weather and keep dry. Prevent soiling, chipping and contamination. Lift units at designed lifting points, where provided.
 - To wider masonry, prevent damage, particularly to arrises, projecting features and delicate, friable surfaces. Prevent mortar/ grout splashes and other staining and marking on facework. Protect using suitable nonstaining slats, boards, tarpaulins, etc. Remove protection on completion of the work.
 - Do not use frozen materials or lay masonry units on frozen surfaces.
 - Do not bed masonry units or repoint in hydraulic lime:sand mortars when ambient air temperature is at or below 5°C and falling or unless it is at least 3°C and rising; and in non-hydraulic lime:sand mortars in cold weather, unless approval is given.
 - Maintain masonry above freezing until mortar has fully set.
 - Protect masonry from rain, snow or dew by covering during precipitation, and at all times when work is not proceeding.
 - Prevent masonry from drying out rapidly in hot conditions or drying winds by appropriate protection.
 - Mortar damaged by frost, or accelerated drying out will be required to be raked out and renewed at the Contractor's expense.
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MOR Mortars and Pointing:

Generally:

MOR.1 Standards:

- Generally comply with the following standards: BS5628 Part 3, Code of Practice for use of masonry; BS5390, Stone Masonry, subject to qualifications given below.

MOR.2 Principles:

- Mortar should always be a little softer and more porous than the surrounding stone itself. It should match the original areas identified by the Architect as closely as possible in colour, texture and strength.
- Unless in circumstances where porosity is not critical (e.g. pointing ridge caps), NHL mortar mixes should be avoided due to the limited porosity and availability of free lime within the mix. Preference will always be for a pre-mixed "hot lime" or a mix for which the lime is slaked on site.

Materials:

MOR.3 Sands for Mortars:

- Sands to comply with BS 1200 (superseded but relevant), being sharp, clean and course.
- For repair works (including mortar repairs and pointing) sand shall be of the correct colour and texture, such that when dry, it matches the original colour/texture of the original or existing mortar and approved sample. This includes matching aggregate size and grading.
- Sand to be free from clay, silt, organic matter and excessive fines.
- Blending multiple sands together to achieve required finish/mix/aesthetic may be required.
- All sand and aggregate is to pass a 5mm sieve except where mortar joints are to exceed 15mm width, for which aggregate size should be increased accordingly.
- Sand to be well-graded with a particle size distribution from 2.36mm to 0.150mm (measured using a set of sieves to BS 410:2000), with no one sieve retaining more than 35% of the total mass of the aggregate. No particles able to pass a 0.150mm sieve will be acceptable.
- Where narrower or wider joints occur, the grading will be adjusted to suit, after discussion with the Architect. As a rule, the largest aggregate particle size should be one-third of the mortar joint width.

MOR.4 Limestone Aggregate:

- Where specified, limestone aggregate (crushed or sieved and with small particles size (<0.3mm)) may be used for mortar repairs.
- Where specified, coarser grade limestone aggregate (>0.15mm) may form a proportion of the aggregate content of a building or pointing mortar. Particle size no greater than is permitted for sands.

MOR.5 Water for Mortars:

- Must be clean and fresh and free from organic and harmful matter. Test any water not taken from the mains.

MOR.6 Quicklime:

- High calcium quicklime powder for slaking to be Tarmac Quick Lime Calbux 90 from *Womersley's Ltd., Ravensthorpe Indust Est, Low Mill Lane, Ravensthorpe, West Yorkshire, WF13 3LN, Tel: [REDACTED]*
Email: [REDACTED] or equivalent.
 - Slake to either produce lime putty or creation of "hot mix".
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- Health & Safety:
 - Calcium oxide is not acutely toxic via the oral, dermal, or inhalation route. The substance is classified as irritating to skin and the respiratory tract and entails a risk of serious damage to the eye.
 - Calcium oxide reacts with water and generates heat. This may cause risk to flammable material.
 - Ensure adequate ventilation. Keep dust levels to a minimum. Keep unprotected persons away. Avoid contact with skin, eyes, and clothing – wear suitable protective equipment. Avoid inhalation of dust – ensure that sufficient ventilation or suitable respiratory protective equipment is used, wear suitable protective equipment. Avoid humidification.
 - Follow Manufacturer’s H&S guidance at all times.

MOR.7 Pre-mixed Non-hydraulic Lime (Lime Putty):

- Non-hydraulic lime putty to be obtained from *Womersley's Ltd., Ravensthorpe Indust Est, Low Mill Lane, Ravensthorpe, West Yorkshire, WF13 3LN, Tel: [REDACTED] Email: [REDACTED]* or equivalent.
- To comply with BS 890:1995 and BS 6463:1987
- To be stored in clean containers, protected from contamination and kept in an excess of water to prevent carbonation.

MOR.8 Pre-mixed Non-hydraulic Mortars:

- Pre-mixed mortar to wall capping and pointing to provisionally be from *Womersley's Ltd., Ravensthorpe Indust Est, Low Mill Lane, Ravensthorpe, West Yorkshire, WF13 3LN, Tel: [REDACTED] Email: [REDACTED]*
 - Product Ref: Hot Lime Mortar Mix Nosterfield blend 1:3 slaked quicklime
- Allow for additional quicklime to increase the lime content.
- When using for the installation as a temporary wall capping following the masonry dismantling, allow 2g of goat’s hair per 2kg of lime mortar to enable sufficient tensile strength.

Workmanship:

MOR.9 Preparation of Pre-mixed Mortars:

- Womersley’s Hot Lime Mix is ready to use. Any excess water on top of the tub should be poured away and the mortar knocked up. If using pozzolan then add to the fatty hot lime mix and any additional water that’s required to achieve a good workable mix.
 - Application:
 - Building: the mortar should be used as stiff as feasible but clearly it has to be workable. Hot mixed mortars are extremely sticky and fatty so are ideal for most types of stonework or brickwork.
 - Pointing: The mortar should be used as stiff as feasible but the mix must be workable. For pointing we would recommend raking to a depth of 20mm. To ensure a good compaction and adhesion when using the Hot Lime mix for re pointing, the mortar can be tampered with a bristle brush as it starts to firm up. This process also brings the sharp aggregate to the surface creating a lovely textured finish.
 - Application temperature 5-30 C. Protect with hessian against strong sunlight, heavy rain and frost. For an extended shelf life avoid exposure to excess heat or cold and keep in an airtight container.
 - Curing and why:
 - Hot Lime is made from quicklime which slakes to form a non-hydraulic lime. Non-Hydraulic Lime mortars do not set as quickly as modern cement based products or Natural Hydraulic Lime. They set by carbonation, meaning a much slower set and the lime remains softer and more
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breathable. This process will be influenced by climatic conditions and will behave very differently between the seasons.

- Protect the mortar against the effects of drying winds, strong sunlight, rain and frost. In warm weather gently mist spray with water after application and cover if required with damp hessian. In cold weather cover fresh mortar with protective layers of hessian to help avoid frost damage.
- Packaging:
 - Available in a 10l / 16kg tub, a 20l 35kg tub or a sealed one tonne bulk bags. The plastic used is suitable for recycling.
- Storage:
 - This product can be stored in dry conditions and should be kept away from freezing conditions. The shelf life is technically indefinite but realistically we would recommend use within 12 months.
- Health and Safety:

Risk Phrases	Safety Phrases
R36/37/38 Irritating to eyes, respiratory system and skin	S2 Keep out of reach of children
R43 Contact with wet mortar may cause irritation, dermatitis and/or burns	S26 In case contact with eyes, rinse immediately with plenty water and seek medical advice.
R 66 Repeated exposure may cause skin dryness and cracking	S24/25 Avoid contact with skin and eyes
	S36 Wear suitable protective clothing

- Contains Calcium Hydroxide CA(OH)₂. Risk of serious damage to skin and eyes. Every effort should be made to protect your eyes, in the event of any getting in the eyes then rinse thoroughly for several minutes. Should discomfort continue seek medical attention.
- Declaration:
 - This product contains no NHL or cement.
 - All Womersley's products are manufactured under an ISO9001:2015 accredited factory production control system.

MOR.10 Preparation of Mortars with Lime Putty:

- Generally, as MOR.9 plus following procedures for lime putty mixes.
- If slaked on site, ensure lime is properly slaked and stirred and hoed to ensure coagulation does not occur. Putty to be screened through gauze equivalent to a 2.36mm sieve to BS 410. Non-hydraulic lime to be left no less than 48 hours before batching. Excess water drained off prior to batching.
- Putty to be matured by at least twelve months post-batching.
- Carefully pour off water prior to measuring out but retain for re-use to protect any unusual putty.
- "Knock up" lime putty before use to achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
 - Smaller mixes should be mixed by hand on a board, by hand, using a clean shovel, ensuring even distribution of the putty through the aggregate by chopping and spreading.
 - Larger volumes to be mixed with a roller pan mortar mill mixer

MOR.11 Preparation of "Hot Mix" Mortars:

- Provisionally mix 1 part quicklime to 3 parts aggregate (sands/limestone), such that when the quicklime expands during slaking, the ratio ends up closer to 1:1.4 or 1:1.
 - Gradually add a small amount of water to create heat, but not enough to drown the sand and lime.
 - Ensure sufficient water is used, as quicklime rapidly takes up the water and the mix can overheat. Conversely, avoid excess water as it can reduce the heat of the reaction and lead to the mortar being over-wetted, or 'drowned'. When quicklime has largely slaked but is still warm (or 'hot') and well mixed, mortar may be used.
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MOR.12 Samples:

- Carry out investigations into the presence of existing and/or "original" mortars in the masonry to obtain a sample of existing mortar.
- Where specified in the Schedule of Works that a chemical/compositional match is identified as being a requirement, allow for carrying out a full mortar analysis to identify the binder, aggregate and sand proportions, type and particle sizes/proportions. All endeavours are to be made to match this in any subsequent mortar used. This may be achieved "in house" by the Contractor or by sending a sample to *Womersley's Ltd., Ravensthorpe Indust Est, Low Mill Lane, Ravensthorpe, West Yorkshire, WF13 3LN, Tel: [REDACTED]*
- Where the Schedule of Works specifies only a visual match, then this may be achieved by creating a sample board and identifying a suitable mix.
- Samples to comprise min. 200mm diameter "biscuits", 10-15mm thick, and allowed at least 2 weeks to cure before comparing to existing mortar and seeking approval.
- Following approval of the mortar mix, prepare a 1m² panel of pointing in a pre-agreed location for approval by the Architect prior to wider-spread use.

MOR.13 Preparation of Masonry:

- Existing joints to be raked out to a depth of 20mm or twice the width of the joint, whichever is larger, using hooked tools or small chisels (or hacksaw blades to particularly narrow joints) to remove old cement and lime mortar and creating a square back to the joint. The use of mechanical disc-cutters is not permitted to be used to remove mortar from perpend joints under any circumstances and may only be used on bed joints with the express permission of the Architect, where hand-raking proves problematical. The arrises of the brick/stonework are to remain undamaged by the raking out.
- Clean our all joints with a stiff bristled brush and thoroughly flushed out with clean water, avoiding unnecessary saturation. All dust and loose material to be removed, working from the top of the wall down.
- No cleaning agents to be used before or after the repair works.

MOR.14 Application of Mortars:

- Inside surfaces and back of all joints to be consistently maintained damp. If they dry out, re-wet with a hand-held spray, avoiding water left lying in the joint.
- Joints to be thoroughly filled from the back and compacted to prevent voids occurring and to achieve sound adhesion to existing mortar. Particularly narrow joints should have masking tape (or similar) applied to either side of the joint to avoid mortar getting onto the masonry surface. Any smeared mortar on the masonry surface should be sponged off immediately.
- Mortar to be applied with tamping irons to deep joints. Shallower depths of joint may be pointed using traditional pointing irons. Mortar to be applied in maximum 25mm layers, where possible from the top down, to ensure even compaction throughout depth of mortar (not just applied from the outer finish) and to avoid damage to already completed work.
- For deep joints, tamping mortar should be pushed into the joint and dampened stone/slate/brick pushed into achieve an even joint depth that can then be pointed.

MOR.15 Protection And Post Application Care:

- On completion of pointing, allow initial set to take place, then using a churn brush, stipple surface to remove laitance and brick/grit aggregate to the fore. Remove excess mortar from stonework. Protect for 5 days using sacking, and wet that in the morning and evening. After 5 days, ensure mortar is kept in the shade for as long as possible to allow carbonation.
 - Pointing to be offered appropriate protection from the weather to aid curing:
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- In direct sunlight regular misting and/or covering with wetted hessian is required, ensuring it remains well ventilated and maintains an average daily temperature of no less than 10 degrees for a minimum of four weeks, until the face has hardened.
- In cold weather, visqueen sheeting should be applied to prevent temperature dropping too low. Any shrinkage cracks should be pressed closed during the curing period. Ventilation might be achieved by the application of bubble-wrap – bubbles in, against the stonework, prior to the application of visqueen.
- No works are to be undertaken during frost conditions. Pointing not to be undertaken below 5 degree and falling, to resume only when it is 3 degrees or above and rising. Max/min thermometers to be kept on site at all times and day and night readings recorded for the duration of the contract.
- Any mortar or stains caused by the works on the face of the masonry must be completely removed immediately and before the stains dry or harden.

-- End --
