SPECIFICATION for the Farm Buildings at Langleeford

Specification 1: Slate Repairs

The object is to ensure the roof remains weathertight.

Strip off the existing slates, ridge tiles, battens, tilting boards, valley boards and lead where indicated. Put salvageable slates to one side for possible reuse. Make an allowance for the scrap value of the lead valley. Broken and damaged slates and mortar droppings and timbers etc. to be removed from site (NB Care is to be taken when stripping the roofs to check below each slate to ensure that there are no bats.)

The shortfall of slates are to be made up with sound second hand slates to match the existing.

Install new treated sw battens 50x25mm set parallel to the ridge in straight horizontal lines gauged to suit the slates with a minimum span over at least 3 rafters, fixed with 65x3.35 mm stainless steel annular ring shank nails. Include treated timber tilting fillet at eaves and valleys, and treated timber valley boards.

Relay the slates, including any glazed slates in their original locations. Ensure cut slates are as large as possible. Slates to be fixed as recommended by BS5534, using copper clout nails. Relay the ridge tiles, bedding ridges and hips with a 2:5 NHL 5.0 hydraulic lime with a sharp sand.

Include for the installation of new lead valleys with no.04 lead with maximum lengths of 1500mm with laps of at least 150mm. Lead to be installed in accordance with the lead development association handbook.

Include for installing lead soakers at wall abutments. Lead to be installed in accordance with the lead development association handbook. Cover soakers with a mortar flashing - 2:5 NHL 5.0 hydraulic lime with a sharp sand.
At verges include for packing the void below the slates and above the wall with mortar to form a mortared verge, with 2:5 NHL 5.0 hydraulic lime with a sharp sand.

Include for the installation of galvanised steel rafter brackets for the guttering.

Specification 2: Repairs to timber roof structure

The object is to ensure the timber roof structure is sound.

Once areas of roofing have been stripped contact the architect to inspect the existing roofing timbers before relaying is undertaken, so any remedial repairs to the timbers can be undertaken.

Identified areas of rotten timber are to be cut out until sound timber is reached. Ensure the surround timbers are suitably supported. Where there is rot to the rafters cut these back at the next purlin, replace entire purlins from truss/truss and from truss to wall.

All new timbers are to be treated timbers. The timber replacements are to match the original timbers in section size, note site measurements are to be taken prior to ordering the timbers. Brush apply on site where any timbers are cut or are to be built into the masonry.

At rafters lay the new rafters adjacent to the existing cat back rafter so both the existing cut back end and the new timber are fully supported on the purlin and wall plate.

Purlins are to be laid above the original so they can overlap at the truss. Ensure there is at least 150mm bearing into the walls. Make good the stonework around the bearing to ensure the purlin is secure. Point up with NHL 3.5 1:3 lime mortar.

At existing trusses where reinforcement is required bolt new timbers to the side of the existing members, bolt with M14 carriage bolts at 300mm centres staggered at 50mm either side of the centre line of the timber.

New sections of timber wall plate are to be fixed down to the wall head with M14mm resin bolts generally at 600mm centres and located to secure into the centre of stones. The boards are to be bedded on an NHL 3.5 1:3 lime mortar.

Specification 3: Timber treatment

The object is to prevent further rot and reduce the amount of timber to be removed.

Existing timber to be checked for decay/woodworm and retained timber to be treated appropriately with suitable fungicide and herbicide treatments. Any treatments used are to be 'bat friendly' and applied in full accordance with the manufacturers recommendations.

Specification 4: Corrugated metal roofing.

The object is to ensure the roof remains weathertight.

Carefully ease up the existing metal ridge sufficient to enable the metal sheets to be removed.

Install new corrugated metal sheets 0.7mm thick, with a profile to match the existing using PVC plastisol external coating with a grey polyester internal. The sheets are to be secured with self-drilling Tek stainless steel screws with hexagonal nut with stainless steel washer and bonded neoprene pad to create a seal at the sheet. The number of fixing is to be advised by the sheet manufacturer. Assume 6 fixings at the eaves and ridge, 3 at the central timber purlin and 7 stitching screws at the laps in the sheets. Sheets to be installed to the manufacturers recommendations.

Specification 5: New rainwater goods

The object is to efficiently channel the water run-off from the roofs therefore reducing the potential damage to the stonework walling from weathering.

Remove the existing plastic guttering along with the timber fascia boards. Any existing cast iron rainwater goods is to be put to one side and assessed for condition as it may be possible to salvage sections for reuse.

Install new 100mm half round cast iron guttering (deep flow where indicated) set on galvanised rafter brackets at approximate 900mm centres, include for all necessary stop ends outlet and 90 degree corners, an outlet to discharge into the down comer, with 65mm round cast iron eared pipes, with a shoe.

Include for 65mm cast iron down comers, brackets, swan necks and shoes to the base of the down comers. Include for the necessary hardwood timber bobbins to the downpipe brackets. When fixing the gutter brackets and down comer brackets avoid the stones and fix to the joints to avoid damage to the stonework work, use stainless steel fixing screws.

Include for installing cast iron universal hopper where indicated.

The joints to the guttering are to be sealed with silicone sealant and fixed with a gutter nut. Downpipe joints to be left dry with suitable lead wedges.

Include for painting the rainwater good and galvanised gutter brackets with suitable gloss metal system. Allow for a coat of metal primer, a coat of undercoat and two coats of external gloss. Coloured red to match the estate colour.

Specification 6: Drainage

The object is to direct the water well away from the buildings to a soakaway, rather than discharging to base of the wall.

Carefully excavate for a gulley, a drainage pipe and a soakaway. Back fill and make good the surface on completion.

Include for the installation of a 150mm square gulley with a cast iron cover plate, with a connection to a 100mm drainage pipe.

Allow for 100mm plastic drainage pipes, laid with a minimum fall of 1:80, assume an excavation depth of 750mm. Lay the pipes on a bed of 150mm Gen 1 Concrete with a 150mm cover, with 13mm compressible boards installed at pipework joints. Back fill with as dug material and make good the surface.

Allow for forming a 1m cube soakaway at the end of the drainage run. Filled with course rubble, and topped with a geotextile membrane and 200mm of as dug material, and make good the surface.

The proposed drain runs below the rear range. Allow for the existing concrete floor to be cut and re-laid. Note there is an existing drainage run in this location. Investigate opening up this run before installing the new pipework.

Specification 7 – Repointing.

The object of the repointing is to enable the effective shedding of water from the walls and reduce the risk of water penetration and vegetation establishment in order to provide long-term protection of the stonework.

Cut back the existing mortar to a minimum depth of at least 50 mm or half the width of the joint, whichever is greater. Carefully remove and set to one side any loosened galleting. Clean out existing loose mortar using only fine chisels and a light hammer, fine saw blades and fine raking spikes, taking care not to damage the edges of the stonework, or to dislodge any stones. DO NOT USE ANGLE GRINDERS. DO NOT USE COLD CHISELS, which can wedge in the joints and damage the edges of stonework. Impact must be at an angle to the joint face and not perpendicular to it.

Brush out loose debris, wash out and wet prior to pointing. Apply mortar pointing, compacting firmly into place and fill the joint. Re-bed loosened galleting as work proceeds. Once the mortar has set, knock back to show the arises of the stones then brush back with a churn brush or similar followed by a soft brush.

Spray with fine mist spray to prevent rapid drying throughout the process. Work must be protected from rain to avoid smearing of facework and must be protected from excessive heat/cold.

Mix for repointing
1 : 2.5, NHL 3.5 natural hydraulic lime: course washed sharp sand.

All mortar mixes are indicative and are to be agreed on site following the preparation of mortar samples for approval by the Architect.. For the purposes of the tender assume the Thornbrough/Styford sand from Corbridge, with a Naturally Hydraulic Lime 3.5.

Gauge boxes to be used throughout to ensure uniform mixes. Used mortar to be discarded at the end of each working day. Ensure that the mixing is carried out in a suitable site compound to avoid disruption to the ground.

The works are planned during the summer months so protection will be necessary to avoid rapid drying out and to provide protect from the rain. Ensure newly laid mortar is adequately protected using a grade 10 hessian with tarpaulin covers during the works. Ensure the newly laid mortar is regularly monitored, damping down the hessian and spraying the mortar to prevent drying out.

Specification 8 - Piecing in stones

The object is to fill in area of missing stone to secure and protect the remaining surrounding stonework, and improve the structural integrity of the wall.

Using stone to match the existing building out missing sections of masonry and larger voids. Use smaller gallets to pack around the stones to ensure the surrounding stone are fully supported, and to avoid large areas of mortar. Bed the stones into a mortar bed and deep tamp the mortar compacting it well into the voids. The mortar bedding is to be left back from the face so that the new stone and surrounding stones can be repointed in one operation as **Specification 7.**

Mix for bedding.
1 : 2.5, NHL 3.5 natural hydraulic lime : course washed sharp sand.

Specification 9 - New Lintels

The object is to renew rotten and decayed timber lintels to ensure the stonework above is adequately supported.

Carefully prop the existing stone work, sufficiently to enable the remains of the rotten lintels to be removed. Install new Oak timber lintels. Include for making good the surrounding masonry and packing gaps above the lintel. Make good the stonework around the lintel and repoint as **Specification 7.**

Specification 10 - Structural Stitching

The object of the stitching is to tie sections of masonry together across cracks to improve the structural integrity.

Allow for structural repairs at movement cracks provisionally as indicated. Architect to provide details of final locations. Include for raking out bed joints to a minimum depth of 75 mm x approx. 1200 mm long (exact lengths to be determined on site. Clean out slots with blow pump and flush out with water to remove all debris. Using a grout gun inject a bead of Helicon MM2 thixotropic cementitious non shrinking grout to the back of the slot. Insert a stainless steel Helibar 6 mm dia 1000mm rod into grout to obtain good coverage. Inject a further bead of Helibond MM2 inserted with injection kit to within 38 mm of work face. Repoint as **Specification 7.**

Specification 11 - Deep Tamping

The object of the deep tamping is to stabilise loose masonry and prevent water ingress.

The mortar joints in the specified areas are largely empty with deep voids, and must be deep tamped to bring them forward to the required depth. Clean out existing loose mortar using only fine chisels and a light hammer, fine saw blades and fine raking spikes, taking care not to damage the edges of the stonework, or to dislodge any stones. DO NOT USE ANGLE GRINDERS. DO NOT USE COLD CHISELS, which can wedge in the joints and damage the edges of stonework. Impact must be at an angle to the joint face and not perpendicular to it.
Wedge loose stones as the work proceeds. Carefully remove any small stones or galleting and set aside for re-bedding. Brush out all loose material from the joints. If any old weathered joints have been colonised with lichens, algae, etc. apply an approved biocide as part of the cleaning out.
Using hand sprays, thoroughly pre-wet the joints and deep tamp with the specified mix thoroughly filling the joints and voids and consolidating the work bringing the mortar forward. Any large areas of mortar are to be packed with stone pinning/gallets. These areas are to be pointed as **Specification 7**.

Mix for deep tamping
1 : 2.5, NHL 3.5 natural hydraulic lime: course washed sharp sand.

Specification 12 - Lime wash

The object of the limewash to reinstate the existing protective finish to the stonework.

Brush back and remove any loose limewash from the wall in preparation for the new limewash.

Mix water with quick lime kibble. Add the water in a controlled fashion, add sufficient water for the slaking reaction, but not too much to prevent the reaction. Once cooled strain the mixture through a metal sieve and add further water to create a thick creamy consistency.
(Note the slaking process is volatile. It is to be undertaken by those with experience and with suitable PPE)

Apply to the wall with a natural bristle brush with an even application in criss-cross strokes, keeping the edges wet. Once the surface appears matt burnish with a synthetic bristled brush. Keep the wall misted, but avoid over wetting to prevent steaks. Protect the wall with hessian covers

Specification 13 - Rebuilding Masonry

The object of the rebuilding is to stabilise loose masonry, both facing and corework so it is structural sound.

The extent of rebuilding is indicated. Precise areas are to be agreed on site with the architect and will be dependent on the condition of the masonry and will require re-assessment as the taking down progresses.
Prior to taking down stonework record, photograph and number stones. Carefully remove a maximum of 1 linear metre at a time and consolidate the exposed core. Brush off the loose mortar from the stone. Relay the removed facework to match original, using numbered stones, introducing corework as the work proceeds with flush pointing, struck off and washed with fine spray after first set to give impervious weathered surface.
Pointing to facework to be completed with slightly recessed joints as **Specification 7**

Where the rebuilding is undertaken to the wall heads for a hard mortar. Introduce corework as the work proceeds with flush pointing struck off and washed with fine spray after first set to give impervious weathered surface to the upper level of the structure and to ensure proper shedding of water.

Mix for re-bedded facework and core
1 : 2.5, NHL 3.5 natural hydraulic lime:course washed sharp sand.

Mix for capping
1 : 2.5, NHL 5.0 natural hydraulic lime: course washed sharp sand.

Specification 14: Resin Masonry repairs

The object is to secure cracked stones without the need for replacement.

Include blowing out loose material from the cracked stones. Inject an epoxy resin into the crack taking care not to overfill the crack and to avoid dripping. Allow for filling the surface of the crack with a 1:3 NHL 2.5 lime mortar with a fine sand.

Specification 15: Decoration.

The object is to provide a protective layer to protect the surfaces below.

Include for painting all the exposed metal components, i.e. tie rods and pattrass plates. Brush off loose material with a wire brush, clean with methylated spirits then wash with clean water, and allow to dry. Apply two coats of Hammerite or similar Rust Beater, followed by 2 coats of Hammerite Direct to Metal Paint Satin - coloured black. Apply to the manufacturer's recommendations.

New joinery is to be knot sealed, joints filled, minor defects filled and rubbed down, then apply one coat of primer, one coat of external quality undercoat and two coats of external quality gloss. The colour is to be agreed.

Existing joinery is to be rubbed down to remove loose and flaking old paint and dirt, then wiped down and clean with white spirits. Minor defects are to be repaired with filler and rubbed down. Apply one coat of external quality undercoat and two coats of external quality gloss. All doors and frames will be painted Estate Red.

For the rainwater goods allow for suitable metal primer, a coat of external undercoat and two coats of external gloss, colour to be Estate Red.

All paint systems to be installed to the manufacturer’s recommendations.

Spec 16: Removing trees.

The object is remove roots from the existing masonry structures to avoid damage through water penetration and expansion of the roots. In addition the removal of trees reduce the risk of damage to the structures from wind throw and falling branches.

Removing Trees: Free seeded trees to be cut down to stump level. Tree and stumps to be injected with suitable root penetrating herbicide prior to being removed.
Tree roots to be carefully removed from stonework following consultation with architect and stonework repaired/rebuilt and repointed as necessary. Track roots through the stonework to remove all significant roots as possible. Wedge displaced stones as necessary to avoid undue further disturbance to surrounding stone work until the mortar joints have been reinstated. Introduce new gallets where stonework has been significantly displaced. Where roots cannot be removed these are to be poisoned with suitable herbicide.
All large roots to be removed, fine roots racked out as far as possible. Affected areas of stone work to be rebuilt, deep tamped and repointed as necessary.
Note: All walls where vegetation is to be removed and trees are to be removed are to be carefully and thoroughly inspected by the contractor for nesting birds and bats prior to removing any vegetation/ stonework. If any nests or bats are found report to architect before commencing any work.
The removal of the trees to stump level is to be undertaken by a tree surgeon.

Specification 17: Flooring

The object is to repair the missing floor to the first floor to enable use of the space.

Include for clearing the debris from the first floor. Asses the condition of the existing floor, and agree with the architect the floor to be removed. Carefully remove the poor floor boards.

Install new T & G floor boarding to match the existing. Nominal size 140x25mm - site dimensions to be taken. Fix boards with traditional 65mm cut floor brad nails.

Specification 18: Window & Door Repair/Refurbishment

The object is restore the windows and doors while maintaining as much of the original fabric as possible.

Where a section of timber frame or door panel is damaged or rotten, this is to be cut back to sound timber, leaving a straight but angled cut. Cut the new timbers to match

A new section of timber of the same profile is to be cut and spliced into position and secured with a resin filler. Once dry this can be rubbed down to create a smooth surface. Missing legs of frames are to be secured to the masonry with stainless screws, and door panels to be screwed to the existing ledges and braces.

At existing and new frames include for sealing the perimeter of the frames and the stonework with a burnt sand mastic.

Window – Include for installing new rebated squared accoya timber glazing bars utilising the existing sockets in the original frame. Include for the installation of 6mm glass secured with linseed oil putty. Secure glazing on wedges and a bed of putty. Apply further fronting putty and knife at an angle finishing about 2 mm below the sightline. Brush putty with soft brush to seal to glass. Knife off back bedding, sloping away from glass. The maximum fillet size to allow correct setting is 15mm high x 25mm wide. Minimum fillet size is 8mm high x 10mm wide.

Include for sealing the perimeter of the frame and the stonework with a burnt sand mastic.

Specification 19: New Doors

The object is to replace doors beyond repair and to provide doors to openings to ensure the building can be secured and therefore becomes more useful.

Where shown include for new frames. Secure the frames with stainless steel fixings at 450mm vertical centres.

Include for sealing the perimeter of the frames and the stonework with a burnt sand mastic.

Install new ledged and braced timber boarded doors. Fabricated with 25x150mm battens, 32x100mm braces, and 125x25mm boards. Reuse the existing salvaged ironmongery where indicated.

Allow for supplying and installing the following ironmongery to each of following doors:-

Stable West door – utilise the existing salvaged ironmongery.
Rear Range upper door section - 2 galvanised hinge pins, with 50mm wide band hinges, a thumb latch, and a 200mm slide bolt.
Rear Range Arched double doors – 6 galvanised hinge pins, with 50mm wide cranked band hinges. A pair of 'D' handles. 200mm slide bolt with pad lock loop.
Rear range western door on south elevation – 2 galvanised hinge pins, with 50mm wide band hinges, a thumb latch, and a 200mm slide bolt.
Pigsty door - 2 galvanised hinge pins, with 50mm wide cranked band hinges. 200mm slide bolt.

Specification 20: New Gate

Include for a new 5 bar timber gate 1.3m high, with a top rail 100mm x 75mm, under rail and cross braces 75 x 25mm, hanging and slam stiles (rounded top) 100 x 75mm. Top bars are chamfered. Rail and brace crossings are bolted with stainless steel bolts. Include for 2 timber 175mm sq gate posts with chamfered tops. The bottom ends of the posts are to be treated and set in a concrete foundation. All timbers to be treated.

Include for a pair of galvanised anti lift pin hinges and galvanised spring catch