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STRUCTURAL APPRAISAL

**RE DEVELOPMENT AT GLEN GARRY FARM
FEN ROAD, RUSKINGTON, LINCONSHIRE, NG34 9TH**

FOR

STONEGATE AGRICULTURE LIMITED

Project : 2022.100
Date : June 2022
Engineer : Graham Schofield C Eng, MI Struct E, MICE, MIEI
Issue No 1 : 12.07.2022

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**Appendix B Sketch No. 2022.100.Sk01 – Existing Structure Noting Defects
Sketch No. 2022.100.Sk02 – Suggested Structure Repair Details**

1.0 INTRODUCTION

- 1.1 Graham Schofield Associates were instructed by email dated 3 May 2022 to undertake a Structural Appraisal of a Former Poultry Building at Glen Garry Farm, Fen Road, Ruskington, Lincolnshire NG34 9TH on behalf of Stonegate Agriculture Limited.
- 1.2 The purpose of the appraisal was to assess, for planning purposes, the condition of the existing structure, its long term integrity and its potential to be incorporated into the conversion of the building into a habitable residential development.
- 1.3 This survey confirms its inspection, findings, conclusions and recommendations to the primary and secondary structure only and is based upon a walk around visual inspection of accessible and exposed areas. There was an opportunity to inspect the roof and wall construction due to the previous removal of liner panels to these areas.

2.0 FINDINGS

To be read in conjunction with photographs in Appendix 'A' and the sketch 2022.100.Sk01 in Appendix 'B'.

Reported below are our general and specific observations following our visit on the 11 June 2022.

2.1 General Findings

A redundant single storey timber framed Poultry Building having approximate plan dimensions 73 m long x 14 m wide and estimated to be approximately sixty years old.

Its form of construction and materials used are contemporary for the 1950's and 1960's during a boom period of poultry farm expansion. It is more than likely to have been provided as a standard prefabricated "kit" by one of the major Poultry Shed providers at the time, for assembly by the Poultry Farmer.

Construction comprises: -

| | |
|-----------|---|
| Roof | Corrugated asbestos/cement roofing sheets with glass fibre insulation and a fibre board liner panel. The roof cladding spans 7½" x 2½" timber purlins at approximately 3.0 ft centres. |
| Walls | Base plinth of solid 9" brickwork with timber studded wall framing. The outer cladding is horizontal timber boarding. There is an insulated cavity of glass fibre with predominantly asbestos/cement flat panel internal liner. |
| Floor | "Rough" ground bearing concrete slab. |
| Structure | Concrete base slab supporting the external walls and regular quasi timber portal frame at loft centres. |

2.2 Specific Observations

Our initial observation noted that the building had maintained its shape in terms of plumbness and verticality and displaced no obvious signs of excessive movement or distress for a building of some sixty years of age. The only sign of any movement was a degree of wall rotation at its junction with the brick plinth, the reason for which will be discussed later.

Observations to each particular element are itemised as follows: -

| | |
|------|--|
| Roof | Deterioration of the asbestos/cement roofing sheets. With age this type of cladding becomes brittle and attracts the growth of vegetation and in particular an accumulation of moss. |
|------|--|

The glass fibre is of age and provides little use as an effective insulation. Also, the fibreboards/liner panels are in disrepair and no longer fit for purpose.

- Walls** The brick base plinth is in reasonably good condition and could be retained with some localised rebuild and repair. However, its solid nature probably precludes its effectiveness for compliance with the current Building Regulations. The upper timber studded wall has experienced a degree of rotation on the brick plinth. This is due to a combination of roof spread inducing a horizontal load onto the top of the wall and deterioration of the fixing of the studded wall to the brickwork.
- Floor** Whilst in reasonably good condition it is highly unlikely that the slab incorporates a damp proof membrane for compliance with the Building Regulations. A choice to either overlay the existing slab, incorporating such a membrane or replace provides an option. Either option would also facilitate the inclusion of floor insulation.
- Structure** Due to the proposed external wall construction it is likely that a new perimeter strip foundation would be required to replace the edge of the existing floor slab.
- The quasi-timber portal frames have, in the main, retained their shape and integrity. However, several frames have experienced damage and/or long term deterioration either to the individual members or to the joints. By reference to sketch no. 2022.100.Sk01 in Appendix 'B' we have itemised each frame, its present condition and any necessary improvements.

3.0 DISCUSSIONS AND CONCLUSIONS

3.1 A former Poultry Barn estimated to be some sixty years old and built to a standard design and format prevalent by several Poultry Farm Buildings of the time.

3.2 Despite its age, the basic building structure, which comprises a timber quasi portal frame, is in the main, sound, and where damaged or in need of repair can be strengthened to meet compliance with the current Building Regulations. Typical repair and strengthening details are indicated on sketch no. 2022.100.Sk02 in Appendix 'B'.

3.3 In conclusion therefore, the non-structural fabric of the building comprising roof cladding; external walls and base plinth are non-compliant and should be replaced.

The main structure however is capable of repair and if necessary, strengthening and should therefore be retained.

4.0 RECOMMENDATIONS

4.1 To capitalise on the retention of the main structure, we strongly recommend the building party walls are arranged so as to coincide with the frames. This would achieve the following advantages: -

- least disruption to be primary structure therefore ensuring its stability during the construction phase.
- the party wall to encapsulate the timber frame to enable both fire protection between units and sound insulation.
- Structural repair and strengthening would be camouflaged by the party wall and the party wall itself forming part of the strengthening solution.

Appendix A

Photographs

PHOTOGRAPHS

Photograph 1 – North Elevation



Photograph 2 – South Elevation



Photograph 3 – East Elevation



Photograph 4 - West Elevation



Photograph 5 – Typical View Showing Assembly Detail Wall → Plinth → Base Slab



Photograph 6 – General View of “Key” Joint Detail Post to Rafter



Photograph 7 – Broken Post to Frame '3'



Photograph 8 - Typical Ply Gusset Connections to Roof "Truss"



Photograph 9 – Split to Roof Tie



Photograph 10 – Deterioration to Foot of Post



Photograph 11 – ill Advised Modifications to Post

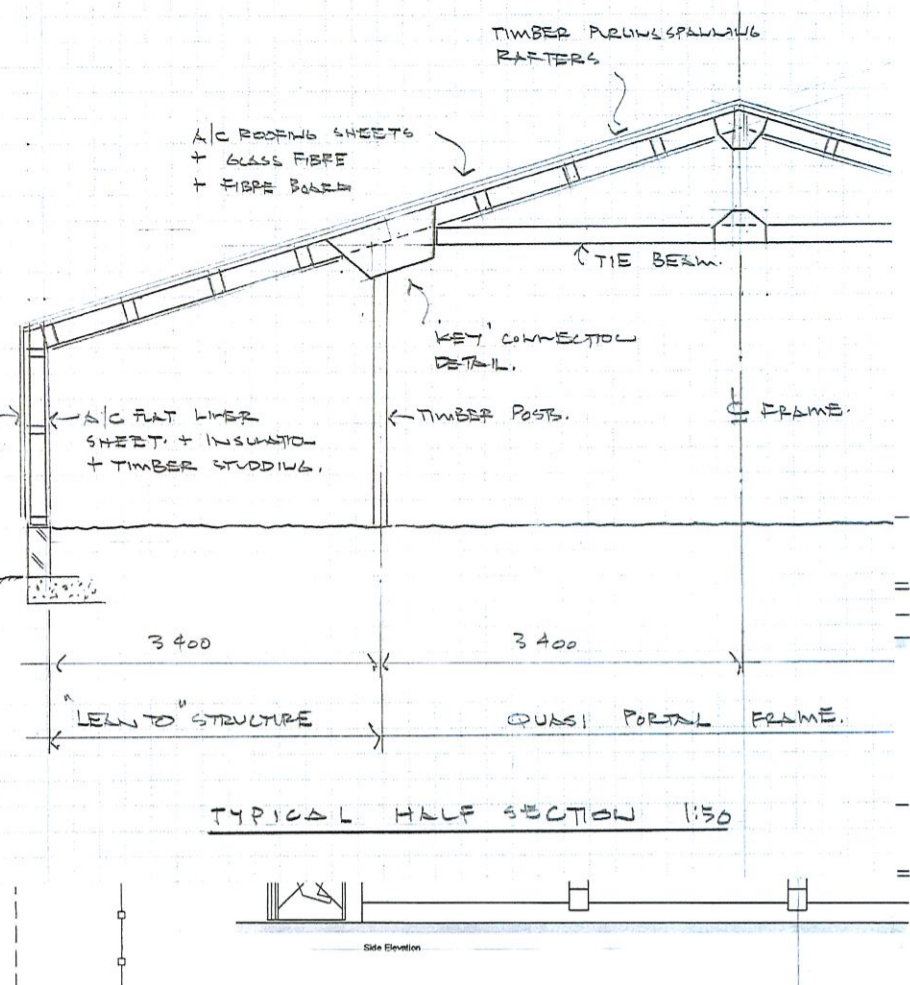
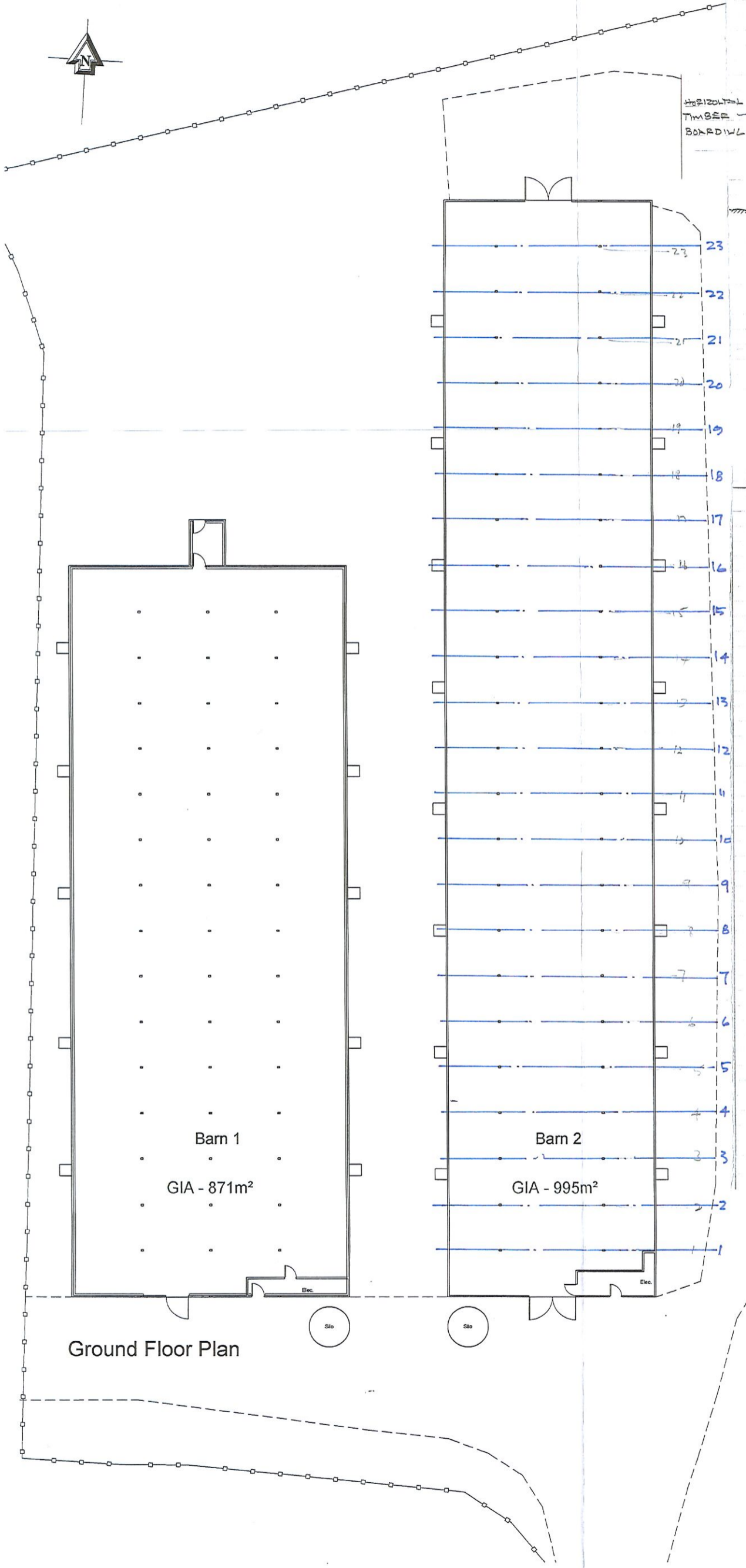


Appendix B

Sketch No. 2022.100.Sk01 – Existing Structure Noting Defects

Sketch No. 2022.100.Sk02 – Suggested Structure Repair Details

As Existing Plans & Elevations



| FRAME L0 | DEFECT |
|----------|--|
| 1 | JOINT STRENGTHENING + FOOT REPAIR. |
| 2 | JOINT STRENGTHENING |
| 3 | JOINT STRENGTHENING + FOOT REPAIR + NEW TIE BEAM |
| 4 | JOINT STRENGTHENING + FOOT REPAIR. |
| 5 | JOINT STRENGTHENING |
| 6 | " " |
| 7 | " " + STRENGTHENING TO POST SPLIT. |
| 8 | " " + FOOT REPAIR |
| 9 | " " |
| 10 | " " |
| 11 | REPLACE FIRE DAMAGED TIE BEAM AND POST |
| 12 | " " |
| 13 | JOINT STRENGTHENING + FOOT REPAIR |
| 14 | JOINT STRENGTHENING |
| 15 | " " |
| 16 | " " |
| 17 | " " |
| 18 | " " |
| 19 | " " + POST REPAIR |
| 20 | " " + FOOT REPAIR |
| 21 | " " |
| 22 | JOINT STRENGTHENING |
| 23 | " " |

STONEGATE AGRICULTURE LTD
 GEN GARD FARM FEN RD. RUSKINGTON.
 PROPOSED CONVERSION
 REFERENCE PLAN.
 GSA, 2022, 100, SK01
 JULY 22 1:200 1:50.

| | | | |
|---|------------------------|--------------------------|------------------|
| Project GLEN GARRY FARM FEN RD. RUSKINGTON. | | Project No. 2022.100 | |
| Part of structure REPAIR/STRENGTHENING | | Calc. sheet No. SK02. | |
| Drawing Ref: | Calculations by GS. | Checked by | Date JULY 22. |

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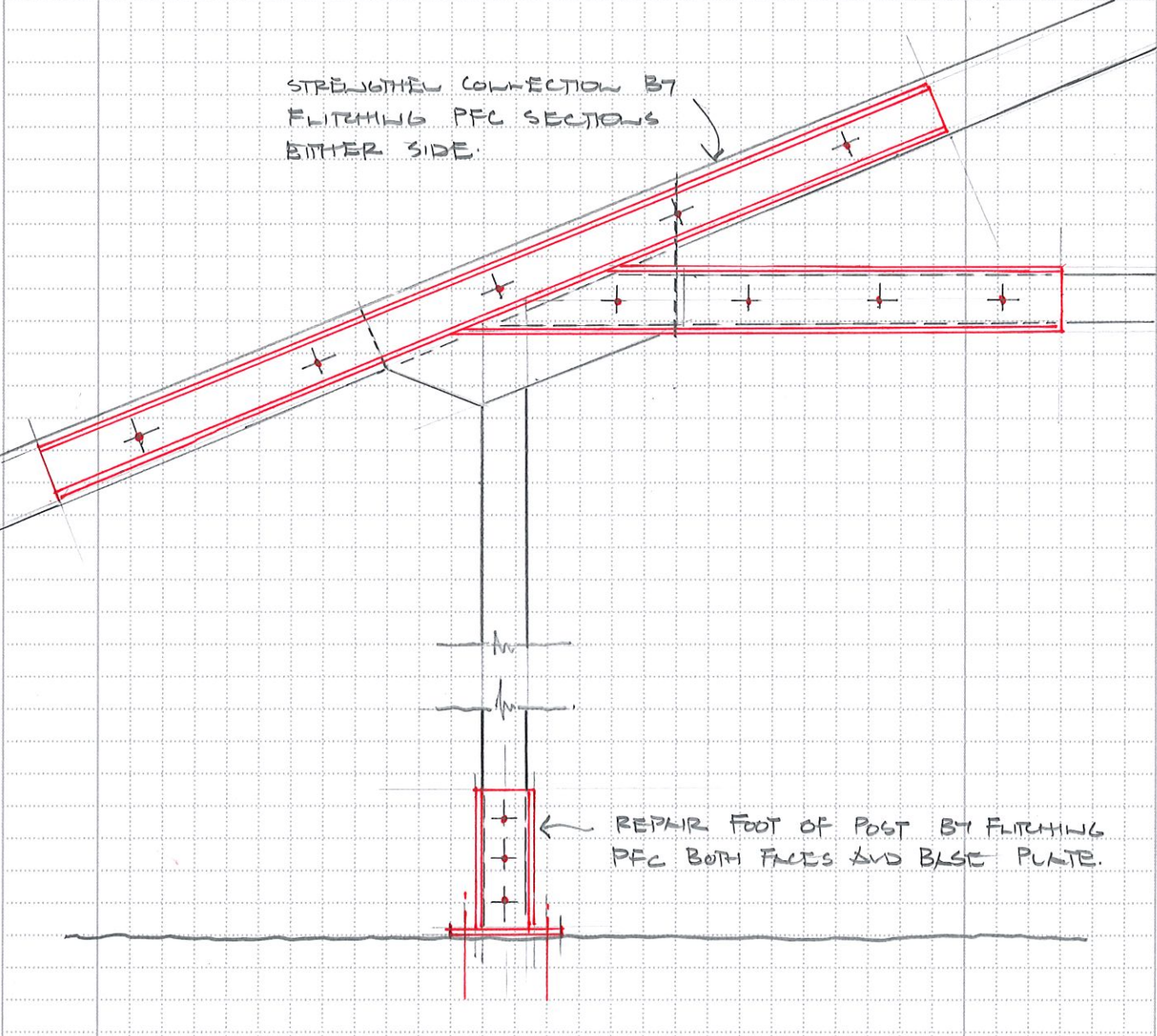
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| Members ref. | CALCULATIONS | OUTPUT |
|--------------|--------------|--------|
|--------------|--------------|--------|



TYPICAL REPAIR/STRENGTHENING DETAIL 1:20.