



Discharge of Condition

Project Title: SIM Combined Projects | New Warehouse Project No: 9488
Subject: Discharge of Condition – CDN 23 Date: 04.03.2024 Page: 1 of 10

		Name:	Company
To:		Ellie Bird	Deloitte

Application number

138261/LO/2024

Condition reference

23) Notwithstanding the details as set out in condition 2 above, prior to any works being undertaken that require the use of the scaffold, if there has been any issues with the amount of joints approved in the documents listed, and if any joints will have to use face fixings instead, then further details must be provided to and approved by the City Council as Local Planning Authority before any further works that require the use of the scaffold are undertaken

Background, reason for alternate arrangement

As part of the installation of any scaffolding with connections into existing structures, pull tests must be undertaken to verify the capacity of fixings. In the case of the New Warehouse scaffolding, initial tests showed that capacities for a single fixing into mortar joints (as suggested in the consented drawings) did not provide adequate capacity for the highest loaded ties in scaffolding, which are located towards the head of the scaffolding. For lower level ties the consented proposals are adequate, but an alternative detail is required to allow safe installation of the ties between L2 and roof level. This is both for structural safety, and to avoid overloading ties which may then damage the historic masonry.

The proposals included in this discharge note are the most effective and least intrusive means of achieving this higher capacity. The proposed tie detail uses the same fixings as included in the consented drawings but includes a pair of fixings into the masonry at each tie location – connected by a shear plate. The fixed dimensions of the shear plate mean that whilst one of the pair of fixings can be placed into the masonry joint, the other must sit in the face of a brick. This also helps the connection achieve higher capacities as the brick is stronger than the mortar joint. To reduce the forces at each tie location, more tie locations have been specified to evenly distribute the force from the scaffolding, and positions of ties have been adjusted to minimise their impact on the existing building.

Building

The New Warehouse structure is of red brick with detail in blue brick and sandstone. The blue bricks are used for the plinth, keystones, bands between the floors and vertical strips extending to the windows and doors. The bricks are naturally weathered with imperfections, creases, fissures, and fractures with a variety of tones. It should be noted that there are localised areas of bricks that are defective, spalled / friable and these are to be carefully cut out and replaced on a like-for-like basis.

Proposal

Shear ties are required at eaves / raked gable level to the North and South elevations and at cantilever / base level to the North elevation to support the north passage. The shear tie locations are graphically represented by the cyan datum symbols, with fixings into mortar joints represented by red datum symbols. There will need to be a degree of flexibility with respect to final shear plate locations as the scaffold erection progresses to suit the loading requirements.

Drawings 24-BSD-944-01 P03 (dwgs 01-04 [combined]) show the revised full scaffold design and fixing layout / arrangement.

Except for the base and fan shear plate fixings to the North elevation, all other direct fixings into the masonry will be at high level.

There is no requirement for direct fixings or the use of shear ties to the East or West elevations of the New Warehouse, these will be push/pull ties into mortar joints only.

There will be no direct fixings into any stonework.

There will be two shear plates secured to every stanchion, these are spaced at every 1.8m width approximately.

The shear ties will be positioned in such a way that 1 of the fixings is directly into the mortar joint and 1 fixing is into the face of the brick unit. Therefore, of the two shear plates required to every stanchion, two of the four fixings will be into the face of the masonry, as illustrated on Fig.01.

Fig.01

Shear tie detail extract, illustrating proposed intent for shear tie fixings.

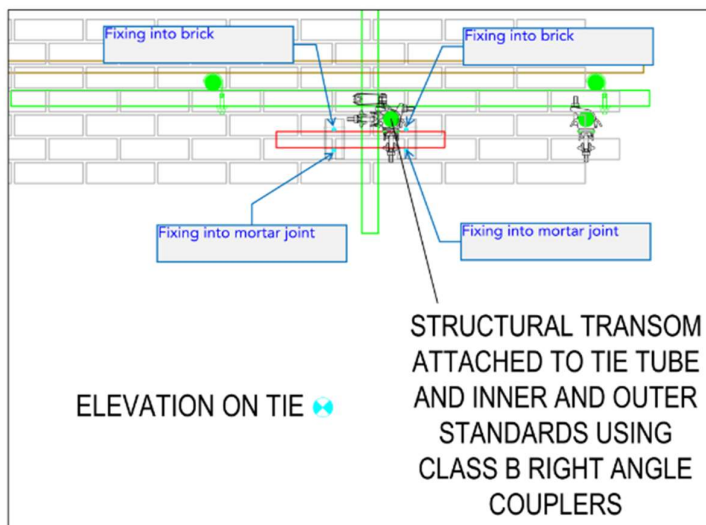


Fig.02

Shear tie position, before drilling to align holes in correct positions.



Fig.03

Holes drilled for inserting fixings. P= nylon scaffold anchor & S= self-tapping anchor



Fig.04

Fixing top right with apollo bolt self-tapping anchor into centre of brick. Pull test result = 20kN.

Note: pull out test data can be provided for all pull test presented upon request.



Fig.05

Fixing bottom right with nylon scaffold plug into mortar joint. Pull test result = 10kN.



Fig.06

Fixing top left with apollo bolt self-tapping anchor into centre of brick. Pull test result = 16kN.



Fig.07

Fixing bottom left with nylon scaffold plug into mortar joint. Pull test result = 13kN.



Fig.08

Photo showing fixings on wall.

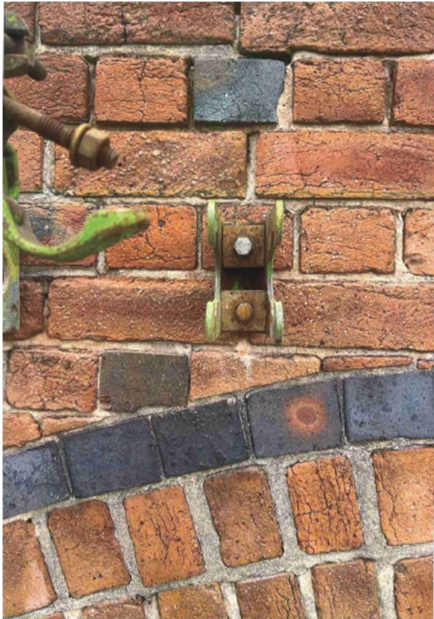


Fig.09

Completed shear tie installation.



Fig.10

Photo with shear ties and fixings removed after installation.

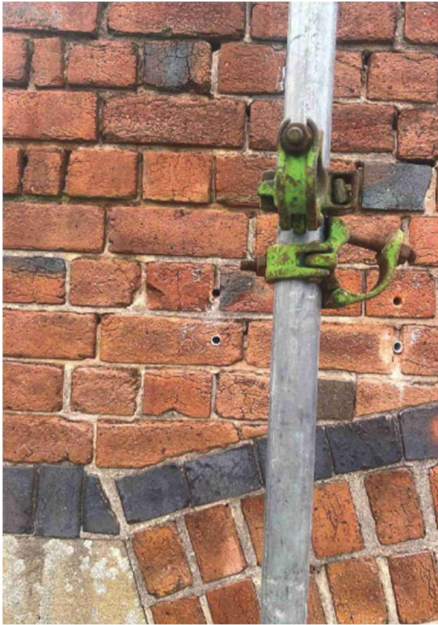


Fig.11

Hole post removal of fixing anchor into masonry unit.



Fig.12

Infilling of hole with specialist mortar / brick filler. Brick filler product is by Stonelux 'Brick Filler', which is a ready mixed, natural brick finish for interior and exterior use. Specially formulated to recreate the natural appearance of bricks. Data sheet to accompany document.



Fig.13

Sample hole infilled with specialist mortar / brick filler.

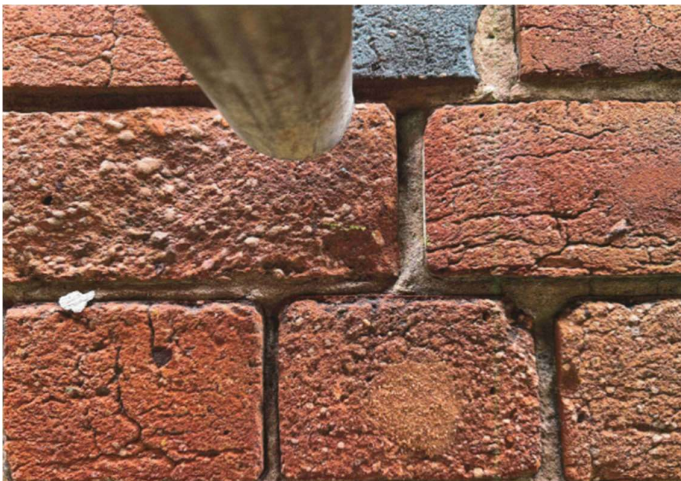


Fig.14

Sample hole infilled with specialist mortar / brick filler with brick filler swatch.



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