

Project name	Plaza Port Talbot		
Design note title	Assessment of Retaining Wall to Eagle Mews		
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This technical note details the structural assessment of the existing retaining structures bordering the Plaza, Port Talbot site, specifically to Eagle Mews, and unclassified dead-end road serving existing residential properties.

1. EXISTING RETAINING WALLS - FORM

The existing retaining walls to Eagle Mews take two distinct forms:

- Wall A - An RC wall with RC piers of unknown construction type (i.e. embedded or bearing/cantilever) running broadly north-south directly adjacent the existing building (now demolished)
- Wall B - A brick masonry wall, assumed to be of mass construction, running from the north end of Wall A and following the Eagle Mews road line, eventually terminating at the intersection with Eagle Street

These distinct forms are illustrated below:



Both walls retain Eagle Mews, and have mixed soft and hard landscaping directly behind them, including areas of parking.

Wall A has a maximum retained height of approximately 1.2m, with the majority of the wall retaining significantly less.

Wall B has a maximum retained height of approximately 1.0m, with the majority of the wall retaining significantly less (or indeed not retaining at all).



2. EXISTING RETAINING WALLS - CONDITION

Wall A is generally in a fair to poor condition, with signs of concrete defects including spalling and exposed reinforcement throughout the length, consistent with similar defects observed to the existing building prior to demolition. However, the wall shows little to no signs of deformation via leaning or bowing. The above retained ground elements are of differing construction, including railings, blockwork and concrete wall, none of which are in particularly good structural condition.

Wall B is generally in good condition, showing little to no structural defects, aside from some minor cracks and localised displacement of upper bricks.

3. DEVELOPMENT PROPOSALS

The proposed development involves the demolition of the rear auditorium portion of the existing building, and replacement with a new structure, occupying the same footprint. The rear car park will be upgraded to serve the development. Furthermore, the alley that Wall A creates to Eagle Mews will be reduced in level to provide a DDA compliant escape route from different areas of the building, as well as housing proposed foul and surface water drainage from the new building.

The ground conditions on site have resulted in deep concrete pad and strip foundations for the proposed structure, whereas constraints around drainage, particularly the foul drainage exiting towards Talbot Road via the Eagle Mews "alley" create some deep drainage runs within the "alley". Finally, the proposals included reducing the levels in front of Wall A (and part of Wall B), thereby increasing the retained height and load upon the wall in the permanent condition.

The combination of these factors, along with unknown founding level of the existing walls, particularly Wall A, led to proposals for a new retaining wall adjacent Eagle Mews as part of the submitted planning application,

albeit with a caveat to make an assessment of the existing structures post-demolition of the building and prior to works to the walls. The proposals included in the planning application are included in Appendix A.

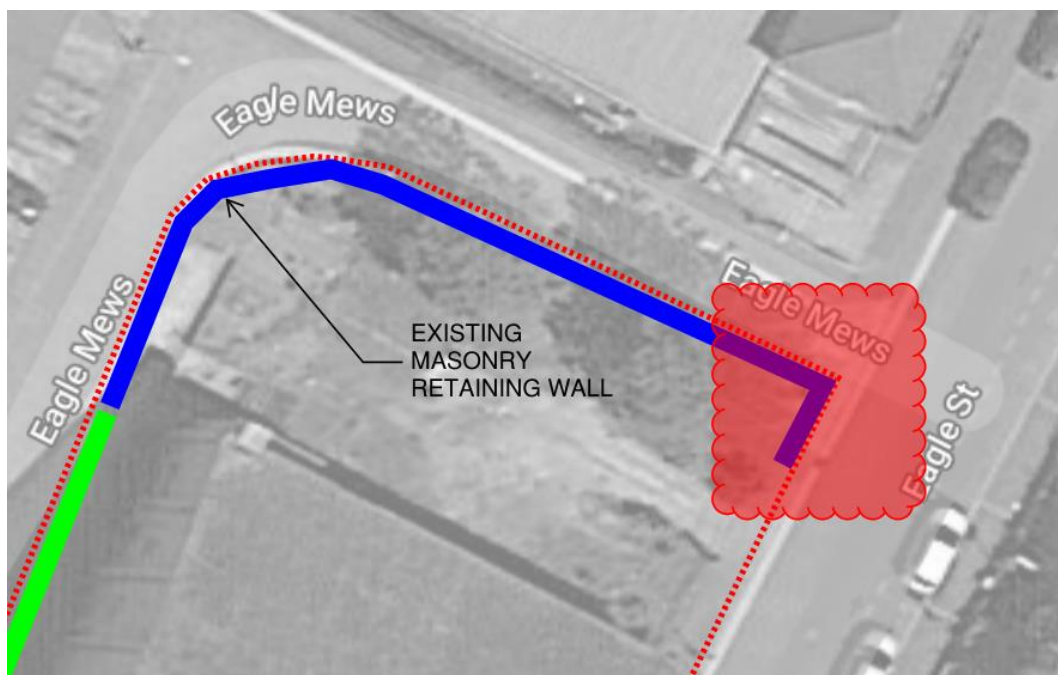
4. STRUCTURAL ASSESSMENT

Prior to any potential intrusive investigations into the walls themselves, the ground conditions directly behind the wall were first investigated to ascertain their properties, and any potential to treat the soils, thereby relieving load from the existing wall, and allowing a small increase in retained height in line with the proposals. Quantum Geotechnical were engaged to excavate a trial pit on site and provide an assessment. Their report is included in Appendix B.

In the intervening period while construction continued, a series of investigations, to include trial pits (for Walls A and B) and concrete investigations (for Wall A) were planned. However, these investigations were never undertaken, as explained in the subsequent section.

5. CONSTRUCTION OPERATIONS AND CURRENT SITUATION

In order to facilitate site access and demolition, part of the existing retaining wall where Eagle Mews meets Eagle Street has been removed, as indicated below.



During excavation operations to install foundations for the proposed building adjacent Eagle Mews, the existing Wall A was closely monitored given its unknown construction. During these operations, which included deep excavations, sections of the wall became unstable due to the unforeseen poor ground conditions at depth, requiring removal of a small section. Upon removal of this section, it became obvious that the wall was a) very thin in its construction and b) had no actual foundation, and instead the wall appeared to be a facing to the ground behind, as shown in the photo below.

In addition to the above, operations including demolition, stockpiling of materials and foundation excavations have resulted in collateral damage to Wall B. Furthermore, the anticipated construction operations to create the new car park - including drainage, bin store and surfacing - and the risks associated with the existing wall given the serious construction defects observed with Wall A, it is our recommendation that Wall B is also replaced.



Following this discovery, and as works progressed, it became apparent that the entire Wall A was similarly built, was deemed to be unsafe, and subsequently removed.

As such, the current situation on site is that there is no retaining wall present for the length of the former Wall A, and requires replacement.

6. UPDATED PROPOSALS

As part of the excavations for the foundations, and following removal of the existing wall, the area near Wall A was flooded with foundation concrete in order to ensure that a stable base could be provided for the new retaining wall without significant re-excavation.

Given the information herein, and in line with the planning application submitted and approved, the existing retaining walls (Wall A and Wall B) adjacent Eagle Mews will be replaced in their entirety to facilitate the development, and to ensure the on-going integrity of Eagle Mews itself.