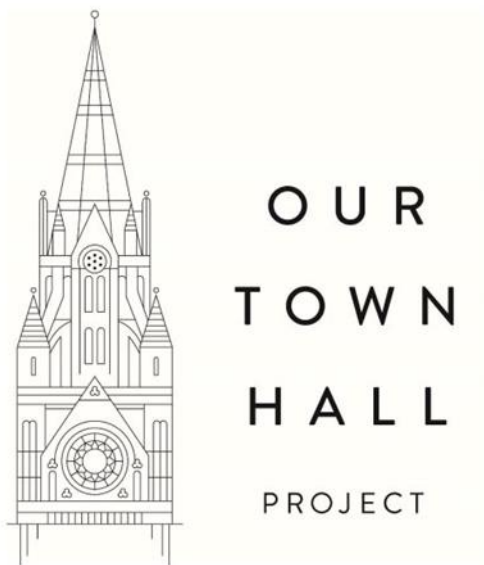




**CUMBRIA CLOCK COMPANY
OTH CLOCK REMOVAL MAIN WORKS**

Doc number: OTH-CCC-TH-ZZ-MES-X-0009

Status: S6

Rev: P01

Document Type: Method Statement

Date: 19/08/2021

Issue History:

Revision Nr	Details	Date	Created By	Check by
P01	Document created	08/21	A HAYMES	



The Cumbria Clock Company
 Castle Workshop
 Dacre
 Penrith
 CA11 0HL

Site Address	Manchester Town Hall, Albert Square, Manchester, M2 5DB	Project Reference	Town Hall Clock
Client Name	Lend Lease	Location of works	Manchester Town Hall
Start Date	24.05.2021	End Date	23.05.2022
Principal Contractor	Cumbria Clock Company (CCC)	Document created by	Andy Haymes
Site Supervisor	Andy Haymes	Site Supervisor contact details	07761 748 313 andy@clockmaker.co.uk
<u>Document status</u>			
Revision No	PO1	Review Date	

DESCRIPTION OF WORKS

This phase of works is to enable the removal of the Town Clock and associated equipment from the Town Hall Clock Tower.

Safety Risks:

- Working at Height
- Manual Handling
- Lifting Operations
- Pallet Truck

STAFF TRAINING DETAILS

Andy Haymes

- CSCS Gold 6378624 - Expiry – September 2024
- ECITB E-253481 - Expiry – October 2022
- SSSTS – Details TBC
- PASMA – Cert. No. – 803307 – Expiry January 2024
- DBS – February 2021

Mark Crangle

- CSCS Green 3941116
- Slinger/Signaller – Expiry March 2022

Keith Scobie-Youngs

- CSCS Green 3941108

Keith Cotton

- CSCS Green 1421809

Terry Hill

- CSCS Green 1422490

Danny Curnow

- CSCS Green 13631555
- First Aid Training – Expiry November 2023

WELFARE – PROVIDED BY LEND LEASE

- Drying room
- Drinking water
- Toilets
- Canteen seating, microwave, and kettle facilities
- First Aid Box in site office (we will also have one on site)

SAFETY HOLD POINT – COVID-19

All staff will comply with Government Legislation and site requirements. All staff have had both vaccinations.

Supervisors Signature

Date

ACCESS & EGRESS

- Access to site is via the main entrance and turnstiles on Albert Square. ID Card and Bioscan System in place.
- Delivery access to be booked through Lend Lease and arranged for an approved date and time.
- All vehicles must abide by site rules and restrictions. Any vehicles will be monitored by a banksman where necessary.
- There is no onsite parking.
- Visitors must be pre-booked before attending site and must attend the Lend Lease offices prior to entering site.

EMERGENCY ARRANGEMENTS

- Evacuation/Muster Points as detailed in the Lend Lease induction. Access to the clock tower is via the spiral staircase. In the event that this is not accessible in an emergency, we will leave either through the attic space or via the external scaffold. First Aid Box can be found in the Lend Lease office. We will also have one on site close to our work area. Cumbria Clock Company will provide a First Aid Officer.

ACCIDENT PROCEDURES

- In the event of an accident occurring the site supervisor will follow the Lend Lease procedures as set out in the site induction.
- All accidents will be investigated by the CCC site supervisor.

EMERGENCY PROCEDURES

- In the event of a fire being discovered CCC will utilise the alarm call points as set out in the Lend Lease site induction.
- CCC members of staff will follow the escape routes as outlined within the Lend Lease emergency procedures.
- Access to the clock tower is via the spiral staircase. In the event that this is not accessible in an emergency, we will leave either through the attic space or via the external scaffold.

ASSESSMENT OF SIGNIFICANT SAFETY RISKS

- Working at Height – dismantling the clock will require staff members to work at height. This will involve working on access towers and scaffold. We will use ladders for access only. The appropriate permits will be in place and scaffold tags will be checked prior to access. All hand tools will be tethered during working at height operations.

SAFETY HOLD POINT

Confirmation that the most appropriate work at height access has been selected. It has been built by an approved contractor with signed handover documentation. Hand tools tethered.

Supervisors Signature

Date

LIVE SERVICES

- All live services will be disconnected/isolated by the clients approved service provider.
- If any temporary live services are discovered, we will clearly identify and report to Lend Lease.

UNAUTHORISED ACCESS

- CCC members of staff will only access authorised areas during the project.
- Updates on access restrictions will be issued to the team from the site supervisor following the daily briefings.

ASBESTOS

- The CCC team are all Asbestos aware and will follow site procedures in the event of any Asbestos being discovered.

SAFETY HOLD POINT

Confirmation that there are no identified ACM's located within the work areas.

Supervisors Signature

Date

LIFTING OPERATIONS

- All lifting equipment will have the appropriate LOLER certificates and will be inspected regularly by the site supervisor.
- All lifts will be planned and carried out by a qualified Appointed Person.

SAFETY HOLD POINT

All lifting equipment is inspected and LOLER certificated.

Appointed Person Signature

Date

SAFETY HOLD POINT

All manual handling lifting to be carried out by trained personnel.

Supervisors Signature

Date

MANUAL HANDLING

- A manual handling risk assessment will be carried out in accordance with HSE Manual Handling Regulations 1992.
- Works to be carried out in a logical sequence to avoid manual handling where possible.
- Where appropriate mechanical aids will be used.
- We will assess size and weight and plan the routes for transit.
- Where items need to be moved/ carried by hand, we will use team lifts wherever possible. The maximum weight of any load to be carried physically will be approximately 50Kg and we have planned to do that as a 2-man operation.
- It will be necessary to carry some items from the Belfry to the Mechanism Room down the spiral staircase. This is unavoidable and great care will be taken to avoid damage to the parts and the building fabric. One of the parts is a 2-metre-long drive shaft. This will be carried by 2 persons to ensure that no damage is caused to the item or the building fabric.

EQUIPMENT/RESOURCES

ITEM	USED FOR	SPECIAL REQUIREMENTS
Ladder	Access	Inspected
Chain Block	Lifting	Inspected and certificated
Lifting slings	Lifting	Inspected and certificated
Bow Shackles	Lifting	Inspected and certificated
Hand Tools – General	Work within the clock tower	Tethered as necessary
Pallet Truck	Moving items along the landing platform out to the external hoist	Inspected and certificated
Platform Truck	Moving items along the landing platform out to the external hoist	Inspected and certificated
Bespoke transit/storage crates and stillages	Storage and transportation to prevent any movement and give additional protection to item	All made from FSC Timber
Packing crates	Storage and transportation to our workshops	

ADDITIONAL CONTROL MEASURES

- We will carry out daily Toolbox talks.
- Site Supervisor to attend daily meetings to inform of any planned operations on site by CCC and others.
- Pre-inspection and daily SMART start before any works commence.
- Supervision to ensure that all staff have the appropriate skills, training, and knowledge to carry out any task required of them.
- Any power tools will either be 110 volt or battery operated.
- Operatives will be required to confirm that they have completed the Lend Lease site induction and to confirm that they have read and understood the method statements and risk assessments.
- Appropriate PPE will be always worn on site.
- All operatives to attend IIF training.

PERSONAL PROTECTIVE EQUIPMENT

		
General Gloves EN420	Industrial Safety Helmet EN397	Safety footwear for professional use. ENISO20345 (200 Toe cap-P,C,A,HI, Cl, E, WRU, HRO)
		
General Protective Clothing EN340	High Visibility warning clothing EN471	Eye protection

- CCC will issue all members of their team with standard PPE.
- All members of staff will be issued with the relevant PPE for the task they are completing and will wear it at all times on site.

SCOPE OF WORKS

This document deals with the removal of the Town Hall Clock and associated items from the Town Hall Clock Tower once the enabling works have been completed.

1. Remove hands from all four clock dials
2. Remove dial motion works and bevelled gears
3. Remove bevelled gears in Belfry
4. Remove bell wheels
5. Remove the hour bell hammer
6. Remove the 3 top pulleys and anchor points
7. Remove the old automatic winding motors
8. Remove the night silencer actuators
9. Remove bottom pulleys and guarding
10. Sundry items relating to the original carillon machine.
11. Dismantling the clock mechanism

METHODOLOGY

- There will be a pre-inspection and Delap survey of all areas prior to the commencement of works.
- All staff will be aware of the historical and heritage importance of the clock and its surroundings.
- Care will be taken at all stages of the removal process and supervision will be in place to monitor the integrity of the works in progress.
- Photographs of the area and items will be taken prior to works commencing.
- All scaffold certificates will be checked prior to works starting.
- All lifting points certificates will be checked prior to works starting.
- Any ladder permits will be requested as required.
- Parts will be brought down for transportation via the external hoists. These will be booked in advance through Lend DGP.

<u>SAFETY HOLD POINT</u>		
Ensure that all scaffolding certification is in place		
Supervisors Signature		Date

<u>SAFETY HOLD POINT</u>		
Ensure that the old lighting and associated lighting has been removed (by overs) from the dial room floor adjacent to rear dial.		
Supervisors Signature		Date

<u>SAFETY HOLD POINT</u>		
Prior to winching parts and components down to the platform on Level 7, ensure that a banksman is in place and the area is clear. Lock doors to restrict access and place warning signage outside the areas.		
Supervisors Signature		Date

1. **Removal of hands** – Working on the external scaffolding we will remove the clock hands on all 4 dials. The hands are fixed onto the driveshafts with large retaining nuts. We will attach a tether/strop to each hand in turn and then use spanners to remove the nuts and then slide the hands off the drive shafts. All tools will be on tool safety lanyards. As each hand is removed, it will be passed

through the doorway into the dial room. Once inside, the hands and retaining nuts will be uniquely referenced for identification purposes and covered in protective wrap and placed in bespoke transit crates in readiness for removal from site. The hands will be stored in the dial room until they are moved to the external hoist for transportation to our workshops.

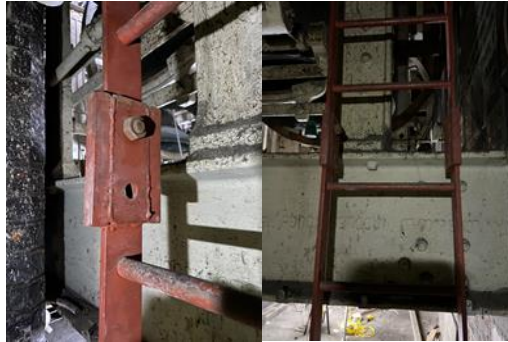


2. **Removal of dial motion works and bevelled gears** – We will require access onto the wooden platform in the dial room. As we are unsure of the integrity of the platform a scaffolding provided by 3D has been installed below to provide support. We will use a webbing strap with safety hook on to lower components from the wooden platform to Dial Room floor level. A 2-stage scaffold platform has been provided by 3D inside each of the clock dial apertures to enable access to the hour pipe and bearing sets on each of the dials. We will dismantle each of the motion works using spanners, hammer, and pin punches, tag all components with a unique reference number and lower to Dial Room floor level. We will then remove the hour pipes and drive shafts. Each component will be wrapped for protection and uniquely referenced prior to being transported to our workshops. The maximum weight of any component is estimated to be 8Kg.

<u>HERITAGE HOLD POINT</u>		
Ensure that MCC and Purcell have the opportunity to view items prior to leaving site.		
Supervisors Signature		Date

3. **Removal of bevelled gears in Belfry** – The vertical ladder in the Belfry is designed so that the bottom section can be unbolted and removed to allow ease of access to the underside of the bells so we will remove it and place to one side. Working on the Belfry floor, we will open the bevelled gear enclosures and remove the bevelled gears and drive shaft using spanners, a hammer and pin punches. The hammer and pin punches are required as some of the gears, drive shafts and pinions are held in place with taper pins. The only way to effectively remove these taper pins is to knock them out with a hammer and pin punch. All the components will be uniquely referenced and wrapped in a

protective covering. They will then be carried by hand to the mechanism room ready for transportation to our workshops. The lower section of the ladder will then be replaced and fastened securely in place.



4. **Removal of bell wheels** – Working alongside the bells from the Belfry floor we will unbolt the bell wheels off the 13 bells in the ringing peel using spanners. Each one will be uniquely referenced and carried down to the mechanism room. They will then be wrapped in a protective covering and placed to one side for transporting to our workshops.
5. **Removal of the hour bell hammer** – An access platform, winching point and to be provided to enable the hour bell hammer to be removed. Working from the access platform we will attach a block and tackle to the winching point above the hammer. We will strop the hammer and take the weight with the block and

tackle prior to unbolting it with spanners. Once unbolted, we will move the hammer on a suitable trolley out through the lantern aperture. Once on the external scaffold, we will attach the hammer to a chain hoist and lift it off the trolley. A scaffolder will remove deck boards to allow the hammer to be lowered down to the next level. We will lower it into a bespoke packing crate for transportation to our workshops. It will then be given a unique reference number. It is proposed to store the hammer on level 7 until it can be moved to the external hoist to get it to ground level and transported to our workshops.



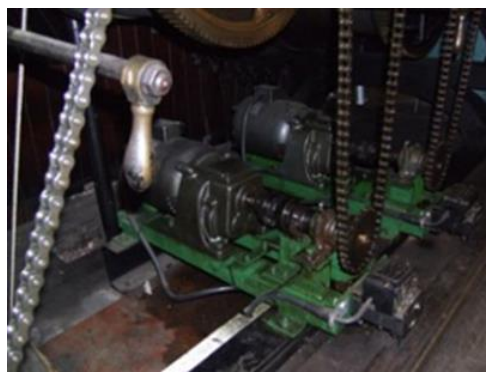
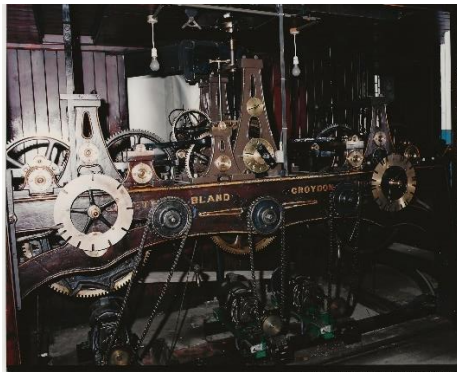
SAFETY HOLD POINT		
Ensure that access platform and the winching point are in place.		
Supervisors Signature		Date

6. **Removal of the 3 top pulleys and anchor points** - We will open the hatches in the wooden housings around each of the 3 top pulleys and anchor points using coach keys and screwdrivers. We will unhook the pulleys and lay to one side and uniquely reference them. We will detach the weight suspension ropes, pull them up, coil them on the floor and tag them with a unique reference number. The steel frames will remain in place, awaiting a heritage decision. We will close and secure the wooden housings around the steel frames to prevent water ingress.

We are not intending to reuse the weight lines, pulleys, and anchor points so we will seek clarification from the Project Team whether they are to be retained or not.



7. **Removal of old automatic winding motors** – We will lift off the mesh guard from the front of the clock, tag it with a unique reference number and place to one side. We will remove the chain wheels and chains from the winding squares with Allen keys and spanners, tag them with a unique reference number and place to one side. We will then unbolt the dog clutch assemblies with spanners, tag them with a unique reference number and place to one side. Working under the clock we will unbolt the 3 motors with spanners, tag them with a unique reference number and place to one side. We do not intend to reuse the autowinder motors, dog clutches chains and chain wheels so will consult the Project Team whether they are to be retained.



8. **Removal of the night silencer actuators** – Working from the upper level of the Belfry we will undo the hammer wire from the hour bell night silencer actuators, unbolt them from the wall separately, using spanners. We will uniquely reference them and carry them down to the Mechanism room.



Working on the right-hand side of the clock we will protect the floor with Correx and then release the chiming hammer wires from the levers by hand. We will then unbolt the chiming actuators with spanners and wrap with a protective covering and place with the hour bell actuators ready for transportation to our workshops. Once these are removed, we will disconnect and remove all the hour bell linkages and cranks with spanners, hammer and pin punches. These will all be uniquely referenced and wrapped in a protective covering ready for transportation to our workshops.



9. **Removal of bottom pulleys and guarding** – Working in the Ringing Room, we will remove the mesh guards around the bottom pulleys each side of the pendulum housing using spanners and screwdrivers and set to one side. We will then unhook and remove the bottom pulleys. We will then unhook and remove the pulleys in the dial room which are used to divert the weight line diagonally across the tower. The pulleys and guards will not be reused, so we will uniquely reference them and place them at each side of the pendulum enclosure and seek clarification from the Project Team whether they are to be retained.



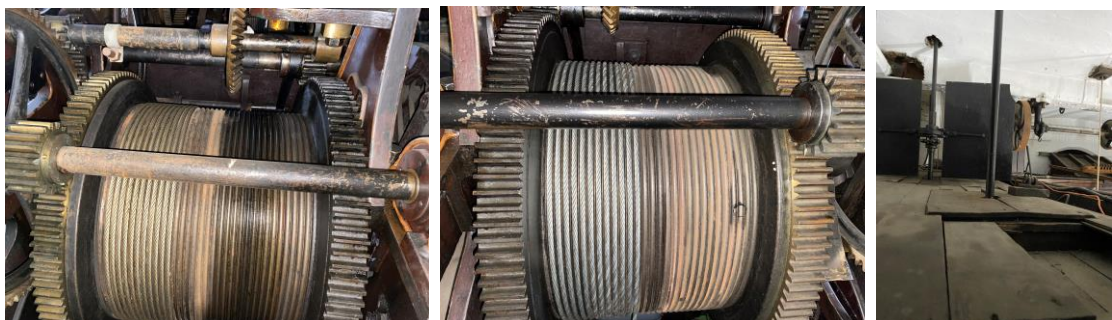
10. Sundry items relating to the original carillon machine.

We will look at all the items which have been stored in the mechanism room which relate to the original carillon machine with a view to identify what is there. We will give everything a unique reference number and consult the Project Team for guidance on what they wish us to do with it.



11. Dismantling the clock mechanism

We will remove the clock case doors, give them a unique reference number and move them to the designated door storage area on the other side of the mechanism room. We will utilise the hatches in the top of the clock case to pass strops through, through the ceiling and in to the belfry. We will suspend the slings from the bell frame. These will be our winching points to lower the barrels to the floor under the clock. Once the barrels are on the floor under, we will use the scaffold and lifting beam to lower them through the hatch down to the landing deck.

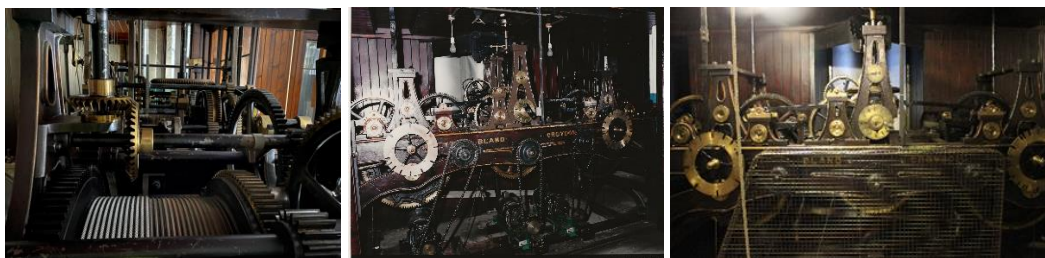




We will then carry out the following tasks using spanners, screwdrivers, Allen keys, lifting strops and a winch: -

- Remove fly fan and bearings from upper section of clock frame.
- Remove the gravity arms and double 3-legged escape wheel.
- Remove the Remontoire movement
- Remove the release cam arbour and associated bearings.
- Remove the setting dials and hands.
- Remove the drive shaft and bevelled gear and associated bearings.
- Remove the hour bell strike linkage.
- Remove the hour strike locking detent and arbour and associated bearings.
- Remove the fly fan drive shafts and associated bearings from the chiming and striking mechanisms.
- Remove all weight lines from all 3 drums.
- Remove winding brake mechanisms
- Remove all 3 drums and associated bearings (Lifting plan to be confirmed).

We will uniquely reference and tag all the components as they are removed. We will wrap all components in a protective covering and place in bespoke palletised transit boxes and crates for transit and storage. The 3 drums will have bespoke cradled pallets made for transportation to our workshops.





All bolts from the top of the clock frame will be kept in order as they are removed. We will drill holes in a piece of wood and transfer the bolts to the wood in order as they come out. We will then photograph it prior to shrink wrapping it so they cannot be misplaced.

The external hoists will be used to transport items down from our agreed holding areas.

We will have our own pallet truck and trolleys on site to enable us to move items to the external hoists. All lifting equipment will be LOLER inspected with a current certificate.

All components will be transported to our workshops in CCC transportation with full, goods in transit insurance.

All components will be wrapped with a protective covering and transported in crates or on bespoke stillages as appropriate. They will then be off loaded at the CCC workshops into locked and alarmed storage. All items will remain in their crates and on stillages while in storage and will only be removed for cleaning and restoration by The CCC team at our workshops.

This completes the removal of the clock installation from the tower.



The cleaning and repairs of the clock movement and associated parts will be covered in separate Technical Submissions as will the restoration of the dials, manufacture of the new winding system, works to the carillon and the re-installation.

MONITORING AND COMPLIANCE

The site supervisor will check and inspect on a regular basis that the works are progressing safely and in line with the Method Statement.

Employees signing sheet

We the undersigned have read and fully understand the plan of work for this project. Any queries, problems or areas not understood will be raised with the site supervisor for clarification.

Name	Signed	Date