

Reference Number: 2023/1042

5 February 2024

[REDACTED]
[REDACTED]

Tēnā Koe [REDACTED]

Thank you for email of 9 January 2024 requesting under the Local Government Official Information and Meetings Act 1987 (LGOIMA), information relating to Memorial Hall earthquake strengthening. Please see outlined below a response to each part of your request.

Does the Shannon War Memorial Hall need earthquake strengthening?

The Shannon War Memorial Hall does not need earthquake strengthening, given that an Initial Evaluation Procedure (IEP) that was undertaken by Opus Consultants indicated that this building is at least 80% NBS (New Building Standard).

How much will the earthquake strengthening for Levin War Memorial Hall cost? And how will it be funded?

An Initial Evaluation Procedure (IEP) has been completed for Levin Memorial Hall in 2014, which showed this building could be strengthened to 100% of NBS. At that time the estimated cost for this work was \$265,000 (excl GST). As this IEP was undertaken in 2014 these costs would need to be requoted as we expect price increases would affect this estimate. Council is planning to run a public Expressions of Interest process that will assist Council with assessing options for the future of the Levin War Memorial Hall. No decisions have been made at this point about undertaking earthquake strengthening the building, nor any updated costs sought or received regarding a seismic upgrade of this hall. In light of this information, no decisions have been made in terms of how any upgrade would potentially be funded.

Is the council open to gifting the hall to another community entity that can provide a better strategy and financial proposal?

Council is planning to release an Expressions of Interest for the Levin War Memorial Hall and will be open to look at all types of property transactions. This process will allow Council to assess options for the future of Levin Memorial Hall, no view has been formed about what form its future will take at this point.

What will the profits of selling the Foxton War Memorial Hall be used for?

At present, the disposal of the Foxton War Memorial Hall remains under council consideration and is undergoing the disposal process. Therefore, it is not suitable to offer comments on this matter at this point.

Can HDC please provide a full list of public buildings that are earthquake prone in Foxton/Foxton Beach?

The full list of Council owned public buildings that are earthquake prone in Foxton/Foxton Beach is as follows:

- Foxton Courthouse Museum
- Foxton Memorial Hall
- Mavtec - Rotary Club
- Mavtec – National Museum of Audio Visual Technology

You are entitled to seek an investigation and review by the Office of the Ombudsman. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Horowhenua District Council publishes responses to Local Government Official Information and Meetings Act 1987 (LGOIMA) requests that we consider to be of wider public interest, or which relate to a subject that has been widely requested. To protect your privacy, we will not generally publish personal information about you, or information that identifies you. We will publish the LGOIMA response along with a summary of the request on our website. Requests and responses may be paraphrased.

If you would like to discuss this decision or any of the information provided as part of this request, please contact Brent Harvey (Group Manager Community Experience and Services) on brenth@horowhenua.govt.nz.

Ngā mihi



Monique Davidson
Chief Executive



*Seismic Review of Horowhenua District Council
owned Buildings*

Levin Memorial Hall Concept Seismic Retrofit Scheme





Seismic Review of Horowhenua District Council owned Buildings

Levin Memorial Hall

Concept Seismic Retrofit Scheme

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Date: 6/06/2014
Reference: 5-P0523.01
Status: Final



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1 Introduction

Horowhenua District Council (HDC) commissioned Opus International Consultants Ltd (Opus) to provide concept seismic retrofit schemes including rough order of costs (ROC) as part of the seismic review of HDC owned buildings and assets.

This report should be read in **conjunction with the “Levin Memorial Hall – Initial Seismic Review” dated 22nd May 2013** by Opus. The detailed seismic assessment undertaken as part of this seismic review confirmed that the building achieved a rating of less than 33%NBS (Percentage of New Building Standard) and was classified as **“Earthquake Prone”** in accordance with the Building Act. The assessment identified significant deficiencies in the roof bracing and out-of-plane bending failure of the longitudinal and transverse walls in the Hall, Foyer and Freyberg rooms.



Fig 1. Levin Memorial Hall

2 Archive Information and Assumptions

Archive architectural/structural drawings relating to this building have been obtained from HDC and the following assessment has been done based upon the information obtained and from the visual inspection of the site/building.

Archive information indicated that the building was designed in 1952.

The concept seismic retrofit design been based upon the following:

- Archive information provided by HDC with key dimensions and details confirmed during the visual site inspection undertaken by an Opus Structural Engineer.
- **Typical material strengths taken from NZSEE document ‘Assessment and Improvement of the Structural Performance of Buildings in Earthquakes’ used in the assessment;**

Concrete: 30Mpa
Reinforcement: 300Mpa

- Reinforcement arrangement and details taken from archive drawings provided HDC.

No record of geotechnical descriptions of the underlying soil profiles could be located for this building and therefore the design was based upon typical geotechnical conditions for the Levin area.

3 Structural System

The identification of the structural system for this building was made through a review of the archive drawings with the key elements and dimensions confirmed during a visual site inspection.

The building is a single storey reinforced concrete structure with reinforcement concrete shear walls providing lateral restraint. A hipped lightweight metal clad roof supported off hit and miss timber sarking was constructed over the main hall and entrance foyer. The sarking was secured to timber purlins spanning between steel trusses over the main hall and foyer areas. A flat galvanised tray roof supported off timber purlins and steel joists was provided over the Freyberg Room.

The overall plan measurement of the building is approximately 46m long x 15.7m wide. Both the external walls and the majority of the internal walls were constructed from cast in-situ reinforced concrete, with a number of reinforced concrete piers provided at regular intervals around the external perimeter of the building to support steel trusses spanning over the main hall and foyer area and steel joists supporting the roof over the Freyberg room. The reinforced concrete external walls continue past the roof level to form a parapet around the perimeter of the building.

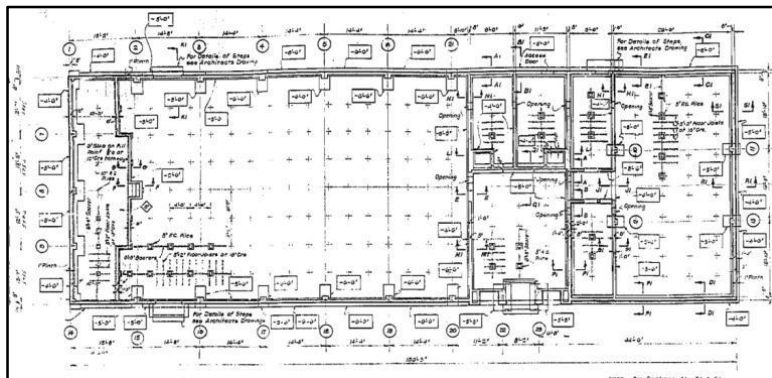


Fig 2. Foundation/Ground floor plan.

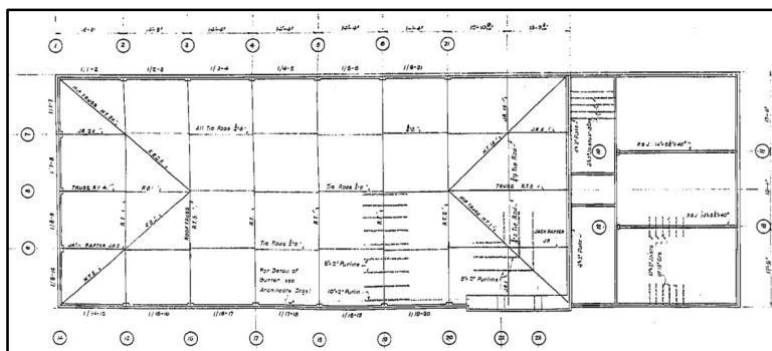


Fig 3. Roof Plan.

A suspended native strip flooring system is provided throughout the building supported off a reinforced concrete ring foundation and a combination of internal wall foundations and 8"x8" square concrete piles.

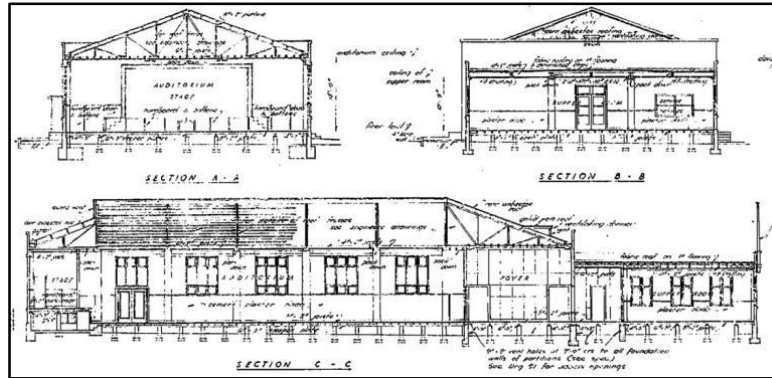


Fig 3. Typical Sections through Building.

The concrete walls and piers were built off the ground bearing reinforced concrete ring foundation with thickenings provided at the pier locations.

4 Concept Seismic Retrofit Design

A series of 2D & 3D computer models of the building were created and analysed under loads applied in accordance with the recommendations of NZSEE 'Assessment and Improvement of the Structural Performance of Buildings in Earthquake' and NZS1170 with the proposed strengthening measures added and analysed as part of the concept seismic retrofit design.

Strengthening measures were designed for the failure mechanisms that were identified in the detailed seismic assessment with a strengthening targets of >34%NBS, >67%NBS, 100%NBS, or as high as practicable.

A summary of the proposed seismic retrofit measures are listed in Table 1. below:

Location	Proposed seismic retrofit	Achievable %NBS
Main Hall and Foyer	Install new structural steel plan bracing above the existing ceiling level fixing to existing steel trusses and walls. <i>(Refer to the Proposed Strengthening Sketches for details).</i> Note: Replacement of the existing roof purlins and sarking will be required.	100%
Kitchen and Cloak Room	Install new structural steel plan bracing below the ceiling level in the kitchen and cloak room to brace the concrete walls out of plane. <i>(Refer to the Proposed Strengthening Sketches for details).</i>	100%

Freyberg Room (Supper Room)	<p>Remove existing ceiling in the Freyberg and install new structural plywood diaphragm. This will require the slight lowering of the finished ceiling level.</p> <p><i>(Refer to the Proposed Strengthening Sketches for details).</i></p> <p>Note: Once the structural diaphragm has been installed the ceiling will require reinstatement and finishing.</p>	100%
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Table 1.

As summarised above the proposed strengthening involves the addition of steel bracing above the ceiling level and the installation of a timber ceiling diaphragm in the Freyberg Room. The purpose of both aspects of the strengthening is to provide a load distributing system to prevent out of plane flexural failure of the reinforced concrete walls (longitudinal and transverse). The steel bracing in combination with the existing roof trusses creates a truss system that restrains the walls out of plane and to prevent excessive lateral deformation hence excessive flexural demands occurring at the base of the walls.

The seismic rating achievable for this building following the installation of the proposed seismic retrofit will likely exceed 100%NBS.

Although the strengthening is not a complicated system challenges exist with the installation of the steelwork. This includes:

- Connecting the robust bracing to the existing light steel roof trusses. This may require the use of oversize plated connections and some onsite welding.
- Working around the existing ceiling framing and truss connections. This may require the removal of localised ceiling elements and some minor ceiling framing.
- The re-pitching and adjustment of the roofline to account for the new bracing connecting at the bond beam level. This will likely require removal and replacement of roof cladding, guttering, flashing and drainage system.

To account for these challenges additional allowances have been made in the rough order of cost for the installation of the steelwork including allowances for; onsite welding, oversize plated connections, additional labour for installation purposes, complete removal and replacement of the existing roof cladding and weatherproofing (excluding the Freyberg room).

It should be noted that although the roof replacement is included as part of the strengthening design this aspect of the works is required anyway as the roof has reached the end of its useable life.

5 Rough Order of Costs

Professional Fees for Detailed Design and Construction Monitoring	\$25,000.00
Building Works	\$223,500.00
Construction Contingency	\$16,500.00
TOTAL (excluding GST)	\$265,000.00

Basis of Estimate

- » Opus concept design documentation.

Assumptions

- » The estimate includes for Seismic Strengthening Related Works only.
- » The Target Seismic Strengthening Upgrade is 100%NBS.
- » Competitive Pricing (i.e. Building Contract is Tendered rather than Negotiated).
- » No requirement for additional fire protection works following the completion a fire report undertaken as part of any Consent process (As agreed, the Client is to provide a Fire Report if required).

Exclusions

- » Building Consent fees and levies.
- » Resource Consent related costs, if any.
- » Diversion of existing services.
- » Unidentified ground conditions.
- » Alteration and/or Redecoration Works to the remainder of the Building.
- » Any allowance for phased construction/or if work is to be undertaken during out-of-hours only.
- » Escalation beyond the date of the estimate.
- » Possible market pricing changes due to recovery from Christchurch earthquakes, either through inflationary pressure or changes to engineering philosophies generally.
- » Goods and Services Tax (GST).

Commentary

An inspection of the cost estimate completed by Rider Levett Bucknall (RLB) Quantity Surveyors reveals that the majority of the total physical works cost is shared between the structural steel strengthening (\$87,090) and the recladding of the hall roof (\$78,430).

Based on past roofing reports completed, the hall roof requires replacement in the near future at a likely similar elemental cost. It would therefore be logical to consider seismic strengthening options at the same time if re-roofing was to be completed.

Alternative Reduced Seismic Strengthening Target

While a reduction in the target seismic strengthening upgrade to 67% of NBS is possible and feasible the potential saving in physical works is unlikely to be significant. The following

outlines the potential and approximate savings at a reduced target seismic strengthening of 67%:

- » Structural Steelwork – Reduction in section sizes connections and removal of some members. (Approximate saving 15% of Elemental Cost)
- » Plywood Diaphragm in Freyberg Hall Ceiling – reduced ply and chord size, and nail spacing and arrangement. (Approximate saving 10% of Elemental Cost)
- » Re-roofing and Re-cladding – No Change

An approximate ROC for a target seismic strengthening upgrade of 67% NBS would be: \$214,350.00 excluding Contingency, Design Fees, Building Consent and GST.

LEVIN MEMORIAL HALL
SEISMIC STRENGTHENING
HOROWHENUA DISTRICT COUNCIL

Seismic Review

Rough Order of Cost Estimate

April 2014

Prepared for: Opus International Consultants Ltd
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Our reference: PN 1127D

LEVIN MEMORIAL HALL SEISMIC STRENGTHENING, HDC - ROUGH ORDER OF COST ESTIMATE

Project Summary

Project Number	PN1127C
Project Description	LEVIN MEMORIAL HALL
Version Number	1
Version Description	ROUGH ORDER OF COST ESTIMATE
Building Classification	15 Unclassifiable
Rates current	April 2014
Estimate subdivisions	No subdivisions
Net Cost	\$240,000
Margin & Adjustments	
Total Cost	\$240,000
Gross floor area	670 m2
Net Cost/m2	\$358
Margin & Adjustments/m2	\$0
Total Cost/m2	\$358

LEVIN MEMORIAL HALL SEISMIC STRENGTHENING, HDC - ROUGH ORDER OF COST ESTIMATE

Project Summary

BASIS OF ESTIMATE

The estimate is based on measured approximate quantities/built-up elemental rates applied to measured areas with rates current as at April 2014

The estimate is based on the Proposed Seismic Strengthening Scheme Report for 100%NBS prepared by Opus International Consultants Ltd, Palmerston North

The estimate includes for the Seismic Strengthening Related Works only

ITEMS SPECIFICALLY EXCLUDED

- . Goods and Services Tax
- . Consultants Charges
- . Statutory and Building Consent Charges
- . Alteration and/or Redecoration Works to Remainder of the Building
- . Fluctuations in Cost

LEVIN MEMORIAL HALL SEISMIC STRENGTHENING, HDC - ROUGH

ORDER OF COST ESTIMATE

Project Elemental

Gross floor area: 670 m2

Element	Cost	Cost/m2
SP SITE PREPARATION	26,305	39
FR FRAME	87,090	130
RF ROOF	78,430	117
CF CEILING FINISHES	9,525	14
EL ELECTRICAL SERVICES	2,500	4
PG PRELIMINARIES	8,900	13
MG MARGINS	10,750	16
CN CONTINGENCIES	16,500	25
Total \$	240,000	358

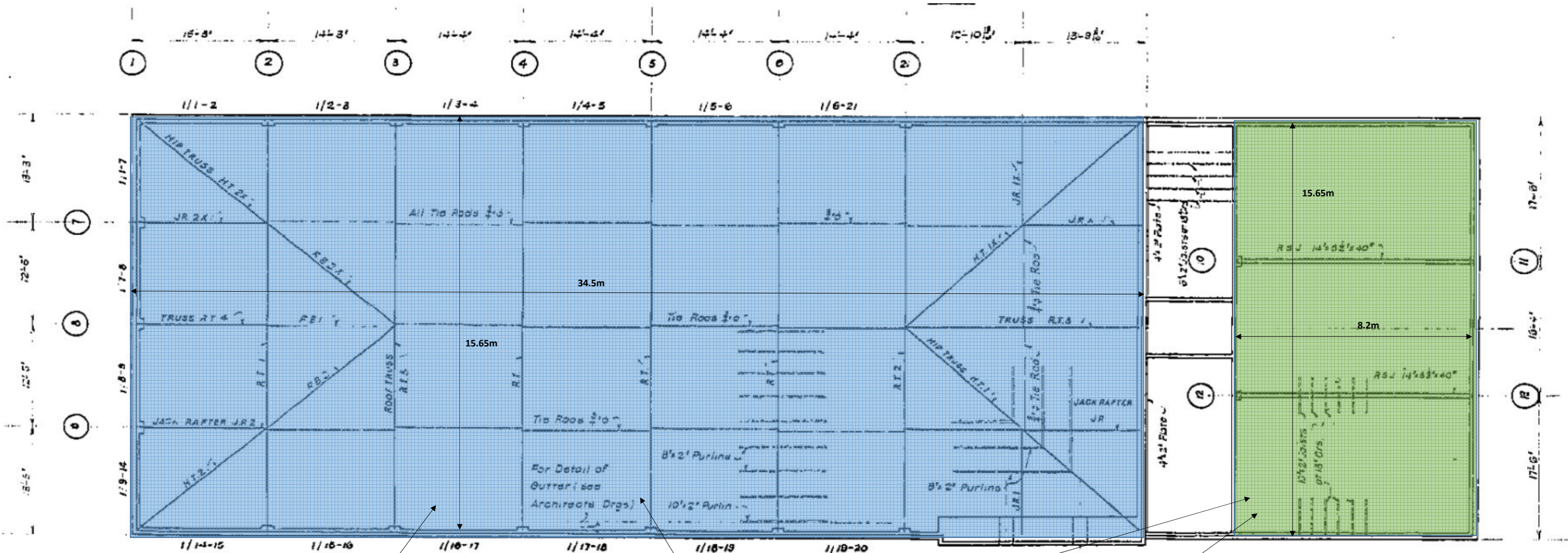
LEVIN MEMORIAL HALL SEISMIC STRENGTHENING, HDC - ROUGH ORDER OF COST ESTIMATE

Item Details

Item Description	Unit	Qty	Rate	\$
A GFA 670 m2 Cost/m2 \$358				
SP SITE PREPARATION				
1 Carefully dismantle and remove existing roof cladding and framing	m2	577.00	40.0	23,080
2 Carefully dismantle and remove plasterboard ceiling lining and battens	m2	129.00	25.0	3,225
Element SP total			39/m2	26,305
FR FRAME				
1 Structural steel roof frame - seismic chord	kg	1300.00	12.0	15,600
2 Structural steel roof frame - seismic brace	kg	2750.00	12.0	33,000
3 Structural steel ceiling frame - seismic brace	kg	250.00	12.0	3,000
4 Structural steel ceiling frame - diaphragm trimmer	kg	450.00	14.0	6,300
5 Plywood ceiling diaphragm on timber framing	m2	129.00	110.0	14,190
6 Provisional Sum for repairs to existing truss / bond beam connections	Item			15,000
Element FR total			130/m2	87,090
RF ROOF				
1 Colorsteel roofing on 200 x 50 timber purlin cleat fixed to existing truss	m2	533.00	110.0	58,630
2 400 wide membrane lined internal box gutter	m	99.00	200.0	19,800
Element RF total			117/m2	78,430
CF CEILING FINISHES				
1 Gibraltar Board ceiling with paint finish on Rondo battens	m2	129.00	55.0	7,095
2 Gib Cove cornice with paint finish	m	81.00	30.0	2,430
Element CF total			14/m2	9,525
EL ELECTRICAL SERVICES				
1 Allowance for Electrical alterations as required to execute the works	Item			2,500
Element EL total			4/m2	2,500
PG PRELIMINARIES				
1 Allowance Contractor's preliminary and general items	Item			6,150
2 Allowance for Temporary Weather Protection	Item			2,750
Element PG total			13/m2	8,900
MG MARGINS				
1 Allowance for Contractor's overheads and profit	Item			10,750
Element MG total			16/m2	10,750
CN CONTINGENCIES				
1 Allowance for Design and Contract Contingencies	Item			16,500
Element CN total			25/m2	16,500
A Total				240,000

6 Concept Retrofit Scheme Sketches

Strengthening Areas and Proposed Demolition



Carefully dismantle, and remove from site to waste: Existing roof cladding, roof framing, weatherproofing, flashings, internal box gutters etc. Retain steel roof trusses bracing and ceiling framing and linings.

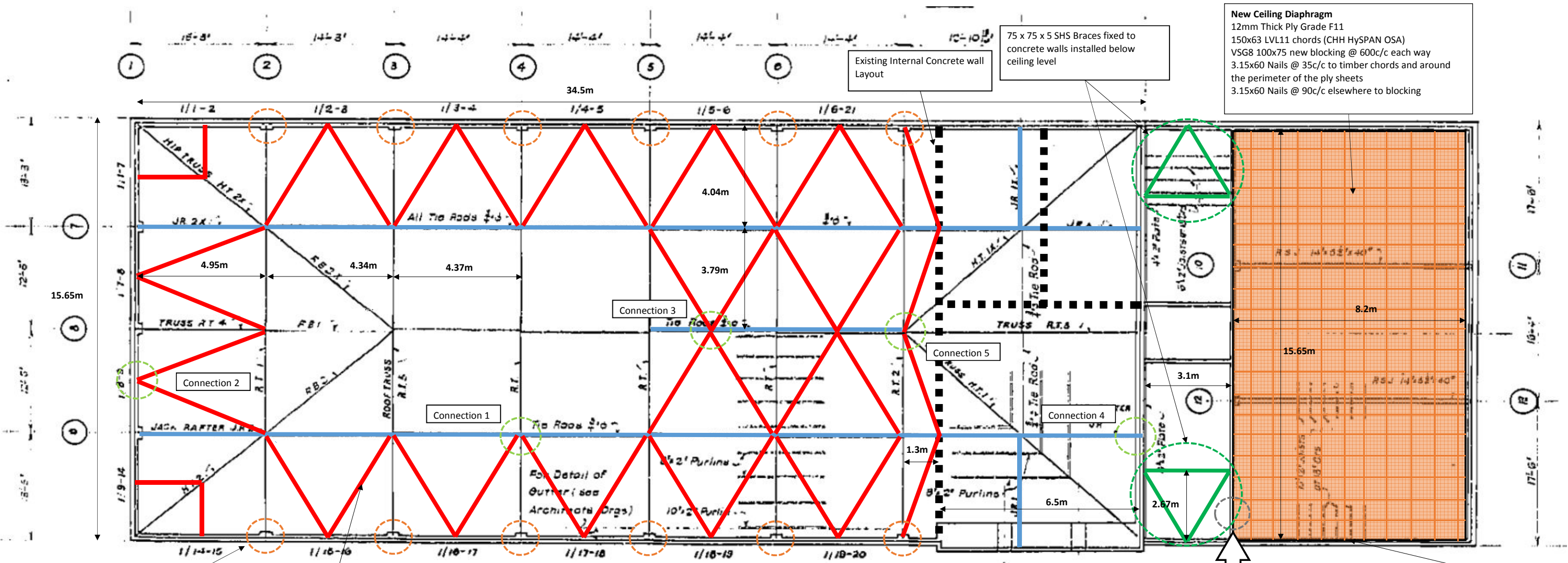
Once installation of seismic bracing is complete, Using existing roof trusses install new roof framing and cladding including flashings, weatherproofing, and new box gutters. Roof Pitch will have to be adjusted and box gutters raised to allow for additional seismic bracing connection at bond beam.

Carefully dismantle, and remove from site to waste: existing ceiling lining and ceiling batons and misc framing.

Once installation new plywood ceiling diaphragms is complete reinstate ceiling like for like including plaster, paint, cornice, trim etc.



Steel Seismic Bracing Layout Sketch



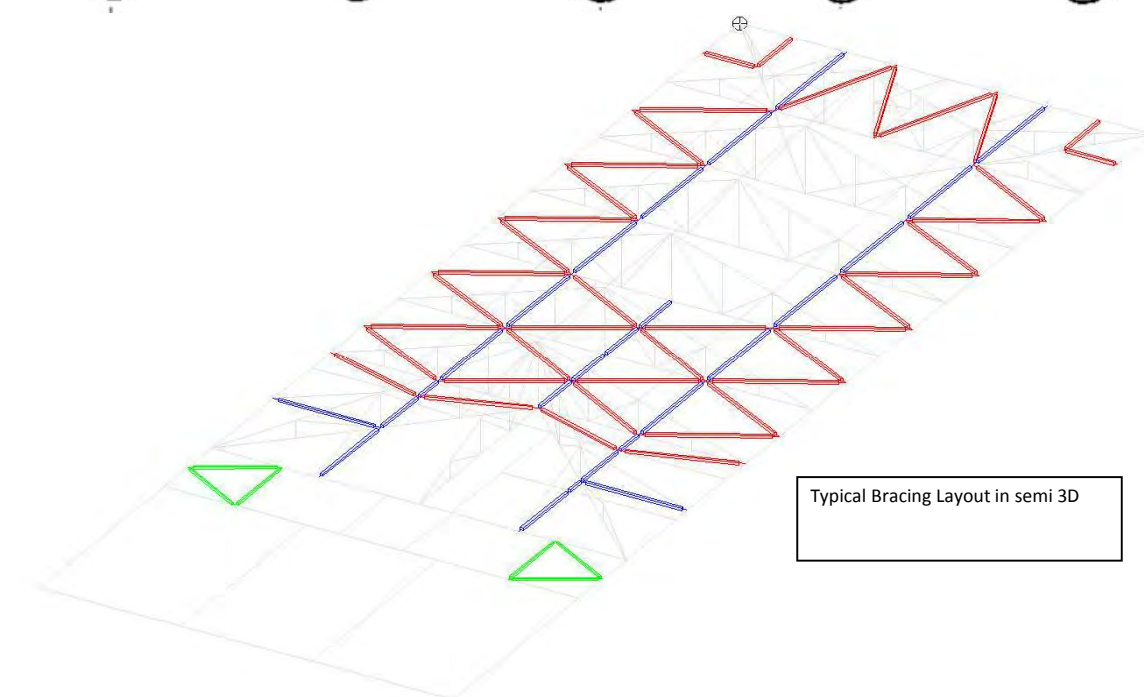
New Ceiling Diaphragm
 12mm Thick Ply Grade F11
 150x63 LVL11 chords (CHH HySPAN OSA)
 VSG8 100x75 new blocking @ 600c/c each way
 3.15x60 Nails @ 35c/c to timber chords and around the perimeter of the ply sheets
 3.15x60 Nails @ 90c/c elsewhere to blocking

Existing Internal Concrete wall Layout
 75 x 75 x 5 SHS Braces fixed to concrete walls installed below ceiling level

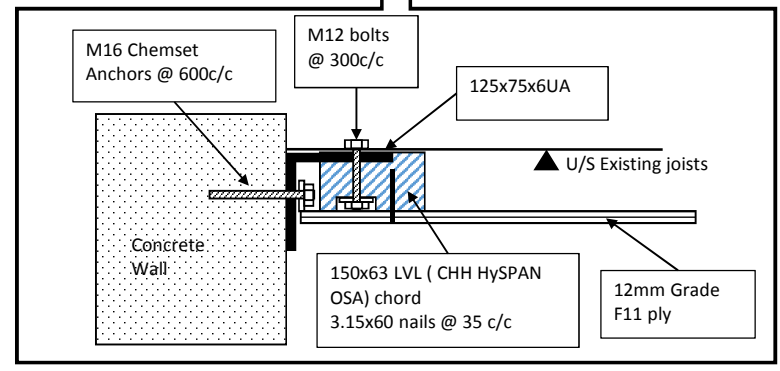
Prior to commencing installation of seismic bracing complete complete local breakout and spall repair of any deteriorated bond beam - truss connections.

New Seismic Bracing
 Consists of 100 x 100 x 5 SHS and 75 x 75 x 5 SHS Grade 350 Cold formed Box Section. Connected to Concrete Bond Beams and concrete walls by Chemical Anchoring systems. Refer to connection sketches for details of Steel Connections

- 100 x 100 x 5 SHS Seismic Chord
- 100 x 100 x 5 SHS Seismic Brace
- 75 x 75 x 5 SHS Seismic Brace



Typical Bracing Layout in semi 3D



125x75x6UA around perimeter of diaphragm
 M16 anchors @ 600c/c chemset into concrete Wall.
 150x63mm LVL11 chords bolted to EA with M12 @ 300 c/c

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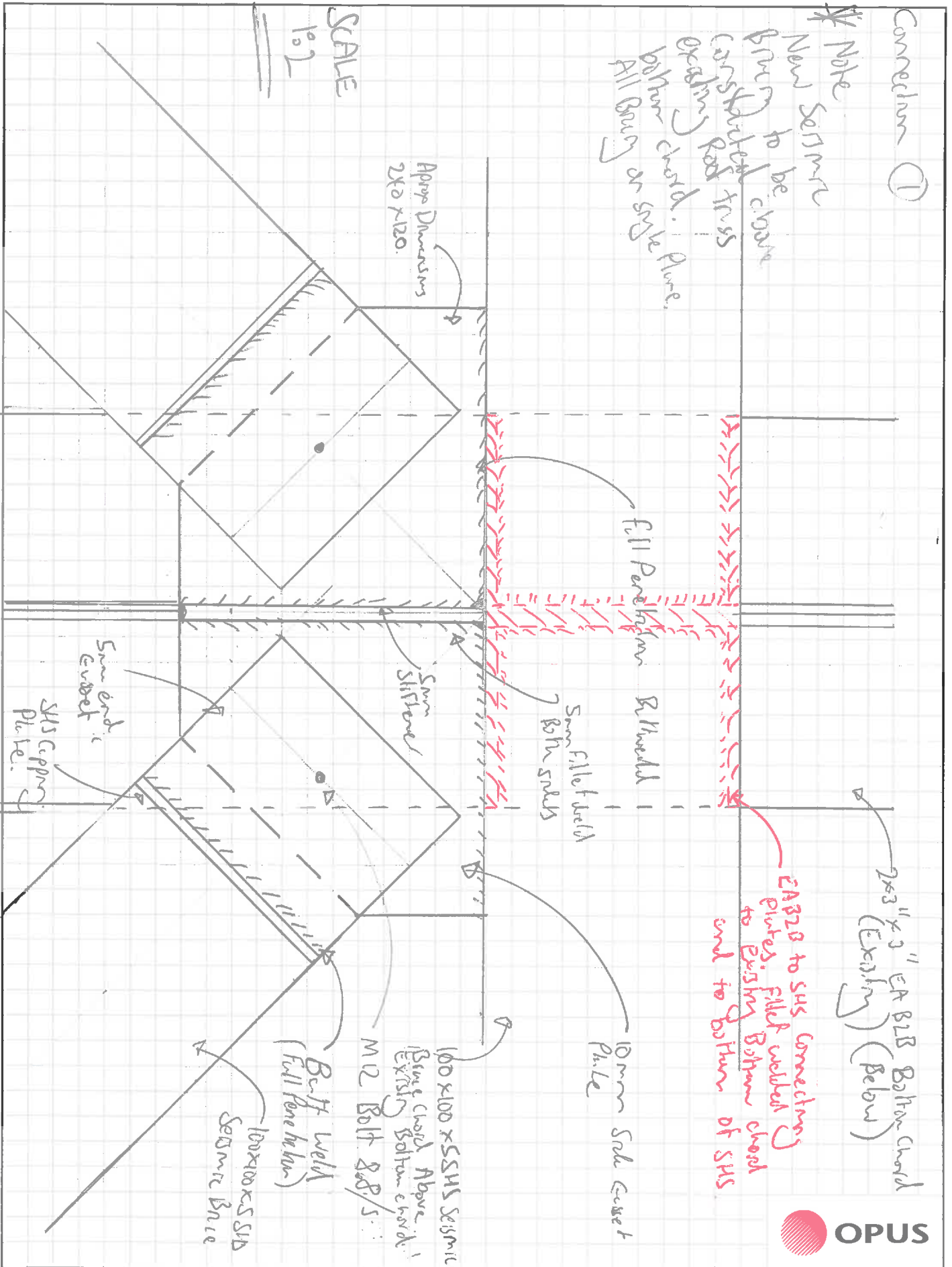
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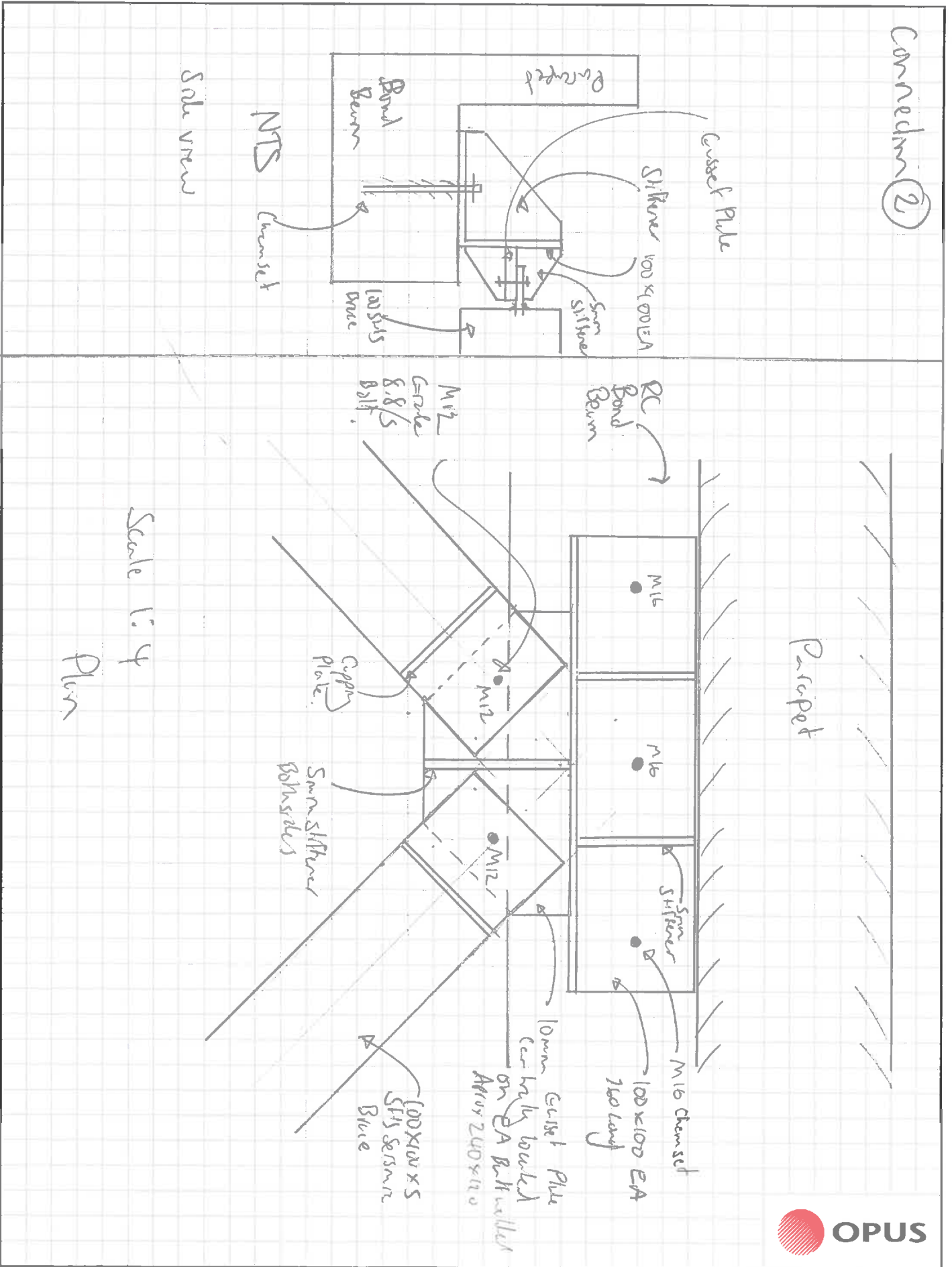
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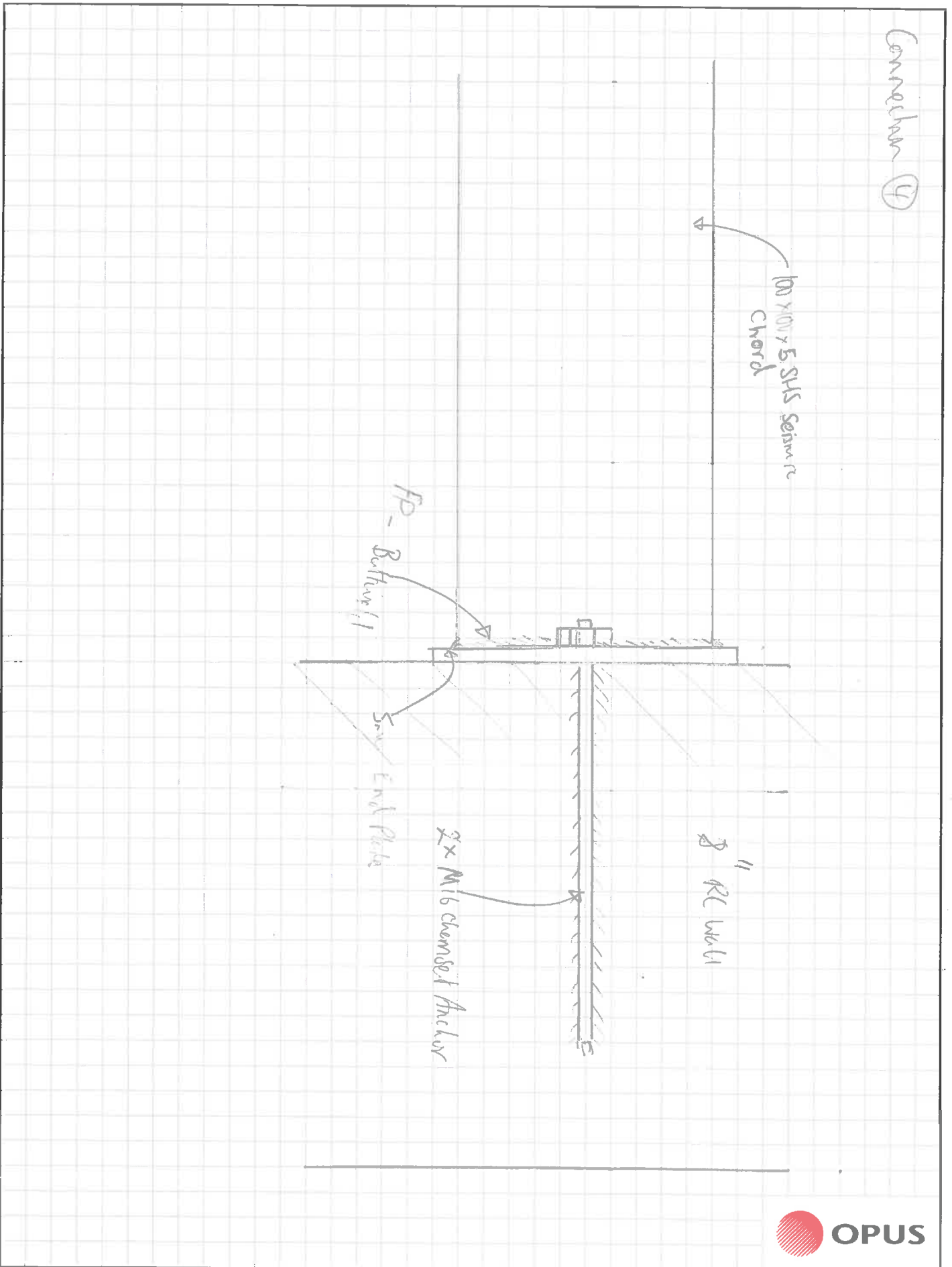
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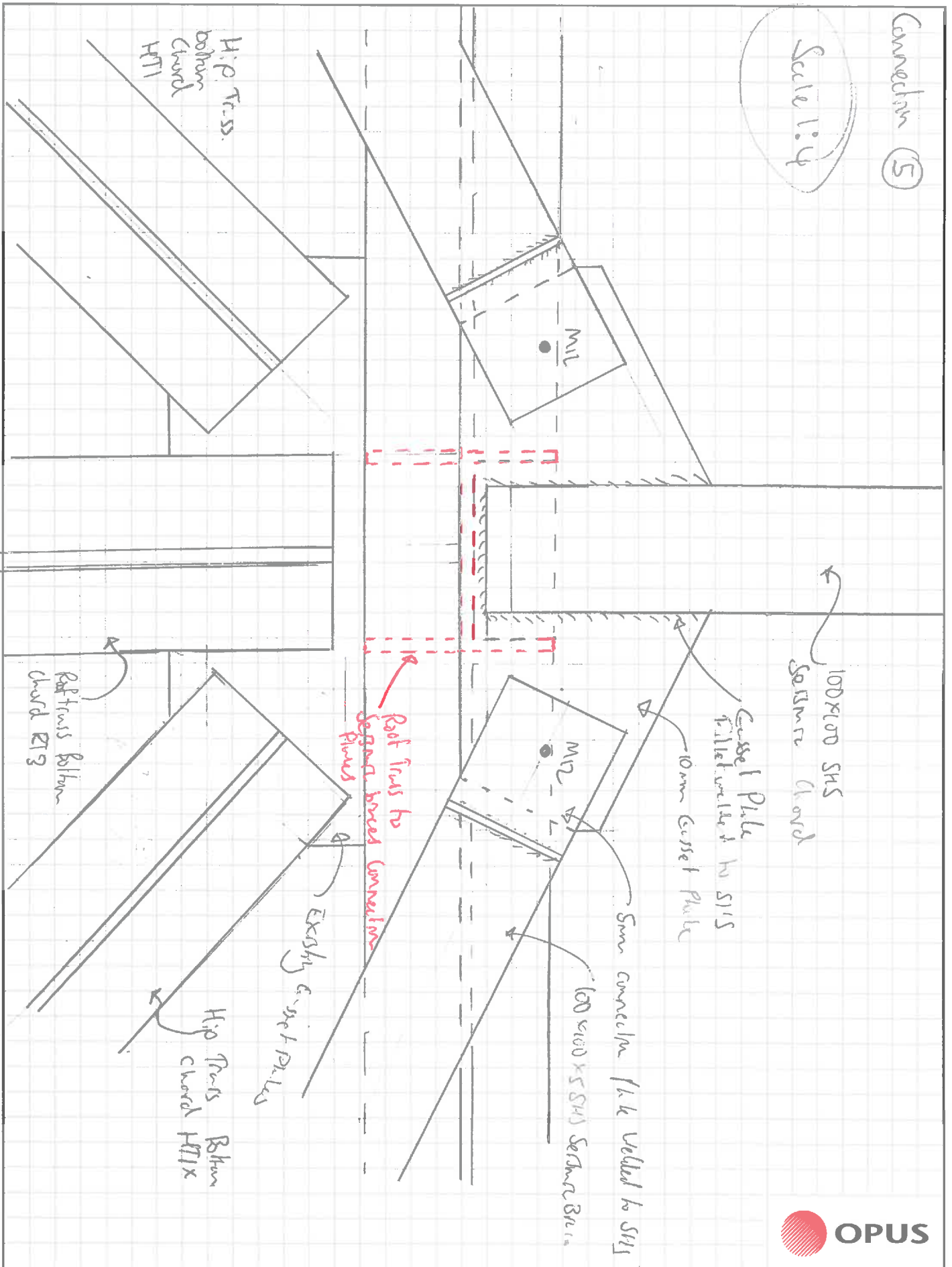
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