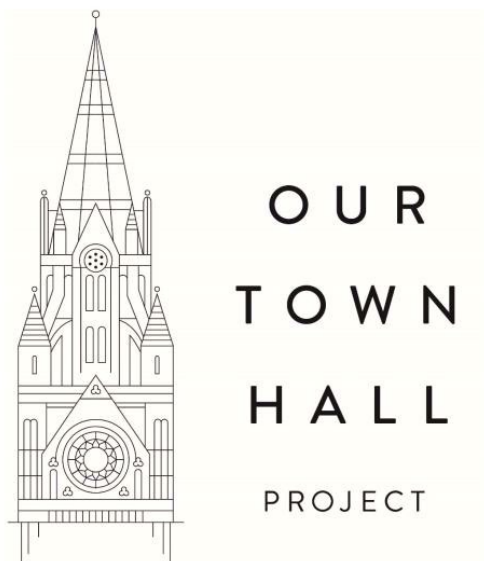




## Removal of Concrete Floor Slabs

Doc number: OTH-MCB-TH-ZZ-TSB-X-0009

Status: S3

Rev: P02

Document Type: Technical Submittal

Date: 12/03/2020

### Issue History:

| Revision Nr | Details                 | Date       | Created By | Check by |
|-------------|-------------------------|------------|------------|----------|
| P01         | Document created        | 22.12.2020 | B Douglas  |          |
| P02         | Team comments picked up | 12.03.2020 | B Douglas  |          |
|             |                         |            |            |          |
|             |                         |            |            |          |



# Our Town Hall

## Works Technical Submission

**Works Package Name:** Structural alterations

**Task/Activity:**

Removal of  
Concrete Floor  
slabs

**Works Package Number:** TBC not yet issued by LL

**Location:** OTH

**Date:** 22.12.2020

**Start Date of Activity:** Feb 2020

**Scope/Overview:**

This document explains our method of removing concrete floor slabs within the town hall which considers the below restrictions

- No wet cutting
- Limit vibration
- Minimal dust / dust management
- Limited loading of materials
- Hold points and stop points for discoveries and unforeseen works

Our works include

- Removing concrete slabs for risers
- Penetrations for services
- Removal of slabs for new stair cores / lift shafts
- Removal of slabs, to make way for new slabs in different positions
- Removal of stone stair cores

Locations of works (all indicated on Purcell Demolition drawings as slabs to be removed, or BWIC openings)

- Cooper street intervention
- Lloyd street intervention
- Princess street intervention.
- Goods lift intervention
- Albert square lift slab penetration
- Central risers
- Visitor lift

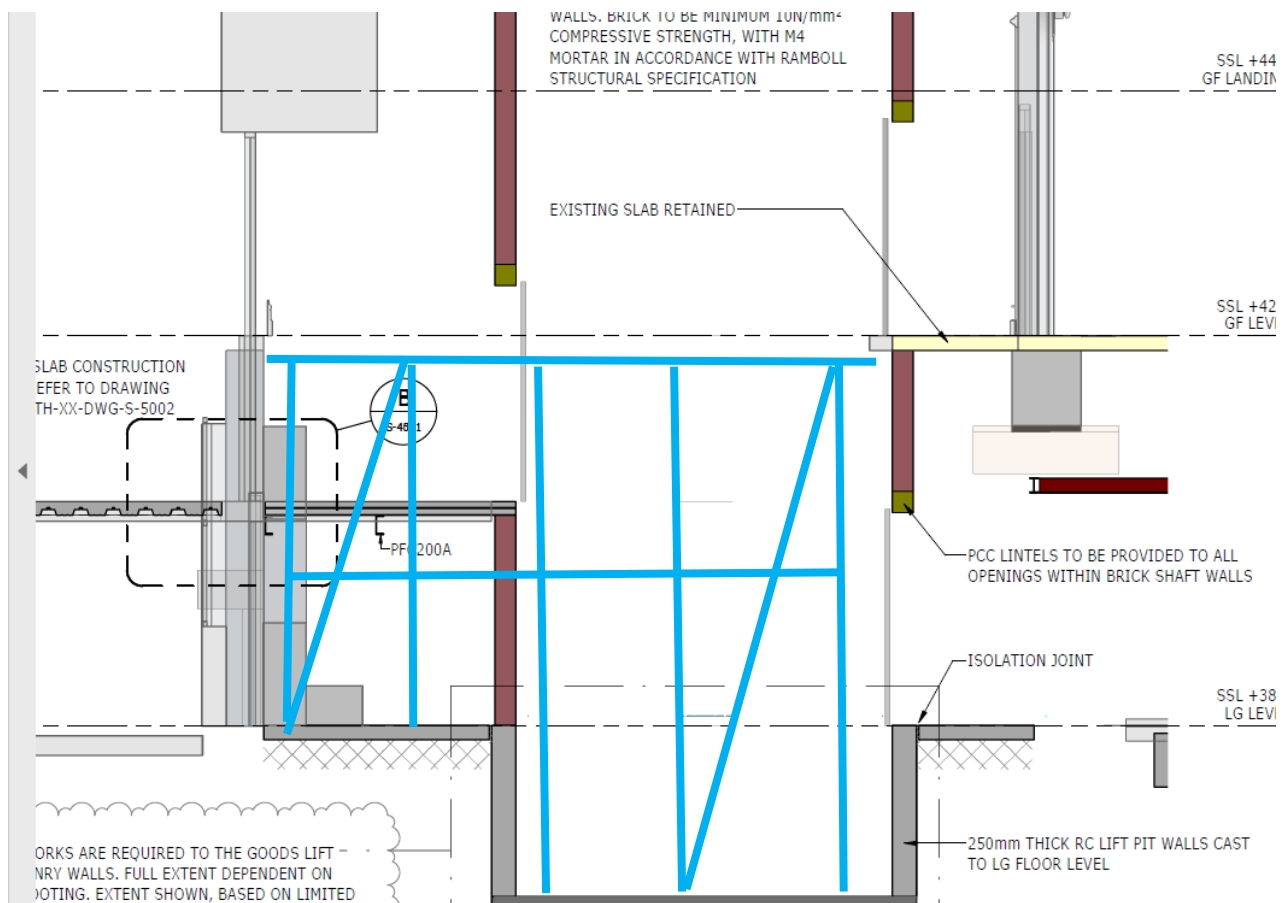
(all work areas are subject to site walk and agreements made during the weekly Purcell alteration site meetings)

**FULL LOCATION PLANS AT THE BACK OF THIS DOCUMENT**

**ANY TEMPORARY WORKS ASSESSMENTS ARE SUBJECT TO OTHER ASSESMENTS BEING MADE – THIS IS PURELY THE METHODOLOGY FOR THE CUTTING AND REMOVAL OF THE CONCRETE**

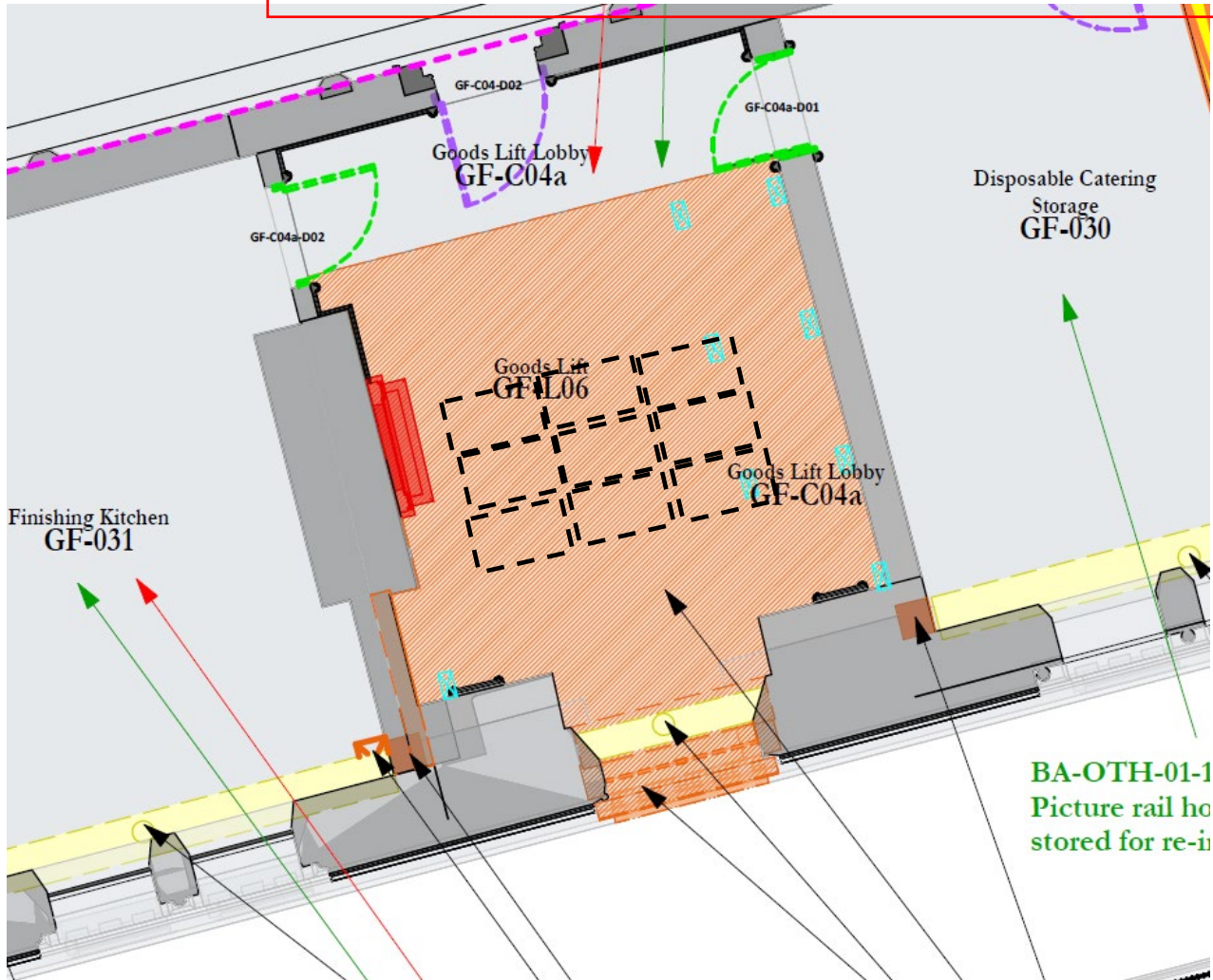
## Sequence of works – Larger Slab Openings

1. Mark up penetration in slab as per Purcell setting out drawings (floorboards or terrazzo removal above the slab is covered on separate technical submission documents)
2. Photograph and reference opening back to Purcell demolition drawings and tagging reference
3. Protect surrounding environment if needed (cover windows with hardboard, heritage assets to be protected with HD correx, sheet off doorway with visqueen)
4. During the weekly heritage walk with Purcell, show Purcell the slab to be removed and agree the location is correct.
5. Isolate any smoke detectors in case dust is kicked up and sets off the alarm
6. Invite lend lease and Purcell to view penetration before it is formed
7. Ensure trimming steel/ new brickwork support is installed before penetration is formed (this is not a requirement in all locations such as where we remove complete floor slabs)
8. Install scaffold platform (tight as possible to underside of the slab to be removed) treated boards to prevent spread of fire, or metal boards will be used. The platforms are light duty 1.5knm2 working platforms as our working methodology means the scaffolding will not be loaded at any point with the weight of the slab being removed. Just operatives/ tools and the concrete slab which has been cracked off.



9. Starting from the middle, penetrate the slab with cutting equipment with dust extraction to 80% depth, 400x400 size cut out. The concrete saw has a shroud and adjustable depth gauge which we can use to maintain the 80% depth. The blade cuts 130mm so the vast majority of the slab it won't be possible to accidentally cut right through

around crown of arch, depth is approx 100mm (although this will vary around the building), therefore only cut to approx 80mm in these areas. To be modified as knowledge is gained during the works



10. Crack of slab with sledgehammer (this method is being used to reduce the use of breakers within the building which create a substantial amount of noise and vibration)
11. Pass debris out of the window to labourers to transport across the scaffolding to the hoist then skip. No allowing more than 4 blocks of concrete on the scaffolding at once to reduce the loadings imposed. The skips are to be located in the loading yard in a area designated by lend lease. Our preference is to locate the skips along Lloyd street near the hoists
12. Continue process until complete
13. Clear up all debris

Note we have considered and discounted wet cutting to save the historic fabric and cutting out larger slabs and letting them drop onto the scaffold isn't a sensible option as everything needs to be small enough to be passed out of the window.

When cutting out 'dennot' type slabs, do not remove the full arch as this could risk collapse — remove trenches of the concrete slab running steel to steel as shown highlighted below. Do not cut wall to wall along the length of the steels as this will cause a failure and drop of the floor slab



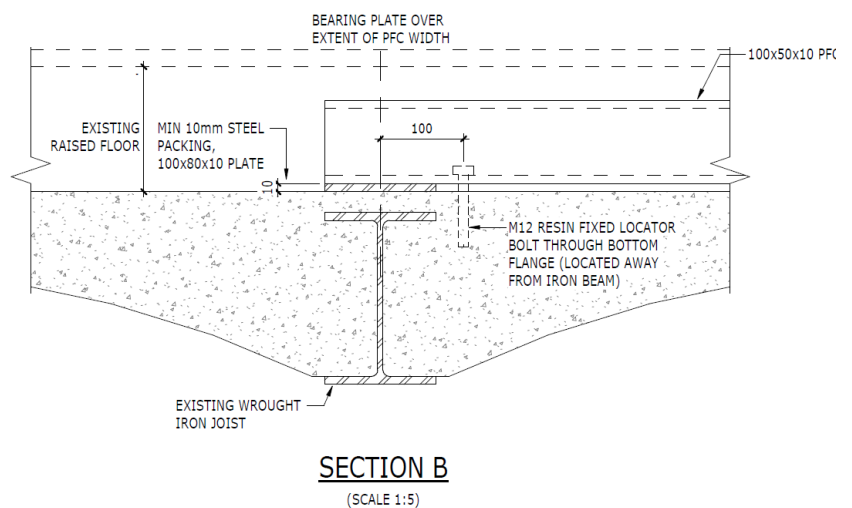
Any Dennett slab wrought iron steels will be exposed when all concrete is removed and cut out by using Respirating saws with bi-metal or carbide tipped blades.

This is cutting without creating a spark.

The blades will be stored in a bucket of sand so cool off once they are used

These works will be treated as hot works and permit obtained from lend lease.

The steels will be cut in sections which in turn can be passed out of the window to the hoist (steels propped first so they don't drop)



## Sequence of works – Core Holes

Steps 1 to 7 to be followed

8. Core holes to be formed using dry cut technique with dust extraction. Single core holes may be formed, or several together to form a larger opening known as stich drilling

9. the concrete core will then fall onto the scaffold platform below

10. Clean up all debris afterwards



**Sequence of works – Stairs**

A Separate Technical submission has been submitted for the removal of Princess street stone staircase.

## Equipment to be Used

### Personal Protection

- Cut Resistant Gloves
- Steel toe capped boots
- Hard Hat
- High Viz Vest
- Face Fit FFP3 Dust mask
- Safety glasses or face shield
- Ear Defenders when using cutting equipment

### Cutting Equipment

We have been in discussions with 2 leading suppliers of cutting equipment (Hilti and Husqvarna) and we are planning on running both systems on the project



Husqvarna S-13 Hepifilter dust extractor – bags up the debris in sacks read for disposal

110v

Husqvarna k4000 concrete cutter with dust extraction sledge]

110v

Husqvarna air scrubber – this draws huge volumes of air through the unit and filters out any residual dust particles

110v

Hilti DCH 300 concrete cutter with hi powered dust extraction unit.

Integral dust shroud and blade depth gauge

110v



Handheld Concrete cruncher maybe used – zero vibration and silent. This is a dry system

This will be used infrequently on thicker concrete

Runs off a 415v supply which feeds a mobile hydraulic system – which in turn powers the hand held cruncher



**Benchmark/Samples:**

Upon removal of the 1<sup>st</sup> concrete slab, this will be monitored by McCrory management closely to ensure we are happy with the process. Lend lease will also be consulted to ensure we are all happy with the works methodology.

If the process isn't working correctly or we come across unforeseen items, we will stop works immediately and re-assess the methodology

| <b>Heritage Considerations:</b>                                      | <b>Controls:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Materials: (New, existing and waste streams)</b>                  | No new materials to be introduced<br>All waste to be removed from site to be recycled                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Protection: (Exceptions to project strategy)</b>                  | A separate technical submission has been submitted covering our protection strategy<br><br>But to be clear all <ul style="list-style-type: none"><li>- Walls, windows, skirtings, fixed heritage items will be protected before we start work using Fire Rated Correx or HD fire rated correx.</li><li>- There will not be any falling materials as the scaffolding platform will be tight to the soffit.</li></ul><br>Once the area is protected we offer the zone to lend lease for inspection prior to starting works |
| <b>Building Impact: (Vibration, dust, noise etc.)</b>                | The equipment we have opted to use gives the below benefits <ul style="list-style-type: none"><li>- Limited vibration</li><li>- Limited to no dust</li><li>- No use of water</li><li>- All equipment is handheld, no use of tracked plant/ heavy equipment</li></ul>                                                                                                                                                                                                                                                     |
| <b>Storage: (During works for reinstatement, long term off site)</b> | The slabs removed are for the skip and cannot be stored or saved for future use.                                                                                                                                                                                                                                                                                                                                                                                                                                         |

|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Discovery: (Type to be expected and visual signs)</b>                                       | <p>Possible discoveries could be; at which point we will stop works and contact lend lease<br/><b>HOLD POINT</b></p> <ul style="list-style-type: none"> <li>- We notice further damage or cracks in the slabs outside of our cut zones</li> <li>- Thicker than anticipated concrete slabs</li> <li>- Heavily concealed reinforcement within the concrete</li> </ul>               |
| <b>Workforce Awareness: (Tool box talks and briefing by design consultants prior to works)</b> | <p>The works will be carried out by a combination of ;</p> <ul style="list-style-type: none"> <li>- McCrory directly employed operatives</li> <li>- Concrete Drilling Services (subcontractor)</li> </ul> <p>This documentation will be briefed to the operatives</p> <p>All operatives to be face fit tested for a FFP3 dust mask and trained in the use of abrasive wheels.</p> |