SOUTHGATE ASSOCIATES

HERITAGE CONSERVATION SPECIALISTS

Condition Assessment,

Recommendations and Method Statement

Bloomfield Mausoleum,
Borrisnafarney Church of Ireland,
Ballycormick,
Monegal,
Co.Offaly

For

Henry Healy

Southgate Associates
December 2021

Farren House, Cork Rd, Midleton,
Co. Cork. P25 XY42
Phone:021 457 0717
Email:info@chsa.ie
http://southgateassociates.ie

Lisle Hammond Holdings Ltd., Company Registered in Ireland. No: 436463 , VAT No: 9651802A
Trading as Southgate and Associates
Directors: C. H. Southgate MA (Cantab), FIEI, M.I. Struct E., C.Eng. Dr. DK Lysaght B.S.Sc., Ph.D.
Associate Director: Emma Baume B.A. H.DIP., M.A.
Financial Director: Myrtle McGivern

1. Scope, Overview and Context

Southgate Associates were engaged by Henry Healy to visually examine the condition of the Bloomfield Mausoleum and advise on recommendations and methodologies for required conservation works. Our inspection was visual only and we did not inspect any timber work or other parts of the structure which are hidden or otherwise unexposed and we are therefore unable to state that any such area is free from defect. Access to the interior and exterior was gained but a close visual inspection of the exterior roof surface was not undertaken on the day.

The aim of this report is both to discuss the protection, significance and historic background of this building (Section 2.) and to describe and assess the condition of the Bloomfield Mausoleum (Section 3 and 4). The report also discusses the recommended conservation repairs needed on the structure and to outline a proposed phasing (Section 5) and a methodology for these repairs (Appendix 1)**.** A detailed annotated photographic survey will also be included (Section 7).

The Bloomfield Mausoleum is found on the east side of the graveyard of the Borrisnafarney Church of Ireland. The Church is found on a local road off the R445, south west of Moneygall which is south of the M7 motorway in Co. Offaly.

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2. Protection, significance and historic background

2.1 Protection and significance

The Bloomfield Mausoleum is an regionally architecturally significant structure. It is recorded on the National Inventory of Architectural Heritage (Reg. 14946011). It is recorded on the Record of Protected Structures as Included in the Offaly Country Development Plan 2021-2027 (RPS 65-07). It is not a recorded archaeological monument or located within the zone of potential of any other archaeological monument. The mausoleum is located within the church yard of the Borrisnafarney Church of Ireland. The church is also recorded on the National Inventory of Architectural Heritage (Reg. No 14946008). It is also recorded on the Record of Protected Structures found in the Offaly County Development Plan 2021-2027 (RPS 65-04). Both structures are listed on the NIAH as being of regional significance with the Church recorded as having architectural, artistic, social, and technical special interest and the mausoleum as having architectural and technical special interest.

Built Heritage in County Offaly is discussed in Chapter 10 of the Offaly County Development Plan 2021-2027. Section 10.3 discusses protected structures, as recorded on the RPS. Section 10.3.1 – 10.3.3 further outlines the considerations relating to protected structures. It is also worth noting the following conventions and guidelines, when considering all built heritage in County Offaly, and all are referred to within the Offaly County Development Plan 2021-2027:

The Convention for the Protection of the Architectural Heritage of Europe

The Convention for the Protection of the Architectural Heritage of Europe (The Granada Convention), drawn up by the Council of Europe, was ratified by Ireland in 1997. The national legislative provision for the protection of architectural heritage was subsequently introduced and implemented in the form of the Planning & Development Act 2000. Part IV of the Act provides the legislative basis for the protection of architectural heritage.

Planning and Development Act 2000 (as amended)

Current legislation sets out that objectives may be included in a development plan for protecting or

preserving (either in situ or by record) places, caves, sites, features and other objects of archaeological, geological, historical, scientific or ecological interest. The Act also confers a number of responsibilities to Local Authorities with regard to built heritage:

- Every development plan is required to include a record of protected structures which forms part of our architectural heritage and which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest;
- The preservation of the character of architectural conservation areas;
- The control of development works on protected structures or the site of a protected structure; and
- The power to issue notices requiring certain works to be carried out to protect or restore an endangered protected structure and the power to acquire a protected structure.

Architectural Heritage Protection Guidelines for Planning Authorities

Architectural Heritage Protection Guidelines for Planning Authorities was produced in 2011 by the Department of Arts, Heritage and the Gaeltacht and guides new development in sensitive locations. The guidelines discuss various areas of protection and policies relating to the protection and development of architectural heritage.

2.2 Historic Background

Borrisnafarney Church is recorded as having been built in 1829 with funding from Thomas Ryder Pepper, the owner of the nearby Loughton House (NIAH Reg. 149460030). The church was unusual in its use of iron ceiling trusses. The home of the Pepper family, Loughton House was located nearby and the church was constructed as a local church and also to serve the Pepper family. "*Loughton House was Built in 1777 on lands owned by the Pepper family and can be traced back to the Cromwellian period of Irish history. An additional antiquity – the ruins of the original Norman tower/castle can still be seen behind the main house. The Pepper family lived at Loughton House until one Thomas Pepper died as a result of a hunting accident. Thomas Pepper was married to Miss Bloomfield and requested in his will that his brother-in-law, the 1st Lord Bloomfield, acquire Loughton House"* (loughtonhouse.com). The church was remodelled in 1907 with the chancel, choir and porch added. It is still in regular use by the local community.

The Bloomfield Mausoleum is located to the west of the church itself and is recorded as having been constructed c.1830 to hold the remains of various members of the Pepper and Bloomfield families. Thomas Ryder Pepper was married to a Miss Bloomfield and after Ryders's death the Loughton House was passed to his brother in law, 1st Lord Bloomfield. The mausoleum subsequently holds the remains of various members of both families. The inscriptions in the interior of the mausoleum list the following, Thomas Ryder Pepper 1828; Mrs Bloomfield 1828; Mrs Ryder Pepper 1841; Lieutenant General Benjamin Baron Bloomfield 1846; Harriot widow of Lieutenant General Benjamin Baron Bloomfield 1868 (buildingsofireland.ie). The Lieutenant General Benjamin Baron Bloomfield had a noteworthy military career. Lieutenant General Benjamin Bloomfield, 1st Baron Bloomfield (13 April 1768 – 15 August 1846) was a n army officer in the British Military and served at the Battle of Vinegar Hill in 1798. He was Member of Parliament (MP) for Plymouth from 1812 from 1818. He was an advisor to the Prince of Wales and later served as Private Secretary to King George IV from 1817 to 1822. (loughtonhouse.com). The mausoleum is no longer in recent use but is cared for and maintained by the committee.

The NIAH gives the following entry for the Bloomfield Mausoleum:

Description

Detached single-cell mausoleum, built c.1830, with interred remains of the Bloomfield family. Set within graveyard at Borrisnafarney Church of Ireland church. Pitched stone roof with moulded stone coping to gables. Snecked stone walls with buttresses and arcaded cornice to north-east and south-

west sides. Pointed-arched door opening with tooled stone surround, hoodmoulding and studded timber door having metal cruciform hinges. Plaster to interior walls with bricked-up shelves bearing name plaques of those interred. They read 'Thomas Ryder Pepper 1828; Mrs Bloomfield 1828; Mrs Ryder Pepper 1841; Lieutenant General Benjamin Baron Bloomfield 1846; Harriot widow of Lieutenant General Benjamin Baron Bloomfield 1868'.

Appraisal

Located within the graveyard at Borrisnafarney Church, the stone built mausoleum is the resting place of members of the Bloomfield family, one of whom was the founder of the early nineteenth-century church. The execution of the design in the Gothic Revival idiom creates an austere, yet aesthetically pleasing memorial. Fine workmanship is seen in the stone roof, where slabs overlay one another, also in the stone arcading to the side elevations and again in the solid double entrance doors with metal studs. The interior name plaques, that commemorate those who lie there, ensure that history will not forget them. (buildingsofireland.ie)

3. Description of the structure

Exterior

The exterior of the mausoleum is built in dressed limestone. Six ashlar limestone buttresses adjoin the building. These are topped with a stone ridge cap. A sloped plinth is found at each base of the buttresses but is buried below ground level at all sides bar the front façade. An arcaded cornice is found running at eave level to two side walls. The roof is formed of flagstones, some missing on one pitch and partially reset on cement in modernity, with moulded stone copings to gables. The masonry walls between each buttress have been strap pointed in sand and cement in modernity. The front façade of the structure features a pointed-arched door with dressed stone door surround and hoodmoulding. The door is timber with metal studs and cruciform hinges. The structure is surrounded by grass and various 19th-20th century headstones some of which appear to belong to the same family as the mausoleum.

Interior

The mausoleum has a single internal cell. The interior rises to a pointed arch ceiling which has been plastered in an apparent cementitious plaster. Two brick built sarcophaguses, one at each side of the cell, house the remains of those interred in the structure. Both are topped with a flagstone. The floor is composed of typical red and black chequerboard ceramic tiles. The interior cell is dry and does not appear to be suffering from damp or water ingress.

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4.Assessment of existing structural condition

Exterior

4.1 Roof structure and gutters

The roof structure is composed of flagstones set on a sand and cement bedding mortar. On the left hand pitch (as viewed from front) it appears several flagstones are missing and have been replaced with moulded sand and cement to mimic the shape of the original flagstones. The ridge of the roof is cut stone also set on a cementitious mortar. The roof is in reasonable condition overall but will require correct resetting on a NHL3.5 Lime bedding mortar during later phases of the conservation of this structure. The roof flagstones on the right hand side pitch of the roof appear to have slipped downwards at some time and have been rebedded poorly using cementitious mortar. These will require removal and resetting at a correct level and course on a NHL 3.5 Lime bedding mortar. The missing flagstones will require replacement on a like for like basis. The roof ends at the front and rear façade in a moulded stone coping which is in good condition but will benefit from repointing in NHL 3.5.

The roof pitches runs down to a stone valley running along either side at eave level. This is in poor condition and requires repointing in an NHL 3.5 or a suitable sealant to ensure a suitable slope to allow water to be carried from the valley. In the interim a PVC gutter liner may be suitable to prevent water running through damaged stone valleys into the masonry walls or arch top internally.

4.2 Buttresses

Six buttresses surround the structure. These are cut stone with a kneeler stone approximately half way up the buttress. The buttresses have shifted recently, predominantly on the right hand side of the mausoleum and the rear left corner. The buttresses appear to have shifted downwards and outwards away from the structure likely due to subsidence and the lack of a suitable foundation. The buttresses have been recently held in place by high tension strapping which has also served to pull the leaning buttresses somewhat back into their correct positions. It is possible the buttresses are largely decorative as they appear to have minimal ties into the main structure. The two buttresses at the front of the building have two blocks which tie the buttress to the main front façade wall. The buttresses will benefit from the kneeler stone been removed and stainless steel M20 tie rod and plate been cored into the main masonry walls and subsequently the kneeler stone be replaced back in position. This could be carried out on all the buttresses. Stainless Steel M6 helibars angled to run from the joints of

each buttress into the main masonry walls would also serve to form elbow ties at several positions along each buttresses. The base of the buttresses, although not excavated to foundation level, are set on a sloped plinth, as visible at the front of the building, but under ground level on the sides and rear of the building, but it is likely this plinth is not set on a sufficient foundation or pad. These bases should be underpinned on a gradual step by step basis with one section been excavated and underpinned before moving onto the next. As repair works are being carried out on the leaning buttresses these can be gradually jacked or propped back into their correct alignment. The buttresses have been pointed in sand and cement and this should be removed in cases where it has failed or become loose and repointed in NHL 3.5.

4.3 Masonry walls

The main dressed stone masonry walls are in good condition and do not appear to have been damaged by the shifting buttresses, supporting the idea the buttresses may have almost no structural ties to the main building. The joints of the masonry have been strap pointed in sand and cement mortar. While this is inappropriate, it is currently in good condition and not an immediate priority for replacement. Consideration can be given to full repointing of the walls in NHL 3.5 in later phases of the project.

4.4 External drainage and land drainage

The lands slopes from the rear of the structure downward to the front of the structure. While no large scale drainage is likely to be necessary consideration will have to be given to the splash blocks or ground gullies at the base of the rear of the building where the downpipes run. Appropriate land drainage may require investigation and renewal from these gullies down either side of the structure and away from it. The ground in general appears to be soft silty clay and may be contributing to the subsidence of the buttresses also.

4.5 Arcaded Cornice

The individual blocks of the arcaded cornice are in good condition however on the right hand side of the structure the blocks have been pushed out of alignment likely by the previously slipped flagstone roof. These require resetting and realigning on a bed of NHL 3.5 Lime mortar. Similarly on the left hand side of the structure the individual blocks themselves are in good condition but washing out and exposure has caused a large amount of the joints to become dry and these should be repointed in an NHL 3.5 lime mortar.

4.6 Front door and surrounds

The external face of the door is in good condition having been regularly maintained. It should be cleaned and the fittings repainted in a suitable preservative paint as necessary.

The internal face of the door is in reasonable condition with some minor wood worm noted at the internal end of the door. This can be treated with a suitable treatment. The internal door frame requires a splice repair on a like for like basis. The internal louvered timbers above the door require small splice repairs on a like for like basis and the full door surround should be carefully resealed using a NHL 3.5 Lime Mortar.

The cut stone pointed arch mouldings and door reveal is in good condition but will benefit from repointing in an NHL 3.5 in later phases of the project.

Internal

4.7 Plastered walls and Pointed Arch Ceiling

The internal pointed arch ceiling and plaster appear in good condition with no signs of serious water or damp ingress. The plaster appears to be composed of a cementitious mix. Some minor repairs to the plaster around the top of the rear wall opening and around the door in the front wall are envisaged.

4.8 Floor

The chequerboard tiled floor is in good condition and only requires a gentle clean. A preservative water repellent may be useful also to preserve the surface of the tiles over time.

4.9 Brick Sarcophagi

The brick sarcophagi and their stone capping stones are in good condition requiring no work. The brass plaques on the side of the structures would benefit from polishing.

5. Prioritized recommendations, phasing and budgets

The recommended works/schedule of works is outlined here with a detailed methodology for recommended repairs found in Appendix 1-Conservation methodology for repair . A suggested phased schedule of works is given at the end of the section based on a priority weighting of necessary repairs.

Phase 1 Recommended Works

External required repairs

Buttresses

-x 1 Stainless Steel tie plate and M20 rod to be cored into wall behind kneeler stone and kneeler stone put back in place, this is for the two central buttresses on either side of the structure.

-For corner angled buttresses x2 Stainless Steel tie plate and M20 rod running from the centre of the buttress behind the kneeler stone and into the masonry.

-Based on further investigation, replacement of rusting iron rods in structure of buttresses to be replaced with ss.

-Angled elbow joints from the side joints of the buttresses to the main masonry wall composed of 3x M6 SS Helibars 900mm long at 450 centres for each side of each buttress set into a 50mm deep bed of Coulinex Grout and covered over with a NHL 3.5 Lime Mortar.

-Careful underpinning of each buttress with a concrete pad in C20/25 concrete at a 1:3 mix cement: sand. Underpin should be carried out step by step with 48 hours allowed between each section.

-Exact depth and width of underpin to be confirmed by depth location of sound ground

-Gradual propping or jacking of buttresses into correct vertical alignment

-Repointing of buttresses in NHL3.5 Lime mortar

Phase 2

Valleys/Drainage

-Sealing and repairs of stone valley on either side of the building using NHL3.5 or a suitable lead mastic and repair to cast iron downpipes as necessary in Sikaflex 11fc.

-Repair to land drainage running from gullies at rear of structure to ensure no wet ground around base of buttresses.

Masonry

-Resetting of arcaded cornices in correct alignment and repointing in NHL 3.5

Roof

-Resetting of full roof onto NHL 3.5 Lime mortar correctly in correct course and in their original positions**.**

-Replacement of missing flagstones on left hand pitch of roof on a like for like basis using reclaimed matching stone if possible.

-Repointing of moulded copping stones at each gable in NHL 3.5.

Phase 3

External

Masonry

-Raking out of cementitious mortar to all sides of the building and careful repointing in an NHL 3.5 Lime Mortar to match original based on investigation once cementitious mortar removed.

-Repointing of any cut or dressed stone work such as the plinths and mouldings, door reveal.

Internal

-Minor timber repairs to internal louvres and door frame on like for like basis

-Minor general maintenance to the chequered board floor tiles and the brass memorial plaques

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7. Conclusion

The Bloomfield Mausoleum is a regionally significant piece of architectural and social history. The structure retains the memory of the local 19th century aristocratic families. It also portrays the high standard of traditional crafts and materials which were in use at the time and in the area.

Three phases of conservation will be required in order to protect and restore the building most effectively.

In the first phase of works, the buttresses should be stabilised and made safe using tie rods and careful installation of elbow joints at each side of the buttresses. Underpinning to each of the buttresses below the base plinth level should be carried out carefully to prevent future subsidence. Once the buttresses are propped or jacked into their correct vertical alignment these should be repointed in NHL3.5 to allow a breathability to the joints.

In phase two of the works the valleys and associated drainage should be repaired with the valleys to be repointed/resealed and the down pipes to be repaired. Based on further investigations the land drainage running from the gullies at the rear of the structure may require some cleaning or relaying. At this phase the arcaded cornice should be reset and rebedded on a NHL 3.5 lime mortar. The roof should be stripped and reset on a bed of lime mortar as well as the ridge stone course. The missing roof flags should be replaced on a like for like basis.

In phase 3 minor works should be carried out to the interior of the structure with minor splice repairs to the doorframe and louvres about the door and general maintenance been carried out to the floor and brass memorial plaques.

The above recommendations and mitigations should ensure the survival and conservation of an interesting regionally significant architectural and historic feature.

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7. Bibliography

Websites:

-archaeology.ie

-osi.ie

-loughtonhouse.com

-buildingsofireland.ie

- https://www.offaly.ie/eng/Services/Planning/County-Development-Plan-2021-2027/

Images

All images are authors own unless otherwise noted below image

Written Sources:

-Offaly County Development Plan 2021-2027

-Department of Arts, Heritage and the Gaeltacht. 2011. Architectural Heritage Protection Guidelines for Planning Authorities.

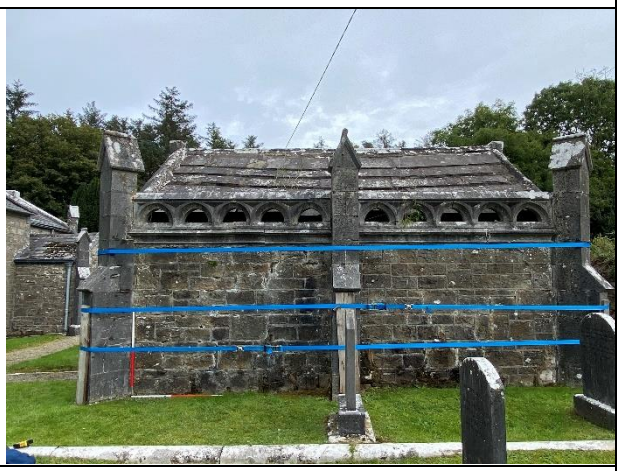
8. Photographic Survey

EXTERNAL

1. North west facing front gable of structure. Note pointed arch door wall and moulded gable coping.

2. North facing side of structure. Note arcaded cornice and well-formed ashlar buttresses.

3. Rear south east facing gable. Note down pipes running from eave level stone valleys.



4. South facing side of structure. Strapping is keeping buttresses in place currently and has aided in some cases to pull the subsiding stones back into correct alignment.

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5. The north facing flagged roof, note bedded on apparently cementitious mortar and some flags missing replaced with moulded sand and cement	**6. South facing flagged roof, appears to have been damaged or slipped at some stage, possible by tree fall as noted by committee. The slipped flags have at some stage knocked the arcaded cornice out of line. The flags should be reset in correct position on lime mortar as should the arcaded cornice.**
	
7. Damaged stone and cement rendered valleys at eave level behind the arcaded cornices requiring repair. Note the dry joints of the arcaded cornice requiring repointing.	**8. Buried plinth exposed at base of central buttress on south facing side of structure. Similar plinth noted buried at the base of each plinth around building. This is likely set on no, or an inappropriate foundation causing subsidence.**

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9. **Buttress at rear corner south east corner. The buttress is no longer in correct vertical alignment and appears to be sinking with the kneeler stone pushing outwards and the upper half of the buttress leaving backwards. Tie rods and elbow joints should be used on each buttress to tie them back into the structure.**

10. **South east corner and connection to gable copping. The joint is dry suggesting they no longer connected. Note also the stone valley chute and cast iron hopper head**

11. **Arcaded cornice on south side of building with the clear movement of the stone noticeable. This appears to have been caused by downward movement of the flagged roof. This stonework should be reset correctly in phase 2.**

12. **Blocked, inappropriate gully to rear of structure which should be corrected in phase 2 to prevent softening of the ground below the structure.**

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Internal

13. Chequerboard tiles in good condition on the ground, will benefit from general cleaning and possible a preservative surface treatment. Note brick built sarcophagi on either side of cell.

14. Pointed Arch Vault ceiling rendered in an apparent cementitious plaster directly onto the masonry construction of the arch.

15. Louvred timbers above pointed arch door requiring minor splice repairs. Note double height brick built sarcophagus to left.

16. Original memorial brass plaques will benefit from careful polishing and treatment with a suitable antique brass product.

Appendix

Appendix 1 : Conservation Methodologies

Masonry Cleaning, Rake out and Repointing:

REVIEWING SCOPE OF THE WORK:

- Inspect each relevant area of masonry with Conservation Professional to confirm the type and extent of the work.
- Mark clearly on face any masonry any areas to be repaired
- Identify each masonry unit that is to be repaired with a code number cross-referenced to drawings/photographs.
- Adequately record the characteristics of existing masonry in areas affected by repair works. Use measurements and photographs as appropriate to record bonding patterns,

Lime Mortar Specification

- -NHL 3.5 is proposed to be used for the required areas of repointing.
- -Hydraulic Lime: Use NHL3.5
- -Fine aggregate: Graded and washed sharp sand kept off the ground and dry. Washed shell
- where specified.
- -Medium aggregate: 5mm washed grit – stone type dependant on mortar analysis. No fines.
- -Coarse aggregate: 10-30mm washed grits to match existing historic mortar samples. No fines.
- -Pinnings: Where mortar joints are larger than 2 thumb widths generally pinnings will be
- required. A sample panel should be prepared and approved to illustrate this.

Workmanship Generally

RAKING OUT:

- Rake out joints by hand to a depth twice the width of the joint opening. Remove loose debris from the joints using a dry brush.
- Power tools for the removal of mortar is generally not permitted.

POINTING:

- Dampen the masonry prior to pointing
- Neatly point to the specified flush profile in a continuous operation from the top of the wall. If the joints are very deep it may be necessary to leave out the larger aggregate in the first few passes in order to ensure mortar is packed right to the back of the joint.
- The pointing operation may involve removing loose stones and resetting. This will allow remaining vegetation roots to be removed from the area but it is not wise to remove the root structure completely because we want to apply a root killer to any vegetation in the wall, allowing the full absorption of the poison into the root structure.

The trial mix for pointing will be: -

- 1 part NHL3.5 x 2.5 parts fine dry, graded sand. The sand must be dry, sharp and well-washed. In order to maintain the sharpness of the sand and accurately use the correct volume of sand it is vital that it is stored correctly – ensure storage conditions at the suppliers are adequate in addition to ensuring appropriate storage conditions are available on-site, i.e. as a minimum, on a pallet off the ground and covered.
- It is recommended on historic structures that the original lime mortar mix be replicated – a sample can be sent to Stoneware Studios, Youghal or similar to ascertain the original mix through mortar analysis.

LAYING:

- Dampen stones to control suction as necessary and lay on their natural bed on a full even bed of NHL3.5 lime mortar with all joints filled and between 12–18 mm wide.
- Accurately plumb all wall faces, angles and features. Set out carefully to ensure satisfactory junctions and joints with adjoining or built-in elements and components.

- Keep stonework clean during construction and until Practical Completion. Ensure that no mortar encroaches on face when laying. Turn back scaffolding boards at night and during heavy rain. Rubbing to remove marks or stains will not be permitted.

ADVERSE WEATHER:

- Do not use frozen materials or work in freezing conditions.
- Do not lay masonry when the air temperature is at or below 3 degC unless mortar has a minimum temperature of 4 degC when laid and walling is protected. Do not lay mortar on frozen surfaces.
- Maintain temperature of the work above freezing until mortar has fully hardened.
- Rake out and replace mortar damaged by frost. When instructed, rebuild damage work.
- Protect newly erected walling against rain and snow by covering when precipitation occurs, and at all times when the work is not proceeding.
- If mud or clay is being used this should not be carried out in wet conditions generally

Aftercare of Limework

- To prevent from drying out too rapidly allow each pass to dry out thoroughly to ensure that drying shrinkage is substantially complete before applying the next pass.
- Adequately protect newly applied lime work against drying out too quickly using hessian or against frost and rain for the first 48 hours using polythene sheeting hanging clear of the work.

Timber repairs to louvres/ doorframe

- Repairs to a historic timber should retain its structural integrity and historic significance. The aim of repair should be to minimise the intervention in order to retain as much as possible of the historic fabric of the timber.

- The use of traditional materials, techniques and carpentry details is generally preferable, as these keep the integrity of the historical detail and do not detract from the character of the building.
- Simple repairs such as inserting a new timber alongside a damaged timber, or splicing in new timber pieces, can be easily carried out using readily available materials and carpentry skills.
- In the case of the mausoleum splice repairs to the louvres and door frame will suffice.
- However, it should be borne in mind that traditional repairs such as the scarf joint have limited structural performance and require skilled craft labour to implement properly.
- If original material must be removed to make the repair, then the extent of fabric to be removed should be guided by a skilled practitioner.

- Repairs to existing structures employing contemporary materials, techniques and details should respect the significance of the historic timber structure and not cause damage to it.
- The repairs should not impede future research into the structure nor conceal significant details or features.

Choosing the right timber for repairs

- The choice of timber to be used for repairs is of critical importance. Larch is the timber which should be used for this project.
- It is equally important to keep the use of sapwood to a minimum as it is more susceptible to insect infestation. Sections of timber need to be carefully selected, and may even need to be cut from larger baulks of timber and trimmed down to size to remove all sapwood.
- As new timber is often placed in an area previously affected by timber decay, fungicidal or insecticidal pre-treatment of the timber should always be considered and only omitted if there is a good reason for doing so.

Tie Rod Placement into buttresses

Contractor to provide full risk assessed Method statement in advance of any works taking place.

1. The contractor is to provide temporary support and restraint to the wall in advance of any works being carried out. Temporary works design to be submitted by the contractor in advance of works.
2. The top stone is to be carefully removed down to the area indicated in the drawing
3. Tie m20 SS tie rod to be set in with grout and corresponding hole drilled in stone to receive plate.
4. Contractor to perform pull out test to over 4kN

Underpinning pads

Contractor to provide full risk assessed Method statement in advance of any works taking place.

Scope of works:

5. Before starting the work, the Contractor is to check for any services that could be damaged by the underpinning work.
6. Ensure that excavations are battered back @ 45 degrees from the bottom on the trench
7. The opes immediately around the excavation will be cross braced with 100x75 c16 timbers.
8. The Contractor shall be responsible for ensuring that his operations do not in any way impair the safety or condition of the building both before and during the execution of the work and immediately inform the Engineer if he considers that more stringent procedures than those specified are necessary.
9. Underpinning is to be carried out in short sections of about one metre in length. The bottoms of the foundation shall be inspected and approved by the Engineer before concrete is poured. The underpinning is to be carried out to the satisfaction of the Engineer.
10. Projecting portions of the existing footings are to be carefully cut off where directed and the underside of the footings are to be cleaned and hacked free of dirt, soil or loose materials before underpinning.

11. The body of the underpinning is to be constructed in an C20/25 concrete mix and is to be cast to the widths noted above unless otherwise directed by the Engineer.

12. Excavation and concreting of any section of underpinning shall be carried out on the same day.

13. The concrete is to be stopped off 75mm below the underside of the existing footing and the final pinning up over the whole of the footing is to be carried out with 1:3 mix cement to sharp sand dry pack mortar, well rammed in 24 hours after the concrete has been poured.

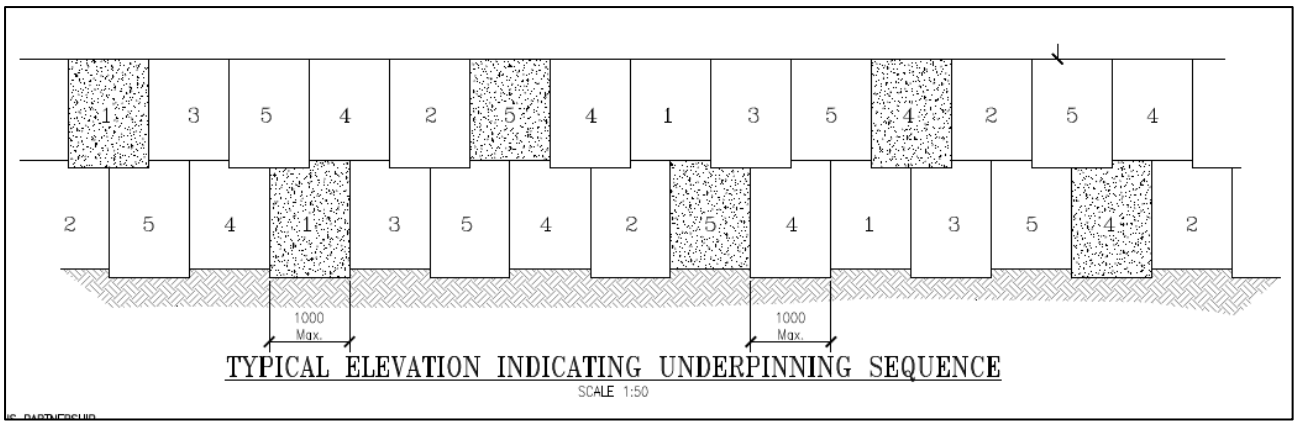
14. Excavation to any section of underpinning shall not be started until at least 48 hours after completion of any adjacent sections of the work.

15. The sides of the previous underpinning bays are to be roughened or keyed to the satisfaction of the Building Inspector. Dowels shall be installed as directed.

16. Underpins to be constructed only in a hit and miss sequence as follows: All sections marked 1 to be excavated, cast and dry packed before starting excavation of sections marked 3, and all sections marked 3 to be complete before excavation for sections marked 2 etc.

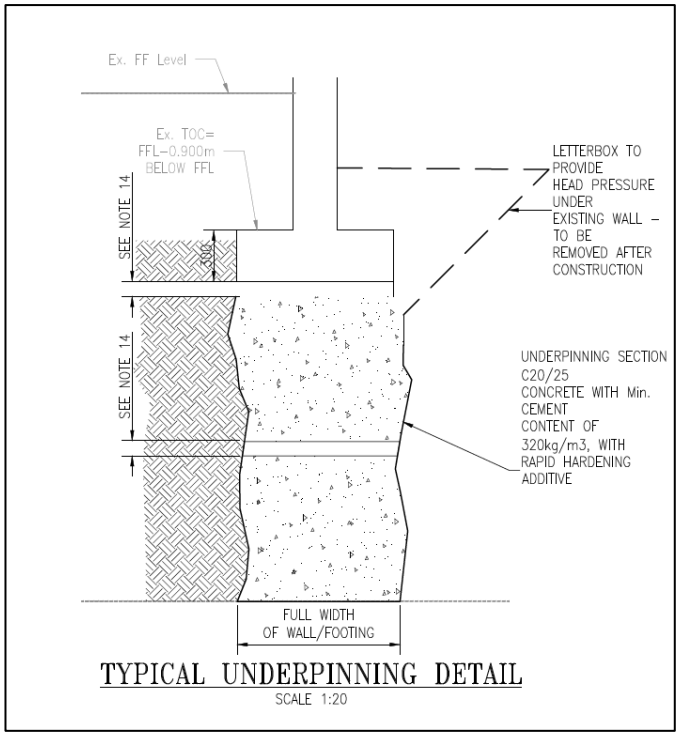
17. The Contractor is to keep a record of the sequence and dimensions of the underpinning actually carried out, including details of excavation, casting concrete and pinning up for each section.

18. Important Note: Contractor to confirm depth of firm ground



TYPICAL ELEVATION INDICATING UNDERPINNING SEQUENCE

SCALE 1:50



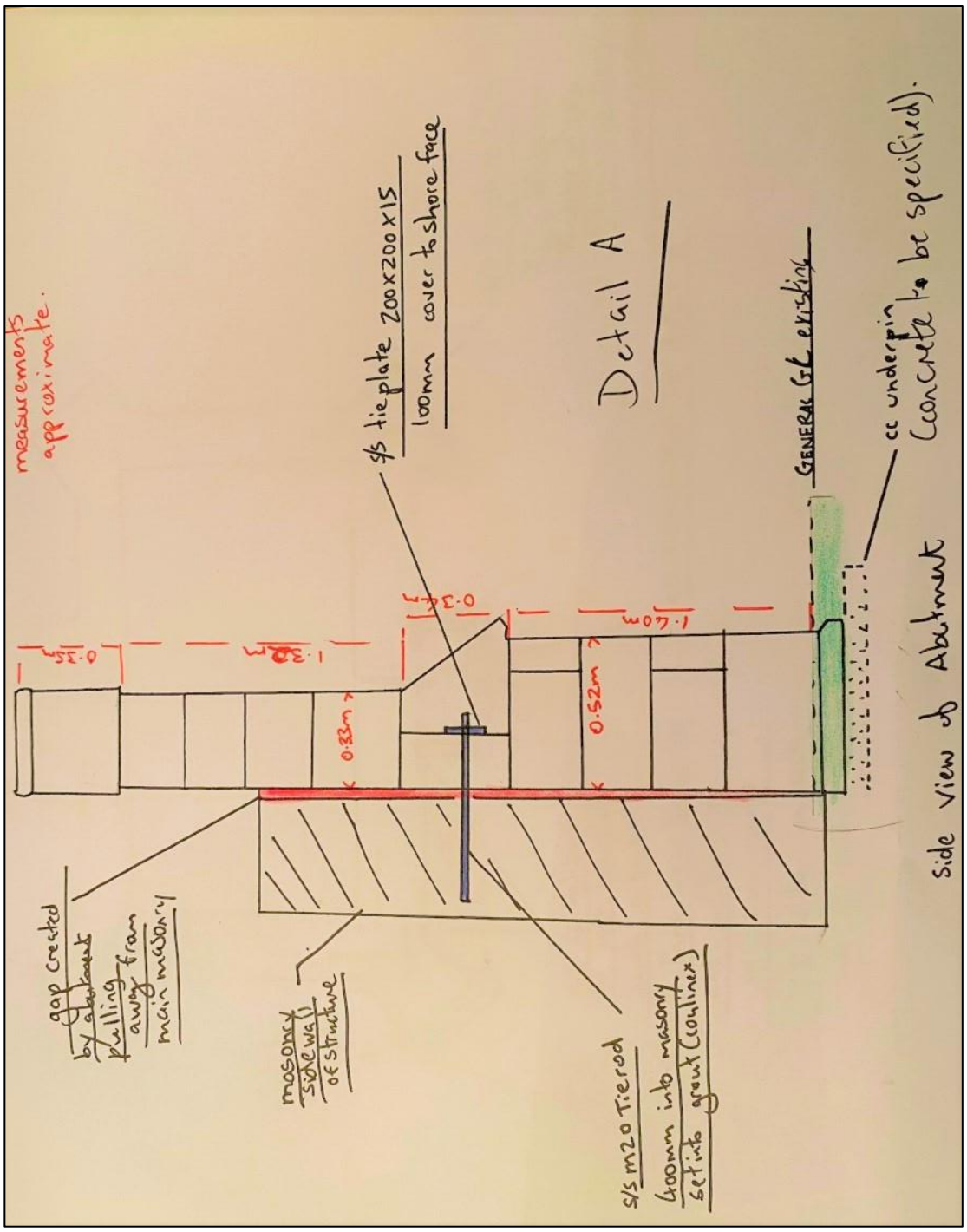
TYPICAL UNDERPINNING DETAIL

SCALE 1:20

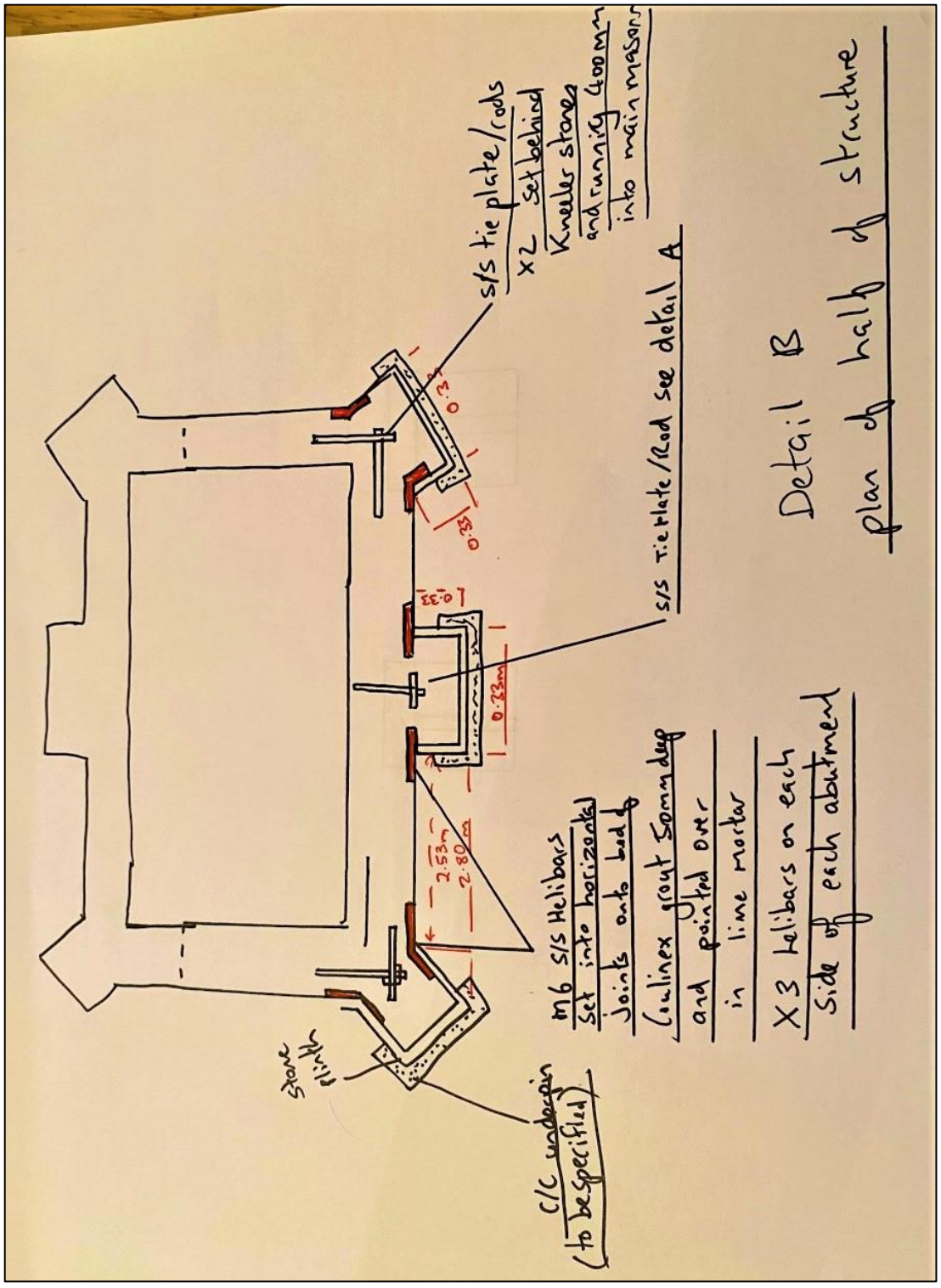
Farren House, Cork Rd, Midleton,
Co. Cork. P25 XY42
Phone:021 457 0717
Email:info@chsa.ie
http://southgateassociates.ie

Lisle Hammond Holdings Ltd., Company Registered in Ireland. No: 436463 , VAT No: 9651802A
Trading as Southgate and Associates
Directors: C. H. Southgate MA (Cantab), FIEI, M.I. Struct E., C.Eng. Dr. DK Lysaght B.S.Sc., Ph.D.
Associate Director: Emma Baume B.A. H.DIP., M.A.
Financial Director: Myrtle McGivern

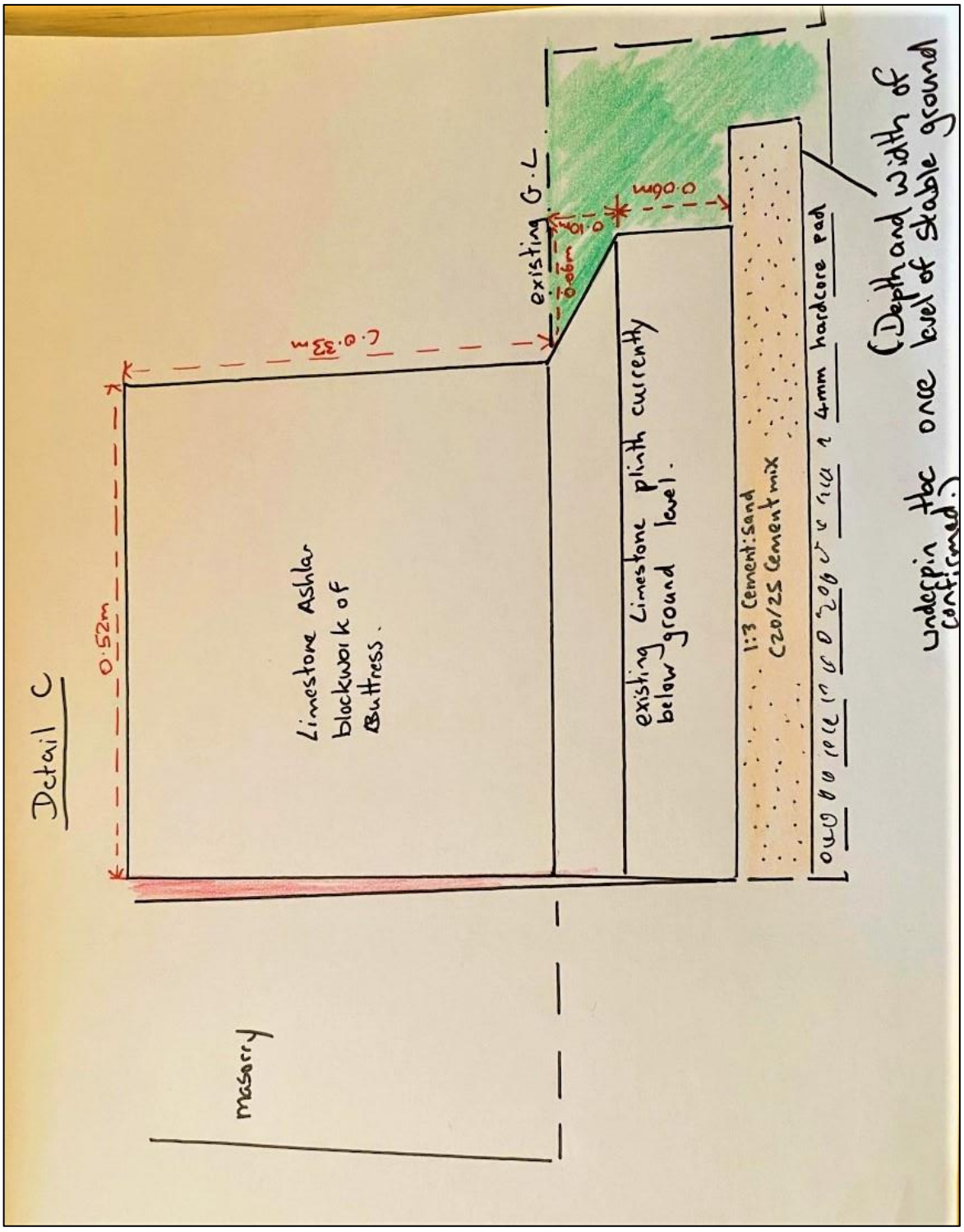
Appendix 2-Technical detail sketches



Detail A: Buttress Tie Rod detail



Detail B: Horizontal ties and plan view detail



Detail C : Proposed Concrete Underpin detail

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