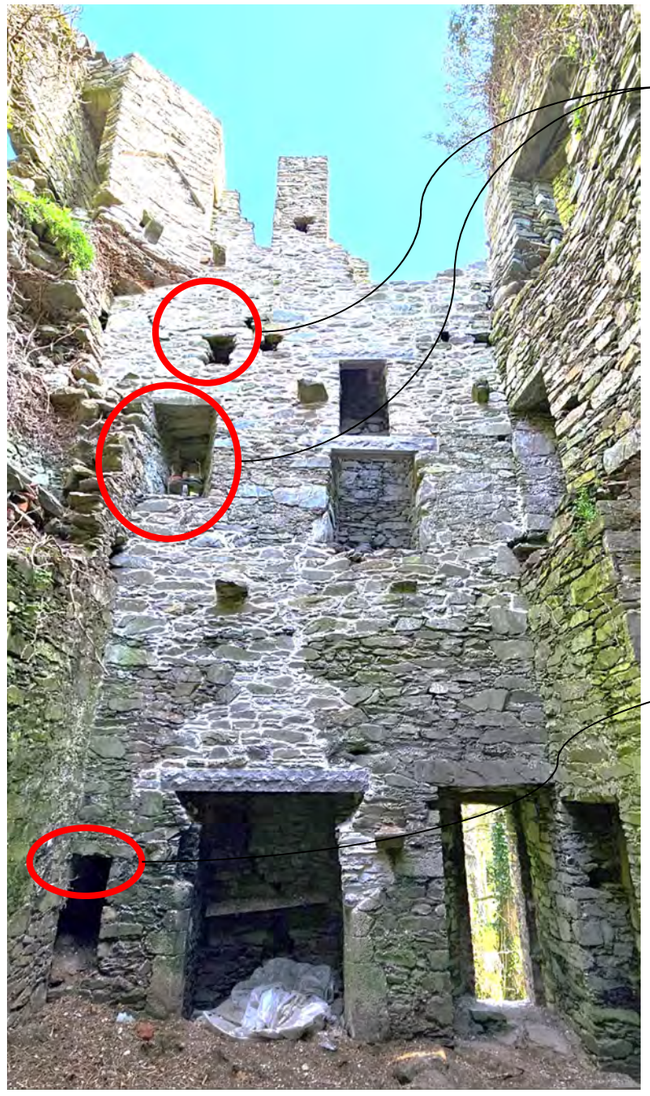
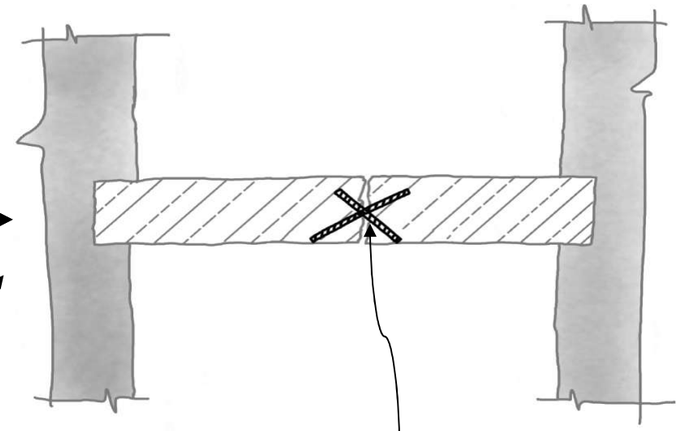
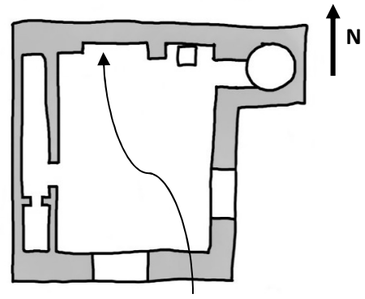
Repair the crack in the stone lintel over the openings with 2 No. M12 dowels per opening.





M12 threaded stainless steel grade 316L dowels (typically 2 per stone) minimum 200mm long, 100mm either side of the crack. Dowels to be chemically anchored into the existing stone with Hilti chemical resin compatible with the stone.



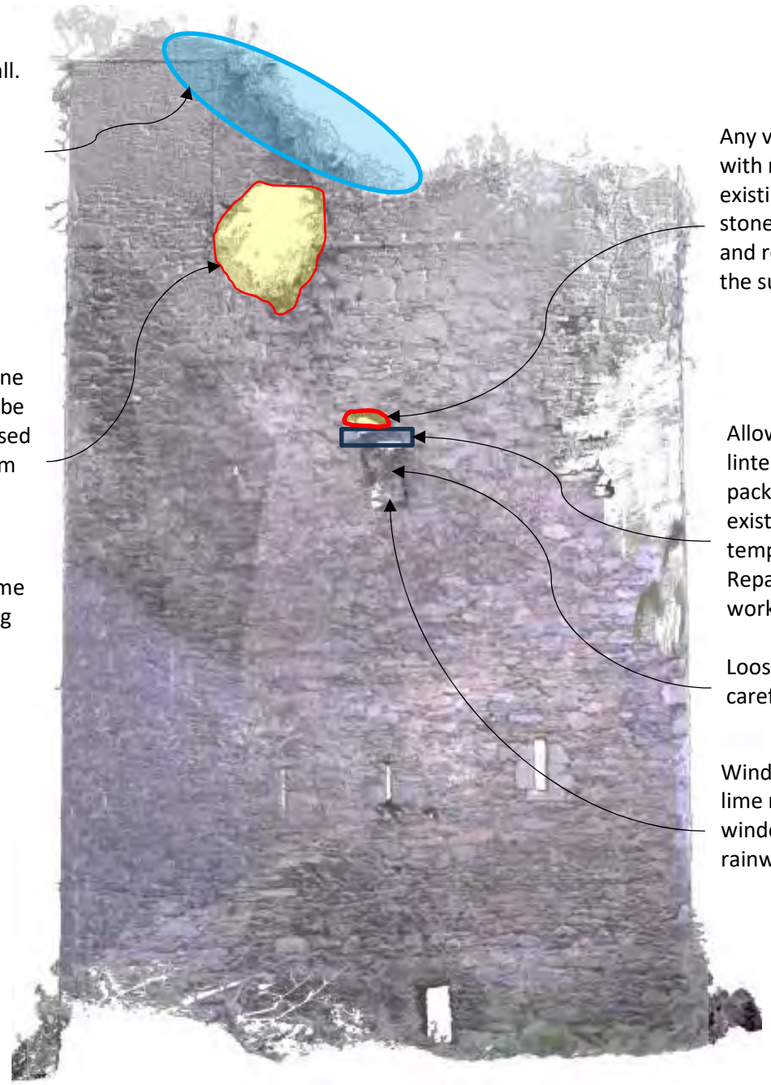
INTERNAL NORTH WALL EVATION

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS								Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718								
Site Address:	Clogherhead																	
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Proposed Repairs to the Internal North Wall**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK300	Stage:	Revision: I1	
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY													

Spray all of the vegetation growing from the wall.
Fully record all stones in the top 200-300mm of the wall.
Carefully rake out any loose mortar.
Arrange for inspection.
Allow for careful dismantling and rebuilding of the top 200-300mm of the wall top exactly as is now but with adjustments to give a top surface that is self draining.
Repoint the wall, refer to specifications.

Existing opening to be infilled with new or salvaged stone to match the existing in lime mortar. Infilled section to be keyed into the existing wall. Infilled section to be recessed backed from the face of the surrounding stone by 25mm on either side.

Rake out any loose mortar and repoint the wall with lime mortar, refer to specification. Allow for deep repointing and stone pinning's. Original intact mortar is to be retained.

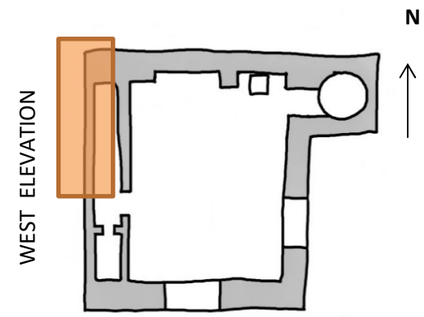


Any voids to over the window to be infilled with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing stone and recessed back 25mm from the face of the surrounding stone.

Allow for a 100mm x 100mm limestone lintel over the window opening. Dry pack between the new lintels and the existing stone. Wall over to be temporary propped during the works. Repair the wall over once the temporary works have been removed.

Loose infill stone to be recorded and carefully removed.

Window reveals to be consolidated with lime mortar and stone pinning's. The window cill is to be flaunched to allow rainwater to self drain.



KEY PLAN

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS							Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Proposed Repairs To the West External Elevation**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK301	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												

Stone lintel over the timber beam opening has no bearing on the right hand side.

End of the existing wall is unravelling and there are unsupported stones over.

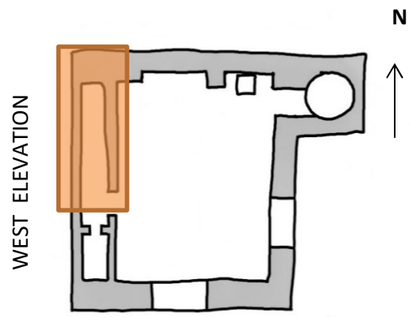
Existing stone lintel over the window opening, minimum bearing on the right hand side.

Existing stone wall is unraveling and there are unsupported overhanging stone over.

Existing stone wall unsupported at the base due to missing lintel / corbel stones.

Existing stone lintel / corbel stones of the internal room are missing.

Existing internal room.



KEY PLAN

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS			Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie				
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Existing condition of The Internal West wall**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK302	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												

Fully record all stones in the top 200-300mm of the wall.
Carefully rake out any loose mortar.
Arrange for inspection.
Allow for any loose stone to bedded in lime mortar.

Existing opening to be infilled with new or salvaged stone to match the existing in lime mortar. Infilled section to be keyed into the existing wall. Infilled section to be recessed back from the face of the surrounding stone by 25mm on either side.

Wall to be built up to provide support to any overhanging stone and stone lintel with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing and the stone to be recessed back from the face of the surrounding stone by 25mm.

Rebuild the return wall to support the existing lintel over the window opening with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing wall and recessed back from the face of the surrounding stone by 25mm on either side.

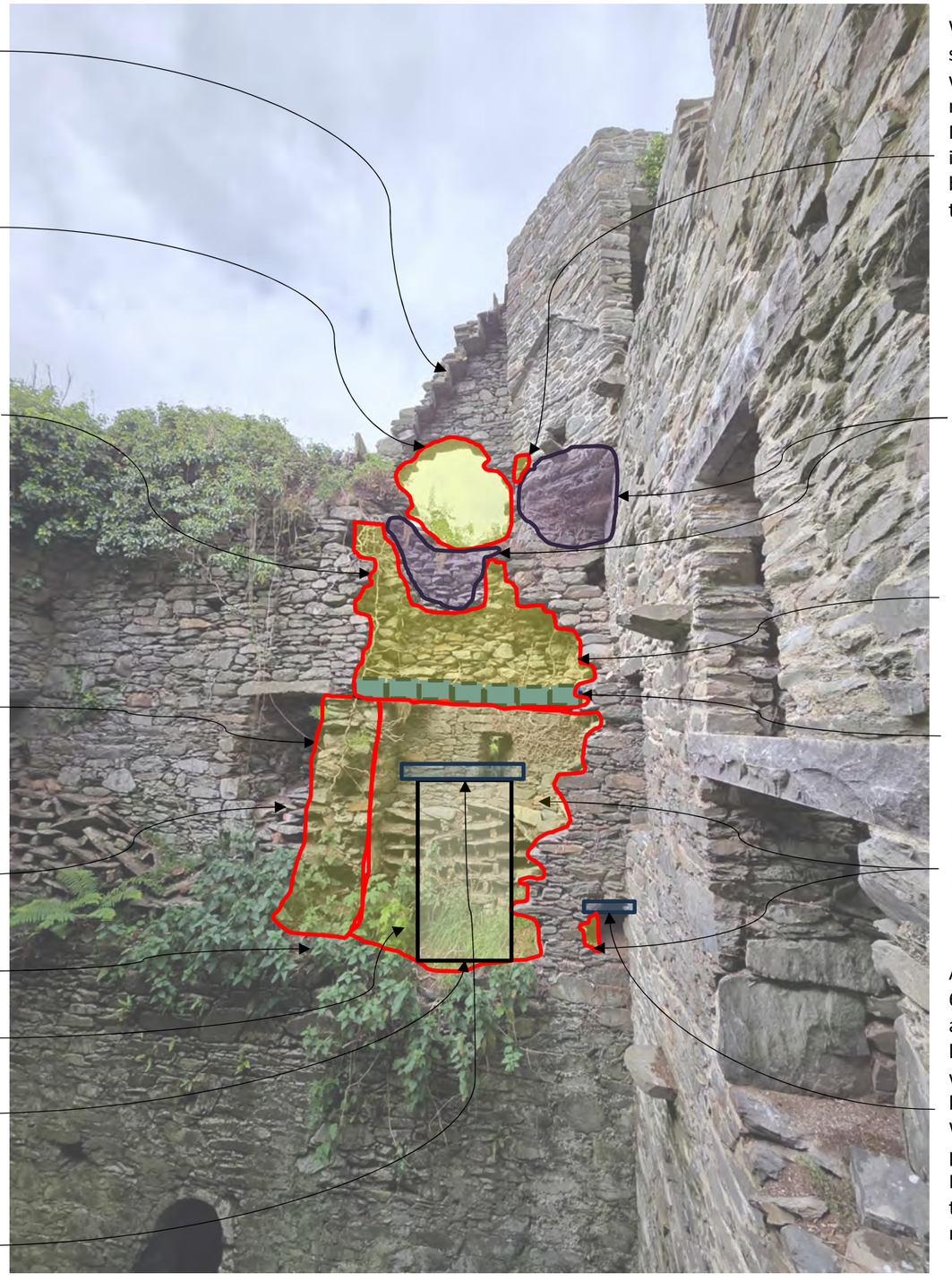
Window reveals to be consolidated with lime mortar and stone pinning's. The window cill is to be flaunched to allow rainwater to self drain.

Vegetation to be removed from the wall top.

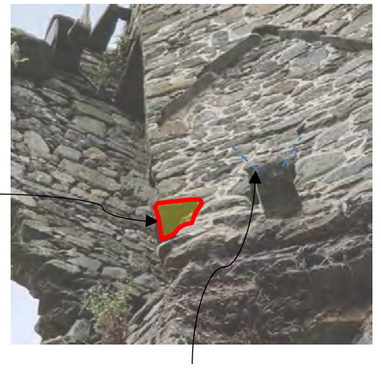
Wall top to be flaunched to allow rainwater to self drain.

New door opening into the internal room. Door revealed to be rough racked.

Two number 215mm x 215mm precast concrete lintels over the new door opening with a 100mm x 100mm stone lintel to the external face. Stone lintel to be dated on the non-visible face.



Wall to be built up to provide support to any overhanging stones with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing and the stone to be recessed back from the face of the surrounding stone by 25mm.



Allow for the existing stone lintel to be pinned to the stone above with 2 number M12 sock fix anchors installed at an angle on either side. Sock fix anchors approximately 300mm long. Allow for an inspection with the Engineer and Stone masonry before the Sock fix anchors are order.

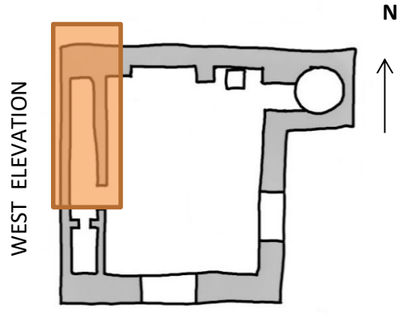
Carefully remove any vegetation and allow for deep repointing with stone pinning's.

Rebuild the internal section of the wall new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing wall and recessed back from the face of the surrounding stone by 25mm.

215mm x 65mm precast concrete lintels over the internal room to provide support for the overhanging wall sections above.

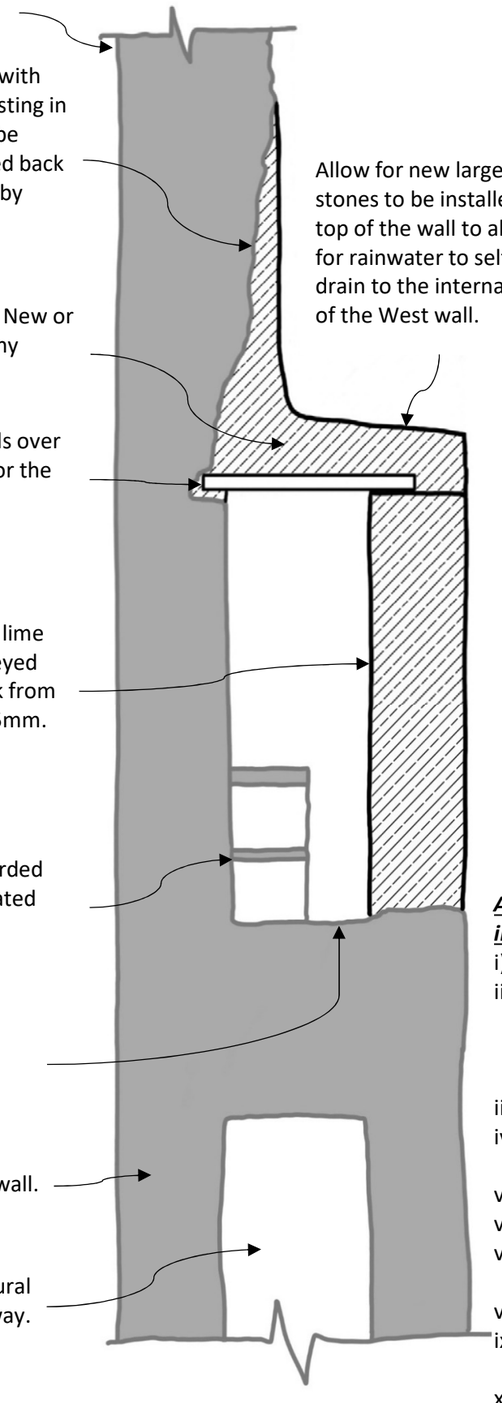
Rebuild the internal wall with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing wall and recessed back from the face of the surrounding stone by 25mm.

Allow for four number 100mm x 65mm precast concrete lintels and 100mm x 100mm lime tone lintel over the opening in the wall. Dry pack between the new lintels and the existing stone. Wall over to be temporary propped during the works. Repair the wall over once the temporary works have been removed.



KEY PLAN

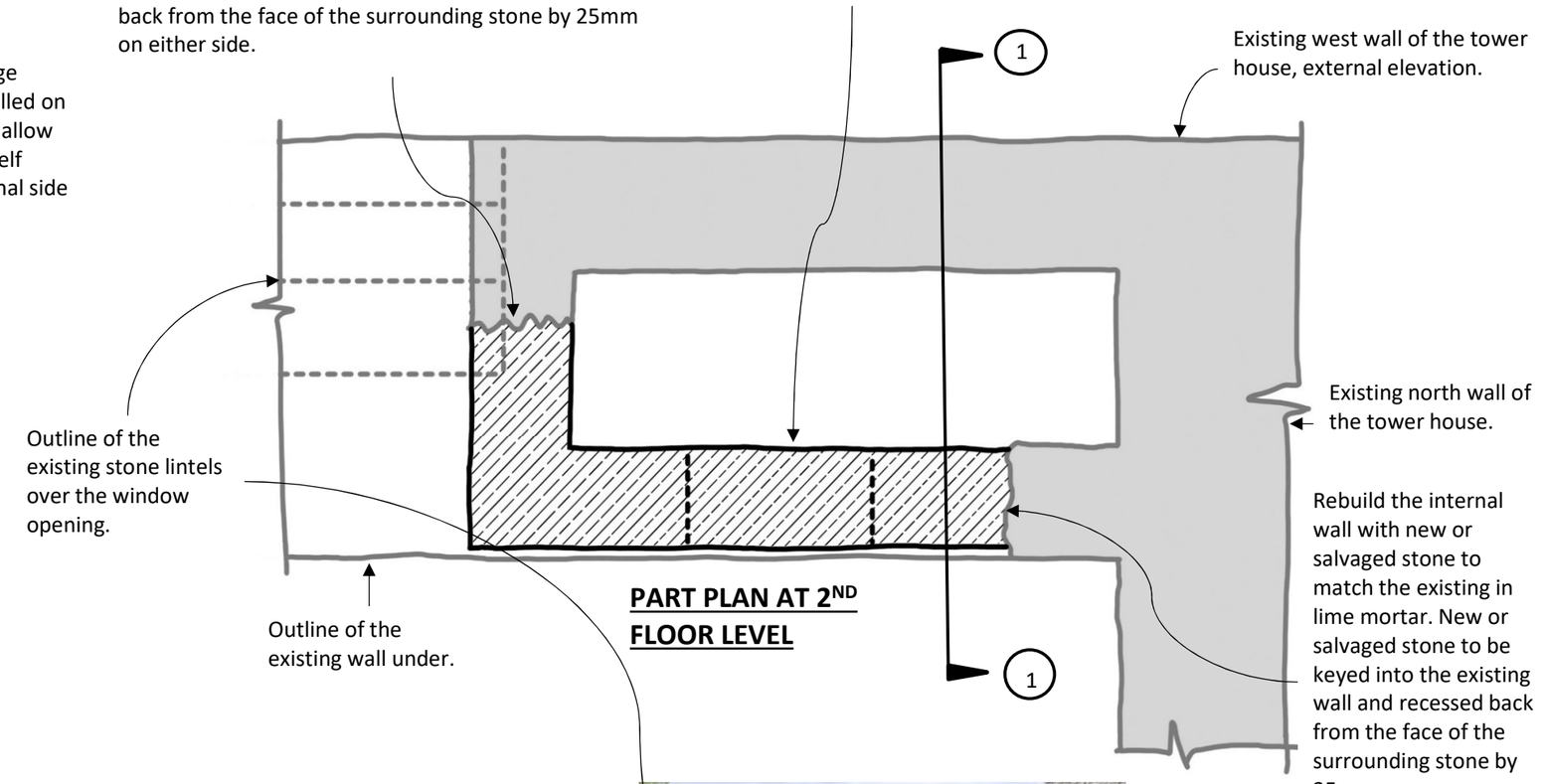
Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS							Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Proposed Repairs to the West Internal Elevation - sheet 1**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK303	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												



SECTION 1

Rebuild the return wall to support the existing lintel over the window opening with new or salvaged stone to match the existing in lime mortar. New or salvaged stone to be keyed into the existing wall and recessed back from the face of the surrounding stone by 25mm on either side.

Two number 215mm x 215mm precast concrete lintels over the new door opening with a 100mm x 100mm stone lintel to the external face. Stone lintel to be dated on the non-visible face.

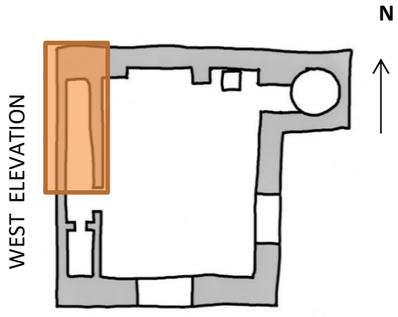


PART PLAN AT 2ND FLOOR LEVEL

Assumed sequence of repair works for the repairs to the internal section of the west wall:

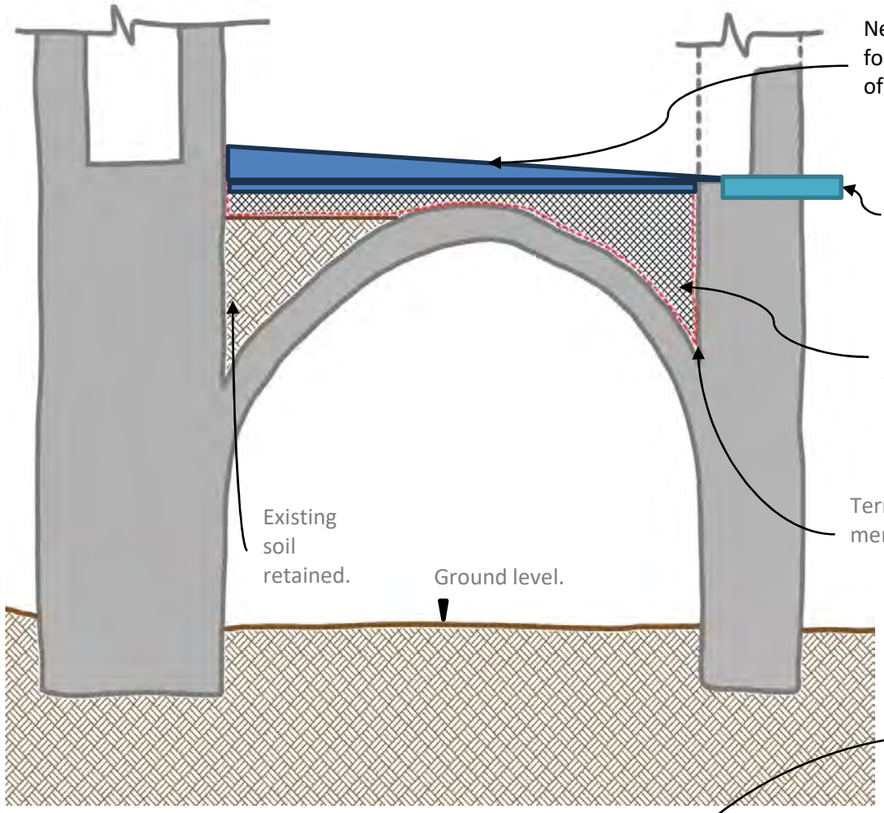
i) Erect a safe working platform.
ii) Inspect the wall over and temporary prop any loose stones or fully record and carefully remove any loose stone. Deep repointing maybe required in some areas to stabilise loose stone before the works commences.
iii) Remove the vegetation from the base of the wall.
iv) Construct the internal leaf of the wall with new or salvaged stone to match the existing.
v) Install the lintels over the internal room.
vi) Deep repoint the exposed core of the wall.
vii) Locally rebuild with new or salvaged stone to support any overhanging stone above.
viii) Consolidate the cantilever stones.
ix) Infill the opening with new or salvaged stone to match the existing.
x) Repair the wall top.

INTERNAL IMAGE OF THE WEST WALL

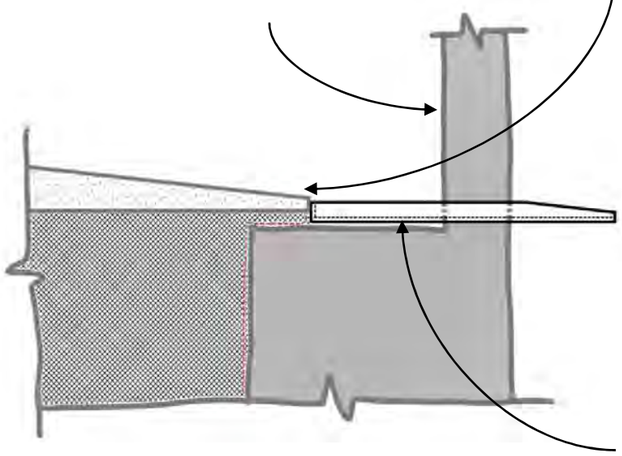


KEY PLAN

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie							
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead	I2	Issued for Information.	09/06/2025	RK												
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Proposed Repairs to the West Internal Elevation - sheet 2**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK304	Stage:	Revision: I2
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												



SECTION 1

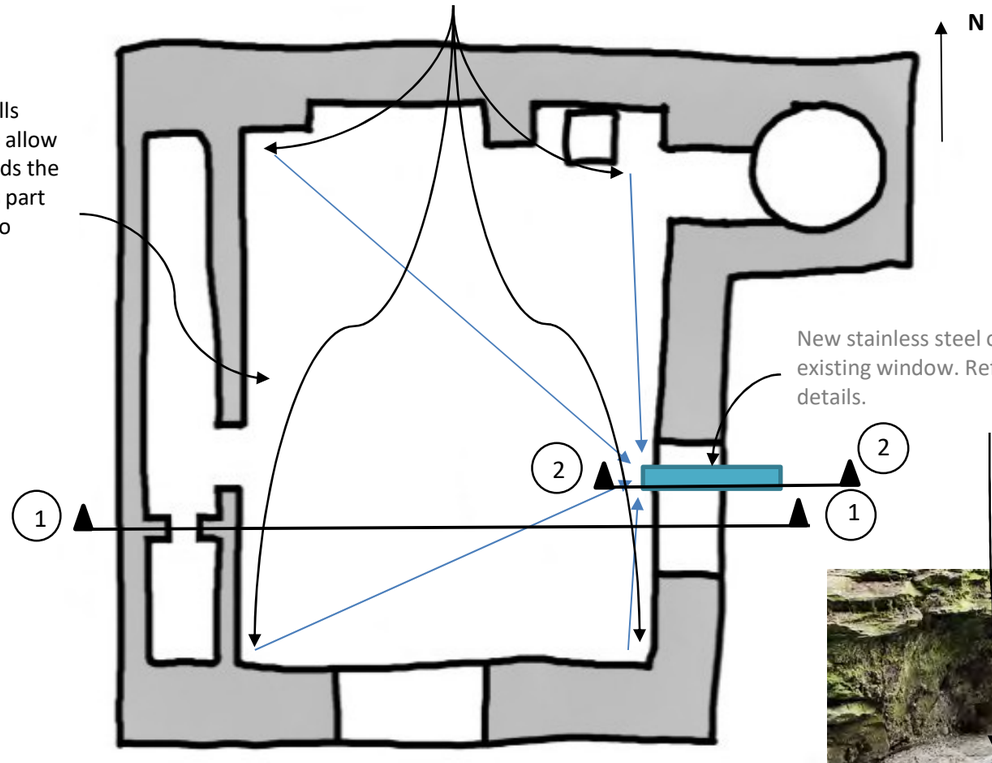


SECTION 2

Note level survey to be carried out by the contractor when the vegetation and soil is removed to determine the location of the rainwater outlets. Difference in level between the low and high points to be provided at 1m centres across the 1st floor area using a laser level for screeding.

Notes in grey carried out under previous phases.

High point in the new limecrete screed at the four corners of the first floor with a slope to the existing outlet under the window in the East elevation. Allow for 100mm of a fall from the high points to the outlet.



FIRST FLOOR PLAN

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS							Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Proposed Repairs to the first floor**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK310	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												

Specification for containment of plant growth - Where NO masonry works are envisaged

For maintenance / control of growth and / or survey and assessment purposes where no immediate repair works are planned. This will allow more effective survey and also reduce windage on walls.

General – before starting

Vegetation treatment / cutting / removal should ideally occur within the period 1st September to 28th February (dates inclusive) to comply with the Wildlife Act 1976 (Amendment) 2000. www.npws.ie/legislation

Although the removal of structure endangering plant growth outside of this period is not illegal, consultation with the National Parks and Wildlife Service is advised where substantial removal of vegetation is envisaged.

It is possible that bats are roosting in dense plant growth and cutting of the plant foliage should only occur after inspection by a qualified bat ecologist, who will recommend appropriate mitigation measures. All bat species are protected under the Wildlife Act and it is prohibited to interfere with their roosts.

Only very specific use of herbicides or biocides as mentioned below is to be deployed at any stage as the general policy is to reduce the plant growth immediately at the wall but not to the surrounding areas.

Access for works

Extreme care must be taken when removing plant growth from walls and at high levels to reduce the risk of injury from falls and from falling masonry.

The operatives removing the plant growth should work in pairs.

All work above 1.8 metres must be carried out from a safe access platform such as a mobile tower, scaffold or MEWP such as a small articulating boom lift hoist.

Machinery must be operated by personnel qualified to do such.

NB: IF IN DOUBT STOP WORK

Disposal of waste

All vegetation waste should be chipped on site and a place for disposal preferably in the nearby vicinity agreed with the client.

Note waste must be disposed of correctly and in accordance with the Waste Management Acts 1996 to 2011.

under which parties disposing of the waste must be licensed.

https://www.epa.ie/our-services/licensing/waste/waste-licensing/waste-legislation/

Cutting of plant growth on/in walls and at base of walls

All the plant growth growing from the sides or top of the walls and within 2m of any wall should be clipped back to reduce the canopy without interfering with the root system of the plants. This will reduce the demand of the root system and also reduce the risk of wind damage to the structure. Reduction of the vegetation also allows for better inspection of the wall for surveying and assessment of the structures.

The vegetation may be mechanically trimmed initially but then carefully cut close to the building by hand.

Hedge trimmers and croppers are likely to be the appropriate tools for this job.

It is extremely important not to pull any plants or roots away from the masonry walls as this will dislodge stones and mortar.

Removal of roots and vines attached to the walls should only happen alongside masonry repair works to the building at a later date. Under no circumstances should ivy that is growing up the walls be cut at the base as this only encourages development of the aerial roots and potential for much greater damage to the building in future years

There is to be no general herbicide treatment at this stage excepting that as below to any woody stems > 30mm diameter**.**

Woody stems growing out of sides; tops and bases of walls and within 1m of wall bases

Where woody stemmed plants / trees are found growing out of walls or within 1m of base of walls cut back root close to face of wall / ground and paint suitable root killer on cut stem within one hour of cutting.

All roots / stems over 30mm diameter to be treated with Eco Plug by Monsanto or similar approved, treatment to be carried out in accordance with manufacturers instructions.

Typically:- Treat within 2 days for optimum performance.

Using the prescribed drill bit make the appropriate number of holes in the living part of the stump just inside the bark. Each hole should be 25-30mm deep, 13mm wide.

Place an Eco Plug Max in each hole with the narrow end first.

The top of the plug will protrude by about 10mm.

Tap each Eco Plug Max until the head is flush with the stump.

This will force out the sides of the plug and release the glyphosate.

All overhanging branches to be cut back to 2m from walls. All ivy growing on walls to be clipped tight to walls

Useful References:-

"Ruins – The conservation and repair of masonry ruins" ISBN 978 1 4064 2445 4
Department of Culture Heritage and the Gaeltacht Architectural Advice series /
" Bats, Birds, Buildings and You! The heritage Council
"Bats in Buildings" Guidance notes for planners, engineers, architects and developers
https://www.batconservationireland.org/
http://invasivespeciesireland.com/
"The Herbicide Handbook: Guidance on the use of herbicides on nature conservation sites"
Published by English Nature 2003 in association with FACT. ISBN 1 85716 746 5

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS							Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Vegetation Control To Walls where NO works are to take place**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK350	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												

Specification for containment of plant growth where Masonry works are being carried out

Treatment of vegetation growing on and in the walls

General – before starting

Vegetation treatment / cutting / removal should ideally occur within the period 1st September to 28th February (dates inclusive) to comply with the Wildlife Act 1976 (Amendment) 2000. www.npws.ie/legislation

Although the removal of structure endangering plant growth outside of this period is not illegal, consultation with the National Parks and Wildlife Service is advised where substantial removal of vegetation is envisaged.

It is possible that bats are roosting in dense plant growth and cutting of the plant foliage should only occur after inspection by a qualified bat ecologist, who will recommend appropriate mitigation measures. All bat species are protected under the Wildlife Act and it is prohibited to interfere with their roosts.

Only very specific use of herbicides or biocides as mentioned below is to be deployed at any stage as the general policy is to reduce the plant growth immediately at the wall but not to the surrounding areas.

Access for works

Extreme care must be taken when removing plant growth from walls and at high levels to reduce the risk of injury from falls and from falling masonry.

The operatives removing the plant growth should work in pairs.

All work above 1.8 metres must be carried out from a safe access platform such as a mobile tower, scaffold or MEWP such as a small articulating boom lift hoist.

Machinery must be operated by personnel qualified to do such.

NB: IF IN DOUBT STOP WORK

Disposal of waste

All vegetation waste should be chipped on site and a place for disposal preferably in the nearby vicinity agreed with the client. Note waste must be disposed of correctly and in accordance with the Waste Management Acts 1996 to 2011.under which parties disposing of the waste must be licensed.

https://www.epa.ie/our-services/licensing/waste/waste-licensing/waste-legislation/

Prior and during repair works to masonry

Leave all growth in place and carefully weed wipe or very topically spray only those plants growing from foundations or walls with Glyphosate such as Round-up Pro Bioactive or similar approved. Apply according to manufacturer's instructions. https://www.monsanto-ag.co.uk/documents/. Extreme care must be taken to avoid any spraying in such close proximity to a water course

The herbicide should be applied as long as possible, at least 2 weeks, before any removal of growth.

This will serve to kill embedded root systems deep in the fabric of the masonry.

Removal of vegetation

After a minimum of two weeks all the plant growth growing from the foundations; sides and tops of walls should be clipped back hard. The vegetation may be mechanically trimmed initially but then carefully cut close to the building by hand.

Hedge trimmers and croppers are likely to be the appropriate tools for this job.

It is extremely important not to pull any plants away from the masonry walls as this will dislodge stones and mortar.

Any large or deep-seated roots are to be left in place during trimming operation so that they can be further treated – see below.

Under no circumstances should ivy that is growing up the walls be cut at the base as this only encourages development of any aerial roots and potential for much greater damage to the building in future years. Once the aerial roots have been removed during masonry works the stem will then be removed by the masons as they re-point down the wall.

Apply according to manufacturer's instructions Roundup Pro Bioactive or similar approved, to the cut faces of large stumps within 48 hours of felling. A soluble die will help in identifying which stumps have been treated.

Proceed with masonry repairs

Dig out as much of root as is practicable as masonry works proceed, without dismantling large sections of currently stable masonry. If in doubt consult Engineer. Where roots remain drill all roots over 30mm diameter root with 13mm diameter drill and insert Eco Plug by Monsanto. Treatment to be carried out in accordance with manufacturers instructions.

Typically:- Treat within 2 days of cutting for optimum performance.

Using the prescribed drill bit make the appropriate number of holes in the living part of the stump just inside the bark.

Each hole should be 25-30mm deep, 13mm wide.

Place an Eco Plug Max in each hole with the narrow end first. The top of the plug will protrude by about 10mm.

Tap each Eco Plug Max until the head is flush with the stump. This will force out the sides of the plug and release the glyphosate.

Useful References:-

"Ruins – The conservation and repair of masonry ruins" ISBN 978 1 4064 2445 4
Department of Culture Heritage and the Gaeltacht Architectural Advice series /
" Bats, Birds, Buildings and You! The heritage Council
"Bats in Buildings" Guidance notes for planners, engineers, architects and developers
https://www.batconservationireland.org/

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS								Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718								
Site Address:	Clogherhead																	
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Vegetation Control To Walls where works are to take place**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK351	Stage:	Revision: I1	
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY													

Specification for repair mortars

Note final mix designs to be a result of consultation with Lime suppliers; Cora Engineers; Architect and appointed Contractor and will be based on exemplars and a more thorough understanding of the previous construction obtained during masonry works preparation.

Lime mortar works can be affected by excessive wind, rain, sun or low temperatures. If these conditions prevail the working areas must be kept moist by spraying and protection using polythene or hessian sheets sprayed with water at regular intervals. Spray hoses can be used for large areas or for damping down hessian sheets but should be used with caution to avoid jet action of water washing out mortar or over saturating a wall. Thus a bottle spray, sprayer back pack or similar is an essential part of the equipment.
No works to be carried out if below 5 degree Celsius temperatures forecast within 48 hours unless temperature control methods such as tented enclosures deployed.
Full discussions regarding mortar mixes and methodologies to be undertaken with Engineer prior to commencing works. Exemplars will be required for each pointing / rebuilding type and are to be agreed with the design team before undertaking any work.

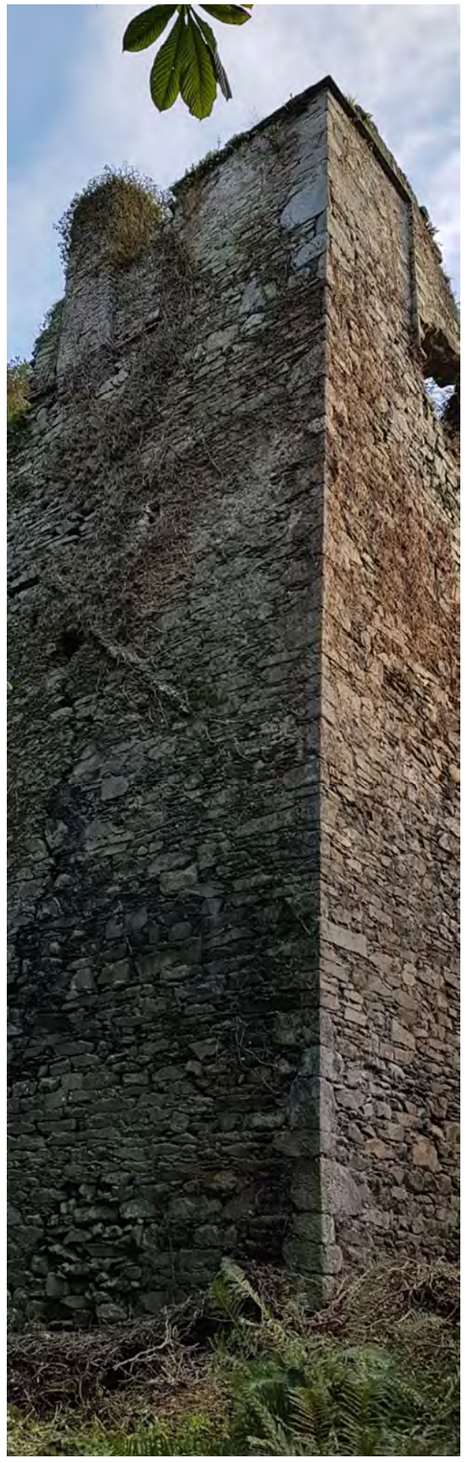
Mortar Binder

The use of Portland Cement shall not be permitted for this work. All mortars for repairs to the historic masonry including rebuilding of new sections of traditionally constructed walls will be lime and sand mixes as specified in this section.
Lime for structural repairs should be Naturally Hydraulic Lime NHL or indigenous quicklime.
There may be instances such as work in areas where a quick set is desirable because of the inherent wet conditions and the need to work in times outside of the ideal temperatures for lime because of the programme. Prompt Natural Cement may be sourced for these situations with the approval of the Engineer.
Metastar 501 pozzolan will be permitted for situations such as exposed wall tops.
Hot Mixed Lime mortars using indigenous quicklime as manufactured by Clogrennane, Co. Carlow should be considered for rebuilding. For masonry wall re-building it is proving a much quicker, more robust way of rebuilding rubble stone masonry and the expansion during slaking will be inherently useful in tightening up the arch voussoirs.
The document "Hot Lime Mortars - HLM Project - TECHNOLOGY TRANSFER & APPLIED RESEARCH" should be consulted (see references).
Naturally Hydraulic Lime; Metastar; Prompt and quick lime for hot mixing are all supplied by the following (not exclusive list)
Stoneware Studios, Youghal www.stonewarestudios.com
Traditional Lime Co., Carlow www.traditionallime.com

All lime mortars should be prepared and mixed as recommended in manufacturer's printed guidelines. Bags of lime hydrate, natural cement, etc. must be stored off the ground in a clean, dry place and not used outside of the dates recommended on the bags. Quicklime should be stored in weatherproof air tight bags/containers.

Sand

Shall be clean, coarse, well-graded sharp sand.
Particle sizes should range from 3mm to fine dust for any ashlar repointing and 5mm to fine dust for repointing larger joints in stonework.
The sand colour is important in achieving a good visual match to the existing mortar.



Mixing

Lime and sand should be carefully measured by volume, using batching boxes (shovels are not sufficiently accurate to be used). A conventional cement mixer may be used.
Add lime and sand dry and mix thoroughly. Lime hydrate and sand must be mixed dry in a mixer for a minimum of 20 minutes prior to the addition of water, to encourage air entrainment and improved workability.
Add water carefully until mixture starts to run. It should be a little dryer than a cement-sand mix. After water is added allow a full twenty minutes further mixing. The long mixing period helps improve workability.
The mortar should be damp but not too wet. Mortar for re-pointing needs to be dryer than that used for original bedding because it is being placed in small quantities in a vertical situation.
Use mixed mortar within a few hours and do not moisten to extend the working life. Mortar when mixed must be used within the time scale recommended by the manufacturer.

Mix proportions

Hydraulic mortar: For structural repairs, and wall tops
Mix proportions may need to vary depending on the lime + sand but are to be in the range:
Structural repairs: 1 part NHL 3.5 lime to 2.5 – 3.0 parts graded sharp sand.
Sand should be minimum 5mm down with additional larger aggregate 3-6mm and 6-10mm supplied to site for gauging
Wall tops and slopes As above but gauge the NHL3.5 with Metastar according to manufacturers' instructions.

A typical Hot-mixed mortar: for repointing to vertical faces of wall
1 part quicklime (Clogrennane kibbled or powder):
3 parts coarse sharp sand 5mm down (If a silica sand as opposed to a calcareous sand is to be used then substitute 0.5 part for limestone dust).
Gauging by (level) bucket. Additional 3-6mm and 6-8mm aggregate may be required to create a good match where the joints are wide

Gauged Hot Mix Mortar - wall face work such as rebuilding sections of facing stones
1 part Hydraulic lime (NHL5 St Astier or NHL3.5 Round tower grey):
1 part quicklime (Clogrennane kibbled or powder):
5 parts coarse sand (If a silica sand as opposed to a calcareous sand is to be used then substitute 0.5 part for limestone dust).
Gauging by (level) bucket. Courser aggregate may be required as above.

Moisture resistant Mortar - works below ground level to wall bases
1 part Naturally Hydraulic Lime NHL3.5 (upper band width NHL3.5 spec)
1 part Prompt Natural Cement
2 parts 5mm down washed sharp sand + addition of up to 10% 10mm aggregate
Note. The Prompt Natural Cement in these ratios will give an initial set in approximately one hour of placing without dramatically increasing brittleness or reducing longevity.
For details of Prompt refer to supply and also www.vicat.fr/en/Activities/Cement/Prompt-natural-cement

Drawing Stage: **Information**						Drawn By: RK	Checked By: LE	Approved By: LE	Date: 04/06/2025	CORA CONSULTING ENGINEERS							Behan House, 10 Lower Mount Street, Dublin 2. D02 HT71 Tel: +353 (0)1 661 1100 e-mail: info@cora.ie web: www.cora.ie
Project Details:						Project Name: **Glaspistol Castle Clogherhead - Phase 3**			Scale: NTS	Project Number: 21718							
Site Address:	Clogherhead																
Client:	Charles Markey	I1	Issued for Information.	04/06/2025	RK	Drawing Title: **Mortar Specification 1 of 2**			Project:	Originator: CORA	Zone:	Level:	Type:	Discipline:	Drawing No.: SK352	Stage:	Revision: I1
Architect:	7L Architects	REV. No.	REVISION DESCRIPTION	DATE	ISSUED BY												

Specification for repair mortars ..... continued

Re-laying Masonry

All loose stones / bricks are to be laid on a full bed of mortar, spread on a carefully cleaned and wetted upper surface of the underlying masonry. Slate or small stone pinnings may be used to level the stone and all horizontal and vertical joints are to be completely filled with mortar well packed in so that the loadings of the structure are distributed evenly.

Think of mortars as soft beds to provide cushions between stones. Lime does not glue things together or create a hard, impervious skin like cement-based mortars and coatings.

Where new stones or bricks are to be inserted, allow for “dry packing” joint over with barely wet mortar.

The new mortar joints of the rebuilt stone and brickwork are to match exactly the existing joint depth and are to be struck flush, brushed off diagonally across joint in both directions and sponged off carefully to match exactly the re-pointing works to the remainder of the masonry. Care must be taken to ensure that mortar or grout splashes do not stain the existing masonry faces. See also note below re: beating back of mortar once stiff.

Preparation for Re-pointing and initial build-out

Prepare areas for re-pointing using small hand-held tools and by removing all the very friable mortar saving any small stones (“gallets” or “pinnings”) that come loose for re-use.

Good preparation is essential for all lime works and a brush is an essential piece of equipment for cleaning out joints, wall surfaces and for brushing pointed joints.

Do not use large blobs of mortar to fill in voids or loose areas; build up with pieces of stone. If the voids are large, bed in the small filler stones in the normal way. If smaller then fill void with mortar and then drive in a stone wedging it in tightly to tighten up loose masonry.

Re-Pointing

Carefully rake out joints to depth of twice the joint width. Face of raked out mortar to be cut back square and not sloped or V-shaped. Brush out joints to clear of all debris.

Wet down joints and adjoining masonry to be pointed thoroughly, on dry or windy days spraying may be needed several times and also occasionally during the pointing process and after the work is completed. The wetting is to stop the bed joints from drawing water out of the pointing mortar that would make it dehydrate and fail to set. Lay the pointing mortar on a hawk to a depth equal to the depth of the joint and square off the front edge. Using a pointing iron of similar depth to the joint, cut off thin strips of mortar and offering the hawk up to the joint press well in with the pointing iron.

Make sure the joint is well filled and the front face brushed off lightly once the mortar has become stiffer. Beating back the mortar with a churn brush (as supplied by lime supply companies above) once stiff also assists with compaction of the mortar into the joint and reduction in shrinkage cracks.

Protection & Follow up Work

All finished work must be protected by plastic sheeting or damp hessian sheeting to prevent the joints or coatings from drying out too quickly or conversely becoming saturated

Some slight cracking may occur to the joints and this should be pressed back by hand/churn brush. Brushing up of finished pointing is essential to roughen the finish and clean up drips and splashes from adjoining areas.

All masonry works should be carefully planned such that proper protection can be included or scheduled for the warmer months of the year.

Precautions of suspending operations until the temperature reaches 6^0 C on a rising thermometer or 8^0C on a falling thermometer shall be strictly observed. Also frost protection and protection from saturation by rain is essential.

The horizontal surfaces of masonry are particularly vulnerable to saturation and thus frost damage in the weeks immediately following rebuilding/ pointing and should therefore be protected from excesses of water. The vertical elevations can be protected by draping with hessian

Consideration should be given to insulating and /or applying heat to wall faces if cold weather is forecast in the two months during or after masonry works are completed.

Care must also be taken to protect applied work from rapid drying conditions i.e. exposure to direct sunlight or drying winds. In these conditions it should be kept evenly damp for up to 30 days, depending on ambient conditions and the rate of set, by lightly spraying periodically with clean water. In areas exposed to direct sunlight, the possibility of a "greenhouse" effect must be avoided, either by shading the polythene or by substituting woven cloth materials.

Polythene, hessian or other approved sheeting that is used during curing should be arranged to hang clear of the face of the wall in such a way that it does not form a tunnel through which the wind could increase the evaporation of water. The polythene or hessian sheeting must not have intermittent contact with the pointing / render as this may cause a patchy appearance.

Example of flush pointing in stonework beaten back to expose aggregate

Example of appropriate protection to allow wall to dry out yet not become saturated by rain on upper

Stone Identification process - numbering and recording

Any part of a wall that is to be dismantled or stones that need to be removed must follow strict protocol. All stones to be numbered using removable chalk / paint; photographed and layout mapped using clear mona flex or similar before dismantling.

After dismantling apply same number in indelible ink / paint to hidden face and store stones in reverse order on scaffold or pallets etc ready for reassembly.

Exemplars of all proposed works will be required at start of contract.

This should include the following at minimum:

i) Pointing of original facing stonework

ii) Insertion of new facing stonework where structural repairs required

iii) Sample wall top detail

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