LINCOLN
CONSERVATION

Research and conservation of historic decorative schemes in the built environment



Project Name: Paint Analysis
Wythenshawe Former Bus Garage
Date: April 2025
Ref: 2025/06
Client: Atelier MB Ltd.

Report Author: Celeste Sturgeon

www.lincolnconservation.co.uk
info@lincolnconservation.co.uk
01522 835055

1.0: Introduction

i) Lincoln Conservation were commissioned by Andrew Burns of Atelier MB Ltd. to examine 3no. paint samples removed from three different locations on the exterior of the former Wythenshawe Bus Garage, Wythenshawe, Manchester.

ii) The three samples were removed in March 2025 by the client and sent to our lab at the University of Lincoln for cross sectional analysis to identify the historic paint schemes applied, and microchemical staining tests to determine the presence of lead in the decorative layers.

2.0: Method

i) The samples were mounted in polyester resin and polished to reveal the stratigraphy of the historic paints, and examined in cross section under a high-powered binocular microscope using both white light and ultra-violet illumination[1]. White light identifies the number of layers present, their colours and dirt layers between coatings providing an indication of the number of times the surface has been painted. Ultra-violet light causes different types of paint to fluoresce in a characteristic manner[2], helping to define the types of paint and varnishes applied. A solution of sodium sulphate was then applied to the surface of the mounted samples, which reacted with any lead present to form a dark brown or black stain, indicating which historic layers contained lead.

ii) Hi-resolution images (with scale) of annotated cross sections for all three sample sites are included in section 3.0. Ultra-violet is displayed on the left, and reflected white light on the right.

iii) Images of the building and sample locations are included in Section 4.0[3], with concluding comment in Section 5.0.

[1] Leica DM2700M optical microscope with Leica DFC 450C camera and long wavelength (380 – 580nm) UV generator.

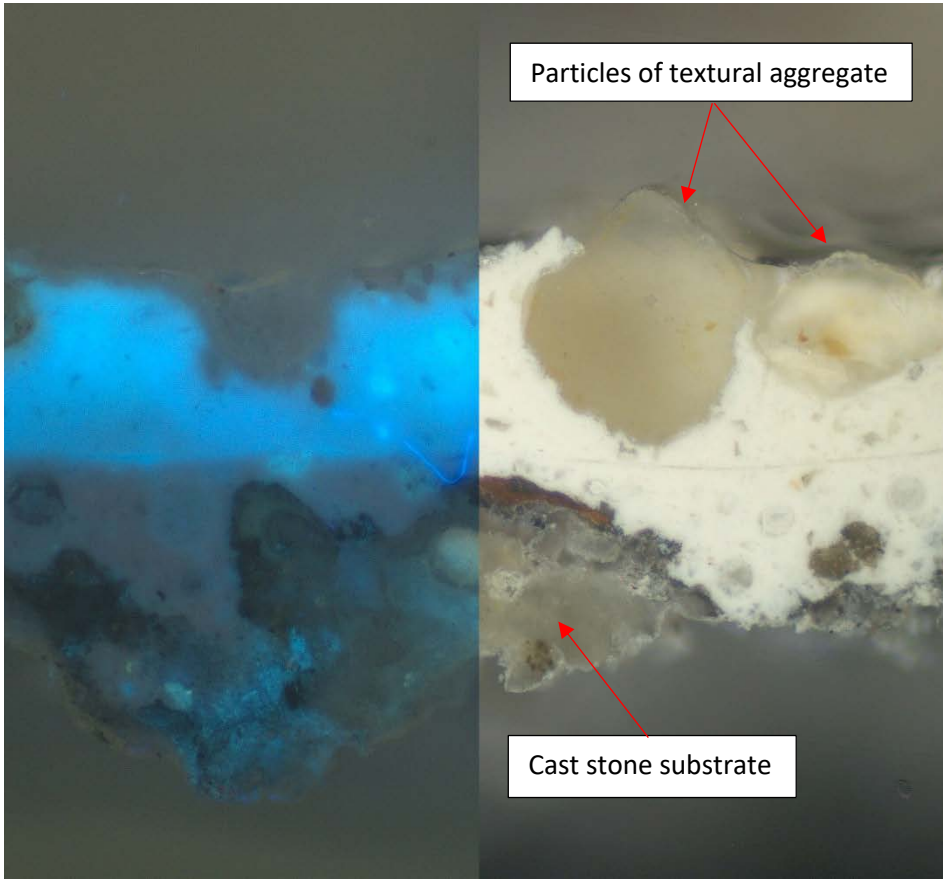
[2] Danielle Measday (2017) *A summary of ultra-violet fluorescent materials relevant to Conservation*. The Australian Institute for the Conservation of Cultural Material.

[3] Images provided by Paul Lodge in email communication to Amanda White on April 3rd, 2025.

© Lincoln Conservation, University of Lincoln 2025

3.0: Results (photomicrographs X100 mag.)

3.1: Sample 1 (Paint on Cast Stone – Location D)



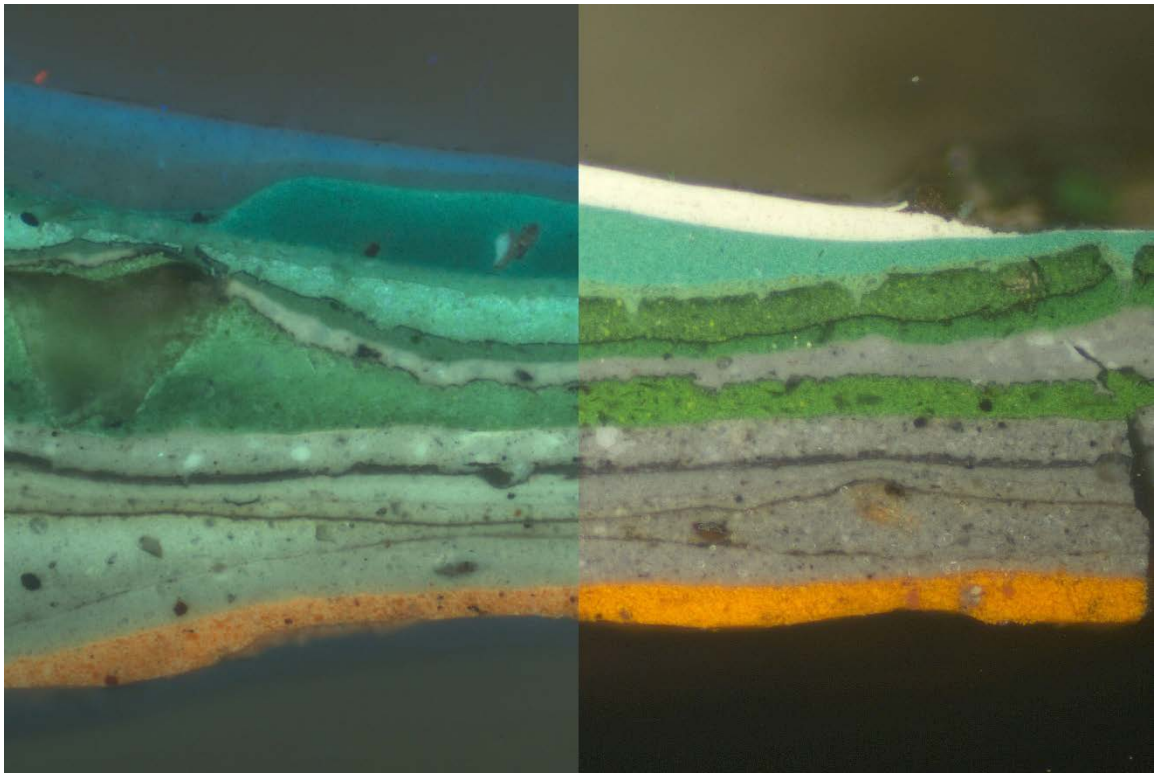
Two layers of modern white resin-based paints

Heavy dirt layer or coating residue

Sample 1 shows only two modern layers of white resin-based textured masonry paints. Below these is an uneven dark layer on the surface of the cast stone substrate, which may be a heavy dirt layer, or may be the remnants of an earlier coating that has mostly degraded or been stripped. No other traces of earlier layers survive, suggesting that the cast stone was either left unpainted originally, or has been comprehensively stripped at some point in the past.

© Lincoln Conservation, University of Lincoln 2025

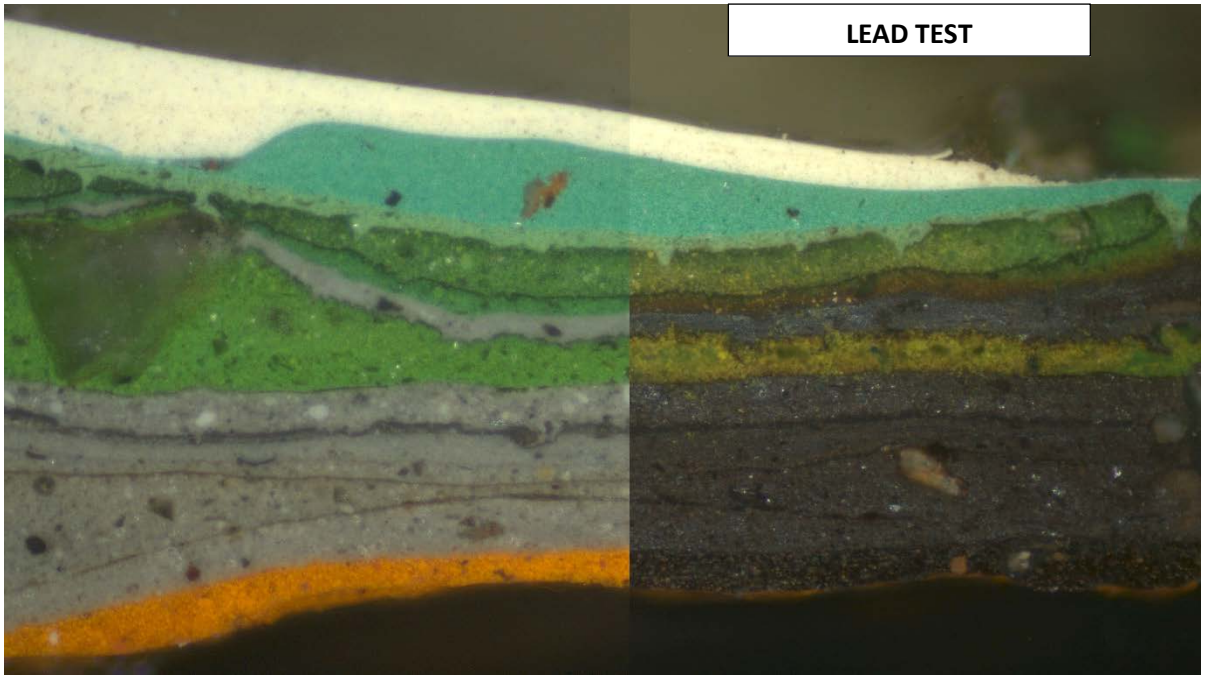
3.2: Sample 2 (Paint on Rainwater Pipe)



Sample 2 shows an early red lead primer layer (common for painting on metal in the 1st half of the 20th century), followed by three schemes of grey lead-based oil paints. These each show dirt layers between them, with the most substantial dirt layer after the last one, suggesting that the rainwater pipes were painted grey for a long period of time.

The grey schemes are followed by three schemes of mid-green lead-based oil paints, which also show dirt layers between them, as well as some cracking and wear to the surface, suggesting that they were in place for some time as well. The most recent schemes are a turquoise zinc-based paint, followed by a scheme of modern white resin-based primer and topcoat.

© Lincoln Conservation, University of Lincoln 2025

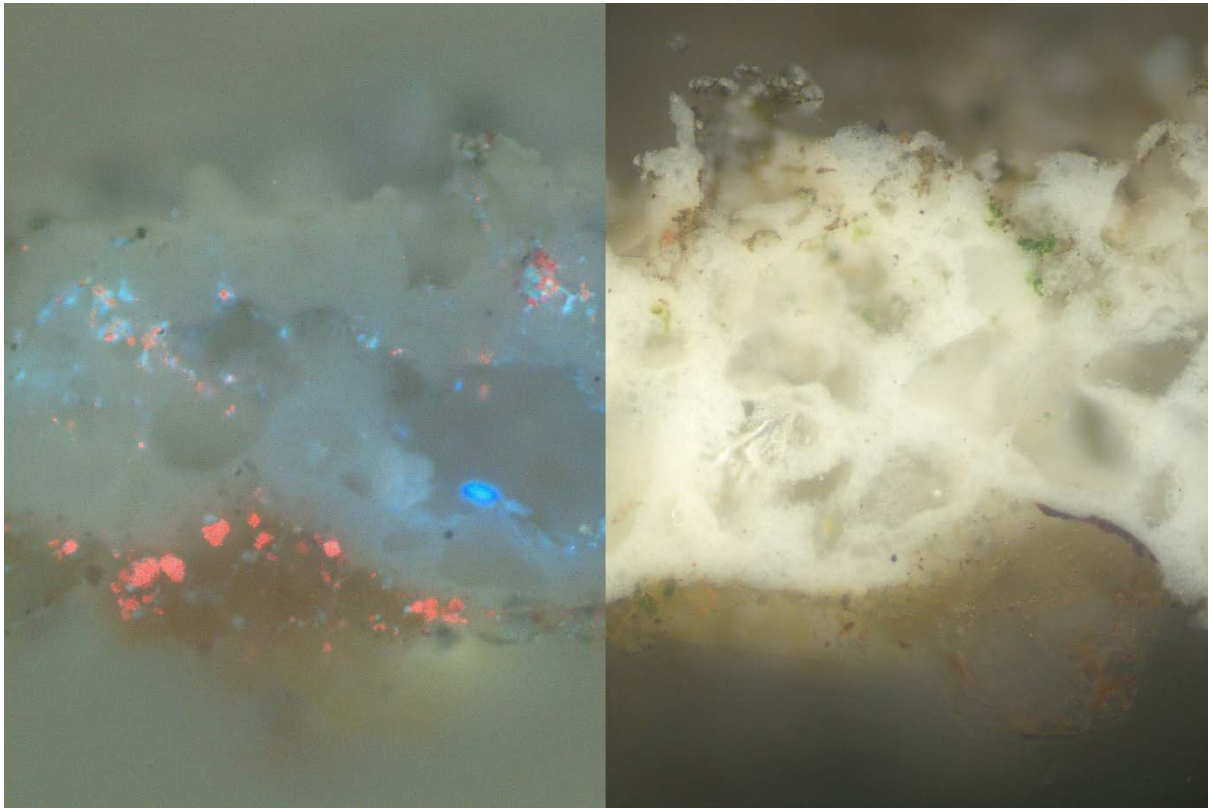


The same photograph of Sample 2 as above, but showing the results of the sodium sulphide staining test for lead.

The modern white and turquoise paints are unaffected, but the brown and black staining of the green and grey schemes, as well as the red primer layer, indicates the presence of significant amounts of lead in all of the early schemes.

© Lincoln Conservation, University of Lincoln 2025

3.3: Sample 3 (Paint on Render)



Modern off-white textured masonry paint

Traces of yellowish limewash or similar protective coating over particles of render

Sample 3 shows only two decorative schemes: a modern off-white textured masonry paint, and faint traces of a yellowish coating beneath it. This yellowish coating is the earliest extant decorative scheme, and may be an oil, tallow or casein-based limewash or similar protective coating for the render beneath. Due to the deteriorated state of this earlier coating, however, it is impossible to say whether it was the earliest decorative coating applied to the render.

© Lincoln Conservation, University of Lincoln 2025

4.0: Images of Sample Locations



1: Harling Road elevation of the former Wythenshawe Bus Garage, showing sample locations (image courtesy Paul Lodge, Atelier MB).



1: paint on cast stone



2: paint on rainwater pipe (metal)

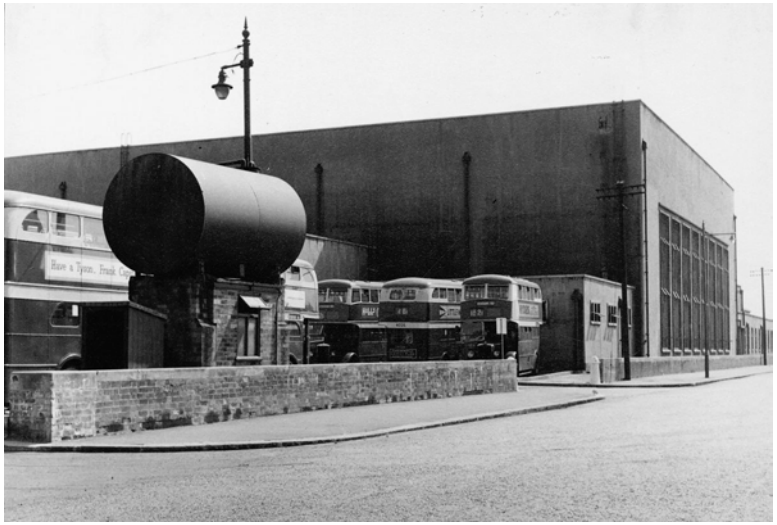


3: paint on render

© Lincoln Conservation, University of Lincoln 2025

5.0: Concluding remarks

i) The property is Grade II* listed[4], but while its revolutionary construction has been well-documented, very little information about its original decoration survives. Images from 1954 (in black and white) show the render as mid-toned, with the cast stone around the windows lighter, and the rainwater pipes darker (Fig. 2). This tonal relationship appears the same in an image from 1971 (Fig. 3). It should be noted that, in both images, a considerable amount of dirt is visible on the surfaces of the building – unsurprising, considering its use to house and repair vehicles.



2: Wythenshawe Bus Garage in 1954 (source: Manchester City Council Archives, m56953



3: Wythenshawe Bus Garage in 1971 (source: Manchester City Council Archives, m47449)

ii) Sample 1 (from the cast stone around the windows) only shows the modern layers of white paint, and a heavy dirt layer beneath; this may suggest that the window surrounds were originally left unpainted, or that any earlier coatings have been comprehensively stripped.

iii) Sample 2 (from the rainwater pipe) shows many more layers, beginning with a red lead primer layer, followed by several schemes of grey lead oil paints, and then several schemes of green lead oil paints. This suggests that the exterior pipes were originally grey, and that this colour was renewed twice before the colour was changed to green. This may correlate to

[4] https://historicengland.org.uk/listing/the-list/list-entry/1389256

© Lincoln Conservation, University of Lincoln 2025

the dark appearance of the pipes in the 1954 image, suggesting that the render and cast stone were both lighter than this mid-grey.

iv) Sample 3 (from the rendered brick exterior) shows only 2 layers: a modern off-white masonry paint, and traces of a yellowish coating, which may be a limewash or other protective coating applied to the render. Whilst no earlier decorative treatments appear in the sample, it may be that they were stripped at some point in the past, or that the render was left unpainted when the Bus Garage was first built.

v) Although the information available in the extant decorative layers (especially in Samples 1 and 3) is rather scanty, there may be several reasons for this. Firstly, when the building was first finished during WW2, materials were in short supply, and it's possible that any surfaces that could be safely left unpainted (e.g. render and cast stone) were left bare for the early years of the building's life. Only the metal pipework would have needed the protective properties of paints, and this can be seen in the greater number of layers in Sample 2. Also, as a site of wartime manufacturing near a major city, it's unlikely that any major part of the building would have been painted white, as this would have increased its visibility to enemy bombing campaigns; as a result, the current use of white on some surfaces is unlikely to be historically accurate.

vi) Lastly, the nature of the building's use (for large motor vehicles) means that it likely experienced more than usual levels of air pollution, causing an increase of dirt build-up on the exterior surfaces. This can be seen in both archival photos, as well as in the dirt layers visible in the samples provided. This may have in turn led to more frequent and/or more comprehensive campaigns of stripping and refinishing of the exteriors compared to other buildings of this period. In addition, this makes it doubly unlikely that the exteriors were originally painted white, as this colour would show the dirt more than any other, necessitating more frequent redecoration.

© Lincoln Conservation, University of Lincoln 2025

HISTORIC MATERIALS ANALYSIS



HISTORIC INTERIORS



ARCHITECTURAL CERAMICS AND TILES



OBJECT CONSERVATION



DIGITAL HERITAGE



LINCOLN
CONSERVATION

www.lincolnconservation.co.uk
info@lincolnconservation.co.uk
01522 835055

UNIVERSITY OF
LINCOLN

Lincoln Conservation is a specialist research and consultancy centre within the University of Lincoln.